



RCA Victor



SERVICE DATA

REVISED and ABRIDGED EDITION

VOLUME II

1938 · 1942

RADIO RECEIVERS · PHONOGRAPHS · TELEVISION

RADIO CORPORATION OF AMERICA

RCA Victor Division

Camden N. J., U. S. A.



RCA-Victor Service Notes Volume II

Radio Receivers—Phonographs—Television

This Volume covers Notes previously issued for the years
1938 to 1942 inclusive

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN, N. J., U. S. A.

COMPLETE INDEX

TO

RCA-VICTOR SERVICE NOTES

1923 to 1942 inclusive

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For Replacement Parts Price, refer to Dealers Parts Price List
obtainable from your RCA Parts Distributor

Note: Second production models may often be identified by the letter "A" following the model number on the cabinet label. Third production may likewise be identified with the letter "B".

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2-65	Portable Victrola		15A	R-5 D.C.			23A
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O-2	Portable Victrola		20C	Radiola P-5	RC-465, RC-1020B		83C
QB2	RC-529		23C	T5	Record Player		25A
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4QB4	RC-440A		44C	6QU	RC-414		62C
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8QBK	RC-336		206C	Radiola IX			10A
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HF-8	RC-331	810C	124C	10T		249B	196B
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PSU-8E	Power Unit		213C	10T11		249B	196B
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VE9-25	(Victor) (AR-1050)		112A	11QK	RC-335C	810C	302C
VE9-40	Borgia (Victor)		112A	11QU	RC-335E	698C	302C
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12QU	RC-338A	698C	313C	RE-20			77A
		810C		U-20	RC-498		384C
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15U		275B	241B	25BP	RC-527D, RC-1020		83C
		249B		25BT2	RC-1004A		407C
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15X (2nd Prod.)	RC-1011		341C	25X	RC-1003		1C
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U-30	RC-335KR	698C	444C	46X23	RC-461A		496C
		810C		46X24	RC-461		496C
V-30	(Victor) Portable Victrola		249A	U-46	RC-501	698C	498C
P-31			128A			810C	
Q31	RC-538C		438C	47	Radiola 47 (AR-1147)		171A
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R-35	(Victor)		151A	QU-52M	RC-507N	726C	516C
36X	RC-462A		337C	R-52	(Victor)		138A
36X (2nd Prod.)	RC-1011		341C	R-53-B			295B
R-37			290B	55X	RC-1003C		520C
R-37-P			292B	BP-55	RC-455		522C
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RE-40-P			282B	60	Radiola 60 (AR-954)		176A
U-40	RC-498A	698C	384C	K-60	RC-415		531C
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41 D.C.	Radiola 41 D.C. (AR-871)		161A	M-60	RC-357K		222C
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BT41	RC-449		458C	T-60	RC-425		543C
42	Radiola 42		60A	X-60	RC-474D		546C
BK-42	RC-408C		458C	K-61	RC-498F		548C
BT-42	RC-408A		458C	62	Radiola 62 (AR-982)		176A
CV-42	Power Unit		404C	K-62	RC-415B		537C
U-42	RC-498B	698C	384C	T-62	RC-425D		543C
R-43			163A	T-63	RC-472F		551C
U-43	RC-498E	698C	384C	64	Radiola 64 (AR-894)		180A
44	Radiola 44 (AR-594)		164A	T-64	RC-416		554C
Q44	RC-531		462C	T-65	RC-416		554C
U-44	RC-486B	698C	467C	66	Radiola 66 (AR-598)		187A
45E Series	RC-435A		475C	67	Radiola 67 (AR-1168)	187A	191A
45X	RC-459L		477C	67M			297B
45X-1, -2	RC-457, RC-457A		481C	67M1			297B
45X-3, -4	RC-457E		481C	67M2			297B
45X-5, -6	RC-457D		484C	67M3			297B
45X11, -12	RC-459, RC-459D, RC-459T		477C	RAE-68		215A	195A
45X13	RC-459A, RC-459E		477C			250A	
45X16	RC-459M		486C	M-70	RC-394		560C
45X17	RC-459M		486C	R-70			198A
45X18	RC-541C		489C	R-71			304B
45X111, 112	RC-459J		486C	R-71-B			307B
45X113	RC-459K		486C	R-72			304B
RE-45	(Victor)		138A	R-73			310B
U-45	RC-486C	698C	467C	R-73A			313B
46	Radiola 46 (AR-596)		164A	RE-73			151A
46 D.C.	Radiola 46 D.C. 110-Volt (AR-597)		169A	R-74			200A



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R-75			310B	94BK1	RC-333B		576C
R-75A			313B	94BK2	RC-390		578C
RE-75	(Victor)		138A	94BP-61, -62, -64, -66, -80, -81	RC-407, RC-407B		582C
R-76			200A	94BP4 Series	RC-410		585C
R-77			200A	94BT	RC-333		574C
R-78			207A	94BT1	RC-333B		576C
R-78SW	R-78 with SW-3 Converter			94BT2	RC-390		578C
RAE-79		250A	77A	94BT6	RC-333A		587C
RS-79	Power Unit		610C	94BT61	RC-333C		589C
80	Radiola 80		215A	94X	RC-332		591C
K-80	RC-415A		531C	94X-1, -2	RC-340		591C
K-80 (2nd Prod.)	RC-415C, 415D		537C	R-94	Record Player		385B
RE-80			310B	R-94B	Record Player		594C
T-80	RC-416A		554C	95FT	See Model 5Q1		
K-81	RC-415C		537C	95T	RC-323		595C
RE-81			200A	95T1	RC-323		595C
RE-81SW	RE-81 with SW-3 Converter			95T5	RC-348		597C
82	Radiola 82		215A	95T5LW	RC-348F		601C
K-82	RC-415C		537C	95X	RC-345D		603C
84BT		624B	315B	95X1	RC-345C		605C
84BT6			315B	95X6	RC-381A		603C
RAE-84		250A	207A	95X11	RC-381		605C
RAE-84SW	RAE-84 with SW-3 Converter			95XL	RC-345E		603C
85BK			319B	95XLW	RC-345F		608C
85BT			319B	R-95	Electric Phonograph		392B
85BT6	RC-316		323B	96BK6	RC-392		610C
85E			326B	96BT6	RC-392		610C
85K			330B	96E	RC-348C		597C
85T			333B	96E2	RC-351L		614C
85T1			330B	96K	RC-351		619C
85T2			333B	96K2	RC-351B		627C
85T5			336B	96K5	RC-351L		614C
85T8			339B	96K6	RC-351L		614C
BP85	RC-455		522C	96T	RC-348A		597C
86	Radiola 86		215A	96T1	RC-348D		597C
86BK			342B	96T2	RC-351		619C
86BT			342B	96T3	RC-351B		627C
86E			346B	96T4	RC-399		632C
86K			346B	96T5	RC-399		632C
86K7			346B	96T6	RC-399A		632C
86T			346B	96T7	RC-351L		614C
86T1			346B	96X-1 to -4	RC-400		635C
86T2			351B	96X-5	RC-490		637C
86T3	RC-315		351B	96X-11 to -14	RC-400A		635C
86T4			354B	R-96	Electric Phonograph		395B
86T6	RC-315B		564C	97E	RC-351A		627C
86T44			354B	97K	RC-351F		619C
86X			358B	97K2	RC-351K		614C
86X4			361B	97KG	RC-351A		627C
87EY			364B	97T	RC-351A		627C
87K			346B	97T2	RC-351K		614C
87K1	RC-319		368B	97X	RC-349		597C
87K2	RC-319		368B	97Y	RC-352A		628C
87T			346B	R-97	Electric Phonograph	434B	395B
87T1	RC-315A		351B	98EY	RC-352		628C
87T2	RC-319		368B	98K	RC-335A		444C
87X			364B				810C
87Y			364B	98K2	RC-386A		409C
88K			372B	98T	RC-386A		409C
88U			372B	98T2	RC-352D		649C
88U2			372B	98X	RC-352		628C
R-89	Electric Phonograph		568C	98YG	RC-352		628C
R-90			378B	R-98	Electric Phonograph		652C
R-90-P			378B	99K	RC-335B		444C
TRK-90	Television Receiver		251C				810C
R-91	Electric Phonograph		569C	99T	RC-335H		444C
R-91-B			382B				810C
R-92	Recorder		383B	R-99	Electric Phonograph		398B
R-93	Record Player		385B	100			405B
R-93-2	Record Player		385B	100	Loudspeaker (UZ-915)		228A
R-93-A	Record Player		385B	100-A	Loudspeaker (UZ-1076 and UZ-1078)		228A
R-93-B	Record Player	572C	571C	100-B	Loudspeaker (UZ-783)		228A
R-93-C	Record Player	572C	571C	R-100	Record Player		572C
R-93-F	Record Player (also Radiola R-93-F)		572C	V-100	RC-517		654C
R-93-S	Record Player		385B	101			405B
94BK	RC-333		574C				

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M-101			409B	U-130	RC-354	698C	14C
U-101			414B			810C	
V-101	RC-540		656C	RP-132	Automatic Record Changer		698C
102			419B	U-132	RC-331C	698C	124C
102	Loudspeaker (UZ-913)		228A			810C	
U-102E			326B	U-134	RC-331B	698C	124C
V-102	RC-524		658C			810C	
103			405B	135-B			122B
103	Loudspeaker (UZ-749)		228A	E-135	(Victor Electrola) R-32 Amp. and Speaker.		
R-103S	Record Player		661C				
U-103		434B	414B	V-135	RC-517H		708C
104	Loudspeaker (UZ-914)		229A	RP-139	Automatic Record Changer		698C
104 D.C.	Loudspeaker		229A	RP-140	Automatic Record Changer		698C
M-104			409B	140			509B
U-104	RC-354H		662C	V-140	RC-572A	737C	710C
105	Loudspeaker (UZ-1082)		231A	141			509B
K-105	RC-476		669C	141-E			509B
M-105			420B	142-B			517B
U-105		434B	423B	143			520B
V-105	RC-517C		668C	RP-145	Automatic Record Changer		698C
106	Loudspeaker (UZ-642)		233A	RP-151	Automatic Record Changer		713C
U-106	RC-319B	435B	429B	E-152	(Victor Electrola) R-32 Amp. and Speaker.		
M-107			437B				
U-107		435B	423B	RP-152	Automatic Record Changer		726C
M-108			409B	RP-153	Automatic Record Changer		726C
U-108		435B	441B	RE-154	(Victor) similar to RE-45.		
		619B		RP-155	Automatic Record Changer		726C
M-109			449B	RE-156	(Victor) similar to RE-45.		
U-109		435B	441B	RP-157	Automatic Record Changer		726C
		619B		RP-158	Automatic Record Changer		737C
110			453B	RP-160	Automatic Record Changer		737C
110K	RC-513		670C	RP-161	Automatic Record Changer		737C
110K2	RC-513		670C	RP-162	Automatic Record Changer		737C
CV-110	Power Unit		34C	V-170	RC-523	726C	749C
111			453B	V-175	RC-582	737C	753C
111K	RC-513A		673C	V-200	RC-519	726C	756C
CV-111	Power Unit		44C	V-201	RC-522	726C	756C
U-111	RC-341, RC-341M		677C	VHR-202	RC-548	726C	761C
112			457B	V-205	RC-521	726C	771C
112-A			457B	VHR-207	RC-547	726C	761C
CV-112	Power Unit		23C	V-209	RC-573	737C	775C
CV-112X	Power Unit		87C	210			453B
U-112	RC-341C, RC-341CM		677C	V-210	RC-573A	737C	775C
114			279B	211			465B
115			453B	211K	RC-571		779C
U-115	RC-348E		680C	VHR-212	RC-574	737C	782C
M-116			459B	214			462B
117			462B	V-215	RC-564	737C	789C
118			465B	V-219	RC-564A	737C	789C
119			471B	220			530B
U-119	RC-351E	628C	683C	221			474B
120			292B	V-221	RC-564	737C	789C
TRK-120	Television Receiver		251C	222			530B
121			474B	223			533B
U-121	RC-348J		687C	224			497B
122			474B	224E			504B
U-122E	RC-351D	628C	683C	225			484B
UY-122E	RC-352B	640C	692C	V-225	RC-564B	713C	789C
M-123			480B	226			497B
U-123	RC-348H, RC-421	698C	687C	235-B			122B
124			292B	236-B			537B
U-124	RC-351C	628C	683C	240			509B
UY-124	RC-352C	640C	692C	240-E			509B
125			484B	241-B			517B
U-125	RC-386	698C	694C	242			520B
		628C		243			520B
126-B			488B	260			378B
U-126	RC-335D	810C	444C	261			378B
127			491B	262			540B
U-127E	RC-348L		687C	263			540B
128			497B	280			550B
128E			504B	281			559B
U-128	RC-335D	698C	444C	300			574B
		810C		V-300	RC-518	726C	794C
U-129	RC-335K	698C	46C	301			405B
		810C		V-301	RC-518A	726C	794C
K-130	RC-501A		498C	V-302	RC-518A	726C	794C

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310		761C	453B	AR-885	Radiola V		
320			474B	AR-891	Radiola 18 D.C.		
321			474B	AR-892	Radiola 62		
322			497B	AR-894	Radiola 64		
322-E			504B	AR-895	Radiola VI		
327			491B	AR-903	Radiola 51 D.C.		
330			576B	AR-904	Radiola 51		
331		570B	576B	AR-906	Radiola 30A (25 cy.)		
340			509B	AR-910	Radiola 50		
340-E			509B	910KG	RC-335F	810C	444C
341		570B	520B	911K	RC-335	810C	804C
342			520B	AR-912	Radiola 30A D.C.		
380		570B	550B	UZ-913	Loudspeaker 102		
380-HR		570B	550B	UZ-914	Loudspeaker 104		
381		570B	559B	AR-918	Radiola 20		
V-405	RC-521B	726C	771C	AR-919	Radiola 25		
VHR-407	RC-547A	726C	761C	AR-920	Radiola 28		
Radiola 500	RC-464		481C	AR-921	Radiola 30		
Radiola 501	RC-464		481C	AR-924	Radiola 16		
Radiola 510	RC-459		486C	AR-925	Radiola 32		
Radiola 510 (2nd Prod.)	RC-1003B		1C	AR-926	Radiola 30A		
Radiola 510 (3rd Prod.)	RC-1003D		1C	AR-927	Radiola 17		
Radiola 511	RC-464A		486C	AR-928	Radiola 32 D.C.		
Radiola 511 (2nd Prod.)	RC-1003B		1C	AP-935	Power Amplifier (Uni-Recton)		235A
Radiola 512	RC-464B		486C	AR-936	Radiola 18		
Radiola 513	RC-464B		486C	AP-937	"B" Battery Eliminator (Duo-Recton)		235A
Radiola 515	RC-1000C		357C	AR-954	Radiola 60		
Radiola 515 (2nd Prod.)	RC-1014A		416C	AR-969	Radiola 28 D.C.		
Radiola 516	RC-1001C		291C	AR-981	Radiola 18 D.C.		
Radiola 517	RC-1001C		291C	AR-982	Radiola 62		
Radiola 520	RC-1003D		1C	AR-1050	Victor 9-25		
Radiola 522	RC-1001C, RC-1022A		291C	AR-1055	Victor 9-55		
Radiola 526	RC-1001E		324C	AR-1058	Victor 7-10		
Radiola 527	RC-1001E		324C	AR-1059	Victor 7-25		
Radiola R-560P	RC-517F		668C	AZ-1071	Victor 10-51		
Radiola R-566P	RC-517J	737C	708C	AZ-1073	Victor 10-70		
AR-594	Radiola 44			AZ-1077	Victor 12-15		
AR-596	Radiola 46			AP-1080	"B" Eliminator		236A
AR-597	Radiola 46 D.C.			UZ-1082	Loudspeaker 105		
AR-598	Radiola 66			AR-1145	Short Wave Receiver		237A
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690	(Victor) Radiola 82 with Aut. Rec. Changer			AR-1168	Radiola 67		
AR-742	Victor 7-11			AR-1258	Radiola 21		
AR-744	Victor 7-26			AR-1265	Radiola 22		
AZ-744	Victor 12-15			AR-1300			238A
AR-745	Victor 9-16			AA-1400	Detector Amplifier		238A
AZ-773	Victor 10-69			AA-1520	Radio Frequency Amplifier		238A
AR-775	Victor 9-54			MI-8122	Power Unit		34C
AR-775A	Victor 9-56			9606	Beat Oscillator		623B
AR-776	Victor 9-18			9800	Automatic Record Changer		434B
AZ-781	Victor 10-50			9820	Automatic Record Changer		435B
AR-782	Radiola 41			9844	Automatic Record Changer		698C
AR-784	Radiola 33			41918	Victrola Junior		572C
AR-800	Radiola II			AC	Radiola		2A
AR-804	Radiola 24			AR	Radiola		1A
AR-805	Radiola III			Balanced Amplifier	Radiola		4A
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AR-810	Radiola Super VIII			Crystal Pickups	Tabulation		XII
810K			581B	Fuse Data			XV
810K1			581B	Grand	Radiola		3A
810T			581B	Phonograph Motors	Governor Type		703C
810T4			585B	Phonograph Motors	Induction Disc and Universal		248A
811K		619B	589B	Phonograph Motors	Tabulation		XIII
811T		619B	589B	RC	Radiola		1A
812K		619B	595K	Regenoflex	Radiola		11A
812X			601B	RS	Radiola		2A
813K		619B	606B	RT	Radiola		1A
816K		619B	612B	Short Wave Adaptor	Radiola		234A
AR-871	Radiola 41 D.C.			SR	Radiola		2A
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				Supplementary Data			813C
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RC-319	87K2, 87T2	RC-357J	M-50	RC-444A	9QK
RC-319B	U-106	RC-357K	M-60	RC-449	BK-41, BT-41
RC-320	8M1	RC-366	5Q4	RC-453	40X-52, 40X-55 (2nd Prod.)
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RC-321A	8M4	RC-386	U-125	RC-456	46X-11, 46X-12
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RC-325C	5Q2	RC-386B	U-25, U-26	RC-457	45X-1, 45X-2
RC-325D	5Q2X	RC-390	94BK2, 94BT2	RC-457A	45X-1, 45X-2 (2nd Prod.)
RC-331	HF-8, HF-8A	RC-392	96BK6, 96BT6	RC-457D	45X-5, 45X-6
RC-331A	HF-6	RC-394	M-70	RC-457E	45X-3, 45X-4
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RC-331C	U-132	RC-396B	5Q8	RC-459A	45X-13
RC-332	94X	RC-396D	5Q12	RC-459B	46X-1, 46X-2
RC-333	94BK, 94BT	RC-396E	5Q12A	RC-459C	46X-3
RC-333A	94BT6	RC-399	96T4, 96T5	RC-459D	45X-11, 45X-12 (2nd Prod.)
RC-333B	94BT1, 94BK1	RC-399A	96T6	RC-459E	45X-13 (2nd Prod.)
RC-333C	94BT61	RC-400	96X-1 to 96X-4	RC-459F	46X-1, 46X-2 (2nd Prod.)
RC-335	911K	RC-400A	96X-11 to 96X-14	RC-459H	46X-3 (2nd Prod.)
RC-335A	98K	RC-401	9TX-1 to 9TX-5	RC-459J	45X-111, 45X-112, Radiola 510
RC-335B	99K	RC-403	9TX-21, 9TX-22	RC-459K	45X-113
RC-335C	11Q4, 11QK	RC-403A	9TX-23	RC-459L	45X
RC-335D	U-126, U-128	RC-404A	U-8	RC-459M	45X-16, 45X-17
RC-335E	11QU	RC-405	9TX-31	RC-459T	45X-11, 45X-12 (3rd Prod.)
RC-335F	910KG	RC-405A	9TX-32	RC-461	46X-24
RC-335H	99T	RC-405B	9TX-33	RC-461A	46X-23
RC-335K	U-129	RC-405C	40X-30	RC-461B	46X-21
RC-335KR	U-30	RC-405D	40X-31	RC-462	15X
RC-336	8QB, 8QBK	RC-406	5X5-W	RC-462A	16X-1, 16X-2, 36X
RC-337	8Q1	RC-406A	5X5-1	RC-462B	16X-3
RC-337A	8Q4	RC-407	94BP-1 Series (94BP-61, -62, -64, -66, -80, -81)	RC-462C	16X-4
RC-337B	10Q1	RC-407B	94BP-1 (2nd Prod.) (94BP-61, -62, -64, -66)	RC-464	Radiola 500, 501
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RC-341C	U-112	RC-414A	6Q7	RC-473A	X-55
RC-345C	95X-1	RC-414B	6Q8, 6QK8	RC-474D	X-60
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RC-345E	95XL	RC-415	K-60	RC-477	5Q5 (2nd Prod.), Q18
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RC-345H	U-104	RC-415B	K-60 (Loop), K-62	RC-477B	5Q8 (2nd Prod.)
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RC-348A	96T	RC-415D	K-80 (Loop)	RC-478	9Q4
RC-348C	96E	RC-416	T-64, T-65	RC-478A	7Q4
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RC-348E	U-115	RC-418	T-55, T-55-S, T-56	RC-482B	U-9
RC-348F	95T5LW	RC-418A	K-50	RC-482C	U-9 (2nd Prod.)
RC-348H	U-123 (1 band)	RC-418B	U-10	RC-486B	U-44
RC-348J	U-121	RC-421	U-123 (2 bands)	RC-486C	U-45
RC-348L	U-127E	RC-425	T-60	RC-490	96X-5
RC-349	97X	RC-425A	U-12	RC-496	7QB, 7QBK
RC-350	9X to 9X-4	RC-425D	T-62	RC-497	K-50 (2nd Prod.)
RC-350A	9X-6, 9X-11 to 9X-14	RC-427	TRK-12	RC-498	U-20
RC-351	96K, 96T2	RC-427A	TRK-9	RC-498A	U-40
RC-351A	97E, 97KG, 97T	RC-427F	TRK-120	RC-498B	U-42
RC-351B	96K2, 96T3	RC-427G	TRK-90	RC-498E	U-43
RC-351C	U-124	RC-429	TRK-5	RC-498F	K-61
RC-351D	U-122E	RC-435	9TX-50, 9TX-50M	RC-501	U-46
RC-351E	U-119	RC-435A	45E, 45E-M, 45E-W	RC-501A	K-130
RC-351F	97K	RC-436	40X-50 to 40X-57	RC-502	7Q4X
RC-351K	97K2, 97T2	RC-440	4QB	RC-507	Q22
RC-351L	96E2, 96K5, 96K6, 96T7	RC-440A	4QB4	RC-507A	Q25
RC-352	98EY, 98X, 98YG	RC-441	6Q1	RC-507B	QK23
RC-352A	97Y	RC-441A	6Q4		
RC-352B	UY-122E	RC-442	6Q4X		
RC-352C	UY-124				
RC-352D	98T2				
RC-354	U-130				
RC-354A	HF-4				

"RC" NUMBER INDEX (Continued)

<i>Chassis No.</i>	<i>Model</i>	<i>Chassis No.</i>	<i>Model</i>	<i>Chassis No.</i>	<i>Model</i>
RC-507C	QU2C	RC-529D	QB6	RC-592	Q23
RC-507D	QU2M	RC-529H	QB9	RC-1000	16X11
RC-507F	QU3C	RC-530	QU5	RC-1000A	16X13
RC-507H	QU3M	RC-531	Q44	RC-1000B	16X14
RC-507J	Q26	RC-538B	Q30	RC-1000C	Radiola 515
RC-507K	Q27	RC-538C	Q31	RC-1001	10X
RC-507L	QU52C	RC-539	Q33	RC-1001A	11X1
RC-507N	QU52M	RC-539D	QB-3	RC-1001B	12X, 12X2
RC-508	Q24	RC-540	V-101	RC-1001B	10X (2nd Prod.)
RC-509	16T4	RC-541C	45X18	RC-1001C	12AX, 12AX2, 35X, Radiola 516, 517, 522
RC-509A	16T3	RC-544	BP-10	RC-1001D	14X, 14X2
RC-509B	16T2	RC-547	VHR-207	RC-1001E	14AX, 14AX2, 34X, Radiola 526, 527
RC-509C	16K	RC-547A	VHR-407	RC-1002	28X
RC-509F	16T4 (2nd Prod.)	RC-548	VHR-202	RC-1002A	28X5
RC-509H	16T3 (2nd Prod.)	RC-551	QU7, QU8	RC-1003	1X, 1X2, 25X
RC-509J	16T2 (2nd Prod.)	RC-555	VHR-307	RC-1003A	1AX, 1AX2
RC-511	18T	RC-559	26BP	RC-1003B	Radiola 510 (2nd Prod.), 511 (2nd Prod.)
RC-512	17K	RC-561	Q-16	RC-1003C	55X
RC-512A	19K	RC-561A	Q-17	RC-1003D	Radiola 510 (3rd Prod.), 520
RC-513	110K, 110K2	RC-561C	Q-16E	RC-1004A	25BT2
RC-513A	111K	RC-563A	QB5	RC-1004B	25BK, 25BT3
RC-514	Q20, Q21	RC-563B	Q12	RC-1004D	Radiola B-52
RC-517	V-100	RC-563C	Q12	RC-1004F	24BT1, 24BT2
RC-517C	V-105	RC-563E	Q11	RC-1004H	Radiola B-50
RC-517F	Radiola R-560P	RC-563F	Q11	RC-1011	15X (2nd Prod.), 36X (2nd Prod.)
RC-517H	V-135	RC-564	V-215, V-221	RC-1013	6X2
RC-517J	Radiola R-566P	RC-564A	V-219	RC-1014	26X1
RC-518	V-300	RC-564B	V-225	RC-1014A	26X3, Radiola 515 (2nd Prod.)
RC-518A	V-301, V-302	RC-566	Q14, Q15	RC-1014B	26X4
RC-519	V-200	RC-566A	QU56C, QU56M	RC-1020	25BP (2nd Prod.)
RC-521	V-205	RC-566B	Q14E, Q15E	RC-1020B	Radiola P-5 (2nd Prod.)
RC-521B	V-405	RC-567	27K	RC-1022	34X (2nd Prod.)
RC-522	V-201	RC-568	QU51C, QU51M	RC-1022A	12X (2nd Prod.), 35X (2nd Prod.), Radiola 522 (2nd Prod.)
RC-523	V-170	RC-568A	QU55		
RC-524	V-102	RC-569	28T		
RC-525	14BT-1	RC-570	29K		
RC-525A	14BT-2	RC-570C	29K2		
RC-525B	14BK	RC-570D	29K2 (2nd Prod.)		
RC-526	15BT	RC-571	211K		
RC-527	15BP-1, -2, -4, -6	RC-572A	V-140		
RC-527A	15BP-3, -5	RC-573	V-209		
RC-527C	15BP-7	RC-573A	V-210		
RC-527D	25BP	RC-574	VHR-212		
RC-529	QB2	RC-582	V175		
RC-529A	QB1				

CROSS-INDEX to RCA Victor, General Electric, Westinghouse, and Graybar Models

Revised
January, 1936

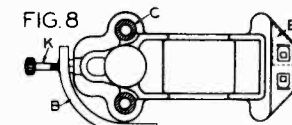
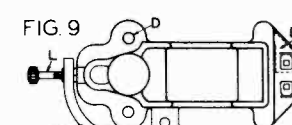
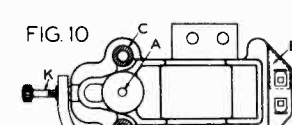
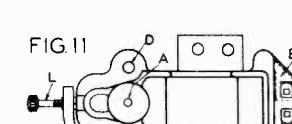
RCA Victor	G. E.	West.	Gray- bar	RCA Victor	G. E.	West.	Gray- bar
SW-2	JZ-30	—	—	M-105	C-41	WR-41	—
R-4	J-70	WR-17	GT-7	M-107	C-60	—	—
R-5	T-12	WR-14	4	M-108	D-52	—	—
R-5 (DC)	T-12-D	WR-14 (DC)	—	M-109	D-72	—	—
R-5-X	T-12-E	WR-14-CR	—	110	K-52	—	—
T-5	E-52	WR-9	—	111	K-53	WR-35	—
R-6	J-75	—	GC-13	112	L-52	WR-34	—
R-7 (Superette)	S-22 & S-22-X	WR-10	8	112-A	L-52-A	—	—
R-7-A	S-22 (Pentodes)	WR-10-A	8-A	114	L-53	—	—
R-7 (DC)	S-22-D	WR-10 (DC)	—	115	K-53-M	—	—
R-8	J-80	WR-18	GT-8	M-116	B-52	WR-42	—
R-8 (DC)	—	WR-18 (DC)	—	117	M-50	—	—
R-9	S-42	WR-12	—	118	M-51	WR-48	—
R-9 (DC)	S-42-D	WR-12 (DC)	—	118 (Mod.)	M-51-A	WR-48-A	—
R-10	S-132	WR-15-A	989	119	M-52	—	—
R-11	K-62	WR-15	9	120	K-63	WR-36	—
R-12	J-85	—	GC-14	121	K-64	WR-37	—
Rad. 16	—	—	300	M-123	C-61	—	—
RE-16	SZ-42-P	WR-13	—	124	M-63	—	—
RE-16-A	—	WR-13-A	—	125	M-62	WR-53	—
R-17-M	BX or K-41	WR-26-M	—	126-B	C-62	—	—
RE-18 & RE-18-A	KZ-62-P	—	—	127 (DC)	K-64 (DC)	—	—
R-18-W	K-40-A	—	—	128	M-61	WR-46	—
Rad. 18	—	—	310	128 (Mod.)	M-61 (Mod.)	WR-46-A	—
Rad. 21	B-1	—	—	128-E	—	WR-50	—
Rad. 22	B-2	—	—	135-B	C-70	WR-47	—
R-22-S	L-50	—	—	140 and 141	K-80	WR-30	—
R-22-W	L-51	—	—	140-E and 141-E	K-80-X	WR-31	—
RO-23	JZ-835	WR-16	—	142-B	B-81	—	—
R-24	JZ-822	—	—	143	M-81	WR-45	—
R-24-A (47)	JZ-822-A	WR-24	—	143 (Mod.)	M-81 (Mod.)	WR-45-A	—
R-24-A (2A5)	—	WR-24	—	210	K-55	—	—
R-27	K-40	WR-26	—	211	M-56	—	—
R-28	K-50	—	—	214	M-55	—	—
R-28-B	K-51	WR-27	—	220	K-66	—	—
R-28-P	K-50-P	—	—	221	M-65	—	—
R-28-PB	K-51-P	WR-27-P	—	222	K-66-M	—	—
M-30	A-90	—	—	223	C-67	—	—
P-31	A-81	—	—	224	M-67	—	—
M-32	A-60	—	—	225	M-655	—	—
Rad. 33	—	—	311	226	M-66	—	—
M-34	B-40	WR-33	—	235-B	C-75	—	—
R-37	K-60	—	—	240	K-85	—	—
R-37-P	K-60-P	WR-28	—	241-B	B-86	—	—
R-38	K-65	—	—	242	M-86	—	—
R-38-P	K-65-P	—	—	243	M-85	—	—
RE-40	K-54	—	—	260	K-107	—	—
RE-40-P	K-54-P	WR-29	—	261	K-105	—	—
R-43	S-42-B	—	—	262	M-106	—	—
Rad. 44	—	—	500	263	M-107	—	—
Rad. 46	—	—	550	280	K-126	—	—
Rad. 48	T-41	WR-4	678	281	M-125	—	—
R-50	H-32	—	—	300	K-48	—	—
Rad. 51	—	—	320	301	M-49	—	—
R-55	—	—	100	310	K-58	—	—
RAE-59	H-72	—	—	321	M-68	—	—
Rad. 60	—	—	330	322	M-69	WR-49	—
Rad. 62	—	—	340	330	K-78	—	—
Rad. 66	—	—	600	331	K-79	—	—
R-70 & R-70-N	J-72	WR-21	—	340	K-88	WR-38	—
R-71	J-82	WR-19	—	340-E	K-88-X	WR-39	—
R-72	J-86	—	—	341	M-89	—	—
R-72 (47)	J-83	WR-22	—	380	M-128	—	—
R-73 (2A5)	J-83-A	—	—	380-11R	M-128-R	—	—
R-74	J-100	WR-20	—	381	M-129	—	—
R-75 (47)	J-87	—	—	—	—	—	—
R-75 (2A5)	J-87-A	—	—	—	—	—	—
R-76	J-105	—	—	—	—	—	—
R-77	J-107	—	—	—	—	—	—
R-78	J-125	—	—	—	—	—	—
R-78 (2)	J-125-A	—	—	—	—	—	—
RE-80	—	WR-23	—	—	—	—	—
RE-80-SW	—	WR-25	—	—	—	—	—
Rad. 80	H-31	WR-5	700	—	—	—	—
Rad. 82 and 82-R	H-51 and 51-R	WR-6 and 6-R	770	—	—	—	—
Rad. 86 and 86-R	H-71 and 71-R	WR-7 and 7-R	900	—	—	—	—
R-90	K-106	—	—	—	—	—	—
R-90-P	K-106-P	—	—	—	—	—	—
91-B	C-30	—	—	—	—	—	—
R-93	—	WR-93	—	—	—	—	—
M-101	D-50	—	—	—	—	—	—
100	K-43	WR-32	—	—	—	—	—
101	M-41	—	—	—	—	—	—
102	M-40	—	—	—	—	—	—
103	M-42	—	—	—	—	—	—
M-104	D-51	—	—	—	—	—	—

Brand Models Without RCA Victor Equivalents

WR-8	Westinghouse WR-6 Chassis with Clock in Columnaire Cabinet.
WR-8-R	Westinghouse WR-6-R Chassis modified for Vertical operation in Columnaire Cabinet.
K-82	G. E. K-62 in Clock Cabinet.
J-88	G. E. J-82 with Manual Motor Board.
H-91	G. E. H-51 (Modified) in Clock Cabinet.
H-91-R	G. E. H-51-R (Modified) in Clock Cabinet.
J-109	G. E. J-100 Chassis and Automatic Motor Board.
JZ-826	G. E. JZ-822 in Console Cabinet.
JZ-828	G. E. J-88 with Short-Wave Adaptor.


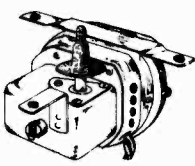
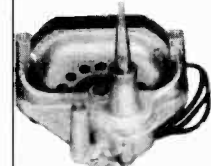
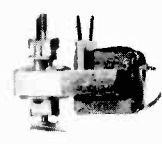

NOTE: RCA Victor Models Without Brand Equivalents are not Listed

RCA CRYSTAL PICKUP DATA

	Model Number	Arm Stock Number	Arm Fig. No.	Crystal Cartridge Stock No.	Crystal Cartridge Fig. No.	
CRYSTAL CARTRIDGE DRAWING CODE "A" Top Needle Hole "B" Viscoloid Damper "C" Thick (5/16-in.) Mtg. Hole "D" Thin (7/32-in.) Mtg. Hole "E" Grounded Lug "F" Small Weight "G" Large Weight "H" Large "Cut" Weight "J" 5/8-in. Needle Screw "K" 11/16-in. Needle Screw "L" 13/16-in. Needle Screw "M" 15/16-in. Needle Screw	QU2-C	33906	3	33905	7	   
	QU3-C	33906	3	33905	7	
	*QU5	34011	2	33905	7	
	8QU	33125	5	33122	5	
	8QU5-C	34305	2	34307	9	
	U-8	33121	5	33122	5	
	U-9	33591	5	33122	5	
	U-10	33591	5	33122	5	
	*11-QU	31159	1	31156	4	
	*12-QU	31159	1	31156	4	
	U-12	33906	3	33905	7	
	*VA-15	33906	3	35171	7	
	U-20	33906	3	33905	7	
	VA-20	9842	4	31050	3	
	VA-21	33591	5	33122	5	
*VA-22	33096	3	{ 31156 33905**	{ 4 7		
*U-25	33096	3	31156	4		
*U-26	33096	3	31156	4		
*U-30	33096	3	31156	4		
*U-40	33906	3	35171	7		
*U-42	33906	3	35171	7		
*U-43	33906	3	35171	7		
*U-44	33906	3	35171	7		
*U-45	33906	3	35171	7		
*U-46	34011	2	33905	7		
O-50	33216	4	33217	6		
U-50	33216	4	33217	6		
R-60	33591	5	33122	5		
R-89	31887	4	31050	3		
R-91	9842	4	31050	3		
R-93-B	9842	4	31050	3		
R-93-C	9842	4	31050	3		
R-93-F	33591	5	33122	5		
R-94-B	31211	4	31050	3		
R-98	33399	1	31156	4		
R-100	33121	5	33122	5		
V-100	33591	5	33122	5		
V-101	33591	5	33122	5		
V-102	36768	3	33905	7		
R-103-S	33591	5	33122	5		
U-104	32227	4	31050	3		
U-106	14818	6	14820	1		
U-107	14818	6	14820	1		
U-109	14818	6	14820	1		
U-111	9842	4	31050	3		
U-112	9842	4	31050	3		
U-115	32137	4	31050	3		
U-119	31468	1	31156	4		
U-121	32137	4	31050	3		
U-122E	31468	1	31156	4		
UY-122E	32016	1	31156	4		
*U-123	32884	1	31156	4		
U-124	31468	1	31156	4		
UY-124	32016	1	31156	4		
*U-125	31159	1	31156	4		
*U-126	31468	1	31156	4		
U-127E	32137	4	31050	3		
*U-128	31159	1	31156	4		
*U-129	33096	1	31156	4		
*U-130	31159	1	31156	4		
*U-132	31159	1	32632	4		
*U-134	31159	1	32632	4		
*RP-139A	33906	3	35171	7		
*RP-139C	34776	1	34710	10		
*RP-145	33906	3	35171	7		
*RP-152	33906	3	35171	7		
*RP-152A	36321	3	35171	7		
*RP-152B	36322	2	37158	11		
*RP-152C	36591	3	35171	7		
*RP-152D	37181	2	33905	7		
*RP-152J	36322	2	37158	11		
*RP-153	36513	2	33905	7		
*V-170	33906	3	35171	7		
*V-200	36321	3	35171	7		
*V-201	36321	3	35171	7		
*VHR-202	36322	2	33905	7		
*V-205	33906	3	37158	11		
*VHR-207	36322	2	33905	7		
*V-300	33906	3	37158	11		
*V-301	36513	2	33905	7		
*V-302	36513	2	33905	7		
*VHR-307	36322	2	33905	7		
*V-405	33906	3	37158	11		
*VHR-407	36322	2	33905	7		
	33586	4	34225	8		
	30707		30708	2		

*Automatic Record Changers.
 **Used on 25 cycle model only.

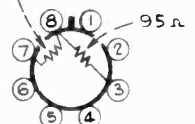
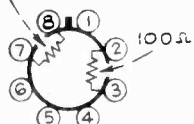
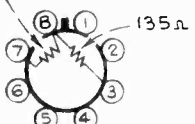
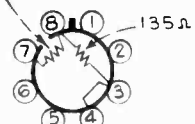
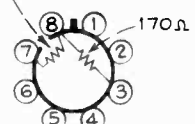
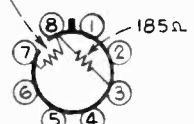
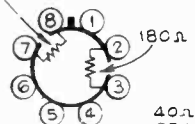
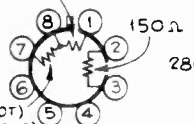
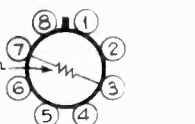
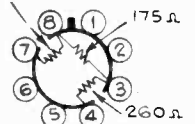
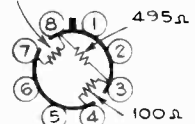
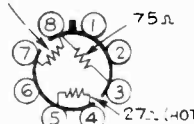
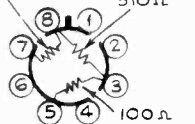

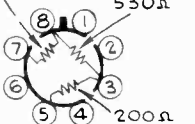
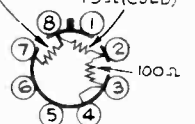
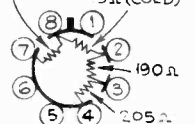
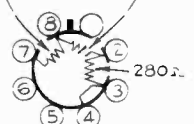


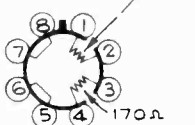
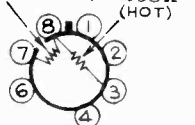
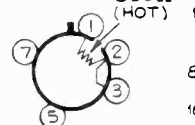
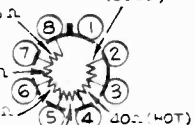
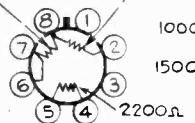
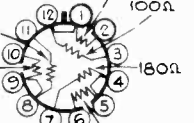
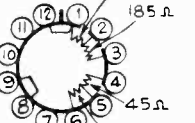
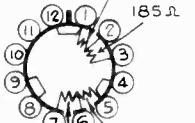

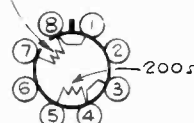

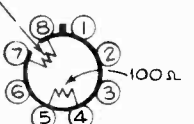
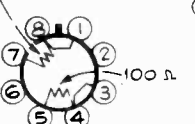

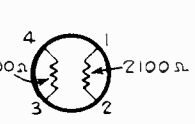
RCA Victorla Motor Data

		Dwg. No.	Fig.* No.	** Type	Used in RCA Model	Power Supply			Stock No.			
						Voltage	Cycles	Watts				
1 		72565-1	8	CS	U-107, U-109, 9U, 9U2, 15U	105-125	60	27.0	9650			
		72565-4	8	CS	U-107, U-109, 9U, 9U2, 15U	"	50	33.5	9651			
		72565-8	8	CS	U-107, U-109, 9U, 9U2, 15U	"	25	30.0	9735			
		72986-1	11	IG	R-97, U-103, U-105, U-101	"	60	23.0	9799			
		84237-1	1	SM	PRP-1, R93B-C, R-91	"	60	10	9841			
		72444-1	10	IG	D8-28, D9-19	"	{ 50 25 60 22 }		11701			
		72444-2	10	IG	D8-28, D9-19	"	25	30	11702			
		72933-1	11	IG	7U2	"	60	23.0	13576			
		72444-3	10	IG	7U2	"	{ 50 25 60 22 }		13577			
		72444-4	10	IG	7U2	"	25	30	13578			
		72933-3	11	IG	R-94	"	60	23.0	14325			
		72933-4	11	IG	R-94	"	{ 50 60 }	25.5	14326			
2 		3 		72933-5	11	IG	R-94	210-250V	{ 50 60 }	25.5	14327	
				72986-2	11	IG	R-97, U-103, U-105, U-101	105-125V	{ 50 60 }	25.5	14465	
				84008-1	11	IG	R-97, U-103, U-105, U-101	"	25	24.0	14466	
				72933-6	11	IG	R-96, U-102E, R-94B	"	60	23.0	14800	
				81861-1	10	IG	88U	"	{ 50 60 }	25.5	14912	
				72933-7	11	IG	U-102E, R-94B	"	{ 50 60 }	25.5	30475	
				84237-1	2	SM	VA-21, R-93F, R-93B-C, R-91	"	50	10	31034	
				72986-3	11	IG	U-125, U-126, U-128, U-130, U-132, U-25, U-26, U-30, U-129, U-134, U-46	105-125V	60	23.0	31157	
				72986-4	11	IG	"	"	{ 50 60 }	25.5	31163	
				84008-4	11	IG	"	"	25	24.0	31448	
				84323-1	11	IG	R-98, U-119, U-124, U-122E	"	60	23.0	31461	
				84323-2	11	IG	R-98, U-119, U-124, U-122E	"	{ 50 60 }	25.5	31462	
4 		5 		84388-1	11	IG	U-119, U-124, U-122E	"	25	24.0	31724	
				84333-1	10	IG	11QU, 12QU	"	{ 50 60 }	25.5	31876	
				84237-25	60	1	SM	R-89	55-70V	60	10	31923
				84237-25	50	1	SM	R-89	"	50	10	31924
				84323-3	10	IG	8QU, 8QU1, 8QU2, M-81, M-82, M-83	105-125	{ 50 60 }	25.5	31983	
				84415-1	9	SG	UY-122E, UY-124	"	{ 60 60 dc }	26 28.5 18.0	32006	
				84441-34	1	SM	R-93F	"	25	10	32077	
				84430-1	3	I	U-115	"	60	19	32135	
				84484-2	2	I	U-115	"	60	19	32558	
				84237-50	1	SM	PRP-1	"	60	10	32469	
				84237-52	60	1	SM	VA-21, VA-20	80-90V	60	10	32508
				84484-2	2	I	U-121, U-127E	105-125	60	19	32558	
84484-3	2	I	U-121, U-127E	"	50	19	32637					
84484-4	2	I	U-121, U-127E	"	25	19	32638					
84237-52	50	1	SM	VA-20	80-90V	50	10	32643				
84484-3	2	I	U-115	105-125	50	19	32650					
84484-4	2	I	U-115	"	25	19	32652					
84564-1	3	I	VA-22, U-123, RP-139A	"	60	21	32871					
84564-2	3	I	VA-22, U-123, RP-139A	105-125	50	21	32872					
84564-3	3	I	VA-22, U-123, RP-139A	"	25	22	32873					
84569-7	2	I	6QU, 8QU5-C-M, U-50, O-50	"	60	19	33219					
84569-8	2	I	6QU, 8QU5-C-M, O-50, U-50	"	50	19	33220					
84632-1	1	SM	R-100	"	60	10	33343					
84599-1	1	SM	U-8, R-100	"	50	10	33351					
84599-2	1	SM	U-8, R-100	"	25	12	33355					
86852-1	4	I	U-9, U-10, U-12	"	60	21	33902					
84599-1	1	SM	U-8, R-100	"	60	10	33940					
84683-1	5	I	R-60	"	60	23	34263					
90767-1	6	CI	OU-5, RP-145	"	60	14.5	34364					
84754-1	6	S	OU2-C-M, U-20	"	60	14	34412					
86852-2	4	I	U-9, U-10, U-12	"	50	23.5	34496					
84754-2	6	S	U-20	105-125	50	11	35604					
90767-2	6	CI	OU5	"	50	14.5	36114					
91655-1	6	CS	RP-152, RP-152A	"	60	14.0	36254					
91647-3	4	I	V-100, V-102, V-101	"	60	21	36404					
91655-2	6	CS	RP-152	"	50	14.0	36725					
91655-3	6	CS	RP-152	"	25	14.0	36726					
91779-1	7	I	VHR-202, VHR-207, VHR-407	"	60	35.5	36820					
92127-1	6	S	OU3-C-M	"	60	14.0	36984					
92127-2	6	S	OU3-C-M	"	50	14.0	36985					
84976-1	12	I	RP-153	"	60	24.0	37295					
84976-3	12	I	RP-153	"	"	24.0	37296					
91779-2	7	I	VHR-202, VHR-207, VHR-407	"	50	39.0	37941					

*The illustrations show the general appearance of motors; details maybe different in various numbers for the same general type of motor.

RCA Resistor Ballast Tube Data

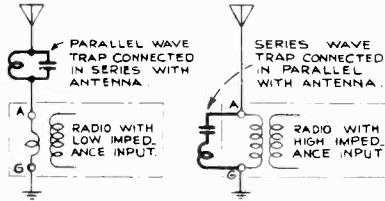
(Nos. in parenthesis are original designations)

<p>80Ω (HOT) 30Ω (COLD)</p>  <p>95Ω</p> <p>BK-36-C (95-K2) STK. # 30284</p>	<p>40Ω (HOT) 25Ω (COLD)</p>  <p>100Ω</p> <p>K-36-F STK. # 31005</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>135Ω</p> <p>BK-42-B (135-K1) STK. # 14649</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>135Ω</p> <p>BK-49-B STK. # 32544</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>170Ω</p> <p>BK-55-B STK. # 31198</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>185Ω</p> <p>BK-61-B (BK-61-H) STK. # 31585</p>
<p>40Ω (HOT) 25Ω (COLD)</p>  <p>180Ω</p> <p>K-61-F STK. # 31019</p>	<p>40Ω (HOT) 25Ω (COLD)</p>  <p>150Ω</p> <p>286Ω</p> <p>40Ω (HOT) 25Ω (COLD)</p> <p>K-61-H STK. # 32109</p>	<p>40Ω (HOT) 25Ω (COLD)</p>  <p>175Ω</p> <p>260Ω</p> <p>B-86-A STK. # 33793</p>	<p>40Ω (HOT) 20Ω (COLD)</p>  <p>495Ω</p> <p>100Ω</p> <p>260-K1 STK. # 30300</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>75Ω</p> <p>27Ω (HOT) 10Ω (COLD)</p> <p>495-K1 STK. # 30599</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>100Ω</p> <p>K-33747-6 (BK-36-B) STK. # 31577</p>
<p>80Ω (HOT) 30Ω (COLD)</p>  <p>510Ω</p> <p>100Ω</p> <p>K-85277-3 STK. # 32247</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>230Ω</p> <p>210Ω</p> <p>K-85277-4 STK. # 32650</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>530Ω</p> <p>200Ω</p> <p>K-85277-5 STK. # 32849</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>100Ω</p> <p>M-86892-1 STK. # 33811</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>190Ω</p> <p>205Ω</p> <p>M-86892-2 STK. # 33812</p>	<p>280Ω</p>  <p>280Ω</p> <p>280Ω</p> <p>M-86892-3 STK. # 33813</p>
<p>205Ω</p>  <p>190Ω</p> <p>102Ω</p> <p>145Ω</p> <p>M-86892-4 STK. # 33947</p>	<p>30Ω</p>  <p>230Ω</p> <p>230Ω</p> <p>M-86892-6 STK. # 34563</p>	<p>370Ω</p>  <p>170Ω</p> <p>M-86892-7 STK. # 34458</p>	<p>80Ω (HOT) 30Ω (COLD)</p>  <p>436Ω (HOT)</p> <p>M-86892-8 STK. # 34805</p>	<p>830Ω (HOT)</p>  <p>135Ω</p> <p>M-86892-9 STK. # 35000</p>	<p>40Ω (HOT) 15Ω (COLD)</p>  <p>80Ω</p> <p>100Ω</p> <p>40Ω (HOT) 15Ω (COLD)</p> <p>M-86892-10 STK. # 35183</p>
<p>30Ω</p>  <p>440Ω</p> <p>2200Ω</p> <p>M-86892-11 STK. # 37847</p>	<p>100Ω</p>  <p>1000Ω</p> <p>1500Ω</p> <p>180Ω</p> <p>300Ω</p> <p>M-91462-1 STK. # 35748</p>	<p>45Ω</p>  <p>185Ω</p> <p>45Ω</p> <p>150Ω</p> <p>M-91462-2 STK. # 35635</p>	<p>60Ω</p>  <p>185Ω</p> <p>340Ω</p> <p>480Ω</p> <p>M-91462-3 STK. # 37891</p>	<p>200Ω</p>  <p>480Ω</p> <p>M-91462-5 STK. # 37983</p>	<p>480Ω</p>  <p>200Ω</p> <p>M-91462-6 STK. # 38289</p>
<p>150Ω</p>  <p>55Ω</p> <p>M-91462-7 MI-8159-1</p>	<p>300Ω</p>  <p>100Ω</p> <p>M-91462-8 MI-8159-2</p>	<p>590Ω</p>  <p>100Ω</p> <p>M-95178-10 STK. # 39346</p>	<p>550Ω (HOT)</p>  <p>2300Ω</p> <p>K-920117-1 STK. # 38702</p>	<p>4</p>  <p>1000Ω</p> <p>2100Ω</p> <p>K-920146-1 STK. # 39575</p>	

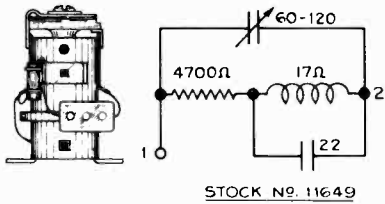
RCA WAVE TRAP DATA

FUSE DATA Tubular Glass Fuses:

Complete electrical specifications for all available RCA wave traps are given below.
 On sets with a low-impedance input (few turns on primary of antenna coil, with a d-c resistance usually less than 10 ohms) the trap should be connected in series with the antenna.
 On sets with a high-impedance input (large number of turns on primary of antenna coil, with a d-c resistance of 10 ohms or more) the trap should be connected in parallel with the antenna.
 Frequency ranges and "Q" are approximate.

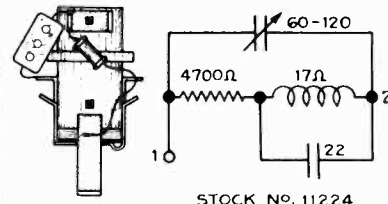


Stock No.	Rating (Amps.)	Type	Length (In.)	Diam. (In.)	Voltages Up To
23563	0.1	3AG	1 1/4	1/4	250 V.
3748	0.5	3AG	1 1/4	1/4	250 V.
34527	0.75	3AG	1 1/4	1/4	250 V.
14133	1.0	3AG	1 1/4	1/4	250 V.
2725	1.5	3AG	1 1/4	1/4	250 V.
3883	2.0	3AG	1 1/4	1/4	250 V.
14582	2.0	8AG	1	1/4	250 V.
10907	3.0	3AG	1 1/4	1/4	250 V.
14158	3.0	1AG	1 1/4	1/4	250 V.
37884	3.0	Little Fuse No. 1043	1 1/4	1/4	250 V.
Time Delay					
5140	5.0	3AG	1 1/4	1/4	25 V.
37883	5.0	Little Fuse No. 1358	1 1/4	1/4	250 V.
Time Delay					
12958	6.0	3AG	1 1/4	1/4	25 V.
28463	6.0	3AG	1 1/4	1/4	250 V.
43518	6.0	5AG	1 1/4	13/32	250 V.
6148	10.0	3AG	1 1/4	1/4	25 V.
5023	15.0	3AG	1 1/4	1/4	25 V.
3646	20.0	3AG	1 1/4	1/4	25 V.



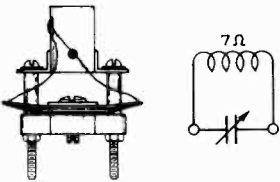
IND. 1 MILLIHENRY
 CAP. 60-120 MMF.
 RANGE 400-520KC
 Q = 50
 IMPEDANCE 150,000Ω
 (WITH 4700Ω RESISTOR SHORTED)

STOCK NO. 11649



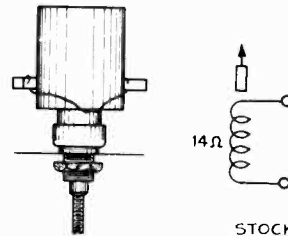
IND. 1 MILLIHENRY
 CAP. 60-120 MMF.
 RANGE 400-520KC
 Q = 50
 IMPEDANCE 150,000Ω
 (WITH 4700Ω RESISTOR SHORTED)

STOCK NO. 11224



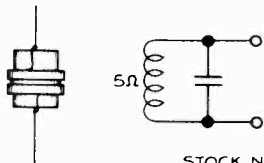
IND. 106 MICROHENRIES
 CAP. 800-1300 MMF.
 RANGE 440-560 KC.
 Q = 50
 IMPEDANCE 17,500Ω

STOCK NO. 11667



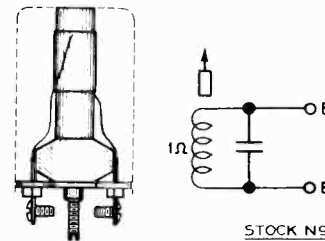
IND. 1.55 MILLIHENRY MIN.
 2.35 MILLIHENRY MAX.
 USUALLY USED WITH 56 MMF. CAP.
 RANGE 400-520KC
 Q = 110
 IMPEDANCE PARALLEL 660,000Ω
 SERIES 58Ω

STOCK NO. 12654



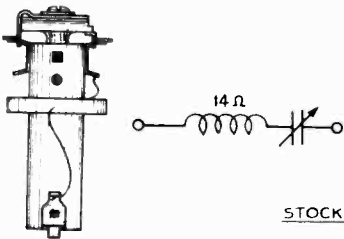
IND. 280 MICROHENRIES
 CAP. 400 MMF.
 RANGE 460KC
 Q = 80
 IMPEDANCE 64,000Ω

STOCK NO. 13838



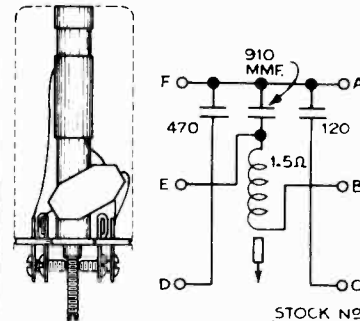
IND. 14 MICROHENRIES MIN.
 40 MICROHENRIES MAX.
 CAP. 750 MMF.
 RANGE 920-1550
 Q = 110
 IMPEDANCE 25,000Ω

STOCK NO. 32189



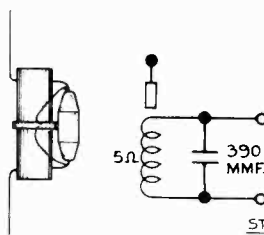
IND. 2.4 MILLIHENRY
 CAP. 34-100 MMF.
 RANGE 300-500 KC.
 Q = 60
 IMPEDANCE PARALLEL 400,000Ω
 SERIES 120Ω

STOCK NO. 31952



IND. 70 MICROHENRIES MIN.
 140 MICROHENRIES MAX.
 CAP. (3) 120 MMF, 470 MMF, 910 MMF.
 RANGE 450-2100 KC
 Q = 110
 IMPEDANCE (460KC) PARALLEL 40,000Ω
 SERIES 4Ω

STOCK NO. 33033



IND. 26 MICROHENRIES
 CAP. 390 MMF.
 RANGE 1600 KC.
 Q = 90
 IMPEDANCE 36,000Ω

STOCK NO. 32032

ILLUSTRATIONS ARE SLIGHTLY LESS THAN 1/2 SIZE

RCA
VICTOR

Models **1AX**, **1AX2**, **1X**, **1X2** and **25X**

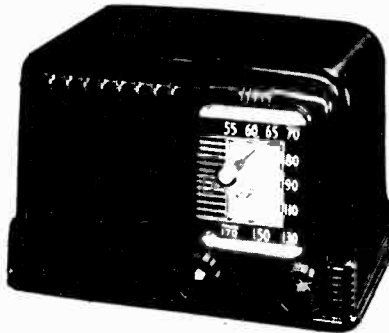
Chassis No. RC-1003A

RC-1003

RC-1003

RADIOLA 510, 511, 510 (3RD PROD), 520
2ND PROD. RC-1003B RC-1003D

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



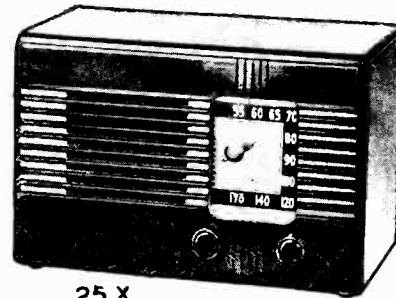
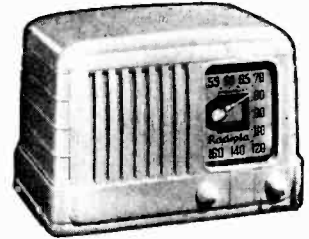
Model 1X
Model 1AX (Mahogany Plastic)

Model 1X2
Model 1AX2 (Antique Ivory)

Height Width Depth
6 7/8-in. 9 3/4-in. 5 1/2-in.

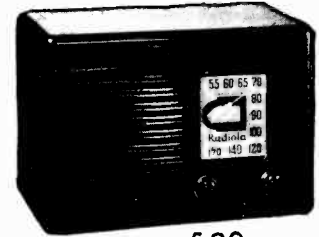
Radiola 510 (Mahogany Plastic)

Radiola 511 (Antique Ivory)



25 X

Height Width Depth
7 1/2-in. 11 3/4-in. 6 3/16-in.



520

Specifications

FREQUENCY RANGE 540-1,720 kc
Intermediate Frequency 455 kc

POWER SUPPLY RATINGS
105-125 volts, direct current, or 50-60 cycles 30 watts

POWER OUTPUT (125 volts, 60 cycle supply)
Undistorted 0.8 watts Maximum 1.2 watts

LOUDSPEAKER (RL-81-B2) 5 inch permanent magnet
OR 5 inch electro-dynamic

See Listing Below

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test-Oscillator.—For I-F alignment, connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c. reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	C8, C9 2nd I-F Transformer
2	1st Det. grid in series with .01 mfd.			C6, C7 1st I-F Transformer
3	Ant. terminal in series with 100 mmfd.	1,720 kc	Gang at minimum	C3 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C1 (ant.)
5	Repeat steps 3 and 4.			

SPEAKER LISTING

MODELS 1X, 1X2, 1AX, 1AX2
RL-81B2, RL-86A3, RL-86A1, RL-86B1, RL-86B4
MODELS 25X, 510 (RC-1003D), 520
RL-86B1, RL-86B4, 92379-1
MODELS 510 (RC-1003B), 511
RL-81B2, RL-86A3

NOTE: The following speakers may have been used as a substitute for the RL-81-B2 speaker in any model which originally called for the RL-81-B2:

Speaker Stamping	Cone No.
92161-3	38352
92161-4	39535
92161-5	38352
92322-2	39536
92374-1	39537

SUBSTITUTE SPEAKERS

WHEN ORDERING REPLACEMENT PARTS FOR SPEAKERS, NOTE THE IDENTIFICATION NUMBER STAMPED ON THE SPEAKER FRAME. IF THE NUMBER STAMPED ON THE SPEAKER DOES NOT APPEAR IN THE FOLLOWING LIST, ORDER THE REQUIRED PART BY DESCRIPTION, AND SPECIFY THE IDENTIFYING NUMBER STAMPED ON THE SPEAKER AND THE RECEIVER MODEL NUMBER.

IX, IX2, IAX, IAX2, 25X, 510, 511, 520

APPROX. GAIN DATA USING RCA RIDER CHANNELYST

14X 400~
50L6 GT OUTPUT

40X 400~
125SQ 2ND DET. A.F. & AVC.

1X (455 KC.)
2ND I.F. TRANS. 455 K.C.

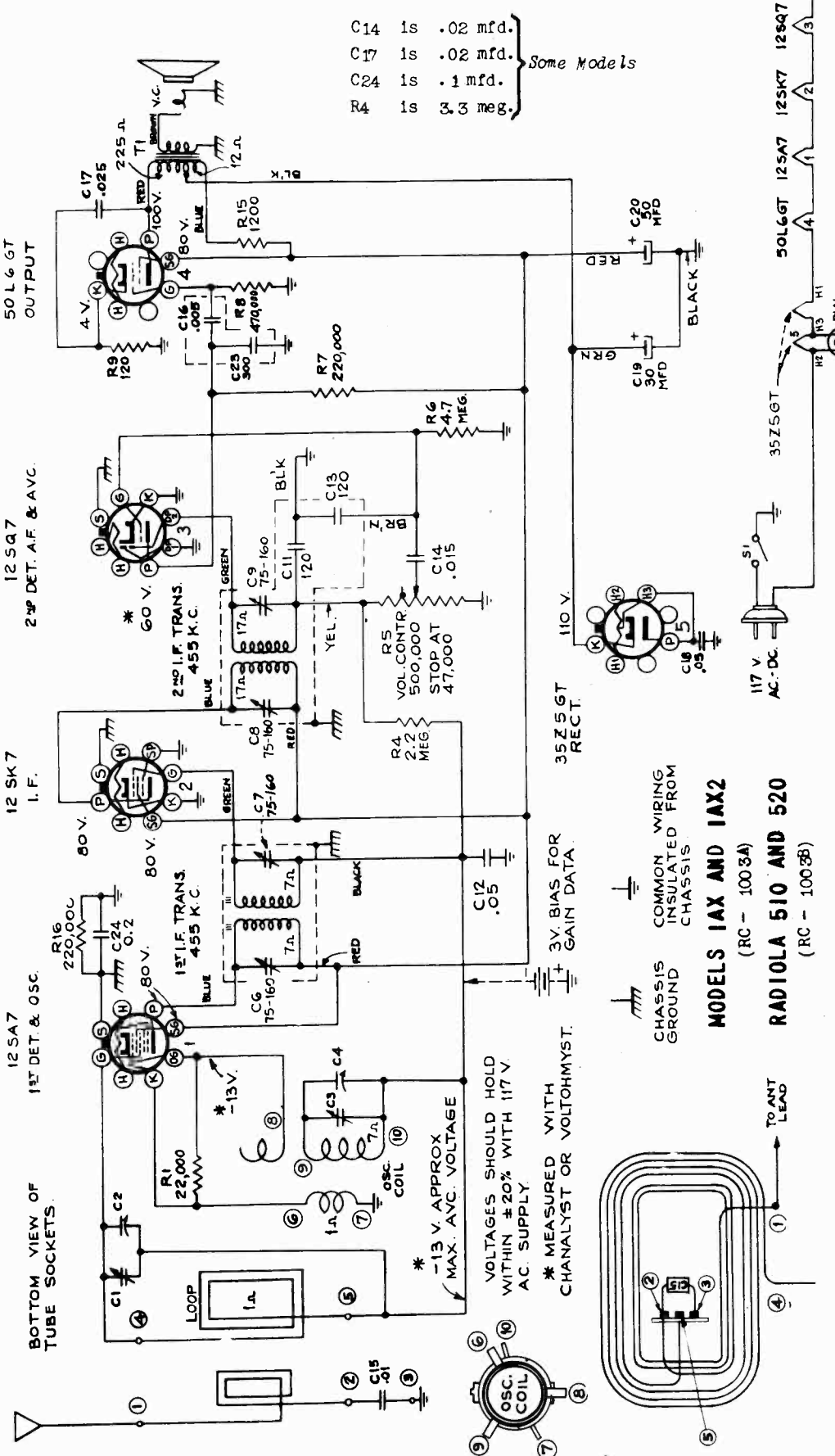
200X (455 KC.)
1ST I.F.

0.6X (455 KC.)
MEASURED WITH -3V. FIXED BIAS ON AVC. BUS

15X (600-455 KC.)
1ST DET. & OSC.

ANT. TO GRID
50X (600 KC.)

BOTTOM VIEW OF TUBE SOCKETS



- C14 1s .02 mfd.
 - C17 1s .02 mfd.
 - C24 1s .1 mfd.
 - R4 1s 3.3 meg.
- } Some Models

COMMON WIRING CHASSIS GROUND INSULATED FROM CHASSIS.

MODELS IAX AND IAX2
(RC - 1003A)

RADIOLA 510 AND 520
(RC - 1003B)

RC-1003-D
MODEL 510 and 520

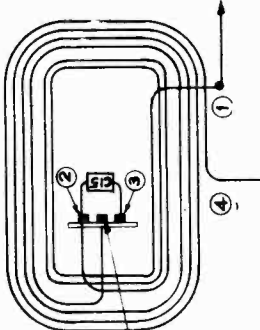
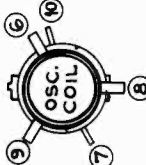
Line Bypass Capacitor:
In some production, the .005 mfd. line bypass is connected from plate to cathode on the rectifier tube, instead of from plate to chassis.

- C19 1s 20 mfd.
- C20 1s 30 mfd.

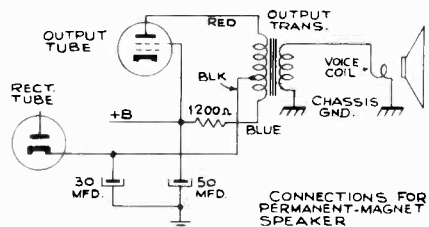
SPEAKER MAY BE "EM OR PM"
SEE NEXT PAGE FOR
"EM" SPEAKER CONNECTIONS

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V AC. SUPPLY

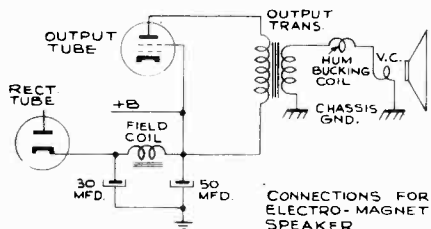
* MEASURED WITH CHANNELYST OR VOLTOHMYST.



SUBSTITUTE SPEAKERS



CONNECTIONS FOR PERMANENT-MAGNET SPEAKER

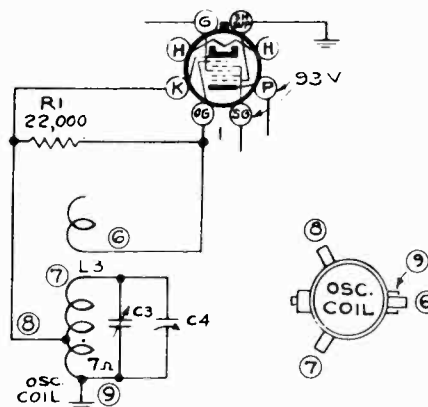


CONNECTIONS FOR ELECTRO-MAGNET SPEAKER

OUTPUT TUBE PLATE VOLTAGE USING "EM" SPEAKER: 87 VOLTS

NOTE: RP-86A3 USES 450 OHM FIELD COIL, ALL OTHER EM SPEAKERS USE 350 OHM FIELD COIL.

12 SA7
1ST DET & OSC



**MODELS 1x, 1x2, 25x, 510 (3rd Prod.), 520
OSCILLATOR CIRCUIT**

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

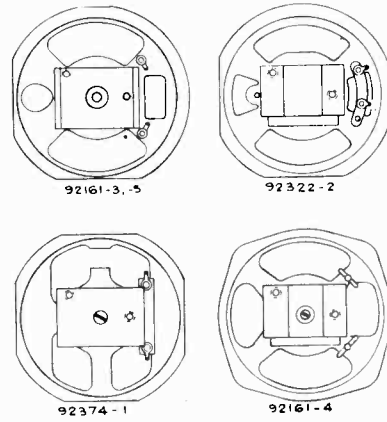
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES Models 1AX and 1AX2 (RC-1003A)		2nd Production: The tuning-knob shaft and its "C" washer are changed as follows: Shaft "C" Washer 1st Prod... No. 35343 (1 1/8-in.) .. No. 34373 2nd Prod... No. 38846 (1 1/4-in.) .. No. 33726	
37359	Capacitor—1 section of .005 mfd., and 1 section of 300 mmfd.	Capacitor Changes: C14 changed from .015 to .02 mfd., No. 36248 C17 changed from .085 to .02 mfd., No. 36248 C24 (1AX, 1AX2) changed from .2 to .1 mfd., No. 43763 R4 changed from 2.2 to 3.3 megs., No. 12928	
11315	Capacitor—.015 mfd.	MODELS 1X AND 1X2 (RC - 1003)	
30938	Capacitor—.025 mfd.	REFER TO MODELS 1AX AND 1AX2	
32787	Capacitor—.05 mfd.	Add Stock No.	
34505	Capacitor—.02 mfd.	36234	Coil - Oscillator Coil
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd. 150 volts, and 1 section of 50 mfd. 150 volts	Delete Stock No.	
36801	Coil—Oscillator coil	36801	Coil and 34505 Capacitor
37911	Condenser—Variable tuning condenser	MODELS 510 AND 511 (RC - 1003B)	
35344	Control—Volume control and power switch	REFER TO MODELS 1AX AND 1AX2	
32634	Cord—Drive cord (approx. 17-in. overall length)	Change the following Stock No.'s.	
37913	Dial—Dial scale	From	To
37914	Indicator—Station selector indicator	37913	37991 Dial - Dial scale
11765	Lamp—Dial lamp	37014	36786 Indicator - Station selector indicator.
37915	Loop—Antenna loop complete	12284	14583 Resistor - 220,000 ohms
35993	Plate—Dial plate—less dial scale	12879	30849 Resistor - 2.2 meg.
30189	Resistor—120 ohms, 1/2 watt	38971	38789 Knob - Ivory control knob
6134	Resistor—1,200 ohms, 1 watt	30883	34428 Knob - Mahogany control knob
13998	Resistor—22,000 ohms, 1/2 watt	Stock No. 30900 Spring not used with Models 510A and 511A	
12264	Resistor—220,000 ohms, 1/2 watt		
30648	Resistor—470,000 ohms, 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
30271	Resistor—4.7 meg., 1/2 watt		
35343	Shaft—Tuning knob shaft		
34449	Socket—Dial lamp socket		
31251	Socket—Tube socket		
31418	Spring—Drive cord spring		
36232	Transformer—First I.F. transformer		
37364	Transformer—Second I.F. transformer		
37912	Transformer—Output transformer		
34373	Washer—"C" washer for tuning knob shaft		
MISCELLANEOUS ASSEMBLIES			
37916	Back—Cabinet back (Model 1AX) Mahogany		
37917	Back—Cabinet back (Model 1AX2) Ivory		
35079	Crystal—Dial scale crystal—less dial		
33317	Fastener—Push on fastener for cabinet back		
35089	Fastener—Push on fastener for crystal		
35071	Knob—Ivory control knob (Model 1AX2)		
30883	Knob—Mahogany control knob (Model 1AX)		
30900	Spring—Retaining spring for control knobs		

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL 25X		SPEAKER ASSEMBLIES (RL-81B2)	
CHASSIS ASSEMBLIES (RC-1003)		35570	Cone—Cone complete with voice coil.....
37359	Capacitor—1 section of .005 mfd., and 1 section of 300 mmfd.	37812	Speaker—5-inch permanent magnet speaker complete with cone and voice coil—less output transformer.....
11315	Capacitor—.015 mfd.	(RL-86B-1) (RL-86B-4)	
4870	Capacitor—.025 mfd.		
32787	Capacitor—.05 mfd.	32907	Cap—Dust cap.....
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts, and 1 section of 50 mfd., 150 volts	39448	Coil—Field coil—350 ohms.....
36234	Coil—Oscillator coil.....	39447	Cone—Cone complete with voice coil.....
37911	Condenser—Variable tuning condenser.....		
35344	Control—Volume control and power switch.....	(92379-1)	
32634	Cord—Drive cord (approx. 17-in. overall lgth.).....		
37913	Dial—Dial scale.....		
37914	Indicator—Station selector indicator.....	39995	Coil—Field coil—350 ohms.....
11765	Lamp—Dial lamp.....	39994	Cone—Cone complete with voice coil.....
37915	Loop—Antenna loop complete.....		NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.
35993	Plate—Dial plate—less dial.....		
30189	Resistor—120 ohms, ½ watt.....		
30492	Resistor—22,000 ohms, ½ watt.....		
14583	Resistor—220,000 ohms, ½ watt.....		
30648	Resistor—470,000 ohms, ½ watt.....		
30640	Resistor—2.2 meg., ½ watt.....		
30271	Resistor—4.7 meg., ½ watt.....		
38846	Shaft—Tuning knob shaft.....		
35345	Socket—Dial lamp socket.....		
31251	Socket—Tube socket.....		
31418	Spring—Drive cord spring.....		
36232	Transformer—First I.F. transformer.....		
37364	Transformer—Second I.F. transformer.....		
35056	Transformer—Output transformer.....		
33726	Washer—"C" washer for tuning knob shaft.....		
MISCELLANEOUS ASSEMBLIES			
39774	Back—Cabinet back.....		
35079	Crystal—Dial scale crystal.....		
33006	Feet—Rubber feet—Pkg. of 4.....		
30863	Knob—Control knob.....		
30900	Spring—Retaining spring for knob.....		
RADIOLA 510 AND 520			
CHASSIS ASSEMBLIES (RC-1003-D)			
35097	Can—Shield can for 1st I.F. transformer.....		
35332	Can—Shield can for 2nd I.F. transformer.....		
35348	Capacitor—Electrolytic comprising 1 section of 20 mfd., 150 volts, and 1 section of 30 mfd., 150 volts.....		
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.....		
4937	Capacitor—.01 mfd.....		
36248	Capacitor—.02 mfd.....		
32787	Capacitor—.05 mfd.....		
36234	Coil—Oscillator coil.....		
37911	Condenser—Variable tuning condenser.....		
35344	Control—Volume control and power switch.....		
32634	Cord—Drive cord (approx. 16½-in. overall length).....		
37991	Dial—Dial scale.....		
36786	Indicator—Station selector indicator.....		
11765	Lamp—Dial lamp.....		
37915	Loop—Antenna loop.....		
35993	Plate—Dial plate—less dial.....		
30189	Resistor—120 ohms, ½ watt.....		
30492	Resistor—22,000 ohms, ½ watt.....		
14583	Resistor—220,000 ohms, ½ watt.....		
30648	Resistor—470,000 ohms, ½ watt.....		
12928	Resistor—3.3 meg., ½ watt.....		
30271	Resistor—4.7 meg., ½ watt.....		
38846	Shaft—Tuning knob shaft.....		
34449	Socket—Dial lamp socket.....		
31251	Socket—Tube socket.....		
31415	Spring—Drive cord spring.....		
35098	Spring—To hold I.F. transformers in shield cans.....		
36232	Transformer—First I.F. transformer—less shield can.....		
37364	Transformer—Second I.F. transformer—less shield can.....		
35056	Transformer—Output transformer.....		
33726	Washer—"C" washer for tuning shaft.....		
MISCELLANEOUS ASSEMBLIES			
39778	Back—Cabinet back (Radiola 520).....		
37916	Back—Cabinet back (Radiola 510, 3rd Prod.).....		
35079	Crystal—Dial scale crystal.....		
33317	Fastener—Push fastener to hold back (Radiola 510, 3rd Prod.).....		
35069	Fastener—Push fastener to hold crystal (Radiola 510, 3rd Prod.).....		
33006	Feet—Rubber feet—Pkg. of 4.....		
34428	Knob—Control knob.....		

NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.	OUTPUT TRANS. STOCK NO.
RL-86-A3	35570	39543	
RL-86-B1	39447	39448	ALL "EM" SPEAKERS 36058
RL-86-B4	39447	39448	ALL "PM" SPEAKERS 37912
92161-3	38352	PM	
92161-4	39535	PM	
92161-5	38352	PM	
92322-2	39536	PM	
92374-1	39537	PM	



Identifying Sketches of Five "PM" Speakers.

MODEL HF-1

Eight-Tube, Single-Band, Electric-Tuning, A-C, Superheterodyne

Electrical Specifications

Frequency Range..... 540-1,550 kc
 2 Stations between approx. 540-1,160 kc (buttons 7 and 8)
 3 Stations between approx. 630-1,230 kc (buttons 4, 5, and 6)
 3 Stations between approx. 780-1,550 kc (buttons 1, 2, and 3)
 Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6A8..... First Detector—Oscillator.
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6R7..... Second Det., A-F Amp., and A.V.C.
- (4) RCA-6J5..... Driver
- (5) RCA-6J5..... Phase Inverter and Driver
- (6) RCA-6F6..... Power Output
- (7) RCA-6F6..... Power Output
- (8) RCA-5T4..... Full-Wave Rectifier

A socket is provided for an RCA-6U5 or 6G5 "Magic Eye" Tuning Tube, to facilitate adjustments for electric tuning.

Pilot Lamp..... Mazda No. 46, 6.3 volts, 0.25 amps.

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 115 watts
 Rating B..... 105-125 volts, 25-60 cycles, 115 watts

POWER OUTPUT

Undistorted..... 10 watts
 Maximum..... 12 watts

LOUDSPEAKER

Type..... 12-inch Electrodynamic
 Impedance (v.c.)..... 2.25 ohms at 400 cycles

I-F Alignment Procedure

Cathode-ray Alignment is the recommended method for Model HF1. Connections for the oscillograph are shown in the chassis diagram.

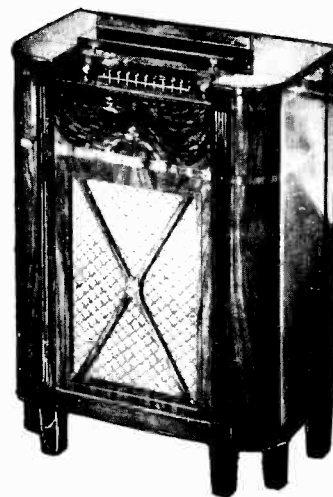
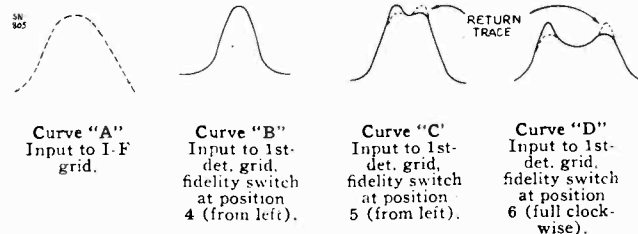
Output Meter Alignment.—If an output meter is used, connect it across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment".

Push in button 8, and adjust the No. 8 trimmers and core to a quiet point near 600 kc. Leave the button pushed in for the following operations:

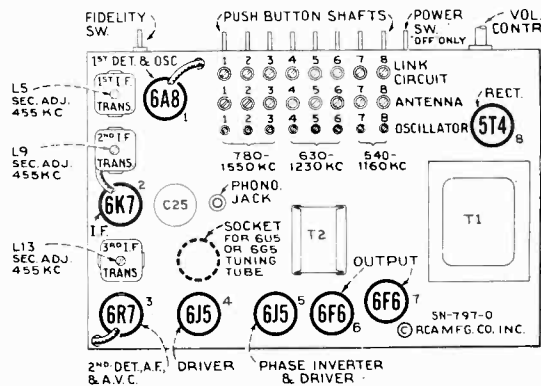
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn Fidelity switch to—	Adjust the following for max. peak and symmetry—
No. 1	6K7 I-F grid cap, in series with .001 mfd.	455 kc (20 kc sweep)	---	L12 and L13 (3rd I-F transf.) (Refer to curve "A")
No. 2	6A8 1st-det. grid cap, in series with .001 mfd.	455 kc (20 kc sweep)	Position 4 (from left)	Turn L4 and L5 (1st I-F) out as far as possible. Peak L8 and L9 (2nd I-F), and then L5 and L4. Readjust L8 and L9 slightly if necessary. (Refer to curve "B")
No. 3	Turn selectivity switch to position 5. Response should be like curve "C".			
No. 4	Turn selectivity switch to position 6 (full clockwise). Response should be like curve "D".			
No. 5	Follow "Adjustments for Electric Tuning".			



Model HF-1

Adjustments for Electric Tuning

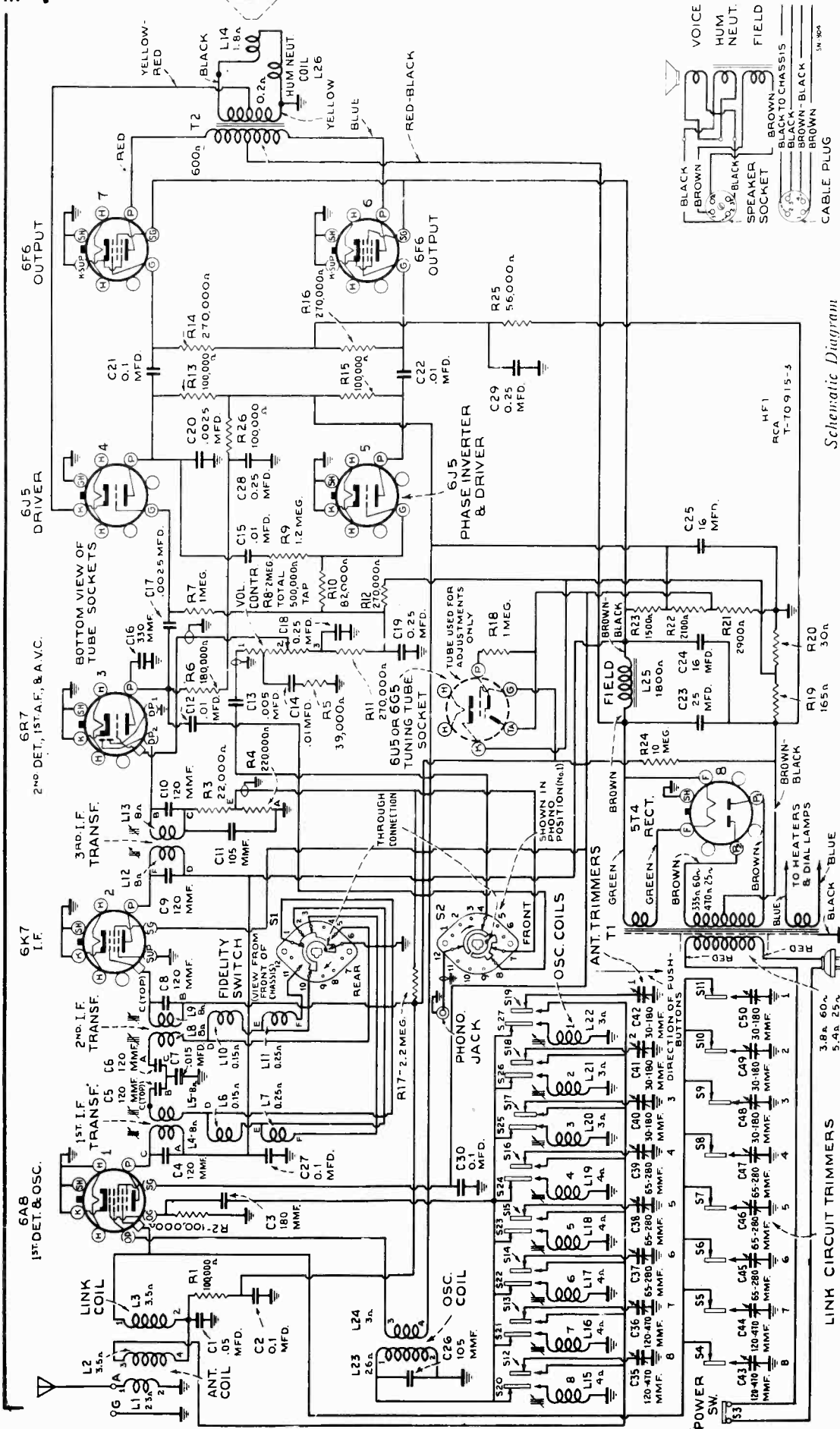
1. Make a list of the desired eight stations, arranged in order from high to low frequencies. It is preferable to select strong local high-quality stations within a radius of 100 miles.
2. Insert an RCA-6U5 or 6G5 Magic Eye tube in the six-prong socket on the chassis. Use an insulated screwdriver or alignment tool (such as RCA Stock No. 31031) for all adjustments. LEAVE THE FIDELITY SWITCH IN POSITION 3 OR 4 WHILE MAKING ADJUSTMENTS FOR ELECTRIC TUNING.
3. Remove the antenna lead-in from the "A" terminal and wrap it once around the green lead to the top cap of the 6A8 tube. (This provides capacity coupling between the antenna and the 6A8 grid.)
4. Push in button No. 1 and turn oscillator core No. 1 to bring in the first station on the list. Adjust the core carefully for peak output as indicated by the Magic Eye. Adjust link trimmer No. 1 for max. output.
5. Remove the antenna lead-in from the 6A8 grid lead and connect the lead-in to the "A" terminal. Adjust antenna trimmer No. 1 and link trimmer No. 1 for peak output as indicated by the Magic Eye.
 (Clockwise rotation of cores and trimmers tunes the circuits to lower frequencies, and counter-clockwise adjustment tunes the circuits to higher frequencies.)
6. Push in button No. 2. Adjust oscillator core No. 2, antenna trimmer No. 2, and link trimmer No. 2 for the second station in the same manner.
7. Follow the same procedure for the remaining stations.



Radiotron and Trimmer Locations

Precautionary Lead Dress

1. The green lead from the antenna coil to the switch, and the green lead from the link coil to the switch, should be dressed away from the oscillator coils, and free of other leads, chassis, and parts.
2. When replacing a dual trimmer, it must be installed so that the top plate (to which the adjustment screws make contact) is the ground side. This is particularly important on C39-C40, and C47-C48, because the sections of these trimmers are of different capacity range and must be correctly oriented in the receiver. Grounding the top plate takes care of this.
3. Maintain color coding on output transformer (T2) as shown in the schematic diagram. This is necessary in order to obtain correct inverse-feedback action.



Schematic Diagram

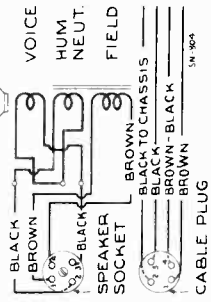
Failure of Oscillator:

A few instruments contained a 33,000 ohm resistor in position R-2, serving as grid leak for the 6A8 oscillator section. It has been found that a 100,000 ohm, 1/2 watt resistor will give better performance over a greater range of tube characteristic and voltage variations. The 100,000 ohm resistor (Stock No. 14560) should be installed if required.

Code Marking of Oscillator Coils:

Coils used in the oscillator circuit in conjunction with "push button" tuning are coded as follows for identification purposes:

Stock No.	Range	Color Code or No.
30747	770-1,650 kc	Red
30748	600-1,260 kc	Orange
30749	540-1,160 kc	Black



VOICE
HUM
NEUT.
FIELD
BLACK TO CHASSIS
BROWN-BLACK
BROWN

LINK CIRCUIT TRIMMERS

3.8a, 60a
5.4a, 25a

ANT. TRIMMERS

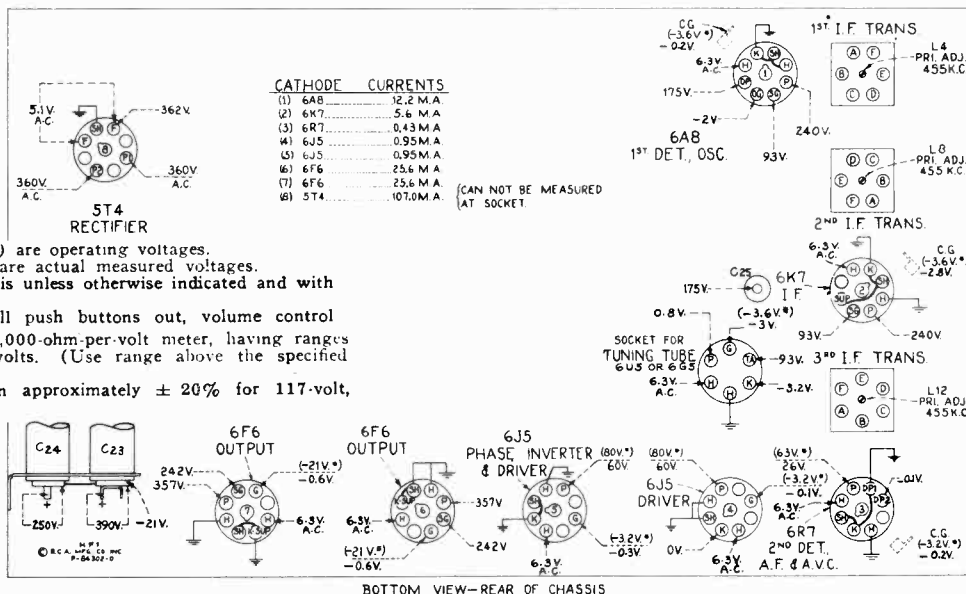
T1 GREEN
BROWN

PHONO JACK

C30 MFD.

POWER SW.

S3, S4, S5, S6, S7, S8, S9, S10, S11



* Note: Values with star (*) are operating voltages. Values not starred are actual measured voltages. Measurements made to chassis unless otherwise indicated and with Magic Eye in socket. Measurements made with all push buttons out, volume control turned to minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, 250, and 500 volts. (Use range above the specified measured voltage.) Values should hold within approximately ± 20% for 117-volt, 60-cycle supply.

Radiotron Socket Voltages

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
13216	Board—Antenna and ground terminal board . . .	13730	Resistor—1 meg., 1/4 watt (R18)
30314	Cap—Grid contact cap.	12013	Resistor—1 meg., 1/10 watt (R7)
12581	Cap—Shield cap for first or third I.F. trans- formers	31056	Resistor—1.2 meg., 1/10 watt (R9)
12607	Cap—Shield cap for second I.F. transformers . .	12679	Resistor—2.2 meg., 1/4 watt (R17)
30750	Capacitor—Adjustable dual trimmer 30-180 Mmfd. (C41, C42, C49, C50)	13601	Resistor—10 meg., 1/4 watt (R24)
31066	Capacitor—Adjustable dual trimmer 30-180 Mmfd. and 65-280 Mmfd. (C39, C40, C47, C48)	12007	Spring—Retaining spring for core Stock Nos. 12006 and 30846
30764	Capacitor—Adjustable dual trimmer 65-280 Mmfd. (C37, C38, C45, C46)	12110	Shield—Radiotron shield cap
30765	Capacitor—Adjustable dual trimmer 120-470 Mmfd. (C35, C36, C43, C44)	14278	Socket—Phonograph socket
30769	Capacitor—105 Mmfd. (C26)	14171	Socket—Pilot lamp socket
30904	Capacitor—105 Mmfd. (C11)	4786	Socket—Adjustment eye socket
12404	Capacitor—120 Mmfd. (C4, C5, C6, C8, C9, C10)	11196	Socket—Radiotron socket (8-contact)
13003	Capacitor—180 Mmfd. (C3)	21061	Switch—Selectivity and tone control switch (S1, S2)
12952	Capacitor—330 Mmfd. (C16)	31070	Switch—Station selector and on-off switch—less push buttons (S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, S25, S26, S27)
5107	Capacitor—.0025 Mfd. (C17, C20)	31063	Transformer—First I.F. transformer (L4, L5, L6, L7, C5, C4)
4838	Capacitor—.005 Mfd. (C13)	31064	Transformer—Second I.F. transformer (L8, L9, L10, L11, C6, C8)
14393	Capacitor—.01 Mfd. (C12, C14, C15, C22)	31065	Transformer—Third I.F. transformer (L12, L13, C9, C10, C11, R3, R4)
11315	Capacitor—.015 Mfd. (C7)	31062	Transformer—Output transformer (T2)
4886	Capacitor—.05 Mfd. (C1)	11211	Transformer—Power transformer 105-120 volts, 50-60 cycle (T1)
4839	Capacitor—.1 Mfd. (C2, C21, C27, C30)	11212	Transformer—Power transformer 105-120 volts, 25-60 cycle (T1)
12484	Capacitor—.25 Mfd. (C18, C19, C28, C29)	31060	Volume Control (R8)
30105	Capacitor—16 Mfd. (C25)	REPRODUCER ASSEMBLIES (Speaker RL70E-4)	
5212	Capacitor—16 Mfd. (C24)	13866	Cap—Dust cap for cone center
14531	Capacitor—25 Mfd. (C23)	11234	Coil—Field coil (L25)
31068	Coil—Link coil (L3)	11469	Coil—Neutralizing coil (L26)
31069	Coil—Antenna coil (L1, L2)	12667	Cone—Reproducer cone, voice coil, center sus- pension, and dust cap (L14)
30749	Coil—Oscillator coil (L15, L16)	5039	Plug—4-contact male plug for reproducer
30748	Coil—Oscillator coil (L17, L18, L19)	31072	Reproducer complete
30747	Coil—Oscillator coil (L20, L21, L22)	14357	Washer—Spring washer to hold field coil securely
31067	Coil—Oscillator coil (L23, L24)	MISCELLANEOUS ASSEMBLIES	
5040	Connector—4-contact female speaker connector . .	31074	Button—Push button for on-off switch
30848	Core—Adjustable core and stud for oscillator coils	30981	Button—Push button for station selector switch
12006	Core—Adjustable core and stud for I.F. trans- formers	13103	Cap—Pilot lamp cap
5226	Lamp—Pilot lamp	31095	Discs—10 celluloid protector discs for call-letter markers
30865	Resistor—Voltage divider comprising one 1,500 ohm, one 2,100 ohm, one 2,900 ohm, two 15 ohm, and one 165 ohm sections (R19, R20, R21, R22, R23)	31073	Escutcheon—Push button escutcheon
14284	Resistor—22,000 ohms, 1/10 watt (R3)	14269	Knob—Volume control or selectivity and tone switch knob
12266	Resistor—39,000 ohms, 1/4 watt (R5)	31028	Marker—Station call letter markers for push buttons
12286	Resistor—56,000 ohms, 1/4 watt (R25)	31048	Plug—2-contact male plug for phono jack
12719	Resistor—82,000 ohms, 1/10 watt (R10)	14270	Spring—Retaining spring for knob Stock No. 44269
14580	Resistor—100,000 ohms, 1/4 watt (R1, R2, R13, R15, R26)	32582	Hinge—Cabinet lid hinge
13698	Resistor—180,000 ohms, 1/4 watt (R6)	31434	Switch—"On-off" power switch (S3)
11398	Resistor—220,000 ohms, 1/10 watt (R4)		
12199	Resistor—270,000 ohms, 1/4 watt (R11, R12, R14, R16)		

MODELS QB1 and QB9

Chassis No. RC-529-A

RC-529-H

Five-Tube, Five-Band, Battery-Operated, Superheterodyne Receiver

MODEL QB 1

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.9-9.5 mc (103-31.5 m)
 Short Wave..... 9.5-11.8 mc (31.5-25.4 m)
 Short Wave..... 11.7-15.2 mc (25.6-19.7 m)
 Short Wave..... 15.05-23 mc (19.9-13 m)

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

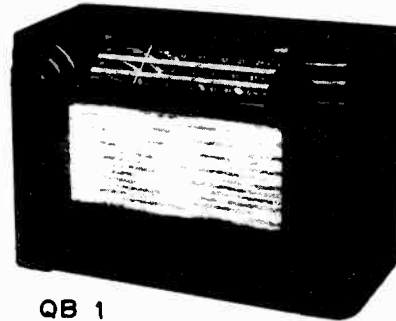
(1) RCA-6SA7..... 1st-Det.—Osc.
 (2) RCA-6S7..... I-F Amplifier
 (3) RCA-6T7-G..... 2nd-Det., A.V.C., and 1st Audio
 (4) RCA-6W7-G..... Driver
 (5) RCA-6Z7-G..... Power Output

POWER OUTPUT Battery Supply A-C Supply

Undistorted..... 3.1 watts..... 3.0 watts
 Maximum..... 4.5 watts..... 4.0 watts

POWER SUPPLY RATINGS

With vibrator power supply unit (RS-115):
 6.3 volts, total current drain..... 3.2 amperes
 With A-C power supply unit (CV-9X):
 100-130/140-160/195-250 volts, 25-60 cycles..... 38 watts



QB 1

LOUDSPEAKER (RL-92-5)
 Type..... 6-inch, permanent-magnet dynamic
 Voice-coil Impedance at 400 cycles..... 3.4 ohms

CABINET DIMENSIONS.....	Height 10 7/8 in.	Width 15 3/4 in.	Depth 7 7/8 in.
Net Weight.....	17 lbs.		
Tuning Drive Ratio.....	25:1		

MODEL QB 9

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.9-9.5 mc (103-31.5 m)
 Short Wave..... 9.5-11.8 mc (31.5-25.4 m)
 Short Wave..... 11.7-15.2 mc (25.6-19.7 m)
 Short Wave..... 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

(1) RCA-6SA7..... 1st-Det.—Osc.
 (2) RCA-6SS7..... I-F Amplifier
 (3) RCA-6T7-G..... 2nd-Det., A.V.C., and 1st Audio
 (4) RCA-6W7-G..... Driver
 (5) RCA-6Y7-G..... Power Output

POWER OUTPUT

Undistorted..... 1.4 watts
 Maximum..... 2.1 watts

POWER SUPPLY RATINGS

With vibrator power supply unit (RS-115B):
 6.3 volts, total current drain..... 2.7 amperes

LOUDSPEAKER (RL-79C3)

Type..... 6-inch, electrodynamic
 Voice-coil Impedance at 400 cycles..... 3.4 ohms

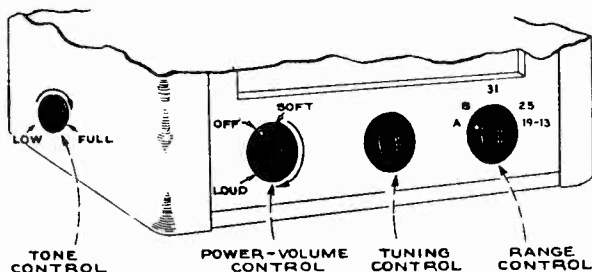


QB 9

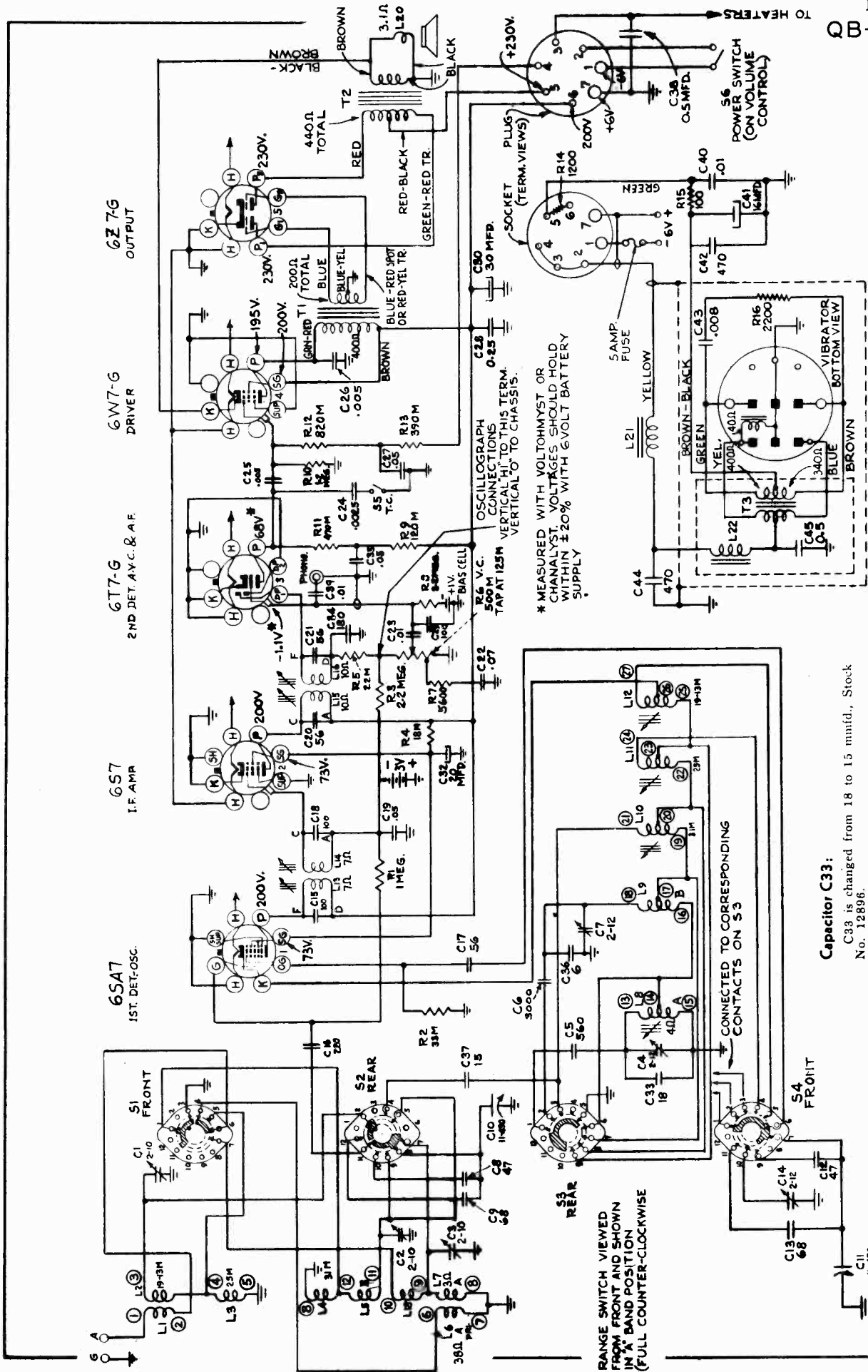
CABINET DIMENSIONS.....	Height 10 7/8 in.	Width 17 7/8 in.	Depth 7 7/8 in.
Net Weight.....	17 lbs.		
Tuning Drive Ratio.....	25:1		

Precautionary Lead Dress.—

- All oscillator coil leads must be kept apart from each other as well as other leads and parts. No two leads may be less than 1/8 inch apart.
- Oscillator grid coupling condenser, C17, must bear tightly against switch or other condensers, and the green gang lead must bear against C17 from the other side. Cement with "amberoid."

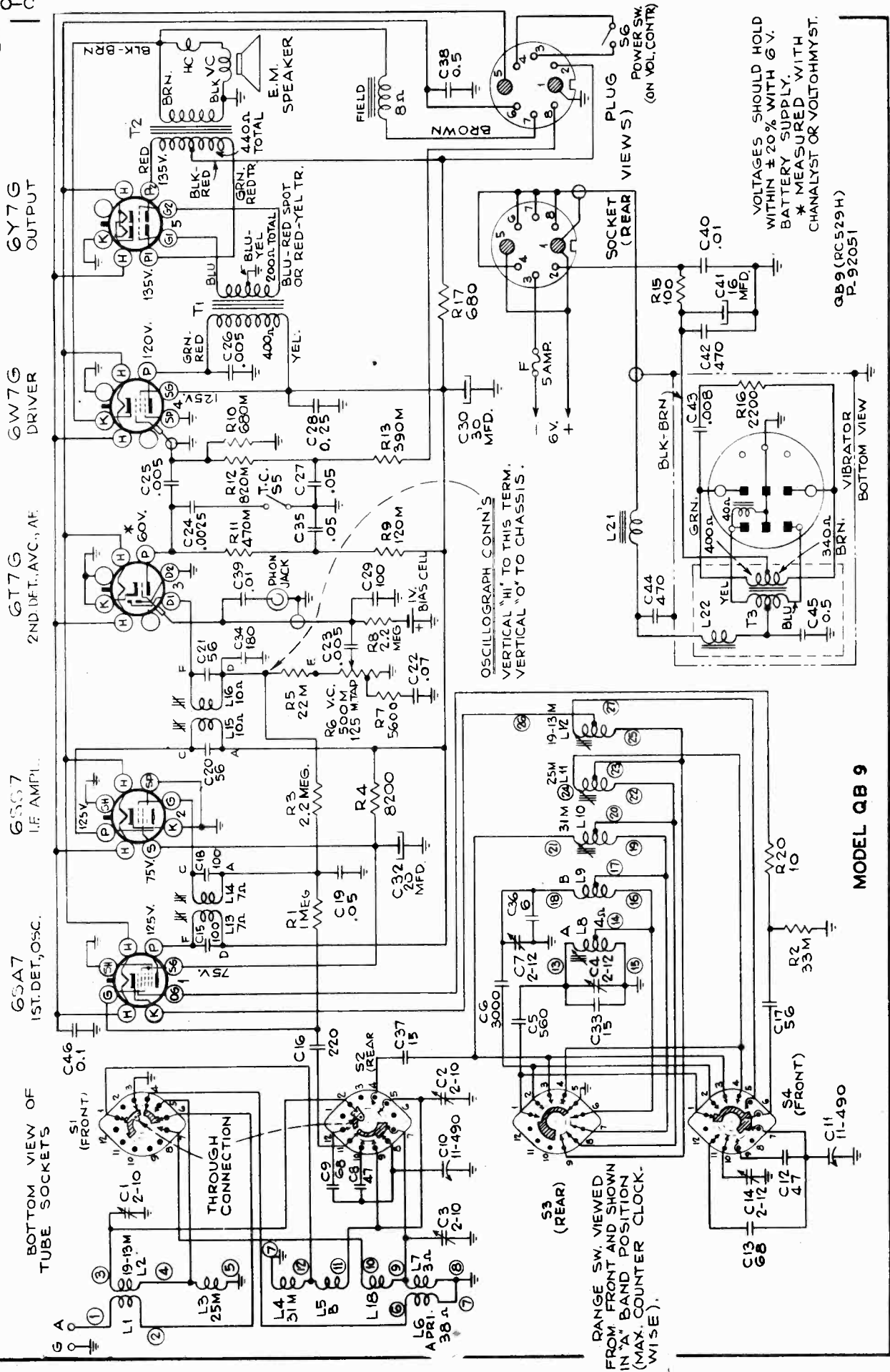


- C5 (560 mmf.) must be placed exactly midway between the two (19-13M and 25M) coils; it must be at least 1/8 inch away from any coil leads.
- C12 (47 mmf.) condenser must be at least 1/8 inch away from all parts and leads.
- C13 (68 mmf.) condenser must bear against the switch and/or C17, grid coupling condenser and be cemented with "amberoid," or else clear all parts and leads by at least 1/8 inch.
- Antenna grid coupling condenser must be as far away from all metal parts as possible.
- Braids between gang and chassis must be so soldered as to be as far away from stator lugs as possible.
- Both condensers on the front switch lug No. 8 (with green antenna gang lead) must be as far away from metal shields of the switch and all other metal as possible.
- AVC by-pass condenser (C19) must clear the tuning flywheel by at least 1/8 inch.
- Make sure the bias cell polarity is correct.



Capacitor C33:
 C33 is changed from 18 to 15 mmd., Stock No. 12896.

MODEL QB 1



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

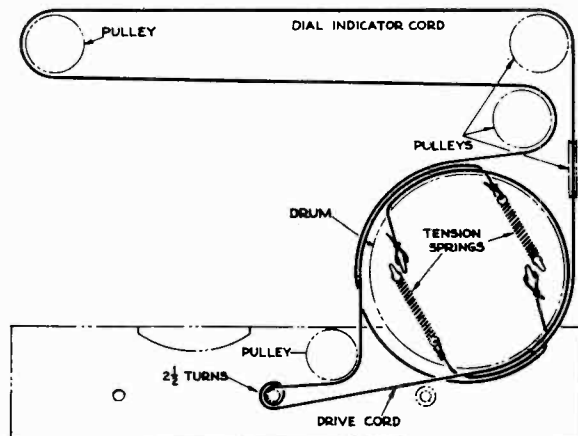
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of the test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

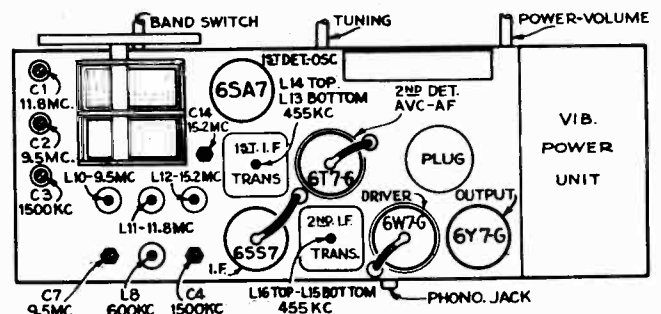
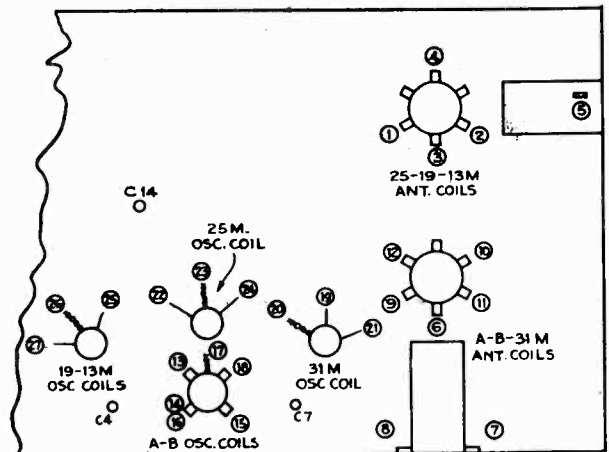
For additional information, refer to booklet "RCA Victor Receiver Alignment."



Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
On oscillator-circuit cores and trimmers, if two peaks can be obtained, use the one of minimum inductance or minimum capacity.					
1	1st I-F grid cap, in series with .01 mfd.	455 kc	A	Quiet point near 180°	L15 and L16 2nd I-F transformer
2	1st Det. grid, in series with .01 mfd.				L13 and L14 1st I-F transformer
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L11 (osc.) C1 (ant.)
4		15.2 mc		17°	C14 (osc.)*
5		Repeat steps 3 and 4.			
6		15.2 mc	19-13M	156°	L12 (osc.)
7		9.5 mc	31M	156°	L10 (osc.) C2 (ant.)
8		9.5 mc	B	11.5°	C7 (osc.)
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C4 (osc.) C3 (ant.)
10		600 kc		150°	L8 (osc.) (Rock gang)
11	Repeat steps 9 and 10.				

* Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

NOTE: Oscillator tracks above signal on all bands.



MODEL QB 1

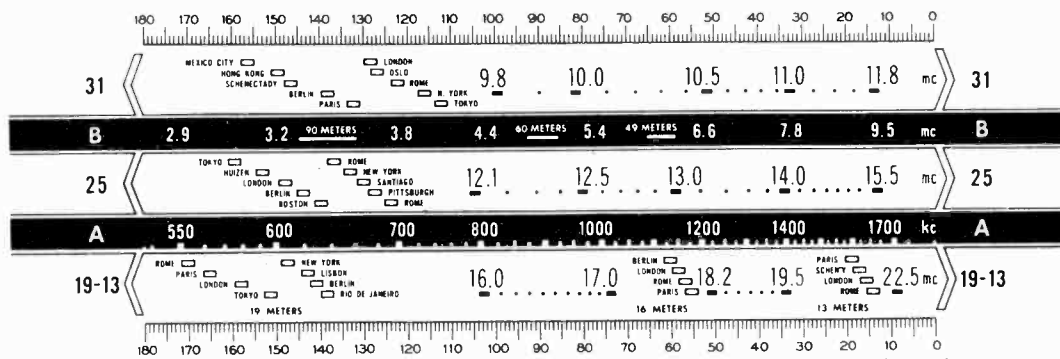
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-529A)			
35642	Calibrator—Drive drum calibrator	30963	Resistor—820,000 ohms, 1/4 watt
12714	Capacitor—Air trimmer, medium	13730	Resistor—1 meg., 1/4 watt
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5-10 mmfd.	30208	Resistor—1.2 meg., 1/4 watt
35646	Capacitor—6 mmfd.	12679	Resistor—2.2 meg., 1/4 watt
36012	Capacitor—15 mmfd.	14350	Screw—No. 8-32 square head set screw for drive drum
31350	Capacitor—18 mmfd.	35637	Shaft—Tuning shaft
35644	Capacitor—47 mmfd., ceramic	35787	Socket—Phono input socket
37329	Capacitor—47 mmfd., silvered mica	31251	Socket—Tube socket
30949	Capacitor—56 mmfd., mica	13638	Spring—Drive cord spring
12723	Capacitor—56 mmfd., moulded mica	31118	Spring—Pointer cord spring
35645	Capacitor—68 mmfd., ceramic	35640	Support—Drive cord pulley support with one pulley
13057	Capacitor—68 mmfd., silvered mica	35639	Support—Drive cord pulley support with two pulleys
30904	Capacitor—100 mmfd., mica	35622	Support—Tuning shaft and flywheel support
12720	Capacitor—100 mmfd., moulded mica	33397	Switch—Tone switch
13003	Capacitor—180 mmfd.	35636	Transformer—First I.F. transformer
12694	Capacitor—220 mmfd.	35628	Transformer—Second I.F. transformer
31433	Capacitor—560 mmfd.	37898	Transformer—Driver transformer
35643	Capacitor—3,000 mmfd.	37924	Transformer—Output transformer
34159	Capacitor—.0025 mfd.	33726	Washer—"C" washer for pulley
4838	Capacitor—.005 mfd.	2917	Washer—"C" washer for tuning shaft
4937	Capacitor—.01 mfd.	POWER SUPPLY ASSEMBLIES	
32787	Capacitor—.05 mfd. (C19, C27)	30433	Capacitor—470 mmfd., moulded mica
4886	Capacitor—.05 mfd. (C35)	30673	Capacitor—470 mmfd., mica
14626	Capacitor—.07 mfd.	35573	Capacitor—.008 mfd.
12484	Capacitor—0.25 mfd.	4937	Capacitor—.01 mfd.
37868	Capacitor—0.5 mfd.	32405	Capacitor—Electrolytic 16 mfd., 350 volts
37250	Capacitor—Electrolytic—20 mfd., 250 volts	37834	Case—Power supply case only—less case cover
37867	Capacitor—Electrolytic—30 mfd., 250 volts	14289	Clip—Battery clips
31581	Cell—Bias cell	37925	Coil—Choke coil
35632	Coil—Antenna coil—"A" band	5140	Fuse—5 Amperes
35631	Coil—Antenna coil—spread band	34765	Resistor—100 ohms, 1/4 watt
35623	Coil—Oscillator coil—"A" and "B" bands	6134	Resistor—1,200 ohms, 1 watt
35624	Coil—Oscillator coil—"19-13 meter" band	35572	Resistor—2,200 ohms, 1/4 watt
35625	Coil—Oscillator coil—"25 meter" band	14409	Socket—Female socket for battery cable
35626	Coil—Oscillator coil—"31 meter" band	12241	Socket—Vibrator socket
35619	Condenser—Variable tuning condenser	35544	Transformer—Vibrator transformer
37833	Control—Volume control and power switch	35543	Vibrator—Plug-in vibrator
32634	Cord—Drive cord (approx. 28 inch overall length)	SPEAKER ASSEMBLIES (RL-92-5)	
34662	Cord—Pointer cord (approx. 54 inch overall length)	32907	Cap—Dust cap
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil	36077	Cone—Cone complete with voice coil
31259	Core—Adjustable core and stud for "19-13 meter," "25 meter," and "31 meter" bands oscillator coils	5118	Plug—3-prong male plug for speaker
35627	Drum—Drive drum—less calibrator	MISCELLANEOUS ASSEMBLIES	
35638	Flywheel—Tuning shaft flywheel	36103	Decalcomania—"On-off" decal
31580	Holder—Bias cell holder	37839	Decalcomania—Range switch decal
5119	Plug—3-contact female plug for speaker cable	35392	Decalcomania—Trade mark decal
14404	Plug—7-prong male plug for power input cable	35391	Decalcomania—Tuning decal
35641	Pulley—Drive cord pulley	35712	Dial—Glass dial scale
35630	Pulley—Drive cord pulley located between the range switch shaft and the tuning shaft	37838	Frame—Dial frame complete—less indicator and dial scale
13714	Resistor—5,600 ohms, 1/4 watt	35648	Indicator—Station selector indicator
30151	Resistor—18,000 ohms, 1 watt	37837	Knob—Range switch or volume control knob
13998	Resistor—22,000 ohms, 1/4 watt	35650	Knob—Tone switch knob
12454	Resistor—33,000 ohms, 1/4 watt	34489	Knob—Tuning knob
13734	Resistor—120,000 ohms, 1/4 watt	14270	Spring—Retaining spring for knobs
13479	Resistor—390,000 ohms, 1/4 watt		
30648	Resistor—470,000 ohms, 1/4 watt		

Range Switch in QB1:

In Replacement Parts, add Stock No. 35621 range switch.



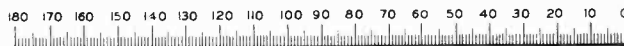
The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

MODEL QB 9

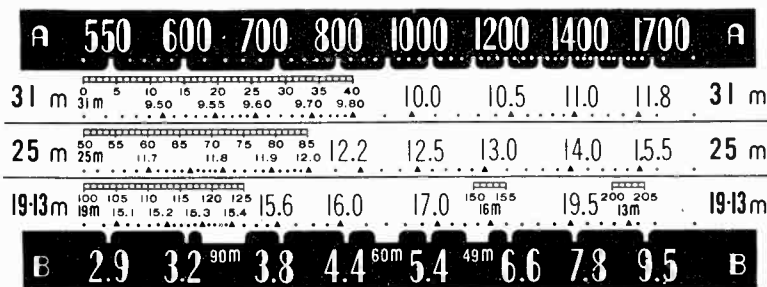
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-529H)		
37976	Bracket—Tone control bracket	30649	Resistor—2.2 megohm, 1/4 watt
35642	Calibrator—Drive drum calibrator	14350	Screw—No. 8-32 square head set screw
37250	Capacitor—Electrolytic, 20 mfd., 250 volts	35949	Shaft—Tuning knob shaft
37867	Capacitor—Electrolytic, 30 mfd., 250 volts	35787	Socket—Phono input socket
12714	Capacitor—Air trimmer, medium, 2-12 mmf.	31251	Socket—Tube socket
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5-10 mmf. each	13638	Spring—Drive cord spring
35646	Capacitor—6 mmf., ceramic	31418	Spring—Indicator cord spring
36012	Capacitor—15 mmf., ceramic	31261	Spring—Retaining spring for adjustable core and studs
39608	Capacitor—15 mmf., silvered mica	12007	Spring—Retaining spring for I.F. transformers—core and stud
35644	Capacitor—47 mmf., ceramic	35640	Support—Pulley support complete with pulley
39620	Capacitor—47 mmf., silvered mica	35639	Support—Pulley support complete with three (3) pulleys
12723	Capacitor—56 mmf., moulded	35622	Support—Tuning shaft and flywheel support
30949	Capacitor—56 mmf., un moulded	35947	Switch—Range switch
35645	Capacitor—68 mmf., ceramic	39738	Switch—Tone control switch
39624	Capacitor—68 mmf., silvered mica	35636	Transformer—First I.F. transformer
39628	Capacitor—100 mmf., moulded	35628	Transformer—Second I.F. transformer
30904	Capacitor—100 mmf., un moulded	37898	Transformer—Driver transformer
13003	Capacitor—180 mmf., moulded	37924	Transformer—Output transformer
39636	Capacitor—220 mmf., moulded	33726	Washer—"C" washer for pulley No. 35630
39646	Capacitor—560 mmf., silvered mica	2917	Washer—"C" washer for tuning shaft
35643	Capacitor—3.000 mmf., tubular		VIBRATOR POWER SUPPLY ASSEMBLIES (RS-115B)
34459	Capacitor—.0025 mfd., 1,400 volts	32405	Capacitor—Electrolytic, 16 mfd., 350 volts
4838	Capacitor—.005 mfd., 500 volts	30433	Capacitor—470 mmf., moulded
4937	Capacitor—.01 mfd., 1,000 volts	35573	Capacitor—.008 mfd., 1,200 volts
4886	Capacitor—.05 mfd., 400 volts	37514	Capacitor—.01 mfd., 1,000 volts
14626	Capacitor—.07 mfd., 400 volts	14289	Clip—Battery clip (1 set)
32786	Capacitor—.1 mfd., 300 volts	37925	Coil—Choke coil
37801	Capacitor—.25 mfd., 300 volts	5140	Fuse—5 amp.
12741	Capacitor—.5 mfd., 150 volts	33969	Plug—Female plug for power supply cable
31581	Cell—Bias cell	34765	Resistor—100 ohms, 1/4 watt
35632	Coil—Antenna coil, "A" band	34767	Resistor—2,200 ohms, 1/4 watt
35631	Coil—Antenna coil, spread band	12241	Socket—Vibrator socket
35623	Coil—Oscillator coil, "A" and "B" band	39739	Transformer—Vibrator transformer
35624	Coil—Oscillator coil, 19-13 meter band	35543	Vibrator—Plug-in vibrator
35625	Coil—Oscillator coil, 25 meter band		SPEAKER ASSEMBLIES (RL-79C3)
35626	Coil—Oscillator coil, 31 meter band	31825	Cap—Dust cap
35619	Condenser—Variable tuning condenser	39741	Coil—Field coil (8 ohms)
38412	Control—Volume control and power switch	32906	Coil—Neutralizing coil
32634	Cord—Drive cord (approx. 28-in. overall length)	38392	Cone—Cone complete with voice coil
34662	Cord—Indicator cord (approx. 53-in. overall length)	5118	Plug—3-prong male plug for speaker
35788	Core—Adjustable core and stud for "A" and "B" bands oscillator coil		NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.
12006	Core—Adjustable core and stud for I.F. transformers		MISCELLANEOUS ASSEMBLIES
31259	Core—Adjustable core and stud for 19-13 meter, 25 meter and 31 meter bands oscillator coils	36103	Decalcomania—Power switch decal
35627	Drum—Drive drum—less calibrator	37839	Decalcomania—Range switch decal
35638	Flywheel—Tuning shaft flywheel	35392	Decalcomania—Trade mark decal
31580	Holder—Bias cell holder	35391	Decalcomania—Tuning decal
5119	Plug—3-contact plug for speaker cable	39744	Dial—Glass dial scale
33789	Plug—8-prong male plug for power input cable	39743	Indicator—Station selector indicator
35641	Pulley—Drive cord pulley	35650	Knob—Tone control knob
35630	Pulley—Drive cord pulley located between knob shafts	37256	Knob—Tuning knob
34761	Resistor—10 ohms, 1/4 watt	38334	Knob—Volume control or range switch knob
12262	Resistor—680 ohms, 1/4 watt	39742	Plate—Dial plate complete with pointer guide
13714	Resistor—5,600 ohms, 1/4 watt	14270	Spring—Retaining spring for knob No. 35650
30149	Resistor—8,200 ohms, 1/4 watt	30900	Spring—Retaining spring for knobs Nos. 37256 and 38334
30492	Resistor—22,000 ohms, 1/4 watt		
12454	Resistor—33,000 ohms, 1/4 watt		
13734	Resistor—120,000 ohms, 1/4 watt		
13479	Resistor—390,000 ohms, 1/4 watt		
30648	Resistor—470,000 ohms, 1/4 watt		
30562	Resistor—680,000 ohms, 1/4 watt		
30963	Resistor—820,000 ohms, 1/4 watt		
30652	Resistor—1 megohm, 1/4 watt		

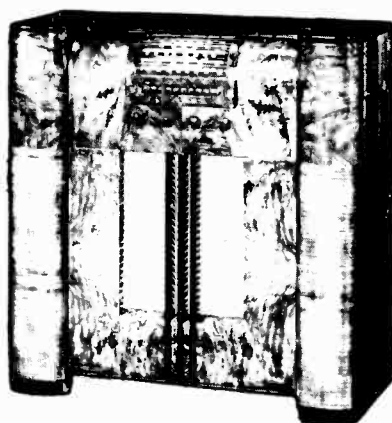


Calibration Scale

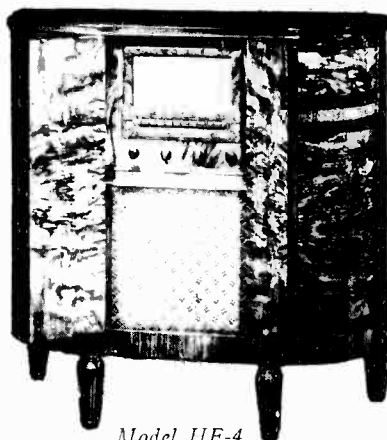


MODELS HF-2, HF-4, U-130

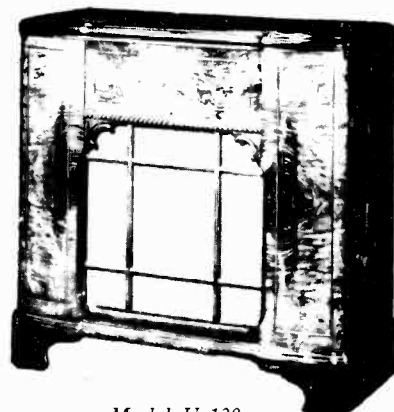
Twelve-Tube, Five-Band, Electric-Tuning, A-C, Radios and Victrola



Model HF-2



Model HF-4



Model U-130

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"49 Meter" Band.....	5.92-6.23 mc
"31 Meter" Band.....	9.48-9.69 mc
"25 Meter" Band.....	11.68-11.94 mc
"19 Meter" Band.....	15.08-15.39 mc

R-F ALIGNMENT FREQUENCIES

"A" Band.....	600 kc (osc.); 1,500 kc (osc., det., ant.)
"49 M".....	6.0 mc (osc.)
"31 M".....	9.60 mc (osc., det., ant.)
"25 M".....	11.8 mc (osc.)
"19 M".....	15.2 mc (osc.)

Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

(1) RCA-6K7..... R-F Amplifier	(5) RCA-6K7..... 2nd I-F Amp.	(9) RCA-6F6..... Power Output
(2) RCA-6A8..... First Detector	(6) RCA-6R7... 2nd Det., 1st A.F., A.V.C., Muting	(10) RCA-6F6..... Power Output
(3) RCA-6J7. Heterodyne Oscillator	(7) RCA-6J5..... 2nd A.F. Amp.	(11) RCA-6U5..... Tuning Indicator
(4) RCA-6K7..... 1st I-F Amp.	(8) RCA-6J5..... Phase Inverter	(12) RCA-5T4..... Rectifier

Pilot Lamps: (4)..... 3—6.3 V., 0.25 Amp. Mazda No. 44; 1—6.3 V., 0.15 Amp. Mazda No. 47

POWER SUPPLY RATINGS (Model U-130)

		Radio Only	Total
Rating A6.....	105-125 volts, 60 cycles, 125 watts	150 watts	150 watts
Rating A.....	105-125 volts, 50-60 cycles, 125 watts	150 watts	150 watts
Rating B2.....	105-125 volts, 25 cycles, 125 watts	150 watts	150 watts
Rating C6.....	105-130/140-160/200-250 volts, 60 cycles, 125 watts	150 watts	150 watts
Rating C.....	105-130/140-160/200-250 volts, 50-60 cycles, 125 watts	150 watts	150 watts

POWER SUPPLY RATINGS (Models HF-2 and HF-4)

Rating A.....	105-125 volts, 50-60 cycles, 125 watts
Rating B.....	105-125 volts, 25 cycles, 125 watts
Rating C.....	100-130/140-160/195-250 volts, 50-60 cycles, 125 watts

POWER OUTPUT

Undistorted.....	10 watts
Maximum.....	12 watts

Radio Only

Total

LOUDSPEAKER

Type.....	12-inch Electrodynamical
Voice Coil Impedance.....	2.2 ohms at 400 cycles

PHONOGRAPH (Model U-130 only)

Type.....	Automatic
Record Capacity.....	Eight 10-inch, or Seven 12-inch
Turntable Speed.....	78 r.p.m. (Adjustable)
Type Pickup.....	Crystal
Pickup Impedance.....	80,000 ohms at 1,000 cycles

ADJUSTMENTS FOR ELECTRIC TUNING

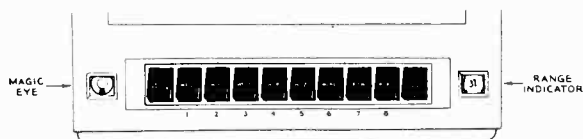
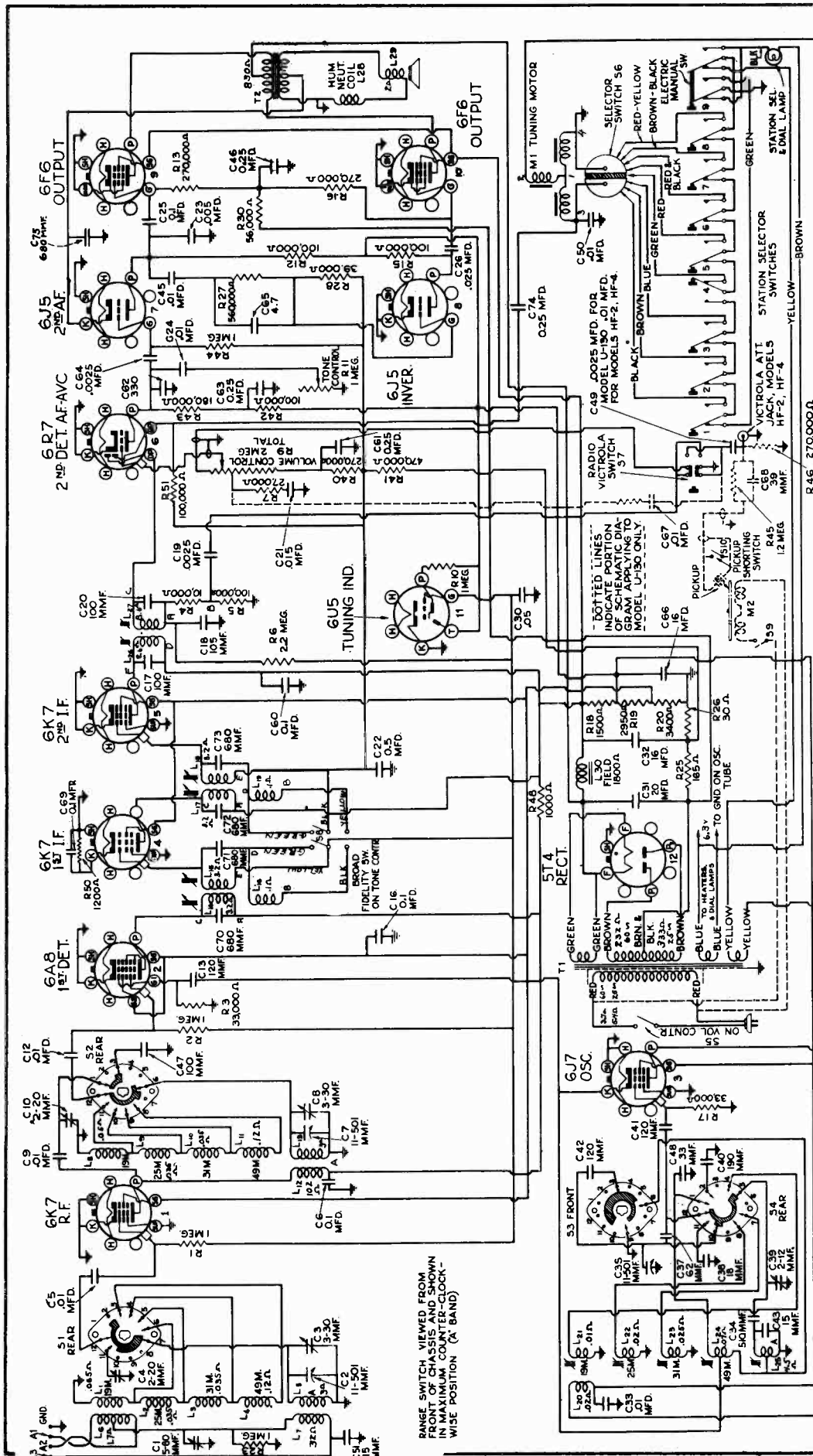


Figure 1—Location of Controls

- Turn Fidelity Control maximum counter-clockwise.
- Press down the "dial-tuning" (right-hand) button.
- Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.
- Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons will stay down, central dial lamp will light brightly or dully, depending on which side of disc, contact is. Move station-setting contact No. 1 to the insulating line on the disc at rear of gang. When the contact is correctly centered on the insulating line, the central dial lamp will go out.
- Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
- Repeat this process for the remaining stations.

- The left-hand push-button is a Victrola-Attachment switch. The right-hand push-button is for dial tuning.
- Make a list of the desired eight stations, arranged in order from low to high frequencies.
 - Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.



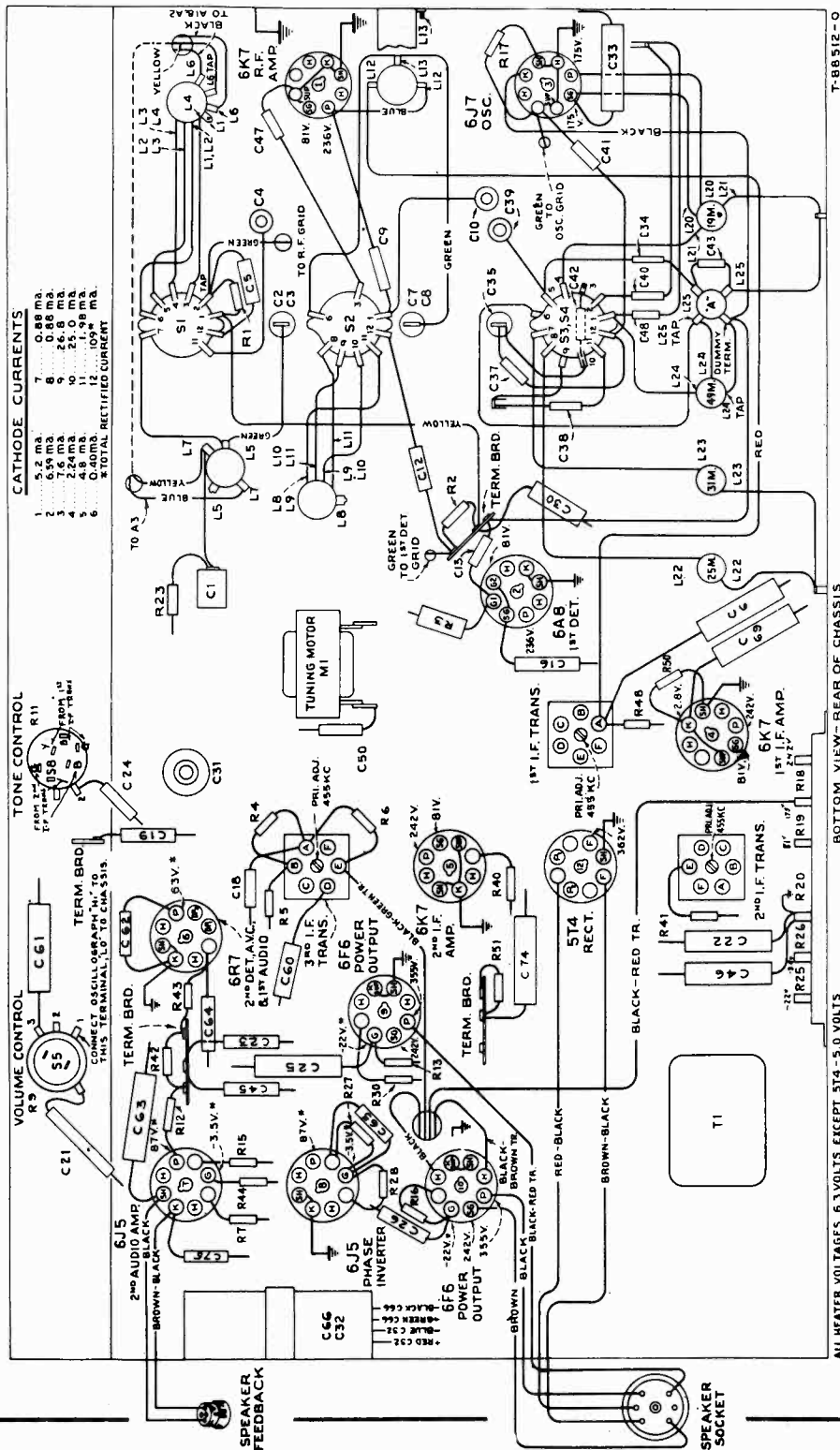
Schematic Circuit Diagram

RCA Victor Master Antenna Kit.—Connect the twisted-pair transmission line to terminals A1 and A2 on the terminal board at rear of chassis. Connect the counter-poise to A3. Terminal G may be connected to ground, but this connection is not necessary for correct operation.

Other Antennas.—Use terminals A1 and A3 on the receiver terminal board as antenna and ground connecting points respectively. Terminal A3 may be connected to terminal G, unless this causes interference, in which case this connection should be omitted.

Precautionary Lead Dress.—Leads on spread-band antenna and r-f coils and trimming capacitors should be kept short as possible. Keep black lead from L25 away from C38 and L24. Keep black lead from L25 to cathode lug on 6J7 away from R17. Blue and black leads from antenna board to coils must be twisted.

The power cord lead and the primary lead of the power transformer which connect to the power switch should be twisted together, and kept away from Volume Control. Keep C13 away from the 6A8 control grid lead and from the chassis. Shielded leads to Victrola jack must be dressed away from switch terminals and jack.



Noise-Reducing Adjustment.—After the RCA Victor Master Antenna Kit is connected to the receiver, tune the receiver to a point near 900 kc where no station is heard. Turn volume control clockwise until noise is heard. If no noise of a regular character is audible, start any brush-type motor-driven appliance, such as a vacuum cleaner, electric razor, refrigerator, etc., but do not bring it too near the receiver. This will generate noise as a continuous crackling, or buzz. Adjust C1 to a point where this noise is reduced to a minimum.

This adjustment is effective only when the RCA Victor Master Antenna is used. For all other types of antenna, the noise-adjustment trimmer should be screwed all the way down.

R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

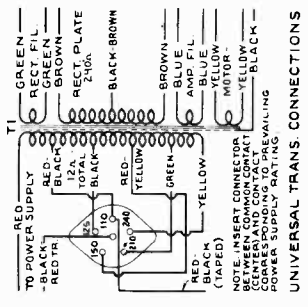
*** NOTE:** Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

NOTE: Due to inverse feedback used on these models, it is very important to connect speaker, speaker cable, and feedback cable, exactly as shown.

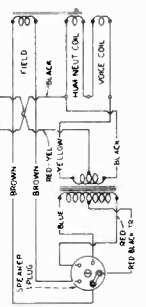
Reduction of Residual Hum:

It may be found in a few instances that hum induction will take place between the power transformer wiring and the volume control circuit. This can be prevented or remedied by dressing the brown lead connected to No. 6 (P) terminal of the 5T4 socket well away from the No. 6 (blank) pin of the 6K7 I.F. socket and from the black lead connected to same.

REFER TO INDEX FOR INFORMATION ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER.



Above — Universal Power Transformer Connections.
(110-volt supply for a Vic-trola Attachment may be obtained by connecting the motor to the red and the red-black leads.)

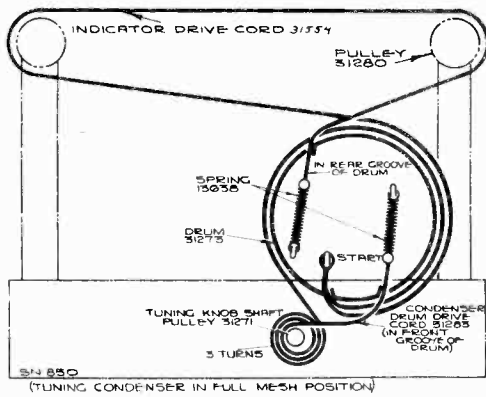


Above — Connections and Colors of Loudspeaker Wiring.

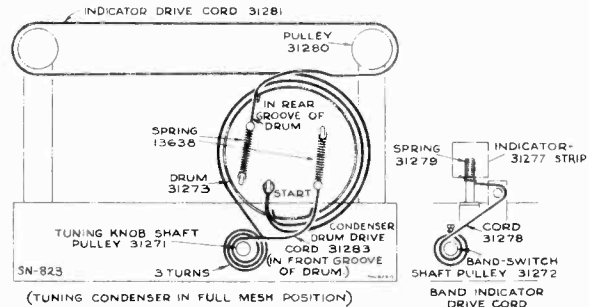
T-88512-C

BOTTOM VIEW—REAR OF CHASSIS

ALL HEATER VOLTAGES 6.3 VOLTS EXCEPT 5T4-5.0 VOLTS



Models HF-4, U-130



Model HF-2

Drive Cord Arrangement for Tuning Condenser, Dial Indicator, and Band Switch

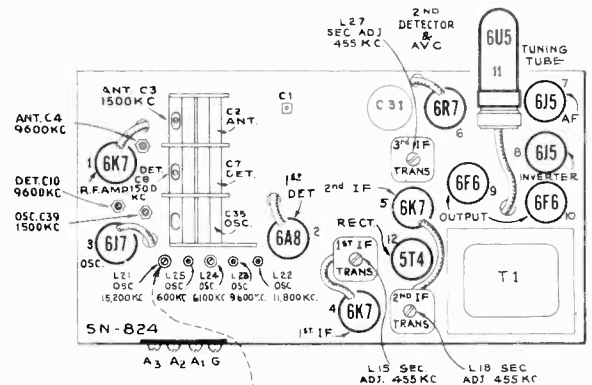
ALIGNMENT PROCEDURE

Pointer for Calibration Scale.—Improve a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.



CAUTION: THIS ADJ. SCREW MUST PROJECT AT LEAST 3/4" FROM TOP OF CHASSIS TO PREVENT SHORTING +B.

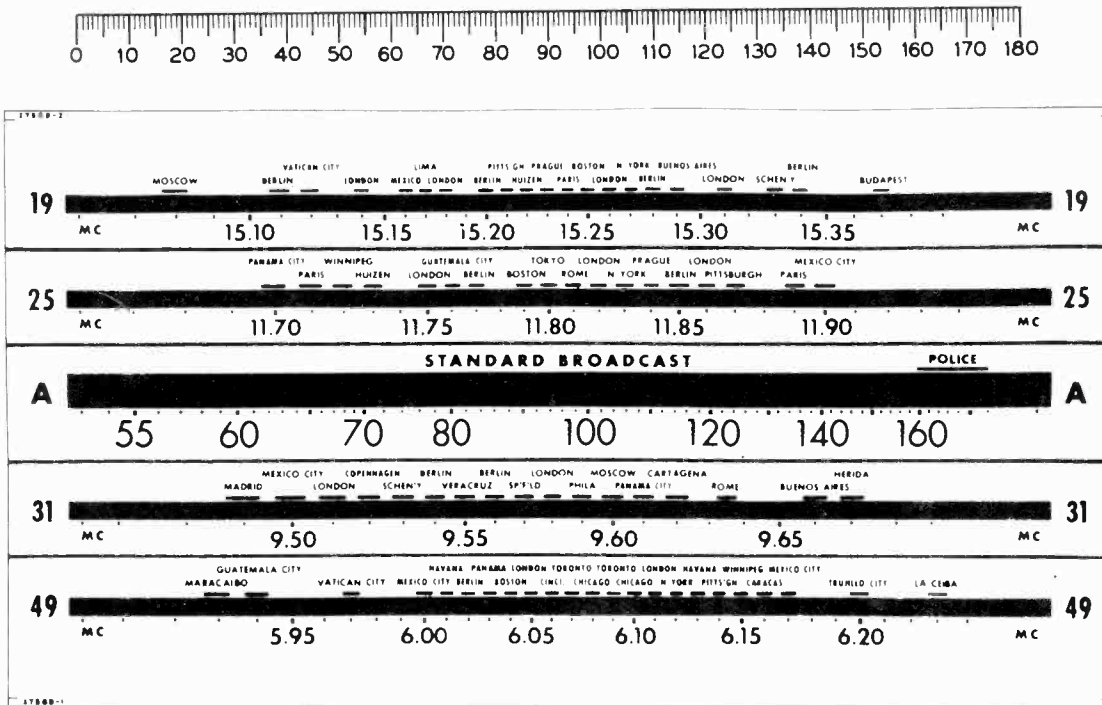
Tube and Trimmer Locations

Steps	Connect the high side of test-oscillator to—	Tune Test-Oscillator to—	Range Selector	Set Tuning Gang to—	Adjust the following for max. peak output
No. 1	Turn Fidelity Control to Maximum Counter-clockwise position.				
No. 2	6K7 2nd I-F grid cap in series with .01 mfd.	455 kc	"A"	Quiet Point between 550-750 kc	L26, L27 (3rd I-F transformer)
No. 3	6K7 1st I-F grid cap in series with .01 mfd.	455 kc	"A"	Quiet Point between 550-750 kc	L17, L18 (2nd I-F transformer)
No. 4	6A8 1st-det. grid cap in series with .01 mfd.	455 kc	"A"		L14, L15 (1st I-F transformer)
No. 5	A2, in series with 100 mmf. A3 to Chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C39 (osc.) C3 (ant.) C8 (det.)
No. 6	A2, in series with 100 mmf. A3 to Chassis.	600 kc	"A"	600 kc (30.0°)	L25 (osc.)
No. 7	A2, in series with 100 mmf. A3 to Chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C39 (osc.)
No. 8	A2. Connect A1 to chassis.	6,100 kc	"49M"	6,100 kc (106°)	L24 (osc.)*
No. 9	A2. Connect A1 to chassis.	9,600 kc	"31M"	9,600 kc (102°)	L23 (osc.)** C4 (ant.) C10 (det.)
No. 10	A2. Connect A1 to chassis.	11,800 kc	"25M"	11,800 kc (90.0°)	L22 (osc.)**
No. 11	A2. Connect A1 to chassis.	15,200 kc	"19M"	15,200 kc (78.0°)	L21 (osc.)**

* Use maximum inductance peak (plunger in) if two peaks can be obtained.

** Use minimum inductance peak (plunger out) if two peaks can be obtained.

Note that oscillator tracks above signal frequency on all bands except "49M," where it tracks below.



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31492	Bearing—Variable condenser motor rotor adjustment bearing—less bracket and cup assembly—Model U-130 only	30882	Capacitor—.05 mfd. (C30)
31253	Board—Antenna and ground terminal board—Models HF-2 and HF-4	4839	Capacitor—.1 mfd. (C6, C16, C25, C60, C69)
31531	Board—Antenna and ground terminal board—Model U-130 only	30965	Capacitor—.25 mfd. (C74)
31276	Bracket—Band indicator mounting bracket complete except less band indicating strip, cord, and tension spring	12484	Capacitor—.25 mfd. (C46, C61, C63)
31282	Bracket—Magic Eye bracket and holder	30867	Capacitor—.5 mfd. (C22)
31491	Bracket—Bracket and bearing cup for variable condenser motor rotor adjustment—Model U-130 only	31553	Capacitor—Comprising 2 sections each 16 mfd. (C32, C66)
30766	Cap—Magic Eye rubber cap	31495	Capacitor—20 mfd. (C31)
12884	Capacitor—Trimmer capacitor 2-20 mmfd. (C4, C10)	31544	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft—25 cycle models only
12714	Capacitor—Trimmer capacitor 2-12 mmfd. (C39)	31237	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft—50-60 cycle models only
14392	Capacitor—4.7 mmfd. (C65)	31263	Coil—"A" band antenna coil (L5, L7)
31252	Capacitor—Adjustable trimmer 5-80 mmfd. (C1)	31264	Coil—19, 25, 31, and 49 meter bands antenna coil (L1, L2, L3, L4, L6)
12896	Capacitor—15 mmfd. (C51)	31257	Coil—"A" band oscillator coil (L25)
31353	Capacitor—15 mmfd. (C43)	31258	Coil—19 meter band oscillator coil (L20, L21)
31350	Capacitor—18 mmfd. (C38)	31265	Coil—"A" band r-f coil (L12, L13)
31354	Capacitor—33 mmfd. (C48)	31266	Coil—19, 25, 31, and 49 meter bands r-f coil (L8, L9, L10, L11)
13545	Capacitor—39 mmfd. (C68)—Model U-130 only	31254	Coil—25 meter band oscillator coil (L22)
31349	Capacitor—62 mmfd. (C37)	31255	Coil—31 meter band oscillator coil (L23)
12720	Capacitor—100 mmfd. (C18, C47)	31256	Coil—49 meter band oscillator coil (L24)
31270	Capacitor—100 mmfd. (C17, C20)	31234	Condenser—3-gang variable condenser (C2, C3, C7, C8, C35)
12724	Capacitor—120 mmfd. (C13, C41, C42)	31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip
31351	Capacitor—190 mmfd. (C40)	31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip
12952	Capacitor—330 mmfd. (C62)	31231	Contact—Contact tip for station selector plunger
31348	Capacitor—510 mmfd. (C34)	31278	Cord—Band indicator drive cord
31552	Capacitor—680 mmfd. (C70, C71, C72, C73)	31281	Cord—Indicator pointer drive cord—Model HF-2 only
14498	Capacitor—680 mmfd. (C75)	31554	Cord—Indicator pointer drive cord—Models HF-4 and U-130 only
5107	Capacitor—.0025 mfd. (C19, C49, C64) (C49—Model U-130 only)	31283	Cord—Variable condenser drum drive cord
4838	Capacitor—.005 mfd. (C23)	31260	Core—Adjustable core and stud for "A" band oscillator coil
4858	Capacitor—.01 mfd. (C9, C45)	31269	Core—Adjustable core for i-f transformers
14393	Capacitor—.01 mfd. (C5, C12, C24, C33, C49, C50, C67) (C49—Models HF-2 and HF-4 only) (C67—Model U-130 only)	31259	Core—Adjustable core and stud for 19, 25, 31, or 49 meter band oscillator coils
11315	Capacitor—.015 mfd. (C21)	31273	Drum—Indicator drive cord drum
4870	Capacitor—.025 mfd. (C28)		

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31240	Flywheel—Variable condenser drive motor flywheel	31245	Support—Variable condenser motor mounting support and studs—25 cycle models only—Models HF-2 and HF-4 only
31239	Gear—Variable condenser knob shaft drive gear and hub	31489	Support—Variable condenser motor mounting support and studs—50-60 cycle models only—Model U-130
31545	Gear—Variable condenser intermediate drive gear and pinion gear—25 cycle models only	31244	Support—Variable condenser motor mounting support and studs—50-60 cycle models only—Models HF-2 and HF-4 only
31238	Gear—Variable condenser intermediate drive gear and pinion gear—50-60 cycle models only	31360	Switch—Pickup switch for mounting on push button switch (S7)
31277	Indicator—Band indicator strip—Models HF-2 and HF-4	31312	Switch—Push button switch and bracket assembly
31555	Indicator—Band indicator strip—Model U-130	31247	Switch—Range switch (S1, S2, S3, S4)
11891	Lamp—Dial lamp	31546	Tone Control and fidelity switch (R11, S8)
31480	Lamp—Tuning indicator pilot lamp	31565	Transformer—First i-f transformer (L14, L15, C70, C71, L16)
31243	Leather—Friction leather insert for flywheel	31551	Transformer—Second i-f transformer (L17, L18, L19, C72, C73)
31346	Lock-plate—Push button switch lock-plate—comprising 10 contact locks in one strip	31549	Transformer—Third i-f transformer (L26, L27, C17, C20)
31246	Motor—Variable condenser drive motor for 25 cycle models (M1)	31226	Transformer—Power transformer 105-125 volts, 25-60 cycle (T1)
31235	Motor—Variable condenser drive motor for 50-60 cycle models (M1)	31225	Transformer—Power transformer 105-125 volts, 50-60 cycle (T1)
31228	Plate—Station selector contact—less plungers	31308	Transformer—Power transformer 105-130, 140-160, 200-250 volts, 50-60 cycle (T1)
31227	Plate—Station selector mounting—mounts on rear of variable condenser	31547	Volume Control and power switch (R9, S5)
30868	Plug—2-contact female plug for motor power cable—Model U-130 only	SPEAKER ASSEMBLIES (Speaker RL70F-5)	
31572	Plug—3-contact female plug for speaker cable	13866	Cap—Dust cap for cone center
12493	Plug—5-contact female plug for speaker cable	11234	Coil—Field coil (L30)
31280	Pulley—Indicator pointer drive cord pulley	11469	Coil—Hum neutralizing coil (L28)
31271	Pulley—Motor drive pulley—fastens on motor drive knob shaft	31275	Cone—Speaker cone and voice coil (L29)
31272	Pulley—Range switch pulley	31587	Plug—3-contact male plug for speaker
31548	Resistor—Voltage divider comprising one 1,500 ohms, one 2,950 ohms, one 3,400 ohms, one 30 ohms, and one 165 ohms, sections (R18, R19, R20, R25, R26)	31539	Plug—5-contact male plug for speaker
14720	Resistor—1,000 ohms, 1/4 watt (R48)	31556	Speaker complete
12267	Resistor—1,200 ohms, 1/4 watt (R50)	31557	Transformer—Output transformer (T2)
14559	Resistor—10,000 ohms, 1/4 watt (R4)	14357	Washer—Spring washer to hold field coil securely
12738	Resistor—27,000 ohms, 1/4 watt (R7)	MISCELLANEOUS ASSEMBLIES	
12454	Resistor—33,000 ohms, 1/4 watt (R3, R17)	31358	Button—Station selector push button
31573	Resistor—39,000 ohms, 1/10 watt (R23)	13103	Cap—Pilot lamp cap—Model U-130 only
12286	Resistor—56,000 ohms, 1/4 watt (R30)	31286	Carriage—Indicator pointer slide carriage—Model HF-2 only
14560	Resistor—100,000 ohms, 1/4 watt (R5, R12, R15, R42, R51)	31456	Cover—8-protective covers for push button markers
13698	Resistor—180,000 ohms, 1/4 watt (R43)	31540	Cushion—Chassis mounting cushion and screw assemblies sufficient for one chassis—Model U-130 only
12199	Resistor—270,000 ohms, 1/4 watt (R13, R16, R40, R46) (R46—Model U-130 only)	31541	Cushion—Motor plate mounting cushion and clamp assembly, sufficient for one instrument—Model U-130 only
12285	Resistor—470,000 ohms, 1/4 watt (R41)	31562	Dial—Station selector dial scale and crystal—Models HF-4 and U-130 only
11397	Resistor—560,000 ohms, 1/10 watt (R27)	31363	Dial—Station dial scale and crystal—Model HF-2 only
12013	Resistor—1 meg., 1/10 watt (R10)	31561	Escutcheon—Dial escutcheon less dial scale, and push buttons—Models HF-4 and U-130 only
13730	Resistor—1 meg., 1/4 watt (R1, R2, R23, R44, R47) (R47—Model U-130 only)	31362	Escutcheon—Dial escutcheon less dial scale, and push buttons—Model HF-2 only
30208	Resistor—1.2 meg., 1/4 watt (R45)—Model U-130 only	30698	Hinge—Cabinet lid hinge—Model U-130 only
12679	Resistor—2.2 meg., 1/4 watt (R6)	4585	Hinge—Door hinges (1 top and 1 bottom) sufficient for one door—Model HF-4 only
14887	Retainer—Indicator pointer drive cord pulley retainer	31564	Holder—Needle, card holder—Model U-130
31233	Disc—Station selector rotor disc—mounts on rear of variable condenser shaft	31560	Indicator—Station selector indicator pointer and carriage assembly—Models HF-4 and U-130
31241	Screw—1/20 headless, cone pointer set screw for flywheel	31284	Indicator—Station selector indicator pointer—less carriage—Model HF-2 only
4119	Screw—No. 8-32 headless set screw for gear Stock No. 31239	31355	Knob—Station selector, volume control, tone control, or range switch knob
4669	Screw—No. 8-32 x 3/8 set screw for pulley Stock Nos. 31271 and 31272, and drum Stock No. 31273	31458	Marker—"Dial Tuning" push button marker
14350	Screw—No. 8-32 square head set screw for station selector rotor disc	31457	Marker—"Record Player" push button marker
31364	Socket—Dial lamp socket	31582	Marker—Station call letter push button markers
13871	Socket—Magic Eye socket	31566	Pull—Door pull—Model HF-4 only
31347	Socket—Pickup input socket and bracket	31287	Rod—Indicator pointer slide rod
31251	Socket—Radiotron socket	31285	Screen—Dial color screen—Model HF-2 only
31365	Socket—Tuning indicator lamp insulated socket	31559	Screen—Dial color screen—Models HF-4 and U-130 only
31242	Spring—Friction leather tension spring for flywheel	4560	Screw—Chassis mounting screw, washer, and lockwasher (4 required)—Models HF-2 and HF-4 only
13638	Spring—Indicator pointer drive cord, and variable condenser drum drive cord tension spring	31558	Spring—Indicator pointer slide stop spring
31232	Spring—Contact tip spring for station selector plunger	14270	Spring—Retaining spring for knob Stock No. 31355
12007	Spring—Retaining spring for adjustable core	31478	Support—Cabinet lid support—Model U-130 only
31230	Spring—Station selector plunger body spring	31470	Suspension—Motor board suspension springs, screw, and lockwasher (4 required)—Model U-130 only
31279	Spring—Tension spring for band indicator	ANTENNA ASSEMBLIES	
31970	Spring—Tension spring for push button switch latch bar	31426	Counterpoise Line—Additional length 60 ft. long
31494	Spring—Variable condenser motor rotor adjustment bearing spring for 25 cycle models—Model U-130	12426	Insulator—Strain and counterpoise insulator
31493	Spring—Variable condenser motor rotor adjustment bearing spring for 50-60 cycle models—Model U-130	9816	Transmission Line—Additional length 60 ft. long
31236	Support—Variable condenser drive gear mounting support and studs assembly	FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON RP-132	
31490	Support—Variable condenser motor mounting support and studs—25 cycle models only—Model U-130 only		

MODELS O-2, O-6, O-10, O-12, O-14, O-16, and O-19

Portable Hand-Wound Phonographs



MODEL O-2

O-2—Available with blue, black or brown covering.



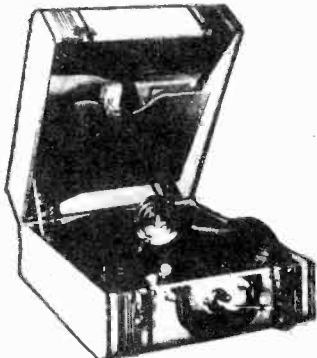
MODEL O-6

O-6—Available with two-tone brown or black and gray covering.



MODEL O-12

Available with blue, black, or brown covering.

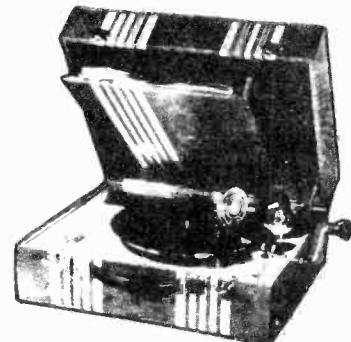


MODELS O-10*, O-19

* Model O-10 is same as O-19 but in black or blue covering.



MODEL O-14



MODEL O-16

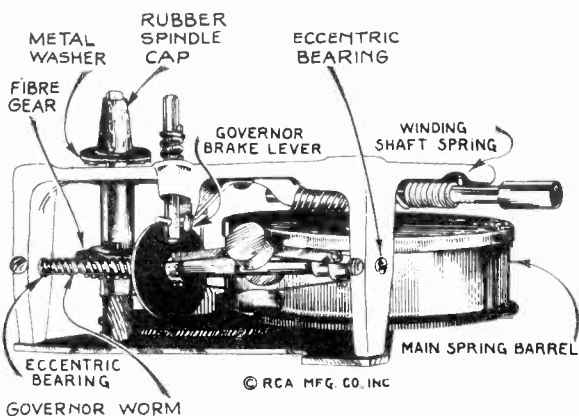
CAUTION.—Allow the motor mechanism to run down completely before attempting adjustment, repairs, or replacements.

Governor Adjustments.—The mesh of the worm and fiber gears is adjusted by rotation of the eccentric spindle bearings. The adjustments should be made so that the worm meshes properly with the fiber gear and rotates freely without binding. The bearings should be accurately aligned with each other. The minimum of spindle end-play which permits smooth operation should be used.

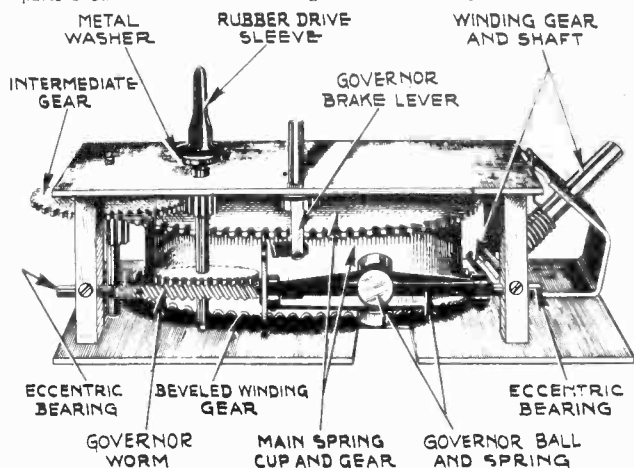
Speed Regulator Lever.—After assembly, adjust the speed regulator until the turntable rotates at 78 r. p. m.; loosen the speed regulator

screw and set pointer to center of speed indicator scale; tighten screw and recheck turntable speed.

Lubrication.—All moving parts of the motor should be thoroughly cleaned and lubricated every six months to prevent excess wear and to assure proper operation. A small amount of grease should be applied to the worm gear of the governor, the gear of the winding shaft, and on the small pinion gear. All other points, including regulator friction pad, should be lubricated with light oil. All motor parts should be covered with a light film of oil to prevent rusting.



SIDE-WIND MOTOR O-12



ANGLE-WIND MOTOR

Used in O-14, O-16, and some production of O-10, O-19

Used in some production of O-10, O-19, O-2 & O-6

Motor Adjustments:

Speed variations or WOWS may be experienced with these instruments due to a variety of causes. Some of the troubles and corrections are listed below:

1. A regular WOW occurring on every revolution of the turntable, or every few revolutions.

(a) A frequent cause of this difficulty is faulty adjustment of the governor springs. If the governor weights seem to oscillate in and out when the motor is in operation, the spring tension of the three weights may not be evenly balanced. Loosen the three spring clamping screws and position the springs so that all three weights are held with the same tension.

(b) Another possible cause of this trouble is faulty adjustment of the governor bearings. To adjust these bearings:

First: Set the speed regulator lever so that the face of the felt friction pad is accurately parallel to the governor friction plate.

Second: Loosen both governor bearing set screws and position the governor so that the motor revolves at rated speed (78.4 rpm).

Third: Adjust the mesh of the worm and the fiber drive gear by turning the eccentric bearings. These should be set so that the worm meshes properly with the fiber gear without binding.

Fourth: Adjust the distance between bearings so that the governor turns freely with a minimum of end-play

(c) A take-up spring is mounted on the governor friction plate shaft to ensure against lost motion and erratic operation of this plate. It is essential that this spring be in place and adjusted to provide adequate tension. It should be positioned as indicated in the sketch.

(d) Marred or broken teeth on either gear on the turntable shaft or on the intermediate gear shaft may cause this trouble. If inspection shows this to be the case, the defective gear should be replaced.

2. The turntable loses speed or WOWS on the louder parts of a record:

(a) This may be caused by failure of the governor to respond accurately to speed changes, due to excessive or irregular friction between the sliding friction plate and the governor shaft. When this occurs it may be corrected by removing the weights and working the plate back and forth until it frees up. If the governor shaft does not have a smooth surface it may be necessary to smooth it down slightly using "Crocus Cloth" or to replace the governor.

(b) This condition may also be caused by excessive friction in any part of the motor. Be sure that the governor bearings are properly adjusted as described in section 1 (b). Lubricate all bearings in the motor using a high grade light oil such as RCA Stock No. 7227 Spring Motor Oil. The governor shaft, friction plate, and felt friction pad should also be lubricated with this

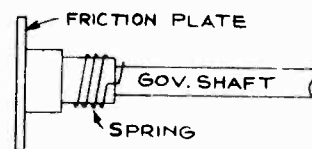
oil. Lubricate the worm with a light grease such as RCA Stock No. 10975 Electric Motor Grease. Remove the main spring and pack it with a graphite lubricant such as RCA Stock No. 7228.

3. The turntable speed changes erratically over long periods of time.

(a) This may be caused by binding of the main spring due to improper lubrication. To correct this pack the spring with graphite grease as described in section 2 (h).

(b) Make sure that the top of the main spring housing does not rub on the end of the winding shaft.

(c) Inspect the gear teeth on the main spring gear. If these are marred or broken, it may be necessary to replace the spring assembly.



Correct Position of Take-Up Spring in Models O-2 and O-6

Waver or Wow May be Caused by a Worn Spindle Bearing in the Bottom Plate.

Replacement Parts Models O-2, and O-6,

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	MOTOR ASSEMBLIES (Angle-Wind Motor)	36575	Handle - Carrying handle (black)
33373	Bearing—One set governor shaft bearings.....	36576	Handle - Carrying handle (brown)
33371	Cap—Turntable spindle cap.....	36577	Hinge - Cabinet lid hinge
33366	Gear—Intermediate drive gear and shaft.....	36578	Key - Winding key (approx. 7" long end to end)
36570	Gear—Winding worm gear—located on winding key shaft.....	33679	Lever - Speed indicator lever
36571	Gear—Winding gear—located on spring barrel shaft.....	33687	Mounting—Motor mounting assembly.....
13857	Governor—Governor assembly complete.....	33692	Neck—Tone arm neck.....
36572	Motor—Spring motor complete.....	33690	Screw—Screw and lockwasher to fasten neck on tone arm.....
13865	Screw—Needle holding screw.....	30368	Sound Box.....
36573	Shaft—Winding key shaft and socket—less winding gear.....	33683	Spring—Turntable brake spring.....
33372	Sleeve—Rubber drive sleeve and metal damper plate.....	34388	Spring—Winding shaft spring.....
33367	Spindle—Turntable spindle and drive gears.....	33694	Support—Cabinet lid support.....
13851	Spring—Turntable brake spring.....	33684	Support—Sound box support.....
13835	Spring—Mainspring, spring barrel and drive gear.....	33689	Support—Taper tube support.....
13862	Weight—Governor weight and spring.....	33368	Turntable - Turntable assembly (black cover)
	MISCELLANEOUS ASSEMBLIES	33370	Turntable - Turntable assembly (blue cover)
33691	Arm—Tone arm less neck, base, washer, ring, screw and lockwasher.....	33369	Turntable - Turntable assembly (brown cover)
33682	Brake—Turntable brake.....	36579	Turntable - Turntable assembly (green cover)
33678	Cover—Needle cup cover.....	33688	Washer—Bearing washer and retaining snap ring
33680	Cup—Needle cup.....		
33681	Escutcheon—Speed lever escutcheon.....		
36574	Foot - Cabinet foot (slide)		

REPLACEMENT PARTS Model O-12,

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
13849	Arm—Tone arm less sound box	13854	Motor—Spring motor complete
13850	Brake—Turntable brake complete	13865	Screw—Needle holding screw
13845	Cap—Turntable spindle cap	13860	Shaft—Winding key shaft and socket—Less winding gear
13852	Cup—Needle cup	30368	Sound box
13847	Escutcheon—Speed regulator escutcheon	13856	Spindle—Motor spindle and two gears assembled
13855	Gear—Intermediate drive gear and shaft	13851	Spring—Turntable brake spring
13858	Gear—Winding worm gear—Located on winding key shaft	13835	Spring—Mainspring, spring barrel and drive gear
13859	Gear—Winding gear—Located on spring barrel shaft	13873	Turntable—Complete with black cover
13857	Governor—Governor assembly complete	13844	Turntable—Complete with brown cover
13846	Indicator—Speed regulator arm and pointer	14181	Turntable—Complete with blue cover
13861	Key—Winding key	13862	Weight—Governor weight and spring

Replacement Drive Motor: O-12

The spring wound motor Stock No. 13854 now supplied for replacement in these portable Victorolas has several mechanical revisions affecting a number of components. It is, therefore, essential to identify the motor being serviced before ordering replacement parts for same. The revised motor as currently supplied can be identified by the rubber sleeve associated with the spindle; the earlier motor does not carry this sleeve. The following parts are for use on the revised motor only; similar parts for the

earlier motors, and the remaining parts for both types are given by the O-11, O-12 and O-15 Service Notes:

Stock No.	Description
33366	Gear—Intermediate drive gear and shaft
33367	Spindle—Turntable spindle and drive gears
33368	Turntable—Complete with black cover
33369	Turntable—Complete with brown cover

33370	Turntable—Complete with blue cover
33371	Cap—Turntable spindle cap
33372	Sleeve—Rubber drive sleeve, and metal damper plate
33373	Bearing—One set governor shaft bearings

IMPORTANT.—When ordering a complete replacement motor Stock No. 13854 for use on earlier instruments having the motor with sleeveless spindle, it will be necessary to order the proper turntable as listed above. The earlier turntable does not fit the revised motor.

Replacement Parts Models O-10 and O-19

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MISCELLANEOUS ASSEMBLIES			
33691	Arm—Tone arm less neck, base, washer, ring, screw and lockwasher	33371	Cap—Turntable spindle cap
33682	Brake—Turntable brake	33366	Gear—Intermediate drive gear and shaft
33678	Cover—Needle cup cover	13858	Gear—Winding worm gear—located on winding key shaft
33680	Cup—Needle cup	13859	Gear—Winding gear—located on spring barrel shaft
33681	Escutcheon—Speed lever escutcheon for side wind motor	13857	Governor—Governor assembly complete
33693	Escutcheon—Speed lever escutcheon for angle wind motor	13854	Motor—Spring motor complete
11771	Foot—Cabinet foot	13865	Screw—Needle holding screw
33696	Handle—Carrying handle	13860	Shaft—Winding key shaft and socket—less winding gear
33695	Hinge—Lid hinge	33372	Sleeve—Rubber drive sleeve and metal damper plate
33685	Key—Winding key for side wind motor	33367	Spindle—Turntable spindle and drive gears
33686	Key—Winding key for angle wind motor	13851	Spring—Turntable brake spring
33687	Mounting—Motor mounting assembly	13835	Spring—Mainspring, spring barrel and drive gear
33692	Neck—Tone arm neck	13862	Weight—Governor weight and spring
33690	Screw—Screw and lockwasher to fasten neck on tone arm	MOTOR ASSEMBLIES (Angle-Wind Motor)	
30368	Sound Box	33702	Ball—Governor ball and spring assembly
33683	Spring—Turntable brake spring	33698	Bearing—Governor spindle bearings
33694	Support—Cabinet lid support	33707	Gear—Beveled winding gear
33684	Support—Sound box support	33704	Gear—Intermediate gear assembly complete
33689	Support—Taper tube support	33705	Gear—Main spring cup and gear
33369	Turntable—Turntable assembly for side wind motor	33699	Gear—Winding gear, shaft and crank socket
33677	Turntable—Turntable assembly for angle wind motor	33701	Governor—Governor assembly complete
33688	Washer—Bearing washer and retaining snap ring	33697	Plate—Top plate assembly
MOTOR ASSEMBLIES (Side-Wind Motor)		33700	Sleeve—Rubber drive sleeve and metal damper plate
33373	Bearing—One set governor shaft bearings	33703	Spindle—Turntable spindle complete with gear and pinion
		33706	Spring—Main spring
		33708	Spring—Winding shaft clutch spring

Additional Replacement Parts:

Stock No.

N840	Grille—Grille cloth
35484	Lever—Speed indicator lever for angle-wind motor
33679	Lever—Speed indicator lever for side-wind motor
34388	Spring—Winding shaft spring for side-wind motor

Under "Angle-Wind" Motor add:

11533	Ball—Steel ball
35303	Motor—Motor complete
36483	Spring shaft and rivet

Angle-Wind Motor:

Where unsatisfactory performance, due to "WOW" or excessive motor noise is experienced, these conditions may be remedied in the following manner:

- (a) Replace rubber drive sleeve and associated washer with revised type rubber sleeve and revised metal washer, Stock No. 33700, making sure to force the sleeve all the way down against the thin metal washer, and snugly into turntable hub. A small quantity of soap applied to the spindle and turntable will facilitate this operation. The revised rubber sleeve is of relatively hard rubber and is accurately

machined. The washer has been made thinner to allow a tight fit between spindle nose and rubber sleeve.

- (b) Check turntable for wobble and if excessive, correct by simply pressing down on edge of turntable which runs high. **TEST INSTRUMENT—THEN, IF NECESSARY,** apply the following changes in order given until acceptable performance is obtained.
- (c) Replace governor assembly with improved type, Stock No. 33701, and governor bearings with new type, Stock No. 33698.
- (d) Replace spindle and fibre gear assembly with later manufactured part, Stock No. 33703.

REPLACEMENT PARTS Models O-14 and O-16

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL O-14			
13849	Arm—Tone arm, less sound box	34509	Arm—Tone arm—less sound box
33373	Bearing—One set governor shaft bearings	33373	Bearing—One set governor shaft bearings
13850	Brake—Turntable brake complete	30088	Brake—Turntable brake complete
33371	Cap—Turntable spindle cap	33371	Cap—Turntable spindle cap
13852	Cup—Needle cup	30090	Cover—Hinged cover for needle cup
13847	Escutcheon—Speed regulator escutcheon	30091	Cup—Needle cup
33366	Gear—Intermediate drive gear and shaft	30092	Escutcheon—Speed regulator escutcheon
13858	Gear—Worm gear—located on winding shaft	33366	Gear—Intermediate drive gear and shaft
13859	Gear—Winding gear—located on spring barrel	13858	Gear—Worm gear—located on winding shaft
13857	Governor—Complete	13859	Gear—Winding gear—located on spring barrel
13846	Indicator—Speed regulator arm and pointer	13857	Governor—Complete
33685	Key—Winding key	30093	Indicator—Speed regulator arm and pointer
13854	Motor—Complete	34510	Key—Winding key
13865	Screw—Needle screw	13854	Motor—Complete
13860	Shaft—Winding shaft and socket—less gear	13865	Screw—Needle screw
33372	Sleeve—Rubber drive sleeve and damper plate	13860	Shaft—Winding shaft and socket—less gear
30368	Sound Box	33372	Sleeve—Rubber drive sleeve and damper plate
33367	Spindle—Turntable spindle shaft and gear	30095	Sound Box
13851	Spring—Brake spring	33367	Spindle—Turntable spindle shaft and gear
13835	Spring—Main spring and barrel	13851	Spring—Brake spring
33368	Turntable—Complete with black cover	13835	Spring—Main spring and barrel
13862	Weight—Governor weight and spring	34511	Turntable—Complete with brown cover
		13862	Weight—Governor weight and spring
		35975	Support—Lid support
MODEL O-16			

MODELS QB2 and QB6

Chassis No. RC-529

RC-529D

CV-112 CONVERTER

Six-Tube, Five-Band, Battery-Operated, Superheterodyne Receivers

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540-1,720 kc (555-174 m)
Medium Wave ("B" Band).....	3.0-9.5 mc (100-31.5 m)
Short Wave.....	9.5-11.7 mc (31.5-25.6 m)
Short Wave.....	11.7-15.1 mc (25.6-19.9 m)
Short Wave.....	15.1-22.5 mc (19.9-13.3 m)

CABINET DIMENSIONS.....	Height 10 7/8 in.	Width 15 3/4 in.	Depth 7 7/8 in.
Net Weight.....	17 lbs.		
Tuning Drive Ratio.....	25:1		

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1R5..... 1st Det.—Osc.
- (2) RCA-1N5-GT..... 1st I-F Amplifier
- (3) RCA-1N5-GT..... 2nd I-F Amplifier
- (4) RCA-1H5-GT..... 2nd Det., A-F, and A.V.C.
- (5) RCA-1A5-G..... Audio Driver Amplifier
- (6) RCA-1G6-G..... Power Output

BATTERIES REQUIRED

1—1.5 volt "A" Battery; 2—45 volt "B" Batteries

CURRENT CONSUMPTION

"A" 0.35 amperes
 "B" 12.6 milliamperes

A. C. POWER SUPPLY RATING

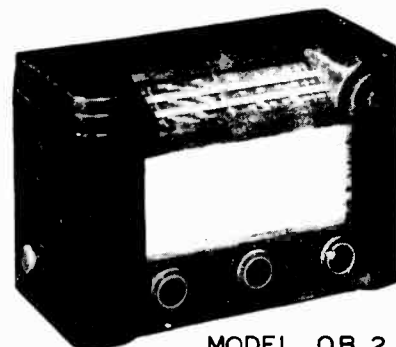
Using CV-112, A.C. power supply unit
 Supply Voltages 105-125 or 210-250 volts; 50-60 cycles
 Power consumption at nominal supply voltages 15 watts
 "B" current drain..... 13.5 milliamperes at 90 volts dc output
 "A" current drain..... 0.35 amperes at 1.4 volts dc output

POWER OUTPUT

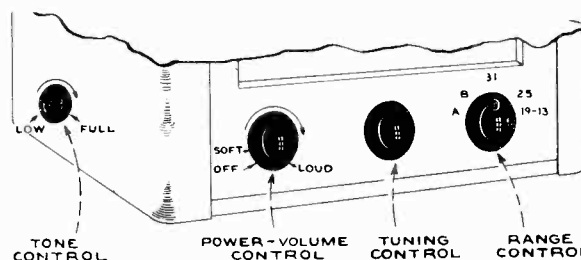
Undistorted..... 0.55 watts
 Maximum..... 0.65 watts

LOUDSPEAKER (RL-92-2)

Type..... 6 inch permanent-magnet dynamic
 Voice Coil Impedance..... 3.4 ohms at 400 cycles



MODEL QB 2

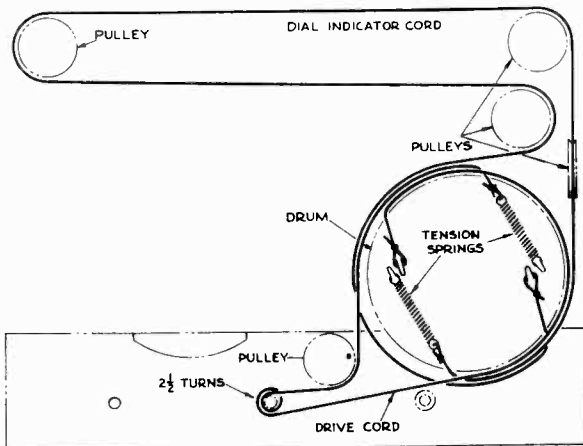


A-C Power Supply

Model CV-112 is a separate power supply unit. It is used to provide operating voltages for Model QB2 from an a-c supply source. Power ratings for the CV-112 are listed above.

Precautionary Lead Dress:

1. All leads between antenna coil and switch must be as short as possible and kept away from the oscillator coil leads and switches.
2. Tap on 19-13 meter oscillator coil to pin No. 6 on oscillator tube socket must be dressed as far away from the air trimmer as possible.
3. All oscillator coil leads must be kept apart from each other, as well as other leads and parts.
4. Oscillator grid coupling condenser must bear against parts on S3, and be kept away from the shield between S2 and S3.
5. Check for correct bias cell polarity. Do not shunt with voltmeter.
6. The speaker leads must be kept from the volume control and associated parts and leads.
7. The two paper condensers on the sides of the 2nd I-F transformers must be held close to chassis to reduce interstage coupling.



QB6 (RC-529D)

Service Data:

Model QB6 is essential the same as Model QB2, except for the following parts which are used in the QB6:

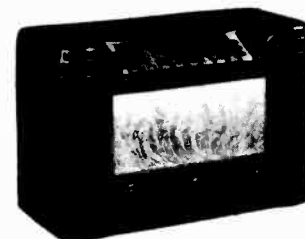
Stock No.

- 37976 Bracket—Tone control support bracket.....
- 37999 Dial—Glass dial scale.....
- 36103 Decal—Power-volume decal.....
- 37839 Decal—Range switch decal.....
- 35392 Decal—Trade mark decal.....
- 35391 Decal—Tuning decal.....
- 37838 Frame—Dial frame complete, less dial and pointer.....
- 35650 Knob—Tone control knob.....
- 34861 Knob—Tuning knob.....
- 34862 Knob—Vol. control or range switch knob.....

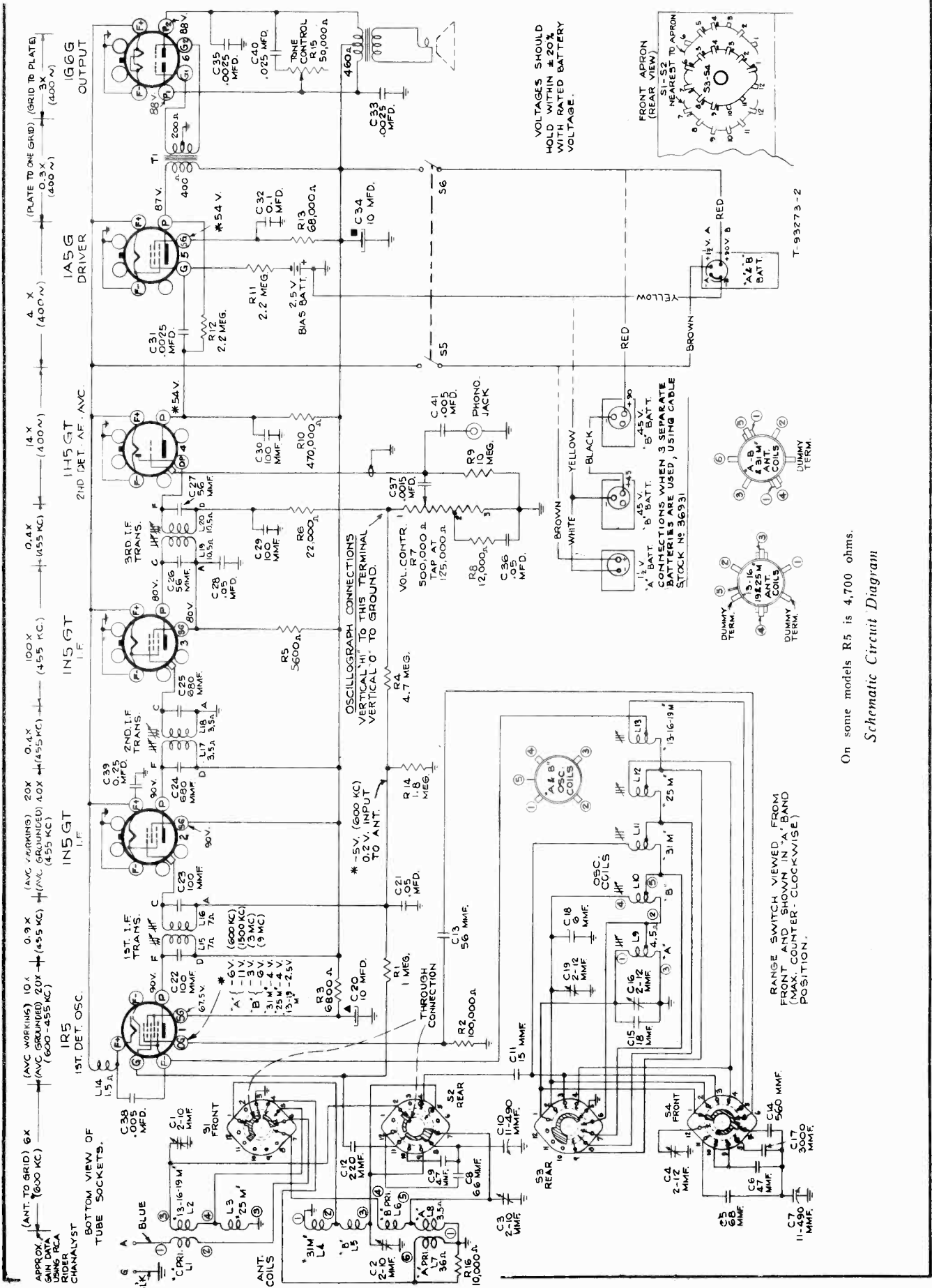
QB2, QB6

I-F or A-F Transformer Breakdown:

In 2nd production, a 10-megohm, 1/4-watt resistor is connected across the +B circuit electrolytic capacitor to discharge the capacitor when the set is tuned "off." This eliminates any voltage difference (retained by capacitor) between the chassis and I-F and A-F transformer primaries while the set is "off" and therefore reduces transformer breakdown due to electrolysis in humid climates.



Model QB6.



On some models R5 is 4,700 ohms.

Schematic Circuit Diagram

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

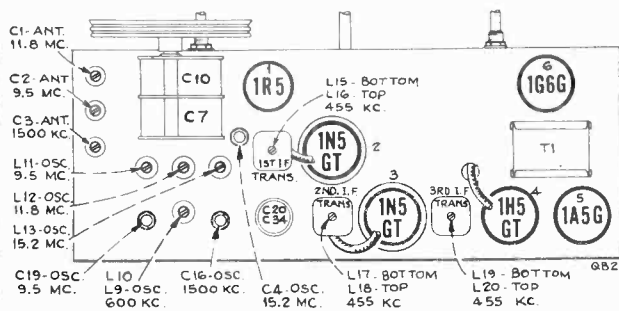
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.



Tube and Trimmer Locations

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on

the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of the test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

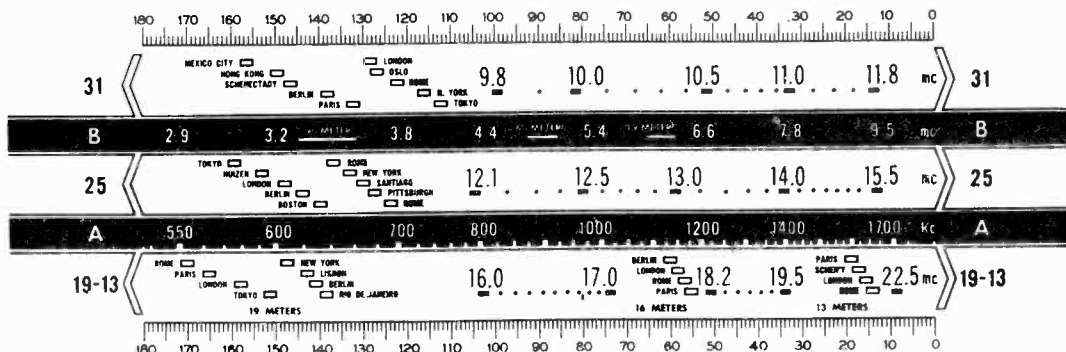
For additional information, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output			
1	1N5GT—2nd I-F grid cap, in series with .01 mfd.	455 kc	A	Quiet point near 180°	L20, L19 3rd I-F transformer			
2	1N5GT—1st I-F grid cap, in series with .01 mfd.				L18, L17 2nd I-F transformer			
3	1R5—1st Det. grid, in series with .01 mfd.	11.8 mc	25M	138.5°	L16, L15 1st I-F transformer			
4	Ant. lead in series with 300 ohms				15.2 mc	17°	C4 (osc.)*	
5					Repeat steps 4 and 5.			
6		15.2 mc	19-13M	156°	L13 (osc.)**			
7	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	L11 (osc.)**			
8					9.5 mc	31M	156°	C2 (ant.)**
9					9.5 mc	B	11.5°	C19 (osc.)***
10	Ant. lead in series with 200 mmf.	600 kc	A	150°	C16 (osc.)			
11					C3 (ant.)			
12	Repeat steps 10 and 11.							

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity of two peaks can be obtained.
NOTE: Oscillator tracks above signal on all bands.



Calibration Scale

Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

CV-112 CONVERTER

A-C Power Unit for QB2:

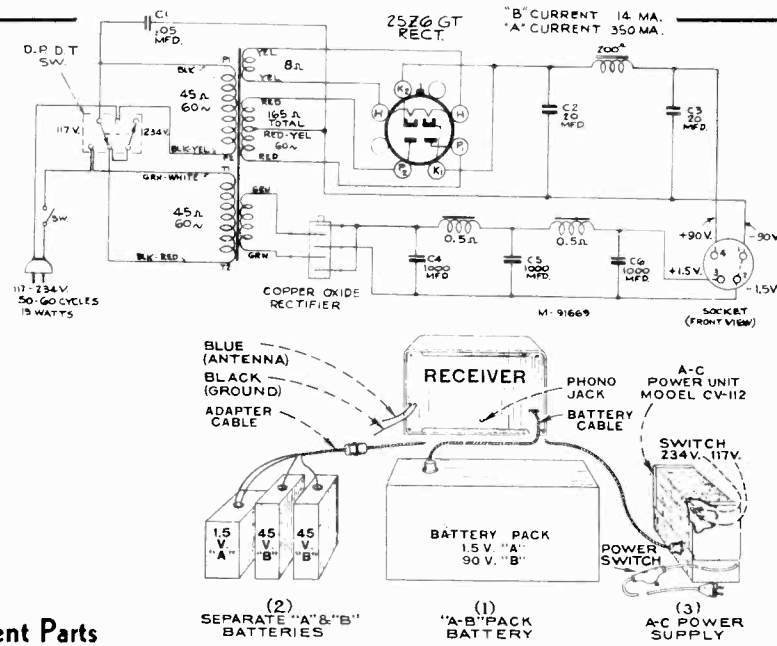
The CV-112 is designed to convert Model QB2 from battery to a-c operation.

Reactivating Rectifier:

The "A" supply in the CV-112 power unit (used in Model QB2) is supplied through a copper-oxide dry-disc rectifier. If the radio ceases to operate or drops off in performance, it may be due to a chemical change in this rectifier, which causes the "A" voltage to drop low enough to affect the performance of the receiver. The normal "A" voltage is 1.5 volts.

This condition is more likely to occur in the rectifier when the power unit has been out of service for a long time (four months or more).

To reactivate the rectifier it is only necessary to short the "A" plus and "A" minus terminals of the socket by connecting them together with a piece of wire for a period of FOUR MINUTES. The high temperature developed in the rectifier during this period has the tendency to restore the discs to their normal rectifying ability.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-529)		13601	Resistor—10 megohm, 1/4 watt
35642	Calibrator—Drive drum calibrator	14350	Screw No. 8-32 square head set screw for drum
12714	Capacitor—Air trimmer—medium	35633	Shaft—Range switch slip-on indicator shaft
33790	Capacitor—Electrolytic comprising two sections of 10 mfd., 150 volt each	35637	Shaft—Tuning shaft
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5—10 mmfd.	35787	Socket—Phono input socket
35646	Capacitor—6 mmfd.	36069	Socket—1R5 tube socket and ring
36012	Capacitor—15 mmfd.	31251	Socket—Tube socket
31360	Capacitor—18 mmfd.	13638	Spring—Drive cord spring
13141	Capacitor—47 mmfd., silver mica	31418	Spring—Indicator cord spring
35644	Capacitor—47 mmfd. ceramic	35640	Support—Drive cord pulley support with one pulley
30949	Capacitor—56 mmfd., mica	35639	Support—Drive cord pulley support with two pulleys
12723	Capacitor—56 mmfd., moulded	35622	Support—Tuning shaft and flywheel support
36072	Capacitor—66 mmfd.	36064	Switch—Range switch
35645	Capacitor—68 mmfd.	36062	Switch—Tone switch
12720	Capacitor—100 mmfd., moulded	36061	Transformer—Driver transformer
30904	Capacitor—100 mmfd., mica	35636	Transformer—First I.F. transformer
12694	Capacitor—220 mmfd.	36070	Transformer—Second I.F. transformer
31433	Capacitor—560 mmfd.	35628	Transformer—Third I.F. transformer
36174	Capacitor—680 mmfd.	33726	Washer—"C" washer for pulley
35643	Capacitor—3,000 mmfd.	2917	Washer—"C" washer for tuning shaft
33806	Capacitor—.0015 mfd.	SPEAKER ASSEMBLIES (RL92-2)	
34459	Capacitor—.0025 mfd.	32907	Cap—Dust cap
33584	Capacitor—.005 mfd.	36077	Cone—Cone complete with voice coil
30938	Capacitor—.025 mfd.	5118	Plug—3 prong male plug for speaker
32787	Capacitor—.05 mfd.	35941	Transformer—Output transformer
4839	Capacitor—.1 mfd.	MISCELLANEOUS ASSEMBLIES	
12484	Capacitor—.25 mfd.	35649	Back—Cabinet back cover
31581	Cell—Bias cell	35389	Decalcomania—Range marker decal
35632	Coil—Antenna coil—"A" band	35392	Decalcomania—Trade mark decal
35631	Coil—Antenna coil—spread band	35391	Decalcomania—Tuning marker decal
36071	Coil—Choke coil	36103	Decalcomania—Volume control decal
36065	Coil—Oscillator coil—A and B bands	35712	Dial—Glass dial scale
36066	Coil—Oscillator coil—13-19 meter bands	35647	Frame—Dial frame complete less dial and pointer
36067	Coil—Oscillator coil—25 meter band	35648	Indicator—Station selector indicator
36068	Coil—Oscillator coil—31 meter band	35652	Knob—Band indicator knob
35619	Condenser—Variable tuning condenser	35651	Knob—Range switch knob
36063	Control—Volume control and power switch	35650	Knob—Tone switch knob
32634	Cord—Drive cord (approx. 28 in.)	36073	Knob—Volume control and power switch knob
34862	Cord—Indicator drive cord (approx. 77 in.)	35653	Mounting—Complete set of hardware to mount speaker
35788	Core—Adjustable core and stud for A and B band oscillator coil	4982	Spring—Retaining spring for knob Stock No. 35652
31259	Core—Adjustable core and stud for 13-19 meter, 25 meter, and 31 meter bands oscillator coils	14270	Spring—Retaining spring for knob Stock No. 35650, 35651, 36073
35627	Drum—Drive drum less calibrator	CV112 POWER UNIT	
35638	Flywheel—Tuning shaft flywheel	4886	Capacitor—.05 mfd.—400 volts (C1)
34499	Holder—Bias cell holder	30873	Capacitor—Electrolytic, 2 sections, 20 mfd., 150 volts
5119	Plug—3 contact female plug for speaker cable	36553	Capacitor—Electrolytic, 1,000 mfd., 3 volts
30568	Plug—4 prong male plug for battery cable	36547	Coil—High voltage choke coil—200 ohms
35641	Pulley—Drive cord pulley	36548	Coil—Low voltage choke coil—marked 1B84
35630	Pulley—Drive cord pulley located between the range switch shaft and the tuning shaft	36549	Coil—Low voltage choke coil—marked 1B85
30146	Resistor—4,700 ohm, 1/4 watt	36551	Rectifier—1.5 volt rectifier
12265	Resistor—6,800 ohm, 1/4 watt	36552	Socket—4-contact power output socket
14559	Resistor—10,000 ohm, 1/4 watt	18008	Socket—Tube socket
30128	Resistor—12,000 ohm, 1/4 watt	36550	Switch—Power cord switch
13998	Resistor—22,000 ohm, 1/4 watt	33491	Switch—Voltage change switch
13715	Resistor—68,000 ohm, 1/4 watt	36546	Transformer—Power transformer—110-220 volts, 50-60 cycle
14560	Resistor—100,000 ohm, 1/4 watt		
12285	Resistor—470,000 ohm, 1/4 watt		
13730	Resistor—1 megohm, 1/4 watt		
5028	Resistor—1.8 megohm, 1/4 watt		
12679	Resistor—2.2 megohm, 1/4 watt		
30271	Resistor—4.7 megohm, 1/4 watt		

MODELS QU2C, QU2M, Q22, QK23, Q25 and Q27

Chassis No. RC-507C RC-507D RC-507, RC-507B RC-507A (RC-507K)

Six-Tube, Five-Band, A-C, Superheterodyne Receivers and Radio-Phonographs

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" band).....540-1,720 kc (556-174 m)
 Medium Wave ("B" band).....3.0-9.5 mc (100-31.6 m)
 "31" Meter Spread Band.....9.5-11.7 mc (31.6-25.6 m)
 "25" Meter Spread Band.....11.7-15.1 mc (25.6-19.9 m)
 "19-13" Meter Spread Band.....15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

POWER SUPPLY RATING QU 2

Rating "C" ...105-125, 200-250 volts, 50-60 cycles, 80 watts total

POWER SUPPLY RATINGS Q 22, QK 23 & Q 25

Symbol	Voltagess	Frequency (cycles)	Watts
Rating A	105-125	50-60	65
Rating B	105-125	25-60	65
Rating C	105-125, 200-250	50-60	65

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6SK7..... I F Amplifier
- (3) RCA-6SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
- (4) RCA-6AD7-G..... Phase-Inverter, Power Output
- (5) RCA-6F6-G..... Power Output
- (6) RCA-5Y3-G..... Rectifier

POWER OUTPUT

Undistorted..... 3 watts
 Maximum..... 3.5 watts

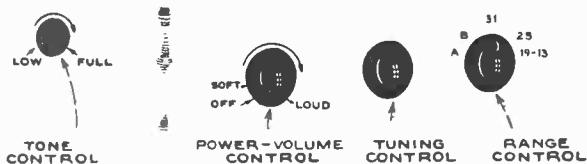
PHONOGRAPH MOTOR—Self-starting, constant-speed, induction type.

CRYSTAL PICKUP (QU2C)

Impedance..... 100,000 ohms at 1,000 c.p.s.
 Average Output..... 1.5 volts at 1,000 c.p.s. across 500,000 ohm load

MAGNETIC PICKUP (QU2M)

Impedance..... 96 ohms at 1,000 c.p.s.
 Average Output..... 0.14 volts at 400 c.p.s. across open circuit



Location of Controls

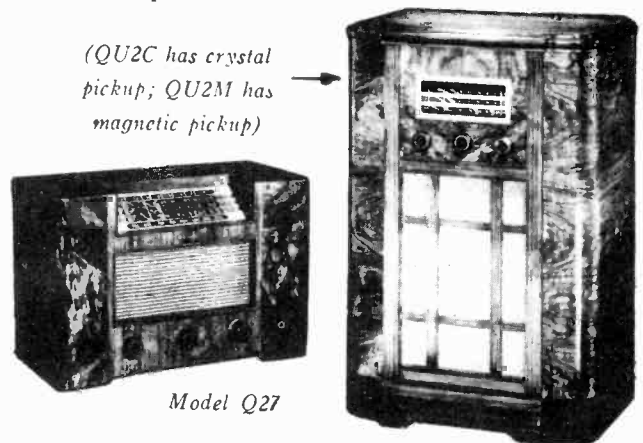
LOUDSPEAKER (RL-70M1) QU 2C QU 2M

Type..... 12-inch Electrodynamic
 V.C. Impedance at 400 c.p.s..... 2.2 ohms

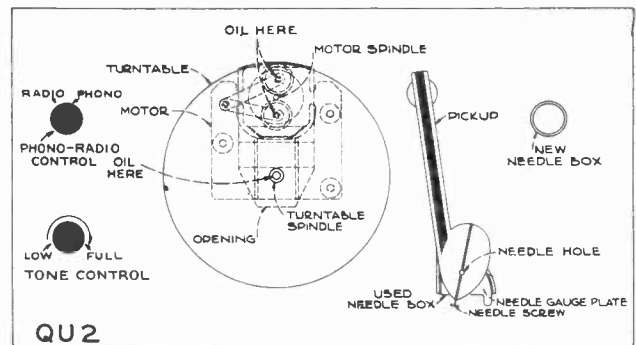
LOUDSPEAKER

Model..... Q22 RL-79A6 QK23 RL-70J3 Q25 RL-63K5
 Type (Electrodynamic)..... 6-inch 12-inch 8-inch
 V.C. Impedance at 400 c.p.s..... 2.2 ohms 2.2 ohms 2.2 ohms

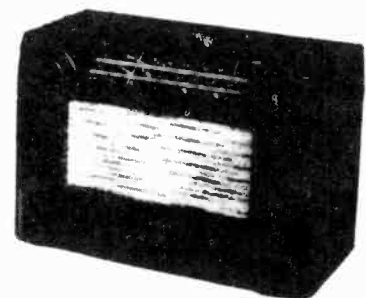
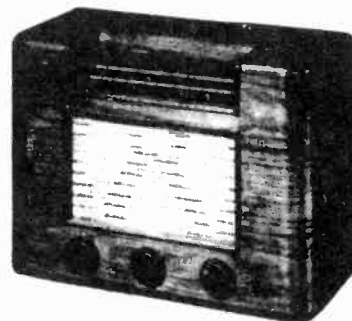
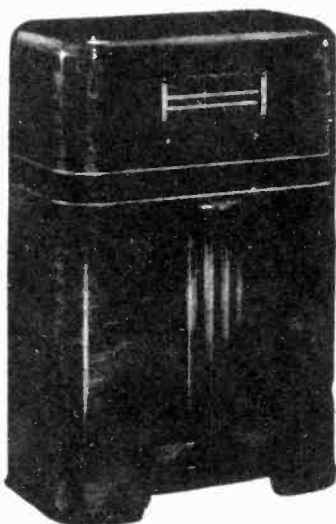
(QU2C has crystal pickup; QU2M has magnetic pickup)

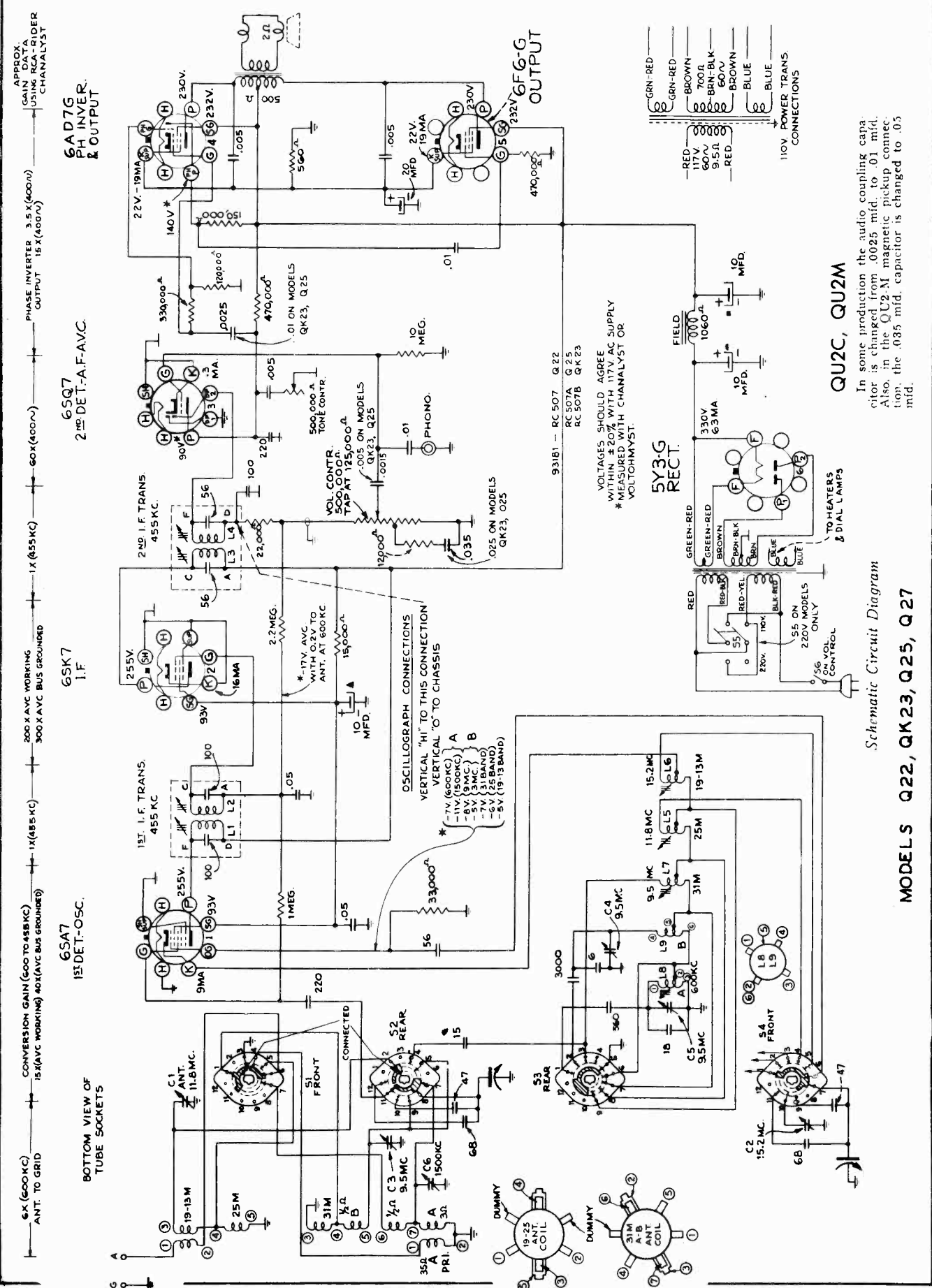


MODEL Q-27 IS SIMILAR TO MODEL Q-25



Motorboard and Controls





APPROX. GAIN DATA USING RCA ORDER CHANNELYST
 PHASE INVERTER 3.5 X (400V) OUTPUT 15 X (400V)
 6AD7G PH INVERTER & OUTPUT
 6SK7 2ND DET.-A.F.-AVC.
 6SQ7 2ND DET.-A.F.-AVC.
 6SK7 1.F.
 6A7 1ST DET.-OSC.
 6SK7 1.F.
 1X (855KC) 200 X AVC WORKING 300 X AVC BUS GROUNDING
 1X (855KC) 15 X (AVC WORKING) 40 X (AVC BUS GROUNDING)
 1X (855KC) 6 X (600KC) ANT. TO GRID
 60 X (400V) 60 X (400V)
 1X (855KC) 1X (855KC) 1X (855KC)
 1X (855KC) 1X (855KC) 1X (855KC)
 1X (855KC) 1X (855KC) 1X (855KC)
 1X (855KC) 1X (855KC) 1X (855KC)
 1X (855KC) 1X (855KC) 1X (855KC)

BOTTOM VIEW OF TUBE SOCKETS
 OSCILLOGRAPH CONNECTIONS
 VERTICAL "HI" TO THIS CONNECTION
 VERTICAL "O" TO CHASSIS
 * -17V. AVC WITH 0.2V TO ANT. AT 600 KC
 * -7V (600KC) A
 * -11V (500KC) B
 * -8V (3MC) C
 * -7V (31 BAND) D
 * -5V (25 BAND) E
 * -5V (19-15 BAND) F

VOLTAGES SHOULD AGREE WITHIN ± 20% WITH 117V AC SUPPLY
 * MEASURED WITH CHANNELYST OR VOLTOHMYST.
 931B1 - RC 507 Q 22
 RC 507A Q 25
 RC 507B QK 23

QU2C, QU2M

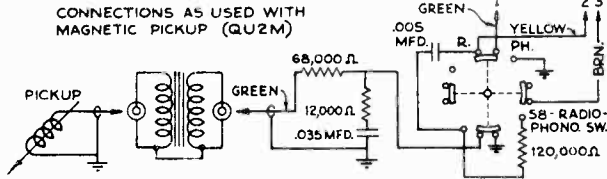
In some production the audio coupling capacitor is changed from .0025 mfd. to .01 mfd. Also, in the QU2-M magnetic pickup connection, the .085 mfd. capacitor is changed to .05 mfd.

Schematic Circuit Diagram

MODELS Q22, QK23, Q25, Q27

Phonograph Information

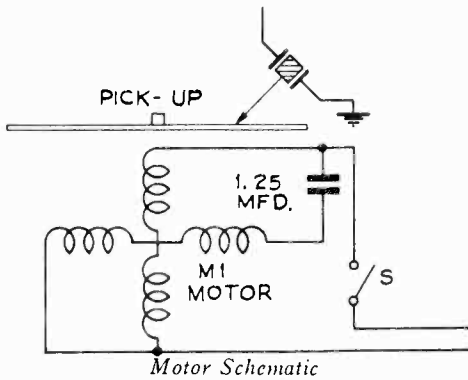
The QU2M is equipped with a magnetic pickup, and the QU2C with a crystal pickup. The output of the crystal pickup is fed into the audio end of the receiver through a switch and compensating circuit. On instruments using a magnetic pickup, a transformer and compensating circuit are used between the pickup and the audio input (see schematic diagram). The transformer has two jacks, the larger one (primary) for input from the pickup and the smaller one (secondary) for output to the compensating circuit. The components of the compensating circuit are mounted externally to the chassis on a terminal board in the cabinet.



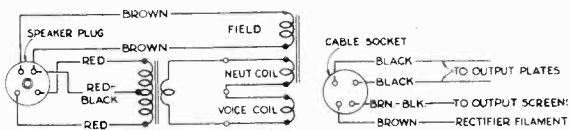
Schematic Showing Magnetic Pickup Connections (QU2M)

The phonograph motor has its bearing filled with oil and sealed at the factory and hence should not require lubrication in the field. However the two rubber tired idler pulleys should have their bearings lubricated occasionally with S.A.E. 10 oil. Care should be taken not to get any oil, grease, or other foreign matter on the rubber tires. These tires and the motor spindle should be cleaned occasionally with quick drying naphtha.

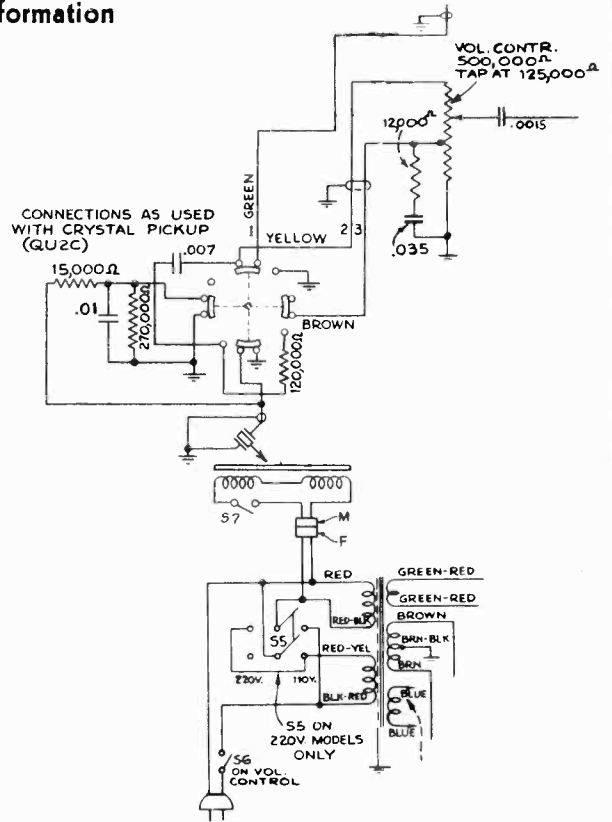
The turntable spindle bearing should also be lubricated occasionally with S.A.E. 10 oil.



Motor Schematic

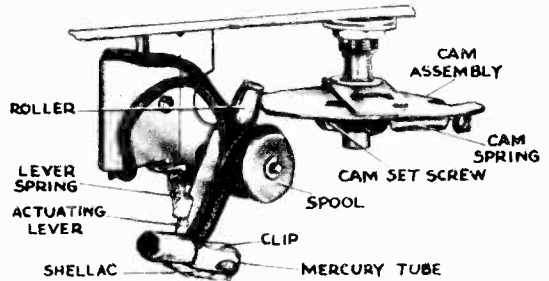


Connections and Colors of Loudspeaker and Cable

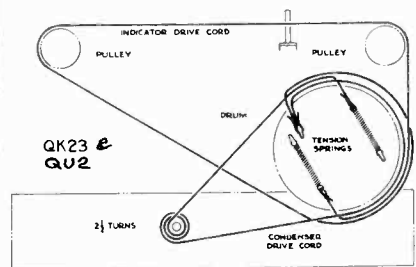
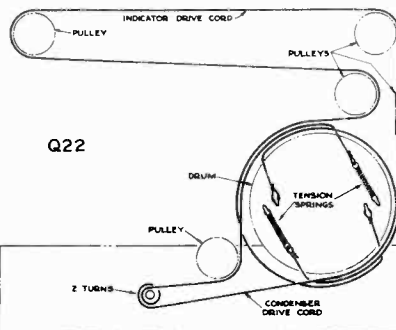
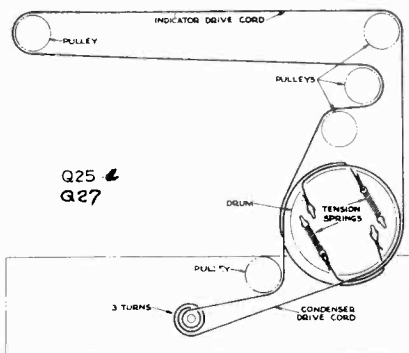


Schematic Circuit Diagram with Crystal Pickup (QU2C)

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1 1/2 inches from the center line of the spindle shaft. The motor may be shut off at any time by placing the pickup on the pickup rest.



MERCURY SWITCH MECHANISM
 (VIEWED FROM FRONT
 SHOWN WITH PICKUP IN REST POSITION)



Dial-Indicator and Drive Mechanism

Alignment Procedure

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	12C8 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L3 and L4 2nd I-F Trans.
2	12SA7 1st Det. grid in series with .01 mfd.				L1 and L2 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)
4		15.2 mc			17°	C2 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13M	156°	L6 (osc.)**
7		9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)
8		9.5 mc	B	11.5°	C4 (osc.)***
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C5 (osc.) C6 (ant.)
10		600 kc			150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.

Q27 (RC-507K)

Service Data:

Model Q27 is similar to Model Q25 which is described in the Service Note for Models Q22, QK23, and Q25. Replacement parts for Q27 are same as for Q25, with exception of the following parts used in Q27:

CHASSIS ASSEMBLIES (RC-507K)

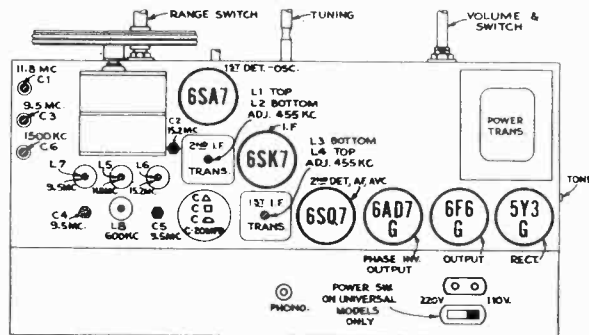
- 37976 Bracket—Tone control mounting bracket
- 38409 Control—Tone control
- 38412 Control—Volume control and power switch
- 32634 Cord—Drive cord (approx. 29-in. overall length)
- 13988 Resistor—10 ohms, 1/4 watt
- 14350 Screw—No. 8-32 sq. head set screw for drive drum
- 35787 Socket—Phono input socket
- 31261 Spring—Retaining spring for adjustable cord and studs
- 38761 Support—L.H. pulley support complete with pulley
- 38762 Support—R.H. pulley support complete with 3 pulleys
- 35588 Transformer—Power transformer—105-120 volts, 25 cycle

SPEAKER ASSEMBLIES (92311-1)

- 38765 Coil—Field coil—1060 ohms
- 38766 Cone—Cone complete with voice coil
- 5039 Plug—4-prong male plug for speaker
- 38374 Transformer—Output transformer

MISCELLANEOUS ASSEMBLIES

- 35387 Decalcomania—Power—volume decal
- 37839 Decalcomania—Range switch decal
- 35391 Decalcomania—Tuning decal
- 35392 Decalcomania—Trade mark decal
- 38841 Dial—Glass dial scale
- 35953 Frame—Dial frame complete—less indicator pointer and dial scale
- 35954 Indicator—Station selector indicator
- 35814 Knob—Range switch knob
- 35650 Knob—Tone control knob
- 35775 Knob—Tuning or volume control knob
- 11891 Lamp—Dial lamp
- 14270 Spring—Retaining spring for knob No. 35650
- 30900 Spring—Retaining spring for knobs No. 35775 and No. 35814



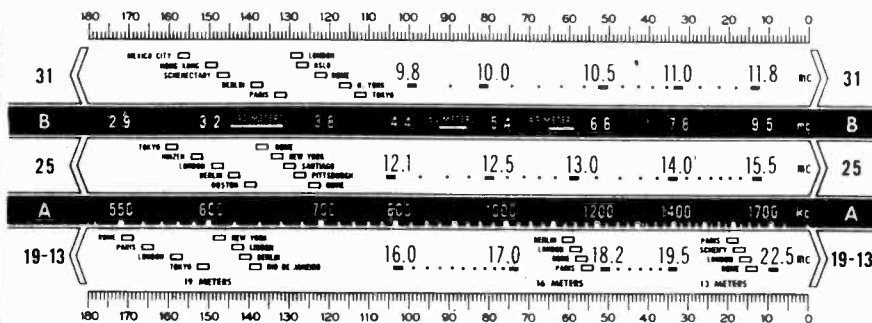
Tube and Trimmer Location

Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.
3. Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.

Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES		
	Model QU2C (RC-507C)	14292	Damper—Pickup armature damper
	Model QU2M (RC-507D)	32228	Pickup Unit—Magnet coil, needle screw and armature assembled
35622	Bracket—Flywheel and shaft mounting bracket.	34300	Screw—No. 6-32 x 1/2 headless set screw for pickup pivot arm
12714	Capacitor—Medium air trimmer (C2, C4, C5)	3811	Screw—Needle screw
34654	Capacitor—Mica trimmer—comprising 3 sections (C1, C3, C6)		
35646	Capacitor—6 mmfd.		MOTOR ASSEMBLIES
36012	Capacitor—15 mmfd.	34416	Arm—Drive wheel support arm (long)
31350	Capacitor—18 mmfd.	34415	Arm—Idler wheel support arm (short)
35644	Capacitor—47 mmfd., ceramic	34516	Armature—Motor armature complete
13141	Capacitor—47 mmfd., moulded	34515	Bushing—Motor mounting rubber bushings
30949	Capacitor—56 mmfd., mica (I-F)	34365	Capacitor—1.25 mfd., 60 cycle motor starting capacitor for motor, Stock No. 34412
12723	Capacitor—56 mmfd., moulded	34514	Cover—Bakelite top end shell for motor
35645	Capacitor—68 mmfd., ceramic	34414	Idler—Rubber tire idler or drive wheel
13057	Capacitor—68 mmfd., mica	34412	Motor—105-125 volts, 60 cycle phono. motor—less pulleys, capacitor and motor cradle
30904	Capacitor—100 mmfd., mica (I-F)	34418	Plate—Motor support plate complete with turntable bearing
12720	Capacitor—100 mmfd., moulded	14887	Retainer—Idler wheel retainer spring
12694	Capacitor—220 mmfd.	34437	Spindle—Turntable spindle
31433	Capacitor—560 mmfd.	34417	Spring—Idler arm tension spring
35643	Capacitor—3,000 mmfd.		
33640	Capacitor—.005 mfd.		AUTOMATIC SWITCH ASSEMBLIES
5148	Capacitor—.007 mfd.—(Model QU2C)	34419	Base—Pickup arm mounting base (Model QU2C)
14393	Capacitor—.01 mfd., 1,000 volts	34312	Base—Pickup arm base (Model QU2M)
4870	Capacitor—.025 mfd.	32865	Bracket—Switch bracket and terminal board
5196	Capacitor—.035 mfd.—(Model QU2M)	34308	Cam—Switch cam assembly with spring
32787	Capacitor—.05 mfd.	34007	Lever—Switch actuating lever, roller and clip
33014	Capacitor—Electrolytic comprising 3 sections of 10 mfd. and one section of 20 mfd.	34309	Mounting—Pickup arm base mounting (rubber grommet, washers and nuts)
35632	Coil—Antenna coil—"A" band	34311	Ring—Retaining ring for pickup arm pivot shaft
35631	Coil—Antenna coil—spread band	14195	Screw—No. 10-32 x 5/16 set screw for switch cam hub
35623	Coil—Oscillator coil—A and B bands	34314	Shaft—Pickup arm pivot shaft (Model QU2C)
35624	Coil—Oscillator coil—19-13 meter band	36177	Shaft—Pickup arm pivot shaft (Model QU2M)
35625	Coil—Oscillator coil—25 meter band	34310	Spool—Insulating spool for switch leads
35626	Coil—Oscillator coil—31 meter band	32868	Spring—Switch lever spring
35619	Condenser—Variable tuning condenser	32867	Spring—Tension spring for switch cam
36035	Control—Tone control	32866	Switch—Mercury tube and leads
35620	Control—Volume control and power switch	31608	Washer—Retaining washer for switch lever
32634	Cord—Drive cord		
35642	Dial—Calibrator dial for drive drum		SPEAKER ASSEMBLIES
35627	Drum—Tuning condenser drive drum—less calibrator		(RL-70M1)
35638	Flywheel—Tuning shaft flywheel	13867	Cap—Dust cap
30868	Plug—2-contact female plug for motor cable	12079	Coil—Field coil
5040	Plug—4-contact female plug for speaker cable	11469	Coil—Neutralizing coil
35641	Pulley—Indicator cord pulley	36145	Cone—Cone complete with voice coil
30735	Resistor—560 ohms, 1 watt	5039	Plug—4 prong male plug for speaker
30128	Resistor—12,000 ohms, 1/2 watt	14534	Transformer—Output transformer
12695	Resistor—15,000 ohms, 1/2 watt—(Model QU2C)		
35595	Resistor—15,000 ohms, 3 watts		MISCELLANEOUS ASSEMBLIES
13998	Resistor—22,000 ohms, 1/2 watt	4288	Cap—Male cap for crystal pickup cable connector—Model QU2C
12454	Resistor—33,000 ohms, 1/2 watt	33909	Cup—Used needle cup—Model QU2C
13715	Resistor—68,000 ohms, 1/2 watt (Model QU2M)	33910	Cup—Needle cup—Model QU2M
13734	Resistor—120,000 ohms, 1/2 watt	36074	Decalcomania—Radio-Phono. decal
30493	Resistor—150,000 ohms, 1/2 watt	35388	Decalcomania—Tone switch decal
12199	Resistor—270,000 ohms, 1/2 watt (Model QU2C)	35467	Decalcomania—Trade mark decal
14983	Resistor—330,000 ohms, 1/2 watt	36040	Dial—Glass dial scale
12285	Resistor—470,000 ohms, 1/2 watt	36075	Escutcheon—Dial scale escutcheon—less dial
30648	Resistor—470,000 ohms, 1/2 watt	4286	Ferrule—Ferrule and bushing for pickup cable connector—Model QU2C
13730	Resistor—1 meg., 1/2 watt	36037	Frame—Dial frame complete—less dial scale and pointer
12679	Resistor—2.2 meg., 1/2 watt	30698	Hinge—Cabinet lid hinge
13601	Resistor—10 meg., 1/2 watt	36039	Indicator—Station selector indicator
35633	Shaft—Range switch indicator knob shaft	35652	Knob—Band indicator knob
35637	Shaft—Tuning shaft	36038	Knob—Phono. switch or tone control knob
31364	Socket—Dial lamp socket	35651	Knob—Range switch knob
31251	Socket—Tube socket	35955	Knob—Volume control or tuning knob
13638	Spring—Drive cord spring	11765	Lamp—Dial lamp Mazda No. 51
31418	Spring—Pointer cord spring	33774	Mounting—Speaker mounting hardware
36036	Switch—Phono. switch	30870	Plug—2 prong male plug for motor
35621	Switch—Range switch	33960	Plug—Phono. output plug for pickup—Model QU2M
32827	Switch—Voltage change switch	36394	Rest—Rubber needle rest—Model QU2M
35636	Transformer—First I-F transformer—less grid lead and clip	30900	Spring—Retaining spring for knob Stock No. 36038
35628	Transformer—Second I-F transformer	14270	Spring—Retaining spring for knobs Stock Nos. 35955 and 35651
32852	Transformer—Power transformer—105-120 and 200-240 volts, 50-60 cycle	4982	Spring—Retaining spring for knob Stock No. 35652
	CRYSTAL PICKUP AND ARM ASSEMBLIES		
	MODEL QU2C	34423	Support—Lid support
33906	Arm—Pickup arm—shell only	14609	Transformer—Pickup transformer—Model QU2M
33908	Base—Pickup support arm base and retainer	34422	Turntable—Turntable (9 in.) complete
33905	Crystal—Pickup crystal cartridge	35578	Welt—Cabinet lid welt
33907	Support—Pickup support arm complete—less base		
	MAGNETIC PICKUP AND ARM ASSEMBLIES		
	MODEL QU2M		
36929	Arm—Pickup arm—less unit, cable and pivot arm		
36930	Arm—Pivot arm and set screw		
14291	Armature—Pickup armature		
14930	Coil—Pickup coil		

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	Model Q22 (RC-507) Model QK23 (RC-507B) Model Q25 (RC-507A)	31364	Socket—Dial lamp socket
35640	Bracket—Bracket with one (1) pulley for indicator cord—Model Q22 only	31251	Socket—Tube socket
35622	Bracket—Flywheel and shaft mounting bracket.	14278	Socket—Phono. input socket
35639	Bracket—Long bracket with three pulleys for indicator cord—Model Q22 only	13638	Spring—Drive cord spring
35950	Bracket—Pulley support complete with one pulley—Model Q25 only	31418	Spring—Pointer cord spring
35951	Bracket—Pulley support complete with four pulleys—Model Q25 only	35621	Switch—Range switch—Models Q22 and QK23
12714	Capacitor—Medium air trimmer (C2, C4, C5)	35947	Switch—Range switch—Model Q25
34654	Capacitor—Mica trimmer—comprising 3 sections (C1, C3, C6)	32827	Switch—Voltage change switch
35646	Capacitor—8 mmfd.	35636	Transformer—First I-F transformer—less grid lead and clip
36012	Capacitor—15 mmfd., ceramic	35628	Transformer—Second I-F transformer
31350	Capacitor—18 mmfd.	32910	Transformer—Power transformer—110 volts, 25 cycle
35644	Capacitor—47 mmfd., ceramic	32852	Transformer—Power transformer—105-120 and 200-240 volts, 50-60 cycle
13141	Capacitor—47 mmfd., moulded	32911	Transformer—Power transformer—110 volts, 60 cycle
30949	Capacitor—56 mmfd., mica (I-F)	33726	Washer—"C" washer for pulley Stock No. 35630—Models Q22 and Q25
12723	Capacitor—56 mmfd., moulded		SPEAKER ASSEMBLIES (RL-79A6) Model Q22
35645	Capacitor—68 mmfd., ceramic	35849	Cap—Dust cap
13057	Capacitor—68 mmfd., mica	33966	Coil—Field coil
30904	Capacitor—100 mmfd., mica (I-F)	35441	Cone—Cone complete with voice coil
12720	Capacitor—100 mmfd., moulded	5039	Plug—4-prong male plug for speaker
12694	Capacitor—220 mmfd.	35809	Transformer—Output transformer
31433	Capacitor—560 mmfd.		SPEAKER ASSEMBLIES (RL-70J3) Model QK23
35643	Capacitor—3,000 mmfd.	31825	Cap—Dust cap
33806	Capacitor—.0015 mfd.	12079	Coil—Field coil
5107	Capacitor—.0025 mfd.	11469	Coil—Neutralizing coil
4838	Capacitor—.005 mfd. 1,000 volts	31275	Cone—Cone complete with voice coil
33584	Capacitor—.005 mfd., 1,200 volts	5039	Plug—4-prong male plug for speaker
14393	Capacitor—.01 mfd., 1,000 volts	14534	Transformer—Output transformer
4937	Capacitor—.01 mfd., 1,000 volts		SPEAKER ASSEMBLIES (RL-63K5) Model Q25
4870	Capacitor—.025 mfd.	31825	Cap—Speaker cone center dust cap
5190	Capacitor—.035 mfd.	12079	Coil—Field coil
32787	Capacitor—.05 mfd.	34615	Cone—Cone complete with voice coil
33014	Capacitor—Electrolytic comprising three sections of 10 mfd. and one section of 20 mfd.	5039	Plug—4-prong male plug for speaker
35632	Coil—Antenna coil—"A" band	14534	Transformer—Output transformer
35831	Coil—Antenna coil—spread band		MISCELLANEOUS ASSEMBLIES
35823	Coil—Oscillator coil—A and B bands	36417	Back—Back cover—Model Q25
35624	Coil—Oscillator coil—19-13 meter band	35649	Back—Back cover—Model Q22
35625	Coil—Oscillator coil—25 meter band	35392	Decalcomania—"RCA Victor" decal
35626	Coil—Oscillator coil—31 meter band	35654	Dial—Glass dial scale—Model Q22
35619	Condenser—Variable tuning condenser	36040	Dial—Glass dial scale—Model QK23
35629	Control—Tone control—Models Q22 and QK23 only	35956	Dial—Glass dial scale—Model Q25
35952	Control—Tone control—Model Q25 only	36075	Escutcheon—Dial scale escutcheon—less dial—Model QK23
35620	Control—Volume control and power switch—Models Q22 and QK23	35647	Frame—Dial frame complete—less pointer and dial—Model Q22
35946	Control—Volume control and power switch—Model Q25 only	36037	Frame—Dial frame complete—less dial scale and pointer—Model QK23
34662	Cord—Indicator drive cord	35953	Frame—Dial frame complete—less dial scale and pointer—Model Q25
35788	Core—Adjusting core and stud for "A" and "B" band oscillator coil—Model Q25 only	30898	Hinge—Cabinet lid hinge—Model QK23
31259	Core—Adjusting core and stud for 19-13 meter, 25 meter and 31 meter oscillator coils—Model Q25 only	36039	Indicator—Station selector indicator—Model QK23
35642	Dial—Calibrator dial for drive drum—Models Q22 and QK23	35954	Indicator—Station selector indicator—Model Q25
35827	Drum—Tuning condenser drive drum—less calibrator	35648	Indicator—Station selector indicator—Model Q22
35638	Flywheel—Tuning shaft flywheel	35652	Knob—Band indicator knob
5040	Plug—4-contact female plug for speaker cable	35651	Knob—Range switch knob
35641	Pulley—Indicator cord pulley	35650	Knob—Tone control knob
35630	Pulley—Pulley operating between the tuning shaft and drive drum—Models Q22 and Q25	35955	Knob—Volume control or tuning knob
30735	Resistor—580 ohms, 1 watt	11891	Lamp—Dial lamp—Models Q22 and Q25 Mazda No. 44
30128	Resistor—12,000 ohms, 1/2 watt	11765	Lamp—Dial lamp—Model QK23—Mazda No. 51
35595	Resistor—15,000 ohms, 3 watts	35653	Mounting—One set speaker mounting hardware—Model Q22
13998	Resistor—22,000 ohms, 1/2 watt	33774	Mounting—Speaker mounting hardware—Model QK23
12454	Resistor—33,000 ohms, 1/2 watt	14270	Spring—Retaining spring for knobs Stock Nos. 35650, 35955, 35651
13734	Resistor—120,000 ohms, 1/2 watt	4982	Spring—Retaining spring for knob Stock No. 35652
30493	Resistor—150,000 ohms, 1/2 watt	34423	Support—Lid support—Model QK23
14983	Resistor—330,000 ohms, 1/2 watt	35578	Welt—Cabinet lid welt—Model QK23
30648	Resistor—470,000 ohms, 1/2 watt		
13730	Resistor—1 meg., 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
13601	Resistor—10 meg., 1/2 watt		
35633	Shaft—Range switch indicator knob shaft—Models Q22 and QK23		
35949	Shaft—Tuning shaft—Model Q25		
35637	Shaft—Tuning shaft—Models Q22 and QK23		
35948	Shaft—Range switch indicator knob shaft—Model Q25		

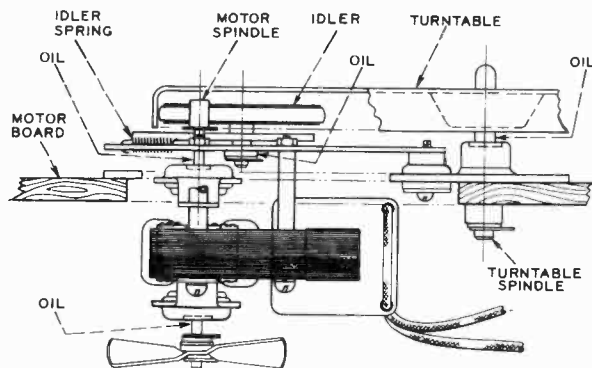
MODEL O-3

Electric Motor Driven Portable

Height..... 7 inches
 Width..... 16 1/4 inches
 Depth..... 13 inches
 105-125 volts, 60 cycles constant speed motor
 Turntable Rim Driven..... 78 rpm.
 Mechanical Reproducer

Lubrication.—Motor drive bearings should be lubricated with a good grade of oil at least twice a year.

Caution.—Keep all rubber drive parts free from oil.



O-3 PHONOGRAPH MOTOR



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MOTOR ASSEMBLY			
39526	Motor—Complete motor including mounting plate, spacers, screws, washers, and nuts.....	33678	Cover—Needle cup cover.....
39530	Plate—Idler wheel plate.....	33680	Cup—Needle cup.....
39531	Retainer—Retaining clip for turntable spindle.....	36574	Foot—Cabinet foot (glide).....
39533	Retainer—Retaining clip for idler wheel.....	39753	Handle—Carrying handle (black).....
39528	Spindle—Turntable spindle.....	36577	Hinge—Cabinet lid hinge.....
39534	Spring—Idler wheel tension spring.....	33692	Neck—Tone arm neck.....
39527	Turntable.....	33690	Screw—Screw and lockwasher to fasten neck on tone arm.....
39532	Washer—Fibre washer for turntable spindle.....	30368	Sound Box.....
39529	Wheel—Idler wheel and tire.....	39522	Spring—Conical spring to hold turntable.....
MISCELLANEOUS ASSEMBLIES			
33691	Arm—Tone arm—less neck, base, washer, ring, screw and lockwasher.....	33694	Support—Cabinet lid support.....
		33684	Support—Sound box support.....
		33689	Support—Taper tube support.....
		39523	Switch—Motor switch.....
		33688	Washer—Tone Arm Bearing washer and retaining snap ring.....

MODEL QB3 and Power Units CV-110 and MI-8122

Chassis No. RC-539D

Six-Tube and Magic Eye, Five-Band, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) .. 540-1,720 kc (556-174 m)
 Medium Wave ("B" Band)..... 3.0-9.5 mc (100-31.6 m)
 31 Meter Spread Band..... 9.5-11.7 mc (31.6-25.6 m)
 25 Meter Spread Band..... 11.7-15.1 mc (25.6-19.9 m)
 19-13 Meter Spread Band 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6S7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector—Oscillator
- (3) RCA-6S7..... I-F Amplifier
- (4) RCA-6T7-G..... 2nd Det. A-F Amplifier A.V.C.
- (5) RCA-6W7-G..... Driver
- (6) RCA-6Z7-G..... Power Output
- (7) RCA-6N5..... Tuning Indicator

Note.—An RCA-5Y3-G rectifier is used in the CV-110 A-C power supply unit.

Dial Lamps (2)..... Mazda No. 47, 6.3 volts, 0.15 amp.

POWER OUTPUT	CV-110 Unit	MI-8122 Unit
Undistorted	1.3 watts	2.0 watts
Maximum	1.9 watts	2.6 watts

LOUDSPEAKER (RL-90-5)

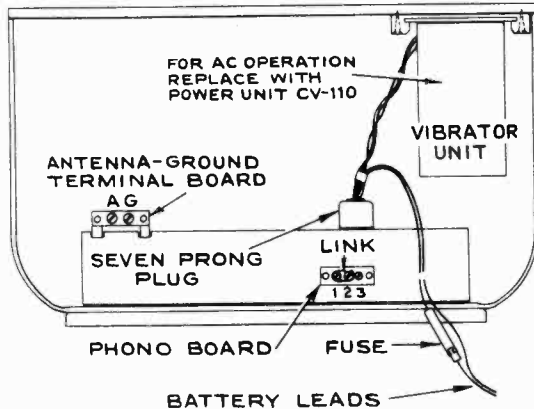
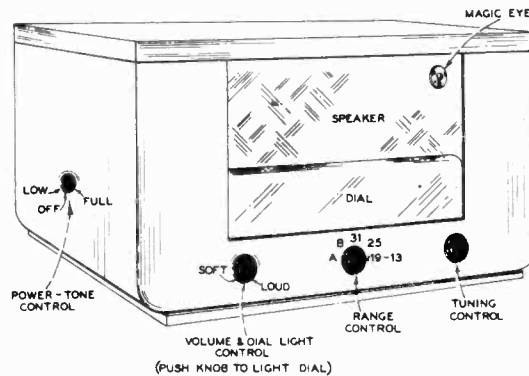
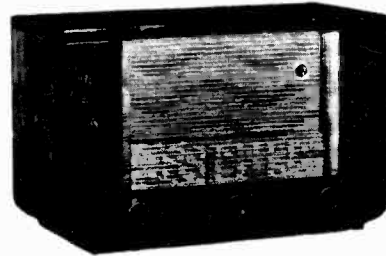
Type..... 8-inch Permanent-Magnet Dynamic
 V. C. Impedance..... 2.6 ohms at 400 cycles

POWER SUPPLY RATING

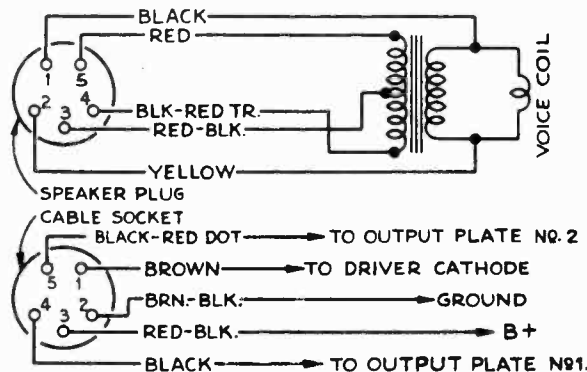
D-C Rating (with vibrator-type power unit MI-8122)—
 6.3 volts, 3.2 amps.
 A-C Rating (with CV-110 A-C power supply unit)—
 105-117, 117-130, 140-160, 200-225 volts, 25-60 cycles

Height Width Depth

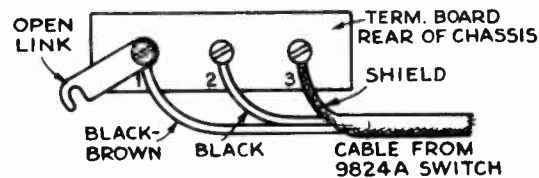
CABINET DIMENSIONS (inches)..... 13³/₈ .. 21¹/₂ .. 10⁷/₁₆
 Chassis-Base Dimensions (inches)..... 2⁷/₈ .. 15³/₈ .. 6¹/₂
 Over-all Chassis Height (inches)..... 8¹/₄
 Net Weight..... 40 lbs.
 Tuning Drive Ratio..... 28 to 1



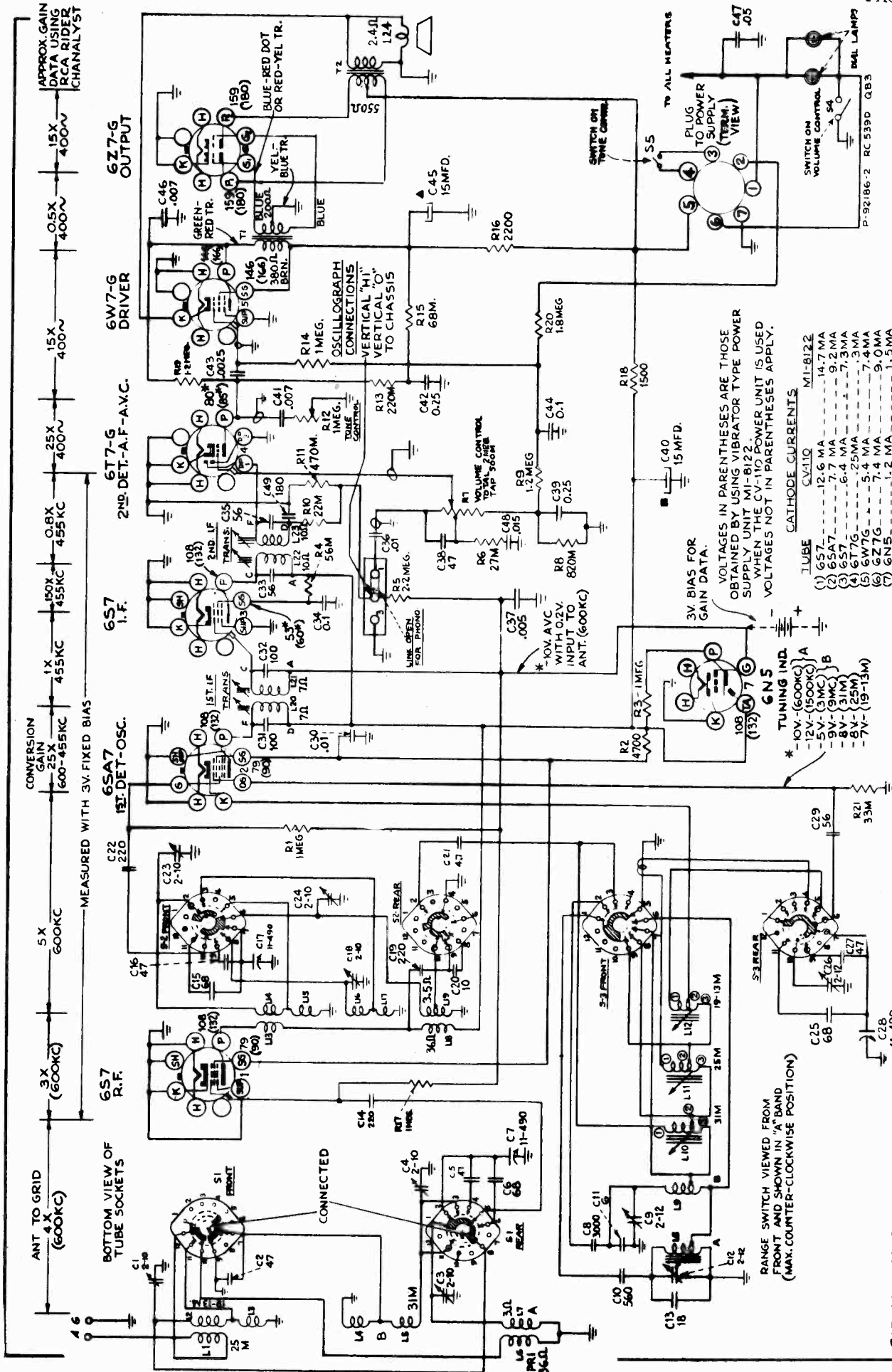
Back View



Connections and Colors of Loudspeaker and Cable

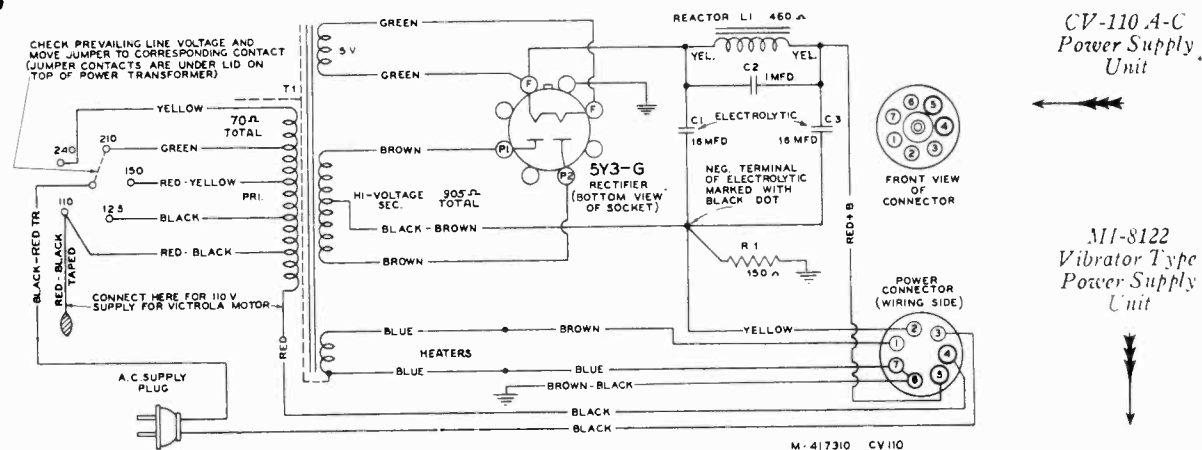


Record Player Connections, Using Stock No. 9824A Switch Controls



Schematic Circuit Diagram

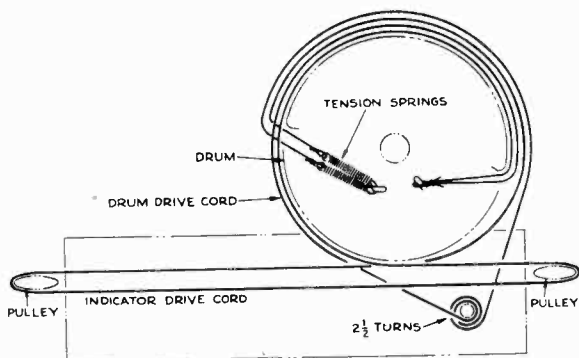
C15, 66 mmfd., Stock No. 36072:
 In 2nd Production of QB3, C15 is changed to 66 mmfd. (Stock No. 36072, List Price \$:.30) to improve tracking.



CV-110 A-C
Power Supply
Unit

MI-8122
Vibrator Type
Power Supply
Unit

The pilot lights are illuminated by pressing in the volume-control knob. (The pilot lights are not controlled by this action when the receiver is operated with the CV-110 A-C power supply unit.)



Condenser and Indicator Drive Cords

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.

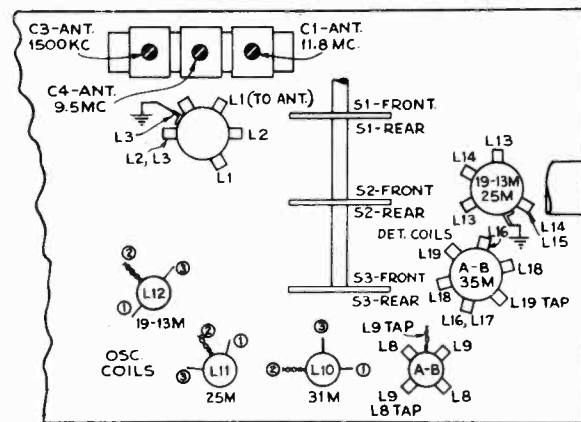
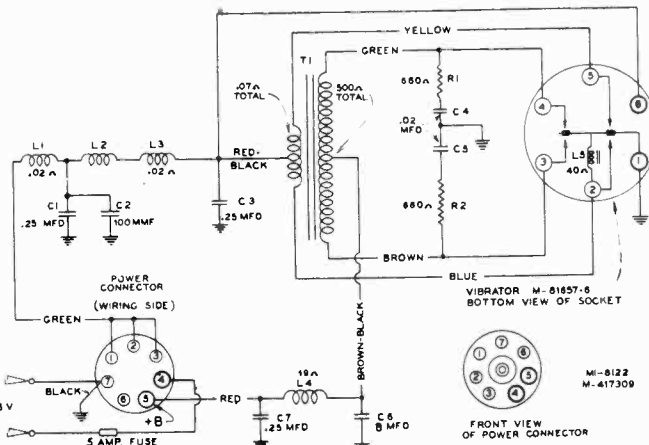
As the first step in r-f alignment, check the position of the drum. The "0" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

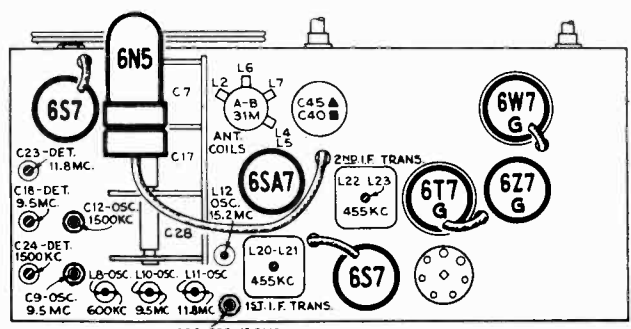
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Coil and Trimmer Locations (Bottom View)



Tube and Trimmer Locations (Top View)

Alignment Procedure

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range Switch	Turn Radio Dial to—	Adjust the following for max. peak output
1	6S7 I-F grid in series with .01 mfd.	455 kc	"A" band	Quiet point 600 kc end of dial	L23-L22 2nd I-F transformer
2	6SA7 1st det. grid in series with .01 mfd.				L21-L20 1st I-F transformer
3	Antenna terminal in series with 300 ohms	11.8 mc	25 meter band	11.8 mc (41.5°)	L11 (osc.) C1 (ant.) C23 (det.)
4		15.2 mc		15.2 mc (161.7°)	C26 (osc.)*†
5	Repeat steps 3 and 4 until aligned.				
6	Antenna terminal in series with 300 ohms	15.2 mc	19-13 meter band	15.2 mc (24°)	L12 (osc.)**
7		9.5 mc	31 meter band	9.5 mc (23.8°)	L10 (osc.)** C4 (ant.) C18 (det.)***
8		9.5 mc	"B" band	9.5 mc (168.5°)	C9 (osc.)*
9	Antenna terminal in series with 200 mmfd.	1,500 kc	"A" band	1,500 kc (153°)	C12 (osc.) C3 (ant.) C24 (det.)
10		600 kc		600 kc (30.5°)	L8 (osc.) Rock in
11	Repeat steps 9 and 10.				

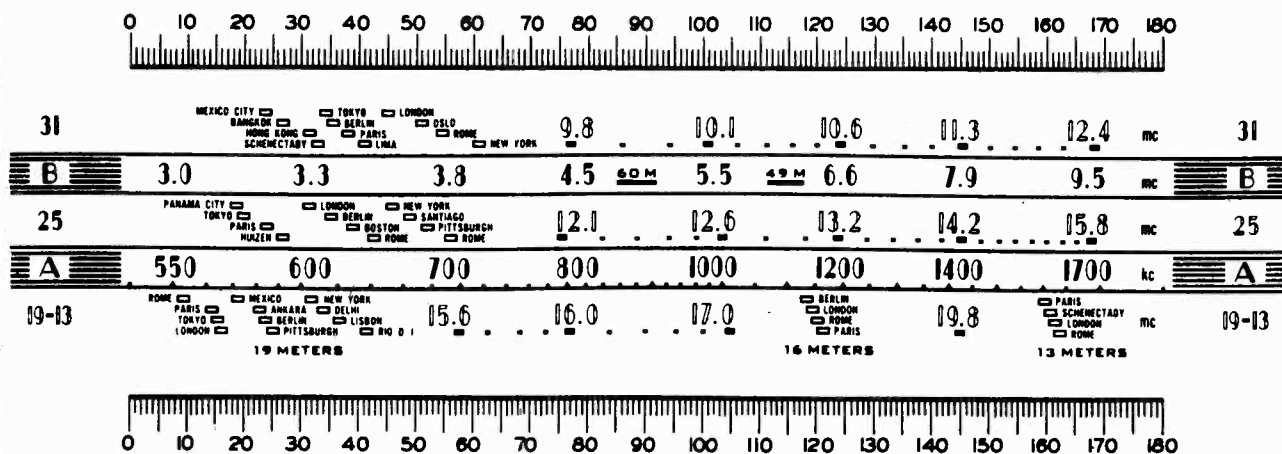
* Use minimum capacity peak if two can be obtained.

** Peak at minimum plunger position if two peaks can be obtained.

*** Use maximum capacity peak if two peaks can be obtained.

† Check image to determine that C26 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.

NOTE: Oscillator tracks above signals on all bands.



Calibration Scale

Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 30° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-539D)			
34502	Arm—Range switch actuating arm	31251	Socket—Eight prong tube socket
12717	Board—Phono input terminal board	34864	Socket—Tuning tube socket
37092	Calibrator—Printed chart for Stock No. 37090 drum	31418	Spring—Dial cord spring
12714	Capacitor—Plunger type air-trimmer	13638	Spring—Dial cord tension spring
37059	Capacitor—3 section mica trimmer 2.5 to 10 mfd. each section	37050	Switch—Range switch
33097	Capacitor—4.7 mmfd.	35636	Transformer—First I.F. transformer
35646	Capacitor—6 mmfd.	35628	Transformer—Second I.F. transformer
13200	Capacitor—10 mmfd., moulded	37898	Transformer—Driver transformer
31350	Capacitor—18 mmfd.	POWER SUPPLY UNIT ASSEMBLIES (MI-8122)	
35644	Capacitor—47 mmfd., ceramic	12720	Capacitor—100 mmfd.
37329	Capacitor—47 mmfd., silvered mica	31796	Capacitor—.02 mfd.
12723	Capacitor—56 mmfd.	12484	Capacitor—0.25 mfd.
35645	Capacitor—68 mmfd., ceramic	33879	Capacitor—Electrolytic 10 mfd., 300 volts
13057	Capacitor—68 mmfd., silvered mica	14289	Clip—Battery clips—one marked "-" and one unmarked
30904	Capacitor—100 mmfd., mica	12819	Coil—Choke coil
30949	Capacitor—120 mmfd.	31794	Coil—Choke coil
13003	Capacitor—180 mmfd.	5140	Fuse—5 amp.
12694	Capacitor—220 mmfd., moulded	14409	Plug—7 contact female plug for power cable
31433	Capacitor—560 mmfd.	12262	Resistor—680 ohms, 1/2 watt
35643	Capacitor—3,000 mmfd.	4786	Socket—Vibrator socket
34459	Capacitor—.0025 mfd.	31793	Transformer—Vibrator power transformer
33584	Capacitor—.005 mfd.	31785	Vibrator—Plug-in vibrator
5148	Capacitor—.007 mfd.	SPEAKER ASSEMBLIES (RL-90-5)	
4937	Capacitor—.01 mfd.	31825	Cap—Dust cap
11315	Capacitor—.015 mfd.	35193	Cone—Speaker cone complete with voice coil
32787	Capacitor—.05 mfd.	12567	Plug—5 prong male plug for speaker
4839	Capacitor—.01 mfd.	37899	Transformer—Output transformer
12484	Capacitor—.25 mfd. (C39)	MISCELLANEOUS ASSEMBLIES	
12484	Capacitor—.25 mfd. (C42)	37900	Back—Cabinet back cover
12741	Capacitor—.5 mfd.	30716	Clip—Tuning tube clip and thumb screw
32152	Capacitor—Electrolytic comprising 2 sections of 15 mfd., 250 volts each	37921	Crystal—Tuning tube crystal
37093	Coil—A-B band oscillator coil	35389	Decalcomania—Range switch decal
37055	Coil—A-B and 31 meter band antenna coil	35392	Decalcomania—Trade mark decal
37057	Coil—A-B and 31 meter band R.F. coil	35391	Decalcomania—Tuning decal
35624	Coil—13 and 19 meter band oscillator coil	35449	Decalcomania—Volume control decal
37056	Coil—13-19 and 25 meter band antenna coil	37281	Dial—Glass dial scale
37058	Coil—13-19 and 25 meter band R.F. coil	37922	Indicator—Station selector indicator
35625	Coil—25 meter band oscillator coil	35652	Knob—Range indicator knob
35626	Coil—31 meter band oscillator coil	35651	Knob—Range switch knob
37086	Condenser—3 gang variable tuning condenser	35650	Knob—Tone switch knob
37926	Control—Tone control and power switch	35955	Knob—Tuning or volume control knob
37897	Control—Volume control and dial lamp switch	31480	Lamp—Dial lamp
32634	Cord—Drive or pointer cord (approx. 50 in. lg.)	33438	Screw—Thumb screw for clip Stock No. 30716
37090	Drum—Tuning condenser drum—less calibration chart	14270	Spring—Retaining spring for knobs Stock Nos. 35650, 35955, and 35651
37091	Flywheel—Wheel and tuning shaft assembly	4982	Spring—Retaining spring for knob Stock No. 35652
37094	Link—Link, arm and bushing assembly	CV-110 A-C POWER SUPPLY UNIT	
14028	Nut—Clamping nut for Stock No. 12714 capacitor	32015	Capacitor—1 mfd. (C2)
31817	Plate—Cushion socket mounting plate	32013	Capacitor—Comprising 2 sections 16 mfd. each (C1, C3)
12493	Plug—5 contact female plug for speaker cable	14409	Plug—7-contact plug for power output cable
14404	Plug—7 contact male plug	32014	Reactor—Filter reactor (L1)
35641	Pulley—Drive cord pulley	30880	Resistor—150 ohms, 1/2 watt (R1)
37089	Pulley—Left hand dial cord pulley and bracket	31251	Socket—Rectifier tube socket
37088	Pulley—Right hand dial cord pulley and bracket	31998	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 25-60 cycles (T1)
3153	Resistor—1,500 ohms, 1 watt		
34787	Resistor—2,200 ohms, 1/2 watt		
30788	Resistor—4,700 ohms, 1 watt		
13998	Resistor—22,000 ohms, 1/2 watt		
12738	Resistor—27,000 ohms, 1/2 watt		
12454	Resistor—33,000 ohms, 1/2 watt		
30850	Resistor—56,000 ohms, 1/2 watt		
13715	Resistor—68,000 ohms, 1/2 watt		
12264	Resistor—220,000 ohms, 1/2 watt		
30648	Resistor—470,000 ohms, 1/2 watt		
30963	Resistor—820,000 ohms, 1/2 watt		
12013	Resistor—1 meg., 1/10 watt		
13730	Resistor—1 meg., 1/2 watt		
30208	Resistor—1.2 meg., 1/2 watt		
11769	Resistor—1.8 meg., 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
37096	Shaft—Indicator shaft		
37085	Shaft—Range switch actuating shaft		
31364	Socket—Dial lamp socket		

MODELS Q26, QU3M, QU3C

Chassis No. RC-507J, RC-507H, RC-507F

Six-Tube, Five-Band, A-C, Superheterodyne Receiver and Radio-Phonograph

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" band)	540-1,720 kc (556-174 m)
Medium Wave ("B" band)	3.0-9.5 mc (100-31.6 m)
"31" Meter Spread Band	9.5-11.7 mc (31.6-25.6 m)
"25" Meter Spread Band	11.7-15.1 mc (25.6-19.9 m)
"19-13" Meter Spread Band	15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

POWER SUPPLY RATING

QU3 105-125, 200-250 volts, 50-60 cycles, 80 watts total

	Voltagess	Frequency (cycles)	Watts
Q26	105-125	50-60	65
	105-125	25-60	65
	105-125, 200-250	50-60	65

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7 2nd Detector, A-F Amplifier, A.V.C.
- (4) RCA-6AD7-G Phase-Inverter, Power Output
- (5) RCA-6F6-G Power Output
- (6) RCA-5Y3-G Rectifier
- (7) RCA-6U5 (Q26 only) Tuning Indicator

LOUDSPEAKER

	QU3	Q26
Model	RL-63J6	RL-63K5
Type (Electrodynamic)	8-inch	8-inch
V.C Impedance at 400 c.p.s.	2.2 ohms	2.2 ohms

POWER OUTPUT

Undistorted	3 watts
Maximum	3.5 watts

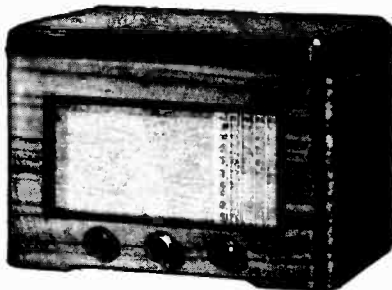
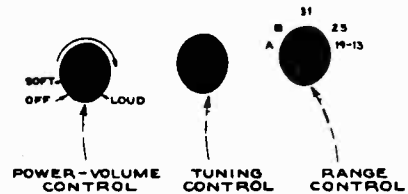
PHONOGRAPH MOTOR—Self-starting, constant-speed, induction type.

CRYSTAL PICKUP (QU3C)

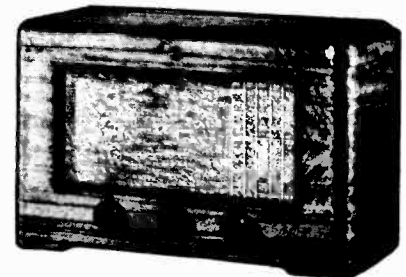
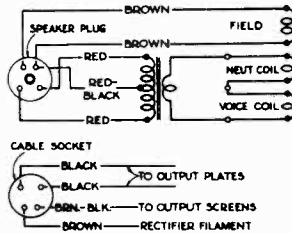
Impedance 100,000 ohms at 1,000 c.p.s.
Average Output 1.5 volts at 1,000 c.p.s. across 500,000 ohm load

MAGNETIC PICKUP (QU3M)

Impedance 96 ohms at 1,000 c.p.s.
Average Output 0.14 volts at 400 c.p.s. across open circuit



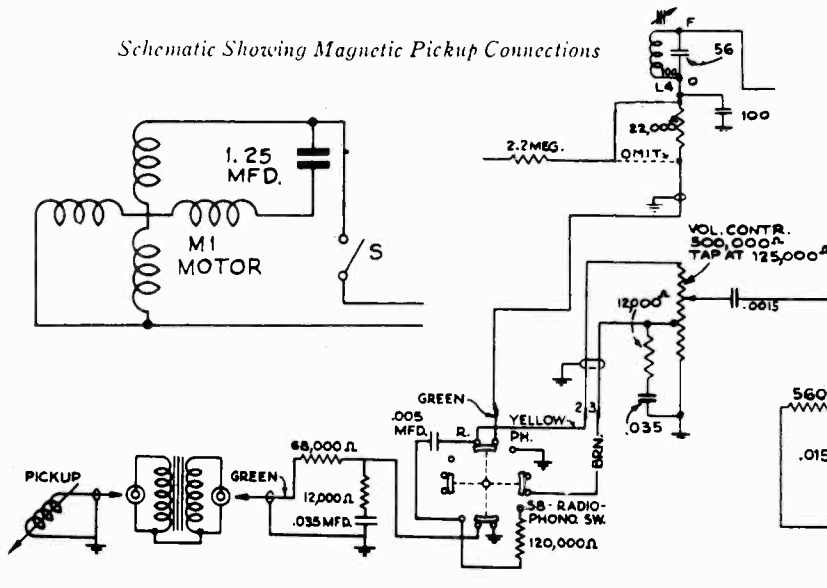
Model QU3



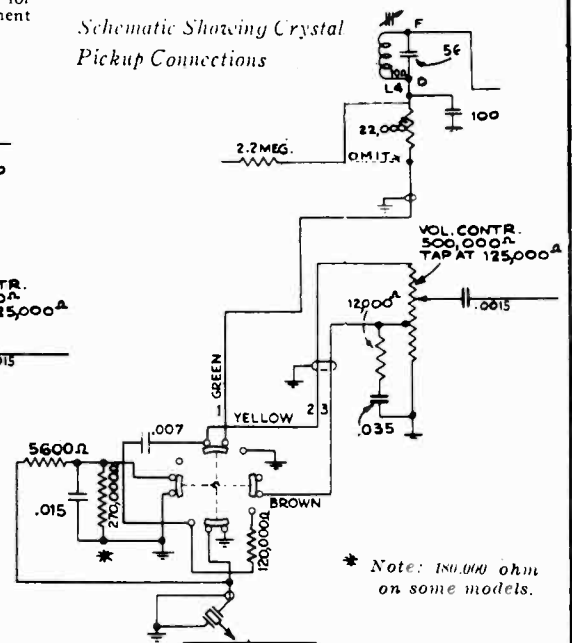
Model Q26

Victrola Attachment.—A jack is provided on the rear of Q26 for connection to a Victrola Attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug to fit the jack.

Schematic Showing Magnetic Pickup Connections



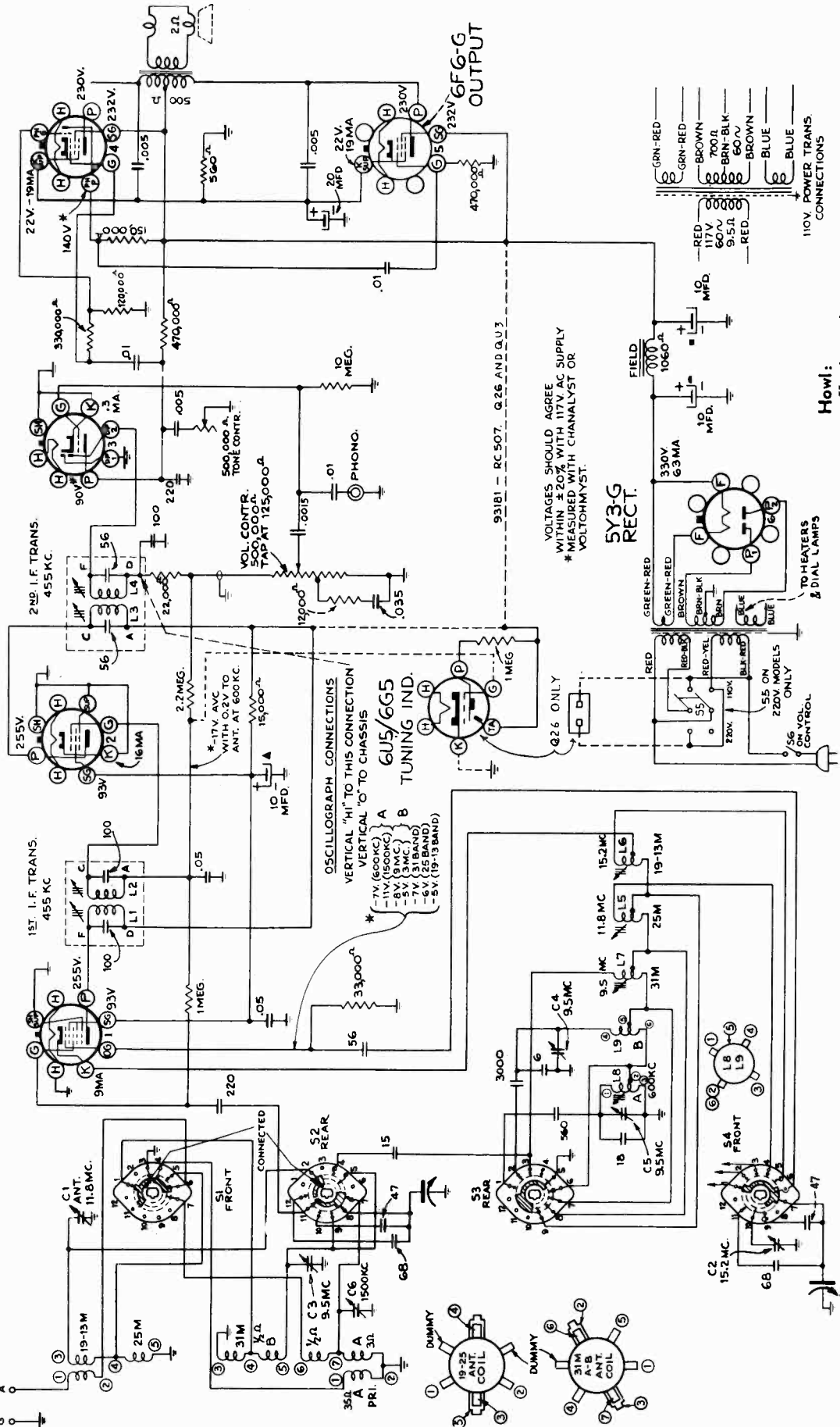
Schematic Showing Crystal Pickup Connections



* Note: 180,000 ohm on some models.

6X (600KC) ANT. TO GRID
 15X (AVC WORKING) 40X (AVC BUS GROUND)
 1X (655 KC)
 200 X AVC WORKING
 300 X AVC BUS GROUND
 1X (655 KC)
 60 X (400V)
 PHASE INVERTER 3.5 X (600V)
 OUTPUT 15 X (400V)
 APPROX. GAIN USING RCA-BLIDER CHANNELYST

6SA7 1ST DET.-OSC.
 6SK7 I.F.
 2ND I.F. TRANS. 455 KC.
 6SQ7 2ND DET.-A.F. AVC.
 6AD7G PH. INVERT. & OUTPUT



Howl:
 Howl on shortwave may sometimes be eliminated by changing capacitor C-41 from .007 to .005 mfd. (Stock No. 33640).

Schematic Circuit Diagram for Model Q26

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

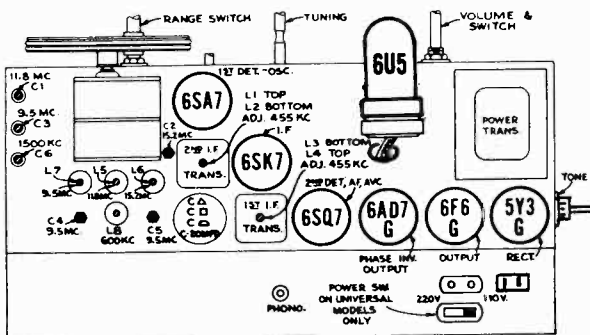
To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

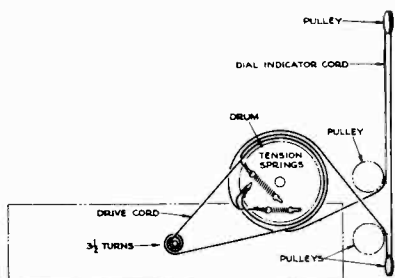
Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.



Note: 6U5 and 110-V receptacle on Q26 only.



The QU3M is equipped with a magnetic pickup, and the QU3C with a crystal pickup. The output of the crystal pickup is fed into the audio end of the receiver through a switch and compensating circuit. On instruments using a magnetic pickup, a transformer and compensating circuit are used between the pickup and the audio input (see schematic diagram). The transformer has two jacks, the larger one (primary) for input from the pickup and the smaller one (secondary) for output to the compensating circuit. The components of the compensating circuit are mounted externally to the chassis on a terminal board in the cabinet.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L3 and L4 2nd I-F Trans.
2	1st Det. grid in series with .01 mfd.				L1 and L2 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)
4		15.2 mc			17°	C2 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13M	156°	L6 (osc.)**
7		9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)
8	9.5 mc	B	11.5°	C4 (osc.)***	
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C5 (osc.) C6 (ant.)
10		600 kc			150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

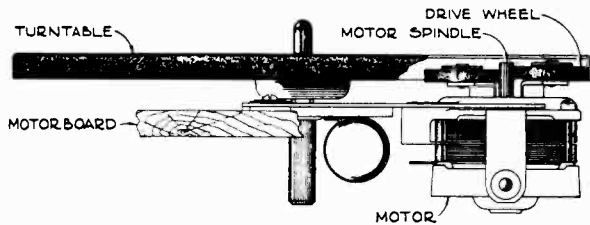
*** Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.

KC	MC	MC	MC	MC
1700°	9.5	11.9	15.6	13 METER BAND ROME LONDON SCHENY
1400°	7.8	11.0	14.1	16 METER BAND PARIS ROME LONDON BERLIN
1200°	6.6	10.5	13.2	
1000°	5.4	10.1	12.6	16.9
800°	4.4	9.8	12.1	16.0
700°	3.8			
600°	3.2			
550°	2.9			
A	B	31	25	19-13

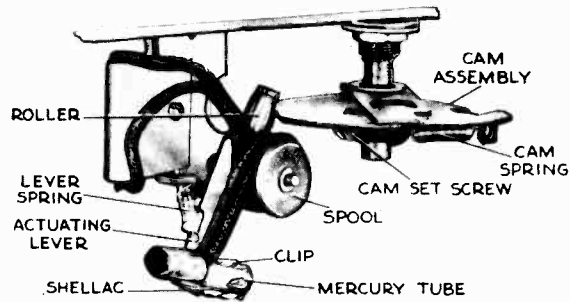
The phonograph motor has its bearing filled with oil and sealed at the factory and hence should not require lubrication in the field. However the two rubber tired idler pulleys should have their bearings lubricated occasionally with S.A.E. 10 oil. Care should be taken not to get any oil, grease, or other foreign matter on the rubber tires. These tires and the motor spindle should be cleaned occasionally with quick drying naphtha.

The turntable spindle bearing should also be lubricated occasionally with S.A.E. 10 oil.

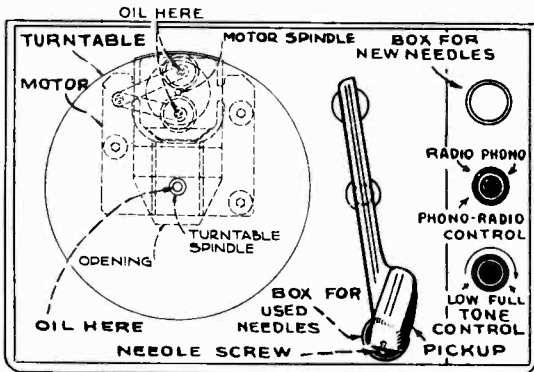


Motor Detail

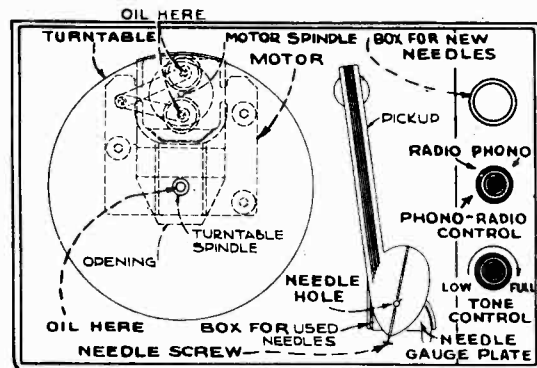
The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1 3/4 inches from the center line of the spindle shaft. The motor may be shut off at any time by placing the pickup on the pickup rest.



MERCURY SWITCH MECHANISM
 (VIEWED FROM FRONT
 SHOWN WITH PICKUP IN REST POSITION)



Top View Model QU3M



Top View Model QU3C

Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.
3. Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.

Loudspeaker.—To center the loudspeaker voice coil, first remove the front dust cover, then loosen the screws holding the spider assembly. Insert three narrow feelers into the air gap, and tighten the spider screws. Remove the feelers and fasten a dust cover in place with loudspeaker cement.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES.		
	Model QU3C (RC-507F)	31433	Capacitor—560 mmf.
	Model QU3M (RC-507H)	35643	Capacitor—3,000 mmf.
	Model Q26 (RC-507J)	4838	Capacitor—.005 mfd., 1,000 volts
33595	Cable—Shielded phono input cable for Model QU3M	33584	Capacitor—.005 mfd., 1,200 volts
36398	Cable—Shielded radio-phono cable	33640	Capacitor—.007 mfd. (Models QU3C, QU3M)
36397	Calibrator—Drive drum calibrator	4937	Capacitor—.01 mfd. (C25)
12714	Capacitor—Air trimmer	14393	Capacitor—.01 mfd. (C28)
34654	Capacitor—Mica trimmer—3 sections of 2.5-10 mmf.	11315	Capacitor—.015 mfd. (Model QU3C)
35646	Capacitor—6 mmf.	4870	Capacitor—.025 mfd.
36012	Capacitor—15 mmf.	5196	Capacitor—.035 mfd. (Model QU3M)
31350	Capacitor—18 mmf.	32787	Capacitor—.05 mfd. (C19)
35644	Capacitor—47 mmf., ceramic	4886	Capacitor—.05 mfd. (C35)
13141	Capacitor—47 mmf., silvered mica	33014	Capacitor—Electrolytic, comprising 3 sections of 10 mfd. and 1 section of 20 mfd.
12723	Capacitor—56 mmf., moulded mica	35632	Coil—Antenna coil—"A" band
30949	Capacitor—56 mmf., mica (Models QU3C, QU3M)	35631	Coil—Antenna coil—spread band
35645	Capacitor—68 mmfd., ceramic	35623	Coil—Oscillator coil—"A" and "B" band
13057	Capacitor—68 mmfd., silvered mica	35624	Coil—Oscillator coil—19-13 meter band
30904	Capacitor—100 mmf., mica (Models QU3C, QU3M)	35625	Coil—Oscillator coil—25 meter band
12720	Capacitor—100 mmf., moulded mica	35626	Coil—Oscillator coil—31 meter band
12694	Capacitor—220 mmf.	35619	Condenser—Variable tuning condenser
		36035	Control—Tone control (H.F.) (Models QU3C, QU3M)
		36416	Control—Tone control (Model Q26)
		35946	Control—Volume control and power switch.

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION		
32634	Cord—Condenser drive cord (approx. 34 inches overall)		CRYSTAL PICKUP AND ARM ASSEMBLIES For Model QU3C		
32634	Cord—Pointer drive cord (approx. 40 inches overall)				
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil	33906		Arm—Pickup arm—shell only	
31259	Core—Adjustable core and stud for 19-13 meter, 31 meter and 25 meter band oscillator coils	33908		Base—Pickup support arm base and retainer	
36396	Drum—Drive drum, less calibrator	33905		Crystal—Pickup crystal cartridge	
35638	Flywheel—Tuning shaft flywheel	33907		Support—Pickup support arm complete—less base	
30868	Plug—2-contact female plug for motor cable			AUTOMATIC SWITCH ASSEMBLIES For Models QU3C and QU3M	
5040	Plug—4-contact female plug for speaker cable				
35630	Pulley—Drive cord pulley—1 1/4 inch dia.	34312			Base—Pickup arm base (QU3M)
35973	Pulley—Drive cord pulley—1/2 inch dia.	34419			Base—Pickup arm mounting base (QU3C)
36637	Receptacle—Power line receptacle (Model Q26)	32865	Bracket—Switch bracket and terminal board		
30735	Resistor—560 ohms, 1 watt	34308	Cam—Switch cam assembly with spring		
13714	Resistor—5,600 ohms, 1/2 watt (Model QU3C)	34007	Lever—Switch actuating lever, roller and clip		
30128	Resistor—12,000 ohms, 1/2 watt	34309	Mounting—Pickup arm base mounting (rubber grommet, washers and nut)		
35595	Resistor—15,000 ohms, 3/4 watt	34311	Ring—Retaining ring for pickup arm pivot shaft		
13998	Resistor—22,000 ohms, 1/2 watt	14195	Screw—No. 10-32x5 1/2 set screw for switch cam hub		
12454	Resistor—33,000 ohms, 1/2 watt	36177	Shaft—Pickup arm pivot shaft (QU3M)		
13715	Resistor—68,000 ohms, 1/2 watt (Model QU3M)	34314	Shaft—Pickup arm pivot shaft (QU3C)		
14560	Resistor—100,000 ohms, 1/2 watt (Model Q26)	34310	Spool—Insulating spool for switch leads		
13734	Resistor—120,000 ohms, 1/2 watt (Models QU3M, QU3C)	32868	Spring—Switch lever spring		
30493	Resistor—150,000 ohms, 1/2 watt	32867	Spring—Tension spring for switch cam		
13698	Resistor—180,000 ohms, 1/2 watt for QU3C	32866	Switch—Mercury tube and leads		
13479	Resistor—390,000 ohms, 1/2 watt (Model Q26)	31608	Washer—Retaining washer for switch lever		
14963	Resistor—330,000 ohms, 1/2 watt (Models QU3M, QU3C)		SPEAKER ASSEMBLIES (RL-63-J-6; RL-63-K-5)		
30648	Resistor—470,000 ohms, 1/2 watt				
12285	Resistor—470,000 ohms, 1/2 watt (Models QU3M, QU3C)	13866		Cap—Dust cap (RL-63-J-6)	
12013	Resistor—1 megohm, 1/10 watt (Model Q26)	31825		Cap—Dust cap (RL-63-K-5)	
13730	Resistor—1 megohm, 1/2 watt	12079		Coil—Field coil, 1,060 ohms	
12679	Resistor—2 1/2 megohm, 1/2 watt	11469		Coil—Neutralizing coil (RL-63-J-6)	
13601	Resistor—10 megohm, 1/2 watt	34615		Cone—Cone complete with voice coil	
14350	Screw—No. 8-32 square head set screw for drum	5039		Plug—4-prong male plug speaker	
35948	Shaft—Range switch extension shaft	14534		Transformer—Output transformer	
35949	Shaft—Tuning shaft			MISCELLANEOUS ASSEMBLIES	
31364	Socket—Dial lamp socket				
35787	Socket—Phono-input socket (Model Q26)	36979	Back—Cabinet back cover (Models QU3C, QU3M)		
31251	Socket—Tube socket	36592	Baffle—Baffle board, including pointer rail and lamp bracket less grille cloth		
34864	Socket—Tuning tube socket (Model Q26)	36981	Bracket—Lamp bracket		
13638	Spring—Drive cord spring	4288	Cap—Connector cap for pickup lead (Model QU3C)		
31418	Spring—Pointer cord spring	34285	Clip—Tube clip (Model Q26)		
35622	Support—Tuning shaft support	36640	Crystal—Tuning indicator tube crystal (Model Q26)		
36036	Switch—Radio phono switch (Models QU3M, QU3C)	33910	Cup—Needle cup (1 required Model QU3C) (2 required Model QU3M)		
35947	Switch—Range switch	33909	Cup—Used needle cup and pickup rest (Model QU3C)		
32827	Switch—Voltage change switch	36074	Decalcomania—Radio-phono decal (Models QU3C, QU3M)		
35636	Transformer—First I.F. transformer	35388	Decalcomania—Tone switch decal (Models QU3C, QU3M)		
35628	Transformer—Second I.F. transformer	35467	Decalcomania—Trade mark decal (Models QU3C, QU3M)		
32910	Transformer—Power transformer—105-120 volts, 25 cycle (Model Q26)	35392	Decalcomania—Trade mark decal (Model Q26)		
32911	Transformer—Power transformer—110 volts, 60 cycle	36594	Dial—Glass dial scale		
32852	Transformer—Power transformer—110 220 volts, 60 cycle	36470	Escutcheon—Needle cup escutcheon (Model QU3C)		
2917	Washer—"C" washer for tuning shaft	4286	Ferrule—Bushing and ferrule insert for pickup lead cap (Model QU3C)		
	MOTOR ASSEMBLIES For Models QU3C and QU3M	13085	Hinge—Cabinet lid hinge (Models QU3C, QU3M)		
36986	Arm—Drive wheel or idler wheel support arm	36593	Indicator—Dial pointer		
36988	Armature—Armature complete for 105-125 volt, 50 cycle motor	35652	Knob—Range switch indicator knob (inner portion only)		
36987	Armature—Armature complete for 105-125 volt, 60 cycle motor	35651	Knob—Range switch knob (outer portion only)		
36989	Bushing—Motor mounting rubber bushings	36038	Knob—Phono-radio switch (Models QU3C, QU3M)		
36991	Capacitor—Motor capacitor for 105-125 volt, 50 cycle motor	36038	Knob—Tone control (Models QU3C, QU3M)		
36990	Capacitor—Motor capacitor for 105-125 volt, 60 cycle motor	35650	Knob—Tone control (Model Q26)		
36993	Cover—Bakelite top end shell for 105-125 volt, 50 cycle motor	35955	Knob—Tuning and volume control		
36992	Cover—Bakelite top end shell for 105-125 volt, 60 cycle	11765	Lamp—Pilot lamp		
36985	Motor—105-125 volt, 50 cycle motor less pulleys, capacitor and cradle	36471	Mounting—Motor mounting screw, grommet, spacer and washers (for 1 motor) (Models QU3C, QU3M)		
36984	Motor—105-125 volt, 60 cycle motor less pulleys, capacitor and cradle	30870	Plug—2-prong male plug for motor leads (Models QU3C, QU3M)		
36995	Plate—Motor support plate complete with turntable bearing	33960	Plug—Male plug for pickup leads (Model QU3M)		
36997	Spring—Idler arm tension spring	36980	Rail—Station pointer rail		
36996	Spindle—Turntable spindle	36394	Rest—Pickup arm rubber rest (Model QU3M)		
36994	Wheel—Rubber tired idler or drive wheel	36641	Retainer—Tuning indicator tube crystal retainer (Model Q26)		
	MAGNETIC PICKUP AND ARM ASSEMBLIES For Model QU3M	4982	Spring—Retaining spring for knob (Model Q26) Stock No. 35652		
36929	Arm—Pickup arm less mechanism, pivot arm, and cable	14270	Spring—Retaining spring for knobs (Model Q26) Stock Nos. 35650, 35955, 35651		
36930	Arm—Pivot arm and set screw	36940	Support—Cabinet lid support (Models QU3C, QU3M)		
14291	Armature—Pickup armature	14609	Transformer—Input transformer (Models QU3C, QU3M)		
11730	Cable—Shielded pickup cable	34422	Turntable—9 inch dia. (Models QU3C, QU3M)		
14930	Coil—Pickup coil				
14292	Damper—Pickup armature damper				
32228	Mechanism—Pickup unit mechanism complete				
11951	Screw—Needle screw				
34300	Screw—No. 6-32x1/2 headless set screw for pivot arm				

MODELS 4QB and 4QB4

Chassis No. RC-440 and RC-440A

Four-Tube, Three-Band, Battery-Operated Receivers

and

Model CV-111 (RS-95) A-C Power Unit

Electrical and Mechanical Specifications

FREQUENCY RANGES

	Model 4QB	
Standard Broadcast ("A" Band)	540-1,720 kc (555-174 m)	
Medium Wave ("B" Band)	2.3-7.0 mc (130-42.8 m)	
Short Wave ("C" Band)	7.0-22 mc (42.8-13.6 m)	

	Model 4QB4	
Standard Broadcast ("A" Band)	540-1,720 kc (555-174 m)	
Short Wave ("C" Band)	5.8-18 mc (51.7-16.6 m)	
Long Wave ("X" Band)	145-385 kc (2069-779 m)	

INTERMEDIATE FREQUENCY

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G 1st Det.—Oscillator
- (2) RCA-1N5-G I-F Amplifier
- (3) RCA-1H5-G .. 2nd Det., A.F., and A.V.C.
- (4) RCA-1C5-G Power Output

POWER OUTPUT RATING

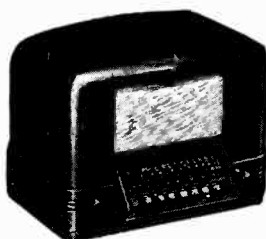
	Undistorted	Maximum
With Battery Supply	0.13 watt	0.23 watt
With A-C Supply	0.20 watt	0.46 watt

LOUDSPEAKER

Type 5-inch permanent-magnet dynamic
 Voice-coil Impedance 3 ohms at 400 cycles

BATTERIES REQUIRED

One 1½-volt "A" battery, and
 Two 45-volt "B" batteries, or
 One 1½-90-volt battery pack.



Models 4QB and 4QB4

BATTERY DRAIN

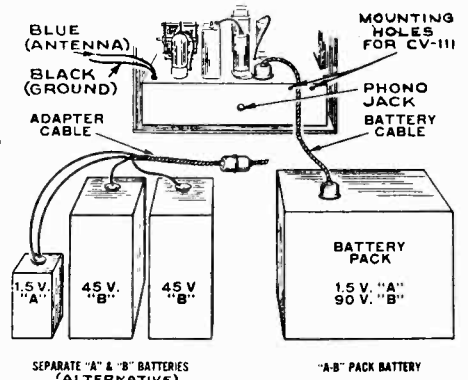
"A" .....	.25 amp.
"B"	10.5 ma.

DIMENSIONS (inches)

	Height	Width	Depth
Cabinet	9 3/4	13 1/2	8 1/4
Chassis Base	2 3/4	12	5 1/4
Chassis Over-all Height	7		
Tuning Drive Ratio	18 to 1		

CV-111 A-C POWER SUPPLY UNIT

Power Rating	105-125/200-250 volts, 50-60 cycles, 65 watts
Rectifier Tube	RCA-5T4
Ballast Resistor Tube	Type 86892-3
Dial Lamp	Mazda 44, 6.3 volts, 0.25 amp.
Dimensions (inches)	5 x 3 1/4 x 6 1/2
Net Weight	5 lbs.



Separate "A" and "B" batteries or an "A-B" battery pack may be used.

General Alignment Data for Models 4QB and 4QB4

(Refer to specific "Alignment Procedure" for each model)

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the ground terminal, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency is given in the alignment table.

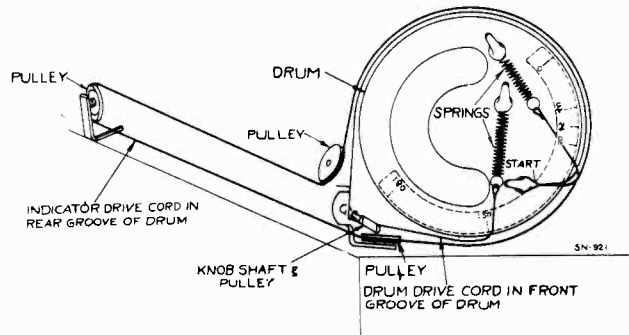
As the first step in r-f alignment, check the position of the drum. The 45 degree mark on drum scale should be in an approximately horizontal position when the plates are fully meshed. The distance from the edge of the chassis to the drum must not exceed 1/8-inch. The drum is held to the shaft by means of a set screw, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, (last mark at end of "A" scale) and gang

condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

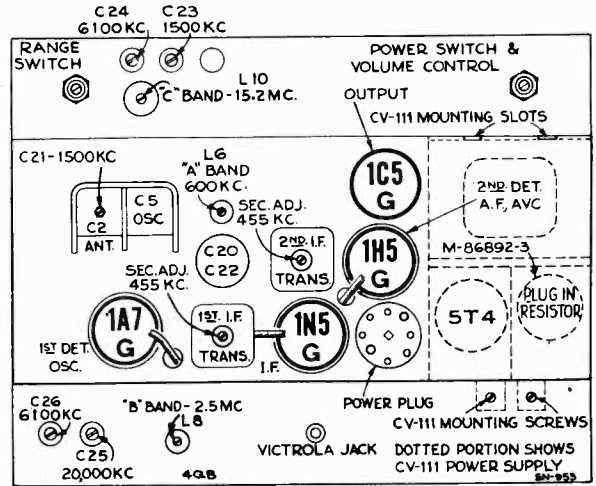


Arrangement of Drive Cords for Tuning Condenser and Dial Indicator (Drum shown with gang in maximum-capacity position)

Model 4QB Alignment Procedure

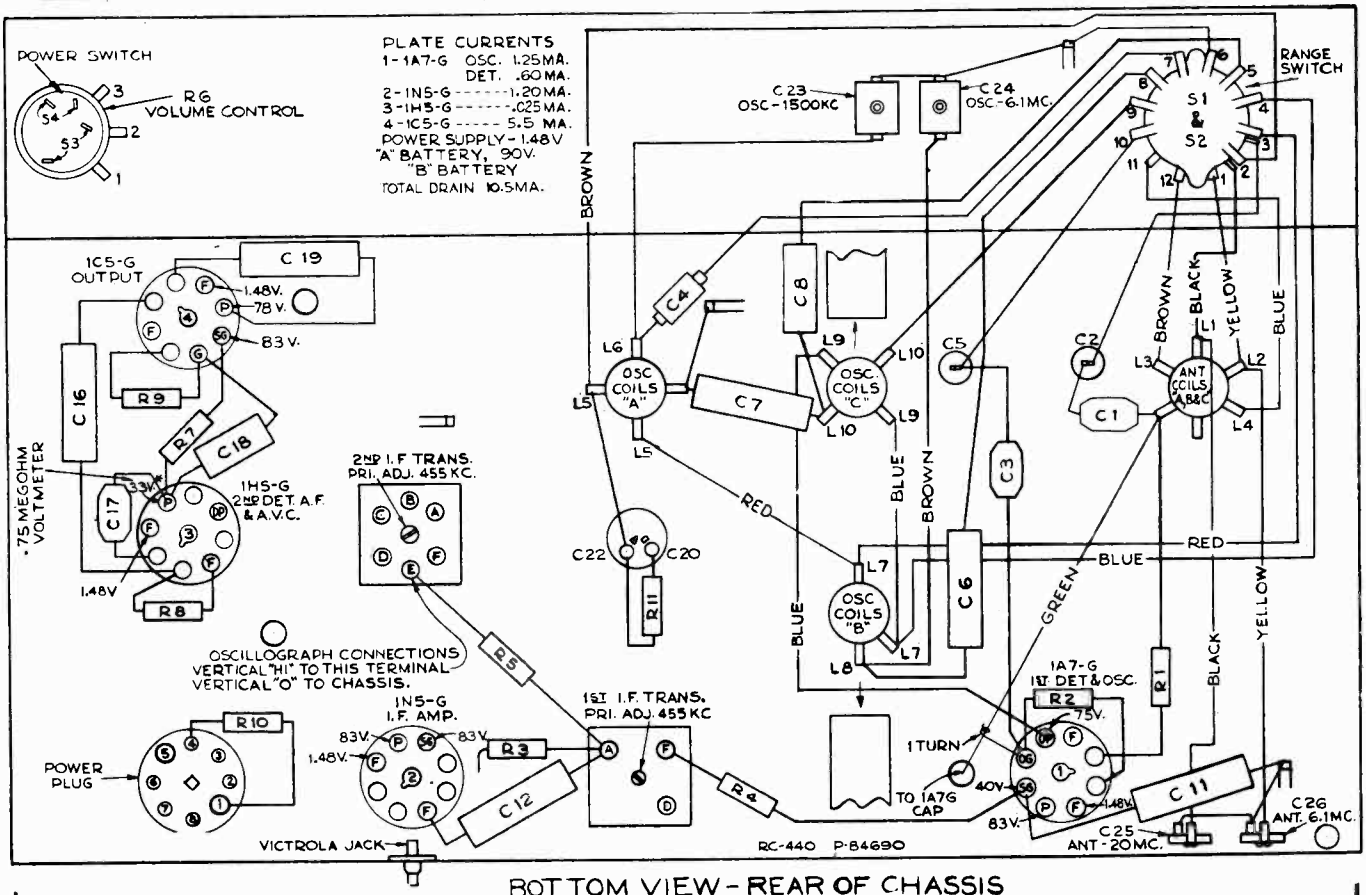
(Refer to section on "General Alignment Data")

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	1N5-G I-F grid cap, in series with .01 mfd.	455 kc	"A" band, quiet point at high-frequency end	L14 and L13 (2nd I-F Trans.)
2	1A7-G 1st-Det. grid cap, in series with .01 mfd.			L12 and L11† (1st I-F Trans.)
3	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc (152.5°) "A" band	Preset L6 (osc.) core 5/16-in. out. Peak C23 (osc.) and C21 (ant.)
4		600 kc	600 kc (33°) "A" band	L6 (osc.)**
5		Repeat steps 3 and 4		
6		6.1 mc	6.1 mc (151°) "B" band	Preset L8 (osc.) core 1/4-in. out. Peak C24 (osc.)* and C26 (ant.)
7	Repeat steps 6 and 7	2.5	2.5 mc (29.5°) "B" band	L8 (osc.)**
8		Repeat steps 6 and 7		
9	Antenna lead, in series with 300 ohms†	15.2 mc	15.2 mc (122°) "C" band	L10 (osc.)
10		20 mc	20 mc (155.5°) "C" band	C25 (ant.)†† Rock gang
11	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc (152.5°) "A" band	C23 (osc.)



Model 4QB Top View

- *Use minimum capacity peak if two peaks can be obtained.
- **Rock gang slightly for peak output.
- †Do not readjust L13 or L14 when test-osc. is applied to 1A7-G grid.
- ††Use maximum capacity peak if two peaks can be obtained.



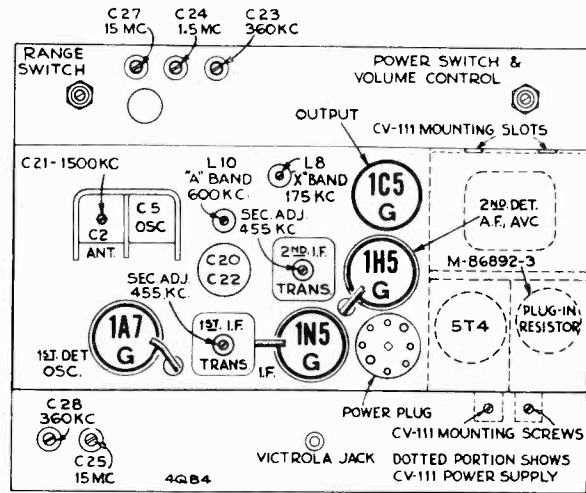
BOTTOM VIEW - REAR OF CHASSIS

Model 4QB R-F Wiring Diagram and Socket Voltages
Voltages shown above are for battery operation.

Model 4QB4 Alignment Procedure

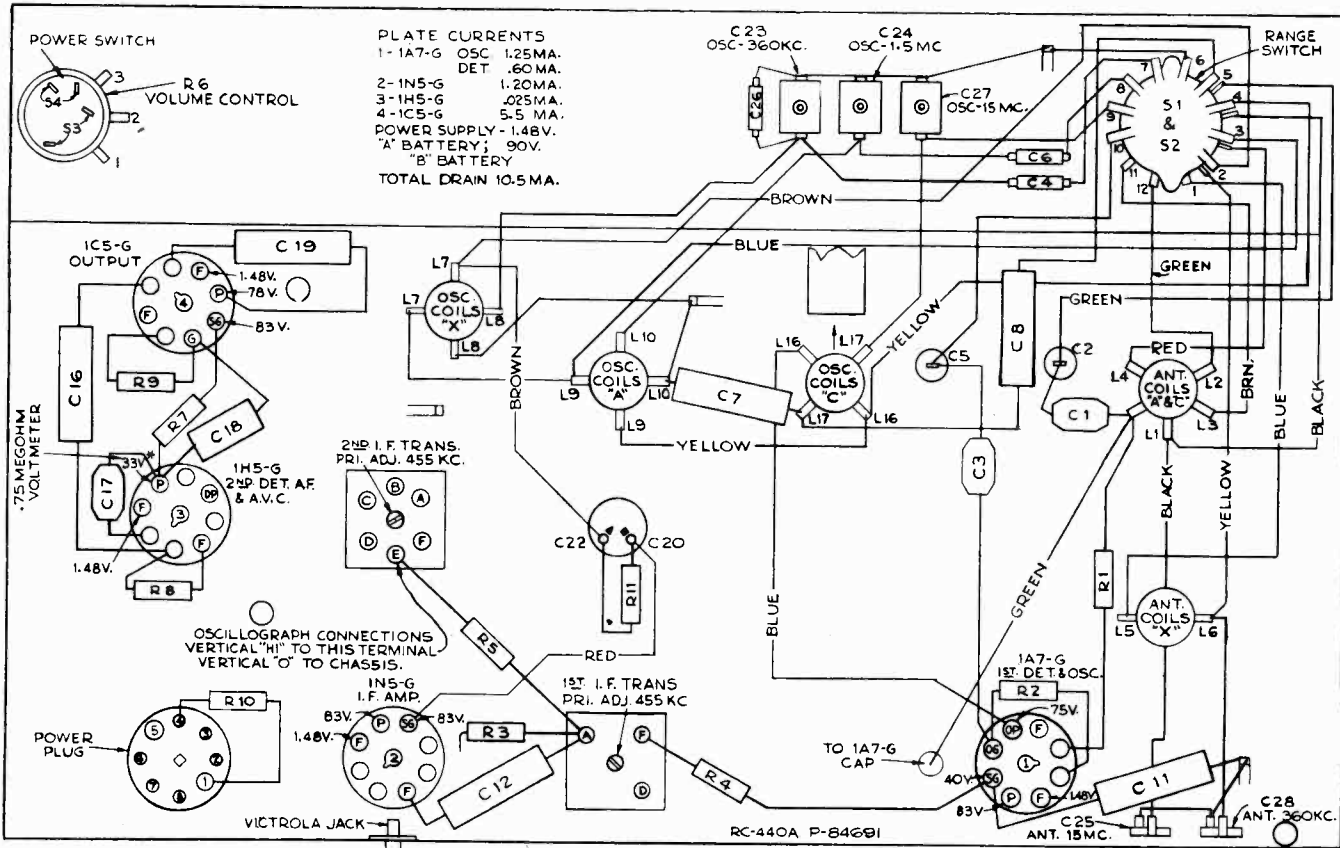
(Refer to section on "General Alignment Data")

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output	
1	1N5-G I-F grid cap, in series with .01 mfd.	455 kc	"A" Band, Quiet Point at high-frequency end	L14 and L13 (2nd I-F Trans.)	
2	1A7-G 1st-Det. grid cap, in series with .01 mfd.			L12 and L11 (1st I-F Trans.)†	
3	Antenna lead, in series with 200 mmfd.	1,500 kc (200 m)	1,500 kc (152.5°) "A" Band	Preset L10 (osc.) core 5/16-in. out Peak C24 (osc.) and C21 (ant.)	
4		600 kc (500 m)	600 kc (33°)	L10 (osc.)**	
5		Repeat steps 3 and 4.			
6		360 kc (833 m)	360 kc (161°) "X" Band	Preset L8 (osc.) core 5/16-in. out Peak C23 (osc.) and C28 (ant.)	
7		175 kc (1,710 m)	175 kc (55°) "X" Band	L8 (osc.)**	
8	Repeat steps 6 and 7.				
9	Antenna lead, in series with 300 ohms	15 mc	15 mc (148°) "C" Band	C27 (osc.)* C25 (ant.)††	
10	Antenna lead, in series with 200 mmfd.	1,500 kc (200 m)	1,500 kc (152.5°) "A" Band	C24 (osc.)	



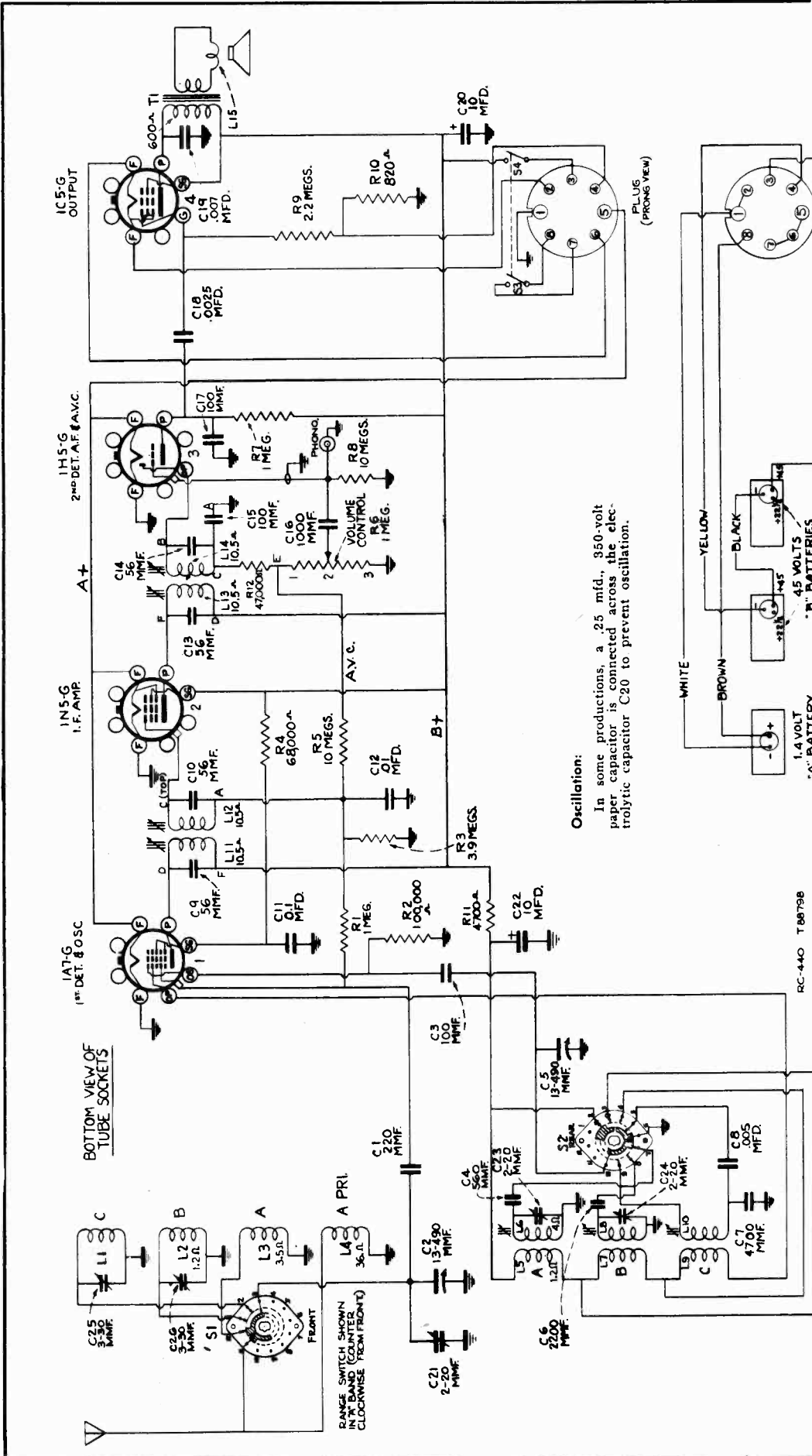
Model 4QB4 Top View

- *Use minimum capacity peak if two peaks can be obtained.
- **Rock gang slightly for peak output.
- †Do not readjust L13 or L14 when test-osc. is applied to 1A7-G grid.
- ††Use maximum capacity peak if two peaks can be obtained.



BOT TOM VIEW-REAR OF CHASSIS

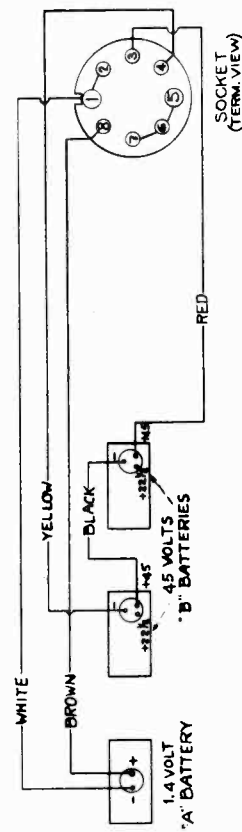
Model 4QB4 R-F Wiring Diagram and Socket Voltages
Voltages shown above are for battery operation.

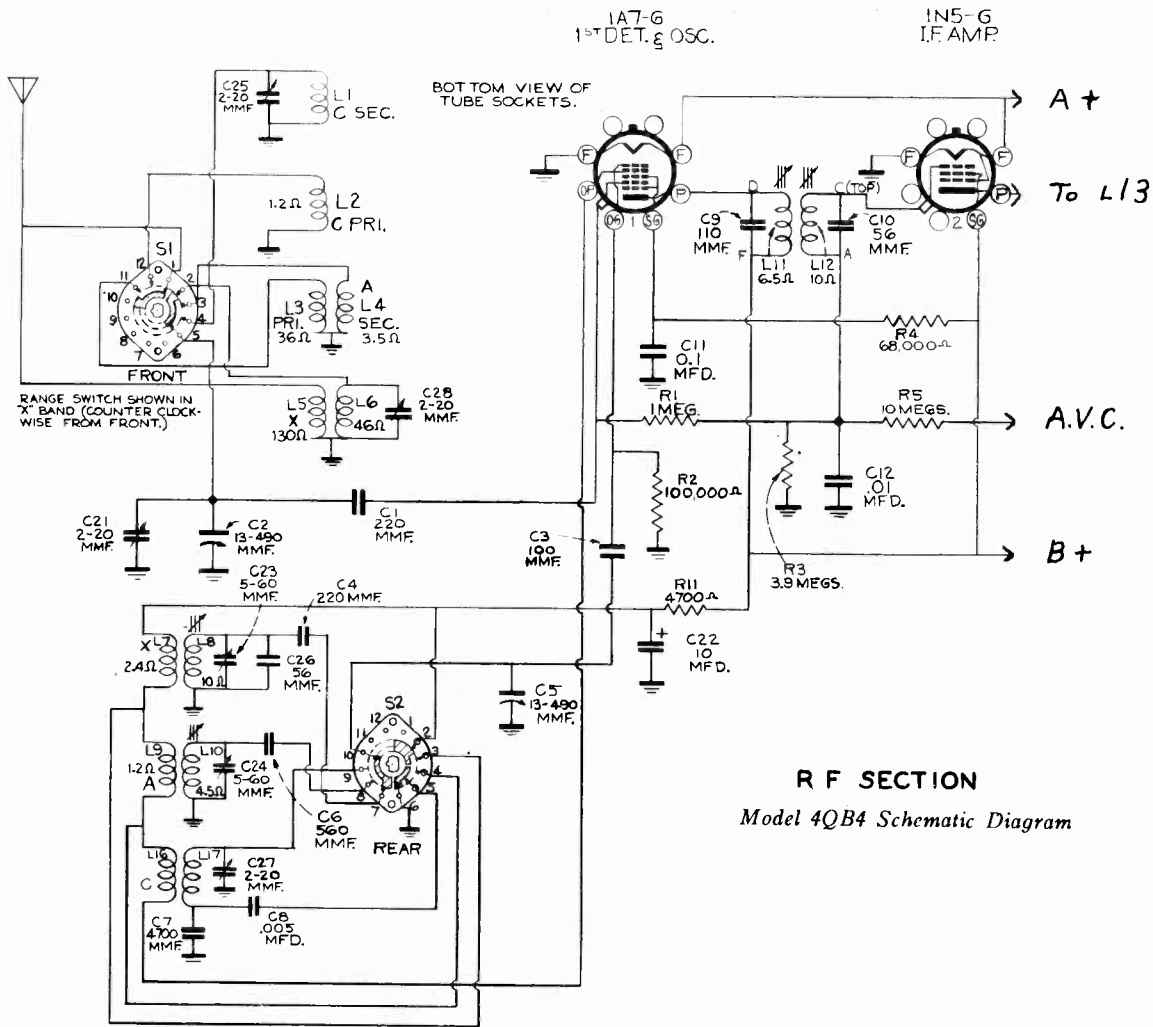


Model 4QB Schematic Diagram

- Precautionary Lead Dress:**
1. Dress C3 (100 mmfd.) edgewise to chassis.
 2. Dress the 1A7-G grid cap lead clear of chassis.
 3. Dress green wire from C2 (antenna section of gang) to range switch away from chassis and other wires.
 4. Dress blue lead from terminal "E" of 2nd I.F. transformer around terminal "D", away from the 1H5-G and 1C5-G sockets, and close to the chassis.
- Socket (Term. View)**
5. Dress C16 (1,000 mmfd.) from grid of 1H5-G tube to volume control, and the green lead to the 1H5-G grid cap away from other wires.
 6. Dress the red wire from the power plug to the power switch on the volume control away from the 1H5-G socket.
 7. Blue lead from "C" band oscillator coil to 1A7-G No. 6 contact must be dressed away from chassis.
 8. All tube shields must be tight.

Oscillation:
In some productions, a .25 mfd., 350-volt paper capacitor is connected across the electrolytic capacitor C20 to prevent oscillation.





RF SECTION
Model 4QB4 Schematic Diagram

CV-111 A-C Power Supply Unit

Models 4QB and 4QB4 may be operated on 105-125/200-250 volts, 50-60 cycle a-c power supply, by installing a CV-111 power supply unit on the chassis, as follows:

1. Remove the battery cable plug from the power plug on chassis.
2. Set the line power switch (on side of CV-111) to the correct position for the a-c voltage that is to be used.
3. Place the CV-111 on top of the radio chassis as shown in dotted lines in the top view. Press the dial light clip on the projection at low-frequency end of dial assembly. Insert the 8-prong socket (on cable from CV-111) into the power plug on chassis.
4. Fasten the power unit to the chassis. The front of the unit has two projections which fit into slots on the front of the

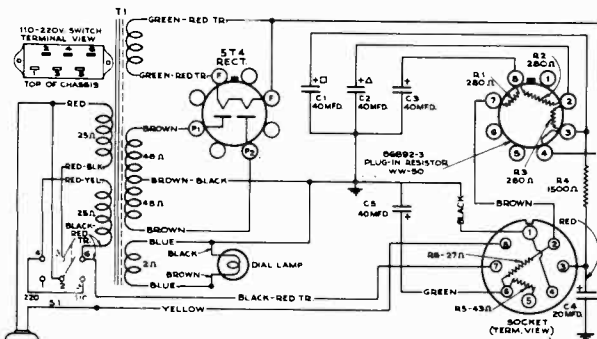
chassis. Two projections on the rear of the unit have holes for fastening to the rear of the chassis with self-tapping screws.

5. Caution: Before connecting to the a-c supply, make certain that all tubes are firmly seated in their sockets. Always disconnect the a-c supply before removing or replacing tubes.
6. Reverse the a-c power plug for minimum hum.

Socket Voltages, with CV-111 Power Supply Unit (Line Supply Voltage, 117, or 234 volts)

Tube	1A7-G	1N5-G	1H5-G	1C5-G
Function	1st-Det.	Osc.	I. F.	2nd Det., A. F.
Filament Voltage	1.3	1.3	1.3	1.28
Plate Voltage	95	85	95	40**
Screen Voltage	45	95		95
Plate Mils.	0.4	1.5	1.5	.03
Screen Mils.	.7	.35		1.75
Bias				6.1

Total "B" current, 15 mils.
Total filament current, 146 mils.
**With 750,000 ohm voltmeter.



Model CV-111 Power Unit

Replacement Parts

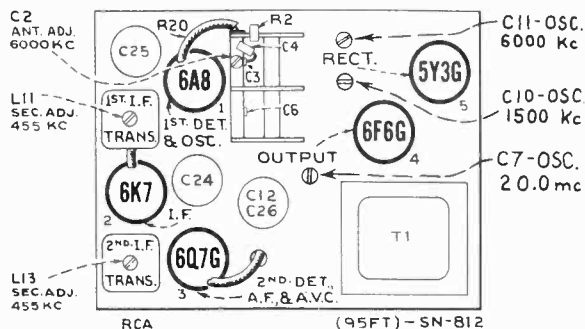
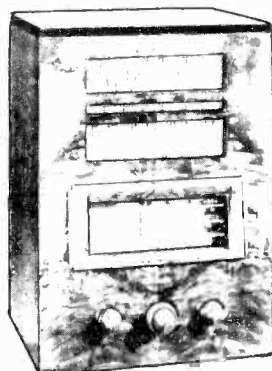
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES		
	(RC-440, Model 4QB) (RC-440A, Model 4QB4)	14278	Socket—Phonograph input socket and plate...
32832	Bracket—Drive bracket pulleys, tuning knob shaft complete	31319	Socket—Tube socket
32834	Bracket—Pulley and bracket	31418	Spring—Spring for indicator drive and condenser drive cords
32830	Capacitor—Trimmer capacitor—2 sections 2-20 mmfd. each. (Model 4QB C23, C24) (Model 4QB4 C25, C28)	33781	Switch—Range switch (Model 4QB S1, S2)
31292	Capacitor—Trimmer capacitor—2 sections 3-30 mmfd. each (Model 4QB C25, C26)	33782	Switch—Range switch (Model 4QB4 S1, S2)
33788	Capacitor—Trimmer capacitor—3 sections 2 of 5-60 mmfd. each and 1 section of 2-20 mmfd. each. (Model 4QB4 C23, C24, C27)	32263	Transformer—First i-f transformer (Model 4QB L11, L12, C9, C10)
12723	Capacitor—56 mmfd. (Model 4QB4 C28)	14261	Transformer—First i-f transformer (Model 4QB4 L11, L12, C9, C10)
30949	Capacitor—56 mmfd. (C9, C10, C13, C14 Model 4QB) (C10, C13, C14, Model 4QB4)	32825	Transformer—Second i-f transformer (L13, L14, C13, C14, C15, R12)
12629	Capacitor—56 mmfd. (Model 4QB4 C10)		SPEAKER ASSEMBLIES (84556-2)
12720	Capacitor—100 mmfd. (C3, C17)	33804	Cone—Cone complete with voice coil, center suspension and dust screen—centered and assembled in metal housing (L15)
14262	Capacitor—109 mmfd. (Model 4QB4 C9)	5118	Plug—3-contact male plug for speaker
32235	Capacitor—110 mmfd. (C15)	33791	Speaker—Complete
12694	Capacitor—220 mmfd. (C1, C4) (C4 in Model 4QB4 only)	33805	Transformer—Output transformer (T1)
31433	Capacitor—560 mmfd. (C4 in Model 4QB, C6 in Model 4QB4)		MISCELLANEOUS ASSEMBLIES
12635	Capacitor—1,000 mmfd. (C16)	32845	Bracket—Dial mounting bracket and lamp bracket assembly—less pointer and pointer slide rods
12951	Capacitor—2,200 mmfd. (Model 4QB C6)	32837	Dial—Glass dial scale (Model 4QB)
31399	Capacitor—4,700 mmfd. (C7)	33844	Dial—Glass dial scale (Model 4QB4)
14393	Capacitor—.01 mfd. (C30)	34340	Knob—Range switch knob—black
34459	Capacitor—.0025 mfd. (C18)	34341	Knob—Range switch knob—ivory
33584	Capacitor—.005 mfd. (C8)	34342	Knob—Range switch knob—maroon
5148	Capacitor—.007 mfd. (C19)	33085	Knob—Tuning knob—black
4937	Capacitor—.01 mfd. (C12)	32839	Knob—Tuning knob—brown
4839	Capacitor—.01 mfd. (C11)	33091	Knob—Tuning knob—ivory
33790	Capacitor—Comprising 2 sections of 10 mfd. each (C20, C22)	33093	Knob—Tuning knob—maroon
32821	Coil—Antenna coil—A, B, C bands—(Model 4QB L1, L2, L3, L4)	33943	Knob—Volume control knob—black
32706	Coil—Antenna coil—A, C band (Model 4QB4 L1, L2, L3, L4)	33944	Knob—Volume control knob—ivory
32823	Coil—Antenna coil—X band (Model 4QB4 L5, L6)	33945	Knob—Volume control knob—maroon
32148	Coil—Oscillator coil—"A" band (Model 4QB L5, L6) (Model 4QB4 L9, L10)	32208	Plug—2-contact male plug for battery cable
33784	Coil—Oscillator coil—"B" band (Model 4QB L7, L8)	12827	Plug—3-contact male plug for battery cable ("B" leads)
33785	Coil—Oscillator coil—"C" band (Model 4QB L9, L10)	30568	Plug—4-contact male plug for battery cable
33787	Coil—Oscillator coil—"C" band (Model 4QB4 L16, L17)	32847	Pointer—Dial pointer, carriage and clip
33786	Coil—Oscillator coil—"X" band (Model 4QB4 L7, L8)	32846	Rod—Pointer slide rod
32817	Condenser—Variable tuning condenser (C2, C5, C21)	30567	Socket—4-contact female socket for battery cable
33780	Control—Volume control and switch (R6, S3, S4)	33969	Socket—8-contact female socket for battery cable
32834	Cord—Condenser drive cord	14270	Spring—Retaining spring for knobs
32835	Cord—Indicator drive cord		CV-111 POWER SUPPLY UNIT
32713	Core—Core and stud for oscillator coil (Model 4QB) ("B" band)	33813	Ballast—Ballast resistor tube—Type 86892-3 (R1, R2, R3)
32835	Drum—Drive cord drum	33968	Capacitor—Electrolytic—1 section of 20 mfd. and 1 section of 40 mfd. (C4, C5)
5119	Plug—3-contact female for speaker cable	33810	Capacitor—Electrolytic, 3 sections 40 mfd. each (C1, C2, C3)
30568	Plug—4-contact male for power cable	11891	Lamp—Pilot lamp
33969	Plug—8-contact female for power cable	33813	Resistor—Ballast resistor tube—Type 86892-3 (R1, R2, R3)
33789	Plug—8-prong male power input plug	12453	Resistor—27 ohms, 1/2 watt (R6)
14076	Resistor—820 ohms, 1/2 watt (R10)	33970	Resistor—43 ohms, flexible (R5)
30146	Resistor—4,700 ohms, 1/2 watt (R11)	14499	Resistor—1,500 ohms, 1/2 watt (R4)
5132	Resistor—47,000 ohms, 1/10 watt (R12)	33969	Socket—8-contact female socket for power supply cable
13715	Resistor—68,000 ohms, 1/2 watt (R4)	31364	Socket—Pilot lamp socket
14560	Resistor—100,000 ohms, 1/2 watt (R2)	31319	Socket—Tube socket
13730	Resistor—1 meg., 1/2 watt (R1, R7)	32827	Switch—Voltage change switch (S1)
12679	Resistor—2.2 meg., 1/2 watt (R9)	33783	Transformer—Power transformer 105-120 and 200-240 volts, 50-60 cycle (T1)
13167	Resistor—3.9 meg., 1/2 watt (R3)	33813	Tube—Ballast resistor tube—Type 86892-3 (R1, R2, R3)
13601	Resistor—10 meg., 1/2 watt (R5, R8)		
30340	Retainer—Drive bracket shaft retainer		
32833	Shaft—Tuning knob shaft retainer and pulley		

MODEL 5Q1

FORMERLY MODEL 95FT

Five-Tube, Three-Band, A-C, Superheterodyne Receiver



L8, 600 kc osc. adjustment is accessible through hole in rear apron

Radiotron, Component Part, and Trimmer Locations

Electrical Specifications

FREQUENCY RANGES

- "Standard Broadcast" (A)..... 540- 1,720 kc
- "Medium Wave" (B)..... 2,300- 7,000 kc
- "Short Wave" (C)..... 7,000-22,000 kc

Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6A8..... First Detector-Oscillator
- (2) RCA-6K7..... I-F Amplifier
- Pilot Lamps (2).. Mazda No. 46, 6.3 volts, 0.25 amp.

POWER SUPPLY RATINGS

- Rating A..... 105-125 volts, 50-60 cycles, 75 watts
- Rating B..... 105-125 volts, 25-60 cycles, 75 watts
- Rating C... 105-125/200-250 volts, 50-60 cycles, 75 watts

POWER OUTPUT

- Undistorted..... 2.2 watts
- Maximum..... 4.5 watts

R-F ALIGNMENT FREQUENCIES

- "Medium Wave" (B)..... 6,000 kc (osc., ant.)
- "Short Wave" (C)..... 20,000 kc (osc.)
- "Standard Broadcast" (A).. 600 kc (osc.), 1,500 kc (osc.)

- (3) RCA-6Q7-G..... Second Detector—A.V.C.—Audio Voltage Amplifier
- (4) RCA-6F6-G..... Audio Power Amplifier
- (5) RCA-5Y3-G..... Full-Wave Rectifier

LOUDSPEAKER

- Type..... 6-inch electrodynamic
- V. C. Impedance..... { 84091-1 } 2.6 ohms at 400 cycles
 { 84001-3 }
 { 84091-2 } 4.7 ohms at 400 cycles
 { 84001-6 }

Alignment Procedure

With the gang tuning-condenser plates in full-mesh position, adjust the pointer to the low-frequency (end) calibration mark on the dial scale. The pointer is soldered in place on the drive cable.

Precautionary Lead Dress.—(1) Keep leads from C1 as short as possible. (2) Dress yellow and green leads from range selector to oscillator coil between front apron and range selector. (3) Dress blue lead from oscillator coil to oscillator plate away from other parts. Maintain original length and size of the following: (4) bus lead from antenna coil L1 to range selector and (5) lead from oscillator coil to chassis.

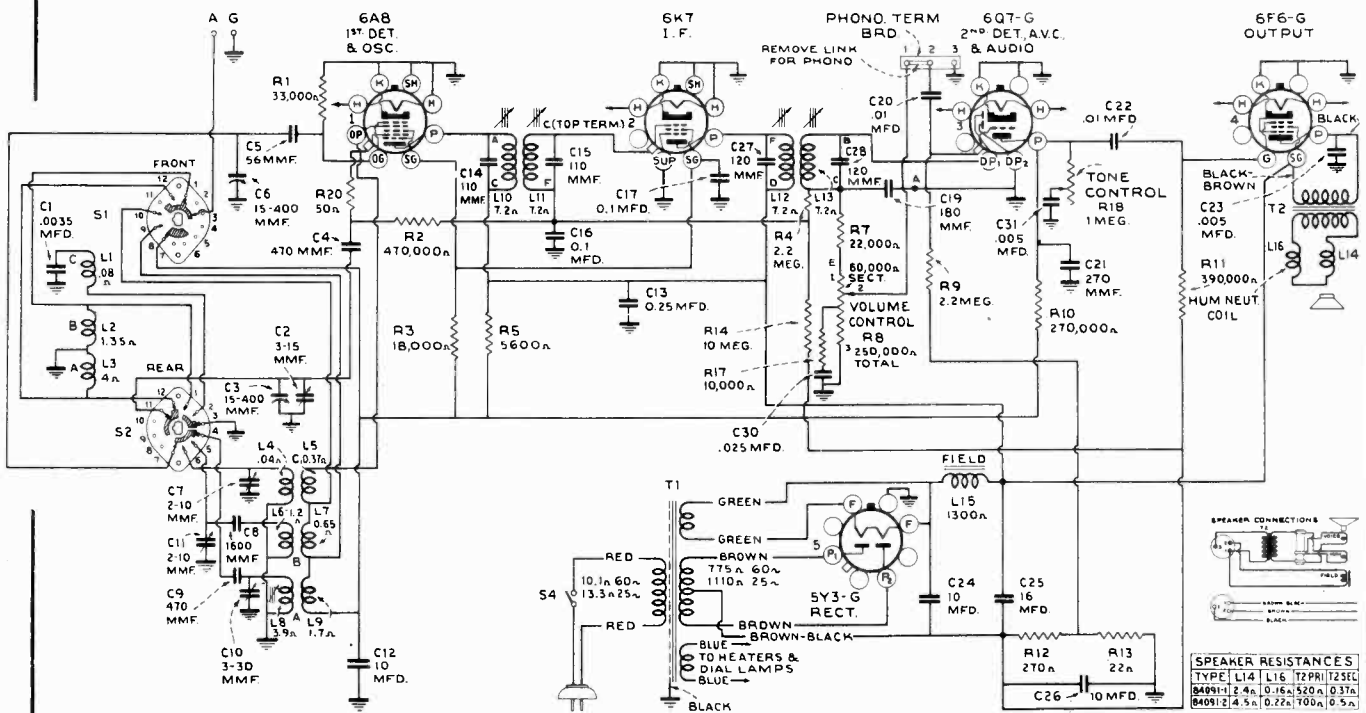
Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting					
1	6K7 I-F Grid Cap	.001 Mfd.	455 kc	"A" Left	No Signal 550-750 kc	2nd I-F Trans.	L12 and L13	Max. (peak)
2	6A8 Det. Grid Cap	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	1st I-F Trans.	L10 and L11	Max. (peak)
3	Ant. Term.	300 Ohms	6,000 kc	"B" Center	6,000 kc	"B" Osc.	C11	Max. (peak)*
4	Ant. Term.	300 Ohms	6,000 kc	"B"	6,000 kc	"B" Ant.	C2	Max. (peak)†
5	Ant. Term.	300 Ohms	20,000 kc	"C" Right	20,000 kc	"C" Osc.	C7	Max. (peak)‡
6	Ant. Term.	200 Mmfd.	600 kc	"A" Left	600 kc	"A" L-F Osc.	L8	Max. (peak)
7	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C10	Max. (peak)
8	Ant. Term.	200 Mmfd.	600 kc	"A"	600 kc	"A" L-F Osc.	L8	Max. (peak)
9	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C10	Max. (peak)

* Use minimum capacity peak if two peaks can be obtained.

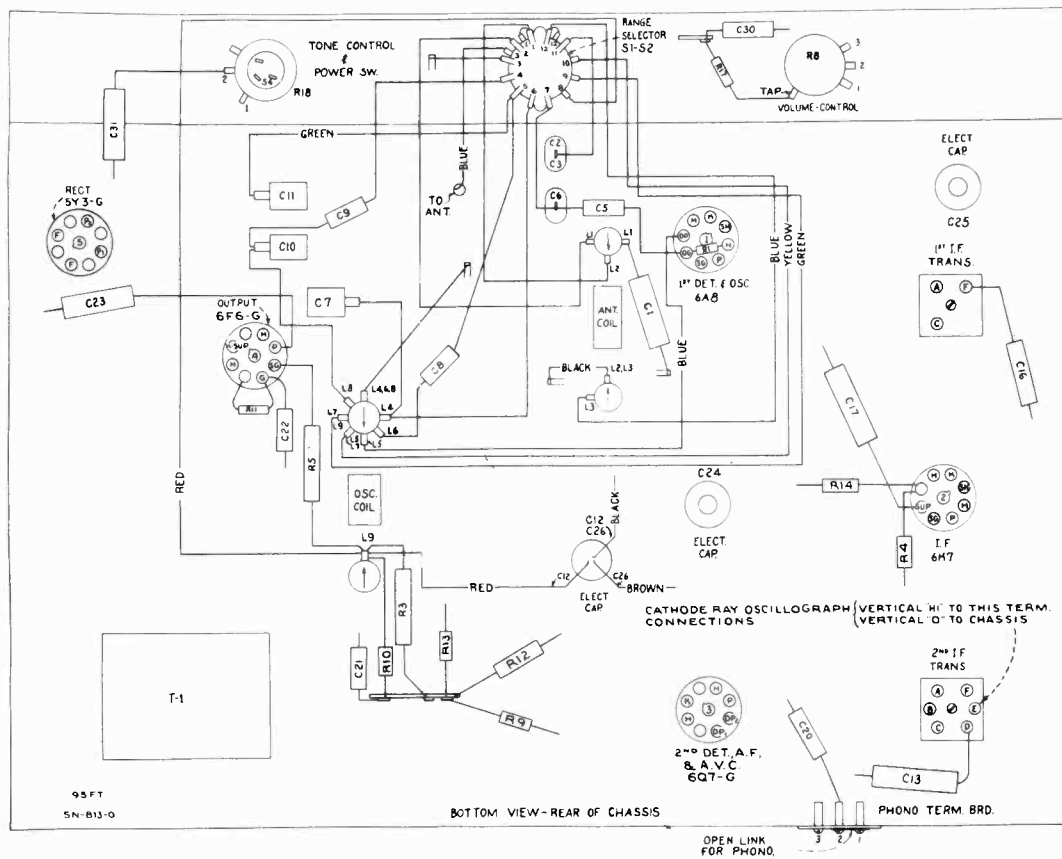
† After this adjustment, check for image signal by shifting receiver dial to 5.09 mc.

‡ Use maximum capacity peak if two peaks can be obtained. After this adjustment, check for image signal by shifting receiver dial to 20.91 mc.

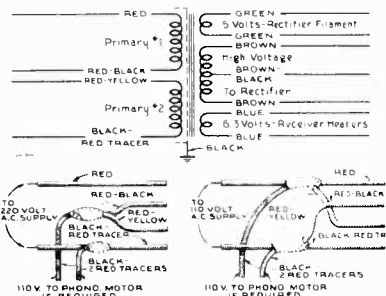
Note that the heterodyne oscillator tracks above the signal frequency on bands "A" and "B," and below the signal frequency on band "C."



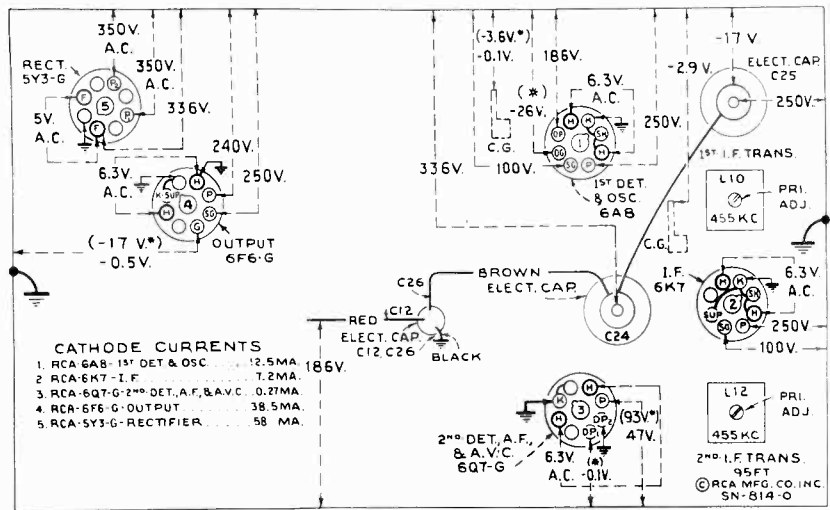
Schematic Circuit Diagram



Component Part Location and R-F Wiring Diagram



Schematic and primary lead connections for 110-220 volt power transformer (Stock No. 30607). Resistance of each primary winding, 10 ohms; High-voltage secondary winding, 386 ohms total.



BOTTOM VIEW-REAR OF CHASSIS

Radiotron Socket Voltages and Trimmer Locations

* Note: Values with star (*) are operating voltages. Values not starred are actual measured voltages. Measurements made to chassis unless otherwise indicated. Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10,

50, 250, and 500 volts. (Use nearest range above the specified measured voltage.)

Values should hold within approximately ± 20% for 117-volt 60-cycle supply.

REPLACEMENT PARTS

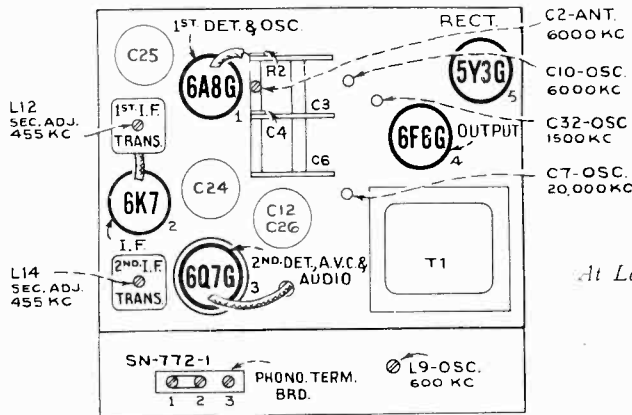
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14380	Arm—Hum and arm for operating band indicator shutter—fastens on range switch shaft	12454	Resistor—33,000 ohms, 1/2 watt (R1)
14352	Belt—Station selector drive belt	12199	Resistor—270,000 ohms, 1/2 watt (R10)
13216	Board—Antenna and ground terminal board	13005	Resistor—390,000 ohms, 1/10 watt (R11)
12717	Board—Phonograph terminal board	11452	Resistor—470,000 ohms, 1/10 watt (R2)
12607	Cap—Top shield cap for first i-f transformer	12679	Resistor—2.2 meg., 1/2 watt (R4, R9)
12681	Cap—Top shield cap for second i-f transformer	13601	Resistor—10 meg., 1/2 watt (R14)
11350	Cap—Grid contact cap	14887	Retainer—Band indicator disc retainer
12723	Capacitor—56 mmfd. (C5)	14343	Ring—Retaining ring for range switch shaft
12462	Capacitor—110 mmfd. (C14, C15)	14350	Screw—No. 8-32 x 3/16 in. square head set screw for drum Stock No. 30584, arm Stock No. 14380, and pulley Stock No. 30587
12404	Capacitor—120 mmfd. (C27, C28)	14340	Shaft—Drive pulley and knob shaft—fastens on range switch shaft
12406	Capacitor—180 mmfd. (C19)	12008	Shield—I-f transformer shield can
12488	Capacitor—270 mmfd. (C21)	11196	Socket—8-contact Radiotron socket
30433	Capacitor—470 mmfd. (C4, C9)	14114	Socket—Dial lamp socket
30592	Capacitor—1,600 mmfd. (C8)	12007	Spring—Retaining spring for core Stock No. 12006
30303	Capacitor—.0035 mfd. (C1)	30585	Spring—Tension spring for pointer cord
4870	Capacitor—.025 mfd. (C30)	30588	Spring—Tension spring for idler pulley
4838	Capacitor—.005 mfd. (C23, C31)	30576	Switch—Range switch (S1, S2)
14393	Capacitor—.01 mfd. (C20, C22)	30574	Tone Control and power switch (R18, S4)
4839	Capacitor—.01 mfd. (C16, C17)	14376	Transformer—First i-f transformer (L10, L11, C14, C15)
12484	Capacitor—0.25 mfd. (C13)	14308	Transformer—Second i-f transformer (L12, L13, C19, C27, C28, R7)
11203	Capacitor—10 mfd.	30571	Transformer—Power transformer, 105-125 volts, 25-60 cycles (T1)
30577	Capacitor Pack—Comprising two sections each 10 mfd.	30607	Transformer—Power transformer 105-125 and 200-250 volts, 50-60 cycles (T1)
5212	Capacitor—16 mfd. (C25)	30575	Volume Control (R8)
4358	Clamp—Mounting clamp for capacitor pack Stock No. 30577	REPRODUCER ASSEMBLIES	
30578	Coil—Antenna coil (L1, L2, L3)	13677	Cone—Reproducer cone and dust cap (for speaker marked 84091-1 or 84001-3) (L14)
30579	Coil—Oscillator coil (L4, L5, L6, L7, L8, L9)	14934	Cone—Reproducer cone and dust cap (for speaker marked 84091-2 or 84001-6) (L14)
30573	Condenser—2-gang variable tuning condenser (C2, C3, C6)	14613	Reproducer complete—(marked 84001-3 or 6 but interchangeable with speaker marked 84091-1 or 2)
30580	Condenser—3-gang mica trimmer—two sections each 2-10 mmfd., one section 3-30 mmfd. (C7, C10, C11)	14615	Transformer—Output transformer (for speaker marked 84091-1 or 84001-3) (T2)
30586	Cord—Station-selector indicator pointer cord	14935	Transformer—Output transformer (for speaker marked 84091-2 or 84001-6) (T2)
12800	Core—Adjustable core and stud for oscillator coil	MISCELLANEOUS ASSEMBLIES	
12006	Core—Adjustable core and stud for i-f transformer	30593	Escutcheon—Station selector dial escutcheon and crystal
30589	Dial—Station-selector dial scale	11771	Foot—Rubber foot for cabinet
30581	Disc—Band indicator disc with celluloid window	14359	Knob—Station selector knob
30572	Drive—Vernier drive shaft and pinion gear for variable condenser	14269	Knob—Tone-control, volume-control, or range-switch knob
30584	Drum—Station-selector drive-cord drum with set screws	14267	Screw—Chassis mounting screw and washer assembly
30583	Indicator—Station-selector indicator pointer and holder assembly	14270	Spring—Retaining spring for knob Stock No. 14269
5226	Lamp—Dial lamp	4982	Spring—Retaining spring for knob Stock No. 14359
30587	Pulley—Drive-belt pulley for condenser shaft		
14636	Pulley—Drive-belt idler pulley		
14525	Resistor—22 ohms, 1/2 watt (R13)		
14653	Resistor—50 ohms, flexible type, 1/2 watt (R20)		
13819	Resistor—270 ohms, wire wound, 1.1 watt (R12)		
11298	Resistor—5,600 ohms, 1 watt (R5)		
14559	Resistor—10,000 ohms, 1/2 watt (R17)		
30151	Resistor—18,000 ohms, 1 watt (R3)		
14284	Resistor—22,000 ohms, 1/10 watt (R7)		

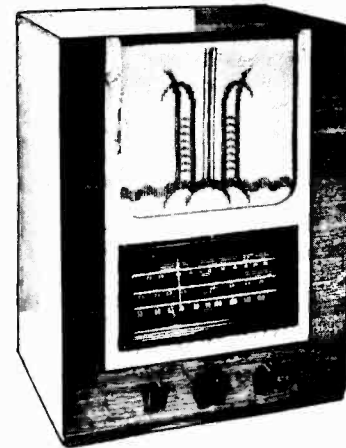
MODEL 5Q2

Chassis No. RC-325-C

Five-Tube, Three-Band, A-C, Superheterodyne Receiver



At Left—Tube and Trimmer Locations



Electrical Specifications

- FREQUENCY RANGES**
 "Standard Broadcast" (A)..... 540-1,550 kc (555-193 m)
 "Medium Wave" (B)..... 2.3-7.0 mc (130-42.8 m)
 "Short Wave" (C)..... 7.0-22.0 mc (42.8-13.6 m)
 INTERMEDIATE FREQUENCY..... 455 kc
 RADIOTRON COMPLIMENT
 (1) RCA-6A8-G..... First Detector—Oscillator
 (2) RCA-6K7..... Intermediate Amplifier
 (3) RCA-6Q7-G... Second Detector, A.V.C., and A-F Amp.
 (4) RCA-6F6-G..... Power Output
 (5) RCA-5Y3-G..... Full-Wave Rectifier

- PILOT LAMPS (2)..... Mazda 44, 6.3 volts, 0.25 amp.
 POWER OUTPUT RATING
 Undistorted..... 2.5 watts
 Maximum..... 4.5 watts
 LOUDSPEAKER (RL-63F-1)
 Type..... 8-inch Electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles
 POWER SUPPLY RATINGS
 Rating A..... 105-125 volts, 50-60 cycles, 75 watts
 Rating B..... 105-125 volts, 25-60 cycles, 75 watts
 Rating C.... 105-125/200-250 volts, 50-60 cycles, 75 watts

Alignment Procedure

Pre-setting Dial.—With the gang condenser in full mesh, the dial pointer should be in line with the left-hand end of the dial scales. The pointer is soldered to the drive cable.



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap. in series with .01 mfd.	455 kc	"A" band, Quiet Point	L13 and L14 (2nd I-F Trans.)
2	6A8-G det. grid cap. in series with .01 mfd.	455 kc	between 550-750 kc	L11 and L12 (1st I-F Trans.)
3	Antenna Terminal in series with 300 ohms	6 mc	6 mc "B" band	C10 (osc.) * C2 (ant.) †
4	Antenna Terminal in series with 300 ohms	20 mc	20 mc "C" band	C7 (osc.) **
5	Antenna Terminal in series with 200 mmf.	600 kc	600 kc "A" band	L9 (osc.)
6	Antenna Terminal in series with 200 mmf.	1,500 kc	1,500 kc "A" band	C32 (osc.) *
7	Repeat steps 5 and 6.			

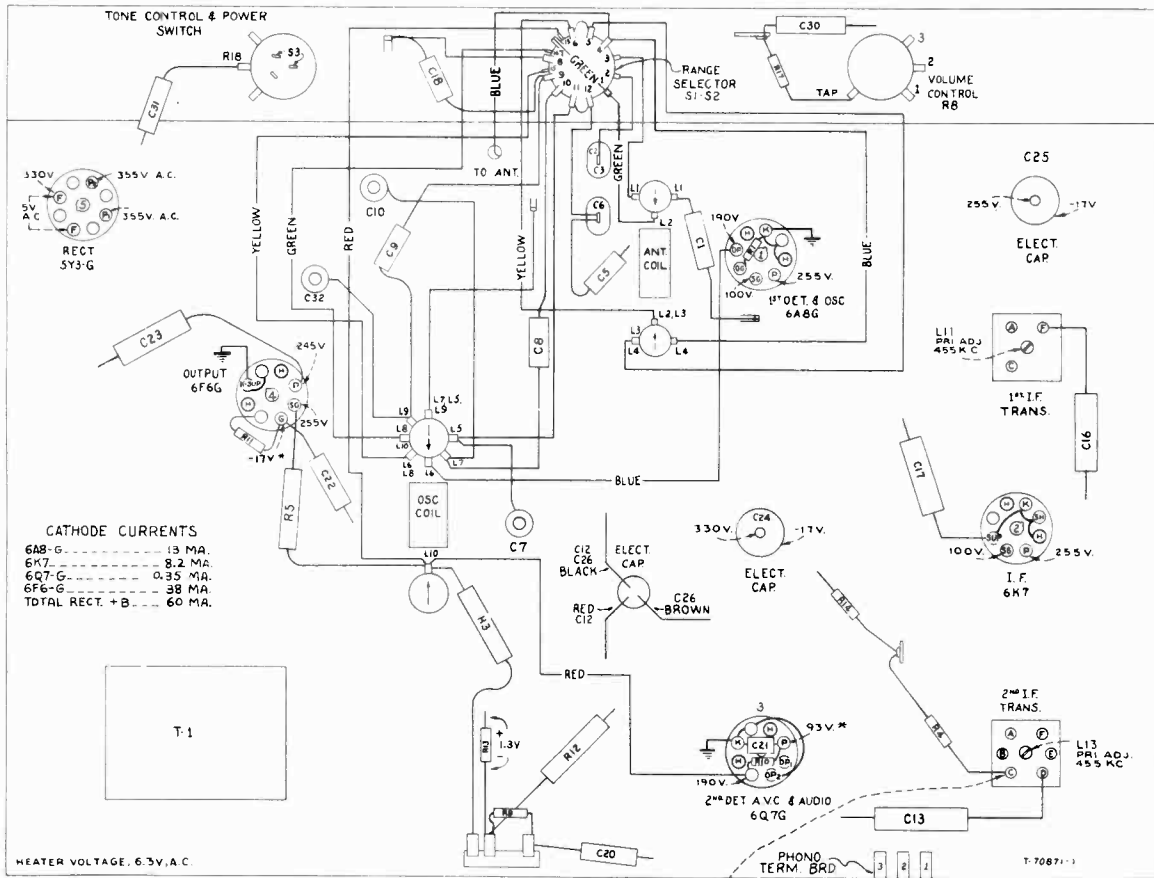
* Use minimum capacity peak if two peaks can be obtained.

† After adjusting C2, check to determine that C10 has been adjusted to the correct peak by tuning the receiver to approximately 5.09 mc, where a weaker signal should be received.

** Use maximum capacity peak if two peaks can be obtained. Check to determine that C7 has been adjusted to the correct peak by tuning the receiver to approximately 20.91 mc, where a weaker signal should be received.

NOTE: The oscillator tracks 455 kc above the signal on "A" and "B" bands, and 455 kc below the signal on "C" band.

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.



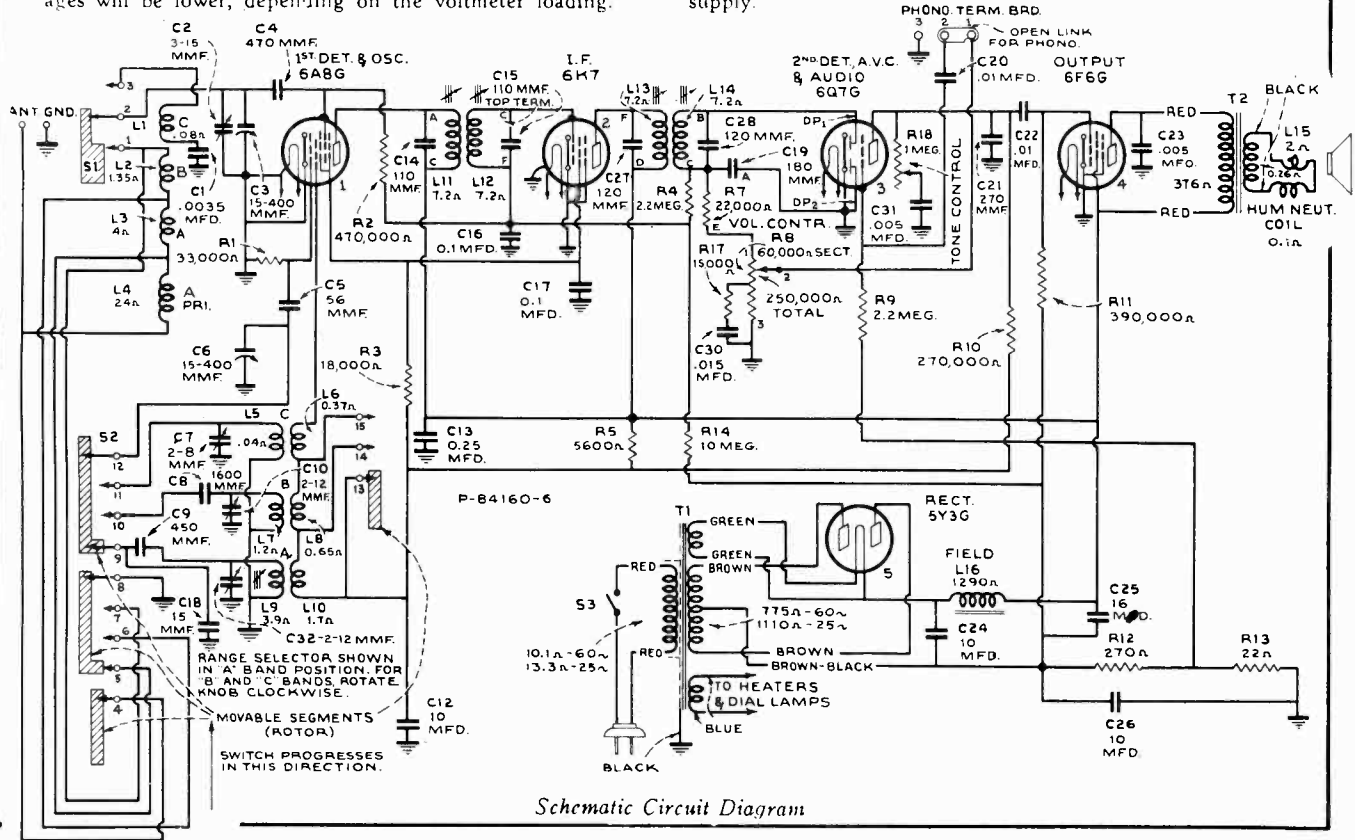
BOTTOM VIEW - REAR OF CHASSIS

CATHODE RAY OSCILLOGRAPH (VERTICAL 'H' TO THIS TERM. CONNECTIONS)
 VERTICAL 'H' TO THIS TERM. CONNECTIONS (VERTICAL 'O' TO CHASSIS)
 REMOVE LINK FOR PHONO.

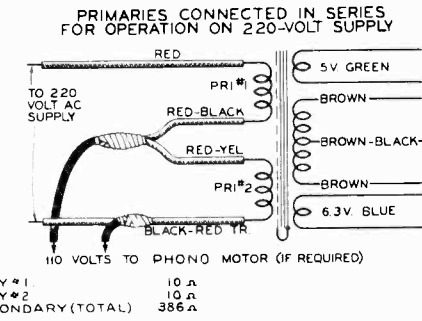
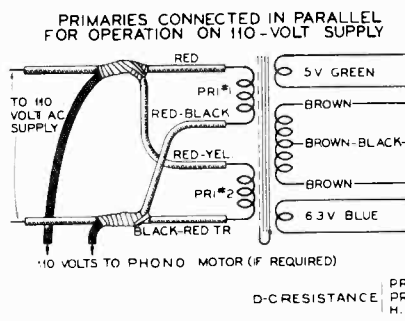
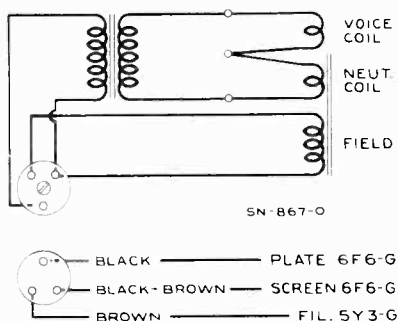
R-F Wiring Diagram and Socket Voltages

***NOTE:** Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 115-volt a-c supply.



Schematic Circuit Diagram



D-C RESISTANCE: PRIMARY #1 10 Ω, PRIMARY #2 10 Ω, H.V. SECONDARY (TOTAL) 386 Ω

Connections and Colors of Speaker and Cable

Connections of Universal Power Transformer Primary for 220 and 110 Volts

REPLACEMENT PARTS

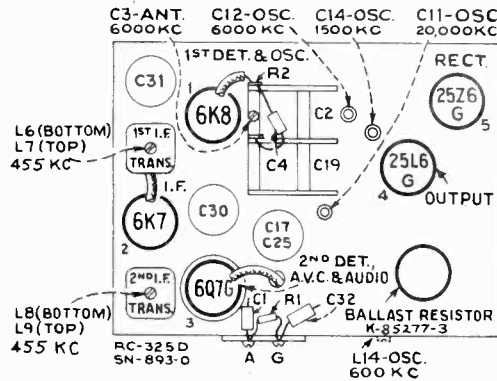
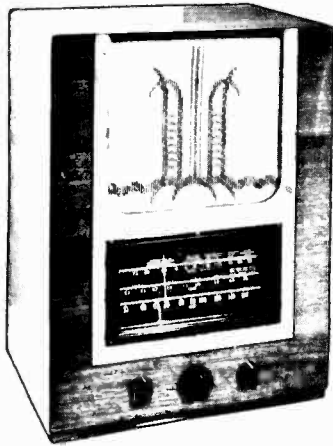
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14380	Arm—Hub and arm for operating band indicator shutter—fastens on range switch shaft	14284	Resistor—22,000 ohms, 1/10 watt (R7)
14352	Belt—Station selector drive belt	12454	Resistor—33,000 ohms, 1/4 watt (R1)
13216	Board—Antenna and ground terminal board	12199	Resistor—270,000 ohms, 1/4 watt (R10)
12717	Board—Phonograph terminal board	13005	Resistor—390,000 ohms, 1/10 watt (R11)
12607	Cap—Top shield cap for first i-f transformer	11452	Resistor—470,000 ohms, 1/10 watt (R2)
12581	Cap—Top shield cap for second i-f transformer	12679	Resistor—2.2 meg., 1/4 watt (R4, R9)
30314	Cap—Grid contact cap	13601	Resistor—10 meg., 1/4 watt (R14)
12807	Capacitor—Adjustable trimmer (short) (C7)	14887	Retainer—Band indicator disc retainer
12714	Capacitor—Adjustable trimmer (medium) (C2, C10)	14313	Ring—Retaining ring for range switch shaft
12896	Capacitor—15 mmfd. (C18)	14350	Screw—No. 8-32 x 3/16-inch square-head set screw for drum, Stock No. 30584; arm, Stock No. 14380, and pulley, Stock No. 30587
12723	Capacitor—56 mmfd. (C5)	14340	Shaft—Drive pulley and knob shaft—fastens on range-switch shaft
14262	Capacitor—110 mmfd. (C14, C15)	3682	Shield—Radiotron shield
12404	Capacitor—120 mmfd. (C27, C28)	12008	Shield—I-f transformer shield can
14712	Capacitor—180 mmfd. (C19)	5119	Socket—3-contact speaker cable socket
12488	Capacitor—270 mmfd. (C21)	11196	Socket—8-contact tube socket
12812	Capacitor—450 mmfd. (C9)	14114	Socket—Dial lamp socket
30433	Capacitor—470 mmfd. (C4)	12007	Spring—Retaining spring for core, Stock No. 12006
30592	Capacitor—1,600 mmfd. (C8)	30585	Spring—Tension spring for pointer cord
30303	Capacitor—.0035 mfd. (C1)	30588	Spring—Tension spring for idler pulley
4838	Capacitor—.005 mfd. (C23, C31)	30620	Switch—Range switch (S1, S2)
14393	Capacitor—.01 mfd. (C20, C22)	30574	Tone control and power switch (R18, S3)
11315	Capacitor—.015 mfd. (C30)	14376	Transformer—First i-f transformer (L11, L12, C14, C15)
4839	Capacitor—.01 mfd. (C16, C17)	14308	Transformer—Second i-f transformer (L13, L14, C19, C27, C28, R7)
12484	Capacitor—0.25 mfd. (C13)	30571	Transformer—Power transformer, 105-125 volts, 25-60 cycles (T1)
11203	Capacitor—10 mfd.	30607	Transformer—Power transformer, 105-125 and 200-250 volts, 50-60 cycles (T1)
30577	Capacitor Pack—Comprising two sections, each 10 mfd.	30575	Volume Controls (R8)
5212	Capacitor—16 mfd. (C25)	SPEAKER ASSEMBLIES (RL-63F-1)	
4358	Clamp—Mounting clamp for capacitor pack, Stock No. 30577	14356	Board—3-contact speaker terminal board
30621	Coil—Antenna coil (L1, L2, L3, L4)	13866	Cap—Cone center dust cap
30579	Coil—Oscillator coil (L5, L6, L7, L8, L9, L10)	12012	Coil—Field coil (L16)
30573	Condenser—2-gang variable tuning condenser (C2, C3, C6)	11469	Coil—Hum neutralizing coil (L17)
30586	Cord—Station selector indicator pointer cord	12642	Cone—Speaker cone and dust cap (L15)
12800	Core—Adjustable core and stud for oscillator coil	5118	Plug—3-contact male plug for speaker
12006	Core—Adjustable core and stud for i-f transformers	14360	Speaker—Complete
31741	Dial—Station selector dial scale (glass)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
30581	Disc—Band indicator disc with celluloid window	14355	Transformer—Output transformer (T2)
30572	Drive—Vernier drive shaft and pinion gear for variable condenser	14357	Washer—Spring washer to hold field coil
30584	Drum—Station-selector drive-cord drum with set screws	MISCELLANEOUS ASSEMBLIES	
30583	Indicator—Station-selector indicator pointer and holder assembly	31742	Escutcheon—Dial escutcheon and crystal
11891	Lamp—Dial lamp	13907	Knob—Tone control, volume control or range switch knob
14028	Nut—Jamb nut for adjustable capacitor, Stock Nos. 12807 and 12714	31743	Knob—Station selector knob
30587	Pulley—Drive-belt pulley for condenser shaft	14267	Screw—Chassis mounting screw and washer assembly
14636	Pulley—Drive-belt idler pulley	11349	Spring—Retaining spring for knob, Stock No. 13907
14525	Resistor—22 ohms, 1/4 watt (R13)	4982	Spring—Retaining spring for knob, Stock No. 31743
13819	Resistor—270 ohms, wire-wound, 1.1 watt (R12)		
13714	Resistor—5,600 ohms, 1 watt (R5)		
12695	Resistor—15,000 ohms, 1/4 watt (R17)		
30151	Resistor—18,000 ohms, 1 watt (R3)		

MODEL 5Q2X

Chassis No. RC-325-D

Five-Tube, Three-Band, AC-DC, Superheterodyne Receiver



CAUTION: The chassis is connected to one side of the power supply. Avoid contact of chassis or parts to external ground when servicing.

At Left - Tube and Trimmer Locations

Electrical Specifications

FREQUENCY RANGES

- "Standard Broadcast" (A)..... 540-1,550 kc (555-193 m)
- "Medium Wave" (B)..... 2.3-7.0 mc (130-42.8 m)
- "Short Wave" (C)..... 7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K8..... First Detector—Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6Q7-G.. Second Detector, A.V.C., and A-F Amp.
- (4) RCA-25L6-G..... Power Output
- (5) RCA-25Z6-G..... Half-Wave Rectifier

PILOT LAMPS (2) Mazda 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

- (A-C Operation)
- Undistorted..... 1.7 watts
- Maximum..... 2.7 watts
- (D-C Operation)
- Undistorted..... 1.4 watts
- Maximum..... 2.3 watts

LOUDSPEAKER

Type..... 8-inch Electrodynamic
V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

A-C Rating..... 200-250 volts 50/60 cycles, 115 watts
D-C Rating..... 200-250 volts direct current, 105 watts

Alignment Procedure

Pre-setting Dial.—With the gang condenser in full mesh, the dial pointer should be in line with the left-hand end of the dial scales. The pointer is soldered to the drive cable.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the ground terminal, and keep the output as low as possible to avoid a-v-c action.

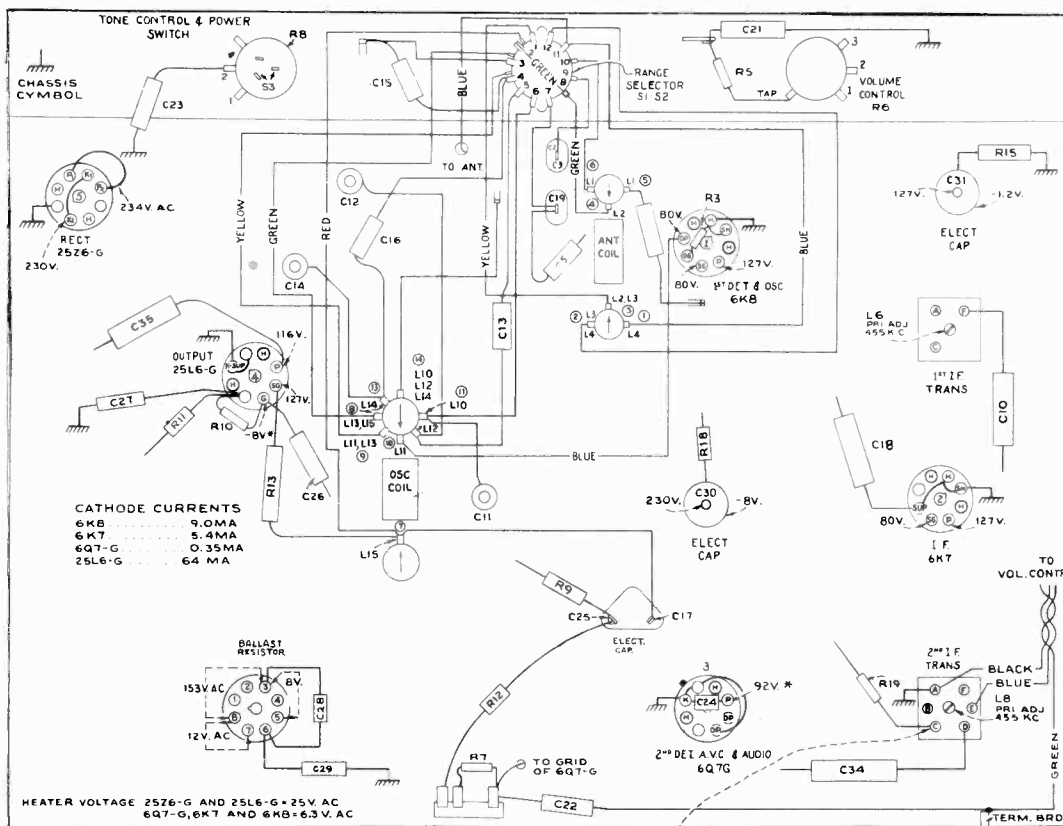
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L8 and L9 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc		L6 and L7 (1st I-F Trans.)
3	Antenna Terminal in series with 300 ohms	6 mc	6 mc "B" band	C12 (osc.)* C3 (ant.)†
4	Antenna Terminal in series with 300 ohms	20 mc	20 mc "C" band	C11 (osc.)** (Rock In)
5	Antenna Terminal in series with 200 mmf.	600 kc	600 kc "A" band	L14 (osc.)
6	Antenna Terminal in series with 200 mmf.	1,500 kc	1,500 kc "A" band	C14 (osc.) (Rock In)
7	Repeat steps 5 and 6.			

* Use minimum capacity peak if two peaks can be obtained.

† After adjusting C3, check to determine that C12 has been adjusted to the correct peak by tuning the receiver to approximately 5.09 mc, where a weaker signal should be received.

** Use maximum capacity peak if two peaks can be obtained. Check to determine that C11 has been adjusted to the correct peak by tuning the receiver to approximately 20.91 mc, where a weaker signal should be received.

NOTE: The oscillator tracks 455 kc above the signal on "A" and "B" bands, and 455 kc below the signal on "C" band.

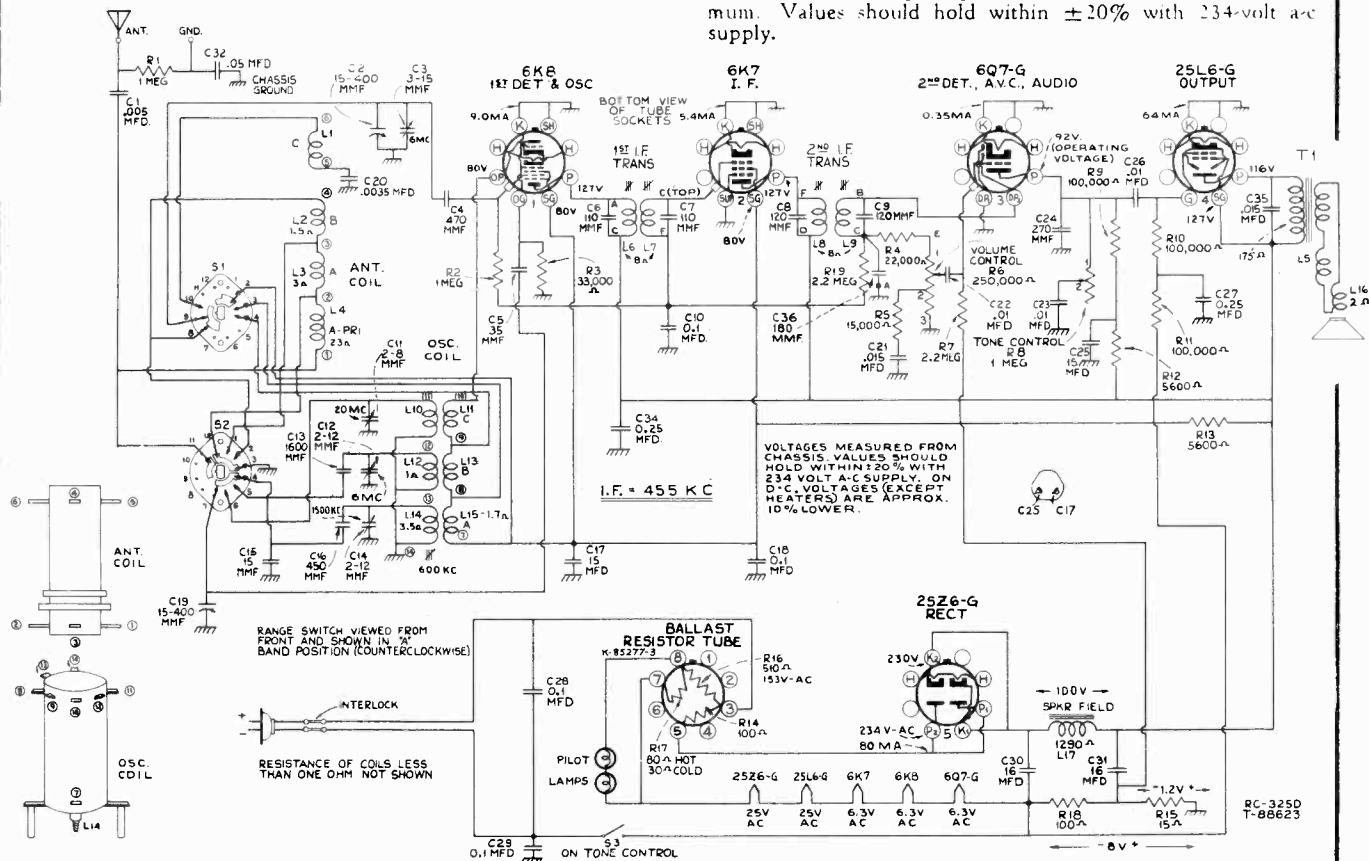


BOTTOM VIEW-REAR OF CHASSIS CATHODE RAY OSCILLOGRAPH (VERTICAL HI TO THIS TERM CONNECTIONS VERTICAL G TO CHASSIS)

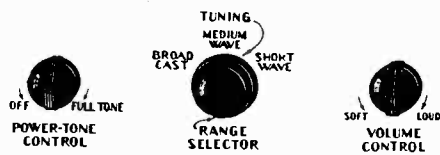
* NOTE: values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

R-F Wiring Diagram and Socket Voltages

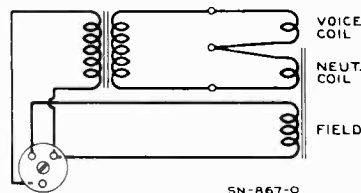
Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 234-volt ac supply.



Schematic Circuit Diagram



Above—Location of Controls



At Right—Connections and Colors of Speaker and Cable

Precautionary Lead Dress.—

1. Leads on C20 ("C" band tracking condenser) must be as short as possible.
2. Dress blue lead from oscillator plate away from all parts.
3. Dress speaker cable away from ballast tube.

4. Dress C22 (1st A.F. coupling condenser) against rear apron.

Power Supply Polarity.—

For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, a similar reversal of the plug may reduce hum.

REPLACEMENT PARTS

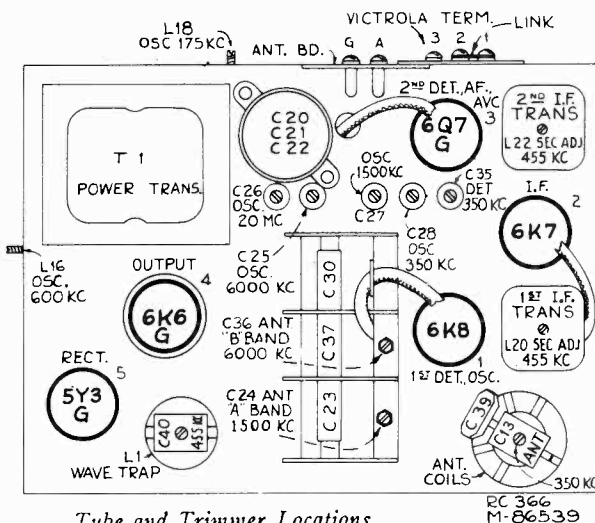
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC325D)			
14380	Arm—Hub and arm for operating band indicator shutter—fastens on range switch shaft.	12695	Resistor—15,000 ohms, 1/4 watt (R5)
32247	Ballast—Ballast tube resistor (R14, R16, R17)	14284	Resistor—22,000 ohms, 1/10 watt (R4)
14352	Belt—Station selector drive belt	12454	Resistor—33,000 ohms, 1/4 watt (R3)
13216	Board—Antenna and ground terminal board	14560	Resistor—100,000 ohms, 1/4 watt (R9, R10, R11)
12607	Cap—Top shield cap for first i-f transformer	2546	Resistor—1 meg., 1/4 watt (R1, R2)
12581	Cap—Top shield cap for second i-f transformer	12879	Resistor—2.2 meg., 1/4 watt (R7, R19)
30314	Cap—Grid contact cap	14887	Retainer—Band indicator disc retainer
12807	Capacitor—Adjustable trimmer (short) (C11)	14343	Ring—Retaining ring for range switch shaft
12714	Capacitor—Adjustable trimmer (medium) (C12, C14)	14350	Screw—No. 8-32 x 3/16-inch square-head set screw for drum, Stock No. 30584; arm, Stock No. 14380, and pulley, Stock No. 30587
12896	Capacitor—15 mmfd. (C15)	14340	Shaft—Drive pulley and knob shaft—fastens on range-switch shaft
12948	Capacitor—35 mmfd. (C5)	3682	Shield—Tube shield
14262	Capacitor—110 mmfd. (C6, C7)	12008	Shield—i-f transformer shield can
12404	Capacitor—120 mmfd. (C8, C9)	5119	Socket—3-contact speaker cable socket
12488	Capacitor—270 mmfd. (C24)	31251	Socket—8-contact tube socket
31954	Capacitor—450 mmfd. (C16)	31365	Socket—Dial lamp socket
30433	Capacitor—470 mmfd. (C4)	12007	Spring—Retaining spring for core, Stock No. 12006
30592	Capacitor—1,600 mmfd. (C13)	30585	Spring—Tension spring for pointer cord
30303	Capacitor—.0035 mfd. (C20)	30588	Spring—Tension spring for idler pulley
4838	Capacitor—.005 mfd. (C1)	30620	Switch—Range switch (S1, S2)
14393	Capacitor—.01 mfd. (C22, C23, C26)	30574	Tone control and power switch (S3, R8)
11315	Capacitor—.015 mfd. (C21, C35)	14376	Transformer—First i-f transformer (L6, L7, C6, C7)
4886	Capacitor—.05 mfd. (C32)	14308	Transformer—Second i-f transformer (L8, L9, C8, C9, R4, R19)
4839	Capacitor—.1 mfd. (C10, C18, C28, C29)	32247	Tube—Ballast tube (R14, R16, R17)
30965	Capacitor—.25 mfd. (C34, C27)	30575	Volume Controls (R6)
14377	Capacitor—.16 mfd. (C31)		SPEAKER ASSEMBLIES (RL-63F-1)
32222	Capacitor Pack—Comprising two sections, each 15 mfd. (C17, C25)	14356	Board—3-contact speaker terminal board
14773	Capacitor—.16 mfd. (covered can) (C30)	13866	Cap—Cone center dust cap
4358	Clamp—Mounting clamp for capacitor pack, Stock No. 30577	12012	Coil—Field coil (L17)
30621	Coil—Antenna coil (L1, L2, L3, L4)	11469	Coil—Hum neutralizing coil (L5)
30579	Coil—Oscillator coil (L10, L11, L12, L13, L14, L15)	31310	Cone—Speaker cone and dust cap (L16)
30573	Condenser—2-gang variable tuning condenser (C2, C3, C19)	5118	Plug—3-contact male plug for speaker
30586	Cord—Station selector indicator pointer cord	32248	Speaker—Complete
12800	Core—Adjustable core and stud for oscillator coil	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
12006	Core—Adjustable core and stud for i-f transformers	14628	Transformer—Output transformer (T1)
31741	Dial—Station selector dial scale (glass)	14357	Washer—Spring washer to hold field coil
30581	Disc—Band indicator disc with celluloid window		MISCELLANEOUS ASSEMBLIES
30572	Drive—Vernier drive shaft and pinion gear for variable condenser	11823	Cord—Power cord complete with male and female plugs
30584	Drum—Station-selector drive-cord drum with set screws	31742	Escutcheon—Dial escutcheon and crystal
30583	Indicator—Station-selector indicator pointer and holder assembly	31803	Knob—Tone control, volume control or range switch knob
31480	Lamp—Dial lamp	31743	Knob—Station selector knob
14028	Nut—Jamb nut for adjustable capacitor, Stock Nos. 12807 and 12714	11979	Plug—2-contact male for chassis power leads
5119	Plug—3-contact female for speaker cable	14267	Screw—Chassis mounting screw and washer assembly
30587	Pulley—Drive-belt pulley for condenser shaft	12993	Screw—No. 8-32 x 1/4-inch set screw for knob, Stock No. 31803
14636	Pulley—Drive-belt idler pulley	11349	Spring—Retaining spring for knob, Stock No. 13907
32247	Resistor—Ballast tube (R14, R16, R17)	4982	Spring—Retaining spring for knob, Stock No. 31743
11565	Resistor—15 ohms, 1/4 watt (R15)		
31215	Resistor—100 ohms, 1 watt (R18)		
11298	Resistor—5,600 ohms, 1 watt (R13)		
13714	Resistor—5,600 ohms, 1/4 watt (R12)		

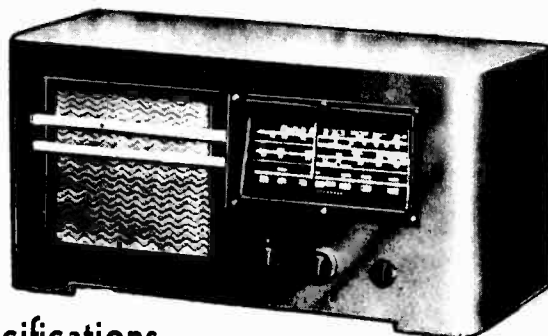
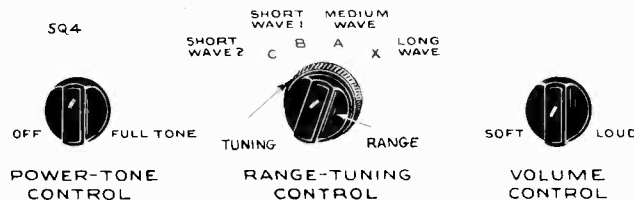
Five-Tube, Four-Band, A-C, Superheterodyne Receiver

MODEL 5Q4

Chassis No. RC-366



Tube and Trimmer Locations



Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band)..... 150-400 kc (2,000-750 m)
 Medium Wave ("A" Band).... 540-1,650 kc (555-181 m)

Short Wave 1 ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
 Short Wave 2 ("C" Band).... 7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K8..... First Detector—Oscillator
- (2) RCA-6K7..... I-F Amplifier

- (3) RCA-6Q7-G.. 2nd Detector, A.V.C., and A-F Amplifier
- (4) RCA-6K6-G..... Power Output
- (5) RCA-5Y3-G..... Rectifier

PILOT LAMP (1)..... Mazda 44, 6.3 volts, 0.25 amp.

LOUDSPEAKER (RL-63H-3)

POWER OUTPUT RATING

Undistorted..... 2.5 watts
 Maximum..... 4.5 watts

Type..... 8-inch Electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 75 watts
 Rating B..... 105-125 volts, 25-60 cycles, 75 watts
 Rating C..... 105-125/200-250 volts, 50-60 cycles, 75 watts

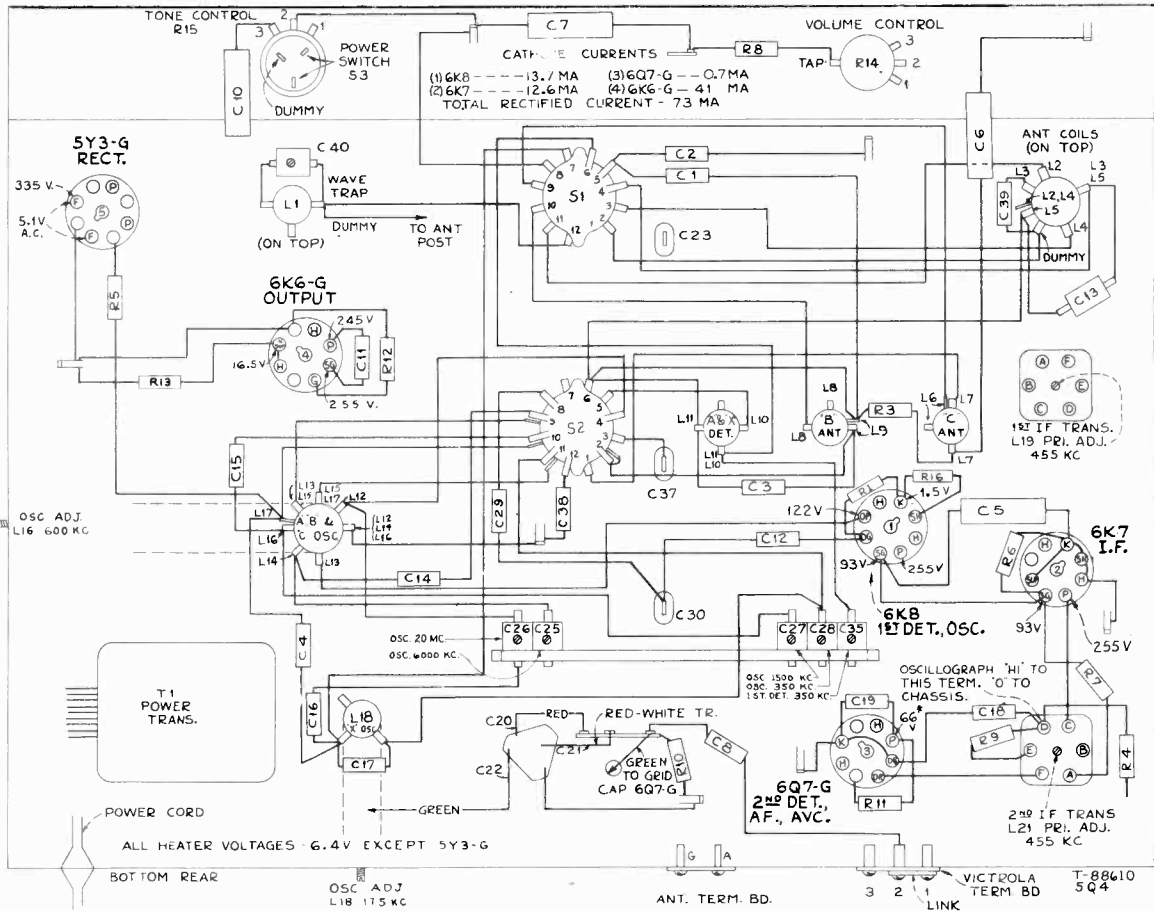
Alignment Procedure

Pre-setting Dial.—With the gang condenser in full mesh, the dial pointer should be in line with the left end of the dial scales. The pointer is soldered to the drive cable.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following to obtain maximum output
1	6K7 I-F grid cap in series with .01 mfd.	455 kc	"A" band No Station Point between 550-750 kc	L21 and L22 (2nd I-F transformer)
2	6K8 det. grid cap in series with .01 mfd.	455 kc		L19 and L20 (1st I-F transformer)
3	Antenna Terminal in series with 200 mmfd.	455 kc		C40 (wave trap) MINIMUM OUTPUT
4	Antenna Terminal in series with 300 ohms.	6 mc	6 mc "B" band	C25 (osc.) use MINIMUM capacity peak C36 (antenna) use MAXIMUM capacity peak*
5	Antenna Terminal in series with 300 ohms.	20 mc	20 mc "C" band	C26 (osc.) use MINIMUM capacity peak*
6	Antenna Terminal in series with 200 mmfd.	600 kc	600 kc "A" band	L16 (osc.) Rock Gang
7		1,500 kc	1,500 kc "A" band	C27 (oscillator) C24 (antenna)
8		600 kc	600 kc "A" band	L16 (osc.) Rock Gang
9		175 kc	175 kc "X" band	L18 (osc.) Rock Gang
10		350 kc	350 kc "X" band	C28 (oscillator) C35 (1st det.) C13 (antenna)
11		175 kc	175 kc "X" band	L18 (osc.) Rock Gang

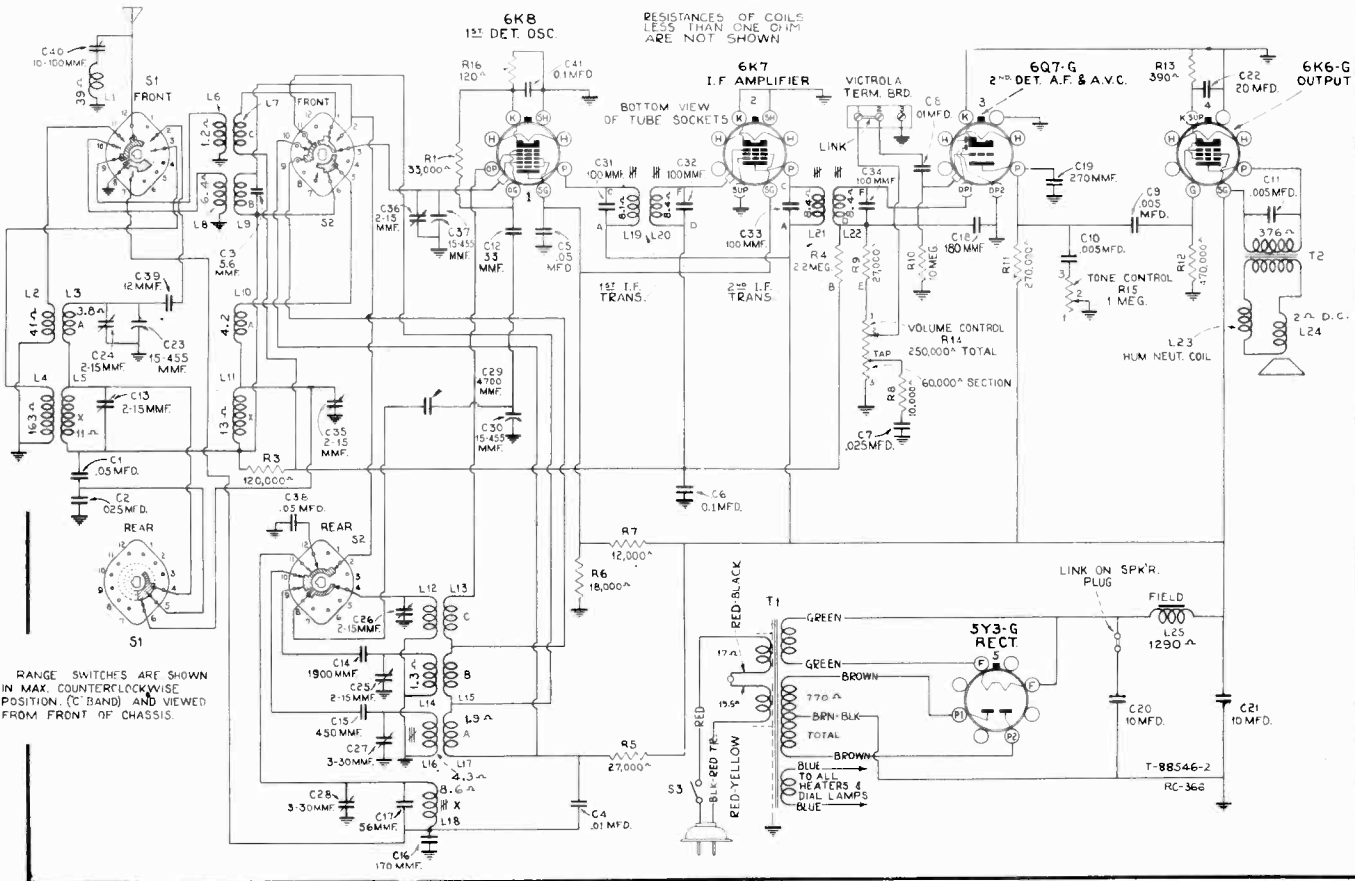
Note: Oscillator tracks above the signal on all bands.

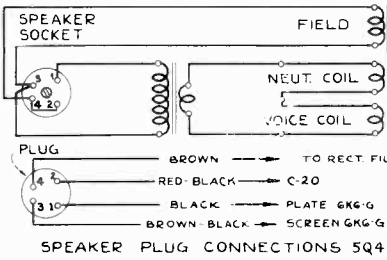
NOTE: Values with star () are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, set tuned to quiet point, volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.

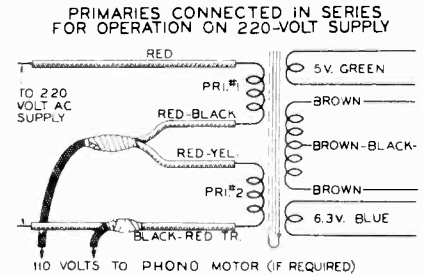
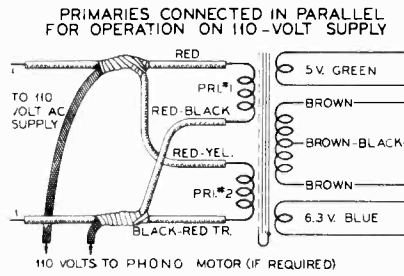




Connections of Loudspeaker and Cable

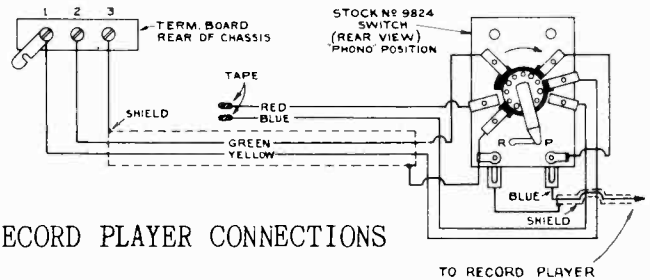
Precautionary Lead Dress.—

1. Dress blue lead from L7 to terminal 1 on range switch S2 clear of coils and other wires.
2. Dress bus from L12 to contact 4 on range switch S2 clear of other wiring.
3. Dress leads on C29 from gang to range switch short and clear of bus wires.
4. Dress leads from X and A band antenna coil close to underside of chassis.
5. Dress all plus B leads to terminal board under electrolytic between the board and the rear apron.
6. Dress blue lead from 6Q7-G plate to terminal 6 on 6K6-G close to chassis and in front of terminal board (under electrolytic).
7. Dress blue lead from antenna terminal close to top of chassis and clear of gang rotor.
8. Twisted leads from volume control must be dressed clear of self-tapping screws in corners of chassis.



D.C. RESISTANCE PRIMARY #1 17 Ω
 PRIMARY #2 19.5 Ω
 H.V. SECONDARY (TOTAL) 770 Ω

Connections of Universal Power Transformer Primary for 220 and 110 Volts



RECORD PLAYER CONNECTIONS

REPLACEMENT PARTS

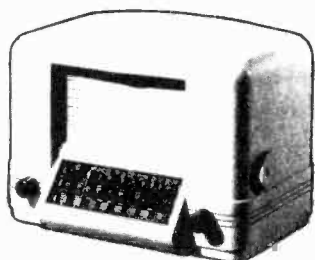
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	RECEIVER ASSEMBLIES (RC-366)		
14380	Arm—Hub and arm for range switch shaft—less set screws	12071	Resistor—120 ohms, 1/4 watt (R16)
14352	Belt—Variable condenser drive belt	31388	Resistor—390 ohms, 1 watt (R13)
13216	Board—Antenna and ground terminal board	14559	Resistor—10,000 ohms, 1/4 watt (R8)
12717	Board—Phonograph input terminal board	31389	Resistor—12,000 ohms, 3.5 watts (R7)
31949	Capacitor—Trimmer capacitor bank comprising three 2-15 mmfd. and two 3-30 mmfd. sections (C13, C25, C26, C27, C28)	30151	Resistor—18,000 ohms, 1 watt (R6)
12814	Capacitor—5.6 mmfd. (C3)	12738	Resistor—27,000 ohms, 1/4 watt (R9)
13002	Capacitor—12 mmfd. (C39)	13477	Resistor—27,000 ohms, 1 watt (R5)
12948	Capacitor—33 mmfd. (C12)	12454	Resistor—33,000 ohms, 1/4 watt (R1)
12723	Capacitor—56 mmfd. (C17)	13734	Resistor—120,000 ohms, 1/4 watt (R3)
31270	Capacitor—100 mmfd. (C31, C32, C33, C34)	12199	Resistor—270,000 ohms, 1/4 watt (R11)
31955	Capacitor—170 mmfd. (C18)	12285	Resistor—470,000 ohms, 1/4 watt (R12)
13003	Capacitor—180 mmfd. (C18)	12679	Resistor—2.2 meg., 1/4 watt (R4)
12488	Capacitor—270 mmfd. (C19)	13601	Resistor—10 meg., 1/4 watt (R10)
31954	Capacitor—450 mmfd. (C15)	14887	Retainer—Indicator drive cord pulley retainer
31953	Capacitor—1900 mmfd. (C14)	14343	Retainer—Retaining ring to hold station selector knob shaft and pulley on range switch shaft
12897	Capacitor—4700 mfd. (C28)	14350	Screw—No. 8-32 square head set screw for arm Stock No. 14380, pulley Stock No. 30587, and drum Stock No. 30584
4838	Capacitor—.005 mfd. (C9, C10, C11)	3682	Shield—Tube shield
14393	Capacitor—.01 mfd. (C4, C8)	31364	Socket—Dial lamp socket
13606	Capacitor—.025 mfd. (C2)	31251	Socket—Tube socket
4870	Capacitor—.025 mfd. (C7)	30588	Spring—Idler pulley spring
13607	Capacitor—.05 mfd. (C1)	30585	Spring—Indicator drive cord tension spring
4886	Capacitor—.05 mfd. (C5)	31941	Switch—Range switch—less coils (S1, S2)
30882	Capacitor—.05 mfd. (C38)	30574	Tone control and power switch (R15, S3)
4839	Capacitor—.01 mfd. (C6)	31267	Transformer—First i-f transformer (L19, L20, C31, C32)
30899	Capacitor—.01 mfd. (C41)	31268	Transformer—Second i-f transformer (L21, L22, C33, C34)
31946	Capacitor—Comprising two 10 mfd. and one 20 mfd. sections (C20, C21, C22)	31945	Transformer—Power transformer 105-120 and 210-240 volts, 50-60 cycles (T1)
31951	Coil—"A," "B," and "C" bands oscillator coil (L12, L13, L14, L15, L16, L17)	30575	Volume Control (R14)
31943	Coil—"B" band antenna coil (L8, L9)		SPEAKER ASSEMBLIES (RL63H-3)
31944	Coil—"C" band antenna coil (L6, L7)	31825	Cap—Speaker cone center dust cap
31948	Coil—"X" band oscillator coil (L18)	11469	Coil—Hum neutralizing coil (L23)
31947	Coil—"X" and "A" band antenna coil (L2 L3, L4, L5)	12012	Coil—Speaker field coil (L25)
31842	Coil—"X" and "A" bands r-f coil (L10, L11)	31310	Cone—Speaker cone and voice coil (L24)
31952	Coil—Wave trap (L1, C40)	31302	Plug—4-contact male plug for speaker
31939	Condenser—3-gang variable condenser (C23, C24, C30, C36, C37)	31824	Speaker complete
30586	Cord—Indicator drive cord	14355	Transformer—Output transformer (T2)
31950	Dial—Dial scale		MISCELLANEOUS ASSEMBLIES
31940	Drive—Variable condenser pinion gear and shaft	31742	Escutcheon—Dial escutcheon
30584	Drum—Variable condenser drum	13907	Knob—Volume control, tone control, or range switch knob
30583	Indicator—Station selector indicator pointer	31743	Knob—Station selector knob
11891	Lamp—Dial lamp	4982	Spring—Retaining spring for knob Stock No. 31743
5040	Plug—4-contact female plug for speaker cable	11349	Spring—Retaining spring for knob Stock No. 31907
14636	Pulley—Drive belt idler pulley		
31373	Pulley—Indicator drive cord pulley		
14340	Pulley—Station selector knob shaft and pulley		
30587	Pulley—Variable condenser drive belt pulley		

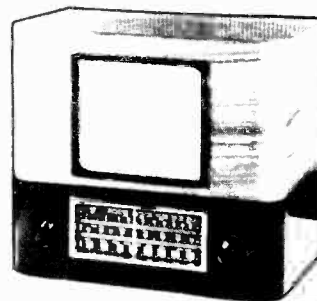
MODELS 5Q5, 5Q55, 5Q56, 6Q7, 6QU, Q18, U-50

Chassis No. RC-396, RC-396, RC-396, RC-414A RC-414 RC-477 RC-414C
(2nd Prod.) RC-477

Five- and Six-Tube, Three-Band, A-C, Superheterodyne Receivers and Radio-Phonograph Combinations

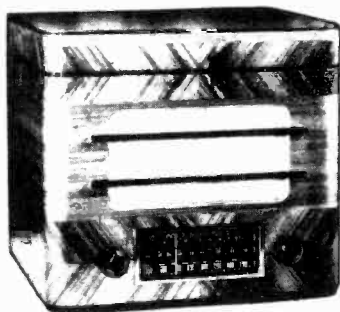


MODELS	DESCRIPTION
5Q5A	Brown Plastic Cabinet
5Q5B	Black Plastic Cabinet
5Q5C	Ivory Plastic Cabinet
5Q5D	Maroon Plastic Cabinet
5Q5E	Black Plastic Cabinet with Metal Grille
5Q55	Mottled Brown Plastic Cabinet
5Q56	Ivory Finish Plastic Cabinet



Model 6Q7
Striped Walnut Wood Cabinet

CABINET DIMENSIONS	Models	
	5Q5, 5Q55, 5Q56	Model 6Q7
Height.....	9 3/4 inches	12-5/16 inches
Width.....	13 1/2 inches	14 1/2 inches
Depth.....	8 1/4 inches	8 1/2 inches
Tuning Drive Ratio.....	18 to 1	



MODEL 6QU



MODEL Q 18



Victrola U-50.

Cabinet Dimensions (inches)	Height	Width	Depth
14 1/2	16 3/16	13 5/16	
Tuning Drive Ratio.....	11 to 1		

Victrolas having "C5" or "C6" power rating may be made to operate on either 110 or 220 volts, conversion from one voltage to the other being made by means of a switch at the back of the chassis.

Cabinet Dimensions	Height	Width	Depth
14 1/2	18-15/16 in...	14 1/2 in.	
Tuning Drive Ratio.....	11 to 1		

Electrical and Mechanical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc (555-174 m)
"Medium Wave" (B).....	2.3-7.0 mc (130-42.8 m)
"Short Wave" (C).....	7.0-22.0 mc (42.8-13.6 m)
Intermediate Frequency.....	455 kc

RCA TUBE COMPLEMENT

(1) RCA-6SA7.....	First Detector—Oscillator
(2) RCA-6K7.....	Intermediate Amplifier
(3) RCA-6SQ7.....	Second-Detector, A.V.C., and A.F. Amplifier
(4) RCA-6F6-G.....	Power Output
(5) RCA-5Y3-G.....	Full-Wave Rectifier
(6) RCA-6U5 (Model 6Q7).....	"Magic Eye"
Pilot Lamp (1).....	Mazda 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

	U 50 ONLY	
Undistorted.....	2.0 watts	1.5 watts
Maximum.....	3.6 watts	3.3 watts

PHONOGRAPH MECHANISM 6QU & U50

Type..... Manual; 10-inch or 12-inch records
Motor... Self-starting, constant speed induction

CRYSTAL PICKUP 6QU & U50

Impedance..... 100,000 ohms at 1,000 cycles
Average Output... 1 1/2 volts at 1,000 cycles with 250,000 ohms load

LOUDSPEAKER 5Q5, 5Q55, 5Q56, 6Q7 & Q 18

Type (5Q5, 5Q55, 5Q56) RL-78-2. 5-inch Electrodynamic (6Q7).....RL-79-2. 6-inch Electrodynamic
Voice-Coil Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 70 watts
Rating B..... 105-125 volts, 25-60 cycles, 70 watts
Rating C..... 105-125/200-250 volts, 50-60 cycles, 70 watts

LOUDSPEAKER (RL-79-2) 6QU

Type..... 6-inch electrodynamic
V.C. Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

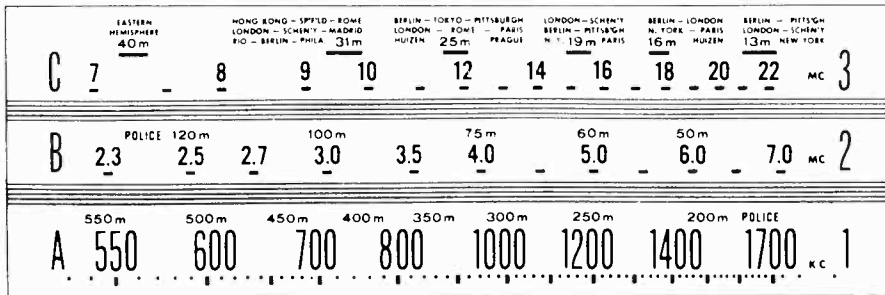
Rating A5... 105-125 volts, 60 cycles, 100 watts
Rating A6... 105-125 volts, 50 cycles, 100 watts
Rating C6..... 105-125; 200-250 volts, 60 cycles, 100 watts
Rating C5..... 105-125; 200-250 volts, 50 cycles, 100 watts

POWER SUPPLY RATINGS U 50

Rating A... 105-125 volts, 50-60 cycles, 105 watts

LOUDSPEAKER (84604-1)

Type..... 8-inch electrodynamic
Voice Coil Impedance... 3.3 ohms at 400 cycles



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 33° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the ground terminal, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 45 degree mark on the drum scale (see "Drum Drive and Indicator Cord Assembly" drawings) must be in a horizontal position when the plates are fully meshed. The distance from the edge of the chassis to the drum must not exceed 1/8-inch. The drum is held to the shaft by means of a set screw, which must be tightened securely when the drum is in the correct position.

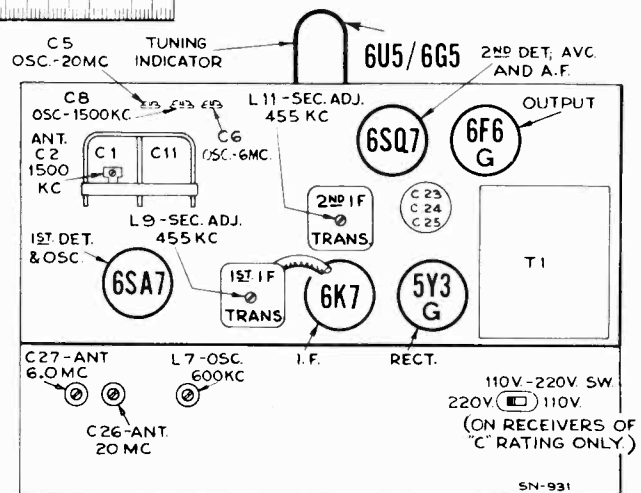
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

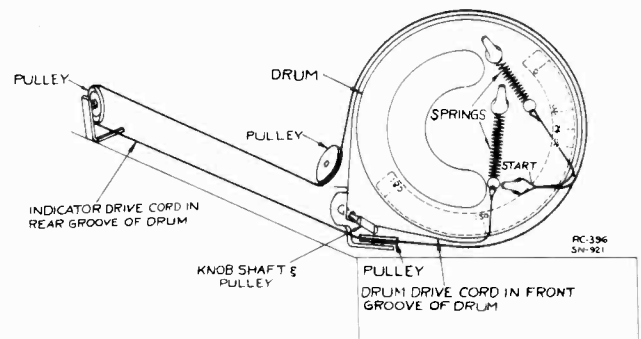
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" Band quiet point between 550-750 kc	L10 and L11 (2nd I.F. trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd. **	455 kc		L8 and L9 (1st I.F. trans.)
3	Antenna lead (blue) in series with 200 mmfd.	600 kc	600 kc (33°) "A" Band	L7†
4		1,500 kc	1,500 kc (152.4°) "A" Band	C2 (ant.) C8 (osc.)
5	Repeat steps 3 and 4			
6	Antenna lead (blue) in series with 400 ohms	20 mc	20 mc (155.4°) "C" Band	C5 (osc.) * C26 (ant.)
7		6 mc	6 mc (149°) "B" Band	C6 (osc.) * C27 (ant.)
8	Antenna lead (blue) in series with 200 mmfd.	1,500 kc	1,500 kc (152.4°) "A" Band	C8 (osc.)

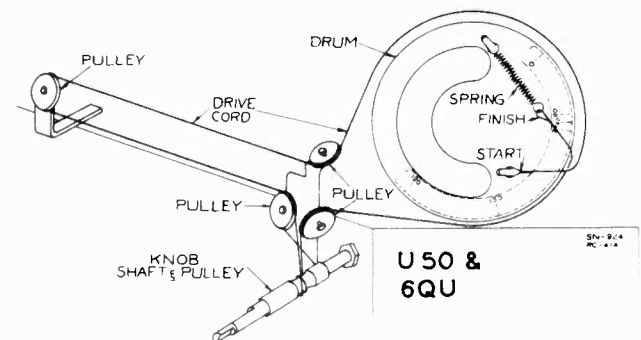
* Use minimum capacity peak if two peaks can be obtained.
† Rock gang condenser slightly while adjusting L7.
** Make test-oscillator connection to lug on tuning condenser stator (oscillator section) in series with .01 mfd. condenser.
Note.—Oscillator tracks 455 kc above signal on all bands.



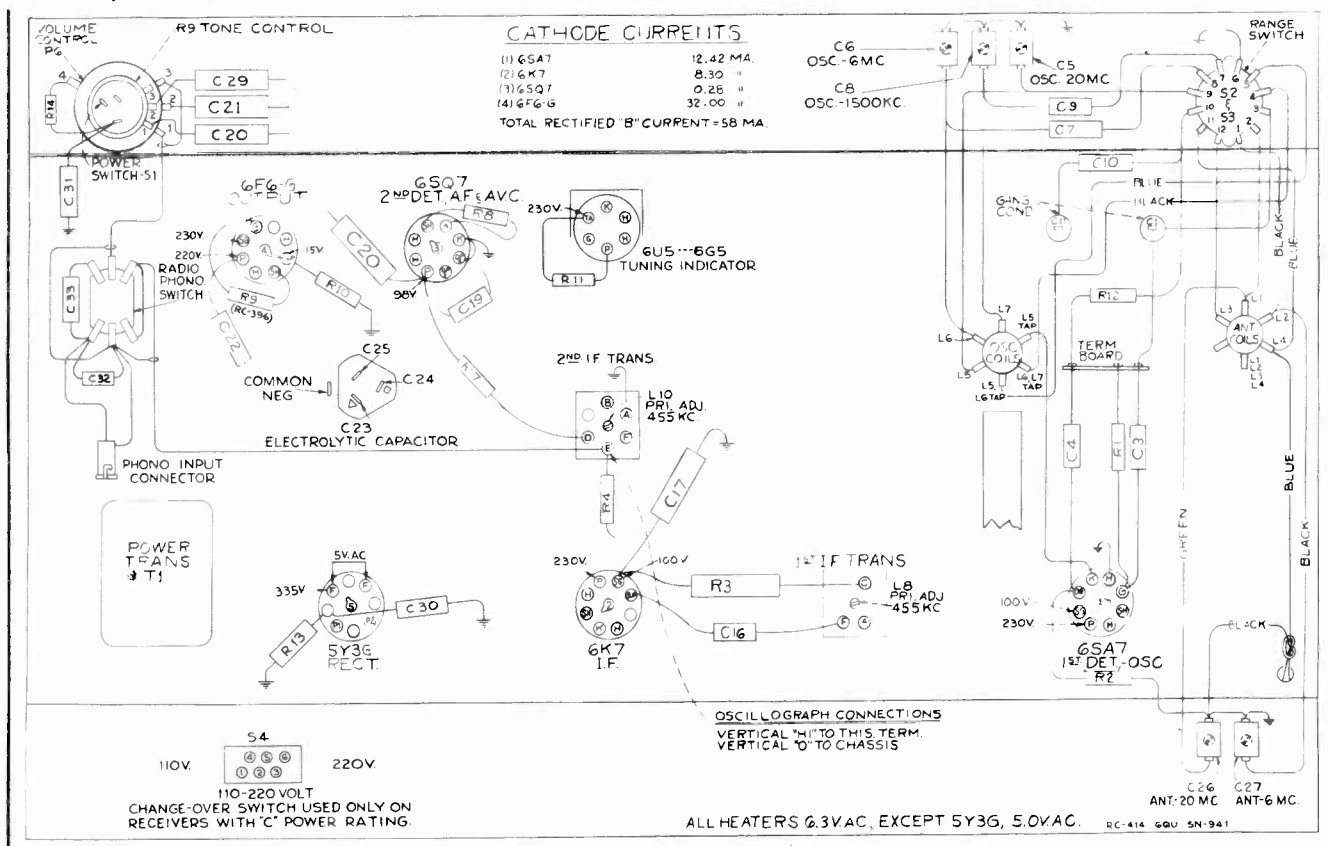
Tube and Trimmer Locations



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator (Models 5Q5, 5Q55 and 5Q56 & Q18) Drum Shown with Gang at Maximum Capacity



Arrangement of Drive Cord for Tuning Condenser and Dial Indicator (Model 6Q7) Drum Shown with Gang at Maximum Capacity



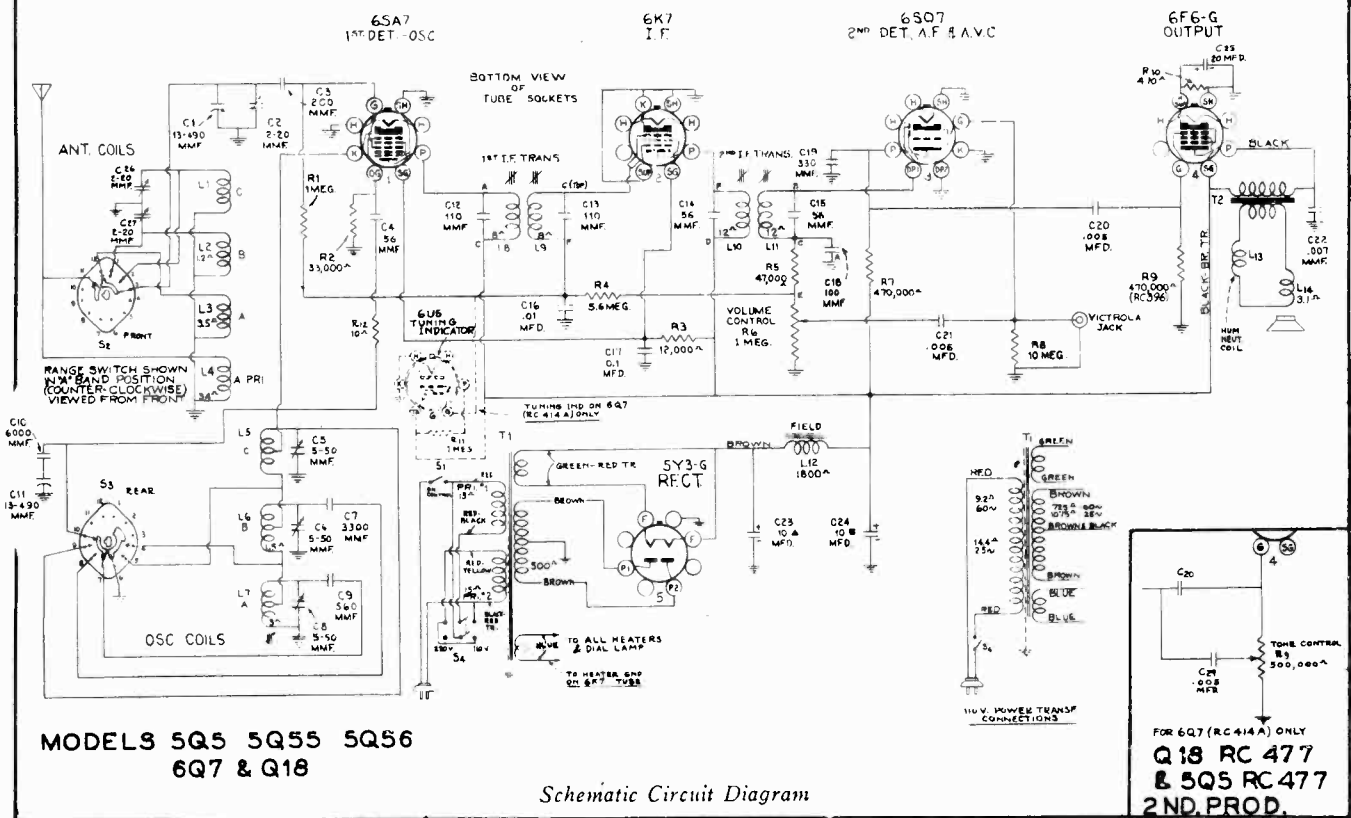
BOTTOM VIEW - REAR OF CHASSIS

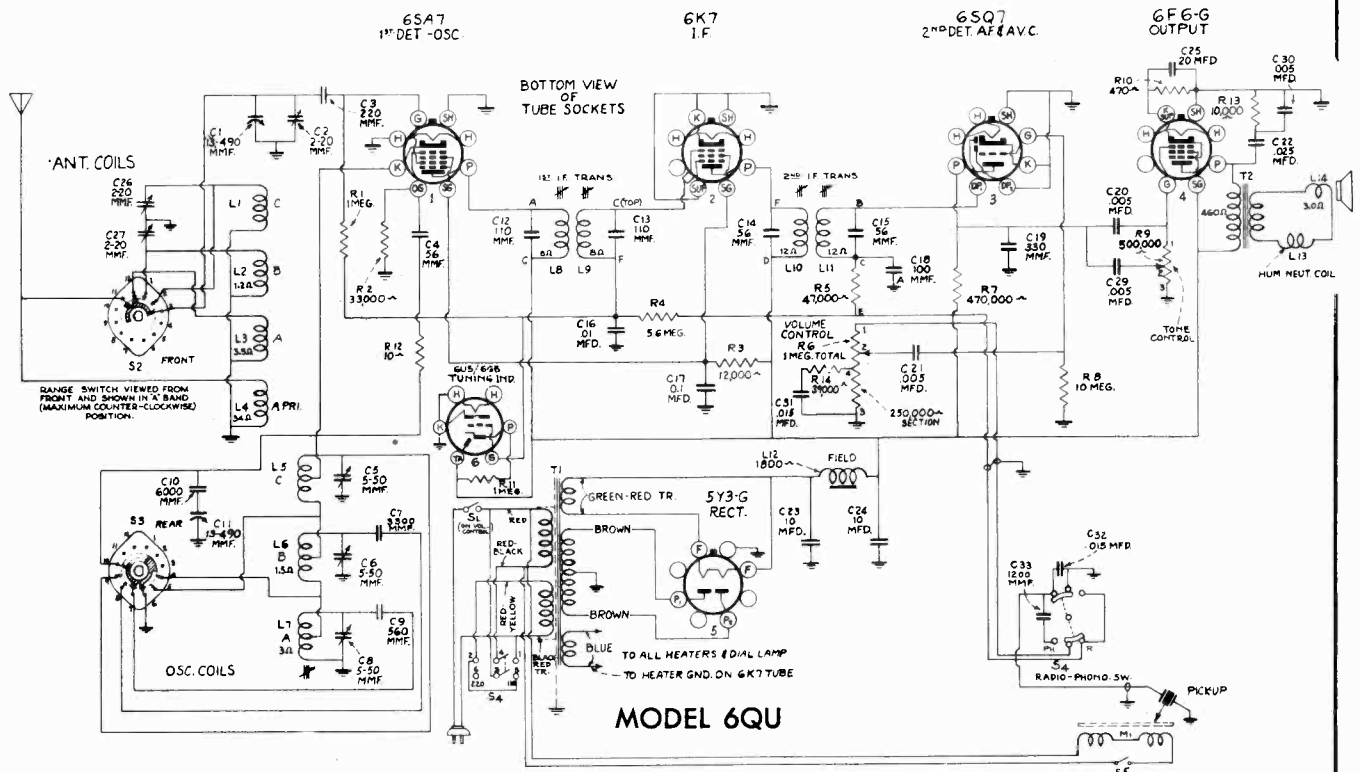
R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

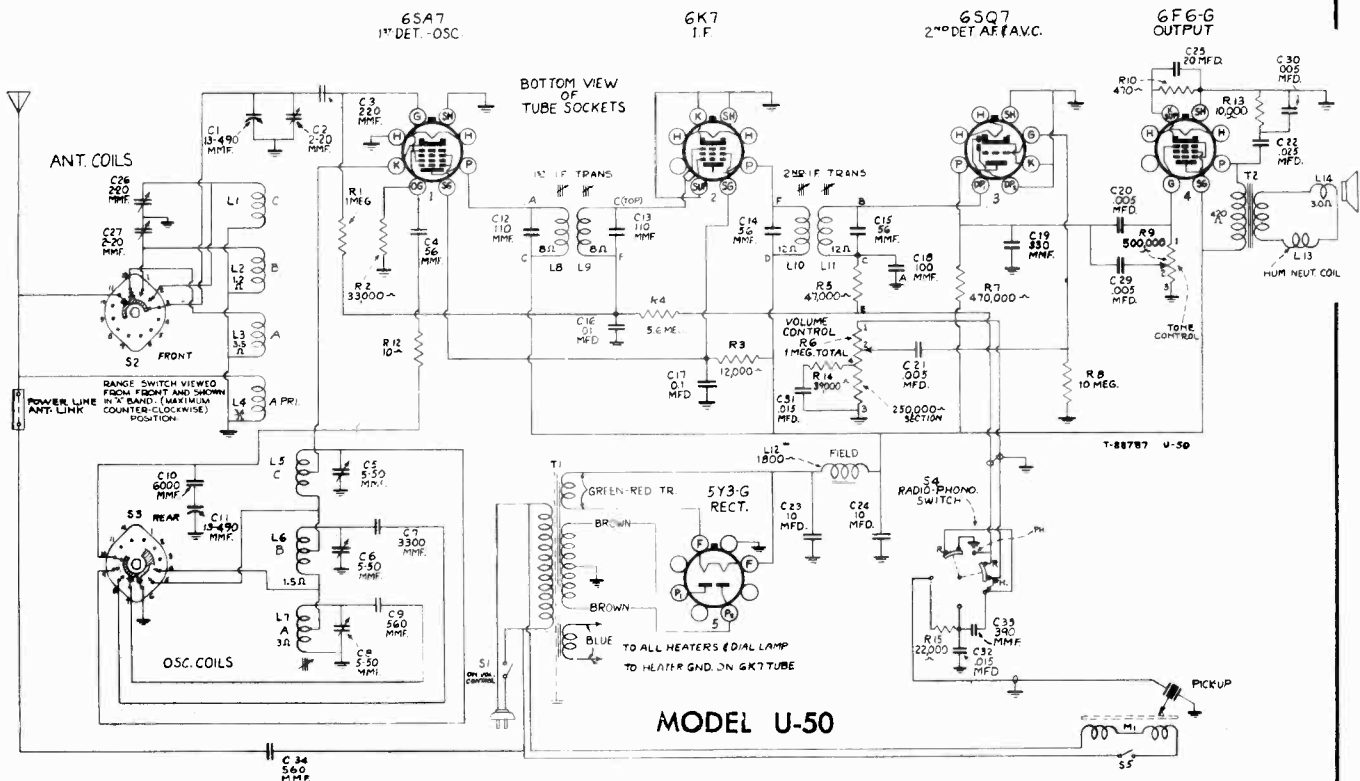
Plate voltages and currents of U-50 are 5% higher.





Schematic Circuit Diagram

Radio-phon. switch changed in 2nd Prod. - see following page.



Schematic Circuit Diagram

Miscellaneous Service Data

Phonograph Mechanism:

The phonograph motor is a self-starting, constant-speed induction type. It should be lubricated every six months by applying a few drops of light machine oil to the spindle bearing and oil hole.

The motor spindle is tapered, and a conical rubber piece fits snugly on the spindle. The hole in the turntable bushing is tapered to fit the rubber. This provides an excellent self-centering floating mounting.

A metal washer is placed on the spindle under the rubber piece. The washer has ears on the under side which fit over a pin that projects through the spindle.

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1 1/4 inches from the center line of the spindle

shaft. The motor may be shut off at any time by placing the pickup on the pickup rest.

Power-Line Antenna:

At the back of the motorboard is a terminal board for antenna and ground connections. When it is desired to use the power line antenna, a jumper should be placed across the two outside binding-posts, thus connecting the antenna input of the receiver through a capacitor to the power line. The center binding-post is for the ground connection. When an external antenna is used, it should be connected to the post marked "ANT".

Precautionary Lead Dress

1. Lead from 2nd I.F. (E) to volume control should be kept close to chassis.
2. R.F. coil leads should be kept short and away from coil.
3. Leads to 6,000 mmf. (C10) should be as short as possible and condenser dressed away from chassis, bearing against 10 ohm (R12) resistor.

MODEL 5Q5

With Tone Control:

The 2nd production of Model 5Q5 uses chassis No. RC-477 and has a .5 meg. tone control.

The tone control is connected in place of the output-tube grid resistor (R9), with a .005 mfd. capacitor connected from the arm of the tone control to the 1st-audio plate.

For service data and replacement parts on RC-477, refer to the Service Data for the 1st-production Model 5Q5 (RC-396), and the following parts:

Stock No.

- 34146 Control—Tone control, .5 meg.
- 4838 Capacitor—.005 mfd.

MODEL 6QU

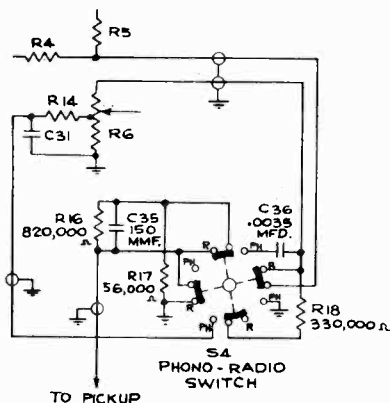
2nd Production:

The radio-phonograph switching circuit is changed as shown in the accompanying diagram. Also, R13 and C22 are removed from the output plate circuit, and C30 (.005 mfd.) is connected from plate to cathode on the output tube.

The following parts are used in the revised circuit:

Stock No.

- 12725 Capacitor—150 mmfd. (C35)
- 30303 Capacitor—.0035 mfd. (C36)
- 30963 Resistor—820,000 ohms, 1/2-watt (R16)
- 12286 Resistor—56,000 ohms, 1/2-watt (R17)
- 14983 Resistor—330,000 ohms, 1/2-watt (R18)
- 32743 Switch—Radio-phonograph switch.



Radio-Phonograph Switching Circuit Used in 2nd-Production of Model 6QU.

MODEL Q18

This model uses Chassis No. RC-477, which is identical to the chassis used on 2nd Production Model 5Q5 except for the following parts:

Stock No.

Description

CHASSIS ASSEMBLIES (RC-477)

- 32068 Transformer—First I.F. transformer
- 32825 Transformer—Second I.F. transformer

SPEAKER ASSEMBLIES (RL-78-2)

- 35440 Cone—Speaker cone, voice coil, center suspension, and dust cap.

MISCELLANEOUS ASSEMBLIES

- 35387 Decalcomania—Power switch decal
- 37616 Decalcomania—Range switch decal
- 35392 Decalcomania—Trade mark decal
- 32837 Dial—Glass dial scale
- 34221 Frame—Dial frame complete—less dial, indicator, and indicator guide shafts
- 32847 Indicator—Station selector indicator and carriage
- 37614 Knob—Range switch knob
- 37613 Knob—Tone control or tuning knob
- 37615 Knob—Volume control knob
- 34491 Shaft—Indicator carriage guide shaft

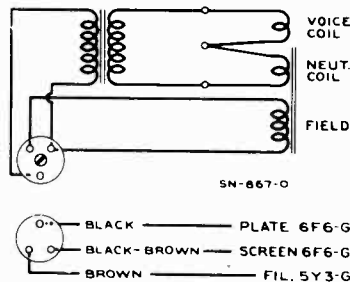
MODEL U-50

Increasing Victrola Gain:

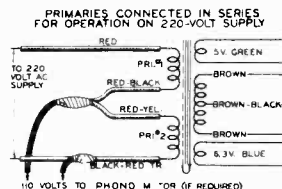
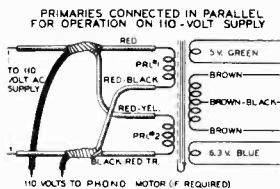
The over-all amplification of these models, when used as Victrolas, is limited by the voltage divider circuit comprised of a resistor in series with, and a capacitor across the pickup circuit. Values of these components are established on the basis of:

- (a) Average available voltage output from pickup under average climatic conditions.
- (b) Degree of "rumble" likely with given amplification.
- (c) Danger of "microphonic howl" with high amplification.
- (d) Possible consumer reaction to overload occurring at a low volume control setting with heavily cut records.

If these points are kept in mind, additional gain may be obtained, wherever desired, by decreasing the value of the pickup shunt capacitor; C-1 in Model O-50 and C-32 in Model U-50. The substitute capacitor should be approximately 1/2 to 1/3 the value of the original.

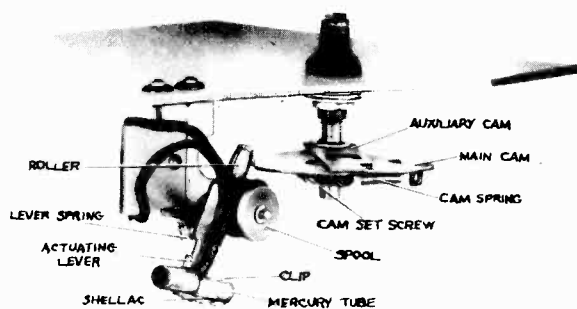


Connections and Colors of Speaker and Cable

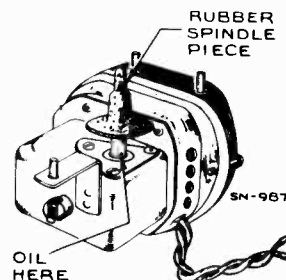


D-C Resistance	Primary No. 1	13 ohms
	Primary No. 2	15 ohms
	H. V. Secondary (Total)	500 ohms

Connections of Universal Power Transformer Primary for 220 and 110 Volts



Switch Mechanism
(Shown with pickup in rest position)



Phonograph Motor

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
32832	Bracket—Drive bracket, pulleys, and tuning knob shaft complete (Models 5Q5, 5Q55 and 5Q56)	32910	Transformer—Power transformer—105-120 volts, 25-60 cycles (T1)
32635	Cable—Pointer drive cable (Models 5Q5, 5Q55 and 5Q56)	32911	Transformer—Power transformer—105-120 volts, 50-60 cycles (T1)
12581	Cap—First I.F. transformer shield cap	32852	Transformer—Power transformer—105-120 and 200-240 volts, 50-60 cycles (T1)
12723	Capacitor—56 mmfd. (C4)	32818	Volume control and switch (R6, S1) (Models 5Q5 and 5Q55)
30949	Capacitor—56 mmfd. (C14, C15)	32928	Volume control, tone control and power switch (R6, R9, S1) (Model 6Q7)
14282	Capacitor—109 mmfd. (C12, C13)	SPEAKER ASSEMBLIES	
32238	Capacitor—110 mmfd. (C18)	Models 5Q5, 5Q55 and 5Q56 (RL-78-2)	
12694	Capacitor—220 mmfd. (C3)	32907	Cap—Cone center dust cap
12952	Capacitor—330 mmfd. (C19)	32903	Coil—Speaker field coil (L12)
12537	Capacitor—560 mmfd. (C9)	32906	Coil—Speaker hum neutralizing coil (L13)
31403	Capacitor—3,300 mmfd. (C7)	32904	Cone—Speaker cone, voice coil, center suspension, and dust cap (L14)
31405	Capacitor—6,000 mmfd. (C10)	5118	Plug—3-contact male for speaker
32830	Capacitor—Trimmer capacitor bank, 2 sections 2-20 mmfd. (C26, C27)	32902	Speaker—Complete
32829	Capacitor—Trimmer capacitor bank, 3 sections 5-50 mmfd. (C5, C6, C8)	32905	Transformer—Output transformer (T2)
4838	Capacitor—.005 mfd. (C20, C21, C29)	SPEAKER ASSEMBLIES	
5148	Capacitor—.007 mfd. (C22)	Model 6Q7 (RL-79-2)	
14393	Capacitor—.01 mfd. (C16)	32907	Cap—Speaker cone center dust cap
4839	Capacitor—.01 mfd. (C17)	32903	Coil—Speaker field coil (L12)
32240	Capacitor—Electrolytic, 2 sections 10 mfd., 1 section 20 mfd. (C23, C24, C25)	32906	Coil—Speaker hum neutralizing coil (L13)
32821	Coil—Antenna coil A, B, C, bands (L1, L2, L3, L4)	35441	Cone—Speaker cone and voice coil
32824	Coil—Oscillator coil—A, B, C bands (L5, L6, L7)	5118	Plug—3-prong male for speaker
32817	Condenser—2-gang variable condenser (C1, C2, C11)	32933	Speaker—Complete
32634	Cord—Drive cord	32905	Transformer—Output transformer (T2)
32713	Core—Core and stud for oscillator coil adjustment	MISCELLANEOUS ASSEMBLIES	
32835	Drum—Drive cord drum	32845	Bracket—Dial mounting bracket and lamp bracket assembly—less pointer and pointer slide rods (Models 5Q5, 5Q55 and 5Q56)
11891	Lamp—Dial lamp	32837	Dial—Dial scale
32953	Plate—Dial back plate and pointer—less dial scale (Model 6Q7)	32843	Knob—Black range switch knob (Models 5Q5 and 5Q55)
5119	Plug—3-contact female for speaker cable	33085	Knob—Black tuning knob (Models 5Q5 and 5Q55)
32834	Pulley—Drive cord pulley and mounting bracket (1 pulley)	32841	Knob—Black volume control knob (Models 5Q5 and 5Q55)
32951	Pulley—Drive cord pulleys and mounting bracket (3 pulleys) (Model 6Q7)	32839	Knob—Brown tuning knob (Models 5Q5 and 5Q55)
13988	Resistor—10 ohms, 1/2 watt (R12)	33087	Knob—Ivory range switch knob (Models 5Q5 and 5Q55)
30681	Resistor—470 ohms, 1 watt (R10)	33091	Knob—Ivory tuning knob (Models 5Q5 and 5Q55)
12013	Resistor—1 meg., 1/10 watt (R11) (Model 6Q7)	33086	Knob—Ivory volume control knob (Models 5Q5 and 5Q55)
31389	Resistor—12,000 ohms, 3/4 watt (R3)	33563	Knob—Maroon range switch knob (Models 5Q5 and 5Q55)
12454	Resistor—33,000 ohms, 1/2 watt (R2)	33093	Knob—Maroon tuning knob (Models 5Q5 and 5Q55)
5132	Resistor—47,000 ohms, 1/10 watt (R5)	33562	Knob—Maroon volume control (Models 5Q5 and 5Q55)
12285	Resistor—470,000 ohms, 1/2 watt (R7, R9)	32847	Pointer—Dial pointer, carriage and clip
13730	Resistor—1 meg., 1/2 watt (R1)	32846	Rod—Pointer slide rod
11668	Resistor—5.6 meg., 1/2 watt (R4)	4393	Screw—No. 8-32 x 5/16 headless set screw for knob, Stock Nos. 32840, 32842, 32844, 33088, 33089, 33090, 33092 and 33094
13601	Resistor—10 meg., 1/2 watt (R8)	32937	Knob—Range switch knob (small) (Model 6Q7)
14343	Retainer—Retaining ring for holding tuning knob shaft (Model 6Q7)	33029	Knob—Tone control and switch knob (small) (Model 6Q7)
14887	Retainer—Tuning knob shaft retainer (Models 5Q5, 5Q55 and 5Q56)	32935	Knob—Tuning knob (large) (Model 6Q7)
32848	Screw—No. 8-32 square head set screw for drum	32936	Knob—Volume control knob (large) (Model 6Q7)
32833	Shaft—Tuning knob shaft, eyelet and retainer (Models 5Q5, 5Q55 and 5Q56)	4982	Spring—Retaining spring for knob, Stock No. 32935 (Model 6Q7)
32932	Shaft—Tuning knob shaft (Model 6Q7)	30330	Spring—Retaining spring for knob, Stock No. 33029 (Model 6Q7)
31365	Socket—Dial lamp insulated socket	14270	Spring—Retaining spring for knob, Stock Nos. 32839, 32841, 32843, 33085, 33086, 33087, 33091 and 33093
31251	Socket—Octal base tube socket		
32950	Socket—Magic Eye socket and bracket (Model 6Q7)		
14278	Socket—Phonograph socket		
31418	Spring—Drive cord or pointer cable tension spring		
32819	Switch—Range switch (Models 5Q5, 5Q55 and 5Q56) (S2, S3)		
32929	Switch—Range switch (Model 6Q7) (S2, S3)		
32827	Switch—Voltage change switch—110-220 volts (S4)		
14376	Transformer—First i.f. transformer (L8, L9, C12, C13)		
32825	Transformer—Second i.f. transformer (L10, L11, C14, C15, C18, R5)		

MODEL 6QU

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-414)		AUTOMATIC SWITCH ASSEMBLIES	
33528	Bracket—Drive bracket and 1 pulley assembled . . .	32863	Cam—Cam assembly comprising main and auxiliary cams, hub and set screws
32951	Bracket—Drive bracket and 3 pulleys assembled . . .	32864	Lever—Actuating lever with roller and mercury tube clip
32136	Cable—Phono. input shielded lead and socket . . .	14195	Screw—No. 10-32 x 5/16 cone pointed set screw for cam hub
12581	Cap—Top shield cap for i-f transformer	32869	Screw—No. 10-32 x 5/16 set screw for cam hub (Pkg. of 10)
32830	Capacitor—2-gang trimmer, 2-20 mmfd. each section (C28, C27)	32868	Spring—Actuating lever tension spring (Pkg. of 10)
32829	Capacitor—3-gang trimmer, 5-60 mmfd. each section (C5, C6, C8)	32867	Spring—Cam tension spring—Pkg. of 10
12723	Capacitor—56 mmfd. (C4)	32865	Support—Switch support and terminal board
30949	Capacitor—56 mmfd. (C14, C15)	32866	Switch—Mercury tube with leads (S2)
14262	Capacitor—109 mmfd. (C12, C13)	31608	Washer—"C" washer for actuating lever shaft
32238	Capacitor—110 mmfd. (C18)	MOTOR ASSEMBLIES	
30232	Capacitor—220 mmfd. (C3)	32650	Field—Motor field coils and laminations, 110 volts, 50 cycle
12952	Capacitor—330 mmfd. (C19)	32336	Field—Motor field coils and laminations, 110 volts, 60 cycle
13894	Capacitor—390 mmfd. (C33)	33220	Motor—105-125 volts, 50 cycles—less mounting plate (M1)
12537	Capacitor—560 mmfd. (C9)	33219	Motor—105-125 volts, 60 cycles—less mounting plate (M1)
13054	Capacitor—1,200 mmfd. (C33)	33361	Shaft—Turntable spindle shaft and gear—50 cycle
31403	Capacitor—3,300 mmfd. (C7)	33360	Shaft—Turntable spindle shaft and gear—60 cycle
31405	Capacitor—6,000 mmfd. (C10)	PICKUP AND ARM ASSEMBLIES	
33584	Capacitor—.005 mfd. (C30)	33125	Arm—Pickup arm complete—less crystal cartridge
4838	Capacitor—.005 mfd. (C20, C21, C29)	33126	Base—Pickup arm base and pivot shaft
14393	Capacitor—.01 mfd. (C16)	33122	Crystal—Pickup crystal cartridge and needle screw
11315	Capacitor—.015 mfd. (C31, C32)	33123	Damper—Viscoloid damper for pickup armature
4870	Capacitor—.025 mfd. (C22)	33529	Screw—Pickup needle screw—Pkg. of 5
4839	Capacitor—.01 mfd. (C17)	SPEAKER ASSEMBLIES	
32240	Capacitor—Electrolytic, 2 sections 10 mfd., 400 V., and one section 20 mfd., 25 V. (C23, C24, C25)	(RL-79-2)	
32821	Coil—Antenna coil (L1, L2, L3, L4)	32907	Cap—Speaker cone center dust cap
32824	Coil—Oscillator coil (L5, L6, L7)	32903	Coil—Speaker field coil (L12)
32817	Condenser—2-gang variable tuning (C1, C2, C11)	32906	Coil—Speaker hum neutralizing coil (L13)
33533	Control—Volume control, tone control, and power switch	5118	Plug—3 prong male for speaker
32713	Core—Adjustable core and stud for oscillator coil	32933	Speaker—Complete
32835	Drum—Drive cord drum with set screw	32905	Transformer—Output transformer (T2)
11891	Lamp—Dial lamp—Mazda No. 44	MISCELLANEOUS ASSEMBLIES	
30868	Plug—2-contact female motor cable plug	33531	Cup—Needle cup
5040	Plug—Female plug for speaker cable	31464	Damper—Turntable damper and drive sleeve
13988	Resistor—10 ohms, 1/2 watt (R12)	32837	Dial—Dial scale
30681	Resistor—470 ohms, 1 watt (R10)	33415	Escutcheon—Dial escutcheon
3078	Resistor—10,000 ohms, 1/2 watt (R13)	13085	Hinge—Cabinet lid hinge
31389	Resistor—Voltage divider, 12,000 ohms, 3 1/2 watts (R3)	31802	Knob—Radio-Record switch knob
13998	Resistor—22,000 ohms, 1/2 watt (R15)	32937	Knob—Range switch knob
12454	Resistor—33,000 ohms, 1/2 watt (R2)	33029	Knob—Tone control and switch knob
12266	Resistor—39,000 ohms, 1/2 watt (R14)	32935	Knob—Tuning knob
5132	Resistor—47,000 ohms, 1/10 watt (R5)	32936	Knob—Volume control knob
12285	Resistor—470,000 ohms, 1/2 watt (R7)	33530	Mounting—Pickup arm rubber mounting, washer, and nut
13730	Resistor—1 meg., 1/2 watt	30870	Plug—2 prong male for motor leads
11668	Resistor—5.6 meg., 1/2 watt (R4)	32610	Rest—Rubber rest for pickup
13601	Resistor—10 meg., 1/2 watt (R8)	4982	Spring—Retaining spring for tuning knob
14343	Retainer—Retaining ring to hold tuning knob shaft	30330	Spring—Retaining spring for tone control knob
32848	Screw—No. 8-32 square head set screw for drum	14270	Spring—Retaining spring for volume control, range switch, or radio-record switch knob
32932	Shaft—Tuning knob shaft	31164	Support—Cabinet lid support
31365	Socket—Dial lamp socket (insulated)	33113	Switch—Radio-Record switch
32950	Socket—Magic Eye socket and bracket	33532	Turntable—10 in.
31251	Socket—Octal base tube socket		
31418	Spring—Drive cord tension spring		
33113	Switch—Radio-Record switch		
32929	Switch—Range switch		
32827	Switch—Voltage change switch		
14378	Transformer—First i-f transformer (L8, L9, C12, C13)		
32825	Transformer—Second i-f transformer (L10, L11, C14, C15, C18, R5)		
32910	Transformer—Power transformer, 105-120 volt, 25-60 cycle		
32911	Transformer—Power transformer 105-125 volts, 50-60 cycle		
32852	Transformer—Power transformer 105-120 and 210-240 volts, 50-60 cycles		

2nd Production:

The following parts are used in the revised circuit:

Stock No.	
12725	Capacitor—150 mmfd. (C35)
30303	Capacitor—.0035 mfd. (C36)
30963	Resistor—820,000 ohms, 1/2 watt (R16)
12286	Resistor—56,000 ohms, 1/2 watt (R17)
14983	Resistor—330,000 ohms, 1/2 watt (R18)
32743	Switch—Radio-phono switch

Additional Replacement Parts:

Stock No.	
35441	Cone—Speaker cone and voice coil
82953	Frame—Dial frame and holder, comprising dial color plate, holder, mounting, brackets, "Magic Eye" cap, indicator, and carriage

MODEL U-50

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-414-C)		
32834	Bracket—Drive bracket and 1 pulley assembled	33114	Damper—Viscoloid damper for pickup armature
33411	Bracket—Drive bracket and 3 pulleys assembled	31160	Screw—Pickup needle screw
12581	Cap—Top shield cap for i-f transformer		MOTOR ASSEMBLIES
32830	Capacitor—2-gang trimmer, 2-20 mmfd. each section (C26, C27)	32650	Field—Motor field coils and laminations, 110 volts, 50 cycle
32829	Capacitor—3-gang trimmer, 5-60 mmfd. each section (C5, C6, C8)	32336	Field—Motor field coils and laminations, 110 volts, 60 cycle
12723	Capacitor—56 mmfd. (C4)	33220	Motor—105-125 volts, 50 cycles—less mounting plate (M1)
30949	Capacitor—56 mmfd. (C14, C15)	33219	Motor—105-125 volts, 60 cycles—less mounting plate (M1)
14262	Capacitor—109 mmfd. (C12, C13)	33361	Shaft—Turntable spindle shaft and gear—50 cycle
32238	Capacitor—110 mmfd. (C18)	33360	Shaft—Turntable spindle shaft and gear—60 cycle
30232	Capacitor—220 mmfd. (C3)		AUTOMATIC SWITCH ASSEMBLIES
12952	Capacitor—330 mmfd. (C19)	33221	Cam—Cam assembly comprising main and auxiliary cams, hub, and set screws
13894	Capacitor—390 mmfd. (C33)	32864	Lever—Actuating lever with roller and mercury tube clip
12537	Capacitor—560 mmfd. (C9, C34)	14195	Screw—No. 10-32 x 5/16 cone pointed set screw for cam hub
31403	Capacitor—3300 mmfd. (C7)	32869	Screw—No. 10-32 x 5/16 set screw for cam hub
31405	Capacitor—6000 mmfd. (C10)	32868	Spring—Actuating lever tension spring
33584	Capacitor—.005 mfd. (C30)	32867	Spring—Cam tension spring
4838	Capacitor—.005 mfd. (C20, C21, C29)	32865	Support—Switch support and terminal board
14393	Capacitor—.01 mfd. (C16)	32866	Switch—Mercury tube with leads (S5)
11315	Capacitor—.015 mfd. (C31, C32)	31608	Washer—"C" washer for actuating lever shaft
4870	Capacitor—.025 mfd. (C22)		SPEAKER ASSEMBLIES (84604-1)
4839	Capacitor—0.1 mfd. (C17)	33406	Cone—Speaker cone and voice coil (L14)
32240	Capacitor—Electrolytic, 2 sections 10 mfd., 400 V., and one section 20 mfd., 25 V. (C23, C24, C25)	5118	Plug—3-contact male for speaker
32821	Coil—Antenna coil (L1, L2, L3, L4)	33222	Speaker complete
32824	Coil—Oscillator coil (L5, L6, L7)	33407	Transformer—Output transformer (T2)
32817	Condenser—2-gang variable tuning (C1, C2, C11)		MISCELLANEOUS ASSEMBLIES
33409	Control—Volume control, tone control, and power switch (R6, R9, S1)	10290	Cap—Ventilating cap
32713	Core—Adjustable core and stud for oscillator coil	31464	Damper—Damper plate and rubber sleeve for spindle
32835	Drum—Drive cord drum with set screw	32837	Dial—Dial scale (glass)
11891	Lamp—Dial lamp—Mazda No. 44	33415	Escutcheon—Dial scale escutcheon
30868	Plug—2-contact female motor cable plug	11771	Foot—Cabinet foot
5119	Plug—3-contact female speaker cable plug	33416	Frame—Dial frame, support, color plate, and mounting brackets—less pointer and carriage, and dial scale
13988	Resistor—10 ohms, 1/2 watt (R12)	32633	Handle—Carrying handle
30681	Resistor—470 ohms, 1 watt (R10)	13085	Hinge—Cabinet lid hinge
3078	Resistor—10,000 ohms, 1/2 watt (R13)	11865	Holder—Needle cord holder
31389	Resistor—12,000 ohms, 3/4 watt (R3)	33468	Knob—Radio-Record switch knob
13998	Resistor—22,000 ohms, 1/2 watt (R15)	33506	Knob—Range switch knob (small)
12454	Resistor—33,000 ohms, 1/2 watt (R2)	33470	Knob—Tone control and switch knob (small dual)
12266	Resistor—39,000 ohms, 1/2 watt (R14)	33505	Knob—Tuning knob (large)
5132	Resistor—47,000 ohms, 1/10 watt (R5)	33471	Knob—Volume control knob (large dual)
12285	Resistor—470,000 ohms, 1/2 watt (R7)	33223	Mounting—Complete set motor mounting screws, washers, and spacers
13730	Resistor—1 meg., 1/2 watt (R1)	31054	Mounting—Pickup arm mounting cushion, washers, and nut
11668	Resistor—5.6 meg., 1/2 watt (R4)	30870	Plug—2-contact male for motor leads
13601	Resistor—10 meg., 1/2 watt (R8)	31048	Plug—2-contact male plug for phono. cable
14343	Retainer—Retaining ring to hold tuning knob shaft	32846	Rod—Indicator slide rod
32848	Screw—No. 8-32 square head set screw for drum	33418	Spring—Indicator tension spring
33412	Shaft—Tuning knob shaft	30330	Spring—Retaining spring for tone control knob
31365	Socket—Dial lamp socket (insulated)	4982	Spring—Retaining spring for tuning knob
31251	Socket—Octal base tube socket	14270	Spring—Retaining spring for volume control, range switch, or radio-record switch knob
31418	Spring—Drive cord tension spring	33364	Support—Cabinet lid support (LH)
33413	Switch—Radio-Record switch (S4)	33673	Support—Pickup arm support
33410	Switch—Range switch (S2, S3)	33414	Turntable
14376	Transformer—First i-f transformer (L8, L9, C12, C13)		
32825	Transformer—Second i-f transformer (L10, L11, C14, C15, C18, R5)		
33112	Transformer—Power transformer 105-125 volts, 50-60 cycle (T1)		
	PICKUP AND ARM ASSEMBLIES		
33216	Arm—Pickup arm—less crystal, needle screw, and cable		
33218	Base—Pickup arm mounting base and pivot shaft		
33217	Crystal—Pickup crystal cartridge and needle screw		

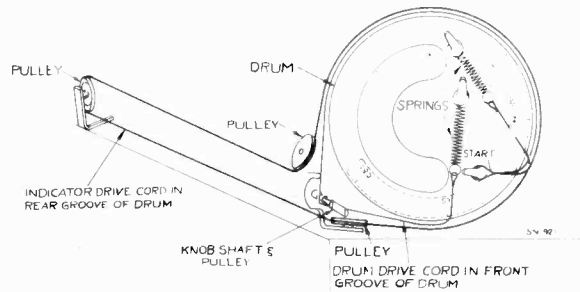
Add Stock No.

34254 Indicator—Dial scale pointer and carriage (Model U-50)

MODEL 5Q6

Chassis No. RC-477A

Five-Tube, Three-Band, AC-DC, Superheterodyne Receiver



Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
 Short Wave ("C" Band)..... 7.0-22 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... Detector-Oscillator
 - (2) RCA-6K7..... I-F Amplifier
 - (3) RCA-6SQ7... 2nd Detector, A.V.C., and A-F Amplifier
 - (4) RCA-25L6-G..... Power Output
 - (5) RCA-25Z6-G..... Rectifier
- Ballast Tube..... RCA Stock No. 32849 for 210-250 volt operation.

PILOT LAMP..... Mazda No. 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

(210-250 Volt Operation)
 Undistorted 1.5 watts
 Maximum 2.7 watts

LOUDSPEAKER (84557-2)

Type 5-inch
 V. C. Impedance 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

210-250 volts, 50-60 cycles 125 watts
 210-250 volts, direct current 125 watts

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground lead (black), and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 135° mark on the drum scale must be vertical, and directly under the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of a set screw, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the

530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

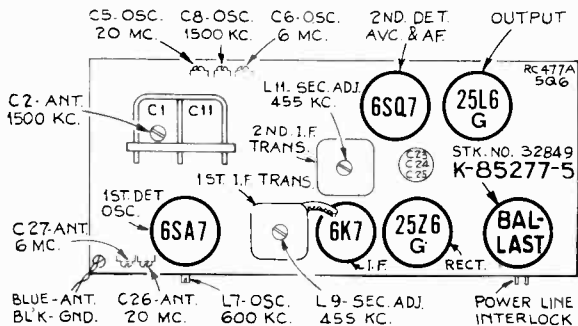
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" Band quiet point between 550-750 kc	L10 and L11 (2nd I.F. trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd. **	455 kc		L8 and L9 (1st I.F. trans.)
3	Antenna lead in series with 200 mmfd.	600 kc	600 kc (33°) "A" Band	L7†
4		1,500 kc	1,500 kc (152.4°) "A" Band	C2 (ant.) C8 (osc.)
5	Repeat steps 3 and 4			
6	Antenna lead in series with 400 ohms	20 mc	20 mc (155.4°) "C" Band	C5 (osc.)* C26 (ant.)
7		6 mc	6 mc (148°) "B" Band	C6 (osc.)* C27 (ant.)
8	Antenna lead in series with 200 mmfd.	1,500 kc	1,500 kc (152.4°) "A" Band	C8 (osc.)

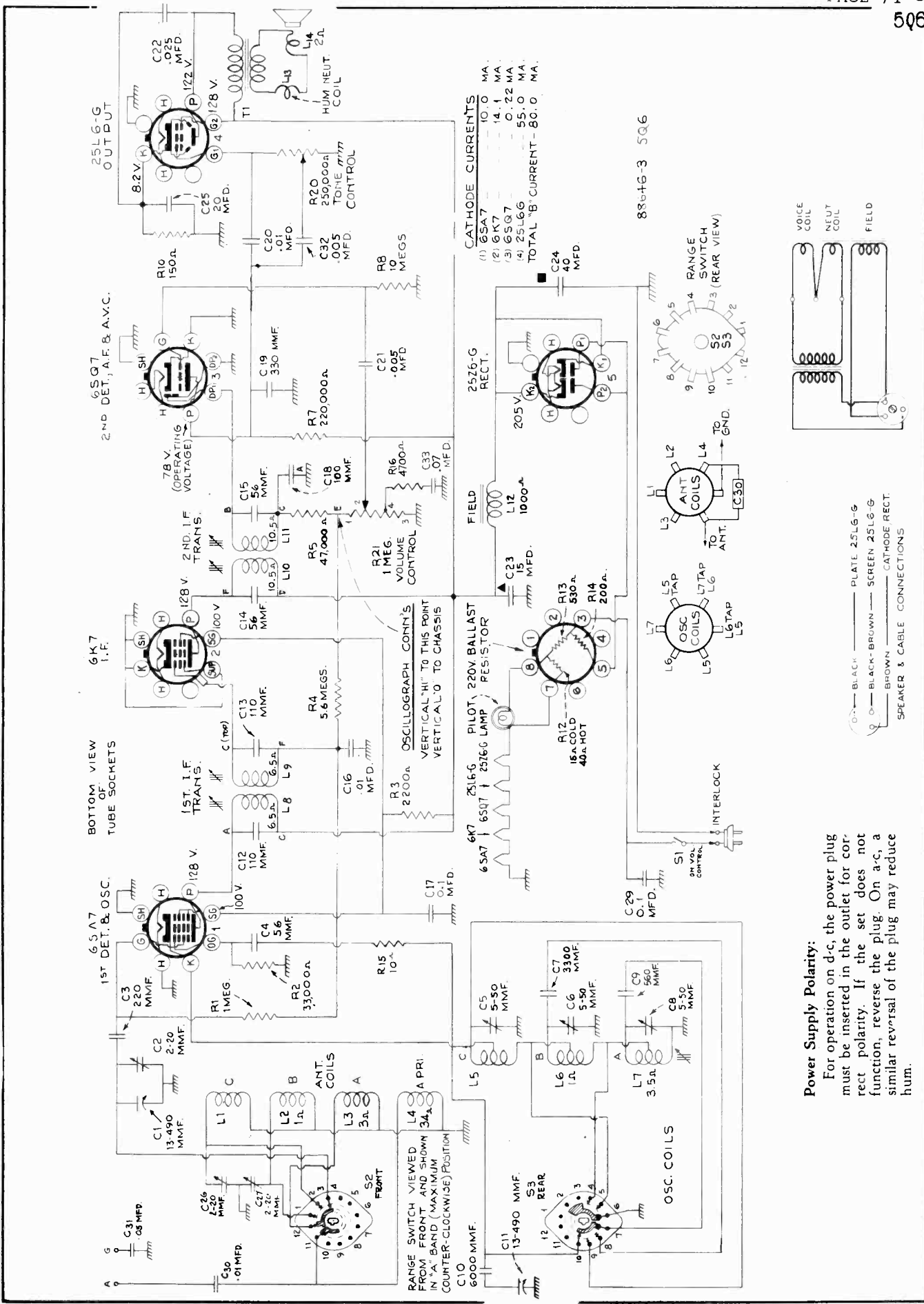
* Use minimum capacity peak if two peaks can be obtained.

† Rock gang condenser slightly while adjusting L7.

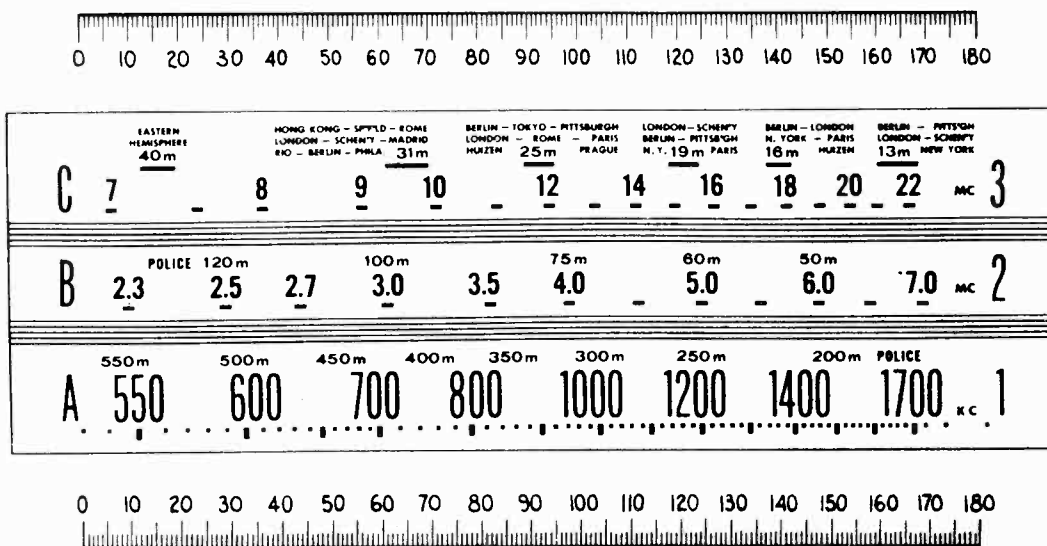
** Make test-oscillator connection to lug on tuning condenser stator (oscillator section) in series with .01 mfd. condenser.

Note.—Oscillator tracks 455 kc above signal on all bands.





Calibration Scale



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 33° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

REPLACEMENT PARTS

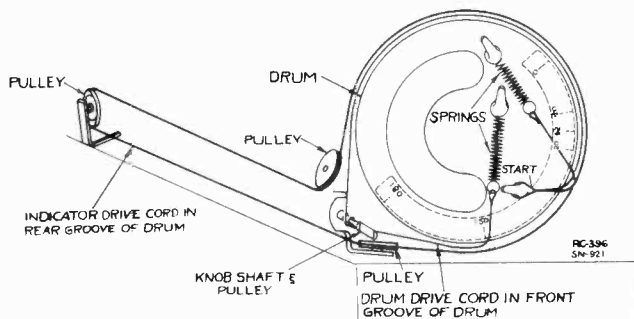
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-477A)			
32849	Ballast—Ballast resistor (R12, R13, R14).....	3526	Resistor—2,200 ohms, 1/4 watt (R3).....
32832	Bracket—Drive bracket, pulleys and tuning knob —shaft complete.....	30146	Resistor—4,700 ohms, 1/4 watt (R16).....
12723	Capacitor—56 mmfd. (C4).....	12454	Resistor—33,000 ohms, 1/4 watt (R2).....
30949	Capacitor—56 mmfd. (C14, C15).....	5132	Resistor—47,000 ohms, 1/10 watt (R5).....
14262	Capacitor—110 mmfd. (C12, C13).....	12264	Resistor—220,000 ohms, 1/4 watt (R7).....
32238	Capacitor—110 mmfd. (C18).....	13730	Resistor—1 meg., 1/4 watt (R1).....
12694	Capacitor—220 mmfd. (C3).....	11668	Resistor—5.6 meg., 1/4 watt (R4).....
12952	Capacitor—330 mmfd. (C19).....	13601	Resistor—10 meg., 1/4 watt (R8).....
12537	Capacitor—560 mmfd. (C9).....	32848	Screw—No. 8-32 square head set screw for drum
31403	Capacitor—3,300 mmfd. (C7).....	31365	Socket—Dial lamp insulated socket.....
31405	Capacitor—6,000 mmfd. (C10).....	31251	Socket—Octal base tube socket.....
32830	Capacitor—Trimmer capacitor bank, 2 sections 2-20 mmfd. (C26, C27).....	31418	Spring—Drive cord or pointer cable tension spring.....
32829	Capacitor—Trimmer capacitor bank, 3 sections 5-60 mmfd. (C5, C6, C8).....	32819	Switch—Range switch (S2, S3).....
4838	Capacitor—.005 mmfd. (C21, C32).....	14376	Transformer—First i.f. transformer (L8, L9, C12, C13).....
14393	Capacitor—.01 mfd. (C16, C20, C30).....	32825	Transformer—Second i.f. transformer (L10, L11, C14, C15, C18, R5).....
4870	Capacitor—.025 mfd. (C22).....	32849	Tube—Ballast resistor (R12, R13, R14).....
4886	Capacitor—.05 mfd. (C31).....	SPEAKER ASSEMBLIES (84557-2)	
14626	Capacitor—.07 mfd. (C33).....	32923	Coil—Speaker field coil (L12).....
4839	Capacitor—.01 mfd. (C17, C29).....	32922	Cone—Speaker cone and voice coil in metal housing (L14).....
32851	Capacitor—Electrolytic comprising 1 section of 40 mfd. 1 section of 15 mfd. and 1 section of 20 mfd. (C23, C24, C25).....	5118	Plug—3-contact male for speaker.....
32821	Coil—Antenna coil A, B, C bands (L1, L2, L3, L4).....	32924	Transformer—Output transformer (T1).....
32824	Coil—Oscillator coil A, B, C bands (L5, L6, L7).....	MISCELLANEOUS ASSEMBLIES	
32817	Condenser—2 gang variable condenser (C1, C2, C11).....	32837	Dial—Glass dial scale.....
34224	Control—Tone control (R20).....	32845	Frame—Dial frame complete with back plate shaft retainer, dial bracket and lamp bracket..
34851	Control—Volume control and power switch (R21, S1).....	32847	Indicator—Station selector indicator and carriage
32634	Cord—Variable tuning condenser drive drum cord	32844	Knob—Black range switch knob.....
32635	Cord—Indicator drive cord.....	33085	Knob—Black-tone control or tuning knob.....
32713	Core—Core and stud for oscillator coil adjustment	32842	Knob—Black volume control and power switch knob.....
32835	Drum—Drive cord drum.....	32839	Knob—Brown tone control or tuning knob....
31480	Lamp—Dial lamp.....	33090	Knob—Ivory range switch knob.....
5119	Plug—3-contact female for speaker cable.....	33089	Knob—Ivory volume control and power switch knob.....
32834	Pulley—Drive cord pulley and mounting bracket (1 pulley).....	4393	Screw—No. 8-32 set screw for knobs.....
32849	Resistor—Ballast resistor (R12, R13, R14).....	32846	Shaft—Indicator guide shaft.....
13988	Resistor—10 ohms, 1/4 watt (R15).....	14270	Spring—Retaining spring for knobs, Stock No. 32839 and 33085.....
30880	Resistor—150 ohms, 1/4 watt (R10).....		

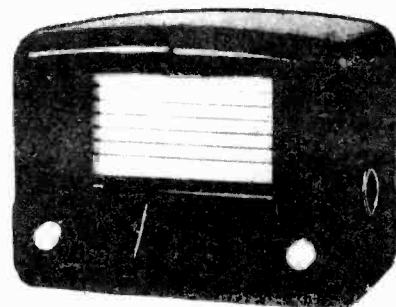
MODEL 5Q8

Chassis No. RC-396B RC-477B

Five-Tube, Three-Band, AC-DC, Superheterodyne Receiver



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator



(Model 5Q8E is brown; 5Q8F is black; 5Q8G is ivory; and 5Q8H is maroon.)

Electrical Specifications

FREQUENCY RANGES

Long Wave (X)..... 145-405 kc (2069-740 m)
 Medium Wave (A)..... 540-1720 kc (555-174 m)
 Short Wave (C)..... 5.8-18 mc (51.7-16.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... Detector-Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6SQ7... 2nd Detector, A.V.C., and A-F Amplifier
- (4) RCA-25L6-G..... Power Output

PILOT LAMP..... Mazda No. 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

(210-250 Volt Operation)
 Undistorted..... 1.5 watts
 Maximum..... 2.7 watts
 (105-125 Volt Operation)
 Undistorted..... 1.7 watts
 Maximum..... 2.9 watts

POWER SUPPLY RATINGS

105-125 volts, AC-DC..... 65 watts
 210-250 volts, AC-DC..... 125 watts

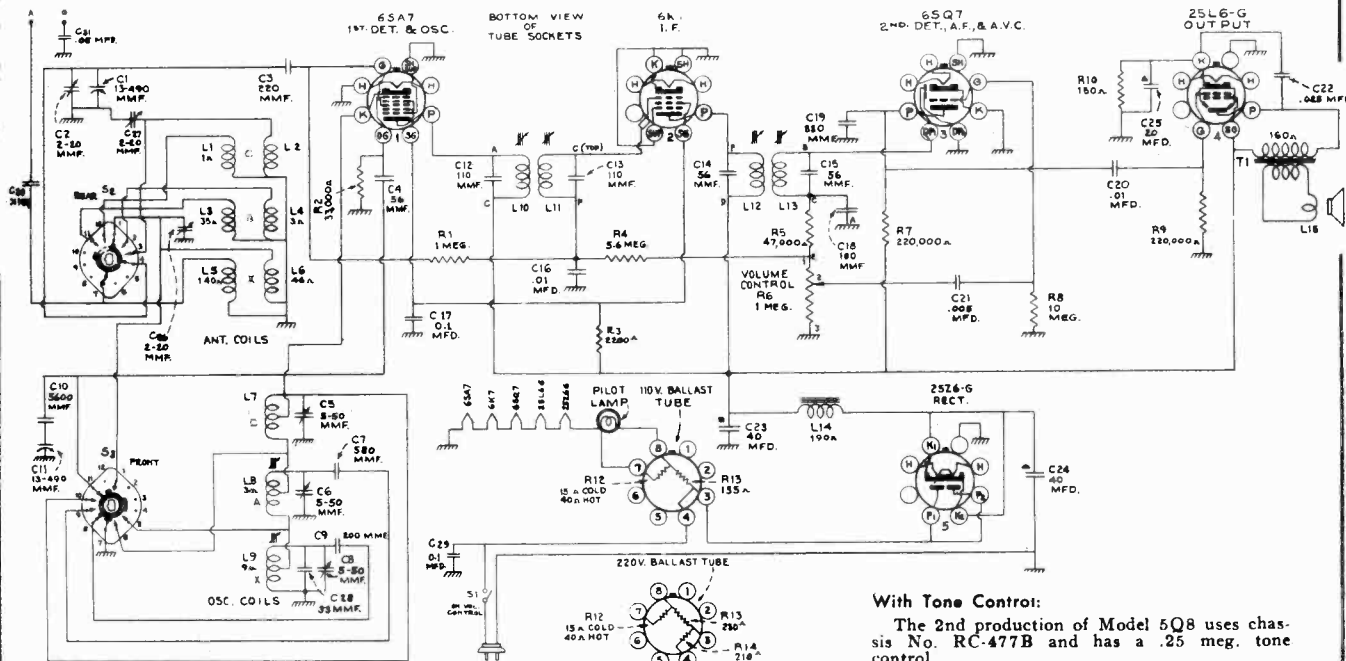
LOUDSPEAKER

Type..... 5-inch
 V. C. Impedance..... 3.0 ohms at 400 cycles

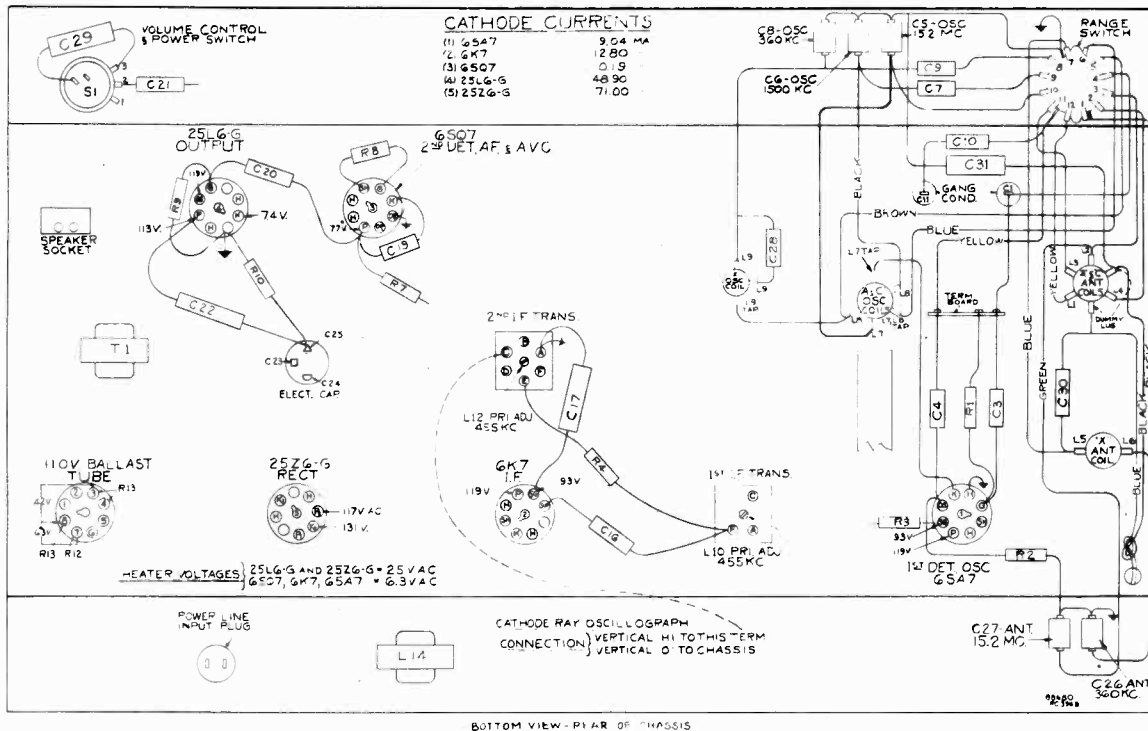
(5) RCA-25Z6-G..... Rectifier
 Ballast Tubes..... RCA Stock No. 32544 for 105-125 volt operation; RCA Stock No. 32850 for 210-250 volt operation.

Precautionary Lead Dress:

1. Lead from 2nd I-F transformer to volume control should be kept close to the chassis and dressed against front apron.
2. C-10 should be dressed away from the antenna section of the variable condenser (C-1).



Schematic Circuit Diagram



BOTTOM VIEW - PEAR OF CHASSIS

Alignment Procedure

R-F Wiring Diagram and Socket Voltages

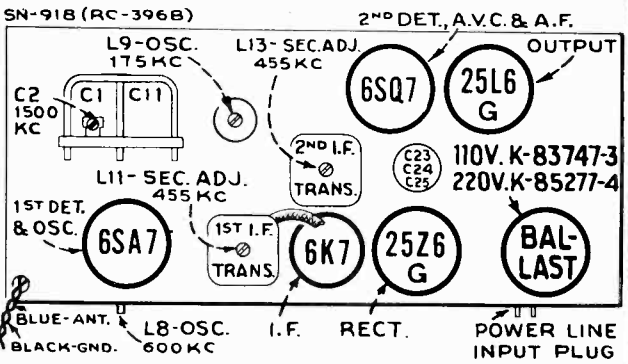
STEPS	CONNECT THE HIGH SIDE OF THE TEST-OSC. TO -	TUNE TEST-OSC TO -	TURN RADIO DIAL TO	ADJUST THE FOLLOWING FOR MAX. PEAK OUTPUT
1	6K7 I-F grid in series with .01 mfd.	455 kc	"A" Band Quiet Point	L12 and L13 (2nd I-F Trans.)
2	6SA7 det. grid in series with .01 mfd.			L10 and L11 (1st I-F Trans.)
3	Ant. term. in series with 200 mmf.	1500 kc	(152.4°) "A" Band	C8 (osc.) C2 (ant.)
4	Ant. term. in series with 200 mmf.	600 kc	(33°) "A" Band	L8 (osc.)
5	Repeat steps 3 and 4			
6	Ant. term. in series with 200 mmf.	360 kc	(151.5°) "X" Band	C8 (osc.) C26 (ant.)
7	Ant. term. in series with 200 mmf.	175 kc	(53.3°) "X" Band	L9 (osc.)
8	Repeat steps 6 and 7			
9	Ant. term. in series with 300 ohms	15.2 mc	(147.2°) "C" Band	C5 (osc.) ▲ C27 (ant.)
10	Ant. term. in series with 200 mmf.	360 kc	(151.5°) "X" Band	C8 (osc.)
11	Ant. term. in series with 200 mmf.	1500 kc	(152.4°) "A" Band	C8 (osc.)

▲ Use minimum capacity peak if two can be obtained.

NOTE: Oscillator tracks above signal on all bands.

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within ±20% with 117-volt a-c supply.



Tube and Trimmer Locations

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

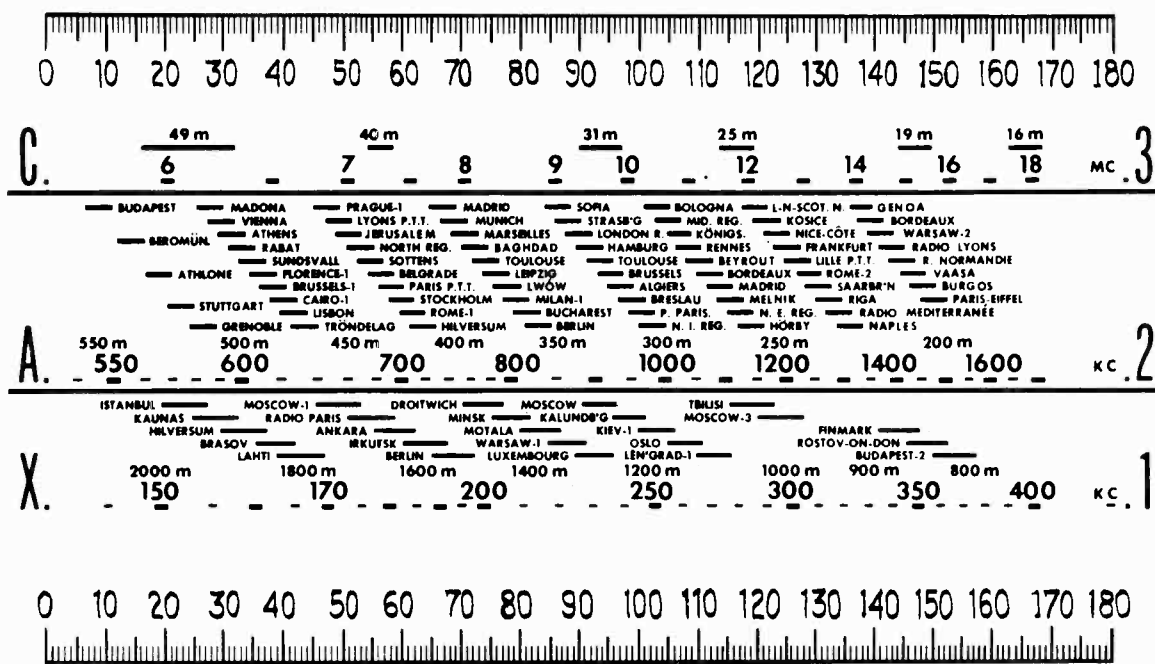
Calibration Scale On Indicator-Drive-Cord Drum.—In most cases it will not be necessary to remove the chassis from the dial scale for alignment, allowing the dial scale to be used for calibration. However, if alignment is made with the receiver chassis removed, the calibration scale attached to the rear of the drum which is mounted on the front shaft of the gang condenser must be used. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Calibration Scale



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

Ballast Resistor:

In Model 508 Service Data, change Stock No. 32544 to MI-8115 (135K1A). No. 32544 (BK-49B) may be used if terminals 3 and 4 are connected by a jumper.

Stock No.

34224 Control—Tone control, 250,000 ohms
4838 Capacitor—.005 mfd.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

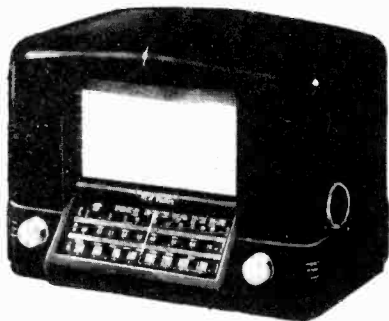
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC396B)			
32850	Ballast—Ballast resistor tube, 110 volt operation (R12, R13)	5132	Resistor—47,000 ohms, 1/10 watt (R5)
32832	Ballast—Ballast resistor tube, 220 volt operation (R12, R13, R14)	12264	Resistor—220,000 ohms, 1/4 watt (R7, R9)
32635	Bracket—Drive bracket pulleys, and tuning knob shaft complete	13750	Resistor—1 meg., 1/4 watt (R1)
12581	Cable—Pointer drive cable	11668	Resistor—5.6 meg., 1/4 watt (R4)
12948	Cap—First I.F. transformer shield cap	13601	Resistor—10 meg., 1/4 watt (R8)
12723	Capacitor—33 mmfd. (C28)	14887	Retainer—Tuning knob shaft retainer
30949	Capacitor—56 mmfd. (C4)	32848	Screw—No. 8-32 square head set screw for drum
14262	Capacitor—56 mmfd. (C14, C15)	32833	Shaft—Tuning knob shaft, eyelet and retainer
32238	Capacitor—109 mmfd. (C12, C13)	31365	Socket—Dial lamp insulated socket
30232	Capacitor—110 mmfd. (C18)	31251	Socket—Octal base tube socket
12694	Capacitor—200 mmfd. (C9)	14278	Socket—Phonograph socket
12952	Capacitor—220 mmfd. (C3)	30956	Socket—Speaker socket
32853	Capacitor—330 mmfd. (C19)	31418	Spring—Drive cord or pointer cable tension spring
13895	Capacitor—580 mmfd. (C7)	32820	Switch—Range switch (S2, S3)
32830	Capacitor—5,600 mmfd. (C10)	14376	Transformer—First i.f. transformer (L10, L11, C12, C13)
32829	Capacitor—Trimmer capacitor bank, 2 sections 2-20 mmfd. (C26, C27)	32825	Transformer—Second i.f. transformer (C14, C15, C18, R5, L12, L13)
14393	Capacitor—Trimmer capacitor bank 3 sections 5-50 mmfd. (C5, C6, C8)	32029	Transformer—Output transformer (T1)
4858	Capacitor—.01 mfd. (C16, C20)	32850	Tube—Ballast resistor tube, 110 volt operation (R12, R13)
4870	Capacitor—.01 mfd. (C30)	32818	Tube—Ballast resistor tube, 220 volt operation (R12, R13, R14)
4886	Capacitor—.025 mfd. (C22)		Volume control and switch (R6, S1)
4839	Capacitor—.05 mfd. (C31)	SPEAKER ASSEMBLIES (84556-1)	
32826	Capacitor—0.1 mfd. (C17, C29)	32926	Cone—Cone and voice coil in metal housing (L15)
32822	Capacitor—Electrolytic, 2 sections 40 mfd., 1 section 20 mfd. (C23, C24, C25)	5133	Pin—Speaker lead pin
32823	Coil—Antenna coil—A, C bands (L1, L2, L3, L4)	32925	Speaker—Complete
32707	Coil—Antenna coil—X band (L5, L6)	MISCELLANEOUS ASSEMBLIES	
32931	Coil—Oscillator coil—A, C bands (L7, L8)	32845	Bracket—Dial mounting bracket and lamp bracket assembly—less pointer and pointer slide rods
32817	Coil—Oscillator coil—X band (L9)	32836	Cord—Power cord complete with plugs
32634	Condenser—2-gang variable condenser (C1, C2, C11)	32838	Dial—Dial scale
32713	Cord—Drive cord	32844	Knob—Black range switch knob
32835	Core—Core and stud for oscillator coil adjustment	33088	Knob—Black tuning knob
31480	Drum—Drive cord drum	32842	Knob—Black volume control knob
32828	Lamp—Dial lamp	32840	Knob—Brown tuning knob
32834	Plug—Line plug for rear of chassis	33090	Knob—Ivory range switch knob
32709	Pulley—Pointer cord pulley and bracket	33092	Knob—Ivory tuning knob
	Reactor—Filter reactor (L14)	33089	Knob—Ivory volume control knob
	Resistor—Ballast resistor tube, 110 volt operation (R12, R13)	33565	Knob—Maroon range switch
32850	Resistor—Ballast resistor tube, 220 volt operation (R12, R13, R14)	33094	Knob—Maroon tuning knob
30880	Resistor—150 ohms, 1/4 watt (R10)	33564	Knob—Maroon volume control
3526	Resistor—2,200 ohms, 1/4 watt (R3)	32847	Pointer—Dial pointer, carriage and clip
12454	Resistor—33,000 ohms, 1/4 watt (R2)	32846	Rod—Pointer slide rod
		4393	Screw—No. 8-32 x 5/16 headless set screw for knob, Stock Nos. 32840, 32842, 32844, 33088, 33089, 33090, 33092 and 33094

MODELS 5Q12, 5Q12A, 6Q8 AND 6QK8

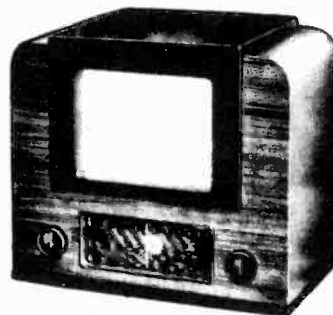
RC-396 D RC-396E RC-414B RC-414B

Five-Tube, Three-Band, AC, Superheterodyne Receiver

REFER TO MODEL 5Q8 FOR ALIGNMENT PROCEDURE



MODEL 5Q12



MODEL 6Q8

Electrical Specifications

FREQUENCY RANGES

Long Wave (X) 145-405 kc (2,069-740 m)
 Medium Wave (A) 540-1,720 kc (555-174 m)
 Short Wave (C) 5.8-18 mc (51.7-16.6 m)

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... Detector-Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6SQ7.... 2nd Detector, A.V.C., and A-F Amplifier
- (4) RCA-6F6-G..... Power Output
- (5) RCA-5Y3-G..... Rectifier
- (6) RCA-6U5/6G5..... Tuning Indicator

PILOT LAMP Mazda No. 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING
(105-125 Volt Operation)

Undistorted 1.5 watts
 Maximum 3.3 watts

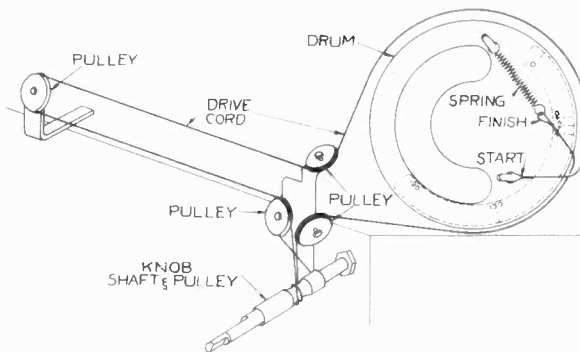
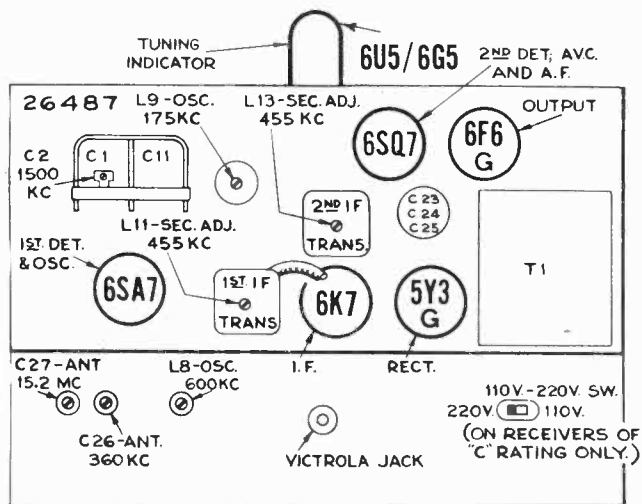
POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles
 Rating B..... 105-125 volts, 25 cycles, 75 watts
 Rating C..... 105-125; 200-250 volts, 50-60 cycles, 75 watts

LOUDSPEAKER

Type..... electrodynamic
 V. C. Impedance..... 3.4 ohms at 400 cycles

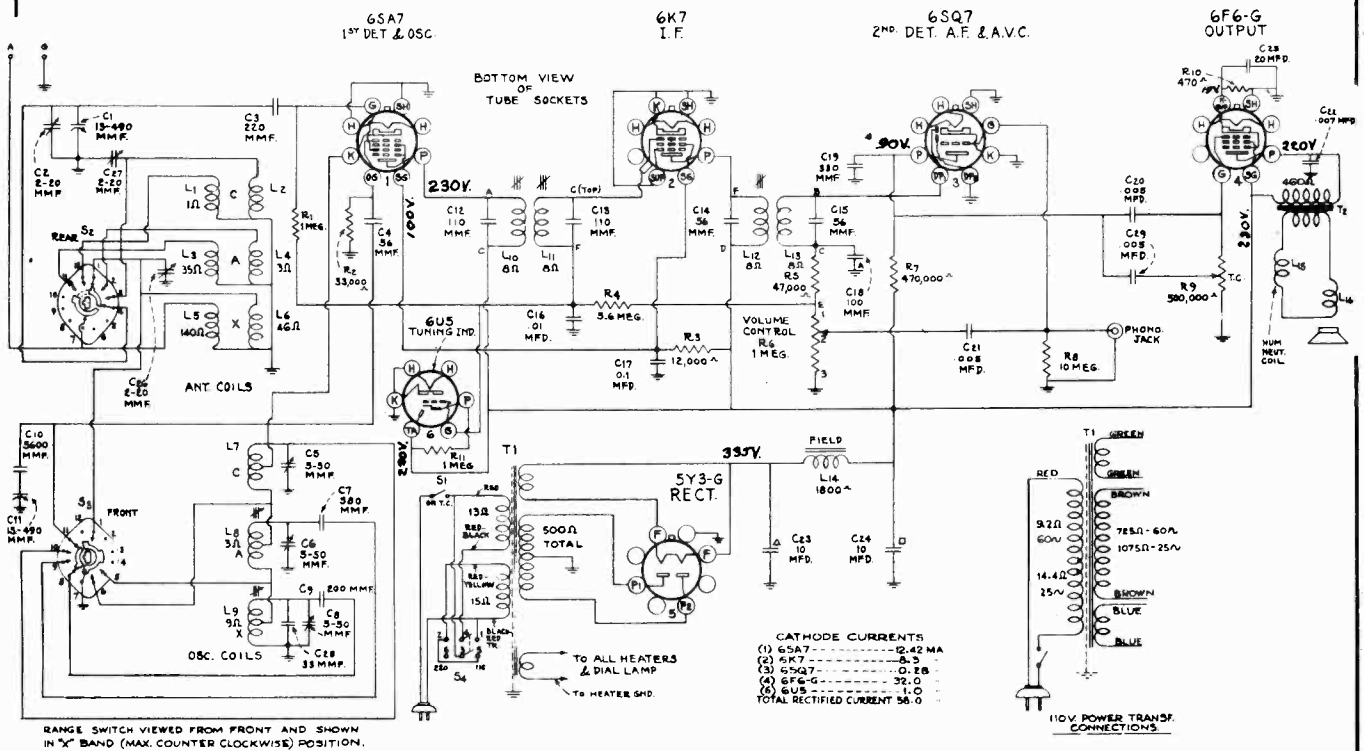
Receivers having "C" power rating may be made to operate on either 110 or 220 volts, conversion from one voltage rating to the other being made by means of a switch at the back of the chassis.



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

At Left—Tube and Trimmer Locations

The electrical circuit of Model 5Q12 is similar to that of Model 6Q8 except in Model 5Q12, the tuning indicator (RCA-6U5-6G5) and its resistor (R11) are omitted



Schematic Circuit Diagram MODELS 6Q8 6QK8

Precautionary Lead Dress:

1. Lead from 2nd I-F transformer to volume control should be kept close to the chassis and dressed against front apron.
2. C-10 should be dressed away from the antenna section of the variable condenser (C-1).

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-414-B)			
32830	Capacitor—2-gang trimmer, each section 2-20 mmfd. (C26, C27)	5119	Plug—3-contact female for speaker cable
32829	Capacitor—3-gang trimmer, each section 5-60 mmfd. (C5, C6, C8)	32834	Pulley—Drive cord pulley and mounting bracket (1 pulley)
12948	Capacitor—33 mmfd. (C28)	32951	Pulley—Drive cord pulleys and mtg. bracket (3 pulleys)
30949	Capacitor—56 mmfd. (C14, C15)	30681	Resistor—470 ohms, 1 watt (R10)
12723	Capacitor—56 mmfd. (C4)	31389	Resistor—12,000 ohms, 3/4 watt (R3)
14282	Capacitor—109 mmfd. (C12, C13)	12454	Resistor—33,000 ohms, 1/2 watt (R2)
32238	Capacitor—110 mmfd. (C18)	5132	Resistor—47,000 ohms, 1/10 watt (R5)
30232	Capacitor—200 mmfd. (C9)	12285	Resistor—470,000 ohms, 1/2 watt (R7)
12694	Capacitor—220 mmfd. (C3)	12013	Resistor—1 meg., 1/10 watt (R11)
12952	Capacitor—330 mmfd. (C19)	13730	Resistor—1 meg., 1/2 watt (R1)
32853	Capacitor—580 mmfd. (C7)	11868	Resistor—5.6 meg., 1/2 watt (R4)
13895	Capacitor—5600 mmfd. (C10)	13801	Resistor—10 meg., 1/2 watt (R8)
4838	Capacitor—.005 mfd. (C20, C21, C29)	14343	Retainer—Retaining ring for holding tuning knob shaft
5148	Capacitor—.007 mfd. (C22)	32932	Shaft—Tuning knob shaft
14393	Capacitor—.01 mfd. (C16)	31365	Socket—Dial lamp socket
4839	Capacitor—.01 mfd. (C17)	32950	Socket—Magic Eye socket and bracket
32240	Capacitor—Electrolytic, 2 sections 10 mfd., one section 20 mfd. (C23, C24, C25)	31251	Socket—Octal base tube socket
32822	Coil—Antenna coil—A-C bands (L1, L2, L3, L4)	14278	Socket—Phonograph input socket
32823	Coil—Antenna coil—X band (L5, L6)	31418	Spring—Tension spring for drive cord
32707	Coil—Oscillator coil—A-C bands (L7, L8)	32930	Switch—Range switch
32931	Coil—Oscillator coil—X band (L9)	32827	Switch—Voltage changeover switch (S4)
32817	Condenser—2-gang variable (C1, C2, C11)	14376	Transformer—First i. f. transformer (L10, L11, C12, C13)
32834	Cord—Drive cord	32825	Transformer—Second i. f. transformer (R5, L12, L13, C14, C15, C18)
32713	Core—Adjustable core and stud assembly for oscillator coil	32910	Transformer—Power transformer 105-120 volts, 25-50 cycles (T1)
32838	Dial—Glass dial scale	32911	Transformer—Power transformer 105-120 volts, 50-60 cycles (T1)
32835	Drum—Variable condenser drive drum complete	32852	Transformer—Power transformer 105-180, and 200-240 volts, 50-60 cycles (T1)
11891	Lamp—Dial lamp	32928	Volume control and power switch (R6, S1)
32953	Plate—Dial back plate and pointer—less dial scale		

REPLACEMENT PARTS—Continued

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
SPEAKER ASSEMBLIES (RL-79-2)		MODEL 5Q12A (RC996E)	
32907	Cap—Speaker cone center dust cap.....	Replacement Parts as for 6Q8 with the following exceptions.	
32903	Coil—Speaker field coil (L14).....		
32906	Coil—Speaker hum neutralizing coil (L15).....		
35441	Cone—Speaker cone and voice coil..		
5118	Plug—3-prong male for speaker.....		
32933	Speaker complete	RECEIVER ASSEMBLIES Add Stock No.	
32905	Transformer—Output transformer (T2).....	32832	Bracket - Drive bracket, pulleys and tuning knob shaft
MISCELLANEOUS ASSEMBLIES		12629	Capacitor - 56 mmfd.
32838	Dial—Dial scale and crystal.....	30904	Capacitor - 100 mmfd.
32937	Knob—Range switch knob (small).....	34146	Control - Tone Control
33029	Knob—Tone control and switch knob (small)..	32818	Control - Volume Control and power switch
32935	Knob—Tuning knob (large).....	32835	Cord - Indicator drive cord
32936	Knob—Volume control knob (large).....	30546	Resistor - 470 ohms, 1/4 watt (R10)
4982	Spring—Retaining spring for knob Stk. 32935..	32833	Shaft - Tuning knob shaft eyelet and re-tainer
14270	Spring—Retaining spring for knob Stk. Nos. 32936 or 32937.....	32820	Switch - Range switch
30330	Spring—Retaining spring for knob Stk. 33029.	SPEAKER ASSEMBLIES (RL-78-2)	
MODEL 6QK8, RC-414B		32907	Cap—Cone center dust cap.....
Technical Information and Service Data:		32903	Coil—Speaker field coil (L12).....
Refer to Service Data on Model 6Q8 and the following parts:		32906	Coil—Speaker hum neutralizing coil (L13)...
Stock No.		32904	Cone—Speaker cone, voice coil, center suspension, and dust cap (L14).....
SPEAKER ASSEMBLY, 6QK8 (RL-70J-6)		5118	Plug—3-contact male for speaker.....
31825	Cap—Cone center dust cap.....	32902	Speaker—Complete
11234	Coil—Speaker field coil.....	32905	Transformer—Output transformer (T2).....
31275	Cone—Speaker cone and voice coil..	MISCELLANEOUS ASSEMBLIES	
5118	Plug—3-prong male plug for speaker.	32838	Dial - Glass dial scale
14355	Transformer—Output transformer...	34221	Frame - Dial frame complete with plate and brackets less dial, pointer and guides
MISCELLANEOUS ASSEMBLIES		32843	Knob - Black range switch knob
35043	Dial—Glass dial scale, 6QK8.....	33086	Knob - Black tuning or tone control knob
MODEL 5Q12 (RC996D)		32841	Knob - Black volume control knob
Replacement parts as for 6Q8 with the following exceptions.		32839	Knob - Brown tuning or tone control knob
RECEIVER ASSEMBLIES Add Stock No.		33087	Knob - Ivory range switch knob
34248	Bracket - Drive bracket, pulleys and tuning knob shaft	33091	Knob - Ivory tuning or tone control knob
34247	Control - Tone control	33086	Knob - Ivory volume control knob
32818	Control - Volume control and power switch	33563	Knob - Maroon range switch knob
32835	Cord - Indicator drive cord	33093	Knob - Maroon tuning or tone control
32820	Switch - Range switch	33562	Knob - Maroon volume control knob
MISCELLANEOUS ASSEMBLIES		32847	Pointer - Station selector pointer and carriage
34249	Dial - Glass dial scale	32846	Shaft - Pointer carriage guide shaft
34221	Frame - Dial frame less shaft, pointer and dial scale	14270	Spring - Retaining spring for knobs
32847	Indicator - Station selector pointer and carriage	Stock No. 30949, 32838, 32953, 32951, 30481, 12013, 14343, 32932, 32950, 32930, 32911 and 32928 not used with 5Q12A.	
32844	Knob - Black range switch knob		
32842	Knob - Black volume control knob		
32839	Knob - Brown tone control or tuning knob		
4393	Screw - #8-32 headless set screw for knobs Stk. 432844 and 432842		
32846	Shaft - Pointer carriage guide shaft		
14270	Spring - Retaining spring for knobs		
Stock No. 32838, 32953, 32951, 12013, 14343, 32932, 32950, 32930, 32910, 32911 and 32928 not used with Model 5Q12			

MODEL 5Q66

Chassis No. RC-477C

Five-Tube, Three-Band, AC-DC, Superheterodyne Receiver

REFER TO MODEL 5Q6 FOR VIEW OF CABINET AND ALIGNMENT PROCEDURE.

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band) 2.3-7.0 mc (130-42.8 m)
 Short Wave ("C" Band) 7.0-22 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7 Detector-Oscillator
 - (2) RCA-12SK7 I-F Amplifier
 - (3) RCA-12SQ7 2nd Detector, A.V.C., and A-F Amplifier
 - (4) RCA-50L6GT Power Output
 - (5) RCA-35Z5GT Rectifier
- Ballast Tube RCA Stock No. 35748

PILOT LAMP Mazda No. 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

(210-250 Volt Operation)

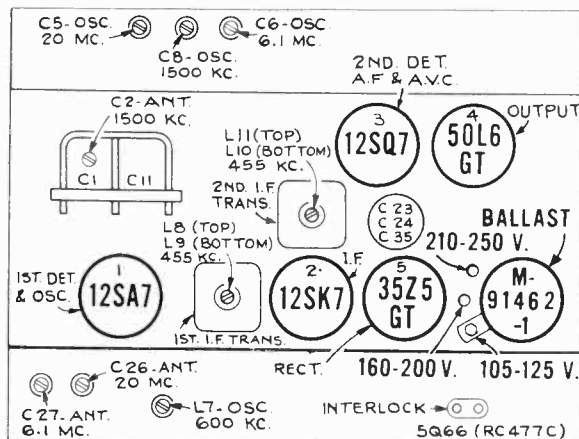
Undistorted 3.0 watts
 Maximum 4.5 watts

LOUDSPEAKER (84905-501)

Type 5-inch
 V. C. Impedance 4 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts 30 watts
 160-180 volts 45 watts
 210-250 volts 60 watts



Above—Top View

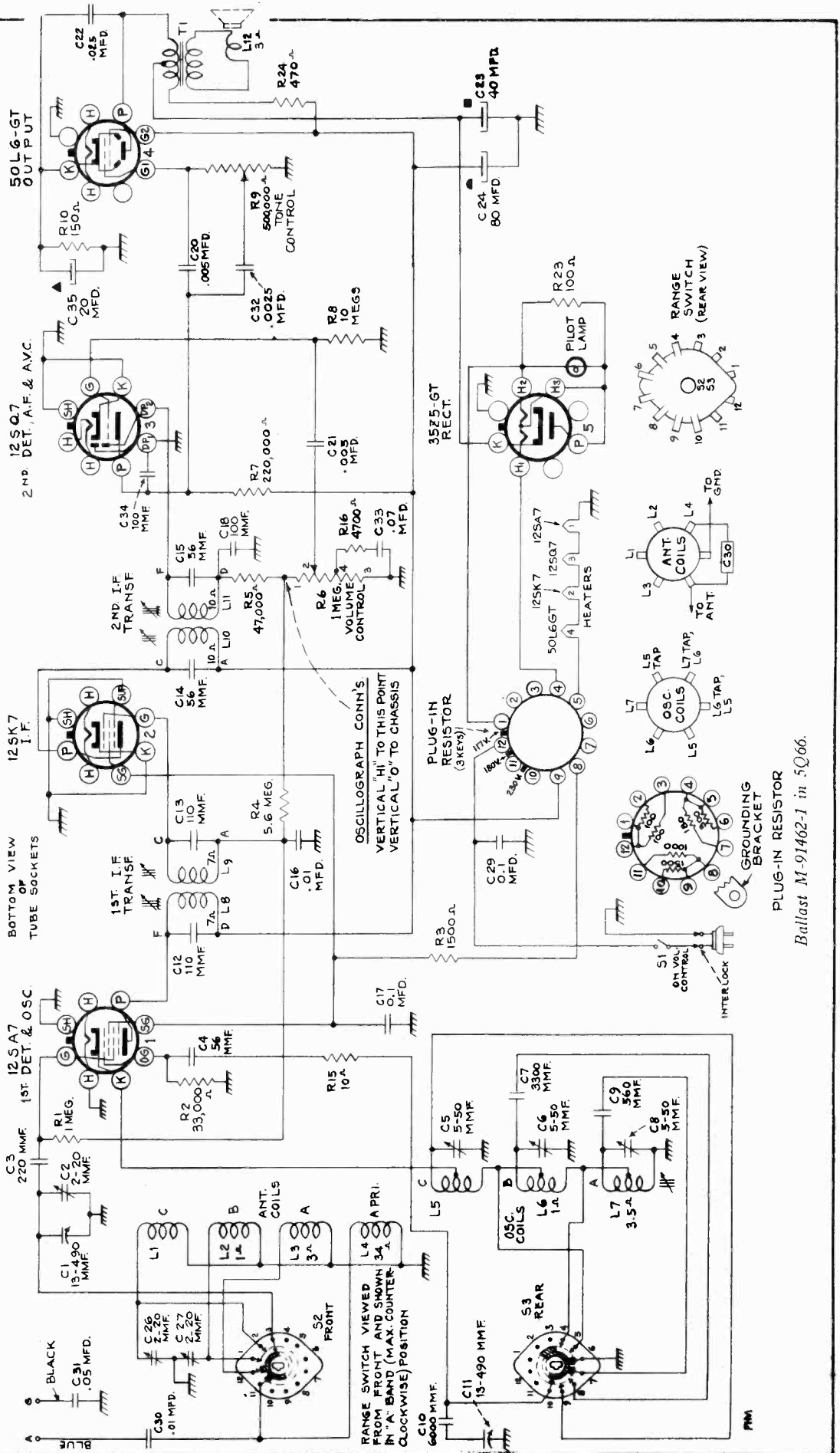
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-477C)			
35748	Ballast—Ballast tube resistor.	12264	Resistor—220,000 ohms, 1/4 watt.
32832	Bracket—Drive bracket, pulleys, and tuning knob shaft	13730	Resistor—1 meg., 1/4 watt.
32830	Capacitor—Trimmer comprising 2 sections of 2-20 mmfd. each.	11668	Resistor—5.6 meg., 1/4 watt.
32829	Capacitor—Trimmer comprising 3 sections of 5-60 mmfd. each.	13601	Resistor—10 meg., 1/4 watt.
30949	Capacitor—56 mmfd.	32848	Screw—8-32 square-head screw for drum, Stock No. 32835.
12723	Capacitor—58 mmfd.	35634	Socket—Ballast tube resistor socket (Remove terminals not required).
34699	Capacitor—100 mmfd.	31365	Socket—Dial lamp socket.
12720	Capacitor—100 mmfd.	31251	Socket—Tube socket.
12694	Capacitor—220 mmfd.	31418	Spring—Drive cord spring.
12537	Capacitor—560 mmfd.	32819	Switch—Range switch.
31403	Capacitor—3,300 mmfd.	35636	Transformer—First I-F transformer.
31405	Capacitor—6,000 mmfd.	35628	Transformer—Second I-F transformer.
5107	Capacitor—.0025 mfd.	35748	Tube—Ballast tube resistor.
4838	Capacitor—.005 mfd.	SPEAKER ASSEMBLIES (84905-501)	
4858	Capacitor—.01 mfd.	35835	Cone—Cone complete with voice coil.
14393	Capacitor—.01 mfd.	5118	Plug—3-prong male plug for speaker.
4870	Capacitor—.025 mfd.	35834	Transformer—Output transformer.
4886	Capacitor—.05 mfd.	MISCELLANEOUS ASSEMBLIES	
14626	Capacitor—.07 mfd.	35749	Back—Cabinet back—less power cord.
4839	Capacitor—.01 mfd.	32836	Cord—Power cord complete with plugs.
35747	Capacitor—Electrolytic comprising 1 section of 80 mfd., 1 of 40 mfd. and 1 of 20 mfd.	32837	Dial—Glass dial scale.
32821	Coil—Antenna coil.	34221	Frame—Dial frame complete—less pointer and carriage, pointer guide rods, and dial scale.
32824	Coil—Oscillator coil.	32847	Indicator—Station selector indicator and carriage.
32817	Condenser—Variable tuning condenser.	32844	Knob—Black range switch knob for Model 5Q66—Brown.
34146	Control—Tone control.	33085	Knob—Black tuning or tone control knob for Model 5Q66—Black.
34851	Control—Volume control and power switch.	32842	Knob—Black volume control knob for Model 5Q66—Brown.
32634	Cord—Drive cord.	32840	Knob—Brown tuning or tone control knob for Model 5Q66—Brown.
32713	Core—Adjusting core and stud for oscillator coil.	33090	Knob—Ivory range switch knob for Model 5Q66—Black.
32835	Drum—Tuning condenser drive drum.	33089	Knob—Ivory volume control knob for Model 5Q66—Black.
31480	Lamp—Dial lamp.	4393	Screw—No. 8-32 headless set screw for knobs, Stock Nos. 32844, 32842, 33089, and 33090.
5119	Plug—3-contact female plug for speaker cable.	34491	Shaft—Pointer carriage guide shaft.
32834	Pulley—Pointer cord pulley and bracket.	14270	Spring—Retaining spring for knobs, Stock Nos. 32840 and 33085.
35748	Resistor—Ballast tube resistor.		
13988	Resistor—10 ohms, 1/4 watt.		
35711	Resistor—100 ohms, 1/4 watt.		
30880	Resistor—150 ohms, 1/4 watt.		
30546	Resistor—470 ohms, 1/4 watt.		
14499	Resistor—1,500 ohms, 1/4 watt.		
30146	Resistor—4,700 ohms, 1/4 watt.		
12454	Resistor—33,000 ohms, 1/4 watt.		
12412	Resistor—47,000 ohms, 1/4 watt.		

VOLTAGES SHOULD HOLD WITHIN 1.20%.
* CANNOT BE MEASURED WITH AN ORDINARY VOLTMETER.

TUBES	117 V. SUPPLY		180 V. SUPPLY		230 V. SUPPLY	
	P	SG	P	SG	P	SG
(1) 12SA7	106	89	137	98	146	87
(2) 12SK7	106	89	17.9	98	146	87
(3) 12SQ7	58*	16.0	70*	98	146	87
(4) 50L6-GT	114	106	45.8	137	157	146
(5) 35Z5-GT	-	119	70.3	150	160	83.0



Ballast M-91462-1 in 5066.

Model 5X5 Series (Chassis No. RC-406)

Five-Tube, Single-Band, AC-DC Multiplex Superheterodyne Receiver

Model PLF-10

Power Line Filter Coupling Unit

Electrical and Mechanical Specifications

FREQUENCY RANGE
 Receiver 540-1,720 kc
 Remote Control Oscillator 540-800 kc

TUBE COMPLEMENT
 (1) RCA-12SA7 1st-Detector-Oscillator
 (2) RCA-12C8 I-F Amp., 2nd-Det., and A.V.C.
 (3) RCA-12SC7 1st A-F and Remote Control Osc.
 (4) RCA-35L6GT Power Output
 (5) RCA-35Z5GT Half-Wave Rectifier

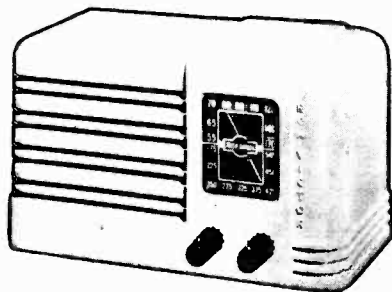
Intermediate Frequency 455 kc

POWER SUPPLY RATINGS
 A-C Rating 100-125 volts, 50-60 cycles, 30 watts
 D-C Rating 100-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted 1.5 watts
 Maximum 2.0 watts

LOUDSPEAKER
 Type 4 inch Electrodynamic
 Cabinet Dimensions (inches) Height 5½, Width 8g, Depth 4½
 Weight (net) 5¼ pounds

General Description



Model 5X5I
RC-406A
Ivory Finish

Model 5X5IW
RC-406
Walnut Finish

The following features are incorporated in the design of the Little Nipper Multiplex 5X5 Series Receiver:

First, it is a "standard broadcast" receiver. Second, it will operate any other radio in the home by "remote control" without the use of connecting wires. Third, records may be reproduced through the Little Nipper when used with Victrola Attachment. Fourth, the Model 5X5 (when used with Victrola Attachment) will reproduce records through any other radio in the home without the use of connecting wires.

When using the 5X5 as a remote control, the Model PLF-10 Power Line Filter Coupling Unit should be used in conjunction with the receiver to be controlled. The filter is connected between the power line receptacle and the receiver being controlled, as shown in accompanying drawing.

Set-up Procedure for Remote Control

1. Install the 5X5 and tune in any desired station.
2. Turn the control switch on the back of the 5X5 to its clockwise position marked "Remote." The 5X5 becomes silent. The 5X5 now becomes a small relay station for signalling to the controlled receiver via the power line wiring.
3. Next tune the main receiver to the exact frequency of transmission of the 5X5, usually 540 kc. Tune carefully to this frequency, setting the volume control as high as permissible with regard to hum and noise conditions. The station to which the 5X5 was tuned will be heard. If the receiver is equipped with tuning indicator (Magic Eye) the correct point will most easily be obtained by observing the indicator.
4. Now any station tuned in on the 5X5 dial will be heard on the controlled receiver. The volume will also be controlled with the 5X5 volume control.
5. If it is desired to operate the controlled receiver on its own controls it is only necessary to set the switch on the Power Line Filter Coupling Unit to its position marked "Radio."
6. In the event that, with the 5X5 being used as a remote control, other receivers in the home are in use, trouble may be experienced due to noise and hum. To avoid this, connect a Power Line Filter Coupling Unit, RCA Victor PLF-10, to each of these other receivers, as shown in accompanying drawing.

Precautionary Lead Dress

1. Dress 1st I-F plate and grid leads against chassis and away from each other. Dress plate lead from 12C8 close to chassis.
2. Dress A.V.C. condenser (0.1) close to chassis and tight to 0.25 mfd. condenser.

Alignment Procedure

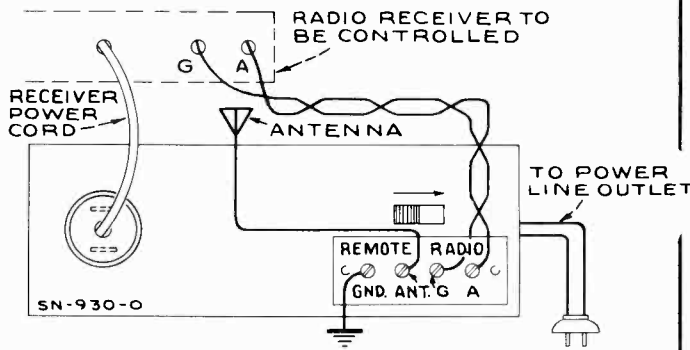
Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

The Remote Control Oscillator in the 5X5 is set at the factory to approximately 540 kc. The frequency may be varied between 540 and 800 kc to suit local conditions by adjusting the trimmer condenser C7.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

If the electric supply circuit is a three-wire system, it may be necessary to connect a ½ mfd 700-volt capacitor between the two outside lines of the three-wire system.

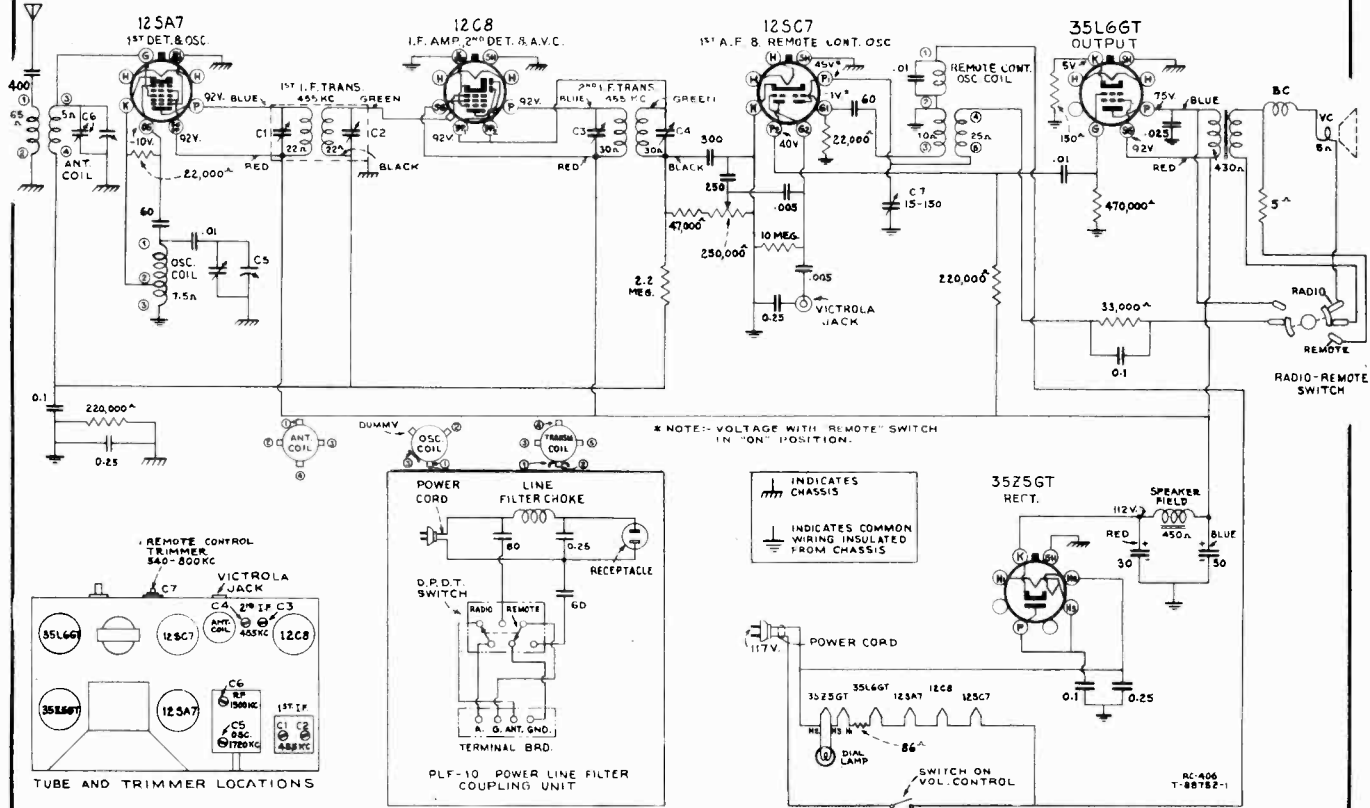


PLF-10 COUPLING UNIT

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Victrola Attachment.—A jack is provided on the rear of chassis for connecting a Victrola Attachment into the audio-amplifying circuit. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
13057	Capacitor—60 mmfd.	32969	Socket—Dial lamp socket
12488	Capacitor—250 mmfd.	14278	Socket—Phonograph socket
12952	Capacitor—300 mmfd.	32537	Socket—Tube socket
30433	Capacitor—400 mmfd.	30585	Spring—Drive cord spring
4838	Capacitor—.005 mfd.	33319	Transformer—First i-f transformer
4937	Capacitor—.01 mfd.	32578	Volume control and power switch
4870	Capacitor—.025 mfd.	POWER LINE FILTER PLF-10	
4839	Capacitor—.01 mfd.	13057	Capacitor—60 mmfd.
12484	Capacitor—.025 mfd.	12484	Capacitor—.025 mfd.
33321	Capacitor—Electrolytic, 2 sections 30 mfd. each	33492	Coil—Choke coil
32572	Coil—Antenna coil	33493	Receptacle—Power receptacle
33320	Coil—Duplex oscillator coil	33491	Switch
32962	Coil—Oscillator coil	SPEAKER ASSEMBLIES (39105—2)	
33323	Condenser—Trimmer 20-150 mmfd.	32964	Transformer—Output transformer
32968	Condenser—2-gang variable tuning	MISCELLANEOUS ASSEMBLIES	
32634	Cord—Drive cord	X-639	Cabinet—Ivory finish—Model 5X5I (net)
32946	Drum—Condenser drive drum	X-638	Cabinet—Walnut finish—Model 5X5W (net)
12409	Lead—Antenna lead	32942	Dial—Glass dial scale
33322	Resistor—5 ohms, 5 watts	33317	Fastener—Push fastener to hold cabinet back
14871	Resistor—33 ohms, 1/2 watt	33308	Knob—Black tuning knob—Model 5X5I
13428	Resistor—150 ohms, 1/2 watt	32447	Knob—Ivory knob—Model 5X5W
13998	Resistor—22,000 ohms, 1/2 watt	32943	Nut—Speed nut to hold dial
12454	Resistor—33,000 ohms, 1/2 watt	31648	Spring—Knob retaining spring
12412	Resistor—47,000 ohms, 1/2 watt		
12264	Resistor—220,000 ohms, 1/2 watt		
12285	Resistor—470,000 ohms, 1/2 watt		
12879	Resistor—2.2 meg., 1/2 watt		
13601	Resistor—10 meg., 1/2 watt		
32945	Shaft—Tuning knob shaft and bushing		

Additional Replacement Parts:

- Stock No.
 32946 Drum—Condenser drive drum and indicator
 11765 Lamp—Dial lamp, Mazda No. 51
 33324 Switch—"Remote" switch
 32967 Transformer—Second I-F trans.
 34569 Speaker—Complete—less transformer

RADIOLA P-5 AND MODEL 25 BP

2ND PROD. RC-465A
RC-1020B

2ND PROD. RC-527D
RC-1020

THREE-WAY PORTABLES



MODEL P 5



MODEL 25 BP

Specifications

Frequency Range 540-1,720 kc
Intermediate Frequency 455 kc
110 to 125 volts, AC 50 or 60 cycles, or DC 35 watts

BATTERIES REQUIRED

"A" one 1.5 volt dry plug-in type "A," (Eveready No. 743 or equivalent)
"B" two 45 volt dry plug-in type "B," (Eveready No. 482 or equivalent)

CURRENT CONSUMPTION

Battery Operation "A" 0.25 amperes, "B" 11.5 milliamperes
Total Rect. "B" (117 volt, 60 cycle) 58 mils.

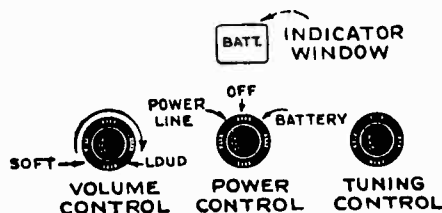
POWER OUTPUT

Undistorted15 watt Maximum25 watt

LOUDSPEAKER 5-inch permanent-magnet dynamic

CABINET DIMENSIONS

Height 9 inches, Width 12 inches, Depth 6 1/4 inches



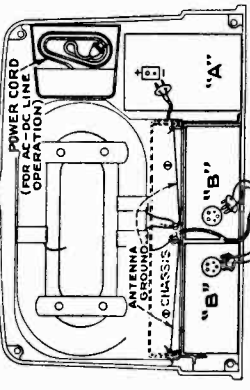
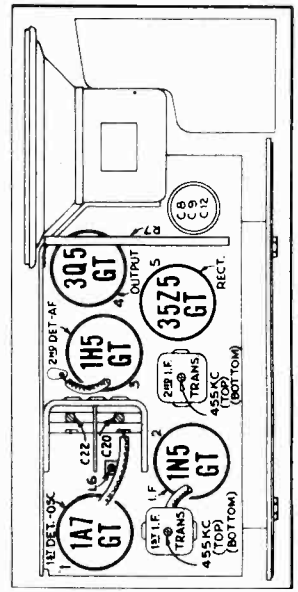
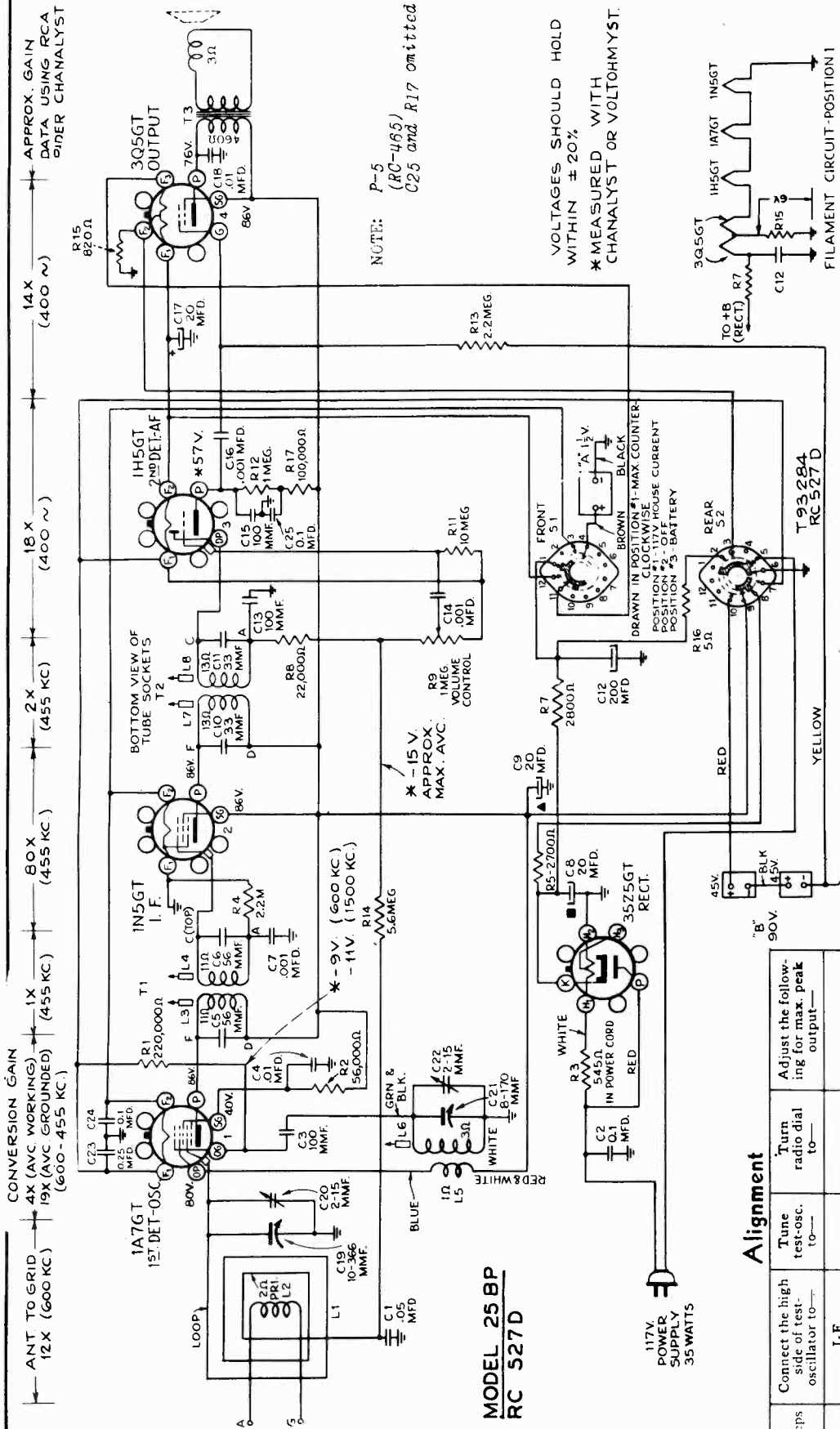
Precautionary Lead Dress.—

1. Lead from I-F tube grid and from the loop to variable capacitor should not be disturbed after receiver has been aligned.
2. Grid lead to the 1N5-GT tube should be kept away from leads to filament resistors.

Replacement Parts P5 1ST. PROD.

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-465)			
36176	Capacitor—33 mmfd., silver mica	12264	Resistor—220,000 ohms, 1/2 watt
36175	Capacitor—56 mmfd., silver mica	13730	Resistor—1 meg., 1/2 watt
12720	Capacitor—100 mmfd.	12679	Resistor—2.2 meg., 1/2 watt
13894	Capacitor—390 mmfd.	11668	Resistor—5.6 meg., 1/2 watt
36163	Capacitor—.001 mfd.	13601	Resistor—10 meg., 1/2 watt
4937	Capacitor—.01 mfd.	36130	Shaft—Tuning shaft
32787	Capacitor—.05 mfd.	32299	Socket—Tube socket
4839	Capacitor—.1 mfd.	36131	Spring—Drive cord spring
12484	Capacitor—.25 mfd.	37384	Switch—Power switch
34965	Capacitor—Electrolytic, 20 mfd., 25 volts	36121	Transformer—First I-F transformer
34472	Capacitor—Electrolytic, comprising two sections of 20 mfd., 150 volts, and one section of 200 mfd., 25 volts	36122	Transformer—Second I-F transformer
36134	Case—Power cord case	33726	Washer—"C" washer for tuning shaft
36123	Coil—Oscillator coil	SPEAKER ASSEMBLIES (RL-85A1)	
36120	Condenser—Variable tuning condenser	32907	Cap—Dust cap
36125	Control—Volume control	36466	Cone—Cone complete with voice coil
32634	Cord—Drive cord (approx. 13-in. overall)	36098	Transformer—Output transformer
37066	Dial—Dial scale only, less mounting plate	MISCELLANEOUS ASSEMBLIES	
36786	Indicator—Station selector indicator	36150	Back—Back cover
37385	Indicator—Switch indicator plate	35067	Crystal—Dial scale crystal
36132	Loop—Antenna loop	36153	Fastener—One set of 4 push-on fasteners for back cover
36127	Plate—Dial plate—less dial	35678	Fastener—Push-on fastener for crystal
32208	Plug—2-prong male plug for "A" battery cable	36222	Fastener—Snap fastener for power cord door
32641	Plug—3-prong male plug for "B" battery cable	37388	Handle—Leather carrying handle with loop
36129	Resistor—Voltage divider—2,800 ohms, 7 watts	34015	Knob—Volume control, power switch, or tuning knob
36842	Resistor—5 ohms, 1 watt (flexible type)	36154	Spacers—One set of rubber spacers for control shaft
30538	Resistor—330 ohms, 1/2 watt		
14076	Resistor—820 ohms, 1/2 watt		
30730	Resistor—2,700 ohms, 1/2 watt		
13998	Resistor—22,000 ohms, 1/2 watt		
12286	Resistor—56,000 ohms, 1/2 watt		



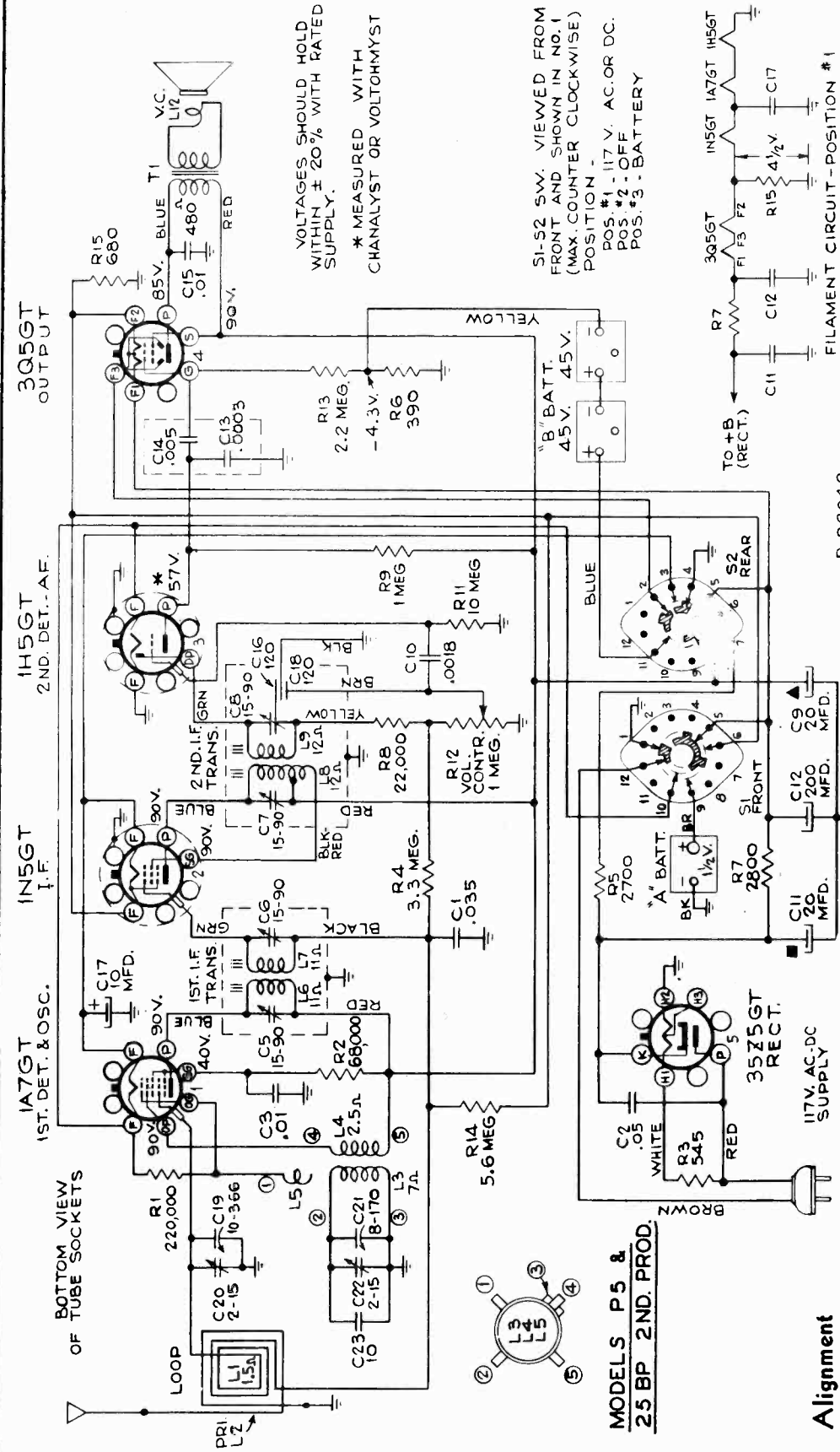
NOTE: P-5 (RC-485) C25 and R17 omitted.

VOLTAGES SHOULD HOLD WITHIN ±20% * MEASURED WITH CHANALYST OR VOLTOHMYST.

DRAWN IN POSITION #1-MAX. COUNTER POSITION #2-OFF. HOUSE CURRENT POSITION #3-BATTERY

Alignment

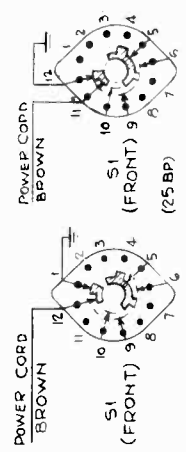
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid cap. in series with .01 mfd.	450 kc	Quiet point at 1,000 kc end of dial	L8, L7 (2nd I-F trans.)
2	1st Det. grid cap. in series with .01 mfd.			L4, L3 (1st I-F trans.)
3	radiated signal 1,720 kc		Gang at min. capacity	C22 (Osc. Trimmer)
4	radiated signal 1,100 kc		signal frequency	C20 (Ant. Trimmer)
5	radiated signal near 600 kc			L6 (Rock in)
6	Repeat steps 3, 4 and 5 until aligned.			



MODELS P5 & 25 BP 2ND. PROD.

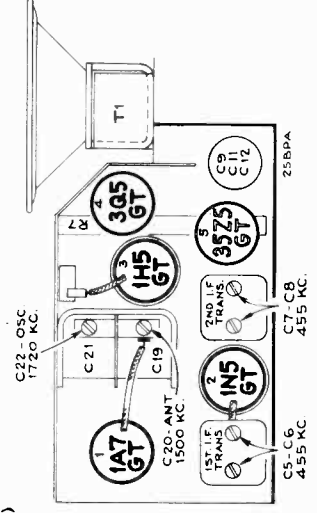
Alignment

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid cap. in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C8, C7 (2nd I-F trans.)
2	1st-Det. grid cap. in series with .01 mfd.	radiated signal 1,720 kc	Gang at min. capacity	C5, C6 (1st I-F trans.)
3	radiated signal 1,400 kc	radiated signal 1,400 kc	signal frequency	C92 (Osc. Trimmer)
4				C90 (Ant. Trimmer)



Two Types Power Switch, Model 25BP-2nd Production

P-92042
25BP (RC1020)



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
<p>MODEL P5 CHANGES IN 1ST PRODUCTION (RC-465-A)</p> <p>SPEAKER ASSEMBLIES (RL-81B-1)</p> <p>32907 Cap—Dust cap 35570 Cone—Cone complete with voice coil 36098 Transformer—Output transformer</p> <p>MISCELLANEOUS ASSEMBLIES</p> <p>35079 Crystal—Dial scale crystal—less dial 38443 Grille—Metal grille 34015 Knob—Control knob</p> <p>MODEL 25BP CHASSIS ASSEMBLIES (R.C. 527D)</p> <p>34965 Capacitor—Electrolytic—20 mfd., 25 volts 34472 Capacitor—Electrolytic comprising 2 sections of 20 mfd., 150 volts, and 1 section of 200 mfd., 25 volts 36176 Capacitor—33 mmfd. 36175 Capacitor—56 mmfd. 12720 Capacitor—100 mmfd. 37102 Capacitor—.001 mfd. 4937 Capacitor—.01 mfd. 32787 Capacitor—.05 mfd. 32786 Capacitor—0.1 mfd., 300 volts 4839 Capacitor—0.1 mfd., 400 volts 12484 Capacitor—0.25 mfd. 36497 Coil—Oscillator coil 36120 Condenser—Variable tuning condenser 36125 Control—Volume control 32634 Cord—Drive cord (approx. 13-in. overall length) 36606 Core—Adjustable core and stud for oscillator coil 38442 Dial—Dial scale 36133 Indicator—Station selector indicator 36132 Loop—Antenna loop 36127 Plate—Dial plate—less dial 37385 Plate—Power switch indicator plate 32208 Plug—2-prong male plug for "A" battery cable 32841 Plug—3-prong male plug for "B" battery cable 36129 Resistor—Voltage divider—2800 ohms, 7 watt 36842 Resistor—5 ohms, 1 watt 30538 Resistor—330 ohms, 1/2 watt 14076 Resistor—820 ohms, 1/2 watt 30730 Resistor—2700 ohms, 1/2 watt 13998 Resistor—22,000 ohms, 1/2 watt 30650 Resistor—56,000 ohms, 1/2 watt 14560 Resistor—100,000 ohms, 1/2 watt 14583 Resistor—220,000 ohms, 1/2 watt 13730 Resistor—1 meg., 1/2 watt 30649 Resistor—2.2 meg., 1/2 watt 11668 Resistor—5.6 meg., 1/2 watt 30992 Resistor—10 meg., 1/2 watt 36130 Shaft—Tuning knob shaft (Hat—7/16-in.) 38696 Shaft—Tuning knob shaft (Hat—5/8-in.) 32299 Socket—Tube socket 36131 Spring—Drive cord spring 37384 Switch—Power switch 36121 Transformer—First I.F. transformer 36122 Transformer—Second I.F. transformer 33726 Washer—Spring washer for tuning shaft</p> <p>SPEAKER ASSEMBLIES (RL-81B-1)</p> <p>32907 Cap—Dust cap 35570 Cone—Cone complete with voice coil 36098 Transformer—Output transformer</p> <p>MISCELLANEOUS ASSEMBLIES</p> <p>35079 Crystal—Dial crystal 38443 Grille—Perforated grille 35121 Knob—Control knobs</p>		<p>MODEL 25BP 2ND. PROD. CHASSIS ASSEMBLIES (RC-1020)</p> <p>36083 Can—Shield can for first I.F. transformer 35097 Can—Shield can for second I.F. transformer 30314 Cap—Grid cap 36718 Capacitor—Electrolytic—10 mfd., 10 volts 34472 Capacitor—Electrolytic comprising 2 sections of 20 mfd., 150 volts, and 1 section of 200 mfd., 25 volts 37359 Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd. 34506 Capacitor—.0018 mfd. 4937 Capacitor—.01 mfd. 5196 Capacitor—.035 mfd. 32787 Capacitor—.05 mfd. 39694 Coil—Oscillator coil 36120 Condenser—Variable tuning condenser 36125 Control—Volume control 32634 Cord—Drive cord (approx. 13-in. overall length) 37681 Cord—Resistance power cord—545 ohms 38442 Dial—Dial scale 36133 Indicator—Station selector indicator 36132 Loop—Antenna loop complete 36127 Plate—Dial plate—less dial 37385 Plate—Power switch indicator plate 32208 Plug—2 prong male plug for "A" battery cable 32641 Plug—3 prong male plug for "B" battery cable 36129 Resistor—Voltage divider—2800 ohms, 7 watt 30498 Resistor—390 ohms, 1/2 watt 12282 Resistor—680 ohms, 1/2 watt 30730 Resistor—2,700 ohms, 1/2 watt 30492 Resistor—22,000 ohms, 1/2 watt 14138 Resistor—68,000 ohms, 1/2 watt 14583 Resistor—220,000 ohms, 1/2 watt 30652 Resistor—1 meg., 1/2 watt 30649 Resistor—2.2 meg., 1/2 watt 12928 Resistor—3.3 meg., 1/2 watt 11668 Resistor—5.6 meg., 1/2 watt 30992 Resistor—10 meg., 1/2 watt 38696 Shaft—Tuning knob shaft 32299 Socket—Tube socket 36131 Spring—Drive cord spring 35098 Spring—Spring to hold I.F. transformers in can. 39565 Switch—Power switch 36082 Transformer—First I.F. transformer—less shield can 38343 Transformer—Second I.F. transformer—less shield can 33726 Washer—"C" washer for tuning shaft</p> <p>SPEAKER ASSEMBLIES (92161-503)</p> <p>38352 Cone—Cone complete with voice coil</p> <p>(92161-504)</p> <p>39535 Cone—Cone complete with voice coil</p> <p>(92161-505)</p> <p>38352 Cone—Cone complete with voice coil</p> <p>(92322-502)</p> <p>39536 Cone—Cone complete with voice coil</p> <p>(92374-501)</p> <p>39537 Cone—Cone complete with voice coil</p> <p>MISCELLANEOUS ASSEMBLIES</p> <p>35079 Crystal—Dial scale crystal 38443 Grille—Perforated metal grille 35121 Knob—Control knob</p>	

Speakers RL-81-B1, RL-81-B2, 92161-1:

The above speakers were used on the 25BP in addition to those listed in the Service Note. Use Output Transformer Stock No. 39538 with all speakers used in the 25BP, except: when using a speaker stamped RL-81-B1 use Output Transformer Stock No. 36098.

The replacement parts are listed below:

Stock No.	Description
32907	Cap—Dust cap (RL-81-B1, RL-81-B2)
35570	Cone—Cone complete with voice coil (92161-1)
38352	Cone—Cone complete with voice coil

NOTE: If number stamped on your speaker frame does not appear on above list, order part required by description giving number stamped on your speaker and receiver model.

25BP Additional Replacement Parts:

STOCK No.	Description
39462	Cabinet back
39463	Snap fastener
39464	Leather pull tab

P-5 - 2ND PROD. (RC-1020B)

Replacement parts identical to 25BP 2nd Prod. RC 1020 except change stock no.

Change stock no.

From	To	Description
38442	37066	Dial
36133	36788	Indicator
35121	34015	Knob

MODEL QB5

RC-563A

and

CV-112X

Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.3-7.1 mc (130-42.2 m)
 Short Wave ("C" Band)..... 7.1-22 mc (42.2-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

BATTERIES REQUIRED

1—1.5 Volt "A" Battery; 2—45 Volt "B" Batteries
 Or : One 1½ 90 Volt battery pack.

BATTERY DRAIN

"A"..... 25 amp.
 "B"..... 12.50 ma.

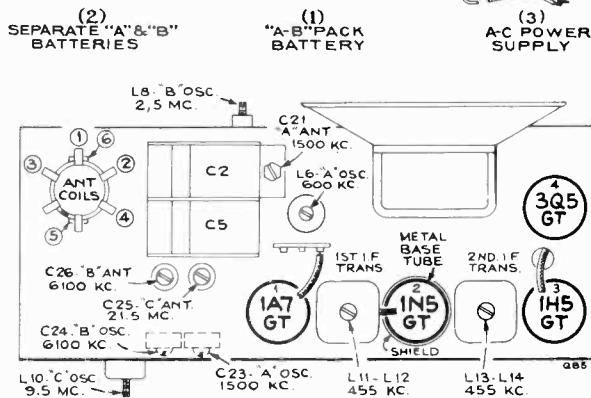
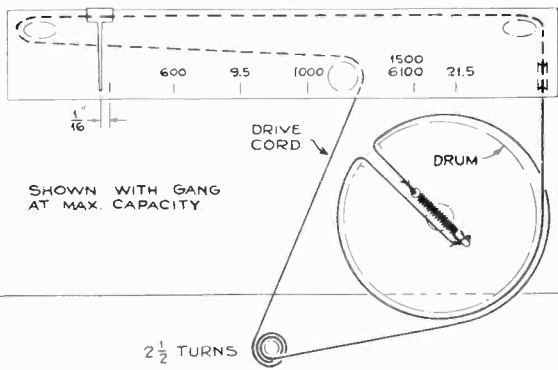
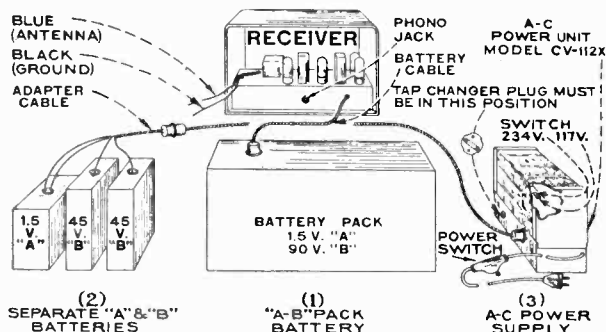
POWER OUTPUT

Undistorted..... 20 watt
 Maximum..... 56 watt

LOUDSPEAKER (RL-81B-2)

Type..... 5-inch permanent-magnet dynamic
 Voice-coil impedance..... 4 ohms at 400 cycles

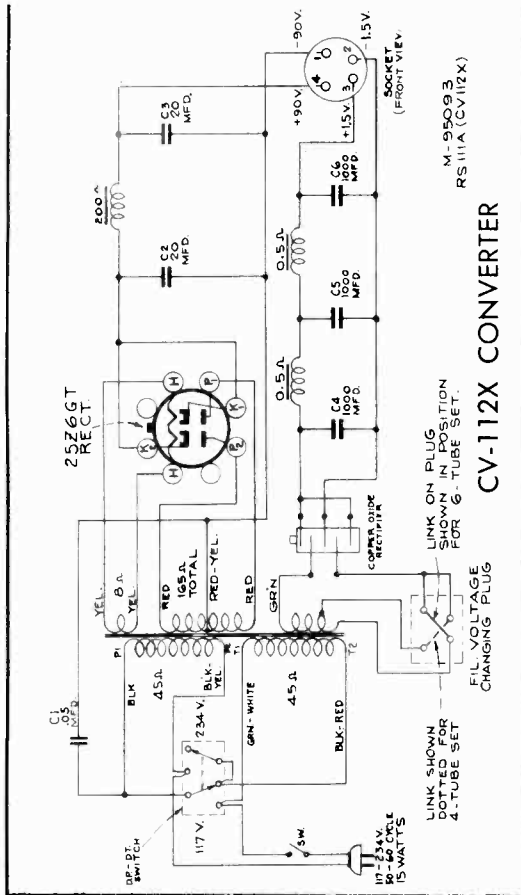
MODEL QB5—Identical with the Model Q12, except for 1½-volt battery operation.
 Convertible to AC operation through RCA Victor Power Supply Unit CV112-X.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
32548	Capacitor—Electrolytic, comprising 1 section of 12 mfd., 150 volts, and 1 section of 20 mfd., 150 volts	30992	Resistor—10 meg., ½ watt
32830	Capacitor—Mica trimmer, 2 sections of 2-20 mmfd. each	36897	Shaft—Tuning knob shaft
31292	Capacitor—Mica trimmer comprising 2 sections of 3-30 mmfd.	33742	Socket—Phono input socket
36176	Capacitor—33 mmfd.	31251	Socket—Tube socket
30904	Capacitor—100 mmfd., mica	31418	Spring—Drive cord spring
12720	Capacitor—100 mmfd., moulded	31261	Spring—Retaining spring for "C" band oscillator coil core and stud
12694	Capacitor—220 mmfd.	38297	Switch—Range switch
12537	Capacitor—560 mmfd.	38300	Transformer—Audio transformer
12951	Capacitor—2,200 mmfd.	35636	Transformer—First I.F. transformer
30304	Capacitor—4,700 mmfd.	36122	Transformer—Second I.F. transformer
37102	Capacitor—.001 mfd.	33726	Washer—"C" washer for tuning shaft
34459	Capacitor—.0025 mfd.	SPEAKER ASSEMBLIES	
4838	Capacitor—.005 mfd.	(RL81B2)	
5148	Capacitor—.007 mfd.	35570	Cone—Cone complete with voice coil
4937	Capacitor—.01 mfd.	MISCELLANEOUS ASSEMBLIES	
4870	Capacitor—.025 mfd.	36890	Clamp—Dial clamp—L.H.
4839	Capacitor—.01 mfd.	36891	Clamp—Dial clamp—R.H.
32821	Coil—Antenna coil	36103	Decalcomania—"OFF-Volume" decal
32148	Coil—Oscillator coil—"A" band	35480	Decalcomania—Range switch decal
33784	Coil—Oscillator coil—"B" band	38328	Dial—Glass dial scale
38295	Coil—Oscillator coil—"C" band	36886	Knob—Range switch or volume control knob
38287	Condenser—Variable tuning condenser	36722	Knob—Tuning knob
38406	Control—Volume control and power switch	30900	Spring—Retaining spring for knobs
32634	Cord—Drive cord (approx. 50-in. overall length)	CV-112X AC POWER UNIT	
38296	Core—Adjustable core and stud for "C" band oscillator coil	4886	Capacitor—.05 mfd.—400 volts (C1)
32713	Core—Adjustable core and stud for oscillator coil	30873	Capacitor—Electrolytic, 2 sections 20 mfd., 150 volts
37068	Indicator—Station selector indicator	36553	Capacitor—Electrolytic, 1,000 mfd., 3 volts
38288	Plate—Dial back plate complete with pulleys and bracket—less dial	36547	Coil—High voltage choke coil—200 ohms
30568	Plug—4-prong male plug for battery cable	36548	Coil—Low voltage choke coil—marked 1B84
36230	Pulley—Drive cord pulley	36549	Coil—Low voltage choke coil—marked 1B85
36237	Pulley—Tuning condenser pulley	38353	Plug—2-contact filament voltage changing plug
30498	Resistor—390 ohms, ½ watt	36551	Rectifier—1.5 volt rectifier
30146	Resistor—4,700 ohms, ½ watt	36552	Socket—4-contact power output socket
12412	Resistor—47,000 ohms, ½ watt	18008	Socket—Tube socket
13715	Resistor—68,000 ohms, ½ watt	36550	Switch—Power cord switch
14138	Resistor—68,000 ohms, ½ watt	33491	Switch—Voltage change switch
13730	Resistor—1 meg., ½ watt	38393	Transformer—Power transformer—110-220 volts, 50-60 cycle
30649	Resistor—2.2 meg., ½ watt		
14752	Resistor—2.7 meg., ½ watt		
30271	Resistor—4.7 meg., ½ watt		



CV-112X CONVERTER

PHONOGRAPH ATTACHMENT
A jack is provided on the rear of chassis for connecting a phonograph attachment into the audio amplifying circuit. The cable from the attachment should be terminated in a Stock No. 3104R plug to fit the jack.

Alignment Procedure

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis and keep the output as low as possible to avoid AVC action.

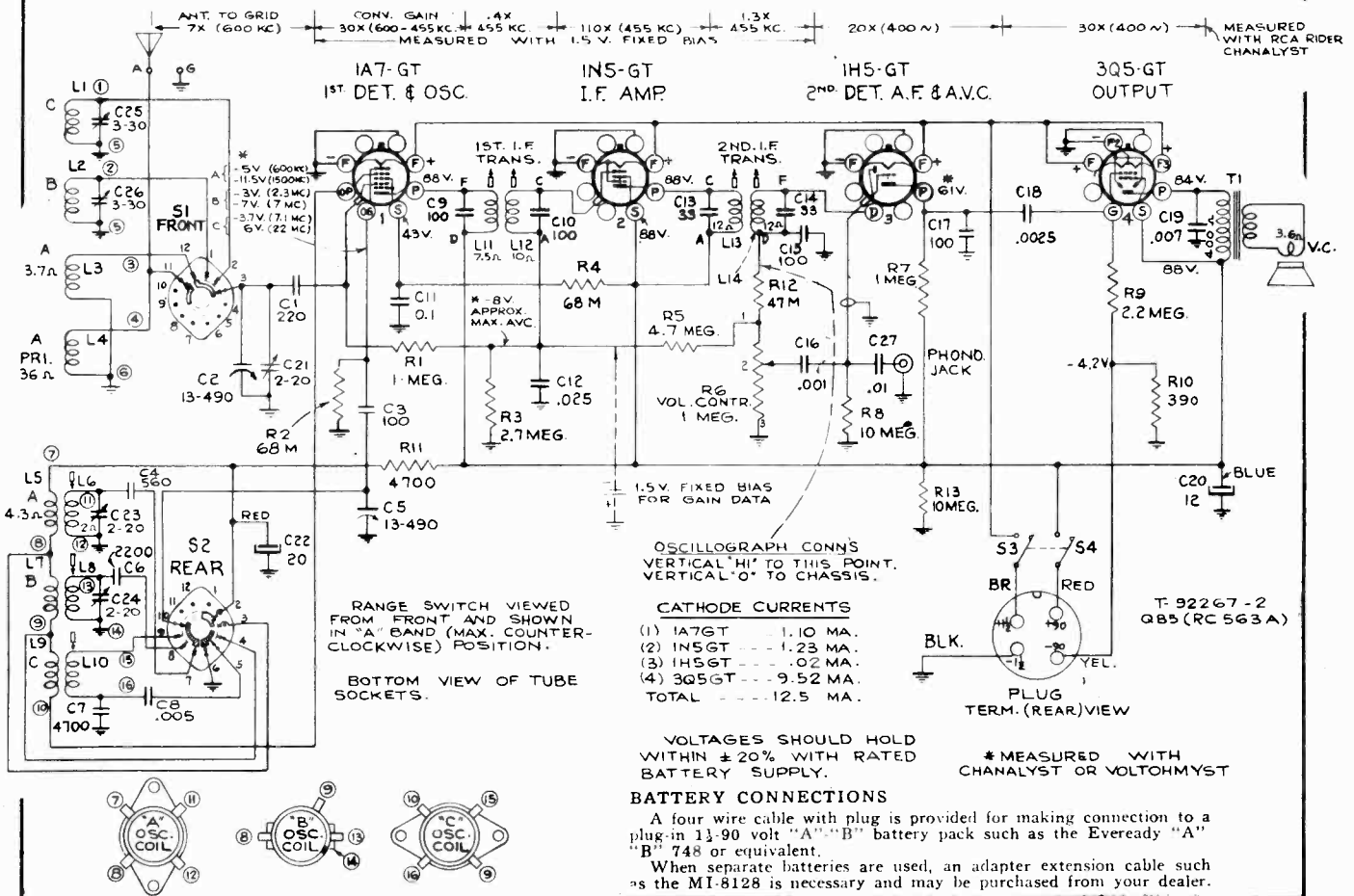
Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment. The dial backing plate has marks corresponding to alignment frequencies as shown in accompanying sketch. Before alignment, set the dial pointer so that, with the gang in full mesh, the pointer is 1/16-in. to the left of the left-hand mark on the dial backing plate.

Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust following for max. peak output—
1	IF grid cap in series with .01 mfd.	455 kc	"A" Band Quiet Point at High Freq. End	L14 and L13 (2nd IF Trans.)
2	1st det. grid cap in series with .01 mfd.			L12 and L11† (1st IF Trans.)
3	Antenna Lead in series with 200 mmf.	1,500 kc	1,500 kc mark	Peak C23 (osc.) and C21 (ant.)
4		600 kc	600 kc mark	L6 (osc.)
5	Repeat steps 3 and 4.			
6	Antenna Lead in series with 300 ohms	6.1 mc	6.1 mc mark	Peak C24 (osc.)* and C26 (ant.)
7		2.5 mc	600 kc mark	L8 (osc.)**
8	Repeat steps 6 and 7.			
9	Antenna Lead in series with 300 ohms	9.5 mc	9.5 mc mark	L10 (osc.) Rock Gang
10		21.5 mc	21.5 mc mark	C25 (ant.) Rock Gang

*Use minimum capacity peak if two peaks can be obtained.

**Rock gang slightly for peak output.

†Do not readjust L14 or L13 when test oscillator is applied to 1A7 GT grid.



MODEL QU5

Chassis No. RC-530

Eight-Tube, Five-Band, A-C, Superheterodyne Radio-Phonograph

REFER TO RP-145 SERVICE NOTE FOR DATA ON AUTOMATIC MECHANISM

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) . . . 540-1,720 kc (556-174 m)
 Medium Wave ("B" Band) 3.0-9.5 mc (100-31.6 m)
 "31" Meter Spread Band 9.5-11.7 mc (31.6-25.6 m)
 "25" Meter Spread Band 11.7-15.1 mc (25.6-19.9 m)
 "19-13" Meter Spread Band 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

POWER SUPPLY RATING

105-125, 200-250 volts, 50-60 cycles, 160 watts

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7 2d Detector, A-F Amplifier, A.V.C.
- (4) RCA-6AD7G Phase Inverter, Power Output
- (5) RCA-6F6G Power Output
- (6) RCA-6F6G Power Output
- (7) RCA-6F6G Power Output
- (8) RCA-5U4G Rectifier

Pilot Lamps { Mazda No. 55, 6.5 volts 0.4 amp.
 Mazda No. 51, 7.5 volts 0.2 amp.

POWER OUTPUT RATING

Undistorted 20 watts
 Maximum 24 watts

LOUDSPEAKERS

Model RL-70M-4 Electrodynamic 12 inch
 Model RL-71A-4 Permanent Magnet Dynamic 12 inch
 Voice Coil Impedance (both) at 400 c.p.s. 2.2 ohms

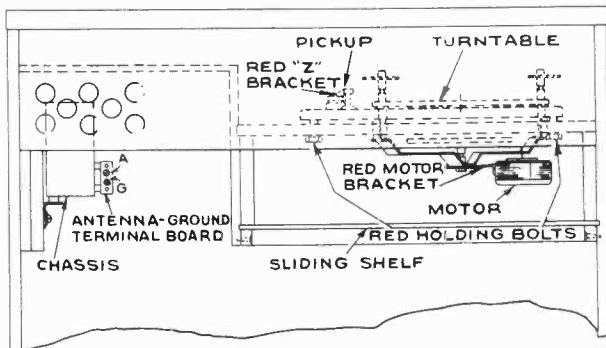
Cabinet Dimensions (inches) Height 34; Width 34³/₄;
 Depth 19
 Net Weight (pounds) 123
 Chassis Base Dimensions (inches) . . Height 2³/₄, Width 15¹/₈,
 Depth 5¹/₄
 Over-all Chassis Height 8¹/₂ inches
 Tuning Drive Ratio 25 to 1



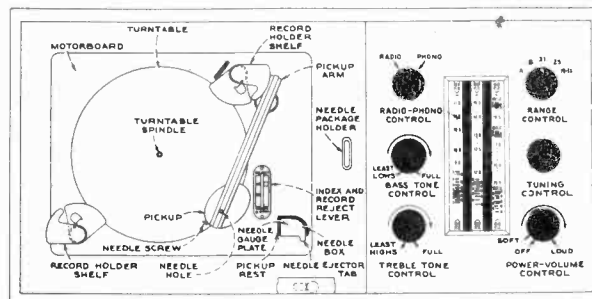
Model QU5

PHONOGRAPH

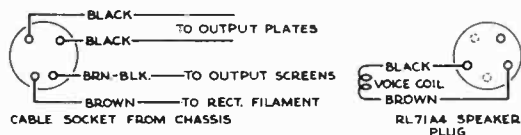
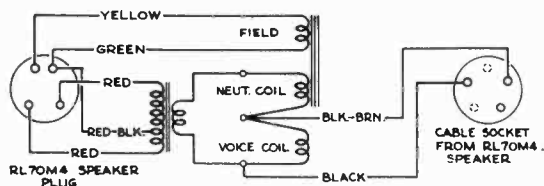
Type (RP145E) Automatic
 Record Capacity Eight 10-inch or seven 12-inch
 Turntable Speed 78 r.p.m.
 Type Pickup Crystal
 Pickup Impedance 100,000 ohms at 1,000 cycles
 Motor Self-starting, constant-speed, induction type.



Position of "Holding Bolts"



Motorboard and Controls



Connections and Colors of Loudspeaker and Cable

Synchronizing Speakers.—In order to get correct tone quality from the dual-speakers used in this model, it is essential that the two speakers be so connected that the diaphragms of both work in unison or synchronism. If the terminals of one speaker are reversed the tone of the set will be flat.

To test for proper connections, turn on receiver with volume down and connect the terminals of a 1¹/₂-volt dry cell across the voice coil-terminals of either one of the speakers. If the diaphragms move in or out together at the instant of contact, the speaker connections are O.K. If one moves out and the other moves in, they are bucking, and the voice coil leads of one of the speakers should be reversed.

The movement of the diaphragms may be observed visually or by placing the finger-tips on each cone to feel the movement.

Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.
3. Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

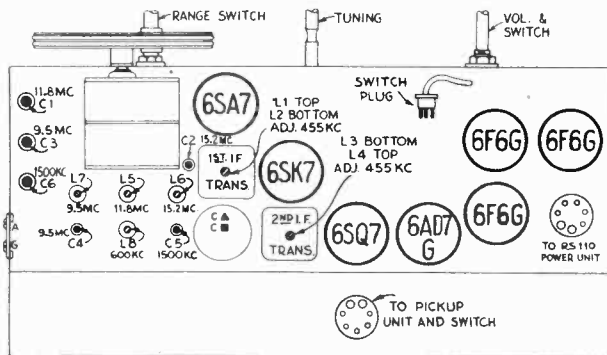
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L3 and L4 2nd I-F Trans.
2	6SA7 1st Det. grid in series with .01 mfd.				L1 and L2 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)
4		15.2 mc		17°	C2 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	10-13M	150°	L6 (osc.)**
7		9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)
8	9.5 mc	B	11.5°	C4 (osc.)***	
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C5 (osc.) C6 (ant.)
10		600 kc		150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity if two peaks can be obtained.

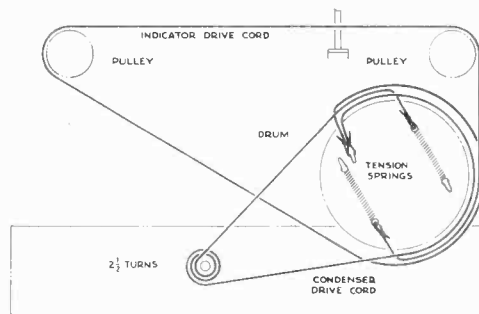
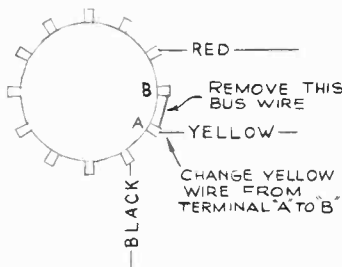
NOTE: Oscillator tracks above signal on all bands.



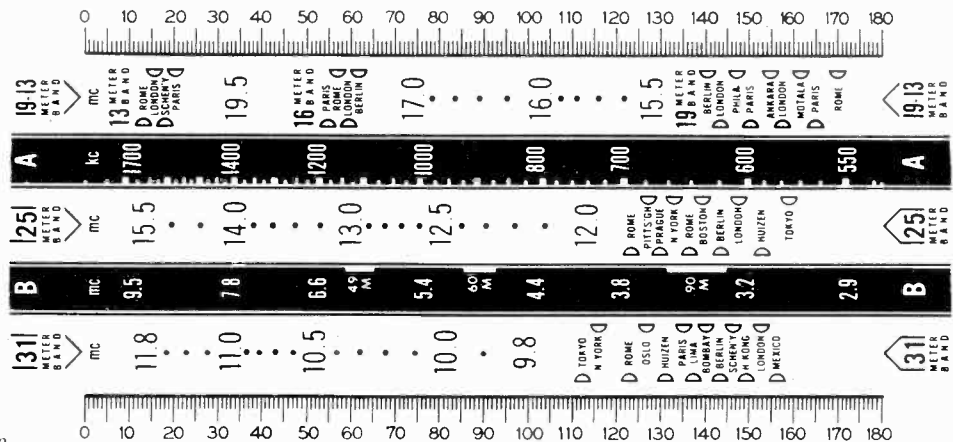
Tube and Trimmer Locations

Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales



Dial-Indicator and Drive Mechanism



Model QU-5 Revision to Prevent Radio Break-Through on Phono

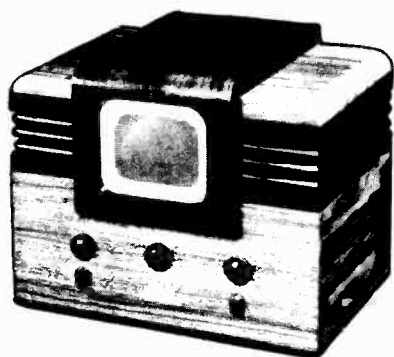
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-530A)		POWER SUPPLY UNIT (RS-110)	
31787	Board—"Antenna-Ground" board	35016	Capacitor—Electrolytic—comprising 1 section 40 mfd., 450 volts, and 1 section 100 mfd., 25 volts
35642	Calibrator—Drive drum calibrator	30868	Plug—2 contact female plug on motor cable
34654	Capacitor—Mica trimmer comprising 3 sections (C1, C3, C6)	31572	Plug—3 contact female plug on power supply cable
12714	Capacitor—Air trimmer—medium (C4, C5)	14409	Plug—7 contact female plug on power supply cable
35646	Capacitor—6 mmfd.	36108	Resistor—Voltage divider—1 section 3,450 ohms, 7 watts
36012	Capacitor—15 mmfd.	31251	Socket—Tube socket
31350	Capacitor—18 mmfd.	36473	Transformer—Power transformer—105-130 volts, 140-160 volts, 200-250 volts. 50-60 cycles
35644	Capacitor—47 mmfd., ceramic	SPEAKER ASSEMBLIES (RL-70M-4 Electrodynamic)	
13141	Capacitor—47 mmfd., silvered mica	13867	Cap—Dust cap.
30949	Capacitor—56 mmfd., mica (I-F)	36331	Coil—Field coil
35645	Capacitor—88 mmfd., ceramic	11469	Coil—Neutralizing coil
12723	Capacitor—56 mmfd., moulded	36145	Cone—Cone complete with voice coil
13057	Capacitor—88 mmfd., silvered mica	5119	Plug—3-contact female plug for speaker cable
30904	Capacitor—100 mmfd., mica (I-F)	11953	Plug—4-prong male plug for speaker
12720	Capacitor—100 mmfd., moulded	36146	Suspension—Metal cone suspension
12694	Capacitor—220 mmfd.	36371	Transformer—Output transformer
31433	Capacitor—560 mmfd.	SPEAKER ASSEMBLIES (RL-71A-4 Permanent Magnet)	
35643	Capacitor—3,000 mmfd.	13867	Cap—Dust cap.
33584	Capacitor—.005 mfd.	36145	Cone—Cone complete with voice coil
4858	Capacitor—.01 mfd.	5118	Plug—3-prong male plug for speaker
36248	Capacitor—.02 mfd.	36146	Suspension—Metal cone suspension
5196	Capacitor—.035 mfd.	MISCELLANEOUS ASSEMBLIES	
32787	Capacitor—.05 mfd.	36412	Back—Cabinet back
4839	Capacitor—.1 mfd.	32885	Cable—Shielded pickup cable
35017	Capacitor—Electrolytic comprising 1 section of 30 mfd., 350 volts, and 1 section of 20 mfd., 150 volts	13103	Cap—Pilot lamp cap.
35632	Coil—Antenna coil—"A" band	30303	Capacitor—.0035 mfd.
35631	Coil—Antenna coil—spread band	5148	Capacitor—.007 mfd.
35623	Coil—Oscillator coil—"A" and "B" band	35629	Control—H.F. tone control
35624	Coil—Oscillator coil—19-13 meter band	36109	Control—L.F. tone control
35625	Coil—Oscillator coil—25 meter band	36155	Decalcomania—"Bass" decal
35626	Coil—Oscillator coil—31 meter band	35387	Decalcomania—"Power-Volume" decal
35619	Condenser—Variable tuning condenser	36074	Decalcomania—"Radio-Phono" decal
35620	Control—Volume control and power switch (S6)	35389	Decalcomania—"Range" decal
32634	Cord—Drive cord (approx. 27 inches overall)	35467	Decalcomania—"RCA-Victrola" decal
32634	Cord—Pulley cord (approx. 47 inches overall)	36156	Decalcomania—"Treble" decal
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil	35391	Decalcomania—"Tuning" decal
31259	Core—Adjustable core and stud for 19-13 meter, 25 meter, and 31 meter bands oscillator coils	36157	Dial—Glass dial scale
35627	Drum—Drive drum—less calibrator	36037	Frame—Dial frame complete—less dial and pointer
35638	Flywheel—Tuning shaft flywheel	36415	Hinge—Cabinet lid hinge
31567	Plug—3 prong male plug for power switch cable	36039	Indicator—Station selector indicator
5040	Plug—4 contact female plug for speaker cable	36413	Knob—Door knob
14404	Plug—7 contact male plug on chassis for power supply cable	36038	Knob—Range switch, phono. switch, volume control, tone controls or tuning knob
35641	Pulley—Drive cord pulley	11765	Lamp—Dial lamp Mazda 51
36104	Resistor—Voltage divider—1 section 160 ohms—3.6 watts, and 1 section 2,800 ohms—3.3 watt	5117	Lamp—Pilot lamp Mazda 55
14720	Resistor—1,000 ohms, $\frac{1}{2}$ watt	31470	Mounting—Mounting hardware for motorboard
30128	Resistor—12,000 ohms, $\frac{1}{2}$ watt	36395	Plug—7-prong male plug for phono. radio cable
13998	Resistor—22,000 ohms, $\frac{1}{2}$ watt	36246	Receptacle—Needle book receptacle
12454	Resistor—33,000 ohms, $\frac{1}{2}$ watt	12454	Resistor—33,000 ohms, $\frac{1}{2}$ watt
12286	Resistor—56,000 ohms, $\frac{1}{2}$ watt	12199	Resistor—270,000 ohms, $\frac{1}{2}$ watt
14020	Resistor—150,000 ohms, $\frac{1}{2}$ watt	35740	Shade—Compartment lamp shade
12264	Resistor—220,000 ohms, $\frac{1}{2}$ watt	35575	Spring—Cabinet lid support spring
14583	Resistor—220,000 ohms, $\frac{1}{2}$ watt	30900	Spring—Retaining spring for knobs, Stock Nos. 36413 and 36038
13730	Resistor—1 meg., $\frac{1}{2}$ watt	36414	Support—Cabinet lid support
12679	Resistor—2.2 meg., $\frac{1}{2}$ watt	36110	Switch—Phono. switch (S5)
13601	Resistor—10 meg., $\frac{1}{2}$ watt		
35637	Shaft—Tuning shaft		
31364	Socket—Dial lamp socket		
36107	Socket—7 prong—pickup—Tone Control Socket		
31251	Socket—Tube socket		
31261	Spring—Adjustable core spring		
13638	Spring—Drive cord spring		
31418	Spring—Pulley cord spring		
35622	Support—Flywheel shaft support		
36105	Switch—Range switch (S1, S2, S3, S4)		
35636	Transformer—First I-F transformer		
35628	Transformer—Second I-F transformer		
2917	Washer—"C" washer for tuning shaft		

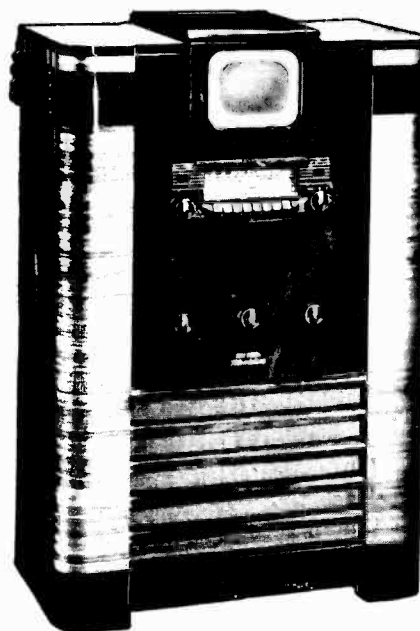
MODEL TRK-5 and MODEL TT-5

Seventeen-Tube, AC, Superheterodyne, Five-Television-Channel Receiver
with
Eight-Tube, Three-Band, AC, Superheterodyne, Broadcast Receiver
AND
Seventeen Tube, AC, Superheterodyne, Five-Television-Channel
Table Model Attachment



Model TT-5

Height	16 $\frac{1}{4}$ inches
Width	19 $\frac{1}{2}$ inches
Depth (overall).....	19 $\frac{1}{2}$ inches
Net Weight.....	57 pounds
Shipping Weight.....	73 pounds



Model TRK-5

Height	44 inches
Width	29 $\frac{1}{2}$ inches
Depth (overall).....	19 $\frac{1}{2}$ inches
Net Weight.....	117 pounds
Shipping Weight.....	186 pounds

Chassis Numbers and Power Supply Ratings

Model TT-5:

Chassis KC-3, 105-125 volts, 60 cycles.....	190 watts
Chassis KC-3B, 105-125 volts, 50-60 cycles.....	190 watts

Model TRK-5:

Chassis KC-3A, RC-429, RS-89A, 105-125 volts, 60 cycles.....	275 watts (total)
Chassis KC-3C, RC-429, RS-89A, 105-125 volts, 50-60 cycles.....	275 watts (total)

General Description

Model TRK-5 consists of a console-type, seventeen-tube, direct-viewing, five-channel, Television receiver; and an eight-tube, three-band, broadcast radio receiver enclosed in a modern styled cabinet. Features of the Television Receiver include: Five-inch Kinescope; Styrol (humidity-resisting) i-f and r-f transformer forms; single-station-selector switch; temperature compensated condensers; iron core i-f and r-f tuning; double safety switch protection; safety glass viewing

window; automatic brightness control; and automatic volume control.

Model TT-5 is a seventeen-tube, direct-viewing, five-channel, table model Television receiver (picture only), which may be easily connected to any modern broadcast radio receiver for the accompanying sound reproduction. Television features for the Model TT-5 receiver are the same as in the Model TRK-5.

TELEVISION RECEIVER

Electrical Specifications

RCA TUBE COMPLEMENT

In KC-3, KC-3B (TT-5) and KC-3A, KC-3C (TRK-5)
Television Chassis:

- (1) RCA-6AC7/1852..... 1st Det.
- (2) RCA-6J5..... Oscillator
- (3) RCA-6AB7/1853..... 1st Pix. I.F.
- (4) RCA-6AC7/1852..... 2nd Pix. I.F.
- (5) RCA-6AC7/1852..... 3rd Pix. I.F.
- (6) RCA-6H6..... Pix. 2nd Det. Sync. Sep.
- (7) RCA-6V6..... Video Amp.
- (8) RCA-5BP4/1802-P4..... Kinescope
- (9) RCA-6AB7/1853..... 1st Sound I.F.
- (10) RCA-6B8..... Sound 2nd Det. AVC
- (11) RCA-6N7..... Sync. Amp.
- (12) RCA-6N7..... Vert. Osc. Discharge
- (13) RCA-6N7..... Vert. Output
- (14) RCA-6N7..... Hor. Osc. Discharge
- (15) RCA-6F8-G..... Hor. Output
- (16) RCA-5U4-G..... Low Voltage Rect.
- (17) RCA-2X2/879..... High Voltage Rect.

TELEVISION CHANNELS (Selector Switch Positions)

- | | |
|---------------------|---------------------|
| 1..... 50 to 56 mc. | 3..... 66 to 72 mc. |
| 2..... 60 to 66 mc. | 4..... 78 to 84 mc. |
| 5..... 84 to 90 mc. | |

- Over-all Band Width (approx.)..... 2.5 mc.
Scanning..... Interlaced, 525 Line
Horizontal (Line) Scanning Frequency
(Sawtooth Wave)..... 15,750 cps.
Vertical (Field) Scanning Frequency
(Sawtooth Wave)..... 60 cps.
Frame Frequency..... 30 cps.
Picture Size (approximate mask dimensions)..... 3 $\frac{3}{8}$ x 4 $\frac{3}{8}$ in.
Chassis Base Dimensions..... 13 x 18 in. Max.; height 9 in.

IMPORTANT PRECAUTIONS

CAUTION: These instruments contain high voltage (3,000 volts). Interlock switches are provided for high voltage protection. Do not attempt to service these instruments until you have studied these Service Notes thoroughly, and are familiar with the precautions necessary when servicing these instruments.

Do not attempt to measure the high voltage (2,000 volts). ALWAYS replace the red can over the 2X2/879 high voltage rectifier. The most dangerous portion of the H.V. supply is the plate lead of the 2X2/879 tube.

Do not eliminate the protection afforded by the interlock switches or measure any voltages on the

video chassis unless the gray secondary plate lead of the high voltage transformer has been unsoldered, a rubber tube Stock No. 34096 slipped over the lead, and taped to the lead.

Use only one hand when working on the high voltage portion of the chassis, and always connect a shorting lead first to ground, then to the high side of the first high voltage filter capacitor.

Always wear gloves and goggles when handling Kinescopes.

A good ground should be connected to the receiver at all times.

Precautions in Handling Kinescopes

The Kinescope bulb encloses a high vacuum and due to its large surface area, is subjected to considerable air pressure. For these reasons, Kinescopes must be handled with more care than an ordinary receiving tube.

The large end of the Kinescope bulb — particularly that part at the rim of the viewing surface — must not be struck, scratched or subjected to more than moderate pressure at any time. If the tube sticks, or fails to slip into its socket or shield smoothly, investigate and remove the cause of trouble. Do not force the tube.

All RCA Kinescopes are shipped in special cartons and should always be left in the cartons until ready for installation in the receiver. Keep the carton for future use.

CAUTION: Do not open the shipping carton, install or handle the Kinescope in any manner unless shatter-proof goggles and heavy gloves are worn. People not so equipped should be kept away while handling Kinescopes. Keep Kinescope away from body when handling.

Notes

1. This service note includes all changes that have been incorporated since initial production, including deletion of the 44-50 mc. channel and addition of the 60-66 mc. channel.
2. Detailed explanation of the receiver circuit operation

may be found in the booklet: **Practical Television** by RCA.

- 3 **Alignment.** — Because of the special equipment and procedure necessary for the proper alignment of these receivers, the alignment will not be covered in this service note.

Operation Model TRK-5

The power-volume control on the broadcast radio receiver turns on the power for the complete receiver. Pushing the button marked "Television" on the push button panel turns on the Television receiver, if the above power control is "On." The volume control of the broadcast receiver also controls the Television sound volume level.

Station Selector and Fine Tuning.—The outer ring "O" section of the central dual control knob on the Television panel selects the station from which it is desired to receive television transmission.

Five television channels are covered as follows:

- (1) 50 to 56 M.C.
- (2) 60 to 66 M.C.
- (3) 66 to 72 M.C.
- (4) 78 to 84 M.C.
- (5) 84 to 90 M.C.

Set the station selector to the number corresponding to the frequency of the station from which it is desired to receive Television Broadcasts.

The inner section "I" of this knob is used for fine tuning and may eliminate moving ripples or distortion if due to interfering radio signals.

Before the Television portion of the receiver is turned "ON" it is advisable to turn the Brightness and Contrast controls completely counter-clockwise to reduce the illumination of the spot which appears on the Kinescope before the sweep circuits have started functioning.

Contrast and Brightness Controls.—The inner "I" section of the "Contrast" - "Brightness" controls is the "Contrast" control and varies the black and white tones of the picture being received. Too little contrast makes the picture all half-tones or grays. Turning clockwise increases contrast from grays, to black and white. See Operating Instructions for this receiver.

The outer ring "O" is the Brightness Control and affects the average illumination of the picture. Turning clockwise increases the brightness. See Operating Instructions for this receiver.

Hold Controls.—The dual knobs on the Television panel marked "Horizontal" and "Vertical" Hold, control the picture stability. The inner section designated by a "I" is the Horizontal Hold Control and when being set should be turned slowly to the point at which the picture "locks in" horizontally. See Operating Instructions for this receiver.

The outer ring section designated by "O" is the Vertical Hold Control and when being set should be turned to the point where the picture "locks in" vertically.

These two controls on this dual knob should not ordinarily require readjustment after good picture reception has once been obtained. An occasional resetting may be necessary due to changing to a different station, and to the gradual aging of the tubes.

Focus Control.—This control is located on the rear of the Video chassis, and controls the electron beam focus of the Kinescope. Ordinarily, after once being focused the Kinescope should not require re-focusing for a considerable length of time.

Operation Model TT-5

The operation of Model TT-5 is the same as that for the Model TRK-5 except that there is a separate "ON-OFF" switch, and a separate sound volume control because the broadcast radio receiver is not included in this model. When Model TT-5 is connected to a broadcast receiver for the Television sound reproduction, the broadcast receiver volume control should be turned to maximum and the Television sound volume controlled with the control on the Television Receiver.

SERVICE DATA

Kinescope Installation Models TRK-5, TT-5: Refer to figure 3.

1. Remove back cover from cabinet.
2. Remove Kinescope mounting shield from shipping carton.
3. Using gloves and goggles remove Kinescope from shipping carton and place in the cone-shaped mounting shield.
4. Guide the Kinescope and mounting shield carefully into the cabinet, placing the Kinescope firmly up against the mask and viewing window. Fasten the mounting shield firmly in place with the thumb screw provided, so that it holds the Kinescope firmly against the mask. If the Kinescope does not line up properly with the mask, loosen the screws "A" and nut "B" and adjust in the direction desired.
5. After the receiver is operating, the Kinescope may be rotated to properly square up the picture with the mask.

CAUTION: When rotating tube the power should be turned "OFF."

Adjustments.—There are a series of screwdriver slot adjustments at the rear of the Video chassis used to obtain the proper picture size and centering. These adjustments are explained fully in the receiver operating instructions, and also in the booklet: **Practical Television by RCA.**

When the receiver is moved from one location to another, some readjustment of these controls may be necessary.

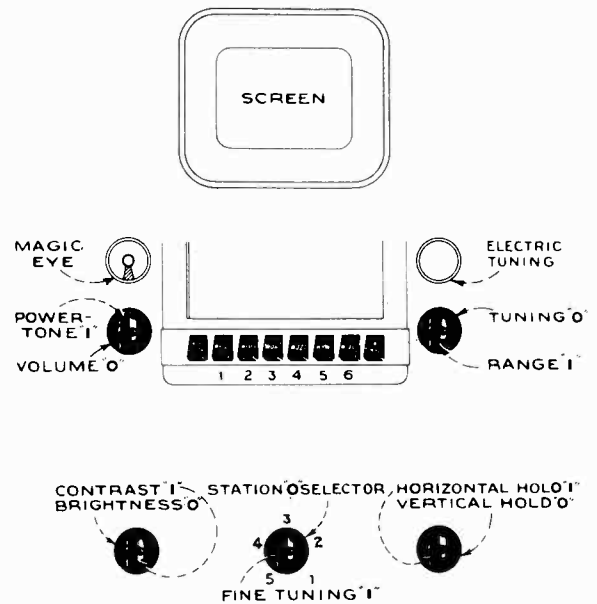


Figure 1—Control Panel Model TRK-5

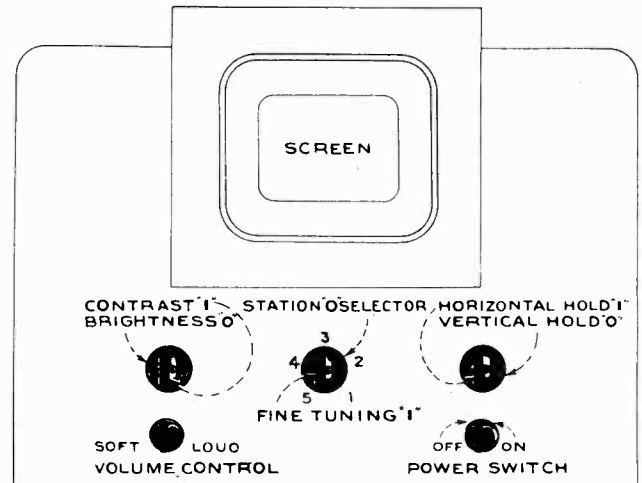


Figure 2—Control Panel Model TT-5

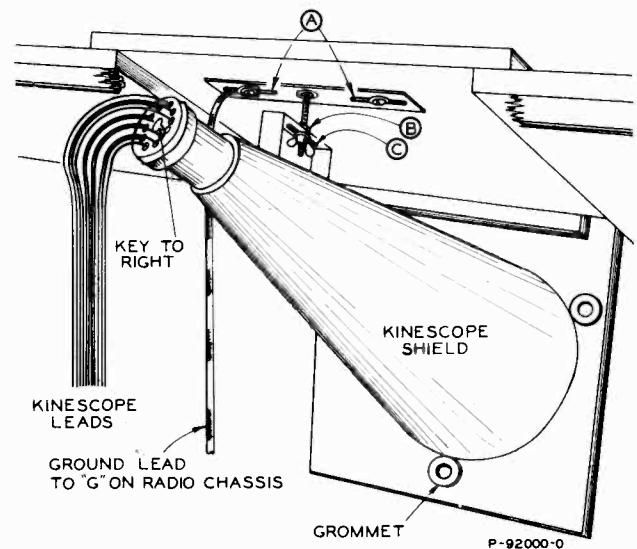


Figure 3—Kinescope Installation

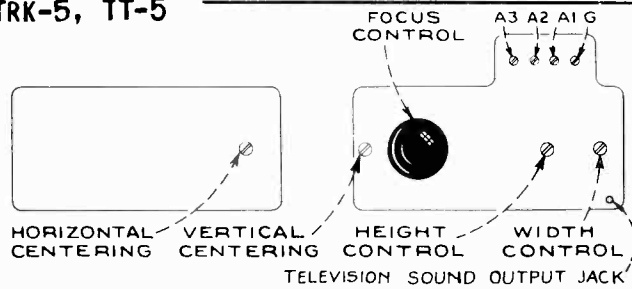


Figure 4—Adjustments at Rear of Chassis

Video Chassis KC-3, KC-3B (TT-5) KC-3A, KC-3C (TRK-5)

No attempt should ever be made to measure the high (2,000 volts) voltage, because of the dangers and difficulties involved. If at any time it becomes necessary to service the high voltage circuit, the suspected parts should be replaced by parts known to be in good operating condition.

Always replace the red can over the 2X2/879 high voltage rectifier.

The most dangerous portion of the receiver is the plate (top cap) lead from the 2X2/879 high voltage rectifier. Always be very careful when working near or with this lead.

When working on the high voltage supply portion of this chassis, the following precautions should be observed:

1. Remove power supply cord from the power supply socket.
2. Use only one hand at a time.
3. Connect a shorting lead between ground (firstly) and to the high voltage side.
4. Whenever working with the oil-filled high voltage filter capacitors, keep a constant short across the capacitor, as these capacitors do not completely lose their charge after being discharged a single or several subsequent times.
5. Only one person at a time should work on the unit to prevent any misunderstanding which may result in an accident.

When any changes are made on the Video portion of the chassis, the locations of leads and parts should be returned as closely as possible to their original positions.

Service Hints:

1. If the picture "tears out" when the receiver is jarred it may be due to microphonic 6AC7/1852, 6AB7/1853, or 6J5 tubes.
2. The 6J5 oscillator tube should be removed without rocking it in its socket to loosen it, as the motion may cause the 80.5 mmf capacitor C16 to break off.
3. The coils or straps in the h.f. oscillator circuits **should not be touched or moved** or the alignment of the receiver will be disturbed.
4. The two Video coupling capacitors C44, 45, should be kept clear of chassis.
5. In some cases the metal Kinescope mounting shield may become magnetized by the earth's or some nearby magnetic field, and thus distort the picture on the screen towards the magnetized portion of the shield. The shield can be demagnetized by passing it slowly through a solenoid which is energized by an a-c current.
6. A special Kinescope shield is used on the 50-60 cycle models, identified by an 1/8-inch hole in the outer shield near the mounting bracket. Do not jar or drop the shield, and keep it away from the loudspeaker field to prevent magnetization.

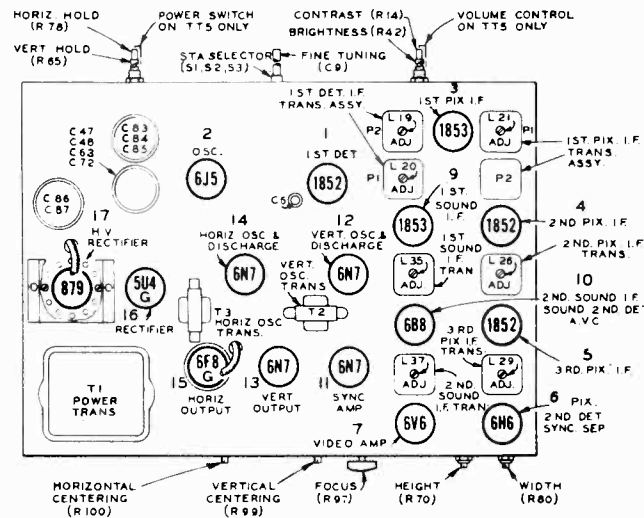


Figure 5—Top View Television Chassis

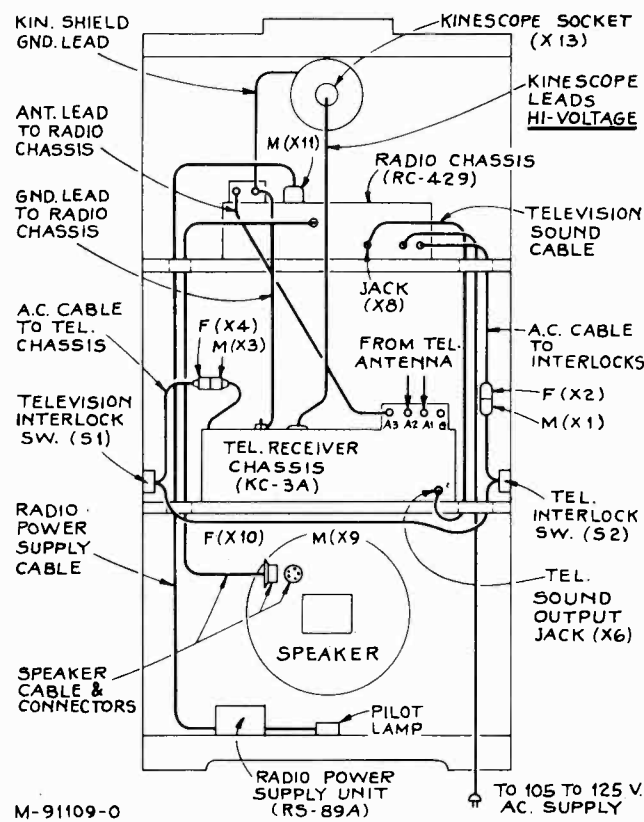


Figure 6—Rear View Model TRK-5

Antenna Installation

In most cases, the antenna should not be installed permanently on the apartment or residence roof until the quality of the picture reception has been observed on a Television Receiver. A temporary transmission line can be run between receiver and the antenna allowing sufficient slack to permit moving the antenna. Then, with a telephone system connecting an observer at the receiver and an assistant on the roof to find an antenna location, the antenna can be positioned to give the most satisfactory results on the received signal.

A shift of only a few feet in antenna position or direction may effect a tremendous difference in picture reception. Whenever possible, the antenna location should be chosen or erected so the antenna is not only broadside to the transmitter but removed as far as possible from highways, hospitals, and doctors' offices, and similar sources of interference. Auto ignition and diathermy apparatus may cause noise interference which spoils the picture.

In mounting any antenna, care must be taken to keep the

antenna rods or pickup wires proper at least 1/4 wave length (at least 6 feet) away from other antennas, metal roofs and gutters or metal objects.

Under certain extremely unusual conditions, it may be possible to rotate or position the antenna so it receives the cleanest picture over a reflected path. If such is the case, the antenna should be so positioned. However, such a position may give variable results as the nature of reflecting surfaces may vary with weather conditions, as a wet surface has been known to have different reflecting characteristics than a dry surface.

In short, a television receiving antenna and its installation must conform to much higher standards than an antenna for reception of International Short Wave and Standard Broadcast signals because:

(1) Intervening obstacles have a pronounced shielding effect on the ultra-high frequency waves producing low intensity signals. Severe trouble with multi-path transmissions may be experienced, especially in congested city areas.

(2) The picture signal is comprised of a very wide band or range of frequencies, all of which must be received with good efficiency.

(3) It must be continually remembered that the discernment of the eye is much more critical than that of the ear.

For further information on antennas and antenna installation, see RCA Booklet entitled: "Practical Television by RCA" as well as the specific instructions accompanying the RCA Television antennas.

Television Service Suggestions

1. **Intensely bright round spot; no deflection.** If an intensely bright round spot appears on the Kinescope, and cannot be dimmed with the brightness control, turn the set off immediately. This indicates lack of deflection and lack of voltage across the brightness control. (Note that a bright spot may appear for several seconds if the receiver is turned on again too soon after it has been shut off. Avoid doing this.)

2. **Thin vertical line; no horizontal deflection.** If only a thin vertical line appears on the Kinescope when the brightness control is advanced, it indicates lack of horizontal deflection. Check the 6N7 horizontal oscillator and the 6F8-G horizontal output tube.

3. **Thin horizontal line; no vertical deflection.** If only a thin horizontal line appears, it indicates failure of vertical deflection. Check the 6N7 vertical oscillator and the 6N7 vertical output tube.

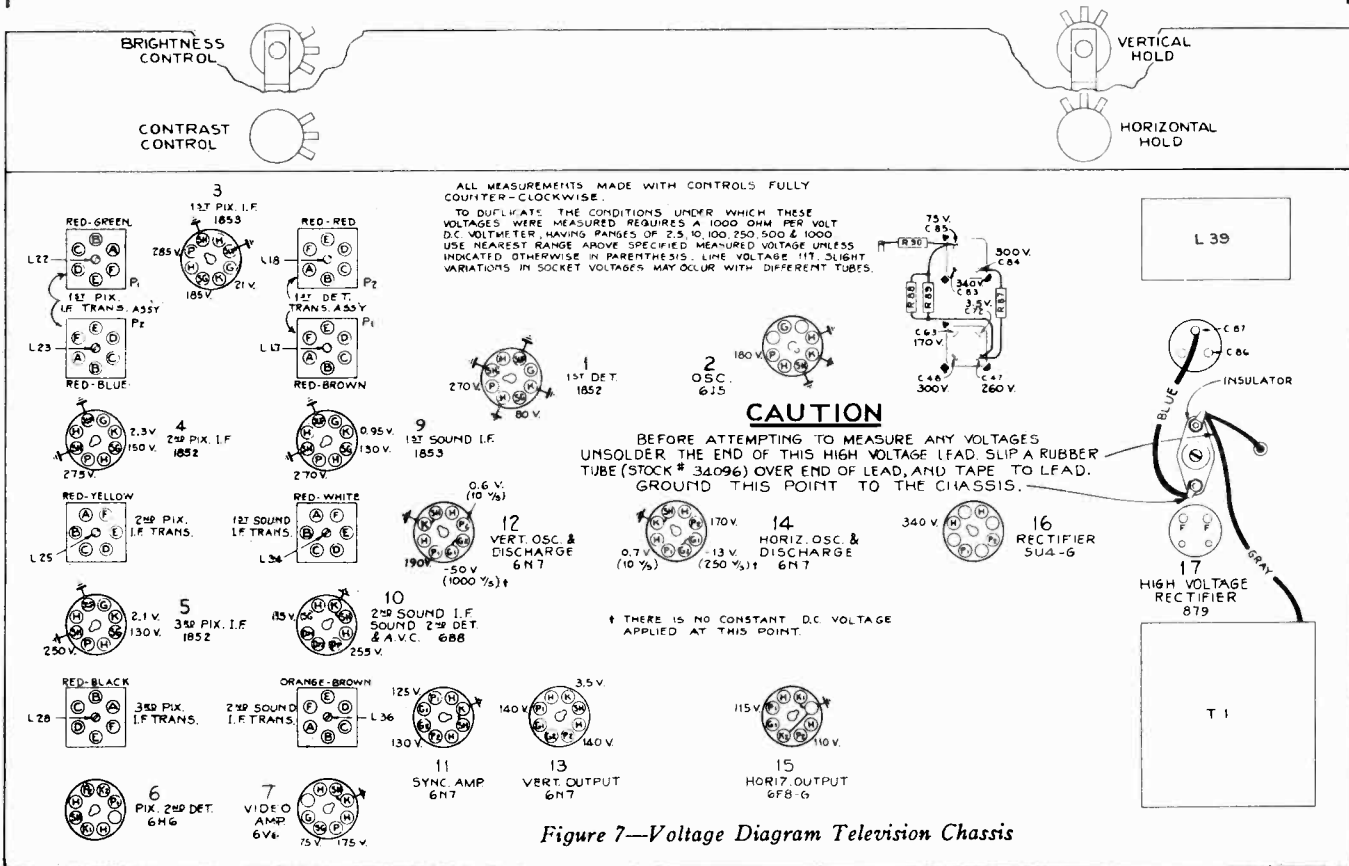
4. **Excessive hum; defective high-voltage filter.** Turn contrast control fully counter-clockwise and adjust the brightness control to secure faint illumination of the raster. "Lock in" any residual hum by adjusting the vertical hold control. Normally the hum should be scarcely discernible. Excessive

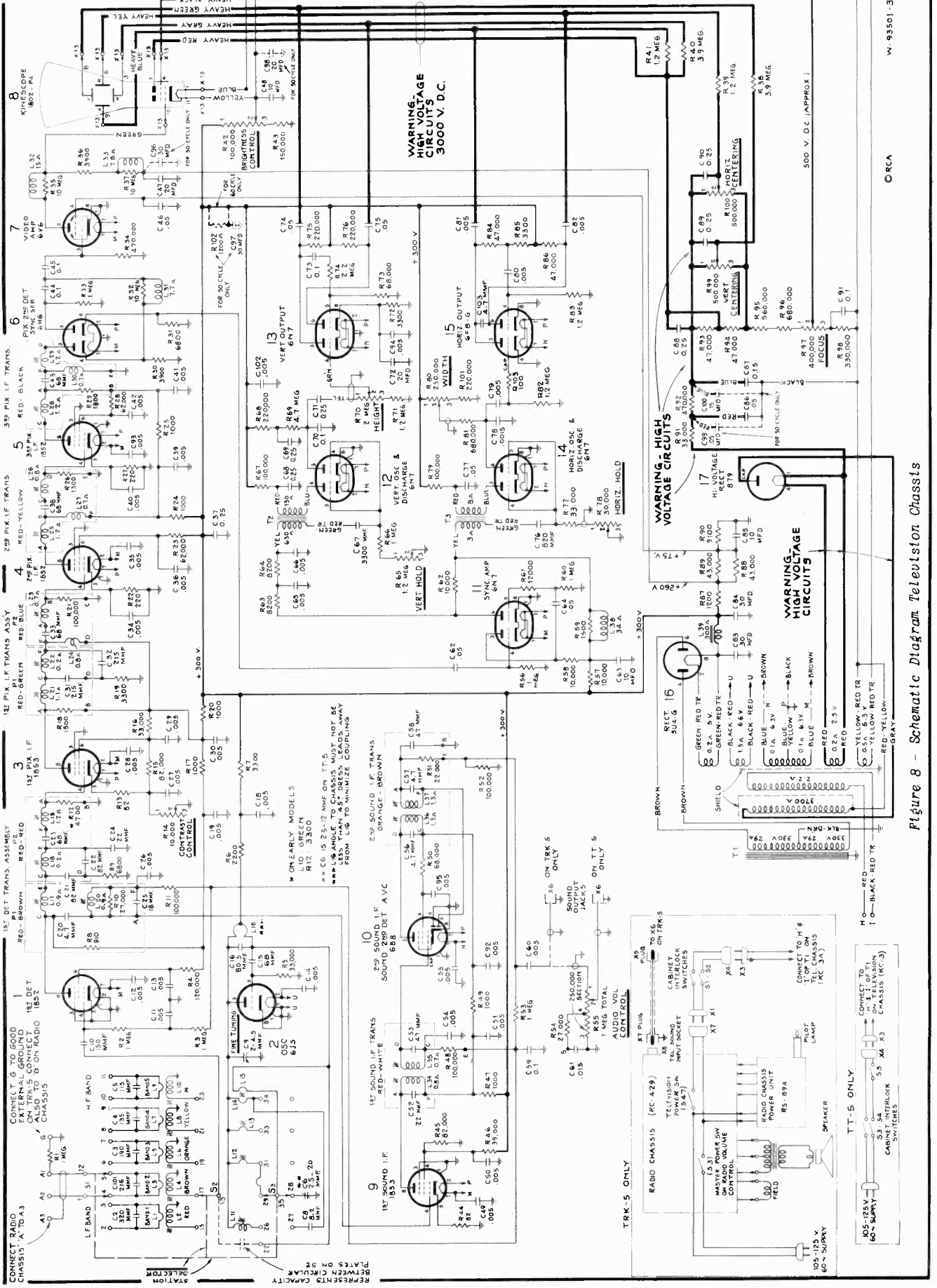
hum may be caused by a defective (low value) filter resistor (R91, R92), which in turn may be caused by a shorted 2X2/879 high-voltage rectifier. Observe necessary precautions before checking the filter.

5. **No focus; off-value high-voltage resistors.** Adjust the focus control to secure sharpest lines on the raster. The individual lines can be seen most readily by turning the horizontal hold control to the lowest frequency (counter-clockwise). The lines should be in sharpest focus at one setting of the focus control. Inability to pass through a definite point of focus indicates incorrect voltages, which may be caused by off-value high-voltage resistors. Inability to focus may also be due to a defective Kinescope.

6. **Failure to lock-in; sync trouble.** Turn band switch to a channel that is in operation. Adjust the fine-tuning control for clearest sound, which should be at approximately half-capacity position. Turn contrast control full counter-clockwise. Turn brightness control until the Kinescope is faintly illuminated. Turn contrast control clockwise until the picture signal is evident. Lock in the picture horizontally and vertically. Adjust the contrast and brightness controls for best contrast.

If the picture will not lock in horizontally or vertically, change the 6N7 sync tube. Interchanging 6N7's may correct





W-93501-3

CRCA

Figure 8 - Schematic Diagram Television Chassis

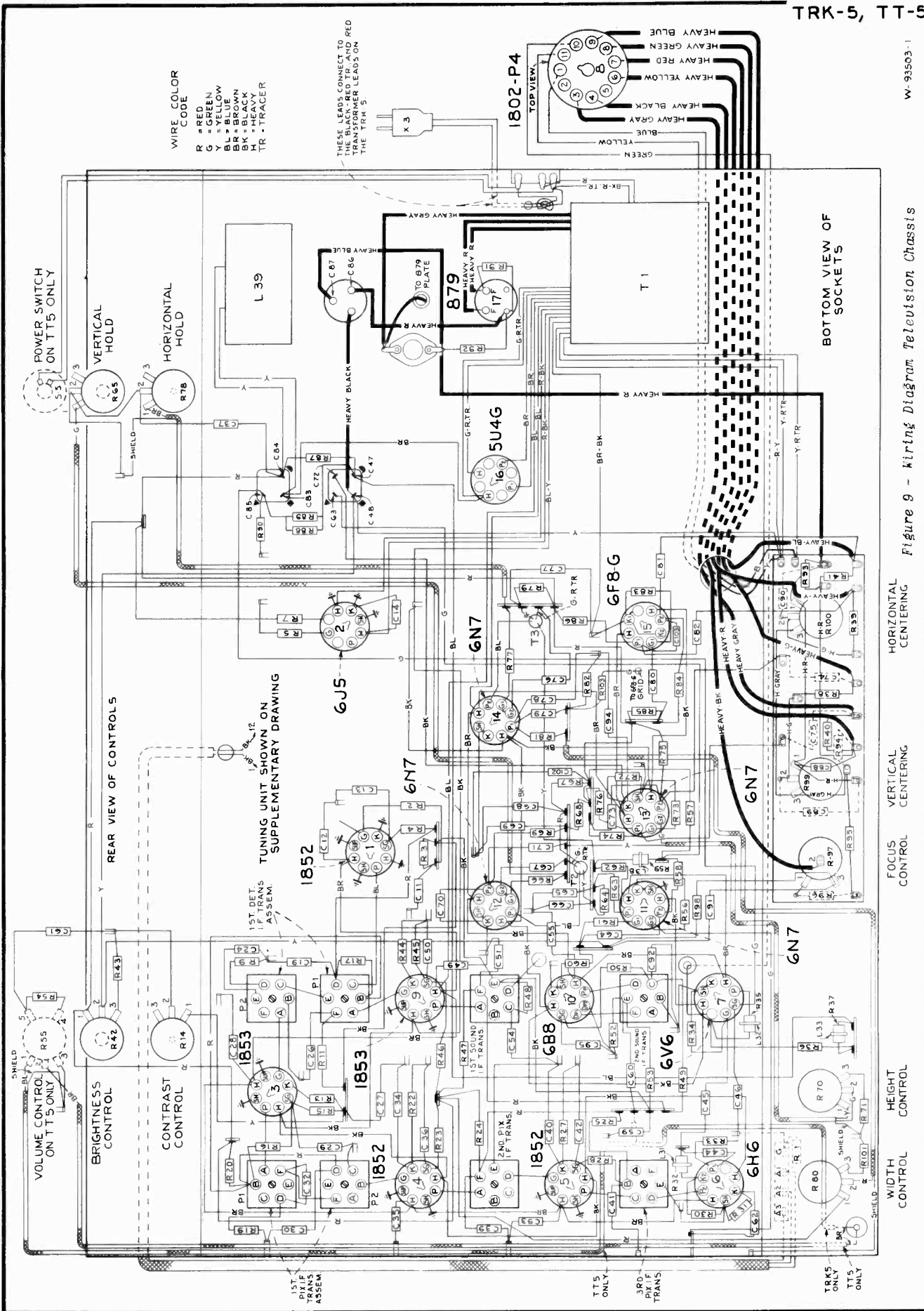


Figure 9 - Wiring Diagram Television Chassis

W-93503-1

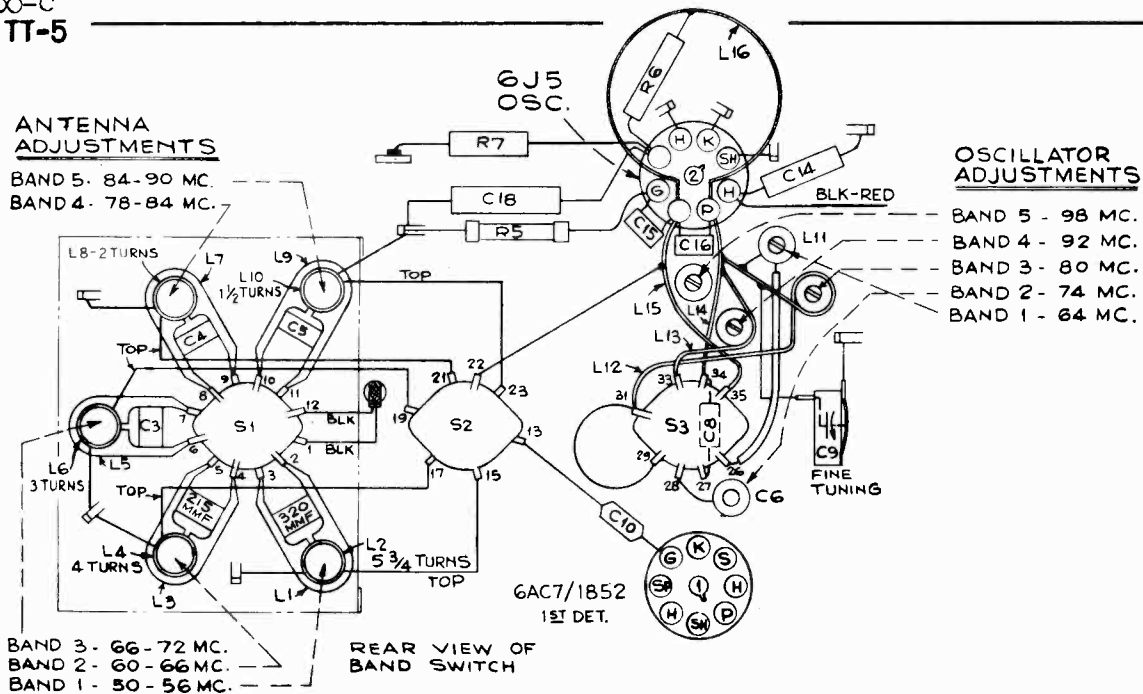


Figure 10—R.F.-Oscillator Unit Wiring and Adjustments

Television Service Suggestions (Continued)

the trouble. Otherwise check the resistors, capacitors and voltages in the sync circuits. The capacitors should be checked for opens and leakage. Do not forget that advancing the contrast control too far on a strong signal will cause the picture to "tear" out of horizontal sync.

7. **Weak picture; insensitive receiver.** A simple sensitivity check can be made by removing the antenna from the receiver and turning the contrast control full clockwise with brightness control at normal position. This should produce some evidence of tube noise which will appear as speckles on the Kinescope raster. When the antenna is connected to the receiver, there should be more pronounced speckles due to random noise, streaks due to ignition interference from passing cars, and possibly hum lines that can be locked in vertically, due to sparking in 60-cycle circuits, diathermy, etc. Sensitivity can be estimated in this way, just as with an ordinary radio receiver, by observing the amount of noise and the strength of the weaker stations. Check each band for sensitivity. Noise conditions vary from band to band. Certain types of interference, such as diathermy, may exist in only one band and may be seen but not heard, or vice versa.

If the receiver is insensitive, check all tubes in the picture-IF amplifier and the 1st-detector by substituting a good tube in each socket. If the trouble is not due to tubes, it may be necessary to check the gain of each picture stage.

8. **Small picture size.** Adjust picture size and centering. Inability to secure a full-sized picture may be due to low-voltage on the 300-volt bus. Check the low-voltage rectifier.

9. **Inability to center picture.** This may be due to low voltage across the centering controls caused by a defective rectifier or capacitor, or low line voltage. Another possibility is that the elements in the Kinescope may be tilted. This can be checked as follows:

With the brightness control at normal setting, turn the receiver on and observe the position of the illuminated spot during the few seconds before the horizontal and vertical deflection voltages start operating. The illuminated spot should be in the center of the Kinescope (its position during these few seconds is not affected by the centering controls). If the spot is off center, it is a definite indication that the Kinescope "gun" is tilted.

10. **Distorted sound or sound in picture.** An open in one side of the antenna transmission line can cause distorted sound. Other possibilities include:

(a) If the sound-IF response curve is not linear for 75 kilocycles on each side of 8.25 mc., distortion will result.

(b) Inaccurate adjustment of the oscillator frequency on any channel may result in no sound or distorted sound, due

to the fact that the sound-IF beat frequency will not be 8.25 mc. If the oscillator frequency is too low, the beat note, instead of falling on the high-frequency slope of the sound-IF response curve, may fall on the low-frequency slope. In this case, the sound may be satisfactory, but operation on this side of the curve should be avoided. In some localities, it results in sound image interference from other channels.

A quick and definite method to check the oscillator frequency is as follows:

(a) Tune in a television station.

(b) Turn the fine tuning trimmer to minimum capacity. This should produce some evidence of sound in the picture. The sound usually appears as horizontal bars of varying density, and these vary in step with the speech or music. The bars disappear when the voice or music stops.

(c) Turn the trimmer for best sound quality. This should correspond to approximately half-capacity of the trimmer.

(d) Turn the trimmer toward maximum capacity. If the slope of the sound-IF response curve is narrow, this will move the beat on to the peak of the response curve, producing low volume and severe distortion.

On service work in the home or where test equipment is not available, if one or more of the oscillator frequencies require re-adjustment, the recommended procedure is as follows:

(a) Tune in the television station on the channel which requires re-adjustment of the oscillator frequency.

(b) Turn the fine-tuning trimmer to minimum capacity.

(c) Turn the magnetite-core for the particular oscillator coil toward the highest frequency position (core moved away from the coil). This will definitely put sound in the picture. Turn the core in the opposite direction, to lower the oscillator frequency, until the sound is barely perceptible in the picture. Leave the core in this position.

(d) Now, by turning the fine-tuning trimmer to half-capacity, it should be possible to secure good tone quality with no trace of sound in the picture.

If the sound-IF is deliberately moved into the picture-IF by adjusting the oscillator core to produce the highest frequency, the effect of the sound-IF interference will produce a "reversed" image, somewhat like a film negative.

The customer should be instructed to adjust the fine-tuning control for best sound quality, at which point there is no sound in the picture. If the set is turned on in a cold room, it may be necessary for the customer to readjust the fine-tuning trimmer to compensate for the slight drift in oscillator frequency during the warm-up period.

Radio Receiver Chassis No. RC-429 and Socket Power Unit No. RS-89A

Eight-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES	
Standard Broadcast ("A" band).....	540-1720 kc
Intermediate Frequency.....	455 kc
Medium Wave ("B" band).....	2.3-7.0 mc
Short Wave ("C" band).....	7.0-22 mc
TUBE COMPLEMENT	
(1) RCA-6A8-G.....	1st-Det., and Osc.
(2) RCA-6K7.....	I-F Amplifier
(3) RCA-6Q7.....	2nd-Det., A.V.C., 1st Audio
(4) RCA-6J5.....	Phase Inverter
(5) RCA-6K6-G.....	Power Output
(6) RCA-6K6-G.....	Power Output
(7) RCA-6U5.....	"Magic Eye"
(8) RCA-5Y3-G (in SPU RS-89A)....	Full-Wave Rectifier
Dial Lamps.....	Mazda No. 44, 6.3 volts, .25 amp.
Power Supply Rating.....	105-125 volts, 50-60 cycles, 75 watts
POWER OUTPUT	
Undistorted.....	5 watts
Maximum.....	5.5 watts
ELECTRIC TUNING RANGES	
Two stations between approximately.....	550-950 kc
LOUDSPEAKER (RL-70H-5)	
Type.....	12-inch electrodynamic
Voice-Coil impedance.....	2.2 ohms at 400 cycles
Two stations between approximately.....	690-1,225 kc
Two stations between approximately.....	890-1,500 kc

Mechanical Specifications

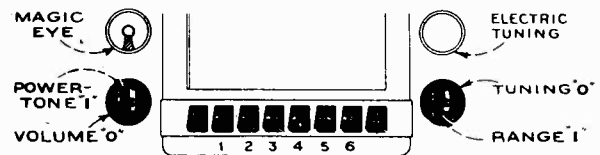
RC-429 CHASSIS BASE DIMENSIONS	
Height.....	2-1/2 inches
Width.....	13 inches
Depth.....	6-1/2 inches
Over-all Chassis Height.....	6-1/2 inches
Tuning Drive Ratio.....	12 to 1

General Description

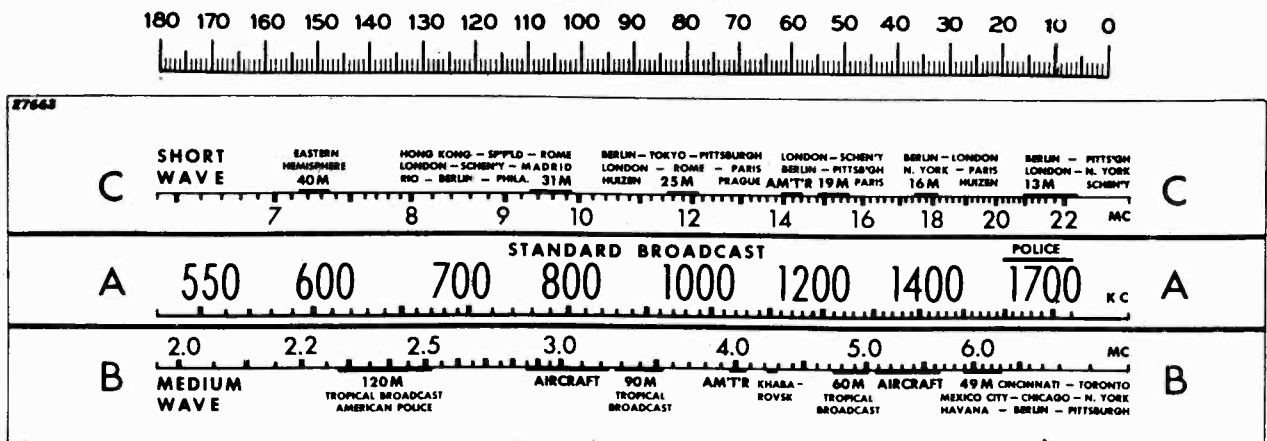
Radio receiver chassis No. RC-429 is used in RCA Victor Television console Model TRK-5.

The audio output of the television chassis is connected to the audio input of the RC-429 chassis by means of jack X-8 and the left-hand push-button switch (S44, S45, S46).

A separate plug-in power supply unit, RS-89A, is used to supply heater and plate voltage to the RC-429 chassis. Service data and diagrams for the power unit are contained in the following pages.



Location of Controls (Radio)



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

Alignment Procedure (RADIO CHASSIS)

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the chassis drawing.

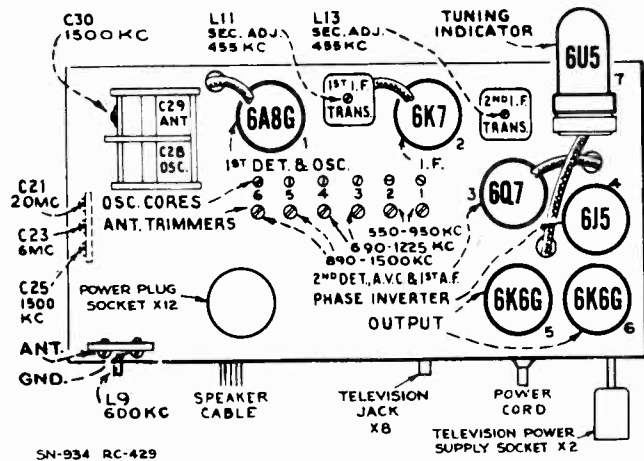
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-



SN-934 RC-429

condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Step	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Trans.)
2	6A8-G 1st-Det. grid cap, in series with .01 mfd.			L10 and L11 (1st I-F Trans.)
3	Antenna terminal, in series with 200 mmfd.	600 kc	600 kc 150.5°	L9 (osc.)
4		1,500 kc	1,500 kc 28°	C25 (osc.) C30 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna terminal, in series with 300 ohms	6 mc	6 mc 26.5°	C23 (osc.)*
7		20 mc	20 mc 22°	C21 (osc.)*
8	Follow "Adjustments for Electric Tuning."			

* Use minimum capacity peak if two peaks can be obtained, and check for image by tuning radio approximately 910 kc lower.
Note: The oscillator tracks above the signal on all bands.

Adjustments for Electric Tuning

These models have eight push buttons. The left-hand button is a Television switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

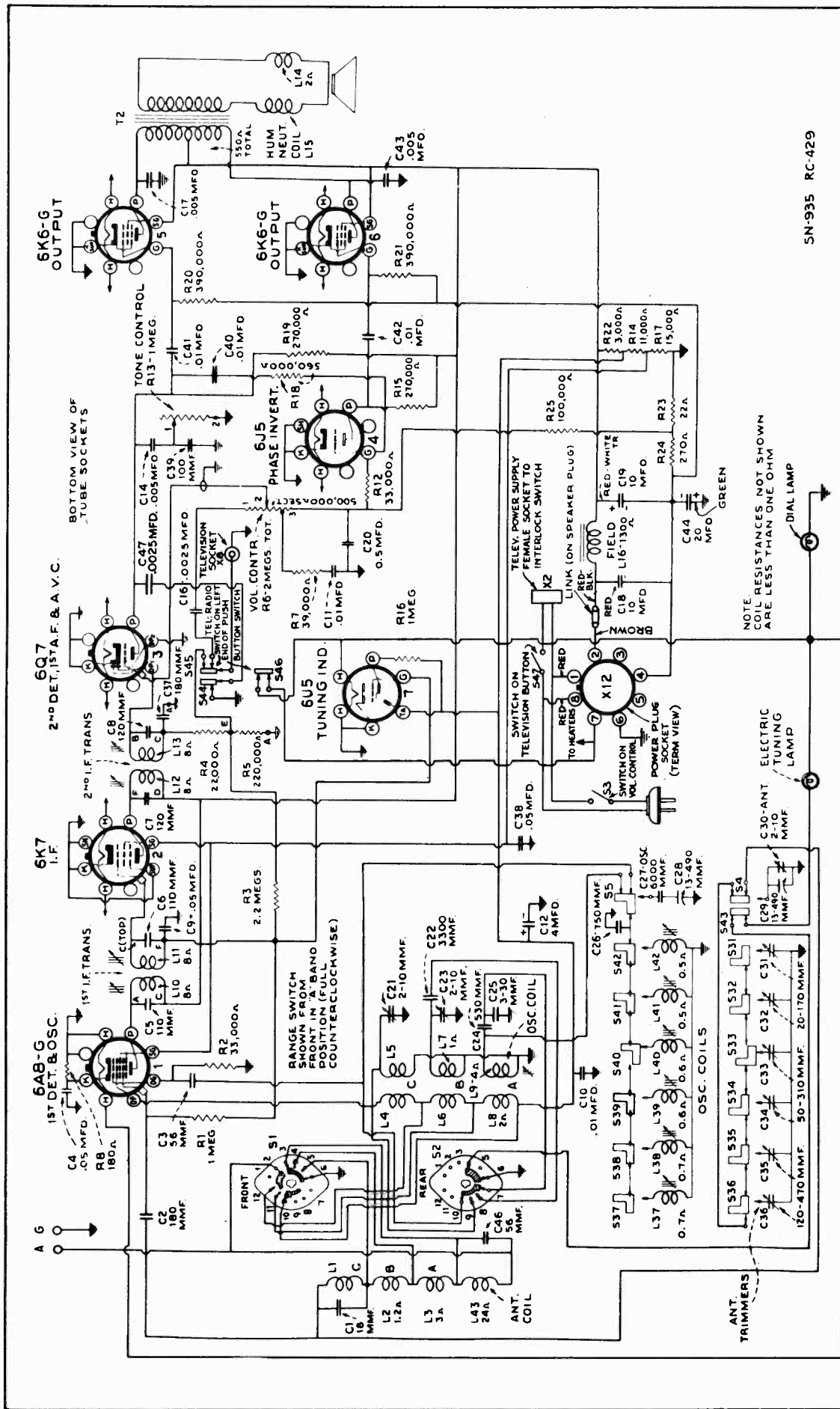
1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button, and manually tune in the first station on the list.

3. Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.

4. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

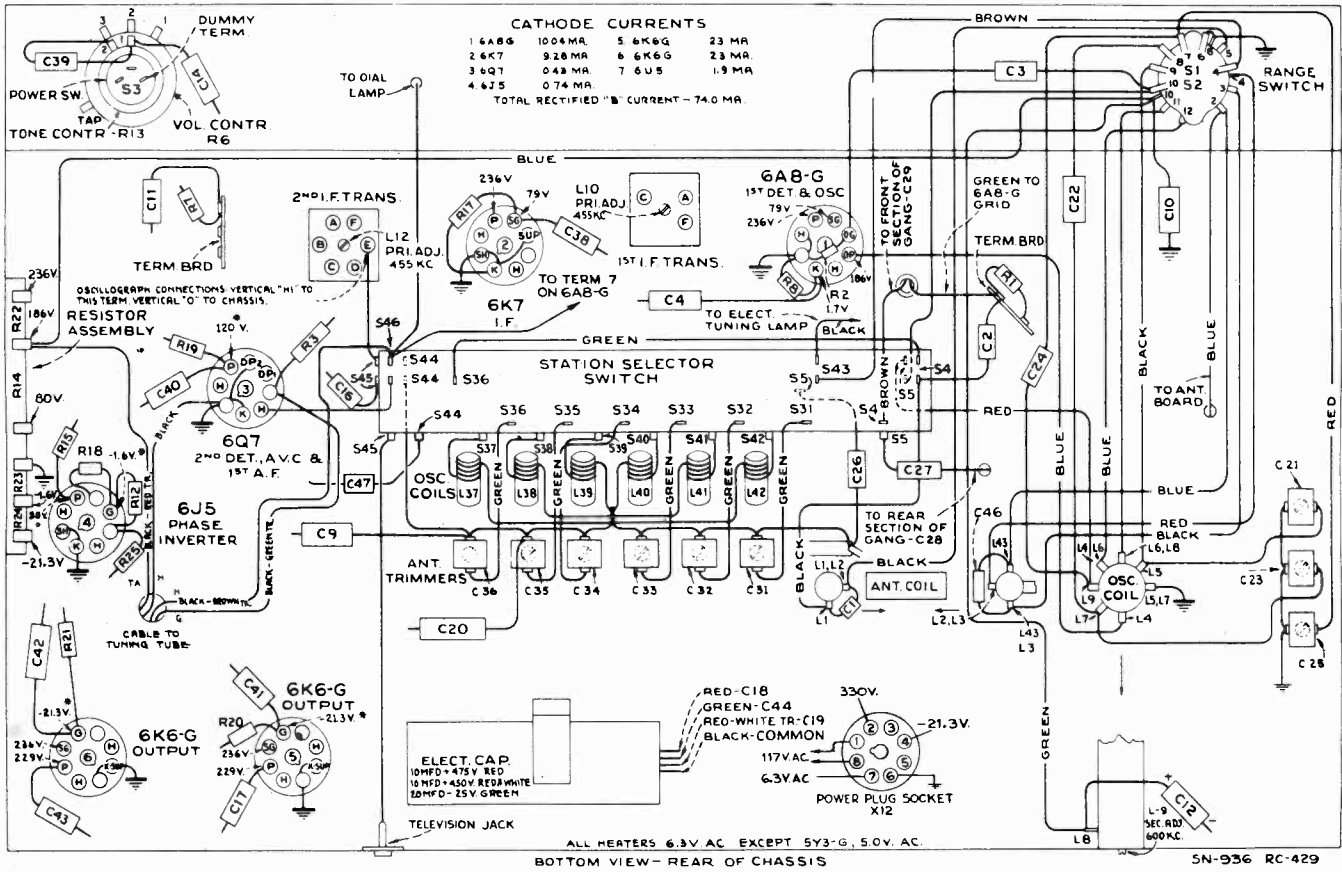
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining five stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers. Use the "Magic Eye" to ensure sharp peaking.

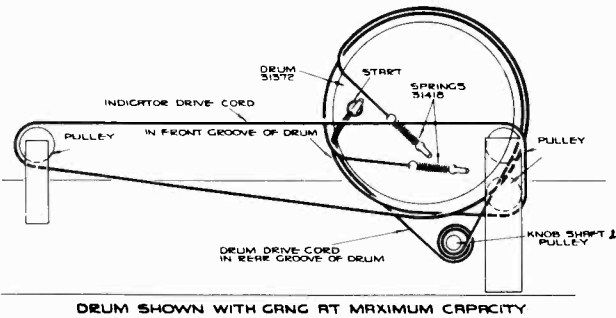


Schematic Circuit Diagram, Chassis No. RC-429

- Precautionary Lead Dress:**
1. Electric tuning lamp leads to S43 must be dressed in front of the range switch.
 2. Dress leads away from antenna coil.
 3. Leads across back of chassis must be dressed away from television jack (X8).
 4. C26 (750 mmfd.) on push-button switch assembly must be dressed carefully to prevent shorts.



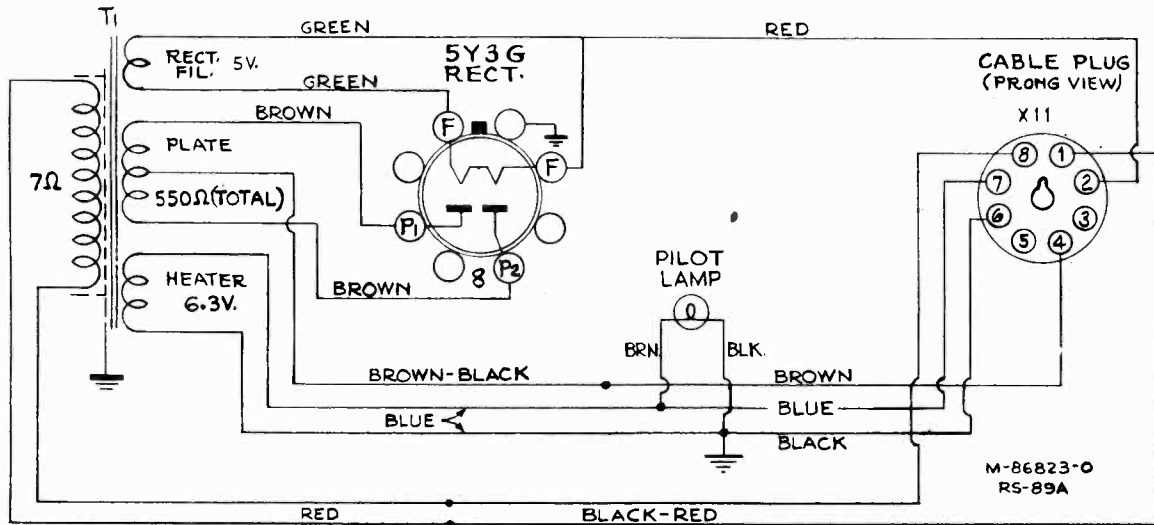
R-F Wiring Diagram, Chassis No. RC-429



At Left—Dial Mechanism

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



SPU Schematic Diagram, RS-89A

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	TELEVISION CHASSIS ASSEMBLIES		
	TRK-5—KC-3A (60 cycles), KC-3C (50-60 cycles)	33280	Control—Audio volume control—1 meg. (Model TT-5 only) (R55)
	TT-5—KC-3 (60 cycles), KC-3B (50-60 cycles)	33274	Control—Dual contrast and brightness control 10,000 ohm and 100,000 ohm (R14, R42)
33387	Adjuster—Magnetite core and stud in tube for high frequency oscillator circuit adjustment. (Used with L11, L12, L14, L15)	33275	Control—Dual horizontal and vertical holding control—30,000 ohm and 1.2 meg. (R78, R85)
33835	Adjuster—Magnetite core and stud in tube for high frequency oscillator circuit adjustment. (Used with L13)	33278	Control—250,000 ohm "Width" control (R80)
31253	Board—Antenna ground terminal board	33276	Control—400,000 ohm "focus" control (R97)
12884	Capacitor—Plunger type air-trimmer—2½ to 20 mmfd. (Model TRK-5 only) (C6)	33277	Control—500,000 ohm "Vert. cent."—"Hor. cent." control (R99, R100)
12714	Capacitor—Plunger type air-trimmer—2½ to 12 mmfd. (C6) (Model TT-5 only)	33279	Control—2 megohm "Height" control (R70)
33097	Capacitor—4.7 mmfd. 500 volts (neg. temp. coeff.) (C20, C56, C57, C103)	33015-	Insulator—Stand-off porcelain insulator—less hardware
33476	Capacitor—8.2 mmfd., 500 volts (neg. temp. coeff.) (C8)	4449	Knob—"Focus" control knob
33100	Capacitor—18 mmfd., 500 volts (neg. temp. coeff.) (C25)	33225	Nut—Speed nut for use with high frequency coil assemblies (Pkg. of 10)
33101	Capacitor—22 mmfd., 500 volts (neg. temp. coeff.) (C24, C52)	14278	Receptacle—Television sound output receptacle (X6)
33102	Capacitor—47 mmfd., 500 volts (neg. temp. coeff.) (C53, C58)	14074	Resistor—82 ohms, ¼ watt (R13, R44)
33103	Capacitor—68 mmfd., 500 volts (neg. temp. coeff.) (C15, C23, C33, C38, C43)	14439	Resistor—100 ohms, ¼ watt (R103)
33477	Capacitor—80.5 mmfd., 500 volts (neg. temp. coeff.) (C16)	14561	Resistor—220 ohms, ¼ watt (R27, R22)
33104	Capacitor—82 mmfd., 500 volts (neg. temp. coeff.) (C21, C22)	11352	Resistor—910 ohms, ¼ watt (R8)
33106	Capacitor—115 mmfd. (C5)	14720	Resistor—1,000 ohms, ¼ watt (R17, R26, R49)
33107	Capacitor—135 mmfd. (C4)	30152	Resistor—1,000 ohms, 1 watt (R20, R24, R47)
12725	Capacitor—150 mmfd. (C10)	30731	Resistor—1,200 ohms, ¼ watt (R102) (KC-3B and KC-3C, 50 cycle, only)
33108	Capacitor—190 mmfd. (C3)	33318	Resistor—1,200 ohms, 2 watts (R87)
33105	Capacitor—215 mmfd., 500 volts (neg. temp. coeff.) (C31, C32)	11351	Resistor—1,300 ohms, ¼ watt (R26)
33760	Capacitor—215 mmfd. (C101)	14499	Resistor—1,500 ohms, ¼ watt (R18)
33109	Capacitor—320 mmfd. (C2)	12194	Resistor—1,800 ohms, ¼ watt (R29)
12536	Capacitor—820 mmfd., 400 volts (C76)	13486	Resistor—2,200 ohms, 1 watt (R6)
4881	Capacitor—3,300 mmfd., 400 volts (C67)	13031	Resistor—3,300 ohms, 1/10 watt (R12 in early production)
33806	Capacitor—.0015 mfd., 1,500 volts (C78)	12312	Resistor—3,300 ohms, ¼ watt (R19)
33584	Capacitor—.005 mfd., 1,200 volts (C11, C12, C13, C14, C18, C19, C26, C27, C28, C29, C30, C34, C35, C36, C39, C40, C41, C42, C49, C50, C51, C54, C55, C60, C65, C66, C79, C80, C92, C93, C94, C95, C102)	30150	Resistor—3,300 ohms, 1 watt (R7, R72, R85)
33340	Capacitor—.005 mfd., 3,000 volts (C81, C82)	12955	Resistor—3,900 ohms, ¼ watt (R30)
11315	Capacitor—.015 mfd., 400 volts (C61) (Model TT-5 only)	33566	Resistor—3,900 ohms, 2 watts (R36)
32787	Capacitor—.05 mfd., 400 volts (C46, C64)	11650	Resistor—4,700 ohms, 1/10 watt (R12 in later production)
4886	Capacitor—.05 mfd., 400 volts (C62, C77)	12266	Resistor—6,800 ohms, ¼ watt (R31, R9)
33341	Capacitor—.05 mfd., 3,000 volts (C74, C75)	14075	Resistor—8,200 ohms, ¼ watt (R63, R64)
32786	Capacitor—.1 mfd., 300 volts (C45, C44)	3155	Resistor—9,100 ohms, 1 watt (R90)
4839	Capacitor—.1 mfd., 400 volts (C59, C91, C70, C73)	3078	Resistor—10,000 ohms, ¼ watt (R58, R62)
33020	Capacitor—.15 mfd., 2,500 volts (C87) (C100—KC-3B and KC-3C, 50 cycles, only) .05 mfd., 3,000 volts (C86) (C99—KC-3B and KC-3C, 50 cycles only)	8043	Resistor—10,000 ohms, 2 watts (R57)
30965	Capacitor—.25 mfd., 200 volts (C68, C71)	30128	Resistor—12,000 ohms, ¼ watt (R61)
12484	Capacitor—.25 mfd., 350 volts (C37, C69, C88, C89, C90)	14284	Resistor—22,000 ohms, 1/10 watt (R51)
33195	Capacitor—10 mfd., 450 volts; 10 mfd., 450 volts; 20 mfd., 450 volts; 20 mfd., 25 volts (C63, C48, C47, C72)	14390	Resistor—27,000 ohms, 1/10 watt (R10)
33190	Capacitor—30 mfd., 450 volts; 30 mfd., 450 volts; 10 mfd., 150 volts (C83, C84, C85)	12738	Resistor—27,000 ohms, ¼ watt (R54) (Model TT-5 only)
34599	Capacitor—30-30 mfd., 450 volts (C96, C97); 20 mfd., 350 volts (C98) (KC-3B and KC-3C, 50 cycle, only)	35945	Resistor—33,000 ohms, ¼ watt (R5, R77)
33120	Choke—Filter choke (L39)	33639	Resistor—33,000 ohms, 1 watt (R91)
33243	Coil—High frequency oscillator coil with core and stud (L11)	30683	Resistor—33,000 ohms, 1 watt (R16)
33234	Coil—1½-turn antenna coil, core, stud and capacitor assembly (C5, L9, L10) (green)	30434	Resistor—39,000 ohms, 1 watt (R46)
33233	Coil—2-turn antenna coil, core, stud and capacitor assembly (C4, L7, L8) (yellow)	33182	Resistor—43,000 ohms, 2 watts (R88, R89)
33232	Coil—3-turn antenna coil, core, stud and capacitor assembly (C3, L5, L6) (orange)	12412	Resistor—47,000 ohms, ¼ watt (R93, R94)
33231	Coil—5½-turn antenna coil, core, stud and capacitor assembly (C2, L1, L2) (red)	30495	Resistor—47,000 ohms, 1 watt (R84, R86)
33230	Coil—4-turn antenna coil, core, stud and capacitor assembly (C101, L3, L4) (brown)	33567	Resistor—62,000 ohms, ¼ watt (R28, R23)
33538	Coil—Peaking coil and 10 meg., ¼ watt resistor assembly (L33, R37)	13715	Resistor—68,000 ohms, ¼ watt (R73)
33539	Coil—Peaking coil and 10 meg., resistor assembly (L31, R32)	30679	Resistor—68,000 ohms, 1 watt (R50)
33540	Coil—Peaking coil and 10 meg., ¼ watt resistor assembly (L32, R35)	8064	Resistor—82,000 ohms, ¼ watt (R16, R45)
33541	Coil—Peaking coil and 1,500 ohm, ¼ watt resistor assembly (L38, R59)	11281	Resistor—100,000 ohms, 1/10 watt (R21)
33228	Condenser—Adjustable. oscillator tuning condenser mounted on band switch (C9)	14560	Resistor—100,000 ohms, ¼ watt (R11, R48, R52, R67, R79)
33385	Connector—Insulated plate connector and lead (Use with 879 Rectifier Tube)	30180	Resistor—120,000 ohms, ¼ watt (R4)
		30493	Resistor—150,000 ohms, ¼ watt (R43)
		12264	Resistor—220,000 ohms, ¼ watt (R68, R75, R76, R101)
		33501	Resistor—330,000 ohms, 1 watt (R98)
		12285	Resistor—470,000 ohms, ¼ watt (R34)
		33502	Resistor—470,000 ohms, 1 watt (R92)
		33593	Resistor—560,000 ohms, 1 watt (R95)
		12413	Resistor—680,000 ohms, ¼ watt (R81)
		33598	Resistor—680,000 ohms, 1 watt (R96)
		13730	Resistor—1 meg. ¼ watt (R1, R2, R3, R33, R53, R60, R56, R66)
		30208	Resistor—1.2 meg., ¼ watt (R39, R82, R83, R71, R41)
		12679	Resistor—2.2 meg., ¼ watt (R74)
		13167	Resistor—3.9 meg., ¼ watt (R38, R40)
		30931	Resistor—4.7 meg., ¼ watt (R69)
		33229	Roller—Rubber friction roller for use on band switch for adjustment of oscillator trimmer
		3682	Shield—Tube shield for "Hor. out." tube
		33211	Socket—4-prong rectifier tube socket
		31251	Socket—Octal base wafer type tube socket
		33001	Socket—11-prong magnal Kinescope socket (X13)
		18008	Socket—6J5 oscillator tube socket
		33226	Switch—Band switch complete—less tuning condenser and friction roller
		33281	Switch—Rotary type power switch (S5) (Model TT-5 only)
		33519	Transformer—"1st Det. P1" I-F transformer (R8, C20, L17, L20, R10, C25) (red and brown)
		33520	Transformer—"1st Det. P2" I-F transformer (L18, C21, C22, C23, L19, R12) (red and red)

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
33523	Transformer—"1st pix P1" I-F transformer (L21, L22, R18, C31) (red and green)	31639	Socket—Dial lamp socket, one wire non-insulated
33524	Transformer—"1st pix P2" I-F transformer (L23, L24, C33, R21) (red and blue)	31384	Socket—Dial lamp socket, two wire insulated
33526	Transformer—"1st Sound" I-F transformer (L34, L35, C52, C53) (red and white)	13871	Socket—Magic eye socket
33522	Transformer—"2nd Picture" I-F transformer (L25, L26, L27, C38, R26) (red and yellow)	31251	Socket—Octal type tube socket
33527	Transformer—"2nd Sound" I-F transformer (L36, L37, C56, C57, R51) (brown and orange)	31418	Spring—Indicator or drive cord tension spring
33525	Transformer—"3rd Picture" I-F transformer (L28, L29, L30, C43, R29) (red and black)	33496	Switch—Range switch (S1, S2)
82899	Transformer—Horizontal oscillation transformer (T3)	33498	Switch—Station selector push button switch (S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S4, S5, S44, S45, S46)
33390	Transformer—Plate and filament power transformer (T1)	33499	Switch—Television power switch and cover (S47)
32898	Transformer—Vertical oscillation transformer (T2)	14376	Transformer—1st I. F. transformer complete (L10, L11, C5, C6)
3 BAND RADIO RECEIVER		14283	Transformer—2nd I. F. transformer complete (L12, L13, C7, C8, C37, R4, R5)
No. RC-429 Used with Model TRK-5		POWER SUPPLY UNIT	
14517	Board—Antenna—Ground terminal board	RS—89—A	
30752	Bracket—"Magic Eye" bracket	USED WITH RC—429	
30768	Cap—Rubber cap for "Magic Eye"	33606	Plug—8 prong plug for power supply cable (X11)
32486	Capacitor—Antenna coil trimmer capacitor bank (C31, C32, C33, C34, C35, C36)	31251	Socket—Octal base tube socket
31400	Capacitor—Triple adjustable trimmer, two sections, 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25)	33224	Transformer—Power transformer (T1)
12722	Capacitor—18 mmfd. (C1)	SPEAKER ASSEMBLIES	
12723	Capacitor—56 mmfd. (C3, C48)	TRK-5	
12720	Capacitor—100 mmfd. (C39)	RL-70—H-5	
12422	Capacitor—109 mmfd. (C5, C6)	31825	Cap—Speaker cone dust cap
12404	Capacitor—120 mmfd. (C7, C8)	11469	Coil—Hum bucking coil (L15)
14712	Capacitor—180 mmfd. (C37)	12012	Coil—Speaker field coil (L16)
30232	Capacitor—200 mmfd. (C2)	31275	Cone—Speaker cone and voice coil (L14)
32492	Capacitor—530 mmfd. (C24)	31539	Plug—5 prong male speaker plug with link (X9)
31435	Capacitor—750 mmfd. (C26)	32146	Speaker—Speaker complete
4881	Capacitor—3,300 mmfd. (C22)	14534	Transformer—Output transformer (T2)
31405	Capacitor—6,000 mmfd. (C27)	MISCELLANEOUS ASSEMBLIES	
5107	Capacitor—.0025 mfd., 700 volt (C18, C47)	MODEL TRK-5	
4838	Capacitor—.005 mfd., 1,000 volt (C14 C17, C43)	MODEL TT-5	
14393	Capacitor—.01 mfd., 300 volt (C11)	31397	Button—Station selector push button (Model TRK-5 only)
30882	Capacitor—.05 mfd., 200 volt (C4, C9, C38)	33597	Cap—Pilot lamp "bull's eye" (Model TRK-5 only)
4858	Capacitor—.01 mfd., 500 volt (C10, C40, C41, C42)	33480	Cable—38-inch shielded cable with two male plugs. Used between Radio and television chassis (Model TRK-5 only) (X5, X7)
30867	Capacitor—0.5 mfd., 200 volt (C20)	33479	Cable—61-inch audio connection cable with two male connectors (Model TT-5 only) (X5, X7)
32145	Capacitor—4 mfd., 450 volt (C12)	33363	Connector—2 prong female plug for interlock cable (X2)
32142	Capacitor—10-10-20 mfd. (C18, C19, C44)	4573	Connector—2 prong female connector used on television power cable (X4)
31382	Clip—Push button coil and core mounting clip	31456	Cover—Package of eight protective push button covers
32493	Coil—Antenna coil assembly A, B, and C band (L1, L2, L3, L43)	38305	Decalcomania—"1-2-3-4-5" decal
31386	Coil—Push button oscillator coil, "A" band (L37, L38) (550-950KC)	32673	Dial—3-band glass dial scale
32487	Coil—Push button oscillator coil, "A" band (L39, L40) (890-1225KC)	33481	Escutcheon—Dial escutcheon and scale (Model TRK-5 only)
31383	Coil—Push button oscillator coil, "A" band (L41, L42) (890-1,500KC)	33518	Glass—Safety protective glass for kinescope
31951	Coil—Oscillator coil assembly for A, B, and C bands (L4, L5, L6, L7, L8, L9)	33506	Knob—Band switch knob (Model TRK-5 only)
31369	Condenser—2 gang variable tuning condenser (C28, C29, C30)	33471	Knob—"Brightness", "Vert. hold" or "volume" knob
33497	Control—Dual volume and tone control and switch (R8, R13, S3)	33470	Knob—"Contrast", "Hor. hold", "Fine tuning" or "Tone control" knob
32634	Cord—Drive cord with clamping clips	33489	Knob—"Off-on" control knob (Model TT-5 only)
12800	Core—Adjustable core and stud for oscillator coil	33505	Knob—Radio tuning knob (Model TRK-5 only)
31372	Drum—Variable condenser drive cord drum and calibration dial	33472	Knob—"Station selector" control knob (white dot)
11891	Lamp—6.3 volt dial lamp (Mazda No. 44)	33468	Knob—"Volume" control knob
32670	Plate—Dial plate assembly	11891	Lamp—6.3 volt, Pilot indicator lamp (Mazda No. 44)
12493	Plug—Female speaker cable plug (X10)	31458	Marker—"Dial tuning" marker tab (Model TRK-5 only)
32552	Pointer—Dial pointer	33596	Marker—"Television" marker tab (Model TRK-5 only)
31373	Pulley—Pointer drive cord pulley	31589	Marker—Complete set of station call letter markers (TRK-5 only)
14278	Receptacle—Television sound input socket (X8)	33225	Nut—"Speed nut" for high frequency coil assembly (Pkg. of 10)
32143	Resistor—Voltage divider comprising one 11,000 ohm, one 3,000 ohm, one 22 ohm and one 270 ohm section (R14, R22, R23, R24)	4577	Plug—2 prong male connector used on television power cable (X3)
30545	Resistor—180 ohms, 1/2 watt (R8)	33244	Plug—2 prong male connector used on interlock cable (X1)
5114	Resistor—15,000 ohms, 1 watt (R17)	12493	Plug—5 prong female speaker connector plug (Model TRK-5 only)
14284	Resistor—22,000 ohms, 1/10 watt (R4)	11210	Screw—1/2x20x1 in. chassis mounting screw, washer and lock washer (6 req'd)
12454	Resistor—33,000 ohms, 1/2 watt (R2, R12)	4560	Screw—1/2x20x1 1/2 chassis mounting screw, washer and lock washer (6 req'd)
12266	Resistor—39,000 ohms, 1/2 watt (R7)	14270	Spring—Knob spring for stock No. 33468, 33471, 33472 and 33469 knobs
14560	Resistor—100,000 ohms, 1/2 watt (R25)	30330	Spring—Knob spring for stock No. 33470 knob
11398	Resistor—220,000 ohms, 1/10 watt (R5)	4982	Spring—Knob spring for stock No. 33505 knob
12199	Resistor—270,000 ohms, 1/2 watt (R15 R19)	33384	Switch—Interlock switch and cover (S1, S2, TRK-5, S3, S4, TT-5)
13479	Resistor—390,000 ohms, 1/2 watt (R20, R21)		
12486	Resistor—560,000 ohms, 1/2 watt (R18)		
12013	Resistor—1 meg., 1/10 watt (R16)		
13730	Resistor—1 meg., 1/2 watt (R1)		
12679	Resistor—2.2 meg., 1/2 watt (R3)		
14343	Retainer—Retainer for stock No. 33500 tuning shaft		
14887	Retainer—Retainer spring for stock No. 31373 pulley		
33500	Shaft—Tuning shaft		
12581	Shield—I-F transformer shield top		
31319	Socket—8 prong socket for power supply plug (X12)		

MODEL 6Q1

Chassis No. RC-441

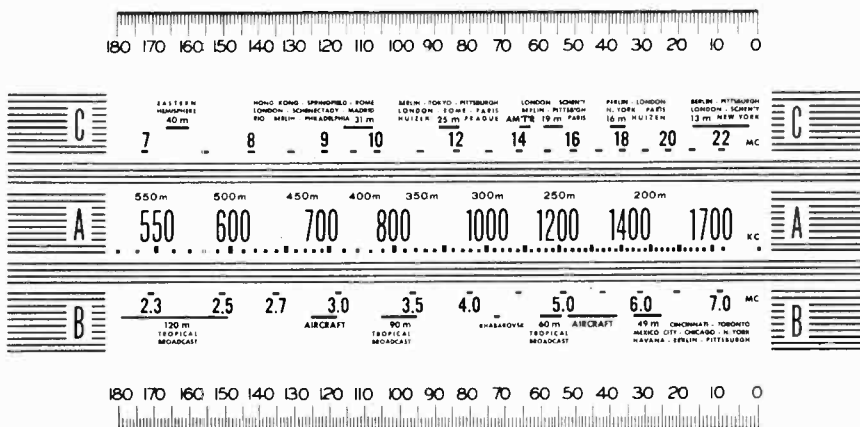
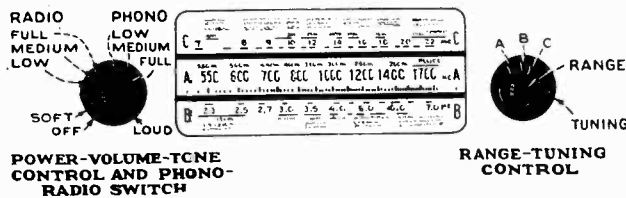
Six-Tube, Three-Band, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES	
Standard Broadcast ("A" Band).....	540-1,720 kc (555-174 m)
Medium Wave ("B" Band).....	2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band).....	7.0-22.0 mc (42.8-13.6 m)
INTERMEDIATE FREQUENCY.....	455 kc
TUBE COMPLEMENT	
(1) RCA-6SK7.....	R-F Amplifier
(2) RCA-6SA7.....	1st Detector-Oscillator
(3) RCA-6SK7.....	I-F Amplifier
(4) RCA-6SQ7.....	2nd Detector, A.V.C., and A-F Amplifier
(5) RCA-6F6-G.....	Output
(6) RCA-5Y3-G.....	Rectifier
POWER OUTPUT RATING	
Undistorted.....	2.5 watts
Maximum.....	4.5 watts
LOUDSPEAKER (RL-79A-2)	
Type.....	6-inch electrodynamic
V.C. Impedance.....	3.4 ohms at 400 cycles
POWER SUPPLY RATINGS	
Rating A.....	105-125 volts, 50-60 cycles, 75 watts
Rating B.....	105-125 volts, 25-60 cycles, 75 watts
Rating C.....	105-130, 140-160, 200-250 volts, 40-60 cycles, 75 watts

Mechanical Specifications

	Height	Width	Depth
Cabinet Dimensions (inches)....	12 $\frac{1}{2}$	16 $\frac{5}{8}$	10 $\frac{15}{16}$
Chassis Base Dimensions (inches)	2 $\frac{7}{8}$	15 $\frac{5}{8}$	6 $\frac{1}{2}$
Over-all Chassis Height (inches)			7 $\frac{7}{8}$
Weight (Net lbs.).....			24
Tuning Drive Ratio.....			10 to 1; 50 to 1



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 33° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

Precautionary Lead Dress:

1. Dress yellow lead from antenna coil to first section of range switch away from adjoining wires.
2. Dress green lead from middle section of gang and green lead from 6SA7 to the rear section of the range switch away from chassis, ground leads, other wires and capacitors.
3. Dress brown lead from detector coil to rear section of the range switch away from the detector coil; loop brown lead toward rear apron.
4. Dress black lead from 2nd I. F. transformer "B" to 6SQ7 socket against chassis.
5. Twist power leads together, and dress away from 6SQ7 socket.
6. Dress blue lead from 6SK7 (R-F) socket to detector coil away from chassis, ground shields and other wires.
7. Dress black lead from antenna trimmer (C1) to antenna coil away from range switch link action.
8. Dress black speaker lead around output socket toward power transformer, against base.
9. Keep green lead of 6SK7 R-F grid circuit away from blue antenna lead.

Alignment Procedure

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

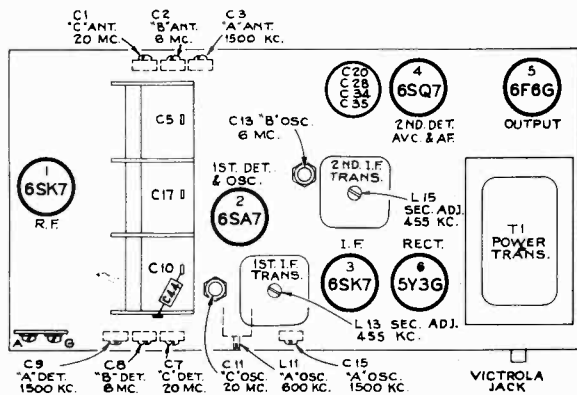
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 180° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-osc. to	Tune test-osc. to	Turn radio dial to	Adjust the following for maximum peak output
1	6B8-I-F grid in series with .01 mfd.	455 kc	Quiet point on "C" Band	L14 and L15 (2nd I-F Trans.)
2	Stator of middle section of gang [C17] in series with .01 mfd.			L12 and L13 (1st I-F Trans.)
3	Ant. terminal in series with 200 mmfd.	600 kc	600 kc (148°) "A" Band	L11 (osc.) Rock gang
4		1,500 kc	1,500 kc (28°) "A" Band	C15 (osc.)* C9 (det.)† C3 (ant.)
5	Ant. terminal in series with 300 ohms	6.1 mc	6.1 mc (29°) "B" Band	C13 (osc.)* C8 (det.)† C2 (ant.)
6		20 mc	20 mc (23°) "C" Band	C11 (osc.)* C7 (det.)† C2 (ant.)

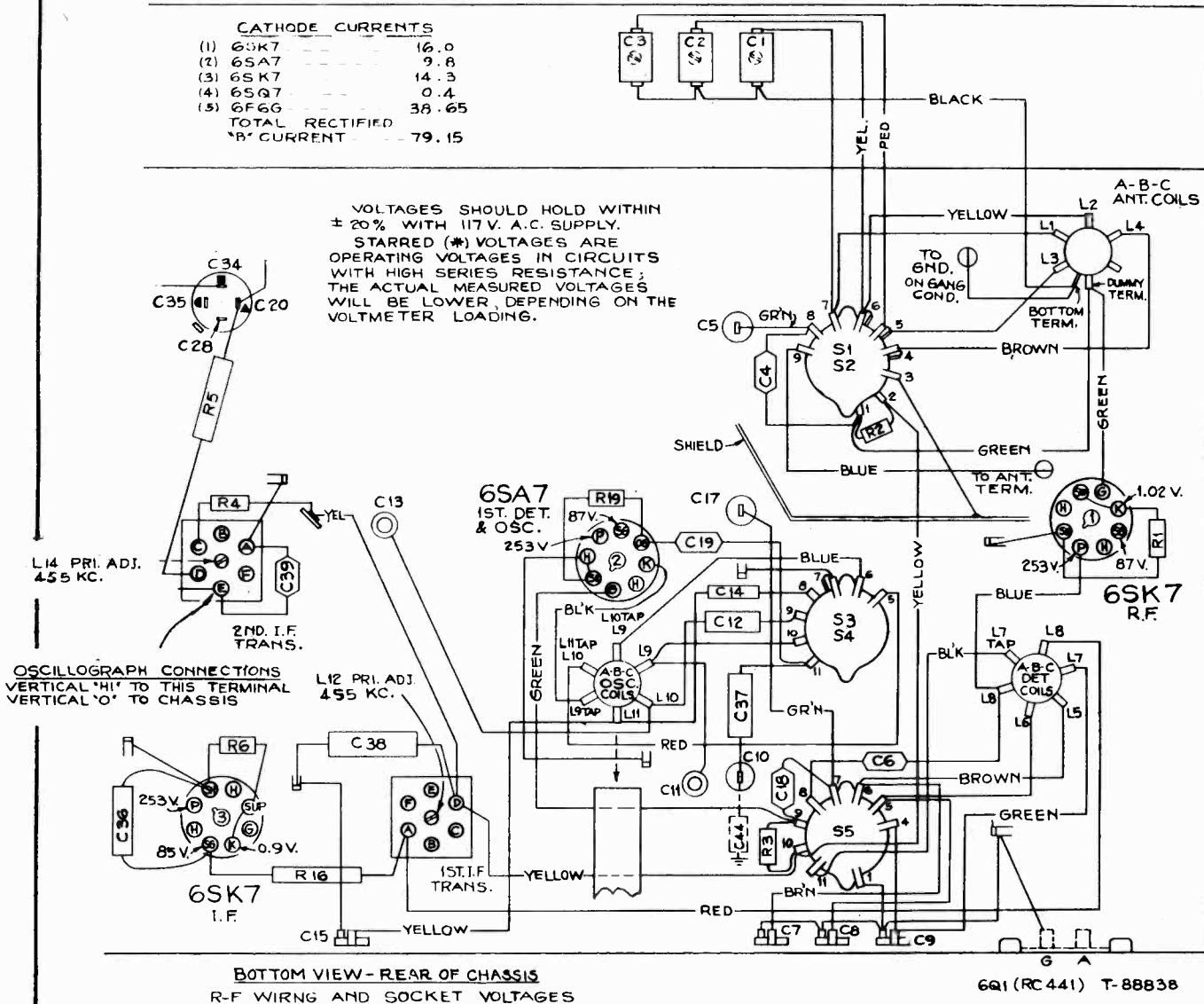


* Use minimum capacity peak if two peaks can be obtained.
† Use maximum capacity peak if two peaks can be obtained.
NOTE: Oscillator tracks 455 kc above signal on all bands.

CATHODE CURRENTS

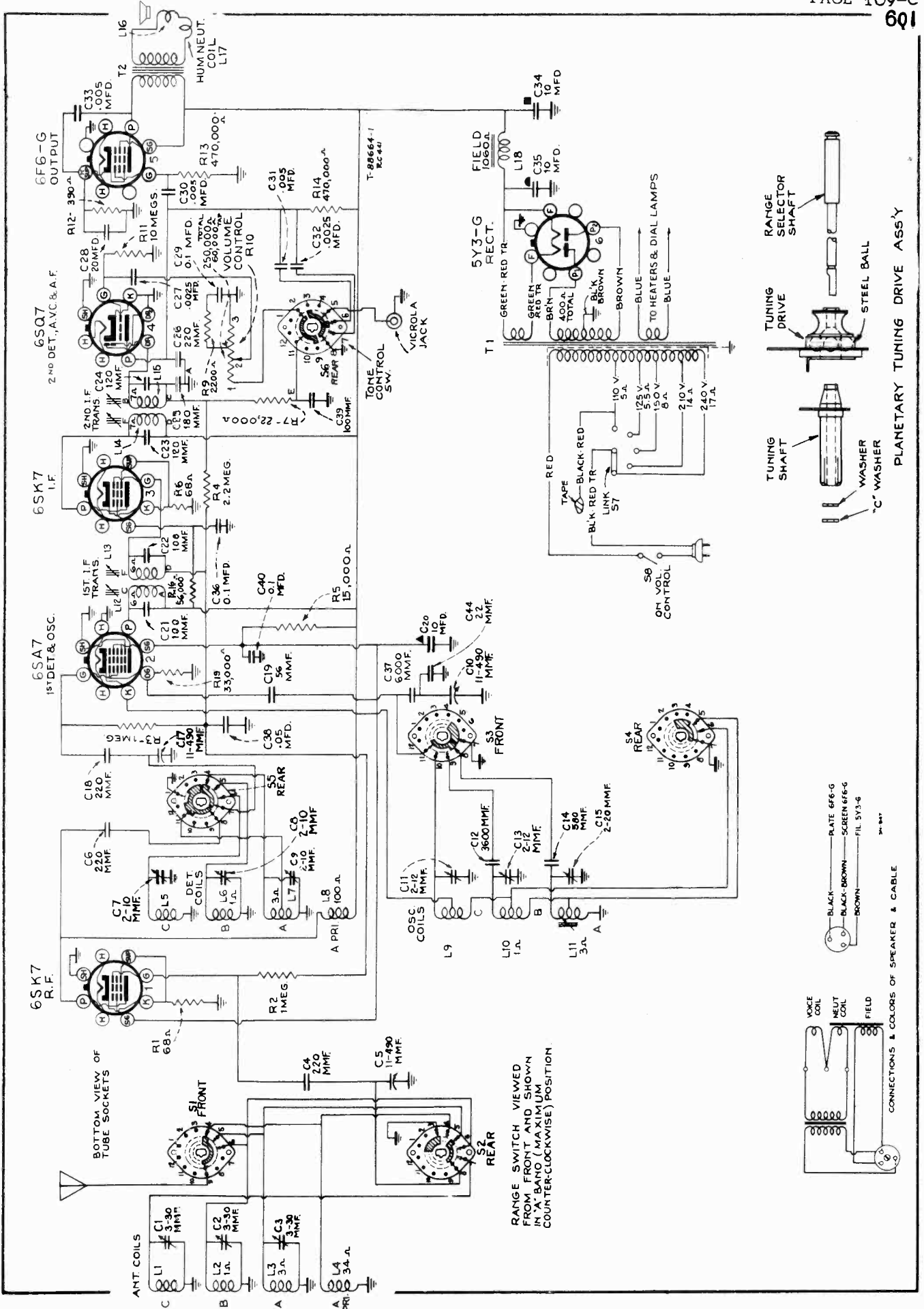
(1) 6SK7	16.0
(2) 6SA7	9.8
(3) 6SK7	14.3
(4) 6SK7	0.4
(5) 6F6G	38.65
TOTAL RECTIFIED	
B* CURRENT — 79.15	

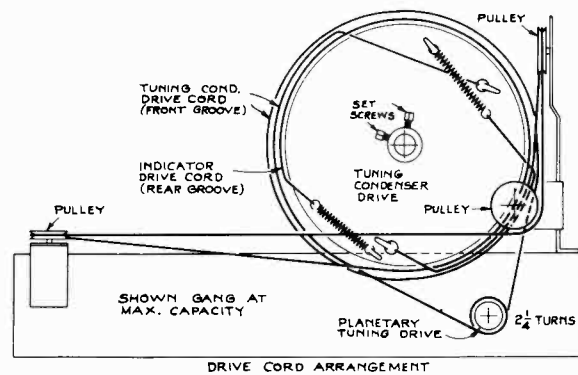
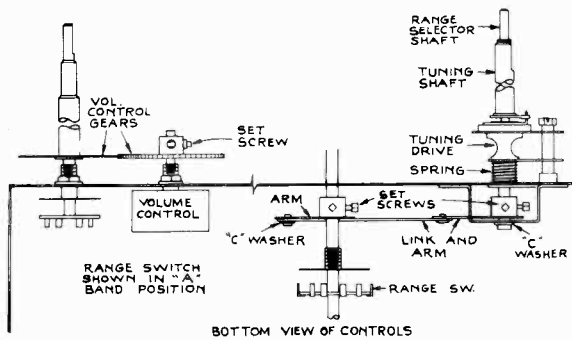
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. A.C. SUPPLY.
STARRED (*) VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE; THE ACTUAL MEASURED VOLTAGES WILL BE LOWER, DEPENDING ON THE VOLTMETER LOADING.



BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING AND SOCKET VOLTAGES

601 (RC 441) T-8883B





REPLACEMENT PARTS

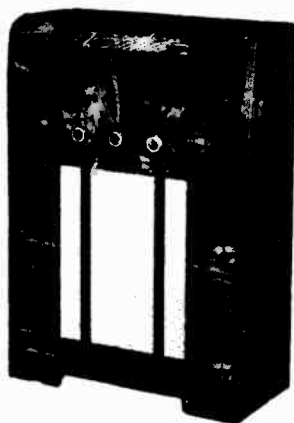
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-441)			
34502	Arm—Operating arm between knob shaft and range switch shaft	31364	Socket—Lamp socket
10194	Ball—Steel Ball	14278	Socket—Single contact socket and plate for phonograph input
31767	Board—Antenna-Ground board	31251	Socket—Tube socket
33819	Capacitor—Trimmer capacitor—3 sections of 2-10 mmfd. each (C7, C8, C9)	31418	Spring—Condenser drive cord spring
12714	Capacitor—Adjustable trimmer—2-12 mmfd. (C11, C13)	13638	Spring—Indicator drive cord spring
33817	Capacitor—Trimmer capacitor—1 section of 2-20 mmfd. (C15)	33789	Spring—Planetary tuning drive spring
33820	Capacitor—Trimmer capacitor—3 sections of 3-30 mmfd. each (C1, C2, C3)	33757	Switch—Range switch (S1, S2, S3, S4, S5)
31868	Capacitor—22 mmfd. (C44)	33428	Transformer—First i-f transformer (L12, L13, C21, C22)
12723	Capacitor—56 mmfd. (C19)	14308	Transformer—Second i-f transformer (L14, L15, C23, C24, C25, R7)
12720	Capacitor—100 mmfd. (C39)	31734	Transformer—Power transformer 110 volts, 25 cycle (T1)
30904	Capacitor—100 mmfd. (C21, C22)	31733	Transformer—Power transformer 110 volts, 60 cycle (T1)
12404	Capacitor—120 mmfd. (C23, C24)	31735	Transformer—Power transformer 105/130 140/160 200/250 volts, 50/60 cycle (T1)
14712	Capacitor—180 mmfd. (C25)	SPEAKER ASSEMBLIES (RL-79A-2)	
12694	Capacitor—220 mmfd. (C4, C6, C18, C26)	32907	Cap—Dust cap
33235	Capacitor—580 mmfd. (C14)	33966	Coil—Field coil (L18)
12811	Capacitor—3,600 mmfd. (C12)	32908	Coil—Neutralizing coil (L17)
31405	Capacitor—6,000 mmfd. (C37)	5118	Plug—3 prong male speaker plug
5107	Capacitor—.0025 mfd. (C27, C32)	32905	Transformer—Output transformer (T2)
33584	Capacitor—.005 mfd. (C30, C31, C33)	MISCELLANEOUS ASSEMBLIES	
32787	Capacitor—.05 mfd. (C38)	33798	Dial—Dial scale
4839	Capacitor—0.1 mfd. (C29, C36, C40)	33797	Frame—Dial frame assembly complete less dial scale
33014	Capacitor—Comprising 3 sections of 10 mfd. and 1 section of 20 mfd. (C20, C28, C34, C35)	33774	Mounting—Speaker mounting hardware
33762	Coil—Antenna coil A-B-C-Band (L1, L2, L3, L4)	4982	Spring—Retaining spring for knob Stock No. 34136
33763	Coil—Detector coil A-B-C-Band (L5, L6, L7, L8)	14270	Spring—Retaining spring for knob Stock No. 34570
32824	Coil—Oscillator coil A-B-C-Band (L9, L10, L11)	34138	Spring—Retaining spring for knob Stock No. 34571
33756	Condenser—Variable tuning condenser (C5, C10, C17)	Additional Replacement Parts:	
33815	Control—Tone control (S6)	Stock No.	
33814	Control—Volume control and power switch (R10, S8)	34662	Cord—Condenser drive cord
32635	Cord—Indicator drive cord	11761	Lamp—Mazda No. 51
32713	Core—Core and stud for oscillator coils	35441	Cone—Cone complete with voice coil, suspension, and dust cap
33770	Drive—Planetary tuning drive less balls, shafts and shaft retainer	34571	Knob—Range switch knob (brown)
33773	Drum—Variable tuning condenser drum and hub	34570	Knob—Tone control knob (brown)
33185	Gear—Gear and hub for volume control and switch	34136	Knob—Tuning or volume control (brown)
33767	Link—Operating link between knob shaft and range switch	34984	Knob—Range switch knob (black)
12471	Plate—Cushion socket mounting plate assembly less socket	34983	Knob—Tone control knob (black)
14281	Resistor—68 ohms, 1/2 watt (R1, R6)	34982	Knob—Tuning or volume control (black)
31388	Resistor—390 ohms, 1 watt (R12)		
13716	Resistor—2,200 ohms, 1/2 watt (R9)		
33489	Resistor—15,000 ohms, 2 1/2 watt (R5)		
14284	Resistor—22,000 ohms, 1/10 watt (R7)		
12454	Resistor—33,000 ohms, 1 watt (R19)		
17440	Resistor—56,000 ohms, 1 watt (R16)		
12285	Resistor—470,000 ohms, 1/2 watt (R13, R14)		
13730	Resistor—1 meg., 1/2 watt (R2, R3)		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
13601	Resistor—10 meg., 1/2 watt (R11)		
34037	Retainer—Retaining washer for range switch shaft		
33772	Shaft—Range switch shaft		
33768	Shaft—Shaft and gear for tone control		
33771	Shaft—Tuning shaft		

MODELS 6Q4, 7Q4 and 7QK4

Chassis No. RC-441-A RC-478A RC-478B

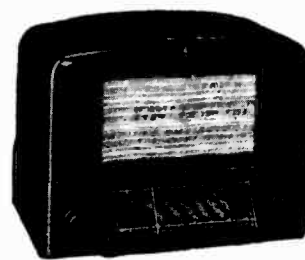
Six and Seven-Tube, Four-Band, A-C, Superheterodyne Receivers



MODEL 7QK4



MODEL 7Q4



MODEL 6Q4

Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band).....	145-405 kc (2,069-740 m)
Standard Broadcast ("A" Band).....	540-1,720 kc (555-174 m)
Medium Wave ("B" Band).....	2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band).....	7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7... 2nd Detector, A.V.C., and A-F Amplifier
- (5) RCA-6F6-G (7Q4) }
RCA-6F6 (7QK4) } Output
- (6) RCA-5Y3-G..... Rectifier
- (7) RCA-6U5/6G5..... Tuning Indicator

LOUDSPEAKERS

- 7Q4 (RL-63K-2) 8-inch electrodynamic
- 7QK4 (RL-70J-4) 12-inch electrodynamic
- V. C. Impedance..... 2.2 ohms at 400 cycles

POWER OUTPUT RATING

- Undistorted 2.5 watts
- Maximum..... 4.5 watts

LOUDSPEAKER (RL-79A-2) 6Q4

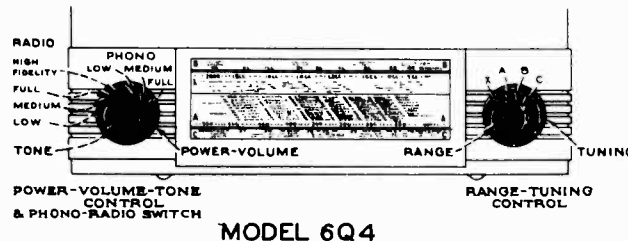
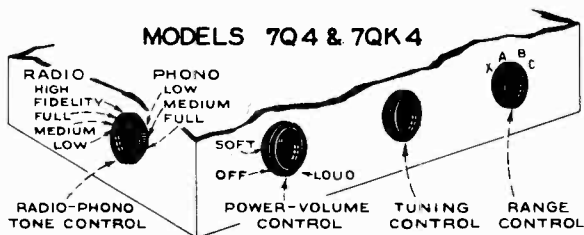
- Type..... 6-inch electrodynamic
- V.C. Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

- Rating A..... 105-125 volts, 50-60 cycles, 75 watts
- Rating B..... 105-125 volts, 25-60 cycles, 75 watts
- Rating C..... 105-130, 140-160, 200-250 volts, 40-60 cycles, 75 watts

Models 7Q4 and 7QK4 are similar to Model 6Q4 except for the addition of a tuning indicator (RCA-6U5/6G5). The 7QK4 chassis uses an RCA-6F6 output tube, whereas the 7Q4 uses an RCA-6F6-G output tube.

Below—Controls



Precautionary Lead Dress:

1. Dress black lead from L11 to C20 against terminals 6 and 7 of S6.
2. Dress the green lead from the middle section of the gang away from any other leads, parts, or chassis.
3. Dress the black diode lead running between the 6SQ7 and terminal G on the 2nd I-F transformer, directly against the chassis.
4. Twist the power leads together and dress them away from the 6SQ7 socket.
5. Dress the brown lead from terminal E on the 2nd I-F transformer to terminal 11 on S8 close to chassis.
6. Dress the black lead from trimmer (C1) to antenna coil away from the range switch link section.
7. Dress black speaker lead around the output socket toward the power transformer.
8. Keep green lead of 6SK7 R-F grid circuit away from blue antenna lead.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

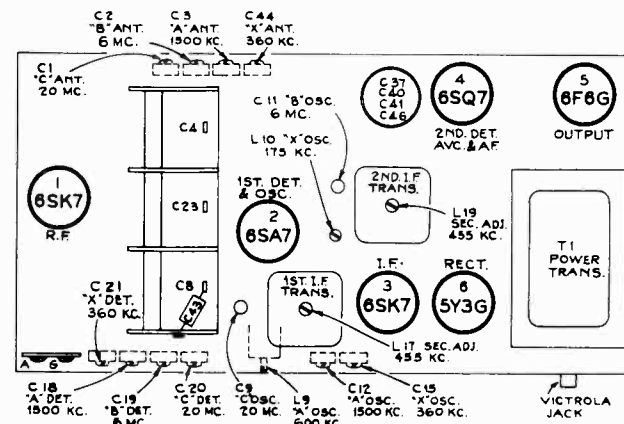
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 180° mark on the calibration scale when the plates are fully meshed.



Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum power output
1	Turn tone control to 3rd position (sharp) from maximum counter-clockwise.			
2	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" Band Quiet point between 550-750 kc	L18 and L19 (2nd I-F trans.)
3	6SA7 grid in series with .01 mfd.			L16 and L17 (1st I-F trans.)
4	Turn tone control to 4th position (broad) from maximum counter-clockwise and check I-F response which should be a slightly double-peaked curve. Leave tone control in 3rd position (sharp) for the following steps.			
5	Ant. terminal in series with 200 mmfd.	360 kc	360 kc (31.5°) "X" Band	360 kc (149°) C15 (osc.)† C21 (det.) C44 (ant.)
6		175 kc	175 kc (127.2°) "X" Band	175 kc (53°) L10 (osc.) Rock gang
7		1,500 kc	1,500 kc (28°) "A" Band	1,500 kc (152°) C12 (osc.)†† C18 (det.) C3 (ant.)
8		600 kc	600 kc (148°) "A" Band	600 kc (32°) L9 (osc.) Rock gang
9	Repeat steps 5, 6, 7, and 8.			
10	Ant. terminal in series with 300 ohms	6 mc	6 mc (30°) "B" Band	6 mc (149°) C11 (osc.)* C19 (det.) C2 (ant.)
11		20 mc	20 mc (23°) "C" Band	20 mc (157°) C9 (osc.)** C20 (det.) C1 (ant.)

* Use **minimum** capacity peak if two can be obtained. Check to determine that C11 has been adjusted to the correct peak by tuning receiver to approximately 5.09 mc where a weaker signal should be received.

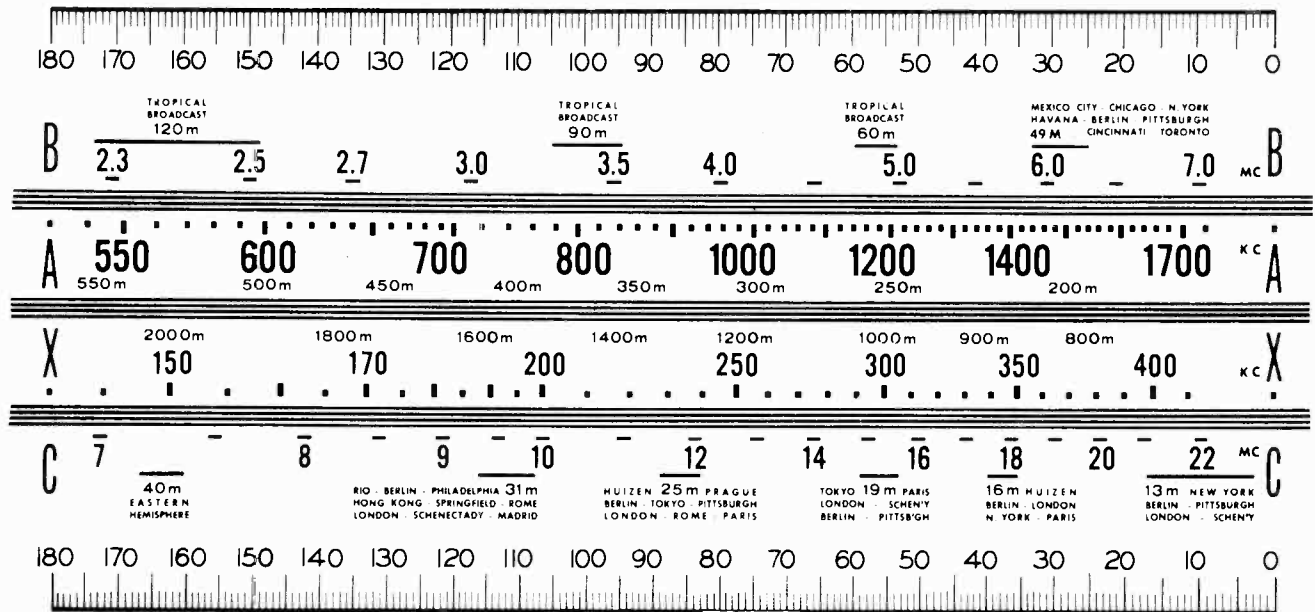
** Use **minimum** capacity peak if two can be obtained. Check to determine that C9 has been adjusted to the correct peak by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

† Preset L10 core approximately 1/2-inch out before adjusting C15.

†† Preset L9 core screw flush with apron before adjusting C12.

Note.—Oscillator tracks above signal on all bands.

Calibration Scale



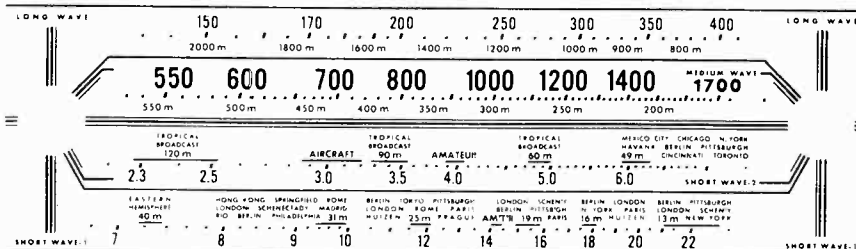
Receiver Dial Scales, and Corresponding 0-180° Calibration Scales 6Q4

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example, 28° on the calibration scale corresponds to 1,500 kc on "A" band. Read instructions under "Alignment Procedure."

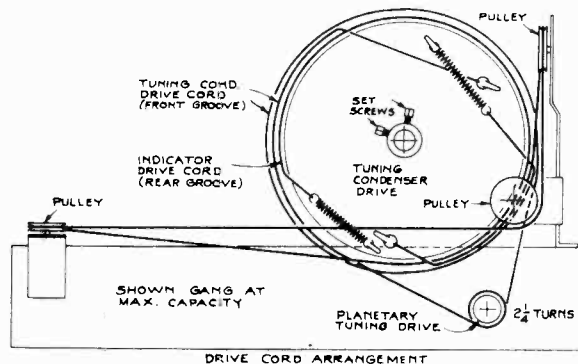
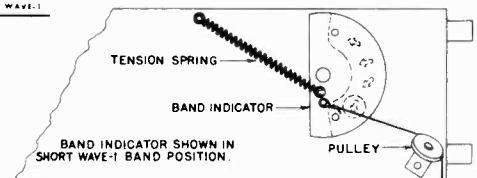


7Q4 7QK4 Calibration Scale

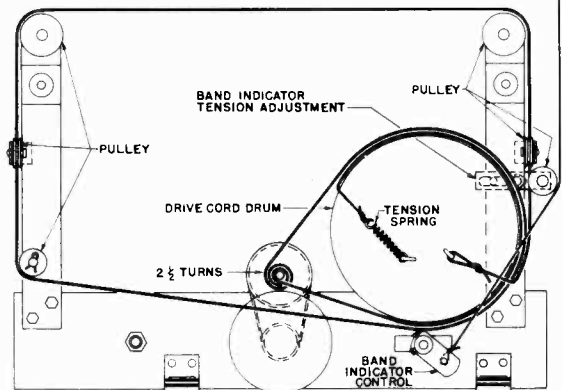
Frequency	Calibration Degrees
175 kc.....	52.8
360 kc.....	148.5
600 kc.....	32.0
1,500 kc.....	152.0
6.0 mc.....	150.0
20.0 mc.....	157.0



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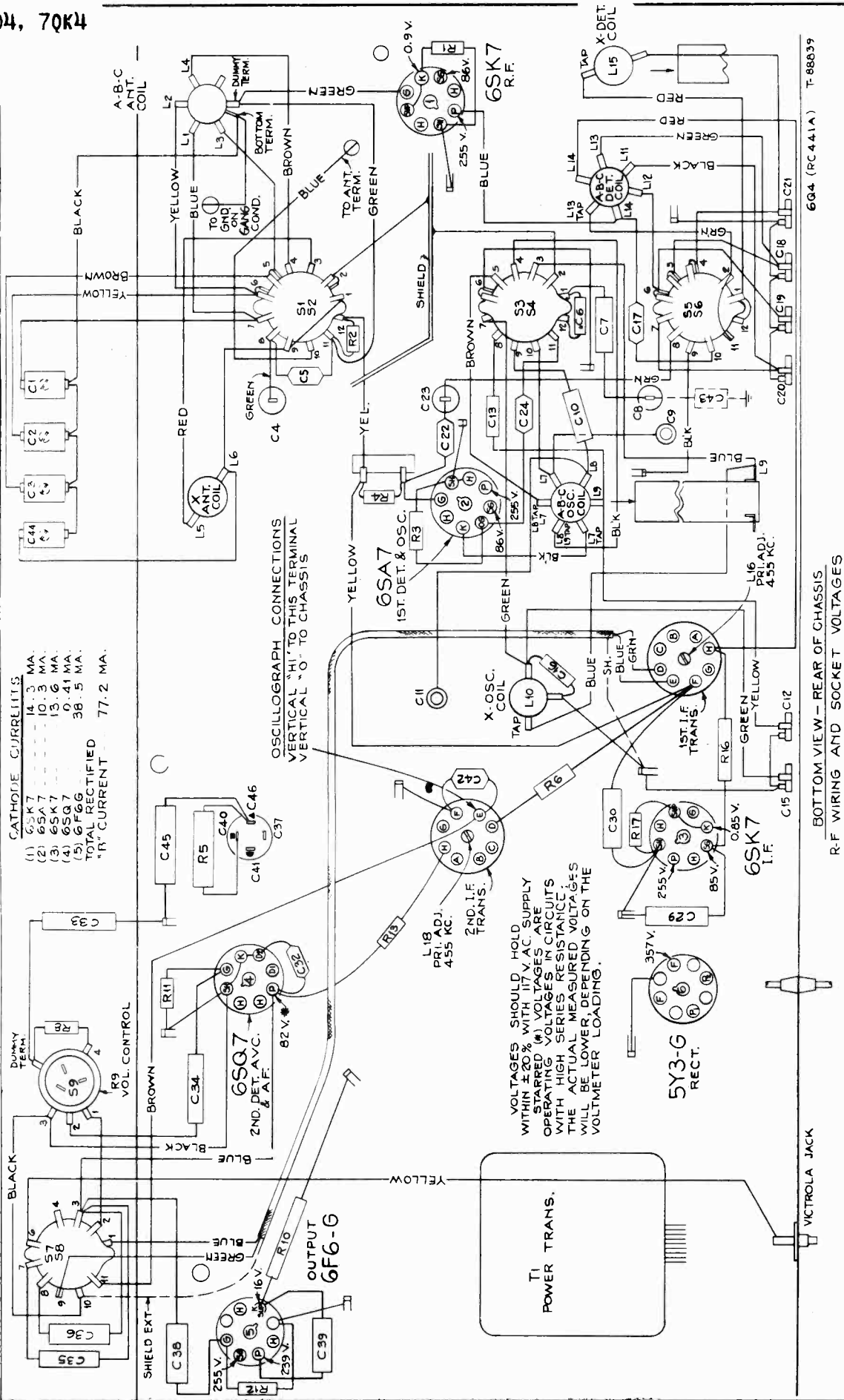
6Q4



SN 1008

7Q4 7QK4

6Q4, 7Q4, 7QK4



CATHODE CURRENTS

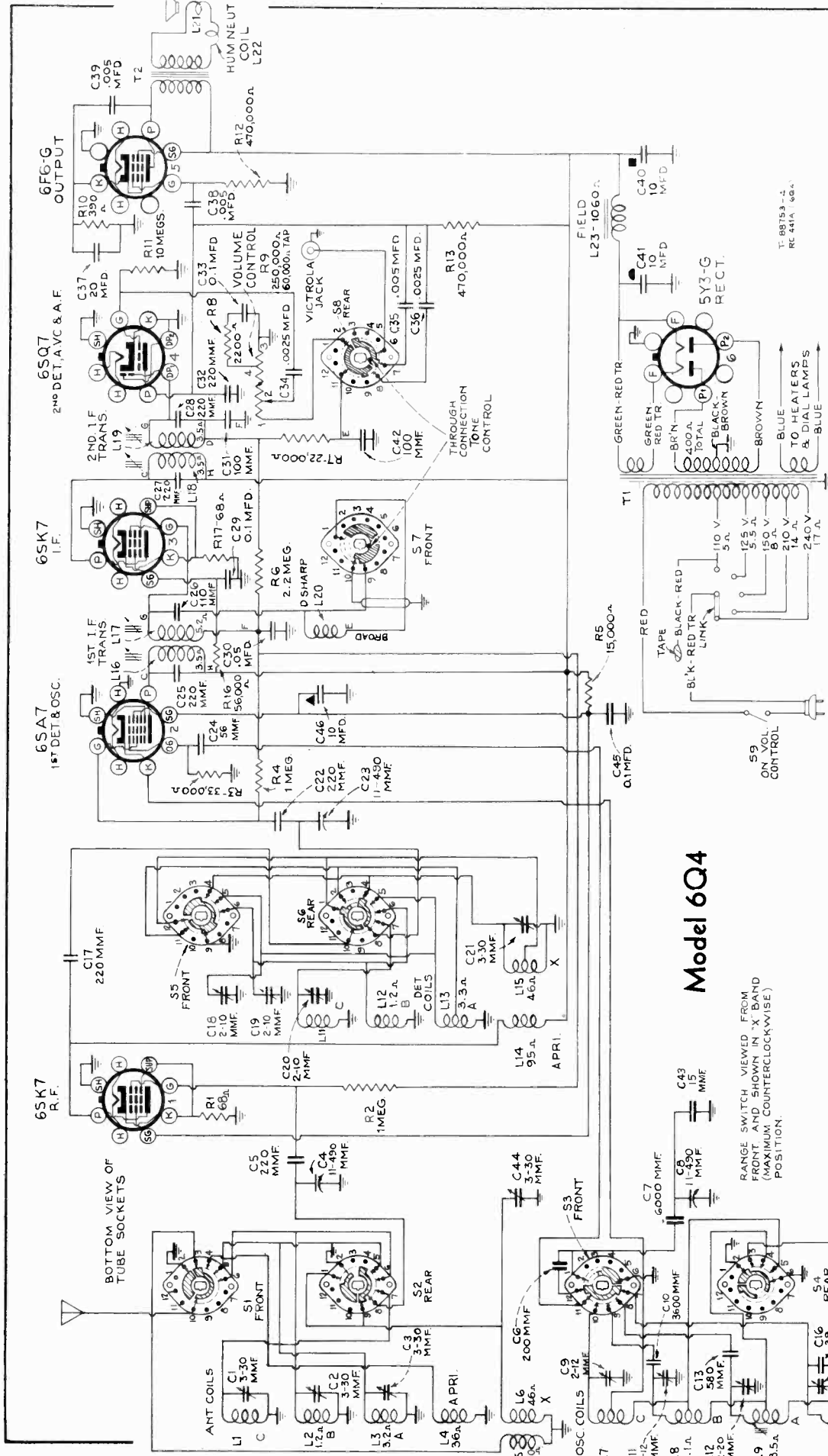
(1) 6SK7	14.3 MA.
(2) 6SA7	10.3 MA.
(3) 6SK7	13.6 MA.
(4) 6SK7	0.41 MA.
(5) 6F6G	38.5 MA.
TOTAL RECTIFIED	77.2 MA.
*R- CURRENT	

OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHASSIS

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V AC SUPPLY. STARTED (H) VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

6Q4 (RC441A) T-886039
BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING AND SOCKET VOLTAGES

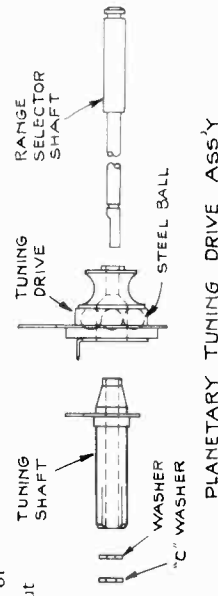
6Q4, 7Q4, 7QK4



Model 6Q4

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN 'X' BAND (MAXIMUM COUNTERCLOCKWISE) POSITION.

Models 7Q4 and 7QK4 are similar to Model 6Q4 except for the addition of a tuning indicator (RCA-6U5/6G5). The 7QK4 chassis uses an RCA-6F6 output tube, whereas the 7Q4 uses an RCA-6F6-G output tube.

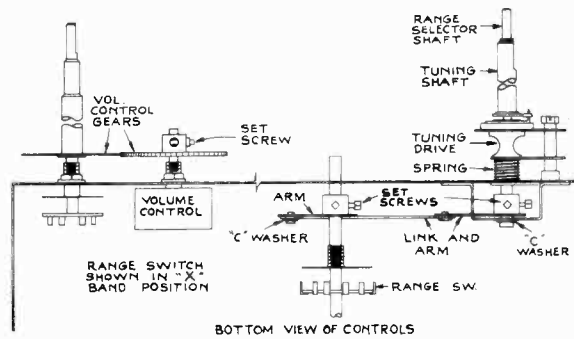


CONNECTIONS & COLORS OF SPEAKER & CABLE

MODEL 6Q4

Additional Replacement Parts:

Stock No.	
34662	Cord—Condenser drive cord
11761	Lamp—Mazda No. 51
35441	Cone—Cone complete with voice coil, suspension, and dust cap
34571	Knob—Range switch knob (brown)
34570	Knob—Tone control knob (brown)
34136	Knob—Tuning or volume control (brown)
34984	Knob—Range switch knob (black)
34983	Knob—Tone control knob (black)
34982	Knob—Tuning or volume control (black)
34296	Dial—Marked in kc (6Q4)



REPLACEMENT PARTS MODEL 6Q4

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC 441-A)			
34502	Arm—Operating arm between knob shaft and range switch shaft	14281	Resistor—68 ohms, 1/4 watt (R1, R17)
10194	Ball—Steel ball	31388	Resistor—390 ohms, 1 watt (R10)
31767	Board—Antenna-Ground board	13716	Resistor—2,200 ohms, 1/4 watt (R8)
33821	Capacitor—Trimmer capacitor—4 sections, 3 of 2-10 mmfd. and 1 of 3-30 mmfd. (C18, C19, C20, C21)	33489	Resistor—15,000 ohms 2 1/2 watt (R5)
12714	Capacitor—Adjustable trimmer—2-12 mmfd. (C9, C11)	13998	Resistor—22,000 ohms, 1/4 watt (R7)
93818	Capacitor—Trimmer capacitor—2 sections of 2-20 mmfd. each (C12, C15)	12454	Resistor—33,000 ohms, 1/4 watt (R3)
33822	Capacitor—Trimmer capacitor—4 sections, of 3-30 mmfd. each (C1, C2, C3, C44)	17440	Resistor—56,000 ohms, 1 watt (R16)
12896	Capacitor—15 mmfd. (C43)	12285	Resistor—470,000 ohms, 1/4 watt (R12, R13)
13545	Capacitor—39 mmfd. (C16)	13730	Resistor—1 meg., 1/4 watt (R2, R4)
12723	Capacitor—56 mmfd. (C24)	12679	Resistor—2.2 meg., 1/4 watt (R6)
12720	Capacitor—100 mmfd. (C42)	13601	Resistor—10 meg., 1/4 watt (R11)
32239	Capacitor—110 mmfd. (C26)	34037	Retainer—Retaining washer for range switch shaft
30232	Capacitor—200 mmfd. (C8)	33772	Shaft—Range switch shaft
12694	Capacitor—220 mmfd. (C5, C17, C22, C32)	33768	Shaft—Shaft and gear for tone control
33760	Capacitor—220 mmfd. (C25, C27, C28)	33771	Shaft—Tuning shaft
33235	Capacitor—580 mmfd. (C13)	14278	Socket—Single contact socket and plate for phonograph input
12811	Capacitor—3,600 mmfd. (C10)	31251	Socket—Tube socket
31405	Capacitor—6,000 mmfd. (C7)	31418	Spring—Condenser drive cord spring
5107	Capacitor—.0025 mfd. (C34, C36)	13638	Spring—Indicator drive cord spring
33584	Capacitor—.005 mfd. (C35, C38, C39)	33769	Spring—Planetary tuning drive spring
32787	Capacitor—.05 mfd. (C30)	33758	Switch—Range switch (S1, S2, S3, S4, S5, S6)
4839	Capacitor—0.1 mfd. (C29, C33, C45)	53759	Transformer—First i-f transformer (L16, L17, C25, C26)
33014	Capacitor—Comprising 3 sections of 10 mfd. and 1 section of 20 mfd. (C37, C40, C41, C46)	33761	Transformer—Second i-f transformer (L18, L19, C27, C28, R7)
33762	Coil—Antenna coil A-B-C Band (L1, L2, L3, L4)	31734	Transformer—Power transformer 110 volts, 25 cycle (T1)
32823	Coil—Antenna coil X Band (L5, L6)	31733	Transformer—Power transformer 110 volts, 60 cycle (T1)
33763	Coil—Detector coil A-B-C Band (L11, L12, L13, L14)	31735	Transformer—Power transformer 105/130-140/160-200/250 volts, 50/60 cycle (T1)
33765	Coil—Detector coil X Band (L15)	SPEAKER ASSEMBLIES (RL 79A-2)	
33764	Coil—Oscillator coil A-B-C Band (L7, L8, L9)	32907	Cap—Dust cap
32931	Coil—Oscillator coil X Band (L10)	33966	Coil—Field coil (L23)
33756	Condenser—Variable tuning condenser (C4, C8, C23)	32906	Coil—Neutralizing coil (L22)
33816	Control—Tone control (S7, S8)	5118	Plug—3 prong male speaker plug
33814	Control—Volume control and power switch (R9, S9)	32905	Transformer—Output transformer (T2)
32635	Cord—Indicator drive cord	MISCELLANEOUS ASSEMBLIES	
32713	Core—Core and stud for oscillator coils	33799	Dial—Dial scale
33770	Drive—Planetary tuning drive less balls, shafts, and shaft retainer	34295	Dial—Glass dial scale (Greek)
33773	Drum—Variable tuning condenser drum and hub	33797	Frame—Dial frame assembly complete less dial scale
33185	Gear—Gear and hub for volume control and switch	33774	Mounting—Speaker mounting hardware
33767	Link—Operating link between knob shaft and range switch	4982	Spring—Retaining spring for knob Stock No. 34136
12471	Plate—Cushion socket mounting plate assembly less socket	14270	Spring—Retaining spring for knob Stock No. 34570
		34138	Spring—Retaining spring for knob Stock No. 34571

MODELS 7Q4 & 7QK4

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
RC478 A & B			
34401	Arm—Arm and hub for band indicator less cable—fastens on range switch shaft.	17440	Resistor—56,000 ohms, 1 watt (R16)
34400	Belt—Drive belt	12285	Resistor—470,000 ohms, 1/2 watt (R12, R13)
31767	Board—"Ant-Gnd" terminal board	12013	Resistor—1 megohm, 1/10 watt
32835	Cable—Cable and clips for band indicator	13730	Resistor—1 megohm, 1/2 watt (R2, R4)
33821	Capacitor—Mica trimmer—3 sections 2-10 mmfd. and 1 section 3-30 mmfd. (C18, C19, C20, C21)	12679	Resistor—2.2 megohm, 1/2 watt (R6)
12714	Capacitor—Air trimmer, 2-12 mmfd. (C9, C11)	13601	Resistor—10 megohm, 1/2 watt (R11)
33818	Capacitor—Mica trimmer, 2 sections 2-20 mmfd. each (C12, C15)	30340	Retainer—Retaining clip for pulley Stock No. 31373
12896	Capacitor—15 mmfd. (C43)	34396	Shaft—Intermediate tuning drive shaft, and drive cord pulley less drive belt, pulley and set screws
33822	Capacitor—Mica trimmer, 4 sections 3-30 mmfd. each (C1, C2, C3, C44)	34397	Shaft—Intermediate tuning drive shaft, and fly-wheel—less drive belt pulley and set screws
13545	Capacitor—39 mmfd. (C16)	31364	Socket—Dial lamp socket
12723	Capacitor—56 mmfd. (C24)	34864	Socket—Magic Eye socket
12720	Capacitor—100 mmfd. (C42)	14278	Socket—Phono. input socket
32239	Capacitor—110 mmfd. (C26)	31251	Socket—Tube socket
30232	Capacitor—200 mmfd. (C6)	31418	Spring—Pointer drive cord tension spring
12694	Capacitor—220 mmfd. (C5, C17, C22, C32)	34390	Switch—Range switch (S1, S2, S3, S4, S5, S6)
33760	Capacitor—220 mmfd. (C25, C27, C28)	33759	Transformer—First i.f. transformer (L16, L17, L20, C25, C26)
33235	Capacitor—580 mmfd. (C13)	33761	Transformer—Second i.f. transformer (L18, L19, C27, C28, C31, R7)
12811	Capacitor—3,600 mmfd. (C10)	31735	Transformer—Power transformer—105/130, 140/160, 195/250 volts, 50/60 cycles
31405	Capacitor—6,000 mmfd. (C7)	34389	Volume control—Volume control and power switch (R9, S9)
5107	Capacitor—.0025 mfd. (C34, C36)	33726	Washer—"C" washer for tuning shaft
4838	Capacitor—.005 mfd. (C38, C39, C35)	SPEAKER ASSEMBLIES (RL 63K2) MODEL 7Q4	
32787	Capacitor—.05 mfd. (C30)	31825	Cap—Dust cap
4839	Capacitor—0.1 mfd. (C29, C33, C45)	34615	Cone—Cone complete with voice coil
33014	Capacitor—Electrolytic—3 sections 10 mfd. and 1 section 20 mfd. (C37, C40, C41)	5118	Plug—3 contact male plug for speaker
33762	Coil—Antenna coil A-B-C Bands (L1, L2, L3, L4)	34614	Speaker—Speaker complete with cone less output transformer and plug
32823	Coil—Antenna coil X Band (L5, L6)	14355	Transformer—Output transformer
33763	Coil—Detector coil A-B-C Bands (L11, L12, L13, L14)	SPEAKER ASSEMBLIES (RL 70J4) MODEL 7QK4	
33765	Coil—Detector coil X Band (L15)	31825	Cap—Speaker cone dust cap
33764	Coil—Oscillator coil A-B-C Bands (L7, L8, L9)	33116	Coil—Speaker field coil
32931	Coil—Oscillator coil X Band (L10)	11469	Coil—Speaker hum neutralizing coil
33756	Condenser—3 gang variable tuning condenser (C4, C8, C23)	31275	Cone—Cone and voice coil assembly
34403	Control—Tone control	5118	Plug—3 prong male speaker plug
34662	Cord—Pointer drive cord	14355	Transformer—Output transformer
32713	Core—Adjustable core and stud for A-B-C Band Coil	MISCELLANEOUS ASSEMBLIES	
34392	Drum—Variable condenser drive drum	MI 8105	Adapter—European adapter for power cord
11891	Lamp—Dial lamp	30766	Cap—"Magic Eye" rubber cap
14028	Nut—Clamping nut for air trimmer	30716	Clip—"Magic Eye" clip
31817	Plate—Cushion socket mounting plate less socket	34486	Dial—Glass dial scale (English)
5119	Plug—3 contact female plug for speaker cable	34504	Dial—Glass dial scale (Greek)
12493	Plug—5 contact female plug for speaker cable	34485	Frame—Dial frame complete with brackets and pulleys less dial, indicator pointer, pointer rods, band indicator, band indicator spring and Magic Eye clip
34399	Pulley—Drive belt pulley and set screws for tuning knob shaft	34488	Indicator—Band indicator
34398	Pulley—Drive belt pulley and set screws for intermediate drive shaft	34487	Indicator—Station selector indicator pointer
31373	Pulley—Drive cord pulley for L. H. support	34494	Knob—Tone control knob
34402	Pulley—Drive cord pulley and bracket for R. H. support	34489	Knob—Tuning range switch or volume control and power switch knob
34394	Pulley—L. H. support and drive cord pulleys (2) assembled, less loose pulley	31482	Screw—No. 8-32 square head set screw for shafts Stock No. 34492, 34493
34404	Pulley—L. H. support and drive cord pulleys (3) assembled (Model 7QK4)	33438	Screw—Magic Eye clip screw
34395	Pulley—R. H. support and drive cord pulleys (2) assembled, less loose pulley and bracket	34491	Shaft—Indicator pointer guide shaft
34405	Pulley—R. H. support and drive cord pulleys (3) assembled (Model 7QK4)	34492	Shaft—Tone control extension shaft (Model 7Q4)
14281	Resistor—68 ohm, 1/2 watt (R1, R17)	34493	Shaft—Tone control extension shaft (Model 7QK4)
31388	Resistor—390 ohms, 1 watt (R10)	30756	Spring—Band indicator spring
13716	Resistor—2,200 ohms, 1/2 watt (R8)	4982	Spring—Retaining spring for knob Stock No. 34494, 34489
33489	Resistor—15,000 ohms, 2 1/2 watt (R5)	33726	Washer—Band indicator retaining washer
13998	Resistor—22,000 ohms, 1/2 watt (R7)		
12454	Resistor—33,000 ohms, 1/2 watt (R3)		

MODELS 7Q4, 7QK4

Additional Replacement Part:

Stock No.

35194 Dial—Marked in kc.

MODEL 6Q4X

Chassis No. RC-442

Six-Tube, Four-Band, AC-DC, Superheterodyne Receiver

REFER TO MODEL 6Q4 FOR ALIGNMENT PROCEDURE

Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band).....	145-405 kc (2,069-740 m)
Standard Broadcast ("A" Band).....	540-1,720 kc (555-174 m)
Medium Wave ("B" Band).....	2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band).....	7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Detector, A.V.C., and A-F Amplifier
- (5) RCA-25L6-G..... Output
- (6) RCA-25Z6-G..... Rectifier

PILOT LAMPS (2)..... Mazda No. 47, 6.3 volts, .15 amp.

POWER OUTPUT RATING (125 volts, a-c)

Undistorted..... 1.4 watts
Maximum..... 2.5 watts

LOUDSPEAKER (84659-1)

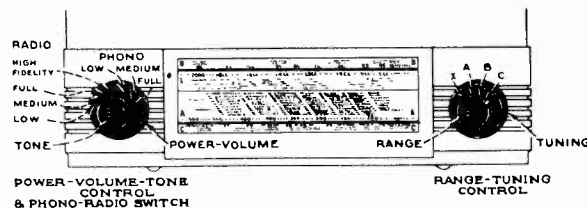
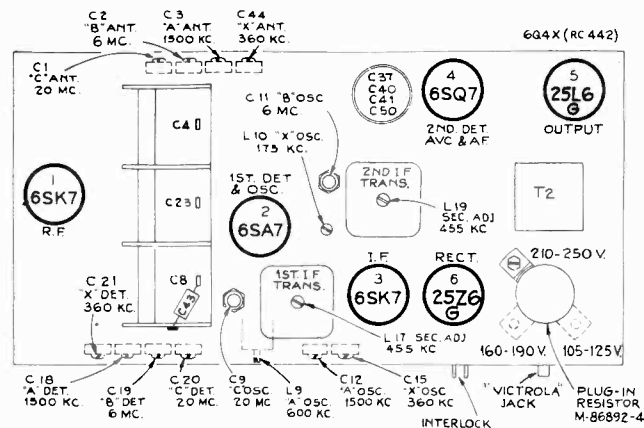
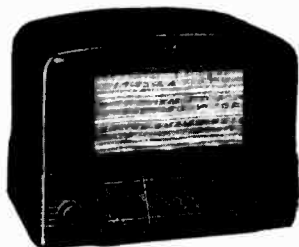
Type..... 6-inch permanent-magnet
V.C. Impedance.... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 40-100 cycles; or DC
160-190 volts, 40-100 cycles; or DC
210-250 volts, 40-100 cycles; or DC

POWER CONSUMPTION

105-125 volts..... 60 watts
210-250 volts..... 130 watts



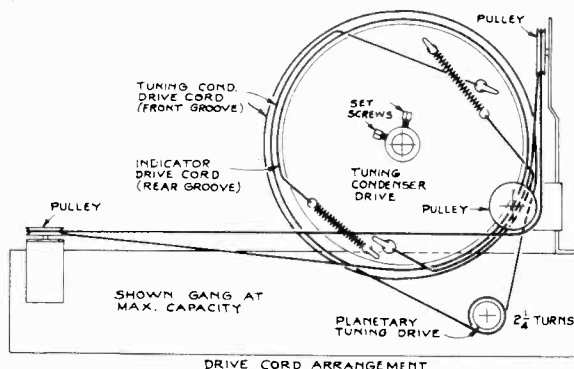
Phonograph Operation:

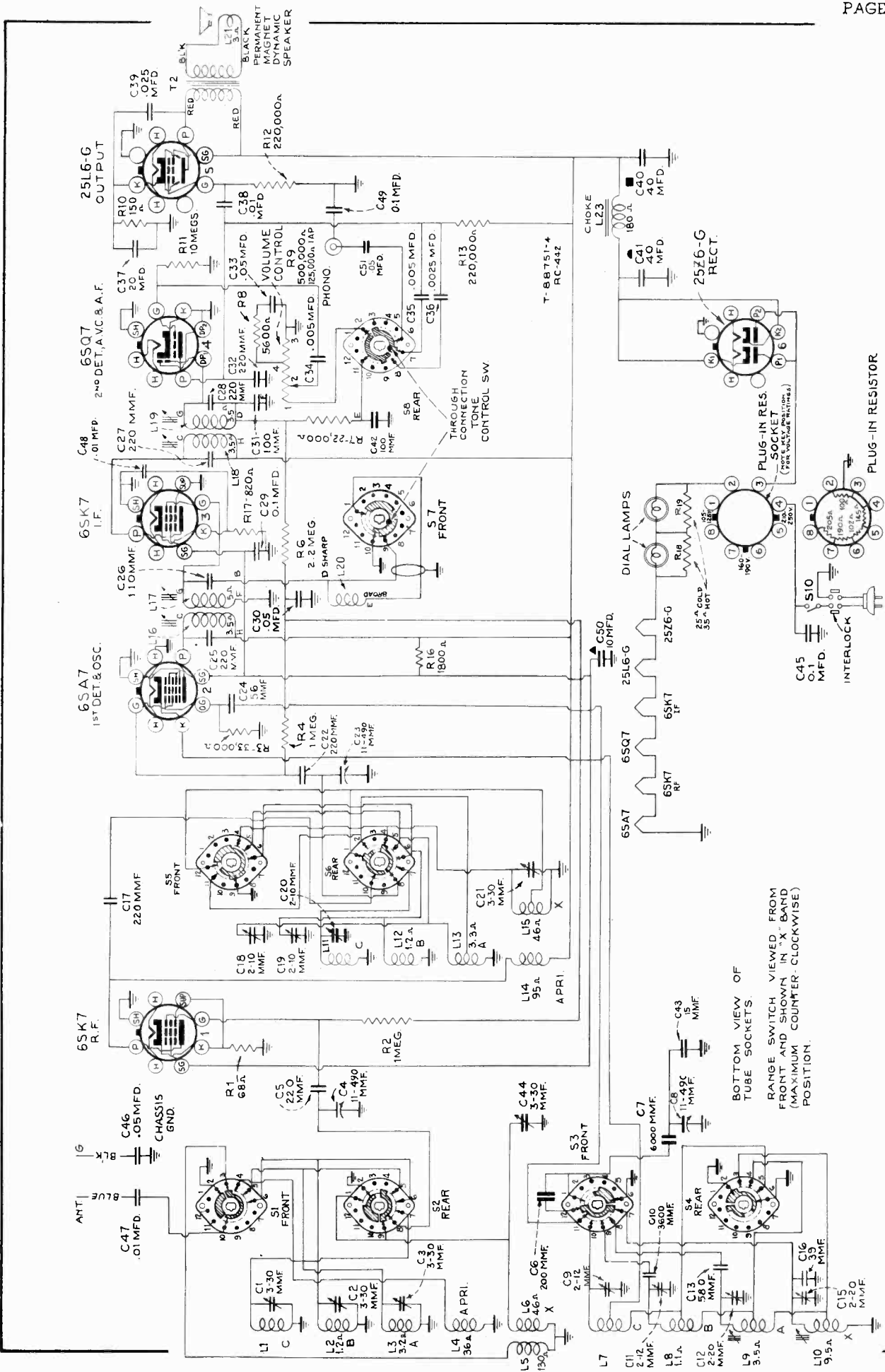
A jack is provided on the rear of the chassis for connection to a Victrola Attachment. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

The attachment must be designed to operate on the particular voltage and frequency of the power supply line. (Most attachments are for alternating current only, and can not be used on direct current.)

Precautionary Lead Dress:

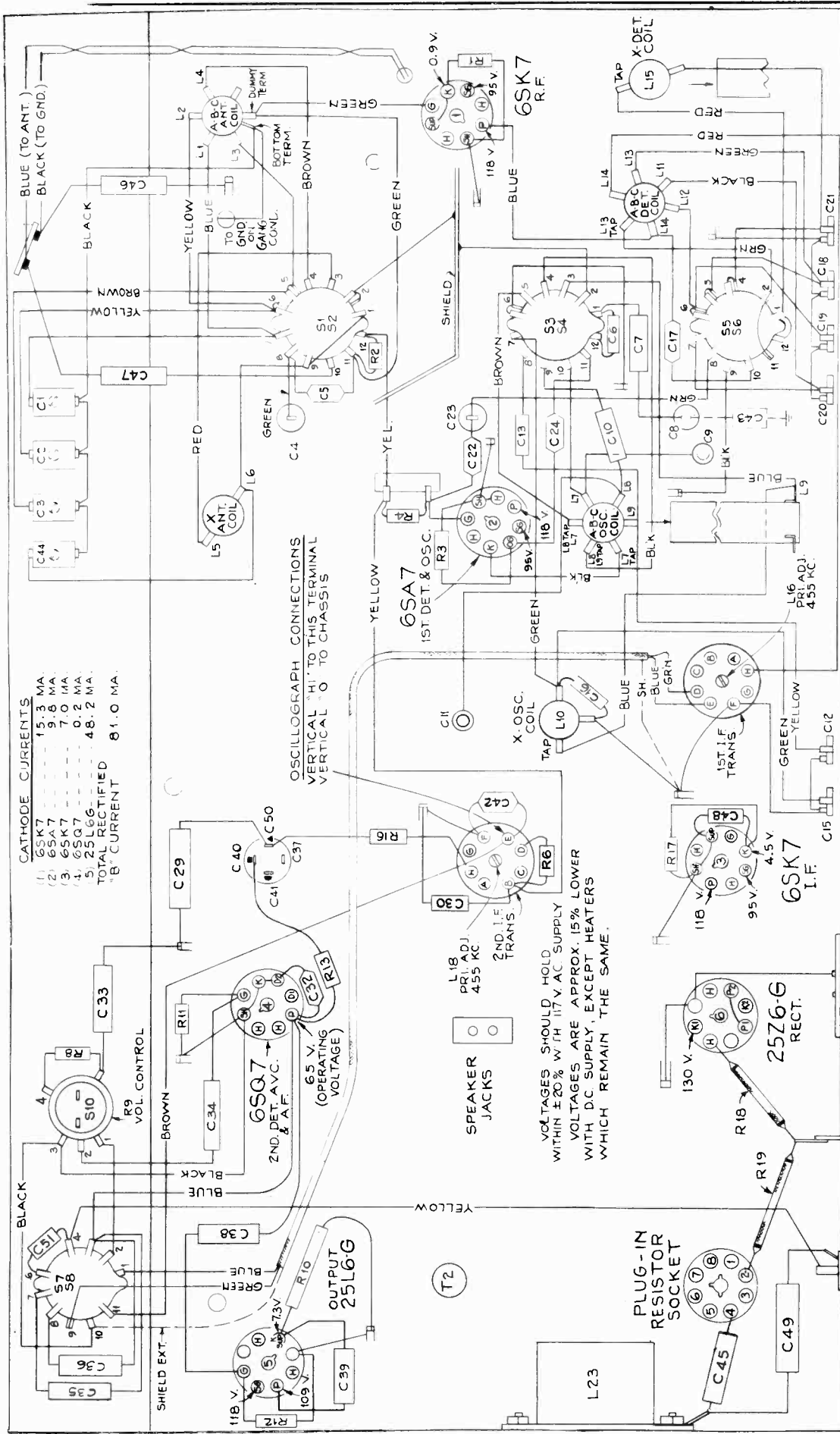
1. Dress black lead from L11 to C20 against terminals 6 and 7 of S6.
2. Dress the green lead from the middle section of the gang away from any other leads, parts, or chassis.
3. Dress the black diode lead running between the 6SQ7 and terminal G on the 2nd I-F transformer, directly against the chassis.
4. Twist the power leads together and dress them away from the 6SQ7 socket.
5. Dress the brown lead from terminal E on the 2nd I-F transformer to terminal 11 on S8 against the chassis.
6. Dress the black lead from trimmer (C1) to antenna coil away from the range switch link action.





BOTTOM VIEW OF
TUBE SOCKETS.
RANGE SWITCH VIEWED FROM
FRONT AND SHOWN IN "X" BAND
(MAXIMUM COUNTER CLOCKWISE)
POSITION.

6Q4X



CATHODE CURRENTS

(1) 6SK7	15.3 MA.
(2) 6SA7	9.8 MA.
(3) 6SK7	7.0 MA.
(4) 6SQ7	0.2 MA.
(5) 25L6-G	48.2 MA.
TOTAL RECTIFIED	81.0 MA.
"B" CURRENT	81.0 MA.

OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHASSIS

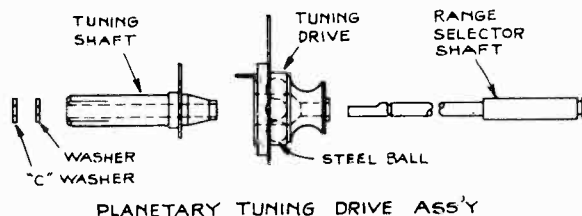
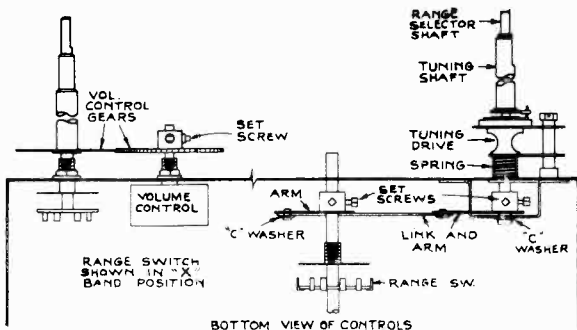
VOLTAGES SHOULD HOLD
WITHIN ±20% WITH 117 V. AC SUPPLY
VOLTAGES ARE APPROX. 15% LOWER
WITH DC SUPPLY, EXCEPT HEATERS
WHICH REMAIN THE SAME.

6Q4X (RC 442) SH - 958

BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING AND SOCKET VOLTAGES

INTERLOCK

VICTROLA JACK



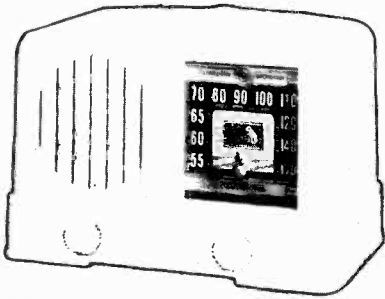
REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-442)			
10194	Ball—Steel ball	33825	Plug—2-prong male plug for power input
33947	Ballast—Ballast resistor tube—Type 86892-4	32709	Reactor—Filter reactor (L23)
12896	Capacitor—15 mmfd. (C43)	33947	Resistor—Ballast resistor tube—Type 86892-4
13545	Capacitor—3 μ mmfd. (C16)	33953	Resistor—Flexible resistor (R18, R19)
12723	Capacitor—5 μ mmfd. (C24)	14281	Resistor—68 ohms, $\frac{1}{4}$ watt (R1)
12720	Capacitor—1 μ 0 mmfd. (C31, C42)	30880	Resistor—150 ohms, $\frac{1}{4}$ watt (R10)
32239	Capacitor—110 mmfd. (C26)	14076	Resistor—820 ohms, $\frac{1}{4}$ watt (R17)
30232	Capacitor—2 μ 0 mmfd. (C6)	12194	Resistor—1,800 ohms, $\frac{1}{4}$ watt (R16)
12694	Capacitor—220 mmfd. (C5, C17, C22, C32)	13714	Resistor—5,600 ohms, $\frac{1}{4}$ watt (R8)
33760	Capacitor—220 mmfd. (C25, C27, C28)	14284	Resistor—22,000 ohms, 1/10 watt (R7)
33235	Capacitor—580 mmfd. (C13)	12454	Resistor—33,000 ohms, $\frac{1}{4}$ watt (R3)
12811	Capacitor—3,500 mmfd. (C10)	12264	Resistor—220,000 ohms, $\frac{1}{4}$ watt (R12, R13)
31405	Capacitor—6,000 mmfd. (C7)	13730	Resistor—1 megohm, $\frac{1}{4}$ watt (R2, R4)
33818	Capacitor—Trimmer capacitor—2 sections of 2-20 mmfd. each (C12, C15)	12679	Resistor—2.2 megohm, $\frac{1}{4}$ watt (R6)
33822	Capacitor—Trimmer capacitor—4 sections of 3-30 mmfd. each (C1, C2, C3, C44)	13601	Resistor—10 megohm, $\frac{1}{4}$ watt (R11)
33821	Capacitor—Trimmer capacitor—4 sections, of 3 2-10 mmfd. each and 1 of 3-30 mmfd. (C18, C19, C20, C21)	33180	Retainer—Planetary drive retaining ring
5107	Capacitor—.0025 mfd. (C36)	33771	Shaft—Tuning knob shaft
33584	Capacitor—.005 mfd. (C34, C35)	33772	Shaft—Range switch shaft
4937	Capacitor—.01 mfd. (C38, C47, C48)	31365	Socket—Lamp socket
4870	Capacitor—.025 mfd. (C39)	33742	Socket—Phonograph input socket
32787	Capacitor—.05 mfd. (C30, C33, C46, C51)	30956	Socket—Speaker socket
4839	Capacitor—0.1 mfd. (C29, C45, C49)	31251	Socket—Tube socket
12714	Capacitor—Trimmer capacitor—2-12 mfd. (C9, C11)	13638	Spring—Indicator drive cord spring
33824	Capacitor—Comprising 2 sections of 40 mfd., 1 of 10 mfd. and 1 of 20 mfd. (C37, C40, C41, C50)	33769	Spring—Planetary tuning drive spring
33762	Coil—Antenna coil—A-B-C bands (L1, L2, L3, L4)	33758	Switch—Range switch (S1, S2, S3, S4, S5, S6)
32823	Coil—Antenna coil—X band (L5, L6)	33816	Switch—Tone control, and phono. switch (S7, S8)
33764	Coil—Oscillator coil—A-B-C bands (L7, L8, L9)	33759	Transformer—First i-f transformer (L16, L17, C25, C26)
32931	Coil—Oscillator coil—X band (L10)	33761	Transformer—Second i-f transformer (L18, L19, C27, C28, C31, R7)
33763	Coil—Detector coil—A-B-C bands (L11, L12, L13, L14)	33826	Transformer—Output transformer (T2)
33765	Coil—Detector coil—X band (L15)	33947	Tube—Ballast resistor tube—Type 86892-4
33756	Condenser—Variable tuning condenser (C4, C8, C23)	SPEAKER ASSEMBLIES (84659-1)	
33951	Control—Volume control and power switch (R9, S10)	33962	Cone—Cone, voice coil and center suspension assembled in metal housing (L21)
32634	Cord—Variable tuning condenser drive cord	33828	Speaker—Speaker complete
32635	Cord—Indicator drive cord	MISCELLANEOUS ASSEMBLIES	
32713	Core—Core and stud assembly for oscillator coils	32836	Cord—Power cord complete with male and female connectors
33770	Drive—Planetary tuning drive complete, less shafts	34296	Dial—Glass dial scale (English)
33773	Drum—Variable tuning condenser drum	34503	Dial—Glass dial scale (Arabic)
33185	Gear—Gear and hub for volume control and power switch	33797	Frame—Dial frame assembly complete, less dial
33768	Gear—Shaft and gear for tone control	34136	Knob—Tuning or volume control knob
31480	Lamp—Pilot lamp	34570	Knob—Tone control knob
33767	Link—Operating link between knob, shaft and range switch	34571	Knob—Range switch knob
		33774	Mounting—Speaker hardware mounting
		4982	Spring—Retaining spring for knob, Stock No. 34138
		14270	Spring—Retaining spring for knob, Stock No. 34570
		34138	Spring—Retaining spring for knob, Stock No. 34571

MODEL 6X2

Chassis No. RC-1013



NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.
RL-86-A3	35570	39543
RL-86-B1	39447	39448
RL-86-B4	39447	39448
92161-3	38352	PM
92161-4	39535	PM
92161-5	38352	PM
92322-2	39536	PM
92374-1	39537	PM

SUBSTITUTE SPEAKERS

WHEN ORDERING REPLACEMENT PARTS FOR SPEAKERS, NOTE THE IDENTIFICATION NUMBER STAMPED ON THE SPEAKER FRAME. IF THE NUMBER STAMPED ON THE SPEAKER DOES NOT APPEAR IN THE FOLLOWING LIST, ORDER THE REQUIRED PART BY DESCRIPTION, AND SPECIFY THE IDENTIFYING NUMBER STAMPED ON THE SPEAKER AND THE RECEIVER MODEL NUMBER.

Alternate "EM" and "PM" speaker connections are shown in the accompanying diagrams.

Specifications

FREQUENCY RANGE 540-1,720 kc
 Intermediate Frequency 455 kc
 POWER SUPPLY RATINGS
 105-125 volts, direct current, or 50-60 cycles 30 watts

POWER OUTPUT (125 volts, 60 cycle supply)
 Undistorted 0.8 watts Maximum 1.2 watts
 LOUDSPEAKER RL-81-B2 5 inch permanent magnet
 or RL-86-A3 5 inch electro magnet

Alignment Procedure

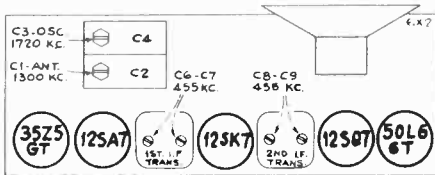
Output Meter Alignment.—Connect the meter across the voice coil and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test-Oscillator.—For I F alignment, connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc.	Quiet point 1,600 kc end of dial	C8, C9 2nd I-F Transformer
2	1st Det. grid in series with .01 mfd.			C6, C7 1st I-F Transformer
3	Ant. terminal in series with 100 mmfd.	1,720 kc	Gang at minimum	C3 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C1 (ant.)
5	Repeat steps 3 and 4.			



Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c. reversal of the plug may reduce hum.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-1013)			
36301	Capacitor—Electrolytic, comprising 1 section of 30 mfd., 150 volts, and 1 section of 50 mfd., 150 volts	35094	Socket—Dial lamp socket
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of 300 mmfd.	31251	Socket—Tube socket
4937	Capacitor—.01 mfd.	31418	Spring—Drive cord spring
36248	Capacitor—.02 mfd.	38994	Transformer—Audio transformer—used with E.M. speaker
4870	Capacitor—.025 mfd.	36800	Transformer—Audio transformer—used with P.M. speaker
36234	Coil—Oscillator coil	36232	Transformer—First I.F. transformer
38311	Condenser—Variable tuning condenser	37364	Transformer—Second I.F. transformer
36242	Control—Volume control and power switch	33726	Washer—"C" washer for tuning knob shaft
32634	Cord—Drive cord (approx. 17-in. overall length)	P.M. SPEAKER ASSEMBLIES (RL81B2)	
38313	Dial—Dial scale	35570	Cone—Cone complete with voice coil
38314	Indicator—Station selector indicator	E.M. SPEAKER ASSEMBLIES (RL86A3)	
31480	Lamp—Dial lamp	35570	Cone—Cone complete with voice coil
37915	Loop—Antenna loop complete	MISCELLANEOUS ASSEMBLIES	
38312	Plate—Dial plate—less dial	35102	Back—Cabinet back cover
30189	Resistor—120 ohms, 1/4 watt	35104	Crystal—Dial scale crystal—less dial
6134	Resistor—1,200 ohms, 1 watt (for models using P.M. speaker)	33317	Fastener—Push on fastener for back
30492	Resistor—22,000 ohms, 1/4 watt	35678	Fastener—Push on fastener for crystal
14583	Resistor—220,000 ohms, 1/4 watt	36723	Knob—Tuning or volume control knob
30648	Resistor—470,000 ohms, 1/4 watt	30900	Spring—Retaining spring for knob
12928	Resistor—3.3 meg., 1/4 watt		
30271	Resistor—4.7 meg., 1/4 watt		
36235	Shaft—Tuning knob shaft		

ANT. TO GRID
50X
(600 KC.)

15 X
(600-455 KC.)
MEASURED WITH -3V. FIXED BIAS ON AVC. BUS

0.6X
(455 KC.)

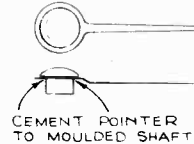
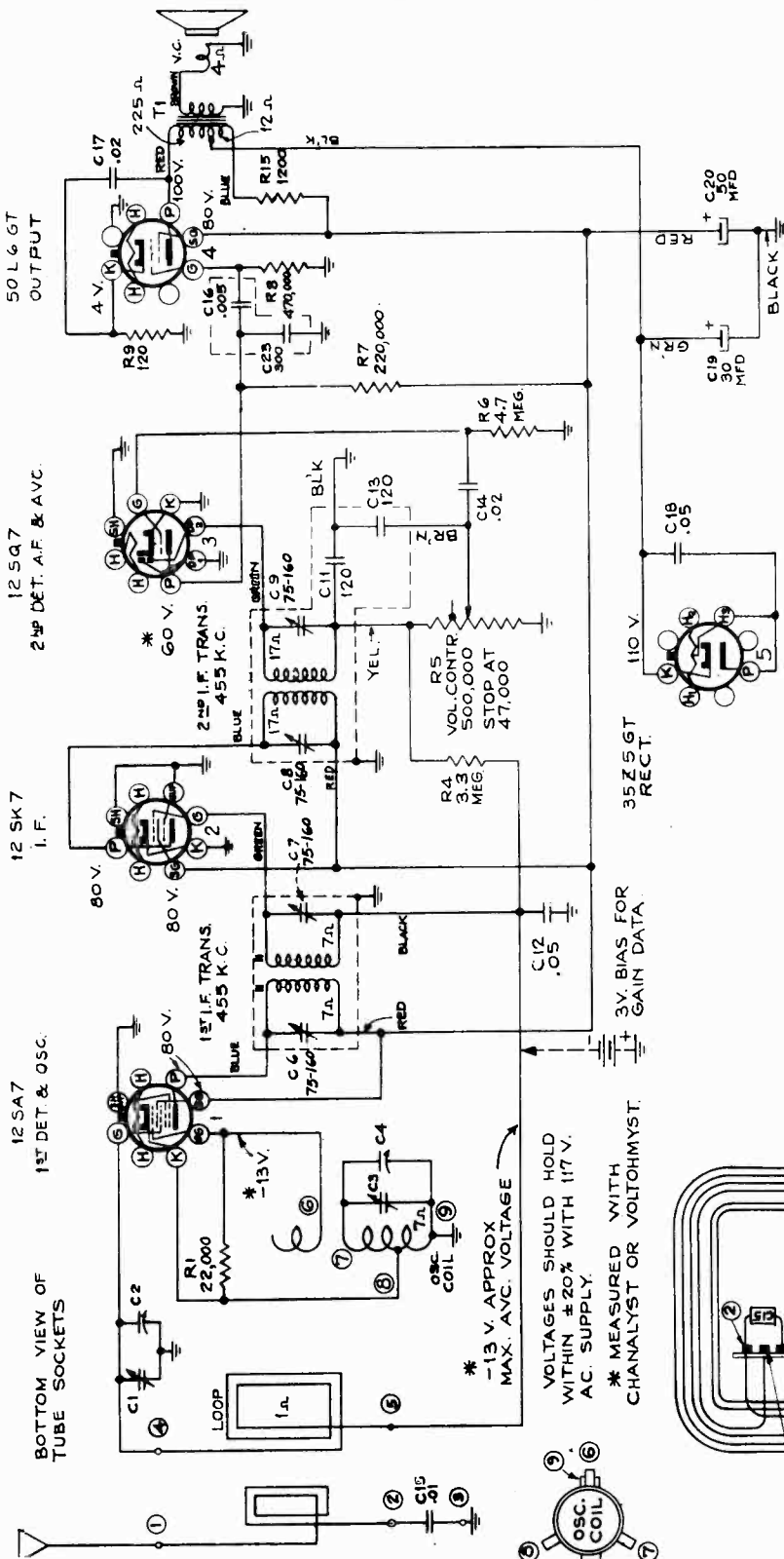
200X
(455 KC.)

IX
(455 KC.)

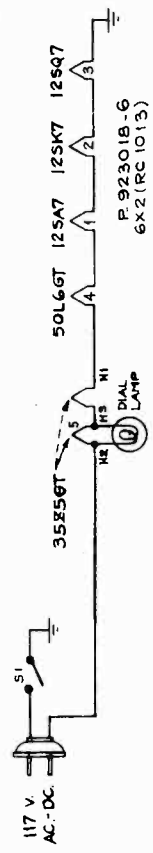
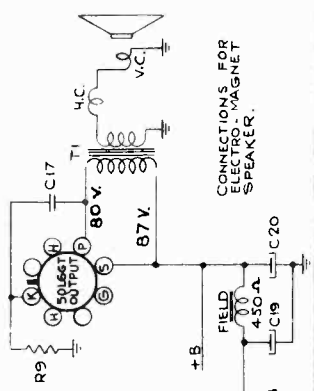
40X
400 ~

14 X
400 ~

APPROX. GAIN
DATA USING
RCA RIDER
CHANALYST



Loose dial pointer can be repaired with Du Pont Household Cement.



In some production, the speaker is changed from a "PM" to an "EM." The connections for the EM speaker are shown at right.

OUTPUT TUBE PLATE VOLTAGE WHEN USING

EM SPEAKER: 80 VOLTS

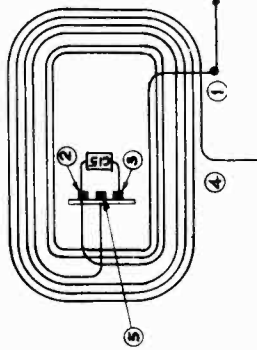
THE FIELD COIL OF RL-86A3 SPEAKER IS

350 OHMS

* -13 V. APPROX MAX. AVC. VOLTAGE

* VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. AC. SUPPLY.

* MEASURED WITH CHANALYST OR VOLTOHMYST.



MODELS HF-6, HF-8, U-132, U-134

Fourteen- and Sixteen-Tube, Seven-Band, Electric-Tuning, A-C, Radios and Victrolas

REFER TO INDEX FOR DATA ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"Medium Wave" (B).....	2,300-7,000 kc
"Short Wave" (C).....	7,000-22,000 kc
"49 Meter" Band.....	5,920-6,230 kc
"31 Meter" Band.....	9,480-9,700 kc
"25 Meter" Band.....	11,680-11,940 kc
"19 Meter" Band.....	15,080-15,390 kc

Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT (Models HF-8, U-134)

(1) 6K7.....	R-F Amplifier
(2) 6L7.....	First Detector
(3) 6J7.....	Oscillator
(4) 6J7.....	Oscillator Control
(5) 6K7.....	First I.F.
(6) 6K7.....	Second I.F.
(7) 6H6.....	Second Detector and Muting
(8) 6H6.....	Discriminator and AVC
(9) 6U5.....	Tuning Tube
(10) 6J5.....	First Audio
(11) 6J5.....	Second Audio
(12) 6J5.....	Inverter
(13) 6L6.....	Power Output
(14) 6L6.....	Power Output
(15) 5T4.....	Rectifier
(16) 5T4.....	Rectifier

Pilot Lamps (3)..... Radio: (2) 6.3 volts, 0.25 ampere Mazda No. 44; (1) 6.3 volts, 0.15 ampere Mazda No. 47
Phono: (1) 6.3 volts, 0.25 ampere Mazda No. 44

POWER SUPPLY RATINGS

Rating A—105-125 volts, 50-60 cycles.....	135 watts
Rating B—105-125 volts, 25 cycles.....	135 watts
Rating C—100-130/140-160/195-250 volts, 50-60 cycles.....	135 watts

Model HF-6	Model HF-8
135 watts	180 watts
135 watts	180 watts
135 watts	180 watts

Rating A—105-125 volts, 50-60 cycles.....	135 watts
Rating A6—105-125 volts, 60 cycles.....	135 watts
Rating B2—105-125 volts, 25 cycles.....	135 watts
Rating C—105-130/140-160/200-250 volts, 50-60 cycles.....	135 watts
Rating C6—105-130/140-160/200-250 volts, 60 cycles.....	135 watts

Model U-132		Model U-134	
Radio Only	Total	Radio Only	Total
135 watts	160 watts	180 watts	205 watts
135 watts	160 watts	180 watts	205 watts
135 watts	160 watts	180 watts	205 watts
135 watts	160 watts	180 watts	205 watts

POWER OUTPUT (Models HF-8, U-134)

Undistorted.....	20 watts
Maximum.....	24 watts

(Models HF-6, U-132)	
Undistorted.....	10 watts
Maximum.....	12 watts

LOUDSPEAKER

Type..... 12-inch Electrodynamic (Triple Cone)
Voice Coil Impedance..... 11.3 ohms at 400 cycles

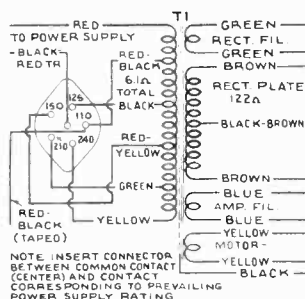
PHONOGRAPH (Models U-132, U-134 Only)

Type..... Automatic
Record Capacity..... Eight 10-inch or seven 12-inch
Turntable Speed..... 78 r.p.m. (adjustable)
Type Pickup..... Crystal
Pickup Impedance..... 80,000 ohms at 1,000 cycles

MODELS HF-8A AND U-134A

Technical Information and Service Data:

All information published in Service Notes for Models HF-8 and U-134 applies to these models, except that referring to remote control. This device is not incorporated on the "A" models.

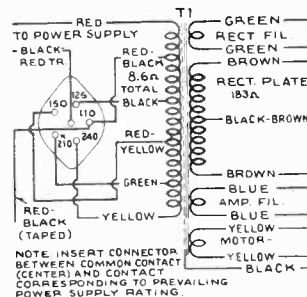


(110-volt supply for a Victrola motor is obtained by connecting the motor to the red and the red-black leads.)

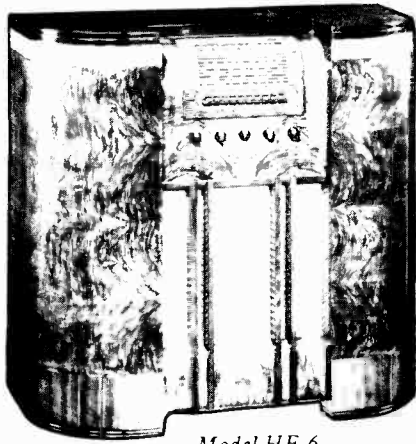
Models HF-8, U-134

Models HF-6, U-132

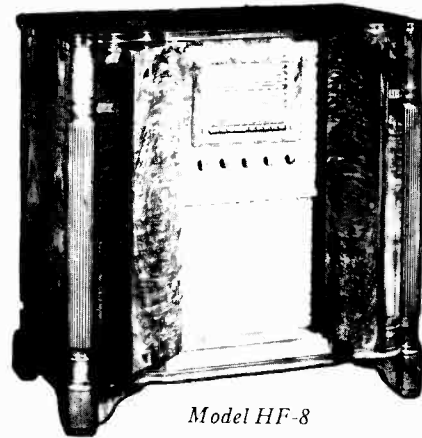
Universal Power Transformer Connections



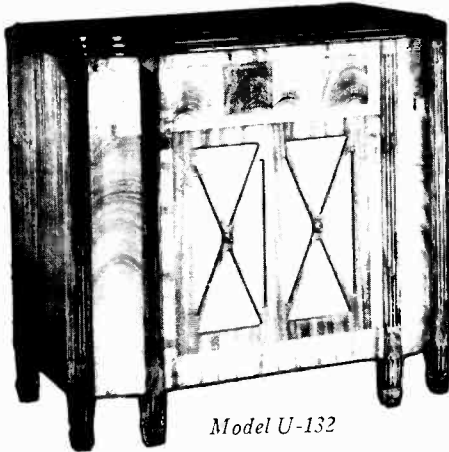
NOTE: INSERT CONNECTOR BETWEEN COMMON CONTACT (CENTER) AND CONTACT CORRESPONDING TO PREVAILING POWER SUPPLY RATING.



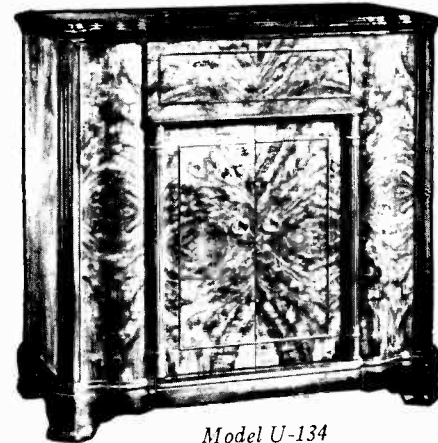
Model HF-6



Model HF-8



Model U-132



Model U-134

ALIGNMENT PROCEDURE

Alignment using the Cathode Ray Oscillograph is much the preferable method because of the variable selectivity features of these instruments. The curves shown below, illustrate the general shape of the i-f selectivity curves for different settings of the Fidelity control, when i-f channel is properly aligned. Connections for the oscillograph are shown in the top view of the receiver chassis. Use short, unshielded leads to oscillograph, and well-shielded leads from test oscillator. If possible, use 30 or 40 kc sweep frequency for i-f alignment.

Output Meter Alignment.—If this method is used, connect meter across voice coil, and turn receiver volume control to maximum. Disregard steps 4 and 7 of alignment table given below. However, a listening check should be made to check operation of Fidelity control, after receiver has been aligned.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the ground terminal, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

Precautionary Lead Dress

1. C-31, C-32, C-33, C-35, C-36, C-40 should be connected with as short leads as possible.
2. "Osc. Control" grid lead should be dressed away from the high side of "A" Band Oscillator trimmer.
3. The lead from "A" Band R-F Coil to the R-F Tube should be dressed away from chassis and shield.
4. Lead from "A" to "C" Band Antenna Coils should be dressed away from the shield.
5. The antenna leads inside the chassis should go directly to the terminals to which they connect.
6. The lead from the rectifier tube to the first filter capacitor should be dressed away from the Victrola connection.
7. The leads to the push-button switches should be dressed away from the Victrola switch, and its associated parts.
8. The output transformer primary leads should be dressed down to the chassis.
9. The 2nd Detector Diode lead should be dressed away from the lead to the discriminator diode. This latter lead should be dressed down to the chassis.

Additional Critical Leads—Models HF-6, U-132

10. Dress Pilot Light leads away from 6R7 grid cap.

Additional Critical Leads—Models U-132, U-134

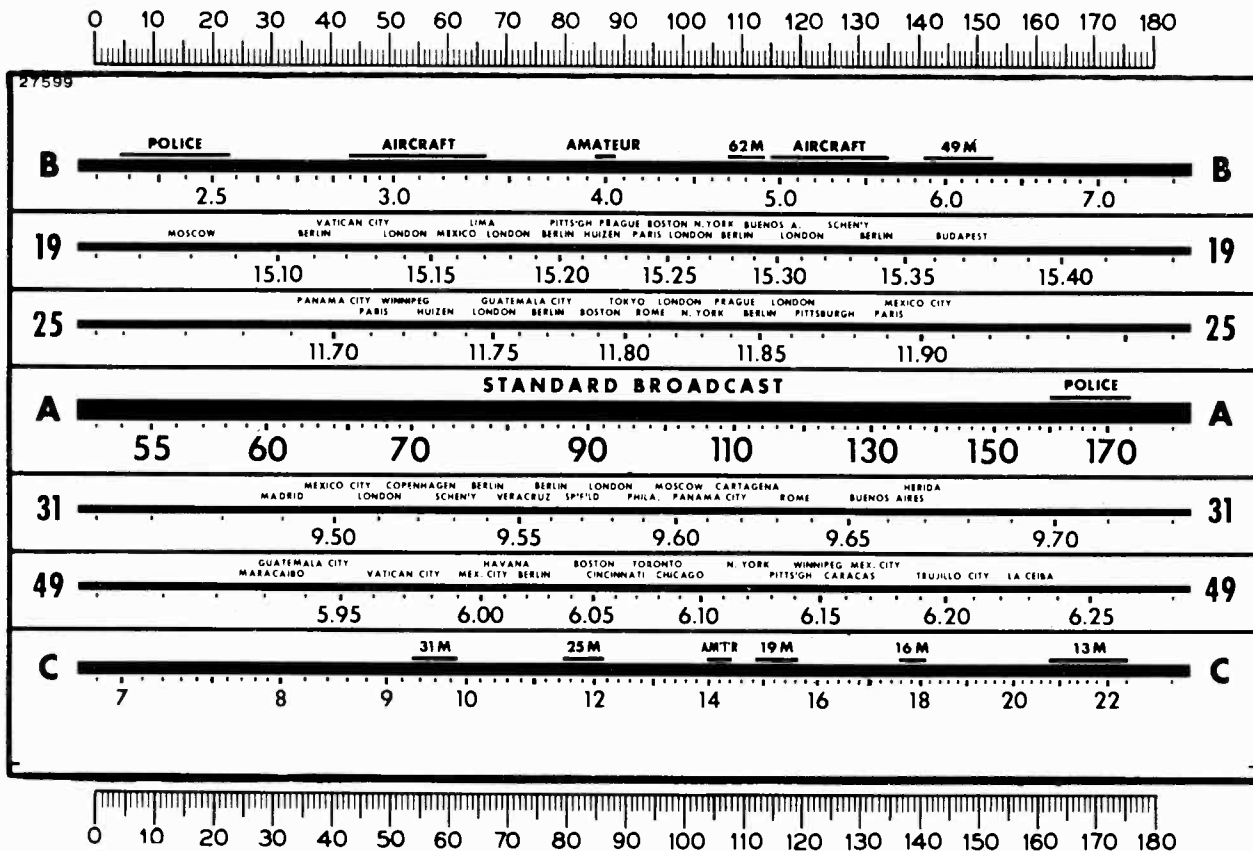
11. R-103 and R-102 should be dressed away from each other.

HF-6, HF-8, U-132, U-134

A. F. C. Alignment.—After receiver has been fully aligned, turn Fidelity control to No. 1 position, tune in a station of medium signal strength in the neighborhood of 550-650 kc, or, if it is necessary to use a local station for this signal, cut down length of antenna so that signal is about medium strength. Carefully tune in the station using the "Magic Eye" as an indicator. Tune test oscillator to 455 kc, turn output to maximum, and "Modulation" off. Connect "Gnd" side of test oscillator to chassis, and bring the lead from the high side of test oscillator near the grid lead of 1st detector, 6L7 tube, until a beat note can be heard in the loudspeaker. Do not bring lead any closer than 1 inch to grid lead of 6L7, or detuning of circuit will result, and the adjustment will not be accurate.

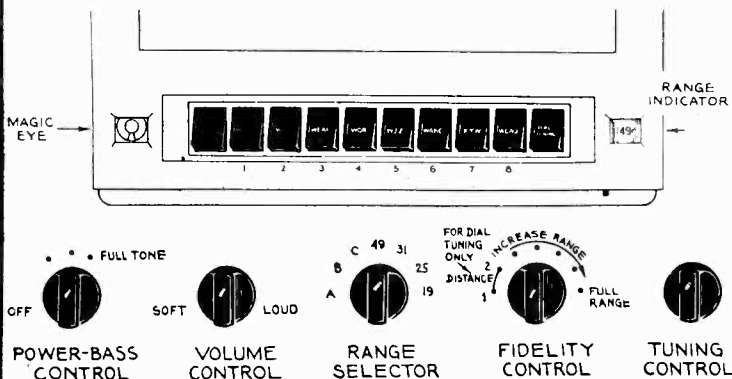
Adjust frequency of test oscillator till beat-note heard in loudspeaker is at zero-beat. Turn Fidelity control to No. 3 position, and a beat note will again be heard. Adjust trimmer, L32, bottom of 4th i-f transformer, till beat note heard is again at zero-beat. Turn Fidelity control to No. 1 position, and check for zero-beat. When properly adjusted turning Fidelity control from No. 1 to No. 3 position should not affect zero-beat.

With Fidelity control in No. 1 position, tune receiver off resonance. Turn Fidelity control to No. 3 position—station should "fall" into resonance due to A. F. C. action. Push in Tuning Control Shaft without turning it—station should again be off resonance as originally tuned.



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Scale

ADJUSTMENTS FOR ELECTRIC TUNING



Location of Controls

The left-hand push-button is a Victrola-Attachment switch.
The right-hand push-button is for dial tuning.

1. Make a list of the desired eight stations, arranged in order from low to high frequencies.
2. Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.
3. Turn Fidelity Control maximum counter-clockwise.
4. Press down the "dial-tuning" (right hand) button.
5. Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.
6. Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons will stay down, central dial lamp will light brightly or dully, depending on which side of disc, the contact is. Move station-setting contact No. 1 to the insulating line on the disc at rear of gang. When the contact is correctly centered on the insulating line, the central dial lamp will go out.
7. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
8. Repeat this process for the remaining stations.

Alignment Table

HF-6, HF-8, U-132, U-134

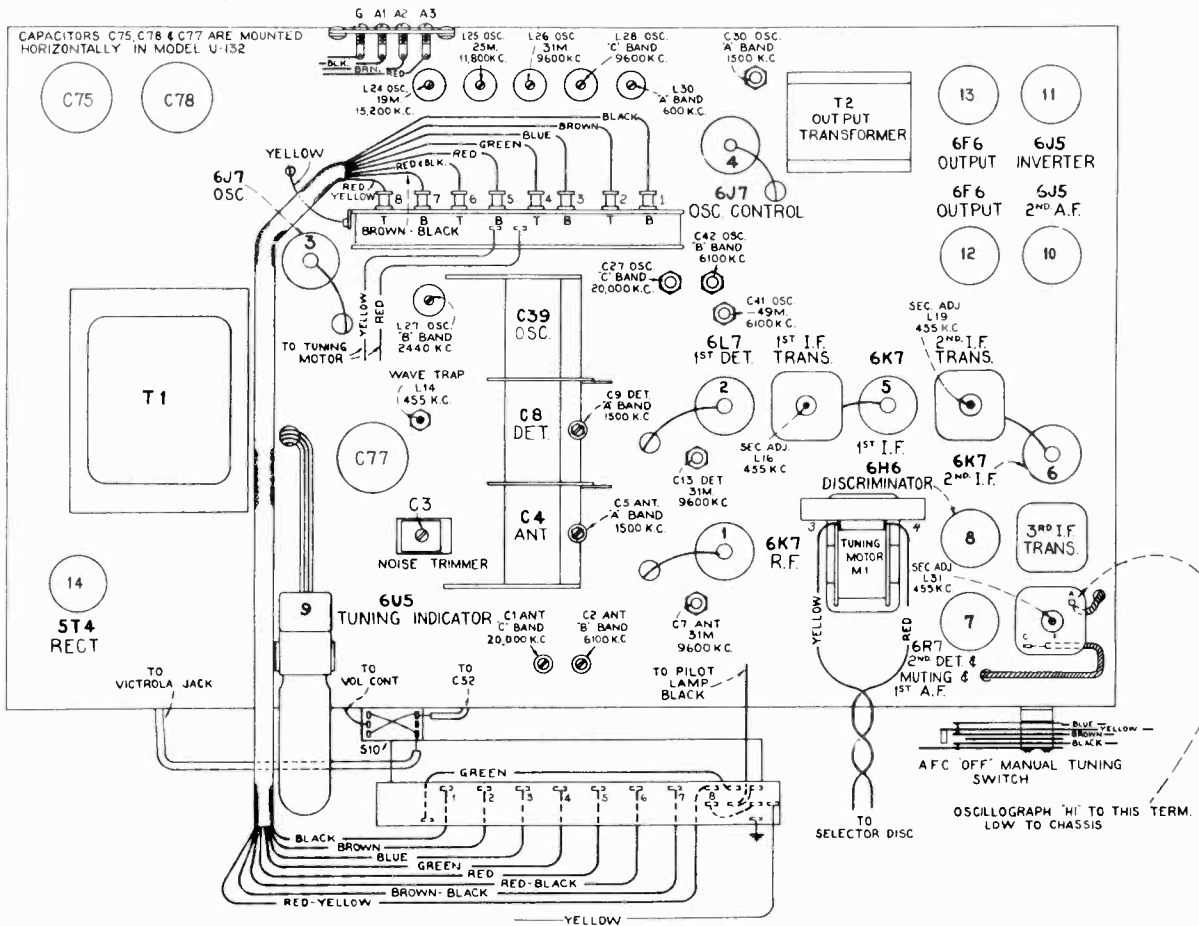
Step	Connect High Side of Test Oscillator to—	Tune Test Oscillator to—	Range Selector	Set Tuning Gang to—	Adjust following for maximum peak output	Check for Selectivity Curve No.
1	Turn fidelity switch to maximum counter-clockwise (No. 1) position.					
2	6K7 2nd I-F Grid Cap in series with .01 mfd.	455 KC	"A"	Quiet	L21 3rd I-F Trans. L31-L32 4th I-F Trans.	1
3	6K7 1st I-F Grid Cap in series with .01 mfd.	455 KC	"A"	Point Between	L18, L19 2nd I-F Trans.	2
4	6K7 1st I-F Grid Cap in series with .01 mfd.	455 KC	"A"	550	Turn Fidelity Control Clockwise to No. 6 position	3
				and 750 KC	Turn Fidelity Control Clockwise to No. 7 position	4
5	Turn Fidelity Control to maximum counter-clockwise (No. 1) position.					
6	6L7 1st Det. Grid in series with 300 ohms <i>Remove Grid Lead</i>	455 KC	"A"	Quiet	L15, L16, 1st I-F Trans.	5
7	6L7 1st Det. Grid in series with 300 ohms	455 KC	"A"	Point Between	Turn Fidelity Control Clockwise to No. 5 position	6
				550	Turn Fidelity Switch Clockwise to position No. 6	7
				and 750 KC	Turn Fidelity Switch Clockwise to position No. 7	8
8	Turn Fidelity Control to maximum counter-clockwise (No. 1) position.					
9	A2 in series with 100 mmf, A1 to Gnd.	600 KC	"A"	600 KC 29°	L30, osc.	<p>* NOTE: In Step 19 only, oscillator tracks on low side of signal; use maximum inductance peak (plunger in) if two peaks can be obtained. All other oscillator trimmers use minimum, inductance or capacity peak (plunger out), if two peaks can be obtained.</p>
10	A2 in series with 100 mmf, A1 to Gnd.	1,500 KC	"A"	1,500 KC 152.5°	C30, osc.; C5, ant.; C9, det.	
11	A2 in series with 100 mmf, A1 to Gnd.	455 KC	"A"	600 KC 29°	L14, wave trap <i>Minimum output</i>	
12	A2 in series with 100 mmf, A1 to Gnd.	6,100 KC	"B"	6,100 KC 147°	C42, osc.; C2, ant.	
13	A2 in series with 100 mmf, A1 to Gnd.	2,440 KC	"B"	2,440 KC 15°	L27, osc.	
14	A2 in series with 100 mmf, A1 to Gnd.	6,100 KC	"B"	6,100 KC 147°	C42	
15	A2 in series with 47 ohms, A3 to Gnd.	20,000 KC	"C"	20,000 KC 156°	C27, osc.; C1, ant.	
16	A2 in series with 47 ohms, A3 to Gnd.	9,600 KC	"C"	9,600 KC 57°	L28, osc.	
17	A2 in series with 47 ohms, A3 to Gnd.	20,000 KC	"C"	20,000 KC 156°	C27, osc.	
18	A2 in series with 47 ohms, A3 to Gnd.	9,600 KC	"31M"	9,600 KC 99°	L26, osc.; C7, ant.; C13, det.	
19*	A2 in series with 47 ohms, A3 to Gnd.	6,100 KC	"49M"	6,100 KC 103°	C41, osc.	
20	A2 in series with 47 ohms, A3 to Gnd.	11,800 KC	"25M"	11,800 KC 90°	L25, osc.	
21	A2 in series with 47 ohms, A3 to Gnd.	15,200 KC	"19M"	15,200 KC 79°	L24, osc.	
22	Proceed to A.F.C. discriminator adjustments.					



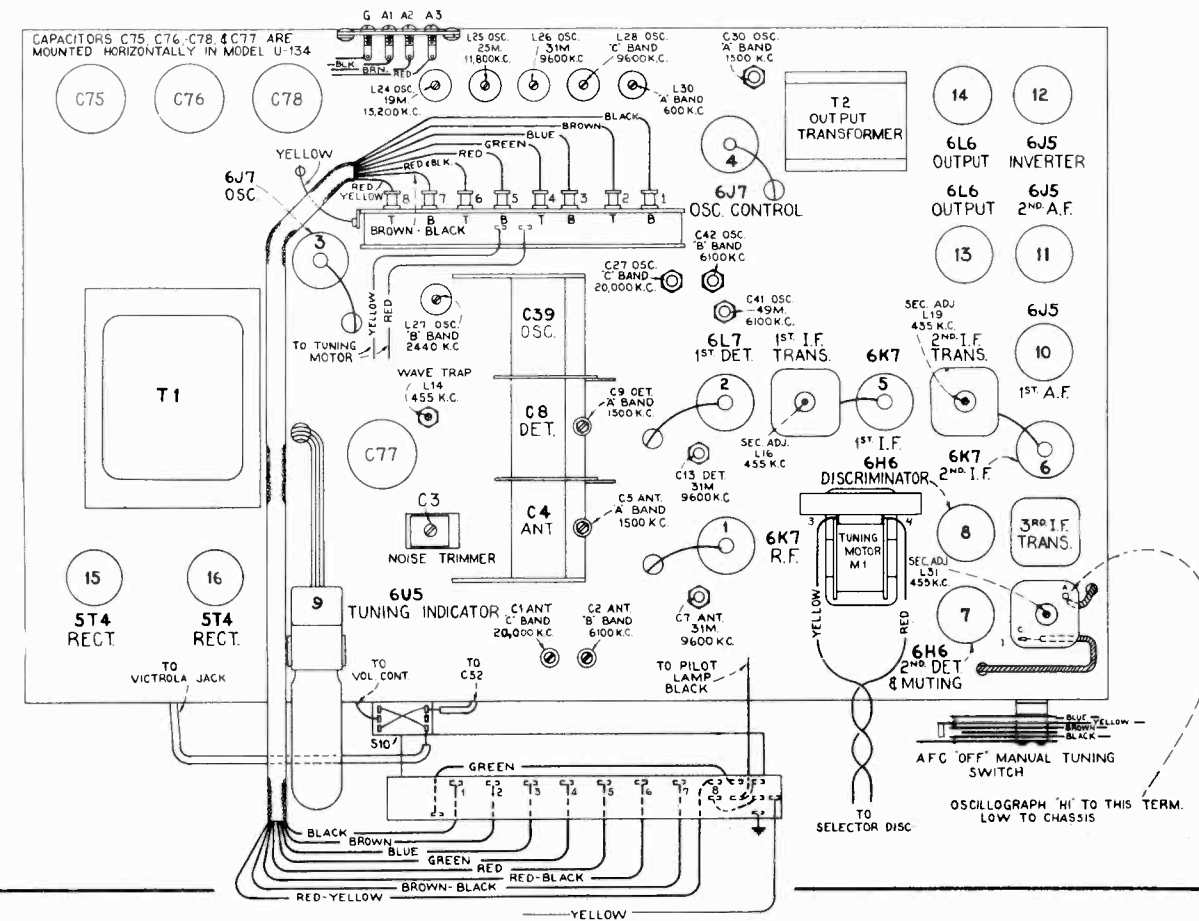
I-F Selectivity Curves

HF-6, HF-8, U-132, U-134

Top View—Models HF-6, U-132



Top View—Models HF-8, U-134



Miscellaneous Service Data

Antenna Connections

RCA Victor Master Antenna Kit.—Connect the twisted-pair transmission line to terminals A1 and A2 on the terminal board at rear of chassis. Connect the counter-poise to A3. Terminal G may be connected to ground, but this connection is not necessary for correct operation.

Noise-Reducing Adjustment.—After the RCA Victor Master Antenna Kit is connected to the receiver, tune the receiver to a point near 900 kc where no station is heard. Turn volume control clockwise until noise is heard. If no noise of a regular character is audible, start any brush-type motor-driven appliance, such as a vacuum cleaner, electric razor, refrigerator, etc., but do not bring it too near the receiver. This will generate noise as a continuous crackling, or buzz. Adjust C3 to a point where this noise is reduced to a minimum.

Adjustment of the noise reducing trimmer C3 should be made in the customer's home, with the RCA Victor Master Antenna connected to the receiver.

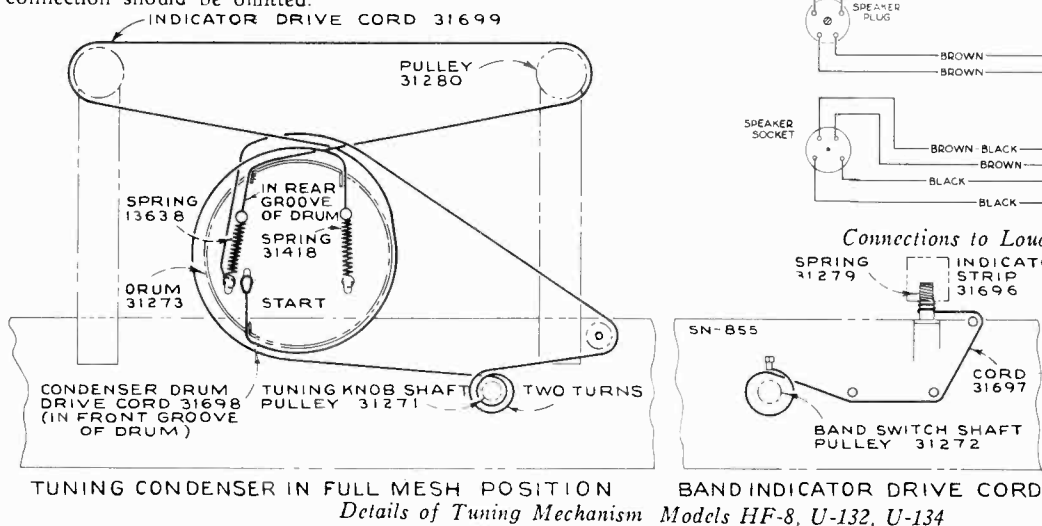
This adjustment is effective only when the RCA Victor Master Antenna is used. For all other types of antenna, the noise-adjustment trimmer should be screwed all the way down.

Other Antennas.—Use terminals A1 and A3 on the receiver terminal board as antenna and ground connecting points respectively. Terminal A3 may be connected to terminal G, unless this causes interference, in which case this connection should be omitted.

Loudspeaker.—No attempt should be made to remove the aluminum cone cap of the loudspeaker cone. This is securely cemented to the cone, and any attempt to remove it may result in serious damage to the cone assembly. The cone must be centered by moving the cone in and out and getting the "feel" of the cone to find where it is rubbing against the pole pieces. The two screws holding the spider support are accessible from the rear of the speaker. By loosening these screws and moving the cone by hand, it is possible to center the cone satisfactorily. Another method, which may be used, is to connect speaker to receiver, feed a low frequency note of from 40-60 cycles into the audio input of the set, and turning up the volume control—move the spider support until no rattle is heard in speaker, with about 10 watts output. Replacement cones will have to be centered in the same manner, as the cone will be supplied with cone cap fastened securely in position.

NOTE.—Due to inverse feedback used on these models, it is very important to connect output transformers exactly as shown in the schematic diagram.

Victrola Attachment.—A jack located on one side of the chassis is provided for connecting a Victrola Attachment into the audio-amplifying circuit on Models HF-6 and HF-8. The cable running from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.



Note: Tuning Mechanism of Model HF-6 is similar to this shown, except Indicator drive cord is Stock No. 31281.

MODELS HF-6, HF-8, U-132, AND U-134

A.V.C. Timing on Short Wave:

In some localities, the fading of short wave signals has a very "rapid" or "abrupt" characteristic which becomes apparent as a "barking" effect in the reproduction of the program. Where this condition is noted, it is recommended that the speed of the AVC circuits be increased by changing the value of capacitor C-70 from .05 mfd to .01 mfd. Further improvement may possibly be obtained by the use of two antennas, spaced as far as possible from each other, erected in different directions, and connected multiple at the receiver.

MODEL U-132

Dismounting Speaker:

Unless the following specified procedure is used in attempting to remove the speaker from the cabinet, some trouble may be encountered and abnormal time required:

- Remove two chassis mounting bolts from bottom cross rail.
- Remove two cross rail mounting bolts and lift out cross rail entirely.
- Remove four speaker mounting screws. Hole is provided in angular shelf for the removal of top screw.
- Place yoke of speaker in cutout at lower edge of angular shelf, tilt speaker forward and lift out.

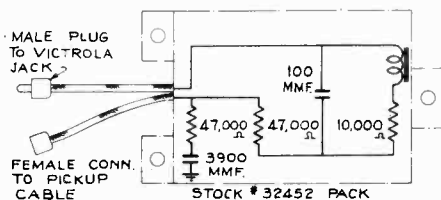
Radio Interference on Phono:

Where crosstalk from a strong local station occurs during phonograph reproduction, a remedy may be effected by one or more of the following: (1) Replace 6R7 tube, (2) check Victrola switch contacts, and (3) shield grid lead of 6R7 under chassis, extending shield as closely as possible to C-55.

MODELS U-132 AND U-134

Phonograph Fidelity Revision:

More "brilliance" can be provided on record reproduction by use of a special phonograph input circuit. A complete compensation pack (Stock No. 32452) including such a circuit encased and shielded, is therefore, being made available for use where it is considered desirable.



Phonograph Compensation Pack for Models U-132 and U-134.

INSTALLATION.—Locate pack on chassis mounting panel 5 inches to right and 1 inch above bottom edge. Connect between pickup cable and "Victrola" jack on chassis. Disconnect resistors R-101, R-102, R-103, and capacitor C-104 from circuit. See that capacitor C-105 connects directly to "Victrola" jack.

Replacement Crystal Pickup:

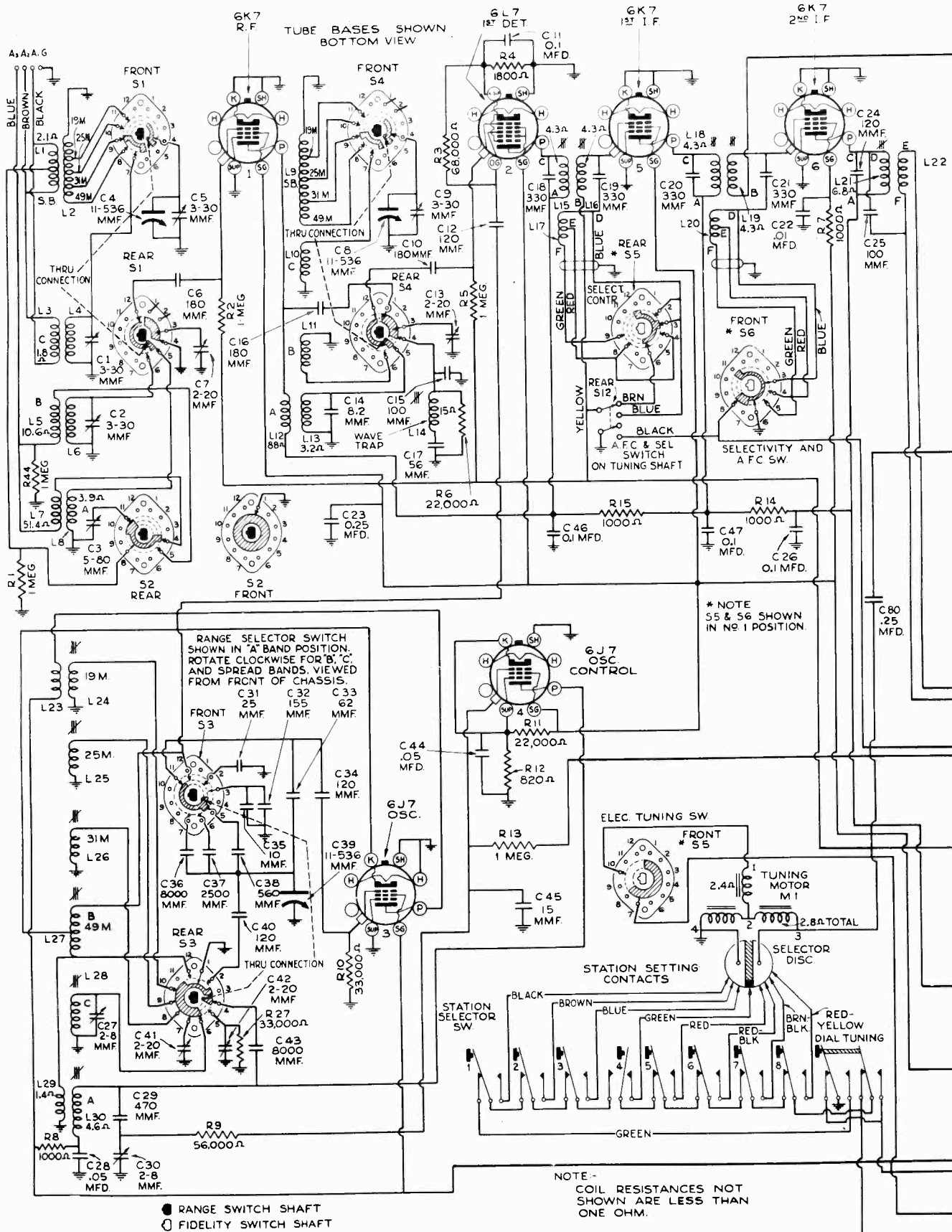
Replacement crystal pickup for these two instruments should be ordered as Stock No. 32632. This part is now specified in place of the original Stock No. 31156.

MODEL U-134

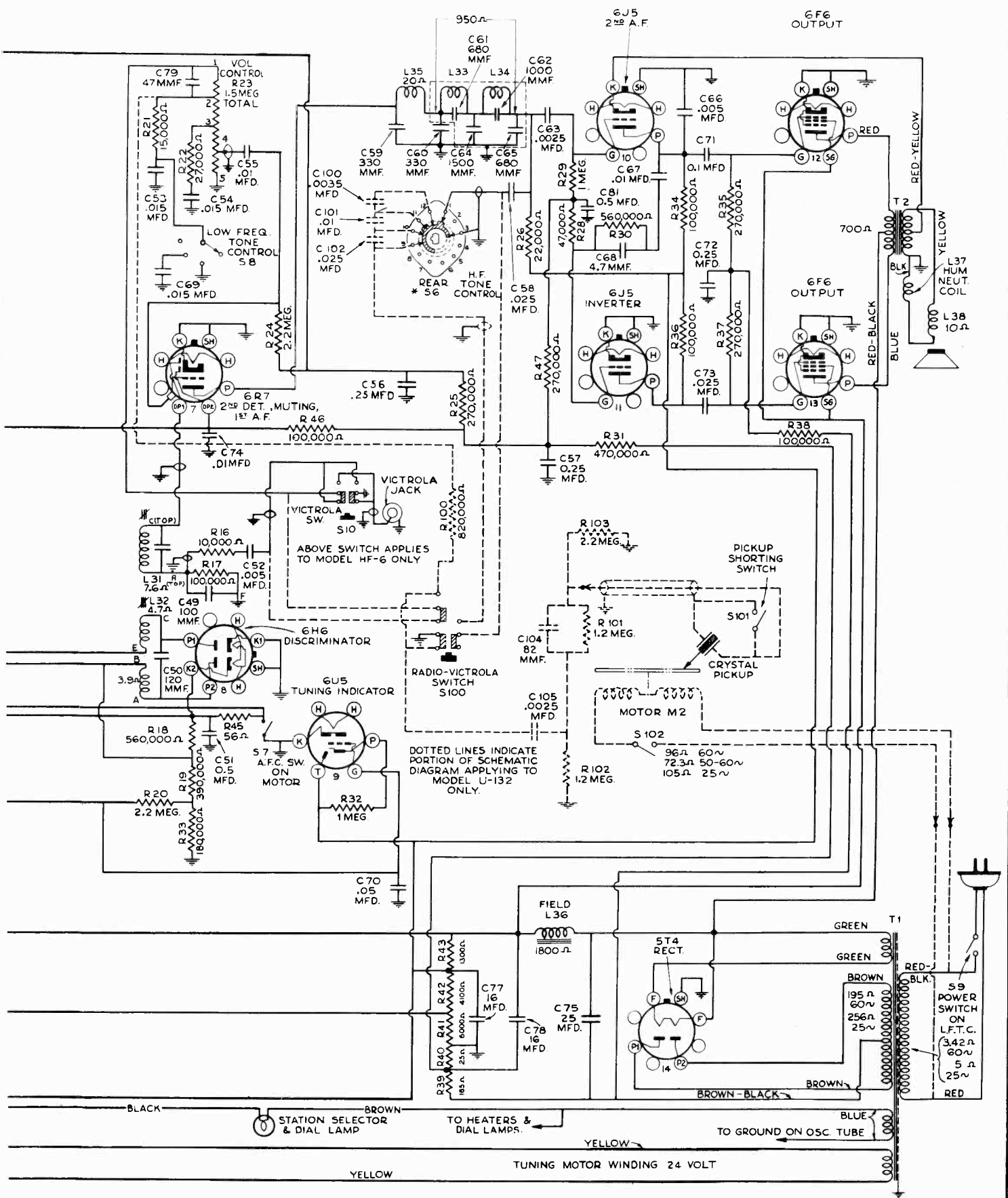
Needle Scratch:

Capacitor C-102, .025 mfd., associated with the H.F. Tone control switch may be of the wrong value, in some cases, and "needle scratch" on phonograph reproduction will be excessive. Use of the new "Red Seal" needles will contribute appreciably to reduction of "needle scratch."

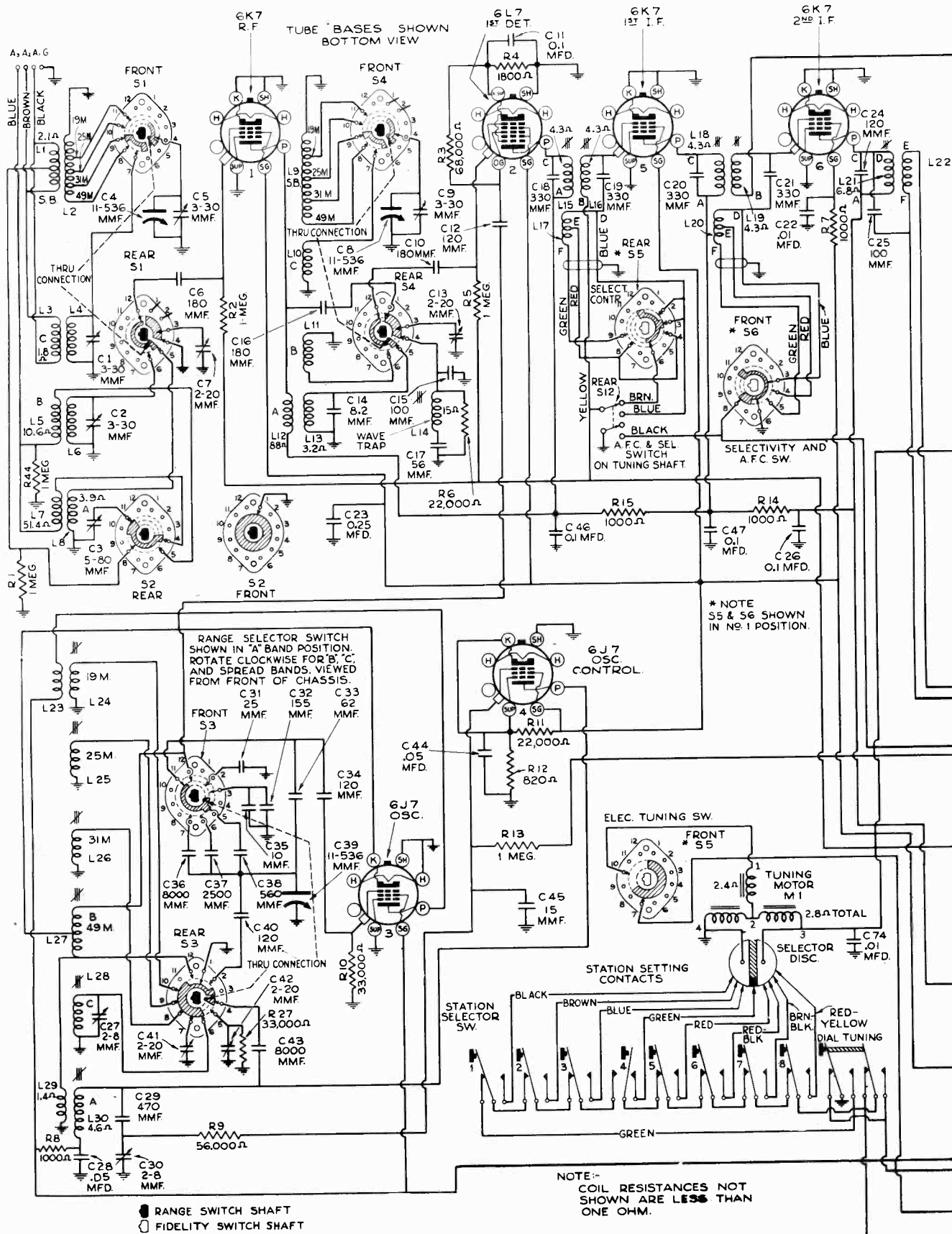
HF-6, HF-8, U-132, U-134



Schematic Circuit Diagram—Models HF-6, U-132

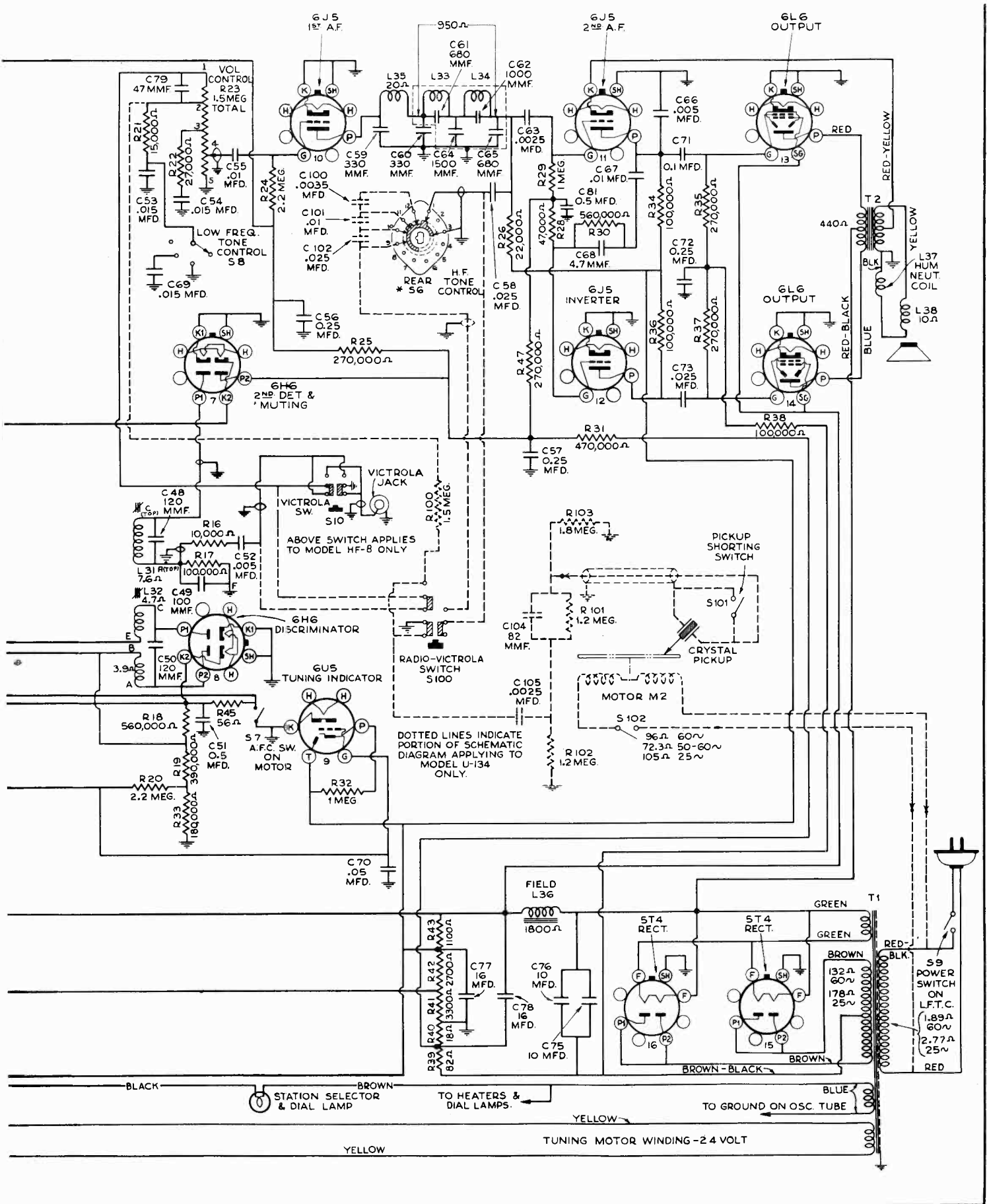


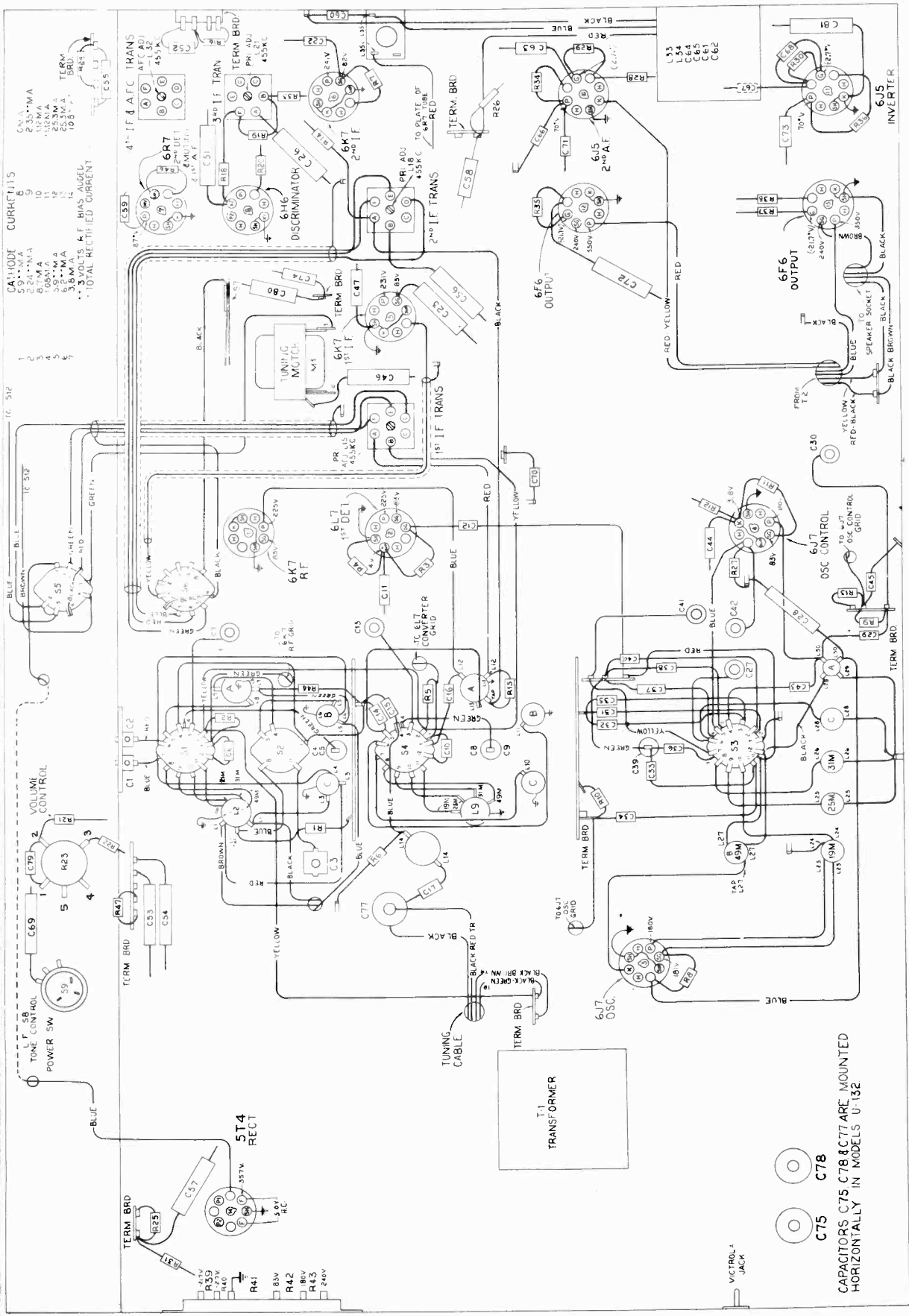
HF-6, HF-8, U-132, U-134



Schematic Circuit Diagram—Models HF-8, U-134

HF-6, HF-8, U-132, U-134



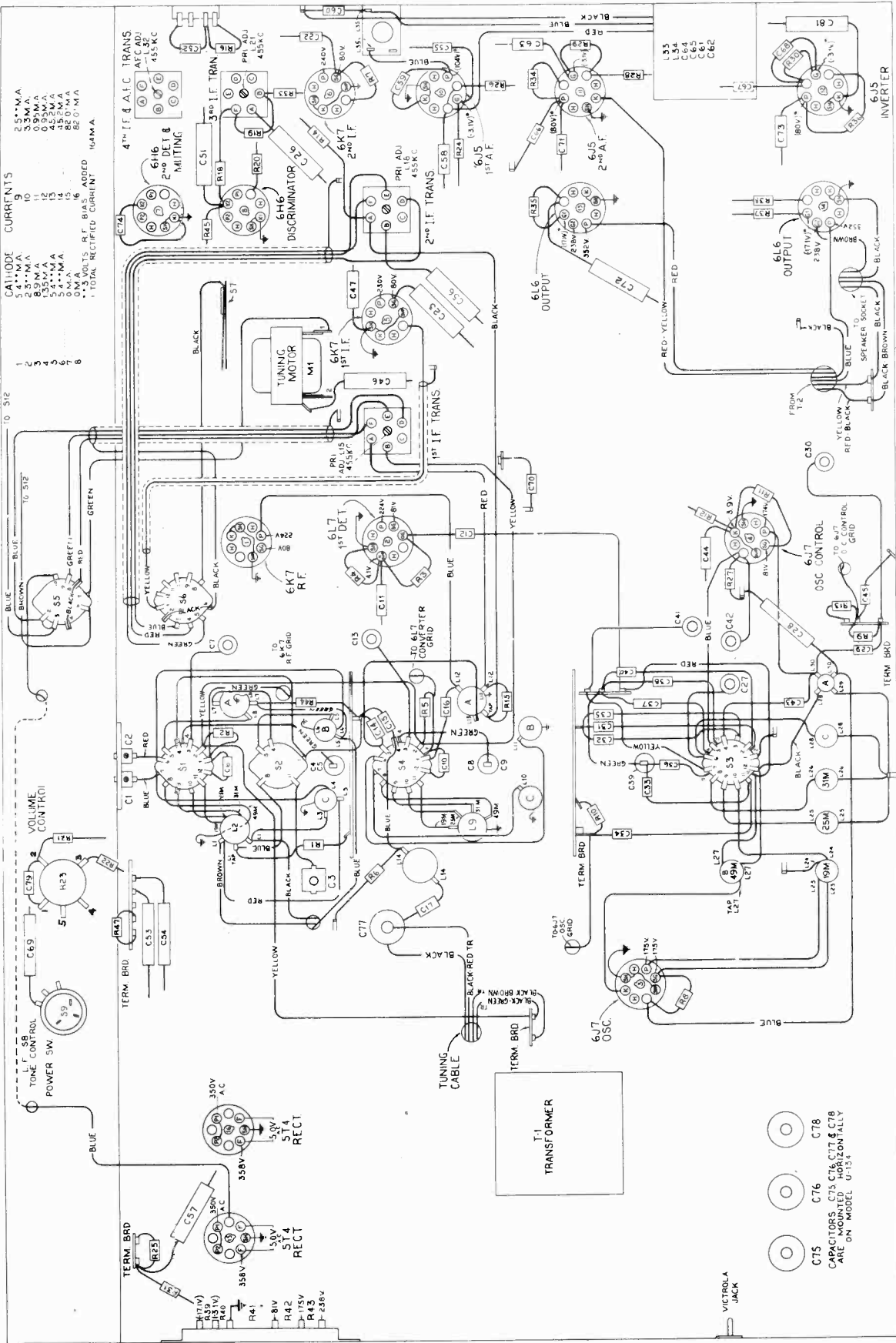


R-F Wiring, Parts Location and Socket Voltage Diagram—Models HF-6, U-132
 Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately ± 20% with 117-volt a-c supply.

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

FILAMENT VOLTAGES 6.4V A.C. EXCEPT 5T4 5.0V

HF-6, HF-8, U-132, U-134



CATHODE CURRENTS

1	9
2	5.4 MA
3	5.4 MA
4	8.0 MA
5	13.5 MA
6	5.4 MA
7	5.4 MA
8	8.0 MA
9	13.5 MA
10	5.4 MA
11	5.4 MA
12	8.0 MA
13	13.5 MA
14	5.4 MA
15	5.4 MA
16	8.0 MA
17	13.5 MA
18	5.4 MA
19	5.4 MA
20	8.0 MA
21	13.5 MA
22	5.4 MA
23	5.4 MA
24	8.0 MA
25	13.5 MA
26	5.4 MA
27	5.4 MA
28	8.0 MA
29	13.5 MA
30	5.4 MA
31	5.4 MA
32	8.0 MA
33	13.5 MA
34	5.4 MA
35	5.4 MA
36	8.0 MA
37	13.5 MA
38	5.4 MA
39	5.4 MA
40	8.0 MA
41	13.5 MA
42	5.4 MA
43	5.4 MA
44	8.0 MA
45	13.5 MA
46	5.4 MA
47	5.4 MA
48	8.0 MA
49	13.5 MA
50	5.4 MA
51	5.4 MA
52	8.0 MA
53	13.5 MA
54	5.4 MA
55	5.4 MA
56	8.0 MA
57	13.5 MA
58	5.4 MA
59	5.4 MA
60	8.0 MA
61	13.5 MA
62	5.4 MA
63	5.4 MA
64	8.0 MA
65	13.5 MA
66	5.4 MA
67	5.4 MA
68	8.0 MA
69	13.5 MA
70	5.4 MA
71	5.4 MA
72	8.0 MA
73	13.5 MA
74	5.4 MA
75	5.4 MA
76	8.0 MA
77	13.5 MA
78	5.4 MA
79	5.4 MA
80	8.0 MA
81	13.5 MA
82	5.4 MA
83	5.4 MA
84	8.0 MA
85	13.5 MA
86	5.4 MA
87	5.4 MA
88	8.0 MA
89	13.5 MA
90	5.4 MA
91	5.4 MA
92	8.0 MA
93	13.5 MA
94	5.4 MA
95	5.4 MA
96	8.0 MA
97	13.5 MA
98	5.4 MA
99	5.4 MA
100	8.0 MA

1. TOTAL RECTIFIED CURRENT 164 MA

R-F Wiring, Parts Location and Socket Voltage Diagram—Models HF-8, U-134

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately ±20% with 117-volt a-c supply.

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Additional Replacement Part:

Stock No. 31566 Pull—Cabinet door pull

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31492	Bearing—Variable condenser motor rotor adjustment bearing—less bracket and cup assembly—Models U-132 and U-134 only	31255	Coil—"C" or 31-meter band oscillator coil (L26, L28)
31253	Board—Antenna-ground terminal board—Models HF-6 and HF-8 only	14953	Coil—"C" band r-f coil (L10)
31752	Board—Antenna-ground terminal board—Models U-132 and U-134 only	12819	Coil—Choke coil (L35)
31276	Bracket—Band indicator mounting bracket—less band indicating strip, cord, and tension spring	31688	Coil—19-meter band oscillator coil (L23, L24)
31491	Bracket—Bracket and bearing cup for variable condenser motor rotor adjustment—Models U-132 and U-134 only	31254	Coil—25-meter band oscillator coil (L25)
31282	Bracket—"Magic Eye" bracket and clip	31673	Coil—49-, 31-, 25-, and 19-meter bands antenna coil (L1, L2)
31712	Cable—3-conductor shielded fidelity switch cable	14954	Coil—49-, 31-, 25-, and 19-meter bands r-f coil (L9)
31711	Cable—4-conductor shielded fidelity switch cable	31676	Condenser—3-gang variable (C4, C5, C8, C9, C39)
31710	Cable—Low capacity phono. cable	31231	Contact—Contact tip for selector plunger
31715	Cable—Push-button switch-to-selector contacts cable	31345	Contact—Push-button switch contacts, comprising 10-contacts riveted on insulating strip
30766	Cap—Shield cap for "Magic Eye"	31344	Contact—Push-button switch contacts, comprising 13-contacts riveted on insulating strip
12607	Cap—Top shield cap for first, second, or fourth i-f transformer	31697	Cord—Band indicator drive cord
12807	Capacitor—Adjustable trimmer, 2-8 mmfd. (C27, C30)	31281	Cord—Pointer drive cord—Model HF-6 only
12884	Capacitor—Adjustable trimmer, 2-20 mmfd. (C7, C13, C41, C42)	31699	Cord—Pointer drive cord—Models HF-8, U-132 and U-134 only
31292	Capacitor—Dual adjustable trimmer, 3-30 mmfd. each section (C1, C2)	31698	Cord—Variable condenser drive cord
14392	Capacitor—4.7 mmfd. (C68)	31273	Drum—Variable condenser drive cord drum
31252	Capacitor—Adjustable trimmer, 5-80 mmfd. (C3)	31686	Filter—10-ke filter (L33, L34, C61, C62, C64, C65)
13001	Capacitor—8.2 mmfd. (C14)	31210	Flywheel—Variable condenser drive motor flywheel
31709	Capacitor—10 mmfd. (C35)	31239	Gear—Variable condenser knob shaft drive gear and hub
12896	Capacitor—15 mmfd. (C45)	31545	Gear—Variable condenser intermediate drive gear and pinion gear—for 25-cycle models only
31707	Capacitor—25 mmfd. (C31)	31238	Gear—Variable condenser intermediate drive gear and pinion gear—for 50 60-cycle models only
13141	Capacitor—47 mmfd. (C79)	31696	Indicator—Band indicator strip
12723	Capacitor—56 mmfd. (C17)	31480	Lamp—Electric Tuning adjustment indicator lamp
31705	Capacitor—62 mmfd. (C33)	11891	Lamp—Dial lamp
12813	Capacitor—82 mmfd. (C104)—Models U-132 and U-134 only	31243	Leather—Friction leather for flywheel
31270	Capacitor—100 mmfd. (C25, C49)	31346	Lock Plate—Push-button switch lock plate, comprising 10-contact locks in one strip
19720	Capacitor—100 mmfd. (C15)	31246	Motor—Variable condenser drive motor—for 25-cycle models only (M1)
31706	Capacitor—120 mmfd. (C40)	31235	Motor—Variable condenser drive motor—for 50 60-cycle models only (M1)
12724	Capacitor—120 mmfd. (C12, C34)	12471	Plate—Mounting plate and rubber for cushion socket—less socket
31757	Capacitor—120 mmfd. (C24, C48, C50)	31227	Plate—Selector mounting plate and spacers—mounts on rear of variable condenser
31708	Capacitor—155 mmfd. (C32)	31228	Plate—Selector contact plate—less plungers
13003	Capacitor—180 mmfd. (C6, C10, C16)		
12952	Capacitor—330 mmfd. (C59, C60)	30868	Plug—2-contact female plug for motor power cable—Models U-132 and U-134 only
31756	Capacitor—330 mmfd. (C18, C19, C20, C21)	5040	Plug—4-contact female plug for speaker cable
30433	Capacitor—470 mmfd. (C29)	14697	Pulley—Variable condenser drive cord intermediate pulley
31702	Capacitor—560 mmfd. (C38)	31280	Pulley—Indicator pointer drive cord pulley
31703	Capacitor—2,500 mmfd. (C37)	31272	Pulley—Range switch shaft pulley
31704	Capacitor—8,000 mmfd. (C36, C43)	31271	Pulley—Station selector knob shaft pulley
5107	Capacitor—.0025 mfd. (C63, C105)—C105 in Models U-132 and U-134 only	31693	Resistor—Voltage divider, comprising one 82-ohm, one 18-ohm, one 3,300-ohm, one 2,700-ohm, one 1,100-ohm sections (R39, R40, R41, R42, R43)—Models HF-8 and U-134 only
30303	Capacitor—.0035 mfd. (C100)—Models U-132 and U-134 only	31694	Resistor—Voltage divider, comprising one 165-ohm, one 25-ohm, one 6,000-ohm, one 4,100-ohm, and one 1,300-ohm sections (R39, R40, R41, R42, R43)—Models HF-6 and U-132 only
4838	Capacitor—.005 mfd. (C52, C56)	13220	Resistor—56 ohms, ½ watt (R45)
14393	Capacitor—.01 mfd. (C22, C55, C67, C74, C101)—C101 in Models U-132 and U-134 only	14076	Resistor—820 ohms, ½ watt (R12)
11315	Capacitor—.015 mfd. (C53, C54, C69)	14720	Resistor—1,000 ohms, ½ watt (R7, R8, R14, R15)
30938	Capacitor—.025 mfd. (C58, C73, C102)—C102 in Models U-132 and U-134 only	12194	Resistor—1,800 ohms, ½ watt (R4)
4886	Capacitor—.05 mfd. (C28)	14559	Resistor—10,000 ohms, ½ watt (R16)
30882	Capacitor—.05 mfd. (C44, C70)	12695	Resistor—15,000 ohms, ½ watt (R21)
4839	Capacitor—.01 mfd. (C26, C46, C11, C47)	13998	Resistor—22,000 ohms, ½ watt (R6)
30899	Capacitor—.01 mfd. (C71)	30492	Resistor—22,000 ohms, ½ watt (R11, R26)
30965	Capacitor—.025 mfd. (C56, C72, C23, C57, C80)—C80 used in Models HF-6 and U-132 only	12738	Resistor—27,000 ohms, ½ watt (R22)
31701	Capacitor—.05 mfd. (C51, C81)	12454	Resistor—33,000 ohms, ½ watt (R10, R27)
11203	Capacitor—.10 mfd. (C75, C76)—Models HF-8 and U-134 only	12412	Resistor—47,000 ohms, ½ watt (R28)
14377	Capacitor—.16 mfd. (C77)	12286	Resistor—56,000 ohms, ½ watt (R9)
5212	Capacitor—.16 mfd. (C78)—Models HF-6 and HF-8 only	13715	Resistor—68,000 ohms, ½ watt (R3)
31751	Capacitor—.16 mfd. (C78)—Models U-132 and U-134 only	14560	Resistor—100,000 ohms, ½ watt (R17, R34, R36, R38, R46)—R46 used in Models HF-6 and U-132 only
14531	Capacitor—.25 mfd. (C75)—Model HF-6 only	13698	Resistor—180,000 ohms, ½ watt (R33)
31753	Capacitor—.25 mfd. (C75)—Model U-132 only	12199	Resistor—270,000 ohms, ½ watt (R25, R35, R37, R47)
31544	Clutch—Variable condenser drive gear clutch and pinion gear—for 25-cycle models only	13479	Resistor—390,000 ohms, ½ watt (R19)
31237	Clutch—Variable condenser drive gear clutch and pinion gear—for 50 60-cycle models only	12285	Resistor—470,000 ohms, ½ watt (R31)
31669	Coil—"A" band antenna coil (L7, L8)		
31689	Coil—"A" band oscillator coil (L29, L30)		
31672	Coil—"A" band r-f coil (L12, L13)		
31670	Coil—"B" band antenna coil (L5, L6)		
31690	Coil—"B" and 49-meter band oscillator coil (L27)		
14952	Coil—"B" band r-f coil (L11)		
31671	Coil—"C" band antenna coil (L3, L4)		

HF-6, HF-8, U-132, U-134

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
12486	Resistor—560,000 ohms, $\frac{1}{2}$ watt (R18, R30)	31675	Transformer—Power transformer, 105-120 volts, 25-60 cycle (T1)—Models HF-8 and U-134 only
30963	Resistor—820,000 ohms, $\frac{1}{2}$ watt (R100)—Model U-132 only	31691	Transformer—Power transformer, 105-120 volts, 50-60 cycle (T1)—Models HF-6 and U-132 only
12013	Resistor—1 meg., 1 10 watt (R32)	31674	Transformer—Power transformer, 105-120 volts, 50-60 cycle (T1)—Models HF-8 and U-134 only
13730	Resistor—1 meg., $\frac{1}{2}$ watt (R1, R2, R5, R13, R29, R44)	12654	Trap—Wave trap (L14)
5028	Resistor—1.8 meg., $\frac{1}{2}$ watt (R103)—Model U-134 only	31682	Volume Control (R23)
12201	Resistor—1.5 meg., $\frac{1}{2}$ watt (R100)—Model U-134 only		SPEAKER ASSEMBLIES
30208	Resistor—1.2 meg., $\frac{1}{2}$ watt (R101, R102)—Models U-132 and U-134 only		Speaker RL76B-1
12679	Resistor—2.2 meg., $\frac{1}{2}$ watt (R20, R24, R103)—R103 in Model U-132 only	14604	Coil—Hum neutralizing coil (L37)
14887	Retainer—Pointer drive cord pulley retainer	31723	Coil—Speaker field coil (L36)
31233	Rotor—Selector rotor disc—mounts on rear of variable condenser shaft	31721	Cone—Speaker cone and voice coil (L38)
31241	Screw— $\frac{1}{4}$ -20 x 3/16-in. headless, cone point set screw for flywheel	5039	Plug—4-contact male plug for speaker
14350	Screw—No. 8-32 square head set screw for rotor, Stock No. 31233	14358	Screw—Cap screw and washer to hold core
5042	Screw—No. 8-32 x $\frac{3}{8}$ -in. headless set screw for pulley, Stock No. 31271	31718	Speaker complete
4669	Screw—No. 8-32 x $\frac{3}{8}$ -in. square head set screw for pulley, Stock No. 31272, and drum, Stock No. 31273		MISCELLANEOUS ASSEMBLIES
4119	Screw—No. 8-32 x $\frac{1}{4}$ -in. headless set screw for gear, Stock No. 31239	31358	Button—Station selector push-button
31681	Shaft—Variable condenser drive knob shaft	13103	Cap—Pilot lamp cap (bullseye)—Models U-132 and U-134 only
31364	Socket—Dial lamp socket—Models HF-6 and HF-8 only	31286	Carriage—Indicator pointer carriage and clip—Model HF-6 only
31365	Socket—Electric Tuning adjustment indicator lamp socket	31456	Cover—Eight protective covers for push-button markers
13871	Socket—"Magic Eye" socket	31540	Cushion—Chassis mounting cushion and screw assemblies sufficient for one chassis—Models U-132 and U-134 only
14278	Socket—Phono. input socket	31541	Cushion—Motor plate mounting cushion and clamp assembly sufficient for one instrument—Models U-132 and U-134 only
31251	Socket—Tube socket	31716	Dial—Station selector dial scale and crystal—Model HF-6 only
31232	Spring—Contact tip spring for selector plunger	31719	Dial—Station selector dial scale and crystal—Models HF-8, U-132 and U-134 only
13638	Spring—Pointer drive cord tension spring	31362	Escutcheon—Station selector dial escutcheon only—less dial, and push-buttons—Model HF-6 only
31230	Spring—Selector plunger body spring	31561	Escutcheon—Station selector dial escutcheon only—less dial, and push-buttons—Models HF-8, U-132 and U-134 only
31279	Spring—Tension spring for band indicator	4585	Hinge—One pair cabinet door hinges (1 top, 1 bottom)—Model HF-8 only
31970	Spring—Tension spring for push-button switch latch bar	30698	Hinge—Cabinet lid hinge—Models U-132 and U-134 only
31242	Spring—Tension spring for flywheel	31759	Hinge—Cabinet door hinges (1 upper and 1 lower)—Model U-134 only
31418	Spring—Variable condenser drive cord tension spring	31564	Holder—Needle card holder—Models U-132 and U-134 only
31494	Spring—Variable condenser motor rotor adjustment bearing spring for 25-cycle models only—Models U-132 and U-134 only	31717	Indicator—Station selector indicator pointer, carriage, and clip assembly—Models HF-8, U-132 and U-134 only
31493	Spring—Variable condenser motor rotor adjustment bearing spring for 50/60-cycle models only—Models U-132 and U-134 only	31714	Indicator—Station selector indicator pointer—Model HF-6 only
31680	Support—Variable condenser drive gear mounting support and studs	31355	Knob—Volume control, tone control, range switch, or fidelity switch knob
31679	Support—Variable condenser motor mounting support and studs—for 25-cycle models only	31713	Knob—Station selector knob
31678	Support—Variable condenser motor mounting support and studs—for 50/60-cycle models only	11891	Lamp—Pilot or compartment lamp—Models U-132 and U-134 only
31677	Switch—Electric Tuning A.F.C. suppression switch (S7)	31458	Marker—"Dial Tuning" push-button marker
31684	Switch—Fidelity switch (S5, S6)	31457	Marker—"Victrola" push-button marker
31683	Switch—L.f. tone and power switch (S8, S9)	31589	Marker—Station call letter markers (1 set)
31700	Switch—Manual Tuning A.F.C. and selectivity switch (S12)		
31360	Switch—Victrola switch for mounting on push-button switch assembly (S10)—Models HF-6 and HF-8 only	31760	Screen—Compartment lamp screen—Models U-132 and U-134 only
31695	Switch—Push-button switch and bracket complete—Models HF-6 and HF-8 only	31285	Screen—Dial color screen and light diffuser—Model HF-6 only
31754	Switch—Push-button switch and bracket complete—Models U-132 and U-134 only	31559	Screen—Dial color screen and light diffuser—Models HF-8, U-132 and U-134 only
31755	Switch—Radio-Phono. switch for mounting on push-button switch assembly (S100)—Models U-132 and U-134 only	12993	Screw—No. 8-32 x $\frac{3}{8}$ -in. headless set screw for knob, Stock No. 31713
31668	Switch—Range switch only—less coils (S1, S2, S3, S4)	31287	Shaft—Slide shaft for indicator pointer carriage
31746	Transformer—First i-f transformer (L15, L16, L17, C18, C19)	31364	Socket—Pilot or compartment lamp socket—Models U-132 and U-134 only
31749	Transformer—Second i-f transformer (L18, L19, L20, C20, C21)	31558	Spring—Indicator carriage bumper spring
31747	Transformer—Third i-f transformer (L21, L22, C24, C25)	14270	Spring—Retaining spring for knob, Stock No. 31355
31748	Transformer—Fourth i-f transformer (L31, L32, C48, C49, C50, R17)	31478	Support—Cabinet lid support—Models U-132 and U-134 only
31687	Transformer—Output transformer (T2)—Models HF-6 and U-132 only	31470	Suspension—Motor board suspension springs, screw, and washer (4 required)—Models U-132 and U-134 only
31685	Transformer—Output transformer (T2)—Models HF-8 and U-134 only		ANTENNA ASSEMBLIES
31885	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 50-60 cycle (T1)—Models HF-6 and U-132 only	31426	Counterpoise Line—Additional length 60-ft. long
31884	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 50-60 cycle (T1)—Models HF-8 and U-134 only	12426	Insulator—Strain and counterpoise insulator
31692	Transformer—Power transformer, 105-120 volts, 25-60 cycle (T1)—Models HF-6 and U-132 only	9816	Transmission Line—Additional length 60-ft. long

Model 7Q4X (Chassis No. RC-502)

REFER TO MODEL 7Q4 FOR ALIGNMENT PROCEDURE

Electrical Specifications

FREQUENCY RANGES

"X" Band.....	145-405 kc (2,069-740 m)
Standard Broadcast ("A").....	540-1,720 kc (555-174 m)
"B" Band.....	2.3-7.0 mc (130-42.8 m)
"C" Band.....	7.0-22.0 mc (42.8-13.6 m)
INTERMEDIATE FREQUENCY.....	455 kc

RCA TUBE COMPLEMENT

- (1) RCA-12SK7..... R-F Amplifier
- (2) RCA-12SA7..... 1st Detector, Oscillator
- (3) RCA-12SK7..... I-F Amplifier
- (4) RCA-12SQ7... 2nd Detector, A.V.C., Audio Amplifier
- (5) RCA-50L6GT..... Output
- (6) RCA-35Z5GT..... Rectifier
- (7) RCA-6N5..... Tuning Indicator

Pilot Lamps (3)..... Mazda No. 47, 6.3 volts, .15 amp.

POWER SUPPLY RATINGS

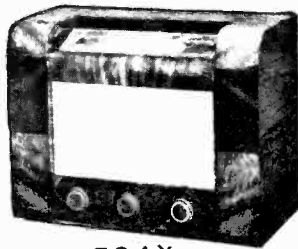
160-200 volts, 40-100 cycles.....	60 watts
160-200 volts, Direct Current.....	60 watts
210-250 volts, 40-100 cycles.....	70 watts
210-250 volts, Direct Current.....	70 watts

LOUDSPEAKER (RL-90-1)

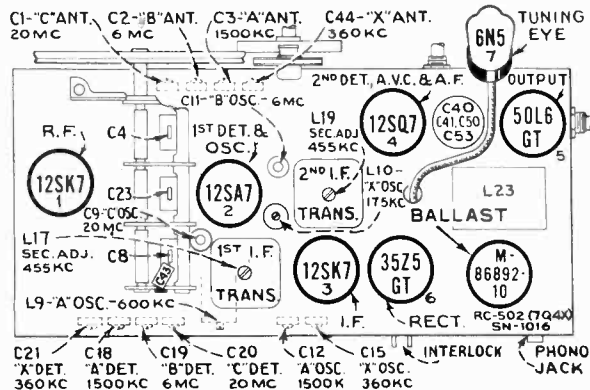
Type..... 8-inch permanent magnet dynamic
Voice Coil Impedance..... 2.6 ohms at 400 cycles

POWER OUTPUT RATING

Undistorted.....	3.5 watts
Maximum.....	4.5 watts



7Q4X

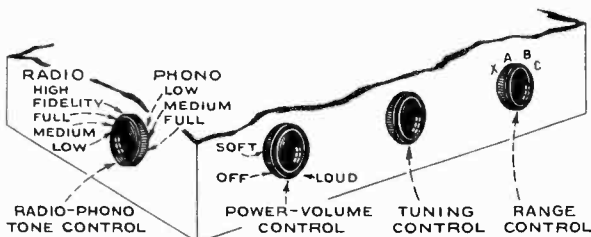


Caution!

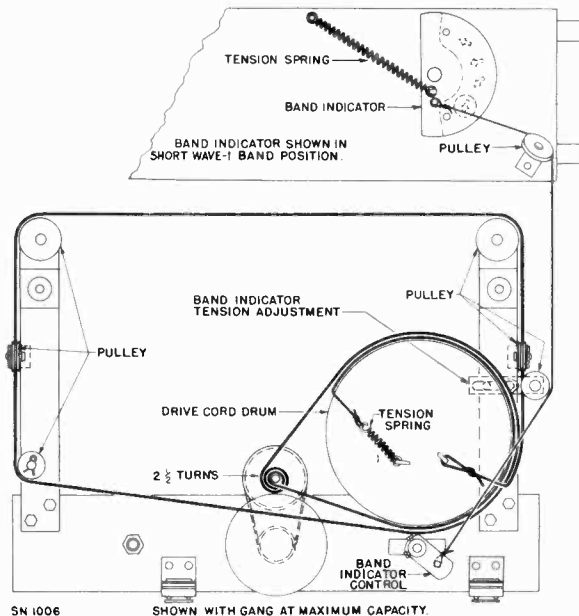
Before replacing ballast resistor, check rectifier and plate circuits to be sure that there are no shorts which would cause the ballast to burn out.

Precautionary Lead Dress:

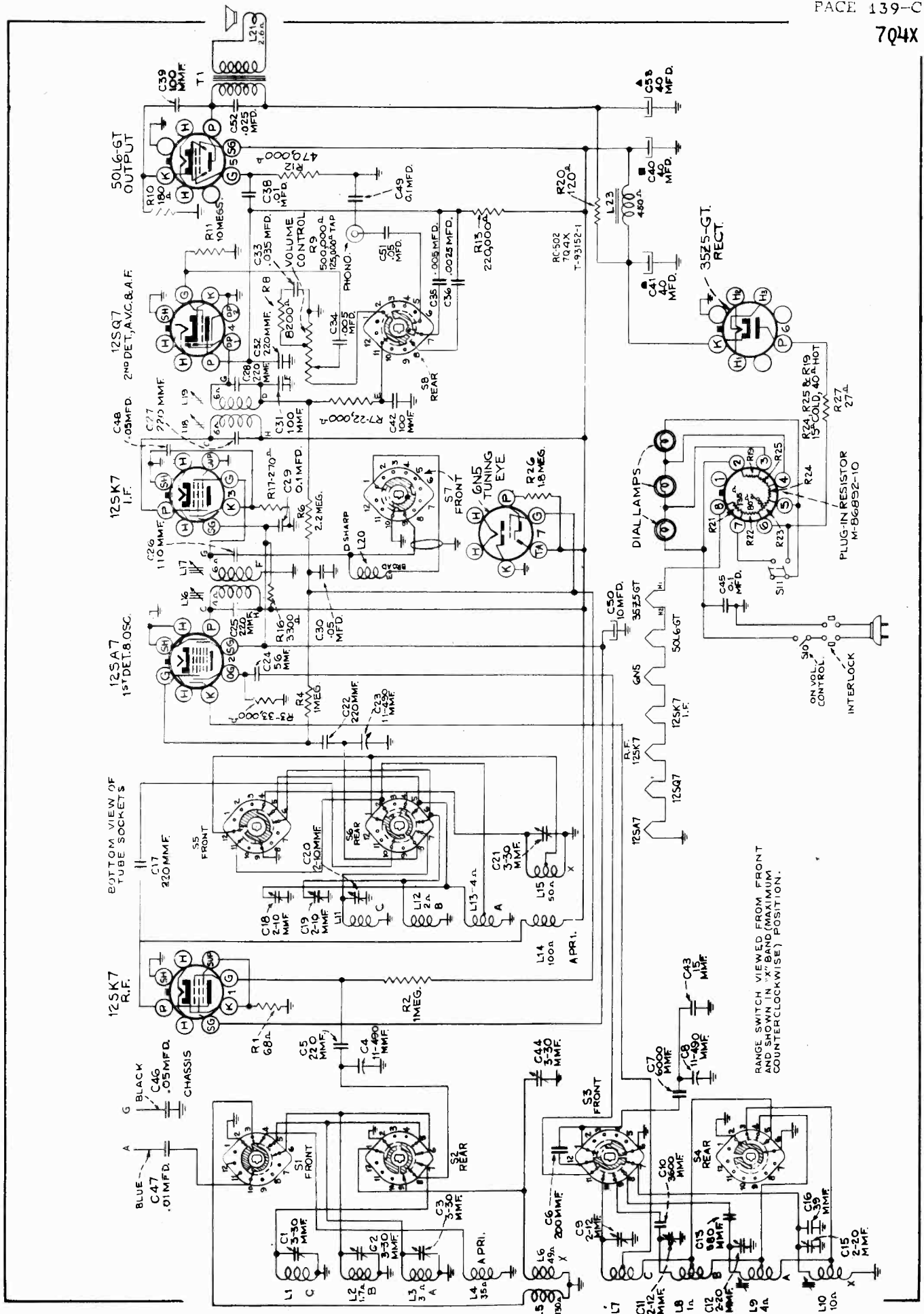
1. Dress the black diode lead running between the 12SQ7 and terminal G on the 2nd I-F transformer, directly against the chassis.
2. Dress the brown lead from terminal E on the 2nd I-F transformer to terminal 11 on S8 against the chassis.
3. Dress the phono lead from phono jack to switch along the side of the chassis.
4. Dress the filament lead from No. 8 of the 12SQ7 to 12SK7 R.F. behind the 12SQ7 socket and away from diode and plate.
5. Dress C-34 and R-11 along chassis above volume control.



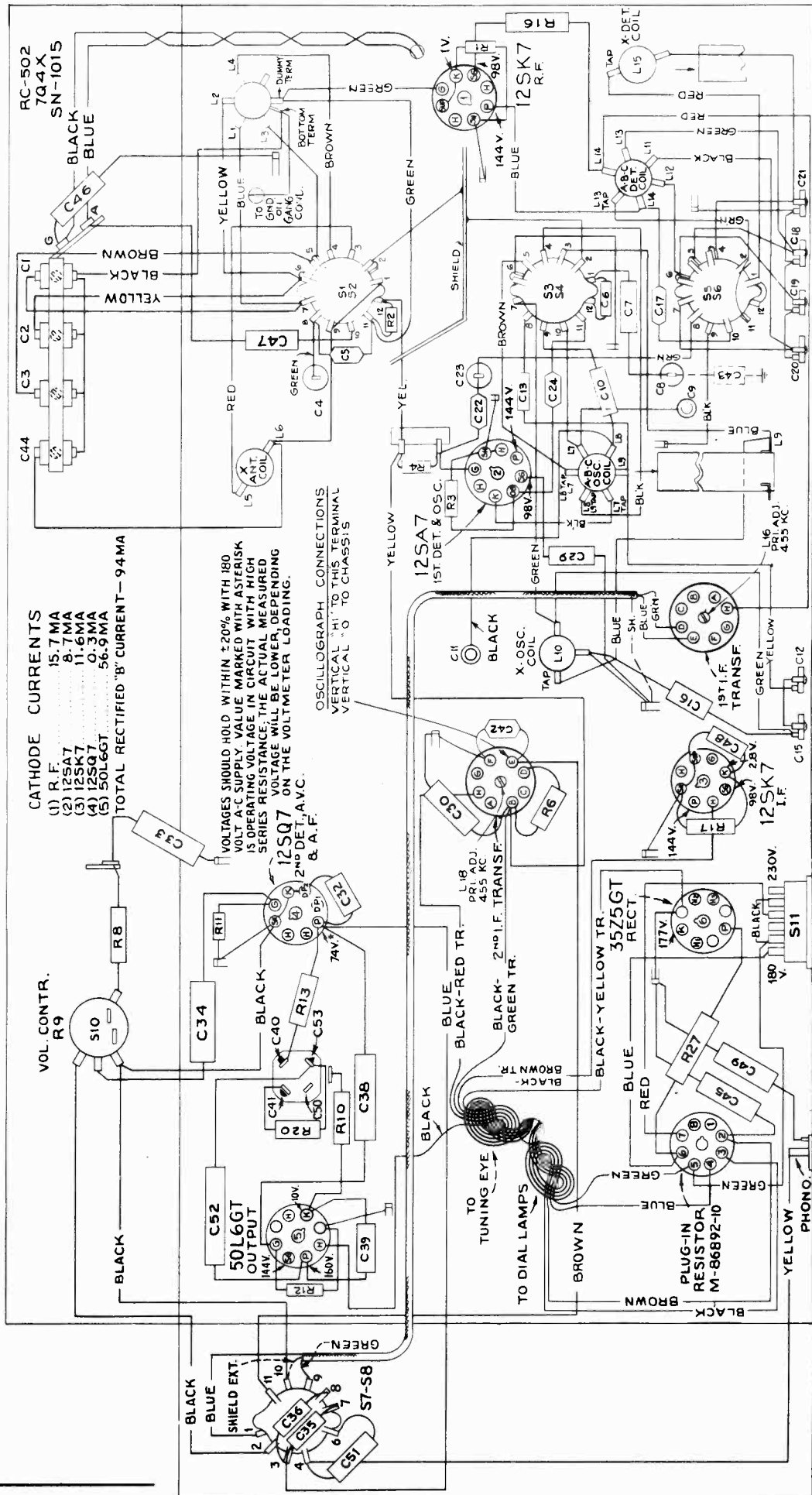
Location of Controls



Drive Cord and Indicator Arrangement



RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN "X" BAND (MAXIMUM COUNTERCLOCKWISE) POSITION.



- CATHODE CURRENTS**
- (1) R.F. 15.7 MA
 - (2) 12SA7 8.7 MA
 - (3) 12SK7 11.6 MA
 - (4) 12SQ7 0.3 MA
 - (5) 50L6GT 56.9 MA
- TOTAL RECTIFIED "B" CURRENT - 94 MA

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 180 VOLT A-C SUPPLY. VALUE MARKED WITH ASTERISK IS OPERATING VOLTAGE IN CIRCUIT WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGE WILL BE LOWER, DEPENDING ON THE VOLTMETER LOADING.

12SQ7 2ND DET., A.V.C. & A.F.

OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHASSIS

BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING AND SOCKET VOLTAGES

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

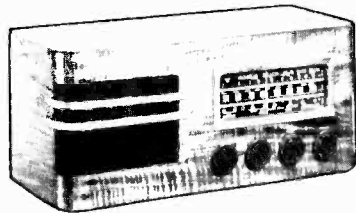
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
34401	Arm—Band indicator arm and hub—less cable fastens on range switch shaft	13454	Resistor—270 ohms, 1/2 watt (R17)
35183	Ballast—Ballast tube resistor	30150	Resistor—3,300 ohms, 1 watt (R16)
34400	Belt—Drive belt	14075	Resistor—8,200 ohms, 1/2 watt (R8)
33821	Capacitor—Mica trimmer comprising 3 sections of 2-10 mmfd. each, and 1 section of 3-30 mmfd.	13998	Resistor—22,000 ohms, 1/2 watt
12714	Capacitor—Air trimmer 2-12 mmfd.	12454	Resistor—33,000 ohms, 1/2 watt (R3)
33818	Capacitor—Mica trimmer comprising 2 sections of 2-20 mmfd.	12264	Resistor—220,000 ohms, 1/2 watt (R13)
33822	Capacitor—Mica trimmer comprising 4 sections of 3-30 mmfd. each	12285	Resistor—470,000 ohms, 1/2 watt (R12)
12896	Capacitor—15 mmfd. (C43)	13730	Resistor—1 megohm, 1/2 watt (R2, R4)
13545	Capacitor—39 mmfd. (C16)	35190	Resistor—1.8 megohm, 1/10 watt
12723	Capacitor—56 mmfd. (C24)	12679	Resistor—2.2 megohm, 1/2 watt (R6)
12720	Capacitor—100 mmfd. (C31, C39, C42)	13601	Resistor—10 megohm, 1/2 watt (R11)
32239	Capacitor—110 mmfd.	4669	Screw—No. 8-32 square head set screw for drum Stock No. 34392
30232	Capacitor—200 mmfd. (C6)	34396	Shaft—Intermediate tuning condenser drive shaft and drive cord pulley, less drive pulley and set screw
33760	Capacitor—220 mmfd.	34397	Shaft—Tuning knob shaft and flywheel—less drive belt pulley and set screws
12694	Capacitor—220 mmfd. (C5, C17, C22, C32)	35189	Socket—Dial lamp socket
33235	Capacitor—580 mmfd. (C13)	34864	Socket—"Magic Eye" socket
12811	Capacitor—3,600 mmfd. (C10)	33742	Socket—Phonograph input socket
31405	Capacitor—8,000 mmfd. (C7)	31251	Socket—Tube socket
34459	Capacitor—.0025 mfd. (C36)	31418	Spring—Indicator drive cord spring
33584	Capacitor—.005 mfd. (C34, C35)	34390	Switch—Range switch
4937	Capacitor—.01 mfd. (C38, C47)	32827	Switch—Voltage change switch
4870	Capacitor—.025 mfd. (C52)	33759	Transformer—1st i.f. transformer
5196	Capacitor—.035 mfd. (C33)	33761	Transformer—2nd i.f. transformer
32787	Capacitor—.05 mfd. (C30, C46, C48, C51)	35183	Tube—Ballast tube resistor
4839	Capacitor—.1 mfd. (C29, C45, C49)	33726	Washer—"C" washer for shafts
35188	Capacitor—Electrolytic comprising 3 sections of 40 mfd. each and 1 section of 10 mfd.		SPEAKER ASSEMBLIES (RL-90-1)
35186	Choke—Filter choke	13866	Cap—Dust cap
33762	Coil—Antenna coil—"A," "B," and "C" band	35193	Cone—Speaker cone complete with voice coil
32823	Coil—Antenna coil—"X" band	5118	Plug—3 prong male plug for speaker
33763	Coil—Detector coil—"A," "B" and "C" band	35192	Speaker—8-inch permanent magnet speaker complete with cone and voice coil—less output transformer and plug
33765	Coil—Detector coil—"X" band	14628	Transformer—Output transformer
33764	Coil—Oscillator coil—"A," "B," and "C" band		MISCELLANEOUS ASSEMBLIES
32931	Coil—Oscillator coil—"X" band	30716	Clip—"Magic Eye" clip
33756	Condenser—Variable tuning condenser	X-821	Cloth—Grille cloth
34403	Control—Tone control	32836	Cord—Power cord
35187	Control—Volume control and power switch	35195	Cover—Back cover less power cord
32635	Cord—Cord for band indicator arm	35194	Dial—Glass dial scale
32634	Cord—Station selector indicator drive cord	34485	Frame—Dial frame complete—less dial pointer shaft, pointer and carriage, band indicator, spring and Magic Eye clip
32713	Core—Adjustable core and stud for "A," "B" and "C" band oscillator coil	34488	Indicator—Band indicator
34392	Drum—Tuning condenser drive drum	34487	Indicator—Station selector indicator and carriage
31480	Lamp—Dial lamp	34489	Knob—Range switch, volume control or tuning knob
5119	Plug—3 contact female plug for speaker cable	34490	Knob—Tone control knob
31373	Pulley—Drive cord pulley	35029	Mounting—Speaker hardware mounting parts
34402	Pulley—Drive cord pulley and bracket for R.H. support	33438	Screw—"Magic Eye" clip screw
34394	Pulley—L.H. support and drive cord pulleys (2) assembled less loose pulley	34492	Shaft—Extension shaft
34395	Pulley—R.H. support and drive cord pulleys (2) less bracket and pulley	34491	Shaft—Indicator pointer guide shaft
35183	Resistor—Ballast tube resistor	30756	Spring—Band indicator spring
35191	Resistor—27 ohms, 2 watt (R27)	14270	Spring—Retaining spring for knobs Stock No. 34489, 34490
14281	Resistor—68 ohms, 1/2 watt (R1)	33726	Washer—Band indicator washer
30936	Resistor—120 ohms, 1 watt (R20)		
2736	Resistor—180 ohms, 1 watt (R10)		

MODELS 7QB and 7QBK Chassis No. RC-496

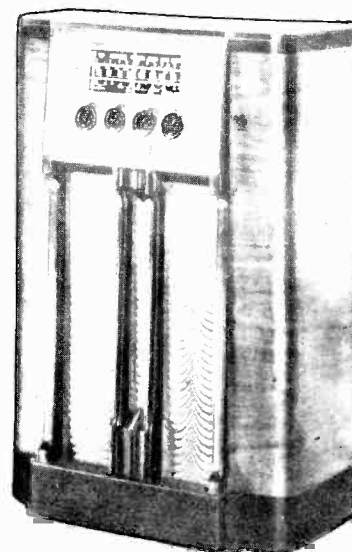
Seven-Tube, Three-Band, Superheterodyne Receivers

and

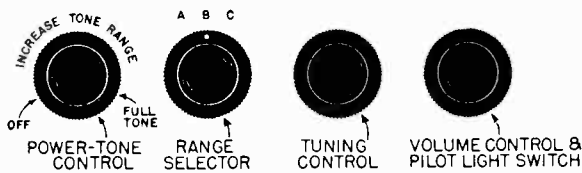
Power Units CV-110 and MI-8122



At Left—
Model 7QB



At Right—
Model 7QBK



The pilot lights are illuminated by pressing in the volume-control knob. (The pilot lights are not controlled by this action when the receiver is operated with the CV-110 a-c power supply unit.)

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) . . . 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band) 2.3-7.0 mc (130-42.8 m)
 Short Wave ("C" Band) 7.0-22 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6S7-G R-F Amplifier
- (2) RCA-6SA7 1st-Detector-Oscillator
- (3) RCA-6S7-G I-F Amplifier
- (4) RCA-6T7-G 2nd-Det., A.V.C., and Audio
- (5) RCA-6W7-G Driver
- (6) RCA-6L5-G Output
- (7) RCA-6L5-G Output

Note: An RCA-5Y3-G rectifier is used in the CV-110 A-C power supply unit.

PILOT LAMPS (2) Mazda No. 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

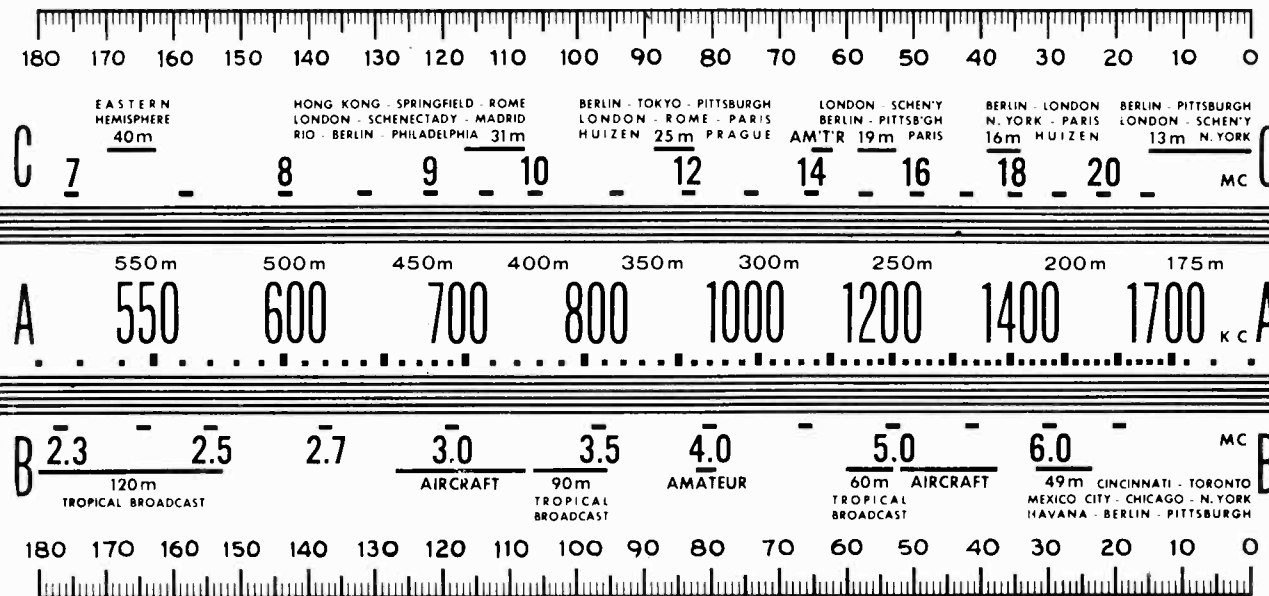
Maximum 2.6 watts
 Undistorted 2.0 watts

LOUDSPEAKERS (Permanent-Magnet Dynamics)

7QB (RL-90-2) 8-inch
 7QBK (RL-71-5) 12-inch
 Voice-coil impedance at 400 cycles 2.4 ohms

POWER SUPPLY RATING

D-C Rating (with vibrator-type power supply unit MI-8122)
 —6.3 volts, 3.2 amps.
 A-C Rating (with CV-110 A-C power supply unit)—
 105-117, 117-130, 140-160, 200-225, 225-250 volts, 25-
 60 cycles.



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

Alignment Procedure

7QB, 7QBK, CV-110, MI-8122

Precautionary Lead Dress.—

1. Dress the blue lead from the antenna lug to the No. 1 terminal on the range switch (S-1) close to the chassis and away from the gang for its entire length across the top of the chassis base.

2. Dress the yellow lead from the detector coil to No. 8 terminal on the range switch (S-2), directly away from the detector coil towards the rear apron.

3. Keep the blue lead from the detector coil to No. 9 terminal on the range switch (S-2), isolated from the other leads and parts.

4. Loop the bus wire from oscillator coil to No. 5 terminal on the range switch (S-3), directly away from these terminals and other parts as far as possible, bending the loop towards the center of the chassis.

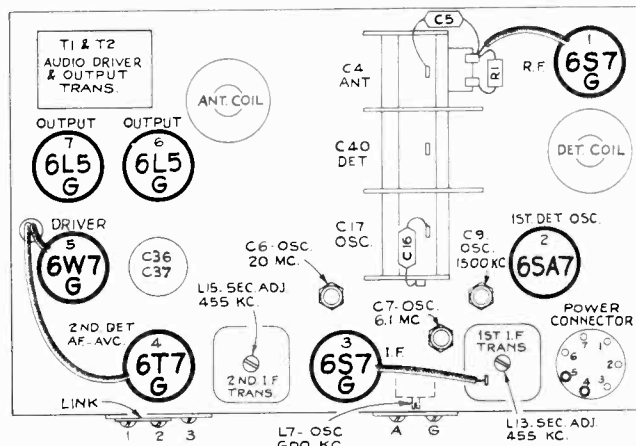
5. Dress the 3,300 mmfd. capacitor (C8) from the oscillator coil to No. 4 terminal on the range switch (S-3), directly toward the center of the chassis, being sure to clear the bus wire loop mentioned above (4).

6. Pull in the slack on the long yellow wire which runs from the terminal board in the rear corner to the tone control, at the tone control end, making the portion of the lead lying outside the front apron taut, and close to the apron.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.



Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end mark on the dial scales and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6S7-G I-F grid cap in series with .01 mfd.	455 kc	"A" band Quiet point between 550-750 kc	L14 and L15 (2nd I-F trans.)
2	6SA7 1st det. grid cap in series with .01 mfd.			L12 and L13 (1st I-F trans.)
3	Antenna terminal in series with 300 ohms	20 mc	20 mc (22°) "C" band	C6 (osc.)* C12 (det.) (Rock C1 (ant.) Gang)
4		6.1 mc	6.1 mc (27.9°) "B" band	C7 (osc.)** C13 (det.) C2 (ant.)
5	Antenna terminal in series with 200 mmfd.	600 kc	600 kc (143.5°) "A" band	L7 (osc.) Rock Gang
6		1,500 kc	1,500 kc (27.8°) "A" band	C9 (osc.) C14 (det.) C3 (ant.)
7	Repeat steps 5 and 6			

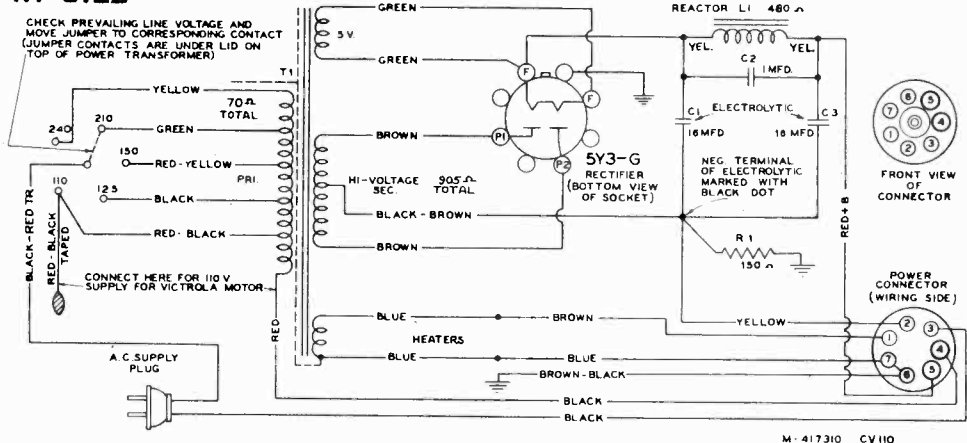
* Use **minimum** capacity peak (plunger out) if two can be obtained. Check to determine that C6 has been adjusted to the correct peak by turning radio to approximately 19.09 mc where a weaker signal should be received.

** Use **minimum** capacity peak if two can be obtained. Check to determine that C7 has been adjusted to the correct peak by turning radio to approximately 5.19 mc where a weaker signal should be heard.

Note: Oscillator tracks above signal on all bands.

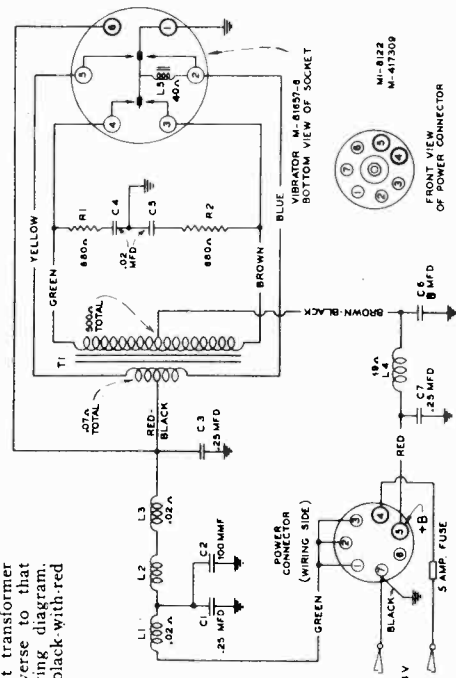
7QB, 7QBK, CV-110, MI-8122

CV-110 A-C Power Supply Unit



M-417310 CV110

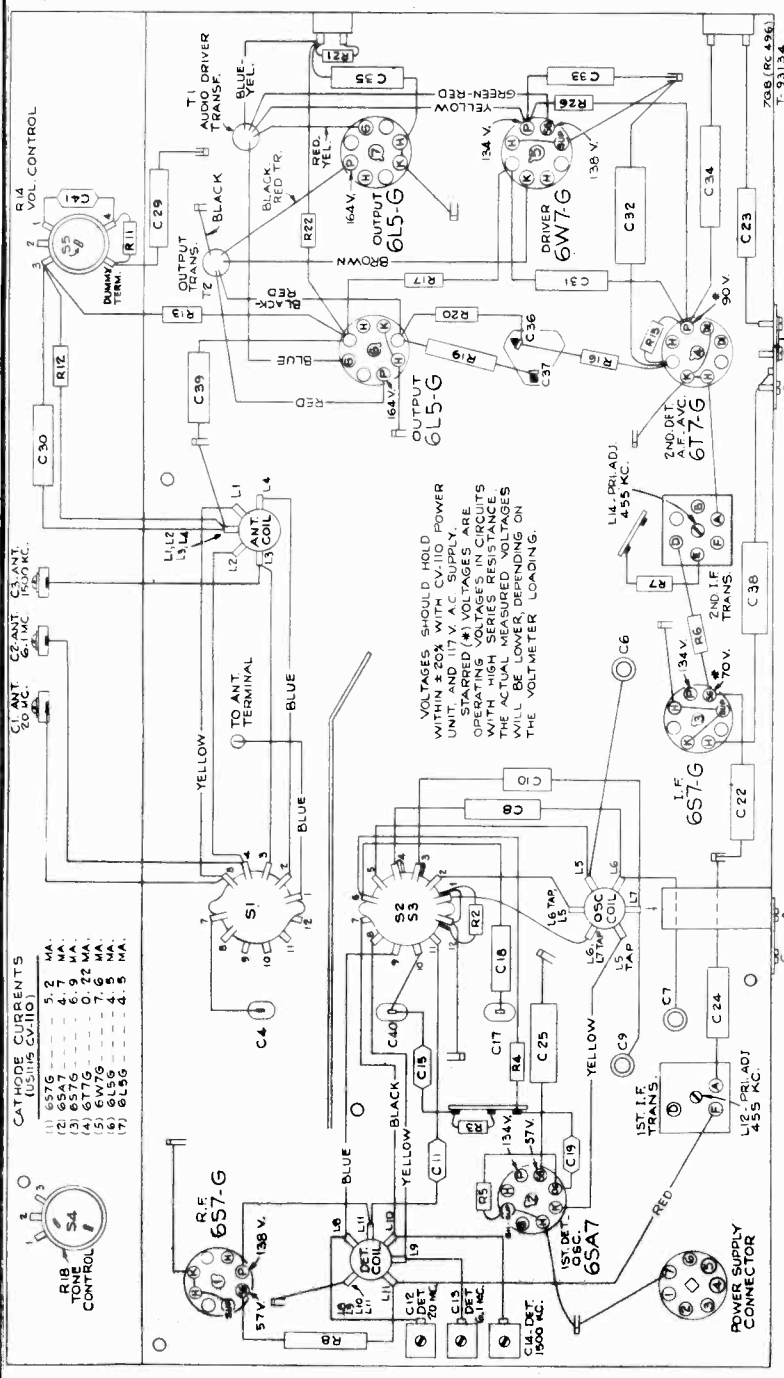
MI-8122 Vibrator Type Power Supply Unit



7QB

Transformer Polarity:

On some production receivers, the leads from the primary winding of the output transformer are color-coded in a manner reverse to that shown in the Service Notes wiring diagram. That is, the red lead and the black-with-red tracer lead are interchanged.



CATHODE CURRENTS (USING CV-110)

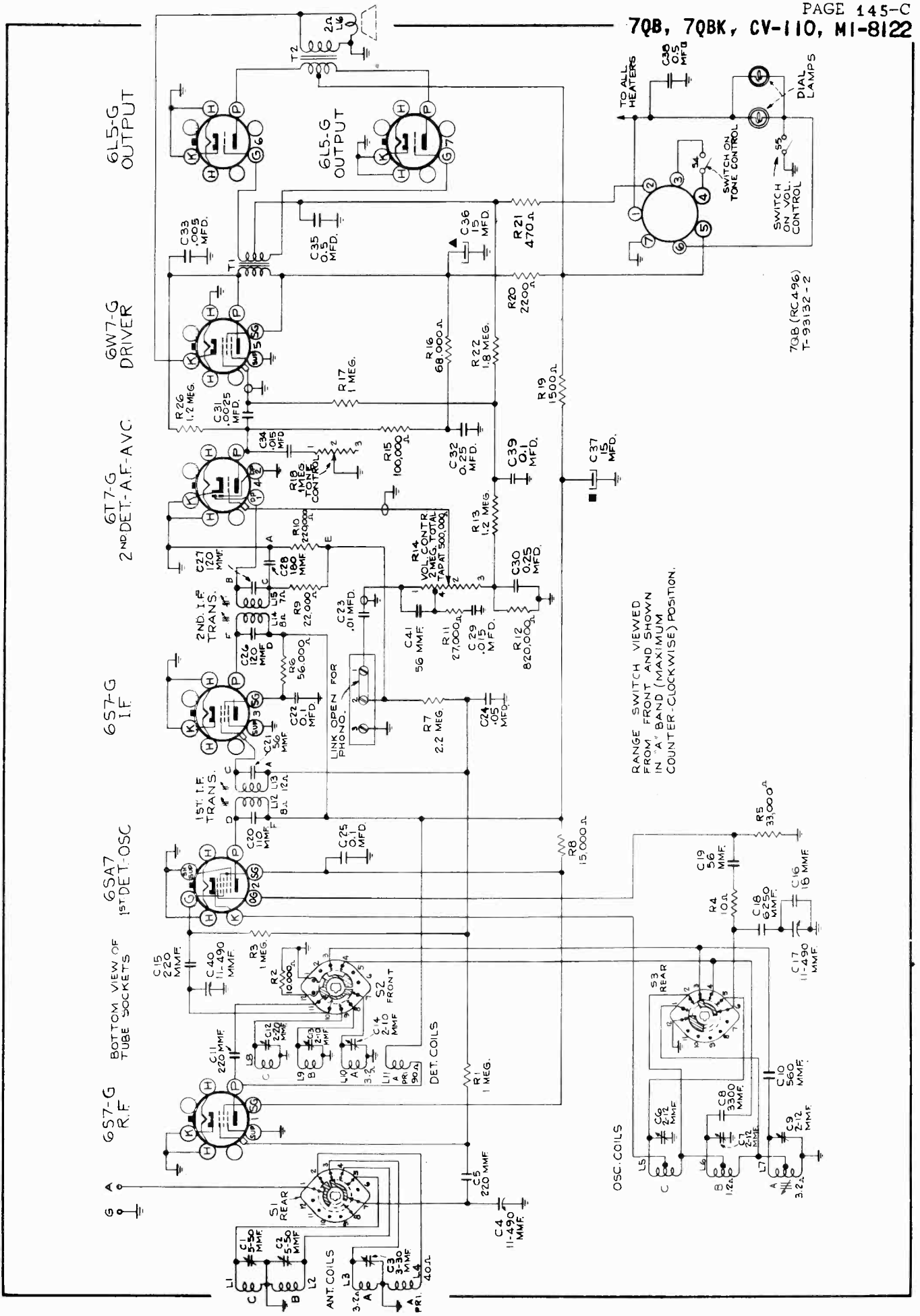
(1) 6S7G	3.2 MA.
(2) 6A7	4.7 MA.
(4) 6W7G	0.22 MA.
(5) 6W7G	7.6 MA.
(6) 6L5G	4.5 MA.
(7) 6L5G	4.5 MA.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH CV-110 POWER UNIT, AND 117 V. A.C. SUPPLY. OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE WILL BE LOWER, DEPENDING ON THE VOLT-METER LOADING.

BOTTOM VIEW-REAR OF CHASSIS R.F. WIRING AND SOCKET VOLTAGES

OSCILLOSCOPE CONNECTIONS VERTICAL 'HI' TO LINK VERTICAL 'O' TO CHASSIS

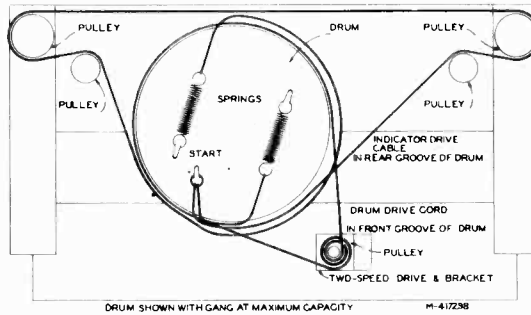
7QB, 7QBK, CV-110, MI-8122



RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN 'A' BAND (MAXIMUM COUNTER-CLOCKWISE) POSITION.

7QB, (RC496) T-93132-2

Arrangement of Drive Cords for Tuning Condenser and Dial Indicator



REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-496)		4669	Screw—No. 8-32 square head set screw for drum Stock No. 31808
12806	Board—"Antenna-Ground" board	14374	Shield—Shield can for coils Stock Nos. 31780, 31781
12717	Board—Phonograph terminal board	31364	Socket—Dial lamp socket
12714	Capacitor—Air-trimmer medium—2-12 mmfd. (C6, C7, C9)	31251	Socket—Tube socket
34654	Capacitor—Mica trimmer comprising 2 sections of 2.5-10 mmfd., and 1 section of 2.5-20 mmfd. (C12, C13, C14)	14404	Socket—7-prong male connector
34653	Capacitor—Mica trimmer comprising 2 sections of 5-50 mmfd., and 1 section of 3-30 mmfd. (C1, C2, C3)	13638	Spring—Drive cord spring
12722	Capacitor—18 mmfd. (C16)	31775	Switch—Range switch
12723	Capacitor—56 mmfd. (C19, C41)	14261	Transformer—First i-f transformer
30949	Capacitor—56 mmfd. (C21)	14283	Transformer—Second i-f transformer
32238	Capacitor—110 mmfd. (C20)	32368	Transformer—Transformer pack including an audio and an output transformer (Replacement transformer has one additional green lead not required for 7QB or 7QBK—tape to prevent shorts)
31813	Capacitor—120 mmfd. (C26, C27)	POWER SUPPLY UNIT ASSEMBLIES (MI-8122)	
14712	Capacitor—180 mmfd. (C28)	12720	Capacitor—100 mmfd.
12694	Capacitor—220 mmfd. (C5, C11, C15)	31796	Capacitor—.02 mfd. (C3, C4)
31433	Capacitor—560 mmfd. (C10)	12484	Capacitor—0.25 mfd. (C3)
31403	Capacitor—3,300 mmfd. (C8)	33879	Capacitor—10 mfd.
35252	Capacitor—6,250 mmfd. (C18)	14289	Clip—Battery clips—one marked "+" and one unmarked
34459	Capacitor—.0025 mfd. (C31)	31794	Coil—Choke coil
33584	Capacitor—.005 mfd. (C33)	12810	Coil—Vibrator coil and terminal board assembly
4837	Capacitor—.01 mfd. (C23)	5140	Fuse—5 Amp.
30856	Capacitor—.015 mfd. (C29, C34)	14409	Plug—7-contact female plug for power cable
32787	Capacitor—.05 mfd. (C24)	12282	Resistor—680 ohms, 1/2 watt (R1, R2)
4839	Capacitor—0.1 mfd. (C22, C25, C39)	31793	Transformer—Vibrator power transformer
12484	Capacitor—0.25 mfd. (C30, C32)	31795	Vibrator—Plug-in vibrator
12741	Capacitor—0.5 mfd. (C35, C38)	CV-110 A-C POWER SUPPLY UNIT	
32152	Capacitor—Electrolytic, 2 sections 15 mfd. each (C36, C37)	32015	Capacitor—1 mfd. (C2)
31780	Coil—Antenna coil (L1, L2, L3, L4)—less shield	32013	Capacitor—Comprising 2 sections 16 mfd. each (C1, C3)
32824	Coil—Oscillator coil (L5, L6, L7)	14409	Plug—7-contact plug for power output cable
31781	Coil—R.F. coil (L8, L9, L10, L11)—less shield	32014	Reactor—Filter reactor (L1)
31774	Condenser—3-gang variable tuning condenser	30880	Resistor—150 ohms, 1/2 watt (R1)
31777	Control—Tone control	31251	Socket—Rectifier tube socket
31776	Control—Volume control and power switch	31998	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 25-60 cycles (T1)
34662	Cord—Drive cord	SPEAKER ASSEMBLIES Model 7QB (RL-90-2)	
32713	Core—Adjustable core and stud for oscillator coil	31825	Cap—Dust cap
31787	Drive—Two (2) speed drive with mounting bracket	35193	Cone—Cone complete with voice coil
31808	Drum—Pointer cord drive drum	35192	Speaker—8-inch permanent magnet speaker complete with cone and voice coil—less plug
31480	Lamp—Dial lamp	SPEAKER ASSEMBLIES Model 7QBK (RL-71-5)	
31373	Pulley—Drive cord pulley small	31275	Cone—Speaker cone and voice coil
34854	Pulley—L.H. pulley and bracket assembly—less small pulley and retainer	5118	Plug—3-contact male plug for speaker
34855	Pulley—R.H. pulley and bracket assembly—less small pulley and retainer	31798	Speaker Complete
31788	Pulley—Two speed drive pulley	MISCELLANEOUS ASSEMBLIES	
13988	Resistor—10 ohms, 1/2 watt (R4)	34859	Dial—Glass dial scale
30546	Resistor—470 ohms, 1/2 watt (R21)	33833	Escutcheon—Station selector dial scale escutcheon
3153	Resistor—1,500 ohms, 1 watt (R19)	34858	Frame—Dial frame complete—less pointer guide rods, pointer and carriage and dial scale
3526	Resistor—2,200 ohms, 1/2 watt (R20)	34860	Indicator—Station selector indicator
14559	Resistor—10,000 ohms, 1/2 watt (R2)	34862	Knob—Range switch knob
5114	Resistor—15,000 ohms, 1 watt (R8)	34861	Knob—Tuning, tone control or volume control and power switch knob
14284	Resistor—22,000 ohms, 1/10 watt (R9)	34491	Shaft—Pointer carriage guide rod
12738	Resistor—27,000 ohms, 1/2 watt (R11)	14270	Spring—Retaining spring for knobs Stock Nos. 34861 and 34862
11300	Resistor—33,000 ohms, 1/10 watt (R5)		
30650	Resistor—56,000 ohms, 1/2 watt (R6)		
13715	Resistor—68,000 ohms, 1/2 watt (R16)		
11281	Resistor—100,000 ohms, 1/10 watt (R15)		
11398	Resistor—220,000 ohms, 1/10 watt (R10)		
30963	Resistor—820,000 ohms, 1/2 watt (R12)		
12013	Resistor—1 meg., 1/10 watt (R3, R17)		
13730	Resistor—1 meg., 1/2 watt (R1)		
31056	Resistor—1.2 meg., 1/10 watt (R13, R26)		
35190	Resistor—1.8 meg., 1/10 watt (R22)		
5131	Resistor—2.2 meg., 1/10 watt (R7)		
30340	Retainer—Drive cord pulley—small retainer		

MODELS QU7 and QU8

Chassis No. RC-551

Twenty Tube, and Twenty-Four Tube, Eight-Band, AC Superheterodyne Receiver, Automatic Phonograph, Recorder, and Public Address System

Electrical and Mechanical Specifications

FREQUENCY RANGES

Long Wave ("X" Band).....	140-410 kc (2145-735 m)
Medium Wave ("A" Band).....	540-1,720 kc (555-174 m)
Short Wave ("B" Band).....	3.1-9.5 mc (97.5-31.5 m)
31 Meter Spread Band.....	9.45-12 mc (31.8-25.4 m)
25 Meter Spread Band.....	11.65-15.2 mc (25.6-19.9 m)
19 Meter Spread Band.....	15.1-17.75 mc (19.9-16.9 m)
16 Meter Spread Band.....	17.73-18.5 mc (16.9-16.2 m)
13 Meter Spread Band.....	21.45-22.6 mc (13.95-13.3)

INTERMEDIATE FREQUENCY 455 kc

PILOT LAMPS 16 Type Mazda 44, 6-8 volts

USED ONLY IN QU8

QU7

CABINET DIMENSIONS

Height.....	39 inches
Width.....	37 inches
Depth.....	19 inches
Weight Net.....	245 lbs. Shipping..... 363 lbs.
Tuning Drive Ratio.....	25 to 1

POWER OUTPUT RATING

Undistorted.....	30 watts
Maximum.....	45 watts

LOUDSPEAKERS (2) (RL-76-B2) (RL-76-B3)

Type..... 12 in. Electrodynamic
Voice Coil Impedance..... 11.5 ohms at 400 cycles

PHONOGRAPH RP Type 157

Type.....	Automatic
Record Capacity.....	Eight "10" or Seven "12" inch Records
Turntable Speed.....	78 r.p.m.
Type Pickup.....	Magnetic
Pickup Impedance.....	96 ohms at 1,000 cycles
Watts Phono Motor 60 cycle.....	27
50 cycle.....	33
25 cycle.....	30

POWER SUPPLY RATING

100-130, 140-160, 195-250 volts, 50-60 cycles..... 400 watts

RECORDER

Cutter Head.....	Magnetic
Impedance of Cutter at 1,000 cycles.....	6 ohms
Turntable Speed.....	78 r.p.m.
Grooves Cut Per Inch.....	96
Inches Cut Per Minute.....	81
Recording Blank Discs.....	Acetate coated metal base
Recording Disc Diameter.....	Up to 12 inches
Drive.....	Lead screw driven from turntable

PUBLIC ADDRESS USE

Microphone Type.....	RCA Aerodynamic MI-6226D
Microphone Input Impedance.....	250 ohms
Output to External Speakers.....	500 ohm line
No. of External Speakers.....	Up to 15
Power Output.....	45 watts max.

RCA TUBE COMPLEMENT

(1) RCA-6SK7.....	R-F Amplifier
(2) RCA-6SA7.....	Oscillator
(3) RCA-6SA7.....	1st Detector
(4) RCA-6SK7.....	1st I-F
(5) RCA-6B8G.....	A.V.C. I-F
(6) RCA-6U5.....	Tuning Indicator
(7) RCA-6B8G.....	2nd I-F, 2nd Detector
(8) RCA-12SK7.....	1st Audio
(9) RCA-6SC7.....	Mixer
(10) RCA-6J5.....	Audio
(11) RCA-6V6-GT.....	Driver
(12) RCA-12SK7.....	Microphone Pre-Amplifier
(13) RCA-6H6.....	Mic. Volume Limiter
(14) RCA-6U5.....	Recording Indicator
(15) RCA-6F6G.....	Power Output
(16) RCA-6F6G.....	Power Output
(17) RCA-6F6G.....	Power Output
(18) RCA-6F6G.....	Power Output
(19) RCA-VR150-30.....	Voltage Regulator
(20) RCA-VR105-30.....	Voltage Regulator
(21) RCA-VR105-30.....	Voltage Regulator
(22) RCA-5Y3G.....	Bias Rectifier
(23) RCA-5U4G.....	Rectifier
(24) RCA-5U4G.....	Rectifier

CABINET DIMENSIONS

QU8

Height.....	42 inches
Width.....	42 3/4 inches
Depth.....	22 1/2 inches
Weight Net.....	308 lbs. Shipping..... 470 lbs.
Tuning Drive Ratio.....	25 to 1

POWER OUTPUT RATING

Undistorted.....	50 watts
Maximum.....	60 watts

LOUDSPEAKERS (2) (RL-76-B2) (RL-76-B3)

Type..... 12 in. Electrodynamic
Voice Coil Impedance..... 11.5 ohms at 400 cycles

PHONOGRAPH Type 16E

Type.....	Fully Automatic
Record Capacity.....	Twenty 10 or 12 inch or twenty mixed Records
Turntable Speed.....	78 r.p.m.
Drive.....	Motor through reduction gear box direct to turntable
Type Pick-Up.....	Magnetic
Pickup Impedance.....	96 ohms at 1,000 cycles
Watts Phono Motor 60 cycle.....	90
50 cycle.....	110

POWER SUPPLY RATING

100-130, 140-160, 195-250 volts, 40-60 cycles..... 410 watts

RECORDER

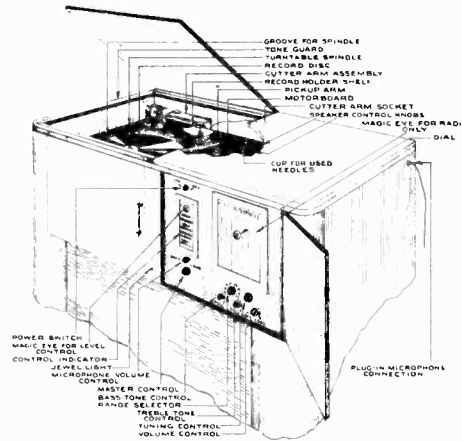
Cutter Head.....	Magnetic
Impedance of Cutter at 1,000 cycles.....	6 ohms
Turntable Speed.....	78 r.p.m.
Grooves Cut Per Inch.....	96
Inches Cut Per Minute.....	81
Recording Blank Discs.....	Acetate coated metal base
Recording Disc Diameter.....	Up to 12 inches
Drive.....	Lead screw driven from turntable

PUBLIC ADDRESS USE

Microphone Type.....	Velocity (Ribbon) MI-4036-K
Microphone Input Impedance.....	250 ohms
Output to External Speakers.....	500 ohm line
No. of External Speakers.....	Up to 30
Power Output.....	60 watts max.

General Description

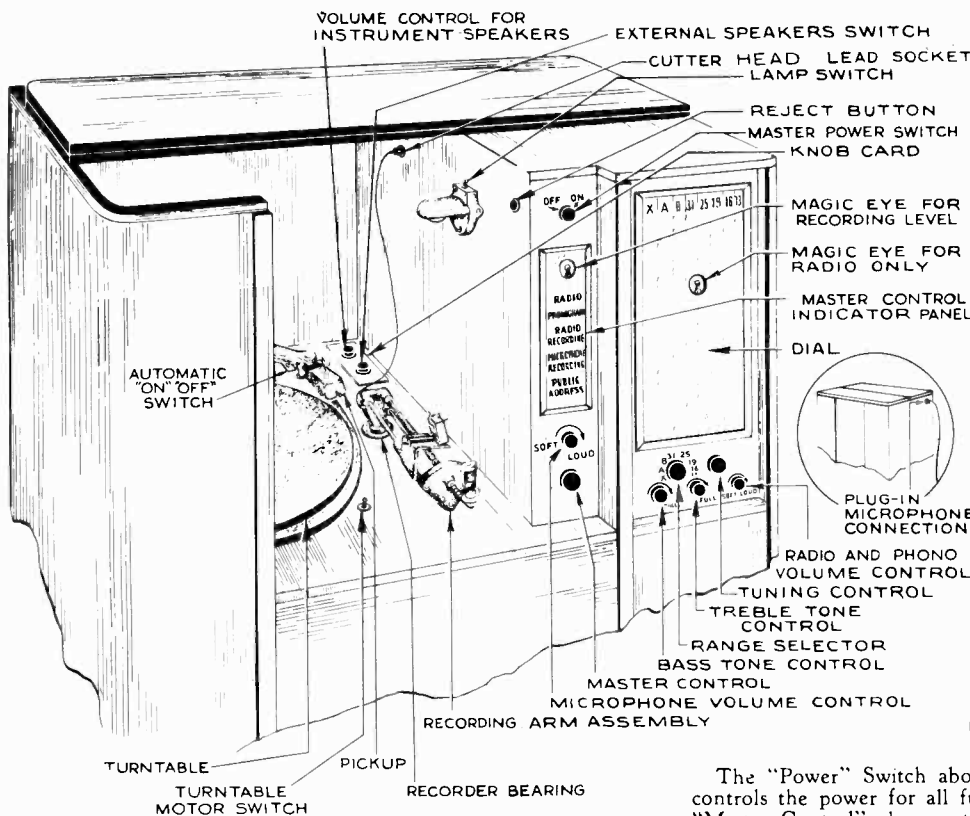
Model QU7 is a superior-quality Radio-Phonograph Combination which includes: a twenty tube superheterodyne radio receiver, an automatic phonograph mechanism, a disc recorder, and has provision for use as a Public Address System. Features of design include: Eight Tuning Bands with five "Spread Bands," Two I-F Stages, Controlled Selectivity, Separate Channel AVC, Automatic Tone Control, Automatic Bass Amplifier, Treble Tone Control, Bass Tone Control, Temperature Compensated Tuning Circuits, Twin 12-inch Speakers. The Phonograph has a specially designed Magnetic Pickup, Automatic Bass Amplifier, Acoustic Adaptor Circuit, Powerful Motor, and Treble and Bass controls. The Recorder will record on up to 12-inch discs the following: Radio Programs, Voice or music of an individual or group, Radio programs plus another voice or special music through the Microphone, plus other combinations of Recorder and Microphone. When used as a P. A. System, this instrument will feed up to fifteen external speakers, and has a separate monitor speaker control to control volume of the speakers in the cabinet. The Microphone supplied for the Recorder and P. A. System is the high-quality RCA Aerodynamic Microphone.



Operating Controls

Model QU8 is a superior-quality Radio-Phonograph Combination which includes: a twenty-four tube superheterodyne radio receiver, a fully automatic phonograph mechanism, a disc recorder, and has provision for use as a Public Address System. Features of design include: Eight Tuning Bands with five "Spread Bands," Two I-F Stages, Controlled Selectivity, Separate Channel AVC, Automatic Tone Control, Automatic Bass Amplifier, Treble Tone Control, Bass Tone Control, Temperature Compensated Tuning Circuits, Twin 12-inch Speakers. The Phonograph will: repeat one record, play in sequence from 3 to 20 records (10-inch, 12-inch or mixed) on both sides automatically; and has: specially designed

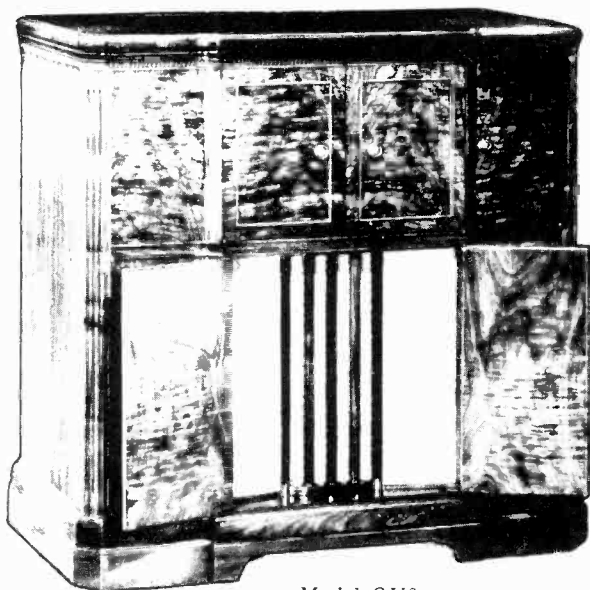
Magnetic Pickup, Automatic Bass Amplifier, Acoustic Adaptor Circuit, Powerful Motor, and Treble and Bass controls. The Recorder will record on up to 12-inch discs the following: Radio Programs, Voice or music of an individual or group, Radio programs plus another voice or special music through the Microphone, plus other combinations of Recorder and Microphone. When used as a P. A. System, this instrument will feed up to thirty external speakers, and has a separate monitor speaker control to control volume of the speakers in the cabinet. The Microphone supplied for the Recorder and P. A. System is the high-quality RCA Velocity (Ribbon Type) Microphone.



Operating Controls

Operation

The "Power" Switch above the Master Control Indicator controls the power for all functions of this instrument. The "Master Control" chooses the type of function desired: the full counter-clockwise position of this switch being the "Radio" position, and successively clockwise the positions are: "Phonograph"; "Radio Recording"; "Microphone Recording"; "Radio Recording" and "Microphone Recording"; and "Public Address." These functions are indicated on the "Master Control Indicator" as the "Master Control" switch is turned.



Model QU8



Model QU7

Radio Operation:— QU7 & QU8

Turn Power Switch "ON," set Master Control to "Radio," set "Range Selector" to band desired, and tune in station desired. Volume is controlled by Volume control on Radio Panel. Adjust Bass and Treble controls as desired. For high-fidelity reception of local stations the Treble Tone control should be turned completely clockwise until the fidelity switch functions.

Phonograph Operation:— QU7

Manual Operation:—Turn Power Switch "ON." Set Master Control for "Phonograph." If mechanism is in cycle, wait until cycle is completed. Set Index Lever to "Manual" position. Set "Recording Turntable Switch" to "OFF." Place pickup on pickup support posts. Make sure there is a good needle in pickup. Lift the knobs on top of the record shelves and rotate the shelves back, away from the turntable. Push back the vertical lever at left of the rear record post. Place record on turntable. Place pickup on record, motor switch on pickup arm will start turntable motor. Adjust "Volume" and "Tone" Controls for desired reproduction. The turntable should stop when pickup reaches inner groove of record.

Automatic Operation:—Turn "Power Switch" "ON." Turn "Master Control" to Phonograph. If mechanism is in cycle, wait until cycle has been completed. Set pickup on pickup support posts. See that Recording Turntable switch is "OFF." Check to see if a good needle is in pickup head.

Push index lever to "manual," lift the knobs on the top of the record shelf posts and rotate the shelves back, away from the turntable. Push back the vertical lever at left of the rear record post.

Select a series of eight 10-inch records, or seven 12-inch records, and place the first one on the turntable. Swing the record shelves into position and place the remainder of the series of records on the shelves as shown in the illustration.

Push the index lever to "10" for a series of 10-inch records, or to "12" for a series of 12-inch records.

Lift the pickup and lower it gently on the record, so that the needle point enters the outside groove. The motor switch under pickup arm will start turntable.

Adjust the radio-phonograph volume control for the desired volume, and adjust the tone controls for desired reproduction.

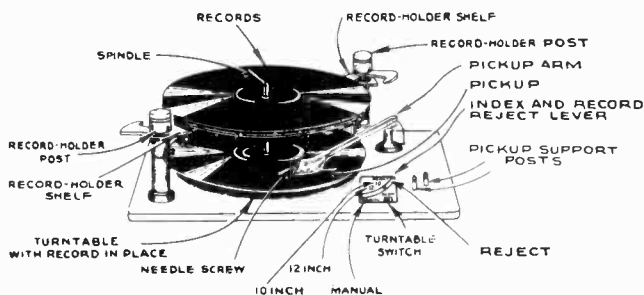
Close the lid of the cabinet to eliminate mechanical sound. The whole series of records will play without further attention, and the last record will repeat until either pickup is lifted off record and placed on record support posts, or Power Switch is turned off.

To reject a record being played, or to start the record-changing cycle in case the record just played does not have the standard eccentric or spiral stopping groove, simply push the index lever to the "reject" position and let go. The pickup will raise up and swing outwards and the next record will drop down. Upon releasing the index lever, it will automatically return to the "10" position. If playing a series of 12-inch records, the lever should be returned to the "12" position after rejecting a record. Keep the lever in at "manual" when not actually playing records automatically.

To stop the mechanism while a record is being played, push the index lever to "manual," place the pickup on its rest, and turn off the turntable switch.

To stop the mechanism at the completion of a record, first allow the pickup to complete its cycle (the cycle is completed when the pickup comes down on the record). Then push the index lever to "manual," place the pickup on its rest.

To remove a record from the turntable, lift the knobs on top of the record-holder posts, swing the shelves back clear of the records, and push back the vertical lever at left of the rear record post.



Record changer - operating controls

Phonograph Operation:— QU8

NOTE:—Before Operating Phonograph, make sure that the phono-drive reduction gear box has been filled with the oil supplied with the instrument; and also add a few drops of good quality motor oil (SAE No. 30) to the motor bearings.

1. **Manual Operation:**—Turn Power Switch "ON," turn "Master Control" to "Phonograph." See that "Automatic" Switch at rear of turntable is "OFF." Place record on turntable; turn "Motor" switch at front of turntable to "ON"; place pickup on record; control volume with "Volume Control" on radio panel. Adjust "Bass" and "Treble" controls as desired.

2. **Automatic Operation:**—Turn "Power" Switch "ON"; turn "Master Control" to "Phonograph."

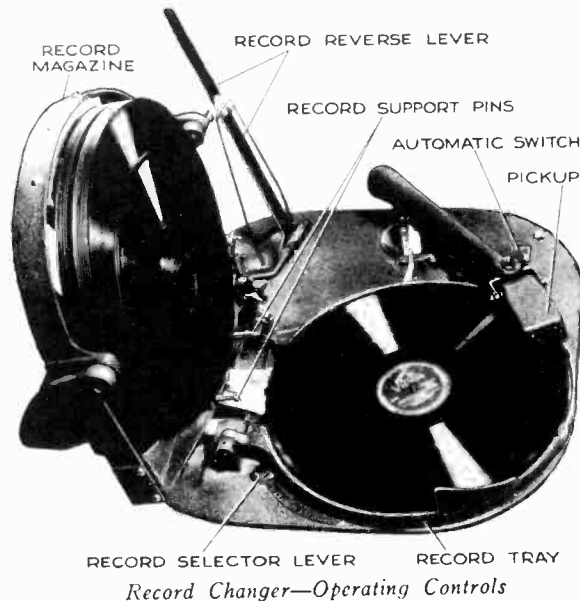
Load the records vertically on the Record Magazine in the order desired.

IMPORTANT:—THE FIRST RECORD, WHICH IS THE FIRST TO BE PLAYED, MUST BE SECURELY PLACED ON THE RECORD SUPPORT PINS AND PUSHED FLUSH AGAINST THE UPPER AND LOWER RECORD SUPPORT SURFACES. The side to be played first should be facing outwards. The other records (up to 20) are then placed on the record support pins in the sequence desired, with the selection to be played first facing outwards. **IMPORTANT:**—NOT LESS THAN 3 RECORDS SHOULD BE PLAYED AUTOMATICALLY. Set the "Record Selector Lever" to play "One side" or "Both Sides," throw the "Automatic" Switch at rear of turntable to "ON," then turn "Motor" switch to "ON."

To repeat a record set the "Record Selector Lever" to "Repeat." To reject a record, push the "Reject" button at top right side of Phono Compartment.

NOTE:—If Automatic Mechanism jams during a cycle, turn "OFF" "Master Power Switch" before clearing cause of jam, as the "Motor" switch does not remove power to phono motor while mechanism is in cycle.

If Master "Power" Switch is turned "OFF" while the automatic mechanism is "in cycle," the mechanism will finish the cycle when the Master "Power" Switch is next turned "ON."



Recorder Operation:— QU7 & QU8

Recorder Set Up:—Turn Master Power Switch "ON." Make sure that Automatic Phono. Mechanism is not "in cycle," and turn the "Automatic" Phonograph switch to the "OFF" position. Place the "Auxiliary Recording Turntable Plate" on the turntable, with the key in the plate engaging the slot in the turntable spindle. Place the recording blank on the turntable so that the three holes in the blank line up with the holes in the recording turntable. Place the Recording arm in position, with the hinged mounting spindle in the bearing on the phonograph shelf, and the drive pins in the holes in the recording blank and turntable. The cutter head bracket should be locked in position under the catch at the drive end of the recording arm until used. Place a cutting stylus fully in the cutter head so that the flat side of the stylus is toward the needle screw.

While recording, use a fine hair brush to keep the area ahead of the stylus free from chips and threads.

Before making each recording tighten the screw on the front of the cutting head that holds the cutting stylus. Do not use pliers or wrench.

Radio Recording:—Tune in desired radio program. Turn Master Control to "Radio Recording." Set "Bass Tone Control" fully clockwise and "Treble Tone Control" fully clockwise. Adjust receiver "Volume Control" so that the "Recorder Magic Eye" in the "Master Control Indicator Panel" closes to about a 1/4 inch opening at minimum width for normal volume. Start Turntable with "Motor Switch." When the desired program comes on, pull down cutter bracket from its catch, move it to opposite end of "Recorder Arm" and place cutting stylus gently on record blank about 1/4 inch from outer rim.

The speaker and "Recorder Magic Eye" both monitor the recording, so that it is possible to hold the necessary recording level during the program. Lift the cutter from the record before it reaches the inner limit of the record, and lock cutter bracket under the cutter catch.

Microphone Recording:—

Set up Recorder.

Turn "Master Control" to "Microphone Recording."

Set "Microphone Volume Control" to the correct level by testing on some of the sound to be recorded. Set control so that the "Recorder Magic Eye" closes to about a 1/4 inch opening at minimum width for normal Volume. The "Microphone Volume Limiter" tube will keep excessively loud sounds to a safe limit. Start turntable. Remove cutter bracket from catch and proceed with recording. Keep "Bass Tone Control" and "Treble Tone Control" maximum clockwise.

Re-Recording:—

Set up Recorder.

Turn "Master Control" to "Radio Recording."

Connect an "RCA Victrola Phonograph Attachment" by plugging an adapter plug into the "Television, FM" jack at the rear of the radio chassis. Turn the attachment volume control full "ON." Place the record it is desired to duplicate on the attachment turntable, and play a portion of it, meanwhile adjusting the "Radio Volume Control" to give the correct recording level in the "Recording Magic Eye." After the correct level has been set, proceed with the recording.

Mixed Radio and Microphone Recording:—

Set up for Recording.

Set "Master Control" so that both "Radio" Recording and "Microphone Recording" are indicated.

Tune in desired radio program.

Set program level same as in "Radio Recording."

Set Microphone Volume Control same as in "Microphone Recording."

Proceed with recording.

Mixed Microphone and Record Recording or Re-Recording:—

Set up for Recording.

Set "Master Control" so that both "Radio Recording" and "Microphone Recording" are indicated.

Proceed as stated in "Microphone Recording" and "Re-recording."

Playback:— QU7 & QU8

To play back after recording, remove the drive and recorder arm from the turntable spindle, and place on the pin at the right front of the cabinet. Remove the "Auxiliary Recording Turntable." Proceed as under "Manual" Phonograph operation.

IMPORTANT: Before playing the Automatic Phonograph after recording, make sure the Recording Turntable plate is removed.

If Automatic Mechanism jams during cycle for any reason, throw "Master Power Switch" "OFF", as the turntable "Motor Switch" will not cut off current to motor, while mechanism is in cycle.

Acoustic Adaptor:—An "Acoustic Adaptor" switch located at the right rear corner of the radio chassis can be used to adapt the instrument to different types of locations for phono reproduction, by varying the balance between high and low frequency response as desired.

Public Address Use:—

Microphone Pickup:—Turn Power Switch "ON."

Turn "Master Control" to Public Address position.

If external speakers are connected, turn External Speaker Switch, located at the right hand rear corner of phonograph compartment, clockwise, to put these in operation.

Set "Microphone Volume Control" to give desired Volume in Speakers. If the Speakers in the cabinet are too loud and "Feedback" occurs, the volume on these speakers can be "Control" located in back of the "External Speaker" switch.

reduced by turning down the "Instrument Speaker Volume Control" located in back of the "External Speaker" switch.

Radio or Record Program:—If it is desired to send Radio programs or Record programs over the External Speaker system, the instrument is operated in the normal manner for "Radio" or "Phonograph" operation, and the "External Speaker" switch is then turned for "External Speaker" operation.

Recording and Playback Notes

IMPORTANT

The cutting point of the stylus must be in perfect condition in order to make good recordings.

The condition of the stylus point can not be determined by ordinary visual inspection. If the recordings are noisy or poor in quality, first try a new stylus.

The stylus cutting point can be ruined by dropping the cutter on the record, by cutting into the base metal of the recording blank, or by cutting into the paper label on the blank.

Always stop the recorder before it reaches its inner limit as it will repeat in the last groove and may wear into the base metal, thereby ruining the stylus point. See that the instrument is perfectly level.

CUTTER ADJUSTMENT

To adjust the stylus pressure for the correct depth and width of cut, the best procedure is to cut some "blank" grooves in a recording disc of the type that will be used: The stylus pressure can be regulated, by means of the adjustment screw on top of the cutter bracket, to produce the correct thickness of the hair-like cuttings. The cuttings should collect toward the center of the recording disc. If they collect toward the outside the stylus is not correctly inserted, and must be adjusted by removal and re-insertion. If the threads continue to collect toward the outside, use a new stylus.

The cuttings should be even, thin, hair-like threads about three-thousandths of an inch across or approximately the diameter of a human hair.

The groove width should almost equal, but not exceed, the distance between grooves. A magnifying glass is helpful in examining the grooves. If the grooves are too shallow, the phonograph needle will slide over them on playback. If the grooves are cut too deep, rumble will be excessive.

After examining the cuttings and the groove width, adjust the cutter pressure as required by means of the adjustment screw on top of the cutter bracket. Turn this clockwise to increase pressure and increase depth of groove. Turn counter-clockwise to decrease pressure and decrease depth of groove.

Check the new adjustment by running more blank grooves.

Check the cuttings and groove width each time a new stylus is inserted, and whenever a different type of recording disc is used. Due to variations in material composition and hardness among different types of discs, the same cutting-pressure adjustment will not give an equal depth of cut on all types. Thus, it may be necessary to change the adjustment previously set for one type of disc, when recording on a different type.

Excessive cutting pressure will cause rumble. The width of the groove should almost equal, but not exceed, the distance between grooves.

Check the groove width each time a new stylus is used, and each time a new disc is used.

When recording, use the maximum bass response, by turning the bass control to the maximum clockwise position.

On play-back, use the least bass response, by turning the Bass control to the maximum counter-clockwise position.

Be certain that the motorboard and mechanism is "floating" free from the cabinet.

Recorder Service

Cutter Head Drive:—The cutting head drive screw (lead screw) should rotate freely and be free from end play. If end play is present loosen the jamb screw which locks the cone point bearing located at end away from driving gear and adjust this bearing until end play is eliminated (being careful not to cause binding), then tighten jamb screw.

Cutter Head Mounting:—Two cone pointed set screws support the cutter head and its mounting bracket. These should be adjusted to prevent end play but to permit free movement of the cutter head up and down.

Record Threads:—Keep the drive gears and lead screw free from record threads.

Equalizing Groove Width:—In order to keep the groove width cut at the inside and outside of record equal, it may be necessary to adjust the spindle bearing into which the swivel spindle of the recording arm is placed, and which is located at the right hand center of the phono board. To adjust this bearing loosen the set screw in the base and move bearing up or down as desired. If the grooves at the edge of record are shallower than those at center of record, lower the bearing. If grooves at edge of record are deeper than those at center of record, then raise the bearing.

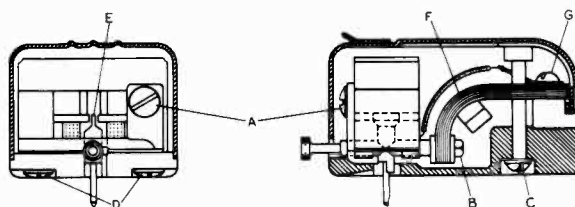
Lubrication:—Keep the drive gears, lead screw, and other bearing surfaces well lubricated with Vaseline or Petroleum Jelly.

*"Automatic" Cut-Off Switch Under Recorder Arm:—When the Recorder Arm is swung in position over a record to make a recording, the weight of the arm is brought down on

a switch mounted under the recorder arm swivel bearing, opening the switch and making the Automatic Phonograph inoperative.

This switch should be adjusted so that when the Recording Arm is on its rest, the switch is closed; i. e. the switch plunger is all the way up; and there should be about $\frac{1}{12}$ inch clearance between the top of switch, and the swivel shaft. When the Recording Arm is in the recording position, the switch is open; i. e. the switch plunger is pushed down.

Cutter Head:—

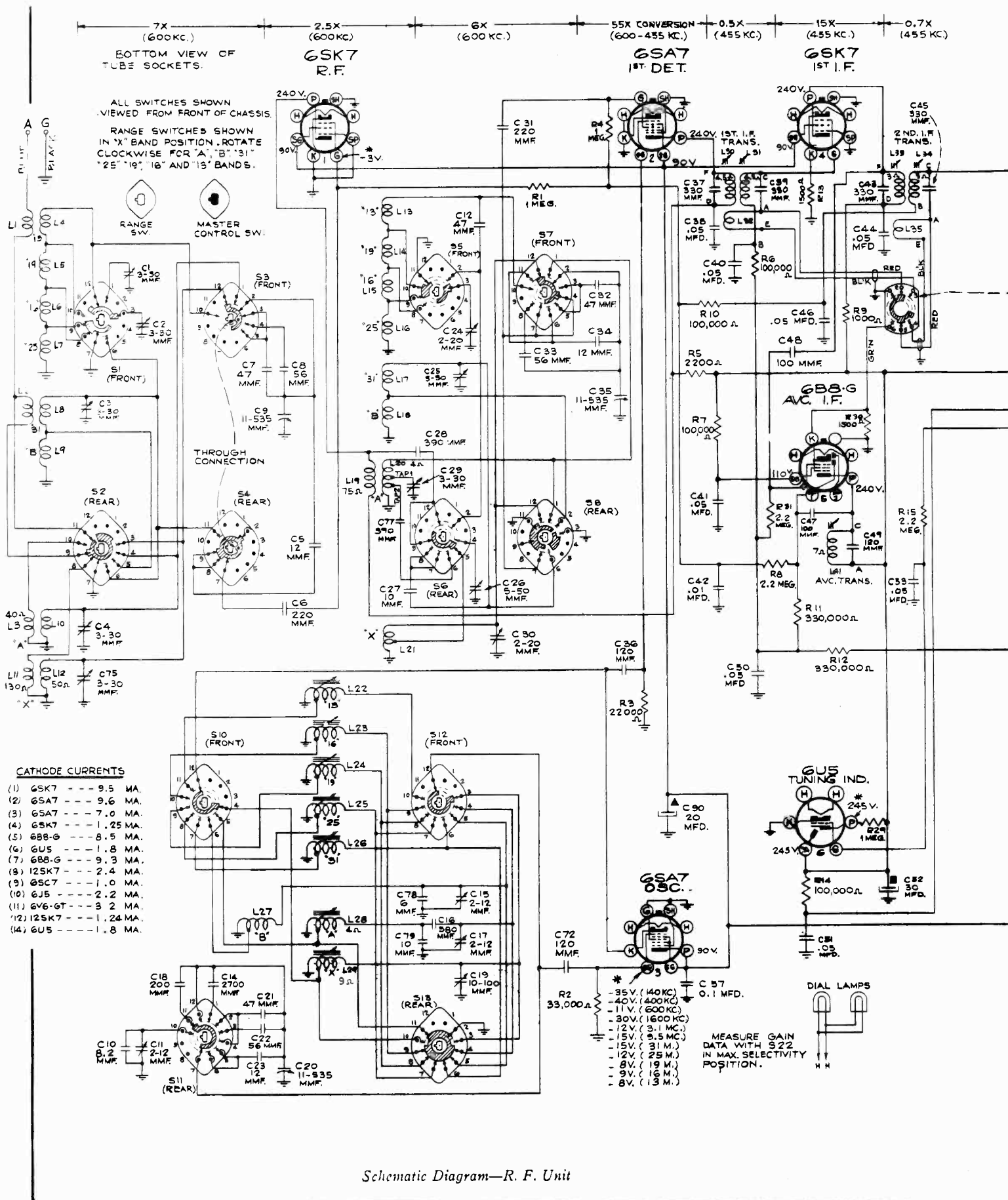


Cutter Head

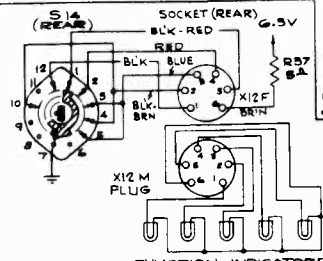
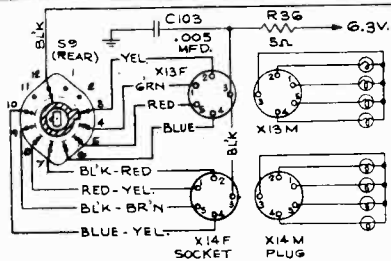
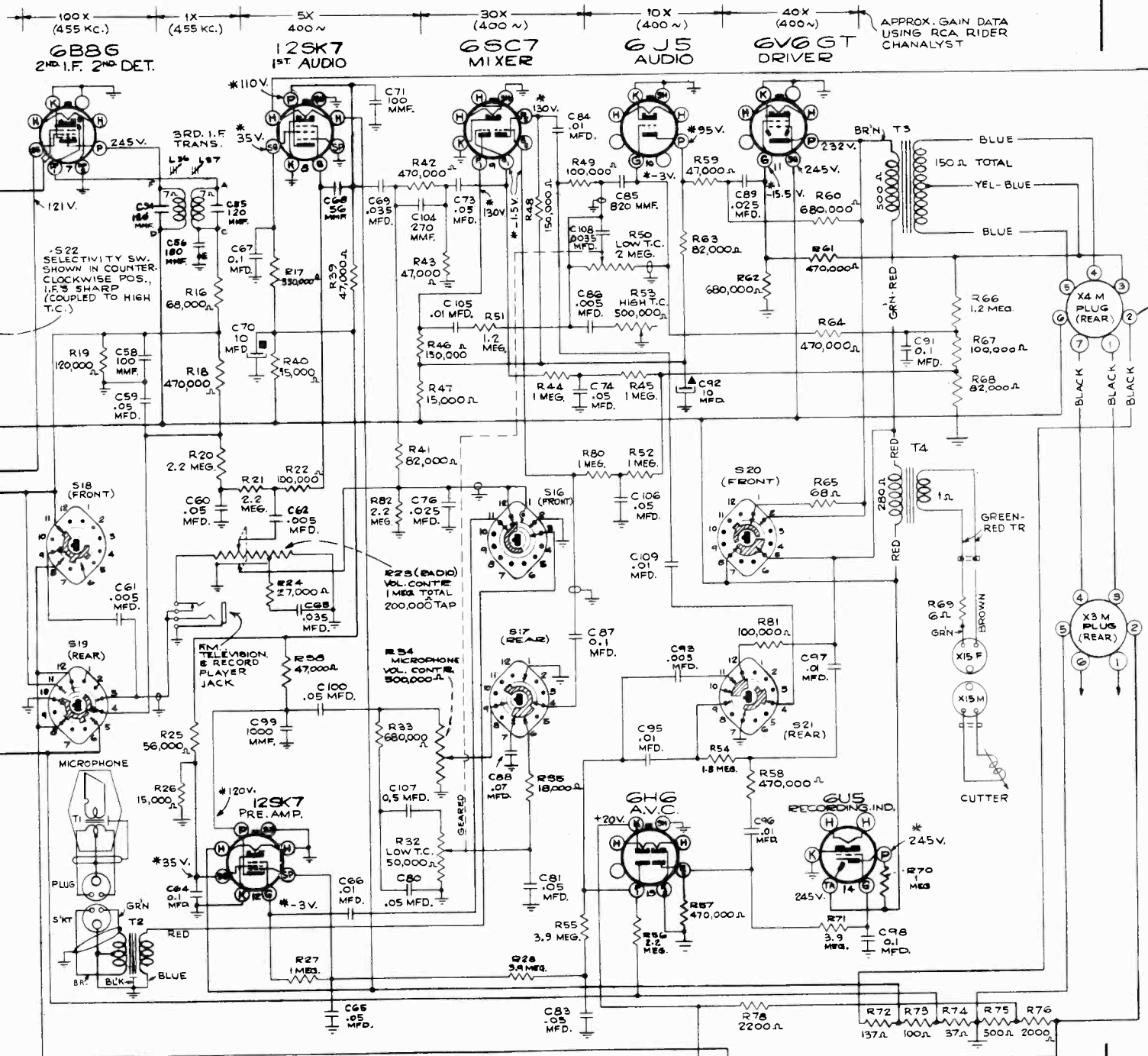
The cutter head used is of an improved design. There is a centering spring attached to the armature to maintain proper adjustment and to provide a limiting effect on the movement of the armature.

*"Automatic" Cut-off switch - Used on Model QU-8 only

QU-7, QU-8



Schematic Diagram—R. F. Unit



VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. A.C. SUPPLY.
* MEASURED WITH CHANNELYST OR VOLTOHMYST.

W-87034-5

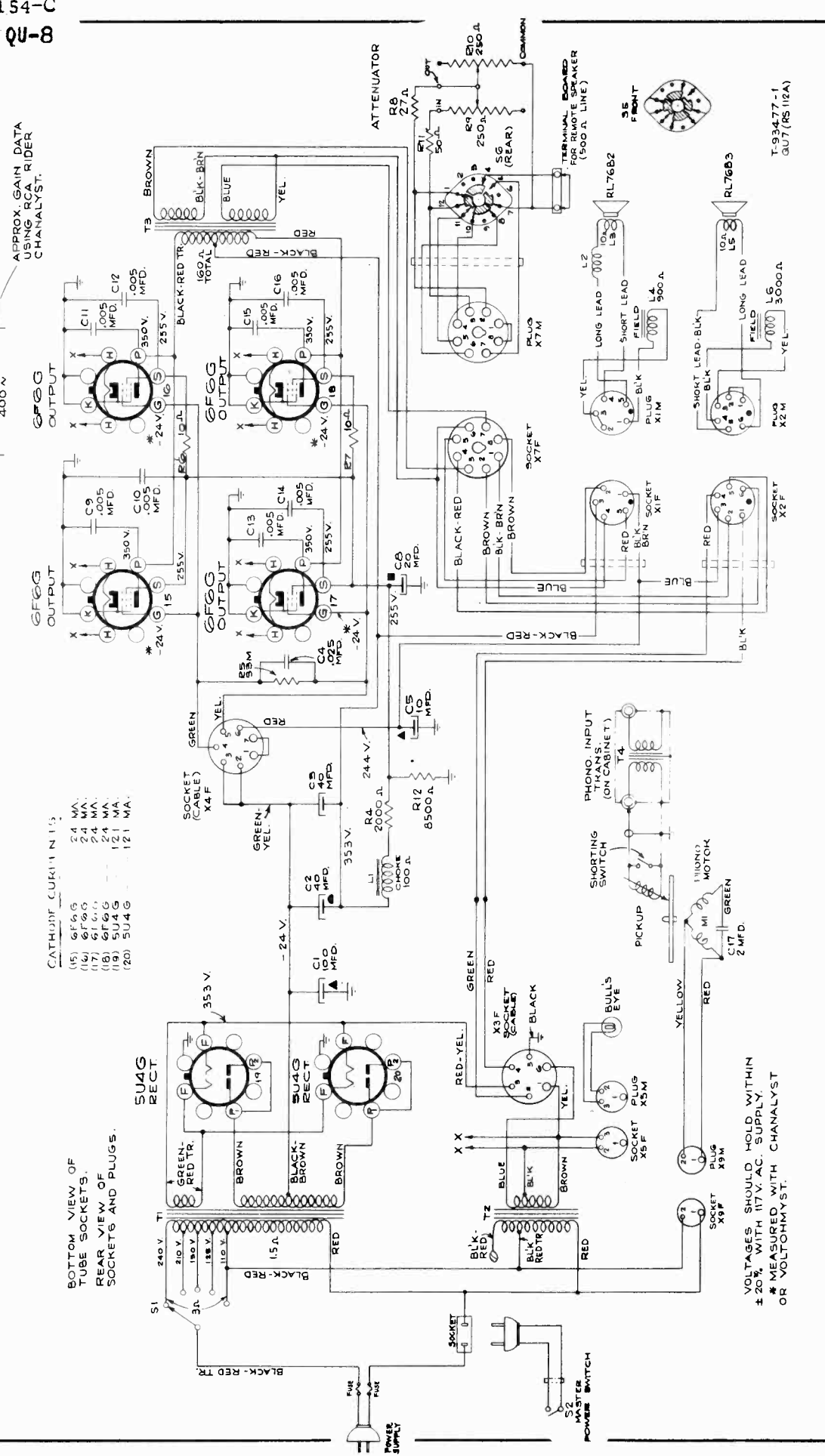
APPROX. GAIN DATA
USING RCA RIDER
CHANNELYST.

10 X
400 V

CATHODE CURRANTS:

(15)	6F6G	24 MA.
(16)	6F6G	24 MA.
(17)	6F6G	24 MA.
(18)	6F6G	24 MA.
(19)	5U4G	121 MA.
(20)	5U4G	121 MA.

BOTTOM VIEW OF
TUBE SOCKETS.
REAR VIEW OF
SOCKETS AND PLUGS.



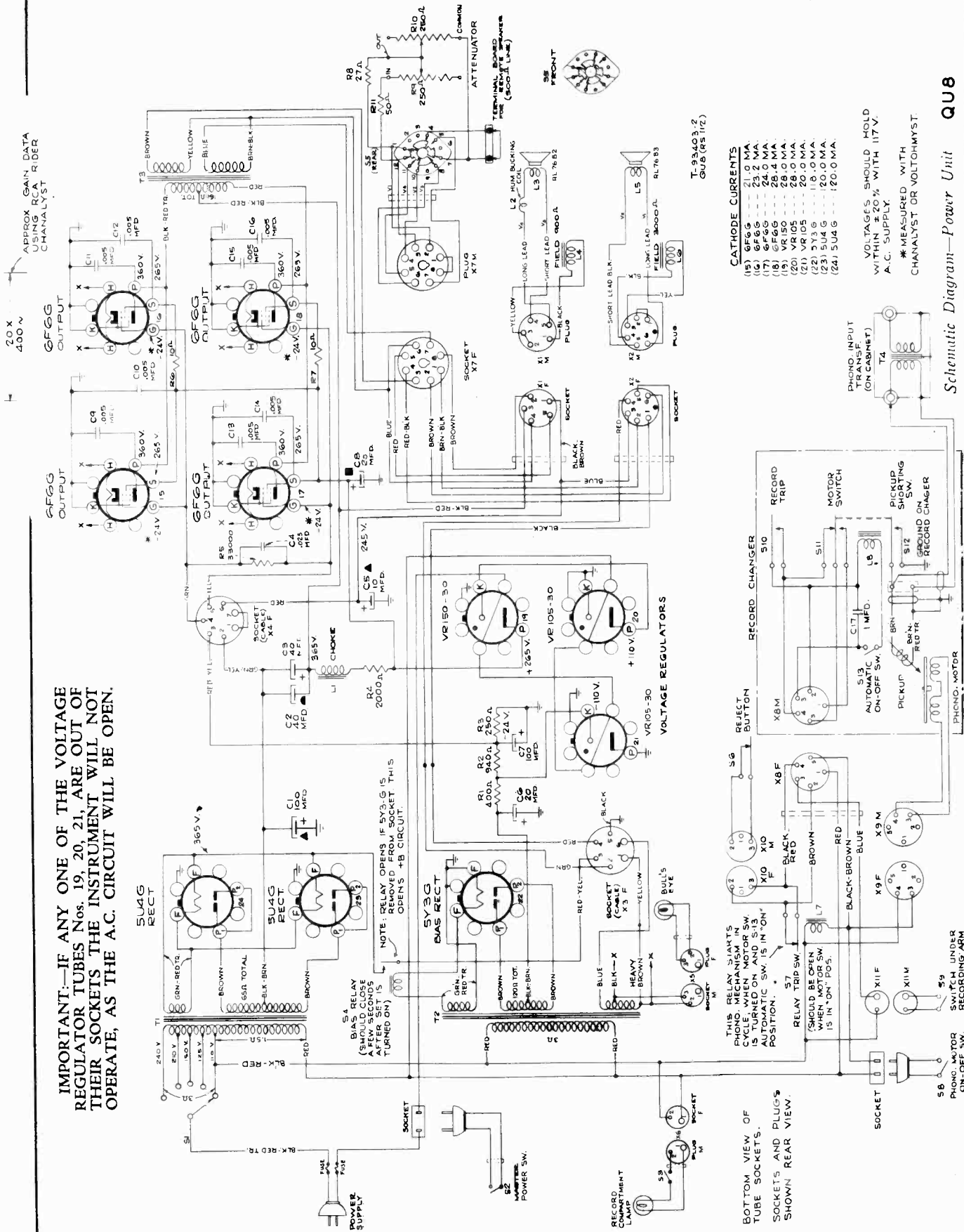
VOLTAGES SHOULD HOLD WITHIN
± 20% WITH 117 V. AC. SUPPLY.
* MEASURED WITH CHANNELYST
OR VOLT-OMMIST.

Schematic Diagram of Power Amplifier and Power Supply.

QU7

T-93477-1
QU7 (RS 112A)

IMPORTANT.—IF ANY ONE OF THE VOLTAGE REGULATOR TUBES Nos. 19, 20, 21, ARE OUT OF THEIR SOCKETS THE INSTRUMENT WILL NOT OPERATE, AS THE A.C. CIRCUIT WILL BE OPEN.



APPROX GAIN DATA
 USING RCA RIDER
 CHANNELYST

20 X
 400 X

CATHODE CURRENTS

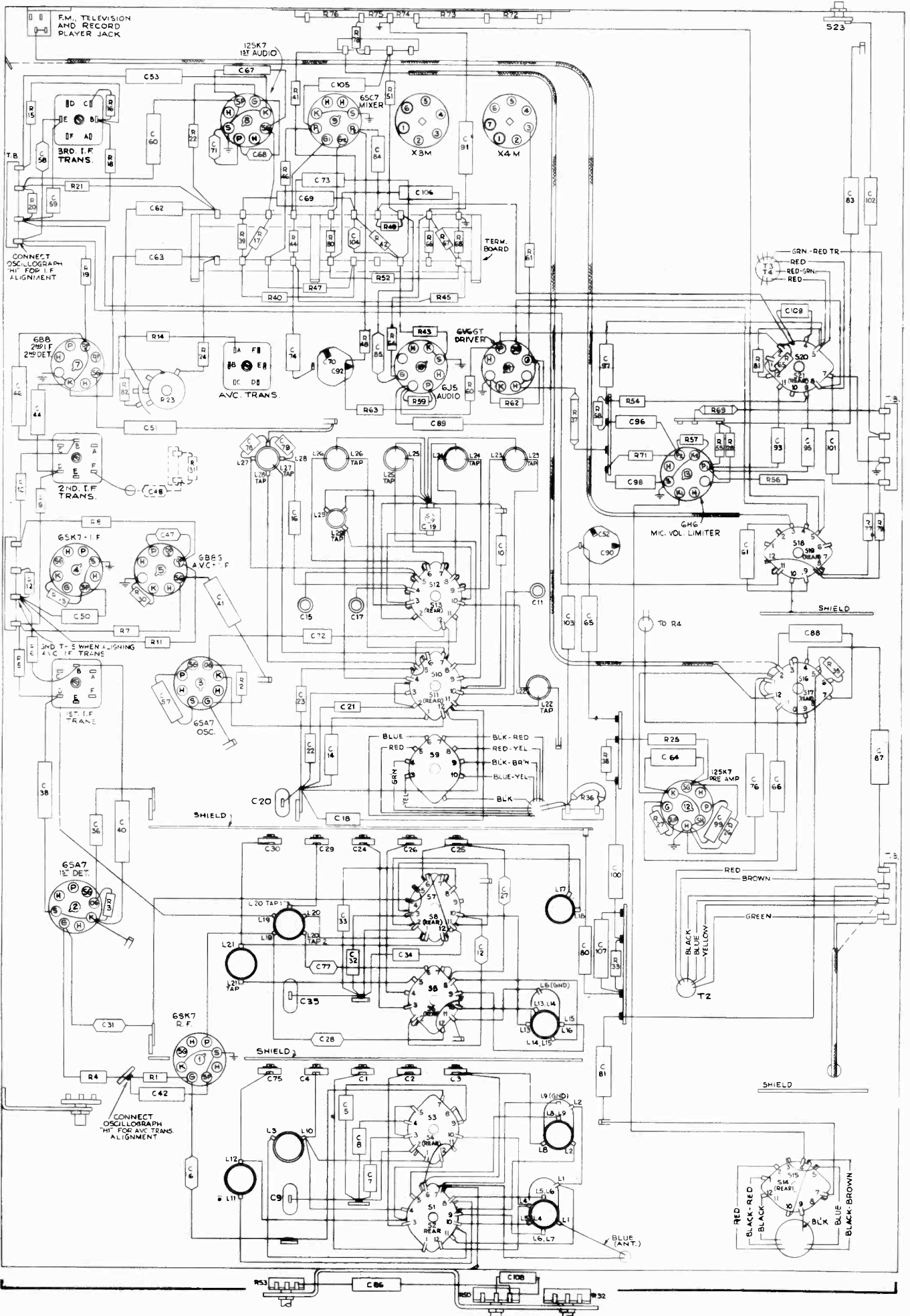
(15) GFGG	21.0 MA
(16) GFGG	21.0 MA
(17) GFGG	21.0 MA
(18) GFGG	28.4 MA
(19) VR150	28.0 MA
(20) VR105	28.0 MA
(21) VR105	28.0 MA
(22) 5Y3 G	110.0 MA
(23) 5U4 G	120.0 MA
(24) 5U4 G	120.0 MA

VOLTAGES SHOULD HOLD
 WITHIN 20% WITH 117V.
 A.C. SUPPLY
 * MEASURED WITH
 CHANNELYST OR VOLTOMETER

Schematic Diagram—Power Unit QU8

BOTTOM VIEW OF
 TUBE SOCKETS.
 SOCKETS AND PLUGS
 SHOWN REAR VIEW.

PHONO MOTOR
 ON-OFF SW
 SWITCH UNDER
 RECORDING ARM



Bottom View—R. F. Unit—Showing Location of Parts

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

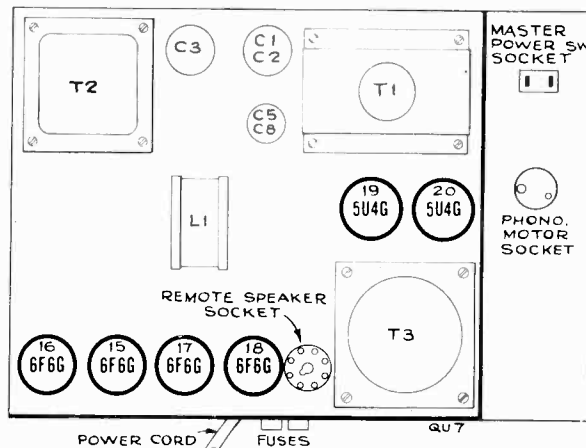
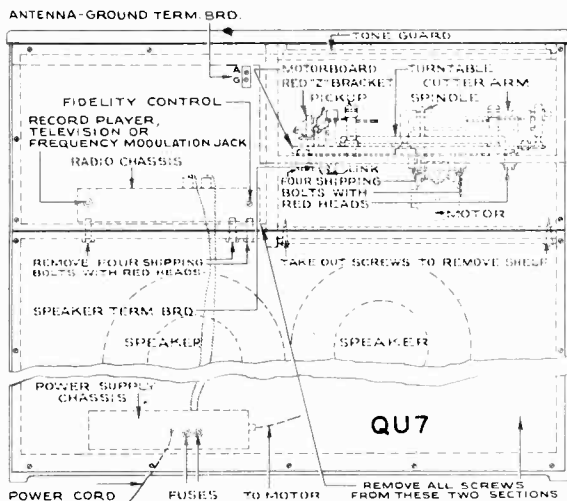
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

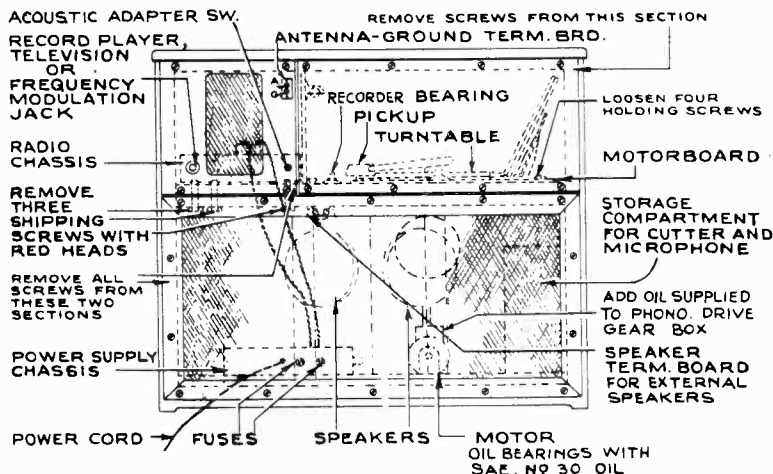
For additional information, refer to booklet "RCA Victor Receiver Alignment."

Precautionary Lead Dress:—

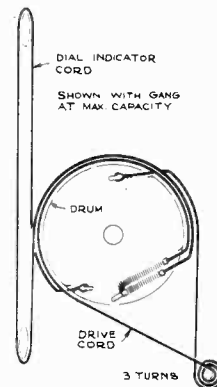
- (1) All oscillator leads should be kept as short as possible.
- (2) Lead from No. 8 on S1 must be held to 3 in. length and dressed toward the bottom end of coils, away from coil windings.
- (3) Lead from No. 9 on S1 must be held to 3 in. length and dressed toward the bottom end of coils, away from coil windings.
- (4) Lead from No. 5 on S2 must be held to 5 in. length.
- (5) Lead from No. 8 on S5 must be held to 4 1/4 in. length.
- (6) Lead from Det. coil L17 to trimmer must be held to 2 1/4 in. length.
- (7) Lead from Det. coil L18 to No. 2 on S8 must be held to 5 3/8 in. length.
- (8) The leads from the top and arm of the microphone volume control should be dressed away from the pilot light leads and toward the pre-amplifier shield.
- (9) The condenser from the volume control arm to the first audio tube must be shielded and the lead on the tube side as short as possible.
- (10) The leads to the selectivity switch must be dressed along the side of the chassis away from the R.F. coils.
- (11) Keep pilot light leads as far as possible away from oscillator coils.
- (12) Dress leads to low frequency tone control on outside of chassis under bracket.
- (13) The long ground lead from the oscillator heater must be kept away from all condensers, resistors, and leads to RF tubes.
- (14) Dress all filament leads away from oscillator and detector grid lugs.
- (15) C-14 (2700 mmf) and C-72 (120 mmf) must be dressed toward A osc. trimmer, C-17.



Top View—Power Unit QU7

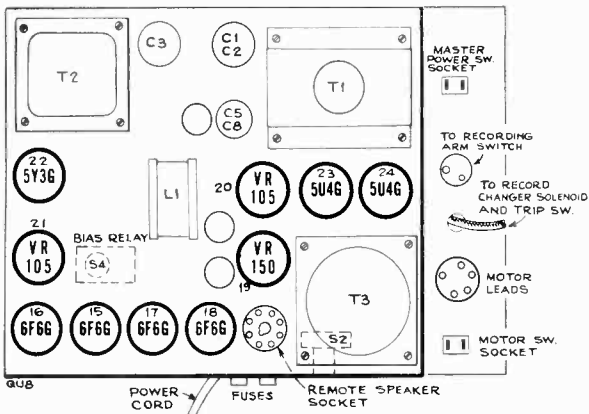


Rear View of Instrument QU8



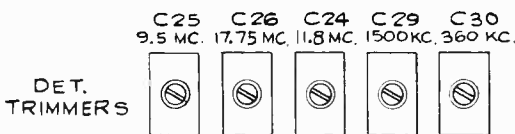
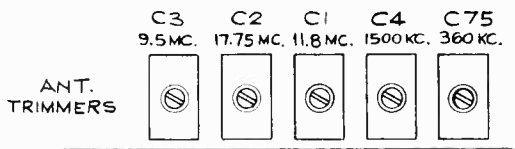
Tuning Drive Cord Assembly

QU-7, QU-8

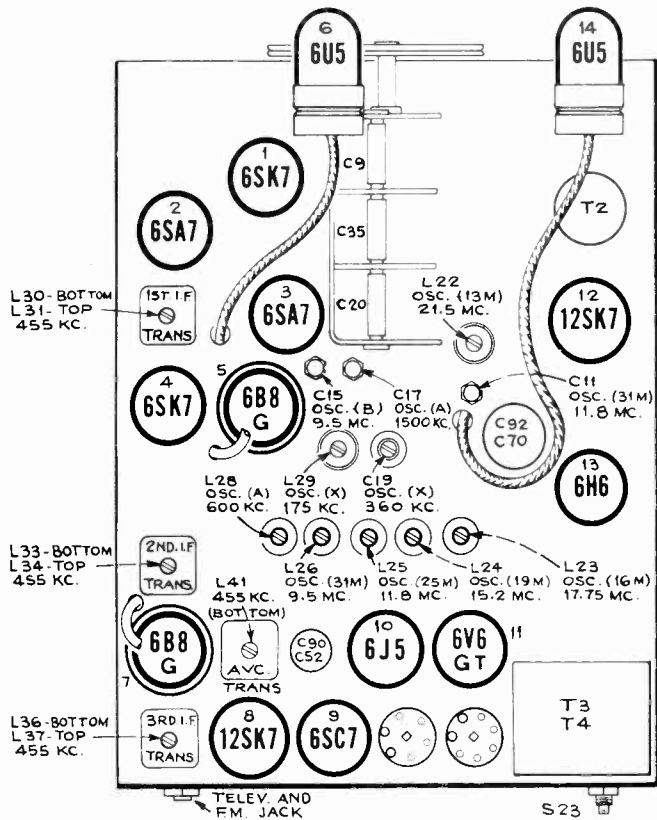


Top View—Power Unit **QU8**

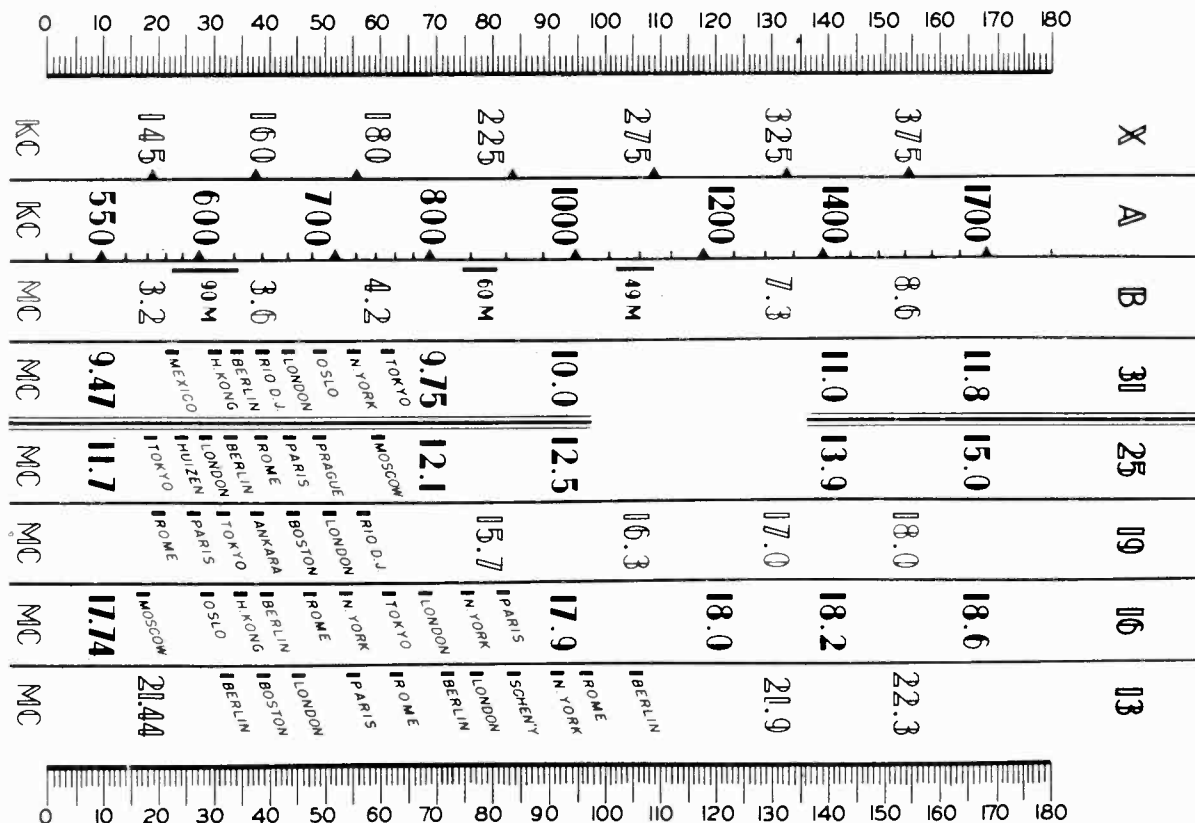
FRONT OF CHASSIS



TRIMMERS AT BOTTOM OF CHASSIS



Tube and Trimmer Locations



Dial Scale and Calibration Scale

Step	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—	
1	Turn selectivity control maximum counter-clockwise for maximum selectivity.				
2	6B8G 2nd I-F grid in series with .01 mfd.	455 kc	"A" Band quiet point between 550-750 kc	L37, L36 Third I-F Transformer	
3	6SK7 1st I-F grid in series with .01 mfd.			L34, L33 Second I-F Transformer	
4	6SA7 1st Det. grid in series with .01 mfd.			L31, L30 First I-F Transformer	
5	With selectivity control in broad position retouch L37, L36 for selectivity curve 2.				
5A	With selectivity control in sharp position see that curve 1 has not changed appreciably.				
6	6SA7 1st Det. grid in series with .01 mfd.	455 kc	"A" Band quiet point between 550-750 kc	L41 AVC Transformer See Note 1	
7	Antenna Terminal in series with 200 mmfd.	360 kc	"X" Band 360 kc (149°)	C19 (osc.)** C30 (det.) C75 (ant.)	
8		175 kc	"X" Band 175 kc (51°)	L29 (osc.) (Rock-in)	
9	Repeat steps 7 and 8.				
10	Antenna Terminal in series with 200 mmfd.	1,500 kc	"A" Band 1,500 kc (150.5°)	C17 (osc.) C29 (det.) C4 (ant.)	
11		600 kc	"A" Band 600 kc (26°)	L28 (osc.) (Rock-in)	
12	Repeat steps 10 and 11.				
13	Antenna Terminal in series with 300 ohms	9.5 mc	"31M" Band 9.5 mc (21.5°)	L26 (osc.)*** C25 (det.) C3 (ant.)	
14		11.8 mc	"31M" Band 11.8 mc (169.5°)	C11 (osc.)***	
15		Repeat steps 13 and 14 until dial tracks correctly.			
16		9.5 mc	"B" Band 9.5 mc (172.5°)	C15 (osc.)***	
17		11.8 mc	"25M" Band 11.8 mc (36°)	L25 (osc.)*** C24 (det.) C1 (ant.)	
18		15.2 mc	"19M" Band 15.2 mc (37°)	L24 (osc.)***	
19		17.75 mc	"16M" Band 17.75 mc (28°)	L23 (osc.)**** C26 (det.) C2 (ant.)	
20		21.5 mc	"13M" Band 21.5 mc (59°)	L22 (osc.)****	

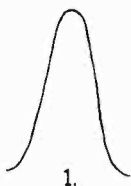
NOTE 1: Connect oscilloscope to junction of R8 and C42. Also short junction of R11 and R12 to ground.

** Core of L29 should be approximately 1/2-inch out before adjusting C19.

*** Use minimum capacity or inductance peak.

**** Use maximum inductance peak.

NOTE.—Oscillator tracks above all signals except on 16 and 13 meter bands.



1.

I.F. Selectivity Curves

At Left—"Sharp"

At Right—"Broad"



2.

Public Address

External speakers may be connected to the terminal board located at the rear of the cabinet under the phono compartment. The total impedance of all the speakers connected to the instrument in parallel or series should be approximately 500 ohms.

RECORD CHANGER SERVICE DATA QU7 IS VERY SIMILAR TO RP-153, REFER TO SERVICE NOTE ON RP-153

Record Changer Service Data MODEL QU8

LUBRICATION.

Due to its careful design and precise workmanship, this record changer requires a minimum of oiling.

About once each year a light coat of vaseline or petroleum jelly should be applied to all moving surfaces which were coated with graphite at the factory.

A very light coat of vaseline should be applied to the surfaces of the magazine, indicated at "E" in Fig. 2. It is best to apply this coating every six months. The vaseline should be applied with, and removed by, the fingers, on the magazine faces. **DO NOT USE EXCESSIVE AMOUNTS OF LUBRICANT ANYWHERE ON THE RECORD CHANGER.**

A good grade of machine oil, not too light, should be used on the sliding clutches, reverse cam shaft and all eccentric and shoulder screws.

NEVER OIL THE "DUREX" BUSHINGS (one of which is shown as No. 17 in Fig. 1), AS THIS WILL CAUSE THEM TO DISINTEGRATE.

Once each year the motor oil cups should be oiled with a good grade of motor oil. At the same time the gear box should be inspected and a 1/4 oz. of SAE No. 10 oil should be maintained in this unit.

RECORD SIZE LIMIT.

The record changer will play any 10" or 12" record of standard size. The minimum size for 12" records is 11 7/8". The minimum size for 10" records is 9 27/32". Records smaller than these limits are very apt to miss centering over the turntable spindle and in most cases are broken.

These record changers will automatically trip on any record having an automatic stop change groove, either spiral or oscillating, where the blank space in the center of the record is not more than 6 1/2" in diameter.

Always inspect the records to see that no rough edges are present. Occasionally you will find a record which has a rough outside edge. This rough edge will greatly interfere with the satisfactory performance of the record changer. A small piece of No. 00 sandpaper will assist you greatly in removing this rough edge.

DRIVE CLUTCH:

The phono drive clutch is located on the drive shaft just above the reduction gear box. The clutch should be adjusted so that there is no slippage in the clutch during a cycle of the mechanism, yet the clutch should slip if the turntable is stopped by hand. To adjust clutch, loosen the two nuts above the clutch on the drive shaft, and move the lower nut down the shaft for more pressure in the clutch, or move the lower nut up for less clutch pressure.

REFERENCE TABLE FOR AUTOMATIC MECHANISM ADJUSTMENTS

Symptom	Check and Correct
Does not play automatically.	Solenoid relay circuit and S2, S5, S6, L1, L8. Section 19, 20. S4 under recording arm open.
Keeps on repeating automatically.	Check S1, S2. Section 15, 26, 27.
Trips before record is finished.	Section 27.
Does not trip at end of record.	Section 27, 26.
Does not feed new record.*	Section 2, 3, 1
Record does not center on turntable.	Section 1, 7, 9, 10.
Does not reverse records properly.	Section 1, 8, 11, 12, 13, 28.
Does not reverse record.	Section 1, 8, 18, 28, 25.
Pickup does not land correctly on record.	Section 5, 6, 16, 17, 14.
Chatter while changing record.	Section 21, or short circuit in relay trip system.
Ringing noise while changing record.	Section 4.
Record Selector Lever does not work properly.	Section 25, 23, 18.

* Make sure record is not warped or chipped or has rough edges.

NOTE: When Automatic Mechanism jams, shut Master "Power" Switch "OFF" before clearing the jam, as the turntable "Motor Switch" does not shut power to the motor off while the mechanism is in cycle.

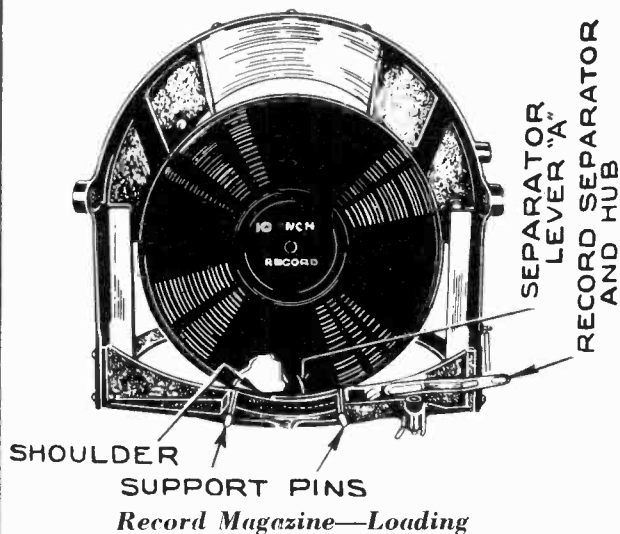
Note:—When mechanism jams upon first being played after being unpacked, check to see whether the record magazine is lined up as stated in Adjustment 7. Also check to see if the Record Reverse Arm Lock No. 46 Fig. 2 is on top of the Record Reverse Arm Lock Stop No. 48 Fig. 2.

1. MAGAZINE LINK ADJUSTING SCREWS ("D") (Fig. 1).

The record magazine should always come back snugly against the magazine stop screw, "C," Fig. 1. If it does not, it is necessary to loosen the two set screws ("D," Fig. 1) to a sliding tension and run the record changer through a cycle of change. When the magazine has reached the horizontal position, as shown in Fig. 1, press down on the lower end of the magazine; this will lengthen the link assembly. Then when the magazine returns to its normal position, the magazine link will adjust itself so that the magazine is snugly against the stop screw. Then tighten the magazine link screws "D."

2. RECORD SEPARATOR ADJUSTMENT.

The separator stop "J," Fig. 1, should be adjusted so that a small 10" record will positively clear the knife portion of the separator lever as shown in the following illustration. A



standard to use is to make certain that there is approximately $\frac{1}{32}$ " clearance between the edge of the small record and the point of the separator lever, as shown at "A" in illustration below. However, it may be necessary to vary one way or the other from this measurement, depending on whether or not the slotted end of the record separator lever goes over the hook (7) (Fig. 1) without binding.

3. RECORD SEPARATOR HOOK ADJUSTMENT.

After adjusting the record separator it will be necessary to check the record separator hook (7) (Fig. 1) to see that it enters the slot in the record separator without binding. This hook is threaded and by loosening the locknut the hook can be turned in either direction, to raise or lower it. After the correct adjustment is obtained, tighten the locknut.

It should never be necessary to change these adjustments on record changers unless they have been tampered with by an inexperienced person.

SEPARATOR HOOK AND ARM (7) (Fig. 7).

Be sure set screw "K" in Fig. 4 is screwed all the way in.

4. RECORD MAGAZINE BUSHING (13) (Fig. 1).

If a ringing noise is heard while the instrument is changing records, i. e., such a noise that might be made by a spring, it will be found that the Durex bushing (13) (Fig. 1) is too tight, in which case it will be necessary to loosen the lock nut of the holding bolt, and back the bolt out, from a quarter to a half turn, then tighten the lock nut.

5. TO ADJUST THE TONE ARM HEIGHT.

To adjust the tone arm height, first place a 12" record on the turntable and adjust the tone arm stop lever (18) (Fig. 1) so that the record hits the rubber roller (21) (Fig. 1) in the center. Start the record changer through a cycle and stop it when the tone arm lever hook (22) (Fig. 1) just touches the stop lever assembly. In this position adjust the tone arm height so that the top of the stop lever is the same height as the center of the hook. This adjustment is made by loosening the two Allen set screws at the rear of the tone arm. These Allen set screws are accessible by raising the tone arm by hand. After making the height adjustment it is necessary to make certain that there is a clearance of approximately $\frac{5}{8}$ " between the pickup head and the record tray. This distance may be checked between the bottom of the record tray and the bottom of the pickup when the record tray is approximately parallel with the pickup.

6. TO ADJUST THE STOP LEVER HOOK (22) (Fig. 1).

Always adjust the tone arm position on a 12" record before adjusting for a 10" record. Adjust the tone arm stop lever hook (22) (Fig. 1) by moving it in or out. This hook is locked in place by a set screw in the stud whose nut is shown in Fig. 1 as No. 2. This set screw is at the bottom of this stud. Adjust the hook so that it will pass through the notch in the pickup arm lever (18) (Fig. 1) without binding against the top or bottom of the notch, when in the playing position. With a 12" record on the turntable, the rubber roller (21) (Fig. 1) against the edge of the record and the stop lever hook (22) against the blade of the stop lever (18) the needle should stop on the record exactly $\frac{3}{32}$ " from the edge of the record.

With the record changer in exactly the same position as described above, and with a 10" record on the turntable and the hook (22) (Fig. 1) against the blade, the stop lever should allow the needle to stop on the record $\frac{3}{32}$ " from the edge of the 10" record. A 6-32 screw shown in Fig. 1 is provided for making this adjustment, simply by screwing it in or out. A check should be made for clearance between the roller and the tray, this roller should never bind on the record tray. This can be taken care of by slightly bending the tone arm stop lever (18) (Fig. 1) up or down. If it is necessary to bend the stop lever it will be necessary to re-adjust for 12" records.

7. THE ADJUSTMENTS OF THE RECORD MAGAZINE.

Before attempting to adjust the magazine, be sure that the

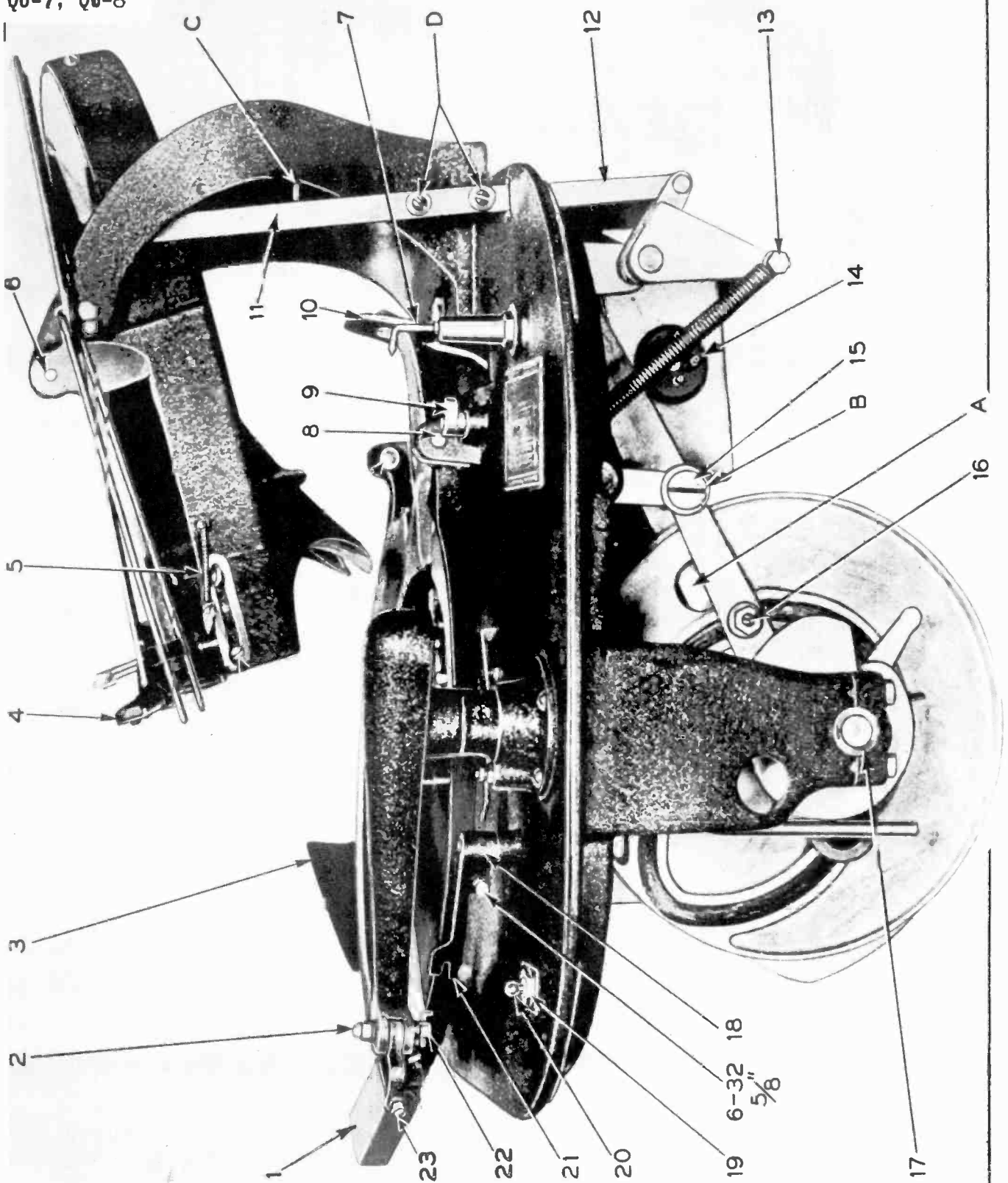


Fig. 1

Reference No.	Stock No.	Description
1	37293	Pickup Housing
2	38068	3/16"-28 Hex. Cap Nut
3	38084	Record Tray Shield Felt—Outer
4	38117	Record Reverse Arm and Fork Assembly

5	38044	Spring—Separator
6	38017	Pin—Magazine Pivot
7	38116	Separator Hook and Arm Assembly
8	38018	Pin—Record Tray Pivot
9	38119	Reverse Pinion and Crank Assembly
10	38138	Record Bumper Guide and Felt Assembly
11	38075	Magazine Link Upper
12	38076	Magazine Link Lower
13	38057	Record Magazine Bushing
14	38113	Chassis Plug
15	38008	Shoulder Screw — Record Tray Slide

16	38024	Pin—Record Tray Slide
17	38055	Main Shaft Bushing
18	38131	Pickup Arm Stop Lever Assembly (Specify color)
19	38005	Escutcheon Plate Off-On Switch, Automatic
20	38001	Stop Lever Holder Tubing
21	38094	Pickup Arm Lever Hook
22		Lock Nut for Pivot Screw
23	38069	

NOTE: In ordering any part that is painted, please specify color wanted.

center of the magazine pivot pins (6) (Fig. 1) is $8\frac{3}{8}$ " above the base plate. This height is very important and we recommend checking the height of the right hand pin, when looking at the magazine, before any adjustments are made.

The record magazine is positioned by moving it sideways on its bearing or pivot pins. The two set screws underneath the pivot pins lock the magazine in position. Loosen these set screws, then see that the left hand side of the record reverse assembly fork (part of 4, Fig. 2) is between $\frac{1}{32}$ " and $\frac{1}{16}$ " inside the left hand side of the Reverse crank, when looking at the magazine. That is, the left hand edge of the record reverse fork is about $\frac{1}{32}$ " or $\frac{1}{16}$ " to the right of the left hand edge of the crank. After moving the magazine, lightly set up the set screws. Then with the selector arm in the "Repeat" position swing the record reverse arm around in front of the magazine, to see whether the record guide strikes either of the record support pins (55) (Fig. 2). If the guide strikes either of the support pins it will be necessary to bend the pin away from the guide so they can not strike. If it is necessary to bend either pin, set the control lever in the "Repeat" position, then raise the record tray by hand, with a 10" record on it, observing the way the record strikes the support pins, the record should hit both pins about $\frac{1}{16}$ " from the end of the pin; if it does not it will again be necessary to adjust the pin until the record hits both pins an equal distance from the ends. If it is necessary to bend the pins, check the clearance between the record guide arms and the pins and between the arm carrying the record guide and the right hand pin. Also if the magazine has been shifted it is necessary to see that the two points, which extend downward from the magazine, have ample clearance in the channels, in the record tray, which are provided for their passage. If there is possibility of the points striking it probably means the magazine has been shifted too much.

If the magazine has been adjusted, it is also necessary to see that the record separator hook (7) (Fig. 1) does not bind in the slot in the end of the record separator arm (45) (Fig. 2). If it does the section covering these parts give the adjustment.

8. MAGAZINE STOP SCREW.

The magazine stop screw "C," Fig. 1, should be adjusted so that the crank pin (part of 9, Fig. 1) is approximately $\frac{1}{16}$ " from the edge of the record reverse arm fork (part of 4, Fig. 2) which is furthest from the magazine, when the record reverse guide is in front of the magazine, that is, in the reversing position.

9. TO LOCATE AND ADJUST THE RECORD TRAY (29) (Fig. 2).

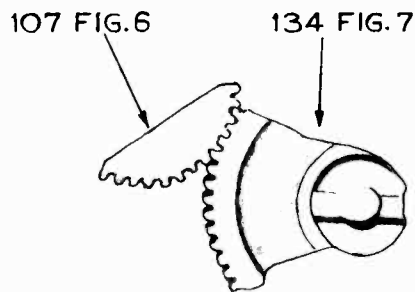
In assembling the record tray to the record changer, the first tooth of the driver quadrant (107) (Fig. 3) should mesh with the second tooth of the driven quadrant of the tray as shown.

With the two gears properly meshed, loosen the Allen set screws which hold pins No. 8, Fig. 1, in place. This will allow you to move the record tray sideways, adjust tray sideways until the turntable spindle is exactly in the center of the 10" record level of the record tray. (The 10" record level is that part of the tray where the felts No. 24 are indicated in Fig. 2.)

With the control lever in the "one side" position, run the record changer through its cycle until the large hole in the main cam is exactly half way past the upper edge of the record tray cam follower, as shown at "A," figure 1. At this

position, the points of the ten-inch felts (24) (Fig. 2) should be level with the top of the turntable felt. If this tray is too low or too high, it may be adjusted to the proper level by loosening the eccentric screw (15) (Fig. 1) "B" and turning this screw until the proper level is obtained. Be sure to tighten the lock nut after adjustment.

If the tray is too high, at this position, the ten-inch records will not be centered over the turntable spindle. If the record tray is too low, the ten-inch records will slide out over the ten-inch tray shoulder and not properly center.



10. TO ADJUST THE VERTICAL BUMPER GUIDE (10) (Fig. 2).

This guide is located back of the magazine cross bar (33) (Fig. 2). After the records are separated from the magazine they are guided in dropping off the separator so they hit the center of the record bumpers (31) (Fig. 2). This vertical bumper guide also guides the records when the elevating hook, on the rear of the record tray lifts the record. The vertical bumper should be set back just far enough to allow a 12" record to drop onto the record bumpers freely. The lower part of the vertical bumper, which extends into the record well, should extend toward the center of the well rubber bumpers far enough to make sure that the upper edges of the records fall behind the points of the upper record support (39) (Fig. 2). This adjustment is not critical. In most cases it will be found that the upper end of the vertical bumper will just clear the elevating hook on the rear of the tray. In cases where it is found that 10" records are chipping about the edges, due to bouncing against the points of the upper record support (39) (Fig. 2) it will be necessary to bend the vertical bumper (10) (Fig. 2) back at the top to a point where it just barely clears the elevating hook at the rear of the tray. It should never be bent back far enough to raise the front of the tray.

11. RECORD REVERSE GUIDE (41) (Fig. 2).

With a 12" record in the magazine the record reverse guide assembly (41) (Fig. 2) should be parallel with the record when in the reversing position, in front of the magazine.

If the record reversing assembly is parallel with a 12" record as above, it should come around and lay against the reverse guide pin tubing (42) (Fig. 2), if the eccentric cam (77) (Fig. 4) is properly adjusted. This cam can be adjusted, by loosening the screw through the cam and turning it so that the record reversing assembly returns to the reverse guide pin tubing. Care should be taken when making this adjustment so that the crank pin (part of 9, Fig. 1) does not hold the reverse guide away from the pin tubing. This cam should be turned so that the reverse guide assembly just touches the pin tubing; if the cam is turned too far it will allow the reverse guide assembly to hit the pin tubing, but in the reversing position the assembly will not be able to assume a position parallel with a 12" record.

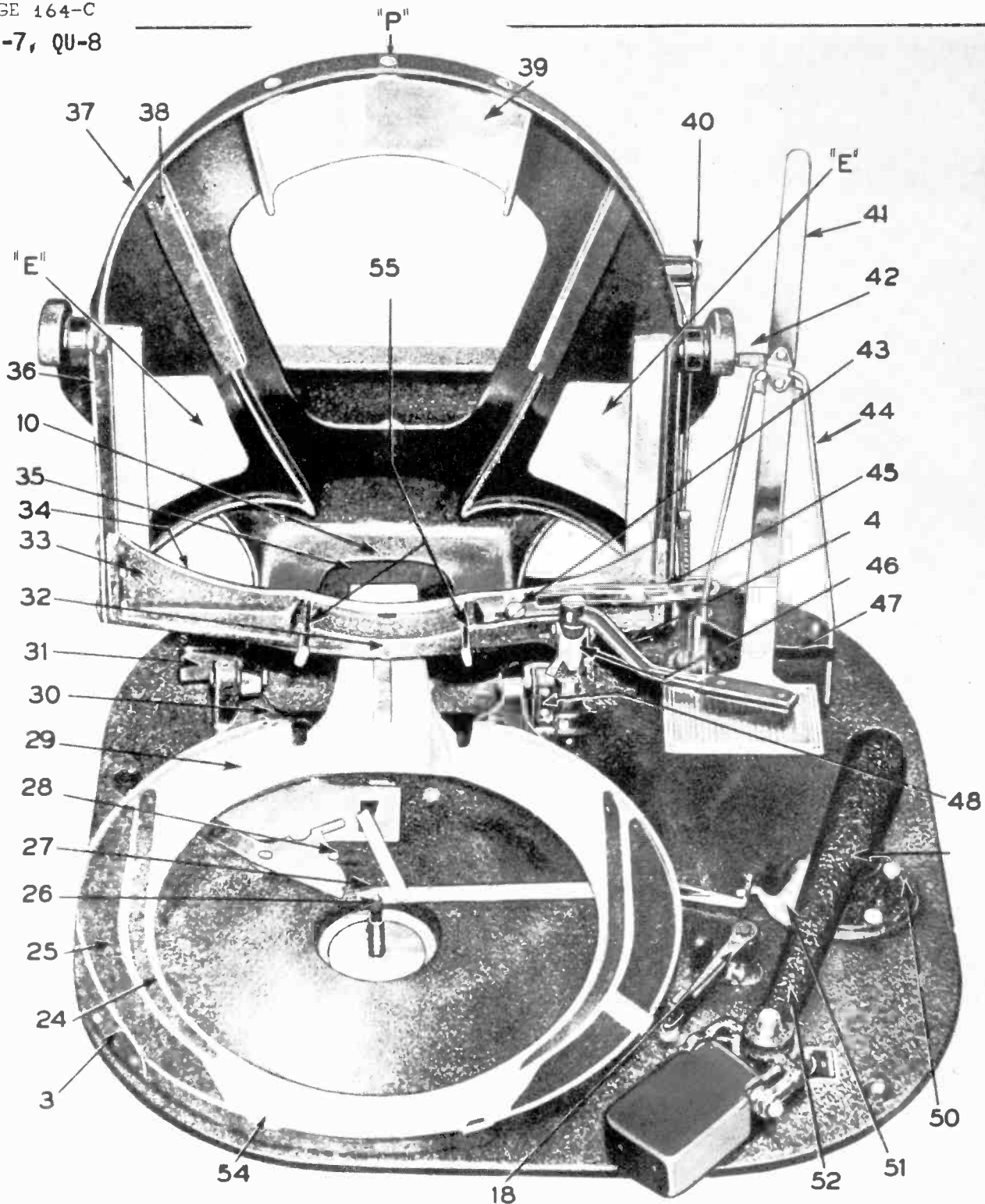


Fig. 2

Reference No.	Stock No.	Description
3	38084	Record Tray Shield Felt Outer
4	38117	Record Reverse Arm and Fork Assembly (specify color)
10	38138	Record Bumper Guide and Felt Assen.
18	38131	Pickup Arm Stop Lever Assembly (specify color)
24	38079	Record Tray Felt—Small
25	38078	Record Tray Felt—Large
26	38139	Turntable Drive Shaft Cap
27	38132	Automatic Stop Trip Lever Assembly
28	38023	Pin—Record Control Rod
29	38137	Record Tray Assembly
30	38089	Record Tray Bumper—Rear
31	38097	Record Bumper
32	38092	Reverse Arm Bumper
33	38135	Lower Record Support Assembly
34	38081	Lower Record Support Felt
35	38082	Record Bumper Guide Felt

Reference No.	Stock No.	Description
36	38083	Magazine Side Felt
37	38136	Record Magazine Assembly
38	38080	Record Magazine Felt
39	38106	Record Support—Upper
40	38008	Shoulder-Screw—Magazine Link
41	38126	Record Reverse Guide Assembly
42		Pin—Reverse Guide Stop
43	38011	Shoulder Screw—Separator
44	38108	Record Reverse Guide
45	38127	Record Separator and Hub Assembly
46	38072	Record Reversing Arm Lock
47	38052	Record Reverse Guide Spring
48	38074	Record Reverse Arm Lock Stop
50		Pickup Arm Base
51	38071	Automatic Stop Trip Lever, Short
52	38110	Pickup Arm Casting only
54	38088	Record Tray Bumper—Front
55	38140	Pin—Record Support

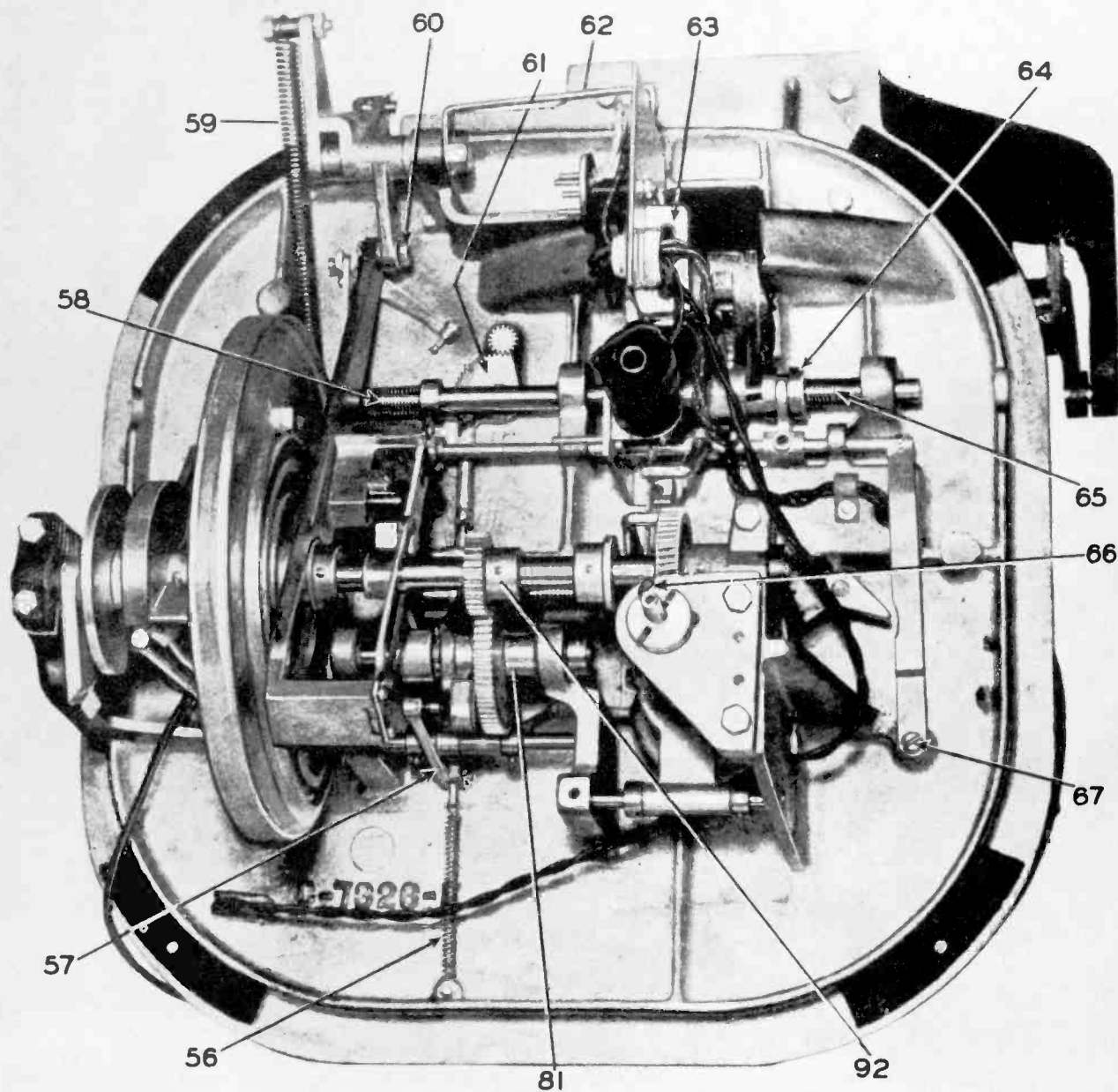


Fig. 3

Reference No.	Stock No.	Description
56	38050	Spring—Reverse Arm
57	38128	Reverse Cam Arm and Roller Assembly
58	38038	Spring—Record Separator Hook Lever
59	38039	Spring—Magazine Slide Arm
60	38607	Shoulder Screw—Magazine Slide Arm
61	38031	Record Reverse Pinion Segment
62		Solenoid Plate Bracket
63	38000	Condenser—1.0 Mfd. 400-Volt (in can)
64	38037	Record Repeat Sliding Clutch Cam
65	38040	Spring—Record Repeat Clutch
66	38016	Screw—Turntable Shaft Collar
67	38012	Shoulder Screw—Repeat Lever
81	38121	Record Reverse Cam Shaft Assembly
92		Gear—Reverse Cam Shaft Driver

12. REVERSE ASSEMBLY LINK ROD.

Loosen lock nut "H," Fig. 6, while the record changer is in the reversing position, that is, when the reversing assembly (41) (Fig. 2) is in front of the magazine. Remove the screw (79) (Fig. 4) holding the reverse segment link (80) (Fig. 4) to the reverse segment (61) (Fig. 4) and lengthen or shorten the link, by the link thread until the reversing crank (9) (Fig. 1) stands with the crank pin just barely touching, but not binding, against the front side of the fork (4) (Fig. 2). After the adjustment has been made, lock the link in place with the lock nut "H," Fig. 6.

13. TO ADJUST REVERSE CAM ARM AND ROLLER ASSEMBLY (57) (Fig. 3).

See Section 7 under Instructions For Replacing a Reverse Cam.

14. LATERAL LOCATION OF THE MAIN CAM SHAFT.

Both end bearings of the main cam shaft are movable, and are used to locate the cam shaft in its proper lateral position, as well as adjust the amount of end play. The main cam shaft is located laterally so that the ball in the end of the tone arm lift rod (87) (Fig. 5) travels in the exact center of the tone arm lift cam (86) (Fig. 5). As shown at "M" in Fig. 5.

15. TO ADJUST THE CLUTCH THROWOUT LEVER AND CAM.

The clutch throwout lever cam is shown as No. 125 in Fig. 7 and is adjusted by loosening the shoulder screw (69) (Fig. 4) to a sliding tension after the record changer has been stopped in the playing position. The clutch throwout lever cam should just clear the point of the turntable throwout cam (93) (Fig. 5) with the clutch disengaged. Unless clearance between the turntable throwout cam and the clutch lever throwout cam is maintained the record changer will jam. If too much clearance is allowed the turntable throwout cam will not disengage the clutch and the record changer will continue to change records without playing them.

16. TO ADJUST THE PICKUP ELEVATION.

When the tone arm swings in towards the record, the pickup arm lever hook (22) (Fig. 1) comes to rest against the pickup arm stop lever (18) (Fig. 1) and when the tone arm lowers the pickup toward the record it pauses momentarily before the pickup arm lever hook goes through the stop lever. If the record changer is stopped during this pause, it will be found that the ball in the end of the pickup arm lift shaft (87) (Fig. 5) is at the point marked "L" in Fig. 5 on the lift cam (86) (Fig. 5). Now if the pickup, with a needle in the proper position, is moved beyond the edge of the record, the point of the needle will extend below the top surface of the record a distance equal to half the thickness of the record. The correct elevation of the pickup is made by the screw in the underside of the tone arm fork against which the pickup cover rests. Loosen the locknut, adjust the screw to bring the needle to the position mentioned above, then lock the locknut.

17. PICKUP FEED IN ADJUSTMENT.

The collar of the pickup arm swing lever and collar as-

sembly (84) (Fig. 5) should ride on the leather facing of the friction cam (96) (Fig. 5) until the pickup arm lever hook (22) (Fig. 1) has engaged the stop lever (18) (Fig. 1). Then a slight amount of friction should be maintained after the ball at the end of the pickup lift arm (87) (Fig. 5) has engaged with the lift cam (86) (Fig. 5). This friction should be maintained until the needle has touched the record, otherwise the pickup arm may move away from the stop lever and the needle miss the record. If the friction be maintained too long the needle may be forced beyond the first playing groove. To adjust this, the pin locking the friction cam to the main cam shaft should be driven out and the Allen set screw loosened to a sliding tension. The cam is rotated forward, in the direction of rotation of the main cam shaft, to maintain the friction a longer time and backward to maintain it for a shorter time.

18. TO ADJUST THE REVERSE CAM SHIFT LEVER (105) (Fig. 7).

This lever is moved by the record control shaft (116) (Fig. 7) and is held in position by an Allen set screw. It should be positioned on its shaft so that the record reverse cam (85) (Fig. 5) is firmly engaged with its pin (74) (Fig. 4) in the "Both Sides" position. In the "One Side" and "Repeat" positions it should have good clearance with the pin. If any adjustment of this lever is made be sure to check the setting of the Reverse Cam Arm and Roller Assembly (57) (Fig. 4) as instructed in Section 7 of the instructions on replacing a reverse cam.

19. TO ADJUST THE SOLENOID MOTOR SWITCH (108) (Fig. 6).

After the switch cover has been removed the switch is exposed. The upper switch points should make good electrical contact, while the main clutch is disengaged, in this position the clearance between the bottom points should be approximately $\frac{3}{32}$ ". While the clutch moves from the disengaged to the engaged position the upper switch points should remain closed until the lower set of points are closed. When the clutch is fully engaged the lower points should make good contact and the clearance between the upper points should be approximately $\frac{3}{32}$ ".

To adjust the switch loosen the screw through the bakelite switch base at the rear of the switch assembly. After the position is found where proper clearance is secured, with the clutch engaged and disengaged, the switch should be locked in position with the screw.

In some machines a headless set screw is used to lock the switch in position. This screw is near the point of the tapered bakelite insulating block. Loosen this screw and adjust switch to get proper clearance then lock the switch in position by the set screw.

The two upper contacts are in series with the auto trip switch and the two lower contacts are shunted across the motor switch. When the clutch is engaged the auto trip switch is out of circuit and the motor switch is shunted by the lower contacts thus insuring the completion of the change cycle even though the instrument is switched to radio or turned off.

20. CLUTCH CLEARANCE.

The clearance between the driven (70) (Fig. 5) and driving (99) (Fig. 5) members of the clutch should be approximately .020" (Twenty thousandths), and is adjusted by

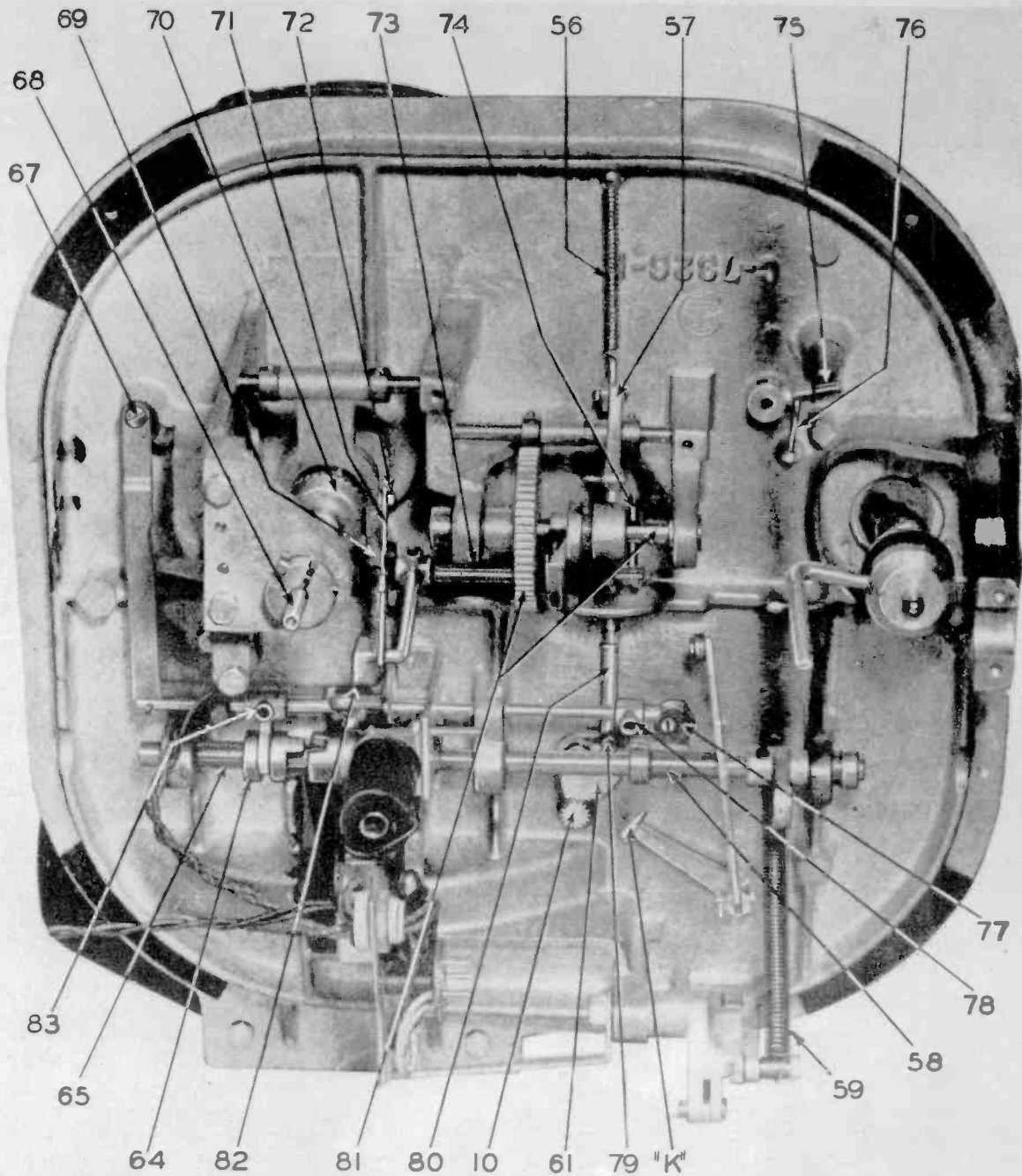


Fig. 4

Reference No.	Stock No.	Description	Reference No.	Stock No.	Description
9	38119	Reverse Pinion and Crank Assembly	71	38130	Clutch Throwout Lever and Spring Assembly
56	38050	Spring—Reverse Arm	72	38013	Shoulder Screw—Clutch Throwout Lever
57	38128	Reverse Cam Arm and Roller Assembly	73	38043	Spring—Record Reverse Cam Control
58	38038	Spring—Record Separator Hook Lever	74	38022	Pin—Reverse Cam Shaft
59	38039	Spring—Magazine Slide Arm	75	38095	Stop Lever Collar Pin Tubing
61	38031	Record Reverse Pinion Segment	76	38046	Spring—Tone Arm Lever
64	38037	Record Repeat Sliding Clutch Cam	77	38036	Reverse Segment Stop Cam
65	38040	Spring—Record Repeat Clutch	78	38101	Record Repeat Throwout Hook Lever
67	38012	Shoulder Screw—Repeat Lever	79	38010	Shoulder Screw—Reverse Segment Link
68		Turntable Drive Shaft Assembly	80	38021	Pin—Short—Reverse Segment
69	38015	Screw—Clutch Throwout Cam	81	38121	Record Reverse Cam Shaft Assembly
70	38124	Worm and Bushing Assembly	82	38104	Record Repeat Lock Lever
			83	38102	Record Repeat Clutch Fork Lever

QU-7, QU-8

loosening screw "N" Fig. 7 to a sliding tension and adjusting the clutch fork (121) (Fig. 7) and the solenoid to clutch lever and pin assembly until the proper clearance is obtained. After adjustment is made lock the screw "N," Fig. 6.

21. TO ADJUST SOLENOID WEDGE SPRING.

This phosphor bronze spring is located on one of the three spacers used to mount the solenoid plate bracket to the solenoid bracket. It is used to prevent clutch chatter or bounce when the clutch engages. The only adjustment is to bend the spring to a snug fit with a long screw driver so as to increase or decrease its pressure on the solenoid to clutch lever (118) (Fig. 7).

22. TO ADJUST THE RECORD REPEAT LOCK LEVER (82) (Fig. 7).

The purpose of this lever is to prevent accidental shifting of the Selector Arm while the instrument is not in the playing position. In the "Repeat" position this lever is on the side of the Solenoid to Clutch Lever (118) (Fig. 7) away from the main cam. In the "One Side" and "Both Sides" positions it is on the main cam side of the solenoid to clutch lever. With the tone arm in the playing position (Main Clutch Disengaged) this lock lever should clear the solenoid to clutch lever by approximately $\frac{3}{16}$ " when moved under it.

23. TO ADJUST THE REVERSE CAM LOCK LEVER (115) (Fig. 7).

This lever should be on the main cam side of the solenoid to clutch lever when in the "Both Sides" position. And on the opposite side when in the "One Side" and "Repeat" positions. With the main clutch disengaged the lock lever should clear the solenoid to clutch lever by approximately $\frac{1}{16}$ " when moving under it.

24. TO ADJUST RECORD REPEAT THROW-OUT LEVER (119) (Fig. 7).

No adjustment of this part is necessary.

25. TO ADJUST RECORD REPEAT CLUTCH LEVER (83) (Fig. 7).

The adjustment of this lever is made by loosening the Allen set screw to a sliding tension then moving the part along the shaft. The sliding clutch should engage in the "One Side" and "Both Sides" positions, but should be disengaged in the "Repeat" position. The fork of this lever should not bind the sliding clutch in either the "Repeat" or "Both Sides" position.

26. TO ADJUST THE STOP TRIP SWITCH (137) (Fig. 8).

This switch is accessible by removing the turntable, which will expose the switch cover. To remove the switch cover it is necessary to remove the trip arm, which goes through the switch cover and the two flat head screws which hold the cover in place. The clearance between the contact points on the fixed and movable arms of the switch should be $\frac{1}{32}$ ". After replacing the trip arm (27) (Fig. 8) in the switch, after the switch cover has been removed, set the turntable on the spindle, push stop trip arm (142) (Fig. 8) slowly about $\frac{1}{4}$ " toward the magazine and then turn the turntable through

one complete revolution. This will insure the fibre cam, on the turntable, resetting the trip switch, the clearance between the trip arm and the moveable arm of the switch should be $\frac{1}{32}$ ". The distance between the trip arm and the switch trip guard finger should also be $\frac{1}{32}$ ".

To adjust the clearance between the trip arm hook (27) (Fig. 8) and the moveable switch arm, loosen the screw in the bakelite switch base, at the end nearest the tone arm. Move the switch until $\frac{1}{32}$ " clearance is secured between the trip arm hook and the moveable arm of the switch, then tighten the screw holding the switch. In making this adjustment be sure that the stationary arm of the switch is not bent when tightening this screw.

On some models a headless set screw, near the end of the coil spring, is used to lock the switch in position; loosen this screw, adjust the switch, then tighten the set screw.

27. TO ADJUST THE FRICTION JOINT OF AUTOMATIC TRIP SWITCH.

The amount of friction necessary in the friction joint between the auto stop trip lever—long (27) (Fig. 8) and the auto stop trip lever—short (142) (Fig. 8) should be just sufficient to close the automatic stop trip switch (137) (Fig. 8). The friction is regulated by adjusting the screw which tightens the flat spring (141) (Fig. 8). If the tension is too great the instrument may trip before finishing a record, if not enough tension is had the instrument will not change records when the needle hits the automatic change groove.

28. INSTRUCTIONS FOR REPLACING THE RECORD REVERSE CAM AND ITS ADJUSTMENTS.

1. Set record changer in the playing position. Carefully mark the drive gear (92) (Fig. 3) on the main shaft and the driven gear as shown 81, Fig. 3, by prick punch marks or scribe, so that the same teeth can be engaged after re-assembly, thus insuring proper timing.

2. Remove the two bolts, one (60) (Fig. 3) securing the magazine slide and roller assembly to the magazine slide arm lever, and one (15) (Fig. 1) securing the record slide arm and stud assembly to the record tray drive crank.

3. Looking in from the rear of the instrument, remove the Durex bushing from the end of the main cam shaft, nearest the motor drive shaft. This is accomplished by loosening the bolt to the right of the main shaft. Care should be taken when replacing this bushing so as not to tighten the bolt enough to crush the bushing; a snug fit only is required.

4. Remove lower half of bearing and Durex bushing from the other end of the main cam shaft and work the cam shaft out of the record changer. The same precaution against crushing this bushing should be taken with this one as with the one in the preceding section.

5. Remove taper pin from gear and loosen set screw in the collar, both shown as 81 in Fig. 4, of the reverse cam shaft assembly, as well as the pin (74) (Fig. 5) over which the reverse cam forks, when in the reversing position. After removing the collar and sliding the gear to one side, file all burrs from the edges of the holes in the reverse cam shaft. Slide the shaft through its Durex bushing toward the rear of the instrument far enough to allow the removal and replacement of the reverse cam (85) (Fig. 5).

6. Reassemble the reverse cam shaft assembly, making certain that the taper pin holes in the shaft and gear are correctly aligned to permit the taper pins being properly inserted. The set screw in the collar at the end of the shaft should be properly tightened.

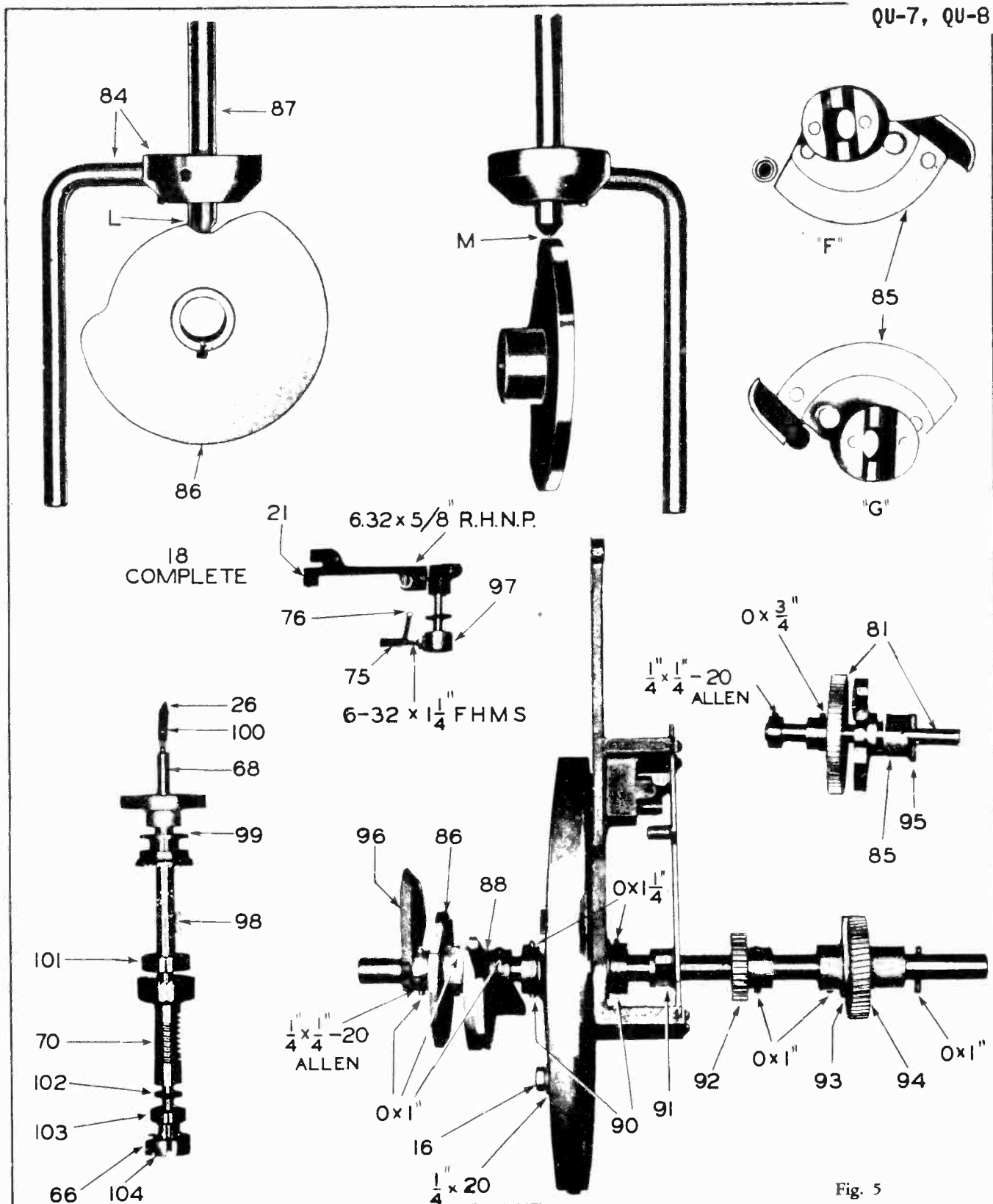


Fig. 5

Reference No.	Stock No.	Description	Reference No.	Stock No.	Description	Reference No.	Stock No.	Description
16	38024	Pin—Record Tray Slide	81	38121	Record Reverse Cam Shaft Assembly	94	38030	Gear—Main Drive
18	38131	Pickup Arm Stop Lever	84		Pickup Swing Lever and Collar Assembly	96		Pickup Arm Friction Cam Assembly
21	38094	Stop Lever Roller Tubing	85	38123	Record Reverse Cam and Pin	97		Pickup Arm Stop Lever Collar
26	38139	Turntable Driveshaft Cap	86		Pickup Lift Cam and Hub Assembly	98	38162	No. 2 Woodruff Key
66	38016	Screw—Turntable Shaft Collar	87		Pickup Arm Lift Shaft	99	38034	Turntable Shaft Clutch
68		Turntable Shaft Assembly	88		Pickup Arm Swing Cam	100		Turntable Driveshaft Cap Tubing
70	38124	Worm and Bushing Assembly	90		Main Cam Collar	101	38033	Ball Bearing—Upper
74	38022	Pin—Reverse Cam Shaft	91		Magazine Slide Arm Cam	102	38060	Thrust Washer—Worm Shaft
75	38095	Stop Lever Collar Pin Tubing	92		Gear—Reverse Cam Shaft Driver	103	38032	Ball Bearing—Lower
76	38046	Spring—Tone Arm Stop Lever	93		Turntable Throwout Cam and Hub Assembly	104	38064	Turntable Shaft Collar

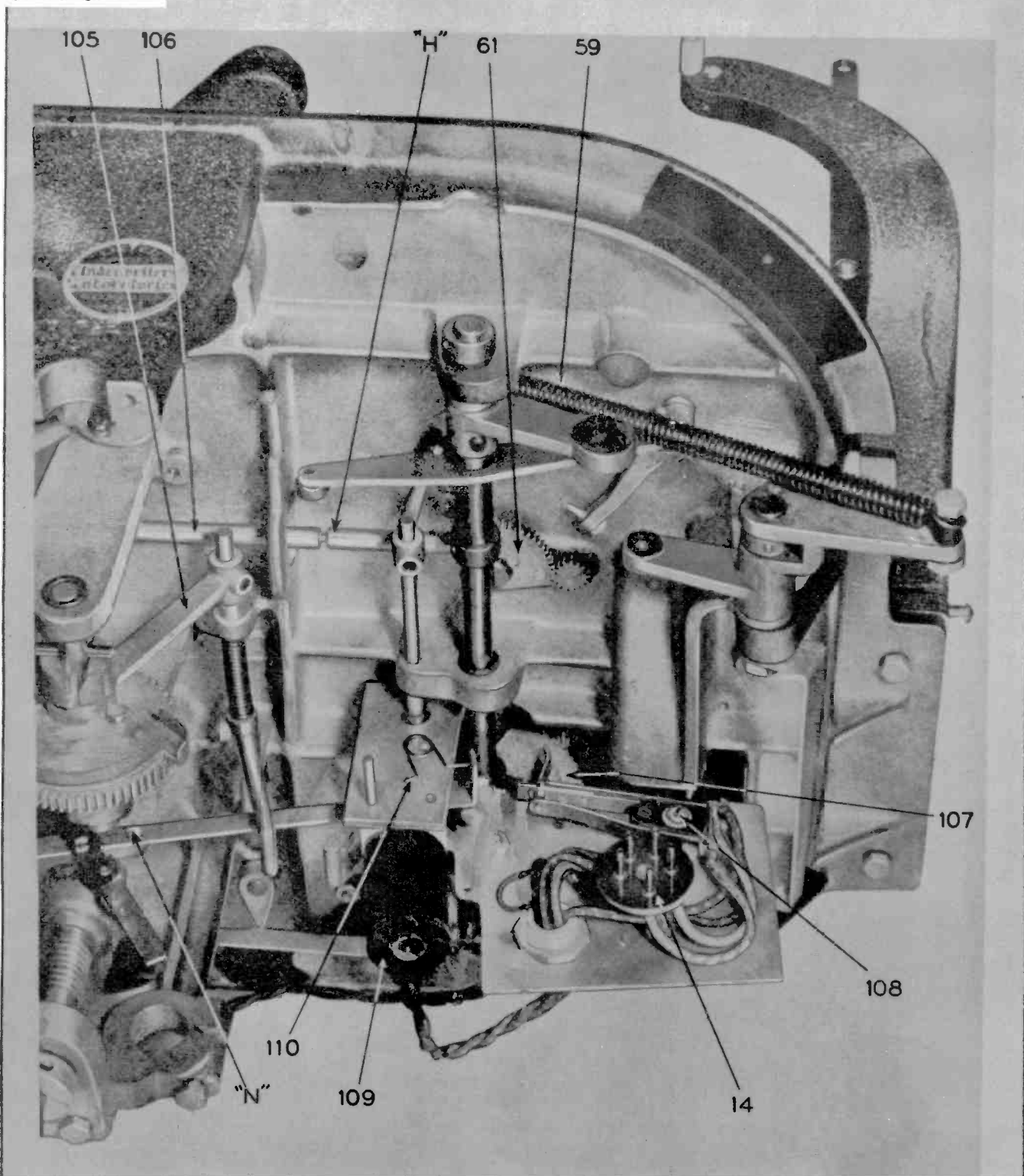
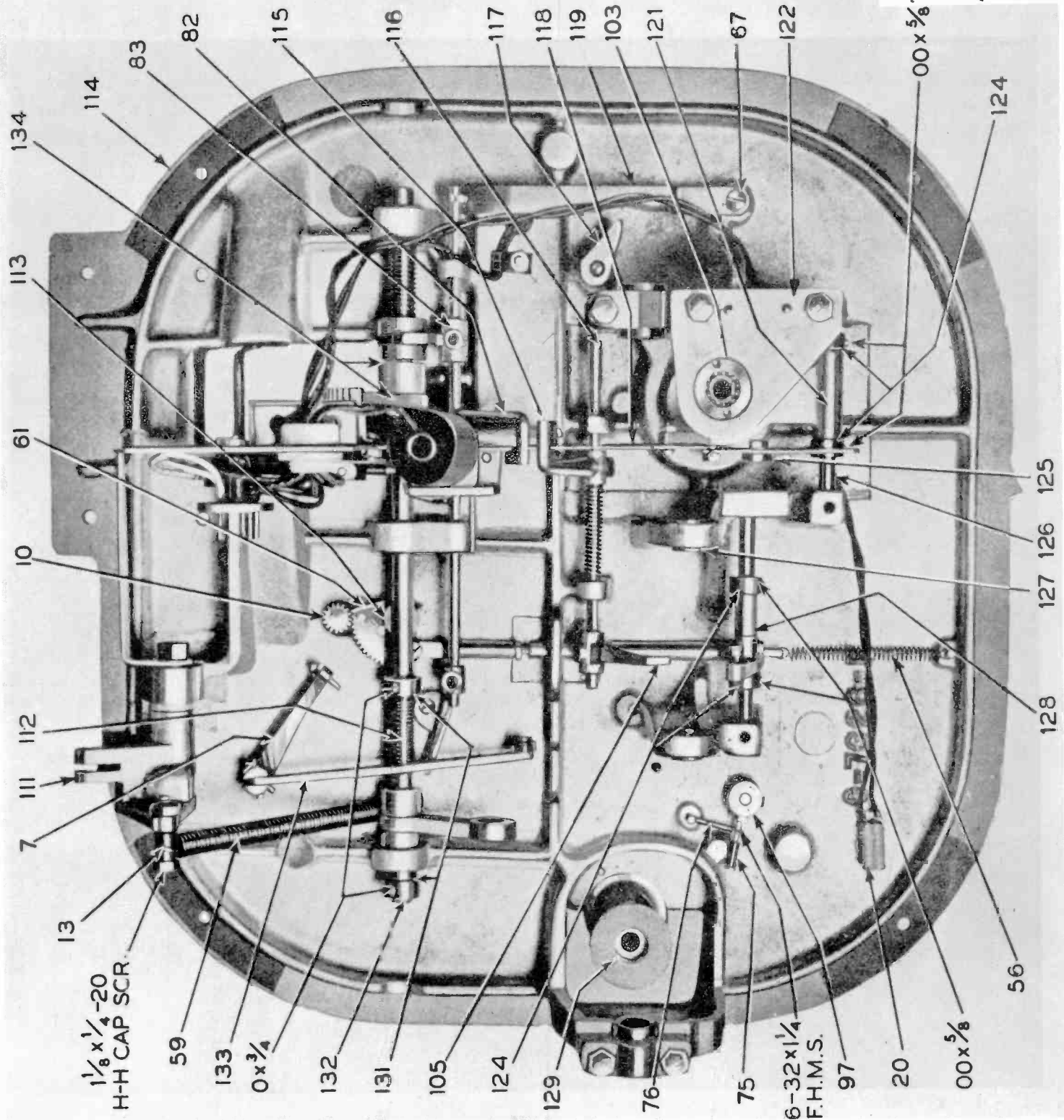


Fig. 6

Reference No.	Stock No.	Description
14	38113	Chassis Plug 5 Prong Male
59	38039	Spring—Magazine Slide Arm
61	38031	Record Reverse Pinion Segment
105	38100	Record Reverse Cam Shaft Lever
106	38020	Pin—Long, Reverse Segment
107	38111	Record Tray Gear—Driver
108	38003	Switch Assembly—Solenoid and Motor
109	38141	Solenoid Coil only
110	38047	Spring—Solenoid Lever Torsion



Reference No.	Stock No.	Description	Fig. 7					
7	38116	Separator Hook and Arm Assembly	103	38032	Pickup Arm Stop Lever Collar	119	38073	Record Repeat Throwout Lever
9	38119	Reverse Pinion and Crank Assembly	105	38100	Ball Bearing	121	38103	Main Clutch Fork Lever
13	38057	Record Magazine Bushing	111	38045	Record Reverse Cam Shaft	122	38066	Bearing Retainer Plug
20	38001	AC Line Toggle Switch	112	38009	Lever	124	38063	5/16" Shaft Collar
56	38050	Reverse Arm Spring	113	38098	Magazine Slide Arm Lever	125	38107	Clutch Throwout Cam
59	38039	Magazine Slide Arm Spring	114	38153	Separator Hook Spring	126	38115	Solenoid Lever Shaft Assem.
61	38031	Record Reverse Pinion Segment	115	38154	Reverse Segment Shoulder	127	38059	Record Tray Shaft Bushing
67	38012	Repeat Lever Shoulder Screw	116	38105	Main Frame Pad	128	38114	Record Reverse Arm Shaft Assem.
75	38095	Stop Lever Collar Pin Tubing	117	38120	00x3/4 Taper Pin	129	38090	Pickup Arm Brake Facing
76	38046	Tone Arm Stop Lever Spring	118	38154	0x3/4 Taper Pin	131	38062	7/16" Shaft Collar
82	38104	Record Repeat Lock Lever	118	38129	Reverse Cam Lock Lever	132	38062	Record Tray Drive Shaft Assembly
83	38102	Record Repeat Clutch Fork Lever	118	38129	Record Control Shaft	133	38144	Separator Hook Lever and Roller Assembly
					Record Control Lever and Stud Assembly	134	38122	Record Tray Gear and Sliding Cam Clutch
					Solenoid to Clutch Lever and Pin Assembly			

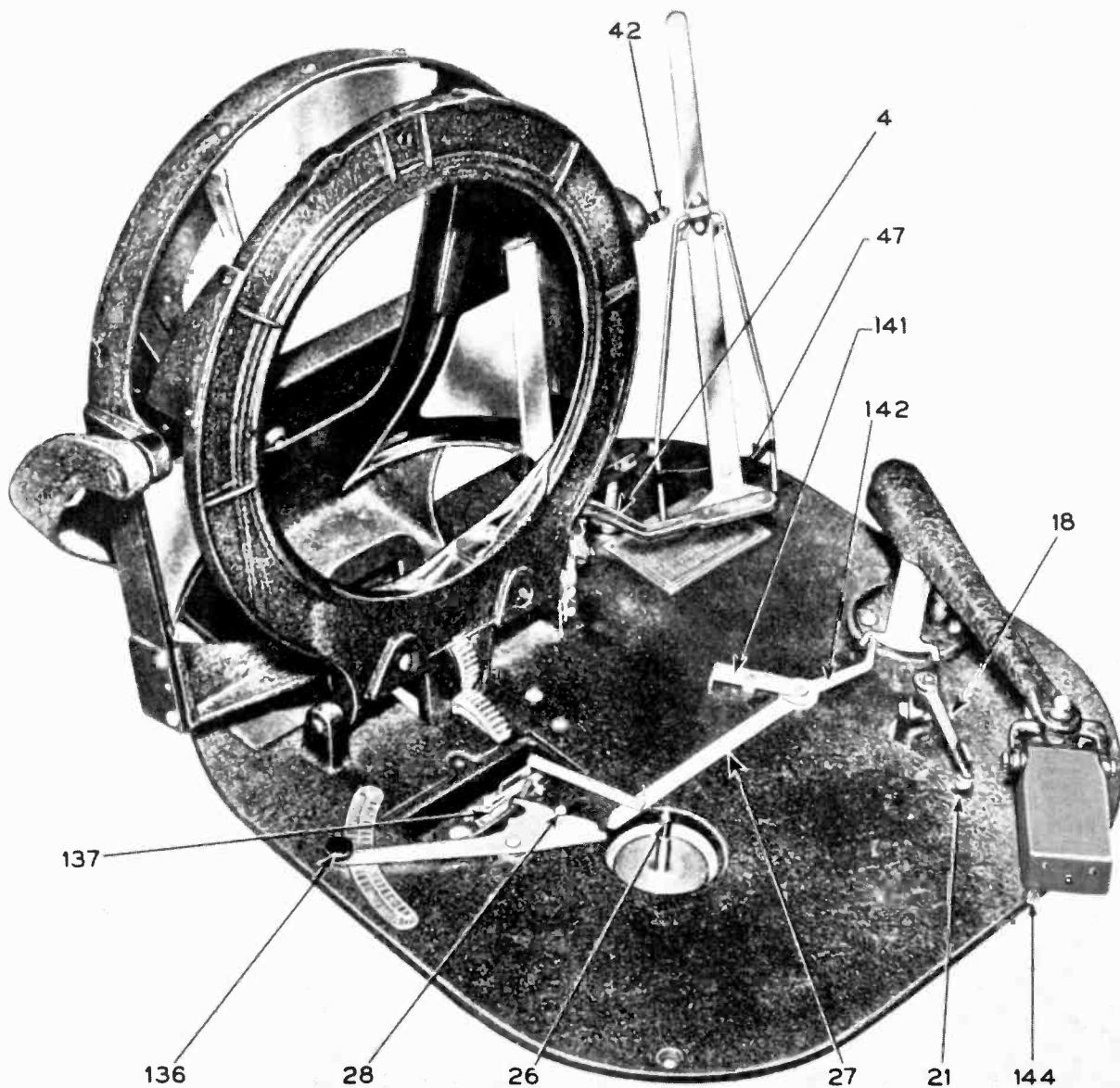


Fig. 8

Reference No.	Stock No.	Description	STOCK No.	DESCRIPTION
MAGNETIC PICKUP ASSEMBLIES				
4	38117	Record Reverse Arm and Fork Assembly (specify color)	14291	Armature—Pickup armature and spring
18	38131	Pickup Arm Stop Lever Assembly (specify color)	37292	Brush—Pickup brush and mounting bracket
21	38094	Stop Lever Roller Tubing	14672	Coil—Pickup coil and support assembly
26	38139	Turntable Drive Shaft Cap	14292	Damper—Pickup armature damper block
27	38132	Automatic Stop Trip Lever Assembly	37293	Housing—Finished pickup housing only—less mechanism and cover
28	38023	Pin—Record Control Rod	37291	Mechanism—Magnetic pickup unit only—less housing and brush
42		Pin—Reverse Guide Stop	3811	Screw—Pickup needle screw
47	38052	Record Reverse Guide Spring	37294	Terminal—Pickup connector block with set screws and mtg. screw
136		Selector Knob	37286	Pivot—Pickup unit pivot screw and locknut
137	38004	Record Trip Switch Assembly—complete	37287	Bearing—Pickup unit pivot bearing
141	38048	Spring—Automatic Trip Lever Pin		
142	38071	Automatic Stop Trip Lever—Short		
144	37292	Pickup Brush Assembly		

7. Remove the reverse cam arm and roller assembly (57) (Fig. 4) and make sure that the roller pin and arm are not bent, if either of these items are found bent we suggest that you replace the reverse arm and roller assembly.

8. In reassembling the reverse cam arm and roller assembly (57) (Fig. 4) in its proper position for alignment with the reverse cam, be sure the roller is about $\frac{1}{32}$ " inside the ridge on the reverse cam, when the cam is in the reversing position.

9. Remove the taper pin from the gear (92) (Fig. 5) on the main shaft, which drives the gear on the reverse cam shaft assembly (81) Fig. 5) and remount the main shaft to the record changer chassis, pushing the above gear, from which the pin was removed, to one side so that it will not mesh with its driven gear.

10. Locate the main shaft so that the lower end of the pickup arm lift shaft travels in the center of the pickup arm lift cam, as shown at "M" in Fig. 5. With the main shaft in this position, adjust the main shaft Durex bushings so that there is no end play in the main cam shaft assembly.

11. Rotate the main cam shaft to the playing position so that the pickup arm is lowered over the turntable.

12. Set the reverse cam in its lowest position, with the control lever in the "Both Sides" position, so that the fork of the reverse cam is meshed with the driving pin.

13. Mesh the reverse cam assembly driver gear (92) (Fig. 5) with the reverse cam assembly driven gear so that the identifying punch marks correspond to the original position. The taper pin for the driver gear should be inserted next. If the assembly has been properly made there should be approximately $\frac{1}{32}$ " clearance between the roller or the reverse cam arm and the reverse cam. See "F," Fig. 5.

14. Throw the control lever to the "One Side" position and rotate the reverse cam with the fingers until it is in the reversing position. Again throw the control lever to the "Both Sides" position. Now there should be approximately $\frac{1}{32}$ " clearance between the reverse cam and the roller. See "G," Fig. 5. If the clearance is not approximately $\frac{1}{32}$ " for both positions of the reverse cam it indicates either the gears are not properly meshed or the reverse segment link rod may be bent. A careful check of the latter while the main shaft is out will save time and trouble later.

29. INSTRUCTIONS FOR REMOVING THE AUTOMATIC MECHANISM FROM THE CABINET.

In most cases, any repairs and adjustments on this mechanism can be made with the mechanism in the cabinet. If it is necessary to remove the mechanism for any reason, it is recommended that the following procedure be observed, and that two persons take part in the removal. Make sure the mechanism is not in cycle.

1. There is a great possibility, when removing the chassis from the cabinet, to mar or scratch the cabinet. If you will place a piece of cardboard around the record changer it will eliminate, to a great extent, the possibility of marring the finish. A rubber auto mat, with a hole for the record changer, the same size as the one in the cabinet makes an excellent pad. This pad can be split and is easily put in position and removed. Pad the sides of the cabinet with pieces of cardboard.

2. Remove the backs from the record changer, and amplifier compartments.

3. Remove the five prong socket cable from the solenoid assembly, remove the pickup lead from the terminal board, and free the shielded lead going to the shorting switch.

4. Remove the four bolts that hold mechanism to the shelf.

5. Loosen the two Allen set screws in the flexible coupling and allow it to slide down the drive shaft, so as to clear the record changer shaft.

6. Remove the screw marked "P" in Fig. 2. This is the middle of the screws of the upper record support.

7. Remove the magazine link shoulder screw No. 40 Fig. 2. This will allow the magazine to be swung parallel to the turntable, and take up less room.

8. Remove the pickup arm assembly by removing the three screws in the pickup arm base, swinging the pickup arm to the back of the mechanism and working the bottom of the pickup assembly out of the hole.

9. Carefully mark the drive gear (92) (Fig. 3) on the main shaft and the driven gear shown as part of 81, Fig. 3, by prick punch marks or scribe, so that the same teeth can be engaged after reassembly, thus insuring proper timing.

10. Remove the two bolts, one (60) (Fig. 3) securing the magazine slide and roller assembly to the magazine slide arm lever, and one (15) (Fig. 1) securing the record slide arm and stud assembly to the record tray drive crank.

11. Looking in from the rear of the instrument, remove the Durex bushing from the end of the main cam shaft, nearest the motor drive shaft. This is accomplished by loosening the bolt to the right of the main shaft. Care should be taken when replacing this bushing so as not to tighten the bolt enough to crush the bushing; a snug fit only is required.

12. Remove lower half of bearing and Durex bushing from the other end of the main cam shaft and work the cam shaft out of the record changer. The same precaution against crushing the bushing should be taken as stated, in the preceding section.

13. From the rear of the cabinet, lift the mechanism straight up, and carry it straight back until the rear bearing bracket of the main shaft has cleared the shelf; then rotate the mechanism 90°, turning it so that the record magazine comes toward the back of the cabinet until the record magazine is clear of the cabinet. Then drop the record magazine end of the mechanism slightly so that the drive shaft will clear the bottom shelf, and remove the mechanism.

To Replace Mechanism:—1. Replace mechanism by reversing procedure of step 13 above.

2. Replace the main cam shaft and its bushings, but do not tighten the bushings in place. Make sure that the gears marked in (9) above are meshing properly as marked. Make sure the throw-out cam 71 Fig. 4 is resting on top of the main shaft.

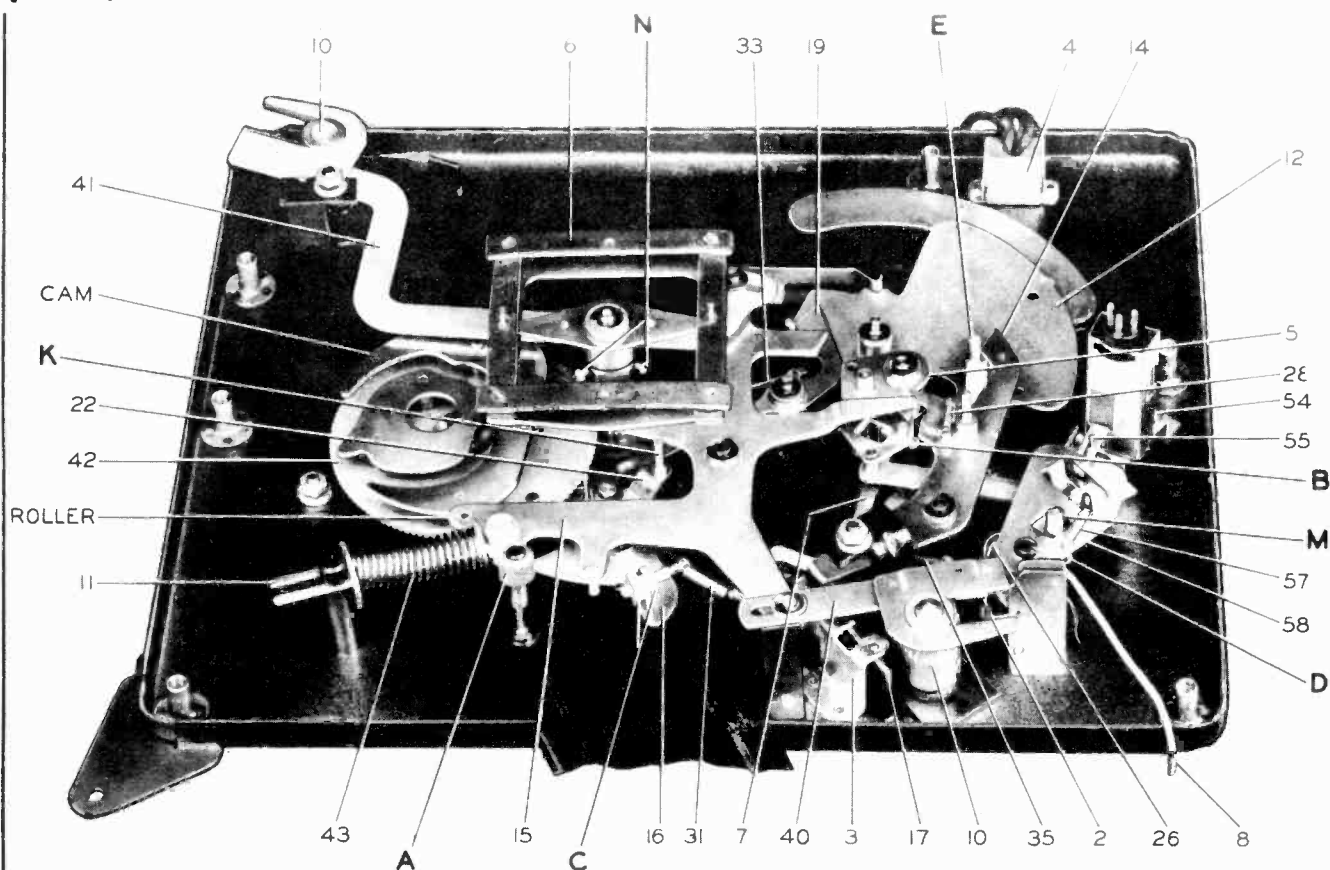
3. Replace the pickup arm assembly. Locate the main shaft so that the lower end of the pickup arm lift shaft travels in the center of the pickup arm lift cam, as shown at "M" in Fig. 5. With the main shaft in this position, adjust the main shaft Durex bushings so that there is no end play in the main cam shaft assembly.

4. Replace the two bolts removed in (4) (6) (7) and (10) above.

5. Adjust the position of the record tray as described under: "9. TO LOCATE AND ADJUST THE RECORD TRAY", by adjusting screw 15 (Fig. 1).

6. Turn the drive shaft or turntable with the fingers and put the mechanism thru a cycle to see that it is working correctly.

7. Replace the flexible coupling on drive shaft and replace connections to record changer.



Names of Mechanism Parts

MODEL QU7 VICTROLA MECHANISM

- 2 Guide — Pickup-lift-cable guide.
- 3 Bracket — Record-discriminating-lever bracket.
- 4 Switch — Turntable motor switch.
- 5 Clutch — Trip-lever friction clutch.
- 6 Coupling — Flexible coupling.
- 7 Finger — Trip-lever friction finger.
- 8 Cable — Pickup shielded cable.
- 9 Spring — Record-discriminating-lever spring (flat).
- 10 Gear — Record-separator-shaft gear.
- 11 Guide — Main-lever-spring guide.
- 12 Lever — Index lever.
- 14 Lever — Locating lever and pawl.
- 15 Lever — Main lever.
- 16 Lever — Pickup lift-cable lever.
- 17 Lever — Record-discriminating lever and pawl.
- 18 Lever — Record-separator elevating lever.
- 19 Lever — Trip-detaining lever.
- 22 Pawl — Trip pawl.

- 23 Pin — Separator-shaft pin (engages gear).
- 25 Separator — Record-separator knife.
- 26 Spring — Pickup-arm starting spring.
- 27 Shelf — Record-support shelf.
- 28 Spring — Record-discriminating-lever pawl spring, or locating-lever pawl spring.
- 31 Spring — Pickup lift-cable spring.
- 33 Spring — Trip-detaining lever spring.
- 34 Shaft — Record-separator shaft.
- 35 Spring — Locating-lever spring.
- 40 Gear — Short arm and rack gear.
- 41 Gear — Long arm and rack gear.
- 42 Cam — Cam and drive gear assembly.
- 43 Spring — Main-lever spring.
- 54 Switch — Automatic switch.
- 55 Pin — Switch plunger pin.
- 57 Spring — Trip lever cam spring.
- 58 Cam — Trip-lever cam and link.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-551)	12723	Capacitor—56 mmfd., moulded mica
		36843	Capacitor—56 mmfd., ceramic
		37619	Capacitor—56 mmfd., silvered mica
37206	Arm—Trip arm used on high frequency tone control	12720	Capacitor—100 mmfd.
35642	Calibrator—Drive drum calibrator scale	12724	Capacitor—120 mmfd., moulded mica
12714	Capacitor—Air trimmer—medium 2-12 mmfd.	31813	Capacitor—120 mmfd., mica
36631	Capacitor—Mica trimmer comprising 3 sections of 2-20 mmfd. each, 1 section of 5-50 mmfd. and 1 section of 3-30 mmfd.	37620	Capacitor—200 mmfd.
36630	Capacitor—Mica trimmer comprising 5 sections of 3-30 mmfd. each	12694	Capacitor—220 mmfd., moulded mica
35646	Capacitor—8 mmfd.	36616	Capacitor—220 mmfd., mica
33381	Capacitor—8.2 mmfd.	30964	Capacitor—330 mmfd., mica
36636	Capacitor—Mica trimmer—1 section 8-80 mmfd.	13894	Capacitor—390 mmfd.
13200	Capacitor—10 mmfd., moulded mica	33235	Capacitor—580 mmfd.
37621	Capacitor—10 mmfd., silvered mica	12536	Capacitor—820 mmfd.
33380	Capacitor—12 mmfd., ceramic	37617	Capacitor—1,000 mmfd.
37618	Capacitor—12 mmfd., silvered mica	30057	Capacitor—2,700 mmfd.
13141	Capacitor—47 mmfd., moulded mica	30851	Capacitor—0035 mfd.
33102	Capacitor—47 mmfd., ceramic	30852	Capacitor—005 mfd., 500 volts
37329	Capacitor—47 mmfd., silvered mica	5242	Capacitor—005 mfd., 1,000 volts
		30854	Capacitor—007 mfd.
		30855	Capacitor—01 mfd.
		30859	Capacitor—025 mfd.

Replacement Parts (Continued)

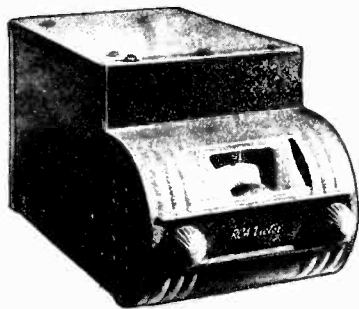
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES QU7			
38192	Arm—Pickup arm shell only—less mechanism, support arm pins, and shielded cable	31608	Washer—"C" washer for index link
38194	Arm—Pickup support arm complete—less bushings and drive pins	2917	Washer—"C" washer for mounting main lever, cone and gear, trip pawl, locating lever, lift cable lever, trip lever and cone, record discriminating lever, flexible coupling, and index lever
14291	Armature—Pickup armature assembly	8078	Washer—Spring washer for record discriminating lever
34550	Bushing—Rubber bushing or support arm	20165	Washer—Spring washer for trip detaining lever and main lever
32635	Cable—Pickup lift cable	37683	Washer—Spring washer for under flexible coupling adjustment nut
38215	Cable—Shielded pickup cable (8)	RECORDER ASSEMBLY QU7	
38216	Catch—Pickup head catch	37640	Base—Main recorder base
14672	Coil—Pickup coil	37162	Bracket—Feed bracket
38197	Cover—Insulating cover	37161	Bracket—Stop bracket
38193	Head—Pickup arm head shell—less mechanism	37639	Carriage—Main carriage
37291	Mechanism—Pickup mechanism complete	37163	Center—Feed screw center (Long)
38198	Pin—Pin to attach head to arm ($\frac{1}{4}$ -inch dia.)	37165	Center—Feed screw center (Short)
38199	Pin—Pin to attach support arm to shell (3/32-inch dia.)	44149	Flange—Drive flange assembly
38196	Screw—Needle screw	37169	Nut—Recorder head spring adjusting nut
38217	Screw—Pickup mechanism support screw	19721	Pinion—Pinion gear
38213	Spring—Needle point weight adjustment spring	36907	Recorder—Recorder head
38214	Stud—Shoulder stud to hold tension spring and head catch	37164	Screw—Feed screw with gear
MOTORBOARD ASSEMBLIES QU7		32462	Screw—Recorder head pivot screw and nut
38218	Base—Pickup arm mounting base	37170	Screw—Recorder head spring adjusting screw
37647	Board—Motorboard with welded and riveted studs and bearings—less operating parts	19703	Screw—Yoke pivot screw and nut
37649	Escutcheon—Index escutcheon	44150	Shaft—Pinion shaft
37654	Spindle—Turntable spindle and pin	37642	Sleeve—Base adjusting sleeve
37652	Turntable—Turntable complete	37168	Spring—Recorder head tension spring
37653	Washer—Turntable thrust washers comprising 1 felt and 2 bronze washers	37641	Yoke—Main yoke with pin—less pivot screws
OPERATING MECHANISMS QU7		MOTOR ASSEMBLIES QU7	
33582	Arm—Drive arm and hub for turntable shaft—part of phono motor flexible coupling	12051	Capacitor—2 mfd., 1,000 volts, used in conjunction with 50 and 60 cycle motors
37659	Arm—Drive arm, hub and rubber disc for motor shaft—part of phono flexible coupling	13101	Capacitor—4 mfd., 250 volts used in conjunction with 25 cycle motors
37640	Base—Cutter mechanism support base	37666	Motor—105-115 volt, 25 cycle turntable motor
33984	Bracket—Record discriminating lever mounting bracket (3)	37665	Motor—105-115 volt, 50 cycle turntable motor
36277	Bumper—Rubber bumper	37664	Motor—105-115 volt, 60 cycle turntable motor
14819	Cable—Pickup shield cable and plug from shorting switch	37663	Support—Motor support plate
33987	Cam—Cam and gear assembly (42)	MICROPHONE ASSEMBLIES QU7	
36531	Cam—Trip lever cam and link (58)	33751	Diaphragm—Replacement diaphragm for Model MI-6226-D microphone
37686	Clutch—Trip lever clutch and trip lever—less friction finger, trip lever cone, link and adjustment stud (5)	MI-6226-D	Microphone—Aero-dynamic microphone complete—less stand and connection plug
36265	Finger—Trip lever friction finger (7)	37244	Plug—3 prong microphone plug and shell
33581	Frame—Phono motor flexible coupling frame only	MI-6226-D	Stand—Microphone stand complete for Model MI-6226-D mike
37685	Gear—Pinion drive gear for spindle shaft—less set screw and lock ring	RECORDER ASSEMBLY QUB	
36267	Gear—Rack gear (long) (41)	MI-4832	
32880	Gear—Rack gear (short) (40)	37171	Base—Main recorder base
31121	Gear—Record separator shaft gear (10)	37161	Bracket—Carriage stop bracket
36830	Guide—Lift cable guide (2)	37162	Bracket—Feed bracket engages with feed screw
33982	Guide—Main spring guide (11)	37160	Carriage—Main carriage and pin
37658	Lever—Index lever (12)	37163	Center—Conical feed screw center—used on drive end of recorder assembly
37974	Lever—Locating lever and pawl (14)	37165	Center—Conical feed screw center—used on pivot end of recorder assembly
33985	Lever—Main lever assembly (15)	36906	Cutter—Recorder cutter head only
31140	Lever—Pickup life cable lever and spring (16) (31)	37167	Flange—Drive flange with three pins
37657	Lever—Record discriminating lever and pawl (17)	37169	Nut—Recorder head tension spring adjusting nut
36476	Lever—Record separator elevating lever with adjustment screws (18)	19721	Pinion—Feed screw drive pinion
31132	Lever—Trip detaining lever (19)	MI-4832	Recorder—Recorder assembly complete
36525	Link—Index link assembly	37164	Screw—Feed screw with gear
37684	Nut—Flexible coupling adjustment nut—less set screw	37170	Screw—Recorder head spring adjusting screw
31133	Pawl—Trip pawl assembly (22)	19703	Screw—Yoke pivot screw and nut
36268	Pin—Pin to fasten gear to separator shaft (23)	37166	Shaft—Drive pinion shaft only
36773	Plug—3 prong male plug	37173	Sleeve—Main base adjusting sleeve
37682	Rest—Recorder arm rest	37168	Spring—Recorder head tension spring
36281	Ring—Retaining ring for set screw in pinion drive gear	37172	Yoke—Main yoke with pin—less pivot screws
4295	Screw—Cutter mechanism support base set screw—No. 10-32x $\frac{1}{2}$ headless	MICROPHONE ASSEMBLIES QUB	
36477	Screw—No. 6-32 ball point screw for record separator elevating lever	32212	Adapter—Microphone to stand adapter
36276	Screw—No. 6-32 headless set screw for pinion drive gear	MI-4036K	Microphone—Junior velocity microphone complete—less stand, adapter, and connection plug
31118	Screw—No. 10-32x5/16-in. cone pointed set screw for record separator shelf	37244	Plug—3-prong microphone plug and shell
32869	Screw—No. 10-32x5/16-in. machine screw for record separator shelf	20911	Ribbon—Replacement ribbon only for microphone
14188	Screw—No. 10-32x7/16-in. fillister head—cone pointed set screw for flexible coupling	MI-6232A	Stand—Microphone stand complete—less adapter, microphone and cord
33983	Screw—Record separator elevating lever pivot screw	Additional Automatic Mechanism Parts not shown in Fig. I to 8 inclusive.	
33990	Separator—Record separator knife (25)	QUB	
33989	Shelf—Record separator rotating shelf—less set screws (27)	38002	Switch Assembly—Pickup shorting
37657	Shaft—Record separator shaft (34)	38014	Screw—Pickup arm brake
37642	Sleeve—Cutter mechanism support sleeve	38025	Pin—Solenoid
3676	Spring—Cam gear pawl spring	38026	Pin—Magazine slide arm
3666	Spring—Lift cable spring (31)	38027	Pin—Magazine slide arm lever
14190	Spring—Locating lever pawl spring (28)	38028	Pin—Reverse throwout arm
37975	Spring—Locating lever spring (35)	38029	Pin—Pickup pivot
32882	Spring—Main lever tension spring (43)	38035	Ball Bearing—Tone arm
36278	Spring—Pickup arm feed spring located on pivot shaft	38041	Spring—Pickup arm brake
33994	Spring—Record discriminating lever spring (flat) (9)	38042	Spring—Pickup arm lift shaft
31136	Spring—Tension spring for roller index link	38049	Spring—Clutch throwout
36279	Spring—Tension spring for trip pawl	38051	Spring—Trip switch
36921	Spring—Trip detaining lever spring (33)		
31147	Strip—Complete set for rubber strips for flexible coupling (6)		
36271	Stud—No. 4-40 hex stud for trip lever clutch adjustment		
36529	Switch—Automatic switch (54)		
38995	Switch—Automatic switch less cam, base and shaft		
34875	Switch—Pickup shorting switch		

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
38053	Spring—Solenoid wedge	37667	Housing—Function lamp housing only less tube clip, bracket, switch, and cable
38054	Spring—Ball joint	37259	Housing—Wooden band indicator lamp housing
38056	Turntable Shaft Bushing	13103	Jewel—Pilot light jewel only
38068	Record Tray Bushing	37256	Knob—Large control knob and spring
38061	Collar— $\frac{1}{2}$ -inch shaft	37257	Knob—Small control knob and spring
38065	Pivot Bushing	11891	Lamp—6.3 volt pilot lamp—Mazda No. 44
38067	Pickup Center Bolt	36728	Lamp—7 watts frosted compartment lamp bulb
38077	Turntable Felt	37286	Pivot—Pickup unit pivot screw and locknut
38085	Turntable Drive Facing—heavy	37266	Plate—11-in. finished auxiliary plate for turntable
38086	Turntable Drive Facing—light	37290	Plug—2 prong male plug and shell for cutter base plunger switch cable and compartment lamp cable; or phono motor power cable
38087	Turntable Drive Facing—medium	30870	Plug—2 prong male plug for reject button cable
38091	Pickup Arm Friction Cam Facing	37244	Plug—3 prong male plug and shell for pilot lamp cable
38093	Reverse Guide Pin Tubing	12567	Plug—5 prong male plug used on dial frame cable
38096	Automatic Stop Lever Washer	11953	Plug—6 prong male plug for function panel
38099	Rubber Bushing	31048	Plug—Single contact plug for phono input cable
38109	Turntable Assembly	37261	Pointer—Station selector pointer and carriage
38112	$\frac{1}{4}$ -inch Allen Head Wrench	37825	Reflector—Compartment lamp reflector only—less housing lamp
38125	Pickup Arm Stop Lever—Bracket and pin assembly	37260	Screen—Diffusing screen for Stk. No. 37259 housing
38133	Main Shaft Assembly	37288	Screen—Diffusing screen for function lamp housing
38134	Magazine Support Assembly	33438	Screw—Thumb screw for "Magic Eye" clip
38142	Record Bumper—left	37800	Shade—Compartment lamp shade assembly
38143	Record Bumper—right	31199	Shield—Lamp shield for jewel light
38145	$\frac{1}{4}$ -in. x 20 x 1.125-in. Hex Head Cap Screw	37173	Sleeve—Cutter base adjusting sleeve
38146	Cotter Pin—1/16-in. dia. x $\frac{1}{8}$ -in.	31364	Socket—Bayonet socket with clip for pilot lamp
38147	Cotter Pin—1/16-in. dia. x $\frac{1}{2}$ -in.	19026	Socket—Compartment lamp socket
38148	Cotter Pin—3/32-in. dia. x $\frac{1}{2}$ -in.	30300	Spring—Control knob spring
38149	Cotter Pin— $\frac{1}{8}$ -in. dia. x $\frac{1}{2}$ -in.	37265	Switch—2 gang speaker switch
38150	No. 00x $\frac{1}{2}$ -in. Taper Pin	37668	Switch—Master power switch
38152	No. 00x $\frac{1}{2}$ -in. Taper Pin, Nickel Plated	37306	Switch—Motor control toggle switch
38153	No. 00x $\frac{1}{2}$ -in. Taper Pin	32875	Switch—Phono motor off-on switch
38154	No. 00x $\frac{1}{2}$ -in. Taper Pin	37289	Switch—Plunger switch used in cutter base
38155	No. 00x1-in. Taper Pin	37305	Switch—Reject button switch—less plug
38156	No. 00x $\frac{1}{2}$ -in. Taper Pin	14609	Transformer—Input transformer
38157	No. 0x $\frac{1}{2}$ -in. Taper Pin	MISCELLANEOUS ASSEMBLIES QUB	
38158	No. 0x1-in. Taper Pin	37172	Base—Flanged cutter base with set screw
38159	No. 1 x $\frac{1}{4}$ in. Taper Pin	37669	Bracket—Multiple lamp bracket
38160	No. 0000x $\frac{1}{2}$ -in. Taper Pin	37670	Bracket—Tuning tube clip bracket
38161	No. 1x $\frac{1}{2}$ -in. Taper Pin	37267	Brush—Dust brush for recording
38162	No. 2 Woodruff Key	30766	Cap—Magic Eye cap for function panel
38118	TT Drive Shaft Assembly	37262	Clamp—Spring steel retaining clamp for bottom of dial
38163	Drive Shaft—Main motor	37263	Clamp—Spring steel retaining clamp for top of dial
38164	Pivot Bushing—Pickup head	30716	Clip—"Magic Eye" mounting clip and thumb screw
38165	Base Plate—Die cast plate	34285	Clip—Tuning tube clip and thumb screw
38166	Rubber Ins. Bushing—Pickup head	37832	Connector—3-contact female socket as used on cutter and microphone cables
38167	Tone Arm Assembly	12493	Connector—5-contact female connector for band indicator cable
38182	Turntable	37264	Control—344 ohm and 250 ohm dual speaker control
38168	Drive Motor (60 cycle)	37320	Decalcomania—"Master Control" decal
38169	5-Prong Plug—Motor leads	37323	Decalcomania—"Microphone" decal
38170	Gear Box (60 cycle)	37319	Decalcomania—"Microphone Level" decal
38171	Friction Drive Assembly	37324	Decalcomania—"Motor" decal
38172	Flex Coupling Assembly	36603	Decalcomania—"Power" decal
38173	Light Socket (brown)	37318	Decalcomania—"Radio" decal
38174	Light Shade and Pin Assembly	35392	Decalcomania—"RCA Victor" decal
38175	Pin—Lamp Shade	36386	Decalcomania—"RCA Victrola" trade mark decal
38176	Reflector—Compartment lamp	37321	Decalcomania—"Recorder" decal
38177	Plug and Lead Assembly	37322	Decalcomania—"Reject" decal
38178	Bracket and Switch Assembly	37326	Dial—Function indicator dial
38180	Light Shade Bracket	37325	Dial—Station selector dial
38181	Drive Motor (50 cycle)	37258	Frame—Dial frame—less plugs, "Magic Eye" clip, thumb screw, screen, and wooden lamp housing
38151	Gear Box (50 cycle)	37884	Fuse—3 Ampere, 250 volt fuse
		37883	Fuse—5 Ampere, 250 volt fuse
		37824	Housing—Compartment lamp cast housing only—less switch socket and reflector
SPEAKER ASSEMBLIES			
14604	Coil—Neutralizing coil used in RL-76B2 only		
37311	Coil—900 ohm field coil for RL-76B2		
37312	Coil—3,000 ohm field coil for RL-76B3		
37310	Cone—Coil and voice coil assembly for either RL-76B2 or RL-76B3		
31539	Plug—5-prong male plug for RL-76B2		
11953	Plug—6-prong male plug for RL-76B3		
MISCELLANEOUS ASSEMBLIES QU7			
37820	Back—Cabinet back only		
37172	Base—Flanged cutter base with set screw		
37287	Bearing—Pickup unit pivot bearing		
37669	Bracket—Multiple lamp bracket		
37670	Bracket—Tuning tube clip bracket		
37267	Brush—Dust brush for recording		
37832	Cable—Shielded cable and 3 contact socket for microphone or cutter		
30766	Cap—Magic Eye cap for function panel		
37262	Clamp—Spring steel retaining clamp for bottom of dial		
37263	Clamp—Spring steel retaining clamp for top of dial		
30716	Clip—"Magic Eye" mounting clip and thumb screw		
34285	Clip—Tuning tube clip and thumb screw		
12493	Connector—5 contact female connector for band indicator cable		
37264	Control—344 ohm and 250 ohm dual speaker control		
33910	Cup—New needle cup		
37320	Decalcomania—"Master Control" decal		
37323	Decalcomania—"Microphone" decal		
37319	Decalcomania—"Microphone Level" decal		
37324	Decalcomania—"Motor" decal		
36603	Decalcomania—"Power" decal		
37318	Decalcomania—"Radio" decal		
35392	Decalcomania—"RCA Victor" decal		
36386	Decalcomania—"RCA Victrola" trade mark decal		
37321	Decalcomania—"Recorder" decal		
37322	Decalcomania—"Reject" decal		
37326	Dial—Function indicator dial		
37325	Dial—Station selector dial		
37258	Frame—Dial frame less plugs, "Magic Eye" clip thumb screw, screen, and wooden lamp housing		
37884	Fuse—3 Amperes, 250 volt fuse		
37883	Fuse—5 Amperes, 250 volt fuse		
37824	Housing—Compartment lamp cast housing only—less switch socket and reflector		
		37667	Housing—Function lamp housing only—less tube clip, brackets, switch, and cable
		37259	Housing—Wooden band indicator lamp housing
		13103	Jewel—Pilot light jewel only
		37256	Knob—Large control knob and spring
		37257	Knob—Small control knob and spring
		11891	Lamp—6.3 volt pilot lamp—Mazda No. 44
		37823	Lamp—115 volt, 7 $\frac{1}{2}$ watt frosted compartment lamp bulb
		37266	Plate—11 inch finished auxiliary plate for turntable
		37270	Plug—2-contact male plug for phono motor power cable
		37290	Plug—2-prong male plug and shell for cutter base plunger switch cable and compartment lamp cable
		30870	Plug—2-prong male plug for reject button cable
		37244	Plug—3-prong male plug and shell for pilot lamp cable
		12567	Plug—5-prong male plug used on dial frame cable
		11953	Plug—6-prong male plug for function panel
		31048	Plug—Single contact plug for phono input cable
		37261	Pointer—Station selector pointer and carriage
		37825	Reflector—Compartment lamp reflector only—less housing and lamp
		37288	Screen—Diffusing screen for function lamp housing
		37260	Screen—Diffusing screen for Stock No. 37259 housing
		33438	Screw—Thumb screw for "Magic Eye" clip
		31199	Shield—Lamp shield for jewel light
		37173	Sleeve—Cutter base adjusting sleeve
		31364	Socket—Bayonet socket with clip for pilot lamp
		30900	Spring—Control knob spring
		37265	Switch—2-gang speaker switch
		37668	Switch—Master power switch
		37306	Switch—Motor control toggle switch
		32875	Switch—Phono motor off-on switch
		37289	Switch—Plunger switch used in cutter base
		57305	Switch—Reject button switch—less plug
		14609	Transformer—Input transformer

MODEL 8M

Five-Tube, Superheterodyne Automobile Receiver



Model 8M

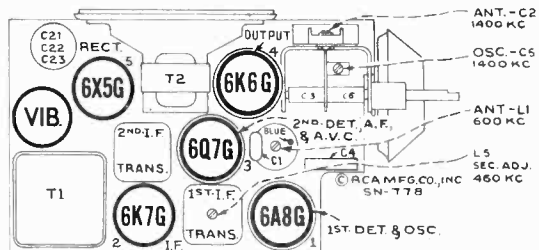


Figure 1—Radiotron, Component Part, and Trimmer Locations

Electrical Specifications

RADIOTRON COMPLEMENT

- (1) RCA-6A8-G..... First Detector—Oscillator
- (2) RCA-6K7-G..... I-F Amplifier

- (3) RCA-6Q7-G..... Second Det., A-F Amp., and A.V.C.
- (4) RCA-6K6-G..... Power Output
- (5) RCA-6X5-G..... Full-Wave Rectifier

Tuning Range..... 550 to 1,550 kc

POWER OUTPUT RATING

Maximum..... 3.3 watts
 Undistorted..... 1.75 watts

LOUDSPEAKER

Type..... 5-inch Electrodynamic
 Voice-Coil Impedance..... 3.2 ohms at 400 cycles

POWER SUPPLY RATING

Supply Voltage..... 6.3 volts
 Current Drain..... 6 amp.
 Fuse Protection..... 15 amp.

PILOT LAMP..... Mazda No. 51, 7.5 volts, 0.2 amp.

Alignment Procedure

Remove all external screws to remove the chassis from the case. Hold the condenser gang in full-mesh position while rotating the dial scale so the low frequency (end) calibration mark is in line with the pointer. Loosen the three nuts in the front of the scale assembly for this adjustment. When referring to scale settings hold the front panel in place.

Perform alignment in proper order tabulated below, starting with No. 1 and following all operations across, then No. 2, etc. Adjustment locations are shown on figures 1 and 4.

Cathode-ray alignment is preferable; the connections to the chassis are shown on figure 3. If an output indicator is used, connect it across the loudspeaker voice-coil and advance the receiver volume control to full-volume position.

Connect the "low" output terminal of the test oscillator to the receiver chassis for all alignment operations. Regulate

the output of the test oscillator so that minimum signal is applied to the receiver to obtain an observable output indication. This will avoid a-v-c action.

The term "Ant. Cable" means test oscillator signal should be applied to the receiver at the connector on the antenna cable extending from the receiver chassis. "Dummy antenna" means the device which must be connected between the "high" test-oscillator output and the point of connection to the receiver in order to obtain ideal alignment. "No signal, 550-750 kc" means that the receiver should be tuned to a point between 550 and 750 kc where no signal is received from a station or the local (heterodyne) oscillator.

For further details on alignment, refer to booklet "RCA Victor Receiver Alignment."

Order of Alignment	Test Oscillator			Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6K7-G I-F Grid Cap	.001 Mfd.	460 kc	No Signal 550-750 kc	2nd I-F Trans.	L6	Max. (peak)
2	6A8-G Det. Osc. Grid Cap	.001 Mfd.	460 kc	No Signal 550-750 kc	1st I-F Trans.	L4 and L5	Max. (peak)
3	Ant. Cable	100 Mmf.	1,400 kc	1,400 kc	Osc.	C5	Max. (peak)
4	Ant. Cable	100 Mmf.	1,400 kc	1,400 kc	H-F Ant.	C2	Max. (peak)
5	Ant. Cable	100 Mmf.	600 kc	Approx. 600 kc *	L-F Ant.	L1	Max. (peak)†
6	Ant. Cable	100 Mmf.	1,400 kc	1,400 kc	H-F Ant.	C2	Max. (peak)

* Adjust dial for maximum output at or near 600 kc setting.

† The same inductance may be obtained for two different settings of L1. Use either setting.

Antenna Compensating Capacitor.—Trimmer C2 is accessible from the bottom of the receiver case (near speaker opening) and should be readjusted to give maximum signal output on a weak station or oscillator signal at approximately 1,400 kc, after the instrument is installed. The antenna should be connected to the receiver during this adjustment. Refer to Alignment Table operation number 6.

NOTE: Change C1 from 680 mmfd to 300-400 mmfd for use with high capacity built-in antennas.

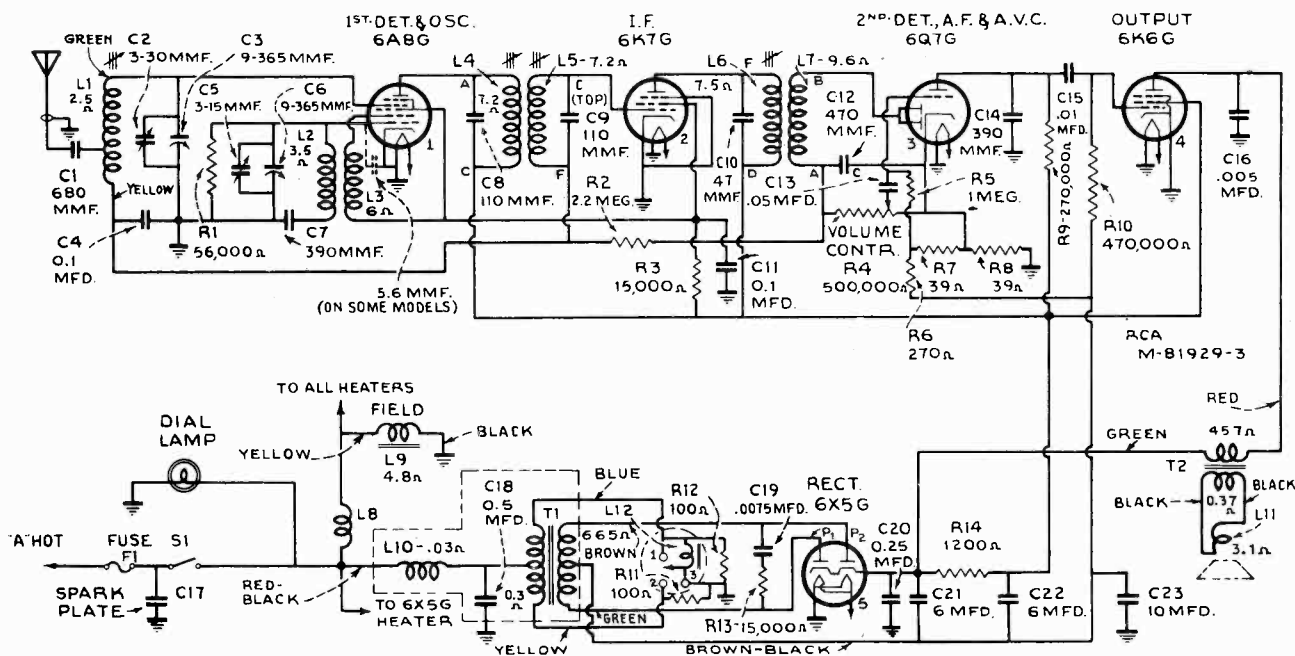
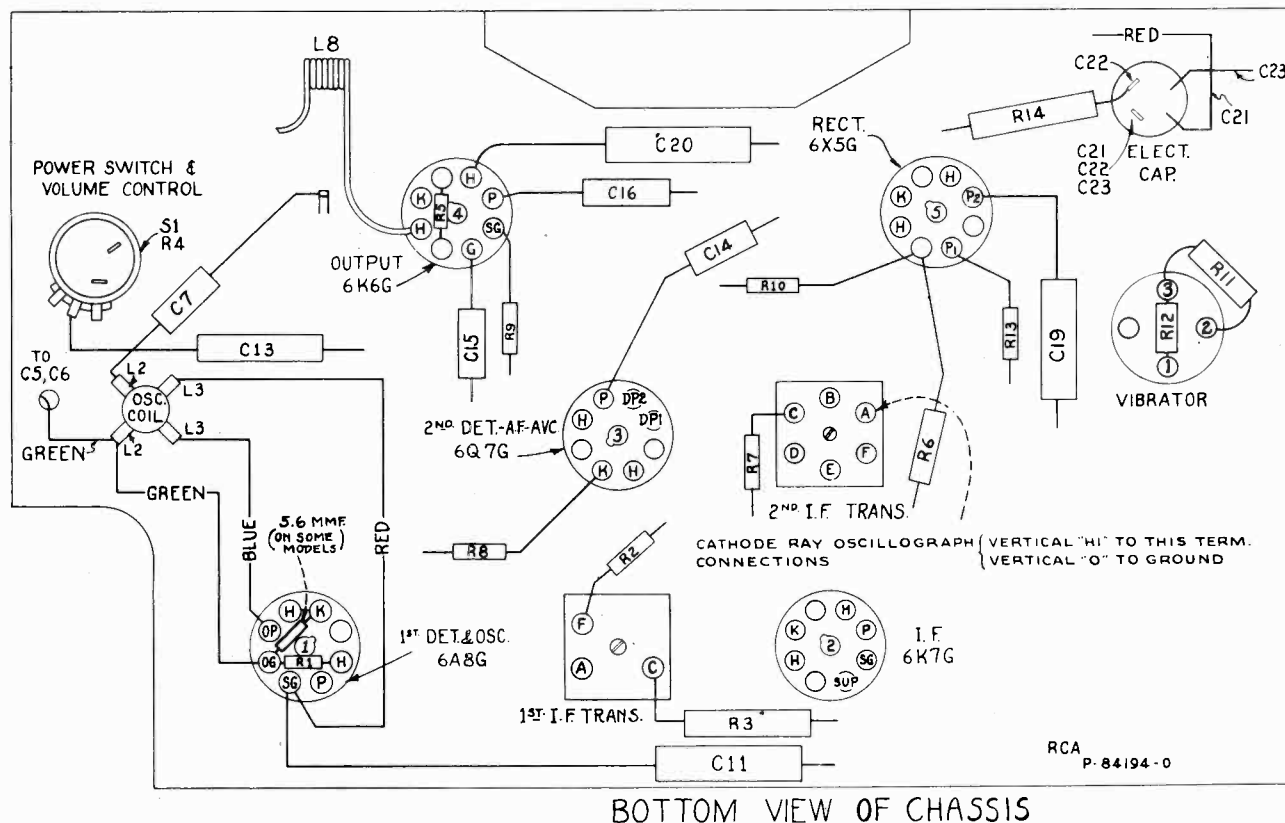


Figure 2—Schematic Circuit Diagram



BOTTOM VIEW OF CHASSIS

Figure 3—Component Part Locations and R-F Wiring Diagram

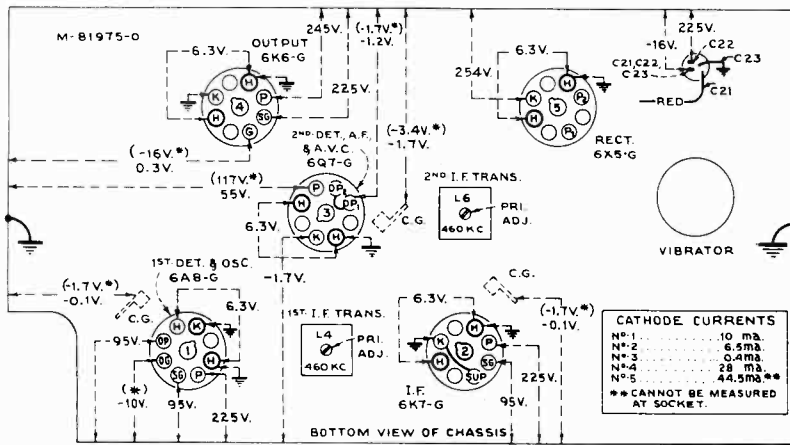


Figure 4—Radiotron Socket Voltages and Trimmer Locations
(Measured at 6.3 volts battery supply—Volume control minimum—No signal input)

Note: Two voltage values are shown for some readings. The value shown in parentheses with asterisk (*) indicates operating conditions without voltmeter loading. The other value (generally lower) is the actual measured voltage and differs from the value shown in parentheses because of the additional loading of the voltmeter.

Vibrator Hum:

Some instruments may produce a mechanical hum which is accentuated when the instrument is mounted in a car and attached to the instrument panel. If this condition is apparent, a strip of felt 1 1/2-inch x 1 1/2-inch x 1/8-inch should be installed between the vibrator unit and the power transformer, and cemented to the transformer.

Dial Slippage:

The following procedure is suggested to overcome slippage of the dial drive, resulting from the dial scale rubbing against the case.

- (a) Remove the three nuts which hold dial in place and take dial off of dial drive drum.
- (b) Loosen two set screws on hub of dial drive drum. Move drum as far as possible toward chassis, allowing just enough clearance to prevent its scraping against the two brass screw heads.
- (c) Replace dial and make sure that the dial scale is concentric with the shaft, before tightening the dial mounting nuts.
- (d) Mount chassis as far back in case as possible.
- (e) Mount chassis so that dial is centered from left to right with respect to the case.
- (f) If dial scale is loose in its mounting, slightly crimp edge of brass mounting with diagonal cutters.
- (g) See that rubber grommets are in place in shaft holes of case.
- (h) Mount the case-end as far forward as possible.

Loudspeaker Cones:

Speaker marked 84147-2 is used in 8M, but has two types of cones, which vary as to mounting dimension of the spider suspension:
 Stock No. 35484 cone fits speaker marked 84147-2 with a 2 1/8 inch dimension between suspension points.
 Stock No. 30782 cone fits speaker marked 84147-2 with a 2-9/16 inch dimension between suspension points.

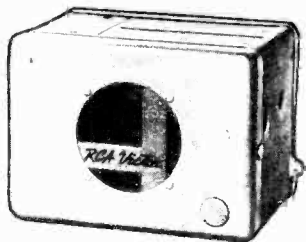
REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

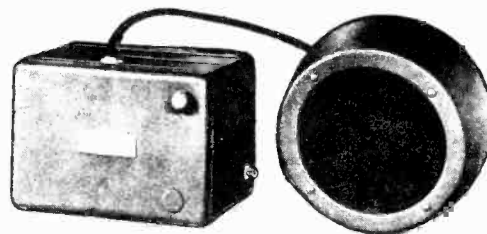
Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
RECEIVER ASSEMBLIES			
11350	Cap—Grid contact cap—Package of 5	12679	Resistor—2.2 Megohm, insulated, 1/2 watt (R2) — Package of 5
30637	Capacitor—Adjustable trimmer (C2)	5129	Ring—Retaining ring for Radiotron shield—Package of 5
12405	Capacitor—47 Mmfd. (C10)	12418	Screw—No. 8-32 x 3/16-in. slab-head set screw for drum, Stock No. 30630—Package of 10
14262	Capacitor—110 Mmfd. (C8, C9)	30638	Shield—Radiotron shield
13894	Capacitor—390 Mmfd. (C14)—Package of 5	13686	Socket—4-contact vibrator socket
30625	Capacitor—390 Mmfd. (C7)	11196	Socket—8-contact Radiotron socket
30673	Capacitor—470 Mmfd. (C12)	30631	Spring—Tension spring for drive cord—Package of 10
14498	Capacitor—680 Mmfd. (C1)—Package of 5	14376	Transformer—First I.F. transformer (L4, L5, C8, C9)
4838	Capacitor—005 Mfd. (C16)	30672	Transformer—Second I.F. transformer (L6, L7, C10, C12)
30626	Capacitor—0075 Mfd. (C19)	30633	Transformer—Vibrator power transformer (T1, L10, C18)
14393	Capacitor—01 Mfd. (C15)	13688	Vibrator—Plug-in vibrator (L12)
4886	Capacitor—05 Mfd. (C13)	30628	Volume Control and "ON-OFF" switch (R4, S1)
4839	Capacitor—0.1 Mfd. (C4, C11)	REPRODUCER ASSEMBLIES (84147-2)	
12484	Capacitor—0.25 Mfd. (C20)	*30782	Cone—Reproducer cone and voice coil (L11)
30634	Capacitor Pack—Comprising two 6 Mfd. and one 10 Mfd. sections (C21, C22, C23)	30781	Reproducer, complete (L9, L11, T2)
4358	Clamp—Mounting clamp for capacitor pack, Stock No. 30634	30783	Transformer—Output transformer (T2)
30639	Coil—Antenna coil—less shield (L1)	MISCELLANEOUS ASSEMBLIES	
30656	Coil—Oscillator coil (L2, L3)	5025	Capacitor—Generator capacitor
30627	Condenser—2-gang variable tuning condenser (C3, C5, C6)	5023	Fuse—15 amp.—Package of 5
30632	Cord—Drive cord—Package of 5	30640	Housing—Receiver case only
30629	Dial—Dial scale and holder	4290	Insulator—Fuse-holder insulating sleeve—Package of 10
30630	Drum—Dial drive drum, complete with set screws	30642	Knob—Tuning or volume control knob—Package of 5
12415	Resistor—39 ohms, insulated, 1/2 watt (R7, R8)—Package of 5	11765	Lamp—Dial lamp—Package of 5
30540	Resistor—100 ohms, insulated, 1/2 watt (R11, R12)—Package of 5	7766	Lead—"A" lead (ammeter end), complete with female section of fuse holder
13744	Resistor—270 ohms, carbon type, 1/2 watt (R6)—Package of 5	30641	Lead—"A" lead (chassis end), complete with male section of fuse holder
6134	Resistor—1,200 ohms, carbon type, 1 watt (R14)—Package of 5	30643	Lead—Shielded antenna lead (chassis end), complete with female section of connector
12695	Resistor—15,000 ohms, insulated, 1/2 watt (R13)—Package of 5	30645	Mounting—Complete set of brackets, nuts, washers, and screws for mounting receiver
14166	Resistor—15,000 ohms, carbon type, 2 watt (R3)	30644	Socket—Dial lamp socket and lead
12286	Resistor—56,000 ohms, insulated, 1/2 watt (R1)—Package of 5	5024	Suppressor—Distributor suppressor
12199	Resistor—270,000 ohms, insulated, 1/2 watt (R9)—Package of 5		
12285	Resistor—470,000 ohms, insulated, 1/2 watt (R10)—Package of 5		
13730	Resistor—1 Megohm, insulated, 1/2 watt (R5)—Package of 5		

MODELS 8M1 and 8M2

Six-Tube, Superheterodyne Automobile Receivers



Model 8M1



Model 8M2

Electrical Specifications

RADIOTRON COMPLEMENT

- | | | | |
|--------------------|---------------------------|--------------------|-----------------------------------|
| (1) RCA-6K7-G..... | R-F Amplifier | (4) RCA-6Q7-G.... | Second Det., A-F Amp., and A.V.C. |
| (2) RCA-6A8..... | First Detector—Oscillator | (5) RCA-6K6-G..... | Power Output |
| (3) RCA-6K7..... | I-F Amplifier | (6) RCA-6X5-G..... | Full-Wave Rectifier |

TUNING RANGE..... 550 to 1,550 kc

POWER OUTPUT RATINGS

Maximum..... 3.5 watts
Undistorted..... 1.75 watts

LOUDSPEAKER

Type..... Electrodynamic
Voice-Coil Impedance..... 3 ohms at 400 cycles

POWER SUPPLY RATING

Supply Voltage..... 6.3 volts
Current Drain..... 6.6 amperes
Fuse Protection..... 15 ampere

NOTE: Change C1 from 680 mmfd to 300-400 mmfd for use with high capacity built-in antennas.

PILOT LAMP..... Mazda No. 51. 7.5 volts, 0.2 amp.

Alignment Procedure

Calibrate the tuning-dial pointer to the low-frequency calibration mark as outlined under "Dial Pointer Adjustment."

Perform alignment in proper order tabulated below, starting with No. 1 and following all operations across, then No. 2, etc. Adjustment locations are shown on figures 8 and 9.

Cathode-ray alignment is preferable; the connections to the chassis are: Vertical "Hi" to yellow volume-control lead, "0" to chassis. If an output indicator is used, connect it across the loudspeaker voice coil and advance the receiver volume control to full-volume position.

Connect the "low" output terminal of the test oscillator to the receiver chassis for all alignment operations. Regulate

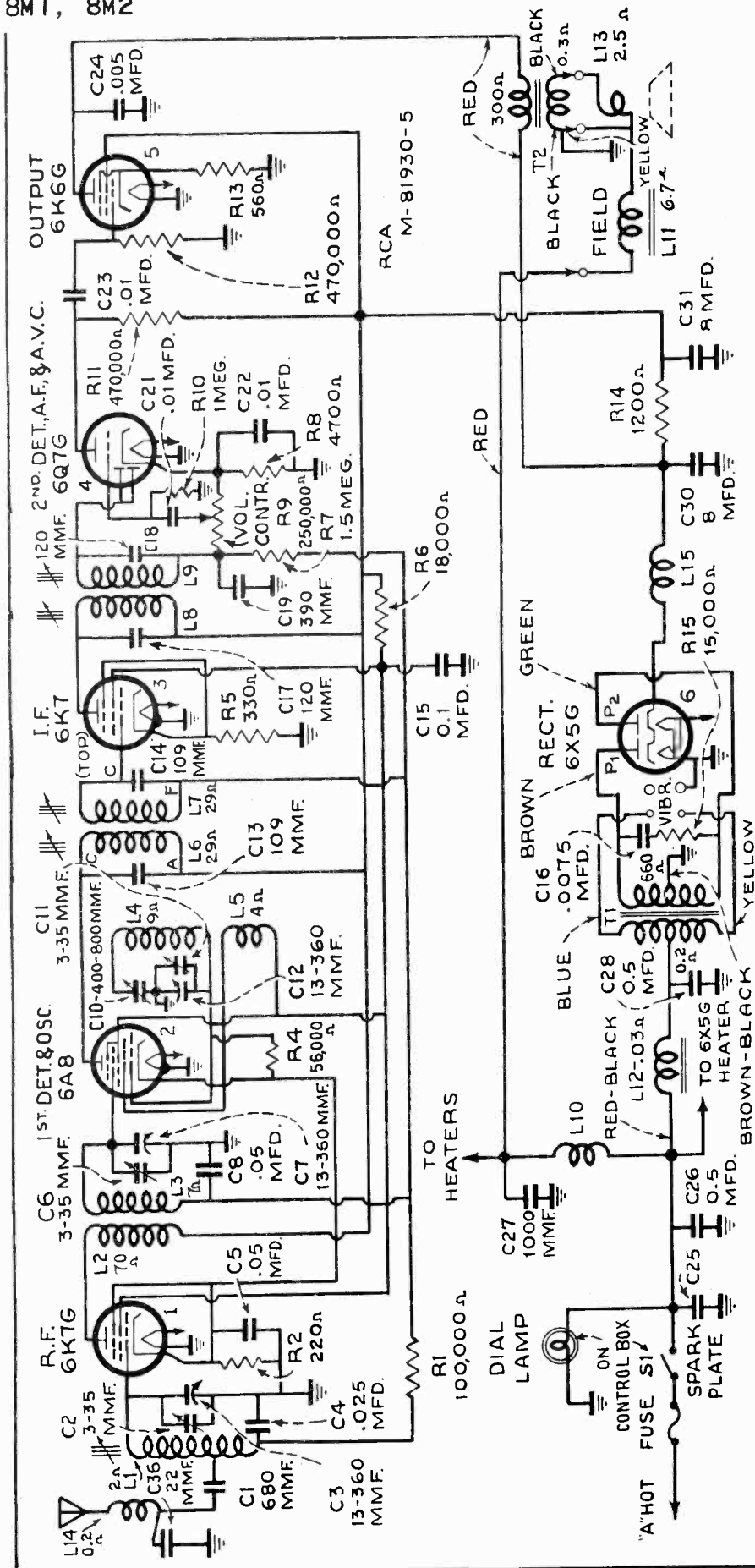
the output of the test oscillator so that minimum signal is applied to the receiver to obtain an observable output indication. This will avoid a-v-c action.

The term "Ant. Conn." means that the test oscillator signal should be applied to the receiver at the antenna connector on side of case. "Dummy antenna" means the device which must be connected between the "high" test-oscillator output and the point of connection to the receiver in order to obtain ideal alignment. "No signal, 550-750 kc" means that the receiver should be tuned to a point between 550 and 750 kc where no signal is received from a station or the local (heterodyne) oscillator.

For further details on alignment, refer to booklet "RCA Victor Receiver Alignment."

Order of Alignment	Test Oscillator			Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6K7 I-F Grid Cap	.001 Mfd.	260 kc	No Signal 550-750 kc	2nd I-F Trans.	L8 and L9	Max. (peak)
2	6A8 Det. Grid Cap	.001 Mfd.	260 kc	No Signal 550-750 kc	1st I-F Trans.	L6 and L7	Max. (peak)
3	Ant. Conn.	150 Mmfd.	600 kc	600 kc	L-F Osc.	C10	Max. (peak)
4	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	H-F Osc.	C11	Max. (peak)
5	Ant. Conn.	150 Mmfd.	600 kc	Rock Thru 600 kc	L-F Osc.	C10	Max. (peak)
6	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	H-F Osc.	C11	Max. (peak)
7	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	Det.	C6	Max. (peak)
8	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	Ant.	C2*	Max. (peak)

* Re-adjust C2 after installation as outlined under "Antenna Compensating Capacitor."

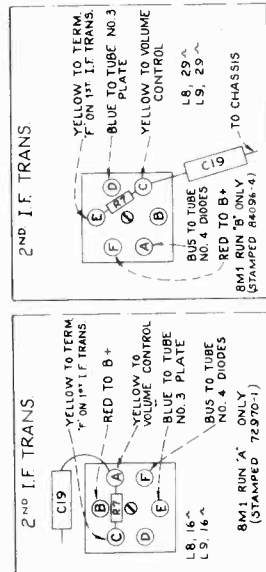


Refer to Figure 3 and Note No. 1 in Replacement Parts list before servicing these receivers.

MODEL 8M1

Vibrator Power Unit:

A limited number of 8M1 auto receivers have power units which contain a reactor-capacitor combination in the filter circuit, instead of the usual resistor-capacitor combination. The circuit corresponds exactly to the right diagram of Figure 5 in the 8M1-8M2 Service Note. R-14 has been removed from the circuit.



Refer to Note No. 1 in Replacement Parts list.

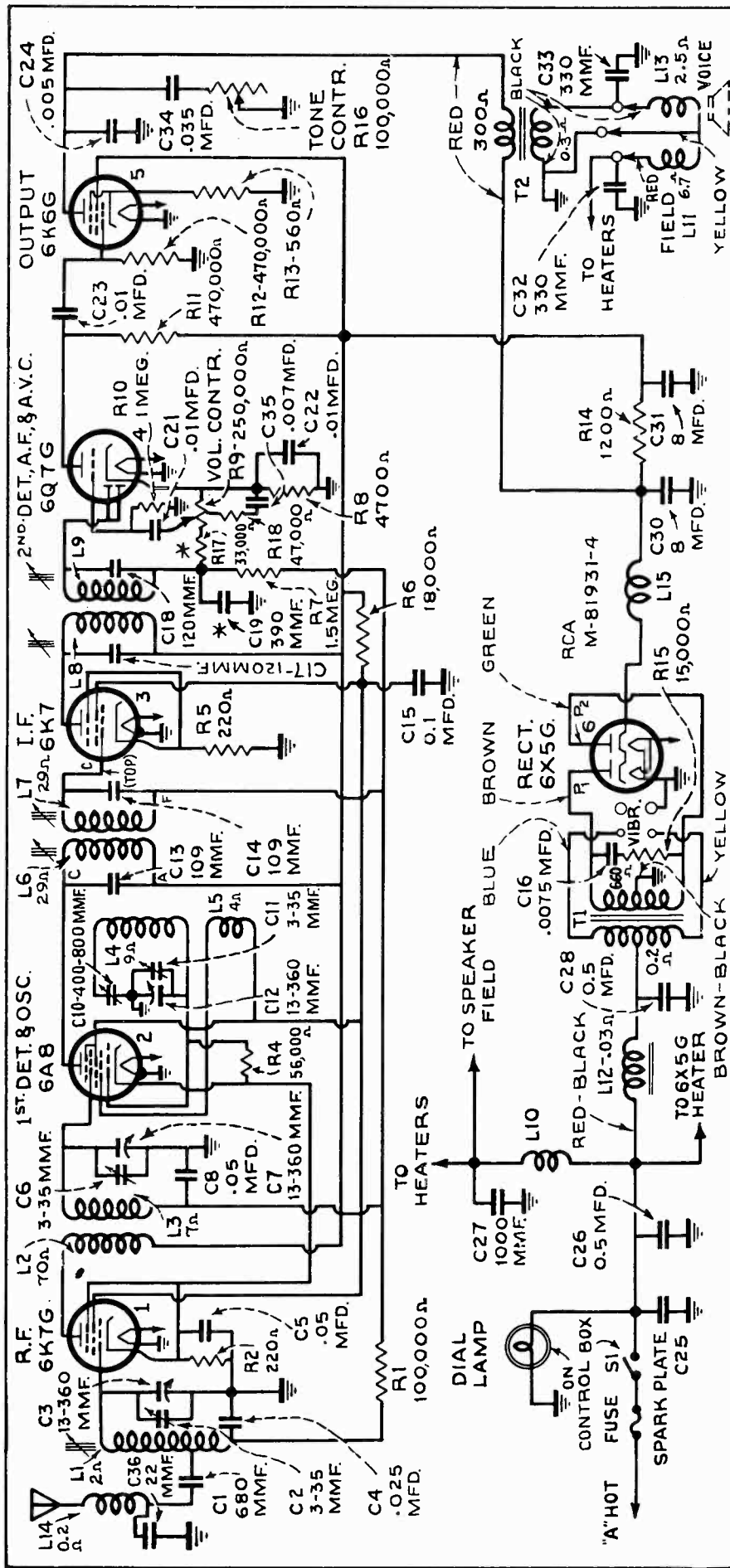


Figure 2—Schematic Circuit Diagram (Model 8M2)

Refer to Figures 4, 5, and Notes No. 2, 3, and 4 in R replacement Parts list before servicing these receivers.
 * R17 is 47,000 ohms and C19 is 265 mmfd. on Model 8M2. Run "B."

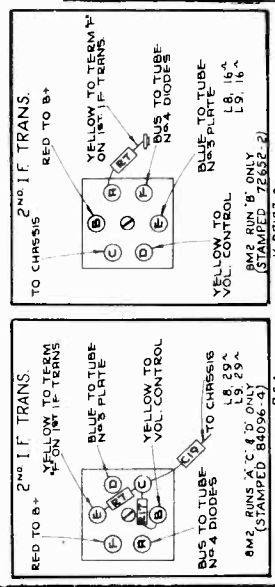


Figure 4—Second I-F Transformer Connections (Model 8M2)

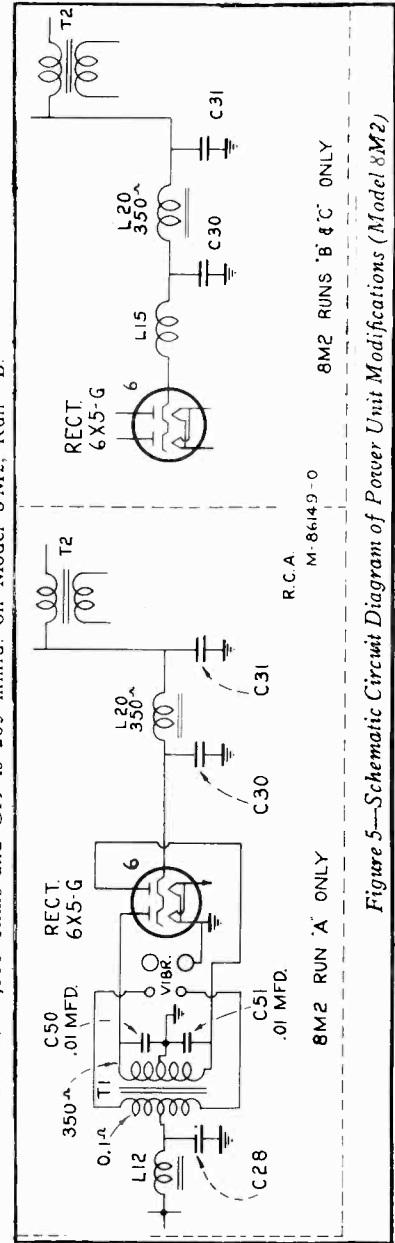


Figure 5—Schematic Circuit Diagram of Power Unit Modifications (Model 8M2)

Service Data

Antenna Compensating Capacitor.—Trimmer C2 is accessible by removing the plug button from the front cover of the receiver case.

This trimmer must be adjusted for maximum signal output on a weak station near 1,400 kc after installation and with the antenna properly connected.

Dial Pointer Adjustment.—With receiver and control unit properly installed in car, rotate tuning knob to its extreme clockwise position and then to its extreme counter-clockwise position, irrespective of location of pointer on dial. Pull out dial lamp socket from control unit, locate the pointer adjusting screw at bottom of hole and turn with a small screwdriver until the pointer on dial is at the end calibration mark beyond "55" on the dial scale. Final adjustment may be made, if desired, by tuning in a station of known frequency and adjusting dial pointer to the frequency of the station.

Power Switch and Volume Control Adjustment.—Rotate the "Off-On-Volume" control knob to its extreme clockwise position and then back to its extreme counter-clockwise position. This sets the friction-clutch mechanism in proper alignment.

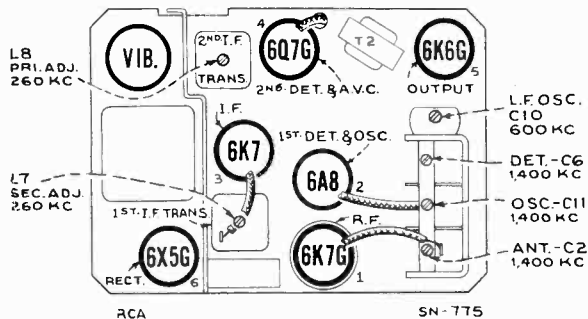


Figure 8—Radiotron and Trimmer Locations (Models 8M1 and 8M2)

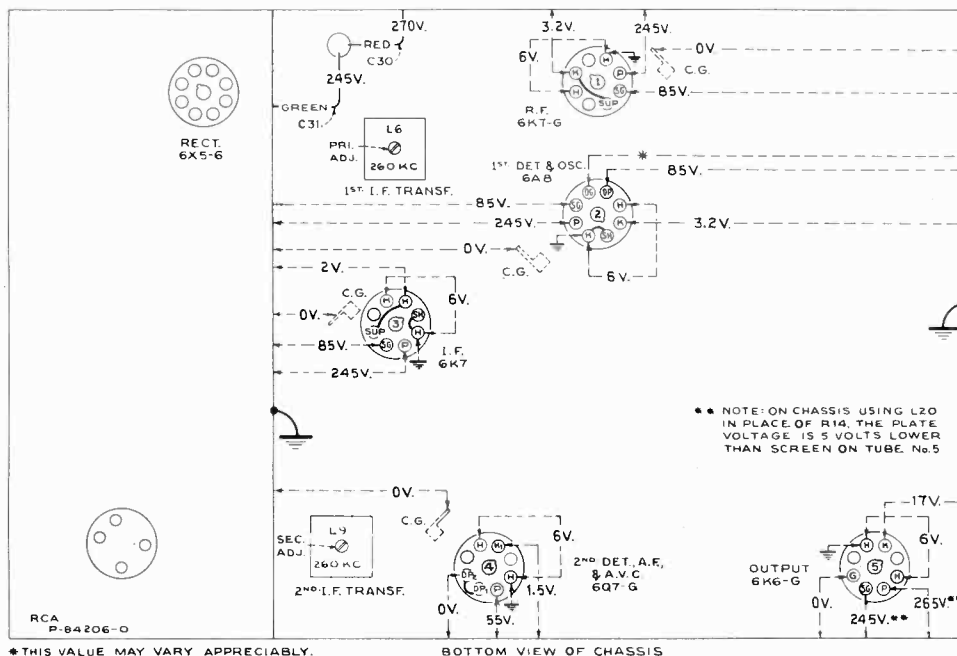


Figure 9—Radiotron Socket Voltages and Trimmer Locations (Models 8M1 and 8M2) (Measured at 6.3 volts battery supply—Volume control minimum—No signal input)

To duplicate the conditions under which the above voltages were measured requires a 1,000-ohm-per-volt d-c meter having ranges of 10, 50, 250, and 500 volts. Use the nearest range above the indicated voltage value. Each value should hold within $\pm 20\%$ when the receiver is normally operative at its rated battery voltage.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
RECEIVER ASSEMBLIES			
13543	Bracket—Chassis mounting bottom bracket and studs assembly.	14393	Capacitor—.01 Mfd. (C21)
11978	Capacitor—Adjustable trimmer (C10)	4858	Capacitor—.01 Mfd. (C22, C23)
30802	Capacitor—22 Mmfd. (C36)	4870	Capacitor—.025 Mfd. (C4)
14262	Capacitor—109 Mmfd. (C13, C14)	5196	Capacitor—.035 Mfd. (C34)—Model 8M2 only.
* 12404	Capacitor—120 Mmfd. (C17, C18)	4886	Capacitor—.05 Mfd. (C5, C8)
12952	Capacitor—330 Mmfd. (C32, C33)—Model 8M2 only	483E	Capacitor—.01 Mfd. (C15)
* 13894	Capacitor—390 Mmfd. (C19)	30797	Capacitor Pack—Comprising two sections each 8 Mfd. (C30, C31)
14498	Capacitor—680 Mmfd. (C1)	30793	Coil—Antenna coil and shield (L1)
30800	Capacitor—1,000 Mmfd. (C27)	30792	Coil—Oscillator coil—less shield (L4, L5)
4838	Capacitor—.005 Mfd. (C24)	30794	Coil—R.F. coil—less shield (L2, L3)
5148	Capacitor—.007 Mfd. (C35)—Model 8M2 only.	30790	Condenser—3-gang variable tuning condenser (C2, C3, C6, C7, C11, C12)
* 30626	Capacitor—.0075 Mfd. (C16)	12006	Core—Adjustable core and stud for I.F. transformers

REPLACEMENT PARTS (Continued)

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
12882	Core—Adjustable core and stud for antenna coil	30809	Housing—Receiver case—less speaker screen—Model 8M1 only
30798	Coupling—Tuning condenser flexible shaft insulating coupling	30810	Housing—Receiver case—Model 8M2 only
13691	Filter—Antenna filter (L14)	4290	Insulator—Fuse holder insulating sleeve
30791	Gear—Large gear located on shaft of tuning condenser	30642	Knob—Tone control knob—Model 8M2 only
13694	Guide—Volume control flexible shaft guide	7766	Lead—"A" lead—ammeter end—complete with female section of fuse holder
30801	Pin—Contact pin for tone control lead	12445	Lead—"A" lead—chassis end—complete with male section of connector
14561	Resistor—220 ohms, insulated, 1/4 watt (R2, R5)—(R5 in Model 8M2 only)	13708	Lead—Antenna lead-in, approx. 36 in. long complete with 2 male sections of connector
30538	Resistor—330 ohms, insulated, 1/4 watt (R5)—Model 8M1 only	30811	Shaft—Flexible shaft for tuning control—approx. 25 1/2 in. long
5164	Resistor—560 ohms, carbon type 1/4 watt (R13)	13926	Shaft—Flexible shaft for volume control—approx. 25 1/2 in. long
* 6134	Resistor—1,200 ohms, carbon type, 1 watt (R14)	12502	Socket—Pin-socket and bracket assembly for tone control lead—Model 8M2 only
30146	Resistor—4,700 ohms, insulated, 1/4 watt (R8)	12248	Socket—3-contact socket and bracket for speaker cable—Model 8M2 only
* 12695	Resistor—15,000 ohms, insulated, 1/4 watt (R15)	12254	Stud—Speaker mounting stud assembly for Model 8M2
11671	Resistor—18,000 ohms, carbon type, 2 watt (R6)	12448	Stud—Receiver mounting stud, washer and nut assembly
* 12454	Resistor—33,000 ohms, insulated, 1/4 watt (R17)—Model 8M2 only	5024	Suppressor—Distributor suppressor
12412	Resistor—47,000 ohms, insulated, 1/4 watt (R18)—Model 8M2 only	12249	Tone control—Model 8M2 only
12286	Resistor—56,000 ohms, insulated, 1/4 watt (R4)		
11281	Resistor—100,000 ohms, insulated, 1/10 watt (R1)		
12285	Resistor—470,000 ohms, insulated, 1/4 watt (R11, R12)		
13730	Resistor—1 Meg., insulated, 1/4 watt (R10)		
12201	Resistor—1.5 Meg., insulated, 1/4 watt (R7)		
3584	Ring—Retaining ring for R.F. coil shield		
5129	Ring—Retaining ring for Radiotron shield		
13472	Ring—Retaining ring for oscillator coil shield		
13471	Ring—Retaining ring for antenna coil shield		
12218	Shield—Radiotron shield		
13686	Socket—4-contact vibrator socket		
11196	Socket—8-contact Radiotron socket		
12007	Spring—Retaining spring for core Stock Nos. 12882 or 12006		
30796	Transformer—First I-F transformer (L6, L7, C13, C14)	30407	Capacitor—115 Mmfd. (C17 and C18)
* 30483	Transformer—Second I-F transformer (L8, L9, C17, C18) (this unit stamped 84096-4)	13693	Transformer—Second I-F transformer (L8, L9, C17, C18) (this unit stamped 72970-1)
30795	Transformer—Output transformer (T2)		
* 30799	Transformer—Vibrator power transformer (T1, L12, C28)		
13688	Vibrator—Plug-in vibrator		
13420	Volume Control—Model 8M1 only (R9)		
12365	Volume Control—Model 8M2 only (R9)		
	REPRODUCER ASSEMBLIES (84173-4) Model 8M1		
30804	Cone—Reproducer cone and voice coil (L13)		
30803	Reproducer—Complete (L11, L13)		
	REPRODUCER ASSEMBLIES (84189-2) Model 8M2		
30806	Cable—3-conductor shielded speaker cable complete with male plug	13695	Capacitor—2 sections, each .01 Mfd. (C50, C51)
30808	Cone—Reproducer cone and voice coil (L13)	5019	Capacitor—0.5 Mfd. (C28)
30805	Housing—Reproducer housing complete, less speaker unit and cable	30255	Coil—"A" filter choke coil (L12)
30807	Reproducer—Speaker unit only—less case, cable, and mounting parts (L11, L13)	13696	Coil—"B" choke coil (L20)
	CONTROL BOX ASSEMBLIES Models 8M1 and 8M2	13690	Transformer—Vibrator power transformer (T1)
30817	Cord—Dial drive cord—25 ft. length only		
30820	Cover—Cover shell and spring used on control shafts, beneath knobs		
30818	Dial—Round etched glass dial		
30813	Dial Unit—Comprising round dial, escutcheon, pointer disc, spring barrel, and cord assembled—less dial lamp and dial lamp socket		
30819	Indicator—Indicator pointer disc		
11765	Lamp—Dial lamp	30407	Capacitor—115 Mmfd. (C17, C18)
30816	Socket—Dial lamp socket and lead	12761	Capacitor—265 Mmfd. (C19)
30814	Tuning Unit—Comprising knob shaft, bearing, and gear case—less knob	13696	Coil—"B" choke coil (L20)
30815	Volume Unit—Comprising knob shaft, bearing, and on-off switch—less knob	5132	Resistor—47,000 ohms, carbon type, 1/10 watt (R17)
	Note—Knobs, escutcheon, and mounting parts are included in kits to be supplied by dealer for particular car in which installation is to be made.	12229	Transformer—Second I-F transformer (L8, L9, C17, C18, C19, R17) (this unit stamped 72652-2)
	MISCELLANEOUS ASSEMBLIES		
4293	Capacitor—Ammeter capacitor		
5025	Capacitor—Generator capacitor		
13109	Capacitor—0.5 Mfd. (C26)		
5023	Fuse—15 ampere	13696	Coil—"B" choke coil (L20)

*** MISCELLANEOUS SUBSTITUTE PARTS**
NOTE No. 1—MODEL 8M1 (Run "A")
A portion of these receivers were constructed with a second i-f transformer different from that listed above. Such receivers may be identified by letter "A" preceding the code stamped on the chassis partition (e. g. "A7M20" etc.) and also by reference to figure 3.
For replacements in such receivers, do not use i-f transformer Stock No. 30483 or capacitor (C17 and C18) Stock No. 12404 listed above. Instead use:
Capacitor—115 Mmfd. (C17 and C18)
Transformer—Second I-F transformer (L8, L9, C17, C18) (this unit stamped 72970-1)

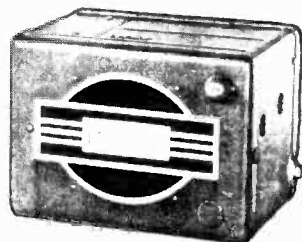
NOTE No. 2—MODEL 8M2 (Run "A")
A portion of these receivers were constructed with a vibrator transformer different from that listed above. Such receivers may be identified by letter "A" preceding the code stamped on the chassis partition (e. g. "A7M20" etc.) and also by presence of two additional and separate choke coils (L12 and L20). Refer to figures 5 and 6.
For replacements in such receivers, do not use vibrator transformer Stock No. 30799; capacitor (C16) Stock No. 30626; resistor (R14) Stock No. 6134; or resistor (R15) Stock No. 12695. Instead use:
Capacitor—2 sections, each .01 Mfd. (C50, C51)
Capacitor—0.5 Mfd. (C28)
Coil—"A" filter choke coil (L12)
Coil—"B" choke coil (L20)
Transformer—Vibrator power transformer (T1)

NOTE No. 3—MODEL 8M2 (Run "B")
A portion of these receivers were constructed with a second i-f transformer different from that listed above, and the substitution of a "B" choke coil in place of resistor (R14). Such receivers may be identified by letter "B" preceding the code stamped on the chassis partition (e. g. "B7M20" etc.) and by the presence of an iron core "B" choke coil (L20) in the power unit section. Refer to figures 4 and 5.
For replacements in such receivers, do not use resistor (R14) Stock No. 6134; i-f transformer Stock No. 30483; capacitor (C17, C18) Stock No. 12404; resistor (R17) Stock No. 12454; or capacitor (C19) Stock No. 13894. Instead use:
Capacitor—115 Mmfd. (C17, C18)
Capacitor—265 Mmfd. (C19)
Coil—"B" choke coil (L20)
Resistor—47,000 ohms, carbon type, 1/10 watt (R17)
Transformer—Second I-F transformer (L8, L9, C17, C18, C19, R17) (this unit stamped 72652-2)

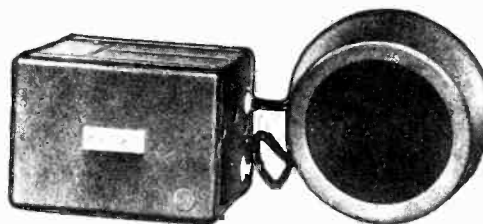
NOTE No. 4—MODEL 8M2 (Run "C")
A portion of these receivers were constructed with an iron core "B" choke coil (L20) instead of resistor (R14). Such receivers may be identified by letter "C" preceding the code stamped on the chassis partition (e. g. "C7M20" etc.). Refer to figure 5.
For replacements in such receivers, do not use resistor (R14) Stock No. 6134. Instead use:
Coil—"B" choke coil (L20)

MODELS 8M3 and 8M4

Six-Tube, Superheterodyne Automobile Receivers



Model 8M3



Model 8M4

Electrical Specifications

RADIOTRON COMPLEMENT

- (1) RCA-6K7-G..... R-F Amplifier
- (2) RCA-6A8..... First Detector—Oscillator
- (3) RCA-6K7..... I-F Amplifier

- (4) RCA-6R7-G..... Second Det., A-F Amp., and A.V.C.
- (5) RCA-6J5..... Audio Driver
- (6) RCA-6N7-G..... Push-Pull Power Output

TUNING RANGE..... 550 to 1,550 kc

POWER OUTPUT RATINGS

Maximum..... 9 watts
 Undistorted..... 6 watts

LOUDSPEAKER

Type..... Electrodynamic
 Voice-Coil Impedance..... 3 ohms at 400 cycles

POWER SUPPLY RATING

Supply Voltage..... 6.3 volts
 Current Drain..... 7.5 amperes
 Fuse Protection..... 15 ampere

PILOT LAMP..... Mazda No. 51, 7.5 volts, 0.2 ampere

Power Switch and Volume Control Adjustment.—Rotate the "Off-On-Volume" control knob to its extreme clockwise position and then back to its extreme counter-clockwise position. This sets the friction-clutch mechanism in proper alignment.

Dial Pointer Adjustment.—With receiver and control unit properly installed in car, rotate "Tuning" knob to its extreme clockwise position and then to its extreme counter-clockwise position, irrespective of location of pointer on dial. Pull out dial-lamp socket from control unit, locate the pointer adjusting screw at bottom of hole and turn with a small screwdriver until the pointer on dial is at the end calibration mark beyond "55" on the dial scale. Final adjustment may be made, if desired, by tuning in a station of known frequency and adjusting dial pointer to the frequency of the station.

Alignment Procedure

Antenna Compensating Capacitor.—Trimmer C3 is accessible by removing the plug button from the front cover of the receiver case. This trimmer must be adjusted for maximum signal output on a weak station around 1,400 kc after installation and with the antenna properly connected.

Cathode-ray alignment is preferable; the connections to the chassis are shown on figures 2 and 4. If an output indicator is used, connect it across the loudspeaker voice-coil and advance the receiver volume control to full-volume position.

On Model 8M4, the sensitivity control should be placed in its clockwise (maximum sensitivity) position.

Connect the "low" output terminal of the test oscillator to the receiver chassis for all alignment operations. Regulate the

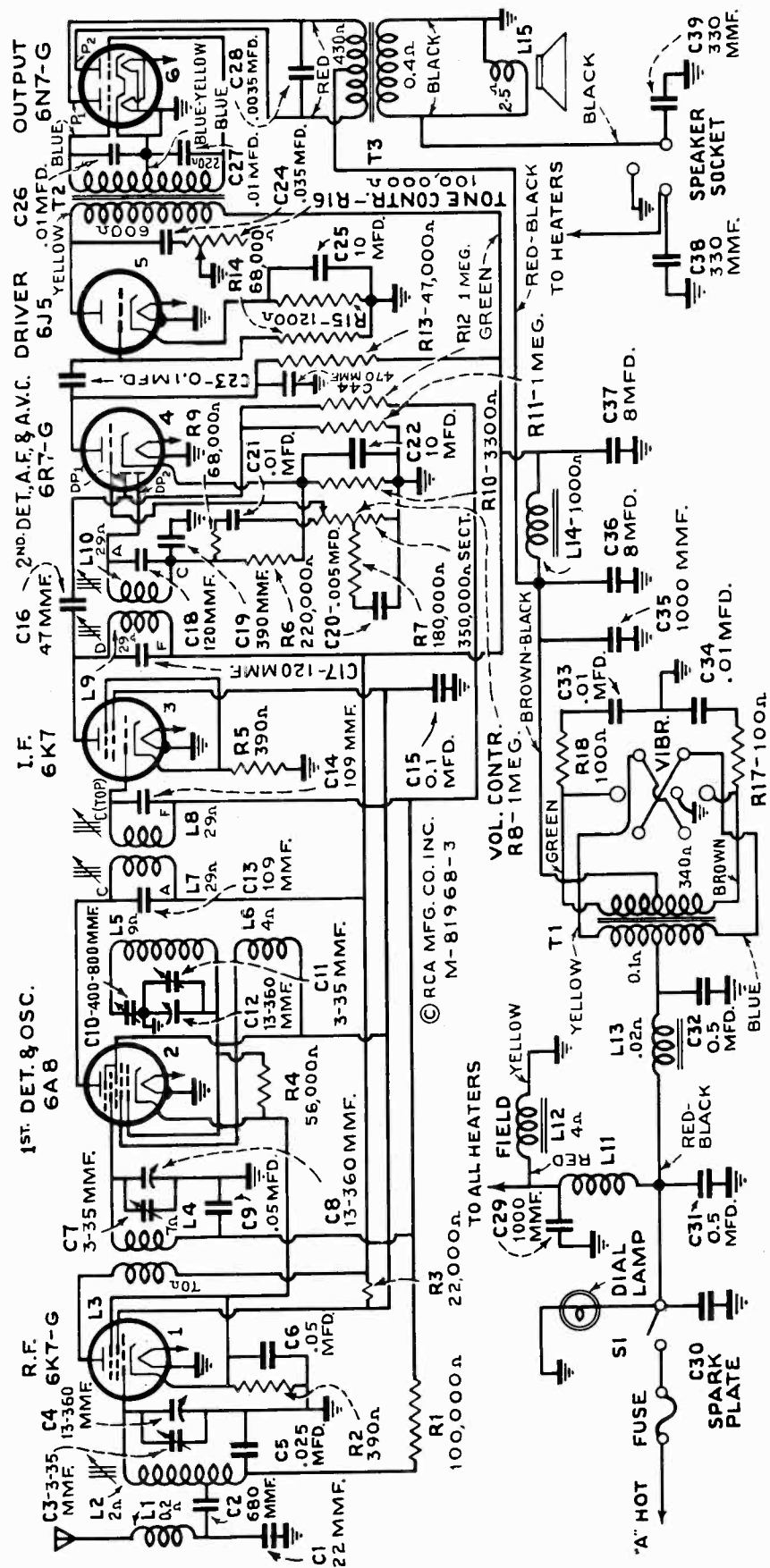
output of the test oscillator so that minimum signal is applied to the receiver to obtain an observable output indication. This will avoid a-v-c action.

The term "Ant. Conn." means that the test-oscillator signal should be applied to the receiver at the antenna connector on side of case. "Dummy antenna" means the device which must be connected between the "high" test-oscillator output and the point of connection to the receiver in order to obtain ideal alignment. "No signal, 550-750 kc" means that the receiver should be tuned to a point between 550 and 750 kc where no signal is received from a station or the local (heterodyne) oscillator.

For further details on alignment, refer to booklet "RCA Victor Receiver Alignment."

Order of Alignment	Test Oscillator			Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6K7 I-F Grid Cap	.001 Mfd.	260 kc	No Signal 550-750 kc	2nd I-F Trans.	L9 and L10	Max. (peak)
2	6A8 Det. Grid Cap	.001 Mfd.	260 kc	No Signal 550-750 kc	1st I-F Trans.	L7 and L8	Max. (peak)
3	Ant. Conn.	150 Mmfd.	600 kc	600 kc	L-F Osc.	C10	Max. (peak)
4	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	H-F Osc.	C11	Max. (peak)
5	Ant. Conn.	150 Mmfd.	600 kc	Rock Thru 600 kc	L-F Osc.	C10	Max. (peak)
6	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	H-F Osc.	C11	Max. (peak)
7	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	Det.	C7	Max. (peak)
8	Ant. Conn.	150 Mmfd.	1,400 kc	1,400 kc	Ant.	C3*	Max. (peak)

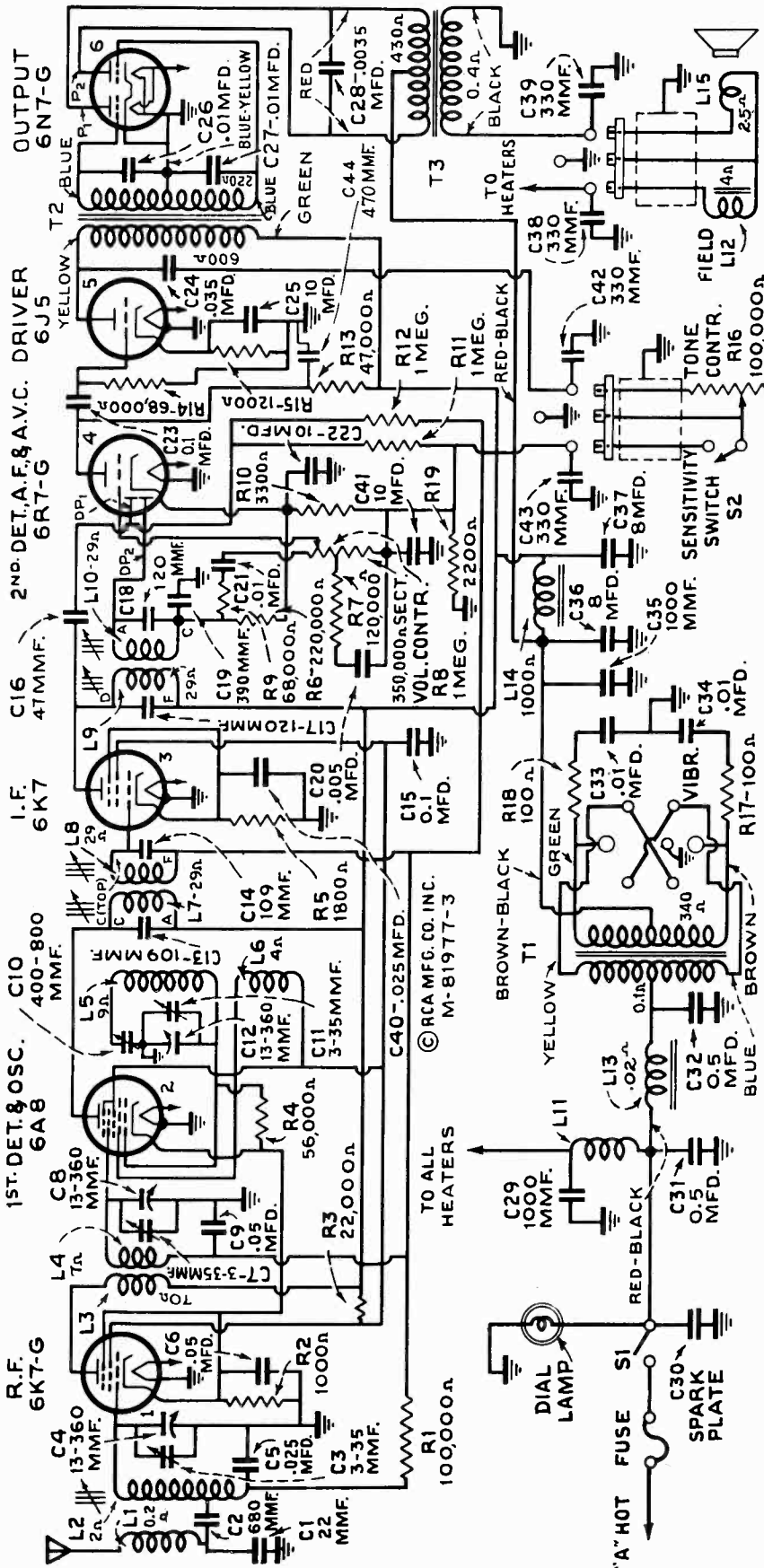
* Re-adjust C3 after installation as outlined under "Antenna Compensating Capacitor."



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-Schematic Circuit Diagram (Model 8M3)

Inoperative or Intermittent:
 The plating on the adjustment screws of the antenna trimmer C-3 may become chipped, and will cause the trimmer to be short-circuited. In order to correct this condition, remove the screw entirely, see that the metallic chips are cleaned from the trimmer plates, and clean the burrs from the threads of the screw. Replace the screw and re-adjust the trimmer at 1,400 kc as directed in the 8M3 Service Note.



-Schematic Circuit Diagram (Model 8M4)

Vibrator Interference:

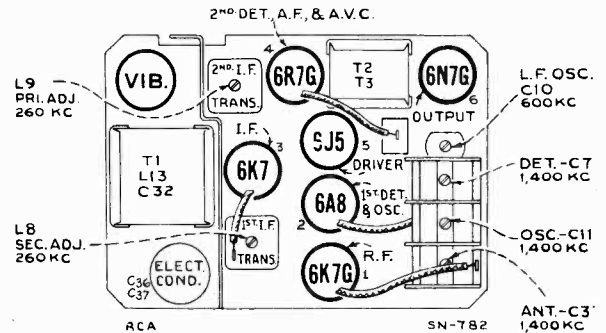
Noise or hum interference may develop when the Local-Distance switch is operated on the local position, if there are poor grounds at the car battery or insecure contact between various members of the car chassis. The interference can be eliminated by installing a 500 ohm resistor, preferably a flexible pigtail type, in series with the BLACK lead to the Local-Distance switch on the control head assembly.

Noise Filter Change:

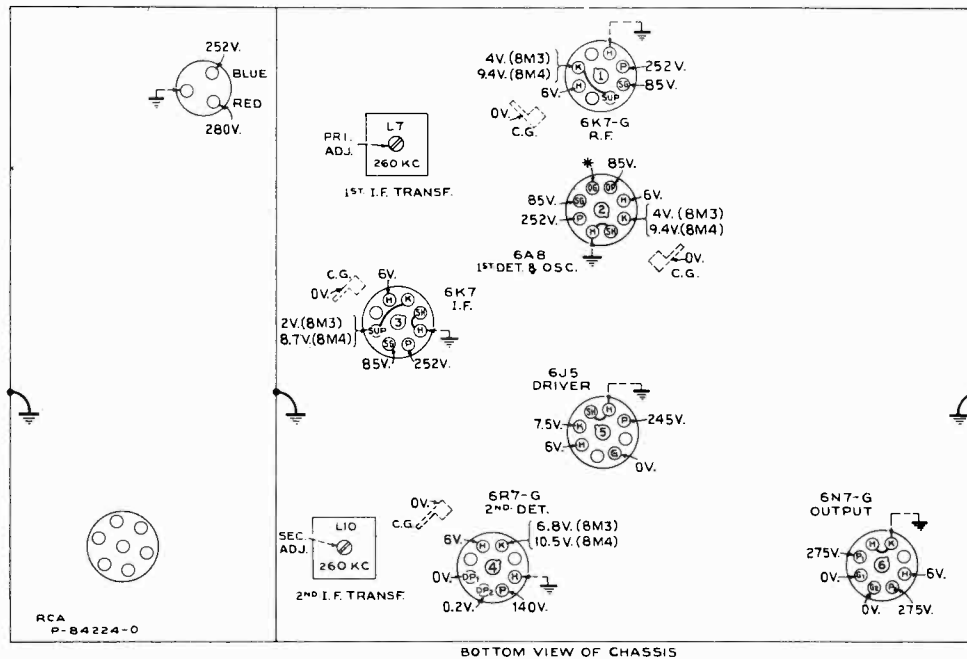
It is occasionally advantageous on the automotive receivers 8M3 and 8M4 to have the 22 mmfd. antenna shunt capacitor C-1 connected between the output end of the antenna filter coil L-1, instead of between the antenna end and chassis. Later production sets incorporate this change. It is to be noted also on these same instruments, that secure electrical contact is required between the vibrator transformer and the chassis in order to minimize internal noise induction.

High-Capacity Auto Antennas:

On a number of cars having built-in antennas of relatively high capacitance it is frequently difficult to obtain best signal-to-noise ratio, due to improper matching of the antenna system to the input. This is particularly true where the insulated steel top insert, running board, or rear trunk is employed as antenna. Improved performance can be obtained by changing the value of the antenna series capacitor from 680 mmfd. to a value 300-400 mmfd. Correct matching is indicated by ability to reach a definite peak adjustment on the "Antenna Compensating Capacitor."



—Radiotron and Trimmer Locations (Models 8M3 and 8M4)



—Radiotron Socket Voltages and Trimmer Locations (Models 8M3 and 8M4)

(Measured at 6.3 volts battery supply—Volume control minimum—No signal input—Sensitivity control (Model 8M4) clockwise)

To duplicate the conditions under which the above voltages were measured requires a 1,000-ohm-per-volt d-c meter having ranges of 10, 50, 250, and 500 volts. Use the nearest range above the indicated voltage value. Each value should hold within $\pm 20\%$ when the receiver is normally operative at its rated battery voltage.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
13789	Bracket—Chassis mounting bracket and stud assembly—Model 8M4 only	30800	Capacitor—1,000 Mmfd. (C29, C35)
13543	Bracket—Chassis mounting bracket and stud assembly—Model 8M3 only	30303	Capacitor—.0035 Mfd. (C28)
30802	Capacitor—22 Mmfd. (C1)	4838	Capacitor—.005 Mfd. (C20)
13141	Capacitor—47 Mmfd. (C16)	4858	Capacitor—.01 Mfd. (C21, C26, C27)
14262	Capacitor—109 Mmfd. (C13, C14)	13695	Capacitor—Two sections each .01 Mfd. (C33, C34)
12404	Capacitor—120 Mmfd. (C17, C18)	4870	Capacitor—.025 Mfd. (C5, C40)—(C40 in Model 8M4 only)
30832	Capacitor—330 Mmfd. (C38, C39, C42, C43)—(C42, C43 in Model 8M4 only)	5196	Capacitor—.035 Mfd. (C24)
13894	Capacitor—390 Mmfd. (C19)	4886	Capacitor—.05 Mfd. (C8, C9)
11978	Capacitor—Adjustable—400-800 Mmfd. (C10)	4839	Capacitor—0.1 Mfd. (C15, C23)
30433	Capacitor—470 Mmfd. (C44)	30828	Capacitor—Two sections each 8 Mfd. (C36, C37)
14498	Capacitor—680 Mmfd. (C2)	14902	Capacitor—Comprising two sections, each 10 Mfd. (C22, C25) Model 8M3 only
		30829	Capacitor—Comprising three sections, each 10 Mfd. (C22, C25, C41) Model 8M4 only

REPLACEMENT PARTS (Continued)

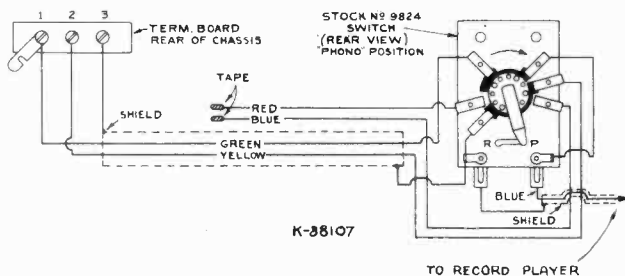
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
30793	Coil—Antenna coil and shield (L2)	30833	Housing—Reproducer housing complete—less speaker unit and cable
30792	Coil—Oscillator coil—less shield (L5, L6)	9774	Reproducer—Speaker unit only—less case, cable, and mounting parts
30794	Coil—R.F. coil—less shield (L3, L4)	13797	Screw—Reproducer housing screw
30823	Condenser—3-gang variable tuning condenser (C3, C4, C7, C8, C11, C12)		CONTROL BOX ASSEMBLIES Model 8M3
12882	Core—Adjustable core and stud for antenna coil		
12006	Core—Adjustable core and stud for I.F. transformer	30817	Cord—Dial drive cord—25 ft. length only
13996	Coupling—Insulated coupling for tuning condenser shaft	30820	Cover—Cover shell and spring used on control shafts, beneath knobs
13691	Filter—Antenna filter (L1)		
30824	Gear—Large gear for condenser rotor shaft	30818	Dial—Round etched glass dial
30825	Gear—Small worm gear for condenser	30813	Dial Unit—Comprising round dial, escutcheon, pointer disc, spring barrel, and cord assembled—less dial lamp and dial lamp socket
13694	Guide—Volume control shaft guide		
13111	Reactor—Filter reactor (L14)	30819	Indicator—Indicator pointer disc
30540	Resistor—100 ohms, insulated, $\frac{1}{2}$ watt (R17, R18)	11765	Lamp—Dial lamp
12261	Resistor—390 ohms, insulated, $\frac{1}{2}$ watt (R2, R5) —Model 8M3 only	30816	Socket—Dial lamp socket and lead
14720	Resistor—1,000 ohms, insulated, $\frac{1}{2}$ watt (R2) —Model 8M4 only	30814	Tuning Unit—Comprising knob shaft, bearing, and gear case—less knob
12267	Resistor—1,200 ohms, insulated, $\frac{1}{2}$ watt (R15)	30815	Volume Unit—Comprising knob shaft, bearing, and on-off switch—less knob
12194	Resistor—1,800 ohms, insulated, $\frac{1}{2}$ watt (R5) —Model 8M4 only		CONTROL BOX ASSEMBLIES Model 8M4
13716	Resistor—2,200 ohms, insulated, $\frac{1}{2}$ watt (R19) —Model 8M4 only	13792	Cable—3-conductor shielded tone and sensitivity cable complete with 4-prong plug
12312	Resistor—3,300 ohms, insulated, $\frac{1}{2}$ watt (R10)	30817	Cord—Dial drive cord—25 ft. length only
13669	Resistor—22,000 ohms, carbon type, 2 watt (R3)	30818	Dial—Round etched glass dial
11646	Resistor—47,000 ohms, insulated, $\frac{1}{2}$ watt (R13)		
12286	Resistor—56,000 ohms, insulated, $\frac{1}{2}$ watt (R4)	30813	Dial Unit—Comprising round dial, escutcheon, pointer disc, spring barrel and cord assembled—less dial lamp and dial lamp socket
13715	Resistor—68,000 ohms, insulated, $\frac{1}{2}$ watt (R9, R14)	30819	Indicator—Indicator pointer disc
11281	Resistor—100,000 ohms, carbon type, 1/10 watt (R1)	30837	Knob—Wing knob
13734	Resistor—120,000 ohms, insulated, $\frac{1}{2}$ watt (R7) —Model 8M4 only	11765	Lamp—Dial lamp
13698	Resistor—180,000 ohms, insulated, $\frac{1}{2}$ watt (R7) —Model 8M3 only	30816	Socket—Dial lamp socket and lead
12264	Resistor—220,000 ohms, insulated, $\frac{1}{2}$ watt (R6)	30835	Tuning Unit—Comprising knob shafts, bearing, gear case and sensitivity switch—less knobs
13730	Resistor—1 meg., insulated, $\frac{1}{2}$ watt (R11, R12)	30836	Volume Unit—Comprising knob shafts, bearing, tone control and on-off switch—less knobs
3584	Ring—Retaining ring for R.F. coil shield		MISCELLANEOUS ASSEMBLIES
13472	Ring—Retaining ring for oscillator coil shield	30839	Case—Receiver case complete—less speaker grille—Model 8M3 only
13471	Ring—Retaining ring for antenna coil shield	30840	Case—Receiver case complete—Model 8M4 only
5129	Ring—Tube-shield ring	13109	Capacitor—0.5 Mfd. (C31)
3623	Shield—R.F. or oscillator coil shield	4293	Capacitor—Ammeter capacitor
14491	Shield—Antenna coil shield	5025	Capacitor—Generator capacitor
12008	Shield—I.F. transformer shield can	5023	Fuse—15 ampere
12218	Shield—Tube shield and ring	30838	Grille—Speaker grille and cloth—Model 8M3 only
11196	Socket—Radiotron socket	4290	Insulator—Fuse holder insulator
12241	Socket—Vibrator socket	30642	Knob—Tone control knob—Model 8M3 only
12007	Spring—Retaining spring for core, Stock Nos. 12882 and 12006	7766	Lead—"A" lead (ammeter end) complete with clip
30796	Transformer—First I.F. transformer (L7, L8, C13, C14)	12445	Lead—"A" lead (set end) complete with male section of connector
30483	Transformer—Second I.F. transformer (L9, L10, C17, C18)	13806	Ring—Soft rubber ring for speaker mounting—Model 8M4 only
12230	Transformer—Audio transformer (T2, T3)	30811	Shaft—Tuning control flexible shaft—approx. 25 $\frac{1}{2}$ -in. long
30827	Transformer—Vibrator power transformer (T1, L13, C32)	13926	Shaft—Volume control flexible shaft—approx. 25 $\frac{1}{2}$ -in. long
12236	Vibrator	12248	Socket—Bracket and socket for speaker cable—Model 8M3 only
13711	Volume Control (R8)	12502	Socket—Bracket and socket for tone control lead—Model 8M3 only
	REPRODUCER ASSEMBLIES (72684-1) Model 8M3	13804	Socket—Bracket and socket for speaker and control box cables—Model 8M4 only
12482	Board—Reproducer terminal board	12254	Stud—Speaker mounting stud, spacer, and washer assembly—Model 8M4 only
12450	Coil—Field coil (L12)	12448	Stud—Receiver mounting stud, washer, and nut assembly
12451	Cone—Reproducer cone complete (L15)	5024	Suppressor—Distributor suppressor
9687	Reproducer—Complete	12249	Tone Control—(R16)—Model 8M3 only
	REPRODUCER ASSEMBLIES Model 8M4		
13794	Cable—3-conductor shielded reproducer cable, approx. 18-in. long, complete with 3-contact male connector		
13795	Coil—Reproducer field coil (L12) for speaker marked 72947-1		
13796	Cone—Reproducer cone and dust cap (L15) for speaker marked 72947-1		
30834	Cone—Reproducer cone and dust cap for speaker marked 72947-22 (L15)		
11984	Connector—3-contact male connector for reproducer cable		

MODEL 8Q1

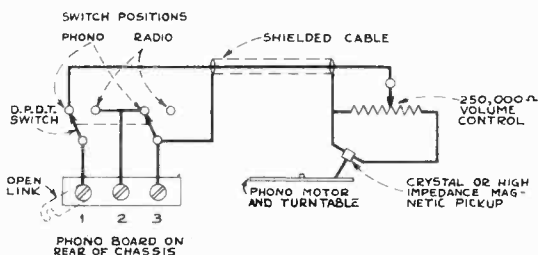
Eight-Tube, Three-Band, Superheterodyne Receiver Chassis No. RC-337

Electrical Specifications

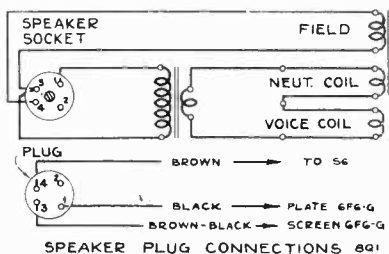
FREQUENCY RANGES		Medium Wave ("B" Band).....2.3-7.0 mc (130-42.8 m)
Standard Broadcast ("A" Band)..530-1720 kc (566-174 m)		Short Wave ("C" Band).....7.0-22 mc (42.8-13.6 m)
INTERMEDIATE FREQUENCY		455 kc
RADIOTRON COMPLEMENT		(6) RCA-6F6-G..... Power Output
(1) RCA-6K7..... R-F Amplifier	(7) RCA-6U5..... Tuning Indicator	(8) RCA-5Y3-G.. (In PSU 8A, 8B, 8C AC power supply unit)..... Rectifier
(2) RCA-6L7..... 1st-Detector	(8) RCA-5W4 (In PSU 8E D-C power supply unit)..... Rectifier	
(3) RCA-6J7..... Oscillator		
(4) RCA-6K7..... I-F Amplifier		
(5) RCA-6Q7..... 2nd-Det., A.V.C., and Audio		
Pilot Lamps (2).....		Mazda No. 44, 6.3 volts, 0.25 amp.
POWER OUTPUT RATING		LOUDSPEAKER (RL-63H-3)
Undistorted.....	2.5 watts	Type..... 8-inch Electrodynamic
Maximum.....	4.5 watts	Voice-coil Impedance at 400 ohms..... 2.2 ohms
POWER SUPPLY RATINGS		
A-C Ratings		Volts..... Cycles
With PSU 8A Power Supply Unit.....	105-125.....	50-60
With PSU 8B Power Supply Unit.....	105-125.....	25-60
With PSU 8C Power Supply Unit.....	105-130, 140-160, 200-225, 225-250.....	50-60
D-C Ratings		
With PSU 8E Power Supply Unit.....	105-125, 210-250.....	D-C



Record Player Connections, Using a No. 9824 Switch



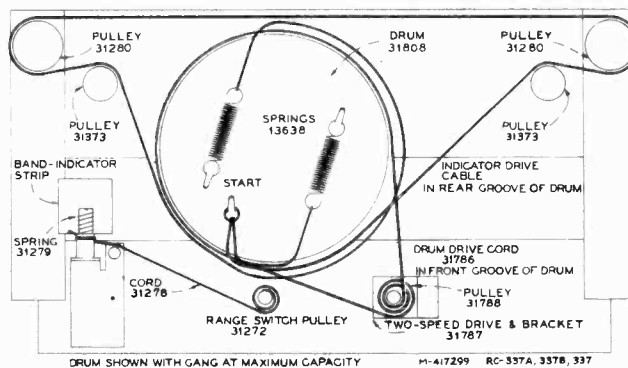
Record Player Connections, Using a Double-Pole, Double-Throw Toggle Switch



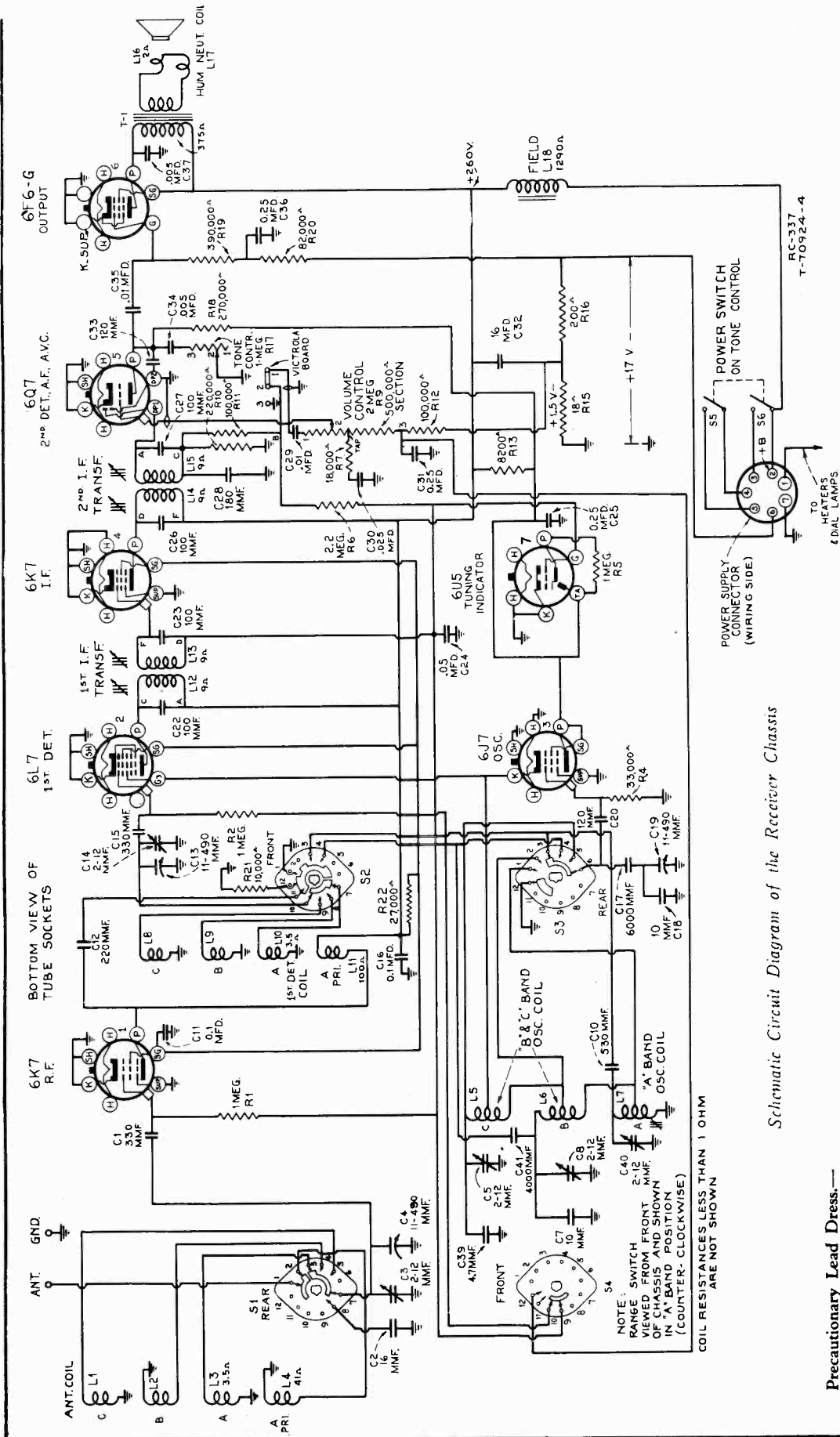
Connections of Loudspeaker and Cable



Model 8Q1



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator



Schematic Circuit Diagram of the Receiver Chassis

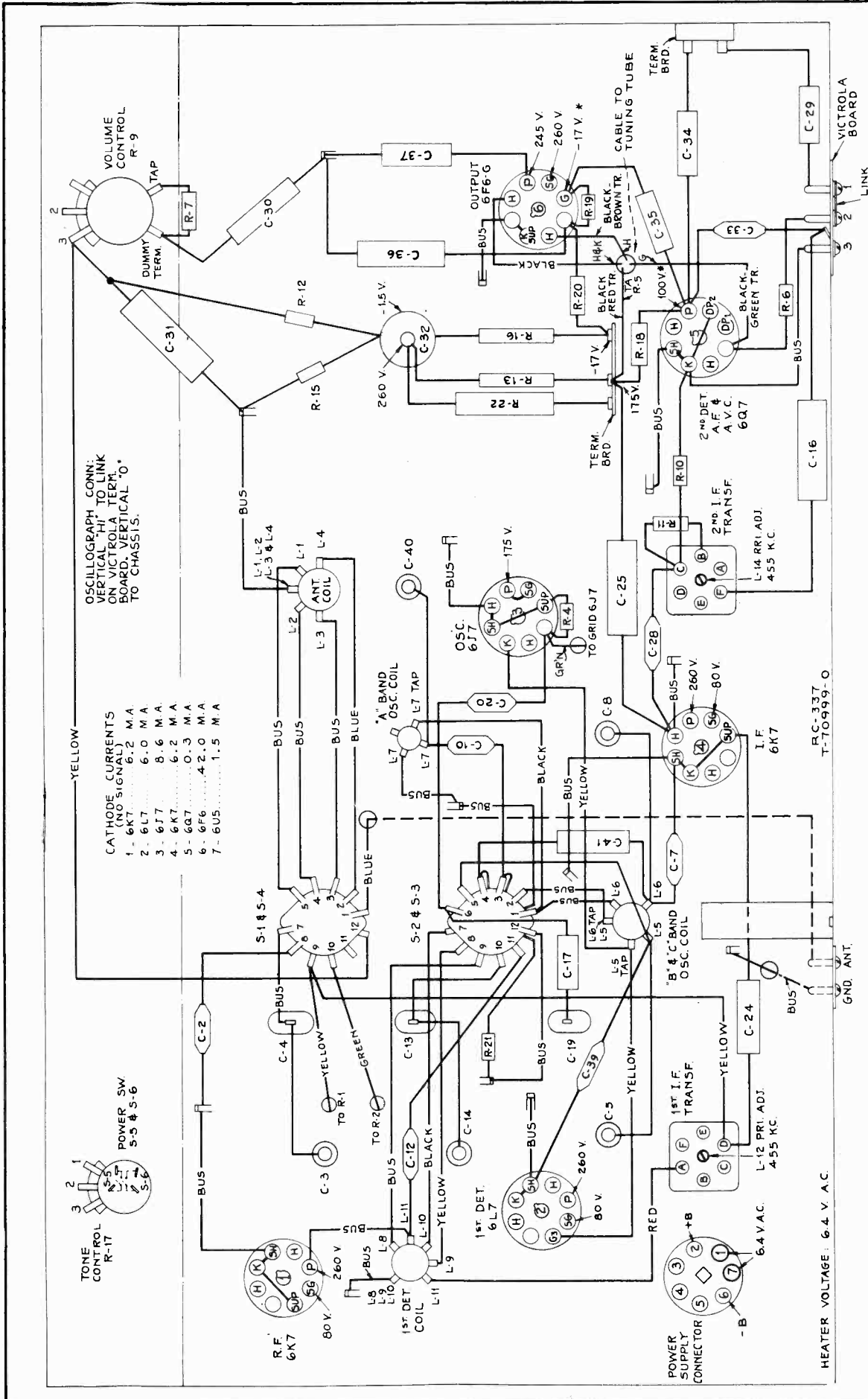
Precautionary Lead Dress.—

1. Dress the leads from the 1st-detector coil to the range switch away from the trimmer C14.
2. Dress all leads away from the tap on the volume control.
3. Dress the blue lead from the antenna terminal to the range switch close to the chassis.

Power Supply Units

The receiver chassis has a seven-prong male connector for connection to the power supply unit. Both A-C and D-C power supply units are available, as listed under "Power Supply Ratings" in the electrical specifications. Schematic diagrams and replacement parts lists for the power supply units are printed in separate service data sheets, which should be referred to for further information.





R-F Wiring Diagram and Socket Voltages

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter load.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.

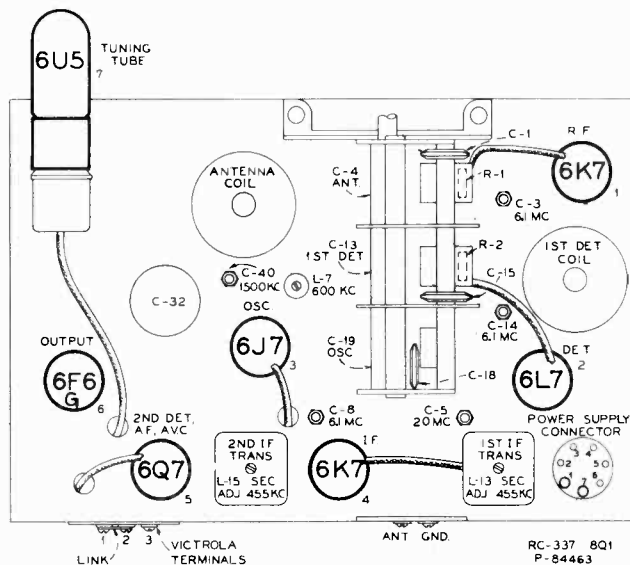
Calibration Scale on Indicator-Drive-Cord drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The surface of the drum must be flush with the end of the gang-condenser shaft. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

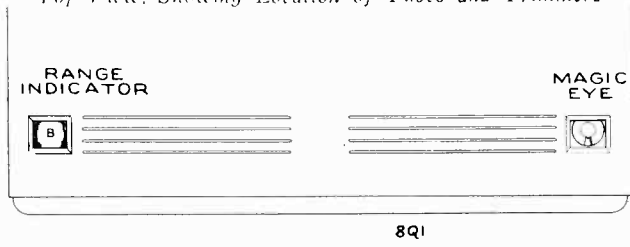
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end marked on the dial scales, and gang-condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

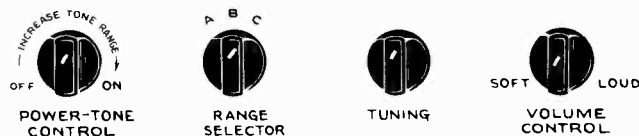


Top View, Showing Location of Tubes and Trimmers



At Right—Location of Controls

To turn on the set, turn the power-tone control fully clockwise, past the snap of the switch. This is the full-range tone position. To switch off the set, turn this knob fully counter-clockwise.



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"C" band, Quiet Point.	L14 and L15 (2nd I-F Trans.)
2	6L7 1st-Det. grid cap, in series with .01 mfd.			L12 and L13 (1st I-F Trans.)
3	Antenna Terminal, in series with 300 ohms	6.1 mc	6.1 mc (29°) "B" band	C8 (osc.)* C14 (det.)** C3 (ant.)
3A	Check to determine that C8 has been adjusted to the correct peak by turning radio to 5.19 mc (50°) where a weaker signal should be received.			
4	Antenna Terminal, in series with 300 ohms	20 mc	20 mc (23.5°) "C" band	C5 (osc.)*
4A	Check to determine that C5 has been adjusted to the correct peak by turning radio to 19.09 mc (29.5°) where a weaker signal should be received.			
5	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (31°) "A" band	C40 (osc.)
6	Antenna Terminal, in series with 200 mmf.	600 kc	600 kc (144.5°) "A" band	L7 (osc.)†
7	Repeat Step No. 5			

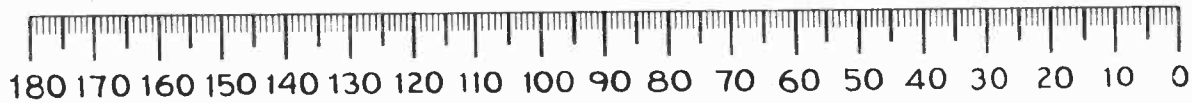
* Use minimum capacity peak (plunger out) if two peaks can be obtained.

** Rock gang condenser slightly while peaking C14, and use maximum capacity peak if two peaks can be obtained.

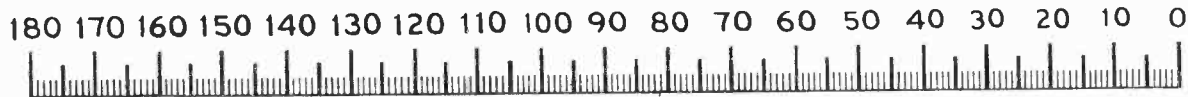
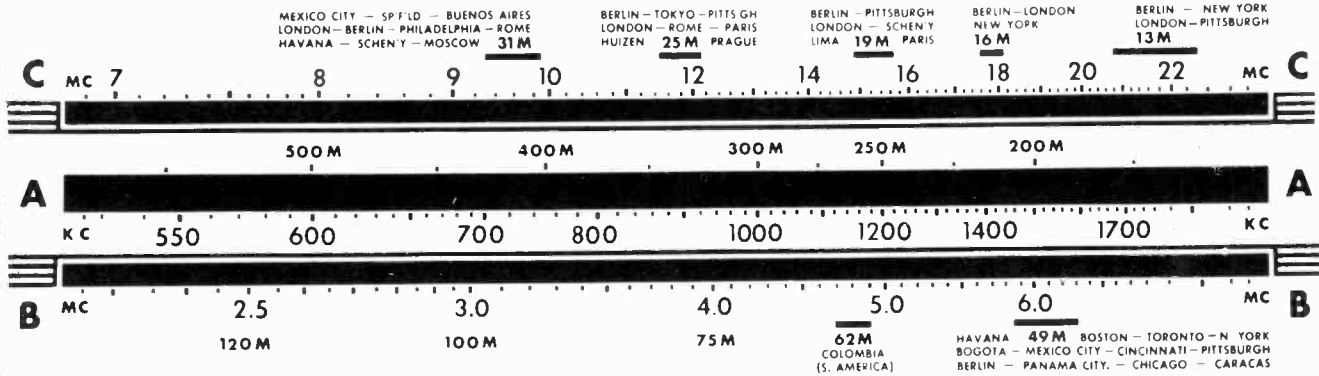
† Rock gang condenser slightly while peaking L7 for maximum output.

NOTE: The oscillator tracks 455 kc above the signal on all bands.

Calibration Scale



7592



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES (RC337)			
13216	Board—Antenna and ground terminal board	13204	Resistor—8,200 ohms, 2 watt (R13)
12717	Board—Phonograph input terminal board	13302	Resistor—10,000 ohms, 1/10 watt (R21)
31303	Bracket—Band indicator mounting bracket—less indicating strip, spring, and cord	13045	Resistor—18,000 ohms, 1/2 watt (R7)
31785	Cable—Indicator pointer drive cable	14167	Resistor—27,000 ohms, 2 watt (R22)
30766	Cap—Rubber cap for Magic Eye	11300	Resistor—33,000 ohms, 1/10 watt (R4)
12714	Capacitor—Trimmer 2-12 mmfd. (C3, C5, C8, C14, C40)	12719	Resistor—82,000 ohms, 1/10 watt (R20)
14392	Capacitor—4.7 mmfd. (C39)	14560	Resistor—100,000 ohms, 1/2 watt (R11, R12)
13200	Capacitor—10 mmfd. (C7, C18)	11398	Resistor—220,000 ohms, 1/10 watt (R10)
31791	Capacitor—16 mmfd. (C2)	12199	Resistor—270,000 ohms, 1/2 watt (R18)
31270	Capacitor—160 mmfd. (C22, C23, C26, C27)	13005	Resistor—390,000 ohms, 1/10 watt (R19)
12724	Capacitor—120 mmfd. (C20, C33)	12013	Resistor—1 meg., 1/10 watt (R1, R2, R5)
13003	Capacitor—180 mmfd. (C28)	5131	Resistor—2.2 meg., 1/10 watt (R6)
12694	Capacitor—220 mmfd. (C12)	14887	Retainer—Indicator drive cord pulley retainer
12952	Capacitor—330 mmfd. (C1, C15)	4669	Screw—No. 8-32 x 3/8-in. square head set screw for pulley, Stock Nos. 31272 and 31788, and drum, Stock No. 31808
31790	Capacitor—530 mmfd. (C10)	31364	Socket—Dial lamp socket
31792	Capacitor—4,000 mmfd. (C41)	13871	Socket—Magic Eye socket
31405	Capacitor—6,000 mmfd. (C17)	31251	Socket—Octal base tube socket
4838	Capacitor—.005 mfd. (C34, C37)	31279	Spring—Band indicator tension spring
14393	Capacitor—.01 mfd. (C29, C35)	13638	Spring—Tension spring for pointer drive cable, or variable condenser drive cord
4870	Capacitor—.025 mfd. (C30)	31775	Switch—Range switch (S1, S2, S3, S4)
4886	Capacitor—.05 mfd. (C24)	31807	Tone Control and power switch (R17, S5, S6)
4839	Capacitor—.1 mfd. (C11, C16)	31267	Transformer—First i-f transformer (L12, L13, C22, C23)
12484	Capacitor—.25 mfd. (C25, C31, C36)	31268	Transformer—Second i-f transformer (L14, L16, C26, C27)
5212	Capacitor—.16 mfd. (C32)	31450	Volume Control (R9)
31818	Clip—Magic Eye mounting clip	SPEAKER ASSEMBLIES (RL63H-3)	
31780	Coil—Antenna coil (L1, L2, L3, L4)	31825	Cap—Speaker cone center dust cap
31782	Coil—Oscillator coil—"A" band only (L7)	11469	Coil—Hum neutralizing coil (L17)
31783	Coil—Oscillator coil—"B" and "C" bands only (L5, L6)	12012	Coil—Speaker field coil (L18)
31781	Coil—R-f coil (L8, L9, L10, L11)	31310	Cone—Speaker cone and voice coil (L16)
31774	Condenser—3-gang variable tuning condenser (C4, C13, C19)	31302	Plug—4-contact male plug for speaker
31278	Cord—Band indicator cord	31824	Speaker complete
31786	Cord—Variable condenser drive cord	14355	Transformer—Output transformer (T1)
31787	Drive—Two-speed drive and mounting bracket	MISCELLANEOUS ASSEMBLIES	
31808	Drum—Variable condenser drive cord drum	31800	Dial—Dial scale and crystal
31304	Indicator—Band indicator strip	31831	Escutcheon—Dial scale escutcheon—less dial scale and crystal
11891	Lamp—Dial lamp	31801	Indicator—Indicator pointer and carriage
31817	Plate—Cushion socket mounting plate—less socket	31802	Knob—Station selector, tone control, volume control or range switch knob
5040	Plug—4-contact female plug for speaker cable	31287	Rod—Pointer carriage slide rod
14404	Plug—7-contact male plug for power input	31306	Screen—Dial color screen and light diffuser
31788	Pulley—Two-speed drive pulley	14270	Spring—Retaining spring for knob Stock No. 31802
31280	Pulley—Indicator pointer drive cord pulley (large)	31558	Spring—Stop spring for pointer slide rod
31373	Pulley—Indicator pointer drive cord pulley (small)		
31272	Pulley—Range switch pulley		
14660	Resistor—18 ohms, 1/2 watt (R15)		
14526	Resistor—200 ohms, wire wound, 2 1/2 watt (R16)		

MODELS 8Q2, 8QU5C and 8QU5M

Chassis No. RC-443 RC-443-B RC-443-B

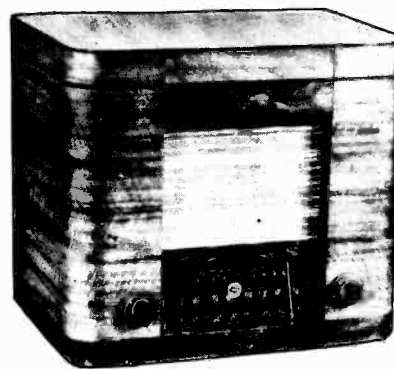
Eight Tubes, Three Bands



Left—Model 8Q2

Right—Model 8QU5

(8QU5C has crystal pickup; 8QU5M has magnetic pickup)



Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)	540-1,720 kc (555-174 m)
Medium Wave ("B" Band)	2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band)	7.0-22 mc (42.8-13.6 m)
INTERMEDIATE FREQUENCY	455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Detector-Oscillator
- (3) RCA-6B8 I-F Amplifier, 2nd Det., A.V.C.
- (4) RCA-6SC7 A-F Amplifier, Phase Inverter
- (5) RCA-6F6-G Power Output
- (6) RCA-6F6-G Power Output
- (7) RCA-5Y3-G Rectifier
- (8) RCA-6U5/6G5 Tuning Indicator

PILOT LAMPS (3) ... } 2-Mazda No. 44, 6.3 volts, 0.25 amp.;
 } 1-Mazda No. 47, 6.3 volts, 0.15 amp

POWER OUTPUT RATING

Undistorted 4.5 watts
 Maximum 5.5 watts

LOUDSPEAKER (RL-63J)-6)

Type 8-inch electrodynamic
 V.C Impedance 2.2 ohms at 400 c.p.s.

PHONOGRAPH MOTOR } self-starting, constant-speed,
 } induction type

CRYSTAL PICKUP

Impedance 100,000 ohms at 1,000 c.p.s.
 Average Output ... 1.5 volts at 1,000 c.p.s. across 500,000 ohms load

MAGNETIC PICKUP

Impedance 96 ohms at 1,000 c.p.s.
 Average Output .. 0.14 volts at 400 c.p.s. across open circuit

POWER SUPPLY RATINGS

8Q2:
 Rating A 105-125 volts 50-60 cycles, 75 watts
 Rating B 105-125 volts, 25-60 cycles, 75 watts
 Rating C 100-130, 140-160, 195-250 volts, 40-60 cycles, 75 watts

8QU5C and 8QU5M

Rating A5 105-125 volts, 50 cycles, 105 watts
 Rating A6 105-125 volts, 60 cycles, 105 watts
 Rating C5 105-125; 200-250 volts, 50 cycles, 105 watts
 Rating C6 105-125; 200-250 volts, 60 cycles, 105 watts

Victrola Data

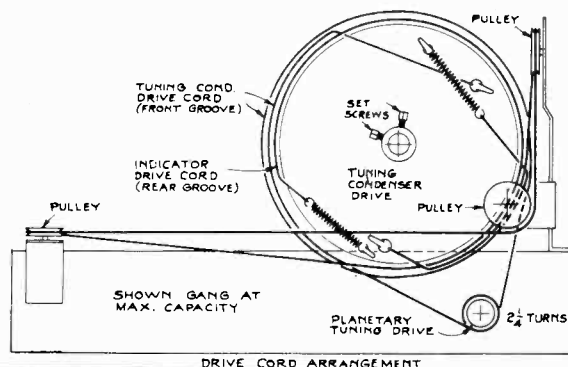
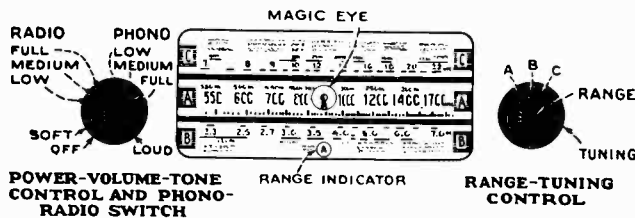
The 8QU5M is equipped with a magnetic pickup, and the 8QU5C with a crystal pickup. The output of the crystal pickup is fed directly into the Victrola jack at the rear of the chassis. On instruments using a magnetic pickup, a transformer and compensating circuit are used between the pickup and the Victrola jack (see schematic diagram). The transformer has two jacks, the larger one (primary) for input from the pickup and the smaller one (secondary) for output to the compensating circuit. The components of the compensating circuit are mounted externally to the chassis on a terminal board in the rear of the cabinet.

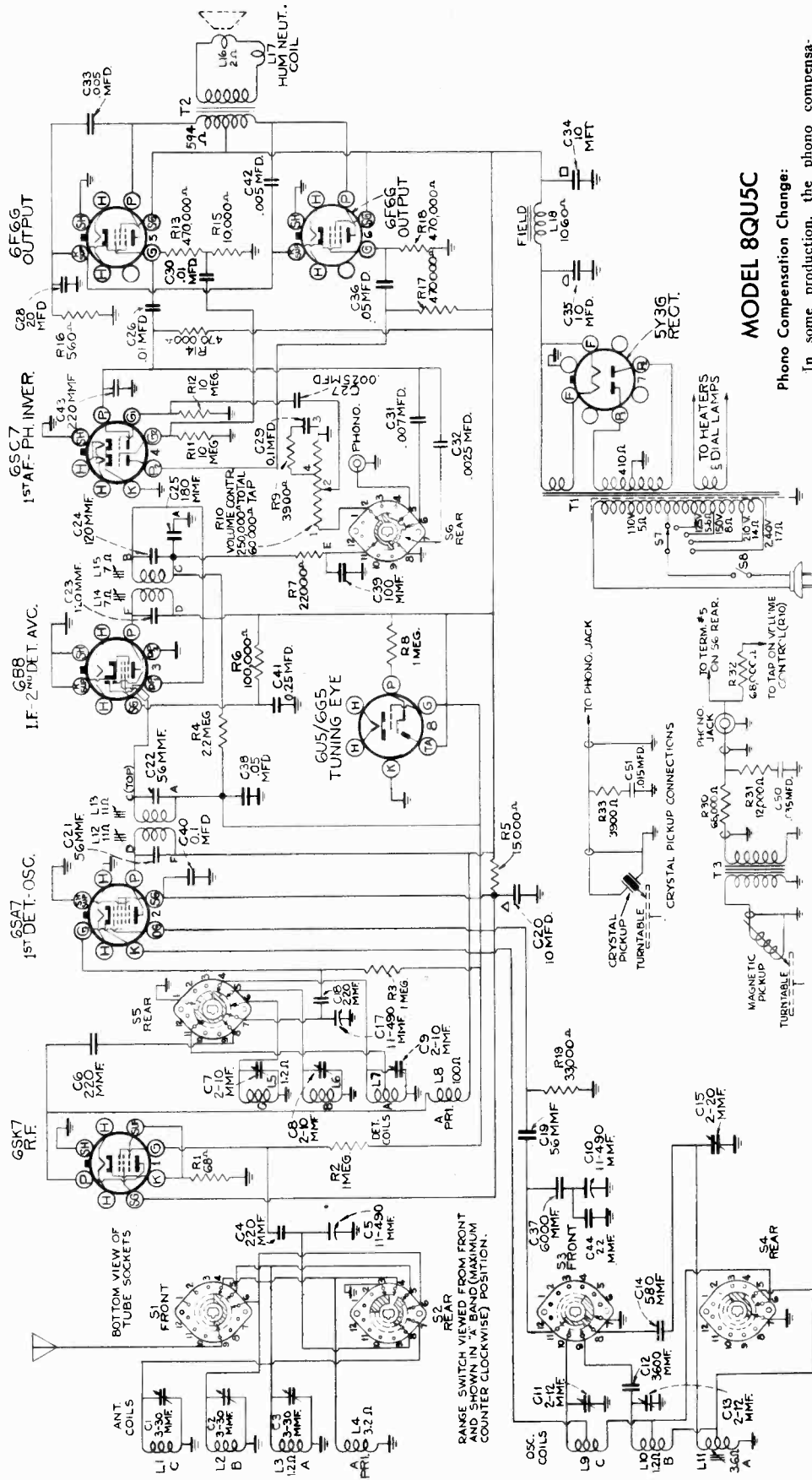
The phonograph motor is a self-starting, constant-speed induction type. It should be lubricated every six months by applying a few drops of light machine oil to the spindle bearing and oil hole.

The motor spindle is tapered, and a conical rubber piece fits snugly on the spindle. The hole in the turntable bushing is tapered to fit the rubber. This provides an excellent self-centering floating mounting.

A metal washer is placed on the spindle under the rubber piece. The washer has ears on the under side which fit over a pin that projects through the spindle.

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1 1/4 inches from the center line of the spindle shaft. The motor may be shut off at any time by placing the pickup on the pickup rest.





MODEL 8QU5C

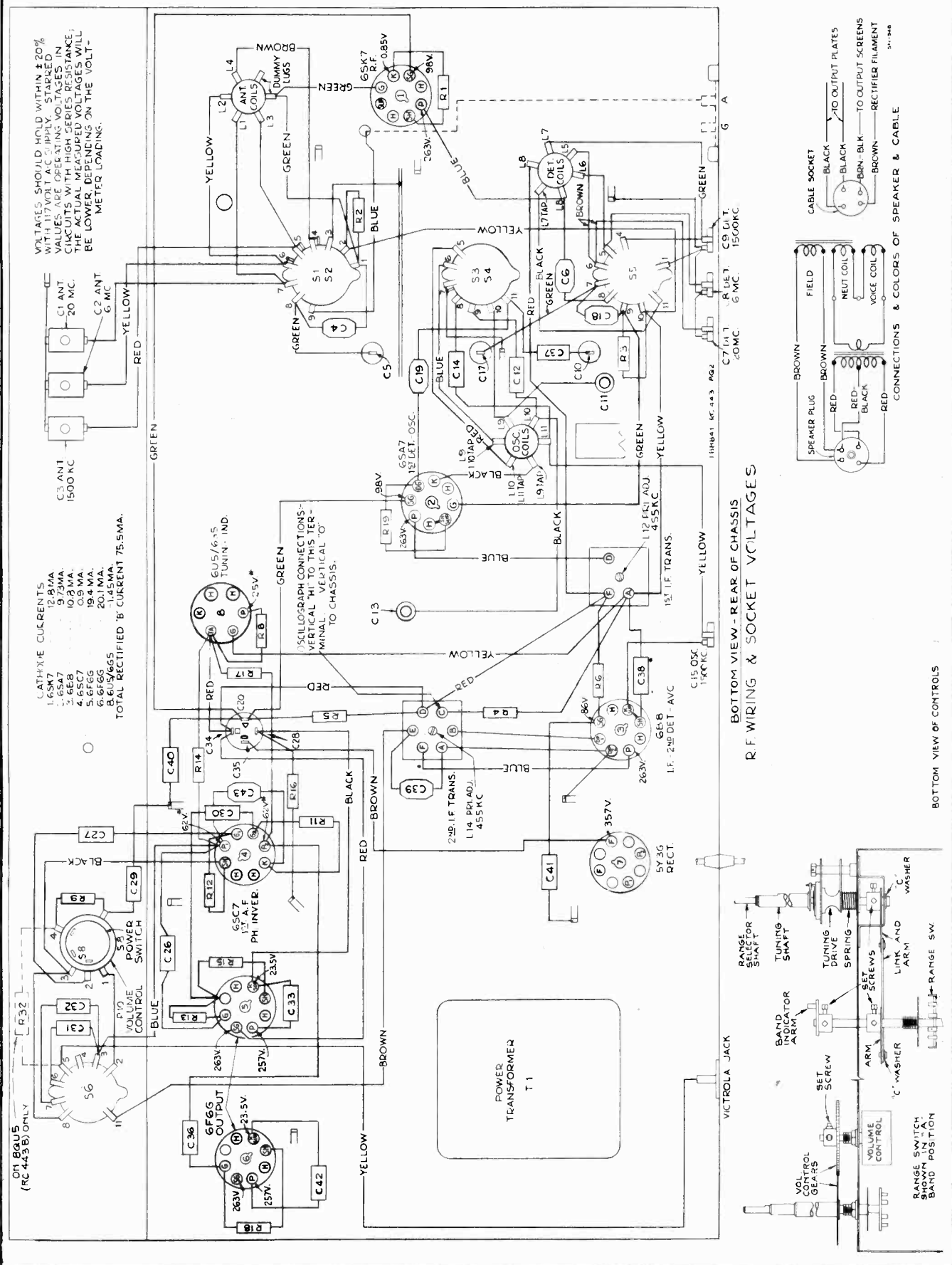
Phono Compensation Change:

In some production, the phono compensation capacitor C51 is changed from .015 mfd. to .035 mfd. (Stock No. 5196), and is shunted with an 82,000 ohm resistor (Stock No. 14023).

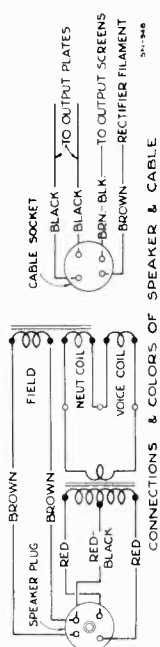
Precautionary Lead Dress:

1. Leads from L5 and L6 to terminals 5 and 6 on S5, and the leads from these terminals to C7 and C8, should be dressed as far as possible from parts at ground potential.
2. The lead from the detector gang (C17) to terminal 7 on S5, and the lead from the 6SA7 grid to terminal 9 on S5 should be kept away from ground and from parts in the oscillator grid circuit, such as C37, C19, S3 and S4.

3. The lead from terminal E on the second I.F. transformer to terminal 11 on S6 should be dressed against the sub-base.
4. The lead from the plate of the 6SK7 (R.F) to L8 should be dressed away from parts at ground potential.
5. The lead from the grid of the 6SK7 (R.F) to terminal 1 on S1 should be kept as far as possible from the antenna lead running to terminal 9 on S1.



BOTTOM VIEW - REAR OF CHASSIS R.F. WIRING & SOCKET VOLTAGES



BOTTOM VIEW OF CONTROLS

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

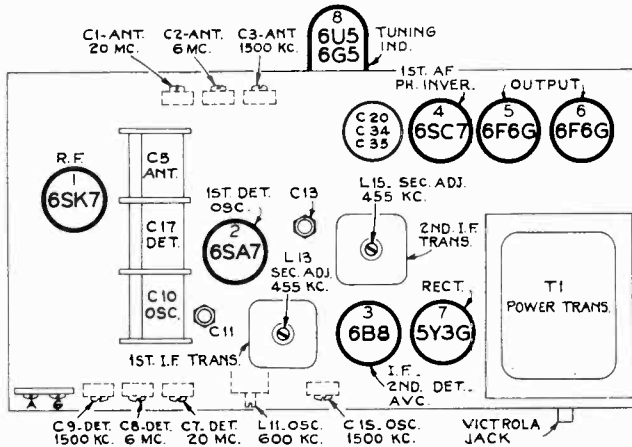
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."



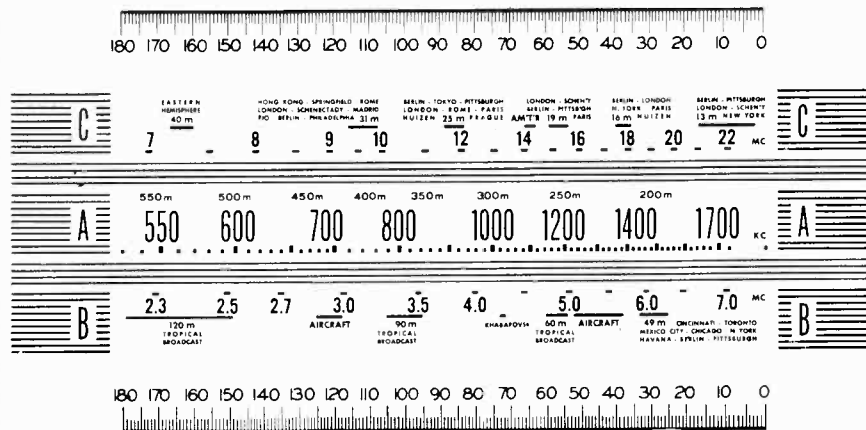
Steps	Connect the high side of test-osc. to	Tune test-osc. to	Turn radio dial to	Adjust the following for maximum peak output
1	6B8-I-F grid in series with .01 mfd.	455 kc	Quiet point on "C" Band	L14 and L15 (2nd I-F Trans.)
2	Stator of middle section of gang (C17) in series with .01 mfd.			L12 and L13 (1st I-F Trans.)
3	Ant. terminal in series with 200 mmfd.	600 kc	600 kc (148°) "A" Band	L11 (osc.) Rock gang
4		1,500 kc	1,500 kc (28°) "A" Band	C15 (osc.)* C9 (det.)† C3 (ant.)
5	Ant. terminal in series with 300 ohms	6.1 mc	6.1 mc (29°) "B" Band	C13 (osc.)* C8 (det.)† C2 (ant.)
6		20 mc	20 mc (23°) "C" Band	C11 (osc.)* C7 (det.)† C2 (ant.)

* Use minimum capacity peak if two peaks can be obtained.

† Use maximum capacity peak if two peaks can be obtained.

NOTE: Oscillator tracks 455 kc above signal on all bands.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 180° mark on the calibration scale when the plates are fully meshed



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 38° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-443 and RC-443B)		
34133	Arm—Band indicator arm—located on range switch shaft.	31405	Capacitor—6,000 mmfd. (C37)
34502	Arm—Operating arm on range switch shaft.	5107	Capacitor—.0025 mfd. (C27, C32)
10194	Ball—Steel ball.	4838	Capacitor—.005 mfd. (C33, C42)
31767	Board—Antenna ground terminal board.	13033	Capacitor—.007 mfd. (C31)
34131	Bracket—Drive cord pulley and brackets.	4858	Capacitor—.01 mfd. (C28, C30)
33819	Capacitor—Trimmer capacitor—3 sections of 2-10 mmfd. each	32787	Capacitor—.05 mfd. (C38, C38)
12714	Capacitor—Air trimmer capacitor—2-12 mmfd. (C11, C13)	32786	Capacitor—.01 mfd. (C29, C40)
33817	Capacitor—Trimmer capacitor—1 section of 2-20 mmfd. (C15)	12484	Capacitor—.025 mfd. (C41)
33820	Capacitor—Trimmer capacitor—3 sections of 3-30 mmfd. each (C1, C2, C3)	33014	Capacitor—Comprising 3 sections of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts (C20, C28, C34, C35)
31868	Capacitor—22 mmfd. (C44)	33762	Coil—Antenna coil—A-B-C bands (L1, L2, L3, L4)
12723	Capacitor—56 mmfd. (C19)	33763	Coil—Detector coil—A-B-C bands (L5, L6, L7, L8)
30949	Capacitor—56 mmfd. (C21, C22)	32824	Coil—Oscillator coil—A-B-C bands (L9, L10, L11)
12720	Capacitor—100 mmfd. (C39)	33756	Condenser—Variable tuning condenser (C5, C10, C17)
12404	Capacitor—120 mmfd. (C23, C24)	33814	Control—Volume control and switch (R10, S8)
14712	Capacitor—180 mmfd. (C25)	32635	Cord—Indicator drive cord
12694	Capacitor—220 mmfd. (C4, C6, C18, C43)	32634	Cord—Tuning condenser drive cord
33235	Capacitor—580 mmfd. (C14)	32713	Core—Adjustable core and stud for oscillator coils
12811	Capacitor—3,600 mmfd. (C12)	33770	Drive—Planetary tuning drive—less shafts and balls, and shaft retainer

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION	
33773	Drum—Variable tuning condenser drum and hub		AUTOMATIC SWITCH ASSEMBLIES (Model 8QU5-C) (Model 8QU5-M)	
33185	Gear—Shaft and gear for volume control			
34132	Gear—Shaft and gear for tone control			
11891	Lamp—Pilot lamp			
33767	Link—Operating link and arm on range switch knob shaft	34315		Base—Pickup arm base for crystal pickup—Model 8QU5-C
5040	Plug—4-contact female plug for speaker cable	34312		Base—Pickup arm base for magnetic pickup—Model 8QU5-M
34130	Pulley—Drive pulley and brackets	32865		Bracket—Switch bracket and terminal board
14281	Resistor—68 ohms, 1/2 watt (R1)	34308		Cam—Switch cam assembly with spring
17214	Resistor—560 ohms, 2 watt (R16)	32864		Lever—Switch actuating lever, roller, and clip
12955	Resistor—3,900 ohms, 1/2 watt (R9)	34309		Mounting—Pickup arm base mounting (rubber grommet, washers, and nut)
14559	Resistor—10,000 ohms, 1/2 watt (R15)	34311	Ring—Retaining ring for pickup arm pivot shaft	
33489	Resistor—15,000 ohms, 2 1/2 watt (R5)	14195	Screw—No. 10-32 x 5/16 set screw for switch cam hub	
14284	Resistor—22,000 ohms, 1/10 watt (R7)	34314	Shaft—Pickup arm pivot shaft—for crystal pickup—Model 8QU5-C	
12454	Resistor—33,000 ohms, 1/2 watt (R19)	34313	Shaft—Pickup arm pivot shaft—for magnetic pickup—Model 8QU5-M	
3252	Resistor—100,000 ohms, 1/2 watt (R6)	34310	Spool—Insulating spool for switch leads	
12285	Resistor—470,000 ohms, 1/2 watt (R13, R14, R17, R18)	32868	Spring—Switch lever spring	
13730	Resistor—1 megohm, 1/2 watt (R2, R3, R8)	32867	Spring—Tension spring for switch cam	
12679	Resistor—2.2 megohms, 1/2 watt (R4)	32866	Switch—Mercury tube and leads	
13601	Resistor—10 megohms, 1/2 watt (R11, R12)	31608	Washer—Retaining washer for switch lever	
14350	Screw—No. 8-32 x 11/32 square head set screw for gear and drum		SPEAKER ASSEMBLIES (RL-83-J6)	
34134	Shaft—Range switch shaft	31825	Cap—Dust cap	
34135	Shaft—Tuning knob shaft	12079	Coil—Field coil (L18)	
33829	Socket—Magic Eye bracket and socket	11469	Coil—Neutralizing coil (L17)	
14278	Socket—Phonograph input socket	34274	Cone—Cone, complete with voice coil and dust cap (L16)	
31364	Socket—Pilot lamp socket	5039	Plug—4-prong male for speaker	
31251	Socket—Tube socket	14534	Transformer—Output transformer (T2)	
13638	Spring—Indicator drive cord spring		MISCELLANEOUS ASSEMBLIES	
33769	Spring—Planetary tuning drive spring	32610	Bumper—Rubber bumper for pickup arm—Models 8QU5-C and 8QU5-M	
31418	Spring—Tuning condenser drive cord spring	34308	Cam—Actuating cam for automatic switch—Models 8QU5-C and 8QU5-M	
33757	Switch—Range switch (S1, S2, S3, S4, S5)	11315	Capacitor—.015 mfd.—Model 8QU5-C (C51)	
34602	Switch—Tone control (S6)	5196	Capacitor—.035 mfd.—Model 8QU5-M (C50)	
32263	Transformer—1st I.F. transformer (L12, L13, C21, C22)	33680	Cup—Needle cup—Models 8QU5-C and 8QU5-M	
14308	Transformer—2nd I.F. transformer (L14, L15, C23, C24, C25, R7)	31464	Damper—Turntable rubber drive sleeve and metal damper plate—Models 8QU5-C and 8QU5-M	
31734	Transformer—Power transformer—105/125 volts, 25/60 cycle (T1)	34142	Dial—Dial glass scale	
31733	Transformer—Power transformer—105/125 volts, 50/60 cycle (T1)	34140	Frame—Dial frame less pointers, dial glass and guide rods	
31735	Transformer—Power transformer—105/130, 140/160, 200/250 volts, 50/60 cycle (T1, S7)	13085	Hinge—Cabinet lid hinge—Models 8QU5-C and 8QU5-M	
	MOTOR ASSEMBLIES (Model 8QU5-C) (Model 8QU5-M)	11607	Holder—Packaged needle holder—Models 8QU5-C and 8QU5-M	
32650	Field—Motor field coils and laminations, 110 volts, 50 cycle	34144	Indicator—Band indicator strip	
32336	Field—Motor field coils and laminations, 110 volts, 60 cycle	34141	Indicator—Station selector indicator and carriage	
33220	Motor—105-125 volts, 50 cycles—less mounting plate	34139	Knob—Range switch knob	
33219	Motor—105-125 volts, 60 cycles—less mounting plate	34137	Knob—Tone control knob	
33361	Shaft—Turntable spindle shaft and gear—50 cycle	34136	Knob—Volume control or tuning knob	
33360	Shaft—Turntable spindle shaft and gear—60 cycle	31048	Plug—2-contact male plug for phono. input cable—Models 8QU5-C and 8QU5-M	
	PICKUP AND ARM ASSEMBLIES (Model 8QU5-M)	12955	Resistor—3,900 ohms, 1/2 watt—Model 8QU5-C (R33)	
34304	Arm—Pickup arm—less unit cable and pivot arm	30128	Resistor—12,000 ohms, 1/2 watt—Model 8QU5-M (R31)	
34303	Arm—Pivot arm and set screw	13715	Resistor—68,000 ohms, 1/2 watt—Model 8QU5-M (R30)	
14291	Armature—Pickup armature	34568	Rest—Pickup rest—Models 8QU5-C and 8QU5-M	
14930	Coil—Pickup coil	34143	Rod—Dial pointer slide rod—Models 8QU5-C and 8QU5-M	
14292	Damper—Pickup armature damper	34491	Rod—Pointer carriage guide rod—Model 8Q2	
32228	Pickup Unit—Magnet, coil, needle screw, and armature, assembled	34316	Screw—Motor mounting screws, washers, and spacers (sufficient for 1 motor)—Models 8QU5-C and 8QU5-M	
34300	Screw—No. 6-32 x 1/2 headless set screw for pickup pivot arm	14195	Screw—No. 10-32 set screw for cam, Stock No. 34308	
3811	Screw—Needle screw	34145	Slide—Band indicator slide less strip	
	PICKUP AND ARM ASSEMBLIES (Model 8QU5-C)	32867	Spring—Actuating cam spring	
34305	Arm—Pickup arm—less crystal, cable, and pivot arm	4982	Spring—Retaining spring for knob, Stock No. 34138	
34306	Arm—Pickup pivot arm with set screw	14270	Spring—Retaining spring for knob, Stock No. 34137	
34550	Bushing—Rubber bushing for pickup pivot arm	34138	Spring—Retaining spring for knob, Stock No. 34139	
34307	Crystal—Pickup crystal cartridge and needle screw	31164	Support—Cabinet lid support—Models 8QU5-C and 8QU5-M	
33529	Screw—Needle screw	14609	Transformer—Phono. input transformer for model with magnetic pickup—Model 8QU5-M	
34300	Screw—No. 6-32 x 1/2 headless set screw for pickup pivot arm	33532	Turntable—10-inch turntable—Models 8QU5-C and 8QU5-M	

Additional Replacement Part:

Stock No.
30870 Plug—2-prong male plug for motor leads (8QU5-C and -M).....

Eight-Tube, Four-Band Superheterodyne Receiver

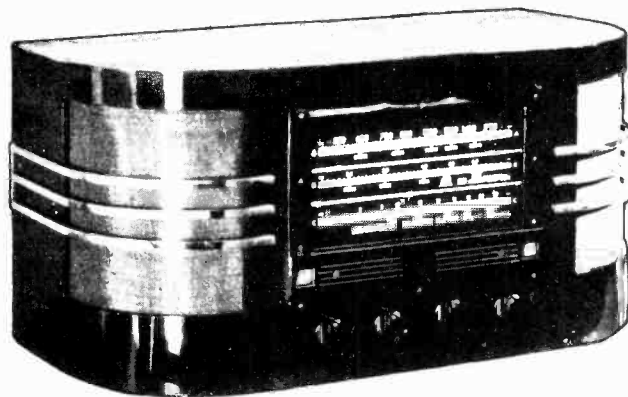
MODEL 8Q4

Chassis No. RC-337A

Miscellaneous Service Data

Plug for Extension Loudspeaker.—A two-contact female socket, equipped with a male plug, is connected across the secondary of the output transformer on the loudspeaker to facilitate the connection of an extension loudspeaker if desired. A permanent-magnet dynamic speaker, with voice-coil impedance of **not less than 2 ohms** is recommended. The voice coil of the extension speaker should be connected by means of two-conductor cable (such as is used on electric appliances) to the male plug. This cable may be any desired length up to several hundred feet. With a long run, it is advisable to use heavier cable. An extension speaker with 2-ohm voice coil will receive approximately half the power output of the receiver. With a higher-impedance voice coil, the percentage of power delivered to the extension speaker will be decreased. (A high-impedance magnetic-type speaker may be used in conjunction with a suitable coupling transformer such as RCA Stock No. 7853.) The RCA MI-6248 Alnico 8-inch diameter permanent-magnet dynamic loudspeaker with 2-ohm voice coil, and 5-watt power-handling capacity is recommended. This speaker may be housed in the RCA MI-6292 sloping-front walnut-finished wood housing.

Antenna Connections.—Three terminals ("A," "G1," and "G2") are provided on the rear of chassis. Connect the antenna to "A." Connect "G1" to a nearby ground. A link connects "G1" and "G2." In case of electrical interference (especially on "X" band) open the link and connect "G2" separately to ground. This also applies when a D-C power supply is used.



Power Supply Units

Model 8Q4 has a seven-prong connector for connection to a separate power supply unit. Units are available in different ratings for a-c and d-c operation, as listed under "Power Supply Ratings" in the electrical specifications.

The d-c power supply unit (PSU 8E) is too large to be mounted inside the cabinet and may be placed on the table behind the receiver, or in any other convenient location that permits plugging into the connector on the receiver chassis.

Service data, diagrams, and replacement parts lists for the power supply units are printed in separate service data sheets, which should be referred to for further information.

Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band)..... 150-400 kc (2,000-750 m)
 Standard Broadcast ("A" Band). 530-1,720 kc (566-174 m)

Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K7..... R-F Amplifier
- (2) RCA-6L7..... 1st-Detector
- (3) RCA-6J7..... Oscillator
- (4) RCA-6K7..... I-F Amplifier
- (5) RCA-6Q7..... 2nd-Detector, A.V.C., and Audio

Pilot Lamps (2) Mazda No. 44, 6.3 volts, .25 amp.

POWER OUTPUT

Undistorted..... 2.5 watts
 Maximum..... 4.5 watts

POWER SUPPLY RATINGS

A-C Ratings

With PSU 8A.....	105-125	50-60
With PSU 8B.....	105-125	25-60
With PSU 8C.....	105-130, 140-160, 200-225, 225-250	50-60

D-C Rating

With PSU 8E.....	105-125, 210-250	D-C
------------------	------------------------	-----

Medium Wave ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
 Short Wave ("C" Band)..... 7.0-22 mc (42.8-13.6 m)

- (6) RCA-6F6-G..... Power Output
- (7) RCA-6U5..... Tuning Indicator
- (8) RCA-5Y3-G (In PSU 8A, 8B, 8C AC power supply unit)..... Rectifier
- (8) RCA-5W4 *(In PSU 8E D-C power supply unit)..... Rectifier

LOUDSPEAKER (RL-63J-1)

Type..... 8-inch electrodynamic
 Voice-Coil Impedance at 400 cycles..... 2.2 ohms



RANGE INDICATOR



MAGIC EYE



FIDELITY CONTROL



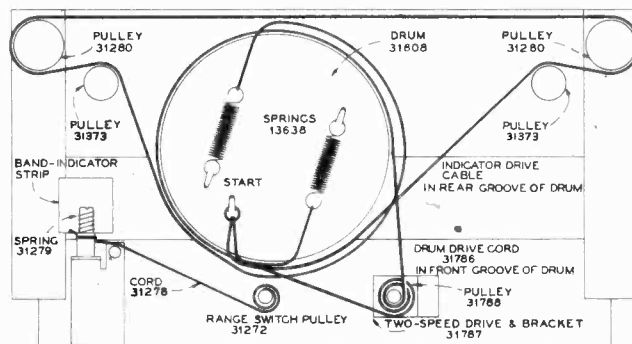
RANGE SELECTOR



TUNING



VOLUME CONTROL



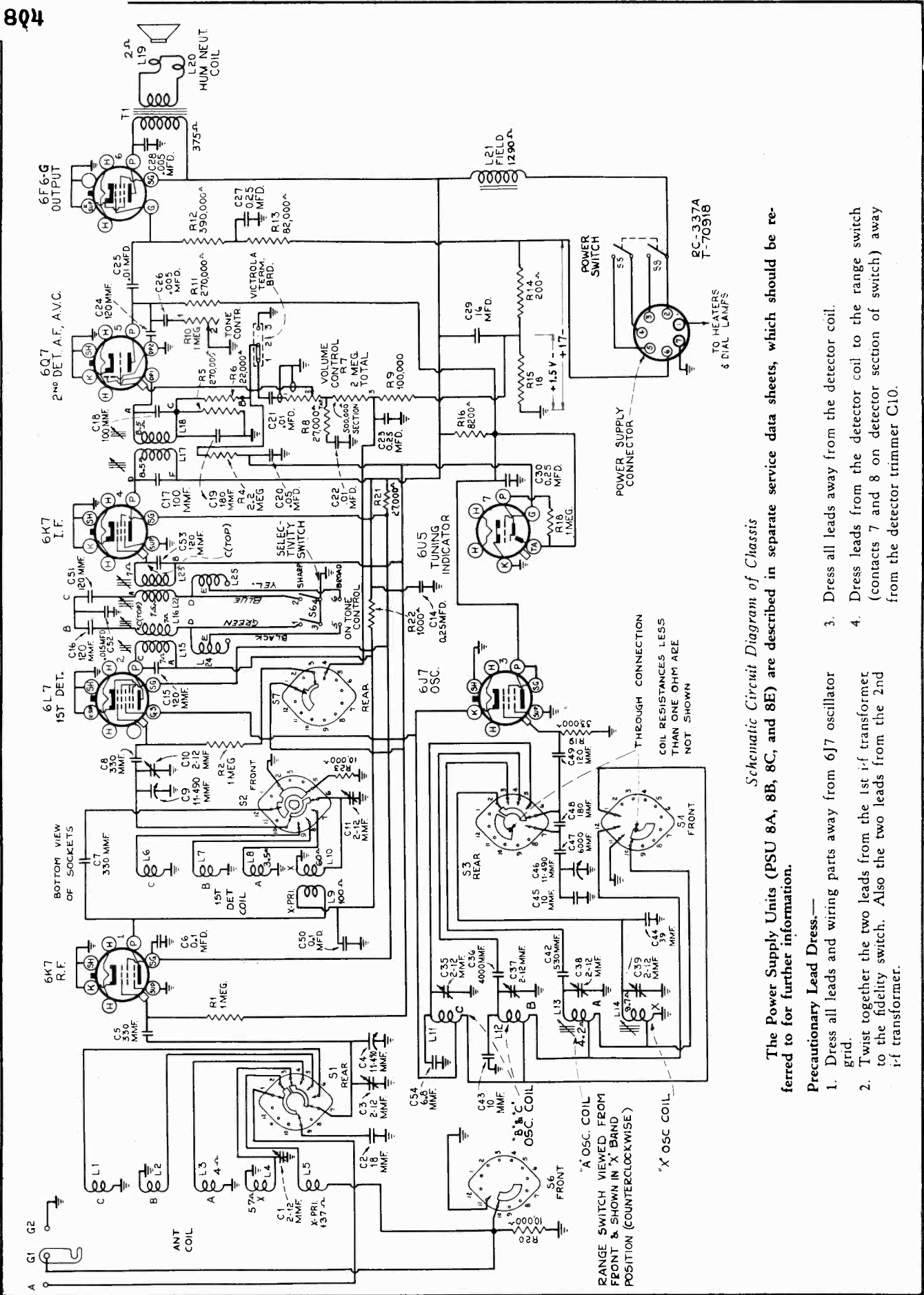
DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY

M-417299 RC-337A, 337B, 337

Location of Controls

A toggle-type power switch is mounted on the right-hand side of the cabinet

Arrangement of Drive Cords

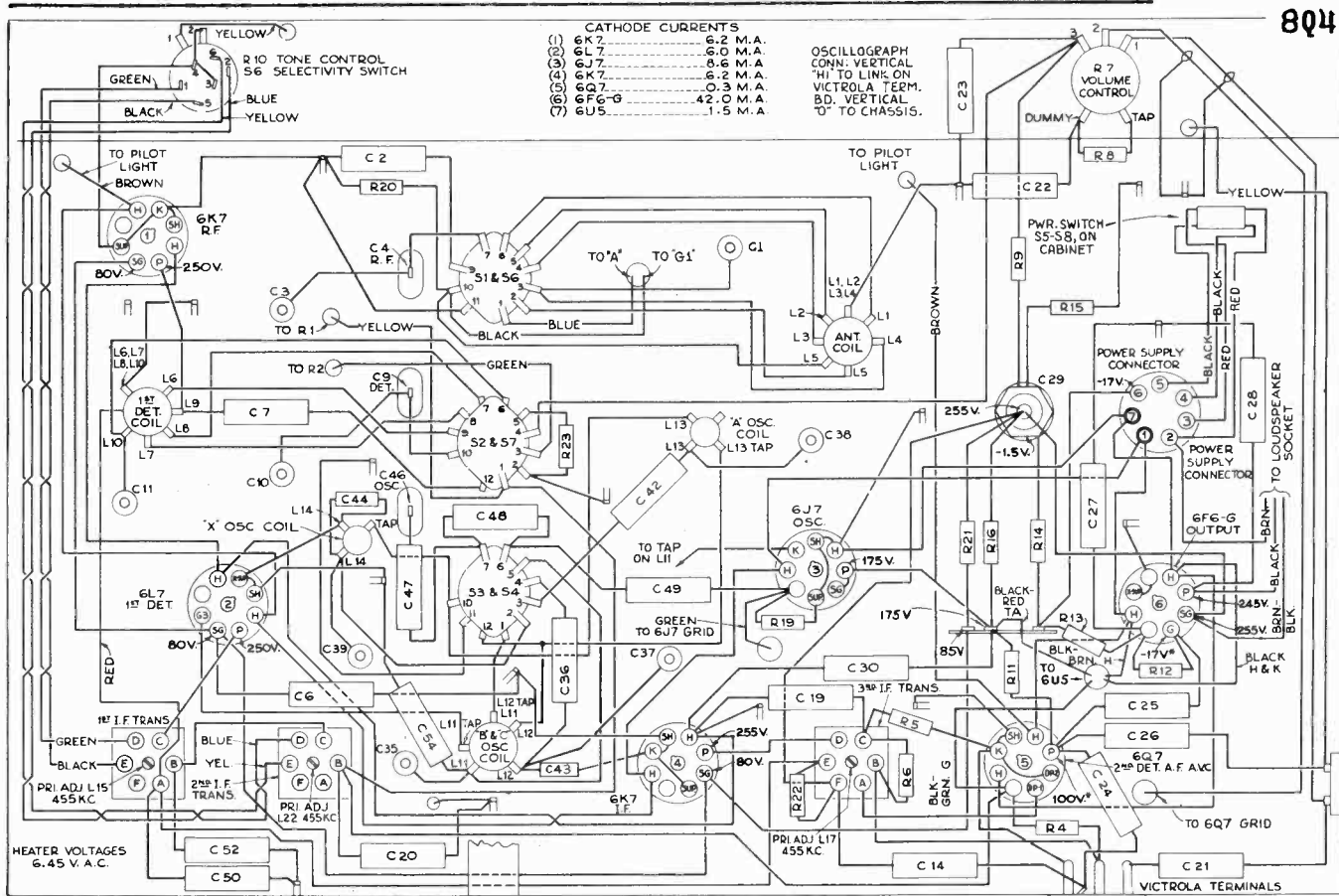


Schematic Circuit Diagram of Chassis

The Power Supply Units (PSU 8A, 8B, 8C, and 8E) are described in separate service data sheets, which should be referred to for further information.

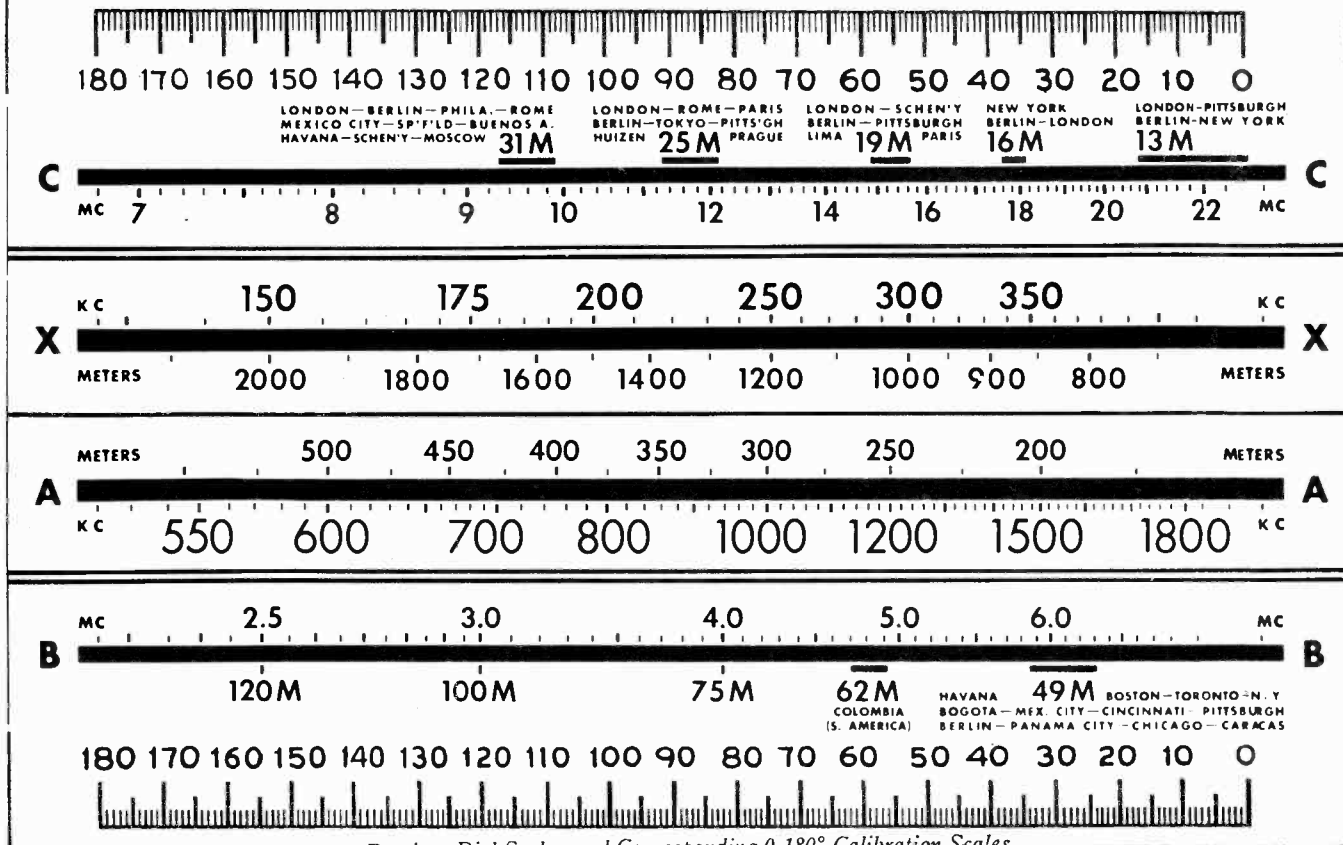
Precautionary Lead Dress.—

1. Dress all leads and wiring parts away from 6J7 oscillator grid.
2. Twist together the two leads from the 1st i-f transformer to the fidelity switch. Also the two leads from the 2nd i-f transformer.
3. Dress all leads away from the detector coil.
4. Dress leads from the detector coil to the range switch (contacts 7 and 8 on detector section of switch) away from the detector trimmer C10.



R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.
 NOTE: Values with star () are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



Receiver Dial Scales and Corresponding 0-180° Calibration Scales

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

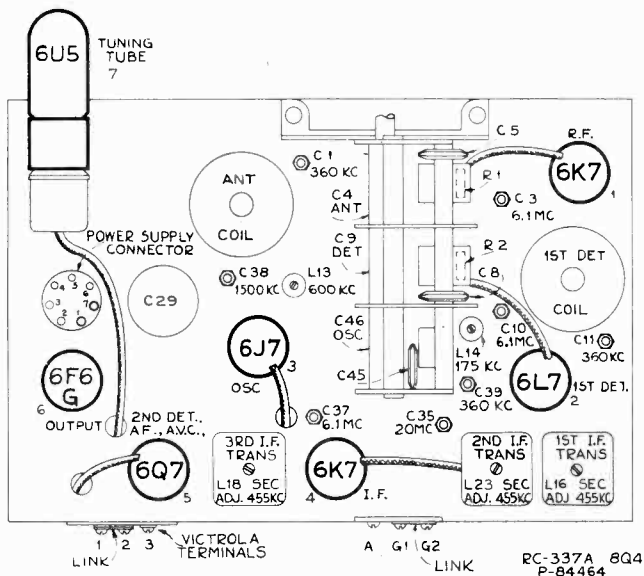
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand marks on the dial scale, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, with 300 ohm resistor from cap to chassis	455 kc	—	L17 and L18* (3rd I-F Trans.)
2	6L7 1st-Det. grid cap, with 300 ohm resistor from cap to chassis, regular grid lead removed from cap	455 kc	Fidelity control counter-clockwise (sharp)	L23 and L22 (2nd I-F Trans.) and L16 and L15** (1st I-F Trans.)
3	Antenna terminal (A), in series with 300 ohms	6.1 mc	6.1 mc (28.2°) "B" band	C37 (osc.)*** C10 (det.)† C3 (ant.)
4	Antenna terminal, in series with 300 ohms	20 mc	20 mc (22.5°) "C" band	C35 (osc.)††
5	Antenna terminal, in series with 200 mmf.	1,500 kc	1,500 kc (32°) "A" band	C38 (osc.)
6	Antenna terminal, in series with 200 mmf.	600 kc	600 kc (143.8°) "A" band	L13 (osc.)
7	Repeat steps 5 and 6.			
8	Adjust C39 so that it projects approximately 15/16-inch above top of chassis.			
9	Antenna terminal, in series with 200 mmf.	175 kc	175 kc (121.3°) "X" band	L14 (osc.)
10	Antenna terminal, in series with 200 mmf.	360 kc	360 kc (30.2°) "X" band	C39 (osc.) C11 (det.) C1 (ant.)
11	Repeat oscillator adjustments in steps 9 and 10.			

* Adjust for coincident response curves when using oscillograph.

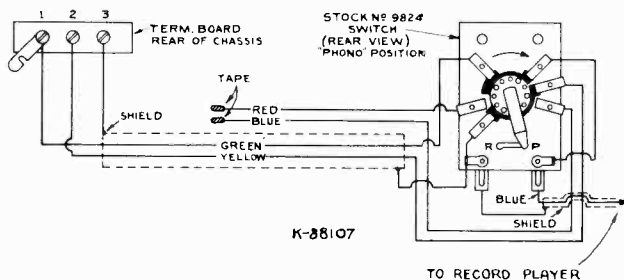
** Readjust L23, L22, L16, and L15 several times to secure coincident curves. Turn fidelity control full clockwise (broad) and check response, which should be symmetrical, and with greater gain than on sharp.

*** Use minimum capacity peak if two peaks can be obtained with C37.

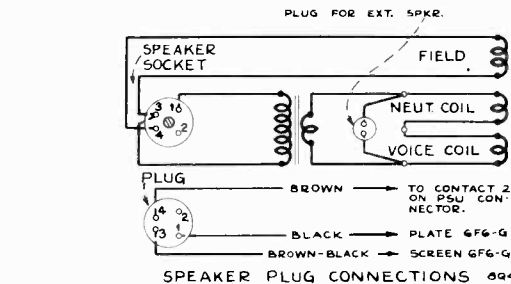
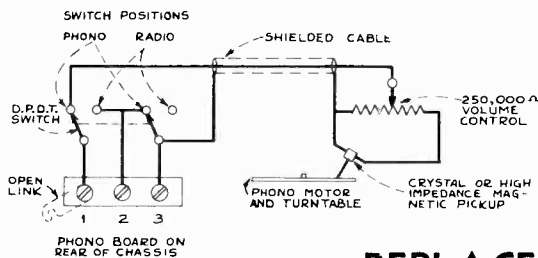
† Rock the gang condenser slightly and use maximum capacity peak if two peaks can be obtained with C10. Check to determine that C37 has been adjusted to the correct peak by turning receiver to 5.19 mc (50°) where a weaker signal should be received.

†† Use minimum capacity peak if two peaks can be obtained, and check to determine that C35 has been adjusted to the correct peak by turning the receiver to 19.09 mc (27 1/2°) where a weaker signal should be received.

NOTE: The oscillator tracks 455 kc above the signal on all bands.



Victrola Attachment (Record Player).—Terminals are provided on the rear of the chassis for convenient connection to a Victrola Attachment (record player) such as the RCA R-93 and R-94 series. A stock No. 9824 switch may be used to change from radio to record player as shown above.



Connections of Loudspeaker and Cable

In the event that a Stock No. 9824 switch is not available, a double-pole—double-throw toggle switch may be used, connecting it as shown.

The radio volume control may be used to regulate the volume of the record player.

REPLACEMENT PARTS

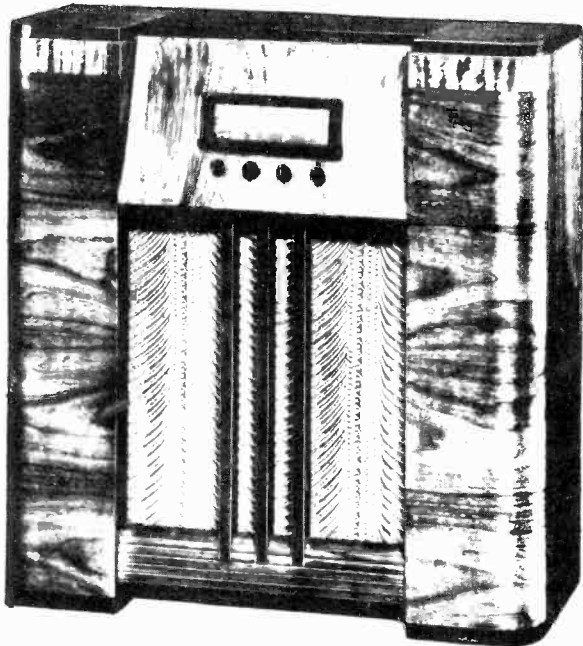
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES (RC-337A)			
31815	Board—Antenna and ground terminal board...	13302	Resistor—10,000 ohms, 1/10 watt (R23).....
12717	Board—Phonograph input terminal board.....	14559	Resistor—10,000 ohms, 1/2 watt (R20).....
31303	Bracket—Band indicator mounting bracket—less indicating strip, spring, and cord.....	14284	Resistor—22,000 ohms, 1/10 watt (R6).....
31820	Cable—Indicator pointer drive cable.....	12738	Resistor—27,000 ohms, 1/2 watt (R8).....
30766	Cap—Rubber cap for Magic Eye.....	14167	Resistor—27,000 ohms, 2 watt (R21).....
12607	Cap—Top shield cap for first or second i-f transformer.....	11300	Resistor—33,000 ohms, 1/10 watt (R19).....
12714	Capacitor—Trimmer 2-12 mmfd. (C1, C3, C10, C11, C35, C37, C38, C39).....	14023	Resistor—82,000 ohms, 1/2 watt (R13).....
14079	Capacitor—6.8 mmfd. (C54).....	14560	Resistor—100,000 ohms, 1/2 watt (R9).....
13200	Capacitor—10 mmfd. (C43, C45).....	11453	Resistor—270,000 ohms, 1/10 watt (R5).....
12722	Capacitor—18 mmfd. (C2).....	12199	Resistor—270,000 ohms, 1/2 watt (R11).....
13545	Capacitor—39 mmfd. (C44).....	13005	Resistor—390,000 ohms, 1/10 watt (R12).....
31270	Capacitor—100 mmfd. (C17, C18).....	12013	Resistor—1 meg., 1/10 watt (R1, R2, R18).....
31813	Capacitor—120 mmfd. (C15, C16, C51, C53).....	5131	Resistor—2.2 meg., 1/10 watt (R4).....
12724	Capacitor—120 mmfd. (C24, C49).....	14887	Retainer—Indicator drive cord pulley retainer.....
13003	Capacitor—180 mmfd. (C19, C49).....	4669	Screw—No. 8-32 x 3/8-in. square head set screw for pulley, Stock Nos. 31272 and 31788, and drum, Stock No. 31808.....
12952	Capacitor—330 mmfd. (C5, C7, C3).....	31364	Socket—Dial lamp socket.....
31790	Capacitor—530 mmfd. (C42).....	13871	Socket—Magic Eye socket.....
31792	Capacitor—4,000 mmfd. (C36).....	31251	Socket—Octal base tube socket.....
31405	Capacitor—6,000 mmfd. (C47).....	31279	Spring—Band indicator tension spring.....
4838	Capacitor—.005 mfd. (C26, C28).....	13638	Spring—Tension spring for pointer drive cable, or variable condenser drive cord.....
14393	Capacitor—.01 mfd. (C21, C22, C25).....	31823	Switch—D.P.S.T. power switch with leads (S5, S8).....
11315	Capacitor—.015 mfd. (C52).....	31806	Switch—Range switch (S1, S2, S3, S4, S6, S7).....
4886	Capacitor—.05 mfd. (C20).....	31546	Tone Control and selectivity switch (R10, S6).....
4839	Capacitor—.1 mfd. (C6, C50).....	31063	Transformer—First i-f transformer (L15, L16, L24, C15, C16).....
12484	Capacitor—.25 mfd. (C23).....	31064	Transformer—Second i-f transformer (L22, L23, L25, C51, C53).....
5212	Capacitor—.18 mfd. (C29).....	31268	Transformer—Third i-f transformer (L17, L18, C17, C18).....
31818	Clip—Magic Eye mounting clip.....	31450	Volume Control (R7).....
31810	Coil—Antenna coil (L1, L2, L3, L4, L5).....	SPEAKER ASSEMBLIES (RL63J-1)	
31782	Coil—Oscillator coil—"A" band only (L13).....	31825	Cap—Speaker cone center dust cap.....
31783	Coil—Oscillator coil—"B" and "C" bands only (L11, L12).....	11469	Coil—Hum neutralizing coil (L20).....
31812	Coil—Oscillator coil—"X" band only (L14).....	12012	Coil—Speaker field coil (L21).....
31811	Coil—R-f coil (L6, L7, L8, L9, L10).....	31828	Cone—Speaker cone and voice coil (L19).....
31774	Condenser—3-gang variable tuning condenser (C4, C9, C46).....	31826	Plug—4-contact male plug for speaker.....
31278	Cord—Band indicator cord.....	31827	Speaker—Complete.....
31786	Cord—Variable condenser drive cord.....	14355	Transformer—Output transformer (T1).....
31787	Drive—Two-speed drive and mounting bracket.....	MISCELLANEOUS ASSEMBLIES	
31808	Drum—Variable condenser drive cord drum.....	31834	Dial—Dial scale and crystal.....
31819	Indicator—Band indicator strip.....	31832	Escutcheon—Dial scale escutcheon—less dial scale and crystal.....
11891	Lamp—Dial lamp.....	31717	Indicator—Indicator pointer and carriage.....
31817	Plate—Cushion socket mounting plate—less socket.....	31802	Knob—Station selector, tone control, volume control or range switch knob.....
5040	Plug—4-contact female plug for speaker cable.....	30868	Plug—2-contact female plug for speaker cable.....
14404	Plug—7-contact male plug for power input.....	30870	Plug—2-contact male plug for speaker cable.....
31788	Pulley—Two-speed drive pulley.....	31287	Rod—Pointer carriage slide rod.....
31280	Pulley—Indicator pointer drive cord pulley (large).....	14270	Spring—Retaining spring for knob, Stock No. 31802.....
31373	Pulley—Indicator pointer drive cord pulley (small).....	31558	Spring—Stop spring for pointer slide rod.....
31272	Pulley—Range switch pulley.....		
14660	Resistor—18 ohms, 1/2 watt (R15).....		
14526	Resistor—200 ohms, wire-wound, 2 1/2 watt (R14).....		
14837	Resistor—1,000 ohms, 1/10 watt (R22).....		
13204	Resistor—8,200 ohms, 2 watt (R18).....		

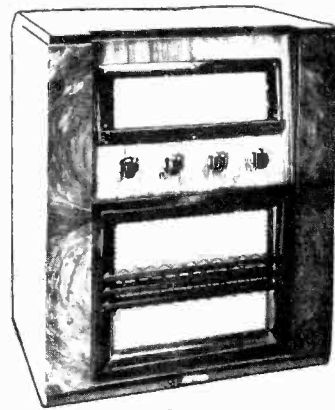
MODELS 8QB and 8QBK

Chassis No. RC-336

Eight-Tube, Three-Band, Superheterodyne Receivers



Model 8QBK



Model 8QB



Location of Controls

The pilot lights are illuminated by pressing in the volume-control knob. (The pilot lights are not controlled by this action when the receiver is operated with the CV-110 a-c power supply unit.) Sensitivity switch is on rear of chassis.

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) . . . 530-1,720 kc (566-174 m)
 Medium Wave ("B" Band) 2.3-7.0 mc (130-42.8 m)
 Short Wave ("C" Band) 7.0-22 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6S7-G R-F Amplifier
- (2) RCA-6D8-G 1st-Detector
- (3) RCA-6J7 Oscillator
- (4) RCA-6S7-G 1st I-F Amplifier
- (5) RCA-6S7-G 2nd I-F Amplifier
- (6) RCA-6T7-G 2nd-Det., A.V.C., and Audio
- (7) RCA-6L5-G Driver
- (8) RCA-6Z7-G Push-Pull Power Output

Note: An RCA-5Y3-G rectifier is used in the CV-110 A-C power supply unit.

PILOT LAMPS (2) Mazda No. 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

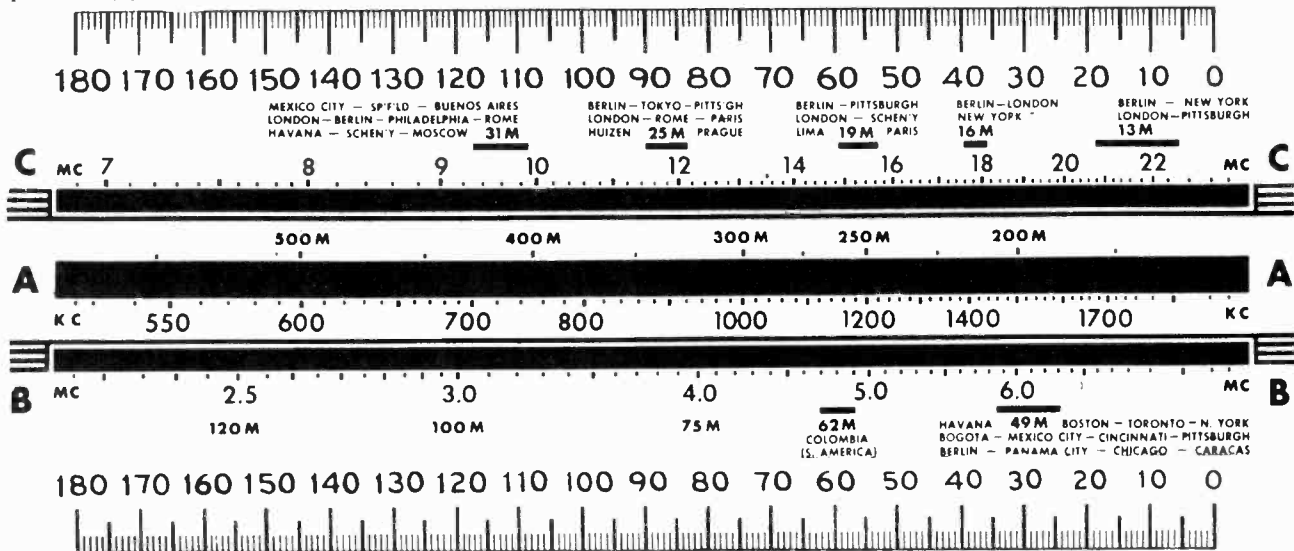
Maximum 2.8 watts
 Undistorted 2.0 watts

LOUDSPEAKER (Permanent-Magnet Dynamic)

Voice-coil impedance at 400 cycles 2.2 ohms

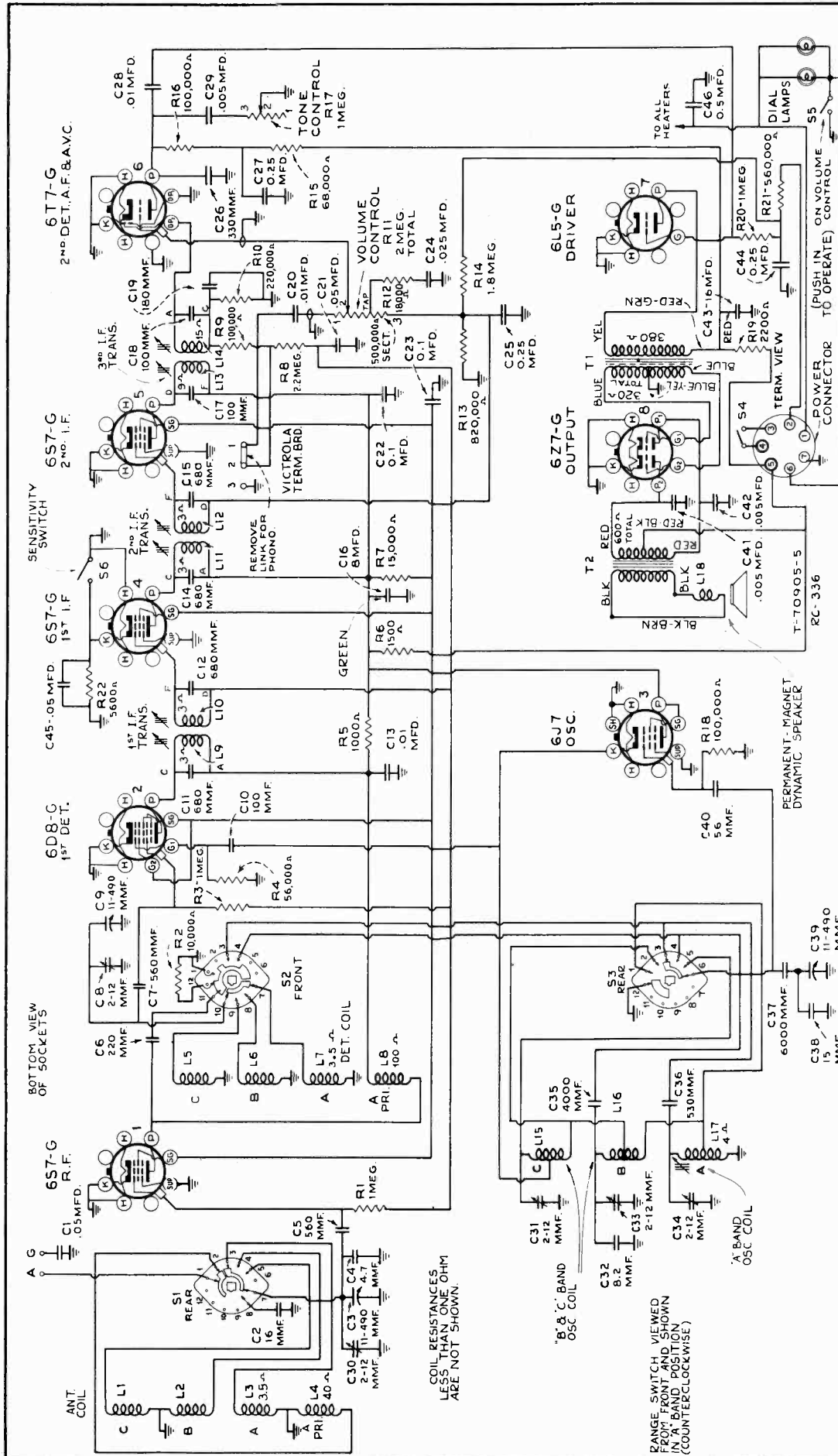
POWER SUPPLY RATING

D-C Rating (with vibrator-type power supply unit)—
 6.3 volts, 3.5 amps.
 A-C Rating (with CV-110 A-C power supply unit)—
 105-117, 117-130, 140-160, 200-225, 225-250 volts, 25-
 60 cycles.



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

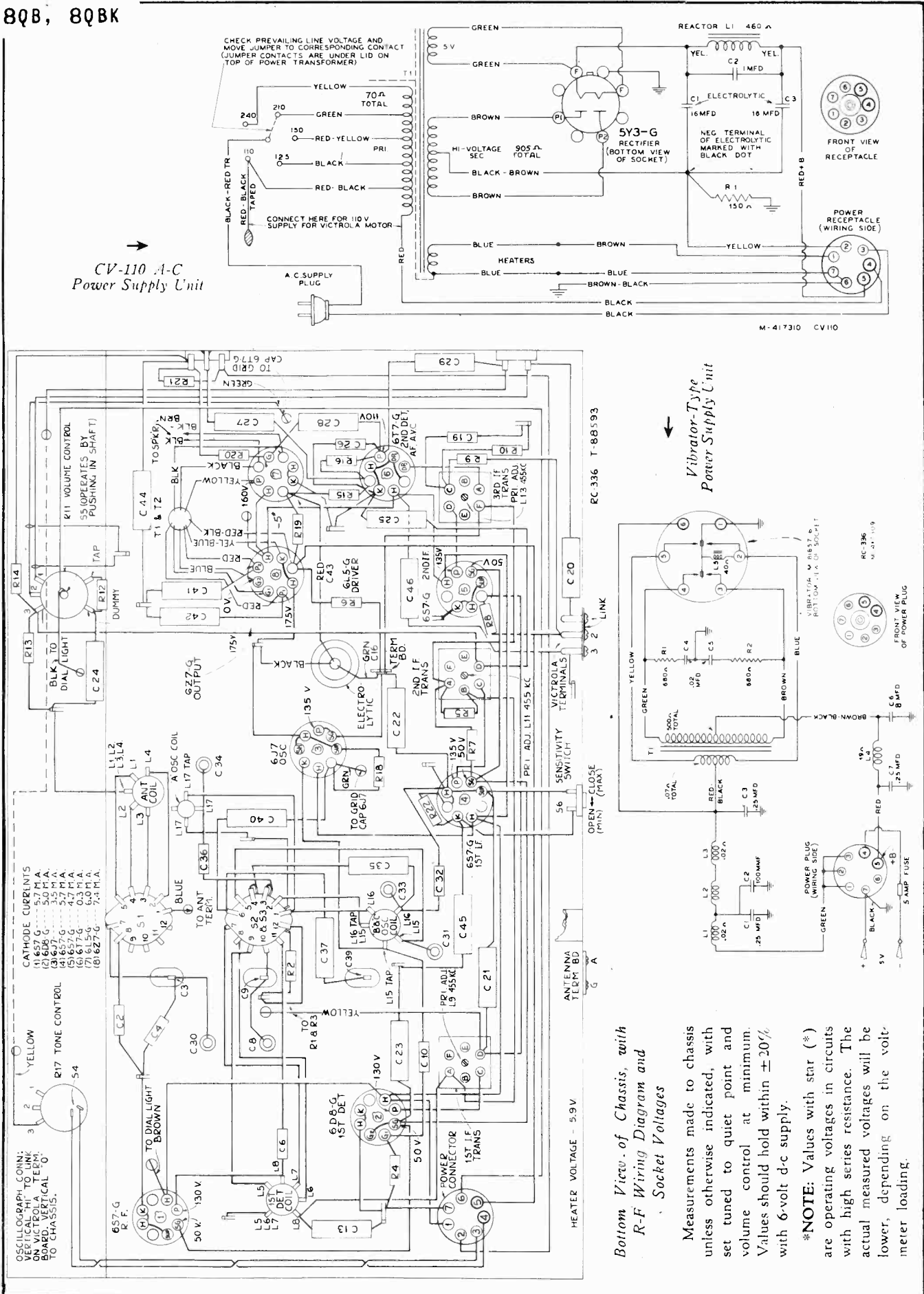
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Schematic Circuit Diagram of Chassis

Precautionary Lead Dress—

1. Dress the leads from 1st-detector coil to range switch away from trimmer C8.
2. Dress all leads away from the tap on the volume control.
3. Dress the blue lead from the antenna terminal to the range switch close to chassis.
4. Grid-cap connectors must not ground to tube shields.
5. Dress black lead from terminal 7 on power connector into corner and close to side of chassis.



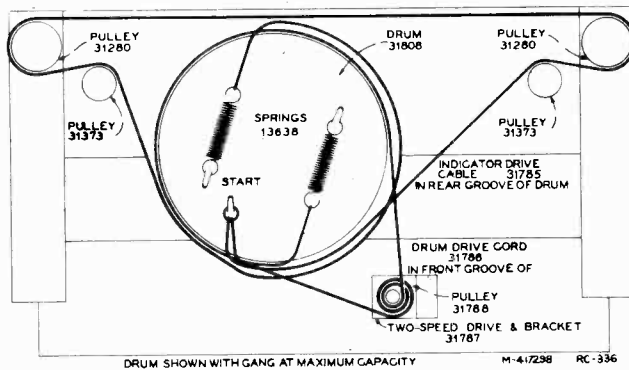
Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

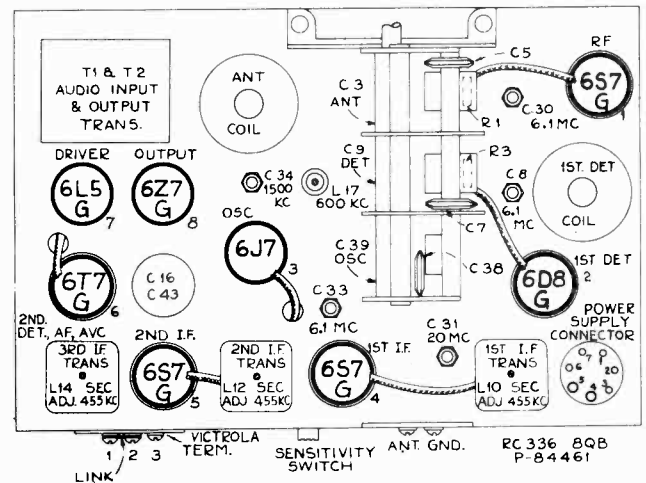
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator



Top View, Showing Location of Tubes and Trimmers

Pointer for Calibration Scale.—Improve a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end mark on the dial scales and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

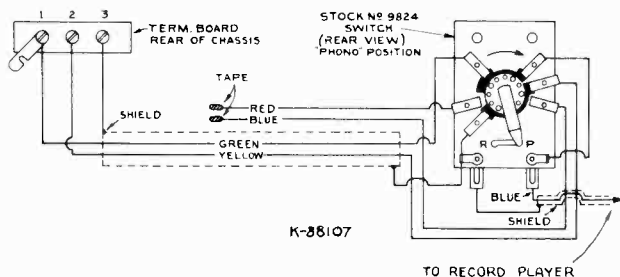
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
Leave the sensitivity switch open (minimum sensitivity) during all alignment operations.				
1	6S7-G 2nd-I.F. grid cap, in series with .01 mfd.	455 kc	"B" band, Quiet point.	L13 and L14 (3rd I-F Trans.)
2	6S7-G 1st-I.F. grid cap, in series with .01 mfd.			L11 and L12 (2nd I-F Trans.)
3	6D8-G 1st-det. grid cap, in series with .01 mfd.			L9 and L10 (1st I-F Trans.)
4	Antenna Terminal, in series with 300 ohms	6.1 mc	6.1 mc (29°) "B" band	C33 (osc.)* C8 (det.)* C30 (ant.)
4A	Check to determine that C33 has been adjusted to correct peak by turning radio to 5.19 mc (50°), where a weaker signal should be received.			
5	Antenna Terminal, in series with 300 ohms	20 mc	20 mc (23.5°) "C" band	C31 (osc.)*
5A	Check to determine that C31 has been adjusted to correct peak by turning radio to 19.09 mc (29.5°), where a weaker signal should be received.			
6	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (31°) "A" band	C34 (osc.)*
7	Antenna Terminal in series with 200 mmf.	600 kc	600 kc (144.5°) "A" band	L17 (osc.)††
8	Repeat Step No. 6.			

* Use **minimum** capacity peak (plunger out) if two peaks can be obtained.

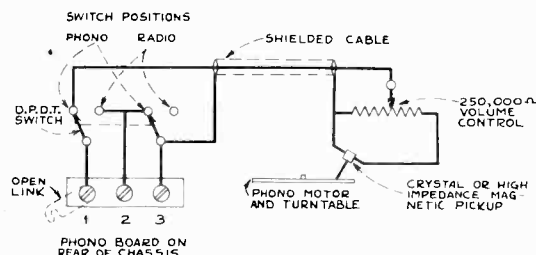
† Rock the gang condenser slightly while adjusting C8, and use **maximum** capacity peak if two peaks can be obtained.

†† Rock the gang condenser slightly while adjusting L17 for maximum output.

NOTE: The oscillator tracks 455 kc above the signal on all bands.



Record Player Connections, Using a No. 9824 Switch



Record Player Connections, Using a Double-Pole, Double-Throw Toggle Switch

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES (RC-336)			
13216	Board—Antenna and ground terminal board...	3950	Shield—Tube shield
12717	Board—Phonograph input terminal board	31365	Socket—Dial lamp socket
31785	Cable—Indicator pointer drive cable	31251	Socket—Octal base tube socket
31778	Capacitor—Comprising one 8 mfd. and one 16 mfd. sections (C-16, C-43)	13638	Spring—Indicator drive cable, or variable condenser drive cord tension spring
12714	Capacitor—Trimmer, 2-12 mmfd. (C-8, C-30, C-31, C-33, C-34)	31775	Switch—Range switch (S-1, S-2, S-3)
14392	Capacitor—4.7 mmfd. (C-4)	30953	Switch—S.P.S.T. sensitivity switch (S-6)
13001	Capacitor—8.2 mmfd. (C-32)	31777	Tone Control and power switch (R-17, S-4)
12896	Capacitor—15 mmfd. (C-38)	31784	Transformer—Driver and output transformer (T-1, T-2)
31791	Capacitor—16 mmfd. (C-2)	31268	Transformer—Third I.F. transformer (L-13, L-14, C-17, C-18)
12723	Capacitor—56 mmfd. (C-40)	31779	Transformer—First or second I.F. transformer (L-9, L-10, C-11, C-12) (L-11, L-12, C-14, C-15)
12720	Capacitor—100 mmfd. (C-10)	31776	Volume Control and dial light switch (R-11, S-5)
31270	Capacitor—100 mmfd. (C-17, C-18)	VIBRATOR POWER SUPPLY UNIT	
13003	Capacitor—180 mmfd. (C-19)	12720	Capacitor—100 mmfd. (C-2)
12694	Capacitor—220 mmfd. (C-6)	31796	Capacitor—.02 mfd. (C-4, C-5)
12952	Capacitor—330 mmfd. (C-26)	12484	Capacitor—0.25 mfd. (C-1, C-3, C-7)
31790	Capacitor—530 mmfd. (C-36)	13046	Capacitor—8 mfd. (C-6)
12537	Capacitor—560 mmfd. (C-11, C-7)	14289	Clip—Battery clips—one marked "+" and one unmarked
31552	Capacitor—680 mmfd. (C-11, C-12, C-14, C-15)	12819	Coil—Choke coil (L-4)
31792	Capacitor—4,000 mmfd. (C-35)	31794	Coil—Choke coil (L-1, L-3)
31405	Capacitor—6,000 mmfd. (C-37)	5140	Fuse—5-amp.
4838	Capacitor—.005 mfd. (C-29, C-41, C-42)	14409	Plug—7-contact female plug for power cable
14393	Capacitor—.01 mfd. (C-13, C-20, C-28)	12262	Resistor—680 ohms, 1/2 watt (R-1, R-2)
4870	Capacitor—.025 mfd. (C-24)	4786	Socket—Vibrator socket
4886	Capacitor—.05 mfd. (C-1, C-21, C-45)	31793	Transformer—Vibrator power transformer (T-1)
4839	Capacitor—.1 mfd. (C-22, C-23)	31795	Vibrator—Plug-in vibrator (L-5)
12484	Capacitor—.25 mfd. (C-25, C-27, C-44)	CV-110 A-C POWER SUPPLY UNIT	
30867	Capacitor—.5 mfd. (C-48)	32015	Capacitor—1 mfd. (C-2)
31780	Coil—Antenna coil and shield (L-1, L-2, L-3, L-4)	32013	Capacitor—Comprising 2 sections 16 mfd. each (C-1, C-3)
31781	Coil—R.F. coil and shield (L-5, L-6, L-7, L-8)	14409	Plug—7-contact plug for power output cable
31782	Coil—Oscillator coil—"A" band only (L-17)	32014	Reactor—Filter reactor (L-1)
31783	Coil—Oscillator coil—"B" and "C" bands only (L-15, L-16)	30880	Resistor—150 ohms, 1/2 watt (R-1)
31774	Condenser—3-gang variable tuning condenser (C-3, C-9, C-39)	31251	Socket—Rectifier tube socket
31786	Cord—Variable condenser drive cord	31998	Transformer—Power transformer 105-130, 140-160, 200-250 volts, 25-60 cycles (T-1)
31787	Drive—Two speed drive and bracket	SPEAKER ASSEMBLIES	
31808	Drum—Variable condenser drive cord drum with calibrator scale	Model 8QB (Speaker RL-73-4)	
11891	Lamp—Dial lamp	31310	Cone—Speaker cone and voice coil (L-18)
14028	Nut—Jamb nut for capacitor, Stock 12714	5118	Plug—3-contact male plug for speaker
31817	Plate—Cushion socket mounting plate—less socket	31797	Speaker complete
5119	Plug—3-contact female plug for speaker cable	Model 8QBK (Speaker RL-71-5)	
14404	Plug—7-contact plug for power input	31275	Cone—Speaker cone and voice coil (L-18)
31280	Pulley—Indicator drive cord pulley (large)	5118	Plug—3-contact male plug for speaker
31373	Pulley—Indicator drive cord pulley (small)	31798	Speaker complete
31788	Pulley—Variable condenser drive cord pulley—fastens on two speed drive	MISCELLANEOUS ASSEMBLIES	
14837	Resistor—1,000 ohms, 1/10 watt (R-5)	31800	Dial—Station selector dial scale and crystal
30654	Resistor—1,500 ohms, 1/2 watt (R-6)	31799	Escutcheon—Dial escutcheon—less dial scale and crystal
3528	Resistor—2,200 ohms, 1/2 watt (R-19)	31801	Indicator—Station selector indicator pointer complete with carriage and clip
31789	Resistor—5,600 ohms, 1/10 watt (R-22)	31802	Knob—Station selector, range switch or tone control knob
13302	Resistor—10,000 ohms, 1/10 watt (R-2)	31803	Knob—Volume control knob
5114	Resistor—15,000 ohms, 1 watt (R-7)	31287	Rod—Indicator pointer slide rod
12070	Resistor—18,000 ohms, 1/10 watt (R-12)	31306	Screen—Dial color screen and light diffuser
11282	Resistor—58,000 ohms, 1/10 watt (R-4)	12993	Screw—No. 8-32 x 1/4-in. headless set screw for knob, Stock 31803
12010	Resistor—68,000 ohms, 1/10 watt (R-15)	14270	Spring—Retaining spring for knob, Stock 31802
14560	Resistor—100,000 ohms, 1/2 watt (R-9, R-16)	31558	Stop—Indicator carriage spring stop
11281	Resistor—100,000 ohms, 1/10 watt (R-18)		
11398	Resistor—220,000 ohms, 1/10 watt (R-10)		
11397	Resistor—560,000 ohms, 1/10 watt (R-21)		
12146	Resistor—820,000 ohms, 1/10 watt (R-13)		
12013	Resistor—1 meg., 1/10 watt (R-1, R-3, R-20)		
5028	Resistor—1.8 meg., 1/2 watt (R-14)		
5131	Resistor—2.2 meg., 1/10 watt (R-8)		
14887	Retainer—Retainer for pulley, Stock 31280 and 31373		
4669	Screw—No. 8-32 sq. head set screw for drum, Stock 14856, and pulley, Stock 31788		

PSU 8A, 8B, 8C, 10A, 10B and 10C

A-C Power Supply Units

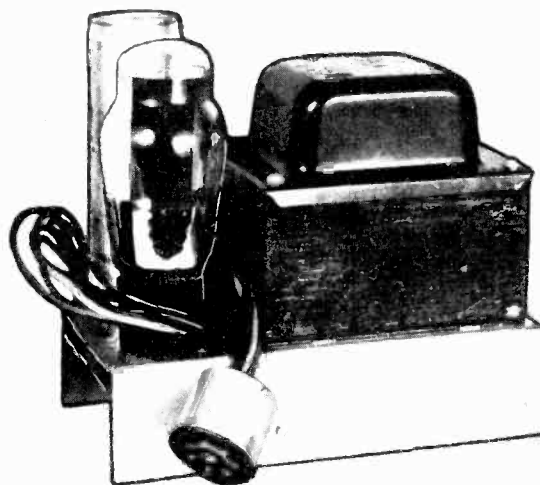
General Description

Certain models of the "Q" Line of RCA Victor "Magic Brain" 1938 radio receivers are designed for use with a separate plug-in power supply unit. Different units are available to permit operation on a-c power supplies of various voltages and cycles, and also on 110 or 220 volts d-c.

Service data and diagrams for the a-c units are contained in this sheet: The d-c units are described in a separate sheet.

Each a-c unit is equipped with an 18-inch 6-wire cable with a 7-contact female receptacle which plugs into a 7-prong male connector on the receiver chassis. The a-c power cord is 6 feet long. The units are approximately 7½ inches long, 4¼ inches wide, and 6 inches high.

Testing.—To check an a-c power unit when a receiver is not available, connect a 50-watt resistor (4,800 ohms for PSU 8A, 8B, 8C, and 3,450 ohms for PSU 10A, 10B and 10C) across contacts 2 and 6 on the power receptacle. Connect a jumper across contacts 4 and 5. Measure the d-c voltage across the resistor, which should be approximately 375 volts, with 117 volts supply on the 117-volt tap.



Specifications

Type	Rating		Radiotron Rectifier	D-C Output	Heater (A-C)	Used with Models	D-C Resis., T1		Net Weight (pounds)
	Voltage	Cycles					Pri. ohms Total	Sec. ohms Total	
PSU 8A	105-125	50/60	5Y3-G	375 volts at 78 milliamps	6.45 V 3 amps	8Q1 and 8Q4	6.4	535	7
PSU 8B	105-125	25/60					8.3	705	9½
PSU 8C	Universal*	50/60					17.4	455	11½
PSU 10A	105-125	50/60	5U4-G	380 volts at 110 milliamps	6.36 V 5 amps	10Q1, 12Q4, 12QK, 12QU**	3.0	250	9
PSU 10B	105-125	25/60					3.9	250	13
PSU 10C	Universal*	50/60					8.9	190	15

* The universal can be set for 105-117, 117-130, 140-160, 200-225, or 225-250 volt supply.

** Model 12QU has a phonograph motor designed for 50/60 cycle operation only, and uses either PSU 10A, or 10C.

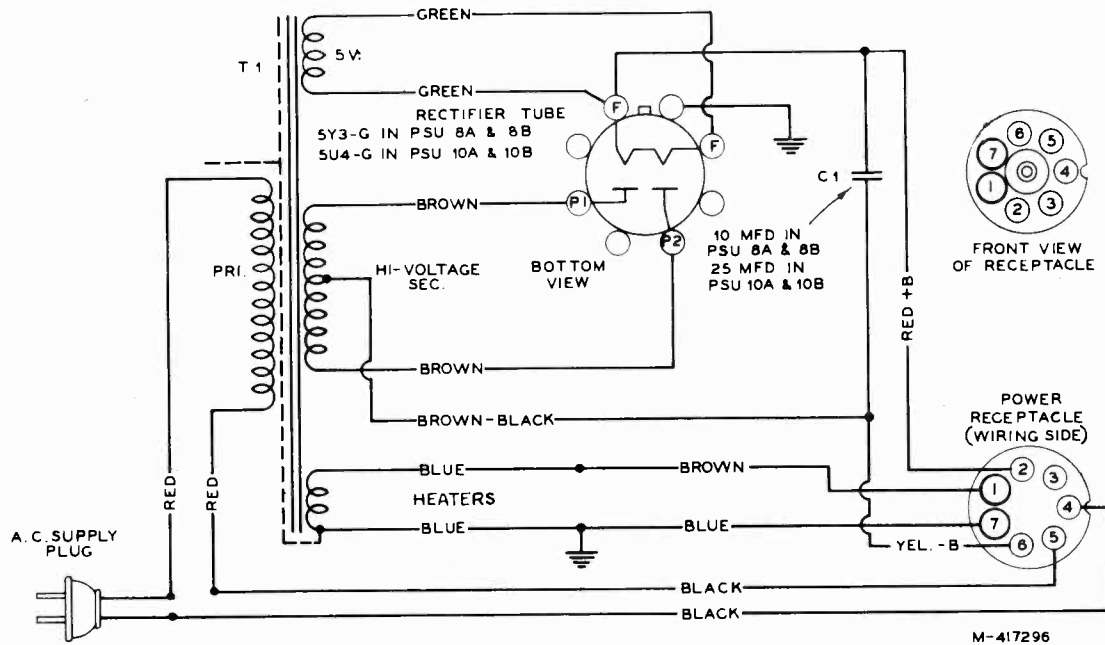
REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31739	Cable—6-conductor power output cable with plug	31734	Transformer—Power transformer 105-125 volts, 25-60 cycle (T1) (PSU 8B only)
11203	Capacitor—10 mfd. (C1) (PSU 8A, 8B or 8C only)	31737	Transformer—Power transformer 105-125 volts, 25-60 cycle (T1) (PSU 10B only)
14531	Capacitor—25 mfd. (C1) (PSU 10A, 10B or 10C only)	31735	Transformer—Power transformer 105-130, 140-160, 200-250 volts, 50-60 cycle (T1) (PSU 8C only)
14409	Plug—7-contact plug for power output cable	31738	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 50-60 cycle (T1) (PSU 10C only)
31251	Socket—Rectifier tube socket		
31733	Transformer—Power transformer 105-125 volts, 50-60 cycle (T1) (PSU 8A only)		
31736	Transformer—Power transformer 105-125 volts, 50-60 cycle (T1) (PSU 10A only)		

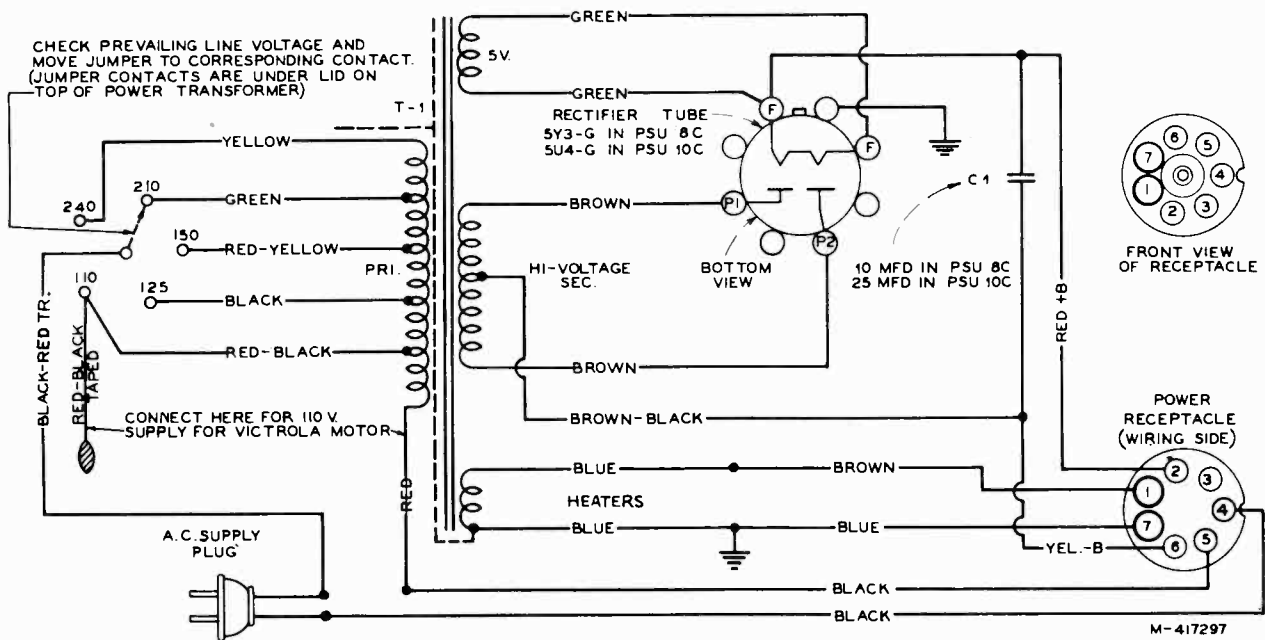
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PSU 8A, -B, -C, 10A, -B, -C



M-417296

Schematic Circuit Diagram of Power Supply Units PSU 8A, 8B, 10A, and 10B

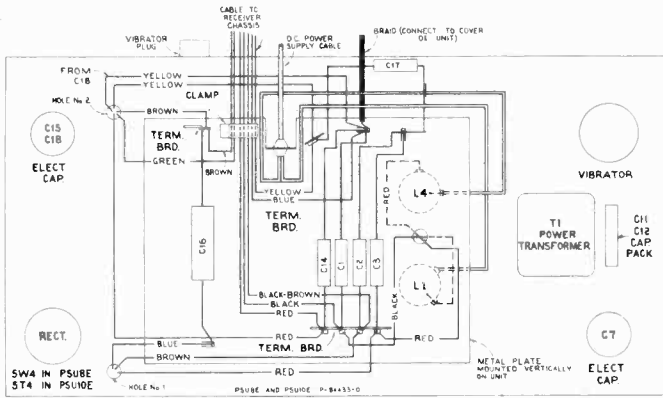


M-417297

Schematic Diagram of Power Supply Units PSU 8C and 10C

PSU 8E and 10E

D-C Power Supply Units



At Left—
Top View of D-C Power Unit

Each d-c unit is equipped with an 18-inch 7-wire cable, with a 7-contact female receptacle which plugs into a 7-prong male connector on the receiver chassis. The d-c power cord (double conductor) is 6-feet long and is provided with a fused plug. The units are approximately 12½-inches long, 5½-inches wide, and 8½-inches high.

GOOD GROUND IS ESSENTIAL.—It is necessary to provide a good ground connection to the receiver chassis. The ground lead should be heavy wire, as short as possible, connected to a water pipe by means of an approved ground clamp. If a water pipe ground is not available, a buried metal plate or screen may be used. This should have an area of approximately 20 square feet and should be buried one or two feet in moist ground. The connection to the plate should be electrically good, mechanically solid, and permanent.

Grounding Power Supply Unit.—A flexible metal braid is connected from the PSU chassis to the case of the unit, and another length of braid extends from the case for connection to the receiver chassis. Loosen one of the self-tapping screws on the rear of the chassis, and attach the braid under this screw. It is important to see that these connections are made correctly at the time of installation.

Magic Wave Antenna Recommended.—In cases where the line or vibrator interference is found to be objectionable, the use of an RCA Magic Wave Antenna (Stock No. 9812) is recommended in conjunction with a good ground as specified above.

Link Board for Changing from 117 to 234 Volts.—A link board is mounted under the chassis of the PSU for making connections to permit operation on 105-125 volts d.c., or on 210-250 volts d.c. The correct position of the links for each voltage range is shown in the schematic diagram. The links must be arranged correctly in the link board for the particular voltage range on which the unit is to be operated, otherwise damage to the receiver may result.

Vibrator Plug.—The heater windings on the power transformer are tapped and connected to a six-contact socket on the rear of the PSU chassis. A plug fits into this socket in two positions only. An arrow on the plug points to markings "NEW" or "OLD" on the

case of the unit. When the vibrator is new, the plug is inserted with the arrow pointing to "NEW." In the course of time, when the vibrator is worn to an extent where the dial lights burn dull or red instead of with their usual brilliancy, the plug should be removed and re-inserted with the arrow pointing to "OLD." (In this position, all the turns of the heater windings are connected, thus bringing the heater voltage up to normal.)

The number of operating hours to the time when it is necessary to turn the plug to "OLD" is not an indication of the ultimate life of the vibrator. For example, with high line voltage, the plug may usually be left at "NEW" for practically the entire useful life of the vibrator; but with low line voltage, it may be necessary to turn the plug to "OLD" after a time corresponding to a small fraction of the total life of the vibrator.

Testing.—The simplest way to check PSU 8E or 10E is to plug it into a receiver for which it is designed. (First check the position of the links for the particular line voltage.) Note whether the dial lamps in the receiver light with normal brilliancy, and measure the rectified "B" voltage at the receiver to determine whether it is normal.

If a receiver is not available, dummy loads may be connected to the unit as specified in the table below.

The supply current must be measured with a d-c ammeter, not a meter of the a-c type, inasmuch as the r.m.s. value of the current is considerably higher than the d-c current. The heater voltage must be measured with an r.m.s. meter (thermo-coupled), not with an average meter (rectifier type), on account of the square wave shape. If an accurate thermo-coupled meter is not available, the heater voltage may be checked by observing the brilliancy of the dial lamps in the receiver. They will glow dull or red if the heater voltage is low.

Precautionary Lead Dress.—(1) Dress all leads on the power transformer primary and the buffer capacitors away from the line chokes. (2) Leads to C19 must be as short as possible. (3) The rectifier filament leads should be run close to each other, and dressed away from the filter chokes. (4) D-C power cord must not touch power transformer. (5) Keep antenna and ground leads away from PSU and PSU cables.

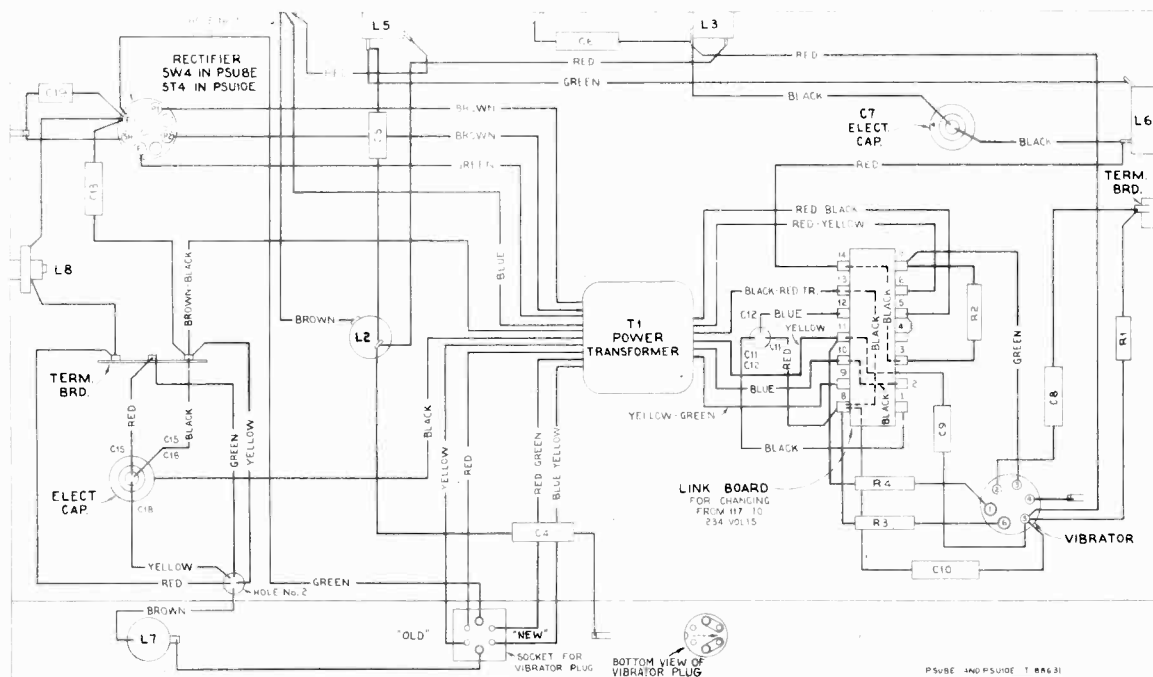
PSU	Supply Volts DC	Heater Load (ohms)	Rectifier Load (ohms)	Supply Current D-C amps.	Heater Voltage (A.C.)		Rectified Voltage (D.C.)		Used With Models
					Max.	Min.	Max.	Min.	
8E	117	2.2	4,900	0.90	7.85	7.1	400	360	8Q1, and 8Q4
	234	2.2	4,900	0.50	7.85	7.1	400	360	
10E	117	1.4	3,400	1.10	7.4	6.6	400	360	10Q1, 12Q4, 12QK
	234	1.4	3,400	.65	7.4	6.6	400	360	

NOTE: The heater and rectifier dummy load resistors should be capable of handling 50 watts. Connect the heater load across terminals 1 and 7 on the 7-contact plug. Connect the rectifier load resistor across terminals 2 and 6 on the 7-contact plug. Connect a jumper from terminal 2 to 3, and from 4 to 5 on this plug. Check position of links before turning power on.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	DC POWER SUPPLY (PSU-8E and PSU-10E)	32053	Coil—Choke coil (L8)
		5140	Fuse—5 amp. fuse
12952	Capacitor—330 mmfd. (C19)	30557	Plug—Fused plug less fuses and power cord
4987	Capacitor—.01 mfd. (C9, C10)	32052	Plug—6-contact power change plug
14626	Capacitor—.07 mfd. (C13, C14, C17)	14409	Plug—7-contact female plug for power supply cable
4839	Capacitor—.01 mfd. (C8)	32064	Resistor—0.47 ohms, flexible type (R3, R4)
12484	Capacitor—.025 mfd. (C1, C2, C3, C4, C5, C6)	4687	Resistor—1,000 ohms, ½ watt (R1)
32049	Capacitor—Comprising two sections of 0.5 mfd. each (C11, C12)	11768	Resistor—4,700 ohms, 2 watt (R2)
32048	Capacitor—5 mfd. (C7)	32051	Socket—6-contact power change socket
32047	Capacitor—Comprising one section 10 mfd. and one section 20 mfd. (C15, C18)	31251	Socket—Tube socket
32045	Capacitor—15 mfd. (C16)	14312	Socket—Vibrator socket
32046	Coil—Choke coil (L1, L2, L3, L4, L5, L6)	32062	Transformer—Power transformer (PSU-8E only)
31794	Coil—Choke coil (L7)	32063	Transformer—Power transformer (PSU-10E only)
		32050	Vibrator

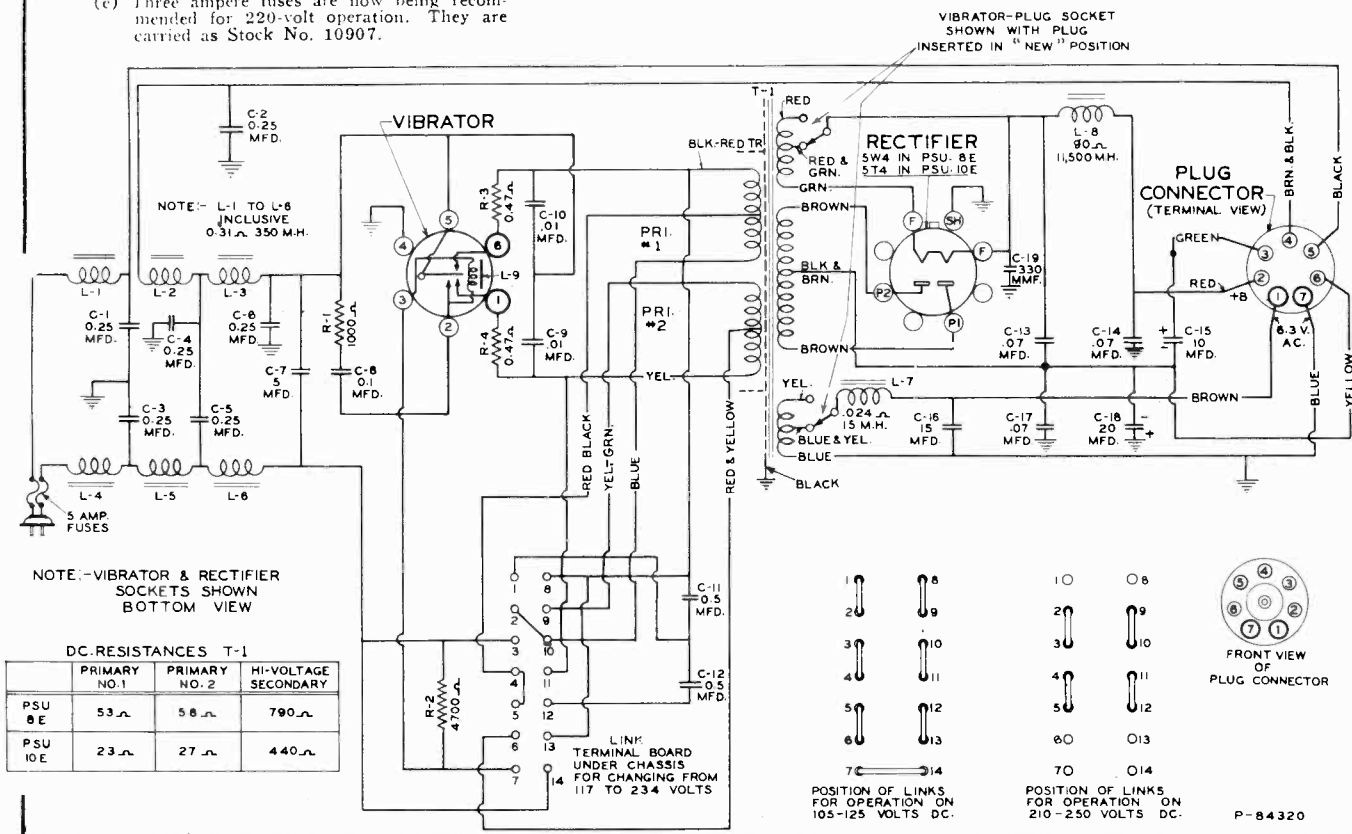


Recommended Changes:

- (a) Replace paper condensers, Stock No. 32049 (C-11 and C-12) on the earlier models with a new type oil capacitor now carried under the same stock number and incorporated in units of later production.
- (b) The transformer primary leads should be reversed so that the black with red tracer lead goes through R-3 to terminal No. 1 on the vibrator socket and the yellow lead through R-4 to terminal No. 6 of the vibrator socket.
- (c) An insulative sheet is to be added to the bottom cover under the 4,700 ohm (R-2) resistor.
- (d) Precaution should be taken to dress parts and leads to clear chassis and bottom cover.
- (e) Three ampere fuses are now being recommended for 220-volt operation. They are carried as Stock No. 10907.

Above—
Bottom View of D-C Power Unit

Below—
Schematic Diagram



MODEL U-8

Chassis No. RC-404A

Five-Tube, Single-Band, A-C, Superheterodyne Victrola

Electrical Specifications

FREQUENCY RANGE 540-1720 kc
 INTERMEDIATE FREQUENCY 455 kc
 TUBE COMPLEMENT
 (1) RCA-12SA7 1st-Detector-Oscillator
 (2) RCA-12SK7 I-F Amplifier
 (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C.
 (4) RCA-35L6GT Power Output
 (5) RCA-35Z5GT Half-Wave Rectifier
 Dial Lamp (1) Mazda 51, 7.5 volts, 0.2 amp.
 POWER SUPPLY RATINGS
 A-5 105-125 volts, 50 cycles, 40 watts
 A-6 105-125 volts, 60 cycles, 40 watts
 POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted75 watts
 Maximum 1.3 watts
 LOUDSPEAKER
 Type 5-inch Electrodynamic
 Voice-Coil Impedance 3.4 ohms at 400 cycles
 PHONOGRAPH Synchronous (manual starting)
 Records 10-inch and 12-inch, 78 r.p.m.
 Pickup Crystal, 100,000 ohms at 1,000 c.p.s.
 Average Output of Pickup 1½ volts at 1,000 c.p.s.
 across ½ meg. load



Model U-8W
Walnut Finish
Model U-8M
Blonde Mahogany Finish

Additional Replacement Parts:

Stock No.
 34758 Bushing—1 rubber, and 1 metal, for pickup arm
 34374 Cone—Speaker cone and voice coil.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES		MOTOR ASSEMBLIES	
12488	Capacitor—250 mmfd.	31045	Base—Motor support, damper, and bearing cup assembly
12952	Capacitor—300 mmfd.	31046	Bearing—Rotor bearing
4838	Capacitor—.005 mfd.	33353	Cap—Turntable spindle cap (rubber)
4937	Capacitor—.01 mfd.	33357	Coil—Motor field coil—105-120 volts, 25 cycle.
33736	Coil—Antenna coil	31918	Coil—Motor field coil—105-120 volts, 60 cycle.
32962	Coil—Oscillator coil	31917	Coil—Motor field coil—105-120 volts, 60 cycle
13057	Condenser—60 mmfd.	31040	Cushion—One set rubber cushion for turntable mounting
30433	Condenser—400 mmfd.	31047	Cushion—Rubber cushion for rotor bearing
30303	Condenser—.0035 mfd.	33941	Frame—Motor frame and spindle—60 cycle
33584	Condenser—.005 mfd.	33641	Lamination—Rotor lamination—60 cycle
4870	Condenser—.025 mfd.	33358	Lamination—Stator laminations—25 cycle
4839	Condenser—0.1 mfd.	33354	Lamination—Stator laminations—less coil 50 cycle
12536	Condenser—820 mfd.	33355	Motor—105-120 volts, 25 cycle
32576	Condenser—Electrolytic, one section 20 mfd., one section 12 mfd.	33351	Motor—105-120 volts, 50 cycle
32968	Condenser—2-gang variable tuning	33940	Motor—105-120 volt, 60 cycle
32634	Cord—Drive cord	32075	Ring—Lead ring for turntable—25 cycle
33289	Dial—Glass dial scale	33041	Ring—Retaining ring and washer for spindle cap
33297	Drive—Dial drive mechanism—comprising drive drum, cord, shaft, dial color plate, back plate and pulleys assembled	33356	Rotor—Rotor frame, laminations, and spindle shaft assembled—25 cycle
33006	Feet—Rubber feet	33352	Rotor—Rotor frame, laminations, and spindle shaft assembled—50 cycle
33295	Indicator—Dial pointer	31036	Rotor—Turntable and rotor lamination for 60 cycle operation
32571	Knob—Tan knob (tuning or volume)	31042	Stator—Stator assembly comprising coils and laminations for 60 cycle operation
11765	Lamp—Dial lamp—Mazda 51	32076	Turntable—Finished turntable plate only—25 cycle
31193	Lead—Antenna lead	31039	Turntable—Finished turntable plate only—50 cycle
33292	Plate—Dial color plate	4083	Washer—Leather Washer
33294	Pulley—Drive cord pulley	33348	Washers—Leather and metal washers for stator bearing
33558	Resistor—86 ohms	14231	Washer—Metal spacing washer
13428	Resistor—150 ohms, ½ watt	32074	Weight—One upper and one lower weight for stator—25 cycle (2 each required)
30538	Resistor—330 ohms, ½ watt	SPEAKER ASSEMBLIES	
13998	Resistor—22,000 ohms, ½ watt	(RL-78-4)	
12266	Resistor—39,000 ohms, ½ watt	32907	Cap—Cone dust cap
12412	Resistor—47,000 ohms, ½ watt	33809	Coil—Speaker field coil
12264	Resistor—220,000 ohms, ½ watt	33466	Speaker complete (no output transformer)
12285	Resistor—470,000 ohms, ½ watt	MISCELLANEOUS ASSEMBLIES	
12879	Resistor—2.2 meg., ½ watt	33467	Control—Tone control and Radio-Record switch
13601	Resistor—10 meg., ½ watt	33289	Dial—Glass dial scale
33464	Shaft—Tuning knob shaft and bearing	30863	Knob—Tone control knob
32969	Socket—Dial lamp socket	32895	Knob—Tuning or volume control knob
32537	Socket—Tube socket	33530	Mounting—Pickup arm rubber cushion, washer and nut
32803	Spring—Dial knob spring	30870	Plug—2-prong plug for motor leads
31615	Spring—Drive cord tension spring	32610	Rest—Pickup arm rest
33296	Spring—Drive drum retaining spring		
32667	Spring—Knob or drive drum retaining spring		
32966	Transformer—First i-f transformer		
32967	Transformer—Second i-f transformer		
33465	Transformer—Output transformer		
33504	Volume control and power switch		
PICKUP AND ARM ASSEMBLIES			
33121	Arm—Pickup arm complete—less crystal cartridge		
33592	Base—Pickup arm base and pivot arm		
33122	Crystal—Pickup crystal cartridge and needle screw		
33123	Damper—Viscoloid damper for pickup armature		
33529	Screw—Pickup needle screw		

Alignment Procedure

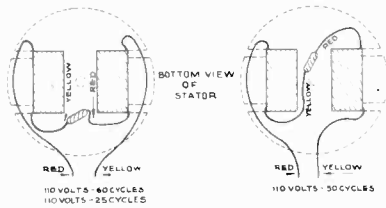
Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

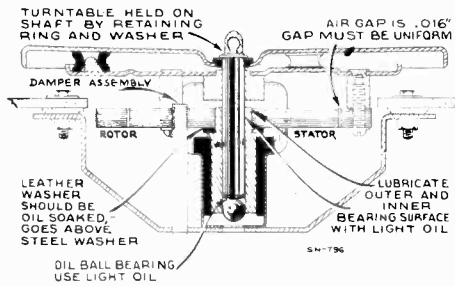
Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 muf. capacitor in series with the lead-in.

Precautionary Lead Dress

1. Dress 1st I-F plate and grid leads against chassis and away from each other. Dress plate lead from 12SK7 close to chassis.
2. Dress electrolytic capacitor against chassis apron.



Motor Coil Assembly and Connections



Cross Section of Motor Assembly

Phonograph Service Data

The motor is started by turning the radio-phonograph tone control to either 3rd or 4th position clockwise and giving the turntable a clockwise spin with the hand. Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)
3. Motor not properly supported from motor board.
4. Burrs on poles of rotor or stator. Remove with fine emery cloth.

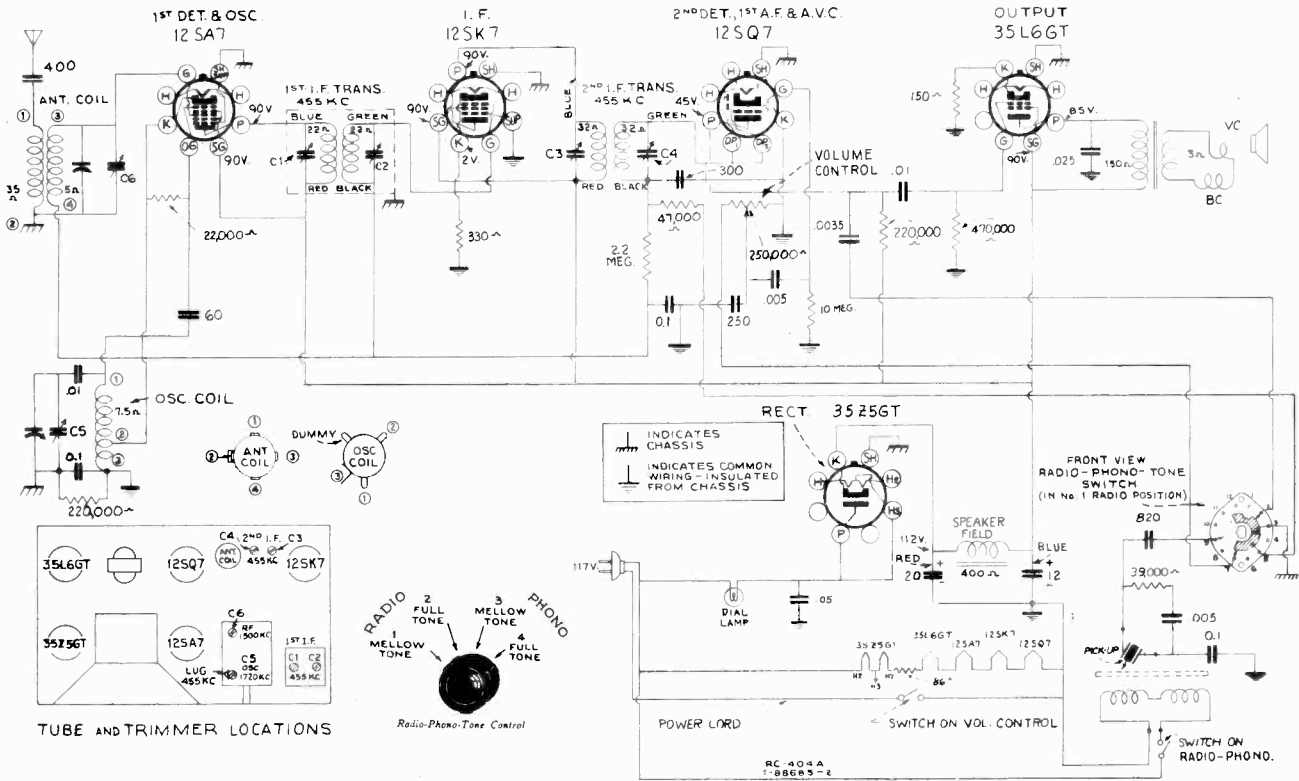
Power Supply.—Although this model employs an ac-dc chassis, it is not suitable for use on dc, as this would damage the motor.

5. The damper spring must fit without binding or chattering in the slot in the stator. The stator must be free to deflect in either direction between the limits of the damper spring. The damper spring must exert approximately equal force in restoring the stator to its mid-position when the stator is deflected manually in each direction.

Removing Rotor.—The rotor and turntable assembly simply rests on the ball bearing at bottom of vertical bearing. Remove by lifting up.

Rotor Adjustment.—Loosen the three screws that hold the rotor to the turntable, insert three 16-mil shims at equal distances around the gap between the rotor and stator, and then carefully tighten the three screws. The top of rotor must be flush with top of stator; add additional steel washers beneath the stator if necessary.

Lubrication.—Oiling points are indicated in the diagram.



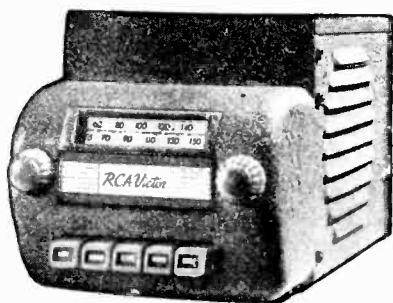
Schematic Circuit Diagram

MODELS 9M1 and M50

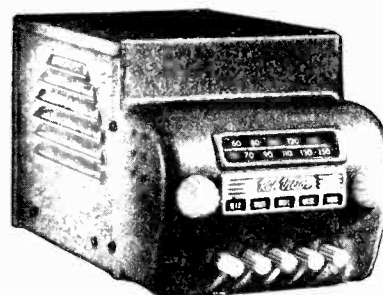
Chassis No. RC 357

RC 357J

Five-Tube, Push-Button, Superheterodyne Automobile Receiver



MODEL 9M1



MODEL M 50

Electrical Specifications

TUBES AND FUNCTIONS

6A8..... First Detector—Oscillator
 6K7..... I-F Amplifier
 6Q7..... Second Det., A-F Amp. and A.V.C.

FREQUENCY RANGE..... 550-1,550 kc

POWER OUTPUT

Type..... Pentode
 Undistorted..... 2.1 watts
 Maximum..... 4.1 watts

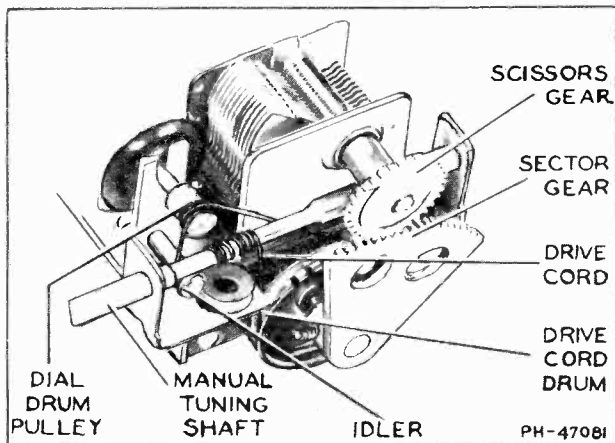
POWER SUPPLY

"A"..... 6.3 volt Auto Storage Battery
 "B"..... Non-Synchronous Vibrator
 Current Drain {9M1..... 6.75 amps.
 (M50..... 6.0 amps.

9M1 M50
 6F6..... 6K6GT..... Output
 6X5..... 6Z4G..... Rectifier
 Dial Lamp..... 6-8 volts, 0.2 amp., Mazda 11

LOUDSPEAKER

Type..... Electrodynamic
 Size..... 5 inches
 V.C. Impedance..... 3.2 ohms at 400 cycles
 Field Coil Resistance..... 5 ohms
 App. Field Coil Voltage Drop..... 6 volts



Tuning Mechanism

Antenna Circuit

The antenna circuit is designed to work with a low capacity antenna having a total capacity including the shielded lead-in not to exceed 150 mmf. If larger antennas, such as screened top or a double under the running-board having a total capacity of 200 to 550 mmf. is to be used, it will be necessary to reduce the value of the antenna coupling capacitor C-2 from .01 to approximately 200 mmf. (.0002). For even larger antennas such as insulated steel tops, a correspondingly smaller value of C-2 (approximately 125 to 150 mmf.) should be used keeping in mind to use the largest value possible with which the antenna circuit can be aligned.

After installation, and with antenna connected, tune in a weak station near 1,400 kc and adjust compensator trimmer (C-3) for maximum signal output. This trimmer is accessible by prying off the nameplate between the control knobs.

Antenna Filter

A filter is included in the antenna circuit. Being completely shielded, it prevents radiating ignition interference within the set. It also reduces the possibility of picking up vibrator interference. The filter unit is mounted inside a steel shell which in turn is welded to the chassis. The shielded antenna lead-in makes contact with the filter unit within the steel shell and is held in place by a bayonet type connector.

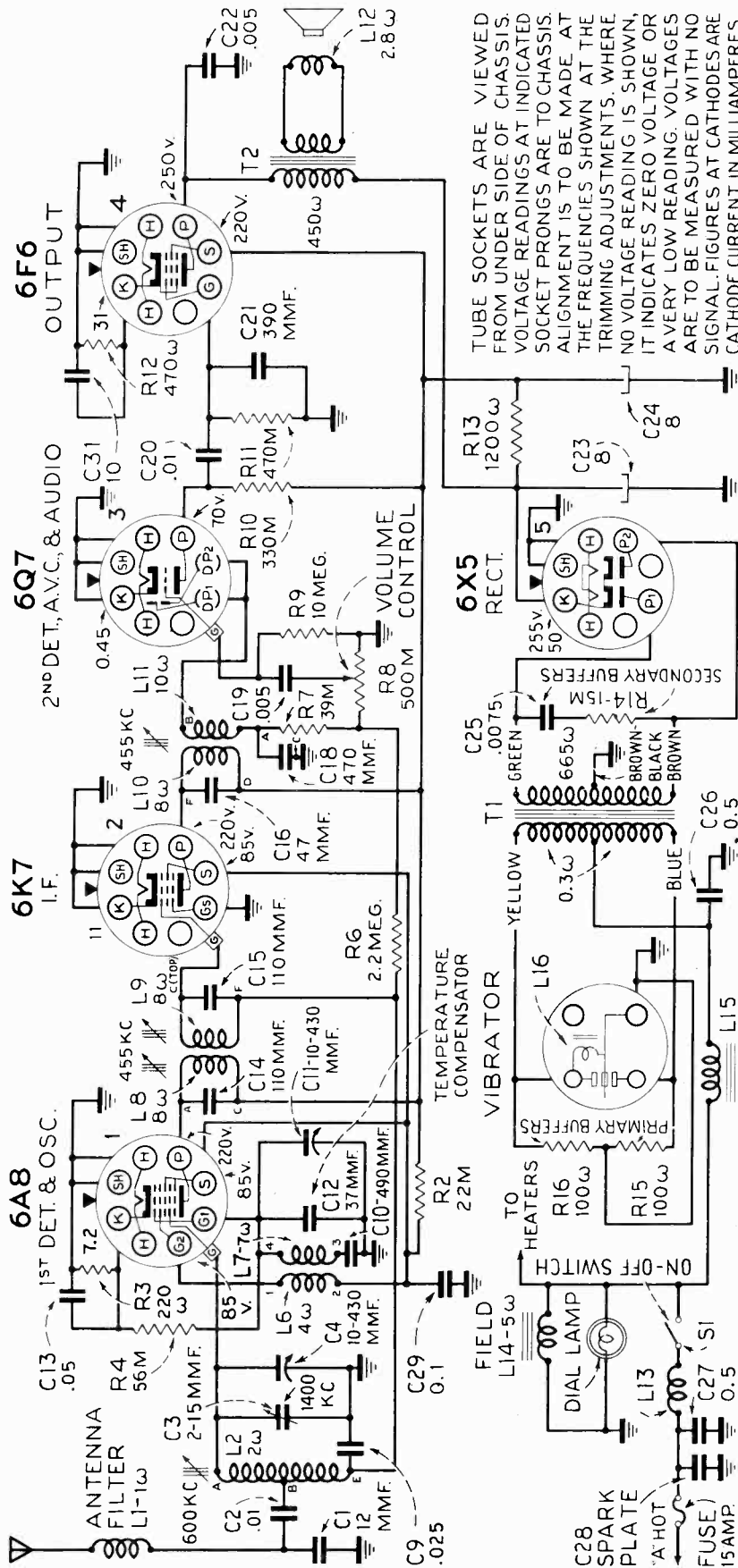
Push Button Tuning Mechanism

Care should be used when locking screws are tightened not to use excessive force as the threads may become damaged or stripped.

Adjustments

The mechanism should be adjusted so that when using either manual or push-button tuning, it operates positively and without backlash or bind. The following hints will be found helpful in adjusting the mechanism properly.

1. With the gang condenser in full mesh, the sector gear should have the two end teeth fully meshed in the scissor gear.
2. The position of the sector gear on the rocker-plate shaft should be adjusted so that there is clearance between the rocker-plates and the frame of the push-button mechanism at both extremities of gear rotation. Thus correct adjustment prevents the rotation of the gang being limited by the rocker plates touching the frame.
3. The drive cord should have 8½ turns around the tuning shaft as shown in the illustration. Three degrees of adjustment of the tension on the drive cord may be obtained by use of the three positions for connecting the drive-cord-tension spring to the drive-cord drum on the condenser shaft as shown.
4. The push-arms, rocker-plate shaft, and pulleys should be lubricated with light grease (sparingly). Care should be taken to keep the lubricant off the drive cord.



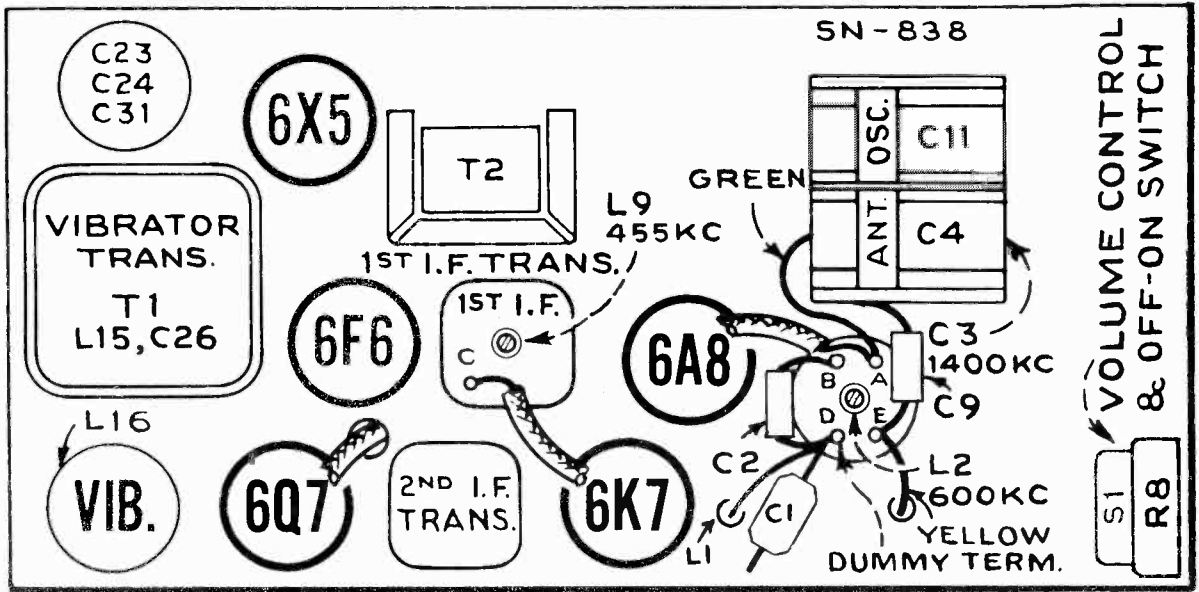
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS. ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIMMING ADJUSTMENTS. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING. VOLTAGES ARE TO BE MEASURED WITH NO SIGNAL. FIGURES AT CATHODES ARE CATHODE CURRENT IN MILLIAMPERES.

Schematic Circuit Diagram MODEL 9M1

MODEL M-50 IS IDENTICAL ELECTRICALLY TO MODEL 9M1 WITH THE FOLLOWING EXCEPTIONS:

- L 9 is 10 ohms, C15 is 56 mmfd.
- C22 is shunted across the output transformer primary.
- C23 and C24 are 10 mfd. each.
- C31 is 20 mfd.
- The output tube is a type 6K6GT.
- The rectifier tube is a type 6Z4G.

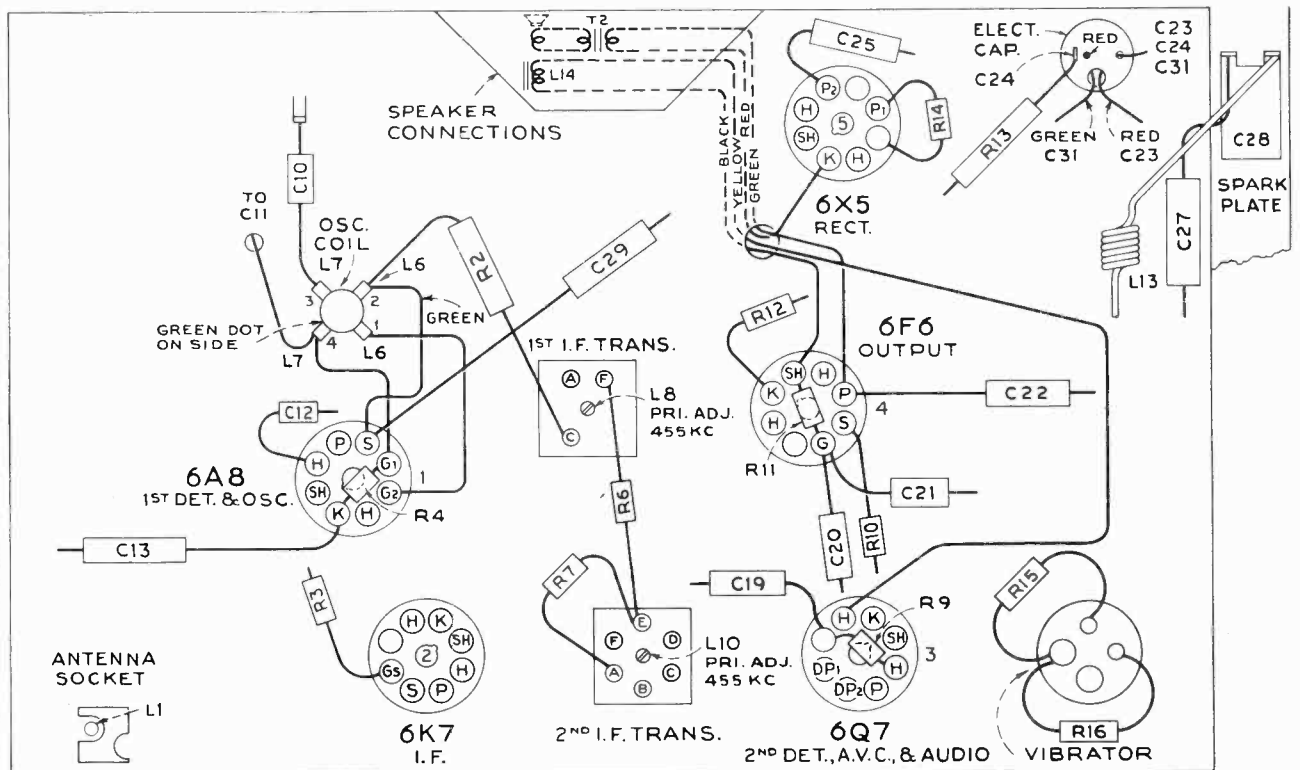
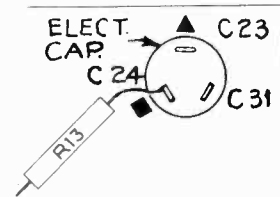
REAR OF CHASSIS



Location of Parts and Alignment Adjustments on Top of Chassis MODEL 9M1

MODEL M-50 IS IDENTICAL WITH THESE EXCEPTIONS:

- 6X5 IS CHANGED TO 0Z4G
- 6F6 IS CHANGED TO 6K6GT
- ELECTROLYTIC CAPACITOR CONNECTIONS AS ILLUSTRATED AT RIGHT



Location of Parts and Alignment Adjustments on Bottom of Chassis MODEL 9M1

Alignment Procedure

PRELIMINARY:

Output meter connections..... Across speaker voice coil
 Output meter readings to indicate 1 watt..... 1.8 volts
 Generator ground lead connections..... To chassis
 Dummy antenna value to be in series with generator output..... See Chart Below
 Connection of generator output lead..... See Chart Below
 Generator modulation..... 30%, 400 cycles
 Position of Volume Control..... Fully clockwise
 Chassis must be in its case with front end removed, when aligning R-F circuit.

Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Adjustment Symbol	Circuit Adjusted
No Signal 550-750 kc	455 kc	.001 mfd.	6K7 Grid	L-10	2nd I.F. Trans.
No Signal 550-750 kc	455 kc	.001 mfd.	6A8 Grid	L-8, L-9	1st I.F. Trans.
1,400 kc	1,400 kc	.0001 mfd. †	Ant. Lead	C-3	Ant.
600 kc	600 kc	.0001 mfd. †	Ant. Lead	L-2	Ant.
1,400 kc	1,400 kc	.0001 mfd. †	Ant. Lead	C-3 *	Ant.

NOTE: No oscillator alignment adjustments are required in this receiver.

IMPORTANT ALIGNMENT NOTES.

† Make the generator connection to the receiver thru a shielded lead-in having not more than 50 mmf. (.00005) capacity with a male connector attached for connection to antenna socket. If C-2 has been changed, as outlined under "Antenna Circuit," for reason of a high capacity antenna, the Dummy Antenna should be the same value as the antenna itself.

* Re-adjust C-3 after installation as outlined under "Antenna Circuit"

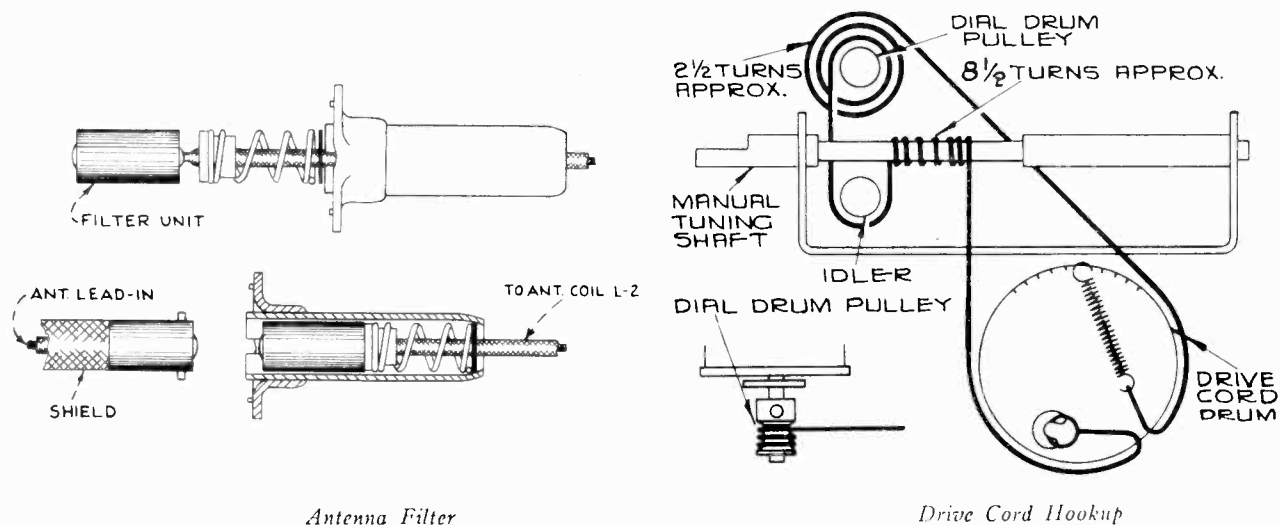
Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value, to prevent the A.V.C. action of the receiver from interfering with accurate alignment.

Alignment adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular frequency should be used. Grid cap leads should remain in place during alignment.

Oscillator circuit alignment is not required in this receiver at either end of the band; the oscillator coil is pre-adjusted for inductance in the factory.

Since the oscillator coil is unshielded, the case has some effect on its inductance. Therefore alignment must be done either with the chassis in the case or with a steel plate (covering the bottom of chassis), substituting for the case.



REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
9M1 RECEIVER ASSEMBLIES		9M1 MISCELLANEOUS ASSEMBLIES	
13002	Capacitor—12 mmfd. (C1)	4289	Body—Fuse holder body for ammeter lead....
31728	Capacitor—37 mmfd. (C12)	31656	Button—Push button.....
12405	Capacitor—47 mmfd. (C16)	5025	Capacitor—Generator capacitor.....
14262	Capacitor—110 mmfd. (C14, C15)	31653	Case—Complete receiver case only—less name plate, and dial scale.....
13894	Capacitor—390 mmfd. (C21)	4291	Clip—Spring clip for ammeter lead.....
30673	Capacitor—470 mmfd. (C18)	31456	Covers—8-protective celluloid covers for call letter markers.....
31726	Capacitor—490 mmfd., temp. coeff. (C10)	31654	Dial—Dial scale and holder.....
4838	Capacitor—.005 mfd. (C19, C22)	4286	Ferrule—Bushing and ferrule for fuse holder.....
30626	Capacitor—.0075 mfd. (C25)	5023	Fuse—15 amp.....
14393	Capacitor—.01 mfd. (C2, C20)	4290	Insulator—Insulating sleeve for fuse holder....
4870	Capacitor—.025 mfd. (C9)	31658	Knob—Station selector or volume control knob
30882	Capacitor—.05 mfd. (C13)	7766	Lead—Ammeter lead complete with clip and fuse holder
4839	Capacitor—.01 mfd. (C29)	31589	Markers—One set call letter markers for push buttons
12741	Capacitor—.05 mfd. (C27)	31662	Mounting—Complete set of mounting brackets, strap, washers, screws, bolts, and nuts
31598	Capacitor—Comprising two 8 mfd., and one 10 mfd. sections (C23, C24, C31)	31660	Plate—Name plate.....
31596	Clip—Spring clip to hold oscillator coil.....	31646	Spring—Retaining spring for knobs.....
31766	Coil—Antenna coil less shield (L2)	4284	Spring—Spring for fuse holder.....
31977	Coil—Antenna filter (L1)	5024	Suppressor—Distributor suppressor.....
31594	Coil—Oscillator coil (L6, L7)	4285	Washer—Insulating washer for fuse holder....
11765	Lamp—Dial lamp.....	Additional Replacement Part:	
30641	Lead—Ammeter lead (chassis end), complete with male section of fuse holder.....	Stock No.	
30540	Resistor—100 ohms, $\frac{1}{2}$ watt (R15, R16)	32510 Screw—Cam locking screw for tuning unit assembly	
14561	Resistor—220 ohms, $\frac{1}{2}$ watt (R3)	34053 Spring—Push-button retaining spring	
30499	Resistor—470 ohms, $\frac{1}{2}$ watt (R12)		
6134	Resistor—1,200 ohms, 1 watt (R13)		
12695	Resistor—15,000 ohms, $\frac{1}{2}$ watt (R14)		
13669	Resistor—22,000 ohms, 2 watt (R2)		
12266	Resistor—39,000 ohms, $\frac{1}{2}$ watt (R7)		
12286	Resistor—56,000 ohms, $\frac{1}{2}$ watt (R4)		
14983	Resistor—330,000 ohms, $\frac{1}{2}$ watt (R10)		
12285	Resistor—470,000 ohms, $\frac{1}{2}$ watt (R11)		
12679	Resistor—2.2 meg., $\frac{1}{2}$ watt (R6)		
13601	Resistor—10 meg., $\frac{1}{2}$ watt (R9)		
13471	Ring—Retaining ring for coil, Stock No. 31766		
31639	Socket—Dial lamp socket.....		
31319	Socket—Tube socket.....		
13686	Socket—Vibrator socket.....		
14376	Transformer—First i-f transformer (L8, L9, C14, C15)		
30672	Transformer—Second i-f transformer (L10, L11, C16, C18)		
31597	Transformer—Vibrator power transformer (T1, L15, C26)		
13688	Vibrator—Plug-in vibrator complete (L16)		
31637	Volume control and power switch (R8, S1)		
9M1 TUNING UNIT ASSEMBLIES			
31604	Condenser—2-gang variable condenser (C3, C4, C11)		
31614	Cord—Variable condenser drive cord.....		
31725	Drum—Indicator drum assembly.....		
31610	Drum—Variable condenser drive cord drum.....		
31612	Gear—Variable condenser drive gear sector—fastens on cam shaft.....		
31645	Mechanism—Comprising 5-push button levers and cams, cam plate, and variable condenser mounting bracket, assembled.....		
31606	Pulley—Indicator drum pulley.....		
31607	Pulley—Pulley for indicator drum bracket.....		
4389	Screw—No. 6-32 x $\frac{3}{16}$ -in. set screw for pulley, Stock No. 31606		
31613	Screw—No. 8-32 x $\frac{1}{4}$ -in. set screw for gear, Stock No. 31612		
31611	Screw—No. 8-32 x $\frac{1}{4}$ -in. set screw for drum, Stock No. 31610		
31609	Shaft—Station selector knob shaft.....		
31615	Spring—Variable condenser drive cord tension spring.....		
30585	Spring—Push button arm tension spring.....		
2917	Washer—"C" washer to hold knob shaft.....		
31608	Washer—"C" washer to hold pulley, Stock No. 31607		
SPEAKER ASSEMBLIES (Speaker 84391-1)			
35913	Cone—Speaker cone and voice coil (L12)		
30781	Speaker—Complete		
30783	Transformer—Output transformer (T2)		
SPEAKER ASSEMBLIES (Speaker 84391-3)			
31771	Cone—Speaker cone and voice coil (L12)		
31770	Speaker—Complete		
31772	Transformer—Output transformer (T2)		
		REPLACEMENT PARTS MODEL M-50 REFER TO MODEL 9M1 PARTS LIST ABOVE	
		Add stock no.	
		12829	Capacitor - 56 mmfd. (C15)
		33584	Capacitor - 0.005 mfd. (C19, C22)
		4937	Capacitor - 0.01 mfd. (C2, C20)
		32240	Capacitor - Electrolytic, 2 sections 10 mfd. and 1 section 20 mfd. (C23, C24, C31)
		14261	Transformer - First I-F Transformer (L8, L9, C14, C15)
		33665	Mechanism - Comprising 5 push arms, cams, cam plate and mounting bracket assembled.
		33668	Case - Receiver case only.
		33670	Dial - Dial scale and holder.
		33671	Knob - Volume control or tuning knob.
		33669	Mounting - Complete set mounting brackets, strap washers, screws, bolts and nuts.
		Stock No's 4838, 14393, 31598, 14376, 31645, 31656, 31653, 31654, 31658 and 31662 not used with Model M-50.	
		Push-Arm Inserts:	
		Special push-arm inserts are now available to take care of stripped threads on the push button mechanism in these models.	
		Stock No. 36160 Insert is for use in Models 9M1, 9M2, 96X-11, -12, -13, -14.	
		Stock No. 36161 Insert is for use in Models M 50, M-60, and M-70.	

MODELS 9M2 and M60

Chassis No. RC 357A

RC 357K

Six-Tube, Push-Button, Superheterodyne Automobile Receiver



MODEL 9M2



MODEL M 60

Electrical Specifications

TUBES AND FUNCTIONS

6K7.....	R-F Amplifier
6A8.....	First Detector—Oscillator
6K7.....	I-F Amplifier
6Q7.....	Second Detector, A-F Amplifier and A.V.C.

FREQUENCY RANGE..... 550-1,550 kc

POWER OUTPUT

Type.....	Pentode
Undistorted.....	2.0 watts
Maximum.....	3.5 watts

POWER SUPPLY RATING

Supply Voltage.....	6.3 volts
Current Drain.....	6.5 amperes

9M2 M60

6F6.....	6K6GT	Output
6X5.....	0Z4G.....	Rectifier
Dial Lamp.....	6-8 volts, 0.2 amp., Mazda 51	

LOUDSPEAKER

Type.....	Electrodynamic
Size.....	5 inches
Voice-Coil Impedance.....	3.2 ohms at 400 cycles
Field Coil Resistance.....	5 ohms
App. Field Coil Voltage Drop.....	6 volts

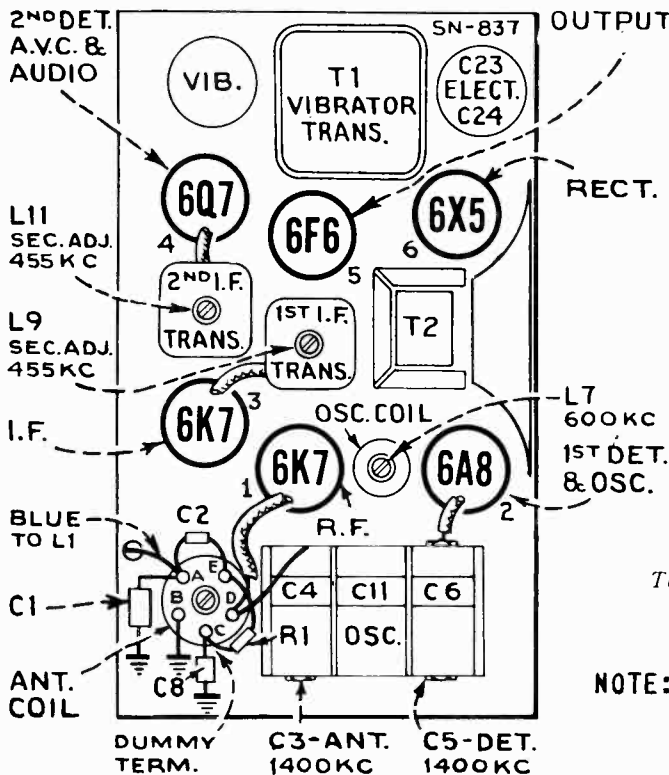
Antenna Circuit

The antenna circuit is designed to work with an antenna having a total capacity including the shielded lead-in not to exceed 150 mmf. If an antenna having a larger capacity is to be used, it will be necessary to add a capacitor in series with the lead from antenna filter L-1 to the antenna coil terminal ("A"). Where a "Double Under the Running Board" type of antenna is to be used having a capacity of approximately 200 mmf. the capacitor added should be approximately 300 mmf. The insulated running board type having an approximate capacity of 550 mmf. will require a capacitor of approximately 200 mmf. Cars using an insulated steel top of approximately 3,500 mmf. will require a series capacitor of 150 mmf.

After installation, and with antenna connected, tune in a weak station near 1,400 kc and adjust compensator trimmer (C-3) for maximum signal output. This trimmer is accessible by prying off the nameplate between the control knobs.

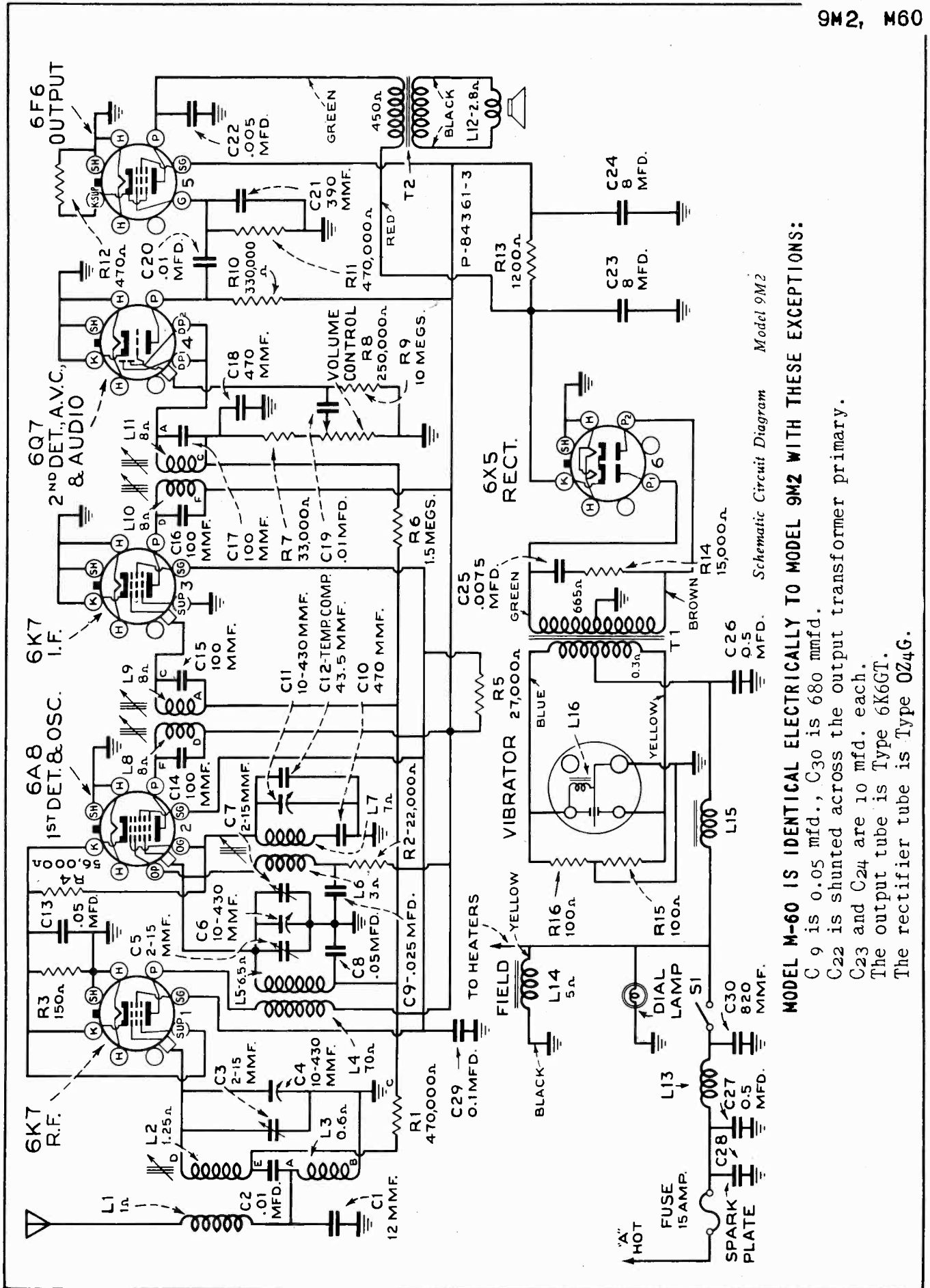
Antenna Filter

A filter is included in the antenna circuit. Being completely shielded, it prevents radiating ignition interference within the set. It also reduces the possibility of picking up vibrator interference. The filter unit is mounted inside a steel shell which in turn is welded to the chassis. The shielded antenna lead-in makes contact with the filter unit within the steel shell and is held in place by a bayonet type connector.



Top View of Chassis MODEL 9M2

NOTE: MODEL M-60 USES TYPE 6K6GT AS OUTPUT AND 0Z4G AS RECTIFIER.



Schematic Circuit Diagram Model 9M2

MODEL M-60 IS IDENTICAL ELECTRICALLY TO MODEL 9M2 WITH THESE EXCEPTIONS:

C 9 is 0.05 mfd., C30 is 680 mmfd.

C22 is shunted across the output transformer primary.

C23 and C24 are 10 mfd. each.

The output tube is Type 6K6GT.

The rectifier tube is Type 0Z4G.

Alignment Procedure

PRELIMINARY:

Output meter connections..... Across speaker voice coil
 Output meter readings to indicate 1 watt..... 1.8 volts
 Generator ground lead connections..... To chassis
 Dummy antenna value to be in series with generator output..... See Chart Below
 Connection of generator output lead..... See Chart Below
 Generator modulation..... 30%, 400 cycles
 Position of Volume Control..... Fully clockwise

Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Adjustment Symbol	Circuit Adjusted
No Signal 550-750 kc	455 kc	.001 mfd.	6K7 I.F. Grid	L-10, L-11	2nd I.F. Trans.
No Signal 550-750 kc	455 kc	.001 mfd.	6A8 Grid	L-8, L-9	1st I.F. Trans.
Rock Through 600 kc	600 kc	.0001 mfd.†	Ant. Lead	L-7	Osc.
1,400 kc **	1,400 kc	.0001 mfd.†	Ant. Lead	C-5	Det.
1,400 kc **	1,400 kc	.0001 mfd.†	Ant. Lead	C-3	Ant.
Rock Through 600 kc	600 kc	.0001 mfd.†	Ant. Lead	L-7	Osc.
1,400 kc **	1,400 kc	.0001 mfd.†	Ant. Lead	C-5	Det.
1,400 kc **	1,400 kc	.0001 mfd.†	Ant. Lead	C-3*	Ant.

IMPORTANT ALIGNMENT NOTES

† Make the generator connection to the receiver through a shielded lead-in having not more than 50 mmf. (.00005) capacity with a male connector attached for connection to antenna socket. If a capacitor has been added in series with the lead from antenna filter L-1 to the antenna coil, as outlined under "Antenna Circuit," for reason of a high capacity antenna, the Dummy Antenna should be the same value as the antenna itself.

* Re-adjust C-3 after installation as outlined under "Antenna Circuit" in "Service Hints."

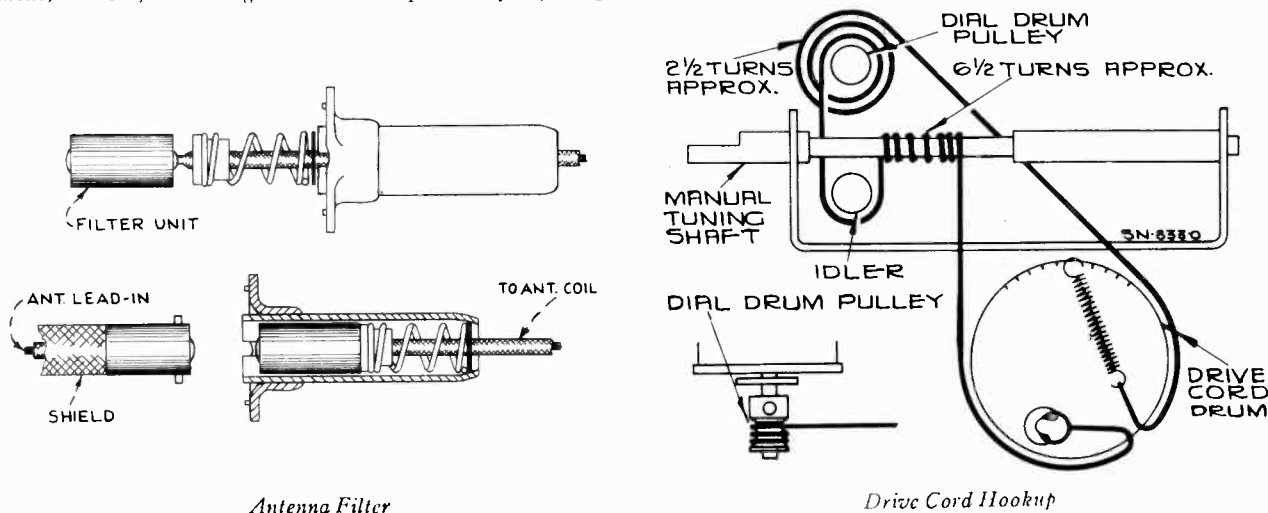
Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value, to prevent the A.V.C. action of the receiver from interfering with accurate alignment.

Alignment adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular frequency should be used. Grid cap leads should remain in place during alignment.

**** OSCILLATOR CIRCUIT**

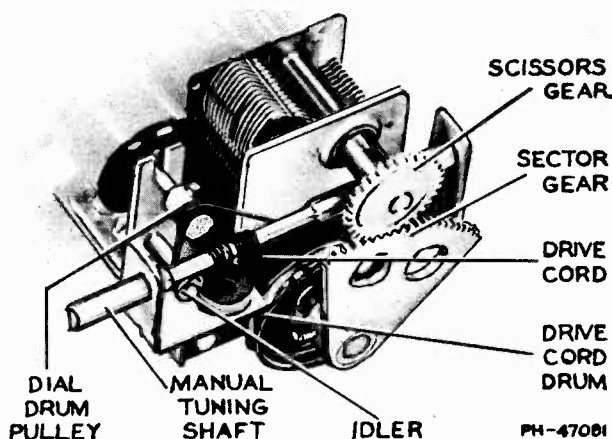
A magnetite core is used to provide temperature stability. The conventional high frequency trimmer has been replaced with a fixed temperature-compensating capacitor (C-12) which determines the high frequency range. Since the inductance of L-7 is adjustable, the conventional series trimmer has been replaced with a fixed capacitor (C-10). C-10 is a special capacitor having zero temperature coefficient to provide for oscillator stability in the low frequency range. Aligning the receiver for 600 kc is accomplished by adjusting L-7 to the antenna and det. circuits (gang condenser must be rocked while making this adjustment). The 1,400 kc alignment is accomplished by adjusting the antenna and the det. trimmers (C-3 and C-5) to the oscillator.



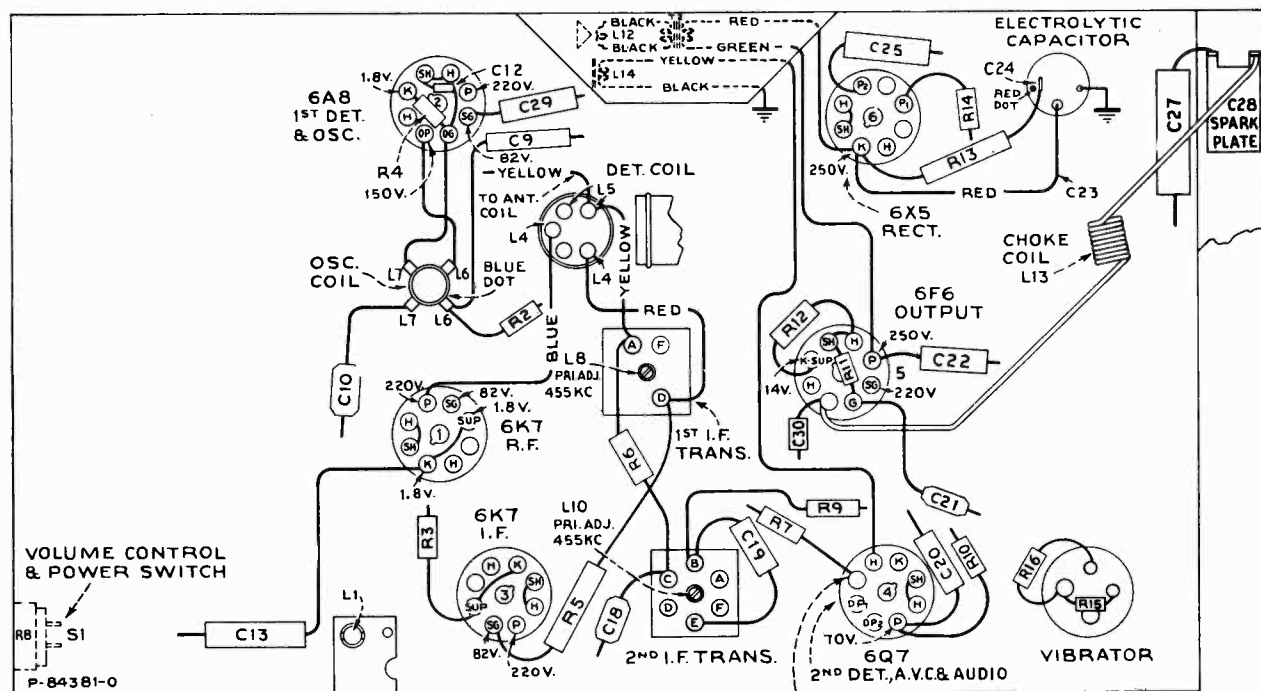
Adjustments

The mechanism should be adjusted so that when using either manual or push-button tuning, it operates positively and without backlash or bind. The following hints will be found helpful in adjusting the mechanism properly.

1. With the gang condenser in full mesh, the sector gear should have the two end teeth fully meshed in the scissor gear.
2. The position of the sector gear on the rocker-plate shaft should be adjusted so that there is clearance between the rocker-plates and the frame of the push-button mechanism at both extremities of gang rotation. Thus correct adjustment prevents the rotation of the gang being limited by the rocker plates touching the frame.
3. The drive cord should have 8½ turns around the tuning shaft as shown in the illustration. Three degrees of adjustment of the tension on the drive cord may be obtained by use of the three positions for connecting the drive-cord-tension spring to the drive-cord drum on the condenser shaft as shown.
4. The push-arms, rocker-plate shaft, and pulleys should be lubricated with light grease (sparingly). Care should be taken to keep the lubricant off the drive cord.



Tuning Mechanism



BOTTOM VIEW OF CHASSIS CATHODE RAY OSCILLOGRAPH (VERTICAL "M" TO THIS TERM. CONNECTIONS (VERTICAL "O" TO CHASSIS

Bottom View of Parts and Socket Voltages MODEL 9M2

(Measured at 6.3 volts battery supply—Volume control minimum—No signal input—)

To duplicate the conditions under which the above voltages were measured requires a 1,000-ohm-per-volt d-c meter having ranges of 10, 50, 250, and 500 volts. Use the nearest range above the indicated voltage value. Each value should hold within ± 20% when the receiver is normally operative at its rated battery voltage.

REPLACEMENT PARTS

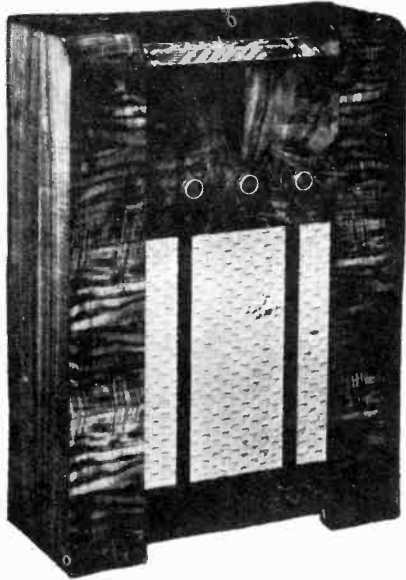
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES 9M2			
13002	Capacitor—12 mmfd. (C1)	31601	Coil—Antenna coil less shield (L2, L3)
31729	Capacitor—43.5 mmfd. (C12)	31977	Coil—Antenna filter (L1)
30904	Capacitor—100 mmfd. (C14, C15, C16, C17)	31595	Coil—Oscillator coil and shield (L6, L7)
13894	Capacitor—890 mmfd. (C21)	31800	Coil—r-f coil less shield (L4, L5)
30433	Capacitor—470 mmfd. (C18)	11765	Lamp—Dial lamp
31727	Capacitor—470 mmfd., temp. coeff. (C10)	30641	Lead—Ammeter lead (chassis end), complete with male section of fuse holder
31730	Capacitor—820 mmfd. (C30)	30540	Resistor—100 ohms, ½ watt (R15, R16)
4838	Capacitor—.005 mfd. (C22)	13428	Resistor—150 ohms, ½ watt (R3)
30826	Capacitor—.0075 mfd. (C25)	30499	Resistor—470 ohms, ½ watt (R12)
14393	Capacitor—.01 mfd. (C2, C19, C20)	6134	Resistor—1200 ohms, 1 watt (R13)
30882	Capacitor—.05 mfd. (C13)	12695	Resistor—13,000 ohms, ½ watt (R14)
4886	Capacitor—.05 mfd. (C8)	13998	Resistor—22,000 ohms, ½ watt (R2)
4839	Capacitor—.01 mfd. (C29)	13477	Resistor—27,000 ohms, 1 watt (R5)
12741	Capacitor—.05 mfd. (C27)	12454	Resistor—33,000 ohms, ½ watt (R7)
31599	Capacitor—Comprising two 8 mfd. sections (C23, C24)	12286	Resistor—56,000 ohms, ½ watt (R4)
		14983	Resistor—330,000 ohms, ½ watt (R10)
		12295	Resistor—470,000 ohms, ½ watt (R1, R11)

Models 9Q1 and 9QK

Chassis No. RC-444 and 444A

Nine-Tube, Seven-Band, A-C, Receivers



←
Model 9QK



→
Model 9Q1

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) ..	540-1,720 kc (556-174 m)
Medium Wave ("B" Band)	3.0 -9.5 mc (100-31.6 m)
31 Meter Spread Band	9.5 -11.7 mc (31.6-25.6 m)
25 Meter Spread Band	11.7-15.1 mc (25.6-19.9 m)
19 Meter Spread Band	15.1-17.75 mc (19.9-16.9 m)
16 Meter Spread Band	17.75-18.1 mc (16.9-16.6 m)
13 Meter Spread Band	21.42-22.4 mc (14.0-13.4 m)

INTERMEDIATE FREQUENCY..... 455 kc

POWER SUPPLY RATINGS

Symbol	Voltage	Frequency (cycles)	Watts
Rating A.....	105-125	50-60	100
Rating B.....	105-125	25-60	100
Rating C.....	100-130, 140-160, 195-250	40-60	100

TUBE COMPLEMENT

(1) RCA-6SK7.....	R-F Amplifier
(2) RCA-6SA7.....	1st Detector
(3) RCA-6SA7.....	Oscillator
(4) RCA-6B8.....	I-F Amplifier, 2nd Det., A.V.C.
(5) RCA-6SC7.....	A-F Amplifier, Phase Inverter
(6) RCA-6F6-G.....	Power Output
(7) RCA-6F6-G.....	Power Output
(8) RCA-6U5/6G5.....	Tuning Indicator
(9) RCA-5Y3-G.....	Rectifier

LOUDSPEAKER

	9Q1	9QK
Model.....	(RL-63K-5)	(RL-70J-3)
Type.....	8-inch Electrodynamic	12-inch Electrodynamic

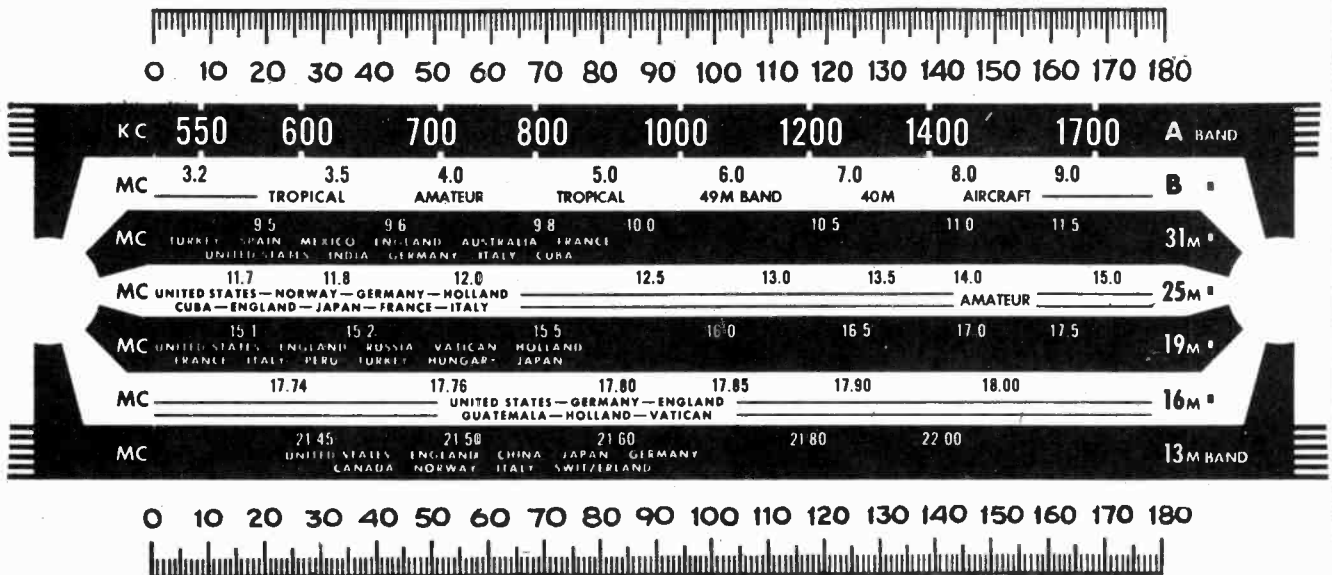
V.C. Impedance

at 400 C.P.S.....	2.2 ohms	2.2 ohms
PILOT LAMPS (3)	Mazda 51, 7.5 volts, 0.2 amp.	

POWER OUTPUT RATING

Undistorted	4.5 watts
Maximum	5 watts

Calibration Scale

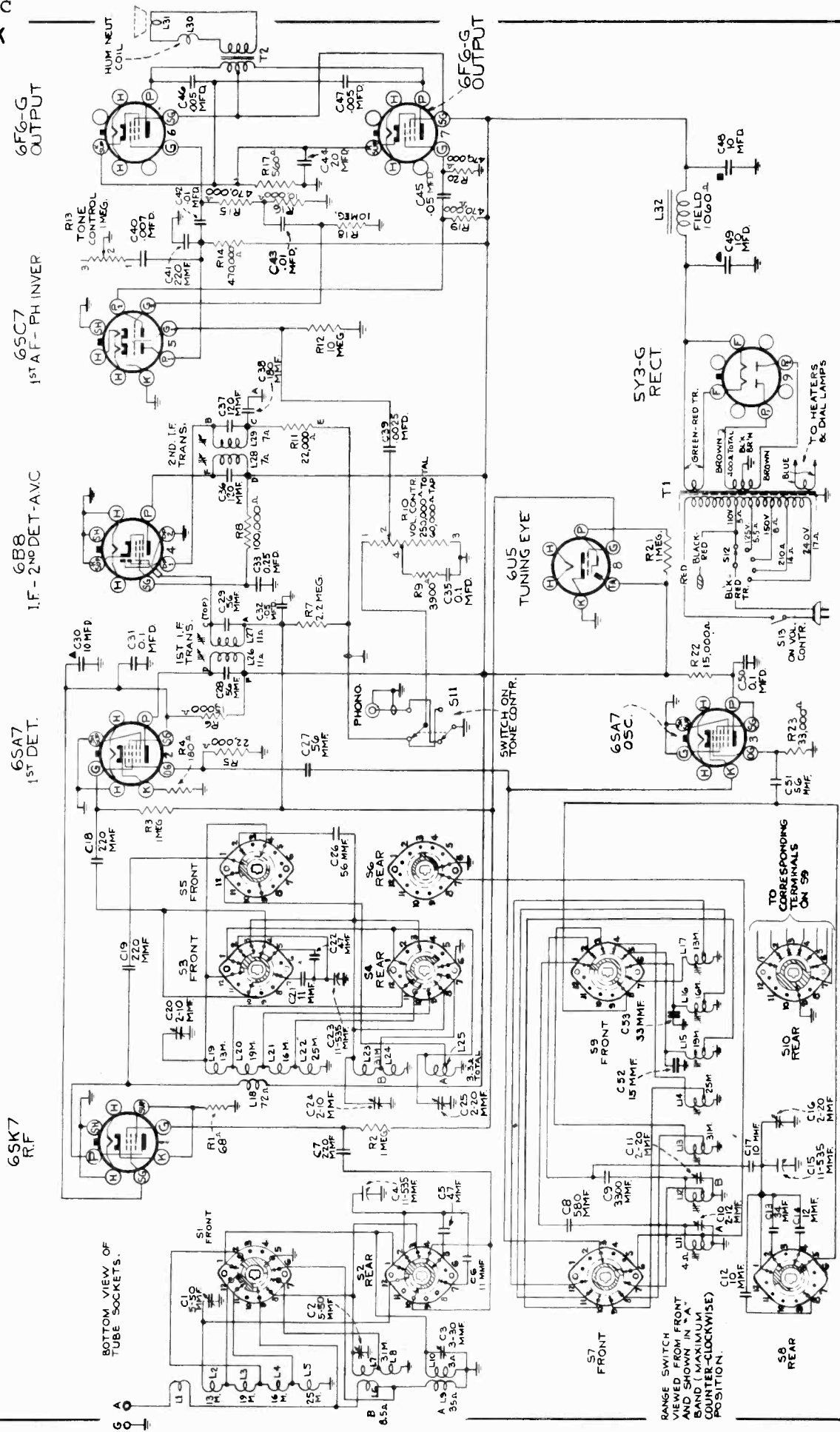


Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

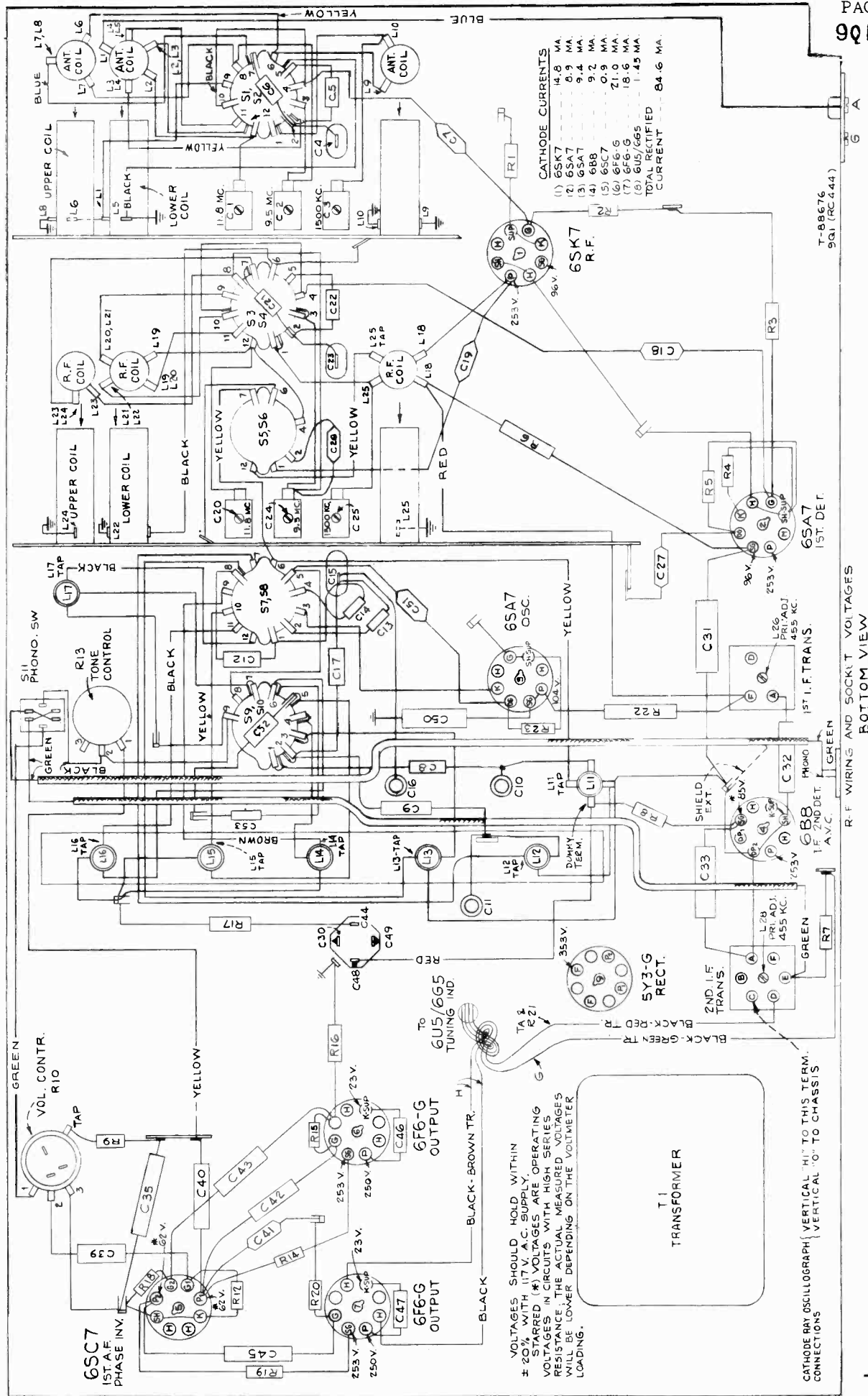
2. The power cord leads must be pushed as far away from C-39 and the 6SC7 and 6F6G sockets as possible, preferably toward the center of the chassis.
3. Dress the green lead from the volume control to the phono. switch directly against the front apron for its entire length.

Precautionary Lead Dress.

1. C-39 must be pushed downward as close to the chassis and front apron as possible.



Schematic Circuit Diagram



CATHODE CURRENTS

(1) 6SK7	14.8 MA.
(2) 6SA7	0.9 MA.
(3) 6SA7	9.4 MA.
(4) 6B8	9.2 MA.
(5) 6SC7	0.9 MA.
(6) 6F6-G	21.0 MA.
(7) 6F6-G	18.6 MA.
(8) 6F5-G/6F5	1.45 MA.
TOTAL RECTIFIED CURRENT	84.6 MA.

T-88676
9Q1 (RC.444)

R.F. WIRING AND SOCKET VOLTAGES
BOTTOM VIEW

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. A.C. SUPPLY.
STARRED (*) VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

CATHODE RAY OSCILLOGRAPH VERTICAL "H" TO THIS TERM. CONNECTIONS VERTICAL "O" TO CHASSIS

T1
TRANSFORMER

GREEN VOL. CONTR. R10

6SC7
1ST. A.F. PHASE INV.

6F6-G
OUTPUT

6F6-G
OUTPUT

6F5-G/6F5
TUNING IND.

5Y3-G
RECT.

6B8
1ST. 2ND DET. A.V.C.

6SA7
1ST. F. TRANS.

6SA7
1ST. DET.

6SA7
OSC.

6SK7
R.F.

GREEN VOL. CONTR. R10

6SC7
1ST. A.F. PHASE INV.

6F6-G
OUTPUT

6F6-G
OUTPUT

6F5-G/6F5
TUNING IND.

5Y3-G
RECT.

6B8
1ST. 2ND DET. A.V.C.

6SA7
1ST. F. TRANS.

6SA7
1ST. DET.

6SA7
OSC.

6SK7
R.F.

GREEN VOL. CONTR. R10

6SC7
1ST. A.F. PHASE INV.

6F6-G
OUTPUT

6F6-G
OUTPUT

6F5-G/6F5
TUNING IND.

5Y3-G
RECT.

6B8
1ST. 2ND DET. A.V.C.

6SA7
1ST. F. TRANS.

6SA7
1ST. DET.

6SA7
OSC.

6SK7
R.F.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a v.c. action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

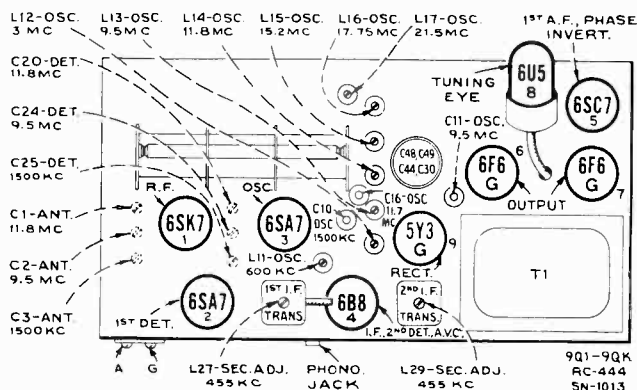
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Tube and Trimmer Locations

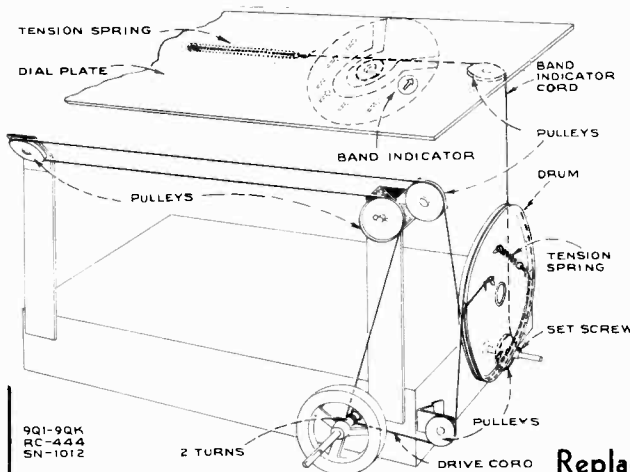
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output	
1	6B8 I-F Grid in series with .01 mfd.	455 kc	A	Quiet Point Near 0°	L29 and L28 (2nd I.F. Trans.)	
2	6SA7 1st Detector Grid in series with .01 mfd.				L27 and L26 (1st I.F. Trans.)	
3	Antenna Terminal in series with 300 ohms	9.5 mc	31M	20°	L13 (osc.)* C24 (det.)† C2 (ant.)	
4		11.7 mc		171°	C16 (osc.)*	
4A		Check to determine that C16 has been adjusted to the correct peak by turning radio to 10.8 mc (141°) where a weaker signal should be received.				
5		9.5 mc	B	180°	C11 (osc.)*	
5A	Check to determine that C11 has been adjusted to the correct peak by turning radio to 8.6 mc (156°) where a weaker signal should be received.					
6	Antenna Terminal in series with 200 mmf.	3.0 mc	B	0°	L12 (osc.)* (Rock Gang)	
7		1,500 kc	A	149°	C10 (osc.) C3 (ant.) C25 (det.)	
8		600 kc		27°	L11 (osc.) (Rock Gang)	
8A	Repeat steps 7 and 8.					
9	Antenna Terminal in series with 300 ohms	11.8 mc	25M	33°	L14 (osc.)* C20 (det.)† C1 (ant.)	
10		15.2 mc	19M	37°	L15 (osc.)*	
11		17.75 mc	16M	40°	L16 (osc.)**	
12		21.5 mc	13M	55°	L17 (osc.)**	

* Use peak with plunger out if two peaks can be obtained.

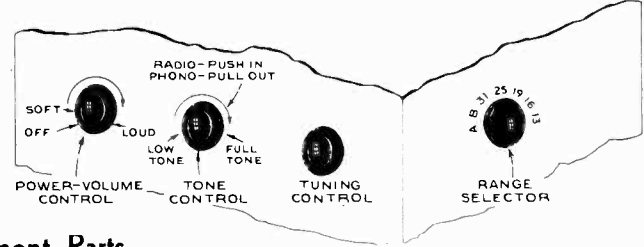
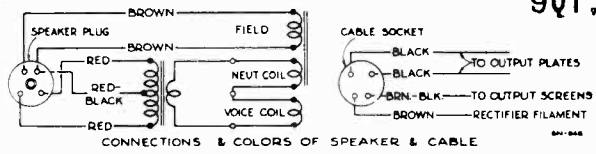
** Use peak with plunger in if two peaks can be obtained.

† Rock gang condenser slightly while peaking. Use maximum capacity peak if two peaks can be obtained.

Note: Oscillator tracks above signal on A, B, 31M, 25M and 19M bands; below signal on 16M and 13M bands.



9Q1-9QK
RC-444
SN-1012



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
14517	Board—"Antenna-Ground" board	12013	Resistor—1 meg., 1/10 watt (R21)
34665	Bracket—Drive cord bracket and pulley—long bracket with one pulley	13730	Resistor—1 megohm 1/2 watt (R2, R3)
34660	Bracket—Drive cord bracket and pulley—short bracket with one pulley	12679	Resistor—2.2 megohm 1/2 watt (R7)
34656	Bracket—Drive cord bracket and pulleys—long bracket with two pulleys	13601	Resistor—10 megohm 1/2 watt (R12, R18)
12714	Capacitor—Air trimmer—2-12 mmfd. (C10)	4669	Screw—No. 8-32 square head set screw for drum Stock No. 34392
12884	Capacitor—Air trimmer—long—2-20 mmfd. (C11, C16)	14350	Screw—Square head set screw for pulley Stock No. 34663
34654	Capacitor—Trimmer comprising 2 sections of 2.5-10 mmfd. and 1 section of 2.5-20 mmfd. (C20, C24, C25)	34655	Shaft—Tuning knob shaft and flywheel
34653	Capacitor—Trimmer comprising 2 sections of 5-50 mmfd. and 1 section of 3-30 mmfd. (C1, C2, C3)	31364	Socket—Dial lamp socket
13200	Capacitor—10 mmfd. (C12, C17)	34864	Socket—Magic Eye socket
34668	Capacitor—11 mmfd. (C6, C21)	14278	Socket—Phonograph input socket
33380	Capacitor—12 mmfd. (C14)	31251	Socket—Tube socket
12896	Capacitor—15 mmfd. (C52)	13638	Spring—Tuning condenser drive drum spring
12948	Capacitor—33 mmfd. (C53)	34646	Switch—Range switch
34670	Capacitor—34 mmfd. (C13)	34664	Switch—Slide switch for tone control
31411	Capacitor—47 mmfd. (C5, C22)	32263	Transformer—1st I.F. transformer
12723	Capacitor—56 mmfd. (C26, C27, C51)	14308	Transformer—2nd I.F. transformer
30949	Capacitor—56 mmfd. (C28, C29)	31734	Transformer—Power transformer—110 volts 25 cycle
31813	Capacitor—120 mmfd. (C36, C37)	31735	Transformer—Power transformer—Universal 50-60 cycle
14712	Capacitor—180 mmfd. (C38)	31733	Transformer—Power transformer—110 volt 60 cycle
12694	Capacitor—220 mmfd. (C7, C18, C19, C41)	SPEAKER ASSEMBLIES	
33235	Capacitor—580 mmfd. (C8)	MODEL 9Q1	
31403	Capacitor—3,300 mmfd. (C9)	(RL-63K5)	
34459	Capacitor—.0025 mfd. (C39)	31825	Cap—Dust cap
33584	Capacitor—.005 mfd. (C46, C47)	34615	Cone—Cone complete with voice coil
5148	Capacitor—.007 mfd. (C40)	5039	Plug—4 contact male plug for speaker
4937	Capacitor—.01 mfd. (C42, C43)	34671	Speaker—8" Dynamic complete with cone and voice coil less output transformer and plug
32787	Capacitor—.05 mfd. (C32, C45)	14534	Transformer—Output transformer
4839	Capacitor—.1 mfd. (C31, C35, C50)	SPEAKER ASSEMBLIES	
12484	Capacitor—.25 mfd. (C33)	MODEL 9QK	
33014	Capacitor—Electrolytic comprising 3 sections of 10 mfd. and 1 section of 20 mfd. (C30, C44, C48, C49)	(RL-70J3)	
34648	Coil—Antenna coil, 25, 19, 16, 13 meters	31825	Cap—Dust cap
34649	Coil—Antenna coil, "A" band	12079	Coil—Field coil
34647	Coil—Antenna coil, "B" and 31 meters	11469	Coil—Neutralizing coil
34652	Coil—RF coil, "A" band	31275	Cone—Cone complete with voice coil
34651	Coil—RF coil, 25, 19, 16, 13 meters	5039	Plug—4 prong male plug for speaker
34650	Coil—RF coil, "B" and 31 meters	14534	Transformer—Output transformer
31782	Coil—Oscillator coil for "A" band	MISCELLANEOUS ASSEMBLIES	
34659	Coil—Oscillator coil for "B" band and 31 meter bands	34268	Cap—Rubber cap for Magic Eye
34661	Coil—Oscillator coil for 13 meter band	34285	Clip—Magic Eye clip
34657	Coil—Oscillator coil for 16 meter and 19 meter bands	32634	Cord—Band indicator drive cord
34658	Coil—Oscillator coil for 25 meter band	34674	Dial—Glass dial scale
34645	Condenser—Variable tuning condenser	34673	Frame—Dial frame assembly complete with frame, brackets and stud less dial, pointer, pointer rod, band indicator, band indicator spring, Magic Eye clip, cord.
34666	Control—Tone control	34676	Indicator—Band indicator disc
34667	Control—Volume control and power switch	34490	Knob—Range switch knob
34662	Cord—Tuning condenser drive cord	34677	Knob—Tone control knob
34392	Drum—Variable tuning condenser drive drum	34489	Knob—Tuning or volume control and power switch knob
11765	Lamp—Dial lamp	34675	Pointer—Station selector pointer and carriage
5040	Plug—4 contact female plug for speaker	34491	Shaft—Pointer carriage guide shaft
34663	Pulley—Range switch pulley and hub	34678	Shaft—Tone control extension shaft for Model 9QK
14281	Resistor—68 ohms, 1/2 watt (R1)	30756	Spring—Band indicator drive cord spring
30545	Resistor—180 ohms, 1/2 watt (R4)	4982	Spring—Retaining spring for knob Stock No. 34489
30735	Resistor—560 ohms, 1 watt (R17)	14270	Spring—Retaining spring for knob Stock No. 34490 and Stock No. 34677
12955	Resistor—3,900 ohms, 1/2 watt (R9)	33726	Washer—"C" washer for indicator Stock No. 34676
14559	Resistor—10,000 ohms 1/2 watt (R16)		
33489	Resistor—15,000 ohms 1/2 watt (R6, R22)		
14284	Resistor—22,000 ohms 1/10 watt		
13998	Resistor—22,000 ohms 1/2 watt (R5)		
12454	Resistor—33,000 ohms 1/2 watt (R23)		
14560	Resistor—100,000 ohms 1/2 watt (R8)		
12285	Resistor—470,000 ohms 1/2 watt (R14, R15, R19, R20)		

MODEL 9Q4

Chassis No. RC-478

Nine-Tube, Four-Band, A-C, Superheterodyne Receiver

Electrical Specifications

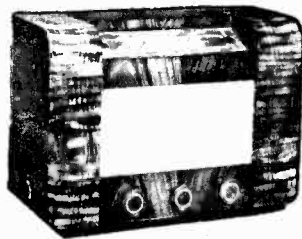
FREQUENCY RANGES

Long Wave ("X" Band).....	145-405 kc (2,069-740 m)
Standard Broadcast ("A" Band).....	540-1,720 kc (555-174 m)
Medium Wave ("B" Band).....	2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band).....	7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY 455 kc

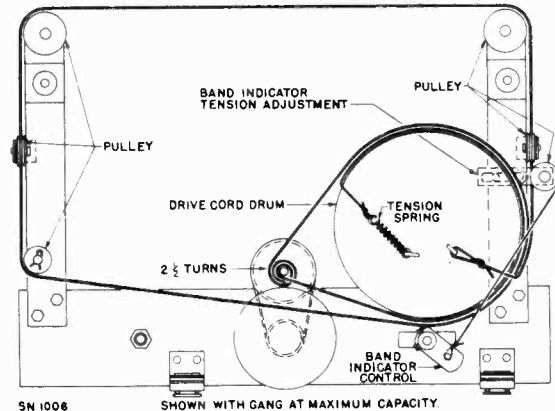
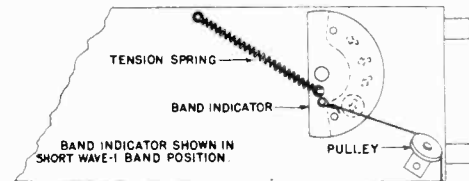
TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
 - (2) RCA-6SA7..... 1st Detector-Oscillator
 - (3) RCA-6SK7..... I-F Amplifier
 - (4) RCA-6SQ7..... 2nd Detector, A.V.C., and A-F Amplifier
 - (5) RCA-6SF5..... Phase Inverter
 - (6) RCA-6F6-G..... Output
 - (7) RCA-6F6-G..... Output
 - (8) RCA-6U5/6G5..... Tuning Indicator
 - (9) RCA-5U4-G..... Rectifier
- PILOT LAMPS (2)..... Mazda No. 44, 6.3 volts, 0.25 amp.



POWER OUTPUT RATING

Undistorted..... 10 watts
Maximum..... 12 watts



Drive Cord and Band Indicator Arrangement

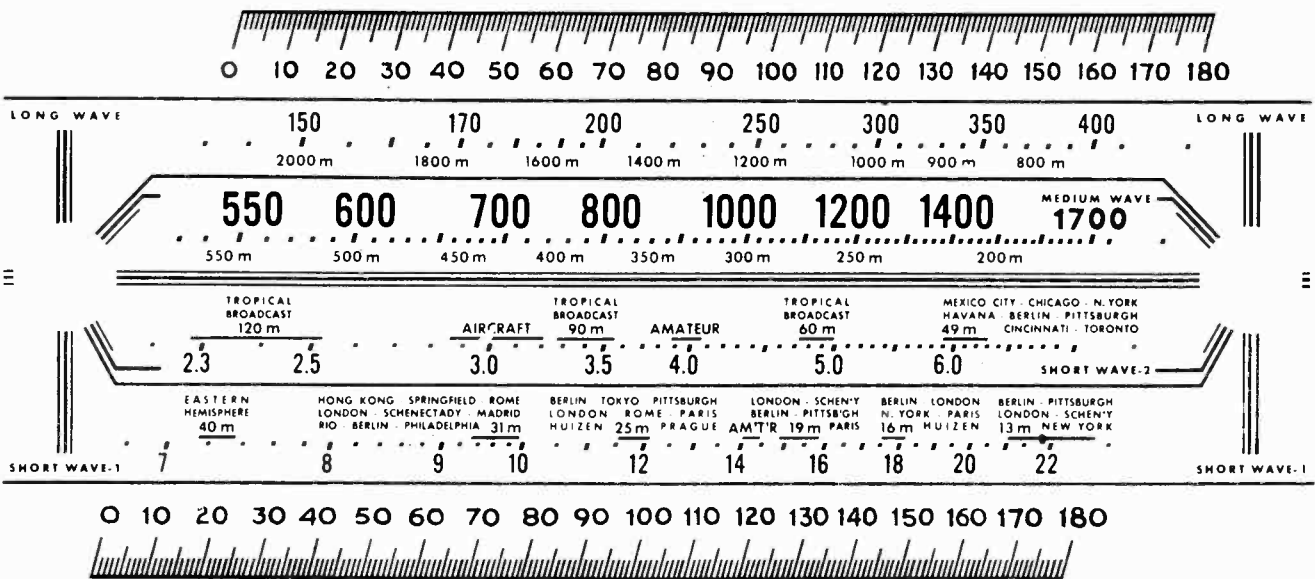
LOUDSPEAKER (RL-63K-3)

Type..... 8-inch electrodynamic
V.C. Impedance..... 2.2 ohms at 400 cycles

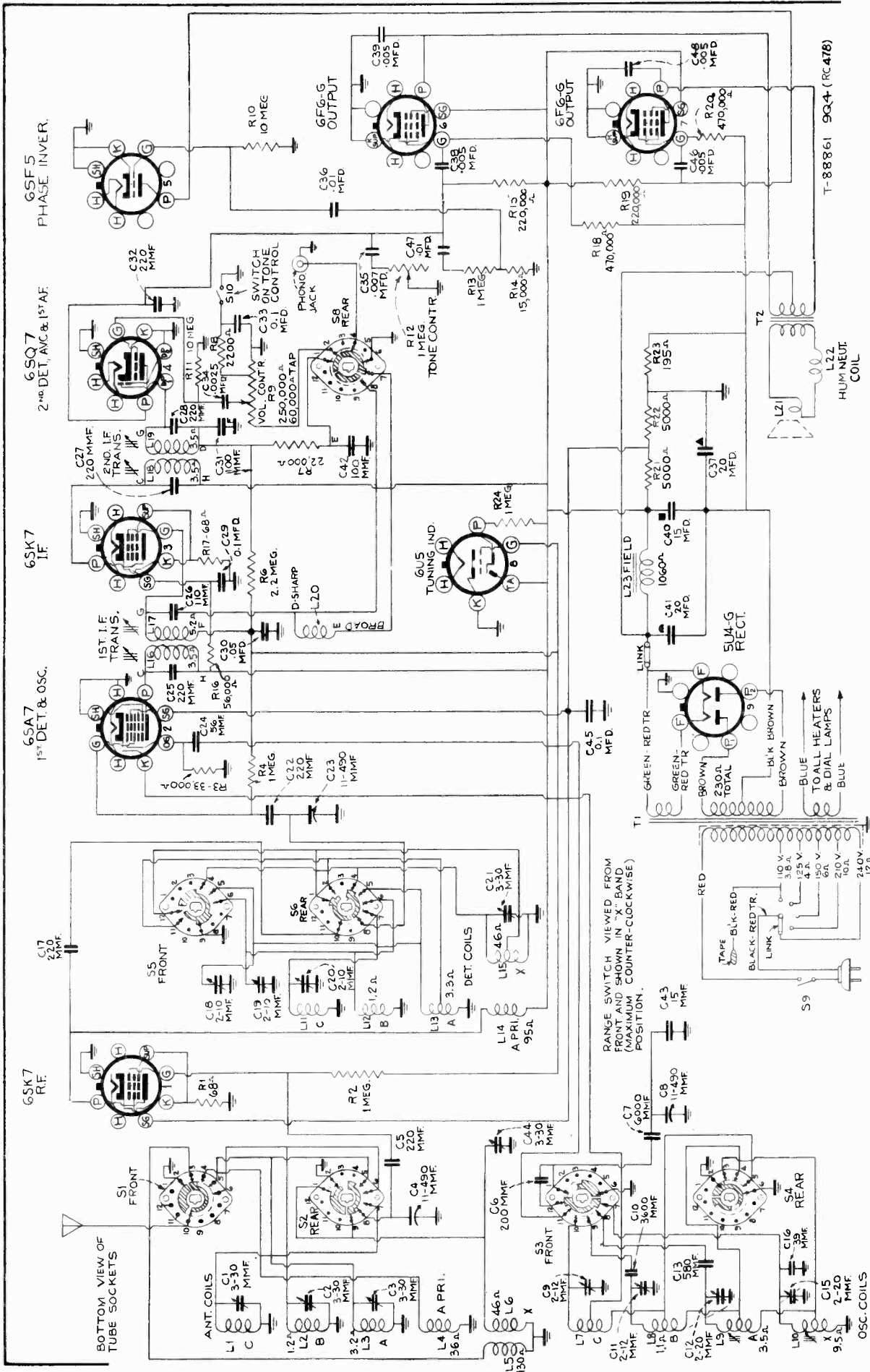
POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 115 watts
Rating B..... 105-125 volts, 25-60 cycles, 115 watts
Rating C..... 105-130, 140-160, 200-250 volts, 40-60 cycles, 115 watts

Calibration Scale



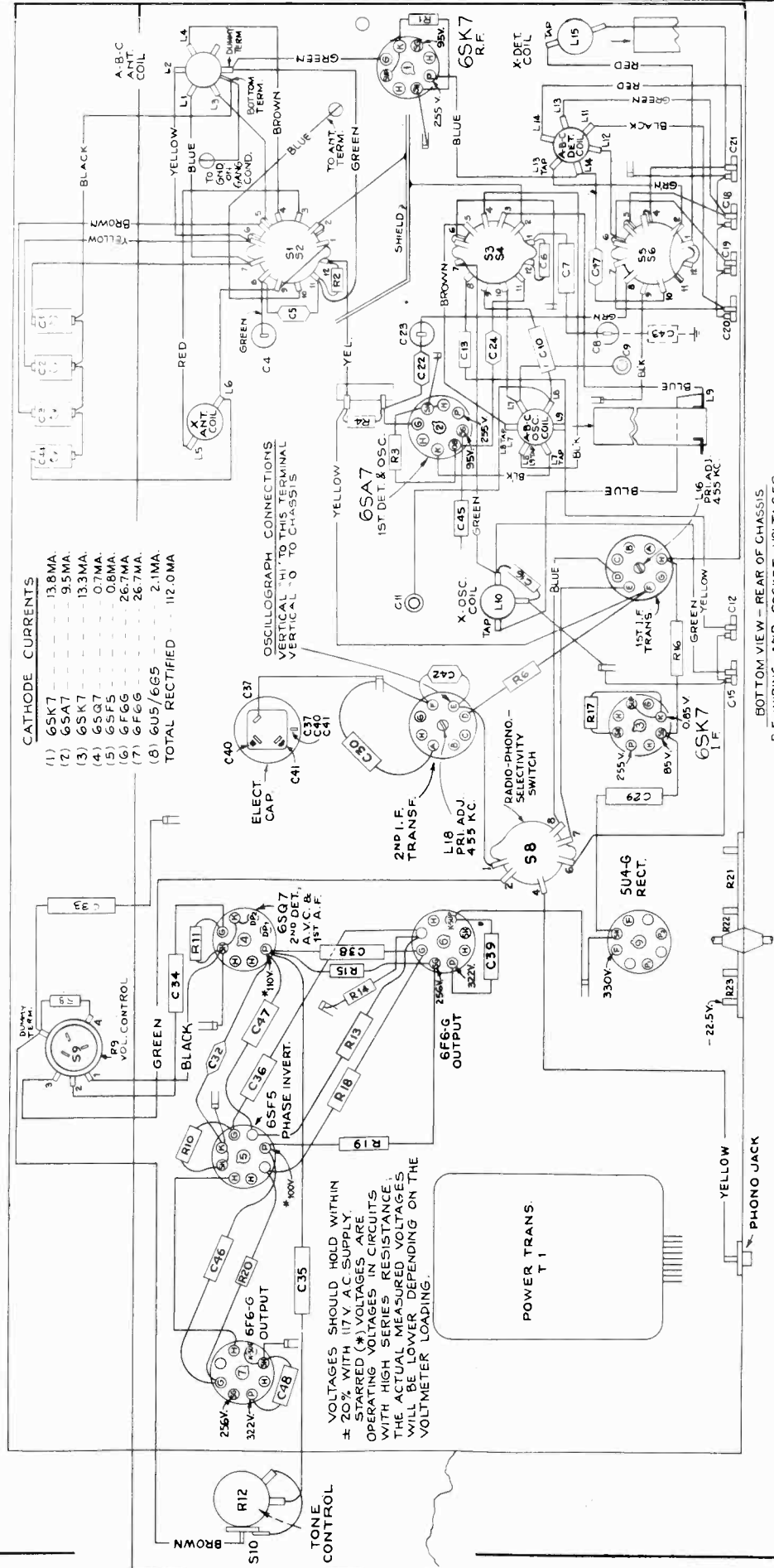
Receiver Dial Scales, and Corresponding 0-180° Calibration Scales



Precautionary Lead Dress:

1. Dress black lead from L11 to C20 away from other leads.
2. Dress the green lead from the middle section of the gang away from any other leads, parts, or chassis.
3. Dress the black diode lead running between the 6SQ7 and terminal G on the 2nd I-F transformer, directly against the chassis.

4. Twist the power leads together and dress them away from the 6SQ7 socket, and also away from the yellow phono input lead.
5. Keep green lead of 6SK7 R-F grid circuit away from blue antenna lead.



CATHODE CURRENTS

(1) 6SK7	13.8 MA
(7) 6SA7	9.5 MA
(3) 6SK7	13.3 MA
(4) 6SQ7	0.7 MA
(5) 6SF5	0.8 MA
(6) 6F6G	26.7 MA
(7) 6F6G	26.7 MA
(8) 6U5/6G5	2.1 MA
TOTAL RECTIFIED	112.0 MA

OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHASSIS

VOLTAGES SHOULD HOLD WITHIN
± 20% WITH 117 V AC SUPPLY.
STARRED (*) VOLTAGES ARE
OPERATING VOLTAGES IN CIRCUITS
WITH HIGH SERIES RESISTANCE.
THE ACTUAL MEASURED VOLTAGES
WILL BE LOWER DEPENDING ON THE
VOLTMETER LOADING.

BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING AND SOCKET VOLTAGES

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

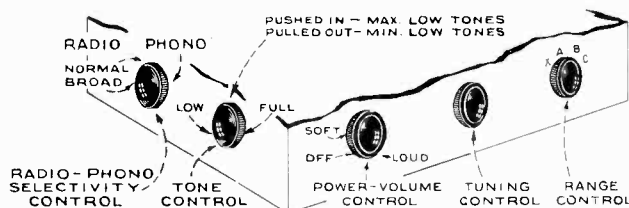
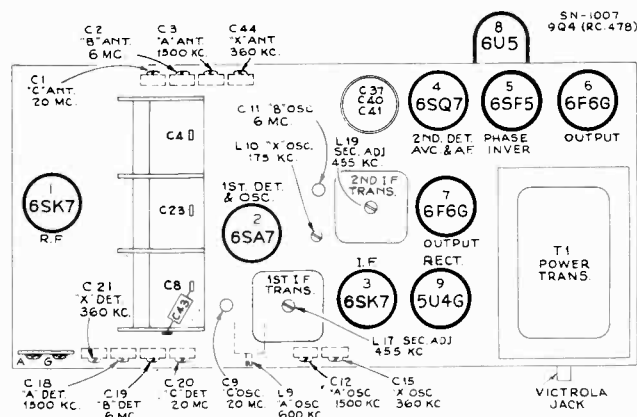
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

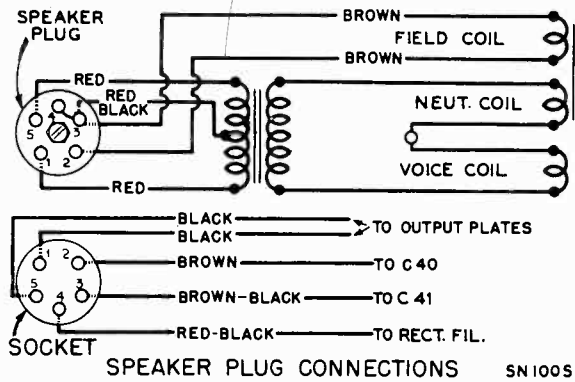


Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Turn tone control to 2nd position (sharp) from maximum counter-clockwise.			
2	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" Band Quiet point between 550-750 kc	L18 and L19 (2nd I-F trans.)
3	6SA7 grid in series with .01 mfd.			L16 and L17 (1st I-F trans.)
4	Turn tone control to maximum counter-clockwise (broad) position and check I-F response which should be a slightly double-peaked curve. Return tone control to 2nd position (sharp) for the following steps.			
5	Ant. terminal in series with 200 mmfd.	175 kc	175 kc (52.5°) "X" Band	L10 (osc.) Rock gang
6		360 kc	360 kc (148.5°) "X" Band	C15 (osc.) C21 (det.) C44 (ant.)
7		600 kc	600 kc (32°) "A" Band	L9 (osc.) Rock gang
8		1,500 kc	1,500 kc (152°) "A" Band	C12 (osc.) C18 (det.) C3 (ant.)
9	Repeat steps 5, 6, 7, and 8.			
10	Ant. terminal in series with 300 ohms	6.1 mc	6.1 mc (151°) "B" Band	C11 (osc.)* C19 (det.) C2 (ant.)
11		20 mc	20 mc (157°) "C" Band	C9 (osc.)** C20 (det.) C1 (ant.)

* Use minimum capacity peak if two can be obtained. Check to determine that C11 has been adjusted to the correct peak by tuning receiver to approximately 5.19 mc where a weaker signal should be received.

** Use minimum capacity peak if two can be obtained. Check to determine that C9 has been adjusted to the correct peak by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

Note.—Oscillator tracks above signal on all bands.



Additional Replacement Parts:

Stock No.

- 34662 Cord—Pointer drive cord.....
- 35194 Dial—Marked in kc.....

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-478)			
34401	Arm—Arm and hub for band indicator less cable—fastens on range switch shaft.....	12695	Resistor—15,000 ohms, 1/2 watt (R14).....
34400	Belt—Drive belt.....	13998	Resistor—22,000 ohms, 1/2 watt (R7).....
31787	Board—“Ant.-Grd.” terminal board.....	12454	Resistor—33,000 ohms, 1/2 watt (R3).....
32635	Cable—Cable and clips for band indicator.....	30650	Resistor—56,000 ohms, 1/2 watt (R16).....
33821	Capacitor—Mica trimmer—3 sections 2-10 mmfd. and 1 section 3-30 mmfd. (C18, C19, C20, C21).....	12264	Resistor—220,000 ohms, 1/2 watt (R15, R19).....
12714	Capacitor—Air trimmer, 2-12 mmfd. (C9, C11).....	12285	Resistor—470,000 ohms, 1/2 watt (R18, R20).....
33818	Capacitor—Mica trimmer, 2 sections 2-20 mmfd. each (C12, C15).....	12013	Resistor—1 megohm, 1/10 watt (R24).....
12896	Capacitor—15 mmfd. (C43).....	13730	Resistor—1 megohm, 1/2 watt (R2, R4, R13).....
33822	Capacitor—Mica trimmer, 4 sections 3-30 mmfd. each (C1, C2, C3, C44).....	12679	Resistor—2.2 megohm, 1/2 watt (R6).....
13545	Capacitor—39 mmfd. (C16).....	13601	Resistor—10 megohm, 1/2 watt (R11, R10).....
12723	Capacitor—56 mmfd. (C24).....	30340	Retainer—Retaining clip for pulley, Stock No. 31373.....
12720	Capacitor—100 mmfd. (C42, C31).....	34396	Shaft—Intermediate tuning drive shaft, and drive cord pulley—less drive belt pulley and set screws.....
32239	Capacitor—110 mmfd. (C26).....	34397	Shaft—Intermediate tuning drive shaft, and fly-wheel—less drive belt pulley and set screws.....
30232	Capacitor—200 mmfd. (C6).....	31364	Socket—Dial lamp socket.....
12694	Capacitor—220 mmfd. (C5, C17, C22, C32).....	34864	Socket—Magic Eye socket.....
33760	Capacitor—220 mmfd. (C25, C27, C28).....	14278	Socket—Phono. input socket.....
33235	Capacitor—580 mmfd. (C13).....	31251	Socket—Tube socket.....
12811	Capacitor—3,600 mmfd. (C10).....	31418	Spring—Pointer drive cord tension spring.....
31405	Capacitor—6,000 mmfd. (C7).....	34391	Switch—Phono. switch and fidelity control switch (S8).....
34459	Capacitor—.0025 mfd. (C34).....	34390	Switch—Range switch (S1, S2, S3, S4, S5, S6).....
33584	Capacitor—.005 mfd. (C38, C39, C46, C48).....	34596	Switch—Slide switch for tone control (S10).....
5148	Capacitor—.007 mfd. (C35).....	33759	Transformer—First i-f transformer (L16, L17, L20, C25, C26).....
4937	Capacitor—.01 mfd. (C36, C47).....	33761	Transformer—Second i-f transformer (L18, L19, C27, C28, C31, R7).....
32787	Capacitor—.05 mfd. (C30).....	34183	Transformer—Power transformer—100/130, 140/160, 195/250 volts, 50/60 cycles (T1).....
4839	Capacitor—.1 mfd. (C29, C33, C45).....	34389	Volume Control—Volume control and power switch (R9, S9).....
34393	Capacitor—Electrolytic—2 sections 20 mfd. and 1 section 15 mfd. (C37, C40, C41).....	33726	Washer—“C” washer for tuning shaft.....
33782	Coil—Antenna coil A-B-C Bands (L1, L2, L3, L4).....	SPEAKER ASSEMBLIES (RL63K3)	
32823	Coil—Antenna coil X Band (L5, L6).....	31825	Cap—Dust cap.....
33763	Coil—Detector coil A-B-C Bands (L11, L12, L13, L14).....	34615	Cone—Cone complete with voice coil (L2).....
33765	Coil—Detector coil X Band (L15).....	31539	Plug—5-prong male plug for speaker.....
33764	Coil—Oscillator coil A-B-C Bands (L7, L8, L9).....	34691	Speaker—8-inch dynamic complete with cone and voice coil—less output transformer.....
32931	Coil—Oscillator coil X Band (L10).....	14534	Transformer—Output transformer (T2).....
33756	Condenser—3-gang variable tuning condenser (C4, C8, C23).....	MISCELLANEOUS ASSEMBLIES	
34595	Control—Tone control (R12).....	MI-8105	Adapter—European adapter for power cord.....
32713	Core—Adjustable core and stud for A-B-C Band coil.....	30768	Cap—“Magic Eye” rubber cap.....
34392	Drum—Variable condenser drive drum.....	30718	Clip—“Magic Eye” clip.....
11891	Lamp—Dial lamp.....	34486	Dial—Glass dial scale (English).....
14028	Nut—Clamping nut for air trimmer.....	34504	Dial—Glass dial scale (Greek).....
31817	Plate—Cushion socket mounting plate, less socket.....	34485	Frame—Dial frame complete with brackets and pulleys less dial, indicator pointer, pointer rods, band indicator, band indicator spring and Magic Eye clip.....
12493	Plug—5-contact female plug for speaker cable.....	34488	Indicator—Band indicator.....
34399	Pulley—Drive belt pulley and set screws for tuning knob shaft.....	34487	Indicator—Station selector indicator pointer.....
34398	Pulley—Drive belt pulley and set screws for intermediate drive shaft.....	34490	Knob—Tone control or radio phonograph knob.....
31373	Pulley—Drive cord pulley for L.H. support.....	34489	Knob—Tuning range switch or volume control and power switch knob.....
34402	Pulley—Drive cord pulley and bracket for R.H. support.....	4393	Screw—No. 8-32 headless set screw for knob, Stock No. 34490.....
34394	Pulley—L.H. support and drive cord pulleys (2) assembled, less loose pulley.....	33438	Screw—Magic Eye clip screw.....
34395	Pulley—R.H. support and drive cord pulleys (2) assembled, less loose pulley and bracket.....	34491	Shaft—Indicator pointer guide shaft.....
14281	Resistor—68 ohms, 1/2 watt (R1, R17).....	30756	Spring—Band indicator spring.....
13716	Resistor—2,200 ohms, 1/2 watt (R8).....	4982	Spring—Retaining spring for knob, Stock No. 34489.....
34189	Resistor—Voltage divider, 2 sections 5,000 ohms and 1 section 195 ohms (R21, R22, R23).....	33726	Washer—Band indicator retaining washer.....

"Little Nipper" Models 9SX-1, -2, -3, -4, -5, -6, -7, and -8

Five-Tube, Two-Band, AC-DC Superheterodyne Receivers

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast (A)..... 540-1,720 kc
 Short Wave (B)..... 2.3-6.25 mc

INTERMEDIATE FREQUENCY..... 456 kc

TUBE COMPLEMENT

(1) RCA-6A8..... 1st-Detector—Oscillator
 (2) RCA-6K7..... I-F Amplifier
 (3) RCA-6Q7..... 2nd-Det., 1st A-F, and A.V.C.
 (4) RCA-25L6..... Power Output
 (5) RCA-25Z6..... Half-Wave Rectifier
 Dial Lamp (1)..... Mazda 40, 6.3 volts, .15 amp.

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
 D-C Rating..... 105-125 volts, direct current, 50 watts

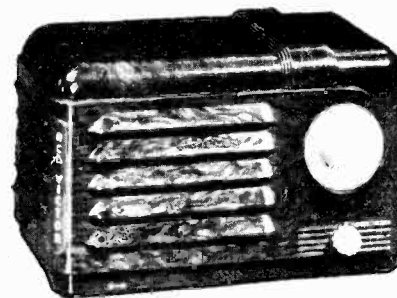
POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted..... 1.5 watt
 Maximum..... 2.0 watts

LOUDSPEAKER

Type..... 4-inch Electrodynamic

Cabinet Dimensions..... Height 4 3/4 inches Width 8 inches Depth 4 1/2 inches
 Weight..... 7 pounds (shipping)

- Model 9SX-1, Molded cabinet, walnut finish, ivory knobs.
- Model 9SX-2, Molded cabinet, walnut body, ivory front, walnut knobs.
- Model 9SX-3, Molded cabinet, ivory finish, red knobs.
- Model 9SX-4, Molded cabinet, red body, ivory front, red knobs.
- Model 9SX-5, Molded cabinet, black body, marble front, jet knobs.
- Model 9SX-6, Molded cabinet, blue body, onyx front, blue knobs.
- Model 9SX-7, Molded cabinet, onyx finish, maroon knobs.
- Model 9SX-8, Molded cabinet, marble finish, jet knobs.



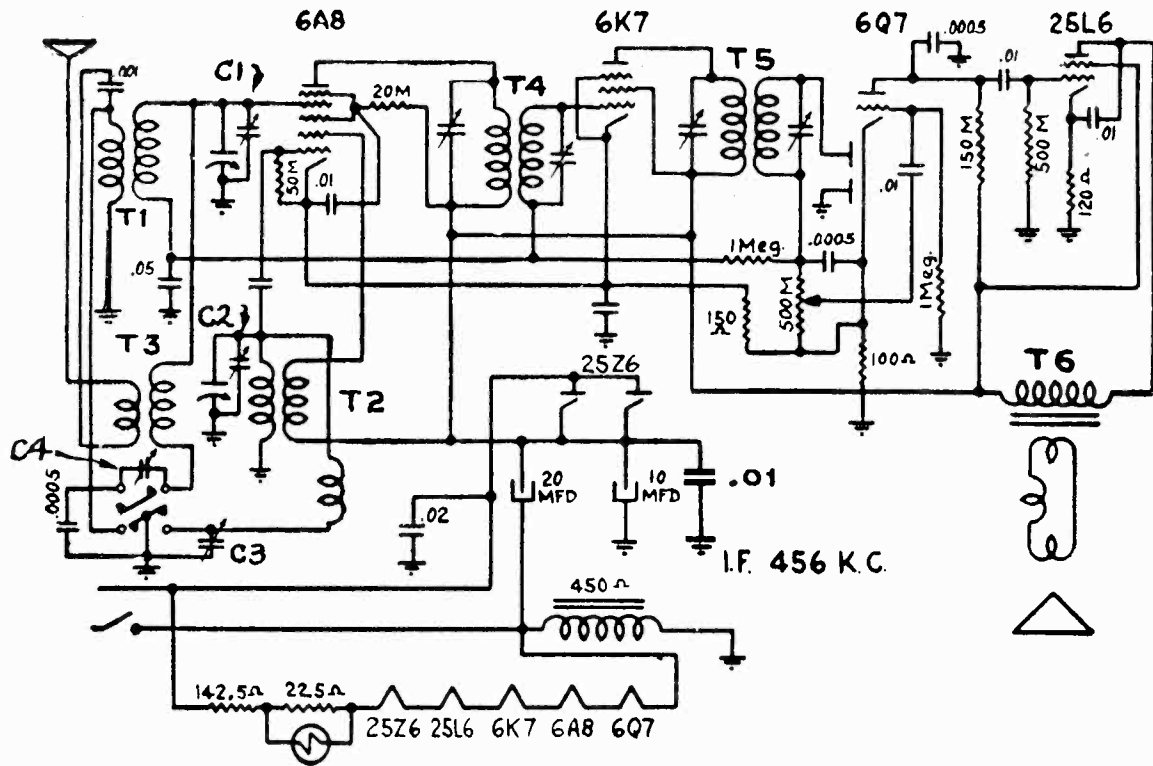
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31193	Antenna—35 ft. antenna wire—wound on reel	32444	Knob—Station selector knob—Black
X-569	Cabinet—Walnut and Ivory cabinet (9SX-2)	32445	Knob—Station selector knob—Maroon
X-572	Cabinet—Blue and Onyx cabinet (9SX-6)	32446	Knob—Volume control or range switch knob—Walnut
X-575	Cabinet—Onyx cabinet (9SX-7)	32447	Knob—Volume control or range switch knob—Ivory
X-570	Cabinet—Walnut cabinet (9SX-1)	32448	Knob—Volume control or range switch knob—Red
X-573	Cabinet—Ivory cabinet (9SX-3)	32449	Knob—Volume control or range switch knob—Blue
X-576	Cabinet—Marble cabinet (9SX-8)	32450	Knob—Volume control or range switch knob—Black
X-571	Cabinet—Red and Ivory cabinet (9SX-4)	32451	Knob—Volume control or range switch knob—Maroon
X-574	Cabinet—Black and Marble cabinet (9SX-5)	4340	Lamp—Dial lamp—Mazda 40
32392	Capacitor—.0005 mfd.	30540	Resistor—100 ohms, 1/3 watt
32396	Capacitor—.0005 mfd. mica capacitor	32397	Resistor—120 ohms, 1/2 watt, Flexohm
32393	Capacitor—.001 mfd.	30880	Resistor—150 ohms, 1/3 watt
4858	Capacitor—.01 mfd.	30492	Resistor—20,000 ohms, 1/3 watt
31796	Capacitor—.02 mfd.	3594	Resistor—50,000 ohms, 1/3 watt
4886	Capacitor—.05 mfd.	30493	Resistor—150,000 ohms, 1/3 watt
4839	Capacitor—0.1 mfd.	3048	Resistor—500,000 ohms, 1/3 watt
32386	Capacitor—10-20 mfd., Electrolytic	30652	Resistor—1 megohm, 1/3 watt
32394	Capacitor—Trimmer capacitor 1,500 K.C. adjustment (C4)	32398	Screw—No. 6-32 fibre screw—back cover mounting
32395	Capacitor—Trimmer capacitor 1,720 K.C. adjustment (C3)	32390	Socket—8-prong moulded Octal tube socket
32387	Coil—Antenna coil (T1)	32380	Speaker—Dynamic loudspeaker
32388	Coil—Oscillator coil (T2)	32381	Transformer—Output transformer (T6)
32389	Coil—Short wave antenna coil (T3)	32382	Transformer—First i.f. transformer (T4)
32379	Condenser—2-gang variable tuning condenser	32383	Transformer—Second i.f. transformer (T5)
32384	Cord—Resistance power cord	32385	Volume Control and Switch
32399	Dial—Indicator dial scale		
32440	Knob—Station selector knob—Walnut		
32441	Knob—Station selector knob—Ivory		
32442	Knob—Station selector knob—Red		
32443	Knob—Station selector knob—Blue		

Additional Replacement Parts:

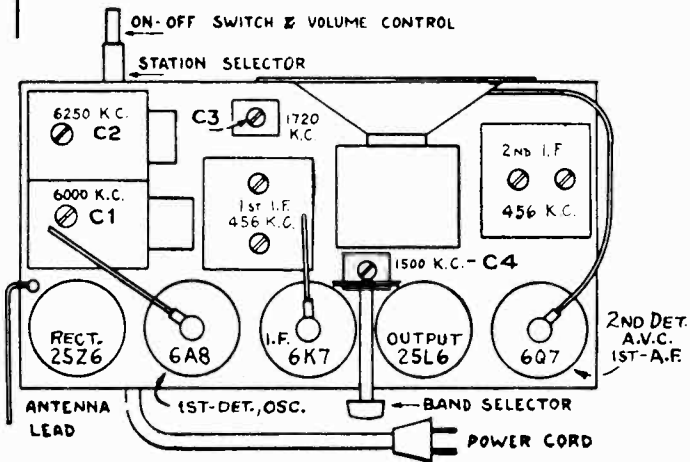
- Stock No.
- 32666 Spring—Tuning knob spring
 - 32667 Spring—Volume or range knob spring
 - 32948 Switch—Range switch
 - 32949 Socket—Dial lamp socket



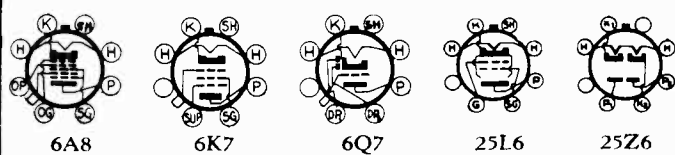
Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis through .01 mfd., and keep the output as low as possible to avoid a-v-c action.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6K7 I-F grid cap, in series with .01 mfd.	456 kc	Quiet point between 1,650-1,720 kc, with range switch at broadcast position	Two trimmers on 2nd I-F trans.
2	6A8 1st-Det. grid cap, in series with .01 mfd.	456 kc	(counter-clockwise from rear).	Two trimmers on 1st I-F trans.
3	Antenna Term. on antenna trans., in series with 400 ohms.	6,250 kc	Max. clockwise (out of mesh) "B" band	C2 (osc. gang trimmer)*
4		6,000 kc	Resonance on 6,000 kc signal	C1 (ant. gang trimmer)**
5	Antenna Term. on antenna trans., in series with 90 mfd.	1,720 kc	Max. clockwise (out of mesh)	C3
6		1,500 kc	Resonance on 1,500 kc signal.	C4



* Use minimum capacity peak if two peaks can be obtained.
 ** After this adjustment, check for image by leaving test oscillator at 6,000 kc, and shifting receiver dial to 5,088 kc, where a weaker signal should be received.



Bottom view of tube sockets

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Resistor in Power Cord.—The power cord contains a resistor which becomes warm during operation.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mfd. capacitor in series with the lead-in.

Models 9TX-1, -2, -3, -4, -5, 9TX-21, -22, and -23

Chassis No.

RC-401

RC-403

RC-403

RC-403A

Five-Tube, Single-Band, AC-DC Superheterodyne Receivers

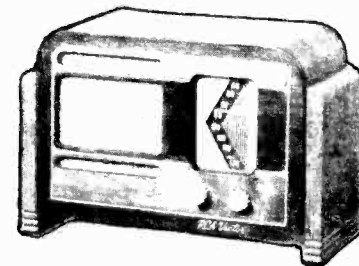
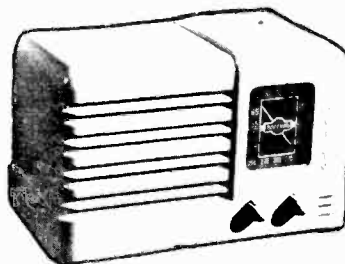
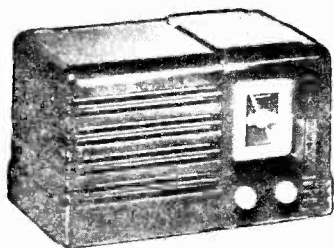
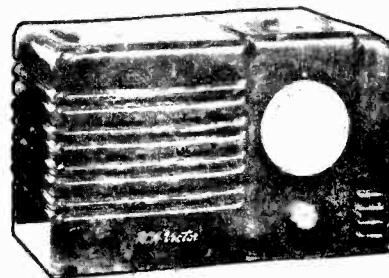
Model 9TX-1, Molded cabinet, walnut finish, mottled tan dial and knob.

Model 9TX-2, Molded cabinet, ivory finish, ivory dial and knob.

Model 9TX-3, Two-tone wood cabinet, piano finish, mottled tan dial and knob.

Model 9TX-4, Molded Arizona cream onyx cabinet, maroon dial and knob.

Model 9TX-5, Molded green onyx cabinet, ivory dial and knob.



Model 9TX-21, Molded Cabinet, Walnut Finish, Mottled Tan Knobs

Model 9TX-22, Molded Cabinet, Ivory Finish, Ivory Knobs

Model 9TX-23, Wood Cabinet, Mottled Tan Knobs, Thermometer-Type Tuning Indicator

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 530-1,720 kc

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA 6A8..... 1st-Detector—Oscillator
 - (2) RCA 6SK7..... I-F Amplifier
 - (3) RCA 6SQ7..... 2nd-Det., 1st A-F and A.V.C.
 - (4) RCA 25L6..... Power Output
 - (5) RCA 25Z6..... Half-Wave Rectifier
- Dial Lamp (1)..... Mazda 47, 6.3 volts, .15 amp.

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted..... 1.5 watts
Maximum..... 2.0 watts

LOUDSPEAKER

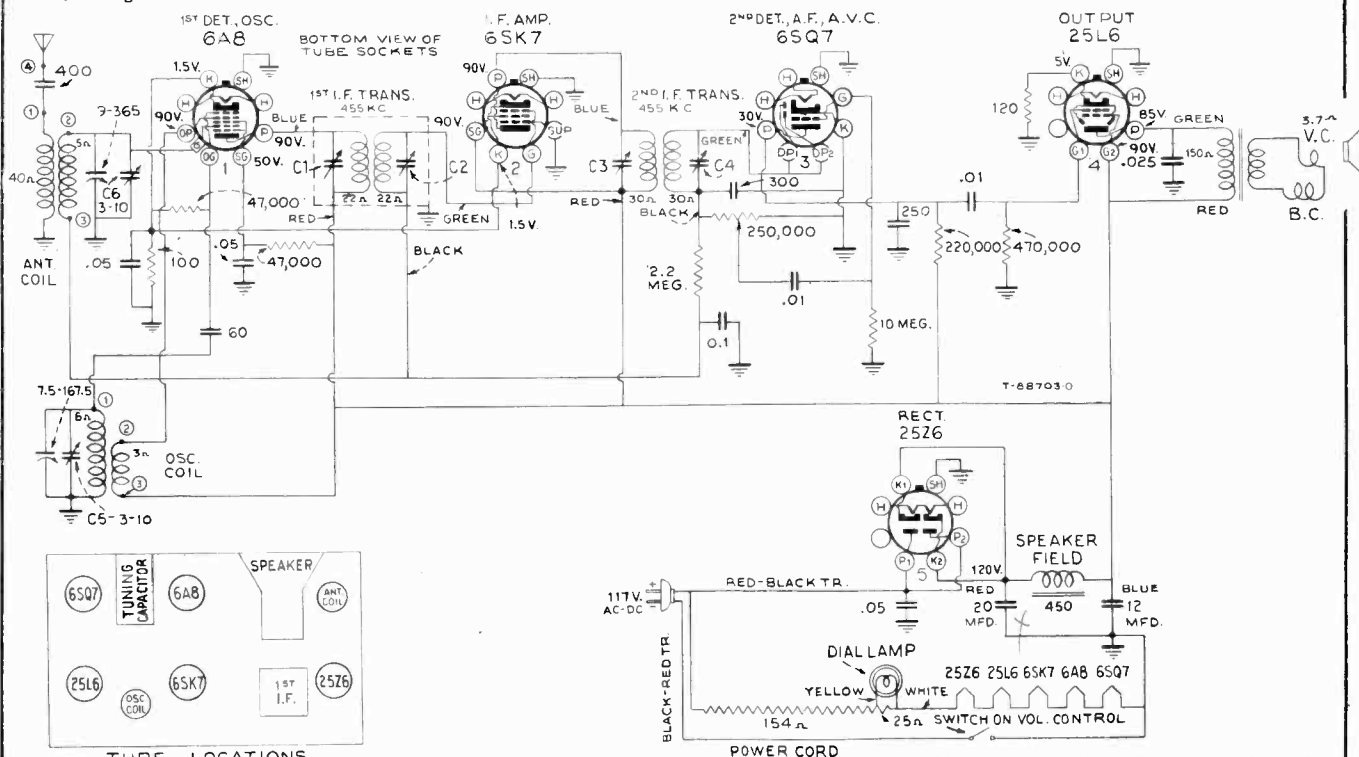
Type..... 4-inch Electrodynamic

Cabinet Dimensions	Height	Width	Depth
9TX-1, -2	5 inches	8 1/2 inches	4 1/2 inches
9TX-3	5 1/2 inches	8 1/2 inches	4 1/2 inches
9TX-4, -5	5 1/2 inches	8 1/2 inches	4 1/2 inches

Weight..... 7 pounds (shipping)

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
D-C Rating..... 105-125 volts, direct current, 50 watts



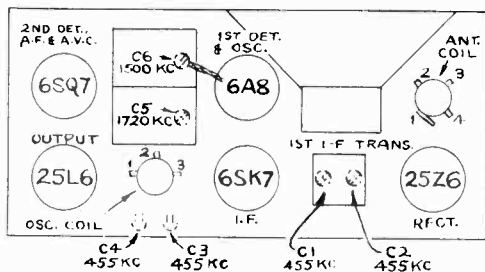
9TX-1 TO-5, 9TX 21, -22, -23

Precautionary Lead Dress

1. Dress 1st I-F plate and grid leads against chassis and away from each other. Dress plate lead from 6SK7 close to chassis.
2. Dress electrolytic capacitor against rear apron.
3. Keep leads away from adjusting screws to allow easy access.
4. Dress output plate lead along front apron and away from 6A8.
5. Dress parts at ends of chassis to clear cabinet bosses.

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.



Trimmer Locations

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Resistor in Power Cord.—The power cord contains a resistor which becomes warm during operation.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible. The antenna should be rolled up and kept at least one foot from chassis during alignment.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6A8 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal.	C6 (antenna)

Replacement Parts

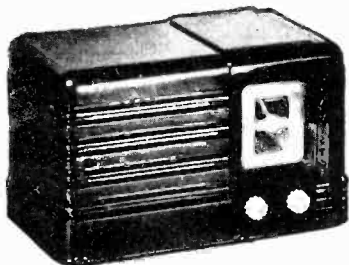
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODELS 9TX-1 TO 5			
32572	Coil—Antenna coil	4870	Condenser—.025 mfd.
32573	Coil—Oscillator coil	4886	Condenser—.05 mfd.
13057	Condenser—80 mmfd.	4839	Condenser—.01 mfd.
12488	Condenser—250 mmfd.	32576	Condenser—Electrolytic, one section 20 mfd., one section 12 mfd.
12952	Condenser—300 mmfd.	32944	Condenser—2-gang variable tuning
30433	Condenser—400 mmfd.	32634	Cord—Drive cord
4858	Condenser—.01 mfd.	32577	Cord—Resistance power cord
4870	Condenser—.025 mfd.	32942	Dial—Glass dial scale—Models 9TX21, 9TX22
4886	Condenser—.05 mfd.	33289	Dial—Glass dial scale—Model 9TX23
4839	Condenser—.01 mfd.	33297	Drive—Dial drive mechanism comprising drive drum, cord, shaft, dial color plate, back plate and pulleys assembled—Model 9TX23
32576	Condenser—Electrolytic, one section 20 mfd., one section 12 mfd.	32946	Drum—Variable condenser drive drum and indicator disc—Models 9TX21 and 9TX22
32579	Condenser—Variable tuning condenser	33006	Feet—Rubber feet for 9TX23
32577	Cord—Resistance power cord	33295	Indicator—Dial pointer—Model 9TX23
32566	Dial—Ivory dial for 9TX2 and 9TX5	32447	Knob—Ivory knob (tuning or volume) Model 9TX22
32567	Dial—Maroon dial for 9TX4	32571	Knob—Tan knob (tuning or volume) Models 9TX21 and 9TX23
32568	Dial—Tan dial for 9TX1 and 9TX3	31480	Lamp—Dial lamp—Mazda 47
32569	Knob—Ivory volume control knob for 9TX2 and 9TX5	12409	Lead—Antenna lead
32570	Knob—Maroon volume control knob for 9TX4	32943	Nut—Speed nut to fasten dial—Models 9TX21 and 9TX22
32571	Knob—Tan volume control knob for 9TX1 and 9TX3	33292	Plate—Dial color plate—Model 9TX23
31480	Lamp—Dial lamp—Mazda 47	33294	Pulley—Drive cord pulley—Model 9TX23
12409	Lead—Antenna lead	14439	Resistor—100 ohms, 1/2 watt
14439	Resistor—100 ohms, 1/2 watt	32535	Resistor—120 ohms, wire wound
32535	Resistor—120 ohms, wire wound	12412	Resistor—47,000 ohms, 1/2 watt
12412	Resistor—47,000 ohms, 1/2 watt	12264	Resistor—220,000 ohms, 1/2 watt
12264	Resistor—220,000 ohms, 1/2 watt	12285	Resistor—470,000 ohms, 1/2 watt
12285	Resistor—470,000 ohms, 1/2 watt	12679	Resistor—2.2 meg., 1/2 watt
12679	Resistor—2.2 meg., 1/2 watt	13601	Resistor—10 meg., 1/2 watt
13601	Resistor—10 meg., 1/2 watt	31199	Shield—Dial lamp shield—Models 9TX1, 9TX2, 9TX4, and 9TX5
31199	Shield—Dial lamp shield—Models 9TX1, 9TX2, 9TX4, and 9TX5	32537	Socket—Tube socket
32537	Socket—Tube socket	32575	Speaker—Complete with transformer
32575	Speaker—Complete with transformer	32574	Transformer—First i.f. transformer
32574	Transformer—First i.f. transformer	32581	Transformer—Output transformer
32581	Transformer—Output transformer	32534	Transformer—Second i.f. transformer
32534	Transformer—Second i.f. transformer	32578	Volume Control and Power Switch—Models 9TX1, 9TX2, and 9TX3
32578	Volume Control and Power Switch—Models 9TX1, 9TX2, and 9TX3	32580	Volume Control and Power Switch—Models 9TX4 and 9TX5
32580	Volume Control and Power Switch—Models 9TX4 and 9TX5	32667	Spring—Volume knob spring
32667	Spring—Volume knob spring	32803	Spring—Tuning knob spring
32803	Spring—Tuning knob spring	33006	Foot—Rubber foot for 9TX-3 only
33006	Foot—Rubber foot for 9TX-3 only	MODELS 9TX-21, -22, -23	
32572	Coil—Antenna coil	32572	Coil—Antenna coil
32573	Coil—Oscillator coil	32573	Coil—Oscillator coil
13057	Condenser—80 mmfd.	13057	Condenser—80 mmfd.
12488	Condenser—250 mmfd.	12488	Condenser—250 mmfd.
12952	Condenser—300 mmfd.	12952	Condenser—300 mmfd.
30433	Condenser—400 mmfd.	30433	Condenser—400 mmfd.
4858	Condenser—.01 mfd.	4858	Condenser—.01 mfd.
		33291	Volume Control and switch—Model 9TX23
		31646	Spring—Dial knob spring

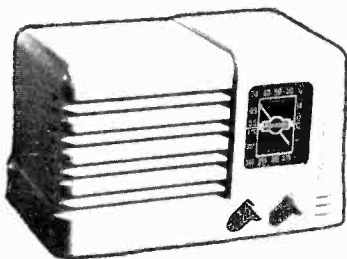
MODELS 9TX-31, 9TX-32, 9TX-33

Chassis No. RC-405, RC-405A, RC-405B

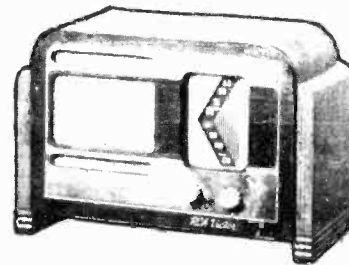
Five-Tube, Single-Band, AC-DC Superheterodyne Receivers



Model 9TX-31
Walnut Finish, Tan Knobs



Model 9TX-32
Ivory Finish, Ivory Knobs



Model 9TX-33
Heart Walnut, Ornamental Sides
Tan Knobs

Electrical and Mechanical Specifications

FREQUENCY RANGE 530-1,720 kc TUBE COMPLEMENT (1) RCA-12SA7 1st-Detector—Oscillator (2) RCA-12SK7 I-F Amplifier (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C. (4) RCA-35L6GT Power Output (5) RCA-35Z4GT Half-Wave Rectifier Dial Lamp (1) Mazda 47, 6.3 volts, .15 amp. POWER SUPPLY RATINGS A-C Rating 105-125 volts, 50-60 cycles, 30 watts D-C Rating 105-125 volts, direct current, 30 watts	INTERMEDIATE FREQUENCY 455 kc POWER OUTPUT (125 volt, 60 cycle supply) Undistorted 1.5 watts Maximum 2.0 watts LOUDSPEAKER (39105-2) Type 4-inch Electrodynamic Cabinet Dimensions { 9TX-31 .. 5½ inches .. 8½ inches .. 4½ inches 9TX-32 .. 5½ inches .. 8½ inches .. 4½ inches 9TX-33 .. 6½ inches .. 9½ inches .. 4½ inches Weight (net) 9TX-31, 32 .. 4¾ pounds; 9TX-33 .. 5½ pounds
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Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
X-638	Cabinet for 9TX31 (Walnut Finish).....(net)	33292	Plate—Dial color plate (Model 9TX33).....
X-639	Cabinet for 9TX32 (Ivory Finish).....(net)	33294	Pulley—Drive cord pulley (Model 9TX33).....
X-640	Cabinet for 9TX33 (Wood—Walnut Finish).....(net)	32970	Resistor—Dial lamp resistor—24 ohms.....
12488	Capacitor—250 mmfd.....	32971	Resistor—Series dropping resistor—42 ohms.....
12952	Capacitor—300 mmfd.....	13428	Resistor—150 ohms, ¼ watt.....
4838	Capacitor—.005 mfd.....	30538	Resistor—330 ohms, ¼ watt.....
4937	Capacitor—.01 mfd.....	13998	Resistor—22,000 ohms, ¼ watt.....
12484	Capacitor—0.25 mfd.....	12412	Resistor—47,000 ohms, ¼ watt.....
32572	Coil—Antenna coil.....	12264	Resistor—220,000 ohms, ¼ watt.....
32962	Coil—Oscillator coil.....	12285	Resistor—470,000 ohms, ¼ watt.....
13057	Condenser—60 mmfd.....	12679	Resistor—2.2 meg., ¼ watt.....
30433	Condenser—400 mmfd.....	13601	Resistor—10 meg., ¼ watt.....
4870	Condenser—.025 mfd.....	32945	Shaft—Tuning knob shaft (Models 9TX31 and 9TX32).....
4839	Condenser—0.1 mfd.....	33293	Shaft—Tuning knob shaft and bushing (Model 9TX33).....
32576	Condenser—Electrolytic, one section 20 mfd., one section 12 mfd.....	32969	Socket—Dial lamp socket.....
32968	Condenser—2-gang variable tuning.....	14278	Socket—Phonograph socket.....
32634	Cord—Drive cord.....	32537	Socket—Tube socket.....
32942	Dial—Glass dial scale (Models 9TX31, 9TX32).....	32963	Speaker—Complete with transformer.....
33289	Dial—Glass dial scale (Model 9TX33).....	32947	Spring—Drive cord tension spring (Models 9TX31 and 9TX32).....
33297	Drive—Dial drive mechanism—comprising drive drum, cord, shaft, dial color plate, back plate and pulleys assembled (Model 9TX33).....	31615	Spring—Drive cord tension spring (Model 9TX33).....
32946	Drum—Variable condenser drive drum and indicator disc (Models 9TX31 and 9TX32).....	33296	Spring—Drive drum retaining spring (Model 9TX33).....
33006	Feet—Rubber feet for 9TX33.....	32667	Spring—drive drum retaining spring.....
33295	Indicator—Dial pointer (Model 9TX33).....	32966	Transformer—First i-f transformer.....
32447	Knob—Ivory knob (tuning or volume) (Model 9TX32).....	32967	Transformer—Second i-f transformer.....
32571	Knob—Tan knob (tuning or volume) (Models 9TX31 and 9TX33).....	32964	Transformer—Output transformer.....
31480	Lamp—Dial lamp—Mazda 47.....	32578	Volume Control and power switch (Models 9TX31 and 9TX32).....
12409	Lead—Antenna lead.....		
32943	Nut—Speed nut to fasten dial (Models 9TX31 and 9TX32).....		

Additional Replacement Parts:

Stock No.	
33139	Rubber grommet for tuning shaft...
34174	Output transformer for speaker marked 39105-4
31646	Spring—Dial knob spring
33291	Volume control and switch for 9TX-33

Circuit Revisions:

The following circuit modification is suggested on Model 9TX30 series receivers where repeated failure of the No. 32970 line resistor and No. 31480 pilot lamp has occurred:

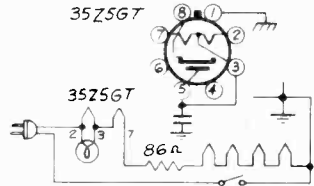
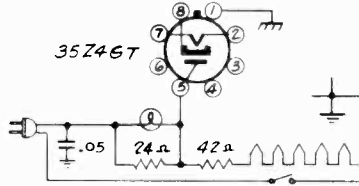
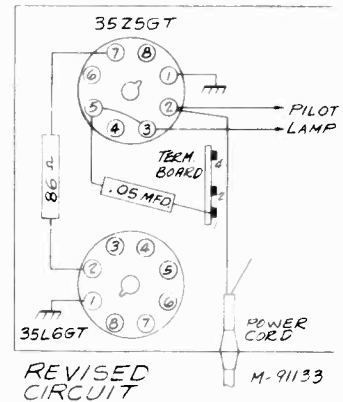
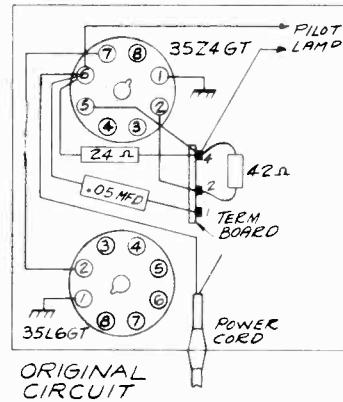
MATERIAL REQUIRED:

Quantity	Part	RCA Stock No.
1	Rectifier tube	35Z5GT
1	Resistor	33558
1	No. 51 Mazda pilot lamp	11765

Circuit Revisions:

PROCEDURE:

- (1) Remove all connections from terminals No. 2 and No. 4 of terminal board and terminals No. 2, No. 5, and No. 6 of 35Z4GT socket.
- (2) Resolder pilot lamp lead, removed from terminal No. 4 of terminal board, and power lead removed from terminal No. 6 of rectifier socket, to terminal No. 2 of rectifier socket.
- (3) Resolder pilot lamp lead, removed from terminal No. 6 of rectifier socket, to terminal No. 3 of rectifier socket. Add jumper between No. 5 and No. 3 of rectifier socket.
- (4) Resolder .05 mfd. capacitor, removed from terminal No. 6 of rectifier socket, to terminal No. 5 of rectifier socket.
- (5) Replace jumper between terminal No. 7 of rectifier socket and terminal No. 2 of 35L6GT socket, with 86 ohm resistor (Stock No. 33558).
- (6) Replace 35Z4GT rectifier tube with a 35Z5GT rectifier tube.
- (7) Replace No. 47 Mazda pilot lamp with a No. 51 Mazda pilot lamp (Stock No. 11765).



Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

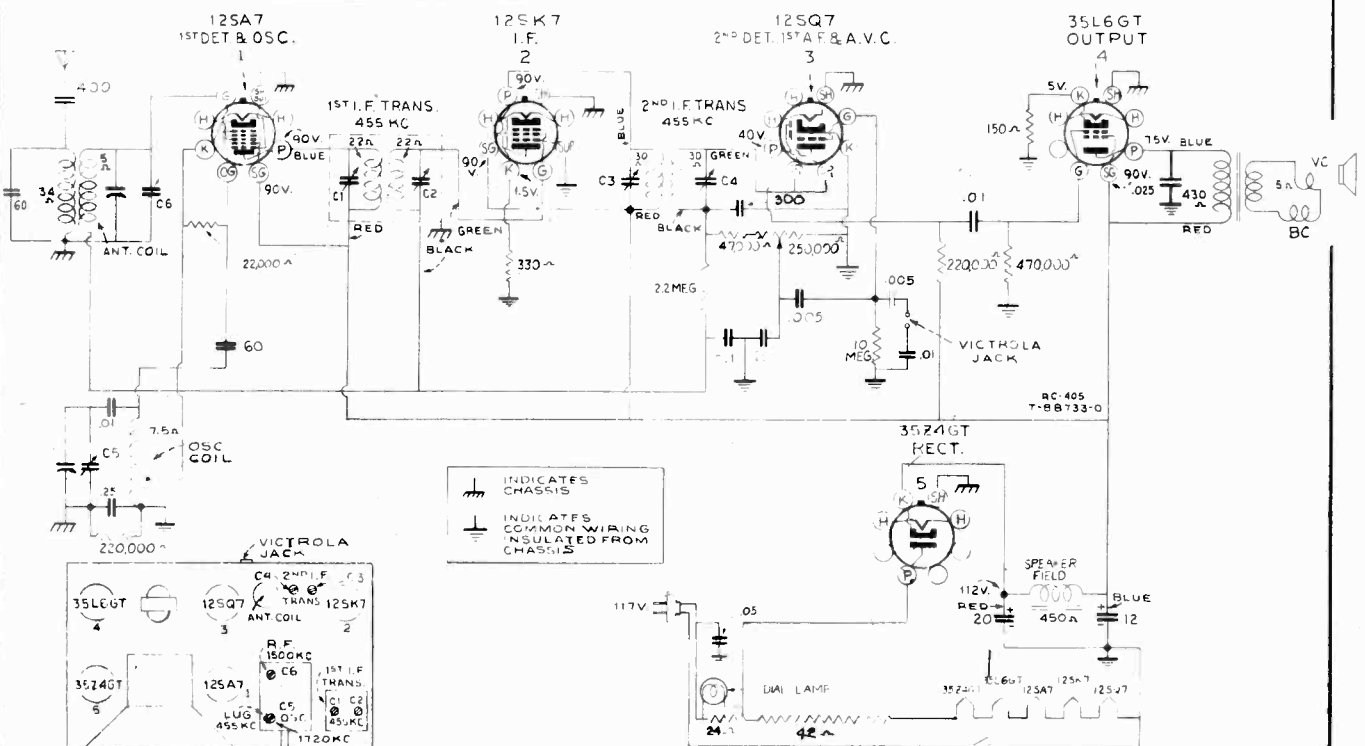
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser (osc.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)

Precautionary Lead Dress

1. Dress 1st I-F plate and grid leads against chassis and away from each other. Dress plate lead from 12SK7 close to chassis.
2. Dress electrolytic capacitor against rear apron.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c; reversal of the plug may reduce hum.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.



THESE LOCATIONS AND ALIGNMENT SCREW POSITIONS

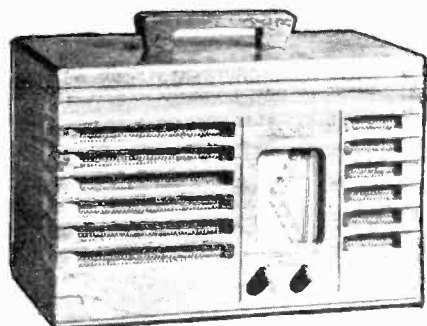
Schematic Circuit Diagram

SWITCH ON VOL. CONTROL

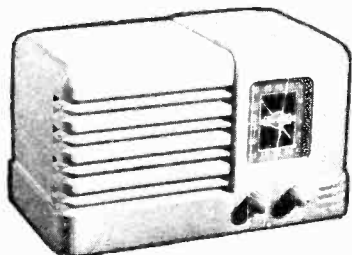
Models 9TX-50 40X-30 40X-31 and 40X-50 Series

Chassis No. RC-435 RC405C & D RC-436

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



←
Model 9TX-50
Light Mahogany Cabinet
Model 9TX-50M
Regular Mahogany Cabinet



Model 40X-30
Walnut Finish Plastic Cabinet

Model 40X-31
Ivory Finish Plastic Cabinet

The following models comprise the 40X-50 Series RC-436 chassis.

Model	Description
40X-50	"MODERN BLONDE" Blonde mahogany finish
40X-51	COLONIAL MODEL Maple finish
40X-52	IVORY MODEL Ivory finish
40X-53	"LA SIESTA" MODEL Mexican Scene
40X-54	TREASURE CHEST MODEL Weathered walnut finish
40X-55	HONEY MAPLE MODEL Honey maple finish
40X-56	WORLD'S FAIR MODEL New York World's Fair scene
40X-57	GOLDEN GATE MODEL San Francisco Exposition scene

Electrical and Mechanical Specifications

FREQUENCY RANGE 540-1,720 kc
Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7 1st-Detector-Oscillator
- (2) RCA-12SK7 I-F Amplifier
- (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C.
- (4) RCA-35L6GT or 50L6GT (see schematic) Power Output
- (5) RCA-35Z5GT Half-Wave Rectifier

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 50-60 cycles, 30 watts
D-C Rating 105-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted 6 watts
Maximum 2.0 watts

LOUDSPEAKER

Type 4-inch Electrodynamic

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that top edge of pointer just touches rivet in dial plate.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

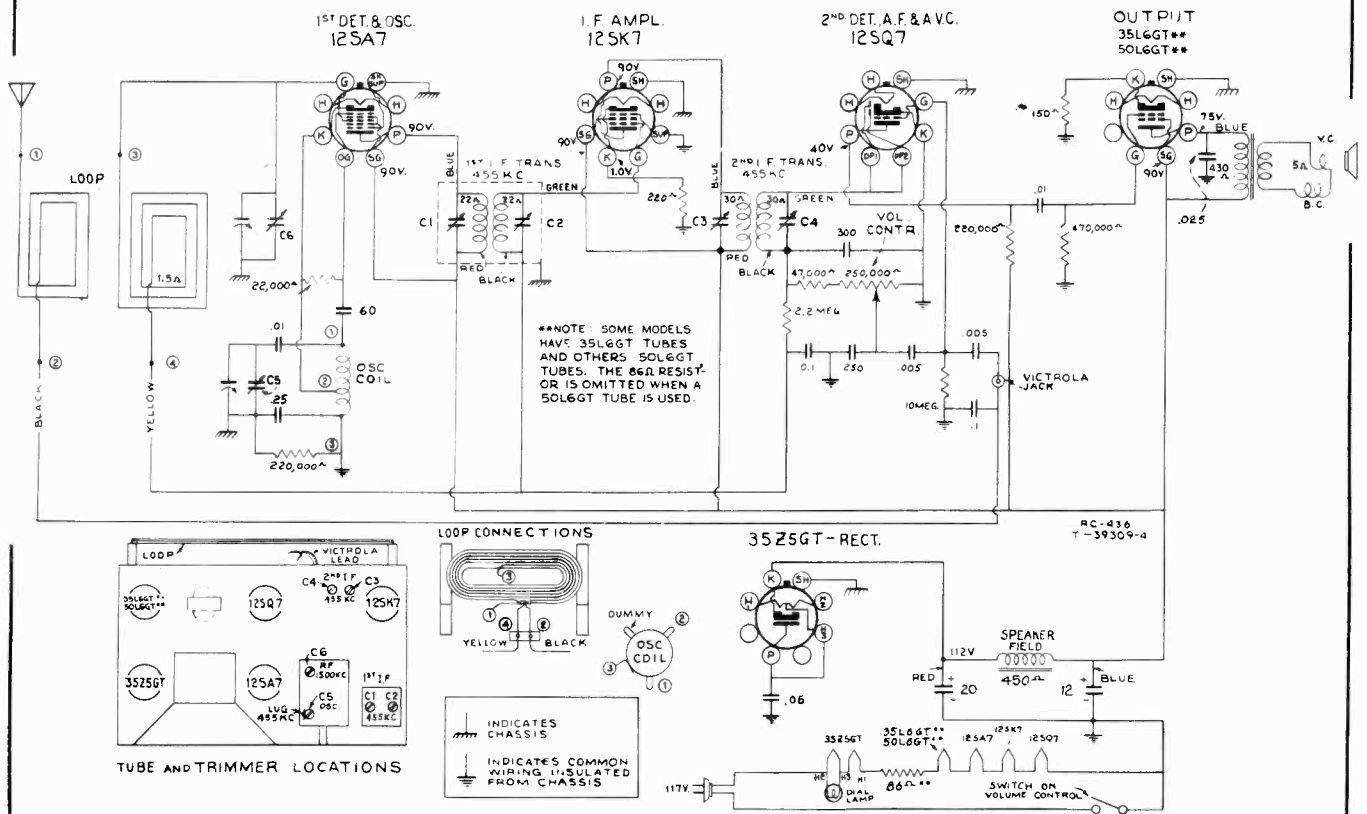
Victrola Attachment.—A jack is provided on the rear of cabinet for connecting a Victrola Attachment into the audio-amplifying circuit. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. loop in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)

Precautionary Lead Dress

1. Dress 2nd I-F green lead close to chassis and under other parts.
2. Dress lead from gang condenser to grid of 12SA7 close to chassis and away from 12SQ7 socket.
3. Dress blue 1st I-F lead under volume control close to chassis.
4. Dress blue 2nd I-F lead close to chassis and behind 12SK7 socket.

9TX 50, 40X30, 40X31, 40X50 SERIES



Schematic Circuit Diagram

NOTE: Output cathode resistor is 120 ohm when 50L6GT tube is used.

Replacement Parts MODELS 9TX-50, 9TX-50M

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-435)			
32968	Capacitor—2 gang variable tuning	12285	Resistor—470,000 ohms, 1/4 watt
13057	Capacitor—60 mmfd.	12679	Resistor—2.2 meg. 1/4 watt
12488	Capacitor—250 mmfd.	13601	Resistor—10 meg. 1/4 watt
12952	Capacitor—300 mmfd.	33293	Shaft—Tuning knob shaft and bushing
4838	Capacitor—.005 mfd.	33567	Socket—Dial Light
32787	Capacitor—.05 mfd.	32537	Socket—Tube Socket
4839	Capacitor—.1 mfd.	31615	Spring—Drive cord tension spring
12484	Capacitor—.25 mfd.	33206	Spring—Drum retaining spring
32576	Capacitor—Electrolytic 20-12 mfd.	32966	Transformer—I. F. Input
32962	Coil—Oscillator coil	32967	Transformer—I. F. Output
32634	Cord—Drive cord	33291	Volume Control
33662	Drum—Drive cord and indicator drum	SPEAKER ASSEMBLIES	
33295	Indicator—Dial pointer	(Speaker No. 39105-2)	
31480	Lamp—Pilot Lamp	34569	Speaker—Complete—less transformer
33663	Loop—Antenna loop	33741	Transformer—Output
33294	Pulley—Drive cord pulley	MISCELLANEOUS ASSEMBLIES	
33558	Resistor—86 ohms	33289	Dial—Dial Scale
13428	Resistor—150 ohms, 1/4 watt	33006	Foot—Rubber foot for cabinet
14561	Resistor—220 ohms, 1/4 watt	32571	Knob—Tuning or volume control knob
13998	Resistor—22,000 ohms, 1/4 watt	33742	Socket—Phonograph input socket
12738	Resistor—27,000 ohms, 1/4 watt		
12264	Resistor—220,000 ohms, 1/4 watt		

9TX 50, 40X30, 40X31, 40X50 SERIES

Replacement Parts MODELS 40X-30, 40X-31

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
13057	Capacitor—60 mmfd.	12264	Resistor—220,000 ohms, 1/2 watt
12488	Capacitor—250 mmfd.	12285	Resistor—470,000 ohms, 1/2 watt
12952	Capacitor—300 mmfd.	12679	Resistor—2.2 meg., 1/2 watt
4838	Capacitor—.005 mfd.	13601	Resistor—10 meg., 1/2 watt
4937	Capacitor—.01 mfd.	32945	Shaft—Tuning knob shaft and bearing
4870	Capacitor—.025 mfd.	33742	Socket—Phonograph input socket
32787	Capacitor—.05 mfd.	33557	Socket—Pilot lamp socket
4839	Capacitor—.1 mfd.	32537	Socket—Tube socket
12484	Capacitor—.25 mfd.	30585	Spring—Tuning condenser drive cord spring
32576	Capacitor—Electrolytic, one section 20 mfd., one section 12 mfd.	32966	Transformer—First i-f transformer
34259	Coil—Oscillator coil	32967	Transformer—Second i-f transformer
32968	Condenser—Variable tuning condenser	SPEAKER ASSEMBLIES	
32578	Control—Volume control and power switch	32964	Transformer—Output transformer
32634	Cord—Drive cord	MISCELLANEOUS ASSEMBLIES	
32946	Drum—Variable condenser drive drum and indicator disc	32942	Dial—Glass dial scale
11765	Lamp—Pilot lamp	32447	Knob—Ivory tuning, volume and power knob Model 40X31
33807	Loop—Antenna loop for 40X30	32571	Knob—Tan tuning, volume and power knob Model 40X30
33808	Loop—Antenna loop for 40X31	32943	Nut—Speed nut to fasten dial
33558	Resistor—Series resistor—86 ohms		
13428	Resistor—150 ohms, 1/2 watt		
14561	Resistor—220 ohms, 1/2 watt		
13998	Resistor—22,000 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		

Burnt-Out I-F Transformer:

A few cases have been reported in Models 40X-30, -31 where the secondary of the 1st I-F transformer has burned out. Investigation showed that this was caused by a combination of two things:

- (a) The low ends of the primary and secondary of the loop antenna were reversed, so that the low-end of the primary was connected to the AVC bus.
- (b) A grounded antenna lead was connected to the antenna terminal on the back of the receiver.

This placed 110 volts on the grid of the I-F tube, drawing sufficient current to burn out the secondary of the 1st I-F transformer, and also the I-F bias resistor.

The remedy is to re-wire the loop antenna correctly as shown in the Service Data. The low-end of the primary should be connected through the .1 mfd. capacitor to chassis, and the low-end of the secondary should be connected to the AVC bus.

MODELS 40X-30, 40X-31, 40X-50

Additional Replacement Part:

Stock No.

- 11315 Capacitor—.015 mfd. (output tube plate by-pass in some production of Model 40X-50)
- 11765 Lamp—Dial lamp
- 34569 Speaker—Complete—less transformer

Replacement Parts MODELS 40X-50

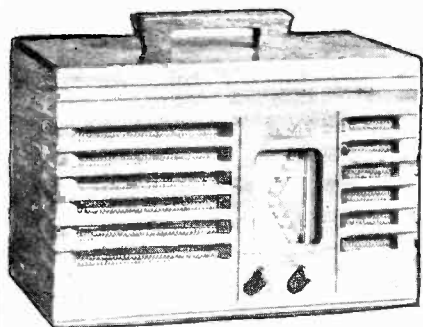
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-436)			
33745	Cable—Phono. cable	30585	Spring—Drive cord spring
13057	Capacitor—60 mmfd.	33557	Socket—Dial light socket
12488	Capacitor—250 mmfd.	32537	Socket—Tube socket
12952	Capacitor—300 mmfd.	32966	Transformer—I-F input transformer
4838	Capacitor—.005 mfd.	32967	Transformer—I-F output transformer
4870	Capacitor—.025 mfd.	32545	Volume control
32787	Capacitor—.05 mfd.	SPEAKER ASSEMBLIES (39105-2)	
4839	Capacitor—.1 mfd.	32964	Transformer—Output transformer
12484	Capacitor—.25 mfd.	MISCELLANEOUS ASSEMBLIES	
32576	Capacitor—Electrolytic, 20-12 mfd.	33744	Dial—Glass dial scale
32968	Capacitor—Variable tuning	32895	Knobs—Tuning and volume—Models 40X50, 40X51, 40X52, 40X55, 40X56, 40X57 (Walnut)
32962	Coil—Oscillator coil	32893	Knobs—Tuning and volume—Model 40X53 (Red)
32634	Cord—Drive cord	32571	Knobs—Tuning and volume—Model 40X54 (Tan)
33743	Drum—Drive drum	33742	Socket—Phonograph input socket
33663	Loop—Complete antenna loop		
33558	Resistor—86 ohms		
12071	Resistor—120 ohms, 1/2 watt		
13428	Resistor—150 ohms, 1/2 watt		
14561	Resistor—220 ohms, 1/2 watt		
13998	Resistor—22,000 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
12264	Resistor—220,000 ohms, 1/2 watt		
12285	Resistor—470,000 ohms, 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
13601	Resistor—10 meg., 1/2 watt		
33061	Shaft—Drive shaft		

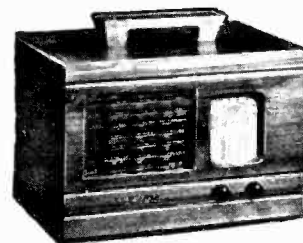
MODELS 9TX-50, 9TX-50M, 2nd Production (Chassis No. RC-454)

MODELS 40X-52, 40X-55, 2nd Production (Chassis No. RC-453)

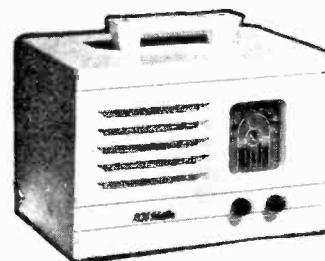
Five-Tube, Single-Band, AC-DC, Superheterodyne, Loop Receivers



Model 9TX-50



Model 40X-55



Model 40X-52.

Model	Description
40X-52	IVORY MODEL Ivory Finish.....
40X-55	HONEY MAPLE MODEL Honey maple finish....
9TX-50	Light Mahogany Cabinet.
9TX-50M	Regular Mahogany Cabinet

Electrical and Mechanical Specifications

FREQUENCY RANGE 540-1,650 kc
Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7 1st-Detector Oscillator
 - (2) RCA-12SK7 I-F Amplifier
 - (3) RCA-12SQ7 2nd-Detector, 1st A-F and A.V.C.
 - (4) RCA-60L6GT Power Output
 - (5) RCA-35Z5GT Half-Wave Rectifier
- Dial Lamp (1) Mazda 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 50-60 cycles, 30 watts
D-C Rating 105-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted6 watts
Maximum 2.0 watts

LOUDSPEAKER

Type 5-inch Electrodynamic

MODELS 9TX-50, 9TX-50M

2nd Production, RC-454:

Add Stock No.

35613 Back—Back cover and loop complete.

MODELS 40X-52, 40X-55

2nd Production, RC-453:

Add Stock No.

35612 Back—Back cover and loop complete.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-453, RC-454)		32545	Control—Volume control and power switch (40X-52, 55)
34444	Bracket—Dial and lamp support (9TX-50, 50M)	33291	Control—Volume control and power switch (9TX-50, 50M)
34447	Capacitor—Mica trimmer, 2.5 to 30 mmfd. (C1)	32634	Cord—Tuning condenser drive cord
13057	Capacitor—60 mmfd. (C5)	34567	Drum—Variable tuning condenser drive drum (40X-52, 55)
4838	Capacitor—0.05 mfd. (C14, C15)	34446	Eyelet—Used as pulley for drive cord (9TX-50, 50M)
4937	Capacitor—0.1 mfd. (C16)	11765	Lamp—Dial lamp
11315	Capacitor—0.15 mfd. (C17)	34445	Pointer—Dial pointer (9TX-50, 50M)
32787	Capacitor—0.5 mfd. (C18)	14439	Resistor—100 ohms, 1/4 watt (R13)
4839	Capacitor—0.1 mfd. (C12, C24)	13428	Resistor—150 ohms, 1/4 watt (R9)
12484	Capacitor—0.25 mfd. (C6)	13998	Resistor—22,000 ohms, 1/4 watt (R1)
34597	Capacitor—Electrolytic comprising 1 section of 20 mfd. and 1 section of 12 mfd. (C19, C20)	12264	Resistor—220,000 ohms, 1/4 watt (R2, R7)
34592	Coil—Loop loading coil	12285	Resistor—470,000 ohms, 1/4 watt (R8)
34443	Coil—Oscillator coil	12679	Resistor—2.2 megohm, 1/4 watt (R4)
34448	Condenser—Variable tuning condenser (40X-52, 55)	13601	Resistor—10 megohm, 1/4 watt (R6)
34440	Condenser—Variable tuning condenser (9TX-50, 50M)	33061	Shaft—Tuning condenser drive shaft (40X-52, 55)

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION	
34332	Shaft—Tuning condenser drive shaft (9TX-50, 50M)		SPEAKER ASSEMBLIES 40X-55 (RL86-1)	
34449	Socket—Dial lamp socket	32907		Cap—Dust cap
31319	Socket—Tube socket	35066		Cone—Cone complete with voice coil
30585	Spring—Tuning condenser drive cord spring (40X52, 55)	34450		Speaker—5" dynamic speaker complete with cone and voice coil less output transformer
31615	Spring—Drive cord spring (9TX-50, 50M)	35056		Transformer—Output transformer
34441	Transformer—1st I.F. transformer		MISCELLANEOUS	
34442	Transformer—2nd I.F. transformer	33744		Dial—Dial scale—glass (40X-52, 55)
	SPEAKER ASSEMBLIES (40X-52, 9TX-50 and 9TX-50M) (39223-1)	33289		Dial—Dial scale (9TX-50, 50M)
35065	Cone—Cone complete with voice coil	34016		Knob—Walnut tuning or volume control knob (40X-52, 55)
34450	Speaker—5" dynamic speaker complete with cone and voice coil less output transformer	34015		Knob—Tuning or volume control knob (9TX-50, 50M)
34174	Transformer—Output transformer			

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Steps	Connect the test oscillator to—	Tune test-osc. to—	Turn Radio Dial to—	Adjust the following for maximum peak output
1	Tuning Condenser stator (ant.) in series with .1 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C7, C8, C9 (1st and 2nd I-F transformers)
2	Radiation Loop consisting of 2 turns of wire 18 in. in diameter located 4 to 6 feet from receiver	1,650 kc	Full clockwise (out of mesh)	C4 (oscillator)
3		600 kc	Resonance on 600 kc signal	L1 (Loop inductance)
4		1,400 kc	Resonance on 1,400 kc signal	C2 (Antenna)

Precautionary Lead Dress:

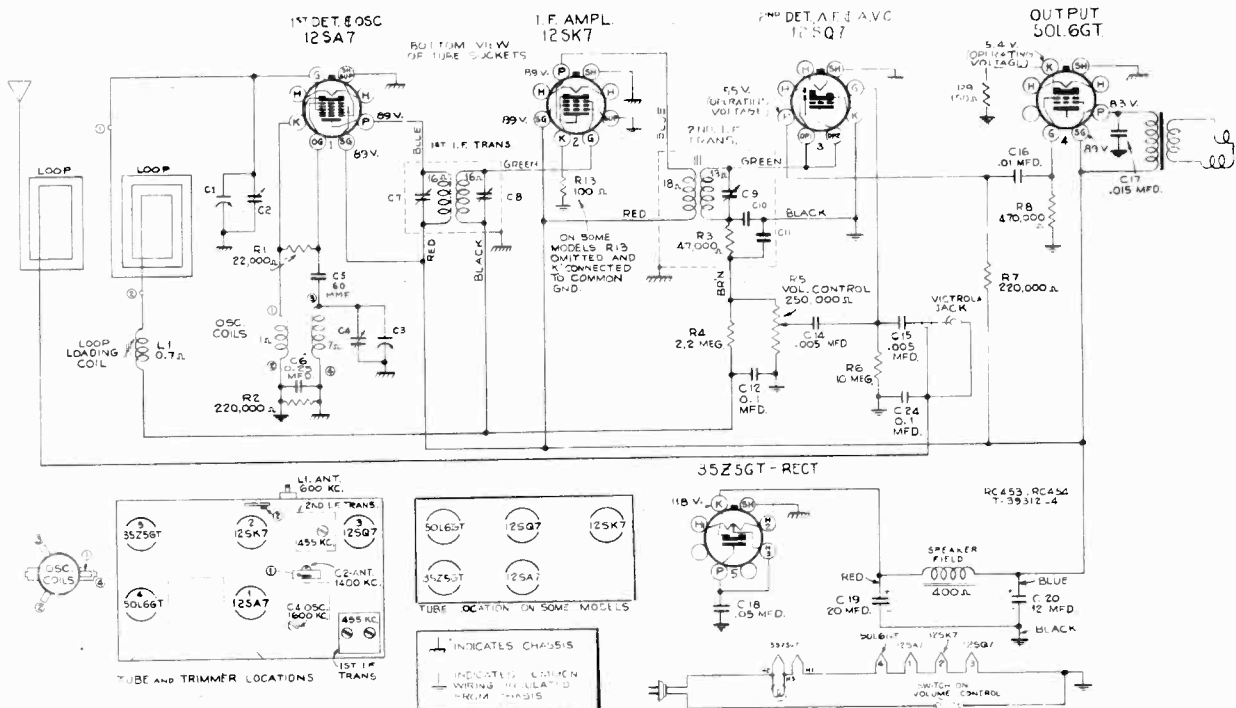
1. Green and blue leads from 1st I.F. transformer must be kept separated.

2. Dress yellow lead from loudspeaker under green lead from hum bucking coil to prevent it from touching the 50L6GT.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

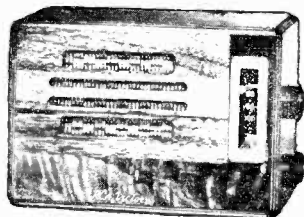
Victrola Attachment.—A jack is provided on the rear of cabinet for connecting a Victrola Attachment into the audio-amplifying circuit. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.



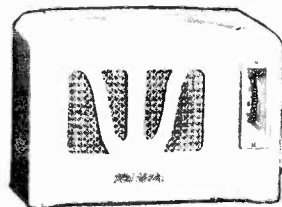
MODEL 9X Series

Chassis No. RC-350 & RC-350A

Four-Tube, Single-Band, AC-DC, T-R-F Receiver



- Model 9X—Model 9X6, wood, walnut.
- Model 9X1—Model 9X11, catalin, Brazilian onyx, green.
- Model 9X2—Model 9X12, catalin, jet black.
- Model 9X3—Model 9X13, catalin, Arizona onyx, cream.
- Model 9X4—Model 9X14, catalin, burl onyx, brown.



Electrical and Mechanical Specifications

Frequency Range..... 540-1,760 kc
 Alignment Frequency..... 1,760 kc (ant., det.)

RCA TUBE COMPLEMENT

- (1) RCA-6K7..... R F Amp.
- (2) RCA-6J7..... Detector
- (3) RCA-25L6..... Output
- (4) RCA-25Z6..... Rectifier

Dial Lamp..... Mazda No. 40, 6.3 volts, .15 amps.

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
 D-C Rating..... 105-125 volts, 50 watts

POWER OUTPUT (125-volt, 60-cycle supply)

Undistorted..... 1.0 watt
 Maximum..... 1.5 watts

LOUDSPEAKER

Type..... 3-inch Electrodynamic
 Voice-Coil Impedance..... 3 ohms at 400 cycles

Alignment Procedure

Reel up the antenna wire, and keep it away from chassis during alignment. Connect the high side of test-oscillator through an 80 mmfd. capacitor to the antenna terminal. Connect low side of oscillator to receiver chassis through a 0.1 mfd. capacitor. Turn gang condenser to minimum (full out), tune oscillator to 1,760 kc, connect an output meter across the voice coil, and turn volume control to maximum.

Adjust the two trimmers (C3 and C6) on side of gang condenser for maximum output, using lowest possible output from test-oscillator.

Pre-setting Dial.—With gang condenser rotor plates turned full in for maximum capacity, loosen dial-drum set-screw, and turn drum so that the top edge of dial (low-frequency end) is approximately 1/16-in. below level of gang frame, and tighten set-screw.

MODELS 9X, 9X1, - 2, - 3, - 4

(RC-350) Replacement Parts

STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES	
30883	Capacitor—300 mmfd. (C9)
14393	Capacitor—.01 mfd. (C1, C8, C10, C11)
4870	Capacitor—.025 mfd. (C7)
30882	Capacitor—.05 mfd. (C4)
30965	Capacitor—.025 mfd. (C12)
31323	Capacitor—.16 mfd. (C13, C14)
31316	Coil—Antenna coil (L1, L2)
30876	Coil—Detector coil (L3, L4)
31321	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)
31320	Cord—Resistance power cord (R7)
31314	Dial—Station selector dial scale
31315	Drum—Station selector dial scale drum—less scale
4340	Lamp—Dial lamp
31193	Lead—Antenna lead—approx. 25 ft. long
13428	Resistor—150 ohms, ½ watt (R6)
12285	Resistor—470,000 ohms, ½ watt (R4)
13730	Resistor—1 Meg., ½ watt (R5)
12679	Resistor—2.2 Meg., ½ watt (R3)
13601	Resistor—10 Meg., ½ watt (R2)
4387	Screw—No. 6-32 headless set screw for drum Stock No. 31315
31318	Socket—Dial lamp socket
31319	Socket—Radiotron socket
31317	Transformer—Output transformer (T1)
31322	Volume control and power switch (R1, S1)
SPEAKER ASSEMBLIES (86309-1)	
31325	Cone—Speaker cone and voice coil (L5)
31324	Speaker—Complete
MISCELLANEOUS ASSEMBLIES	
31326	Escutcheon—Station selector dial escutcheon
31204	Knob—Station selector, or volume control knob
30900	Spring—Retaining spring for knob, Stock No. 31204
31915	Escutcheon—Dial escutcheon (9X1, 9X2, 9X3, 9X4 only)
31914	Knob—Tuning or volume knob (9X2, 9X3 only)
31204	Knob—Tuning or volume knob (9X, 9X1, 9X4 only)

MODELS 9X6, - 11, - 12, - 13, - 14 (RC-350A) Replacement Parts

STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES	
14392	Capacitor—4.7 mmfd. (C17)
30883	Capacitor—300 mmfd. (C9)
14393	Capacitor—.01 mfd. (C15)
4870	Capacitor—.025 mfd. (C7)
30882	Capacitor—.05 mfd. (C4)
30899	Capacitor—.01 mfd. (C12)
12484	Capacitor—.025 mfd. (C16)
31323	Capacitor—.16 mfd. (C13, C14)
30875	Coil—Antenna coil (L1, L2)
32027	Coil—R-f coil (L3, L4)
31321	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)
32030	Cord—Resistance power cord (R7)
31314	Dial—Station selector dial scale
31315	Drum—Station selector dial scale drum—less scale
4340	Lamp—Dial lamp
31193	Lead—Antenna lead—approximately 25 ft. long
32028	Resistor—25 ohms, 3 watts, wire wound (R8)
13428	Resistor—150 ohms, ½ watt (R6)
13734	Resistor—120,000 ohms, ½ watt (R9)
12285	Resistor—470,000 ohms, ½ watt (R4)
13730	Resistor—1 meg., ½ watt (R5)
12679	Resistor—2.2 meg., ½ watt (R3)
13601	Resistor—10 meg., ½ watt (R2)
4387	Screw—No. 6-32 headless set screw for drum, Stock No. 31315
31318	Socket—Dial lamp socket
31319	Socket—Tube socket
32029	Transformer—Output transformer (T1)
32026	Volume control and power switch (R1, S1)
SPEAKER ASSEMBLIES (86309-2)	
31325	Cone—Speaker cone and voice coil (L5)
32025	Speaker complete
MISCELLANEOUS ASSEMBLIES	
31326	Escutcheon—Station selector dial escutcheon— Model 9X6
31915	Escutcheon—Station selector dial escutcheon— Models 9X11, 9X12, 9X13 and 9X14 only
31914	Knob—Station selector or volume control knob —Models 9X12 and 9X13 only
31204	Knob—Station selector or volume control knob —Models 9X6, 9X11 and 9X14 only
30900	Spring—Retaining spring for knobs

Precautionary Lead Dress

1. Dress detector grid lead close to top of speaker chassis.
2. Dress lead from grid of 6K7 to gang condenser away from detector section of gang, and clear of rotor plates.
3. Dress speaker leads close to, but not touching, cone.
4. Dress pilot lamp leads close to top of chassis, and clear of rotor.

25-Cycle Operation

For 25-cycle operation, connect a 16 mfd., 150-volt dry electrolytic capacitor (Stock No. 31323) in parallel to C13.

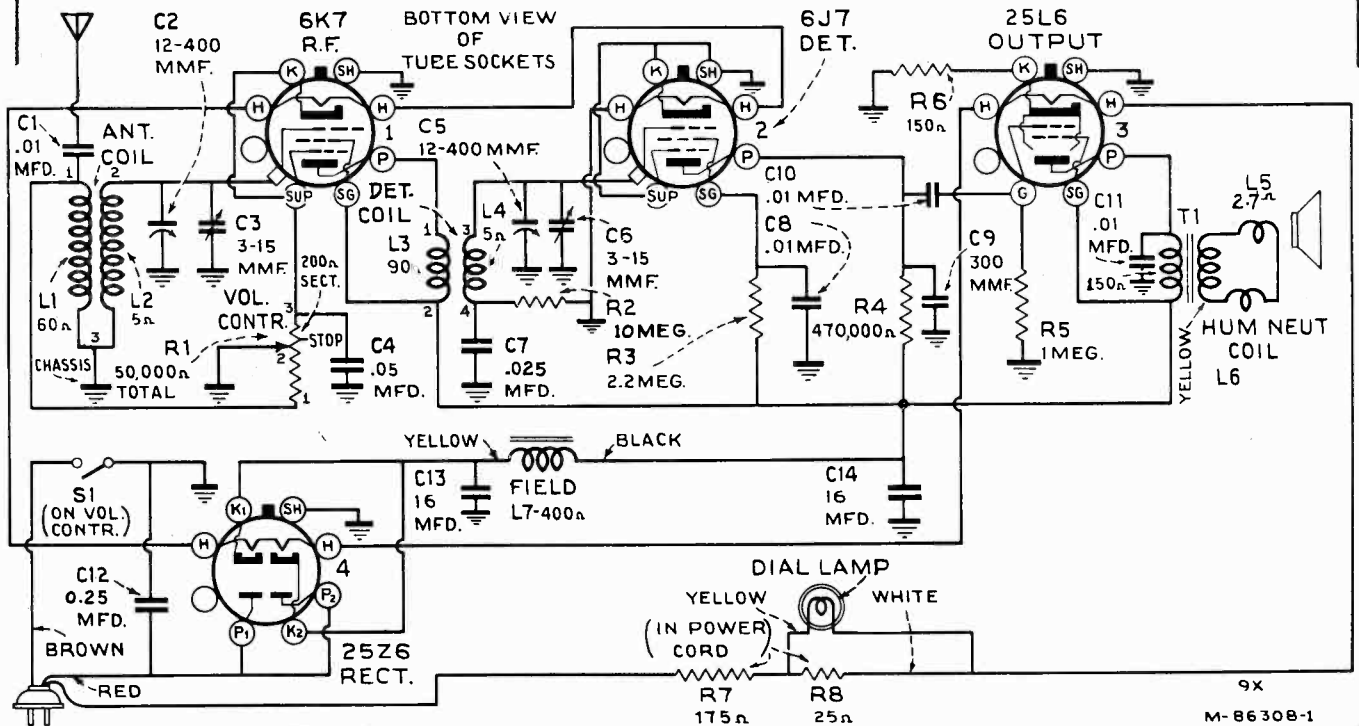


Figure 2—Schematic Circuit Diagram 9X, 9X1, - 2, - 3, - 4

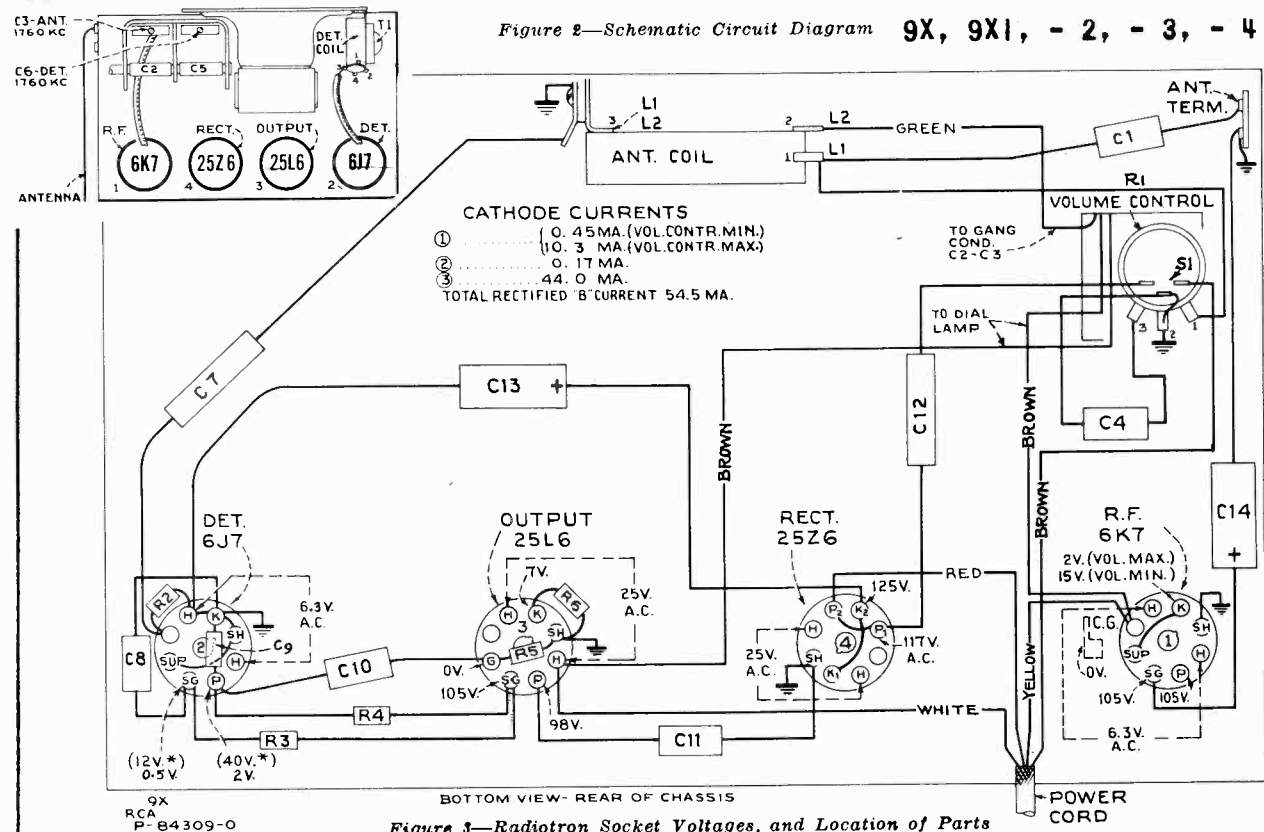


Figure 3—Radiotron Socket Voltages, and Location of Parts

* Note: Values with (*) are operating voltages.
Values not starred are actual measured voltages.
Measurements made to chassis unless otherwise indicated.
Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10,

50, and 250 volts. (Use nearest range above the specified measured voltage.)
Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.

9X SERIES

Precautionary Lead Dress

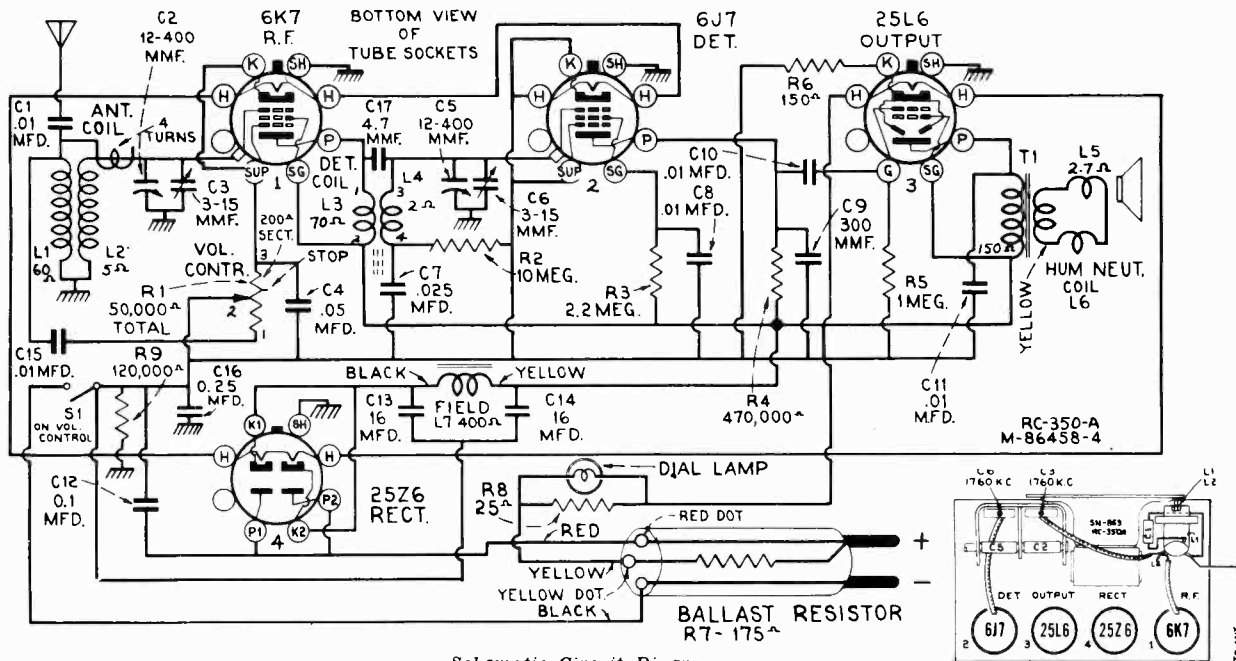
1. Dress green lead from antenna coil to gang up from speaker chassis.
2. Green lead from gang to grid of 6J7 must be dressed down and away from top of bracket, and centered in gang section.
3. Green lead from detector coil to gang must be dressed under pilot lamp bracket: Any excess wire should be pulled through to under side of chassis.
4. Pilot lamp leads must be dressed clear of gang rotor.
5. Magnetite core in detector coil must not be in contact with base or mounting screw.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Antenna.—The set is equipped with a 25-foot antenna. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmfd. capacitor in series with the lead-in.

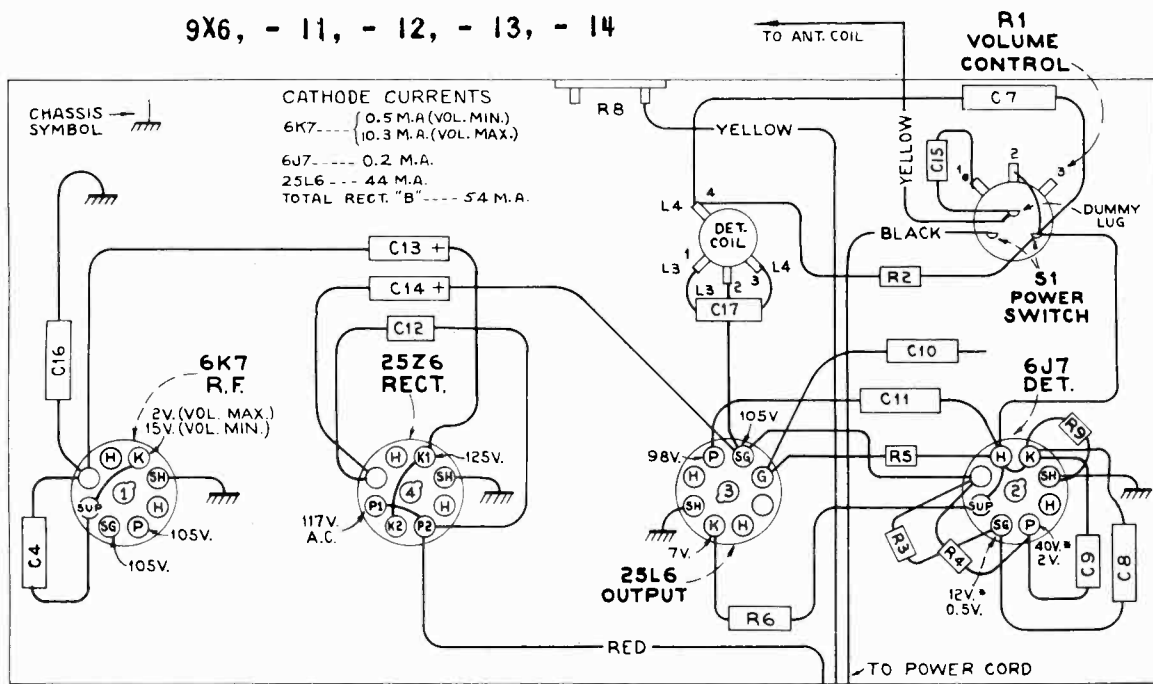
25-Cycle Operation

For 25-cycle operation, connect a 16 mfd., 150-volt dry electrolytic capacitor (Stock No. 31323) in parallel to C13.



Schematic Circuit Diagram

9X6, - 11, - 12, - 13, - 14



BOTTOM VIEW - REAR OF CHASSIS

R-F Wiring Diagram and Socket Voltages

* Note: Values with (*) are operating voltages. Values not starred are actual measured voltages.

Measurements made to common negative line, unless otherwise specified.

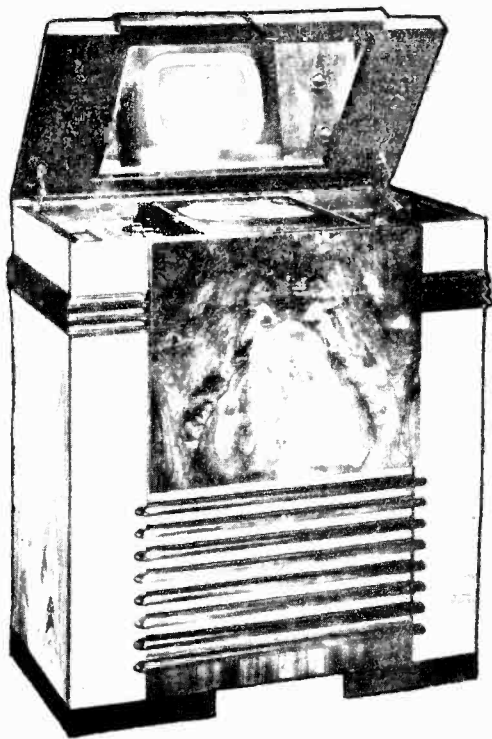
Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10,

50, and 250 volts. (Use nearest range above the specified measure voltage.)

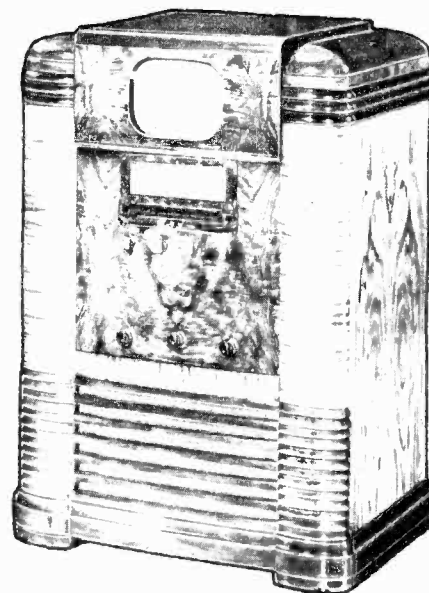
Values should hold within approximately ± 20% for 117-volt 60-cycle a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.

MODELS TRK-9, TRK-12, TRK-90 and TRK-120

AC, Superheterodyne, High-Picture-Definition, Five-Television-Channel, Receiver
and
Three-Band, Electric Tuning, AC, Superheterodyne Broadcast Receiver



Models TRK-12, TRK-120



Models TRK-9, TRK-90

TRK-9, TRK-90 General Specifications TRK-12, TRK-120

Height..... 47½ in.; Depth..... 24¾ in.
Width..... 31½ in.; Weight..... 200 lb.
Shipping Weight..... 283 lb.

Height..... 40¾ in.; Depth..... 19¾ in.
Width..... 34¾ in.; Weight..... 198 lb.
Shipping Weight..... 275 lb.

Chassis Numbers and Power Supply Ratings

Model TRK-12:

Chassis KC-4, KK-7, RC-427, RS-83E,
105-125 volts, 60 cycles..... 420 watts (total)
Chassis KC-4B, KK-7D, RC-427, RS-
83E, 105-125 volts, 50-60 cycles.... 420 watts (total)

Model TRK-120:

Chassis KC-4F, KK-7F, RC-427F, RS-
83E, 105-125 volts, 60 cycles..... 420 watts (total)
Chassis KC-4J, KK-7J, RC-427F, RS-
83E, 105-125 volts, 50-60 cycles.... 420 watts (total)

Model TRK-9:

Chassis KC-4A, KK-7A, RC-427A, RS-
83E, 105-125 volts, 60 cycles..... 420 watts (total)
Chassis KC-4C, KK-7E, RC-427A, RS-
83E, 105-125 volts, 50-60 cycles.... 420 watts (total)

Model TRK-90:

Chassis KC-4H, KK-7H, RC-427G, RS-
83E, 105-125 volts, 60 cycles..... 420 watts (total)

General Description

Models TRK-12 and TRK-120 are console-type, high-picture-definition, mirror-viewing, five channel, Television Receivers and three-band broadcast radio receivers enclosed in handsomely styled modern cabinets. Features of the Television receiver include: Twelve-inch Kinescope; Styrol (humidity-resisting) r-f and i-f transformer forms; black and white pictures; single station selector switch; temperature compensated condensers; iron core i-f and r-f tuning; double

safety switch protection; safety-glass viewing shield; and extra large viewing mirror for wide angle viewing.

Models TRK-9 and TRK-90 are direct viewing, high-picture-definition, console-type, five channel, Television Receivers and three-band broadcast radio receivers in deluxe upright modern cabinets. Television features of these receivers are the same as for the TRK-12 and TRK-120, except that a nine-inch Kinescope is used.

TELEVISION RECEIVER

Electrical Specifications

RCA TUBE COMPLEMENT

In KC-4, KC-4B (TRK-12) and KC-4A, KC-4C (TRK-9) Video Chassis:

(1) RCA-6AC7/1852..... 1st Det.	(13) RCA-6SK7..... 1st Sound I.F.
(2) RCA-6J5..... Oscillator	(14) RCA-6AB7/1853..... 2nd Sound I.F.
(3) RCA-6AB7/1853..... 1st Pix. I.F.	(15) RCA-6H6..... Sound 2nd Det.-AVC
(4) RCA-6AB7/1853..... 2nd Pix. I.F.	(16) RCA-6N7..... 1st Sync. Sep.-Amp.
(5) RCA-6AB7/1853..... 3rd Pix. I.F.	(17) RCA-6Y6-G..... 2nd Sync. Sep.
(6) RCA-6AB7/1853..... 4th Pix. I.F.	(18) RCA-6N7..... Sync. Amp.
(7) RCA-6AC7/1852..... 5th Pix. I.F.	(19) RCA-6N7..... Hor. Osc.-Discharge
(8) RCA-6H6..... Pix. 2nd Det.	(20) RCA-6L6..... Hor. Output
(9) RCA-6F8-G..... AVC or Limiter	(21) RCA-5V4G (60 cycles) or RCA-25Z6 (50 cycles)..... Hor. Damping
(10) RCA-6AC7/1852..... Video Amp.	(22) RCA-6N7..... Vert. Osc.-Discharge
(11) RCA-6H6..... D.C. Restorer	(23) RCA-6J5..... Vert. Output
(12) RCA-12AP4/1803-P4 (TRK-12) or RCA-9AP4/1804-P4 (TRK-9)..... Kinescope	

In KK-7, KK-7D (TRK-12) and KK-7A, KK-7E (TRK-9) Television Socket Power Units:

(24) RCA-5T4..... Low Voltage Rectifier	(25) RCA-2V3-G..... High Voltage Rectifier
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In KC-4F, KC-4J (TRK-120) and KC-4H (TRK-90) Video Chassis:

(1) RCA-6AC7/1852..... 1st Det.	(12) RCA-6SK7..... 1st Sound I.F.
(2) RCA-6J5..... Oscillator	(13) RCA-6AB7/1853..... 2nd Sound I.F.
(3) RCA-6AB7/1853..... 1st Pix. I.F.	(14) RCA-6H6..... Sound 2nd Det.-AVC
(4) RCA-6AB7/1853..... 2nd Pix. I.F.	(15) RCA-6N7..... 1st Sync. Sep.-Amp.
(5) RCA-6AB7/1853..... 3rd Pix. I.F.	(16) RCA-6Y6-G..... 2nd Sync. Sep.
(6) RCA-6AB7/1853..... 4th Pix. I.F.	(17) RCA-6N7..... Sync. Amp.
(7) RCA-6AC7/1852..... 5th Pix. I.F.	(18) RCA-6N7..... Hor. Osc.-Discharge
(8) RCA-6H6..... Pix. 2nd Det.	(19) RCA-6L6..... Hor. Output
(9) RCA-6SQ7..... Limiter	(20) RCA-5V4-G (60 cycles) or RCA-25Z6 (50 cycles)..... Hor. Damping
(10) RCA-6AC7/1852..... Video Amp.	(21) RCA-6N7..... Vert. Osc.-Discharge
(11) RCA-12AP4/1803-P4 (TRK-120) or RCA-9AP4/1804-P4 (TRK-90)..... Kinescope	(22) RCA-6J5..... Vert. Output

Note: An RCA-6H6 D.C. Restorer is added in some TRK-120, TRK-90.

In KK-7F, KK-7J (TRK-120) and KK-7H (TRK-90) Television Socket Power Units:

(23) RCA-5U4G (60 cycles, without D.C. Restorer), RCA-5T4 (60 cycles, with D.C. Restorer), or RCA-5T4 (50 cycles)..... Low Voltage Rectifier	(24) RCA-2V3-G..... High Voltage Rectifier
--	--

TELEVISION CHANNELS (Selector Switch Positions)

1..... 50 to 56 mc.	3..... 66 to 72 mc.
2..... 60 to 66 mc.	4..... 78 to 84 mc.
5..... 84 to 90 mc.	

PICTURE SIZE (Approximate Mask Dimensions)

TRK-9, TRK-90..... 5½ x 7¼ in.
TRK-12, TRK-120..... 7¾ x 9¾ in.

NOTE: This service note includes all changes that have been incorporated since initial production, including deletion of the 44-50 m.c. channel and addition of the 60-66 m.c. channel.

Overall Video Band Width..... 4 mc.
Scanning..... Interlaced, 525 line
Horizontal (Line) Scanning Frequency (Sawtooth Wave)..... 15,750 cps
Vertical (Field) Scanning Frequency (Sawtooth Wave)..... 60 cps
Frame Frequency (Picture Repetition Rate)..... 30 cps

IMPORTANT PRECAUTIONS

A good ground should be connected to the receiver at all times.

Always wear gloves and shatter-proof goggles when handling Kinescope tubes.

Do not eliminate the protection afforded by the interlock switches.

ALWAYS replace the shield can over the 2V3-G high voltage rectifier. The most dangerous portion of the H.V. supply is the plate lead of the 2V3-G tube.

Do not measure any voltages on the video chassis unless the primary leads of the high voltage trans-

former have been unsoldered from the supply line, and taped.

Use only one hand when working on the video or high voltage SPU chassis, and always connect a shorting lead to ground (first), then to the high side of both high voltage filter capacitors.

Make no voltage measurements on the high voltage (7,300 volts) SPU chassis.

Work on a television receiver should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment.

Precautions in Handling Kinescopes

The Kinescope bulb encloses a high vacuum and, due to its large surface area, is subjected to considerable air pressure. For these reasons, Kinescopes must be handled with more care than ordinary receiving tubes.

The large end of the Kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. If the tube sticks, or fails to slip into its socket or deflecting yoke smoothly, investigate and remove the cause of trouble. Do not force the tube.

All RCA Kinescopes are shipped in special cartons and should always be left in the cartons until ready for installa-

tion in the receiver. Keep the carton for future use.

The RCA-12AP4/1803-P4 (12-inch) Kinescope is equipped with a protective lid and shield. Do not at any time remove the close-fitting cone-shaped section of the protective shield from the Kinescope. This section should be installed with the tube in the cabinet and is designed to protect the user while handling the glass bulb.

CAUTION: Do not open the shipping carton, install, remove, or handle the Kinescope in any manner, unless shatter-proof goggles and heavy gloves are worn. People not so equipped should be kept away while handling Kinescopes. Keep Kinescope away from the body while handling.

Operation

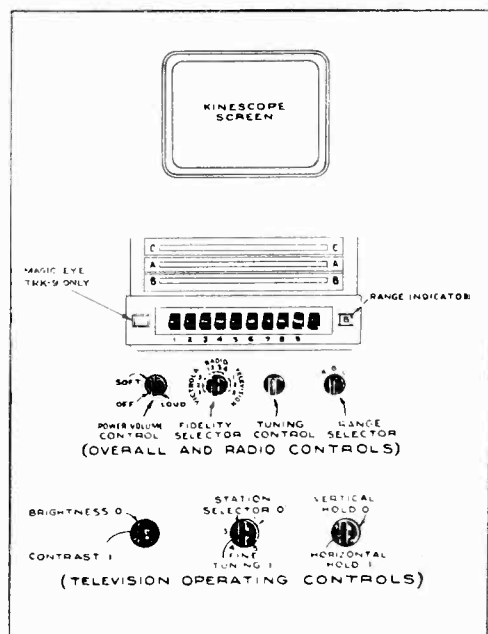


Figure 1—Operating Controls, TRK-9, TRK-90

The "Power-Volume" control on the radio receiver turns on the power for the complete receiver. The "Victrola, Radio, Television" control selects the type of operation desired. There are three Victrola fidelity positions, four radio fidelity positions and three Television sound fidelity positions on this switch. The furthestmost clockwise position being the highest fidelity position for Television sound.

Television Operation:

Station Selector and Fine Tuning.—The outer ring "O" section of the central dual control knob on the Television panel selects the station from which it is desired to receive Television transmissions.

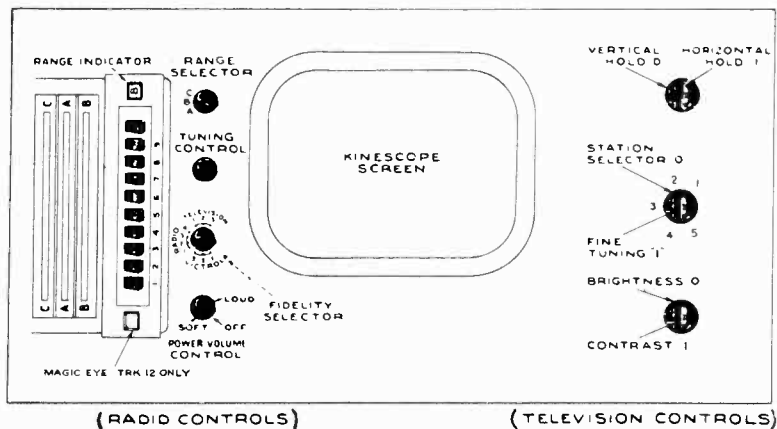
Five Television channels are covered as follows:

- (1) 50 to 56 mc.
- (2) 60 to 66 mc.
- (3) 66 to 72 mc.
- (4) 78 to 84 mc.
- (5) 84 to 90 mc.

Set the station selector to the number corresponding to the frequency of the station from which it is desired to receive Television broadcasts.

The inner section "I" of this knob is used for fine tuning and may eliminate moving ripples or distortion if due to interfering radio signals.

Before the Television portion of the receiver is turned "ON" it is advisable to turn the Brightness and Contrast controls completely counter-clockwise to reduce the illumi-



(RADIO CONTROLS)

(TELEVISION CONTROLS)

Figure 2—Operating Controls, TRK-12, TRK-120

nation of the spot which appears on the Kinescope before the sweep circuits have started functioning.

Contrast and Brightness Controls.—The inner "I" section of the "Contrast" and "Brightness" controls is the "Contrast" control and varies the black and white tones of the picture being received. Too much contrast gives blurred details and a lack of half-tones, while too little contrast makes it all half-tones or grays. Turning clockwise increases contrast from grays, to black and white. See Operating Instructions for this receiver.

The outer ring "O" is the Brightness Control and affects the average illumination of the picture. Turning clockwise increases the brightness. See Operating Instructions for this receiver.

An approximate adjustment for proper contrast is to turn the "Contrast" control fully counter-clockwise, then turn the "Brightness" control until the screen is slightly illuminated. Then reduce the Brightness control just sufficient to make the screen dark, then bring up the Contrast Control until the picture appears. A slight further adjustment of the Brightness or Contrast control may be necessary in some cases. A slight readjustment of the contrast control may aid synchronization of the picture.

Hold Controls.—The dual knobs on the Television panel marked "Horizontal" and "Vertical" Hold, control the picture stability. The inner section designated by a "I" is the Horizontal Hold Control and when being set should be turned slowly to the point at which the picture "locks in" horizontally. See Operating Instructions for this receiver.

The outer ring section designated by "O" is the Vertical Hold Control and when being set should be turned to the point where the picture "locks in" vertically.

These two controls on this dual knob should not ordinarily require readjustment after good picture reception has once been obtained. An occasional resetting may be necessary due to changing to a different station, and to the gradual aging of the tubes.

SERVICE DATA

Kinescope Installation (TRK-9, TRK-90).

1. Remove back cover of cabinet.
2. Remove the two screws which secure the wooden block, on which the yoke is mounted, to the upper shelf, and drop this block and yoke away from the shelf.
3. Loosen the thumb screw in the center of the slotted block of wood on the top shelf, pull this block of wood towards the rear of the cabinet and turn it so that the "V" slot on the front end of the block is to your right.
4. Wearing gloves and goggles, carefully slide the Kinescope on the "V" in the block, and turn both the block and the Kinescope so that the Kinescope faces the viewing window. Slide the Kinescope up to the mask in the window and fasten loosely in place by sliding the "V" block up to the bottom of the Kinescope face, and fastening it with the thumb screw.
5. Place the yoke and the wooden block on which it is mounted, on the Kinescope neck, rotate the block 90° from its original mounting position in order to have it clear the top of the cabinet and slide it into position on the Kinescope neck. **DO NOT FORCE YOKE.** In some cases where the yoke lead is too short it may be necessary to loosen the "V" block and swing the Kinescope neck to the left in order to be able to place the yoke on the Kinescope neck without forcing.
6. Fit the upper part of the wooden yoke mounting block into the slot on the underside of the cabinet top and fasten the lower end of the block securely by means of the two screws. The Kinescope should be mounted loosely in place, so that the yoke is not forced on the Kinescope neck at any time.
7. Loosen the wing nuts on the yoke mounting bracket, and move the yoke forward on the neck of the Kinescope so that it pushes the Kinescope against the mask. Tighten the wing nuts to hold the Kinescope and yoke securely in this position.
8. It may be necessary to rotate the Kinescope, within the limits allowed by the high voltage second anode lead, with respect to the mask in order to obtain proper masking of the

edges on the Kinescope screen. Before rotating the Kinescope, the screws holding the yoke mounting block should be loosened, so that the Kinescope neck will not be forced.

9. Move the "V" block forward so that it holds the bottom of the Kinescope in place. Tighten the thumb screw.

10. Place the second anode lead on the second anode cap at the side of the Kinescope.

11. After the receiver is operating, and if the picture is not squared with the mask, using a screw driver loosen the clamping screws on the band around the yoke and rotate the yoke until the picture is squared with the mask, then tighten these clamping screws securely.

CAUTION: When removing the back cover of the cabinet, after the screws have been removed do not allow the cover to slide down on the neck of the Kinescope, or the neck of the Kinescope may be snapped off.

Kinescope Installation (TRK-12, TRK-120).—Refer to figure 4.

1. Remove back cabinet cover.
2. Remove the top safety glass cover by removing the three wing nuts "E" at the two front corners and right rear corner of the cover and loosening the wing nut "E" at the left rear corner of the cover.
3. Lift the cover straight upwards, taking care not to scratch the cabinet finish with the protruding screws or the cover itself.
4. Loosen the two wing nuts "F" on the yoke holding frame, and allow the yoke to drop down as far as possible.
5. Using gloves and goggles, open the Kinescope shipping carton and remove the top cover on the Kinescope.
6. Remove the Kinescope from the shipping carton (do not remove the close fitting cardboard shield from the Kinescope), and insert the Kinescope into the cabinet, guiding the neck of the Kinescope into the yoke. Do not force the neck of the Kinescope into the yoke, or the tube may break. Let the Kinescope down slowly so that it finally rests on the yoke.

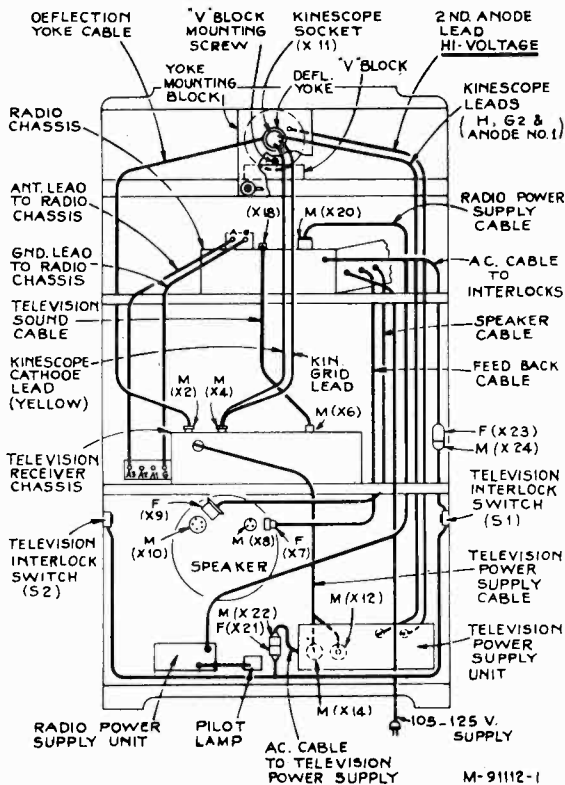


Figure 3A—Cabinet Wiring—Model TRK-9, TRK-90

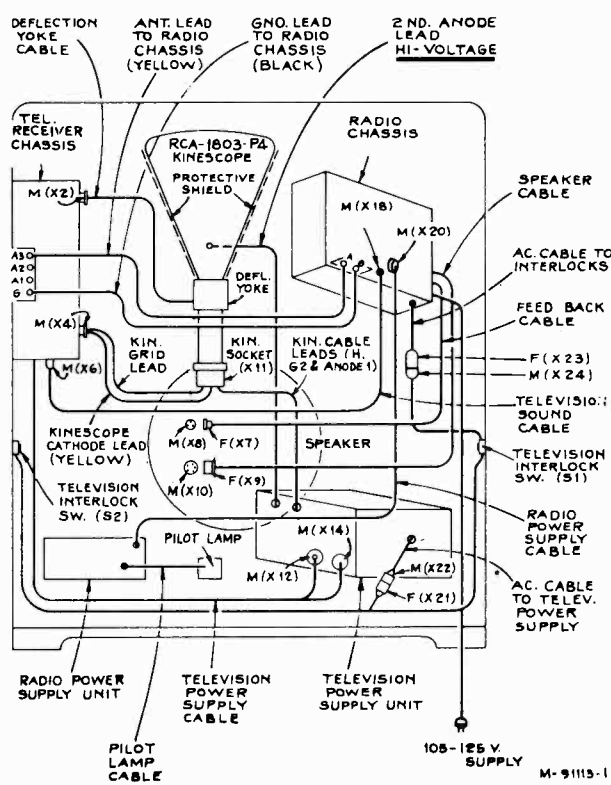


Figure 3B—Cabinet Wiring—Model TRK-12, TRK-120

TRK9, TRK90, TRK12, TRK120

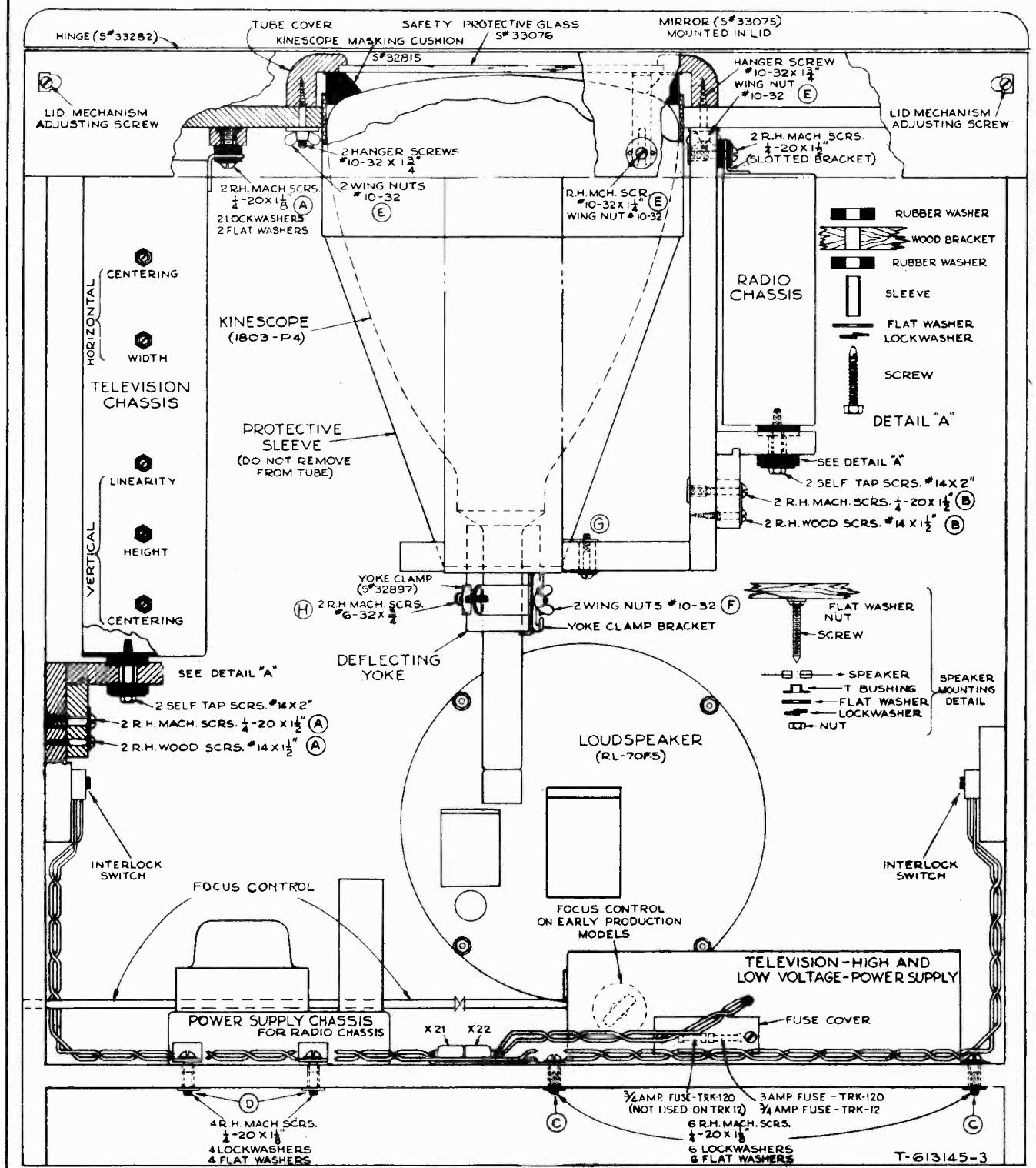


Figure 4-TRK-12, TRK-120-Assembly

TRK9, TRK90, TRK12, TRK120

7. Rotate the Kinescope and cardboard container (but not the yoke), so that the second anode cap at the side of the tube is towards the front of the cabinet.

8. Place the white rubber mask on the face of the Kinescope, with the ribs on the mask facing upwards toward the mirror. Line up the mask so that it masks the edges on the Kinescope face. Then, if necessary, lift the Kinescope and rotate it so the mask is approximately squared up with the cover opening. The second anode cap should be kept towards the front of the cabinet.

9. Replace the safety glass cover and wing nuts. Tighten wing nuts to hold the cover securely.

10. Loosen the wing nuts "F" on the yoke mounting bracket and push the two metal brackets, on which the bottom of the yoke rests, upward, until the rubber mask rests against the top cover. If the mask and the cover opening do not line up, rotate the cone-shaped Kinescope shield until they do. Tighten the wing nuts to hold the yoke and tube in this position. In some cases it may be necessary to loosen the four screws holding the yoke support to the wooden frame and shift the yoke support to make the mask and Kinescope

line up symmetrically with the cover opening.

11. Place the second anode lead on the second anode cap at the side of the Kinescope.

12. After the receiver is operating, and if the picture is not squared up with the cover opening, the two screws "H" on the band around the yoke should be loosened, and the yoke rotated to square up the picture, then these screws should be tightened with a screw driver.

Focusing Control.—This is a screw driver adjustment located on the right side of the cabinet near the base. On early production receivers, a knob located at the bottom, rear of the cabinet is the focus control.

Adjustments.—There are a series of screw driver slot adjustments at the rear of the TRK-12 and TRK-120 (at the side of the TRK-9 and TRK-90), used to obtain the proper picture size, centering, and vertical distribution. These adjustments are explained fully in the receiver operating instructions, and also in the booklet: "Practical Television by RCA."

When the receiver is moved from one location to another some readjustment of these controls may be necessary.

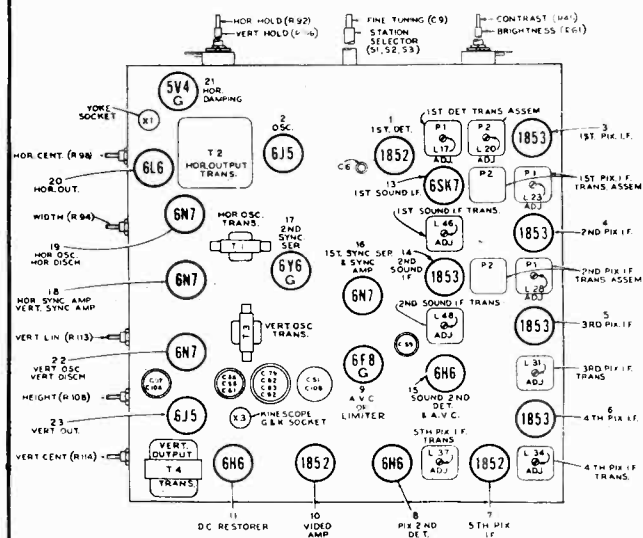


Figure 5A—Top View TRK-9, TRK-12 Video Chassis

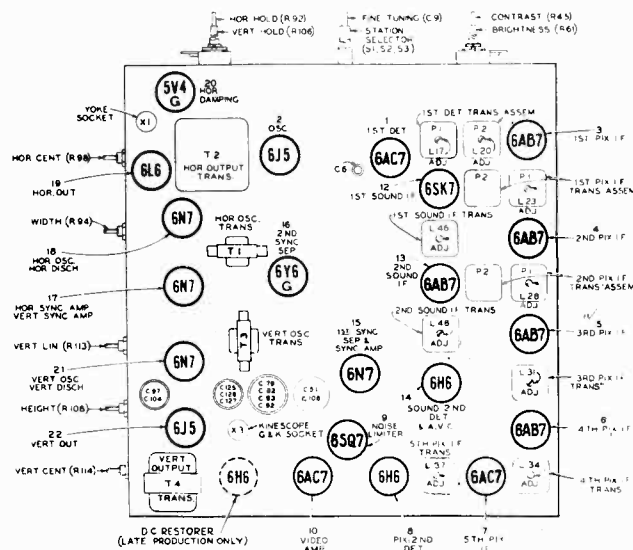


Figure 5B—Top View TRK-90, TRK-120 Video Chassis

Video Chassis

When it is desired to measure any voltages on this chassis, the primary leads of the high voltage transformer T6 (T9—50 cycle models) should be disconnected and taped together.

When any changes have to be made in the Video chassis, the lead and part locations should be replaced as closely as possible to the original positions.

Because of the special equipment and procedure necessary for the proper alignment of these receivers, the alignment will not be covered in this service note.

Refer to the booklet: **Practical Television by RCA**, for detailed explanations of circuit operation in a Television receiver.

Service Hints:

1. Poor Horizontal Distribution of the picture elements may be due to a 6L6 tube. RCA-6L6 tubes of known recent manufacture are the only tubes recommended for the Horizontal sweep output circuit. By careful scrutiny, these tubes can be identified by the three "rings" or sections welded to-

gether at the base ring of the tube, as shown in Figure 6. If any other 6L6 tube is used in this position it will break down in a very short time.

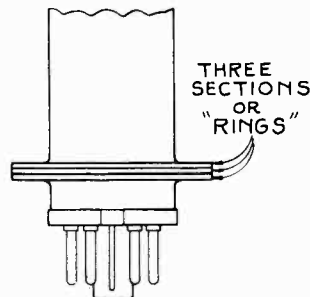


Figure 6—Recommended Type 6L6 Identification

2. If the picture "tears out" when the receiver is jarred it may be due to microphonic 6AB7/1853, 6AC7/1852 or 6J5 tubes.

3. The 6J5 oscillator tube should be removed without rocking it in its socket to loosen it, as the rocking motion may cause the 80.5 mmf capacitor to break off.

4. The coils in oscillator circuit should not be touched or moved or the alignment of the receiver will be disturbed.

5. The insulator on the filter capacitors may become dirty and break down to short out the high voltage.

6. The Video coupling capacitors C50, 53, 59 should be kept clear of chassis.

7. A gassy 2V3-G tube may cause resistor R-137 to burn. Replace 2V3-G tube, and resistor, if necessary.

8. Changing the position of the oscillator shield plate will disturb the alignment.

Television Socket Power Units

The following precautions should be observed when any work is being done on the SPU:

1. Remove power supply cord from the power supply socket.

2. No attempt should ever be made to measure the high (7,500 volts) voltage because of the difficulties and dangers involved. Servicing should be done with an ohm meter.

3. If, at any time it becomes necessary to service the SPU, the suspected parts should be replaced by parts known to be in good operating condition.

4. Use only one hand at a time. It is advisable to keep the other hand in one's pocket.

5. Connect a shorting lead between ground (first) and the high voltage side of C-113 and C-114 (C-121 and C-122 in 50 cycle models).

6. Whenever working with the oil-filled capacitors, keep a constant short across the capacitor, as these capacitors do not completely lose their charge after being discharged a single or several subsequent times.

7. Only one person at a time should work on the unit to prevent any misunderstanding which may result in an accident.

Antenna Installation

The finest television receiver built may be said to be only as good as the antenna design and installation. It is therefore important to use a correctly designed antenna, and use care in its installation.

In most cases, the antenna should not be installed permanently on the apartment or residence roof until the quality of the picture reception has been observed on a Television receiver. A temporary transmission line can be run between receiver and the antenna allowing sufficient slack to permit moving the antenna. Then, with a telephone system connecting an observer at the receiver and an assistant on the roof to find an antenna location, the antenna can be positioned to give the most satisfactory results on the received signal. A shift of only a few feet in antenna position or direction may effect a tremendous difference in picture reception.

Whenever possible, the antenna location should be chosen or erected so the antenna is not only broadside to the transmitter but removed as far as possible from highways, hospitals and doctors' offices and similar sources of interference. Auto ignition and diathermy apparatus may cause noise interference spoiling the picture.

In mounting any antenna, care must be taken to keep the antenna rods or pickup wires proper at least 1/4 wave length (at least 6 feet) away from other antennas, metal roofs and

gutters or metal objects. Under certain extremely unusual conditions, it may be possible to rotate or position the antenna so it receives the cleanest picture over a reflected path. If such is the case, the antenna should be so positioned. However, such a position may give variable results as the nature of reflecting surfaces may vary with weather conditions, as a wet surface has been known to have different reflecting characteristics than a dry surface.

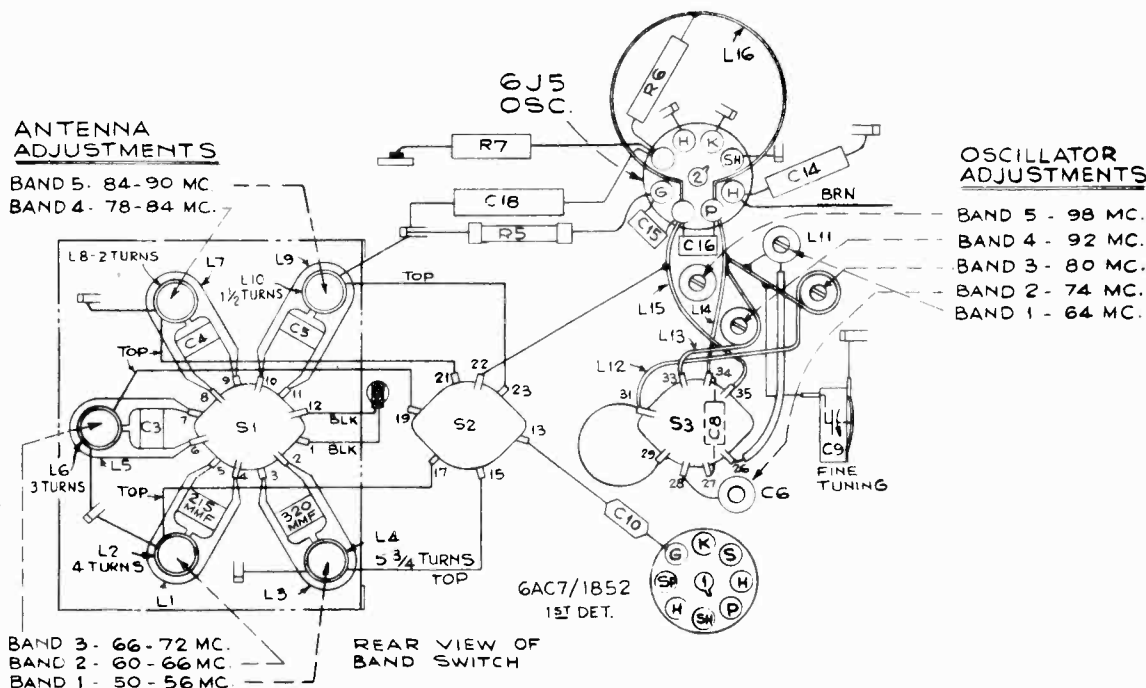
In short, a television receiving antenna and its installation must conform to much higher standards than an antenna for reception of International Short Wave and Standard Broadcast signals because:

(1) Intervening obstacles have a pronounced shielding effect on the ultra-high frequency waves producing low intensity signals. Severe trouble with multi-path transmissions may be experienced, especially in congested city areas.

(2) The picture signal is comprised of a very wide band or range of frequencies, all of which must be received with good efficiency.

(3) It must be continually remembered that the discernment for the eye is much more critical than that of the ear.

For further information on antennas and antenna installation see RCA Booklet entitled: "Practical Television by RCA," and also the specific instructions accompanying the RCA Television Antenna.



TRK9, TRK90, TRK12, TRK120

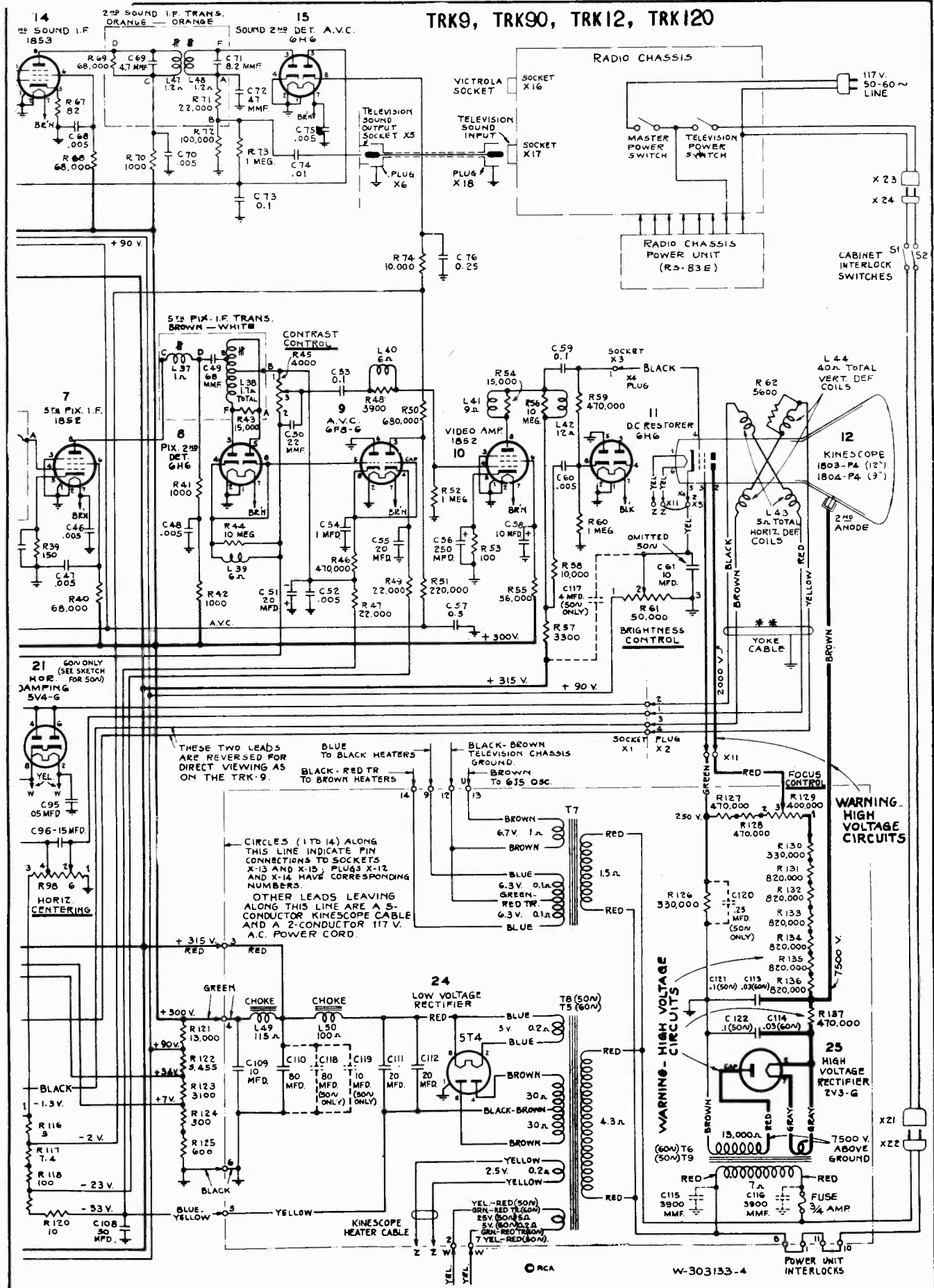


Figure 8—Partial Schematic Diagram TRK-9 and TRK-12 With Picture AVC. Otherwise same as Figure 9.

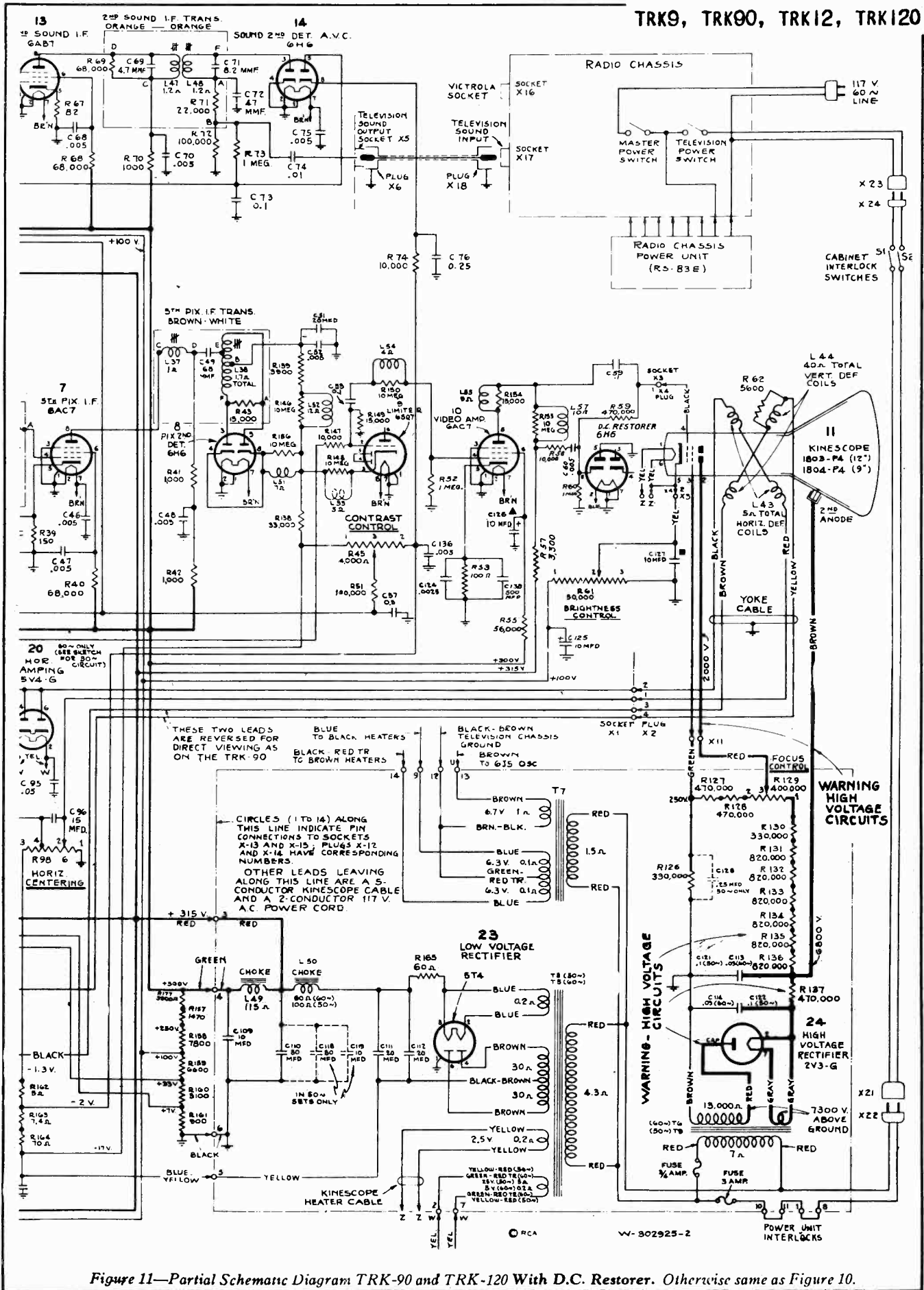


Figure 11—Partial Schematic Diagram TRK-90 and TRK-120 With D.C. Restorer. Otherwise same as Figure 10.

TRK9, TRK90, TRK12, TRK120

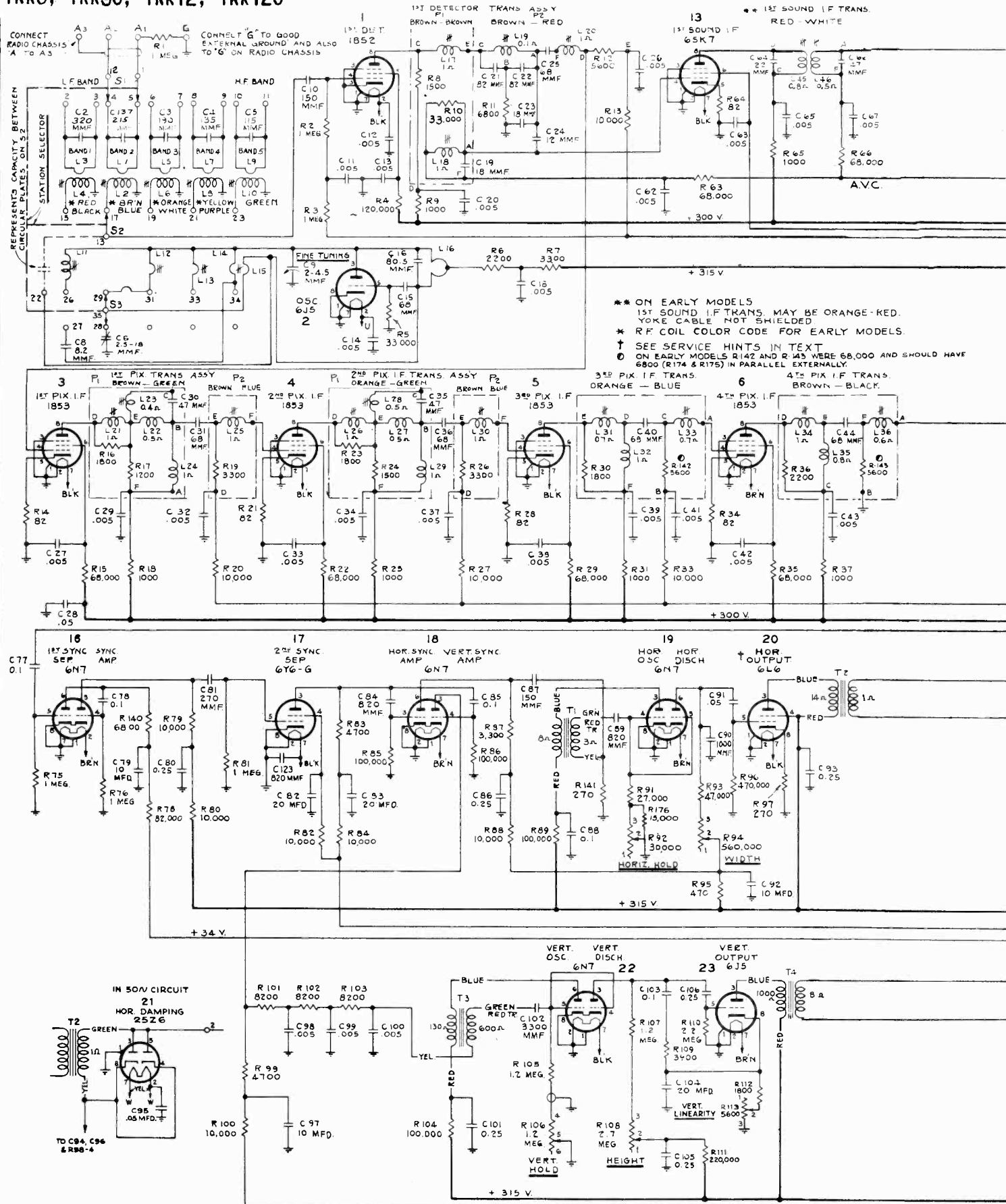
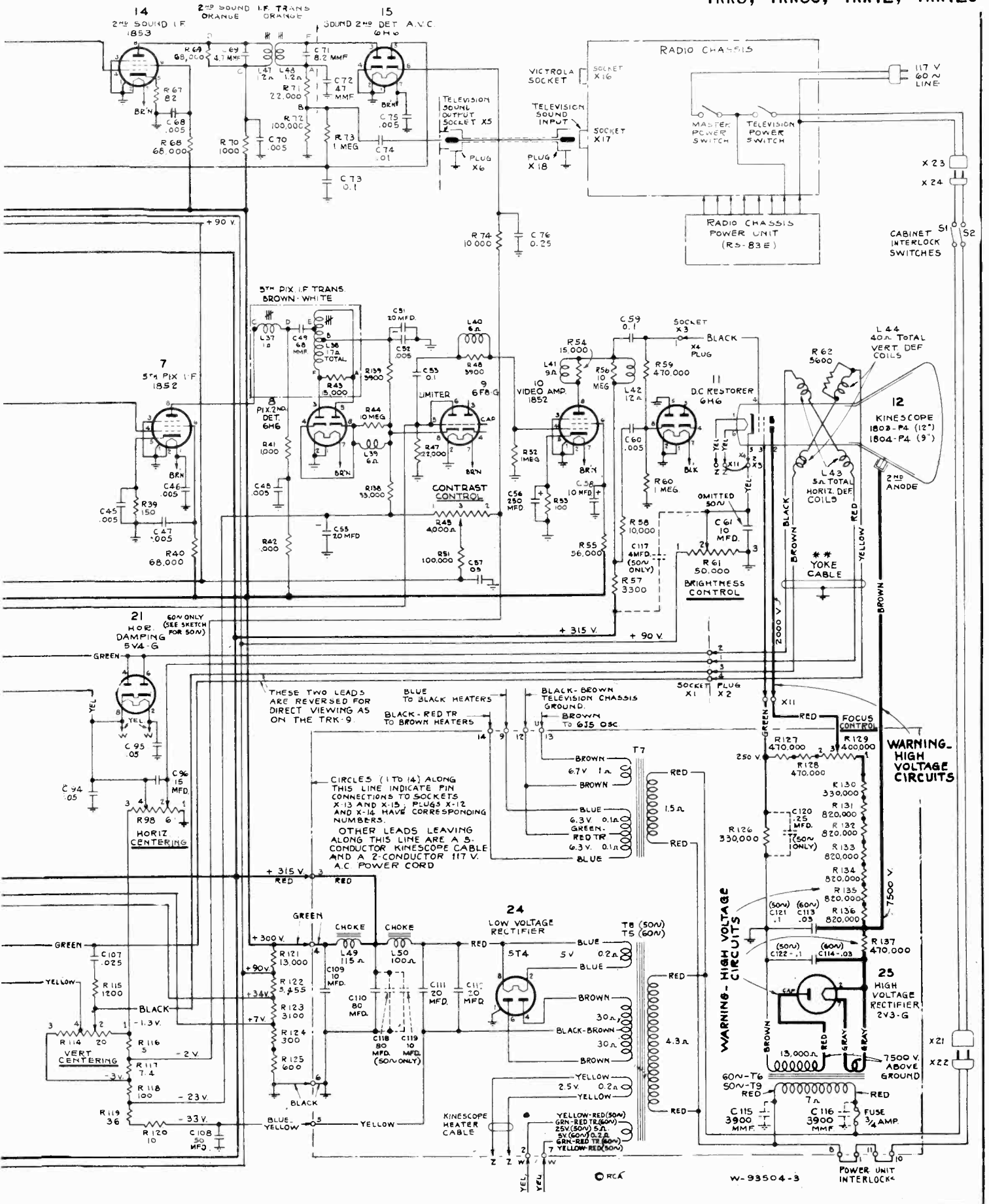


Figure 9—Schematic Diagram TRK-9 and TRK-12 Without Picture AVC.

TRK9, TRK90, TRK12, TRK120



TRK9, TRK90, TRK12, TRK120

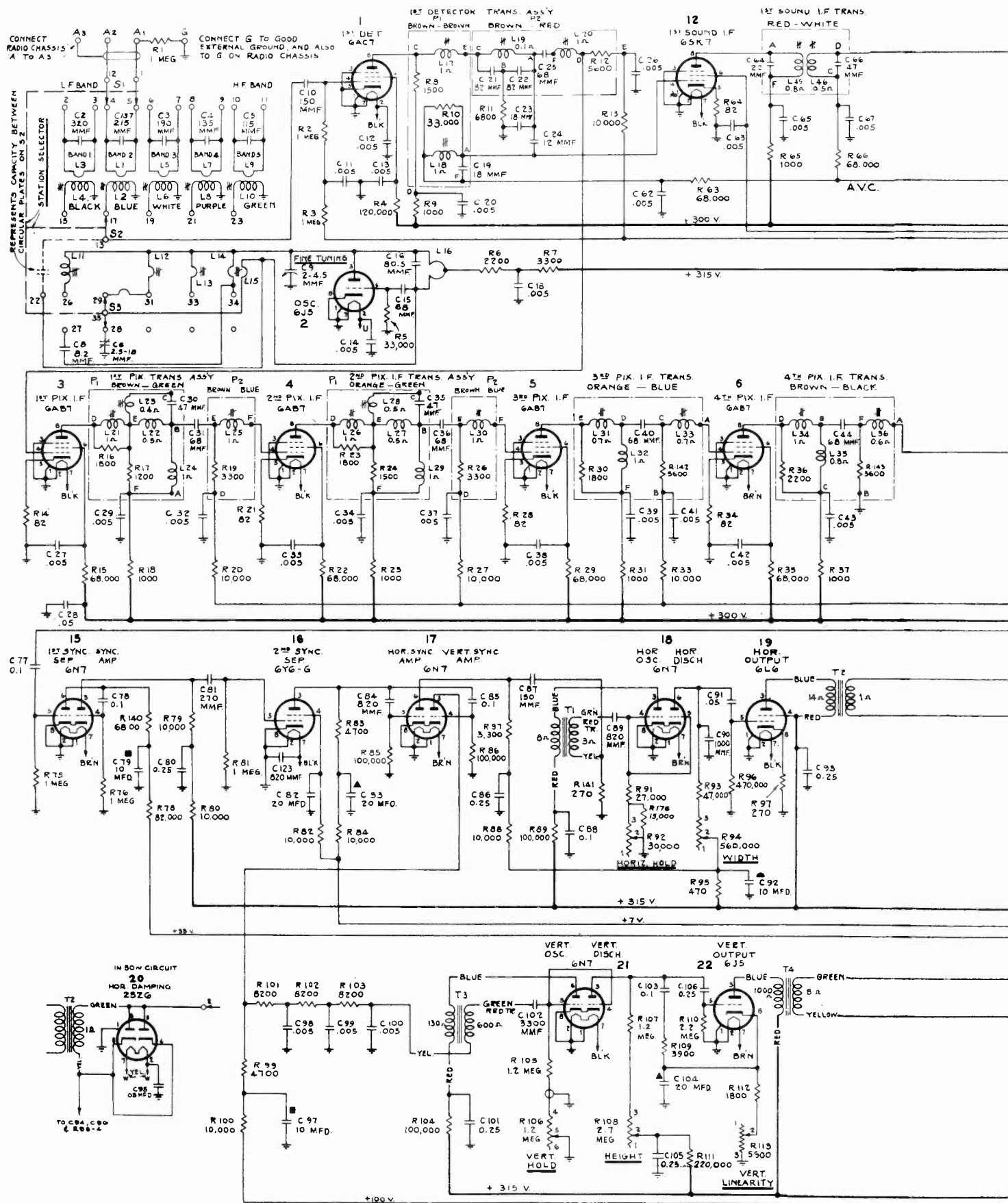


Figure 10—Schematic Diagram TRK-90 and TRK-120 Without D. C. Restorer.

Television Service Suggestions

Some of the possible troubles that may become evident during air-check of Models TRK-9, -12, -90, -120 are listed below, together with the most likely causes of each trouble, based on field experience.

1. Connect the receiver for operation, being certain that all cables are plugged in correctly, and that all tubes are seated down in their correct sockets.

2. **Blown fuse; shorted high-voltage rectifier.** Turn the set on. Look to see that the high-voltage rectifier lights. If it does not, check the fuse. A shorted rectifier will cause the $\frac{3}{4}$ ampere fuse to blow.

3. **Intensely bright round spot; no deflection.** If an intensely bright round spot appears on the Kinescope, and cannot be dimmed with the brightness control, turn the set off immediately. This indicates lack of deflection and lack of voltage across the brightness control. Check for—

(a) Defective low-voltage rectifier (5T4 or 5U4-G).

(b) Bent-over pins on the octal plug on cable from the video chassis to the SPU.

(Note that a bright spot may appear for several seconds if the receiver is turned on again too soon after it has been shut off. Avoid doing this.)

4. **Thin vertical line; no horizontal deflection.** If only a thin vertical line appears on the Kinescope when the brightness control is advanced, it indicates lack of horizontal deflection. Check the 6N7 horizontal oscillator and the 6L6 horizontal output tube.

5. **Thin horizontal line; no vertical deflection.** If only a thin horizontal line appears, it indicates failure of vertical deflection. Check the 6N7 vertical oscillator and the 6J5 vertical output tube.

6. **Excessive hum; defective high-voltage filter.** Turn contrast control fully counter-clockwise and adjust the brightness control to secure faint illumination of the raster. "Lock in" any residual hum by adjusting the vertical hold control. Normally the hum should be scarcely discernible. Excessive hum may be caused by a defective (low value) filter resistor R137 in the SPU, which in turn may be caused by a shorted 2V3-G high-voltage rectifier. Observe necessary precautions before checking the filter.

7. **No focus; off-value high-voltage resistors.** Adjust the focus control to secure sharpest lines on the raster. The individual lines can be seen most readily by turning the horizontal hold control to the lowest frequency (counter-clockwise). The lines should be in sharpest focus at one setting of the focus control. Inability to pass through a definite point of focus indicates incorrect voltages, which may be caused by off-value resistors in the SPU. Inability to focus may also be due to a defective Kinescope.

8. **Failure to lock-in; sync trouble.** Turn band switch to a channel that is in operation. Adjust the fine-tuning control for clearest sound, which should be at approximately half-capacity position. Turn contrast control full counter-clockwise. Turn brightness control until the Kinescope is faintly illuminated. Turn contrast control clockwise until the picture signal is evident. Lock in the picture horizontally and vertically. Adjust the contrast and brightness controls for best contrast.

If the picture will not lock-in horizontally or vertically, change the 6N7 and/or 6Y6-G sync tubes: Interchanging 6N7's may correct the trouble. Otherwise check the resistors, capacitors and voltages in the sync circuits. The capacitors should be checked for opens and leakage. Do not forget that advancing the contrast control too far on a strong signal will cause the picture to "tear" out of horizontal sync.

9. **"Smeared" picture or insufficient contrast.** There should be a jumper in the Kinescope socket between the cathode and one side of the heater. Omission of this jumper may cause "smearing" of the picture when the contrast control is advanced for good contrast.

Check for presence of the jumper with an ohmmeter, and insert one if necessary. Diagonals may be used to cut out a partition for the jumper, which should be solid wire. Avoid breaking the socket wafer.

10. **Picture folded back at left-hand side.** If the picture is lapped-over, or folded back on the left-hand side, change the horizontal damper tube.

11. **No picture; weak picture.** If the station's sound is received, it is an indication that the oscillator and first detector are functioning. Run an RF sweep into the antenna and check with a CRO for over-all response at the picture 2nd-detector load resistor. If there is no response, check the picture-IF tubes and circuits. If response at the load resistor is normal, remove the sweep and feed a 10 mc, 400-cycle modulated signal into the 1st-detector grid. Note the amplitude of the 400-cycle signal at the load resistor, and then shift the CRO back through the video stage to localize the point at which the signal disappears.

12. **Picture signal too strong; contrast control ineffective.** In sets where the contrast control is a manual bias control for the picture-IF amplifier (TRK-9 and TRK-12 without AVC; all TRK-90 and TRK-120), a grid short in one of the picture-IF tubes will cause the tubes to operate near full gain regardless of the setting of the contrast control. The defective tube can be found by using the VoltOhmyst to check grid voltages throughout the picture-IF amplifier. First turn the contrast control counter-clockwise and measure the voltage from the arm of the contrast control to the chassis. This should be approximately -17 volts for TRK-90 and TRK-120, or -23 volts for TRK-9 and TRK-12 without AVC. Normally, this same voltage should then exist at each picture-IF grid and at the 1st-detector grid. (The last picture-IF tube has fixed bias.)

The same trouble can exist in TRK-9 and TRK-12 receivers with AVC on the picture-IF amplifier, but in this case the contrast control is the picture 2nd-detector load resistor and the amount of picture signal into the video amplifier can be controlled. In both types of receivers, in normal signal areas, the absence of bias on the picture-IF amplifier will cause over-loading of the last picture-IF tube with resultant grid current and distortion in this tube, which will produce a voltage across the grid resistor of this tube. In normal operation, there should be no grid current and therefore no voltage across this resistor. The VoltOhmyst can be used to check for presence of voltage.

Grid shorts can usually be located by tapping each tube very gently, or by changing one tube at a time. Shorts in '52 or '53 tubes can sometimes be cleared by tapping the base of the tube on a table, holding the tube in an upright position.

13. **Weak picture; insensitive receiver.** A simple sensitivity check can be made by removing the antenna from the receiver and turning the contrast control full clockwise with brightness control at normal position. This should produce some evidence of tube noise which will appear as speckles on the Kinescope raster. When the antenna is connected to the receiver, there should be more pronounced speckles due to random noise, streaks due to ignition interference from passing cars, and possibly hum lines that can be locked in vertically, due to sparking in 60-cycle circuits, diathermy, etc. Check each band for sensitivity. Noise conditions vary from band to band. Certain types of interference, such as diathermy, may exist in only one band and may be seen but not heard, or vice versa. Sensitivity can be estimated in this way, just as with an ordinary radio receiver, by observing the amount of noise and the strength of the weaker stations.

If the receiver is insensitive, check all tubes in the picture-IF amplifier and the 1st-detector by substituting a good tube in each socket. If the trouble is not due to tubes, it may be necessary to check the gain of each picture stage.

14. **Small picture size.** Adjust picture size, centering, and vertical linearity. Inability to secure a full-sized picture may be due to low-voltage on the 315-volt bus. Check the low-voltage rectifier. (On an improvised Kinescope mounting in a service shop, another cause for small picture size is due to placing the deflection yoke too far back on the neck of the Kinescope.)

15. **Insufficient width.** In case of insufficient width on 9-inch and 12-inch receivers, check voltage on the 315-volt bus that feeds the 6L6 horizontal output tube. If the voltage is low, change the low-voltage rectifier (5U4G or 5T4) and check heater voltage of this rectifier. Also check the 6L6.

With low line voltage, if the picture width is not sufficient,

(Continued)

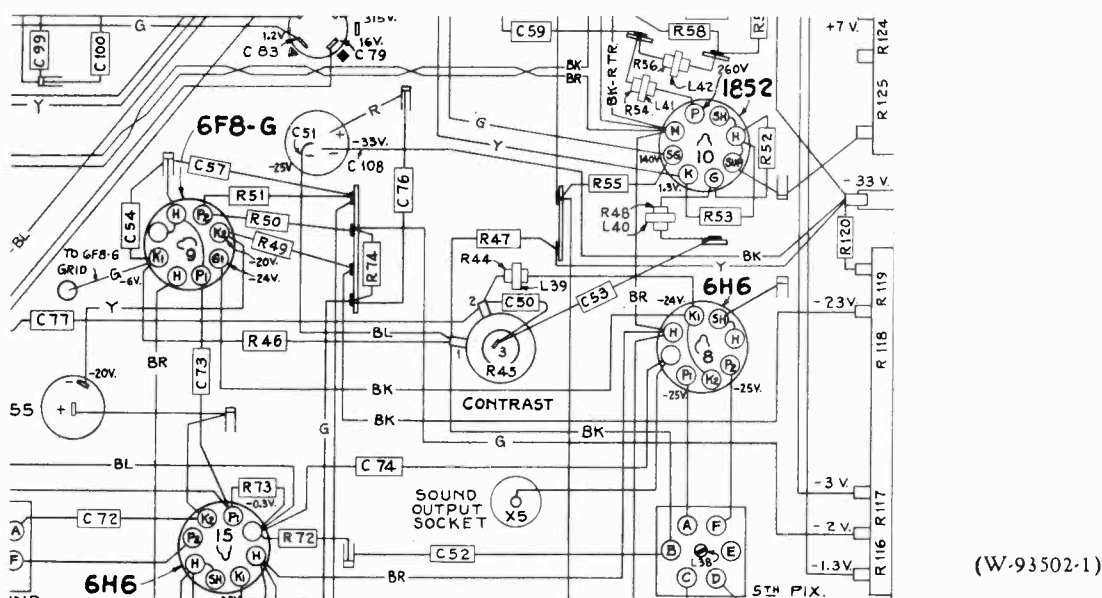


Figure 12—Partial Video Chassis Wiring TRK-9 and TRK-12 With Picture AVC. Otherwise same as Figure 13.

Television Service Suggestions (Continued)

the 5V4-G damper tube can be replaced by a 5Z4. This may cause a slight spreading of the picture on the left-hand side.

16. **Picture compressed on left-hand side.** Shrinking of the picture on the left-hand side may be caused by a defective 6L6 horizontal output tube. Also check 6L6 cathode resistor.

17. **Inability to center picture.** This may be due to low voltage across the centering control caused by a defective low-voltage rectifier or low line voltage. Another possibility is that the elements in the Kinescope may be tilted. This can be checked as follows:

With the brightness control at normal setting, turn the receiver on and observe the position of the illuminated spot during the few seconds before the horizontal and vertical deflection voltages start operating. The illuminated spot should be in the center of the Kinescope (its position during these few seconds is not affected by the centering controls). If the spot is off center, it is a definite indication that the Kinescope "gun" is tilted.

18. **Distorted sound or sound in picture.** An open in one side of the antenna transmission line can cause distorted sound. Other possibilities include:

(a) If the sound-IF response curve is not linear for 75 kilocycles on each side of 8.25 mc., distortion will result.

(b) Inaccurate adjustment of the oscillator frequency on any channel may result in no sound or distorted sound, due to the fact that the sound-IF beat frequency will not be 8.25 mc. If the oscillator frequency is too low, the beat note, instead of falling on the high-frequency slope of the sound-IF response curve, may fall on the low-frequency slope. In this case, the sound may be satisfactory, but operation on this side of the curve should be avoided. In some localities, it results in sound image interference from other channels.

A quick and definite method to check the oscillator frequency is as follows:

(a) Tune in a television station.

(b) Turn the fine-tuning trimmer to minimum capacity. This should produce some evidence of sound in the picture. The sound usually appears as horizontal bars of varying density, and these vary in step with the speech or music. The bars disappear when the voice or music stops.

(c) Turn the trimmer for best sound quality. This should correspond to approximately half-capacity of the trimmer.

(d) Turn the trimmer toward maximum capacity. If the slope of the sound-IF response curve is narrow, this will move the beat on to the peak of the response curve, producing low volume and severe distortion.

On service work in the home or where test equipment is not available, if one or more of the oscillator frequencies require re-adjustment, the recommended procedure is as follows:

(a) Tune in the television station on the channel which requires re-adjustment of the oscillator frequency.

(b) Turn the fine-tuning trimmer to minimum capacity.

(c) Turn the magnetite-core for the particular oscillator coil toward the highest frequency position (core moved away from the coil). This will definitely put sound in the picture. Turn the core in the opposite direction, to lower the oscillator frequency, until the sound is barely perceptible in the picture. Leave the core in this position.

(d) Now, by turning the fine-tuning trimmer to half-capacity, it should be possible to secure good tone quality with no trace of sound in the picture.

If the sound-IF is deliberately moved into the picture-IF by adjusting the oscillator core to produce the highest frequency, the effect of the sound-IF interference will produce a "reversed" image, somewhat like a film negative.

The customer should be instructed to adjust the fine-tuning control for best sound quality, at which point there is no sound in the picture. If the set is turned on in a cold room, it may be necessary for the customer to readjust the fine-tuning trimmer to compensate for the slight drift in oscillator frequency during the warm-up period.

On all converted receivers, the fine-tuning trimmer is permanently fastened to the fine-tuning control, so that it is not necessary to press in on the control knob. ("C" washers are slipped between the end of the shaft and the rubber drive and cement is used between the rubber drive cone and the cup on the fine-tuning trimmer.)

19. **Insufficient sound.** In locations remote from the transmitter, additional sound volume can be obtained in the 9-inch and 12-inch receivers by eliminating the inverse feedback in the audio amplifier of the radio chassis.

(Continued)

TRK9, TRK90, TRK12, TRK120

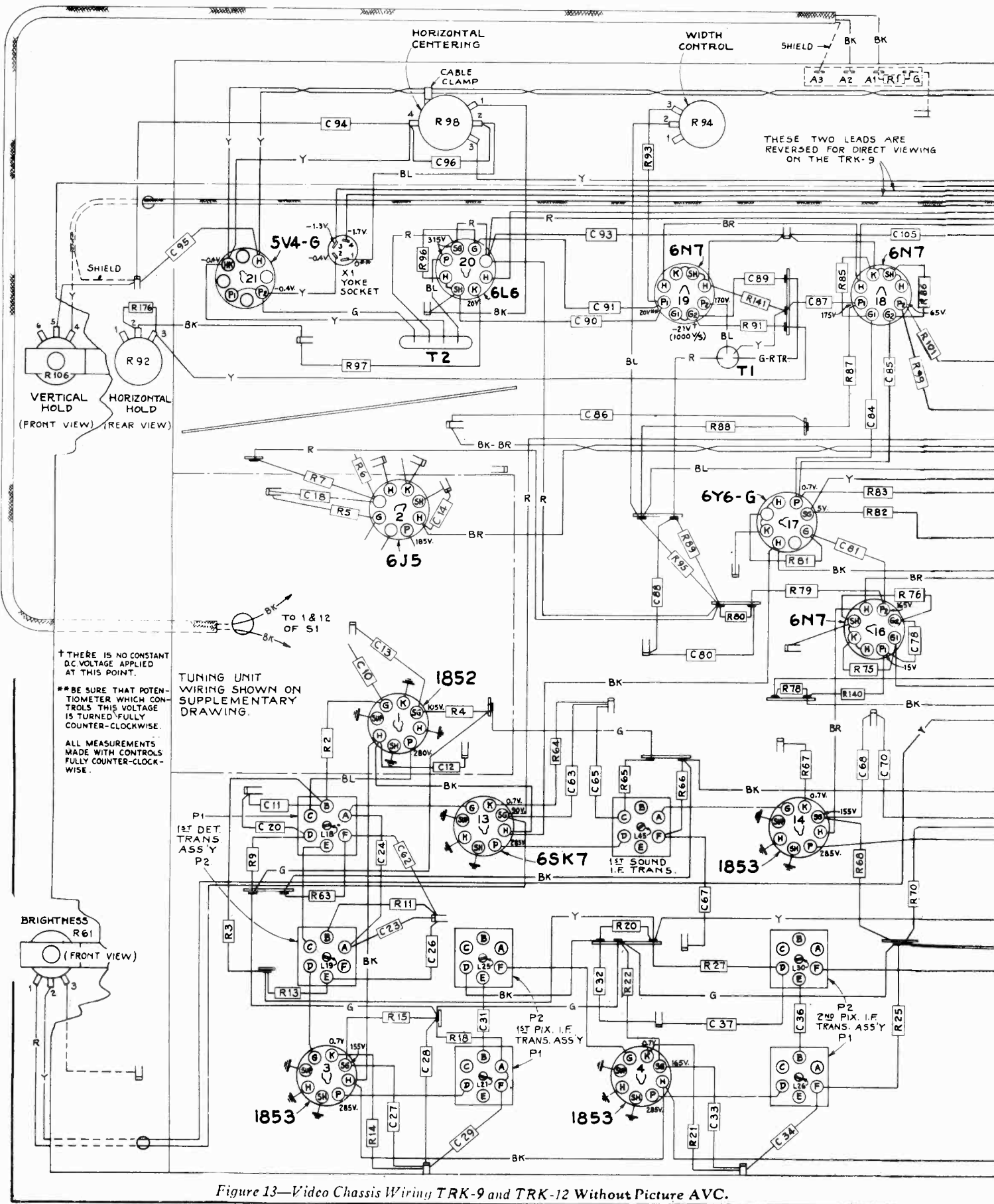
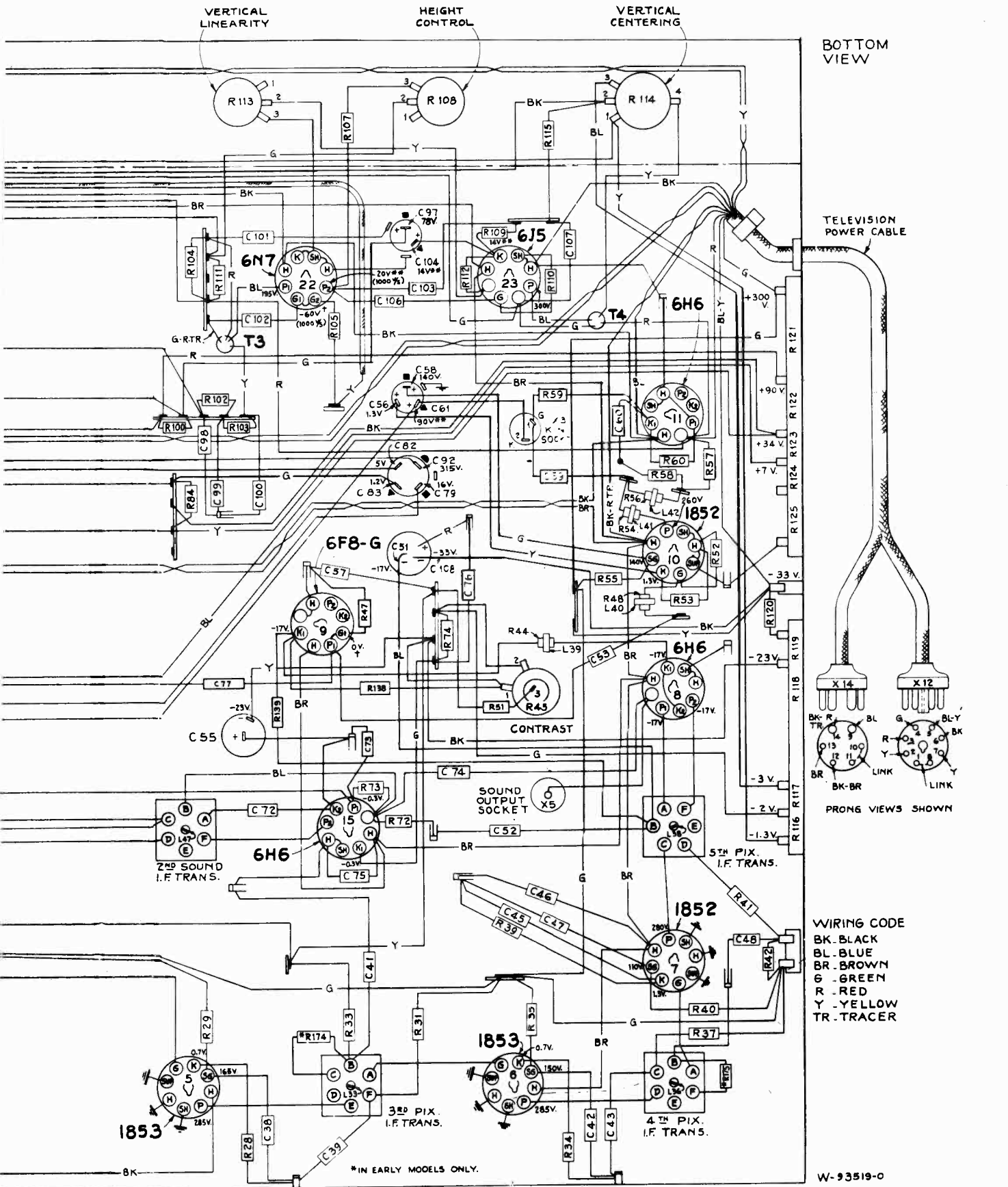


Figure 13—Video Chassis Wiring TRK-9 and TRK-12 Without Picture AVC.



BOTTOM VIEW

TELEVISION POWER CABLE

WIRING CODE
 BK. BLACK
 BL. BLUE
 BR. BROWN
 G. GREEN
 R. RED
 Y. YELLOW
 TR. TRACER

*IN EARLY MODELS ONLY.

W-93519-0

TRK9, TRK90, TRK12, TRK120

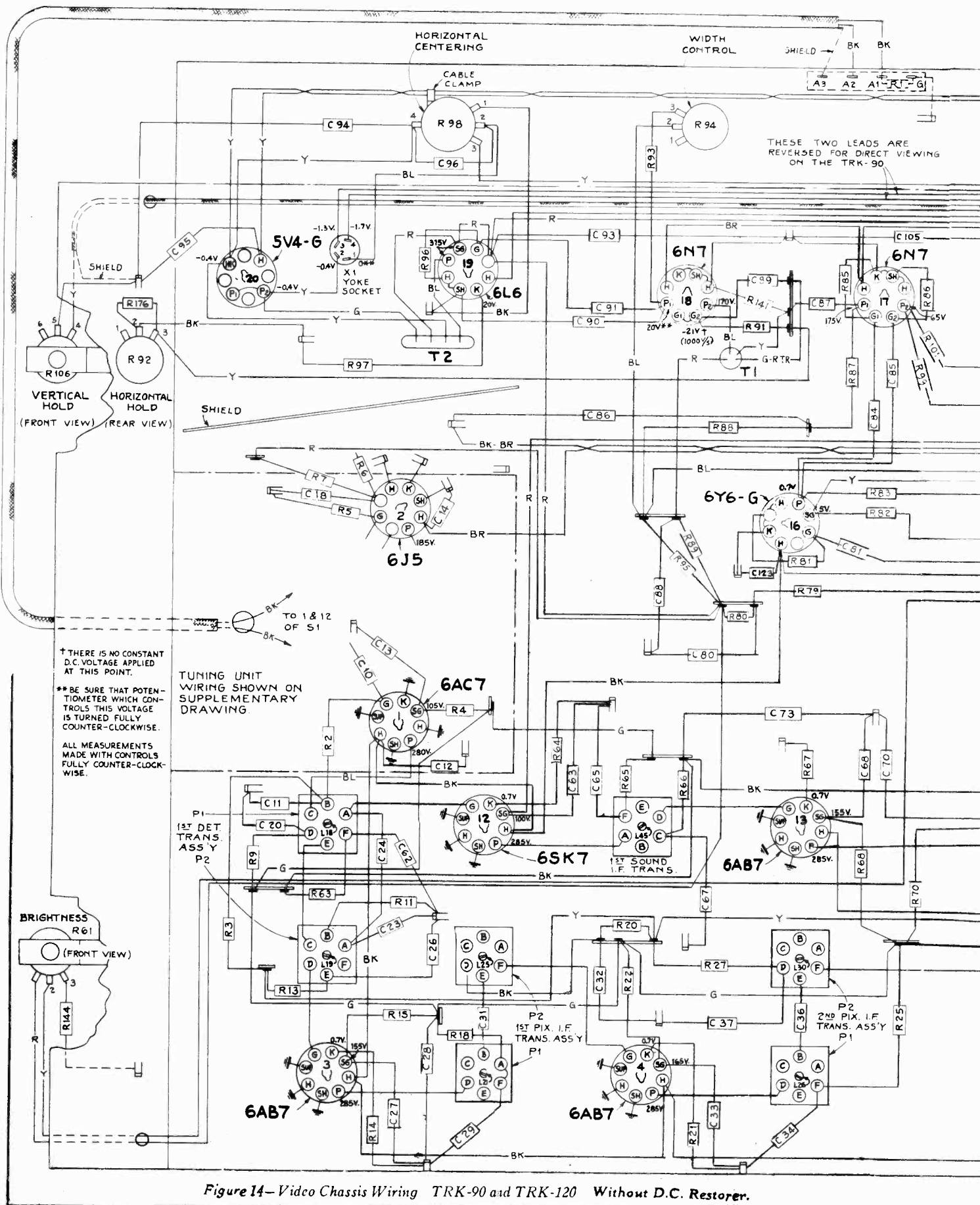
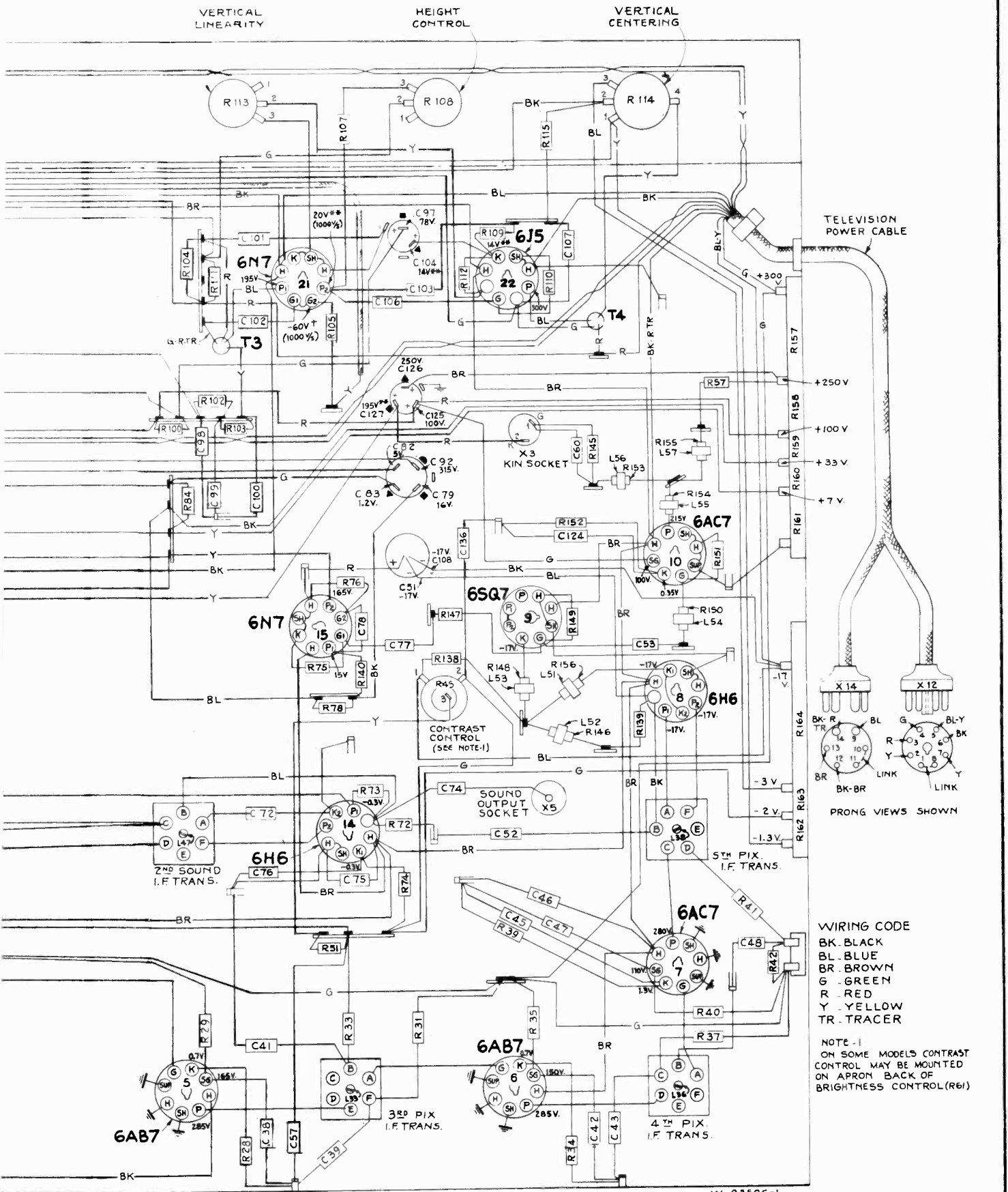


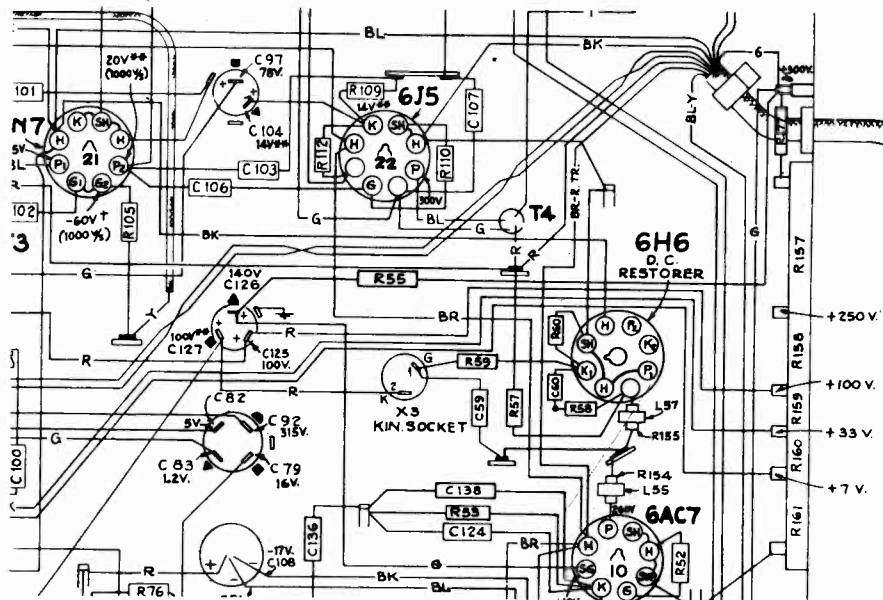
Figure 14—Video Chassis Wiring TRK-90 and TRK-120 Without D.C. Restorer.



WIRING CODE
 BK. BLACK
 BL. BLUE
 BR. BROWN
 G. GREEN
 R. RED
 Y. YELLOW
 TR. TRACER

NOTE - 1
 ON SOME MODELS CONTRAST CONTROL MAY BE MOUNTED ON APRON BACK OF BRIGHTNESS CONTROL (R61)

TRK9, TRK90, TRK12, TRK120



(W-93518-0)

NOTE: Brightness Control, R61, is connected as follows: Terminal 1 (Red) to SG of Tube 12 (100V.); Terminal 2 (Yellow) to C127; Terminal 3 (Bus) to Chassis, R144 being omitted.

Figure 15—Partial Video Chassis Wiring TRK-90 and TRK-120 With D.C. Restorer. Otherwise same as Figure 14.

Television Service Suggestions (Continued)

To do this, strip away a section of the insulation on the two leads from the radio chassis to the two-prong feedback plug. Twist the leads together, solder and tape. Remove the feedback plug from the speaker socket and tape it out of the way.

In Models TRK-9 and TRK-12, leave the feedback switch on radio chassis in the "with feedback" position (counter-clockwise).

20. **Interference on picture.** If the interference can not be definitely identified as coming from an external source such as diathermy, ignition, etc., check to see if it is present on the remaining channels and then remove the antenna from the television receiver to see if the interference continues.

The various forms of interference may be classified as follows:

(a) Microphonic streaks. Tap the video chassis. If this produces severe streaking or affects picture brightness, check for microphonic tubes and intermittent tubular capacitors and connections in the picture-IF and video stages. If the picture smears completely, check for intermittent grid shorts in the picture-IF tubes. If the tapping produces noise in the sound channel, as well as picture streaking, check for a microphonic oscillator or 1st-detector tube.

If tapping does not affect picture strength or sound, but does upset horizontal or vertical sync, check the sync and deflection tubes.

(b) Electrical interferences. This is caused by sparking or arcing contacts in electrical equipment. If the equipment is a-c operated, there may be horizontal bars or lines that can be locked in vertically. Turn on and off the lights, motors, etc., in the building to determine if the interference is coming from these sources. Occasionally a defective light bulb will arc and radiate interference in a definite frequency band.

(c) Diathermy. This varies in intensity (depending on proximity) from a faint horizontal herringbone streak to a solid black bar. If the diathermy equipment is on the same power supply as the television transmitter, the interference will be stationary. Otherwise it will travel up or down on the picture. In the latter case, if the interference is severe, the

vertical oscillator may lock in occasionally on the diathermy, and the picture will then move up or down.

On remote pickup or chain telecasts, diathermy or other interference may be picked up on one of the remote links, and of course in this case nothing can be done at the receiver to reduce this interference.

(d) RF Interference. This can be produced by:

- (1) Harmonics of a local short-wave station falling in the television channel.
- (2) A station operating in the image-frequency band (which is approximately 8 to 14 mc higher than the oscillator frequency for any band).
- (3) Strong signals in the picture-IF band (8.75 to 14 mc) leaking through to the grid of the 1st picture-IF tube.

RF interference patterns will alter in step with the modulation of the transmitter (dots and dashes or speech and music).

Orientation of the antenna and use of standard antenna reflectors are helpful in reducing the effects of RF interference. If the transmission line is a spaced type, a matching section at the receiver end may reduce interference due to (2) and (3) above.

The nature or source of RF interference can sometimes be determined by listening in on the output of the picture-IF channel. To do this, connect the input lead of an audio amplifier to the cathode of the picture 2nd-detector load resistor through an .01 mfd. capacitor. Connect the ground of the amplifier to the television chassis. This connection will spoil the picture but permits listening to the audio component in the picture channel. The sound will be a composite of picture, blanking, and sync signals, together with any audio modulation on the interfering station, making it somewhat difficult to pick out and identify the interference. A better method is to use the RCA Chanalyst UHF Converter: Place the input probe on the picture 2nd-detector load resistor and tune the converter through the picture-IF band width

(8.75 to approximately 14 mc). The RF interference can thus be picked out and identified.

(To gain experience in recognizing the visual aspect of various forms of interference, it is possible to produce the interference locally and study the results. Sparking motors and similar devices can be operated near the television receiver. A test oscillator can be coupled to the receiver input while a television program is being received. Tune the oscillator to the picture carrier frequency and then shift it up several megacycles to produce a range of beat frequencies with the picture carrier. The oscillator output can be increased and decreased, and modulation can be turned on and off to note the effects.)

21. Failure to operate when installed in cabinet.

- (a) Check for grid shorts in '52 and '53 tubes.
- (b) Check for bent-over pins on the octal plug from video chassis to SPU

TRK-9, TRK-12, TRK-120 for 105-125 Volts—50-60 Cycle Power Supply

General differences are as follows:

Chassis KC-4B, KC-4C, KC-4J

1. Horizontal Damping tube, formerly RCA-5V4G, changed to RCA-25Z6 and socket wiring revised.
2. TRK-9, TRK-12 only: Capacitor C-61 not connected. Its function is performed by an added capacitor C117 (4 mfd.—450 volts).

Chassis KK-7D, KK-7E, KK-7J

1. Capacitors C-118 (80 mfd.) and C-119 (10 mfd.) added in parallel with C-110.
2. Capacitor C-128—TRK-120 or C-120—TRK-9, TRK-12 (0.25 mfd.) added in parallel with resistor R-166—TRK-120 without D.C. Restorer, or R-126—TRK-9, TRK-12, TRK-120 with D.C. Restorer.
3. Capacitors C-113 (0.03 mfd.) and C-114 (0.03 mfd.) changed to C-121 (0.1 mfd.) and C-122 (0.1 mfd.).
4. Power transformer (T-5) changed to (T-8) having a 25v. heater winding to supply the RCA-25Z6 horizontal damping tube.
5. High voltage power transformer (T-6) changed to (T-9).
6. Resistor R-165 is added (TRK-120 only).
7. Inductance L-50 is 100 ohms in these models.
8. An RCA-5T4 is used in these models as low voltage rectifier.

In addition Kinescope shielding is provided as follows:

1. A metallic conical section is installed in the cabinet to shield the Kinescope bulb.
2. A double metallic cylindrical section is installed with the deflecting yoke mounting assembly to shield the deflecting yoke proper. The accompanying illustration shows its assembly.

CAUTION: The conical shield is of the proper size to permit installing the 12AP4/1803-P4 Kinescope with its protective cardboard sleeve. The latter should never be removed.

To prevent Kinescope breakage, when installing a Kinescope, the deflecting yoke and shield assembly must be in place. To prevent breakage of Kinescope when removing the deflecting yoke and shield assembly the Kinescope must be removed first.

Replacing or orienting deflecting yoke:

1. Remove Kinescope.
2. Loosen yoke support bracket wing nuts and remove complete yoke and shield assembly.
3. Remove outer shield. Loosen yoke clamp screws to permit removal or orientation of yoke. If it is necessary to orient yoke, pull yoke out so it extends about one inch. Tighten screws just enough to hold yoke but not too tight as it may be necessary to turn it in this extended position. Replace the inner shield and yoke in the yoke mounting brackets.
4. Replace Kinescope and protective glass cover.
5. Move the inner shield and yoke assembly vertically until yoke is gently touching Kinescope bulb. Tighten yoke bracket wing nuts.

22. Interference from harmonics of horizontal deflecting circuits. In 1st-production 9-inch and 12-inch receivers, harmonics of the horizontal deflecting frequency (15.75 kc) may cause interference on nearby radio receivers. In this case, install the following:

- (1) A shielded yoke (RCA Stock No. 9857N). This has a metal pigtail at plug end of cable for grounding under one of the mounting screws on the horizontal output transformer. Unshielded yokes do not have this pigtail.
- (2) A tube shield (RCA Stock No. 12181) on the 5V4G horizontal damper tube. Ground the tube shield to chassis with a pigtail.
- (3) Remove the external ground connection from the television receiver.

6. Rotate yoke carefully with one hand to orient raster or picture.

7. Remove Kinescope.

8. Remove carefully (so as not to disturb yoke adjustment) the inner shield and yoke assembly. Place the latter on a flat surface with the extended yoke end flush to surface. Press inner shield gently down until yoke edge is flush with inner shield edge. Tighten yoke clamp screws evenly by first pulling one up and then the other.

9. Assemble outer shield to inner shield and yoke assembly so bottoms of shields are flush.

10. Replace complete shield and yoke assembly in the yoke support bracket.

11. Replace Kinescope and tighten protective glass cover.

12. Push gently complete assembly up flush against the Kinescope bulb. Tighten wing nuts.

IMPORTANT: 1. The hole in the conical metallic shield must line up with the hole in the protective sleeve to permit connection of the second anode cable.

2. Do not jar or drop the shields and keep away from the loudspeaker field coil to prevent magnetization.

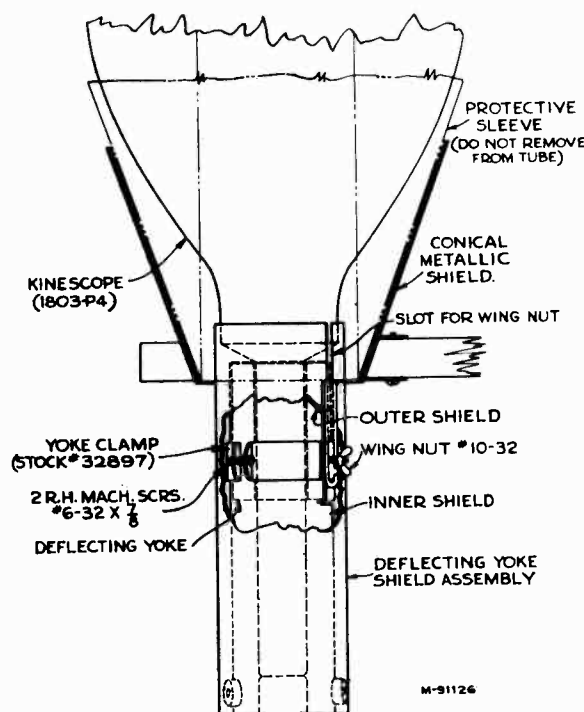


Figure 18—Assembly Details, Showing Kinescope and Deflecting Yoke Shielding

TRK9, TRK90, TRK12, TRK120

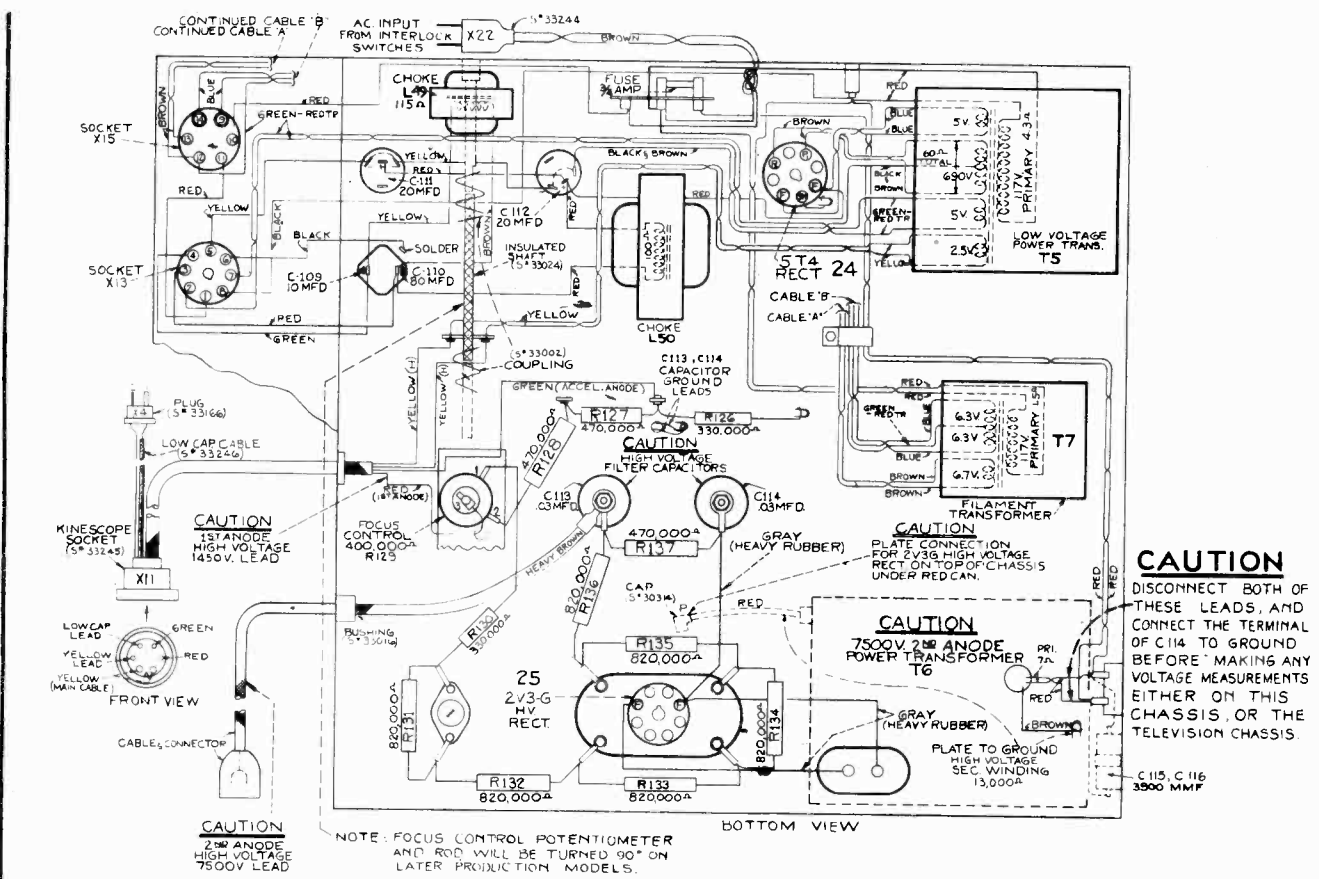


Figure 16—Television SPU Wiring TRK-9 and TRK-12 (60 cycle models)

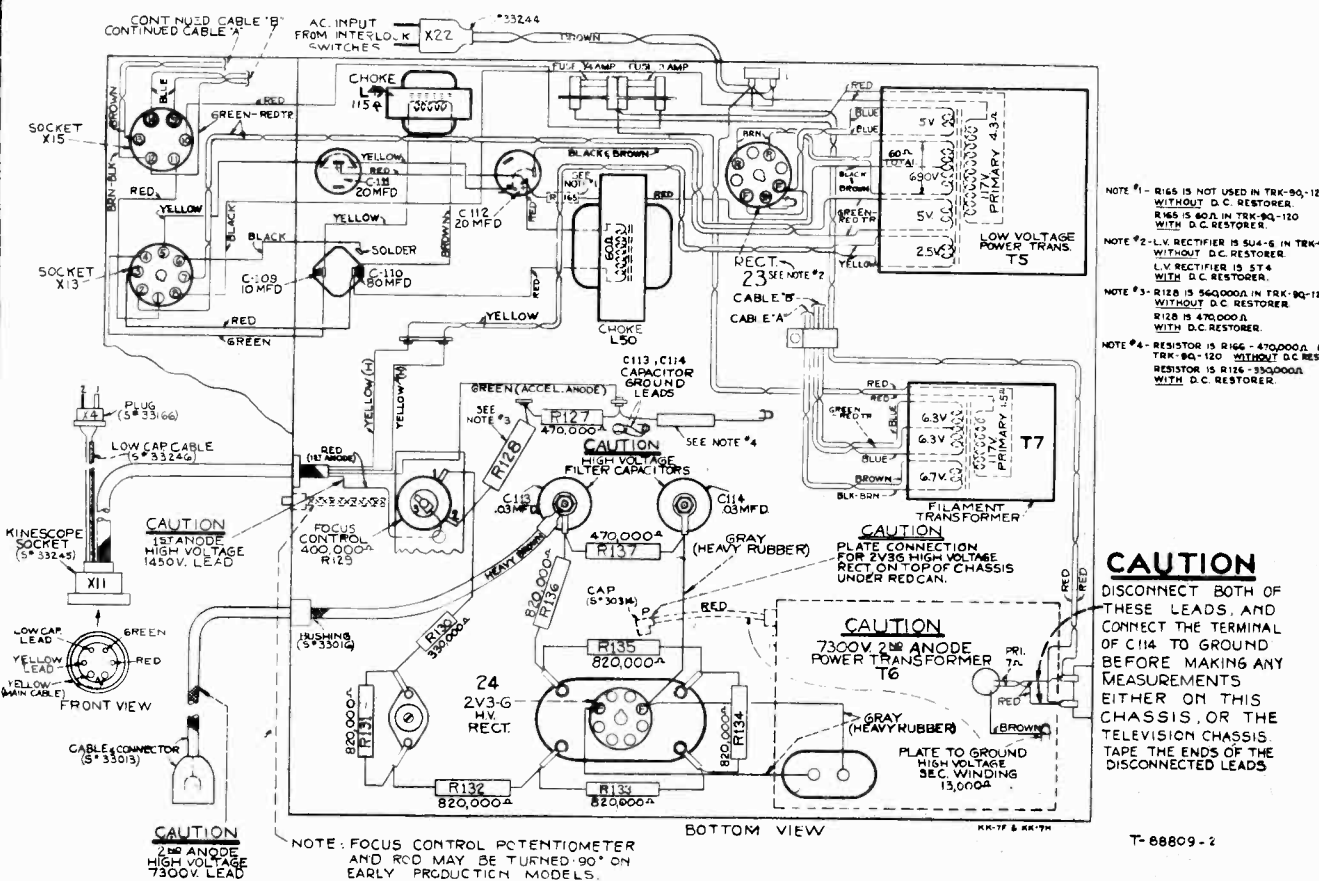


Figure 17—Television SPU Wiring TRK-90 and TRK-120 (60 cycle models)

Radio Receiver Chassis No. RC-427, RC-427A, RC-427F, RC-427G and Socket Power Unit No. RS-83E

Three-Band, Electric-Tuning, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES	Medium Wave ("B" band)..... 2.3-7.0 mc
Standard Broadcast ("A" band)..... 540-1,720 kc	Short Wave ("C" band)..... 7.0-22 mc
Intermediate Frequency..... 455 kc	

TUBE COMPLEMENT	(7) RCA-6J5..... 2nd A-F Amplifier
(1) RCA-6K7..... R-F Amplifier	(8) RCA-6J5..... Phase Inverter
(2) RCA-6A8..... 1st Detector	(9) RCA-6F6..... Power Output
(3) RCA-6J7..... Oscillator	(10) RCA-6F6..... Power Output
(4) RCA-6K7..... 1st I-F Amplifier	RC-427 and RC-427A only: RCA6U5..... Magic Eye
(5) RCA-6K7..... 2nd I-F Amplifier	(6) RCA-6R7..... 2nd-Det., A.F., A.V.C., and Muting
(6) RCA-6R7..... 2nd-Det., A.F., A.V.C., and Muting	(11) RCA-5U4G (In RS-83E SPU)... Full-Wave Rectifier

Dial Lamps..... } Two Mazda No. 44, 6.3 volts, .25 amp.
 } One Mazda No. 47, 6.3 volts, .15 amp.
 (The Mazda No. 47 is the electric tuning set-up lamp, located at center of dial.)

Power Supply Rating..... 105-125 volts, 50-60 cycles, 120 watts

POWER OUTPUT	LOUDSPEAKER (RL-70F-5)
Undistorted..... 10 watts	Type..... 12-inch electrodynamic
Maximum..... 12 watts	Voice-Coil Impedance..... 2.2 ohms at 400 cycles

General Description

Radio receiver chassis No. RC-427 is used in RCA Victor Television Console Model TRK-12; RC-427A in TRK-9; RC-427F in TRK-120; and RC-427G in TRK-90.

The audio output of the television chassis is connected to the audio input of the radio chassis by means of jack X-17 and section S7 of the fidelity switch. The functions of this switch are tabulated on a following page.

A separate plug-in power unit, RS-83E, is used to supply heater and plate voltages to the radio chassis. Service data and diagram for this power unit are shown below.

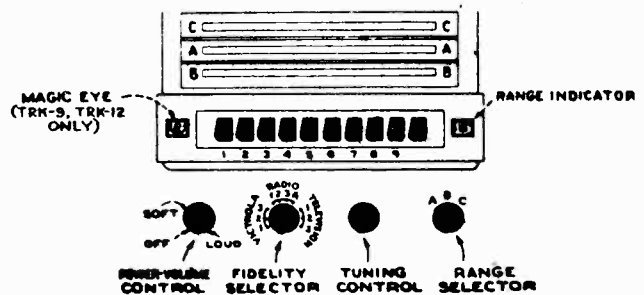


Figure 19—Operating Controls (Radio)

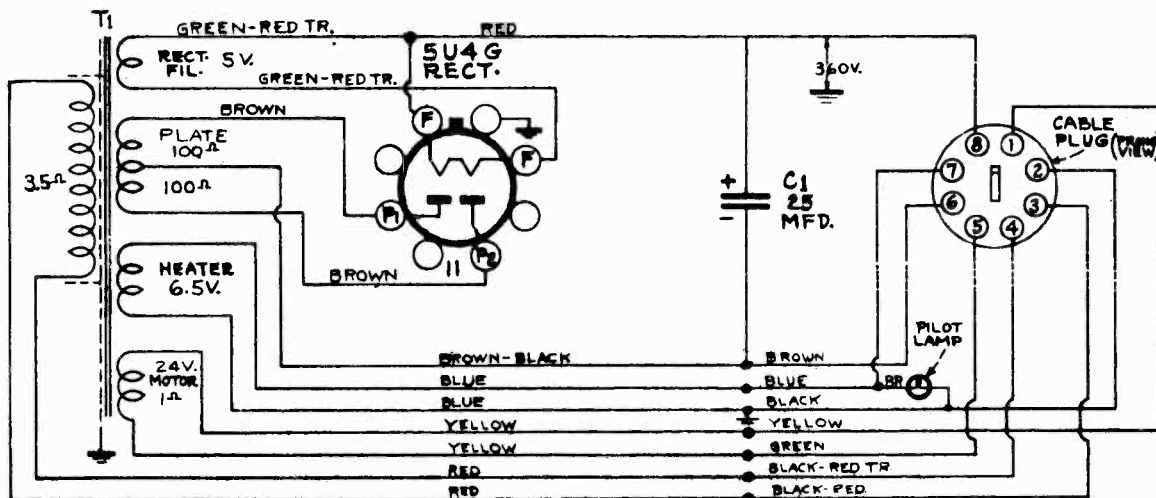


Figure 20—Schematic Diagram Radio SPU, RS-83E

M-86727 RS83E

Electric Tuning Mechanism

When a station button is pushed in, it completes the 24-volt circuit through the corresponding station-setting contact and one-half of the brass selector disc, which is connected to one side of the motor field coil. This energizes the motor, and the rotor is pulled forward, engaging with the gear train that drives the tuning condenser and selector disc. The condenser and disc rotate until the insulation line comes under the particular station-setting contact, and the motor circuit is broken.

When the electric tuning mechanism is in action, the motor-supply voltage is fed into a diode rectifier circuit which applies a high bias to the first-audio amplifier. This prevents audio amplification and makes the set quiet or "mute" while the mechanism is operating.

The brass selector disc is fastened to the rear shaft of the tuning condenser by means of two set-screws. When the condenser is at maximum (plates fully meshed) the insulation line should be horizontal, with the operating-end at the left (viewed from rear). The brass is beveled at this end.

The selector disc should be set so that the contact-tip plungers in the station-setting contacts project not more than 1/16-in. from the body of the contacts.

LUBRICATION

Motor bearings and gear bearings; use light machine oil.
Gear faces; use "Pure Oil No. 611" or petroleum jelly.
Dial-Indicator pulleys and rails; use "Castordag" or petroleum jelly.
Selector disc; apply *thin* film of petroleum jelly.

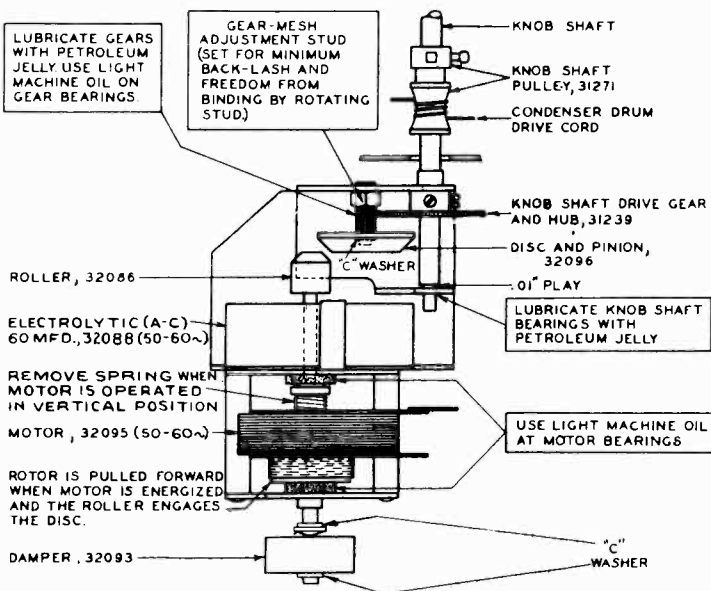
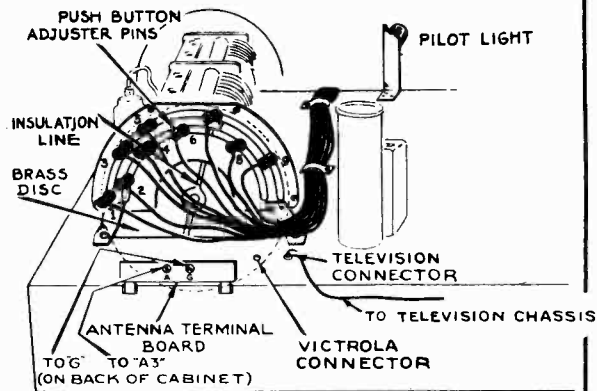


Figure 21—Detail of Tuning Motor Drive



Station Button	Color of Lead To Station-Setting Contact	Station Button	Color of Lead To Station-Setting Contact
No. 1	Yellow-green	No. 6	Red
No. 2	Black	No. 7	Red-black
No. 3	Brown	No. 8	Brown-black
No. 4	Blue	No. 9	Red-yellow
No. 5	Green		

Figure 22—Electric Tuning Adjustments

Adjustments for Electric Tuning

With power turned off, disconnect the antenna transmission line and ground connection, turn fidelity control to radio (3rd radio position — 6th position from full counter-clockwise). Remove the back from the cabinet and reconnect the antenna transmission line and ground connection. The two interlock switches on the side panels should not be touched and care should be taken not to press on them when making the push-button set-up. Then turn on power, set range selector to "A," allow a few moments warm-up period and proceed as follows:

1. Make a list of the desired nine stations, arranged in order from low to high frequencies.
2. Turn on power-volume control, turn range selector to "A" band, and allow a few minutes for warming up.
3. Press down the "dial-tuning" (right-hand) button.
4. Manually tune in the first station on the list.
5. Hold down the "dial-tuning" button and press down station button No. 1 (left-hand). Both buttons will stay down. Move station adjuster contact pin No. 1 to the insulating line on the disc at rear of gang. When the

pin is correctly centered on the insulating line, the central dial lamp will go out completely.

6. Press down any other button in order to release the dial-tuning button and station button No. 1. Tune to some other section on the dial, and then press down station button No. 1 again; the electric tuning mechanism will function to tune in the first station, and the central dial lamp will stay on.
7. Repeat this process for the remaining stations.



Figure 23—Components of Station Setting Contact

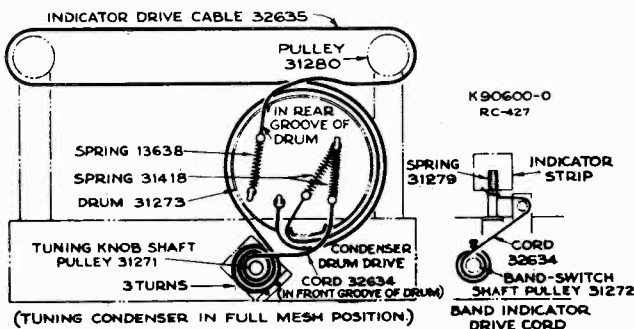
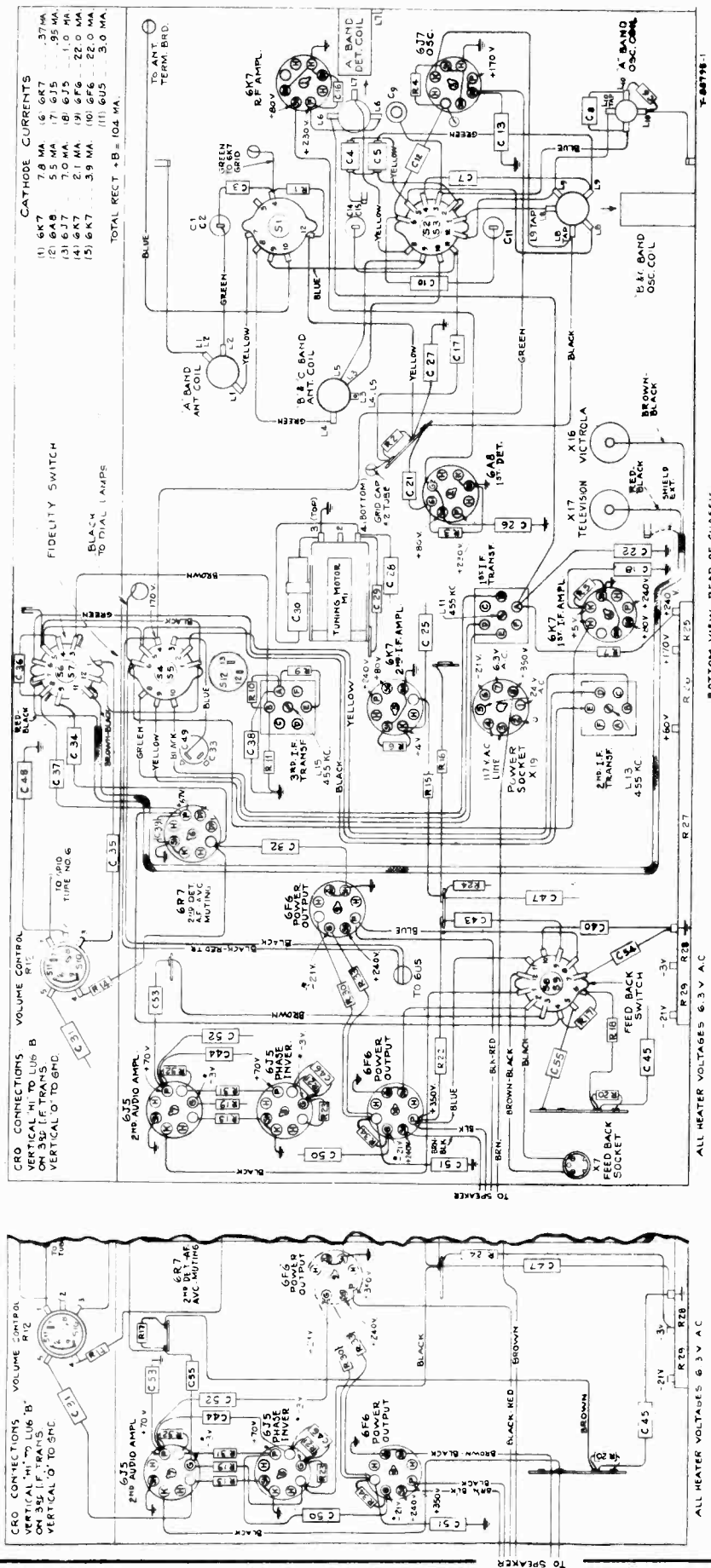


Figure 24—Dial Mechanism



TRK-9, TRK-12

Figure 26—Wiring Diagram (R-F and Switches) and Socket Voltages (Radio Chassis)

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117 volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series-resistance, and when measured will read lower depending on the voltmeter loading.

Fidelity Switch (S4, S5, S6, S7)

Switch Position	For	I-F Amp.	Audio Amp.	110-V. Supply for Tele. Chassis*	Osc. + B Supply	Dial Lamps**
No. 1 (Counter-clockwise)	Victrola	—	Min. Highs	Off	Off	On
No. 2	Victrola	—	Max. Highs Reduced Lows	Off	Off	On
No. 3	Victrola	—	Full Range	Off	Off	On
No. 1	Radio	Sharp	Min. Highs Max. Lows	Off	On	On
No. 2	Radio	Sharp	Max. Highs Reduced Lows	Off	On	On
No. 3	Radio	Sharp	Max. Highs Full Lows	Off	On	On
No. 4	Radio	Broad	Full Range	Off	On	On
No. 1	Television	—	Min. Highs	On	Off	Off
No. 2	Television	—	Med. Highs Reduced Lows	On	Off	Off
No. 3	Television	—	Full Range	On	Off	Off

* Controlled by switch (S12) on rear of fidelity switch.
 ** The 1st I.F. heater is opened on television positions 1, 2 and 3.

Figure 27—Functions of Fidelity Switch

Calibration Scale

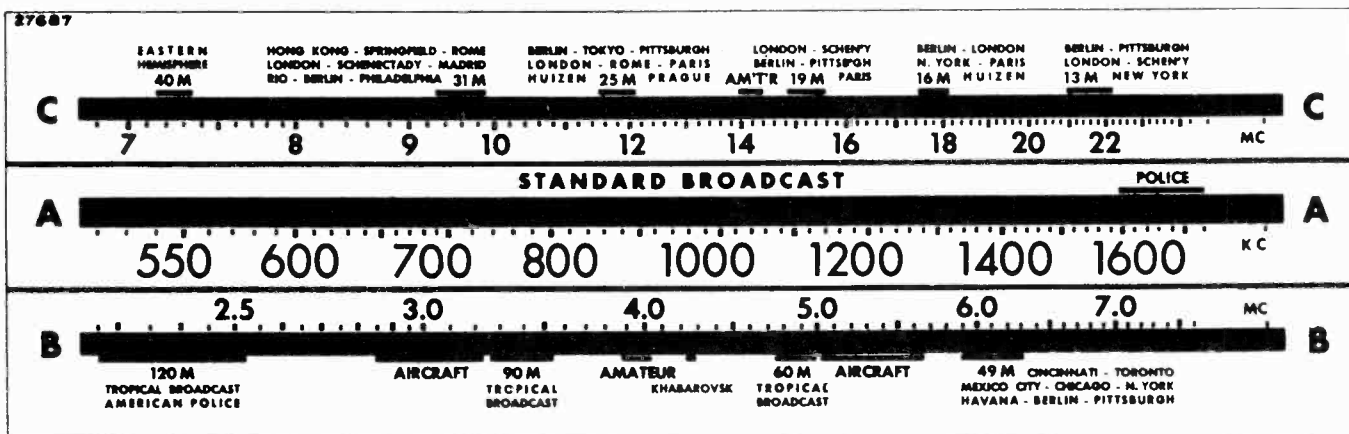


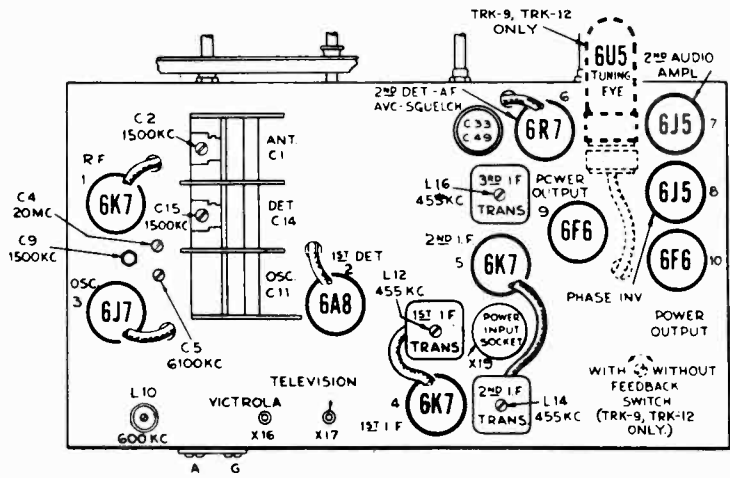
Figure 28—Tuning Dial, and Corresponding 0-180° Calibration Scale

The corresponding dial setting for any reading of the calibration scale can be determined by drawing a line straight up from this point; for example, 151° on the calibration scale corresponds to a dial reading of 1,500 kc on "A" band. Read instructions under "Alignment Procedure."

TRK9, TRK90, TRK12, TRK120

Alignment Procedure (RADIO CHASSIS)

Figure 29—At Right—Tube and Trimmer Locations



Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "O" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "O" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator approximately 1/16-inch above end dots at low-frequency ends of bands with gang condenser fully meshed. See that pointer does not rub background screen or dial face. The indicator has a spring clip for attachment to the cable.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Set tuning gang to—	Adjust the following—	To obtain—
1	Turn fidelity switch to No. 3 radio (sharp).				
2	6K7 2nd I-F grid cap, in series with .01 mfd.	455 kc	Quiet point on "B" band	L15, L16 (3rd I-F Trans.)	Coincidental images on cathode-ray oscilloscope, or max. output meter
3	6K7 1st I-F grid cap, in series with .01 mfd.			L13, L14 (2nd I-F Trans.)	
4	6A8 1st Det. grid cap, in series with .01 mfd.			L11, L12 (1st I-F Trans.)	
5	Turn fidelity switch to No. 4 radio (broad). The curve on CRO should broaden out to a double peak and reduce gain nearly 50%.				
6	Turn fidelity switch to No. 3 radio for the following adjustments. Back out the "B" and "C" oscillator trimmers, C5 and C4. Preset "A" band oscillator trimmer, C9, approximately an inch out.				
7	Antenna terminal, in series with 100 mmf.	600 kc	600 kc (31°) "A" band	L10 (osc.)	Max. Output
8		1,500 kc	1,500 kc (151°) "A" band	C9 (osc.) C2 (ant.) C15 (det.)	Max. Output
9		600 kc	600 kc "A" band	L10 (osc.)	Rock in for Max. Output
10	Repeat Step No. 8.				
11	Antenna terminal, in series with 300 ohms	6,100 kc	6,100 kc (140°) "B" band	C5 (osc.)	Max. Output*
12		20 mc	20 mc (146°) "C" band	C4 (osc.)	Rock in for Max. Output*
Follow "Adjustments for Electric Tuning."					

* Use minimum capacitance peak if two peaks can be obtained.
Note: The oscillator tracks 455 kc above the signal on all bands.

Figure 30—Alignment Procedure

Miscellaneous Data for Radio Chassis

Feedback Switch (S8 and S9)

(TRK-9 and TRK-12 only)

Counter-clockwise position (with feedback)	Clockwise position (without feedback)
1. Provides inversed feed-back by connecting part of secondary of output transformer in cathode of 6J5 2nd-audio tube.	1. Removes reversed feed-back and grounds cathode of 2nd-audio tube.
2. Disconnects compensating network (R22, C43, C54, C40) from plate circuit of output tubes.	2. Connects compensating network (R22, C43, C54, C40) to plate circuit of output tubes.
3. Connects grid of 2nd audio to high side of 1st A-F plate resistor R17, for maximum input.	3. Connects grid of 2nd audio to low side of 1st A-F plate resistor R17, for reduced input.
4. Connects capacitor C53 (.005) from plate of 2nd audio to chassis.	4. Disconnects C53 from plate of 2nd audio.

Figure 31—Functions of Feedback Switch
(TRK-9 and TRK-12 only)

Precautionary Lead Dress

- (1) All A-C leads should be twisted together and dressed away from parts in chassis to prevent hum pickup.
- (2) Keep pilot light leads away from 6R7 grid.
- (3) Yellow, green, and black leads from fidelity switch to 1st i-f transformer must be twisted together and dressed away from chassis.
- (4) Yellow, green, and black leads from fidelity switch to 2nd i-f transformer must be twisted together and dressed away from chassis.

Victrola Attachment

A jack (X-16) is located near the antenna terminal board for convenience in plugging in a Victrola Attachment. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

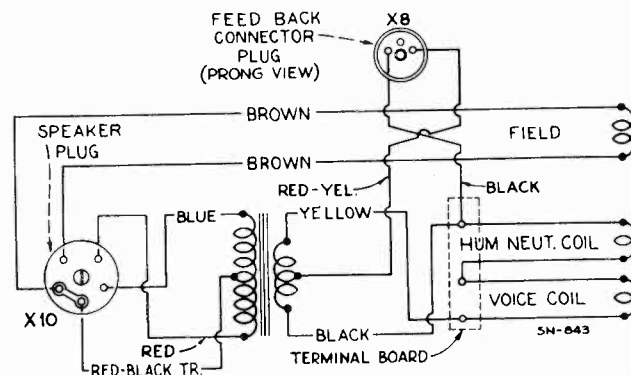


Figure 32—Connections and Colors of Loudspeaker and Cable

TRK9, TRK90, TRK12, TRK120

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
TELEVISION CHASSIS ASSEMBLIES			
KC-4A in TRK-9 (60 cycle)	KC-4H in TRK-90 (60 cycle)	33206	Control—6 ohm tapped "Horizontal centering" control (R98)
KC-4C in TRK-9 (50 cycle)	KC-4F in TRK-120 (60 cycle)	33210	Control—20 ohm tapped "Vertical centering" control (R114)
KC-4 in TRK-12 (60 cycle)	KC-4J in TRK-120 (50 cycle)	33162	Control—4,000 ohm, "Contrast" control (R45)
KC-4B in TRK-12 (50 cycle)		33209	Control—5,600 ohm, "Vertical linearity" control (R113)
33387	Adjuster—Magnetite core and stud in tube for high frequency oscillator circuit adjustment (Used with L11, L12, L14, L15)	33163	Control—50,000 ohm, "Brightness" control (R61)
33835	Adjuster—Magnetite core and stud in tube, for high frequency oscillator circuit adjustment (Used with L13)	35566	Control—50,000 ohm "Brightness" and 4,000 ohm "Contrast" dual control (R61, R45)
31253	Board—4 terminal antenna-ground terminal board	33207	Control—560,000 ohm "Width" control (R94)
12884	Capacitor—Adjustable plunger type air trimmer (C6)	33208	Control—2.7 meg. "Height" control (R108)
33097	Capacitor—4.7 mmfd. (neg. temp. coeff.) (C69)	33002	Coupling—Flexible bronze coupling, located on control shaft end of "Contrast" control.
33476	Capacitor—8.2 mmfd., 500 volts (C8)	33383	Coupling—Flexible bronze coupling, located on panel shaft end of "Contrast" control.
33381	Capacitor—8.2 mmfd. (neg. temp. coeff.) (C71)	4574	Plug—6-prong male plug for Television chassis power supply cable (X14)
33380	Capacitor—12 mmfd., 500 volts (C24)	16836	Plug—8-prong male plug for Television chassis power supply cable (X12)
33100	Capacitor—18 mmfd., 500 volts (neg. temp. coeff.) (C19, C23)	32723	Resistor—10 ohms, 1 watt (R120)
14021	Capacitor—22 mfd. (C50)	14671	Resistor—33 ohms, 1/2 watt (R152)
33101	Capacitor—22 mmfd. (neg. temp. coeff.) (C64)	35568	Resistor—Voltage divider comprising a 70, 7.4 and 5 ohm section (R164, R163, R162)
33102	Capacitor—47 mmfd., (neg. temp. coeff.) (C30, C35, C66, C72)	33326	Resistor—Voltage divider comprising a 600-300-3,100-5,455 and 13,000 ohm section (R125, R124, R123, R122, R121)
33103	Capacitor—68 mmfd., 500 volts (C31, C36, C15, C25, C40, C44, C49) (neg. temp. coeff.)	14074	Resistor—82 ohms, 1/2 watt (R64, R67, R14, R21, R28, R34)
33477	Capacitor—80.5 mmfd., 500 volts (C16)	14439	Resistor—100 ohms, 1/2 watt (R53)
33104	Capacitor—82 mmfd. (neg. temp. coeff.) (C21, C22)	13428	Resistor—150 ohms, 1/2 watt (R39)
33106	Capacitor—115 mmfd. (C5)	13454	Resistor—270 ohms, 1/2 watt (R141)
33107	Capacitor—135 mmfd. (C4)	13219	Resistor—270 ohms, 2 watts (R97)
12725	Capacitor—150 mmfd., 400 volts (C10, C87)	30499	Resistor—470 ohms, 1/2 watt (R95)
33108	Capacitor—190 mmfd. (C3)	35567	Resistor—Voltage divider comprising a 900-3,100-6,600-7,800 and 1,470 ohm section (R161, R160, R159, R158, R157)
33760	Capacitor—215 mmfd. (C137)	33325	Resistor—Voltage divider comprising a 36-100-7.4 and 5 ohm section (R119, R118, R117, R116)
12488	Capacitor—270 mmfd. (C81)	14720	Resistor—1,000 ohms, 1/2 watt (R9, R65, R70, R18, R41, R25, R31, R37, R42)
33109	Capacitor—320 mmfd. (C2)	14993	Resistor—1,200 ohms, 1/2 watt (R17)
31730	Capacitor—820 mmfd. (C123)	12267	Resistor—1,200 ohms, 1/2 watt (R115)
32788	Capacitor—820 mmfd., 400 volts (C84, C89)	14499	Resistor—1,500 ohms, 1/2 watt (R8, R24)
12635	Capacitor—1,000 mmfd., 400 volts (C90)	31920	Resistor—1,800 ohms, 1/2 watt (R16, R23, R30)
4881	Capacitor—3,300 mmfd., 400 volts (C102)	12194	Resistor—1,800 ohms, 1/2 watt (R112)
34459	Capacitor—.0025 mfd., 1,400 volts (C124)	11863	Resistor—2,200 ohms, 1/2 watt (R36)
33584	Capacitor—.005 mfd., 1,200 volts (C11, C12, C13, C14, C18, C20, C26, C27, C29, C32, C33, C34, C37, C38, C39, C41, C42, C43, C45, C46, C47, C48, C52, C60, C62, C63, C65, C67, C68, C70, C75, C98, C99, C100, C136)	13486	Resistor—2,200 ohms, 1/2 watt (R6)
4937	Capacitor—.01 mfd., 1,000 volts (C74)	13031	Resistor—3,300 ohms, 1/2 watt (R19, R26)
4870	Capacitor—.025 mfd., 400 volts (C107)	12312	Resistor—3,300 ohms, 1/2 watt (R87)
30882	Capacitor—.05 mfd., 200 volts (C94, C95)	30150	Resistor—3,300 ohms, 1/2 watt (R7, R57)
32787	Capacitor—.05 mfd., 400 volts (C28)	12955	Resistor—3,900 ohms, 1/2 watt (R109)
4886	Capacitor—.05 mfd., 400 volts (C91)	35943	Resistor—3,900 ohms, 1/2 watt (R139)
4839	Capacitor—.01 mfd., 400 volts (C73, C53, C77, C78, C85, C59, C88, C103)	30146	Resistor—4,700 ohms, 1/2 watt (R83, R99)
12484	Capacitor—.025 mfd., 350 volts (C86, C93, C101, C106, C80, C76, C105)	31789	Resistor—5,600 ohms, 1/2 watt (R12, R142, R143)
12741	Capacitor—.5 mfd. (C57)	12265	Resistor—6,800 ohms, 1/2 watt (R11, R140)
32015	Capacitor—1.0 mfd., 150 volts (C54)	14075	Resistor—8,200 ohms, 1/2 watt (R101, R102, R103)
32145	Capacitor—4 mfd., 450 volts (C117)—(Used in 50 cycle chassis only)	14559	Resistor—10,000 ohms, 1/2 watt (R20, R27, R33, R13, R58, R82, R84, R88, R100, R74, R147)
33158	Capacitor—10 mfd., 150 volts, 20 mfd., 25 volts (C97, C104)	13097	Resistor—10,000 ohms, 1/2 watt (R79, R80)
33159	Capacitor—10 mfd., 350 volts; 10 mfd., 150 volts; 250 mfd., 15 volts (C56, C58, C61)	13594	Resistor—15,000 ohms, 1/2 watt (R43)
33878	Capacitor—10 mfd., 450 volts, 10 mfd., 450 volts, 10 mfd., 150 volts (C125, C126, C127)	35944	Resistor—15,000 ohms, 1/2 watt (R149)
33160	Capacitor—10 mfd., 350 volts, 10 mfd., 150 volts, 20 mfd., 25 volts, 20 mfd., 25 volts (C92, C79, C82, C83)	36714	Resistor—15,000 ohms, 1/2 watt (R176)
32045	Capacitor—15 mfd. (C96)	14284	Resistor—22,000 ohms, 1/2 watt (R71)
33475	Capacitor—20 mfd., 25 volts (C55)	13998	Resistor—22,000 ohms, 1/2 watt (R47, R49)
33161	Capacitor—20-50 mfd., 35 volts (C51, C108)	12738	Resistor—27,000 ohms, 1/2 watt (R91)
33243	Coil—Oscillator coil with core and stud (L11)	11300	Resistor—33,000 ohms, 1/2 watt (R10)
35582	Coil—1 1/2 turn antenna coil, core, stud, and capacitor assembly (C5, L9, L10)	35945	Resistor—33,000 ohms, 1/2 watt (R5, R138)
33647	Coil—2 turn antenna coil, core, stud and capacitor assembly (C4, L7, L8) (yellow or purple)	12412	Resistor—47,000 ohms, 1/2 watt (R93)
33646	Coil—3 turn antenna coil, core, stud and capacitor assembly (C3, L5, L6) (orange or white)	30650	Resistor—56,000 ohms, 1/2 watt (R55)
33645	Coil—5 1/2 turn antenna coil, core, stud and capacitor assembly (C2, L3, L4) (red or black)	12010	Resistor—68,000 ohms, 1/2 watt (R69)
33644	Coil—4 turn antenna coil, core, stud and capacitor assembly (C137, L1, L2) (brown or blue)	13715	Resistor—68,000 ohms, 1/2 watt (R63, R66)
33535	Coil—Peaking coil (L39, R44)	14138	Resistor—68,000 ohms, 1/2 watt (R15, R22, R29, R35, R40, R68)
33534	Coil—Peaking coil (L40, R48)	14023	Resistor—82,000 ohms, 1/2 watt (R78)
33536	Coil—Peaking coil (L41, R54)	30435	Resistor—82,000 ohms, 1/2 watt (R144)
33537	Coil—Peaking coil (L42, R56)	14560	Resistor—100,000 ohms, 1/2 watt (R72, R85, R86, R89, R104, R145) (R51—TRK-9, TRK-12 without AVC; TRK-90, TRK-120)
35820	Coil—Peaking coil (L51, R156)	30180	Resistor—120,000 ohms, 1/2 watt (R4)
35821	Coil—Peaking coil (L52, R146)	12264	Resistor—220,000 ohms, 1/2 watt (R51—TRK-9, TRK-12 with AVC) (R111)
35818	Coil—Peaking coil (L53, R148)	12285	Resistor—470,000 ohms, 1/2 watt (R46, R59, R96)
35817	Coil—Peaking coil (L54, R150)	12486	Resistor—560,000 ohms, 1/2 watt (R151)
35815	Coil—Peaking coil (L55, R154)	12413	Resistor—680,000 ohms, 1/2 watt (R50)
35819	Coil—Peaking coil (L56, R153)	13730	Resistor—1 meg., 1/2 watt (R1, R2, R76, R75, R73, R52, R60, R81)
35816	Coil—Peaking coil (L57, R155)	2546	Resistor—1 meg., 1 watt (R3)
33228	Condenser—Oscillator "Fine tuning" condenser, located on range switch (C9)	30208	Resistor—1.2 meg., 1/2 watt (R105)
33164	Control—Dual 1.2 meg. and 30,000 ohms "Vertical hold" and "Horizontal hold" controls (R106, R92)	30162	Resistor—1.2 meg., 1/2 watt (R107)
		12679	Resistor—2.2 meg., 1/2 watt (R110)
		33229	Roller—Rubber friction roller for oscillator condenser drive. Part of range switch assembly.
		33165	Socket—2-prong female socket for Video output to Kinescope (X3)

Replacement Parts (Continued)

TRK9, TRK90, TRK12, TRK120

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
33011	Socket—4-contact female socket for Kinescope deflecting yoke (X1)	32096	Disc—Friction disc and pinion gear
31251	Socket—8-contact octal type socket	32091	Drive—Friction drive gear assembly
18007	Socket—Ceramic octal socket for 6L6 "Hor. out" and 6J5 "Osc."	31273	Drum—Variable condenser drive drum
14278	Socket—Television audio output pin socket (X5)	31239	Gear—Knob shaft drive gear and hub
33227	Switch—Range switch with shield plate and mounting studs—less coils, condenser and friction roller (S1, S2, S3)	31532	Indicator—Band indicating strip (Model TRK-12 and TRK-120)
33330	Transformer—"1st det. P1" I-F transformer (L17, L18) (br. and br.)	31304	Indicator—Band indicating strip (Model TRK-9 and TRK-90)
33331	Transformer—"1st det. P2" I-F transformer (L19, L20) (brown and red)	31480	Lamp—6.3 volt electric tuning set-up lamp Mazda No. 47
33334	Transformer—"1st pix P1" I-F transformer (L21, L22, L23, L24) (brown and green)	11891	Lamp—6.3 volt dial lamp Mazda No. 44
33335	Transformer—"1st pix P2" (L25) or "2nd pix P2" (L30) I-F transformer (brown and blue)	31969	Lockplate—Push button switch lockplate comprising 10 contact locks in 1 strip
33338	Transformer—"1st sound" I-F transformer (L45, L46) (orange and red) (Used in early production)	32095	Motor—Electric tuning drive motor complete (M1)
33526	Transformer—"1st sound" I-F transformer (L45, L46) (red and white) (Used in late production)	31228	Plate—Station selector contact plate—less plungers
33516	Transformer—"2nd pix P1" I-F transformer (L26, L27, L28, L29) (orange and orange)	31227	Plate—Station selector mounting plate—mounts on rear of variable condenser
33339	Transformer—"2nd sound" I-F transformer (L47, L48) (orange and orange)	12493	Plug—Female connector for speaker cable (X9)
33333	Transformer—"3rd pix" I-F transformer (L31, L32, L33) (orange and blue)	31271	Pulley—Drive pulley fastens on station selector knob shaft
33336	Transformer—"4th pix" I-F transformer (L34, L35, L36) (brown and black)	31280	Pulley—Indicator pointer drive cord pulley
33337	Transformer—"5th pix" I-F transformer (L37, L38) (brown and white)	31272	Pulley—Range switch pulley
32899	Transformer—Horizontal oscillation transformer (T1)	14720	Resistor—1,000 ohms, 1/2 watt (R7)
9862	Transformer—Horizontal output transformer (T2)	12267	Resistor—1,200 ohms, 1/2 watt (R6)
32900	Transformer—Vertical output transformer (T4)	12312	Resistor—3,300 ohms, 1/2 watt (R5)
32898	Transformer—Vertical oscillation transformer (T3)	14559	Resistor—10,000 ohms, 1/2 watt (R10)
3-BAND RADIO RECEIVER CHASSIS		12695	Resistor—15,000 ohms, 1/2 watt (R14)
RC-427A in TRK-9 RC-427G in TRK-90		12738	Resistor—27,000 ohms, 1/2 watt (R13)
RC-427 in TRK-12 RC-427F in TRK-120		13477	Resistor—27,000 ohms, 1 watt (R22)
31863	Board—Antenna-ground terminal board	12454	Resistor—33,000 ohms, 1/2 watt (R3, R4)
32232	Body—Station setting contact body and spring	12266	Resistor—39,000 ohms, 1/2 watt (R23)
32090	Bracket—Motor mounting bracket	12412	Resistor—47,000 ohms, 1/2 watt (R18)
31282	Bracket—"Magic Eye" mounting bracket and clip (TRK-9 and TRK-12 only)	12286	Resistor—56,000 ohms, 1/2 watt (R30)
32635	Cable—Indicator pointer drive cable—60-in. length	14560	Resistor—100,000 ohms, 1/2 watt (R11, R16, R20, R32, R31)
30766	Cap—"Magic Eye" cap (TRK-9, TRK-12 only)	14020	Resistor—150,000 ohms, 1/2 watt (R17—TRK-9 and TRK-12 only)
14392	Capacitor—4.7 mmfd. (C46)	13628	Resistor—180,000 ohms, 1/2 watt (R17—TRK-90 and TRK-120 only)
31353	Capacitor—15 mmfd. (C6)	12199	Resistor—270,000 ohms, 1/2 watt (R15, R33, R34)
31270	Capacitor—100 mmfd. (C41, C42)	18020	Resistor—470,000 ohms, 1 watt (R24)
12720	Capacitor—100 mmfd. (C38, C16)	12486	Resistor—560,000 ohms, 1/2 watt (R21)
12724	Capacitor—120 mmfd. (C12, C21)	12013	Resistor—1 meg., 1/10 watt (R8)
13003	Capacitor—180 mmfd. (C3, C17)	13730	Resistor—1 meg., 1/2 watt (R1, R2, R19)
12952	Capacitor—330 mmfd. (C39)	12679	Resistor—2.2 meg., 1/2 watt (R9)
31433	Capacitor—560 mmfd. (C8)	31548	Resistor—Voltage divider consisting of one 1,500, one 2,950, one 3,400, one 30 and one 3.165 ohm section (R25, R26, R27, R28, R29)
31552	Capacitor—680 mmfd. (C19, C20, C23, C24)	14887	Retainer—Drive cord pulley retainer
32197	Capacitor—3,900 mmfd., 500 volts (C7)	32086	Roller—Rubber friction roller for front end of motor shaft
31405	Capacitor—6,000 mmfd., 500 volts (C10)	31233	Rotor—Station selector rotor disc—mounts on rear of variable condenser shaft
5107	Capacitor—.0025 mfd., 700 volts (C35, C36, C55)	5042	Screw—No. 8-32 set screw for drive pulley
30303	Capacitor—.0035 mfd., 700 volts (C40, C54)	14350	Screw—No. 8-32 square head set screw for rotor disc, Stock No. 31233
33584	Capacitor—.005 mfd., 1,200 volts (C53)	31681	Shaft—Dial drive knob shaft
4937	Capacitor—.01 mfd., 1,000 volts (C37, C44, C43, C29)	31364	Socket—Dial or electric tuning set-up lamp socket
11315	Capacitor—.015 mfd., 400 volts (C31)	13871	Socket—"Magic Eye" socket (TRK-9 and TRK-12 only)
4870	Capacitor—.025 mfd., 400 volts (C32, C50)	31251	Socket—Octal type Radiotron or power supply socket
32787	Capacitor—.05 mfd., 400 volts (C27, C25)	14278	Socket—Pin socket for phono or television input with mounting plate (X16) (X17)
4839	Capacitor—.1 mfd., 400 volts (C22, C18, C26, C34, C52)	31279	Spring—Band indicator tension spring
12484	Capacitor—.25 mfd., 350 volts (C13, C28, C48, C45, C51)	13638	Spring—Indicator drive cord tension spring
12741	Capacitor—.5 mfd., 150 volts (C47)	31970	Spring—Push button switch lock bar spring
18530	Capacitor—20-20 mfd., 350 volts (C33, C49)	31232	Spring—Station setting tip spring
32088	Capacitor—Motor capacitor 60 mfd., 40 volts (C30)	12007	Spring—Stud retaining spring for I-F adjuster
31263	Coil—"A" band antenna coil (L1, L2)	31418	Spring—Variable condenser drive cord tension spring
31265	Coil—"A" band detector coil (L6, L7)	33448	Switch—Feed-back switch (S8, S9)
31296	Coil—"A" band oscillator coil (L10)	33447	Switch—H. F. tone control phono-radio-television and power switch (S4, S5, S6, S7, S12)
31980	Coil—"B" and "C" band antenna coil (L3, L4, L5)	31979	Switch—Range switch (S1, S2, S3)
31783	Coil—"B" and "C" band oscillator coil (L8, L9)	31968	Switch—Station selector push button switch complete
31234	Condenser—3-gang variable condenser (C1, C11, C14, C2, C15)	31565	Transformer—1st I-F transformer complete (L11, L12, C19, C20, L19)
12714	Condenser—Air trimmer condenser (C9)	31551	Transformer—2nd I-F transformer complete (L13, L14, C23, C24, L20)
31292	Condenser—Double section trimmer capacitor 3-30 mmfd., each section (C4, C5)	31549	Transformer—3rd I-F transformer complete (L15, L16, C41, C42)
31971	Contact—Push button switch contacts comprising 11 contacts riveted on insulating strip	32231	Washers—Comprising one metal washer, two fibre washers and one solder lug or retainer for station setting body
31972	Contact—Push button switch contacts comprising 14 contacts riveted on insulating strip	32094	Washers—Assorted washers for mounting damper on motor shaft
31231	Contact—Station setting contact tip	POWER SUPPLY UNIT	
33446	Control—"Power-volume control"—1/4 meg. (R12, S10, S11)	TELEVISION AUDIO RECEIVER	
32634	Cord—Band indicator and variable condenser drive cord	RS-83E	
31269	Core—Core and stud for 1st, 2nd, or 3rd I-F transformer	14531	Capacitor—25 mfd. filter capacitor (C1)
32093	Damper—Flywheel for rear end of motor shaft	33696	Plug—8-contact nial plug for power supply cable (X20)
		31251	Socket—5U4G Radiotron tube socket
		33445	Transformer—110 V. 50-60 cycle power transformer (T1)

TRK9, TRK90, TRK12, TRK120

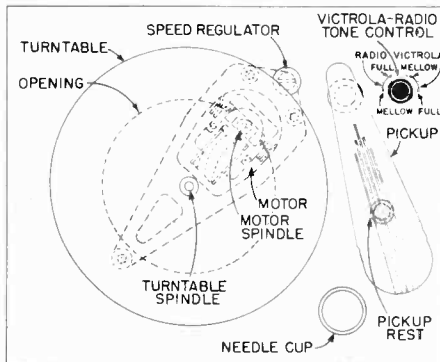
Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
7.500 VOLT TELEVISION POWER UNIT			
	KK-7A in TRK-9 (60 cycle) KK-7H in TRK-90 (60 cycle)	34600	Cable—Kinescope cable and socket (TRK-12 and TRK-120 only).
	KK-7E in TRK-9 (50 cycle) KK-7F in TRK-120 (60 cycle)	34601	Cable—Kinescope cable and socket (TRK-9 and TRK-90 only).
	KK-7 in TRK-12 (60 cycle) KK-7J in TRK-120 (50 cycle)	33246	Cable—Low capacity Kinescope grid cable (TRK-12 and TRK-120 only).
	KK-7D in TRK-12 (50 cycle)	33605	Cable—Low capacity Kinescope grid cable (TRK-9 and TRK-90 only).
33016	Bushing—Porcelain bushing and spring	39872	Cable—Television power supply cable
33288	Cable—Insulated connector complete with cable for Kinescope (2nd anode)	33597	Cap—Blue pilot lamp "Bulls Eye"
33018	Capacitor—0.03 mfd., 7.500 volt (C113, C114)	32897	Clamp—Deflecting yoke clamp assembly
34331	Capacitor—0.1 mfd., 7.500 volt (C121, C122) (Used in 50 cycle model only)	4573	Connector—2-prong female connector for power supply circuit (X23)
18588	Capacitor—0.25 mfd., 600 volt (C120, C128)	33363	Connector—2-prong female connector, used on interlock cable (X21)
32400	Capacitor—20 mfd., 450 volt (C111, C112)	33002	Coupling—Flexible bronze coupling
33023	Capacitor—80-10 mfd., 400 volt (C110, C109; C118, C119)	31456	Cover—Eight protective covers for push button markers
14854	Choke—Filter choke (L49)	32815	Cushion—Kinescope masking cushion (TRK-12 and TRK-120 only)
32940	Choke—Filter choke (L50) (Used in TRK-9, TRK-12, TRK-120, 50 cycle)	33019	Cushion—Kinescope masking cushion (TRK-9 and TRK-90 only)
35887	Choke—Filter choke (L50) (Used in TRK-90 and TRK-120, 60 cycle only)	33643	Cushion—Television chassis mounting cushion with screw, spacer and washer (sufficient for one chassis)
30314	Clip—Plate connector for 2V3G Radiotron	35894	Decalcomania—"1-2-3-4-5" decal (TRK-12 and TRK-120)
33037	Control—Focus control, 400,000 ohms (R129) (Used in first production TRK-9, TRK-12, and in TRK-90)	38305	Decalcomania—"1-2-3-4-5" decal (TRK-9 and TRK-90)
33971	Control—Focus control, 400,000 ohms (R129) (Used in second production TRK-9, TRK-12, and in TRK-120)	35890	Decalcomania—"Contrast-Brightness" decal
33002	Coupling—Flexible bronze coupling	35893	Decalcomania—"Fine Tuning" decal
10907	Fuse—3 ampere, 250 volt	35891	Decalcomania—"Horizontal and Vertical Holding" decal
34527	Fuse— $\frac{1}{2}$ ampere glass type fuse	35896	Decalcomania—"Power-Volume, tone, tuning, range" decal
33015	Insulator—Stand-off insulator only—less hardware	35392	Decalcomania—"RCA Victor" decal
32937	Knob—Focus control knob	35892	Decalcomania—"Station selector" decal
33244	Plug—2-prong male connector for A.C. power cord (X22)	35895	Decalcomania—"Victrola-Radio-Television" decal
33166	Plug—2-prong male plug for Kinescope grid-cathode cable (X4)	33442	Dial—Three-band glass dial scale
35897	Resistor—60 ohms, 10 watt (R165)	33329	Escutcheon—Dial escutcheon less buttons, button shaft and dial scale (TRK-9 and TRK-12)
33501	Resistor—330,000 ohms, 1W (1,000V.) (R126, R130)	35889	Escutcheon—Dial escutcheon less buttons, button shaft and dial scale (TRK-90 and TRK-120)
33502	Resistor—470,000 ohms, 1W (1,000V.) (R127, R137, R166) (R128 in TRK-9, TRK-12, TRK-90, and TRK-120 with D.C. Restorer)	32083	Frame—Dial frame with screen less pointer, carriage and rod
33593	Resistor—560,000 ohms, 1 watt (1,000V.) (R128 in TRK-90 and TRK-120 without D.C. Restorer)	33074	Glass— $6\frac{1}{2}$ by $8\frac{1}{2}$ inch safety protective glass (TRK-9 and TRK-90 only)
33554	Resistor—820,000 ohms, 1W (1,000V.) (R131, R132, R133, R134, R135, R136)	33076	Glass—8 $\frac{1}{2}$ by 11 $\frac{1}{2}$ inch safety protective glass (TRK-12 and TRK-120 only)
33024	Shaft—Bakelite shaft for focus control	33282	Hinge—Piano type lid hinge and screws
18007	Socket—Ceramic octal base socket and retaining ring for high voltage rectifier	33468	Knob—Radio tuning, volume or range selector knob
33245	Socket—Kinescope socket, less cable (X11)	33470	Knob—Television "Contrast," "Hor. hold" or "Fine Tuning" knob
31251	Socket—Octal base 5T4 or 5U4G rectifier, or television power supply socket (X13)	33471	Knob—Television "Brightness" or "Vert. hold" knob
12143	Socket—6-prong television power supply socket (X15)	33472	Knob—Television "Station selector" knob
32909	Support—Rectifier socket, plate, and stand-off insulator assembly	33469	Knob—"Victrola-Radio-Television-Fidelity selection" knob
32939	Transformer—Filament power transformer (T7), 105-125 volts, 50-60 cycle	11891	Lamp—6.3 V. pilot lamp, Mazda No. 44
32938	Transformer—Low voltage power transformer (T5), 105-125 volt, 60 cycle (Used in 60 cycle models only)	31589	Marker—Complete set of call letter markers
34302	Transformer—Low voltage power transformer (T8), 105-125 volts, 50 cycle (Used in 50 cycle models only)	31458	Marker—"Dial Tuning" push button marker
9861	Transformer—High voltage power transformer (T6), 105-125 volts, 60 cycle (Used in 60 cycle models only)	31457	Marker—"Victrola" push button marker
34526	Transformer—High voltage power transformer (T9), 105-125 volts, 50 cycle (Used in TRK-9, 50 cycle and TRK-12, 50 cycle only)	33075	Mirror—20 $\frac{1}{2}$ by 14 $\frac{1}{2}$ in. viewing mirror
35888	Transformer—High voltage power transformer (T9), 105-125 volts, 50 cycle (Used in TRK-120, 50 cycle only)	33225	Nut—Speed nut for mounting high frequency coil assemblies
	SPEAKER ASSEMBLY	4577	Plug—2-prong male plug for power supply circuit (X24)
	RL-70F-5	33244	Plug—2-prong male plug, used on interlock cable (X22)
31825	Cap—Cone center dust cap	33166	Plug—2-prong male plug for Kinescope grid-cathode cable (X4)
11469	Coil—Hum neutralizing coil (L21)	32816	Plug—4-prong male plug for deflecting yoke cable (X2)
11234	Coil—Speaker field coil (L17)	12493	Plug—5-prong female speaker cable plug (X9)
31275	Cone—Speaker cone assembly (L18)	4574	Plug—6-prong male plug for Television chassis power supply cable (X14)
31567	Plug—3-prong male feed back cable plug (X8)	16836	Plug—8-prong male plug for Television chassis power supply cable (X12)
31539	Plug—5-prong speaker plug (X10)	31542	Pointer—Station selector pointer with carriage
31556	Speaker—Speaker complete (RL-70F-5)	31287	Rod—Dial frame pointer slide rod
31557	Transformer—Speaker output transformer (T1)	31306	Screen—Dial frame diffusing screen with rivets
	MISCELLANEOUS ASSEMBLIES	4560	Screw— $\frac{1}{2}$ by 1 $\frac{1}{2}$ in. long, machine screw, washer and lockwasher for chassis mounting (12 required)
31358	Button—Station selector push button	35032	Shaft—Push button pivot shaft
33678	Cable—17 $\frac{1}{2}$ -inch shielded audio lead with plugs (X6, X18) (Model TRK-9 and TRK-90 only)	33517	Sleeve—Bell mouth sleeve for screw-driver adjustments (TRK-9 and TRK-90 only)
33480	Cable—38-inch shielded audio lead with plugs (Model TRK-12 and TRK-120 only) (X6, X18)	14270	Spring—Knob spring for Stock Nos. 33468, 33471, 33472, 33469 knobs
		30330	Spring—Knob spring for Stock Nos. 33470, knob
		33362	Switch—Interlock switch with leads (TRK-9 and TRK-12)
		33384	Switch—Interlock switch and cover (TRK-90 and TRK-120)
		31522	Support—Left hand lid support
		31478	Support—Right hand lid support
		9857	Yoke—Deflecting yoke complete with cable and 4-prong plug (L43, L44, R62)

MODEL U-9

Chassis No. RC-482B & RC-482C

Five-Tube, Single-Band, A-C, Superheterodyne



At Left—
Top View of Motorboard



At Right—
Model U-9

Electrical and Mechanical Specifications

FREQUENCY RANGE
Standard Broadcast and one Police Band..... 540-1,720 kc
INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT
(1) RCA-12SA7..... 1st Detector—Oscillator
(2) RCA-12SK7..... I-F Amplifier
(3) RCA-12SQ7..... 2nd Detector, A.V.C., A.F.
(4) RCA-50L6GT..... Power Output
(5) RCA-35Z5GT..... Rectifier
PILOT LAMP (1)..... Mazda No. 51, 7.5 volts, 0.2 amp.

LOUDSPEAKER (84843-1 or RL81-2)
Type..... 5-inch P M Dynamic
Voice Coil Impedance..... { (84843-1)..... 3.4 ohms at 400 cycles
 (RL81-2)..... 4.5 ohms at 400 cycles

LOUDSPEAKER (RL-81-A3)
Type..... 5-inch P M Dynamic
Voice Coil Impedance..... 4.0 ohms at 400 cycles

PHONO MECHANISM..... { Self starting motor
 Edge-driven turntable
 Adjustable Speed
PICKUP..... Crystal
Pickup Impedance..... 0.1 meg. at 1,000 cycles

POWER OUTPUT RATING
Undistorted..... 0.71 watts
Maximum..... 1.36 watts

POWER SUPPLY RATINGS
A-6..... 105-125 volts, 60 cycles
A-5..... 105-125 volts, 50 cycles
POWER CONSUMPTION..... 55 watts

Miscellaneous Service Data

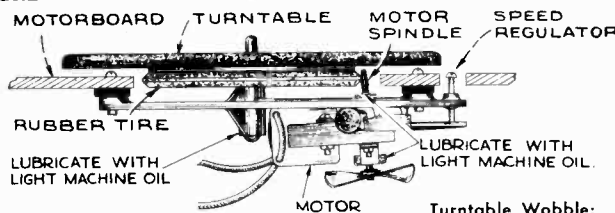
PHONOGRAPH MECHANISM.—

The phonograph motor is self-starting and operates the turntable through friction drive between the motor spindle and the rubber tire on the underside of the turntable.

The rubber driving tire on the turntable should never be removed since it is ground in to be concentric with the spindle. If replacement is required, the entire turntable should be replaced.

The speed regulator raises and lowers the motor. This changes the driving ratio between the motor and the turntable due to the motor spindle being conical in shape. It is important to adjust this regulator for a turntable speed of 78 r.p.m. WHILE PLAYING A 10-INCH RECORD WITH THE NEEDLE APPROXIMATELY ONE INCH FROM THE OUTER EDGE OF THE RECORD.

Lubrication.—The motor should be lubricated as follows: Place a few drops of S.A.E. 20 (or equivalent) on the turntable spindle and saturate the oil retaining felt pads on the motor shaft with S.A.E. 10 oil. This oiling process should be repeated once or twice a year. **CAUTION.—THE MOTOR DRIVE SPINDLE AND RUBBER DRIVING TIRE ON THE TURNTABLE MUST BE KEPT CLEAN AND ENTIRELY FREE FROM OIL AND GREASE AT ALL TIMES.**



Turntable Wobble:

Turntables (Stock No. 33899) found to have excessive wobble (vertical run-out) may be trued-up in the following manner:

- (a) Obtain a motor bearing, Stock No. 31046 (used in R93-B) and clamp same securely in a vise.
- (b) Place turntable spindle in this bearing and make sure that turntable spins freely.
- (c) With turntable spinning, the high side can readily be determined by use of a piece of chalk carefully lowered so that it just

touches the high spot of the turntable, leaving a mark.

- (d) With both hands grasp the rim of the turntable, thumbs on top and index fingers underneath turntable at the center of the chalk mark.
- (e) Apply a moderate amount of pressure in a downward direction at right angle to the jaws of the vise.
- (f) Spin turntable again and if still running out, repeat operation mentioned under (c), continuing by trial until turntable runs true.

Turntable Assembly Stock No. 33899:

The turntable and tire assembly Stock No. 33899 is superseded by:

Stock No. 37971—Turntable and spindle, less tire
Stock No. 37872—Tire only

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

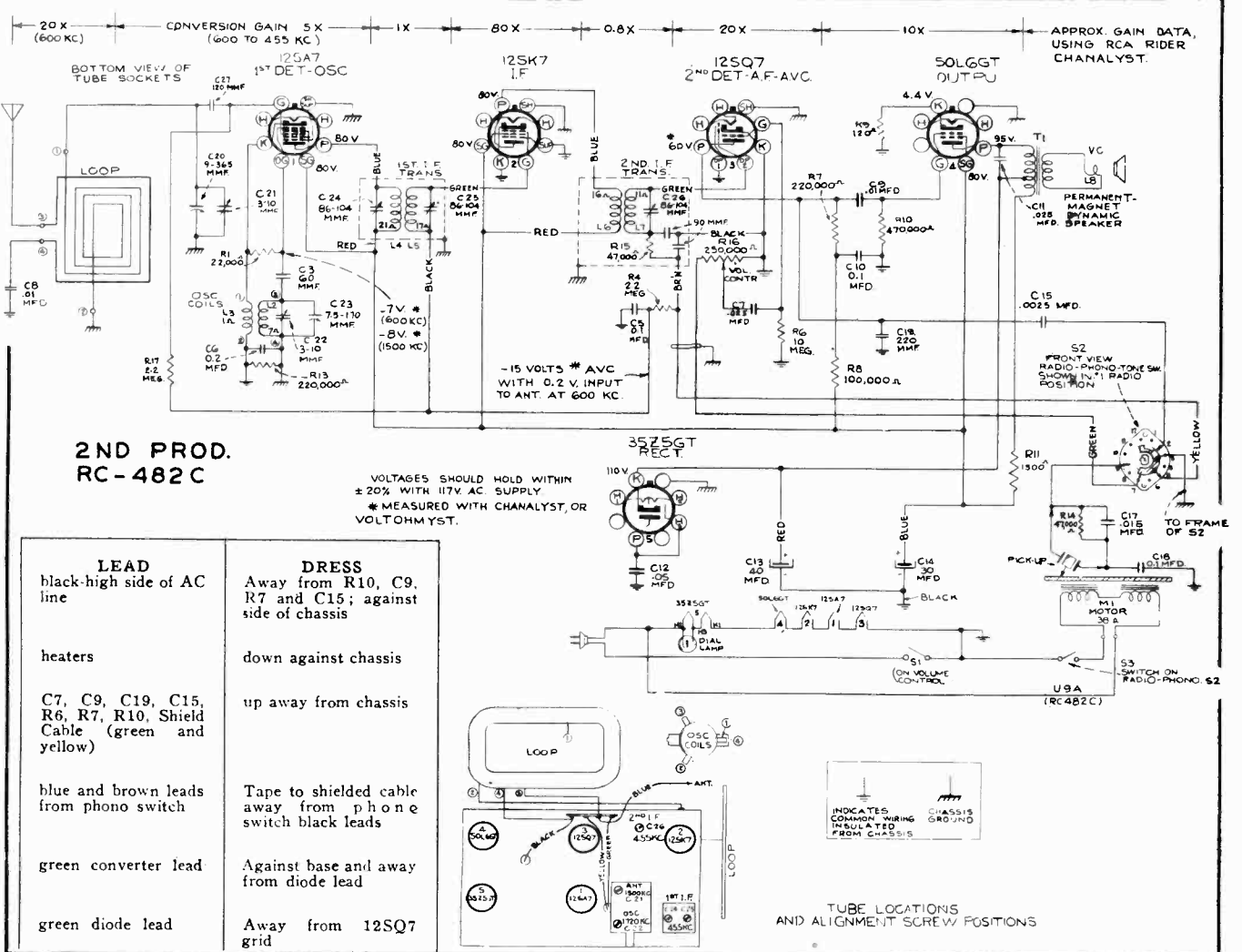
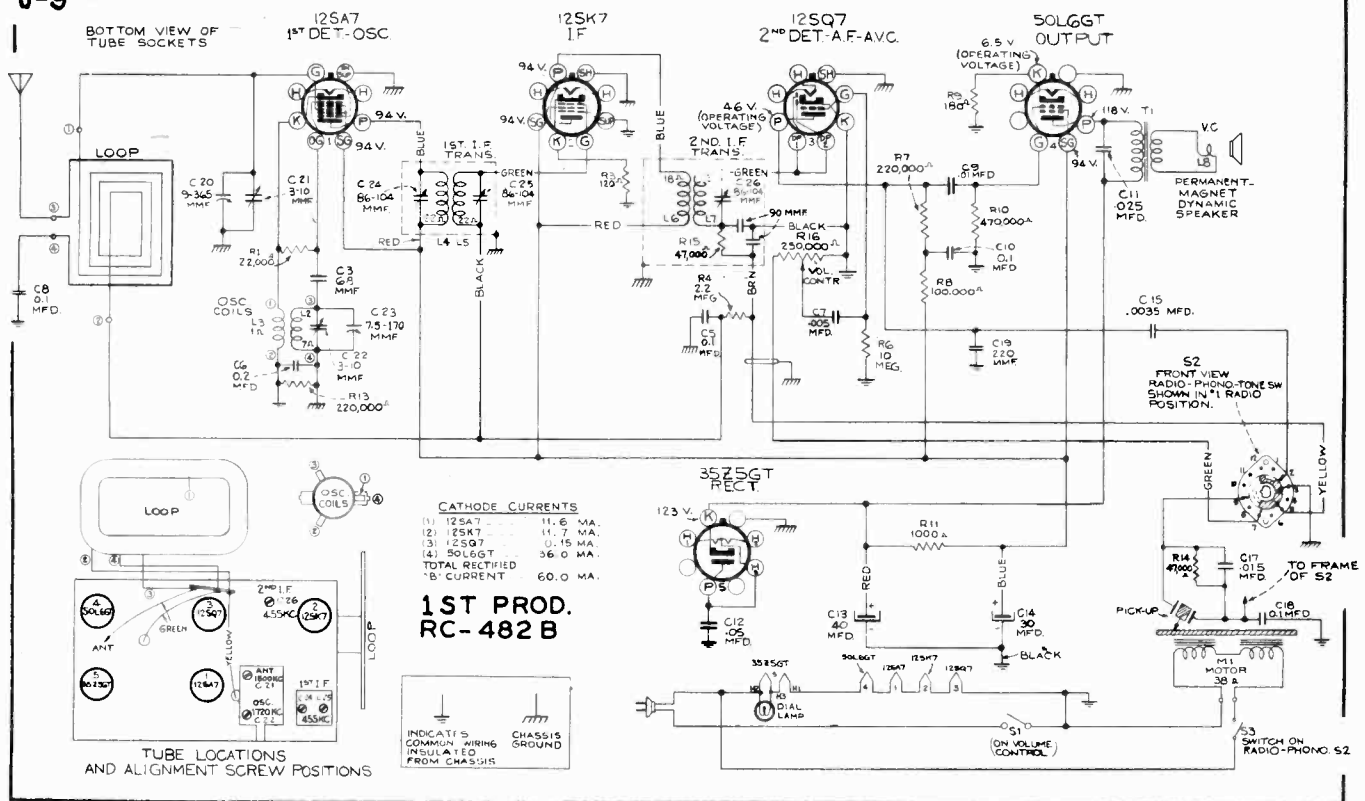
Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a 0.01 mfd capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should coincide with the left hand mark stamped in the dial back-plate.

Antenna.—This set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the green antenna lead, stapled to the base of the cabinet. The antenna should not be longer than 100 feet including the lead-in. If it is longer, connect a 100 mmfd. capacitor in series with the lead-in.

Steps	Connect the high side of test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. output—
1	Tuning Cond. stat. (det.) in series with 0.01 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C24, C25, C26 (1st and 2nd I-F transformers)
2	Antenna lead (green) in series with 100 mmfd.	1,720 kc	Full Clockwise (out of mesh)	C22 (osc.)
3		1,500 kc	Resonance on 1,500 kc signal	C21 (ant.)

U-9



Replacement Parts

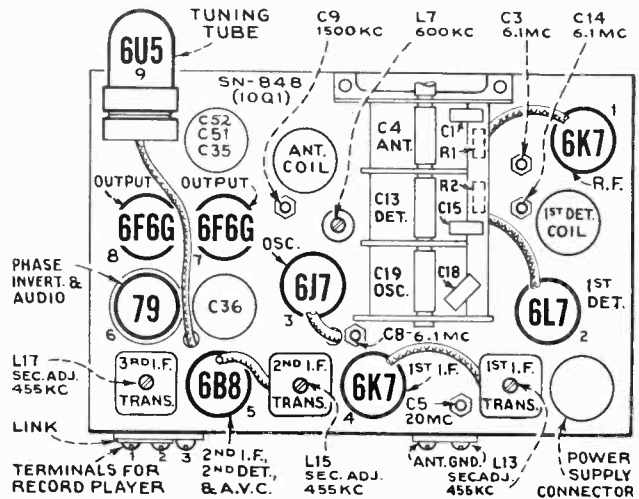
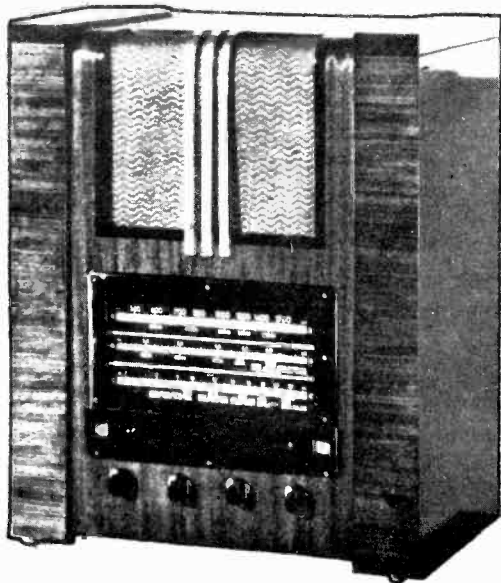
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES		CHASSIS ASSEMBLIES	
RC-482B		(RC-482C)	
30303	Capacitor—.0035 mmfd. (C15)	12724	Capacitor—120 mmfd. (C27)
13057	Capacitor—.68 mmfd. (C3)	13057	Capacitor—.68 mmfd. (C3)
33584	Capacitor—.005 mfd. (C7)	34459	Capacitor—.0025 mfd. (C15)
4937	Capacitor—.01 mfd. (C9)	11315	Capacitor—.015 mfd. (C17)
11315	Capacitor—.015 mfd. (C17)	30938	Capacitor—.025 mfd. (C11)
30938	Capacitor—.025 mfd. (C11)	4937	Capacitor—.01 mfd. (C8, C9)
32787	Capacitor—.05 mfd. (C12)	32787	Capacitor—.05 mfd. (C12)
4839	Capacitor—.01 mfd. (C5, C8, C10, C18)	4839	Capacitor—.01 mfd. (C5, C10, C18)
34505	Capacitor—.02 mfd. (C6)	34505	Capacitor—.02 mfd. (C6)
34873	Capacitor—Electrolytic comprising 1 section of 40 mfd. and 1 section of 30 mfd.	34873	Capacitor—Electrolytic comprising 1 section of 40 mfd. and 1 section of 30 mfd.
34443	Coil—Oscillator coil (L2, L3)	34443	Coil—Oscillator coil
34843	Condenser—Tuning condenser (C20, C21, C22, C23)	34843	Condenser—Tuning condenser
34034	Control—Volume control and power switch (R16, S1)	34034	Control—Volume control and power switch
32634	Cord—Drive cord	32634	Cord—Drive cord
33453	Drum—Drive cord drum	33453	Drum—Drive cord drum
34841	Frame—Dial and drive frame complete—less indicator drive cord, tuning shaft and drive drum	34841	Frame—Dial and drive frame complete—less indicator drive cord, tuning shaft and drive drum
34842	Indicator—Station selector indicator	34842	Indicator—Station selector indicator
11765	Lamp—Dial lamp	11765	Lamp—Dial lamp
35130	Loop—Antenna loop	35130	Loop—Antenna loop
30868	Plug—2-contact female plug for motor cable	30868	Plug—2-contact female plug for motor cable
5119	Plug—3-contact female plug for speaker cable	5119	Plug—3-contact female plug for speaker cable
12071	Resistor—120 ohms, 1/2 watt (R3)	12071	Resistor—120 ohms, 1/2 watt (R9)
30545	Resistor—180 ohms, 1/2 watt (R9)	3153	Resistor—1,500 ohms, 1 watt (R11)
30152	Resistor—1,000 ohms, 1 watt (R11)	13998	Resistor—22,000 ohms, 1/2 watt (R1)
13998	Resistor—22,000 ohms, 1/2 watt (R1)	5132	Resistor—47,000 ohms, 1/10 watt
5132	Resistor—47,000 ohms, 1/10 watt (R15)	12412	Resistor—47,000 ohms, 1/2 watt (R14)
12412	Resistor—47,000 ohms, 1/2 watt (R14)	14560	Resistor—100,000 ohms, 1/2 watt (R8)
14560	Resistor—100,000 ohms, 1/2 watt (R8)	12264	Resistor—220,000 ohms, 1/2 watt (R7, R13)
12264	Resistor—220,000 ohms, 1/2 watt (R7, R13)	12285	Resistor—470,000 ohms, 1/2 watt (R10)
12285	Resistor—470,000 ohms, 1/2 watt (R10)	12679	Resistor—2.2 megohm, 1/2 watt (R4)
12679	Resistor—2.2 megohm, 1/2 watt (R4)	13601	Resistor—10 megohm, 1/2 watt (R6)
13601	Resistor—10 megohm, 1/2 watt (R6)	34033	Shaft—Tuning shaft
34033	Shaft—Tuning shaft	34449	Socket—Dial lamp socket
34449	Socket—Dial lamp socket	32537	Socket—Tube socket
32537	Socket—Tube socket	33296	Spring—Retaining spring for drum, Stock No. 33453
33296	Spring—Retaining spring for drum, Stock No. 33453	34844	Transformer—1st i.f. transformer (L4, L5, C24, C25)
34844	Transformer—1st i.f. transformer (L4, L5, C24, C25)	34442	Transformer—2nd i.f. transformer (L6, L7, C26, R15)
34442	Transformer—2nd i.f. transformer (L6, L7, C26, R15)	11908	Washer—"C" washer for holding shaft, Stock No. 34033
11908	Washer—"C" washer for holding shaft, Stock No. 34033		
SPEAKER ASSEMBLIES		SPEAKER ASSEMBLIES	
(RL 81-2)		(RL-81A3)	
32907	Cap—Dust cap	32907	Cap—Dust cap
34554	Cone—Cone complete with suspension and voice coil	35570	Cone—Cone complete with voice coil
5118	Plug—3-prong male plug for speaker	5118	Plug—3-prong male plug for speaker
34846	Transformer—Output transformer	35904	Transformer—Output transformer
SPEAKER ASSEMBLIES		MOTOR ASSEMBLIES	
(84843-1)		(M1)	
34847	Cone—Cone complete with voice coil, center suspensions, dust screen and rim gaskets	32654	Ball—Ball for turntable bearing
5118	Plug—3-prong male plug for speaker	33897	Base—Motor base and ball assembled
34848	Transformer—Output transformer	33902	Motor—Complete motor 105-125 volts, 60 cycle (M1)
MISCELLANEOUS ASSEMBLIES		34496	Motor—Complete motor 105-125 volts, 50 cycle (M1)
33680	Cup—Needle cup	33896	Mounting—Motor cradle mounting hardware and retainer
34849	Dial—Glass dial scale	PICKUP AND ARM ASSEMBLIES	
34850	Hinge—Lid hinge	33591	Arm—Pickup arm only—less cartridge, base and cable
33942	Knob—"Radio-Phono" switch knob	34481	Arm—Pickup pivot arm and shaft
30863	Knob—Tuning or volume control and power switch knob	34482	Base—Pickup mounting base
30870	Plug—2-contact male plug for motor leads	34758	Bushing—Rubber bushing and metal bushing for pickup pivot arm shaft
32610	Rest—Rubber pickup rest	33122	Crystal—Pickup crystal cartridge and needle screw
30900	Spring—Retaining spring for knobs, Stock Nos. 33942 and 30863	34311	Ring—Retaining ring for pivot shaft
32627	Support—Lid support	33529	Screw—Needle screw
33467	Switch—Combination "Radio-Phono" switch tone control (S2)	2nd Production, RC-482C:	
33C99	Turntable—Turntable complete with spindle and rubber drive tire	Add Stock No.	
		55685 Speaker (RL-81A-3)	

MODEL 10Q1

Chassis No. RC-337B

Ten-Tube, Three-Band, Superheterodyne Receiver



Top View, Showing Location of Tubes and Trimmers

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) . . . 530-1720 kc (566-174 m)

Medium Wave ("B" Band) 2.3-7.0 mc (130-42.8 m)

Short Wave ("C" Band) 7.0-22 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K7 R-F Amplifier
- (2) RCA-6L7 1st-Detector
- (3) RCA-6J7 Oscillator
- (4) RCA-6K7 1st I-F Amplifier
- (5) RCA-6B8 2nd I-F amp., 2nd-Det., A.V.C.
- (6) RCA-79 Phase Inverter and Audio

- (7) RCA-6F6-G Power Output
- (8) RCA-6F6-G Power Output
- (9) RCA-6U5 Tuning Indicator
- (10) RCA-5U4-G (In PSU 10A, 10B, 10C A-C power supply unit) Rectifier
- (10) RCA-5T4 (In PSU 10E D-C power supply unit) Rectifier

Pilot Lamps (2) Mazda No. 44, 6.3 volts, .025 amp.

POWER OUTPUT RATING

Undistorted 10 watts
Maximum 12 watts

LOUDSPEAKER (RL-63H-4)

Type 8-inch electrodynamic
Voice-coil Impedance at 400 cycles 2.2 ohms

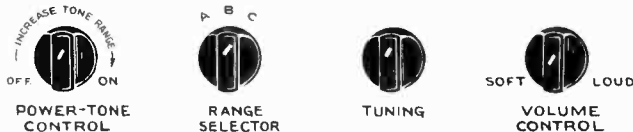
POWER SUPPLY RATINGS

A-C Ratings

	Volts	Cycles
With PSU 10A Power Supply Unit	105-125	50-60
With PSU 10B Power Supply Unit	105-125	25-60
With PSU 10C Power Supply Unit	105-130, 140-160, 200-225, 225-250	50-60

D-C Ratings

With PSU 10E Power Supply Unit 105-125, 210-250 D-C



Location of Controls

To turn on the receiver, turn the power-tone control fully clockwise, past the snap of the switch. To turn off the receiver, turn this knob fully counter-clockwise. The sensitivity switch is mounted on rear of chassis.

Plug for Extension Loudspeaker.—A two-contact female socket, equipped with a male plug, is connected across the secondary of the output transformer on the loudspeaker to facilitate the connection of an extension loudspeaker if desired. A permanent-magnet dynamic speaker, with voice-coil impedance of not less than 2 ohms is recommended.

An extension speaker with 2-ohm voice coil will receive approximately half the power output of the receiver. With a higher-impedance voice coil, the percentage of power delivered to the extension speaker will be decreased. (A high-impedance magnetic-type speaker may be used in conjunction with a suitable coupling transformer such as RGA Stock No. 7853.) The RCA MI-6248 Alnico 8-inch diameter permanent-magnet dynamic loudspeaker with 2-ohm voice coil, and 5-watt power-handling capacity is recommended.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end marked on the dial scales, and gang-condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
Leave sensitivity switch open (minimum sensitivity) for all alignment operations.				
1	6B8 2nd I-F grid cap, in series with .01 mfd.	455 kc	"C" band Quiet Point.	L16 and L17 (3rd I-F Trans.)
2	6K7 1st I-F grid cap, in series with .01 mfd.			L14 and L15 (2nd I-F Trans.)
3	6L7 1st Det. grid cap, in series with .01 mfd.			L12 and L13 (1st I-F Trans.)
4	Antenna Terminal, in series with 300 ohms	6.1 mc	6.1 mc (29°) "B" band	C8 (osc.)* C14 (det.)† C3 (ant.)
5	Antenna Terminal, in series with 300 ohms	20 mc	20 mc (23.5°) "C" band	C5 (osc.)‡
6	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (31°) "A" band	C9 (osc.)
7	Antenna Terminal, in series with 200 mmf.	600 kc	600 kc (144.5°) "A" band	L7 (osc.)‡
8	Repeat Step No. 6			

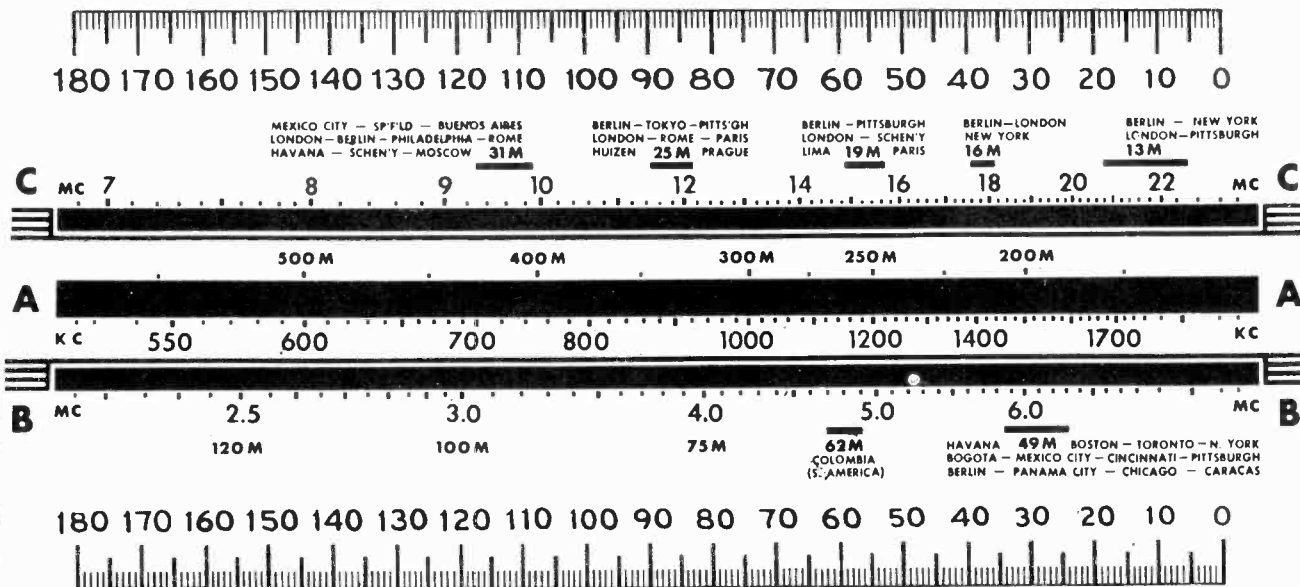
* Use minimum capacity peak if two peaks can be obtained.

† Rock the gang condenser slightly, and use the maximum capacity peak if two peaks can be obtained with trimmer C14. Check to determine that C8 has been adjusted to the correct peak by turning the receiver to 5.19 mc (50°), where a weaker signal should be received.

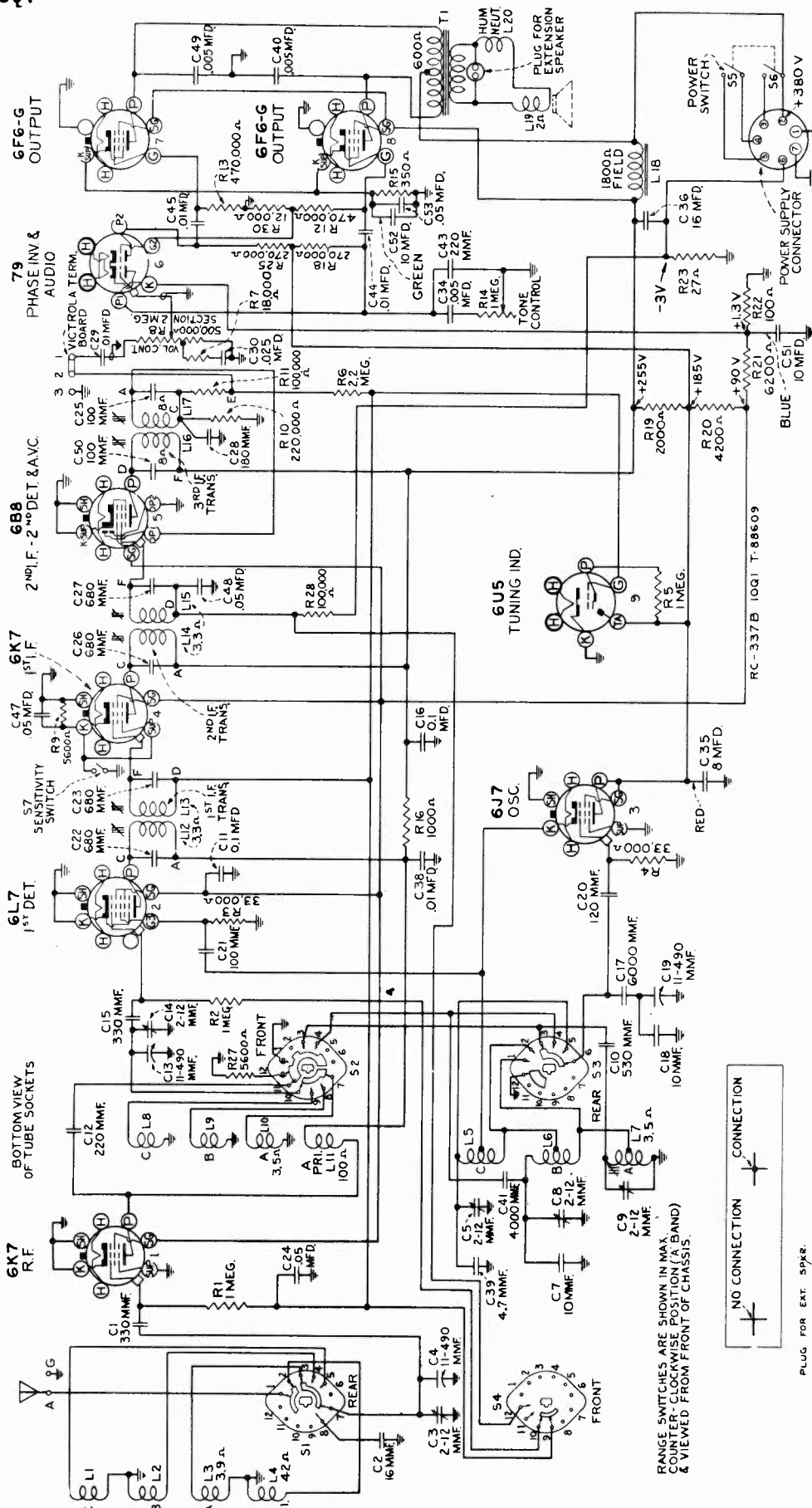
‡ Use minimum capacity peak if two peaks can be obtained. Check to determine that C5 has been adjusted to the correct peak by turning the receiver dial to 19.09 mc (29.5°), where a weaker signal should be received.

‡ Rock gang condenser slightly while peaking L7 for maximum output.

NOTE: Oscillator tracks 455 kc above the signal on all bands.



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

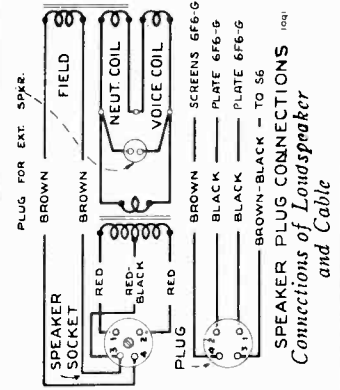


Schematic Circuit Diagram of Receiver Chassis

The power supply units (PSU 10A, 10B, 10C, and 10E) for this receiver are described in separate service data sheets, which should be referred to for further information.

Precautionary Lead Dress.—

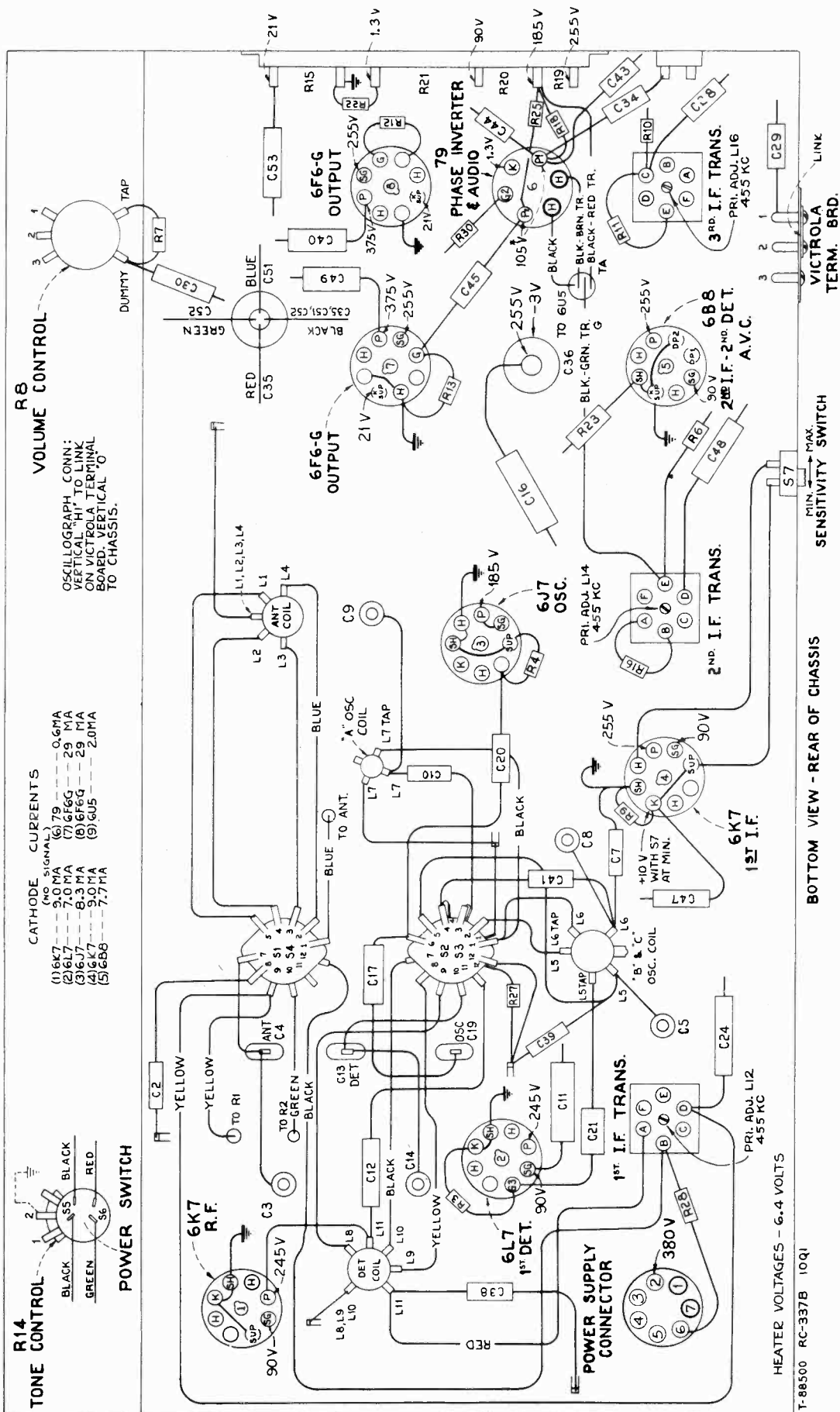
1. Dress the leads from the 1st-detector coil to the range switch away from the trimmer C14.
2. Dress all leads away from the tap on the volume control.
3. Dress the blue lead from the antenna terminal to the range switch close to the chassis.



SPEAKER PLUG CONNECTIONS
Connections of Loudspeaker and Cable

RANGE SWITCHES ARE SHOWN IN MAX. COUNTER-CLOCKWISE POSITION (A BAND) & VIEWED FROM FRONT OF CHASSIS.

BOTTOM VIEW OF TUBE SOCKETS



R14 TONE CONTROL
 BLACK GREEN RED
 S5 S6
POWER SWITCH

CATHODE CURRENTS

(NO SIGNAL)	79
(1) 6K7	0.6 MA
(2) 6L7	7.0 MA
(3) 6F6-G	29 MA
(4) 6J7	8.3 MA
(5) 6B8	29 MA
(6) 6F6-G	2.0 MA
(7) 6K7	9.0 MA
(8) 6B8	7.7 MA
(9) 6J7	2.0 MA

R8 VOLUME CONTROL
 OSCILLOGRAPH CONN:
 VERTICAL "HI" TO LINK
 ON VICTROLA TERMINAL
 BOARD, VERTICAL "O"
 TO CHASSIS.

HEATER VOLTAGES - 6.4 VOLTS

BOTTOM VIEW - REAR OF CHASSIS

SENSITIVITY SWITCH

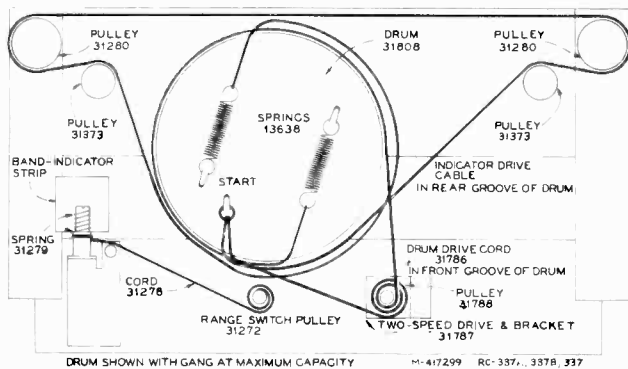
VICTROLA TERM. BRD.

Bottom View of Receiver Chassis, with R-F Wiring Diagram and Socket Voltages

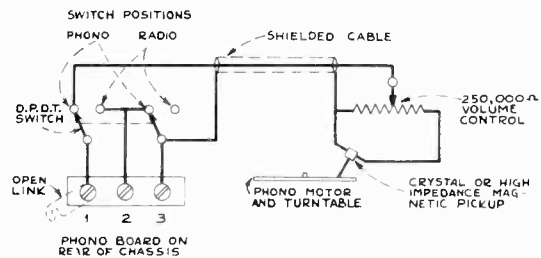
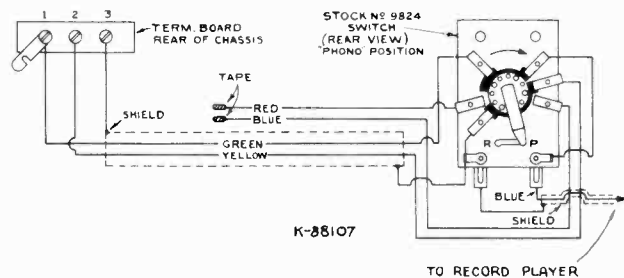
Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, sensitivity switch at maximum, and volume control at minimum. Values should hold within approximately ±20% with 117-volt a-c supply.

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

T-88500 RC-337B 10Q1



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator



Record Player Connections

REPLACEMENT PARTS

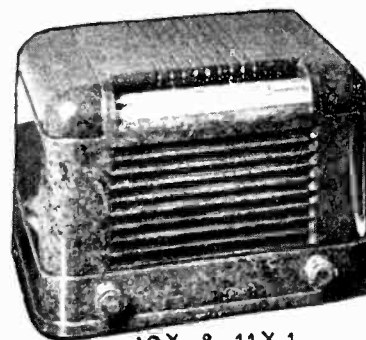
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES (RC337B)			
13216	Board—Antenna and ground terminal board...	31789	Resistor—5,600 ohms, 1/10 watt (R9, R27)...
12717	Board—Phonograph input terminal board...	11399	Resistor—12,000 ohms, 1/10 watt (R30)...
31303	Bracket—Band indicator mounting bracket—less indicating strip, spring, and cord...	13045	Resistor—18,000 ohms, 1/10 watt (R7)...
31820	Cable—Indicator pointer drive cable...	11300	Resistor—33,000 ohms, 1/10 watt (R3, R4)...
30766	Cap—Rubber cap for Magic Eye...	14560	Resistor—100,000 ohms, 1/10 watt (R11, R28)...
4629	Cap—Tube shield cap...	11398	Resistor—220,000 ohms, 1/10 watt (R10)...
12714	Capacitor—Trimmer 2-12 mmfd. (C3, C5, C8, C9, C14)...	12199	Resistor—270,000 ohms, 1/10 watt (R18, R25)...
14392	Capacitor—4.7 mmfd. (C39)...	11452	Resistor—470,000 ohms, 1/10 watt (R12, R13)...
13200	Capacitor—10 mmfd. (C7, C18)...	12013	Resistor—1 meg., 1/10 watt (R1, R2, R5)...
31791	Capacitor—16 mmfd. (C2)...	5131	Resistor—2.2 meg., 1/10 watt (R6)...
31270	Capacitor—100 mmfd. (C25, C50)...	31814	Resistor—Voltage divider comprising one 2,000 ohm, one 4,200 ohm, one 6,200 ohm, and one 350 ohm sections (R15, R19, R20, R21)...
12720	Capacitor—100 mmfd. (C21)...	14887	Retainer—Indicator drive cord pulley retainer...
12724	Capacitor—120 mmfd. (C20)...	4669	Screw—No. 8-32 x 1/4-in. square head set screw for pulley, Stock Nos. 31272 and 31788, and drum, Stock No. 31808...
13003	Capacitor—180 mmfd. (C28)...	3682	Shield—Tube shield...
12694	Capacitor—220 mmfd. (C12, C43)...	31364	Socket—Dial lamp socket...
12952	Capacitor—330 mmfd. (C1, C15)...	13871	Socket—Magic Eye socket...
31790	Capacitor—530 mmfd. (C10)...	31251	Socket—Octal base tube socket...
31552	Capacitor—680 mmfd. (C22, C23, C26, C27)...	31816	Socket—6-contact tube socket...
31792	Capacitor—4,000 mmfd. (C41)...	31279	Spring—Band indicator tension spring...
31405	Capacitor—6,000 mmfd. (C17)...	13638	Spring—Tension spring for pointer drive cable, or variable condenser drive cord...
4838	Capacitor—.005 mfd. (C34, C40, C49)...	30953	Switch—S.P.S.T. sensitivity switch (S7)...
14393	Capacitor—.01 mfd. (C29, C38, C44, C45)...	31775	Switch—Range switch (S1, S2, S3, S4)...
4870	Capacitor—.025 mfd. (C30)...	31807	Tone Control and power switch (R14, S5, S6)...
4886	Capacitor—.05 mfd. (C24, C47, C48, C53)...	31779	Transformer—First i-f transformer (L12, L13, C22, C23)...
4839	Capacitor—.01 mfd. (C16)...	31779	Transformer—Second i-f transformer (L14, L15, C26, C27)...
31809	Capacitor—Comprising one 8 mfd. and two 10 mfd. sections (C35, C51, C52)...	31268	Transformer—Third i-f transformer (L16, L17, C25, C50)...
5212	Capacitor—16 mfd. (C36)...	31450	Volume Control (R8)...
31818	Clip—Magic Eye mounting clip...	SPEAKER ASSEMBLIES (RL63H-4)	
31780	Coil—Antenna coil (L1, L2, L3, L4)...	31825	Cap—Speaker cone center dust cap...
31782	Coil—Oscillator coil—"A" band only (L7)...	11469	Coil—Hum neutralizing coil (L20)...
31783	Coil—Oscillator coil—"B" and "C" bands only (L5, L6)...	11234	Coil—Speaker field coil (L18)...
31781	Coil—R-f coil (L8, L9, L10, L11)...	31310	Cone—Speaker cone and voice coil (L19)...
31774	Condenser—3-gang variable tuning condenser (C4, C13, C19)...	5039	Plug—4-contact male plug for speaker...
31278	Cord—Band indicator cord...	31829	Speaker complete...
31786	Cord—Variable condenser drive cord...	14534	Transformer—Output transformer (T1)...
31787	Drive—Two-speed drive and mounting bracket...	MISCELLANEOUS ASSEMBLIES	
31808	Drum—Variable condenser drive cord drum...	31833	Dial—Dial scale and crystal...
31304	Indicator—Band indicator strip...	31832	Escutcheon—Dial scale escutcheon—less dial scale and crystal...
11891	Lamp—Dial lamp...	31717	Indicator—Indicator pointer and carriage...
31817	Plate—Cushion socket mounting plate—less socket...	31802	Knob—Station selector, tone control, volume control or range switch knob...
5040	Plug—4-contact female plug for speaker cable...	30868	Plug—2-contact female plug for speaker cable...
14404	Plug—7-contact male plug for power input...	30870	Plug—2-contact male plug for speaker cable...
31788	Pulley—Two-speed drive pulley...	31287	Rod—Pointer carriage slide rod...
31280	Pulley—Indicator pointer drive cord pulley (large)...	14270	Spring—Retaining spring for knob Stock No. 31802...
31373	Pulley—Indicator pointer drive cord pulley (small)...	31558	Spring—Stop spring for pointer slide rod...
31272	Pulley—Range switch pulley...		
12453	Resistor—27 ohms, 1/10 watt (R23)...		
31821	Resistor—100 ohms, 1/10 watt (R22)...		
14837	Resistor—1,000 ohms, 1/10 watt (R16)...		

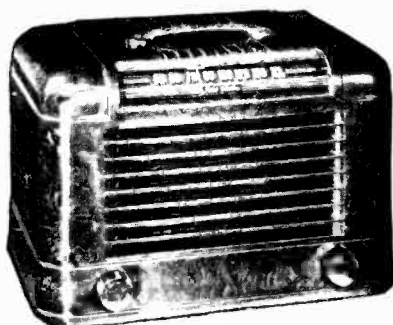
MODELS 10X, 11X-1, 12AX, 12AX2, 12X, 12X2 and 35X AND RADIOLA 516, 517 AND 522

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver

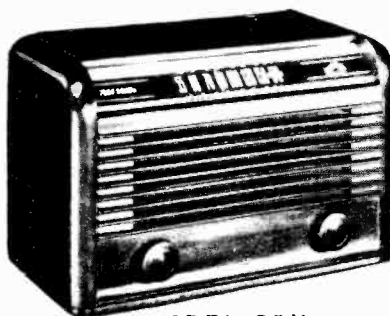
Chassis No.	RC NUMBER IDENTIFICATION
RC-1001	RCA Victor Model 10X (1st Prod.)
RC-1001A	RCA Victor Model 11X1.
RC-1001B	RCA Victor Model 10X (2nd Prod.) 12X and 12X2.
RC-1001C	RCA Victor Model 12AX, 12AX2 and 35X. Radiola Model 516, 517 and 522 (1st Prod.)
RC-1022A	RCA Victor Model 12X and 35X (2nd Prod.) RCA Victor Model 522 (2nd Prod.)



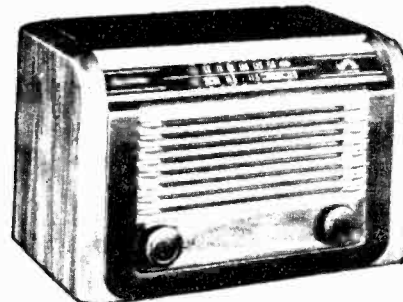
10X & 11X 1



Model 12AX 12X (Broken Plastic)



MODEL 35X

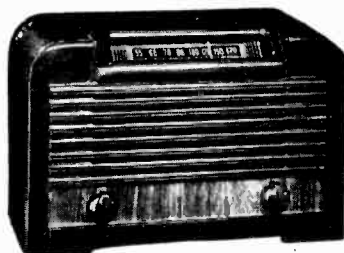


Model 35X—2nd Production

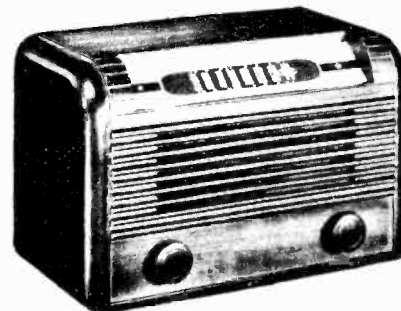
Model 12AX2 12X2 (Antique Ivory)



RADIOLA 516



RADIOLA 517



RADIOLA 522

Specifications

FREQUENCY RANGE..... 530-1,720 kc
Intermediate Frequency..... 455 kc

POWER SUPPLY RATINGS
105-125 volts, direct current, or 50-60 cycles..... 30 watts

POWER OUTPUT (125 volts, 60 cycle supply)
Undistorted.....0.8 watts Maximum.....1.2 watts

LOUDSPEAKER 5 inch permanent magnet
5" 5-inch Electrodynamic

Alignment Procedure

Output Meter Alignment.—If this method is used connect the meter across the voice coil, and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

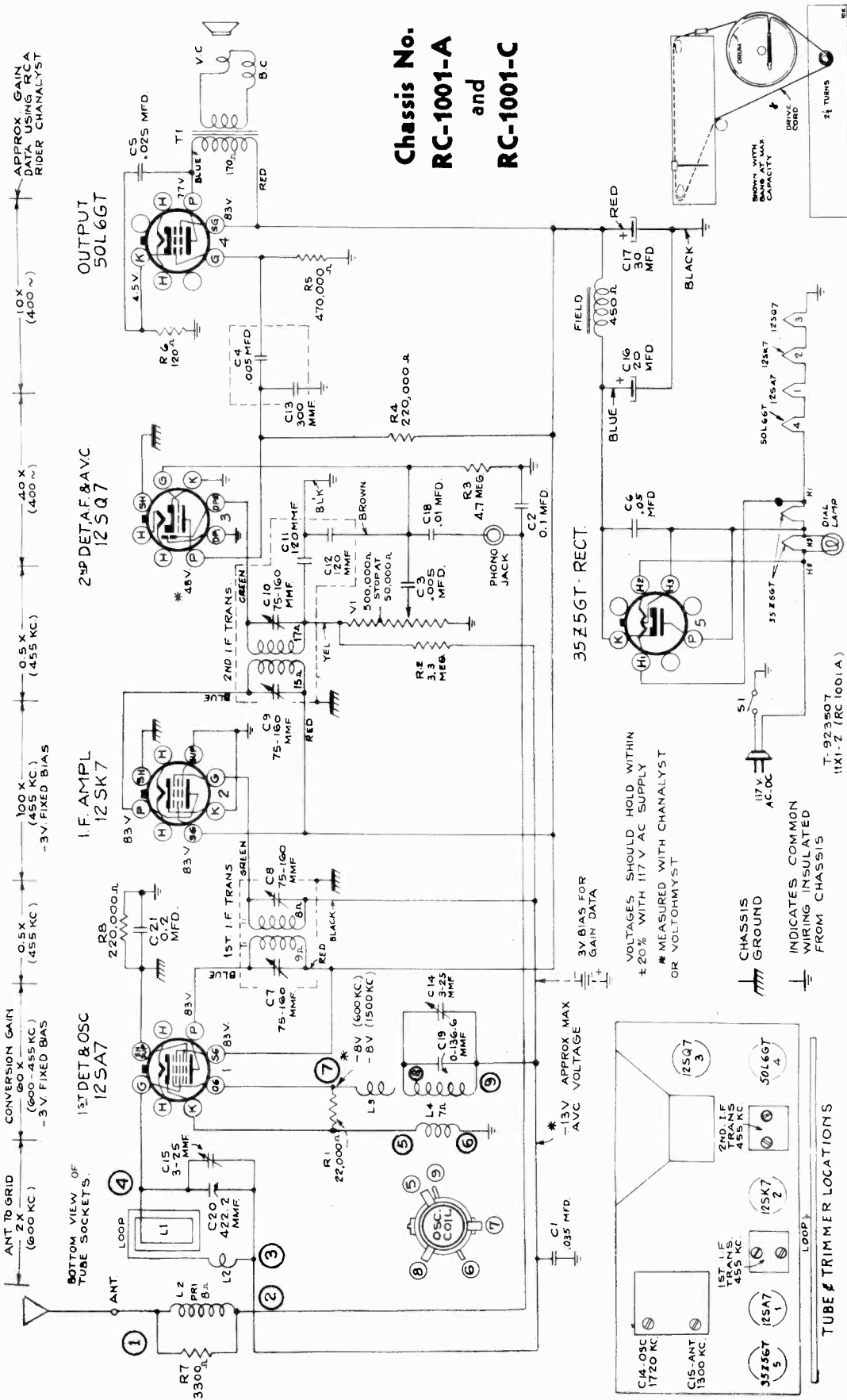
Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor. When the electronic voltmeter is used as an alignment indicator the output of the test oscillator should be adjusted to produce several volts of AVC. With the output meter alignment method the oscillator output should be kept as low as possible.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C10, C9 2nd I-F Transformer
2	12SA7 grid in series with 0.1 mfd.			C8, C7 1st I-F Transformer
3	Antenna term. of ant. trans. in series with 200 mmfd.	1,720 kc	1,720 kc	C14 (osc.)
4	Radiation Loop	1,300 kc	Resonance on Signal	C15 (ant.)
5	Repeat steps 3 and 4.			

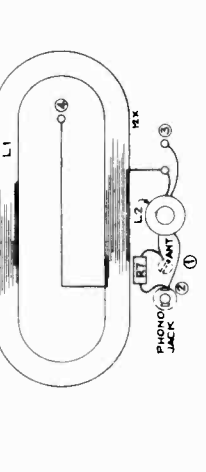
10X, 11X1, 12AX, 12AX2, 12X, 12X2, 35X, 516, 517, 522

Chassis No.
RC-1001-A
and
RC-1001-C



5. Dress brown lead from second L-F transformer to 12SQ7 away from power cable.
6. Dress wire to No. 1 grid of the 12SA7 from pilot lamp leads.
7. Dress wire from loop to variable condenser away from chassis.
8. Dress all capacitors, leads, etc. which come close to oscillator coil rigidly and as far as possible from it.

- C.3 changed from .005 to .015 mid. in later production.
- Precautionary Lead Dress—**
1. Dress the power cable to switch on the volume control close to the chassis and away from all grid and diode leads and condensers.
 2. Dress capacitors in the 12SQ7 grid circuit away from all wiring.
 3. Green and black phono wires should be twisted and dressed away from other parts and leads.
 4. 50L6-GT filament wires should be dressed to rear of chassis and away from the second I F transformer leads.



VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V AC SUPPLY
* MEASURED WITH CHANALYST OR VOLTOHMYST

CHASSIS GROUND

INDICATES COMMON WIRING INSULATED FROM CHASSIS

3V BIAS FOR GAIN DATA

* -13V APPROX MAX AVC VOLTAGE

PHONO JACK

OSC. COIL

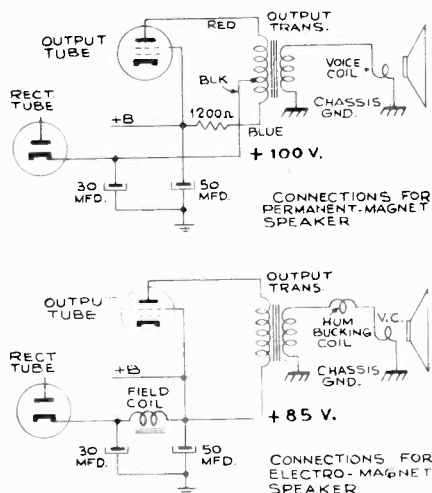
TRIMMER LOCATIONS

10X, 11X1, 12AX, 12AX2, 12X, 12X2, 35X, 516, 517, 522

SUBSTITUTE SPEAKERS
"PM" or "EM"
SPEAKERS MAY BE USED

WHEN ORDERING REPLACEMENT PARTS FOR SPEAKERS, NOTE THE IDENTIFICATION NUMBER STAMPED ON THE SPEAKER FRAME. IF THE NUMBER STAMPED ON THE SPEAKER DOES NOT APPEAR IN THE FOLLOWING LIST, ORDER THE REQUIRED PART BY DESCRIPTION, AND SPECIFY THE IDENTIFYING NUMBER STAMPED ON THE SPEAKER AND THE RECEIVER MODEL NUMBER.

Alternate "EM" and "PM" speaker connections are shown in the accompanying diagrams.

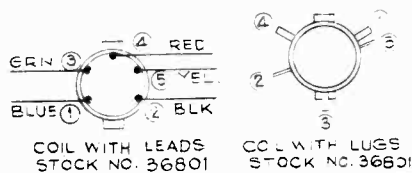


In 1st production of the following models, the speaker is RL-81-B2. In later production, several substitute speakers are used, as listed below.

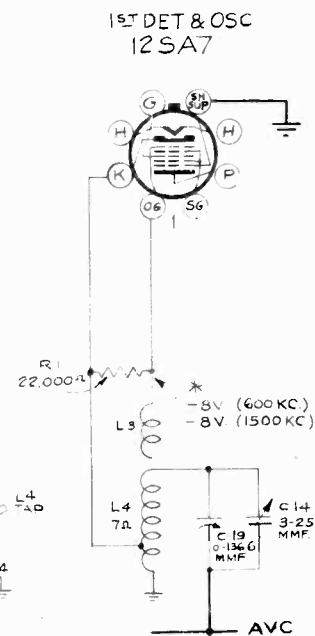
MODEL NUMBER	CHASSIS NUMBER	NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.
10X (2nd Prod.)	RC-1001B	RL-86-A3	35570	39543
12X, 12X-2	RC-1001B	RL-86-B1	39447	39448
12AX, 12AX-2	RC-1001C	RL-86-B4	39447	39448
OUTPUT TRANS.				
EM Speakers				
Stock # 38994				
PM Speakers				
Stock # 38800				

Two types of Stock No. 36801 coils are in use: One type has terminal lugs, the other has leads. Both types are shown in the accompanying sketch.

Oscillator Coil-
Stock No. 36801

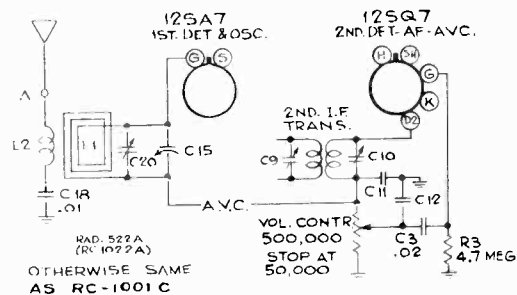


COIL WITH LEADS STOCK NO. 36801
 COIL WITH LUGS STOCK NO. 36801



OSCILLATOR CIRCUIT
MODELS 10x, 12x, 12x2

Chassis No. RC-1001 & RC-1001B



Chassis No. RC-1022-A

ORIGINAL SPEAKER LISTING

RL-81B2	RL-86A1	RL-86A3	RL-86B1
---	---	---	RL-86B4
10x, 12x, 12x2	10x (RC-1001)	516, 517	92379-1
(RC-1001B)	11x1 (RC-1001A)		---
12AX, 12AX2			12x (RC-1022A)
(RC-1001C)			35x, 522

VARIATIONS IN MODELS

Either a "PM" or "EM" speaker may be used. C₂₁ and R₈ are omitted in Models 10x, 12x and 12x2, and a tapped oscillator coil, Stock #36234, is used - (see schematic above). Some models use a filter capacitor Stock #36301, in which C₁₇ is 50 mfd. and C₁₆ is 30 mfd. (refer to parts listing).

The phonograph jack is omitted in **Chassis No. RC-1022-A**

10X, 11X1, 12AX, 12AX2, 12X, 12X2, 35X, 516, 517, 522

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES Model 10X (RC-1001)		MISCELLANEOUS ASSEMBLIES	
11315	Capacitor—.015 mfd.	37360	Back—Cabinet back
37359	Capacitor—1 section of .005 mfd., and 1 section of 300 mmfd.	35681	Base—Roto base complete
14393	Capacitor—.01 mfd.	37362	Clamp—Dial clamp (1 set)
30938	Capacitor—.025 mfd.	37363	Dial—Dial scale
5196	Capacitor—.035 mfd.	37831	Fastener—Push-on fastener for back
32787	Capacitor—.05 mfd.	37361	Knob—Volume control or tuning knob
4839	Capacitor—.01 mfd.	11765	Lamp—Dial lamp
34505	Capacitor—.02 mfd.	30900	Spring—Retaining spring for knobs
35348	Capacitor—Electrolytic comprising 1 section of 30 mfd., and 1 section of 20 mfd.	CHASSIS ASSEMBLIES Models 12X, 12X2 (RC-1001B)	
37356	Coil—Loop primary coil (Antenna)	37359	Capacitor—1 section of .005 mfd. and 1 section of 300 mmfd.
36234	Coil—Oscillator coil	14393	Capacitor—.01 mfd.
37353	Condenser—Tuning condenser	11315	Capacitor—.015 mfd.
36584	Control—Volume control and power switch	30938	Capacitor—.025 mfd.
32634	Cord—Drive cord (approx. 32-in. overall length)	5196	Capacitor—.035 mfd.
37068	Indicator—Station selector indicator	32787	Capacitor—.05 mfd.
37351	Plate—Dial back plate complete with pulleys—less dial	4839	Capacitor—.01 mfd.
36230	Pulley—Drive cord pulley	36301	Capacitor—Electrolytic comprising 1 section of 50 mfd. 150 volts, and 1 section of 30 mfd. 150 volts
37355	Receptacle—Receptacle and terminal board	36234	Coil—Oscillator coil
12312	Resistor—3,300 ohms, ½ watt	37356	Coil—Loop primary coil
13998	Resistor—22,000 ohms, ½ watt	37353	Condenser—Variable tuning condenser
12264	Resistor—220,000 ohms, ½ watt	36584	Control—Volume control and power switch
30648	Resistor—470,000 ohms, ½ watt	32634	Cord—Drive cord (approx. 33-in. overall lgth.)
12928	Resistor—3.3 meg., ½ watt	37068	Indicator—Station selector indicator
30271	Resistor—4.7 meg., ½ watt	31193	Lead—Antenna lead
37352	Shaft—Tuning shaft	37351	Plate—Dial back plate complete with pulleys
34449	Socket—Dial lamp socket	36230	Pulley—Drive cord pulley
31251	Socket—Tube socket (wafer type)	37355	Receptacle—Receptacle and terminal board
37605	Socket—Tube socket (moulded type)	30189	Resistor—120 ohms, ½ watt
37357	Spacer—Wood spacer for antenna loop	12267	Resistor—1,200 ohms, ½ watt
31418	Spring—Drive cord spring	12312	Resistor—3,300 ohms, ½ watt
37350	Transformer—Audio transformer (output)	13998	Resistor—22,000 ohms, ½ watt
36232	Transformer—First I.F. transformer	12264	Resistor—220,000 ohms, ½ watt
36233	Transformer—Second I.F. transformer	30648	Resistor—470,000 ohms, ½ watt
33726	Washer—"C" washer for tuning shaft	12928	Resistor—3.3 meg., ½ watt
37358	Winding—Antenna loop winding only	30271	Resistor—4.7 meg., ½ watt
MISCELLANEOUS ASSEMBLIES		37352	Shaft—Tuning knob shaft
37360	Back—Cabinet back	34449	Socket—Dial lamp socket
35681	Base—Roto base complete	31251	Socket—Tube socket (wafer type)
37362	Clamp—Dial clamp (1 set)	37605	Socket—Tube socket (moulded type)
37363	Dial—Dial scale	37357	Spacer—Wood spacer for antenna loop
37831	Fastener—Push-on fastener for back	31418	Spring—Drive cord spring
37361	Knob—Volume control or tuning knob	37350	Transformer—Audio transformer (output)
11765	Lamp—Dial lamp	36232	Transformer—First I.F. transformer
30900	Spring—Retaining spring for knobs	36233	Transformer—Second I.F. transformer—less shield can
CHASSIS ASSEMBLIES Model 11X1 (RC-1001A)		33726	Washer—"C" washer for tuning knob shaft
11315	Capacitor—.015 mfd.	37358	Winding—Antenna loop winding only
37359	Capacitor—1 section of .005 mfd., and 1 section of 300 mmfd.	MISCELLANEOUS ASSEMBLIES	
14393	Capacitor—.01 mfd.	37360	Back—Cabinet back cover (Used in Model 12X)
30938	Capacitor—.025 mfd.	37905	Back—Cabinet back cover (Used in Model 12X2)
5196	Capacitor—.035 mfd.	37362	Clamp—Dial clamp
32787	Capacitor—.05 mfd.	37363	Dial—Glass dial scale
4839	Capacitor—.01 mfd.	37831	Fastener—Push-on fastener for cabinet back
34505	Capacitor—.02 mfd.	37908	Handle—Ivory carrying handle (Used in Model 12X2)
35348	Capacitor—Electrolytic comprising 1 section of 30 mfd., and 1 section of 20 mfd.	37907	Handle—Walnut carrying handle (Used in Model 12X)
37356	Coil—Loop primary coil (Antenna)	35071	Knob—Ivory tuning or volume control knob (Used in Model 12X2)
36801	Coil—Oscillator coil	37361	Knob—Walnut tuning or volume control knob (Used in Model 12X)
37353	Condenser—Tuning condenser	11765	Lamp—Dial lamp
36584	Control—Volume control and power switch	37909	Mounting—Handle mounting hardware including 2 screws, 2 washers, 2 springs and 2 felt washers
32634	Cord—Drive cord (approx. 32-in. overall length)	30900	Spring—Retaining spring for knobs, Stock Nos. 37361 and 35071
37068	Indicator—Station selector indicator	10X Chassis No. RC-1001-B:	
37351	Plate—Dial back plate complete with pulleys—less dial	CHASSIS ASSEMBLIES	
36230	Pulley—Drive cord pulley	SAME AS 12X (RC-1001-B)	
37355	Receptacle—Receptacle and terminal board	MISCELLANEOUS ASSEMBLIES	
12312	Resistor—3,300 ohms, ½ watt	37360	Back—Cabinet back
13998	Resistor—22,000 ohms, ½ watt	35681	Base—Roto base complete
12264	Resistor—220,000 ohms, ½ watt	37362	Clamp—Dial clamp (1 set)
30648	Resistor—470,000 ohms, ½ watt	37363	Dial—Dial scale
12928	Resistor—3.3 meg., ½ watt	37831	Fastener—Push-on fastener for back
30271	Resistor—4.7 meg., ½ watt	36153	Knob—Volume control or tuning knob
37352	Shaft—Tuning shaft	35078	Knob—Volume control or tuning knob
34449	Socket—Dial lamp socket	11765	Lamp—Dial lamp
31251	Socket—Tube socket (wafer type)	30900	Spring—Retaining spring for knobs
37605	Socket—Tube socket (moulded type)	10X Chassis No. RC-1001-B:	
37357	Spacer—Wood spacer for antenna loop	CHASSIS ASSEMBLIES	
31418	Spring—Drive cord spring	SAME AS 12X (RC-1001-B)	
37350	Transformer—Audio transformer (output)	MISCELLANEOUS ASSEMBLIES	
36232	Transformer—First I.F. transformer	37360	Back—Cabinet back
36233	Transformer—Second I.F. transformer	35681	Base—Roto base complete
33726	Washer—"C" washer for tuning shaft	37362	Clamp—Dial clamp (1 set)
37358	Winding—Antenna loop winding only	37363	Dial—Dial scale
		36153	Fastener—Push-on fastener for back
		35078	Knob—Volume control or tuning knob
		11765	Lamp—Dial lamp
		30900	Spring—Retaining spring for knobs

10X, 11X1, 12AX, 12AX2, 12X, 12X2 35X, 516, 517, 522 Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES Models 12AX, 12AX2 (RC-1001C)			
37359	Capacitor—1 section of .005 mfd. and 1 section of 300 mmfd.	30189	Resistor—120 ohms, 1/2 watt
14393	Capacitor—.01 mfd.	30492	Resistor—22,000 ohms, 1/2 watt
11315	Capacitor—.015 mfd.	14583	Resistor—220,000 ohms, 1/2 watt
30938	Capacitor—.025 mfd.	30648	Resistor—470,000 ohms, 1/2 watt
5196	Capacitor—.035 mfd.	12928	Resistor—3.3 meg., 1/2 watt
32787	Capacitor—.05 mfd.	30271	Resistor—4.7 meg., 1/2 watt
4839	Capacitor—.1 mfd.	37352	Shaft—Tuning knob shaft
34505	Capacitor—.2 mfd.	34449	Socket—Dial lamp socket
36301	Capacitor—Electrolytic comprising 1 section of 50 mfd., 150 volts, and 1 section of 30 mfd., 150 volts	31251	Socket—Tube socket
36801	Coil—Oscillator coil	31418	Spring—Drive cord spring
37356	Coil—Loop primary coil	35098	Spring—Spring to hold I.F. transformer in shield can
37353	Condenser—Variable tuning condenser	36232	Transformer—First I.F. transformer
36584	Control—Volume control and power switch	36233	Transformer—Second I.F. transformer—less shield can
32634	Cord—Drive cord (approx. 33-in. overall lgth.)	38994	Transformer—Output transformer
37068	Indicator—Station selector indicator	33726	Washer—"C" washer for tuning knob shaft
31193	Lead—Antenna lead	MISCELLANEOUS ASSEMBLIES	
37351	Plate—Dial back plate complete with pulleys	39775	Back—Cabinet back
36230	Pulley—Drive cord pulley	39780	Dial—Glass dial scale
37355	Receptacle—Receptacle and terminal board	33006	Feet—Rubber feet—Pkg. of 4
30189	Resistor—120 ohms, 1/2 watt	35722	Knob—Control knob
12267	Resistor—1,200 ohms, 1/2 watt	11765	Lamp—Dial lamp
12312	Resistor—3,300 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs
13998	Resistor—22,000 ohms, 1/2 watt	35X—2ND PROD. (RC-1022-A)	
12264	Resistor—220,000 ohms, 1/2 watt	12X—2ND PROD. (RC-1022-A)	
30648	Resistor—470,000 ohms, 1/2 watt	Service Data:	
12928	Resistor—3.3 meg., 1/2 watt	Models 12X—2nd Production and 35X—2nd Production are identical except for cabinet design. The RC-1022-A chassis used in both these receivers is similar to the RC-1001-C chassis used in Model 35X—1st Production, except that the phonograph jack of the 1st Production 35X has been omitted in the RC-1022-A chassis, as shown in the accompanying sketches.	
30271	Resistor—4.7 meg., 1/2 watt	For replacement parts list for both receivers, refer to the Service Notes for 35X (RC-1001-C) with the exception of the following parts used in the 12X—2nd Production and 35X—2nd Production:	
37352	Shaft—Tuning knob shaft	Stock No.	Description
34449	Socket—Dial lamp socket	35348	Capacitor—Electrolytic, comprising 1 section of 20 mfd., 150 volts (C17), and 1 section of 30 mfd., 150 volts (C16).
31251	Socket—Tube socket	36248	Capacitor—.02 mfd.
31418	Spring—Drive cord spring	34296	Capacitor—.01 mfd.
35098	Spring—Spring to hold I.F. transformer in shield can	34662	Cord—Drive cord (approx. 33-in. overall length)
36232	Transformer—First I.F. transformer	39823	Loop—Antenna loop
36233	Transformer—Second I.F. transformer—less shield can	31251	Socket—Tube socket—washer
36800	Transformer—Output transformer	37605	Socket—Tube socket—moulded
33726	Washer—"C" washer for tuning knob shaft	37364	Transformer—Second I.F. transformer
MISCELLANEOUS ASSEMBLIES			
37360	Back—Cabinet back cover (Used in Model 12AX)	MISCELLANEOUS ASSEMBLIES	
37905	Back—Cabinet back cover (Used in Model 12AX2)	37906	Back—Cabinet back (12X—2nd Prod.)
37362	Clamp—Dial clamp	39775	Back—Cabinet back (35X—2nd Prod.)
37363	Dial—Glass dial scale	37362	Clamp—Dial clamp (12X—2nd Prod.)
37831	Fastener—Push-on fastener for cabinet back	37363	Dial—Glass dial scale (12X—2nd Prod.)
37908	Handle—Ivory carrying handle (Used in Model 12AX2)	39780	Dial—Glass dial scale (35X—2nd Prod.)
37907	Handle—Walnut carrying handle (Used in Model 12AX)	37831	Fastener—Push fastener (12X—2nd Prod.)
35071	Knob—Ivory tuning or volume control knob (Used in Model 12AX2)	37907	Handle—Carrying handle (12X—2nd Prod.)
37361	Knob—Walnut tuning or volume control knob (Used in Model 12AX)	35078	Knob—Volume or tuning knob (12X—2nd Prod.)
11765	Lamp—Dial lamp	36722	Knob—Volume or tuning knob (35X—2nd Prod.)
37909	Mounting—Handle mounting hardware including 2 screws, 2 washers, 2 springs, and 2 felt washers	37909	Mounting—Carrying handle mounting hardware (12X—2nd Prod.)
30900	Spring—Retaining spring for knobs, Stock Nos. 37361 and 35071	Antenna Coupling Coil:	
MODEL 35X			
CHASSIS ASSEMBLIES (RC-1001C)			
37359	Capacitor—1 section of .005 mfd., and 1 section of 300 mmfd.	In 2nd production, the shunt resistor R7 across the primary of the antenna coupling coil is omitted, and the antenna coupling coil is changed from Stock No. 37356 to 37962.	
14393	Capacitor—.01 mfd.		
11315	Capacitor—.015 mfd.		
4870	Capacitor—.025 mfd.		
5196	Capacitor—.035 mfd.		
32787	Capacitor—.05 mfd.		
4839	Capacitor—.1 mfd.		
34505	Capacitor—.2 mfd.		
36301	Capacitor—Electrolytic comprising 1 section of 50 mfd., 150 volts, and 1 section of 30 mfd., 150 volts		
36801	Coil—Oscillator coil		
37962	Coil—Loop primary coil		
37353	Condenser—Variable tuning condenser		
36584	Control—Volume control and power switch		
32634	Cord—Drive cord (approx. 33-in. overall lgth.)		
37068	Indicator—Station selector indicator		
31193	Lead—Antenna lead		
37351	Plate—Dial back plate complete with pulleys		
36230	Pulley—Drive cord pulley		
37355	Receptacle—Receptacle and terminal board		

Replacement Parts (Continued)

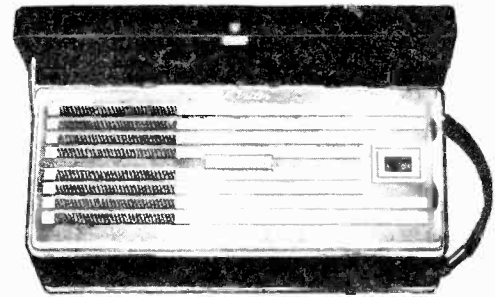
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RADIOLA 516 & 517			
CHASSIS ASSEMBLIES (RC-1001C)			
37359	Capacitor—1 section of .005 mfd. and 1 section of 300 mmfd.	37352	Shaft—Tuning knob shaft
14393	Capacitor—.01 mfd.	34449	Socket—Dial lamp socket
36248	Capacitor—.02 mfd.	37695	Socket—Tube socket, moulded
5196	Capacitor—.035 mfd.	31251	Socket—Tube socket, wafer
32787	Capacitor—.05 mfd.	31418	Spring—Drive cord spring
4839	Capacitor—.01 mfd.	36232	Transformer—First I.F. transformer
36301	Capacitor—Electrolytic comprising 1 section of 50 mfd., 150 volts, and 1 section of 30 mfd., 150 volts	37364	Transformer—Second I.F. transformer
		37962	Transformer—Loop coupling transformer (RC-1001C only)
36801	Coil—Oscillator coil	38994	Transformer—Speaker transformer
37962	Coil—Loop primary coil	33726	Washer—"C" washer for tuning knob shaft
37353	Condenser—Variable tuning condenser		
36584	Control—Volume control and power switch		MISCELLANEOUS ASSEMBLIES
32634	Cord—Drive cord (approx. 33-in. overall length)	39776	Back—Cabinet back (RC1001C only)
37068	Indicator—Station selector indicator	39775	Back—Cabinet back (RC1022A only)
31193	Lead—Antenna lead	39782	Dial—Glass dial scale
37902	Loop—Antenna loop	33006	Feet—Rubber feet—Pkg. of 4
37351	Plate—Dial back plate complete with pulleys	38810	Knob—Control knob
36230	Pulley—Drive cord pulley	11765	Lamp—Dial lamp
37355	Receptacle—Receptacle and terminal board	14270	Spring—Retaining spring for knob
30189	Resistor—120 ohms, 1/4 watt		
12267	Resistor—1,200 ohms, 1/4 watt		ALL MODELS (SEE LISTINGS)
30492	Resistor—22,000 ohms, 1/4 watt		
14583	Resistor—220,000 ohms, 1/4 watt		SPEAKER ASSEMBLIES (RL-81B2)
30648	Resistor—470,000 ohms, 1/4 watt	35570	Cone—Cone complete with voice coil
12928	Resistor—3.3 meg., 1/4 watt	37612	Speaker—5-inch permanent magnet speaker complete with cone and voice coil—less output transformer
30271	Resistor—4.7 meg., 1/4 watt		
37352	Shaft—Tuning knob shaft		SPEAKER ASSEMBLIES (RL-86A1)
34449	Socket—Dial lamp socket	32907	Cap—Dust cap
31251	Socket—Tube socket	35570	Cone—Cone complete with voice coil
31418	Spring—Drive cord spring	37332	Speaker—5-inch dynamic speaker complete with cone and voice coil
35098	Spring—Spring to hold I.F. transformer in shield can		
36232	Transformer—First I.F. transformer		SPEAKER ASSEMBLIES (RL86A3)
36233	Transformer—Second I.F. transformer—less shield can	35570	Cone—Cone complete with voice coil
38994	Transformer—Output transformer		The Field Coil for RL-86-A3 Speaker is Stock No. 39543.
33726	Washer—"C" washer for tuning knob shaft		
MISCELLANEOUS ASSEMBLIES			SPEAKER ASSEMBLIES (RL-86B-1)
37360	Back—Back cover for model 516	32907	Cap—Dust cap
39453	Back—Cabinet back for model 517	39448	Coil—Field coil—350 ohms
37362	Clamp—Dial clamp	39447	Cone—Cone complete with voice coil
38811	Dial—Glass dial scale		(RL-86B-4)
37831	Fastener—Push fastener for cabinet back	32907	Cap—Dust cap
39004	Handle—Carrying handle for cabinet	39448	Coil—Field coil—350 ohms
38810	Knob—Control knob	39447	Cone—Cone complete with voice coil
11765	Lamp—Dial lamp		(92379-1)
37909	Mounting—Handle mounting hardware for carrying handle—Model Radiola 516	39995	Coil—Field coil—350 ohms
14270	Spring—Retaining spring for knob	39994	Cone—Cone complete with voice coil
MODEL 522			NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of parts required.
CHASSIS ASSEMBLIES			
	1st Prod. (RC1001C)		
	2nd Prod. (RC1022A)		
37355	Board—Terminal board and receptacle (RC-1001C only)		
37359	Capacitor—Comprising one section of .005 mfd., and one section of .0003 mfd.		
35348	Capacitor—Electrolytic comprising 1 section of 20 mfd., 150 volts and 1 section of 30 mfd., 150 volts		
4937	Capacitor—.01 mfd., 1,000 volts (RC1001C only)		
14393	Capacitor—.01 mfd. (RC1022A only)		
36248	Capacitor—.02 mfd., 700 volts		
5196	Capacitor—.035 mfd., 400 volts		
32787	Capacitor—.05 mfd., 400 volts		
43763	Capacitor—.01 mfd., 200 volts (RC1001C only)		
34298	Capacitor—.01 mfd. (RC1022A only)		
36801	Coil—Oscillator coil		
37353	Condenser—Variable tuning condenser		
36584	Control—Volume control and power switch		
34662	Cord—Drive cord (approx. 33-in. overall length)		
37068	Indicator—Station selector indicator		
37354	Loop—Antenna loop (RC1001C only)		
39823	Loop—Antenna loop (RC1022A only)		
37351	Plate—Dial back plate complete with drive cord pulleys less dial		
36230	Pulley—Drive cord pulley		
30189	Resistor—120 ohms, 1/4 watt		
30492	Resistor—22,000 ohms, 1/4 watt		
14583	Resistor—220,000 ohms, 1/4 watt		
30648	Resistor—470,000 ohms, 1/4 watt		
12928	Resistor—3.3 megohm, 1/4 watt		
30271	Resistor—4.7 megohm, 1/4 watt		

Model BP10

Chassis No. RC-544

Specifications

Frequency Range	540-1,600 kc	
Intermediate Frequency	455 kc	
Power Supply		
Type Battery	Current Consumption	Approximate Life (Intermittent Duty)
"A"—1.5 volt Eveready No. 950	0.25 amperes	3-5 hours
"B"—67.5 volts Eveready No. 467		
Power Output	Undistorted 0.05 watts	Maximum 0.12 watts
Loudspeaker		
Type Permanent-Magnet Dynamic	Round	Elliptical
	84991-1	RL95-2
	3-inch	2 x 2 1/4 inches
Voice Coil Impedance	3.0 ohms at 400 cycles	11.8 ohms at 900 cycles
Cabinet Dimensions (inches)	3 x 8 7/8 x 3 3/8	
Weight .. 1/2 lbs. (net)	Tuning Drive Ratio	1 to 1



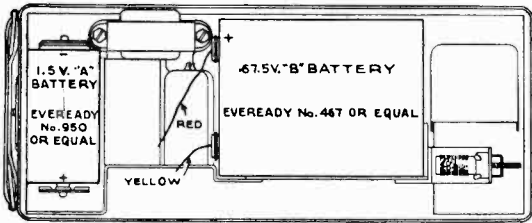
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

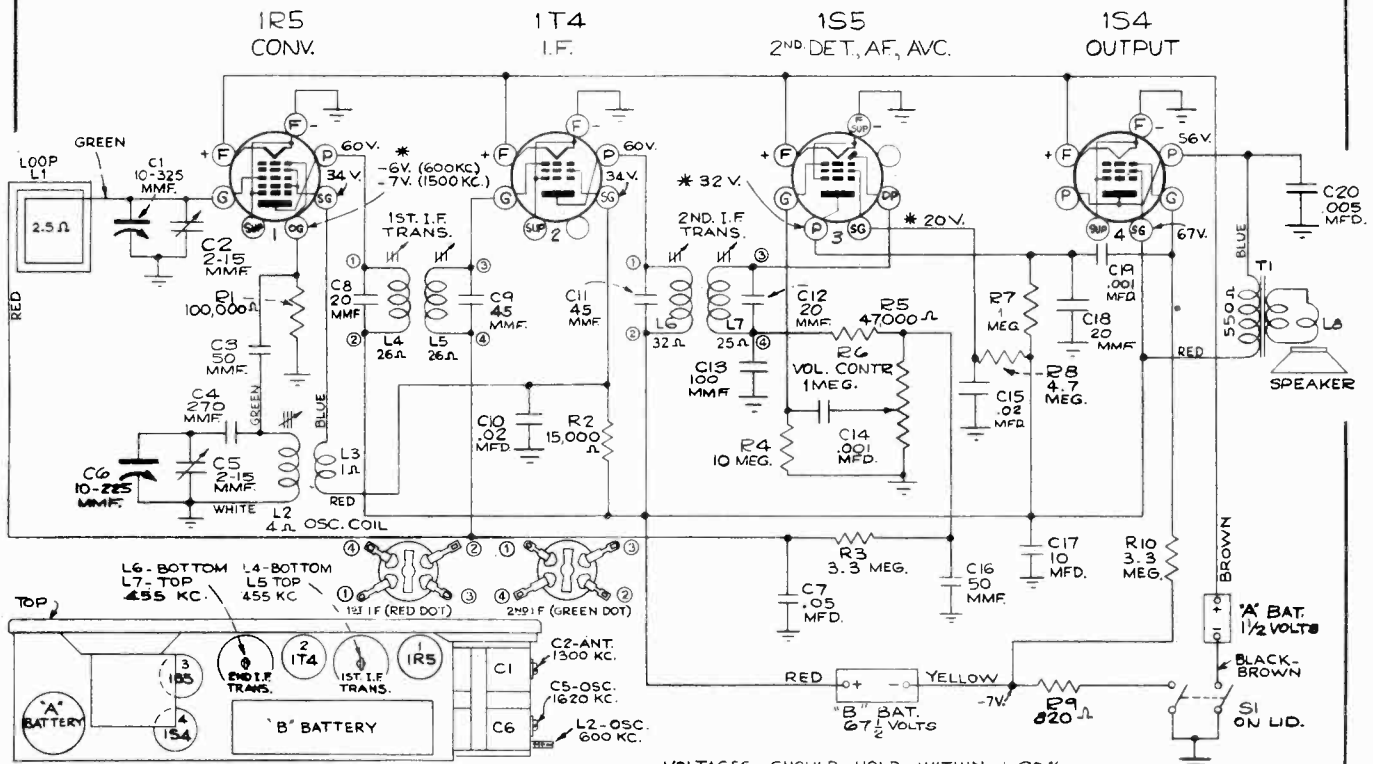
PART No.	DESCRIPTION	PART No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-544)			
36717	Capacitor—20 mmfd.		(3.) Elliptical Speaker and Lid Support. (Serial No. prefixed "D" or "BD.") Same as (2.) above except uses Elliptical Speaker.
36715	Capacitor—50 mmfd.		(4.) Elliptical or Round Speaker and Lid Support. (Serial No. prefixed "A," "BA," "D" or "BD.")
36716	Capacitor—100 mmfd.		Same as (2.) or (3.) above except loop and cover assembly is fastened to moulded lid by two rivets, instead of cement.
12488	Capacitor—270 mmfd.		38212 Lid—Moulded lid with lid support, sections of lid hinges, hinge springs and pins, and 2 rivets—less chrome panel, and loop and cover assembly
36163	Capacitor—.001 mfd.		38204 Loop—Antenna loop and moulded cover (flat) assembly, and 2 rivets
33584	Capacitor—.005 mfd.		38205 Catch—Case front cover catch and 2 rivets
36248	Capacitor—.02 mfd.		38206 Hinge—Case front cover hinge and rivets
32787	Capacitor—.05 mfd.		38207 Connector—One set (2) loop contact connectors
36718	Capacitor—Electrolytic, 10 mfd., 60 volts		38208 Rivet—One pkg. (10) rivets to fasten loop in lid. (5.) Elliptical or Round Speaker and Lid Support. (Serial No. prefixed "A," "BA," "D" or "BD.")
36497	Coil—Oscillator coil		Same as (2.) or (3.) above except loop and cover assembly is fastened to moulded lid by two snap fasteners, instead of cement.
36496	Condenser—Variable tuning condenser		38211 Lid—Moulded lid with lid support, sections of lid hinges, hinge springs and pins, and 2 snap fasteners—less chrome panel, and loop and cover assembly
36495	Control—Volume control		38209 Loop—Antenna loop and moulded cover (flat) assembly, and 2 snap fasteners
36606	Core—Adjustable core and stud for oscillator coil		38205 Catch—Case front cover catch and 2 rivets
36503	Holder—Battery holder complete		38206 Hinge—Case front cover hinge and rivets
36501	Knob—Tuning knob		38207 Connector—One set (2) loop contact connectors
36502	Knob—Volume control knob		38210 Fastener—One set (2) snap fasteners to fasten loop in lid
30158	Resistor—820 ohms, 1/2 watt		(6.) Revised Stock No. 37855 Lid and Loop as used on (1.) above. (See note C)
36714	Resistor—15,000 ohms, 1/2 watt		38212 Lid—Moulded lid (no lid support), with sections of lid hinges, hinge springs and pins, and 2 RIVETS—less chrome panel, and loop and cover assembly
30787	Resistor—47,000 ohms, 1/2 watt		38211 Lid—Moulded lid (no lid support), with sections of lid hinge, hinge springs and pins, and 2 SNAP FASTENERS—less chrome panel, and loop and cover assembly
3252	Resistor—100,000 ohms, 1/2 watt		38204 Loop—Antenna loop and moulded cover (flat) assembly, and 2 rivets
30652	Resistor—1 megohm, 1/2 watt		38209 Loop—Antenna loop and moulded cover (flat) assembly, and 2 snap fasteners
31417	Resistor—3.3 megohm, 1/2 watt		38205 Catch—Case front cover catch and 2 rivets
30931	Resistor—4.7 megohm, 1/2 watt		38206 Hinge—Case front cover hinge and rivets
30992	Resistor—10 megohm, 1/2 watt		38207 Connector—One set (2) loop contact connectors
31085	Screw—No. 8-32 x 1/8 set screw for knobs		38210 Fastener—One set (2) snap fasteners to fasten loop in lid
36500	Socket—Tube socket		(6.) Revised Stock No. 37855 Lid and Loop as used on (1.) above. (See note C)
36069	Socket—1T4 tube socket		38212 Lid—Moulded lid (no lid support), with sections of lid hinges, hinge springs and pins, and 2 RIVETS—less chrome panel, and loop and cover assembly
36498	Transformer—First I.F. transformer		38211 Lid—Moulded lid (no lid support), with sections of lid hinge, hinge springs and pins, and 2 SNAP FASTENERS—less chrome panel, and loop and cover assembly
36499	Transformer—Second I.F. transformer		38204 Loop—Antenna loop and moulded cover (flat) assembly, and 2 rivets
SPEAKER ASSEMBLIES (84991-501) (Round)			
36504	Speaker—3-inch P. M. speaker, complete with cone and voice coil, less output transformer		38209 Loop—Antenna loop and moulded cover (flat) assembly, and 2 snap fasteners
36505	Transformer—Output transformer (RL95-2 Elliptical)		38205 Catch—Case front cover catch and 2 rivets
37807	Speaker—Elliptical speaker (no transformer)		38206 Hinge—Case front cover hinge and rivets
37806	Transformer—Output transformer		38207 Connector—One set (2) loop contact connectors
37951	Cone—Cone and voice coil		38210 Fastener—One set (2) snap fasteners to fasten loop in lid
MISCELLANEOUS ASSEMBLIES			
36507	Bottom—Receiver case bottom cover		(6.) Revised Stock No. 37855 Lid and Loop as used on (1.) above. (See note C)
36508	Center—Receiver case center strip		38212 Lid—Moulded lid (no lid support), with sections of lid hinges, hinge springs and pins, and 2 RIVETS—less chrome panel, and loop and cover assembly
36509	Handle—Carrying handle and bracket		38211 Lid—Moulded lid (no lid support), with sections of lid hinge, hinge springs and pins, and 2 SNAP FASTENERS—less chrome panel, and loop and cover assembly
36696	Initials—100 initials to each set comprising 25 groups of the average initials and one tube of cement		38204 Loop—Antenna loop and moulded cover (flat) assembly, and 2 rivets
37156	Catch—Case back cover catch and spring		38209 Loop—Antenna loop and moulded cover (flat) assembly, and 2 snap fasteners
37179	Clip—"B+" battery clip		38205 Catch—Case front cover catch and mounting screws
37180	Clip—"B-" battery clip		38206 Hinge—Case front cover hinge and screws
37857	Pin and Spring—2 pins and 2 springs for lid hinges		38207 Connector—One set (2) loop contact connectors
36695	Strap—Shoulder strap		38208 Rivet—One pkg. (10) rivets to fasten loop in lid
36506	Switch—Power switch		38210 Fastener—One set (2) snap fasteners to fasten loop in lid
A number of changes have been made in this model since the first production.			
The above parts list applies to all models.			
Changes and Parts effected are listed below.			
(1.) Round Speaker and No Lid Support.			
37855	Lid—Moulded lid with antenna and cover, sections of lid hinges, and hinge pins and springs—less chrome panel (See note B)		(A) 37854 Chrome Panel includes two (2) grille assemblies thus making it adaptable to all above productions using either round or elliptical speaker.
37856	Panel—Chrome front panel with sections of lid hinges, and hinge pins and springs—less moulded lid (See note A)		(B) 37855 Moulded Lid and Loop Assembly—Future orders for this item will be supplied with loop fastened in lid with either 2 rivets, or 2 snap fasteners. Repair parts for this new assembly are listed under "Revised Lid for (1)" above.
(2.) Round Speaker and Lid Support.			
37853	Lid—Moulded lid with antenna and cover, lid support, sections of lid hinges, and hinge pins and springs—less chrome panel. (See note C)		(C) 37853 Moulded Lid and Loop Assembly—Future orders for this item will be supplied with loop fastened in lid with either 2 rivets, or 2 snap fasteners. Repair parts for this new assembly are listed under (4) or (5) above, depending on type of fastening used.
37854	Panel—Chrome front panel with sections of lid hinges, and hinge pins and springs—less moulded lid and lid support. (See note A)		(D) 38211 and 38212 Moulded Lids less Loop Assemblies—These 2 items (one with rivets, and one with snap fasteners) will be supplied with lid support not assembled to lid thus making them adaptable to models with either chrome panels of any of the above productions.
37811	Support—Lid support		

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (ant.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	L7, L6, L5, L4 (2nd and 1st I-F transformers)
2	Radiated signal 1,620 kc	1,620 kc	Full clockwise (out of mesh)	C5 (oscillator)
3	Radiated signal 1,300 kc	1,300 kc	1,300 kc signal	C2 (antenna)
4	Radiated signal 600 kc	600 kc	600 kc	L2 (osc.)
5	Repeat steps 2, 3 and 4.			



VOLTAGES SHOULD HOLD WITHIN $\pm 20\%$ WITH RATED BATTERY VOLTAGE.
* MEASURED WITH CHANALYST OR VOLTOMYST.

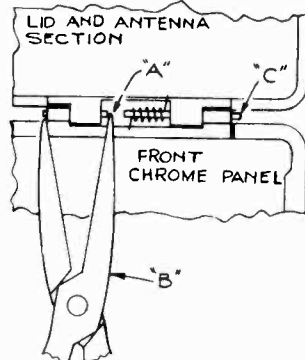
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Replacing Lid or Front Panel:

When the molded lid (which contains the loop antenna), or the chrome front panel requires replacement, it is not necessary to replace the complete assembly of lid and front panel, as either one may be replaced separately in a few minutes by taking out the hinge pins as described below.

First remove the three self-tapping screws that hold the chassis in the center case, and remove the case. Unsolder the leads from the loop lugs.

- With lid closed, cut hinge pins at point "A" with sharp cutters.
- Start removal of pin sections as shown, using long-nose pliers.
- Grasp end of pin section with long-nose pliers and pull out of hinge.
- Install new lid, or new front panel, using the replacement hinge pins and springs that are provided with replacement lids and panels. Arrange springs as shown. Apply a small amount of "Thermoplastic Cement" (G.E. ZV 5057) near outer end of each pin to insure tight and permanent fit.



Replacing Lid or Chrome Panel

Low Output:

Low output on BP-10 Models that have elliptical speaker may be due to the 1S4 out-

put tube lying close to the speaker magnet, causing disturbance of the space charge in the tube. To remedy this condition, install a felt pad between the speaker frame and the tube to keep the tube upright in its socket and spaced away from the magnet.

Loose Control Knobs:

If for any reason either the tuning or volume control knob on Model BP-10 should become loose on its shaft, it may be rigidly mounted in the following manner:

- Remove the loose control knob from its shaft and scrape off the old cement from both shaft and control knob.
- Apply a generous even coating of a good cement to the shaft region which is to engage the knob. G.E. Thermoplastic cement, ZV-5057, is excellent for this purpose; it is a green fluid, easily thinned with acetone if necessary.
- Allow the cement on the shaft to air-dry, to evaporate any acetone present.
- Apply a small amount of heat to the shaft, sufficient to soften the cement.
- Mount knob on shaft while cement is still soft, and allow a few minutes for drying.

Five-Tube, Single-Band, A-C, Superheterodyne Victrola

MODEL U-10

Chassis No. RC-418B

Electrical and Mechanical Specifications

FREQUENCY RANGE	
Standard Broadcast and one Police Band.....	540-1,720 kc
INTERMEDIATE FREQUENCY.....	455 kc
NUMBER OF PUSH BUTTONS..... Six	
TUBE COMPLEMENT	
(1) RCA-6SA7... 1st Detector—Oscillator	
(2) RCA-6SK7..... I-F Amplifier	
(3) RCA-6SQ7... 2nd Det., A.V.C., A.F.	
(4) RCA-6F6-G..... Power Output	
(5) RCA-5Y3-G..... Rectifier	
PILOT LAMP (1)..... Mazda No. 51, 7.5 volts, 0.2 amp.	
LOUDSPEAKER (RL-78-6)	
Type.....	5-inch electrodynamic
Voice Coil Impedance.....	3.4 ohms at 400 cycles
PICKUP..... Crystal	
Pickup Impedance.....	0.1 meg. at 1,000 cycles
POWER OUTPUT RATING	
Undistorted.....	2.5 watts
Maximum.....	4.5 watts
POWER SUPPLY RATINGS	
A-6.....	105-125 volts, 60 cycles
A-5.....	105-125 volts, 50 cycles
C-6.....	105-125, 200-250 volts, 60 cycles
C-5.....	105-125, 200-250 volts, 50 cycles
POWER CONSUMPTION..... 100 watts	
PHONO MECHANISM . Self starting motor, edge-driven turntable, adjustable speed	



Miscellaneous Service Data

PHONOGRAPH MECHANISM.—

The phonograph motor is self-starting and operates the turntable through friction drive between the motor spindle and the rubber tire on the underside of the turntable.

The rubber driving tire on the turntable should never be removed since it is grounded in to be concentric with the spindle. If replacement is required, the entire turntable should be replaced.

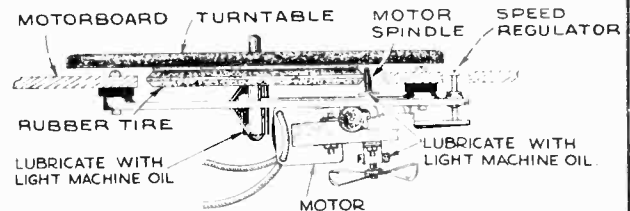
The speed regulator raises and lowers the motor. This changes the driving ratio between the motor and the turntable due to the motor spindle being conical in shape. It is important to adjust this regulator for a turntable speed of 78 r.p.m. WHILE PLAYING A 10-INCH RECORD WITH THE NEEDLE APPROXIMATELY ONE INCH FROM THE OUTER EDGE OF THE RECORD.

Lubrication.—The motor should be lubricated as follows: Place a

few drops of S.A.E. 20 (or equivalent) on the turntable spindle and saturate the oil retaining felt pads on the motor shaft with S.A.E. 10 oil. This oiling process should be repeated once or twice a year. **CAUTION.—THE MOTOR DRIVE SPINDLE AND RUBBER DRIVING TIRE ON THE TURNTABLE MUST BE KEPT CLEAN AND ENTIRELY FREE FROM OIL AND GREASE AT ALL TIMES.**

POWER LINE ANTENNA.—

This instrument is equipped with a built-in power line antenna. To use this antenna, the link on the antenna terminal board should be connected between "A" and "L," thus connecting the antenna input of the receiver through a capacitor to the power line. Reversing the power plug may improve reception. If an external antenna is used, it should be connected to "A," a ground connection made to "G," and the link removed.



Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Turn the accessory switch to "Radio" position and accurately tune in the station for which the first button is to be set.
3. Press in push-button rod No. 1 (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.

Additional Replacement Parts:

Stock No.	
34758	Bushing—1 rubber and 1 metal, for pickup arm.....
32610	Rest—Rubber rest for pickup.....
33735	Screw—Push-button lock screw.....
30585	Spring—Drive cord spring.....

Under "Motor Assemblies" add:

32654	Ball—For turntable bearing.....
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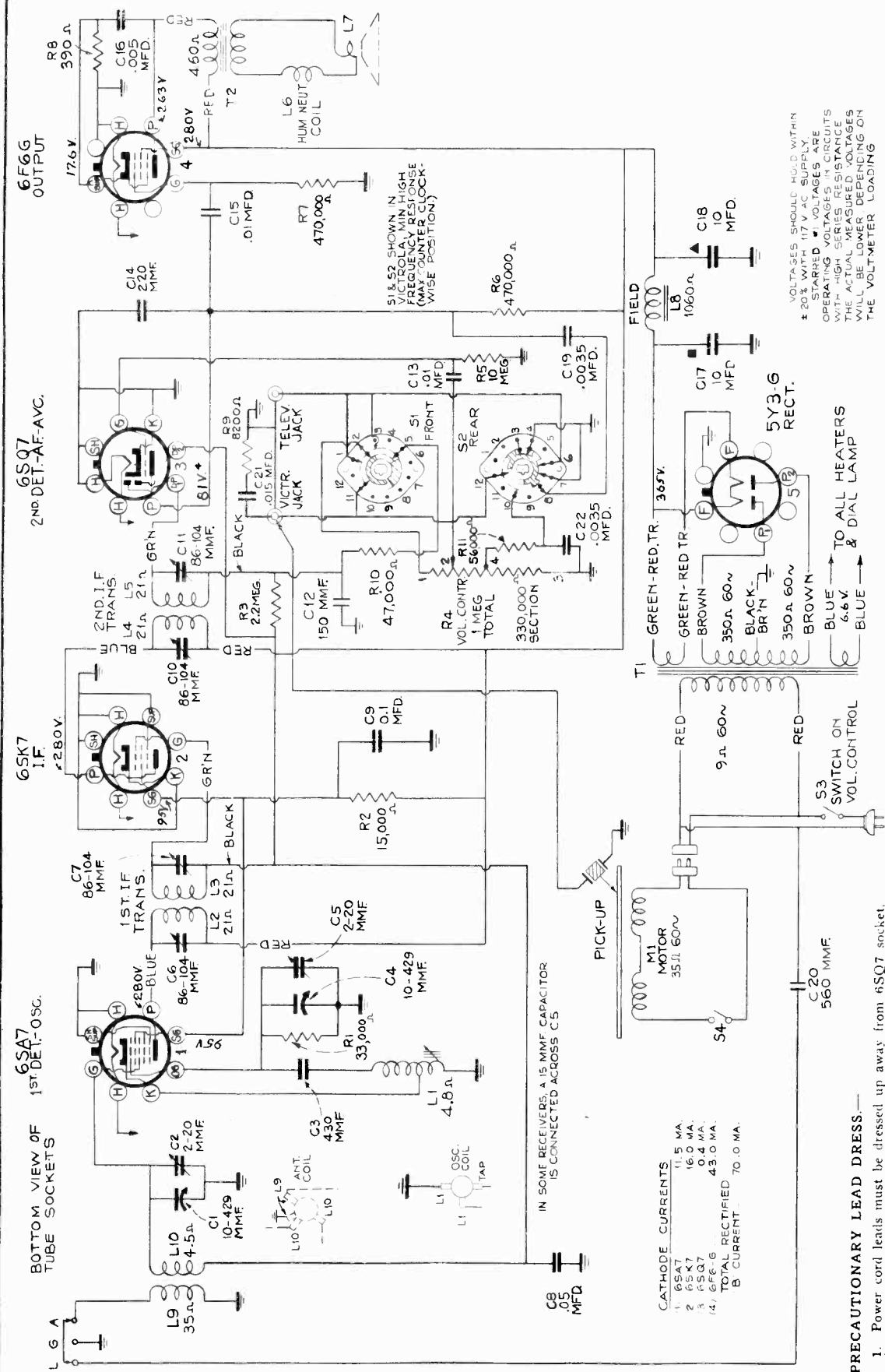
Turntable Assembly Stock No. 33899:

The turntable and tire assembly Stock No. 33899 is superseded by:
Stock No. 37971—Turntable and spindle, less tire
Stock No. 37872—Tire only

Turntable Wobble:

Turntables (Stock No. 33899) found to have excessive wobble (vertical run-out) may be trued-up in the following manner:

- (a) Obtain a motor bearing, Stock No. 31046 (used in R93-B) and clamp same securely in a vise.
- (b) Place turntable spindle in this bearing and make sure that turntable spins freely.
- (c) With turntable spinning, the high side can readily be determined by use of a piece of chalk carefully lowered so that it just touches the high spot of the turntable, leaving a mark.
- (d) With both hands grasp the rim of the turntable, thumbs on top and index fingers underneath turntable at the center of the chalk mark.
- (e) Apply a moderate amount of pressure in a downward direction at right angle to the jaws of the vise.
- (f) Spin turntable again and if still running out, repeat operation mentioned under (c), continuing by trial until turntable runs true.

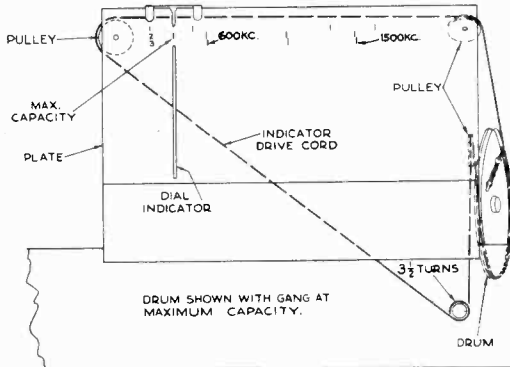
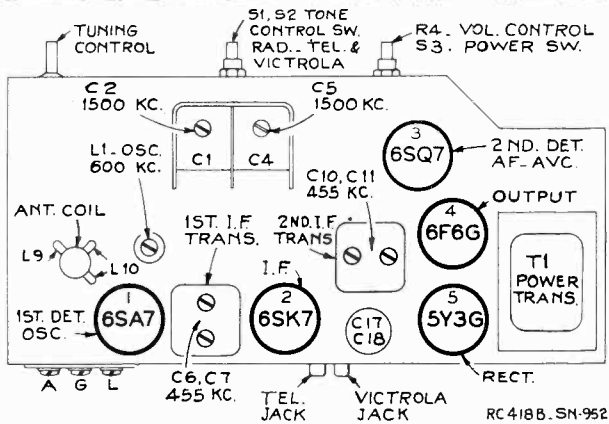


- (e) R4 (volume control) changed from 1 meg. to 2 megs. tapped at 500,000 ohms (Stock No. 34796)
- (f) R12, 820,000 ohms (Stock No. 30963), added from bottom end of R10 to chassis.
- (g) C23, 0.05 mfd. (Stock No. 33584), added between R10 and contact 5 on S1.
- (h) Contact 5 on S1 connected to contact 3 DP2 on 6SQ7 was connected to left-hand end of R3. This connection is removed and DP2 is grounded.

- 2nd Production:**
- The following revisions were made in the 2nd production of Model U-10:
- (a) C8 changed from .05 mfd. to .01 mfd. (Stock No. 4957)
 - (b) C22 changed from .0035 mfd. to .0015 mfd. (Stock No. 33806)
 - (c) R11 changed from 56,000 ohms to 150,000 ohms (Stock No. 13698)
 - (d) R3 changed from 2.2 megs. to 5.6 megs. (Stock No. 11663)

- PRECAUTIONARY LEAD DRESS—**
1. Power cord leads must be dressed up away from 6SQ7 socket, and toward, end of chassis.
 2. Green lead 2nd I.F. to 6SQ7 must be dressed against base.
 3. Blue lead 2nd I.F. to 6SK7 must be dressed close to base.
 4. Green and blue leads from 1st I.F. transformer must be dressed close to base.
 5. Red lead from "I" terminal on antenna board to 5Y3G socket must be dressed against base.
 6. Green lead from gang to 6SA7 socket must be dressed toward side apron away from other parts.

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC SUPPLY. STARRED * VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE WILL BE LOWER DEPENDING ON THE VOLT-METER LOADING



DIAL MECHANISM AND CALIBRATION MARKS.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis drawing.

Output Meter Alignment.—If this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Antenna Terminal	455 kc	Quiet Point between 1,720-1,500 kc	C10 and C11 (2nd I-F trans.)
2				C6 and C7 (1st I-F trans.)
3	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc calibration mark	C5 (osc.) C2 (ant.)
4		600 kc	600 kc calibration mark	L1 (osc.)*
5	Repeat step 3			

Note.—Oscillator tracks above signal.

* Rock gang condenser slightly while adjusting L1.

Replacement Parts

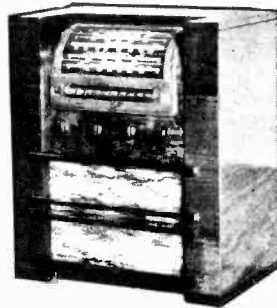
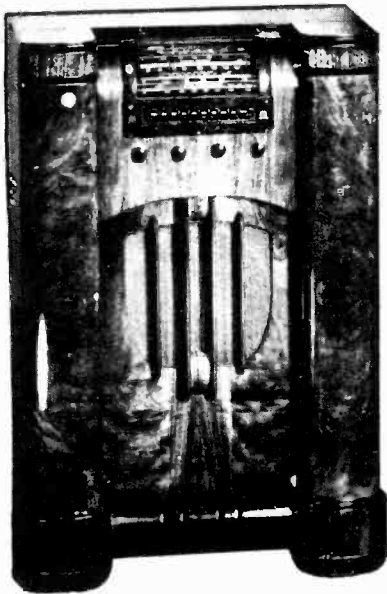
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-418B)			
33719	Belt—Tuning unit push arm belt	31575	Transformer—Power transformer 110-220 volts, 60 cycle
33718	Board—Antenna-Ground terminal board	33726	Washer—"C" washer for tuning shaft
12725	Capacitor—150 mmfd. (C12)	MOTOR ASSEMBLIES	
12694	Capacitor—220 mmfd. (C14)	33897	Base—Motor base and ball assembled
32599	Capacitor—430 mmfd. (C3)	33902	Motor—Complete motor 105-125 volts, 60 cycle (M1)
12537	Capacitor—560 mmfd. (C20)	34496	Motor—Complete motor 105-125 volts, 50 cycle (M1)
30303	Capacitor—.0035 mfd. (C19, C22)	33896	Mounting—Motor cradle mounting hardware and retainer
33584	Capacitor—.005 mfd. (C16)	PICKUP ASSEMBLIES	
4937	Capacitor—.01 mfd. (C15)	33591	Arm—Pickup arm—top shell only
14393	Capacitor—.01 mfd. (C13)	33898	Base—Pivot arm and base assembly
11315	Capacitor—.015 mfd. (C21)	33122	Crystal—Pickup crystal cartridge complete
32787	Capacitor—.05 mfd. (C8)	SPEAKER ASSEMBLIES (RL-78-6)	
4839	Capacitor—.1 mfd. (C9)	32907	Cap—Cone center dust cap
33724	Coil—Oscillator coil	32906	Coil—Hum neutralizing coil (L6)
33775	Coil—Antenna coil (L9, L10)	33601	Coil—Speaker field coil (L8)
32342	Condenser—Electrolytic, 2 sections 10 mfd. each	32904	Cone—Speaker cone and voice coil (L7)
33776	Control—Volume control and power switch (R4, S3)	32905	Transformer—Output transformer (T2)
32634	Cord—Drive cord	MISCELLANEOUS ASSEMBLIES	
33633	Indicator—Dial scale pointer	33731	Button—Push button complete
11765	Lamp—Dial lamp (Mazda 51)	31456	Cover—Protective cover for push button markers
33431	Link—Antenna link	32625	Cup—Needle cup
33727	Plate—Dial plate assembly	33729	Dial—Glass dial scale
30868	Plug—2 contact female plug for speaker cable	33637	Escutcheon—Glass dial escutcheon less scale and push buttons
31388	Resistor—390 ohms, 1 watt (R8)	33972	Escutcheon—Motor switch escutcheon
14075	Resistor—8,200 ohms, 1/2 watt (R9)	13085	Hinge—Lid hinge
33489	Resistor—15,000 ohms, 2 1/2 watts (R2)	30863	Knob—Tuning, volume control and power switch knob
12454	Resistor—33,000 ohms, 1/2 watt (R1)	33942	Knob—Tone control knob (white dot)
12412	Resistor—47,000 ohms, 1/2 watt (R10)	33973	Marker—Push button markers
12286	Resistor—58,000 ohms, 1/2 watt (R11)	33901	Mounting—Motor mounting hardware
12285	Resistor—470,000 ohms, 1/2 watt (R6, R7)	30870	Plug—2 prong male plug for motor leads
12679	Resistor—2.2 megohms, 1/2 watt (R3)	31048	Plug—2 conductor pin plug for phonograph input
13601	Resistor—10 megohms, 1/2 watt (R5)	30900	Spring—Push button and knob retaining spring
33725	Shaft—Tuning knob shaft	31164	Support—Lid support
31319	Socket—Tube socket	33900	Switch—Phono motor switch (S4)
31364	Socket—Dial lamp socket	33899	Turntable—Turntable complete with rubber tire and spindle
31365	Socket—Lamp socket		
33514	Socket—Phonograph input socket		
33720	Spring—Push arm return spring		
33894	Switch—Tone, Radio-Phono, or Television switch (S1, S2)		
33722	Transformer—First i-f transformer		
33895	Transformer—Second i-f transformer (L4, L5, C10, C11)		
33619	Transformer—Power transformer 105-120 volts, 25-60 cycles (T1)		
33112	Transformer—Power transformer 105-120 volts, 50-60 cycle (T1)		

MODELS 11Q4, 11QK, and 11QU

Chassis No. RC-335-C RC-335-C RC-335-E

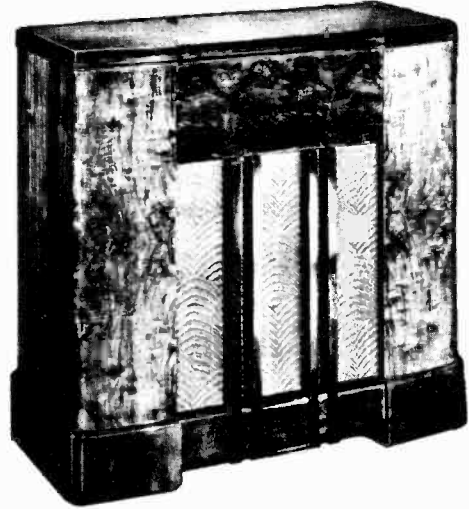
Eleven-Tube, Four-Band, Electric-Tuning, A-C, Radios and Victrola



Model 11Q4
TABLE MODEL
8-inch Speaker



Model 11QK
CONSOLE
12-inch Speaker



Model 11QU
AUTOMATIC VICTROLA
12-inch Speaker

Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band)..... 150-400 kc (2,000-750 m) Short Wave 1 ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
 Medium Wave ("A" Band)..... 545-1,650 kc (550-182 m) Short Wave 2 ("C" Band)..... 7.0-22 mc (42.8-13.6 m)

Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- | | |
|--------------------------------------|--|
| (1) RCA-6K7..... R-F Amplifier | (6) RCA-6Q7..... 2nd-Det., A.V.C., and Audio |
| (2) RCA-6L7..... 1st-Detector | (7) RCA-6F5..... Inverter |
| (3) RCA-6J7..... Oscillator | (8) RCA-6F6-G..... Power Output |
| (4) RCA-6K7..... 1st I-F Amplifier | (9) RCA-6F6-G..... Power Output |
| (5) RCA-6K7..... 2nd I-F Amplifier | (10) RCA-6U5..... Tuning Tube |
| | (11) RCA-5T4..... Full-Wave Rectifier |

Pilot Lamps (11Q4 and 11QK)..... One Mazda 47, 6-8 volts, .15 amp.; Two Mazda 44, 6.3 volts, .25 amp.
 Pilot Lamps (11QU)..... One Mazda 47, 6-8 volts, .15 amp.; Three Mazda 44, 6.3 volts, .25 amp.

POWER OUTPUT

Undistorted..... 10 watts Maximum..... 12 watts

LOUDSPEAKER (Electrodynamic)

	Model 11Q4	Model 11QK	Model 11QU
Diameter (inches).....	8	12	12
Voice-Coil Impedance at 400 cycles (ohms).....	2.2	2.2	2.2

POWER SUPPLY RATINGS

	Models 11Q4, 11QK	Model 11QU
Rating C..... 105-130/140-160/195-250 volts, 50-60 cycles.....	120 watts	145 watts (total) 120 watts (radio)

PHONOGRAPH (Model 11QU)

Type..... Automatic
 Record Capacity..... Eight 10-inch or seven 12-inch
 Turntable Speed..... 78 r.p.m. (adjustable)
 Type Pickup..... Crystal
 Pickup Impedance at 1,000 cycles..... 100,000 ohms

REFER TO INDEX FOR DATA ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER

ADJUSTMENTS FOR ELECTRIC TUNING

1. Make a list of the desired eight stations, arranged in order from low to high frequencies.
2. Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.
3. Press down the "dial-tuning" (right-hand) button.
4. Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.
5. Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons

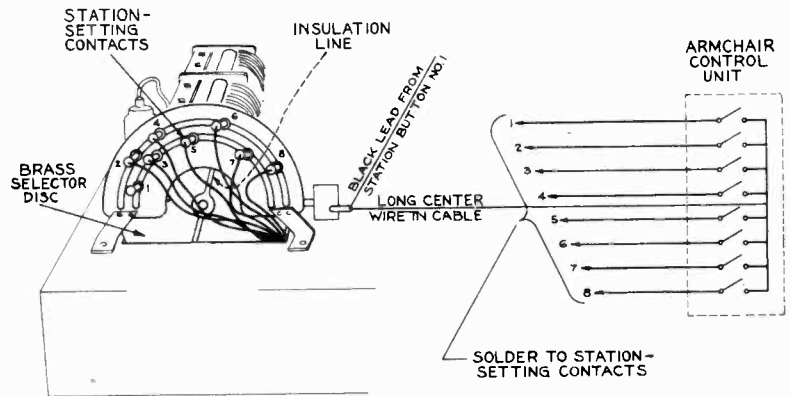
will stay down. Move adjusting pin No. 1 to the insulating line on the disc at rear of gang. When the pin is correctly centered on the insulating line, the central dial lamp will go completely out.

6. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
7. Repeat this process for the remaining stations.

Station-Setting Contacts and Selector Disc

This illustration shows connections for a G8A Armchair Control Unit. This unit is not supplied with the receiver but may be added as an accessory.

Station Button	Color of Lead To Station-Setting Contact
No. 1	Black
No. 2	Brown
No. 3	Blue
No. 4	Green
No. 5	Red
No. 6	Red-black
No. 7	Brown-black
No. 8	Red-yellow



Miscellaneous Service Data

Plug for Extension Loudspeaker.—A two-contact female socket, equipped with a male plug, is connected across the secondary of the output transformer on the loudspeaker to facilitate the connection of an extension loudspeaker if desired.

A permanent-magnet dynamic speaker, with voice-coil impedance of not less than 2 ohms is recommended: With a 2-ohm voice coil, the extension speaker will receive approximately half the power output of the receiver; with a higher-impedance voice coil, the percentage of power delivered to the extension speaker will be decreased.

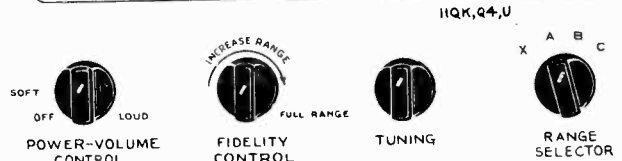
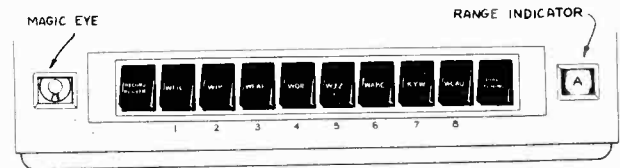
A high-impedance magnetic-type speaker may be used in conjunction with a suitable coupling transformer such as RCA Stock No. 7853.

Precautionary Lead Dress.—

1. Dress grid lead of 6K7 R-F away from detector section of gang to prevent oscillation.
2. Observe the following points to permit alignment of "C" band at 20 mc: C10, C11, and C12 from oscillator

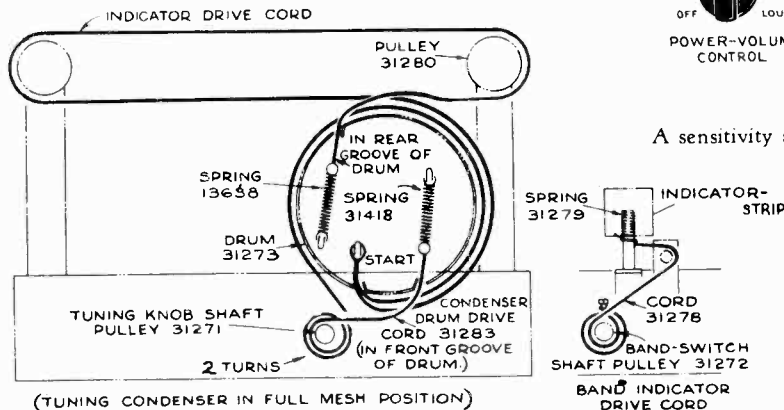
section of gang must have short leads and be dressed away from the chassis and from the range-switch shield.

3. The ground braids from gang condenser must be flexible to prevent microphonic howling.
4. R10 and R11 should be soldered as close as possible to "A" lug on 3rd I-F transformer.
5. Power cord leads must be dressed away from the volume-control wiring.



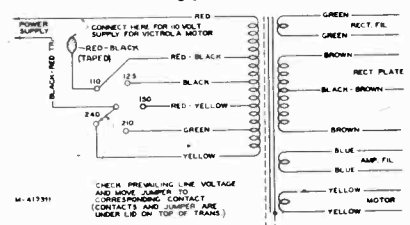
Location of Controls

A sensitivity switch is mounted at the rear of the receiver.



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

Universal Power Transformer Connections



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

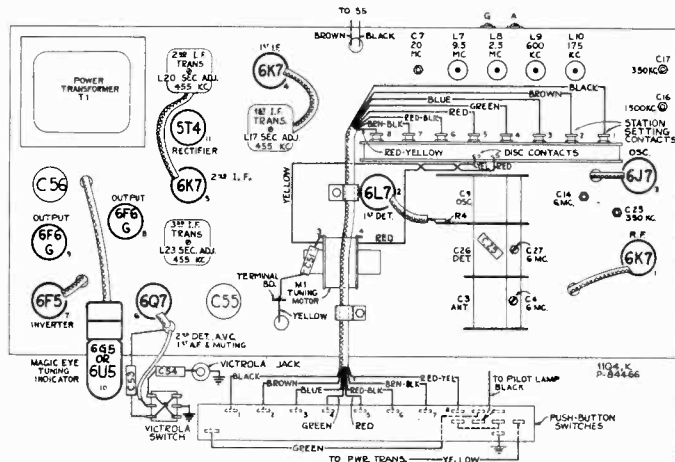
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 0° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The surface of the drum must be flush with the end of the gang-condenser shaft. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.



Top View, Showing Location of Tubes and Trimmers

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end mark on the dial scales and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

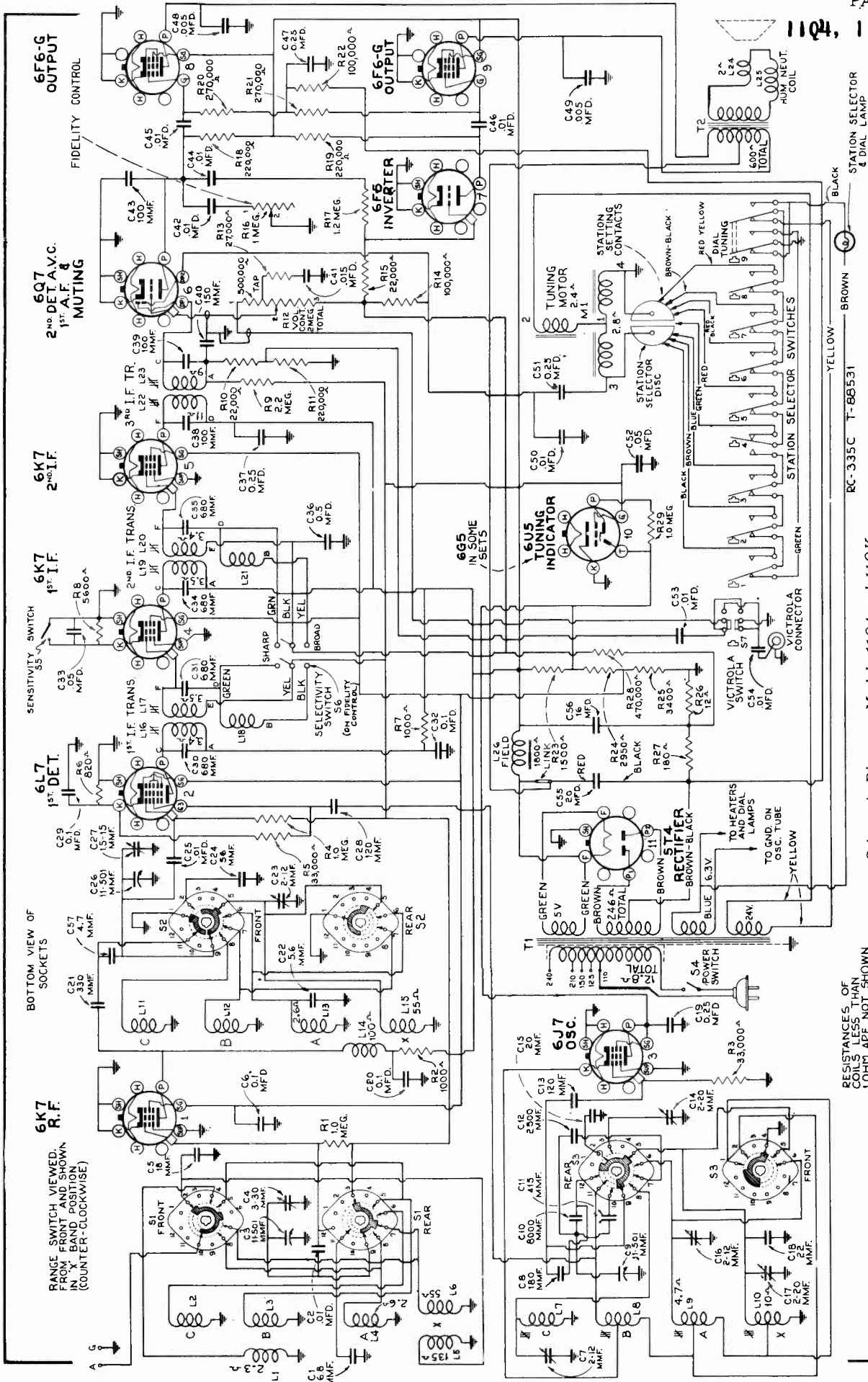
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following to obtain maximum output
1	Turn fidelity control counter-clockwise (sharp), and sensitivity switch at minimum (open).			
2	6K7 2nd I-F grid cap in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L22 and L23 (3rd I-F Trans.)
3	6K7 1st I-F grid cap in series with .01 mfd.			L19 and L20 (2nd I-F Trans.)
4	6L7 1st-det. grid cap in series with .01 mfd.			L16 and L17 (1st I-F Trans.)
5	Turn fidelity switch clockwise (broad) and check I-F response which should be a double-peaked curve. Leave fidelity counter-clockwise (sharp) for all of the following steps.			
6	Antenna Terminal in series with 300 ohms	2.5 mc	2.5 mc ("B") 24½°	L8 (osc.)
7		6.0 mc	6.0 mc ("B") 147°	C14 (osc.) Use minimum capacity peak C27 (det.) Use maximum capacity peak C4 (ant.) Use maximum capacity peak*
8		9.5 mc	9.5 mc ("C") 55°	L7 (osc.)
9		20 mc	20 mc ("C") 153°	C7 (osc.) Use minimum capacity peak*
10		Antenna Terminal in series with 200 mmf.	600 kc	600 kc ("A") 24½°	L9 (osc.) Rock gang
11	1,500 kc		1,500 kc ("A") 151½°	C16 (osc.)
12	Repeat steps 10 and 11.			
13	Antenna Terminal in series with 200 mmf.	175 kc	175 kc ("X") 53½°	L10 (osc.)
14		350 kc	350 kc ("X") 145½°	C17 (osc.) C23 (det.)
15	Repeat steps 13 and 14.			

* Check to determine that the oscillator trimmer has been adjusted to the correct peak by tuning the receiver approximately 910 kc lower, where a weaker signal should be received.

NOTE: The oscillator tracks 455 kc above the signal on all bands.

11Q4, 11QK, 11QU



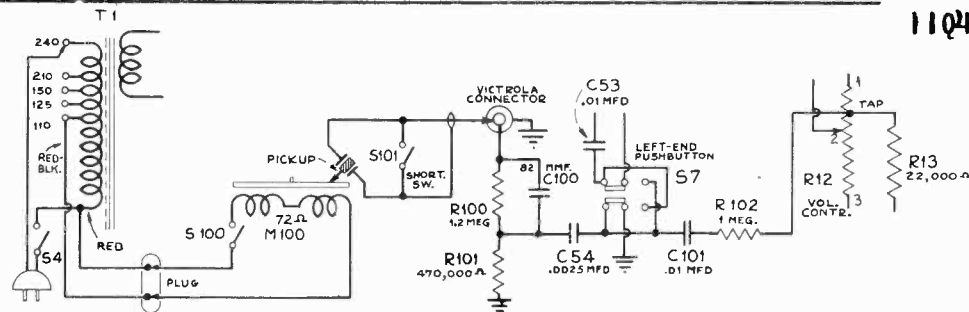
Model 11QU is the same, except for the Victrola connections, which are shown in a separate diagram

RESISTANCES OF COILS LESS THAN 10HM ARE NOT SHOWN

RC-335C T-86531

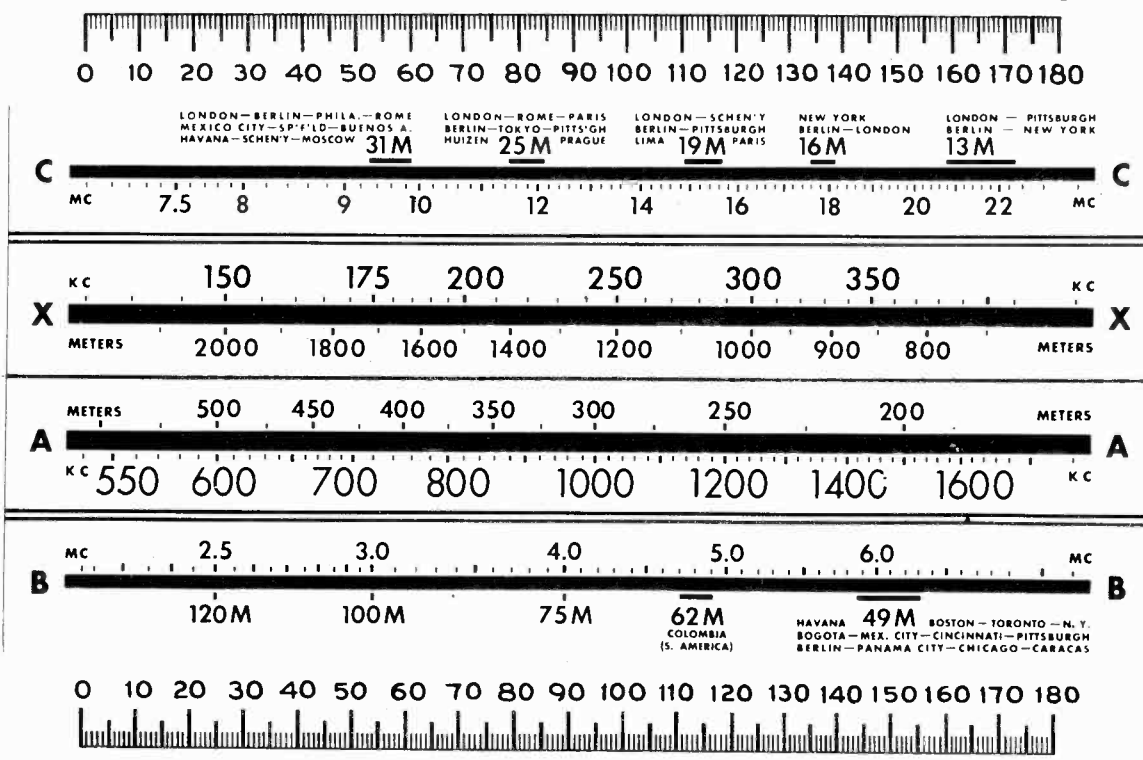
STATION SELECTOR & DIAL LAMP

11Q4, 11QK, 11QU



Model 11QU Victrola Input Circuit

Except for the changes shown above, the schematic diagram of Model 11QU is the same as Models 11Q4 and 11QK



Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31492	Bearing—Variable condenser motor rotor adjustment—less bracket and cup assembly—Model 11QU	12720	Capacitor—100 mmfd. (C43)
31863	Board—Antenna and ground terminal board—Models 11Q4 and 11QK only	12724	Capacitor—120 mmfd. (C13, C28)
31867	Board—Antenna and ground terminal board—Model 11QU only	12725	Capacitor—150 mmfd. (C40)
32232	Body—Comprising 1 plunger body and 1 body spring	31869	Capacitor—180 mmfd. (C8)
31276	Bracket—Band indicator mounting, complete except less band indicating strip, cord, and tension spring.	12952	Capacitor—330 mmfd. (C21)
31491	Bracket—Bracket and cup assembly for variable condenser motor rotor adjustment bearing—Model 11QU	31870	Capacitor—415 mmfd. (C1)
31282	Bracket—Magic Eye mounting bracket and clip	31552	Capacitor—680 mmfd. (C30, C31, C34, C35)
30766	Cap—Rubber cap for Magic Eye	31703	Capacitor—2,500 mmfd. (C12)
12714	Capacitor—Trimmer 2-12 mmfd. (C7, C16, C23)	31704	Capacitor—8,000 mmfd. (C10)
12884	Capacitor—Trimmer 2-20 mmfd. (C14, C17)	5107	Capacitor—.0025 mfd. (C54)—Model 11QU only
14392	Capacitor—4.7 mmfd. (C57)	4838	Capacitor—.005 mfd. (C48, C49)
12814	Capacitor—5.6 mmfd. (C22)	14393	Capacitor—.01 mfd. (C2, C25, C42, C44, C45, C46, C50, C53, C54, C101)—(C54—Models 11Q4 and 11QK only, C101—Model 11QU only)
14079	Capacitor—6.8 mmfd. (C1)	11315	Capacitor—.015 mfd. (C41)
12722	Capacitor—18 mmfd. (C5)	4886	Capacitor—.05 mfd. (C52, C33)
31871	Capacitor—20 mmfd. (C15)	4839	Capacitor—.1 mfd. (C8, C20, C29, C32)
31868	Capacitor—22 mmfd. (C18)	12484	Capacitor—.25 mfd. (C19, C37, C47, C51)
12723	Capacitor—56 mmfd. (C24)	30867	Capacitor—.5 mfd. (C38)
12813	Capacitor—82 mmfd. (C100)—Model 11QU only	5212	Capacitor—16 mfd. (C56)—Models 11Q4 and 11QK only
31270	Capacitor—100 mmfd. (C38, C39)	31866	Capacitor—16 mfd. (C56)—Model 11QU only
		31495	Capacitor—20 mfd. (C55)
		31237	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft
		31257	Coil—"A" band oscillator coil (L9)
		31690	Coil—"B" band oscillator coil (L8)
		31839	Coil—"B" and "C" bands antenna coil (L1, L2, L3)

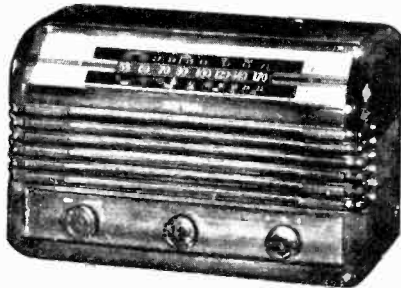
REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31841	Coil—"B" and "C" bands r-f coil (L11, L12)	31493	Spring—Variable condenser motor rotor adjustment bearing spring—Model 11QU
31255	Coil—"C" band oscillator coil (L7)	31232	Spring—Selector plunger tip spring
31837	Coil—"X" band oscillator coil (L10)	31230	Spring—Selector plunger body spring
31838	Coil—"X" and "A" bands antenna coil (L4, L5, L6)	31279	Spring—Tension spring for band indicator
31840	Coil—"X" and "A" bands r-f coil (L13, L14, L15)	31970	Spring—Tension spring for push button switch latch bar
31842	Condenser—3-gang variable tuning condenser (C3, C4, C9, C26, C27)	31242	Spring—Tension spring for motor flywheel
31231	Contact—Contact tip for selector plunger	31418	Spring—Variable condenser drum drive cord tension spring
31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip	31236	Support—Variable condenser drive gear mounting support and studs
31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip	31244	Support—Variable condenser motor mounting support and studs—Models 11Q4 and 11QK only
31278	Cord—Band indicator drive cord	32090	Support—Variable condenser motor mounting support and studs—Model 11QU only
31281	Cord—Indicator pointer drive cord—Models 11Q4 and 11QK only	31360	Switch—Pickup switch for mounting on push button switch (S7)
31554	Cord—Indicator pointer drive cord—Model 11QU only	31835	Switch—Range switch (S1, S2, S3)
31283	Cord—Variable condenser drum drive cord	31312	Switch—Station selector push button switch and bracket assembly complete
31273	Drum—Variable condenser drive cord drum	30953	Switch—S.P.S.T. sensitivity switch (S5)
31546	Fidelity control and selectivity switch (R16, S6)	31308	Transformer—Power transformer 105-130, 140-160, 195-250 volts, 50-60 cycles (T1)
31240	Flywheel—Variable condenser drive motor flywheel	31864	Transformer—First i-f transformer (L16, L17, L18, C30, C31)
31238	Gear—Variable condenser intermediate drive gear and pinion gear	31865	Transformer—Second i-f transformer (L19, L20, L21, C34, C35)
31239	Gear—Variable condenser knob shaft drive gear and hub	31268	Transformer—Third i-f transformer (L22, L23, C38, C39)
31819	Indicator—Band indicator strip—Models 11Q4 and 11QK only	31836	Volume Control and power switch (R12, S4)
31862	Indicator—Band indicator strip—Model 11QU only	32231	Washer—Comprising 1 metal washer, 2 fibre washers and 1 solder lug or retainer for station selector plunger
11891	Lamp—Dial lamp or pilot lamp	SPEAKER ASSEMBLIES	
31480	Lamp—Electric Tuning adjustment indicator lamp	Model 11Q4 Only	
31243	Leather—Friction leather for flywheel	(Speaker RL63J-2)	
31346	Lockplate—Push button switch lockplate—comprising 10-contact locks in one strip	31825	Cap—Speaker cone center dust cap
31235	Motor—Variable condenser drive motor (M1)	11469	Coil—Hum neutralizing coil (L25)
14028	Nut—Jamb nut for trimmer Stock Nos. 12714 and 12884	11234	Coil—Speaker field coil (L26)
31228	Plate—Selector contact plate—less plungers	31310	Cone—Speaker cone and voice coil (L24)
31227	Plate—Selector mounting plate and studs—mounts on rear of variable condenser	31539	Plug—5-contact male plug for speaker
31280	Pulley—Indicator pointer drive cord pulley	31829	Speaker complete
31272	Pulley—Range switch pulley	14534	Transformer—Output transformer (T2)
31271	Pulley—Station selector knob shaft pulley	SPEAKER ASSEMBLIES	
30868	Plug—2-contact female plug for motor power cable	Models 11QK and 11QU Only	
12493	Plug—5-contact female plug for speaker cable	(Speaker RL70H-4)	
31250	Resistor—Voltage divider comprising one 1,500 ohm, one 2,950 ohm, one 3,400 ohm, one 12 ohm, and one 182 ohm sections (R23, R24, R25, R26, R27)	13866	Cap—Dust cap for cone center
11895	Resistor—820 ohms, 1/10 watt (R6)	11234	Coil—Field coil (L26)
14837	Resistor—1,000 ohms, 1/10 watt (R2, R7)	11469	Coil—Neutralizing coil (L25)
31789	Resistor—5,600 ohms, 1/10 watt (R8)	31275	Cone—Speaker cone and voice coil (L24)
14284	Resistor—22,000 ohms, 1/10 watt (R15)	31539	Plug—5-contact male plug for speaker
13998	Resistor—22,000 ohms, 1/2 watt (R10, R13)—R13 Model 11QU only	31538	Speaker complete (RL70H-4)
12738	Resistor—27,000 ohms, 1/2 watt (R13)—Models 11Q4 and 11QK only	14534	Transformer—Output transformer (T2)
11300	Resistor—33,000 ohms, 1/10 watt (R3, R5)	14357	Washer—Spring washer to hold field coil securely
11281	Resistor—100,000 ohms, 1/10 watt (R14, R22)	MISCELLANEOUS ASSEMBLIES	
11398	Resistor—220,000 ohms, 1/10 watt (R18, R19)	31358	Button—Station selector push button
12264	Resistor—220,000 ohms, 1/2 watt (R11)	13103	Cap—Pilot lamp cap (bullseye)—Model 11QU only
11453	Resistor—270,000 ohms, 1/10 watt (R20, R21)	31286	Carriage—Indicator pointer carriage—Models 11Q4 and 11QK only
11452	Resistor—470,000 ohms, 1/10 watt (R28)	31456	Cover—Celluloid covers (8) for push button markers
12285	Resistor—470,000 ohms, 1/2 watt (R101)—Model 11QU only	31541	Cushion—Motor plate mounting cushion and clamp assembly (sufficient for one instrument)—Model 11QU only
12013	Resistor—1 meg., 1/10 watt (R1, R4, R29)	31963	Dial—Dial scale—Models 11Q4 and 11QK only
13730	Resistor—1 meg., 1/2 watt (R102)—Model 11QU only	31964	Dial—Dial scale—Model 11QU only
31056	Resistor—1.2 meg., 1/10 watt (R17)	31362	Escutcheon—Dial escutcheon less dial scale, and push buttons—Models 11Q4 and 11QK only
30208	Resistor—1.2 meg., 1/2 watt (R100)—Model 11QU only	31561	Escutcheon—Dial escutcheon less dial scale, and push buttons—Model 11QU only
12679	Resistor—2.2 meg., 1/2 watt (R9)	30698	Hinge—Cabinet lid hinge—Model 11QU only
14887	Retainer—Indicator pointer drive cord pulley retainer	31564	Holder—Needle card holder—Model 11QU only
31233	Rotor—Selector rotor disc—mounts on rear of variable condenser rotor shaft	31284	Indicator—Dial indicator pointer—Models 11Q4 and 11QK only
31241	Screw—1 x 20 headless, cone point set screw for motor flywheel	31717	Indicator—Dial indicator pointer, carriage, and clip assembly—Model 11QU only
5042	Screw—No. 8-32 headless set screw for pulley Stock No. 31271	31355	Knob—Tuning, volume control, tone control, or range switch knob
31611	Screw—No. 8-32 headless set screw for gear Stock No. 31239	31458	Marker—"Dial Tuning" push button marker
14350	Screw—No. 8-32 square head set screw for selector rotor disc	31589	Marker—Station call letter markers
4669	Screw—No. 8-32 square head set screw for drum Stock No. 31273, and pulley Stock No. 31272	31457	Marker—"Victrola" push button marker
31681	Shaft—Variable condenser drive knob shaft	30868	Plug—2-contact female plug for speaker cable
31364	Socket—Dial or pilot lamp socket	30870	Plug—2-contact male plug for speaker cable
31365	Socket—Insulated lamp socket for Electric Tuning adjustment indicator lamp	31285	Screen—Dial color screen and light diffuser—Models 11Q4 and 11QK only
13871	Socket—Magic Eye socket	31559	Screen—Dial color screen and light diffuser—Model 11QU only
31347	Socket—Pickup input socket and bracket	31287	Shaft—Indicator pointer carriage shaft
31251	Socket—Tube socket	31558	Spring—Indicator pointer carriage spring stop
13638	Spring—Indicator pointer drive cord tension spring	14270	Spring—Retaining spring for knob Stock No. 31355
		31478	Support—Cabinet lid support—Model 11QU only
		31470	Suspension—Motorboard suspension springs, screw, and lockwasher (4 Req'd.)—Model 11QU only

MODEL Q11 and Q12

Chassis No. RC-563E, RC-563, 563B,
RC-563F 563C, 563D

Five-Tube, Three-Band, AC-DC, Superheterodyne Receiver



MODEL Q 11



MODEL Q 12

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
Medium Wave ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
Short Wave ("C" Band)..... 7.0-22.0 mc (42.8-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc.

RCA TUBE COMPLEMENT

- (1) RCA 12SA7..... 1st Detector-Oscillator
- (2) RCA 12SK7..... I-F Amplifier
- (3) RCA 12SQ7..... 2nd Detector, AVC, and A-F Amplifier
- (4) RCA 50L6-GT..... Power Output
- (5) RCA 35Z5-GT..... Rectifier

PILOT LAMP (Q12 only)..... Mazda 47

POWER SUPPLY RATINGS (DC or 40-100 cycles AC)

Chassis	Ballast Resistor	Voltage	Watts
RC-563	Stock No. 38289	105-125	35
RC-563	Stock No. 38289	210-250	70
RC-563	M-91462-7	140-160	46
RC-563	M-91462-8	160-200	55
RC-563B	—	110	35
RC-563C	Stock No. 39346	105-125	37
RC-563C	Stock No. 39346	210-250	85
RC-563C	M-95178-7	140-160	54
RC-563C	M-95178-8	160-200	67
RC-563D	—	110	37
RC-563E	M-95178-10	105-125	40
RC-563E	M-95178-7	140-160	50
RC-563E	M-95178-8	160-200	65
RC-563E	M-95178-10	210-250	80
RC-563E	M-95178-9	260-300	95
RC-563F	—	105-125	40

POWER OUTPUT RATINGS

Chassis	Voltage	Maximum
RC-563	117	2.4
RC-563	234	4.1
RC-563B	117	2.2
RC-563C	117	1.6
RC-563C	234	4.1
RC-563D	117	2.2
RC-563E	117	2.4
RC-563E	234	4.1
RC-563F	117	2.2

LOUDSPEAKERS

	RL-81B-2	RL-86A-3	RL-86B-2
Type	5-inch PM	5-inch EM	5-inch EM
V.C. Impedance at 400 cycles	4 ohms	4 ohms	4 ohms
Field Resistance	—	450 ohms	3,300 ohms



POWER SUPPLY POLARITY

For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, a similar reversal of the plug may reduce hum.

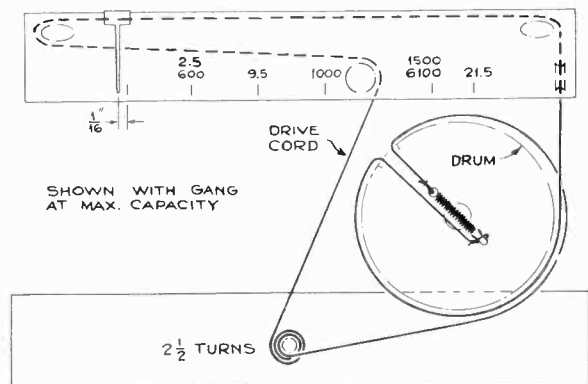
PHONOGRAPH OPERATION

A jack is provided on the rear of the chassis for connection to a Record Player. The cable from the Record Player should be terminated in a Stock No. 31048 plug to fit the jack.

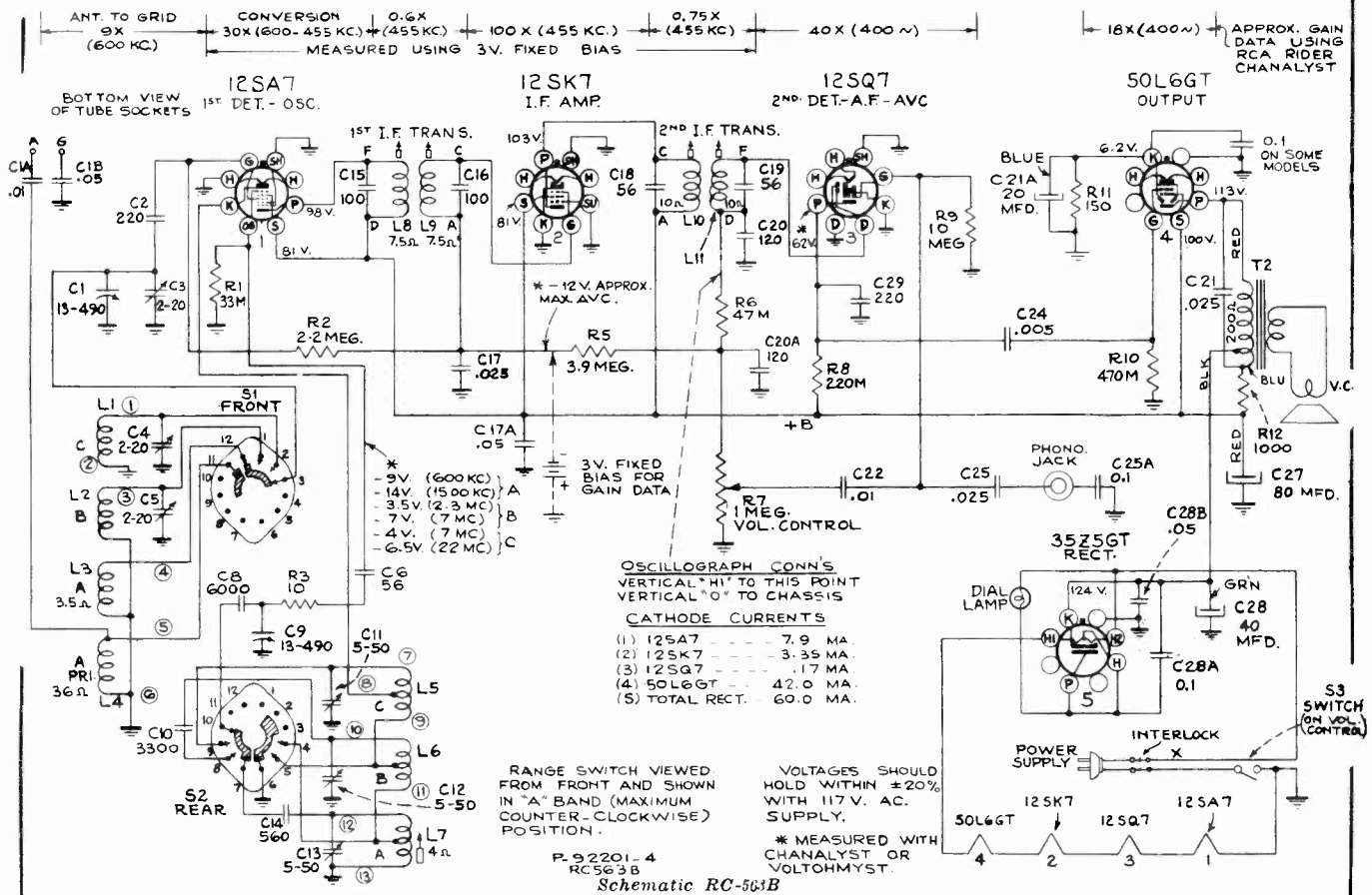
The attachment must be designed to operate on the particular voltage and frequency of the power supply line. (Most attachments are for alternating current only, and can not be used on direct current.)

For Phono Operation tune the receiver to a quiet point on the dial, turn the radio volume control to minimum, and use the control on the Record Player to regulate volume.

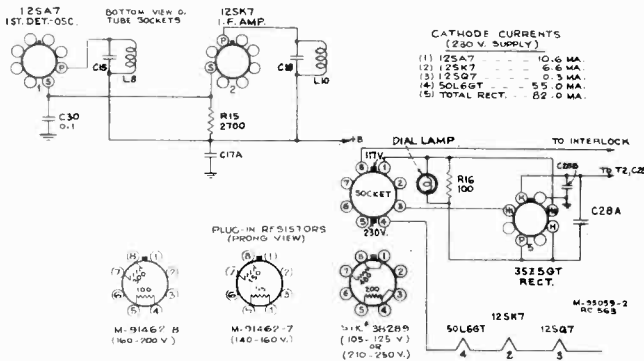
For radio operation, always remove the record-player plug from the jack.



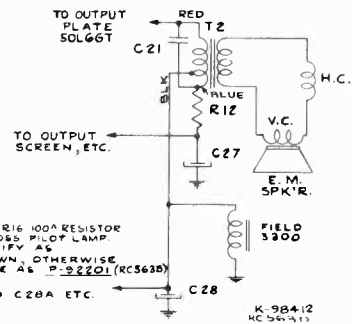
Q11, Q12



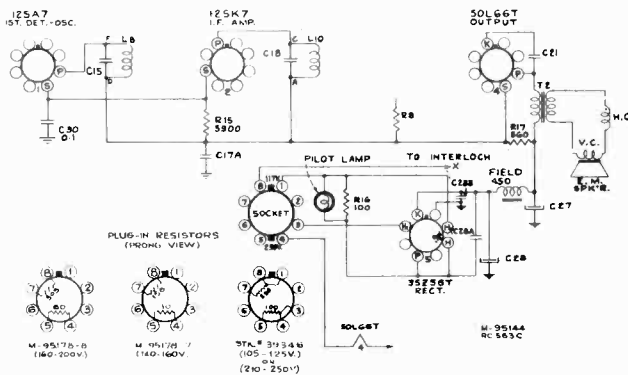
Schematic RC-563B



Schematic RC-563



Schematic RC-563D



Schematic RC-563C

SCHEMATIC DIAGRAMS MODEL Q12

IDENTIFICATION OF MODELS

Chassis No.	Model	Output Trans.	Speaker	Field
RC 563	Q12	#36800	RL81B2	PM
RC 563-B		#36800	RL81B2	PM
RC 563-C		#36800	RL86B2	3300 ohm
RC 563-D		#39345	RL86A3	450 ohm
RC 563-E	Q11	#39345	RL86A3	450 ohm
RC 563-F		#36800	RL86B2	3300 ohm

Model Q11 is identical electrically to Model Q12 except that Model Q11 does not use a pilot lamp.

The standard Ballast Resistor Stock No. 38289 or Stock No. 39346 may be replaced with other types for operation on other voltage ranges.

THE BALLAST RESISTOR MUST BE INSTALLED IN PLACE OF #38289 OR 39346 WITH THE LUG AT THE 230 VOLT MARK.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be 1/16 inch to the left of first mark on dial backing plate.

Precautionary Lead Dress.—

Dress 0.01 capacitor from volume control away from power switch.

Yellow cathode lead from 12SA7 socket to oscillator coil must be dressed around coil form.

Yellow lead from band switch to antenna coil must be dressed around coil form.

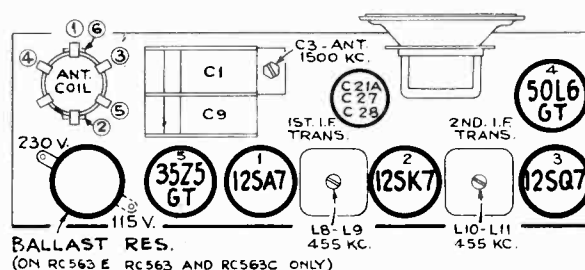
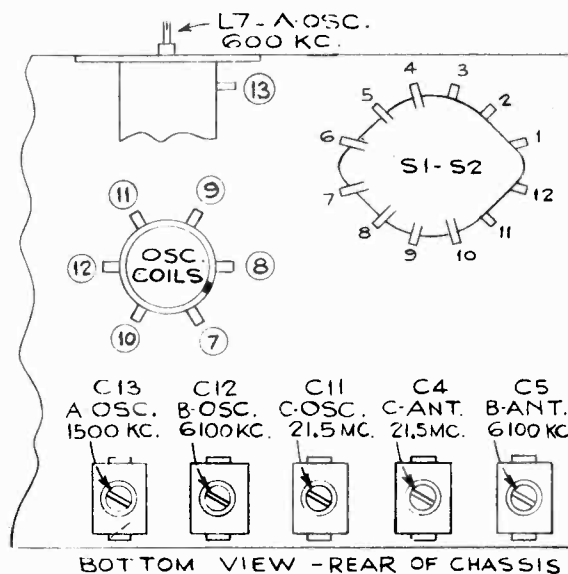
Steps	Range Switch	Connect high side test osc. to—	Tune test osc. to—	Turn radio dial to	Adjust following for max. peak output
1	"A"	12SK7 I-F grid in series with .01 mfd.	455 kc	"A" band quiet point at high freq. end.	L10, L11 (2nd I-F trans.)
2		12SA7 1st det. grid, in series with .01 mfd.			L9, L8 † (1st I-F trans.)
3		Antenna lead in series with 200 mmf.	1,500 kc (200 m)	1,500 kc mark (5th mark)	C13, C3
4			600 kc (500 m)	600 kc mark (2nd mark)	L7** Rock gang
5			Repeat steps 3 and 4		
6	"B"	Antenna lead in series with 300 ohms	6.1 mc	6.1 mc mark (5th mark)	C12* (osc.) C5 (ant.)
7	"C"		21.5 mc	21.5 mc mark (6th mark)	C11* C4

* Use minimum capacity peak if two peaks can be obtained.

** Rock gang slightly for peak output.

† Do not readjust L11 or L10 when test oscillator is applied to the 12SA7 Grid.

NOTE: Oscillator tracks above signal on all bands.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-563 110/220 AC-DC) (RC-563B 110 AC-DC)		CHASSIS ASSEMBLIES MODEL Q11, RC563E, RC563F
38289	Ballast—Ballast tube resistor for 220 volts operation		Same as RC563 and RC563B
36238	Bracket—Dial lamp bracket		EXCEPT:
38327	Capacitor—Electrolytic, comprising 1 section of 80 mfd., 250 volts, and 1 section of 40 mfd. 250 volts, and 1 section 20 mfd., 25 volts	39346	Ballast—Ballast tube resistor for 110/220 AC-DC Models
38290	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd., and 2 sections of 2-20 mmfd.	39346	Resistor—Ballast tube resistor for 110/220 AC-DC Models
12723	Capacitor—56 mmfd., moulded	39346	Tube—Ballast tube resistor for 110/220 AC-DC Models
30949	Capacitor—56 mmfd., un moulded		ADD:
30904	Capacitor—100 mmfd.	30735	Resistor—560 ohms, 1 watt (for 220/110 AC-DC)
12724	Capacitor—120 mmfd.	30694	Resistor—3,900 ohms, 1/2 watt (for 220/110 AC-DC)
12694	Capacitor—220 mmfd.	39345	Transformer—Audio transformer for models using speaker stamped RL86A3
12537	Capacitor—560 mmfd.		DELETE:
31403	Capacitor—3300 mmfd.	36238	Bracket - Dial lamp bracket.
31405	Capacitor—6000 mmfd.	30730	Resistor - 2700 ohms - 1/2 watt - for 110/220 AC-DC Models.
33584	Capacitor—.005 mfd.	34449	Socket - Dial lamp socket.
4870	Capacitor—.025 mfd.		
4858	Capacitor—.01 mfd., 500 volts		SPEAKER ASSEMBLIES (RL81B2)
4937	Capacitor—.01 mfd., 1000 volts	35570	Cone—Cone complete with voice coil
4886	Capacitor—.05 mfd., 400 volts	37612	Speaker—5-inch permanent magnet speaker complete with cone and coil—less output transformer
32786	Capacitor—0.1 mfd., 300 volts (220/110 AC DC only)		SPEAKER ASSEMBLIES (110/220 AC-DC) (RL-86A-3)
4839	Capacitor—0.1 mfd., 400 volts	32907	Cap—Dust cap
32821	Coil—Antenna coil	35570	Cone—Cone complete with voice coil
38292	Coil—Oscillator coil	39543	Coil—Field coil, 450 ohms
38287	Condenser—Variable tuning condenser		SPEAKER ASSEMBLIES (110 AC-DC) (RL-86B-2)
38406	Control—Volume control and power switch	32907	Cap—Dust cap
32634	Cord—Drive cord (approx. 50-inch overall length)	39348	Coil—Field coil—3,300 ohms
32713	Core—Adjustable core and stud for oscillator coil	35570	Cone—Cone complete with voice coil
37068	Indicator—Station selector indicator		NOTE: If the stamping on speaker in instrument does not agree with above speaker, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
37982	Insulator—Phono input socket insulator		MODEL Q 11 MISCELLANEOUS ASSEMBLIES
38288	Plate—Dial back plate complete with pulleys and bracket—less dial	39696	Back—Cabinet back—less power cord and plug.
33825	Plug—2 Prong male plug for power input	32836	Cord—Power cord and plug.
36230	Pulley—Drive cord pulley	36103	Decalcomania—"Off-Volume" decal.
36237	Pulley—Tuning condenser pulley	35480	Decalcomania—Range switch decal.
38289	Resistor—Ballast tube resistor for 220 volts operation	35392	Decalcomania—Trade mark decal.
13988	Resistor—10 ohms, 1/2 watt	39745	Dial—Glass dial scale.
35711	Resistor—100 ohms, 4 watt (220/110 AC DC only)	38334	Knob—Range switch or volume control knob.
30880	Resistor—150 ohms, 1/2 watt	37256	Knob—Tuning knob.
30730	Resistor—2700 ohms, 1/2 watt (220/110 AC DC only)	31390	Mounting—One set chassis mounting screws and washers
34766	Resistor—1000 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs.
12454	Resistor—33,000 ohms, 1/2 watt		MODEL Q 12 MISCELLANEOUS ASSEMBLIES
12412	Resistor—47,000 ohms, 1/2 watt	38293	Back—Cabinet back—less power cord.
14583	Resistor—220,000 ohms, 1/2 watt	36890	Clamp—Dial clamp—L.H.
30648	Resistor—470,000 ohms, 1/2 watt	36891	Clamp—Dial clamp—R.H.
12679	Resistor—2.2 meg., 1/2 watt	32836	Cord—Power cord and plug.
32809	Resistor—3.9 meg., 1/2 watt	36103	Decalcomania—"Off-Volume" decal
30992	Resistor—10 meg., 1/2 watt	35480	Decalcomania—Range switch decal.
36897	Shaft—Tuning knob shaft	38328	Dial—Glass dial scale.
34449	Socket—Dial lamp socket	37831	Fastener—Push on fastener for back.
33742	Socket—Phono input socket	36886	Knob—Range switch or volume control knob.
31251	Socket—Tube socket	36722	Knob—Tuning knob
31418	Spring—Drive cord spring	31480	Lamp—Dial lamp
38291	Switch—Range switch	30900	Spring—Retaining spring for knobs.
36800	Transformer—Audio transformer for models using speaker stamped RL81B2 or RL86B2		
35636	Transformer—First I.F. transformer		
35628	Transformer—Second I.F. transformer		
38289	Tube—Ballast tube resistor for 220 volt operation		
33726	Washer—"C" washer for tuning shaft.		
	CHASSIS ASSEMBLIES (RC-563C 110/220 AC-DC) (RC-563D 110 AC-DC) Same as Models RC-563 & RC-563B		
	EXCEPT:		
39346	Ballast—Ballast tube resistor for 110/220 AC-DC Models		
39346	Resistor—Ballast tube resistor for 110/220 AC-DC Models		
39346	Tube—Ballast tube resistor for 110/220 AC-DC Models		
	ADD:		
30735	Resistor—560 ohms, 1 watt (for 220/110 AC-DC)		
30694	Resistor—3,900 ohms, 1/2 watt (for 220/110 AC-DC)		
39345	Transformer—Audio transformer for models using speaker stamped RL86A3		
	DELETE:		
30730	Resistor—2,700 ohms, 1/2 watt (for 220/110 AC-DC)		

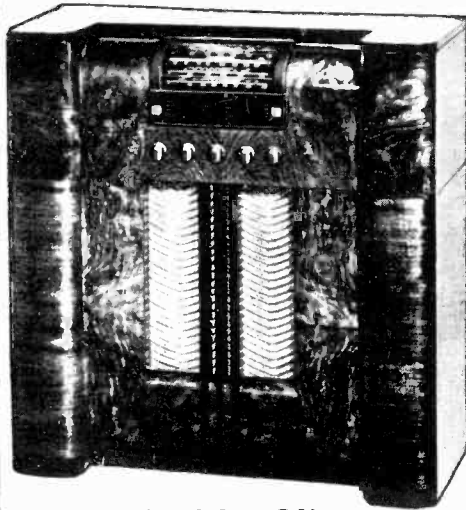
MODELS 12Q4, 12QK, and 12QU

Chassis No. RC-338

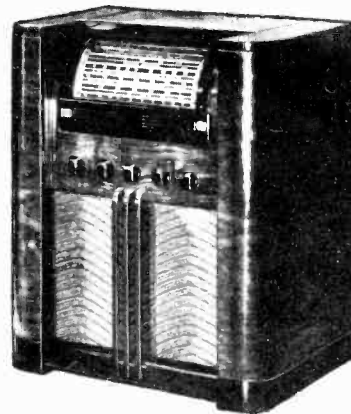
RC-338

RC-338A

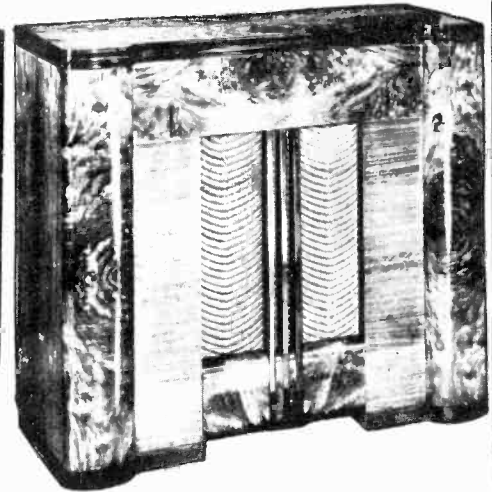
Twelve-Tube, Eight-Band, Radios and Victrola



Model 12QK



Model 12Q4



Model 12QU

Electrical Specifications

FREQUENCY RANGES

Long Wave ("X" Band)..... 150-400 kc (2,000-750 m)
 Medium Wave ("A" Band)..... 530-1,625 kc (566-184.6 m)
 Short Wave 1 ("B" Band)..... 2.3-7.0 mc (130-42.8 m)
 Short Wave 2 ("C" Band)..... 7.0-22 mc (42.8-13.6 m)

49 Meter Spread Band 5.92-6.23 mc
 31 Meter Spread Band 9.48-9.70 mc
 25 Meter Spread Band 11.68-11.94 mc
 19 Meter Spread Band 15.08-15.39 mc

INTERMEDIATE FREQUENCY..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K7..... R-F Amplifier
- (2) RCA-6J7..... Oscillator
- (3) RCA-6L7..... 1st Detector
- (4) RCA-6K7..... 1st I-F Amplifier
- (5) RCA-6K7..... 2nd I-F Amplifier
- (6) RCA-6R7..... 2nd Det., A.V.C., and 1st A-F Amplifier
- (7) RCA-6J5..... 2nd A-F Amplifier

- (8) RCA-6J5..... Phase Inverter
- (9) RCA-6F6..... Power Output
- (10) RCA-6F6..... Power Output
- RCA-5U4-G (In PSU 10A, 10B, 10C A-C power supply unit)..... Rectifier
- RCA-5T4 (In PSU 10E D-C power supply unit)..... Rectifier
- (For use with 12Q4 or 12QK only)..... Rectifier

PILOT LAMPS

Models 12Q4 and 12QK..... One 6.3-volt, 0.15-amp., Mazda No. 47; two 6.3-volt, 0.25 amp., Mazda No. 44
 Model 12QU..... One 6.3-volt, 0.15-amp., Mazda No. 47; three 6.3-volt, 0.25 amp., Mazda No. 44

POWER OUTPUT RATING

Undistorted..... 10 watts
 Maximum %..... 12 watts

LOUDSPEAKER (RL-70H-3)

Type..... 12-inch electrodynamic
 Voice Coil Impedance at 400 cycles..... 2.2 ohms

POWER SUPPLY RATINGS

A-C Ratings

		12Q4, 12QK	Radio	12QU *	Total
With PSU 10A Power Supply Unit.....	105-125 volts, 50-60 cycles	125 watts	125 watts	125 watts	150 watts
With PSU 10B Power Supply Unit.....	105-125 volts, 25-60 cycles	125 watts	125 watts	125 watts	150 watts
With PSU 10C Power Supply Unit.....	105-130, 140-160, 200-250 volts, 50-60 cycles	125 watts	125 watts	125 watts	150 watts

D-C Ratings

With PSU 10E Power Supply Unit..... 105-125, 210-250 volts D-C..... (See text for current consumption ratings)
 * Model 12QU may be used with PSU 10A or 10C only.

PHONOGRAPH (Model 12QU only)

Type..... Automatic
 Record Capacity..... Eight 10-inch or seven 12-inch
 Turntable Speed..... 78 r.p.m. (adjustable)
 Type Pickup..... Crystal
 Pickup Impedance..... 100,000 ohms at 1,000 cycles

REFER TO INDEX FOR DATA ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER

Power Supply Units

Models 12Q4, 12QK, and 12QU have seven-prong connectors for connection to a separate power supply unit. Units are available in different ratings for a.c. and d.c. operation, as listed under "Power Supply Ratings" in the electrical specifications. It should be noted, however, that Model 12QU may be used with a.c. units PSU 10A or 10C only.

When Model 12Q4 or Model 12QK is used with a d.c. Power Supply Unit, the measured current drain is 0.7 amperes from a 234 volt supply, and 1.4 amperes from a 117 volt supply. These current values may vary as much as 30% when measured by various types of ammeters, due to the rectangular wave-shape of the vibrator current.

Service data, diagrams, and replacement parts lists for the power supply units are printed in separate service data sheets which should be referred to for further information.

ALIGNMENT PROCEDURE

Alignment using the Cathode Ray Oscillograph is much the preferable method because of the variable selectivity features of these instruments. The curves shown illustrate the general shape of the i-f selectivity curves for different settings of the fidelity control, when i-f channel is properly aligned. Connections for the oscillograph are shown in the bottom view of the receiver chassis. Use short, unshielded leads to oscillograph, and well-shielded leads from test oscillator. If possible, use 30 or 40 kc sweep frequency for i-f alignment.

Output Meter Alignment.—If this method is used, connect meter across voice coil, and turn receiver volume control to maximum. Disregard steps 5 and 5A of alignment table. However, a listening check should be made to check operation of fidelity control, after receiver has been aligned.

Test Oscillator.—For all alignment operations connect the "Gnd" side of test oscillator to chassis, the high side as indicated in table, and keep output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end calibration marks on the dial scales, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

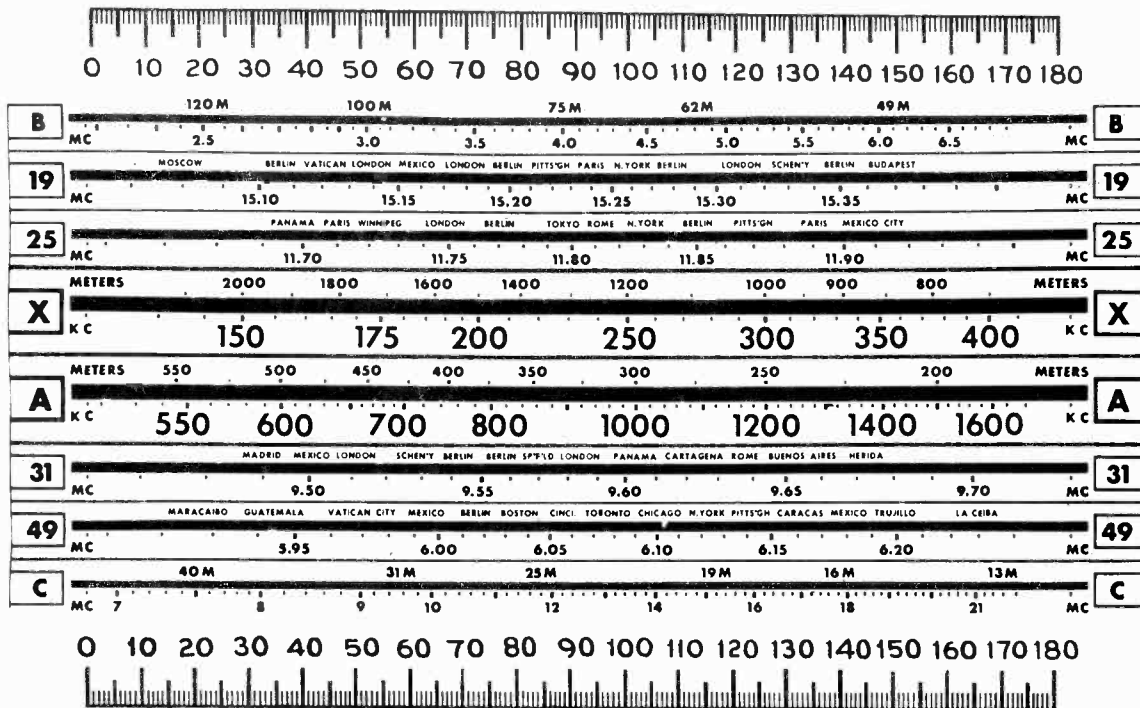
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

Purpose and Function of Fidelity Control

MODELS 12QK AND 12Q4				MODEL 12QU			
Position	For Use On	I-F Channel	Audio Channel	Position	For Use On	I-F Channel	Audio Channel
1 (Extreme Counter-clockwise)	Record Player	—	Min. highs	1 (Extreme Counter-clockwise)	Victrola	—	Min. highs
2	Record Player	—	Max. highs	2	Victrola	—	Medium No. 1
3	Distant Stations	Sharp	Min. highs	3	Victrola	—	Medium No. 2
4	Distant Stations	Sharp	Max. highs	4	Victrola	—	Max. highs
5	Local and Medium Distant Stations	Medium	Max. highs	5	Distant Stations	Sharp	Min. highs
				6	Distant Stations	Sharp	Max. highs
6 (Extreme Clockwise)	Local Stations	Broad	Max. highs	7	Local and Medium Distant Stations	Medium	Max. highs
				8 (Extreme Clockwise)	Local Stations	Broad	Max. highs



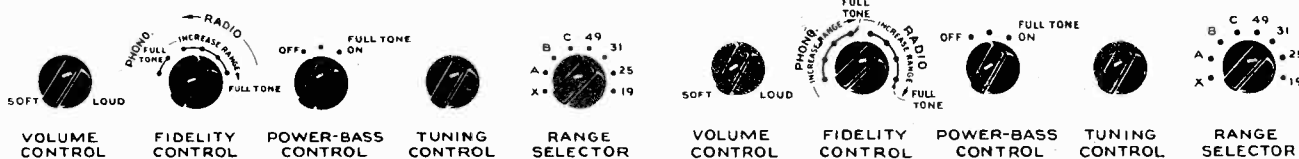
Receiver Dial Scales, and Corresponding 0-180° Calibration Scales

Alignment Table

Step	Connect high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust following for maximum peak output	Check Selectivity Curve No.
1	Turn fidelity control to 3rd position from maximum clockwise, sensitivity switch min. (open)				
2	6K7 2nd I.F. grid cap in series with .01 mfd.	455 kc	"A" band Quiet Point between 550-750 kc	L31 and L32 3rd I-F Trans.	1
3	6K7 1st I.F. grid cap in series with .01 mfd.			L28 and L29 2nd I-F Trans.	2
4	6L7 1st-det. grid cap in series with .01 mfd.			L23 and L24 1st I-F Trans.	3
5	Turn fidelity control one position back from full clockwise				4
5A	Turn fidelity control full clockwise				5
6	Turn fidelity control to 3rd position from maximum clockwise for the following operations				
7	Antenna Terminal, in series with 200 mmf.	2,440 kc	"B" band 2.44 mc (16°)	L18 (osc.) †	<p>* NOTE:</p> <p>In step 18 only, the oscillator tracks on low side of signal; use maximum capacity peak (plunger in) if two peaks can be obtained. All other oscillator adjustments use minimum inductance or capacity peak (plunger out), if two peaks can be obtained.</p> <p>** Use maximum capacity peak if two can be obtained.</p> <p>† Before adjusting L18, set C18 so it projects approximately 2 inches above top of chassis.</p> <p>†† Before adjusting L11, set C12 so it projects approximately 2 inches above top of chassis.</p>
8	Antenna Terminal, in series with 300 ohms	6,100 kc	"B" band 6.1 mc (156°)	C18 (osc.) ** C31 (det.) ** C6 (ant.) **	
9	Antenna Terminal, in series with 200 mmfd.	600 kc	"A" band 600 kc (36°)	L12 (osc.) Rock Gang	
10		1,500 kc	"A" band 1,500 kc (158°)	C15 (osc.) C70 (det.)	
11		600 kc	"A" band 600 kc (36°)	L12 (osc.) Rock Gang	
12		175 kc	"X" band 175 kc (54°)	L13 (osc.) Rock Gang	
13		350 kc	"X" band 350 kc (147°)	C19 (osc.)	
14		175 kc	"X" band 175 kc (54°)	L13 (osc.) Rock Gang	
15	Antenna Terminal, in series with 300 ohms	9,600 kc	"C" band 9.6 mc (58.5°)	L11 (osc.) ††	
16		20,000 kc	"C" band 20 mc (157°)	C12 (osc.)	
17		9,600 kc	"31M" band 9.6 mc (100°)	L17 (osc.) C29 (det.) C4 (ant.)	
18*		6,100 kc	"49M" band 6.1 mc (106°)	C8 (osc.)	
19		11,800 kc	"25M" band 11.8 mc (90°)	L14 (osc.)	
20		15,200 kc	"19M" band 15.2 mc (78°)	L15 (osc.)	



I-F Selectivity Curves



Location of Controls, Models 12Q4 and 12QK

Location of Controls, Model 12QK

Miscellaneous Service Data

Plug for Extension Loudspeaker.—A two-contact female socket, equipped with a male plug, is connected across the output circuit on the loudspeaker to facilitate the connection of an extension loudspeaker if desired.

A permanent-magnet dynamic speaker, with voice-coil impedance of not less than 2 ohms is recommended; With a 2-ohm voice coil, the extension speaker will receive approximately half the power output of the receiver; with a higher-impedance voice coil; the percentage of power delivered to the extension speaker will be decreased.

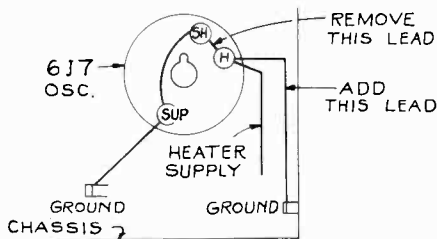
A high-impedance magnetic-type speaker may be used in conjunction with a suitable coupling transformer such as RCA Stock No. 7853.

Hum Modulation:

A limited number of earlier production instruments may exhibit a hum or low frequency interference when tuned to a short wave station on the spread bands. The interference is accentuated by slight detuning of the station to one side of the carrier. Should this condition be observed, it can be readily eliminated by reference to the following diagram and instructions:

- Remove the small bus lead which joins the "Shield" and "Heater" contacts on the 6J7 oscillator socket.
- Install a short lead between the "Heater" contact and side of chassis as shown above.

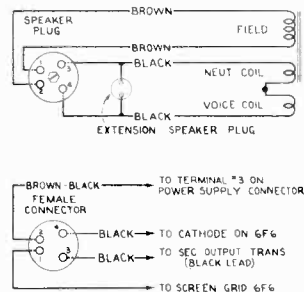
CAUTION.—Do not disturb other leads when making this change, otherwise it may be necessary to make a slight re-adjustment of the 19 and 25 meter oscillator trimmers to restore proper dial calibration.



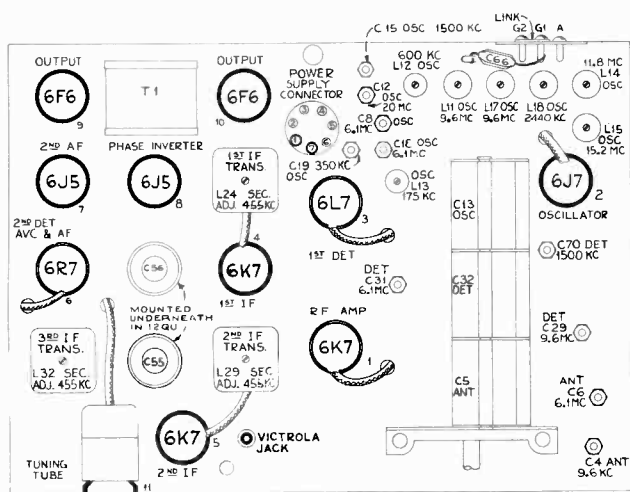
Models 12Q4, 12QK, 12QU Hum Reduction.

Victrola Attachment (record player).—A jack located on the top rear of the front of the chassis is provided for connecting a Victrola Attachment (record player) into the audio amplifying circuit on Models 12Q4 and 12QK. The cable running from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

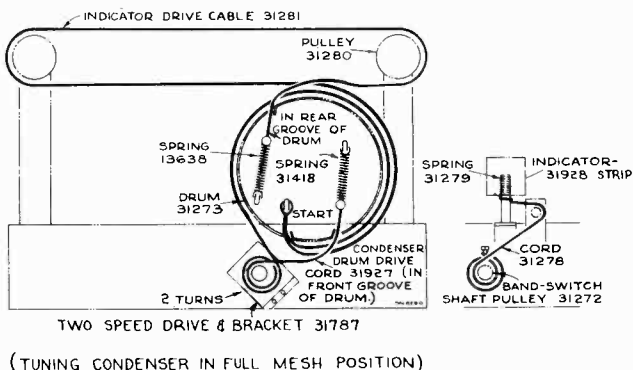
Antenna Connections.—Three terminals ("A," "G1," and "G2") are provided on the rear of the chassis. Connect the antenna to "A." Connect "G1" to a nearby ground. A link connects "G1" and "G2." In case of electrical interference (especially on "X" band) open the link and connect "G2" separately to ground. This also applies when a d.c. power supply is used.



Connections of Loudspeaker and Cable

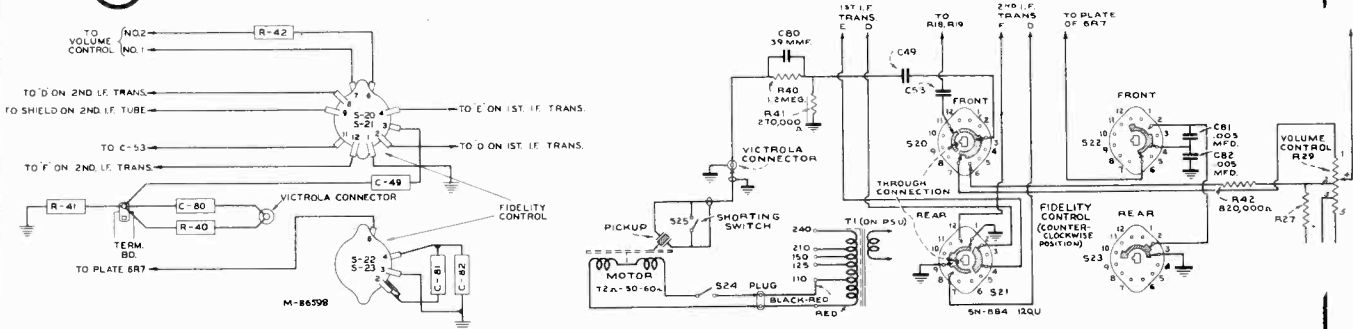


RC 338 12Q4, 12QK P-84479



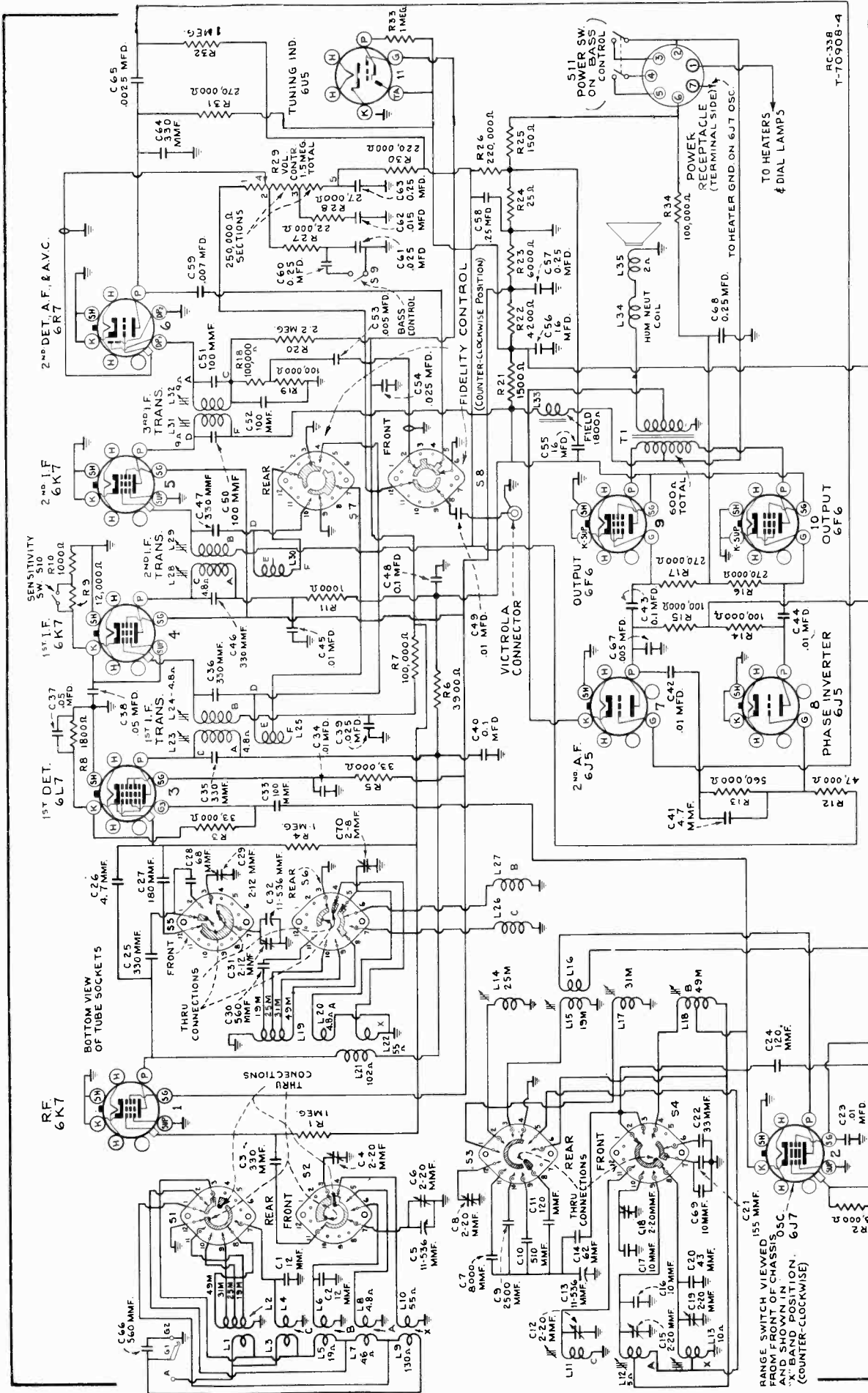
Above—Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

At Left—Location of Tubes and Trimmers



Model 12QU Victrola Input Circuit

Except for the changes shown above, the schematic and wiring diagrams for Models 12Q4 and 12QK also apply to Model 12QU.



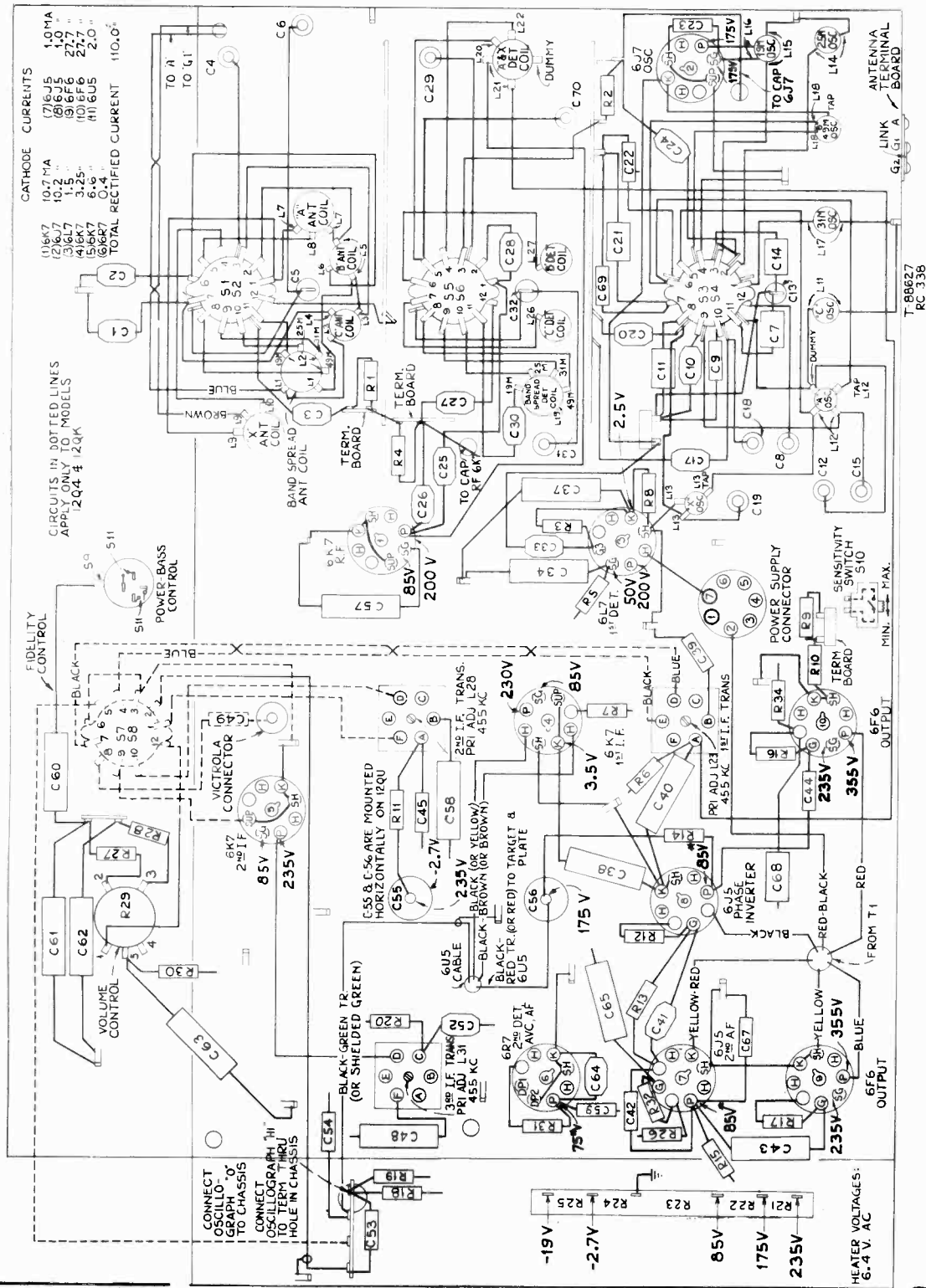
Schematic Diagram, Models 12Q4 and 12QK

Model 12QU is the same except for the Victrola connections, which are shown in a separate diagram.

The power supply units (PSU 10A, 10B, 10C, and 10E) for this receiver are described in separate service data sheets, which should be referred to for further information.

Precautionary Lead Dress.—

1. The following leads should be dressed away from other parts and chassis:
 - a. All leads to the bottom of the tuning gang.
 - b. All capacitor leads to oscillator section of range switch.
 - c. Yellow lead from lug No. 10 on S4 to dummy lug on "A" oscillator coil.
 - d. Yellow lead from pin No. 8 on 6J7 oscillator socket to terminal board.
 - e. Yellow and green leads from "X" detector coil (should be dressed away from each other as well as other parts).
2. Dress all leads away from phono jack and C49.
3. Twisted leads of "B" oscillator coil must be soldered together within 1/4-inch of coil tube.
4. The brown, black, and blue leads in back of the oscillator coils should be dressed away from coil windings.
5. R13 and C41 must be dressed away from pin No. 7 of 6J5 (tube No. 7).



R-F Wiring Diagram and Socket Voltages, Models 12Q4 and 12QK

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, sensitivity switch at maximum (closed), and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31815	Board—Antenna and ground terminal board—Models 12Q4 and 12QK only	5132	Resistor—47,000 ohms, 1/10 watt (R12)
31929	Board—Antenna and ground terminal board—Model 12QU only	14560	Resistor—100,000 ohms, 1/2 watt (R7, R14, R15, R18, R19, R31)
31276	Bracket—Band indicator bracket complete less indicator strip, spring, and cord	12264	Resistor—220,000 ohms, 1/2 watt (R26, R30)
31282	Bracket—Magic Eye mounting bracket and clip	12199	Resistor—270,000 ohms, 1/2 watt (R31, R41)—R41 in Model 12QU only
31281	Cable—Indicator pointer drive cable	11453	Resistor—270,000 ohms, 1/10 watt (R16, R17)
30766	Cap—Rubber cap for Magic Eye	12486	Resistor—560,000 ohms, 1/2 watt (R13)
12607	Cap—Top shield cap for i-f transformers	30963	Resistor—820,000 ohms, 1/2 watt (R42)—Model 12QU only
12807	Capacitor—Trimmer 2-8 mmfd. (C70)	12013	Resistor—1 meg., 1/10 watt (R32, R33)
12714	Capacitor—Trimmer 2-12 mmfd. (C29, C31)	13730	Resistor—1 meg., 1/2 watt (R1, R4)
12884	Capacitor—Trimmer 2-20 mmfd. (C4, C6, C8, C12, C15, C18, C19)	30208	Resistor—1.2 meg., 1/2 watt (R10)—Model 12QU only
14392	Capacitor—4.7 mmfd. (C26, C41)	12679	Resistor—2.2 meg., 1/2 watt (R20)
31709	Capacitor—10 mmfd. (C69)	14887	Retainer—Pulley retainer
13200	Capacitor—10 mmfd. (C16, C17)	4669	Screw—No. 8-32 sq. hd. set screw for drum, Stock No. 31273, and pulley, Stock No. 31272 and Stock No. 31788
13002	Capacitor—12 mmfd. (C1, C2)	14404	Socket—7-contact male socket for power input
31354	Capacitor—33 mmfd. (C22)	31364	Socket—Dial lamp socket
13545	Capacitor—39 mmfd. (C80)—Model 12QU only	14278	Socket—Phonograph input socket
31822	Capacitor—43 mmfd. (C20)	13871	Socket—Magic Eye socket
31349	Capacitor—62 mmfd. (C14)	31251	Socket—Tube socket
13057	Capacitor—68 mmfd. (C28)	31279	Spring—Band indicator tension spring
31270	Capacitor—100 mmfd. (C50, C51)	31418	Spring—Drum drive cord tension spring
12720	Capacitor—100 mmfd. (C33, C52)	13638	Spring—Indicator pointer drive cable tension spring
31706	Capacitor—120 mmfd. (C11)	31849	Switch—Fidelity switch—Models 12Q4 and 12QK only (S7, S8)
12724	Capacitor—120 mmfd. (C24)	31961	Switch—Fidelity switch (S20, S21, S22, S23)—Model 12QU only
31708	Capacitor—155 mmfd. (C21)	31844	Switch—Range switch—less coils (S1, S2, S3, S4, S5, S6)
13003	Capacitor—180 mmfd. (C27)	30953	Switch—S.P.S.T. sensitivity switch (S10)
31756	Capacitor—330 mmfd. (C35, C36, C46, C47)	31850	Tone and power switch (S9, S11)
12952	Capacitor—330 mmfd. (C3, C25, C64)	31746	Transformer—First i-f transformer (L23, L24, L25, C35, C36)
30608	Capacitor—510 mmfd. (C10)	31749	Transformer—Second i-f transformer (L28, L29, L30, C46, C47)
12537	Capacitor—560 mmfd. (C30, C86)	31268	Transformer—Third i-f transformer (L31, L32, C50, C51)
31703	Capacitor—2,500 mmfd. (C9)	31847	Transformer—Output transformer (T1)
31704	Capacitor—8,000 mmfd. (C7)	31848	Volume control (R29)
5107	Capacitor—.0025 mfd. (C65)	SPEAKER ASSEMBLIES (Speaker RL70H-3)	
4838	Capacitor—.005 mfd. (C53, C67, C81, C82—C81, C82 in Model 12QU only)	31825	Cap—Speaker cone center dust cap
5148	Capacitor—.007 mfd. (C59)—Models 12Q4 and 12QK only	11469	Coil—Hum neutralizing coil (L34)
14393	Capacitor—.01 mfd. (C23, C34, C42, C44, C45, C49)	11234	Coil—Speaker field coil (L33)
11315	Capacitor—.015 mfd. (C62)	31275	Cone—Speaker cone and voice coil (L35)
30938	Capacitor—.025 mfd. (C39, C54, C61)	31830	Plug—4-contact male plug for speaker
4886	Capacitor—.05 mfd. (C37, C38)	31853	Speaker complete
4839	Capacitor—.01 mfd. (C40, C43, C48)	MISCELLANEOUS ASSEMBLIES	
f2484	Capacitor—.025 mfd. (C57, C58, C60, C63, C68)	13103	Cap—Pilot lamp cap (bullseye)—Model 12QU only
5212	Capacitor—.16 mfd. (C55, C56)	31541	Cushion—Motor plate mounting cushion and clamp assembly (sufficient for one instrument—Model 12QU only)
31845	Coil—"A" band antenna coil (L7, L8)	31962	Dial—Dial scale and crystal—Model 12QU only
31257	Coil—"A" band oscillator coil (L12)	31855	Dial—Dial scale and crystal—Models 12Q4 and 12QK only
31891	Coil—"A" and "X" bands r-f coil (L20, L21, L22)	31921	Escutcheon—Dial escutcheon less dial scale and crystal—Model 12QU only
14949	Coil—"B" band antenna coil (L5, L6)	31854	Escutcheon—Dial escutcheon less dial scale and crystal—Models 12Q4 and 12QK only
31890	Coil—"B" and 49-meter bands oscillator coil (L18)	30698	Hinge—Cabinet lid hinge—Model 12QU only
14952	Coil—"B" band r-f coil (L27)	31564	Holder—Needle card holder—Model 12QU only
14950	Coil—"C" band antenna coil (L3, L4)	31717	Indicator—Dial indicator pointer, carriage, and clip assembly—Model 12QU only
31255	Coil—"C" or 31-meter band oscillator coil (L11, L17)	31714	Indicator—Dial indicator pointer—Models 12Q4 and 12QK only
14953	Coil—"C" band r-f coil (L26)	31355	Knob—Station selector, volume control, tone control, range switch, or fidelity switch knob—Model 12QU only
31892	Coil—"X" band antenna coil (L9, L10)	31802	Knob—Station selector, volume control, tone control, range switch, or fidelity switch knob—Models 12Q4 and 12QK only
31812	Coil—"X" band oscillator coil (L13)	30888	Plug—2-contact female plug for speaker cable
31852	Coil—19-meter band oscillator coil (L15, L16)	30868	Plug—2-contact female plug for motor power cable—Model 12QU only
31254	Coil—25-meter band oscillator coil (L14)	30870	Plug—2-contact male plug for speaker cable
14951	Coil—49, 31, 25, and 19-meter bands antenna coil (L1, L2)	31287	Rod—Pointer carriage slide rod
31846	Coil—49, 31, 25, and 19-meter bands r-f coil (L19)	31559	Screen—Dial color screen and light diffuser—Model 12QU only
31843	Condenser—3-gang variable tuning condenser (C5, C13, C32)	31285	Screen—Dial color screen and light diffuser—Model 12Q4 and 12QK only
31278	Cord—Band indicator drive cord	31558	Spring—Pointer carriage stop spring
31927	Cord—Variable condenser drum drive cord	14270	Spring—Retaining spring for knob, Stock Nos. 31355 and 31802
31787	Drive—Two-speed drive and mounting bracket	11830	Support—Cabinet lid support—Model 12QU only
31273	Drum—Variable condenser drive drum	31470	Suspension—Motorboard suspension springs, screw, and washer (4 required)—Model 12QU only
31928	Indicator—Band indicator strip		
11891	Lamp—Dial lamp		
31480	Lamp—Dial lamp (center)		
14028	Nut—Jamb nut for capacitor, Stock Nos. 12714, 12884, and 12807		
31817	Plate—Cushion socket mounting plate—less socket		
5040	Plug—4-contact female plug for speaker cable		
31788	Pulley—Two speed drive pulley		
31280	Pulley—Indicator pointer cable pulley		
31272	Pulley—Range switch shaft pulley		
31851	Resistor—Voltage divider—comprising one 1,500-ohm, one 4,200-ohm, one 6,000-ohm, one 25-ohm, and one 150-ohm sections (R21, R22, R23, R24, R25)		
14720	Resistor—1,000 ohms, 1/2 watt (R10, R11)		
31920	Resistor—1,800 ohms, 1/10 watt (R8)		
12955	Resistor—3,900 ohms, 1/2 watt (R6)		
30128	Resistor—12,000 ohms, 1/2 watt (R9)		
13998	Resistor—22,000 ohms, 1/2 watt (R27)		
12738	Resistor—27,000 ohms, 1/2 watt (R28)		
12454	Resistor—33,000 ohms, 1/2 watt (R2, R3, R5)		

MODEL U-12

Chassis No. RC-425-A

Seven-Tube, Two-Band, AC, Superheterodyne Victrola

*NAME AS
RECEIVING HOUSE
CHASSIS #
RC 479*

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast 540-1,720 kc
Short Wave 5.6-20 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7 .. 1st. Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7 .. 2nd. Detector, A.V.C., and A-F Amplifier
- (4) RCA-6SF5 Inverter
- (5) RCA-6F6-G Power Output
- (6) RCA-6F6-G Power Output
- (7) RCA-5Y3-G Rectifier

PILOT LAMPS (1) Mazda No. 51,
6.3 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted 5.0 watts
Maximum 6.0 watts

LOUDSPEAKER (RL-79A-1)

Type 6-inch electrodynamic
V.C. Impedance ... 3.4 ohms at 400 cycles

PHONOGRAPH

Crystal Pickup . 100,000 ohms Impedance
at 1,000 c.p.s.
Average Output of Pickup .. 1½ volts at
1,000 c.p.s. across 250,000 ohms load
Motor ... Self-starting, Rim drive, Adjust-
able speed

POWER SUPPLY RATINGS

Rating A-6 ... 105-125 volts, 60 cycles,
110 watts
Rating A-5 105-125 volts, 50
cycles, 110 watts
Rating C-6 ... 105-125, 210-250 volts,
60 cycles, 110 watts
Rating C-5 105-125, 210-250 volts,
50 cycles, 110 watts



Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up for any standard broadcast station. The preferable arrangement is to adjust for stations in the order of the frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the receiver for "Radio" operation, range selector on "Broadcast", and accurately tune in the station for which the first button is to be set.

3. Press in the first push-button rod (left) with the screwdriver as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than ¼ turn after the rod begins to grip or damage to the mechanism may result.

4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.

Alignment Procedure

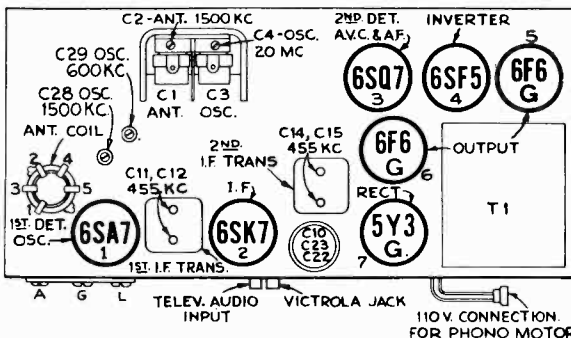
Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid A.V.C. action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, 6.1 mc, and 20 kc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

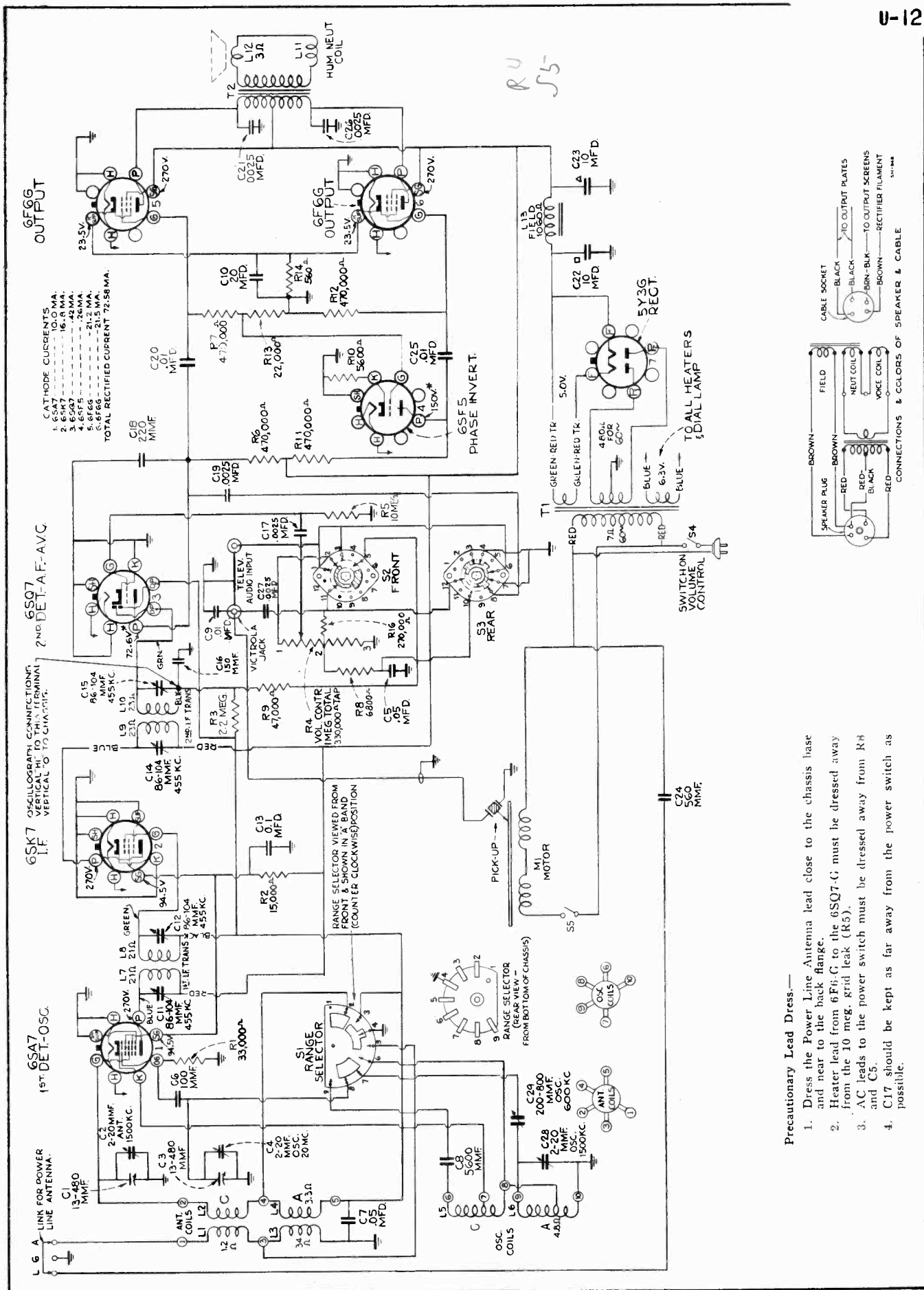
Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the mark at the extreme left (low frequency) end of the dial scale.



Step	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	"A" Band Quiet Point between 550-750 kc	C14 and C15 (2nd I-F Trans.)
2				C11 and C12 (1st I-F Trans.)
3	Ant. terminal in series with 300 ohms	20 mc	"C" Band 20 mc calibration mark	C4 (osc.)*
4	Ant. terminal in series with 200 mmf.	1,500 kc	"A" Band 1,500 kc calibration mark	C28 (osc.) C2 (ant.)
5		600 kc	"A" Band 600 kc calibration mark	C29 (osc.) Rock Gang
6	Repeat step 4			

* Use minimum peak if two can be obtained. Check to determine that C4 has been adjusted properly by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on both bands.



Precautionary Lead Dress.—

1. Dress the Power Line Antenna lead close to the chassis base and near to the back flange.
2. Heater lead from 6F6G to the 6SQ7-G must be dressed away from the 10 meg. grid leak (R5).
3. AC leads to the power switch must be dressed away from R8 and C5.
4. C17 should be kept as far away from the power switch as possible.

Miscellaneous Service Data

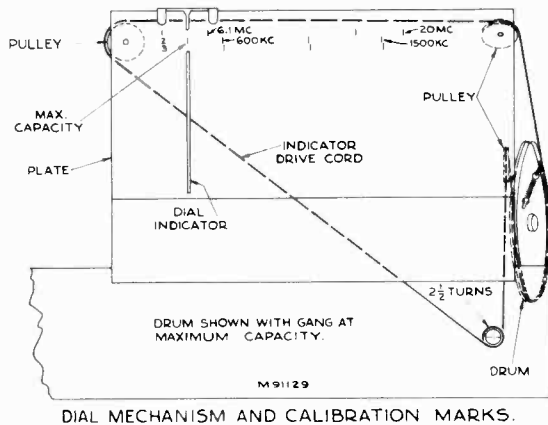
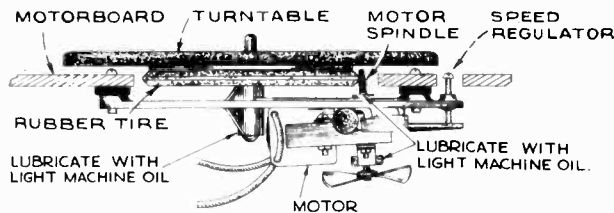
Phonograph Mechanism:

The phonograph motor is self-starting and operates the turntable through friction drive between the motor spindle and the rubber tire on the underside of the turntable.

The rubber driving tire on the turntable should never be removed since it is ground in to be concentric with the spindle.

The speed regulator raises and lowers the motor. This changes the driving ratio between the motor and the turntable due to the motor spindle being conical in shape. It is important to adjust this regulator for a turntable speed of 78 r.p.m. WHILE PLAYING A 10-INCH RECORD WITH THE NEEDLE APPROXIMATELY ONE INCH FROM THE OUTER EDGE OF THE RECORD.

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is $1\frac{1}{2}$ inches from the center line of the turntable shaft.



DIAL MECHANISM AND CALIBRATION MARKS.

2nd Production:

The following revisions were made in the 2nd production of Model U-12:

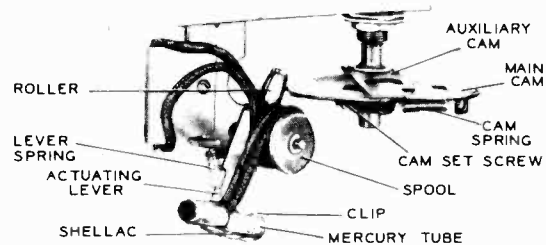
- C7 changed from .05 mfd. to .01 mfd. (Stock No. 4937).
- C5 changed from .05 mfd. to .025 mfd. (Stock No. 4870).
- R8 changed from 6,800 ohms to 15,000 ohms (Stock No. 12695).
- R3 changed from 2.2 megs. to 5.6 megs. (Stock No. 11668).
- R16 changed from 270,000 ohms to 560,000 ohms (Stock No. 12486).
- R4 (volume control) changed from 1 meg. to 2 megs., tapped at 500,000 ohms (Stock No. 34796).
- R18, 56,000 ohms (Stock No. 12286), added from Victrola jack to chassis.
- R17, 820,000 ohms (Stock No. 30963), added from bottom end of R9 to chassis.
- C30, .005 mfd. (Stock No. 33584), added between R9 and contact 5 on S2.
- C27 (from Victrola jack) is omitted.
- Contact 5 on S2 is connected to contact 3 on S3.
- DP2 on 6SQ7 was connected to left-hand end of R3. This connection is removed, and DP2 is grounded.

The motor may be shut off at any time by placing the pickup on the pickup rest.

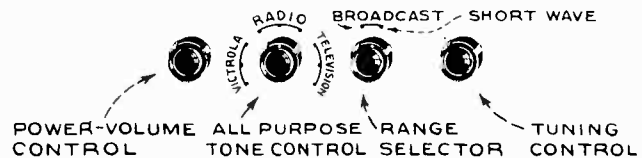
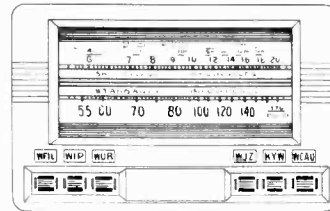
Lubrication.—The motor should be lubricated as follows: Place a few drops of S.A.E. 20 (or equivalent) on the turntable spindle and saturate the oil retaining felt pads on the motor shaft with S.A.E. 10 oil. This oiling process should be repeated once or twice a year. **CAUTION**—THE MOTOR DRIVE SPINDLE AND RUBBER DRIVING TIRE ON THE TURNTABLE MUST BE KEPT CLEAN AND ENTIRELY FREE FROM OIL AND GREASE AT ALL TIMES.

Power Line Antenna:

This instrument is equipped with a built-in power line antenna. To use this antenna the link on the antenna terminal board should be connected between "A" and "L," thus connecting the antenna input of the receiver through a capacitor to the power line. If an external antenna is used, it should be connected to "A," a ground connection made to "G," and the link removed.



MERCURY SWITCH MECHANISM
(VIEWED FROM FRONT
SHOWN WITH PICKUP IN REST POSITION)



Turntable Wobble:

Turntables (Stock No. 33899) found to have excessive wobble (vertical run-out) may be trued-up in the following manner:

- Obtain a motor bearing, Stock No. 31046 (used in R93-B) and clamp same securely in a vise.
- Place turntable spindle in this bearing and make sure that turntable spins freely.
- With turntable spinning, the high side can readily be determined by use of a piece of chalk carefully lowered so that it just touches the high spot of the turntable, leaving a mark.
- With both hands grasp the rim of the turntable, thumbs on top and index fingers underneath turntable at the center of the chalk mark.
- Apply a moderate amount of pressure in a downward direction at right angle to the jaws of the vise.
- Spin turntable again and if still running out, repeat operation mentioned under (c), continuing by trial until turntable runs true.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-425A)		MOTOR ASSEMBLIES
33719	Belt—Tuning unit push arm belt	33897	Base—Motor base and ball assembled
33718	Board—Antenna-ground board	33902	Motor—Complete motor 105-125 volts, 60 cycle (M1)
33629	Capacitor—Trimmer capacitor, one section 2-20 mmfd., and one section 300-800 mmfd. (C9, C10)	34496	Motor—Complete motor 105-125 volts, 50 cycle (M1)
12720	Capacitor—100 mmfd. (C6)	33896	Mounting—Motor cradle mounting hardware and retainer
12725	Capacitor—150 mmfd. (C16)		SPEAKER ASSEMBLIES (RL-79A-1)
12694	Capacitor—220 mmfd. (C18)	32907	Cap—Dust cap
12537	Capacitor—560 mmfd. (C24)	33601	Coil—Field coil (L13)
13895	Capacitor—5,600 mmfd. (C8)	32906	Coil—Neutralizing coil (L11)
5107	Capacitor—.0025 mfd. (C19, C21, C26)		
34459	Capacitor—.0025 mfd. (C17, C27)	5039	Plug—4-prong male speaker plug
4937	Capacitor—.01 mfd. (C9, C20, C25)	33599	Transformer—Output transformer (T2)
32787	Capacitor—.05 mfd. (C7)		AUTOMATIC SWITCH ASSEMBLIES
4839	Capacitor—.01 mfd. (C13)	32863	Cam—Cam assembly comprising main and auxiliary cam, hub and set screws
32240	Capacitor—Comprising 2 sections of 10 mfd., and 1 section of 20 mfd. (C10, C22, C23)	32864	Lever—Actuating lever with roller and mercury switch clip
33732	Coil—Antenna coil (L1, L2, L3, L4)	31118	Screw—No. 10-32 x 5/16 fillister head cone pointed set screw
33733	Coil—Oscillator coil (L5, L6)	32868	Spring—Actuating lever tension spring
33776	Control—Volume control and power switch (R4, S4)	32867	Spring—Cam tension spring
32634	Cord—Braided silk drive cord	32865	Support—Switch support and terminal board
33633	Indicator—Station selector indicator pointer	32866	Switch—Mercury tube with leads (S5)
11765	Lamp—Pilot lamp	31608	Washer—"C" washer for holding actuating lever
33727	Plate—Dial plate assembly—less dial		PICKUP ASSEMBLIES
5119	Plug—4-contact female plug for speaker cable	33906	Arm—Pickup arm—shell only
14439	Resistor—100 ohms, 1/2 watt (R15)	33908	Base—Pickup support arm base and retainer
17214	Resistor—560 ohms, 2 watts (R14)	33905	Crystal—Pickup crystal cartridge
13714	Resistor—5,600 ohms, 1/2 watt (R10)	33907	Support—Pickup support arm complete—less base
12265	Resistor—6,800 ohms, 1/2 watt (R8)		MISCELLANEOUS ASSEMBLIES
33489	Resistor—15,000 ohms, 2 1/2 watts (R2)	33731	Button—Push button assembly
13998	Resistor—22,000 ohms, 1/2 watt (R13)	31456	Cover—8-protective covers for push button marker
12454	Resistor—33,000 ohms, 1/2 watt (R1)	33910	Cup—New needle cup
12412	Resistor—47,000 ohms, 1/2 watt (R9)	33909	Cup—Used needle cup
12199	Resistor—270,000 ohms, 1/2 watt (R16)	34270	Dial—Glass dial scale
12285	Resistor—470,000 ohms, 1/2 watt (R6, R7, R11, R12)	33637	Escutcheon—Dial glass escutcheon
12679	Resistor—2.2 meg., 1/2 watt (R3)	13085	Hinge—Cabinet lid hinge
13601	Resistor—10 meg., 1/2 watt (R5)	33942	Knob—Tone control or range switch knob
33735	Screw—Push button lock screw	30863	Knob—Tuning or volume control knob
33725	Shaft—Tuning drive shaft	33973	Marker—Push button markers
33514	Socket—Phonograph input socket	33901	Mounting—1 set motor mounting hardware
31364	Socket—Pilot lamp socket	33530	Mounting—Pickup mounting hardware
31319	Socket—Tube base socket	30870	Plug—2-prong male connectors
33720	Spring—Push arm return spring	31048	Plug—2-conductor male plug for pickup lead
33946	Switch—Range switch	30900	Spring—Retaining spring for knobs, Stock Nos. 30863, 33942 and button No. 33731
33894	Switch—Tone control, phono. or television switch (S2, S3)	31164	Support—Cabinet lid support
33722	Transformer—First i-f transformer (L7, L8, C11, C12)	33899	Turntable—Complete with rubber drive ring
33895	Transformer—Second i-f transformer (L9, L10, C14, C15)		
33619	Transformer—Power transformer—105-125 volts, 25-60 cycles (T1)		
34261	Transformer—Power transformer—110 volts, 60 cycles		
31575	Transformer—Power transformer—105-125, 200-250 volts, 50-60 cycles (T1)		

Additional Replacement Parts:

Stock No.

- 32654 Ball—Ball for turntable bearing
- 35441 Cone—Speaker cone complete with voice coil, center suspension, and rim gaskets
- 33974 Screw—Pickup needle screw
- 30585 Spring—Indicator drive cord spring

Turntable Assembly Stock No. 33899:

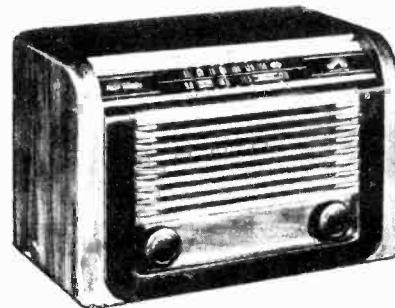
- The turntable and tire assembly Stock No. 33899 is superseded by:
- Stock No. 37971—Turntable and spindle, less tire
- Stock No. 37872—Tire only

MODELS 14AX, 14AX2, 14X, 14X2 & 34X AND RADIOLA 526 & 527

Five-Tube, Two-Band, AC-DC, Superheterodyne Receivers



MODELS
14AX2 } IVORY
14X2 }



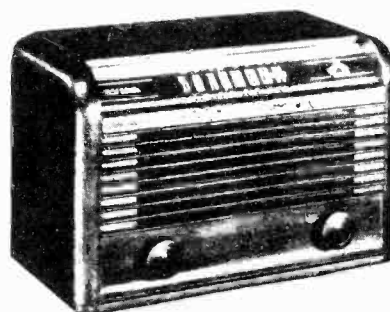
MODEL 34X 1ST. PRO.



RADIOLA 526



RADIOLA 527



MODEL 34X 2ND. PRO.

MODELS
14AX } WALNUT
14X }

Electrical Specifications

FREQUENCY RANGE

Broadcast Band 535-1,720 kc
Short Wave Band 8.9 mc to 12 mc.

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7..... 1st Det.—Osc.
- (2) RCA-12SK7..... I-F Amplifier
- (3) RCA-12SQ7..... 2nd Det., A.V.C., and A-F Amplifier
- (4) RCA-50L6-GT..... Power Output
- (5) RCA-35Z5-GT..... Rectifier

PILOT LAMP..... Mazda No. 51, 6-8 volts, 0.2 amp.

POWER OUTPUT

Undistorted9 watts
Maximum 1.3 watts

LOUDSPEAKER

Type..... 5-inch permanent-magnet dynamic
V.C. Impedance..... 3.3 ohms at 400 cycles
Type..... 5-inch electro dynamic
V.C. Impedance..... 4.0 ohms at 400 cycles

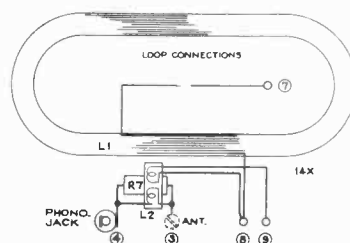
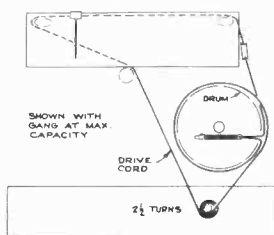
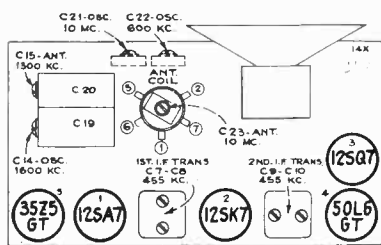
POWER SUPPLY RATING

105-125 volts, AC 50 or 60 cycles, or DC..... 25 watts

IDENTIFICATION OF MODELS

14AX	RC-100 IE
14AX2	RC-100 IE
14X	RC-100 ID
14X2	RC-100 ID

34X	RC-100 IE
34X	RC-1022
526	RC-100 IE
527	RC-100 IE



VARIATIONS OF MODELS

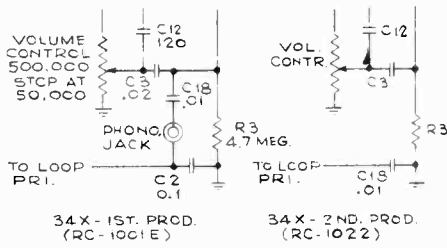
Model 14 AX and 14 AX₂ - Changes as listed below.
 Model 14 X and 14 X₂ - R8 and C₂₁ omitted.
 Model 34 X (2nd Prod. RC-1022) - Phono. jack and C₂ omitted.
 Connections as illustrated below.

SUBSTITUTE SPEAKERS 14AX, 14AX-2 14X, 14X-2

14AX, 14AX-2

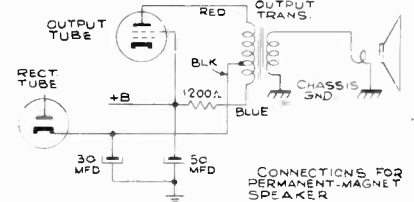
Changes in 2nd Production:

C₃, in grid circuit of 12SQ7, is changed from .015 to .02 mfd., Stock No. 36248.
 C₅, in 50L6GT plate circuit, is changed from .025 to .02 mfd., Stock No. 36248.
 C₂₁, chassis ground to power ground, is changed from .2 to .1 mfd., Stock No. 4839.



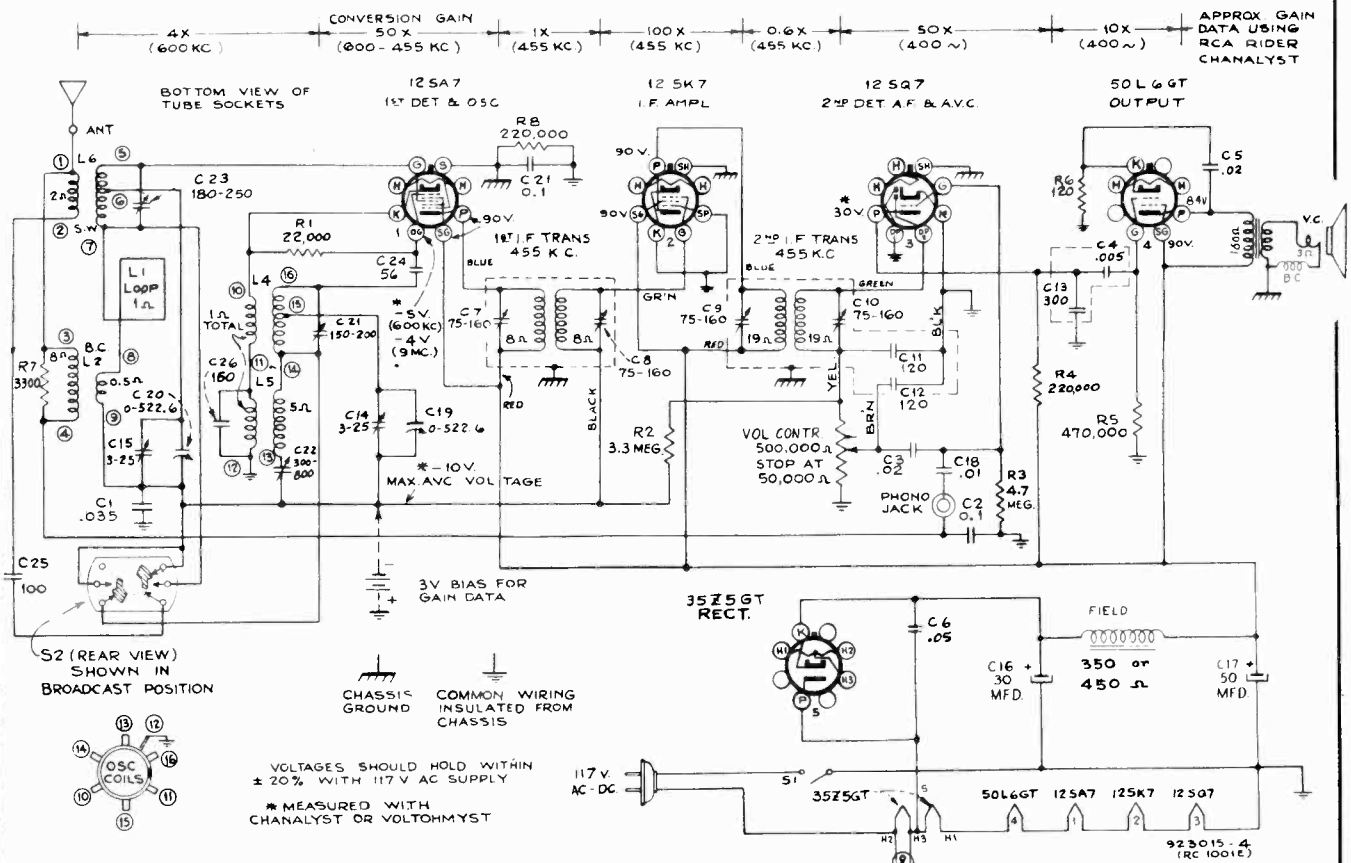
Circuit Changes, 2nd Production 34X

NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.	Output Trans Stock No.
RL-86-A3	39570	39543	38994
RL-86-B1	39447	39448	38994
RL-86-B4	39447	39448	38994
92161-3	38352	PM	36800
92161-4	39535	PM	36900
92161-5	38352	PM	36800
92322-2	39536	PM	36800
92374-1	3953	PM	36800



NOTE: 50L6GT Plate Voltage is 115 volts when using "PM" Speaker.

Circuit for "PM" Speakers



Alignment Procedure

Output Meter Alignment.—If this method is used connect the meter across the voice coil and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a .01 mfd. capacitor. When the electronic voltmeter is used as an alignment indicator the output of the test oscillator should be adjusted to produce several volts of AVC. With the output meter alignment method the test oscillator output should be kept as low as possible.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Precautionary Lead Dress.—

1. Dress the power cable to switch on the volume control close to the chassis and away from all grid and diode leads and condensers.
2. Dress capacitors in the 12SQ7 grid circuit away from all wiring.
3. Green and black phono wires should be twisted and dressed away from other parts and leads.
4. 50L6-GT filament wires should be dressed to rear of chassis and away from the second I-F transformer leads.
5. Dress brown lead from second I-F transformer to 12SQ7 away from power cable.
6. Dress wire to No. 1 grid of the 12SA7 away from pilot lamp leads.
7. Dress wire from loop to variable condenser away from chassis.
8. Dress all capacitors, leads, etc. which come close to oscillator coil rigidly and as far as possible from it.

Steps	Connect the high side of test-oscillator to—	Tune test-osc to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C10, C9 2nd I-F Transformer
2	12SA7 grid in series with 0.1 mfd.			C8, C7 1st I-F Transformer
3	Antenna term. in series with 47 mmf.	10 mc*	10 mc	C21 (osc.)** C23 (ant.)
4	Antenna term. in series with 200 mmfd.	1,600 kc	1,600 kc	C14 (osc.)
5	Radiation Loop	1,300 kc	Resonance on Signal	C15 (ant.)
6	Radiation Loop	600 kc	600 kc	C22 Osc. Rock in

* It is recommended that this step be repeated using a received station of known frequency.

** Use minimum capacity if two peaks can be obtained.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c. reversal of the plug may reduce hum.

Replacement Parts MODEL 14 X SERIES

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES Model 14AX (RC-1001E)			
37961	Capacitor—Mica trimmer—180-250 mmfd. for antenna coil	30271	Resistor—4.7 meg., 1/4 watt
37904	Capacitor—Mica trimmer comprising 1 section of 300-800 mmfd. and 1 section of 200-280 mmfd.	37352	Shaft—Tuning knob shaft
37359	Capacitor—1 section of .005 mfd. and 1 section of 300 mmfd.	34449	Socket—Dial lamp socket
14393	Capacitor—.01 mfd.	31251	Socket—Tube socket
11315	Capacitor—.015 mfd.	31418	Spring—Drive cord spring
30938	Capacitor—.025 mfd.	35098	Spring—Spring to hold I.F. transformer in shield can
5196	Capacitor—.035 mfd.	37903	Switch—Range switch
32787	Capacitor—.05 mfd.	36232	Transformer—First I.F. transformer
4839	Capacitor—.1 mfd.	36233	Transformer—Second I.F. transformer—less shield can
34505	Capacitor—.2 mfd.	36800	Transformer—Output transformer
36301	Capacitor—Electrolytic comprising 1 section of 50 mfd. 150 volts, and 1 section of 30 mfd. 150 volts	33726	Washer—"C" washer for tuning knob shaft
37960	Coil—Antenna coil—less mica trimmer	SPEAKER ASSEMBLIES (RL-81B2)	
37959	Coil—Oscillator coil	35570	Cone—Cone complete with voice coil
37962	Coil—Loop primary coil	37612	Speaker—5-inch permanent magnet speaker complete with cone and voice coil—less output transformer
37901	Condenser—Variable tuning condenser	MISCELLANEOUS ASSEMBLIES	
36584	Control—Volume control and power switch	37906	Back—Cabinet back cover
32634	Cord—Drive cord (approx. 33-in. overall lgth.)	37362	Clamp—Dial clamp
37068	Indicator—Station selector indicator	37910	Dial—Glass dial scale
31193	Lead—Antenna lead	37831	Fastener—Push-on fastener for cabinet back
37902	Loop—Antenna loop	37361	Knob—Walnut tuning or volume control knob
37351	Plate—Dial back plate complete with pulleys	35121	Knob—Walnut range switch knob
36230	Pulley—Drive cord pulley	11765	Lamp—Dial lamp
37355	Receptacle—Receptacle and terminal board	37909	Mounting—Handle mounting hardware including 2 screws, 2 washers, 2 springs, and 2 felt washers
30189	Resistor—120 ohms, 1/4 watt	30900	Spring—Retaining spring for knobs, Stock No. 37361
12267	Resistor—1,200 ohms, 1/4 watt		
13998	Resistor—22,000 ohms, 1/4 watt		
12264	Resistor—220,000 ohms, 1/4 watt		
30648	Resistor—470,000 ohms, 1/4 watt		
12928	Resistor—3.3 meg., 1/4 watt		

14AX2 (RC-1001E)

Service Data:

The Service Data for Model 14AX applies to Model 14AX2, except for the following parts used in 14AX2:

Stock No.

- 86801 Coil—Oscillator coil
- 37353 Condenser—Variable tuning condenser
- 38816 Back—Cabinet back
- Y1140 Cabinet
- 35071 Knob—Control knob

RL-86-A3 "EM" speaker is used in some production of 14AX2, as specified elsewhere

14X (RC-1001D)

Service Data:

The Service Data for Model 14AX applies to Model 14 X except for the following parts used in 14 X:

Stock No. Omit

- 34505 Capacitor - 0.2 mfd
- 35121 Knob

Add

- 35392 Decal - Trademark decal
- 32895 Knob - Walnut range switch knob

14X2 (RC-1001D)

Service Data:

The Service Data for Model 14X applies to Model 14X2, except for the following parts used in 14X2:

Stock No.

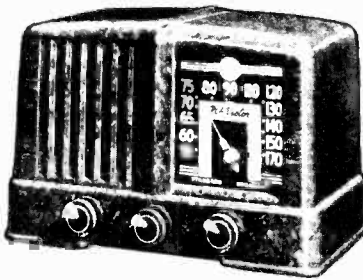
- 38816 Back—Cabinet back
- Y1140 Cabinet
- 35071 Knob—Control knob

RL-86-A3 "EM" speaker is used in some production of 14X2, as specified elsewhere

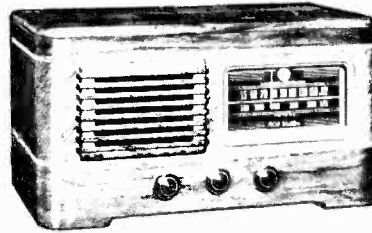
MODELS 14BT1, 14BT2 and 14BK

Chassis Nos. RC-525, 525A, 525B

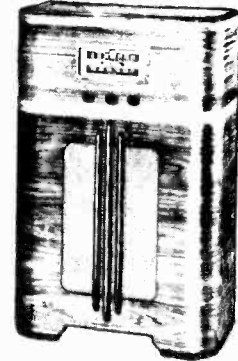
Four-Tube, Single-Band, Battery-Operated, Receivers



14BT1



14BT2



14BK

Electrical and Mechanical Specifications

Frequency Range..... 540-1,720 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-GT..... 1st-Det.—Osc.
- (2) RCA-1N5-GT..... I-F Amplifier
- (3) RCA-1H5-GT..... 2nd-Det., A-F, and A.V.C.
- (4) RCA-3Q5-GT..... Output

BATTERIES REQUIRED

1 "A"—"B" Pack (Burgess Type 17GD60 or equivalent).

CURRENT CONSUMPTION

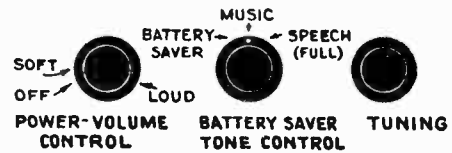
"A" 0.25 amperes
"B" { 7.3 m.a. (switch at "Battery Saver" position).
11.8 m.a. (switch at "Music" or "Speech" position).

POWER OUTPUT

Undistorted	Switch at "Battery Saver" .065 watts	Switch at "Music" or "Speech" .140 watts
Maximum	.180 watts	.250 watts

LOUDSPEAKER

Type.....	Permanent-magnet	Dynamic
Diameter (14BT1, 14BT2) 5 in.	(14BK) 6 in.	
Voice Coil Impedance (14BT1, 14BT2) 4 ohms	(14BK) 3.4 ohms	



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

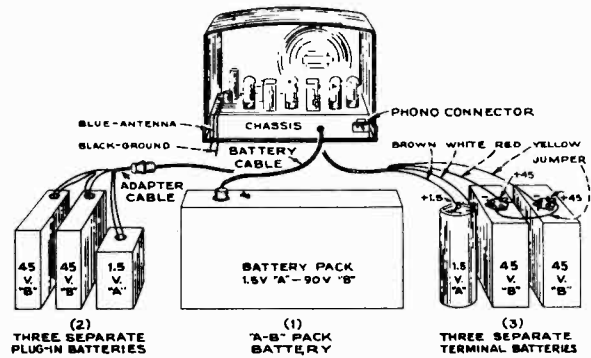
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
36088	Bearing—Tuning shaft bearing and nut.....	13167	Resistor—3.9 meg., 1/2 watt.....
35097	Can—Shield can for I-F transformer Stock No. 36084.....	13601	Resistor—10 meg., 1/2 watt.....
36083	Can—Shield can for I-F transformer Stock No. 36083.....	36089	Shaft—Tuning shaft.....
37814	Capacitor—9 mmfd.....	35787	Socket—Phono. input socket only.....
12723	Capacitor—56 mmfd.....	31319	Socket—Tube socket.....
13057	Capacitor—88 mmfd.....	33175	Spring—Drive cord spring.....
12720	Capacitor—100 mmfd.....	31261	Spring—Oscillator coil mounting spring.....
12694	Capacitor—220 mmfd.....	35098	Spring—Spring to hold transformer in shield can.....
14498	Capacitor—680 mmfd.....	36081	Switch—Battery saver and tone switch.....
34459	Capacitor—.0025 mfd.....	36082	Transformer—First I-F transformer—less shield can.....
33584	Capacitor—.005 mfd.....	36084	Transformer—Second I-F transformer—less shield can.....
4937	Capacitor—.01 mfd.....	34373	Washer—"C" washer for tuning shaft.....
32787	Capacitor—.05 mfd.....	SPEAKER ASSEMBLIES Model 14BT1, 14BT2 (RL-85-4)	
4839	Capacitor—.1 mfd.....	32907	Cap—Dust cap.....
33911	Capacitor—Electrolytic 10 mfd., 150 volts.....	36295	Cone—Cone complete with voice coil.....
36085	Coil—Antenna coil.....	36098	Transformer—Output transformer.....
36092	Coil—Oscillator coil.....	SPEAKER ASSEMBLIES (RL-92-3) Model 14BK	
36091	Condenser—Variable tuning condenser Models 14BT2 and 14BK.....	32907	Cap—Dust cap.....
36079	Condenser—Variable tuning condenser Model BT1.....	36077	Cone—Cone complete with voice coil.....
36080	Control—Volume control and power switch.....	5118	Plug—3-prong male plug for speaker.....
32634	Cord—Drive cord.....	36098	Transformer—Output transformer.....
36093	Core—Adjustable core and stud for oscillator coil.....	MISCELLANEOUS ASSEMBLIES	
36087	Frame—Dial frame complete with pulleys Models 14BT2 and 14BK.....	35104	Crystal—Escutcheon and crystal—Model 14BT1.....
36086	Frame—Dial frame—less dial—Model 14BT1.....	36099	Decalcomania—Control marker decal.....
35091	Indicator—Station selector indicator Model 14BT1.....	36100	Dial—Dial scale—Model 14BTL.....
36090	Indicator—Station selector indicator Model 14BT2 and 14BK.....	36102	Dial—Glass dial scale—Model 14BK.....
34256	Lamp—Blinker lamp.....	36101	Dial—Glass dial scale—Model 14BT2.....
5119	Plug—3-prong male plug for speaker cable.....	35937	Escutcheon—Dial scale escutcheon—less dial—Model 14BK.....
30550	Plug—4-prong male plug for battery cable.....	35915	Escutcheon—Dial scale escutcheon—less dial—Model 14BT2.....
32289	Pulley—Drive cord pulley.....	35678	Fastener—Push-on fastener for crystal Stock No. 35104.....
12261	Resistor—390 ohms, 1/2 watt.....	36297	Knob—Volume control, power switch, tone switch, or tuning knob.....
12414	Resistor—560 ohms, 1/2 watt.....	30900	Spring—Retaining spring for knobs.....
12412	Resistor—47,000 ohms, 1/2 watt.....	M1-8128	Adaptor—Cable for 3 separate batteries.....
13715	Resistor—68,000 ohms, 1/2 watt.....		
12264	Resistor—220,000 ohms, 1/2 watt.....		
13730	Resistor—1 meg., 1/2 watt.....		
12679	Resistor—2.2 meg., 1/2 watt.....		

Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1N5-GT grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	C11 and C12 (2nd I-F transformer)
2	1A7-GT grid cap, in series with .01 mfd.	455 kc		C8 and C9 (1st I-F transformer)
3	Antenna terminal, in series with 200 mmfd. Connect low side of test-osc. to "G" term.	1500 kc	1500 kc	C4 (osc.) C2 (ant.)
4		600 kc	600 kc	L3 (osc.) Rock in
5	Repeat steps 3 and 4			



Precautionary Lead Dress

1. The phono input leads should be dressed away from 3Q5GT output leads.
2. C21 should be dressed away from the 3Q5GT output leads.
3. The lead from the 3Q5GT plate to output transformer should be dressed under clip and away from audio input plate leads.

Excessive Regeneration:

When excessive regeneration occurs in models 14BT-1, 14BT-2, and 14BK, the following procedure should be followed:

- (a) Make certain the grounding finger for IN5GT tube shield is fastened to tube pin No. 1, which is grounded to receiver chassis.
- (b) Make certain that the metal rim of IN5GT socket is soldered to the chassis.
- (c) Realign I.F. transformers, using stage-by-stage procedure as specified in service notes, and do not "touch-up" individual trimmers.
- (d) Unusually high-gain IN5GT or 1A7GT tubes should be replaced with tubes having normal gain.

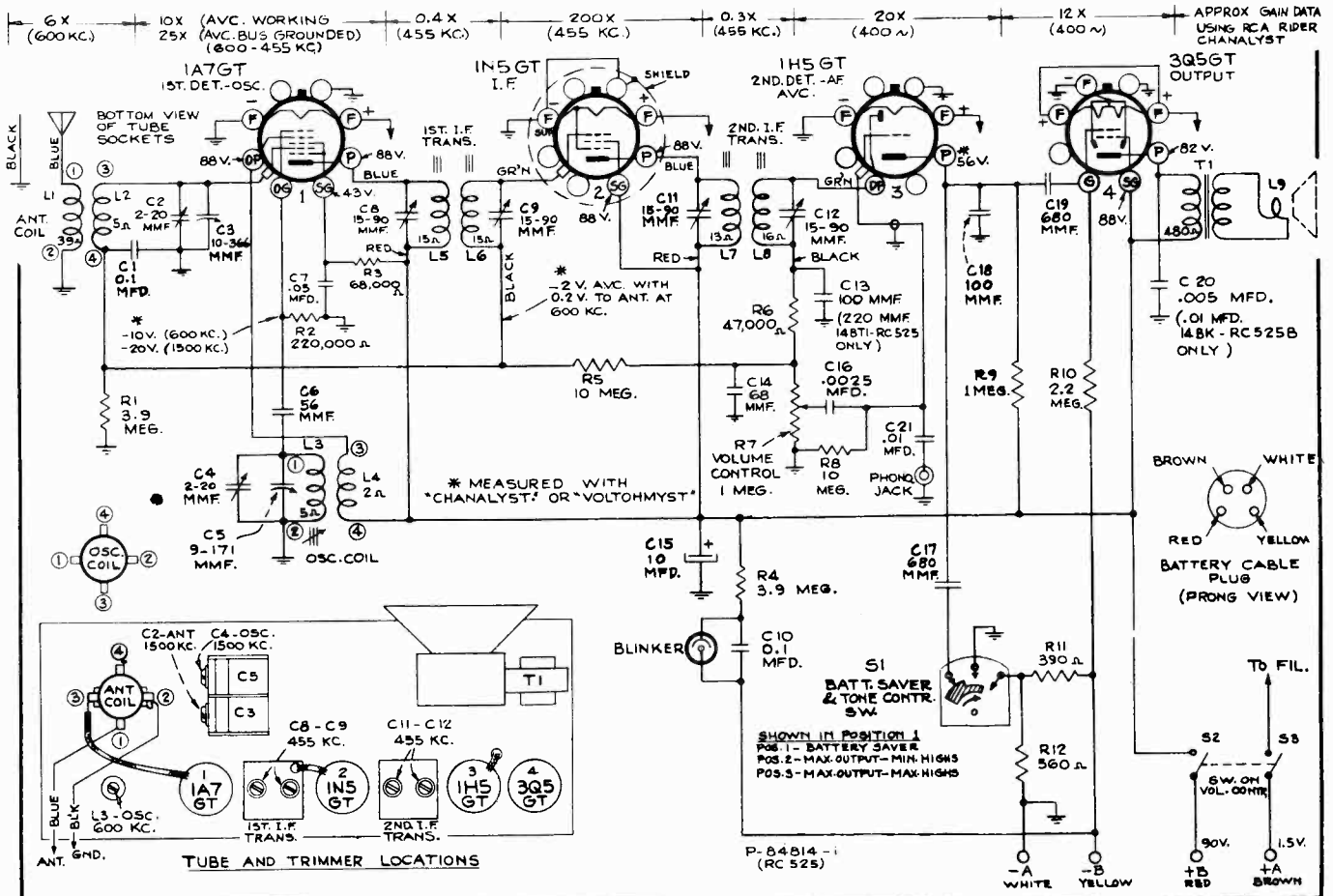
Distortion and Loss of Sensitivity:

Some cases of loss of sensitivity, and distortion have been associated with frequency drift. In such an event, correction may be made by:

- (a) Connecting a 9 mmfd. condenser (RCA Stock No. 37814) from the high side of the oscillator section, at the gang condenser, to ground.
- (b) Realigning the 1st detector and oscillator tuned circuits.
- (c) Realigning the I.F. circuits if necessary.

Battery Cable Change:

In some 14BT production, the +A wire in the battery cable is black or black with red tracer instead of brown.



MODELS Q14, Q15 and Q14E, Q15E

Chassis No. RC-566

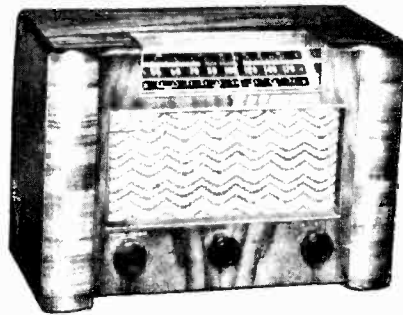
RC-566B

Five-Tube, Three-Band, AC, Superheterodyne Receiver



Q14
Q14E
→

Q15
Q15E
←



Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.3-7.0 mc (130-42.9 m)
 Short Wave ("C" Band)..... 7.0-22.0 mc (42.9-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA 6SA7..... 1st Detector-Oscillator
- (2) RCA 6SK7..... I-F Amplifier
- (3) RCA 6SQ7..... 2nd Detector AVC, and A.F. Amplifier
- (4) RCA 6K6GT..... Power Output
- (5) RCA 5Y3G..... Rectifier

PILOT LAMP..... Mazda 44

POWER SUPPLY RATINGS

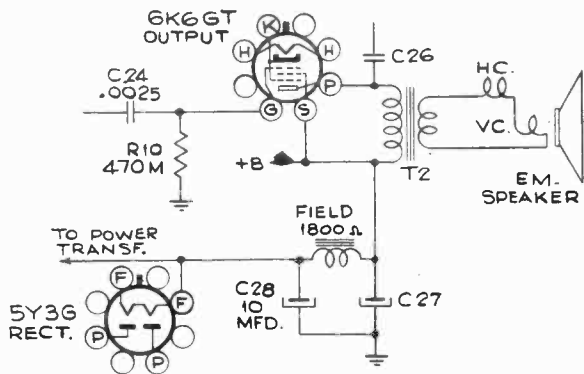
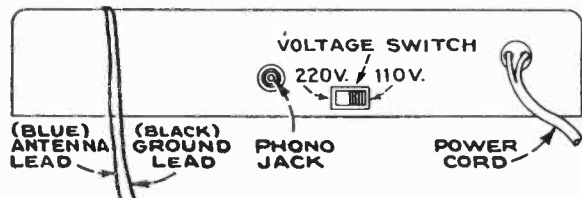
- 105-125 volts, 50-60 cycles..... 50 watts
- 105-125 volts, 25-60 cycles..... 50 watts
- 105-125, 200-250 volts, 50-60 cycles..... 50 watts

POWER OUTPUT

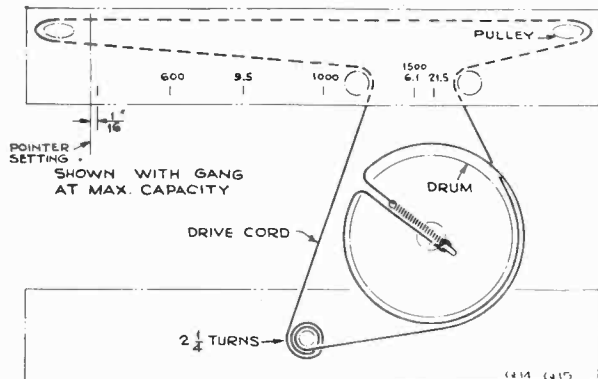
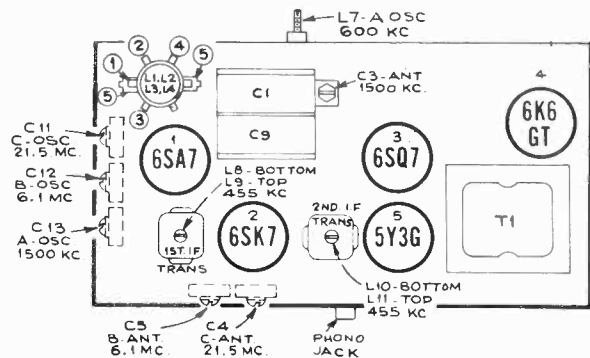
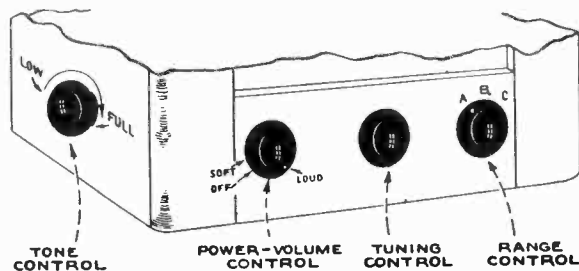
- Undistorted..... 1.4 watts
- Maximum..... 2.3 watts

LOUDSPEAKERS

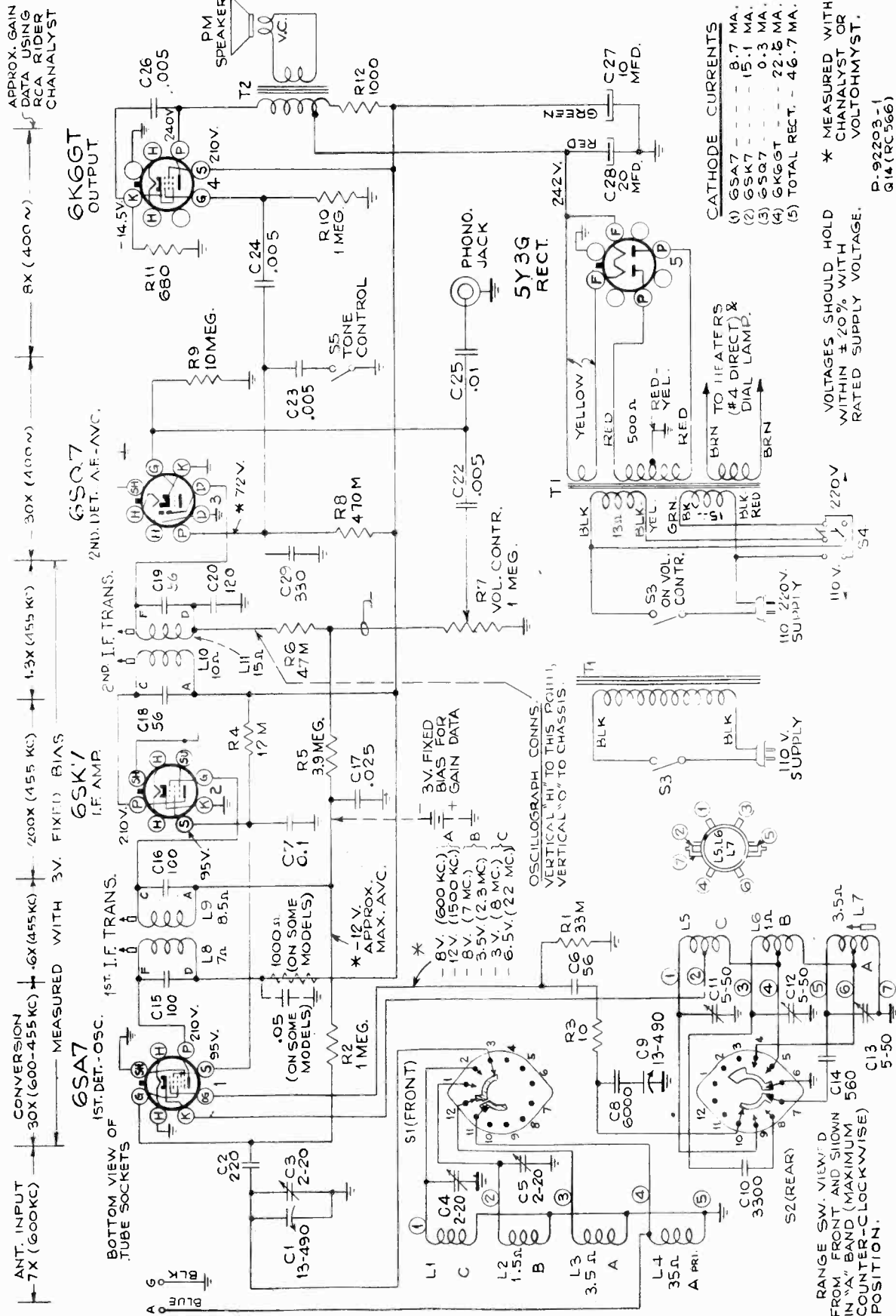
- | | | |
|-----------------------------------|------------|------------|
| | Q14, Q15 | Q14E, Q15E |
| Speaker No..... | RL-92A2 | RL-79C1 |
| Type..... | 6-in. PM | 6-in. EM |
| Field coil resistance..... | 1,800 ohms | 1,800 ohms |
| V.C. Impedance at 400 cycles..... | 3.4 ohms | 3.4 ohms |



Q14E and Q15E



Q14, Q15, Q14E, Q15E



SCHEMATIC DIAGRAM Q14 AND Q15

The Speaker Circuit in Q14E and Q15E is Shown on Facing Page.

Q14, Q15, Q14E, Q15E

Alignment Procedure

Steps	Range Switch	Connect high side test osc. to—	Tune test osc. to—	Turn radio dial to	Adjust following for max. peak output
1	"A"	I-F grid in series with .01 mfd.	455 kc	"A" band quiet point at high freq. end	L10, L11 (2nd I-F trans.)
2		1st det. grid in series with .01 mfd.			L9, L8 † (1st I-F trans.)
3		Antenna lead in series with 200 mmf.	1,500 kc (200 m)	1,500 kc mark (5th mark)	C13, C3
4			600 kc (500 m)	600 kc mark (2nd mark)		L7** Rock gang
5		Repeat steps 3 and 4			
6	"B"	Antenna lead in series with 300 ohms	6.1 mc	6.1 mc mark (5th mark)	C12* (osc.) C5 (ant.)
7	"C"		21.5 mc	21.5 mc mark (6th mark)	C11*, C4

* Use minimum capacity peak if two peaks can be obtained.

** Rock gang slightly for peak output.

† Do not readjust L11 or L10 when test oscillator is applied to the 6SA7 Grid.

NOTE: Oscillator tracks above signal on all bands.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be 1/16 inch to the left of first mark on dial backing plate.

Precautionary Lead Dress RC566 and 566B.—

- "B" and "C" band antenna trimmer leads to be dressed away from "B" and "C" band oscillator trimmer leads.
- Excess power transformer leads to be dressed between power trans. bell and rear apron of chassis.
- R9 1st Audio grid lead, dressed down to chassis.
- "B" Band Antenna coil lead to be wired so that it is dressed around "B" band section in a clockwise direction to coil lug in order to obtain proper "B" band tracking.
- "C" band oscillator cathode lead to be dressed around coil in clockwise direction as shown in sample.
- Dress tone control capacitor C23 up and away from A.C. switch leads.
- Dress capacitor C25 from phono. socket to 6SQ7 socket up and away from all parts and leads.
- Keep grid end of R2 (Pin No. 8 of 6SA7) short as possible.
- Dress audio coupling C22 from volume control clear of A.C. wiring.
- Red lead from A.C. switch to power switch to be dressed down against base.
- Drive front gang mounting screw first.

Precautionary Lead Dress RC566B.—

Same as RC566 plus the following:

- "C" band oscillator cathode lead must be dressed closed to oscillator coil and above all parts as per sample.
- Blue lead from band switch to oscillator coil must be dressed towards back of oscillator coil.
- Excess red Electrolytic lead must be dressed near trans.
- Dress cap. to phono. socket away from 110/220 switch and leads.
- Dress 6.000 mmf. cap (C8) close to band switch.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
Q14, Q15—(RC566) Q14E, Q15E—(RC566B)			
35761	Capacitor—Electrolytic, comprising 1 section of 20 mfd., 350 volts, and 1 section of 10 mfd., 350 volts (Q14 and Q15)	35787	Socket—Phono input socket
39195	Capacitor—2 sec., 10 mfd., 450 volts (Q14E and Q15E)	31251	Socket—Tube socket
32830	Capacitor—Mica trimmer, comprising 2 sections of 2-20 mmfd. each	31418	Spring—Drive cord spring
32829	Capacitor—Mica trimmer, comprising 3 sections of 5-60 mmfd. each	38330	Switch—Range switch
12723	Capacitor—56 mmfd., moulded	32827	Switch—Voltage change switch
30949	Capacitor—56 mmfd., unmoulded	35636	Transformer—First I.F. transformer
30904	Capacitor—100 mmfd.	35628	Transformer—Second I.F. transformer
12724	Capacitor—120 mmfd.	35758	Transformer—Power transformer—105-125 volts, 25 cycle—less end shields (Q14 and Q15)
12694	Capacitor—220 mmfd.	35757	Transformer—Power transformer—105-125 volts 50-60 cycle—less end shields (Q14 and Q15)
12952	Capacitor—330 mmfd.	35759	Transformer—Power transformer—110-220 volts, 50-60 cycle (Q14 and Q15)
12537	Capacitor—560 mmfd.	35588	Power Transformer—105-120 volts, 25 cycle (Q14E and Q15E)
31403	Capacitor—3,300 mmfd.	32852	Power Transformer—110-220 volts, 50-60 cycle (Q14E and Q15E)
31405	Capacitor—6,000 mmfd.	32911	Power Transformer—105-120 volts, 50-60 cycle (Q14E and Q15E)
34459	Capacitor—.0025 mfd. (Q14E and Q15E)	33726	Washer—"C" washer for tuning shaft
4838	Capacitor—.005 mfd., 1,000 volts	Q14, Q15 SPEAKER ASSEMBLIES—P. M. (RL-92A2)	
33584	Capacitor—.005 mfd., 1,200 volts	31825	Cap—Dust cap
4858	Capacitor—.01 mfd.	38392	Cone—Cone complete with voice coil
4870	Capacitor—.025 mfd.	31567	Plug—3-prong male plug for speaker
4839	Capacitor—.01 mfd.	37984	Transformer—Output transformer
32821	Coil—Antenna coil—"A," "B," and "C" bands	Q14E AND Q15E SPEAKER ASSEMBLIES (RL-79C1)	
38292	Coil—Oscillator coil—"A," "B," and "C" bands	31825	Cap—Dust cap
38287	Condenser—Variable tuning condenser	32903	Coil—Field coil—1,800 ohms
33630	Control—Tone control	38392	Cone—Cone complete with voice coil
38406	Control—Volume control and power switch	5118	Plug—3 prong male plug for speaker
34662	Cord—Drive cord (approx. 53 in. overall lgth.)	32905	Transformer—Output transformer
32713	Core—Adjustable core and stud for oscillator coil	Note: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.	
36237	Drum—Tuning condenser drive drum	MISCELLANEOUS ASSEMBLIES	
38331	Indicator—Station selector indicator	38335	Clamp—Dial clamp
38332	Plate—Dial back plate complete with pulleys—less dial	36103	Decalcomania—"Off-Volume" decal.
5119	Plug—3-contact female for speaker cable (Q14E and Q15E)	35480	Decalcomania—Range switch decal.
36230	Pulley—Drive cord pulley	38336	Dial—Glass dial scale
13988	Resistor—10 ohms, 1/2 watt	35650	Knob—Tone control knob
32686	Resistor—680 ohms, 1 watt	37256	Knob—Tuning knob
30152	Resistor—1,000 ohms, 1 watt (Q14 and Q15)	38334	Knob—Volume control or range switch knob
43765	Resistor—12,000 ohms, 2 watt	11891	Lamp—Dial lamp
12454	Resistor—33,000 ohms, 1/2 watt	14270	Spring—Retaining spring for knob, No. 35650
12412	Resistor—47,000 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs, No. 38334 and No. 37256
30648	Resistor—470,000 ohms, 1/2 watt		
13730	Resistor—1 meg., 1/2 watt		
32809	Resistor—3.9 meg., 1/2 watt		
30992	Resistor—10 meg., 1/2 watt		
38333	Shaft—Tuning knob shaft		
35772	Shield—Bottom end shield for power transformer (Q14 and Q15)		
35709	Shield—Top end shield for power transformer (Q14 and Q15)		
36932	Socket—Dial lamp socket		

Chassis No. RC-527, 527-A & 527-C

MODEL 15BP SERIES

Five-Tube, Single-Band, Battery or House Current Superheterodyne Receivers

Electrical and Mechanical Specifications

Frequency Range..... 540-1,720 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-GT..... 1st.-Det.—Osc.
- (2) RCA-1N5-GT..... I-F Amplifier
- (3) RCA-1H5-GT..... 2nd-Det., A-F, and A.V.C.
- (4) RCA-3Q5-GT..... Output
- (5) RCA-35Z5-GT..... Rectifier

LINE CURRENT SUPPLY

110 to 125 volts, AC 50 or 60 cycles, or DC

BATTERIES REQUIRED

- "A" one 1.5 volt dry plug-in type "A." (Eveready No. 743 or equivalent)
- "B" two 45 volt dry plug-in type "B." (Eveready No. 482 or equivalent)

CURRENT CONSUMPTION

"A" 0.25 amperes } Battery Operation
"B" 11.5 milliamperes }

POWER OUTPUT

Undistorted..... 15 watt
Maximum..... 25 watt

LOUDSPEAKER

Type..... 5-inch permanent-magnet dynamic
Voice-coil Impedance..... 3.4 ohms at 400 cycles
Identification Number..... RL-85-A1
15BP-7 only..... RL-81-B1

Power line consumption, 117 volts..... 35 watts
Total rectified "B" current, 117 volts 60 cycles..... 56 mils.

Model Type Cabinet

- | | |
|----------------|--------------------|
| Chassis RC-527 | |
| 15BP-1 Plastic | Chassis RC-527A |
| 15BP-2 Brown | 15BP-3 Gray Fabric |
| | 15BP-5 Blue |
| 15BP-4 Brown | Leatherette |
| | Leatherette |
| 15BP-6 Wood | |

15BP7 RC527C Tan Leatherette

Replacement Power Switch Kit No. 37383:

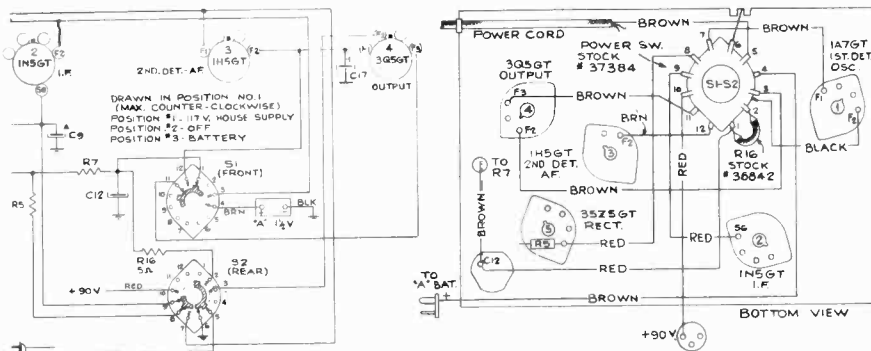
Filament burn-outs may be caused by excessive voltage surges occurring when switching from "POWER LINE" to "BATTERY" or vice versa. Whenever servicing receivers for this reason, the power switch should be replaced and wired as shown, using Stock No. 37383 power switch kit.

Note the addition of a 5-ohm resistor, and the necessity for installing a new indicator, both of which are included in the replacement power switch kit, Stock No. 37383. The new indicator is arranged "BATTERY-OFF-POWER LINE," necessitating that the switch pass through "OFF" in going from line to battery, thereby discharging all filter capacitors.

The Stock No. 37383 kit contains one each of:

- Stock No. 37384 Power switch only
- 37385 Indicator only ("BATT-OFF-POWER LINE")
- 36842 5-ohm resistor only

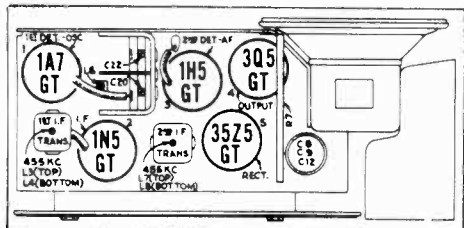
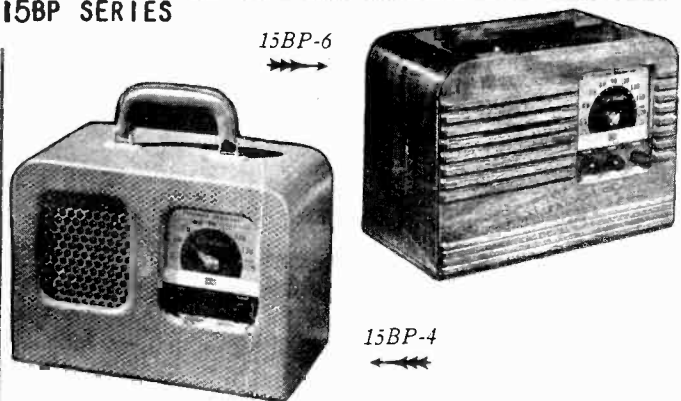
This change is incorporated in Second Production Models



Schematic and Wiring Diagram for Connecting No. 37383 Power Switch Kit in Model 15BP Series

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
CHASSIS ASSEMBLIES			
	RC 527 (15BP1, 15BP2, 15BP4, 15BP6)	32299	Socket—Tube socket.....
	RC 527A (15BP3, 15BP5)	36131	Spring—Drive cord spring.....
	RC 527C (15BP7)	36121	Transformer—First I-F transformer.....
36176	Capacitor—33 mmfd., silver mica.....	36122	Transformer—Second I-F transformer.....
36175	Capacitor—58 mmfd., silver mica.....	33726	Washer—"C" washer for tuning shaft.....
12720	Capacitor—100 mmfd.....	37385	Indicator—Power switch indicator plate (Power Line—Off—Battery).....
13894	Capacitor—390 mmfd.....	36842	Resistor—5 ohm resistor (1 watt) (Flexible).....
36163	Capacitor—.001 mfd.....	37681	Resistor—Resistance power cord, 545 ohms.....
4937	Capacitor—.01 mfd.....	37384	Switch—Power switch.....
32787	Capacitor—.05 mfd.....	SPEAKER ASSEMBLIES	
4839	Capacitor—.01 mfd.....		(RL-85A1) (RL-81-B1)
12484	Capacitor—0.25 mfd.....	32907	Cap—Dust cap.....
34965	Capacitor—Electrolytic 20 mfd., 25 volts.....	36465	Cone—Cone complete with voice coil. (RL-85A1)
34472	Capacitor—Electrolytic comprising two sections of 20 mfd., 150 volts, and one section of 200 mfd., 25 volts.....	36098	Transformer—Output transformer.....
36134	Case—Power cord case.....	35570	Cone—Cone complete with voice coil. (RL-81-B1)
36123	Coil—Oscillator coil.....	MISCELLANEOUS ASSEMBLIES	
36120	Condenser—Variable tuning condenser.....	36150	Back—Back cover—Model 15BP1.....
36125	Control—Volume control.....	36152	Crystal—Dial scale crystal—Models 15BP2, 15BP3, 15BP4, 15BP5, 15BP6.....
92634	Cord—Drive cord (approx. 13-in. overall).....	36151	Crystal—Dial scale crystal—Model 15BP1.....
36128	Dial—Dial scale—Models 15BP1, 15BP2, 15BP4, 15BP6, 15BP7.....	36153	Fastener—One set of 4 push-on fasteners for back cover—Model 15BP1.....
36251	Dial—Dial scale—Models 15BP3 and 15BP5.....	35678	Fastener—Push-on fastener for crystal—Model 15BP1.....
36133	Indicator—Station selector indicator.....	36222	Fastener—Snap fastener for power cord door.....
36132	Loop—Antenna loop.....	36225	Handle—Carrying handle—Model 15BP6.....
36127	Plate—Dial plate—less dial.....	36221	Handle—Carrying handle—Models 15BP2 and 15BP4.....
32208	Plug—2-prong male plug for "A" battery cable.....	36224	Handle—Carrying handle—Model 15BP5.....
32641	Plug—3-prong male plug for "B" battery cable.....	36223	Handle—Carrying handle—Model 15BP3.....
36129	Resistor—Voltage divider—2,800 ohms, 7 watts.....	36252	Knob—Black volume control power switch or tuning knob—Models 15BP3 and 15BP5.....
30538	Resistor—330 ohms, ½ watt.....	35121	Knob—Brown volume control, power switch, or tuning knob—Models 15BP1, 15BP2, 15BP4, 15BP6.....
14076	Resistor—820 ohms, ½ watt.....	36154	Spacers—One set of rubber spacers for control shaft.....
30730	Resistor—2,700 ohms, ½ watt.....	35392	Decalcomania—Trade mark decal.....
13998	Resistor—22,000 ohms, ½ watt.....	37388	Handle—Carrying handle.....
12286	Resistor—56,000 ohms, ½ watt.....		
12284	Resistor—220,000 ohms, ½ watt.....		
13730	Resistor—1 meg., ½ watt.....		
12679	Resistor—2.2 meg., ½ watt.....		
11668	Resistor—5.8 meg., ½ watt.....		
13601	Resistor—10 meg., ½ watt.....		
36130	Shaft—Tuning shaft.....		

Alignment Procedure



Precautionary Lead Dress.—

1. Lead from I-F tube grid and from the loop to variable capacitor should not be disturbed after receiver has been aligned.
2. Grid lead to the 1N5-GT tube should be kept away from leads to filament resistors.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1N5GT I-F grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	L8, L7 (2nd transformer)
2	1A7GT 1st-Det. grid cap, in series with .01 mfd.			L4, L3 (1st I-F transformer)
3	radiated signal	signal frequency		C22 (Osc. Trimmer)
4	radiated signal			C20 (Ant. Trimmer)
5	radiated signal near 600 kc			L6 (Rock in)
6	Repeat steps 3, 4 and 5 until aligned.			

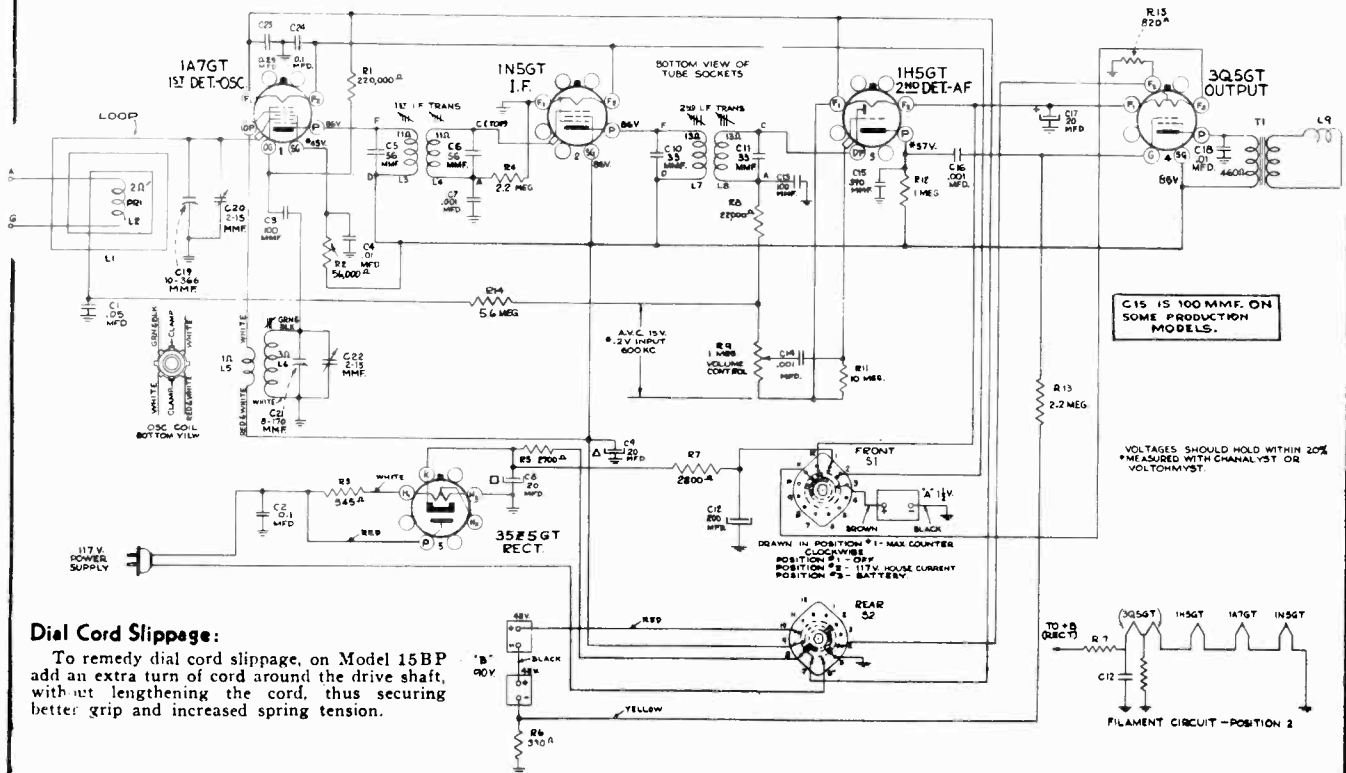
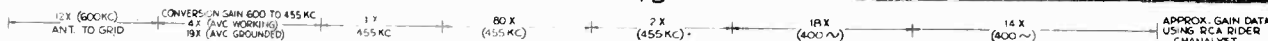
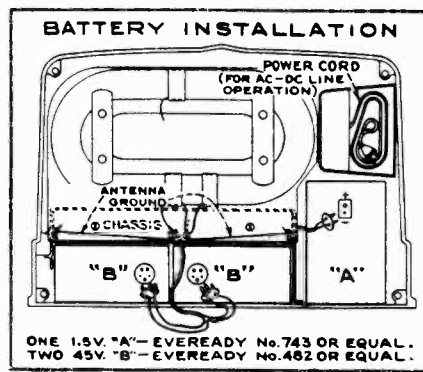
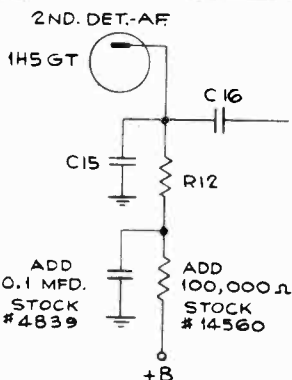
Fidelity Change:

Should accentuation of the higher audio frequency register be desired, capacitor C-15, connected across the 1st A.F. output, may be decreased from 390 mmfd. to 100 mmfd. Some production instruments will have this change already applied; therefore, circuit diagrams should be revised accordingly.

Hum:

Occasional cases of hum on Model 15BP instruments may often be reduced by application of the following:

- (a) Shield the 1H5GT 2nd det. A.F. tube by means of a tube shield securely grounded.
- (b) Insert a filter network in the 1st audio plate circuit as shown in the accompanying diagram.



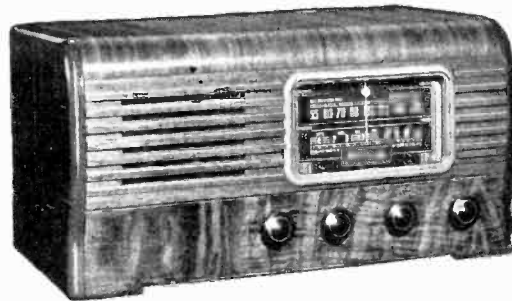
Dial Cord Slippage:

To remedy dial cord slippage, on Model 15BP add an extra turn of cord around the drive shaft, with ut lengthening the cord, thus securing better grip and increased spring tension.

MODEL 15BT

Chassis No. RC-526

Five-Tube, Two-Band, Battery-Operated, Superheterodyne Receiver



RCA Victor 15BT.

Electrical and Mechanical Specifications

FREQUENCY RANGE

Broadcast..... 535-1,712 kc
 Short Wave..... 5.9-18.3 mc
 Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA-1N5GT..... R-F Amplifier
- (2) RCA-1A7GT..... 1st Detector-Oscillator
- (3) RCA-1N5GT..... I-F Amplifier
- (4) RCA-1H5GT..... 2nd Detector, AVC, and A-F
- (5) RCA-3Q5GT..... Power Output

POWER OUTPUT

Undistorted..... 0.14 watts
 Maximum..... 0.25 watts

LOUDSPEAKER

Type..... 5-inch permanent-magnet dynamic
 Voice Coil Impedance..... 3.4 ohms at 400 cycles
 Identification Number..... RL-93-1

	Height	Width	Depth
Cabinet Dimensions (inches).....	9 3/4	18	10 7/16
Weight, Net.....			15 lbs.
Shipping.....			18 lbs.
Tuning Drive Ratio.....			22:1

CURRENT CONSUMPTION

"A", 0.3 ampere—"B", 13 milliamperes
 (In "Battery Saver" position, the "B" drain is reduced approximately 40%)

BATTERIES REQUIRED

"A"—"B" Pack (1.5 volt "A," 90 volt "B.")

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-526)			
36083	Can—Shield can for I-F transformer, Stock No. 36082	12261	Resistor—390 ohms, 1/2 watt
35097	Can—Shield can for I-F transformer, Stock No. 36189	14720	Resistor—1,000 ohms, 1/2 watt
33817	Capacitor—Mica trimmer—1 section of 2-20 mmfd.	30146	Resistor—4,700 ohms, 1/2 watt
36192	Capacitor—Mica trimmer—1 section of 3-30 mmfd.	12412	Resistor—47,000 ohms, 1/2 watt
13002	Capacitor—12 mmfd.	13715	Resistor—68,000 ohms, 1/2 watt
13545	Capacitor—39 mmfd.	12264	Resistor—220,000 ohms, 1/2 watt
12723	Capacitor—58 mmfd.	13730	Resistor—1 meg., 1/2 watt
13057	Capacitor—68 mmfd.	5131	Resistor—2.2 meg., 1/10 watt
12720	Capacitor—100 mmfd.	12679	Resistor—2.2 meg., 1/2 watt
12694	Capacitor—220 mmfd.	13167	Resistor—3.9 meg., 1/2 watt
32363	Capacitor—470 mmfd.	30271	Resistor—4.7 meg., 1/2 watt
14498	Capacitor—680 mmfd.	13601	Resistor—10 meg., 1/2 watt
36247	Capacitor—3,900 mmfd.	36195	Shaft—Tuning shaft
34459	Capacitor—.0025 mfd.	36657	Socket—Phono. input cable socket
4937	Capacitor—.01 mfd.	31319	Socket—Tube socket
36248	Capacitor—.02 mfd.	33175	Spring—Drive cord spring
32787	Capacitor—.05 mfd.	35098	Spring—Spring used to hold I-F transformer in can
4839	Capacitor—.01 mfd.	36188	Switch—Range switch
32548	Capacitor—Electrolytic comprising 1 section of 20 mfd. and 1 section of 12 mfd.	36081	Switch—Tone and battery switch
36190	Coil—Antenna coil	36196	Support—Tuning shaft support
36092	Coil—Oscillator coil	36082	Transformer—First I-F transformer—less shield can
33787	Coil—Oscillator coil—"C" band	36189	Transformer—Second I-F transformer—less shield can
36191	Coil—R.F. coil	36194	Transformer—Output transformer
36186	Condenser—Variable tuning condenser	SPEAKER ASSEMBLIES (RL-93-1)	
36080	Control—Volume control and power switch	32907	Cap—Dust cap
36093	Core—Adjusting core and stud for oscillator coil	36426	Cone—Cone complete with voice coil
36193	Indicator—Station selector indicator	MISCELLANEOUS ASSEMBLIES	
34256	Lamp—Blinker lamp	36198	Decalcomania—Control panel decal.
36197	Plate—Dial plate complete with drive cord pulleys less dial scale	36220	Dial—Glass dial scale
30550	Plug—4-prong male plug for battery cable	35915	Escutcheon—Dial scale escutcheon—less dial
32289	Pulley—Drive cord pulley and shoulder rivet	36297	Knob—Tone and battery or range switch knob
14561	Resistor—220 ohms, 1/2 watt	36298	Knob—Volume and power switch or tuning knob
		30900	Spring—Retaining spring for knobs, Stock Nos. 36297 and 36298
		MI-8128	Adaptor—Cable for 3 separate batteries

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagrams.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

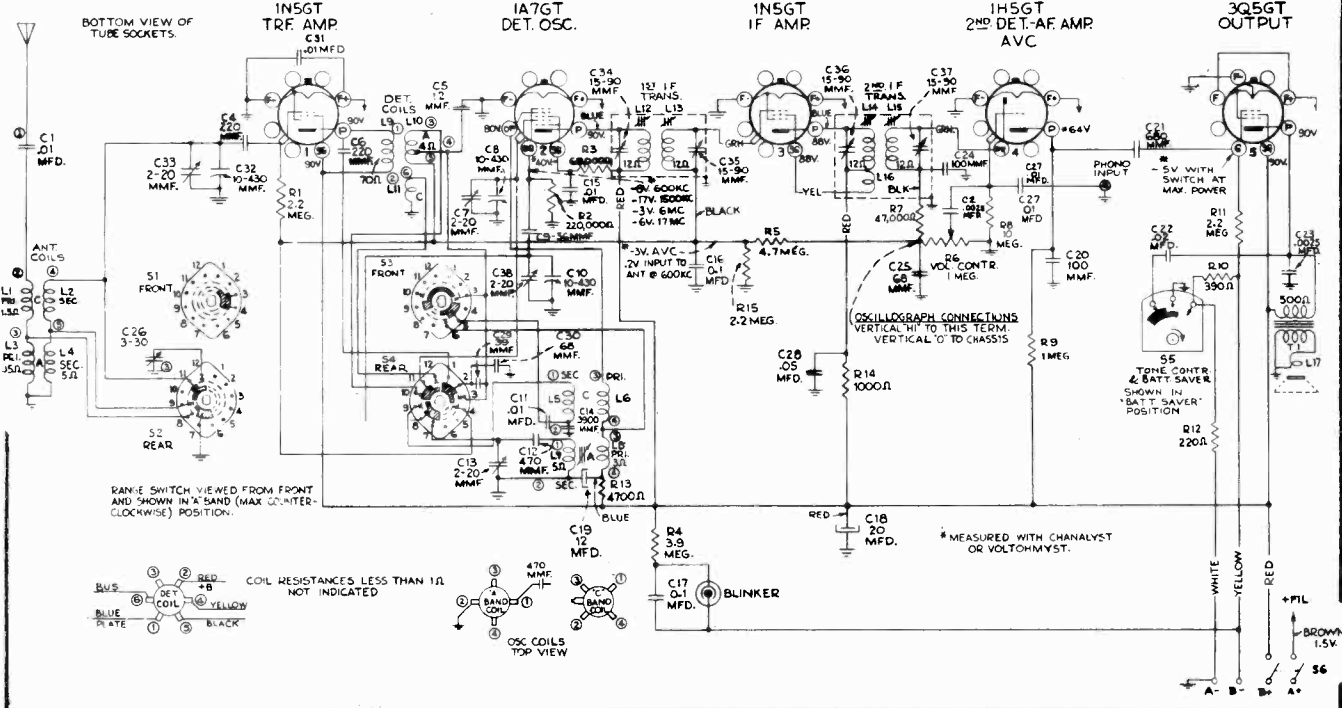
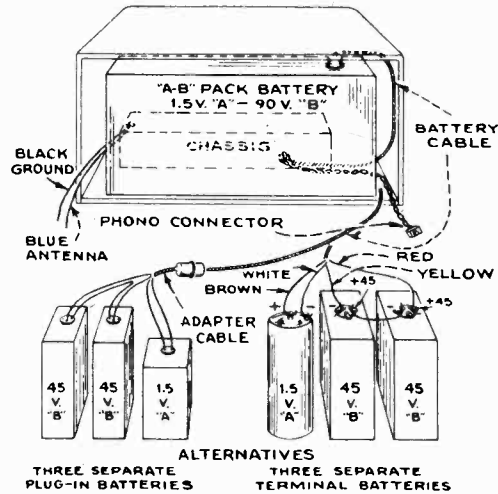
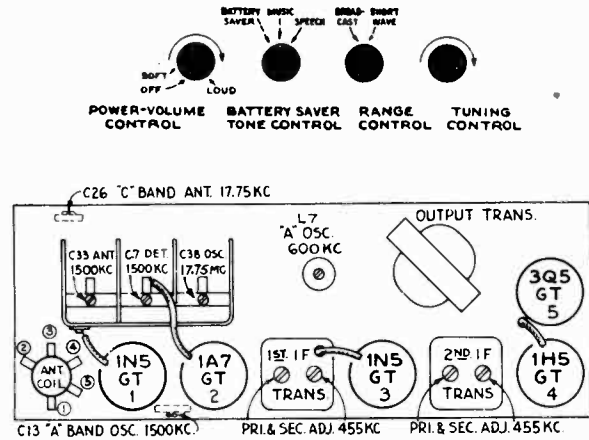
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or Volt Ohmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment.

- Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	1N5GT I-F grid cap in series with 0.1 mfd.	455 kc	"A" band Quiet point between 550-750 kc	C37, C36 2nd I-F transformer
No. 2	1A7GT 1st-Det. grid cap, in series with 0.1 mfd.			C35, C34 1st I-F transformer
No. 3	Antenna lead, in series with 200 mmfd.	17.75 mc	"C" band 17.75 mc	C38* Osc. trimmer
No. 4		1,500 kc	"A" band 1,500 kc	C13, C7, C33 Osc. R.F. Ant. Trimmers
No. 5		600 kc	"A" band 600 kc	L7 osc. (Rock in)
No. 6		Repeat steps 4 and 5		
No. 7		17.75 mc	"C" band 17.75 mc	C26 Ant. trimmer

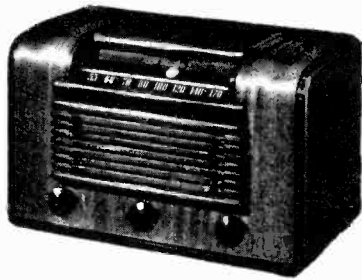
* Use minimum capacity peak.



MODELS 15X, 16X-1, 16X-2 16X-3 and 36X

Chassis Nos. RC-462, RC-462A RC-462B RC-462-A

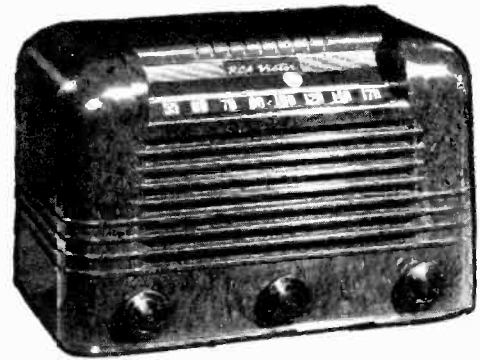
Six-Tube, Single-Band, AC-DC, Superheterodyne Receivers



MODEL 16X3



MODEL 36X



MODEL 15X WALNUT
MODEL 16X1 WALNUT
MODEL 16X2 IVORY

Electrical and Mechanical Specifications

FREQUENCY RANGE.....	535-1,720 kc
INTERMEDIATE FREQUENCY.....	455 kc
TUBE COMPLEMENT	
(1) RCA-12SK7.....	R-F Amplifier
(2) RCA-12SA7.....	1st Det.—Osc.
(3) RCA-12SK7.....	I-F Amplifier
(4) RCA-12SQ7.....	2nd Det., A.V.C., and A-F Amplifier
(5) RCA-35L8-GT.....	Power Output
(6) RCA-35Z5-GT.....	Rectifier
PILOT LAMP..... Mazda No. 51, 6-8 volts, 0.2 amp.	
POWER OUTPUT:	
Undistorted.....	0.9 watts
Maximum.....	1.4 watts
POWER SUPPLY RATING	
105-125 volts, AC, 50 or 60 cycles, or DC.....	30 watts

Model	Height	Width	Depth	Weight (net)	Type Cabinet
Chassis RC-462					
15X.....	7 3/4 in.	12 in.	7 in.	7 1/2 lbs.	Mahogany Plastic
Chassis RC-462A					
16X-1.....	7 3/4 in.	12 in.	7 in.	7 1/2 lbs.	Mahogany Plastic
16X-2.....	7 3/4 in.	12 in.	7 in.	7 1/2 lbs.	Ivory Plastic
Chassis RC-462B					
16X-3.....	8 7/16 in.	13 3/4 in.	7 1/2 in.	9 lbs.	Wood
Cabinet Dimensions 36X.....					
	Height	Width	Depth		
	8 3/4 in.	14 3/4 in.	7 1/2 in.		
LOUDSPEAKER (RL-81A-5)					
Type.....	5-inch permanent-magnet dynamic				
V.C. Impedance.....	4 ohms at 400 cycles				
LOUDSPEAKER (RL-86-B1)					
Type.....	5-inch Electrodynamic				
V.C. Impedance.....	4 ohms at 400 cycles				
Tuning Drive Ratio... .. 16-1					

Alignment Procedure

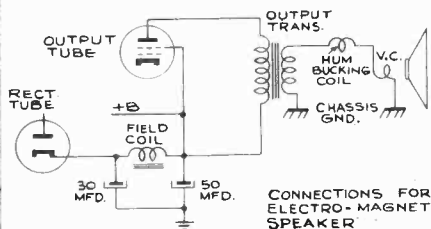
Output Meter Alignment. — If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator. — For all alignment operations, keep the output as low as possible to avoid a-v-o action.

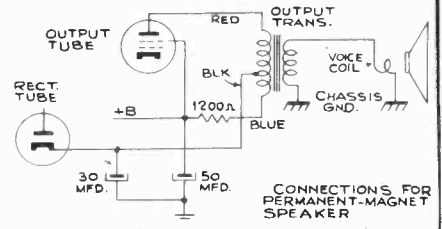
Precautionary Lead Dress:

- .01 mfd. capacitor from output plate to cathode to be dressed as far as possible away from .015 mfd. 1st audio grid condenser and volume control terminals to eliminate audio howl.
- Filament lead to pin No. 7 on 35L8-GT socket to be dressed away from 1st audio grid.
- Dress B+ lead on 12SK7 I.F. socket across bottom of socket between grid and plate contacts to aid reduction of grid plate capacitance.
- Dress excess lead lengths of I.F. transformer, grid and plate leads into cans to aid shielding.
- Dress filament leads of 35L8-GT around 12SQ7 socket and into chassis corner to reduce hum.

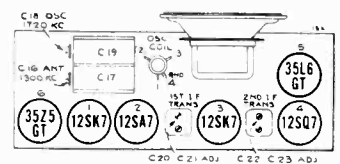
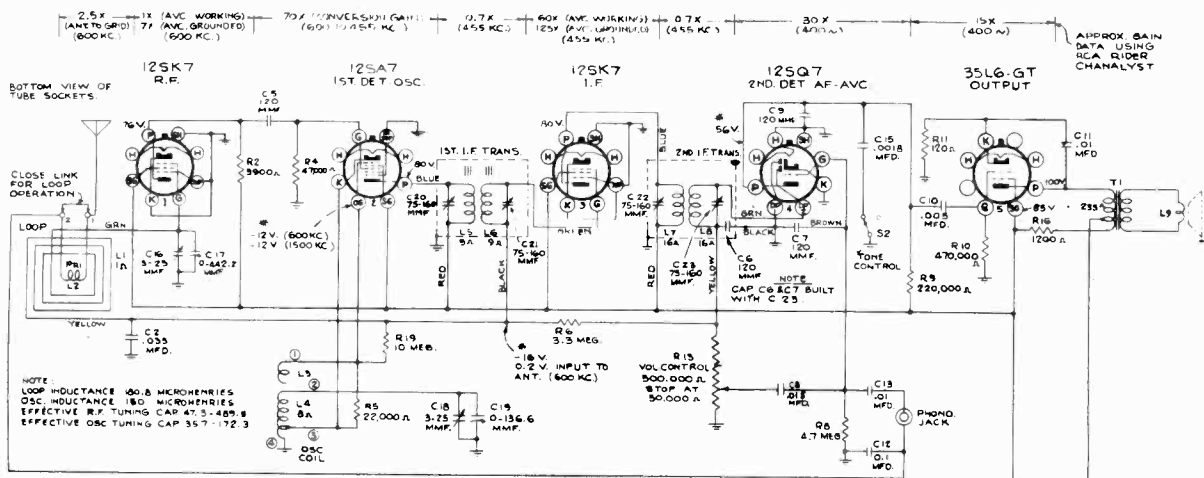
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio to—	Adjust the following for maximum peak output
1	12SK7 I-F grid, in series with 0.1 mfd.	455 kc	Quiet Point at 1,700 kc end of dial	C23, C22 2nd I-F transformer
2	12SA7 1st det. grid, in series with 0.1 mfd.			C21, C20 1st I-F transformer
3	12SK7 R-F grid, in series with 0.1 mfd.	1,720 kc	1,720 kc	C18 (osc.)
4	Radiation Loop	1,300 kc	Signal frequency	C16 (ant.)
5	Repeat steps 3 and 4			



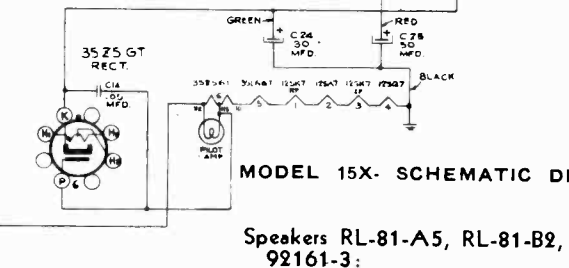
WHEN ORDERING REPLACEMENT PARTS FOR SPEAKERS, NOTE THE IDENTIFICATION NUMBER STAMPED ON THE SPEAKER FRAME. IF THE NUMBER STAMPED ON THE SPEAKER DOES NOT APPEAR IN THE FOLLOWING LIST, ORDER THE REQUIRED PART BY DESCRIPTION, AND SPECIFY THE IDENTIFYING NUMBER STAMPED ON THE SPEAKER AND THE RECEIVER MODEL NUMBER.



15X, 16X1, 16X2, 16X3, 36X



VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117V AC SUPPLY.
 * MEASURED WITH CHANALYST OR VOLTOHMIST.



MODEL 15X- SCHEMATIC DIAGRAM

15X, 16X-1, -2, -3

Dial Back Plate:

In some production, the dial back plate and pulley assembly is changed from "garnet maroon," Stock No. 36229, to "Black," Stock No. 38767.

Capacitor Changes:

In 2nd Production, the following capacitors are changed:

- C5 from 120 to 150 mfd., Stock No. 12725
- C8 from .015 to .02 mfd., Stock No. 36248
- C9 from 120 to 300 mfd.

C9 is built in with C10 (.005 mfd.) and the stock number of the dual unit is 37359.

Substitute Speaker:

On 2nd Production of 15X, 16X-1, 16X-2, RL-86-B1 "EM" speaker is used in place of the original RL-81-A5 "PM" speaker.

Replacement parts for the RL-86-B1 speaker are listed below. The alternate circuit arrangements are shown in accompanying diagrams.

Stock No.	Description
32907	Cap—Dust cap.....
39448	Coil—Field coil, 350 ohms.....
39447	Cone—Cone and voice coil.....

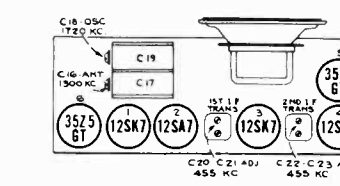
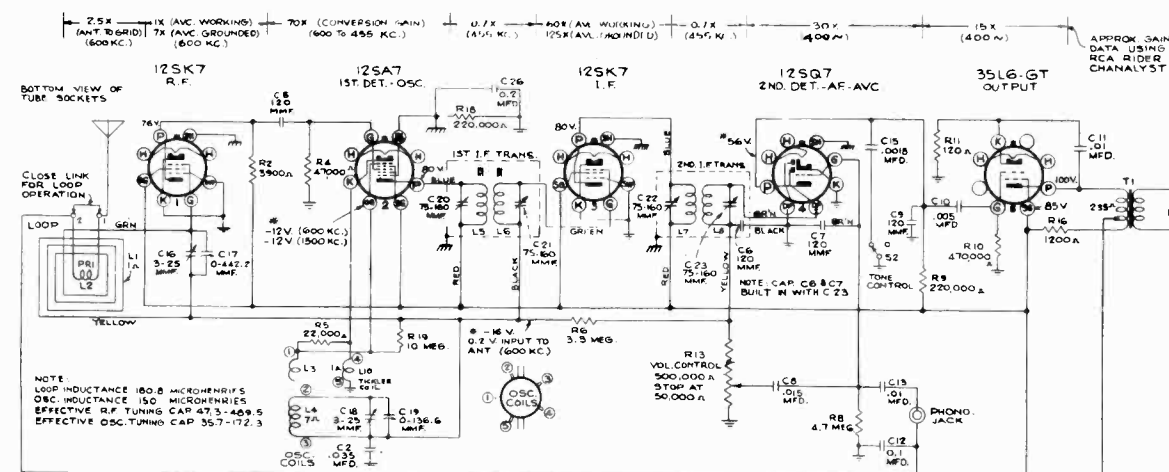
The output transformer for this speaker is Stock No. 38994.

Speakers RL-81-A5, RL-81-B2, 92161-1, 92161-3:

Four different speakers have been used on these models. The replacement parts are listed below:

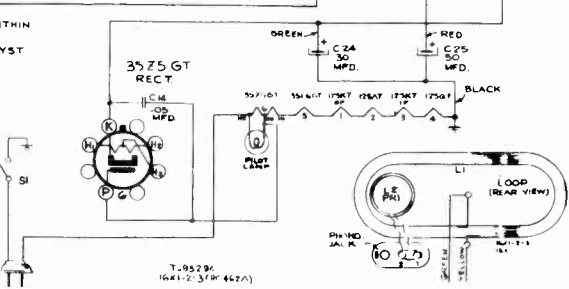
Stock No.	Description
32907	Cap—Dust cap.....
35570	Cone—Cone complete with voice coil.....

Stock No.	Description
38352	Cone—Cone complete with voice coil.....



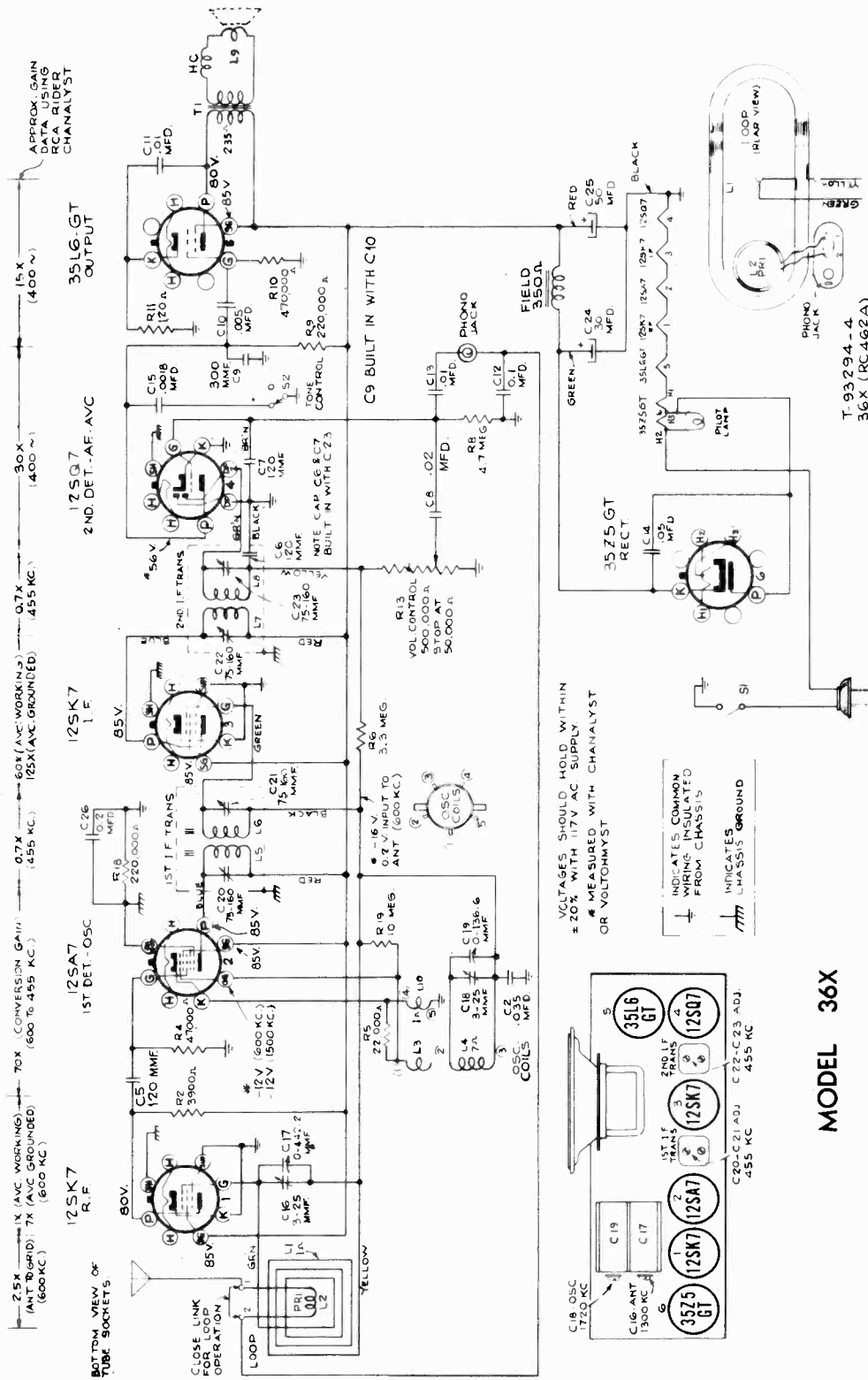
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117V AC SUPPLY.
 * MEASURED WITH CHANALYST OR VOLTOHMIST.

INDICATES COMMON WIRING INSULATED FROM CHASSIS
 INDICATES CHASSIS GROUND



MODELS 16X-1, -2, -3 SCHEMATIC DIAGRAM

15X, 16X1, 16X2, 16X3, 36X



VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V AC SUPPLY
MEASURED WITH CHANNELYST OR VOLTOHMYST

INDICATES COMMON WIRING INSULATED FROM CHASSIS
INDICATES UNASS'G GROUND

MODEL 36X

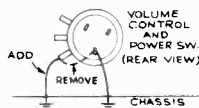
EITHER "EM" OR "PM" SPEAKERS MAY BE USED IN MODELS 15X, 16X1, -2, -3. "EM" SPEAKER CONNECTIONS AS SHOWN IN SCHEMATIC OF MODEL 36X.

15X, 16X1, 16X2, 16X3, 36X

15X, 16X SERIES

Residual Hum:

In some instruments the ground return of the volume control is made to a lug on the power switch, and has a mutual path thru several inches of lead with the power circuit. This introduces a certain amount of hum into the first audio stage input. Hum due to this cause can be eliminated by removing the present grounding lead of the volume control from the power switch, and connecting it directly to the chassis.



Simple Wiring Change to Reduce Hum in Models 15X and 16X.

SUBSTITUTE SPEAKERS 15X, 16X-1, 16X-2

NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.	Output Trans. Stock No.
RL-86-A3	35570	39543	38994
RL-86-B1	39447	39448	38994
RL-86-B4	39447	39448	38994
92161-3	38352	PM	36800
92161-4	39535	PM	36800
92161-5	38352	PM	36800
92322-2	39536	PM	36800
92374-1	39537	PM	36800

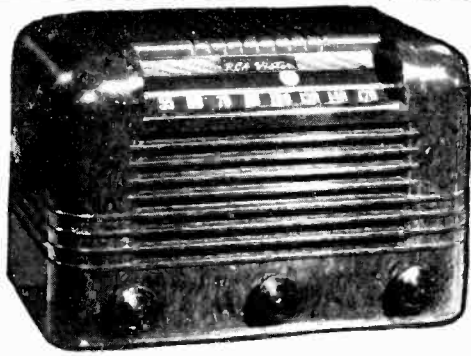
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES Model 15X (RC-462) Model 16X1 (RC-462A) Model 16X2 (RC-462A) Model 16X3 (RC-462B)		CHASSIS ASSEMBLIES (RC-462-A) 36X
36239	Board—Terminal and receptacle board.....	36239	Board—Terminal and receptacle board.....
36238	Bracket—Dial lamp bracket.....	36238	Bracket—Dial lamp bracket.....
12724	Capacitor—120 mmfd.....	12725	Capacitor—150 mmfd.....
54506	Capacitor—.0018 mfd.....	34506	Capacitor—.0018 mfd.....
33564	Capacitor—.005 mfd.....	4937	Capacitor—.01 mfd.....
4937	Capacitor—.01 mfd.....	4870	Capacitor—.025 mfd.....
11315	Capacitor—.015 mfd.....	5196	Capacitor—.035 mfd.....
5196	Capacitor—.035 mfd.....	32787	Capacitor—.05 mfd.....
32787	Capacitor—.05 mfd.....	4839	Capacitor—.01 mfd.....
4839	Capacitor—.01 mfd.....	34505	Capacitor—.02 mfd.....
34505	Capacitor—.02 mfd.—Models 16X1, 16X2, 16X3	35348	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts, and 1 section of 20 mfd., 150 volts
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd. and 1 section of 50 mfd., 150 volts each	35096	Coil—Loop loading coil.....
35096	Coil—Loop loading coil.....	36801	Coil—Oscillator coil.....
36234	Coil—Oscillator coil—Model 15X.....	36226	Condenser—Variable tuning condenser.....
36801	Coil—Oscillator coil—Models 16X1, 16X2, 16X3	36242	Control—Volume control and power switch.....
36226	Condenser—Variable tuning condenser.....	32634	Cord—Drive cord (Approx. 49-in. overall lgth.)
36242	Control—Volume control and power switch.....	36237	Drum—Drive drum.....
34662	Cord—Drive cord (Approx. 49 in. overall).....	36236	Indicator—Station selector indicator.....
36237	Drum—Drive drum.....	36231	Loop—Antenna loop complete.....
36236	Indicator—Station selector indicator.....	36229	Plate—Dial back plate and pulley assembly complete
36231	Loop—Antenna loop complete.....	36230	Pulley—Drive cord pulley and bearing rivet.....
36229	Plate—Dial back plate and pulley assembly complete	12071	Resistor—120 ohms, 1/2 watt.....
36230	Pulley—Drive cord pulley and bearing rivet.....	6134	Resistor—1,200 ohms, 1 watt.....
12071	Resistor—120 ohms, 1/2 watt.....	12955	Resistor—3,900 ohms, 1/2 watt.....
6134	Resistor—1,200 ohms, 1 watt.....	13998	Resistor—22,000 ohms, 1/2 watt.....
12955	Resistor—3,900 ohms, 1/2 watt.....	12412	Resistor—47,000 ohms, 1/2 watt.....
13998	Resistor—22,000 ohms, 1/2 watt.....	12264	Resistor—220,000 ohms, 1/2 watt.....
12412	Resistor—47,000 ohms, 1/2 watt.....	12285	Resistor—470,000 ohms, 1/2 watt.....
12264	Resistor—220,000 ohms, 1/2 watt.....	12928	Resistor—3.3 meg., 1/2 watt.....
12285	Resistor—470,000 ohms, 1/2 watt.....	30271	Resistor—4.7 meg., 1/2 watt.....
12928	Resistor—3.3 meg., 1/2 watt.....	30992	Resistor—10 meg., 1/2 watt.....
30271	Resistor—4.7 meg., 1/2 watt.....	30886	Screw—No. 8 1/2 self-tapping screw for adjusting lamp bracket
13601	Resistor—10 meg., 1/2 watt.....	36235	Shaft—Tuning shaft.....
30886	Screw—No. 8 1/2 self-tapping screw for adjusting lamp bracket	31251	Socket—Tube socket.....
36235	Shaft—Tuning shaft.....	31418	Spring—Drive cord spring.....
35345	Socket—Dial lamp socket—Model 15X.....	36228	Switch—Tone switch—Model 15X
31251	Socket—Tube socket.....	36228	Switch—Tone switch—Models 16X1, 16X2, 16X3
31418	Spring—Drive cord spring.....	36232	Transformer—First I-F transformer.....
36228	Switch—Tone switch—Model 15X	36233	Transformer—Second I-F transformer.....
36228	Switch—Tone switch—Models 16X1, 16X2, 16X3	36800	Transformer—Output transformer.....
36232	Transformer—First I-F transformer.....	33726	Washer—"C" washer for tuning shaft.....
36233	Transformer—Second I-F transformer.....		
36800	Transformer—Output transformer.....		
33726	Washer—"C" washer for tuning shaft.....		
	SPEAKER ASSEMBLIES (RL-81-A-5)		SPEAKER ASSEMBLIES (RL-86-B1, RL-86-B4)
32907	Cap—Dust cap.....	32907	Cap—Dust cap.....
35570	Cone—Cone complete with voice coil.....	39448	Coil—Field coil—350 ohms.....
		39447	Cone—Cone complete with voice coil.....
	MISCELLANEOUS ASSEMBLIES		NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.
36240	Back—Cabinet back—Models 15X, 16X1.....		MISCELLANEOUS ASSEMBLIES
36241	Back—Cabinet back—Model 16X2.....	39777	Back—Cabinet back.....
36302	Back—Cabinet back—Model 16X3.....	39781	Dial—Glass dial scale.....
36308	Dial—Glass dial scale.....	33006	Feet—Rubber feet—Pkg. of 4.....
37831	Fastener—Push on fastener for backs—Models 15X, 16X1, 16X2, 16X3.....	36722	Knob—Control knob.....
36722	Knob—Tuning, tone or volume knob—Models 15X, 16X1, 16X3.....	11765	Lamp—Dial lamp.....
36723	Knob—Tuning, tone or volume knob—Model 16X2.....	30900	Spring—Retaining spring for knob.....
11765	Lamp—Dial lamp.....		

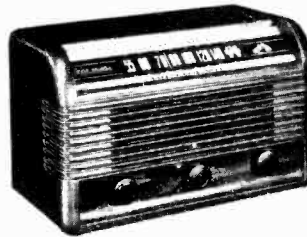
MODELS 15X and 36X

2nd Prod. Chassis No. RC-1011



15X

36X



In second production, the frequency range is 540-1,620 kc.

Specifications

FREQUENCY RANGE..... 540-1,620 kc
 INTERMEDIATE FREQUENCY..... 455 kc
 POWER OUTPUT
 Undistorted..... 0.9 watts
 Maximum..... 1.4 watts

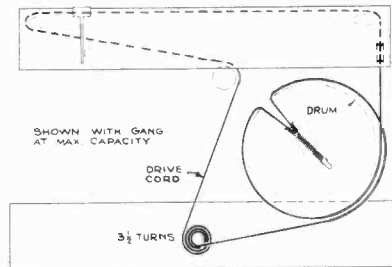
POWER SUPPLY RATING
 105-125 volts, AC, 50 or 60 cycles, or DC..... 30 watts
 PILOT LAMP..... Mazda No. 51, 6-8 volts, 0.2 amp.
 Tuning Drive Ratio..... 16:1

TUBE COMPLEMENT

- (1) RCA-12SG7 Converter
- (2) RCA-12SK7 I.F. Amplifier
- (3) RCA-12SQ7 2nd Det., A.V.C., and A.F. Amplifier
- (4) RCA-35L6GT Power Output
- (5) RCA-12J5GT Oscillator
- (6) RCA-35Z5GT Rectifier

LOUDSPEAKER (RL-86B-1) (RL-86B-4)
 Type..... 5-inch EM 5-inch EM
 V. C. Impedance..... 3 ohms at 400 cycles.. 4 ohms at 400 cycles

CABINET DIMENSIONS Height Width Depth
 15X—2nd Prod. (Mahogany, Plastic) 7 1/2-in. 12-in. 7-in.
 36X—2nd Prod. (Walnut, Wood) 8 11/16-in. 14 1/4-in. 7 1/2-in.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-1011)		31418	Spring—Drive cord spring.....
34506	Capacitor—0018 mfd.....	36228	Switch—Tone switch.....
14393	Capacitor—01 mfd.....	36232	Transformer—First I.F. transformer.....
36248	Capacitor—02 mfd.....	37364	Transformer—Second I.F. transformer.....
5196	Capacitor—035 mfd.....	38994	Transformer—Output transformer.....
32787	Capacitor—05 mfd.....	33726	Washer—"C" washer for tuning shaft.....
4839	Capacitor—01 mfd.....	SPEAKER ASSEMBLIES (RL-86B-1)	
37359	Capacitor—Comprising 1 section of .0003 mfd. and 1 section of .005 mfd.....	32907	Cap—Dust cap.....
35348	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts and 1 section of 20 mfd., 150 volts.....	39448	Coil—Field coil.....
39824	Coil—Oscillator coil.....	39447	Cone—Cone complete with voice coil.....
36226	Condenser—Variable tuning condenser.....	(RL-86B-4)	
36242	Control—Volume control and power switch.....	32907	Cap—Dust cap.....
34662	Cord—Drive cord (approx. 50-in. overall length).....	39448	Coil—Field coil.....
36237	Drum—Drive drum.....	39447	Cone—Cone complete with voice coil.....
36236	Indicator—Station selector indicator.....	NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.	
11765	Lamp—Dial lamp.....		
39821	Loop—Antenna loop.....		
36229	Plate—Dial back plate complete with drive cord pulleys.....		
36230	Pulley—Drive cord pulley.....		
30189	Resistor—120 ohms, 1/2 watt.....		
30654	Resistor—1,500 ohms, 1/2 watt.....		
12312	Resistor—3,300 ohms, 1/2 watt.....		
30492	Resistor—22,000 ohms, 1/2 watt.....		
14583	Resistor—220,000 ohms, 1/2 watt.....		
30648	Resistor—470,000 ohms, 1/2 watt.....	39777	Back—Back cover (36X—2nd Prod.).....
12928	Resistor—3.3 megohms, 1/2 watt.....	39953	Back—Back cover (15X—2nd Prod.).....
30271	Resistor—4.7 megohms, 1/2 watt.....	36890	Clamp—Dial clamp.....
38785	Resistor—15 megohms, 1/2 watt.....	36891	Clamp—Dial clamp.....
36897	Shaft—Tuning knob shaft.....	39826	Dial—Glass dial scale (36X—2nd Prod.).....
34449	Socket—Dial lamp socket.....	39954	Dial—Glass dial scale (15X—2nd Prod.).....
31251	Socket—Tube socket—wafer.....	37831	Fastener—Push fastener for back (15X—2nd Prod.).....
37605	Socket—Tube socket—moulded.....	36722	Knob—Control knob.....
		30900	Spring—Retaining spring for knobs.....
		MISCELLANEOUS ASSEMBLIES	

55 60 70 80 100 120 140 160

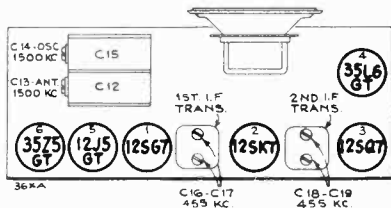
15XA

55 60 70 80 100 120 140 160

36XA

These dial scale drawings are full size reproductions. They can be used as direct substitutes for regular dial scales in alignment procedure. Top: 15X (2nd Prod.); bottom 36X (2nd Prod.).

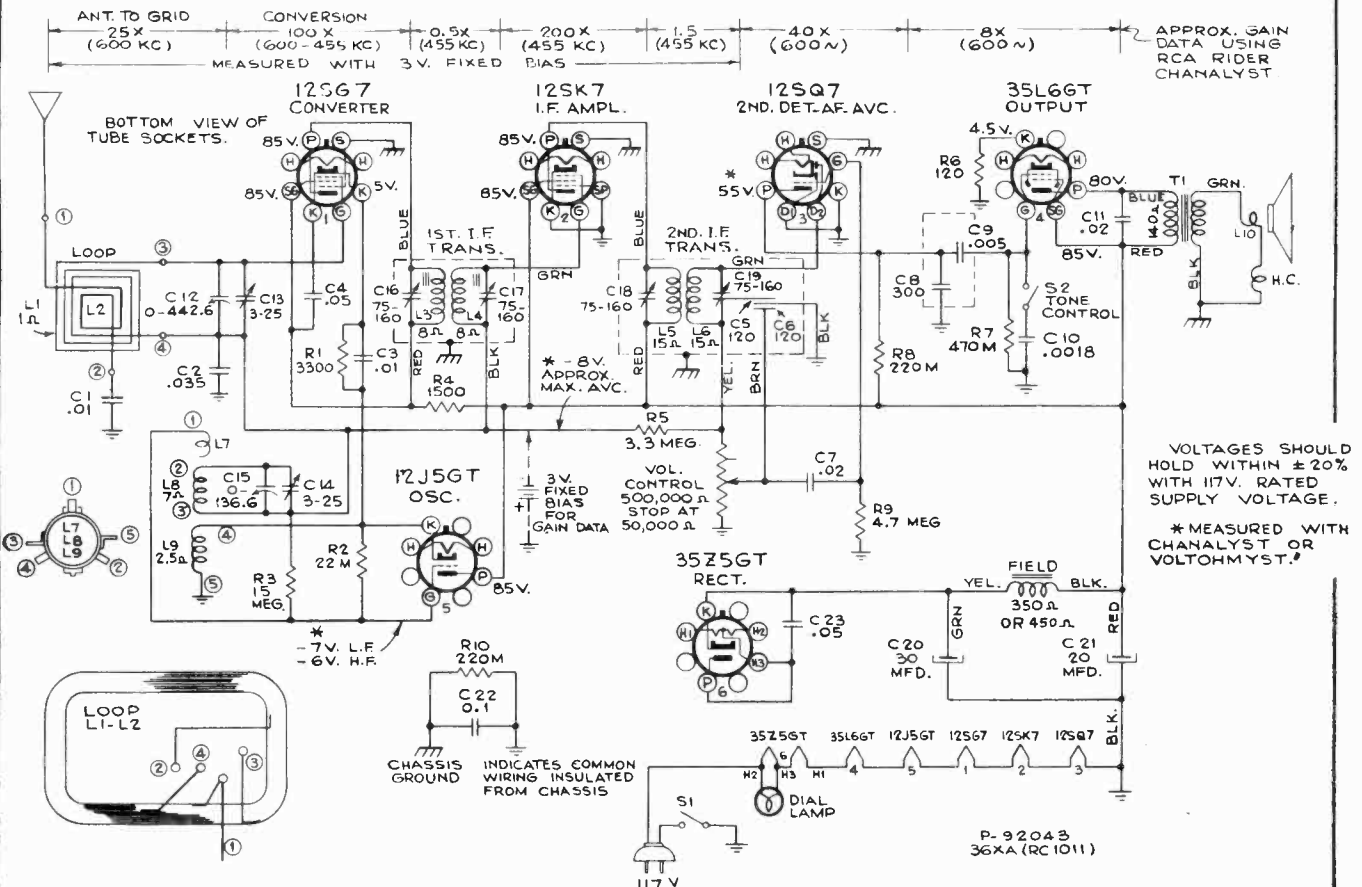
Alignment Procedure



Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	C18 and C19 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			C16 and C17 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc	C14 (osc.) C13 (ant.)
4	Repeat step 3.			

Output Meter Alignment.— If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.— For all alignment operations, keep the output as low as possible to avoid a-v-c action.



Models VA-15, VA-22, and VA-24 Victrola Attachments

MODEL VA-15

Model VA-15 is an automatic record changer in a table cabinet, equipped with a compensated volume control. It has a plug for connection to the Phonograph jack that is provided on most RCA Victor models, and it may be connected to other models of radio receivers by using the Stock No. 9824 radio-phonograph switch.

Specifications are as follows:

Record Capacity

Eight 10-inch or Seven 12-inch
 Motor..... Constant-speed, self-starting
 Pickup..... Crystal
 Pickup Impedance... 0.1 meg., at 1,000 cycles
 Average Output... 1½ volts across 0.5 meg.

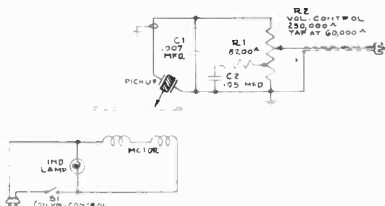
Power Supply Ratings

105-125 volts, 60 cycles, 25 watts
 105-125 volts, 50 cycles, 25 watts
 105-125 volts, 25 cycles, 25 watts

Cabinet Dimensions

9-19/32 in. x 19½ in. x 15-13/32 in.

Weight, net..... 29 lbs.



Model VA-15 Pickup and Motor Circuit



Model VA-15

Replacement Parts MODEL VA-15

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	For Automatic Record Changer Parts, See Service Notes on RP-152.	36386	Decalcomania—"His Master's Voice" decal.
		35467	Decalcomania—"RCA Victrola" decal.
		36809	Hinge—Cabinet lid hinge.
		36728	Lamp—Compartment lamp.
		31470	Mounting—Complete set of spring mounting for motorboard.
	MISCELLANEOUS ASSEMBLIES	12673	Knob—Volume control knob.
32556	Cable—Phono input shield cable.	36246	Receptacle—Needle book receptacle.
33595	Cable—Phono output shield cable.	14075	Resistor—8,200 ohms, ¼ watt.
13103	Cap—Pilot lamp cap.	4119	Screw—No. 8-32 set screw for knob.
5148	Capacitor—.007 mfd.	37887	Shade—Lamp shade.
32787	Capacitor—.05 mfd.	19026	Socket—Lamp socket.
36729	Clamp—Lamp socket clamp.	35787	Socket—Phono input socket.
31108	Control—Volume control.	36941	Support—Cabinet lid support.
36328	Cover—Compartment lamp lead cover.		

MODEL VA-24 IS A COMBINATION OF VA-22 AND OSC. 22 WIRELESS OSCILLATOR.

Specifications MODEL VA-22

Record Capacity..... Eight 10-inch or Seven 12-inch
 MOTOR..... Constant-speed, self-starting
 PICKUP..... Crystal
 Pickup Impedance..... 0.1 meg., at 1,000 cycles
 Average Output..... 1½ volts across 0.5 meg.

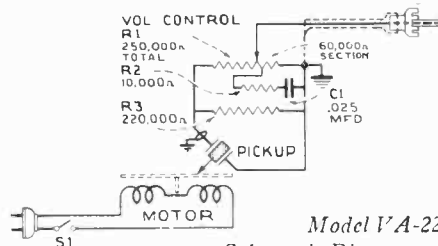
POWER SUPPLY RATINGS

A6..... 105-125 volts, 60 cycles, 25 watts
 A5..... 105-125 volts, 50 cycles, 25 watts
 B2..... 105-125 volts, 25 cycles, 25 watts

CABINET DIMENSIONS..... 32-in. x 19½-in. x 15½-in.
Weight, gross..... 59 lbs.



MODEL VA22



Model VA-22
Schematic Diagram

2nd Production:

The 2nd production of Model VA-22 uses mechanism similar to RP-139A and RP-145. For replacement parts, refer to the Service Data on RP-139A and RP-145 as specified below:

Replacement Parts Model VA-22

STOCK No.	DESCRIPTION
	For Automatic Record Changer Parts, See Service Notes on RP 14 5
	MISCELLANEOUS ASSEMBLIES
33595	Cable—Shielded output cable with male plug.
4870	Capacitor—.025 mfd. (C1).
30698	Hinge—Cabinet lid hinge.
31564	Holder—Needle card holder.
12673	Knob—Volume control knob.
14559	Resistor—10,000 ohms, ¼ watt (R2).
12264	Resistor—220,000 ohms, ¼ watt (R3).
4119	Screw—Headless set screw for knob, No. 12673.
31470	Springs—Motorboard mounting springs, screw, and washers (4 req'd).
33594	Support—Cabinet lid support.
31108	Volume control (R1).

Stock No.

STOCK No.	DESCRIPTION
	PICKUP AND ARM ASSEMBLIES
33905	Same as RP-145, except add: Crystal—Pickup crystal cartridge and needle screw for 25-cycle only.
	OPERATING MECHANISM, MOTOR ASSEMBLIES, MOTORBOARD ASSEMBLIES
	For 110-volt, 60-cycles, same as RP-145.
	For 110-volt, 25-cycles, same as RP-139A.
31108	Control—Volume control and power switch.
12673	Knob—Volume control knob.
31564	Receptacle—Needle card receptacle.
4119	Screw—No. 8-32 headless set screw for knob, Stock No. 12673.
31470	Springs—Motorboard mounting springs, screw and washer (4 required).

MODELS 16K, 16T2 and 16T3

Chassis No. RC-509C RC-509B RC-509A

Six-Tube, Two-Band, AC, Superheterodyne Receivers



Model 16T2



Model 16T3



Model 16K

Electrical Specifications

FREQUENCY RANGES

Broadcast 540-1,560 kc
 Short Wave 5.8-18 mc

INTERMEDIATE FREQUENCY 455 kc

PUSH BUTTON FREQUENCY RANGES (Models 16K and 16T3)

- One station between approximately 540-1,030 kc
- One station between approximately 610-1,250 kc
- Two stations between approximately 740-1,430 kc
- One station between approximately 880-1,560 kc

PILOT LAMP Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted 2.5 watts
 Maximum 4.5 watts

LOUDSPEAKERS

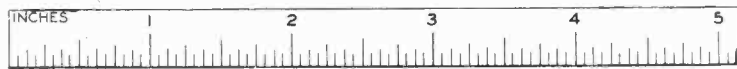
	16K	16T2, 16T3
Size	12-inch	6-inch
V. C. impedance at 400 cycles	2.2 ohms	3.4 ohms
Identification Number	RL-70H6	RL-79B1

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Det., Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6SQ7 2nd Det., A.V.C., and A-F Amplifier
- (5) RCA-6K6GT Power Output
- (6) RCA-5Y3-G Rectifier

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles 70 watts
 105-125 volts, 25-60 cycles 70 watts
 105-125, 200-250 volts, 50-60 cycles 70 watts

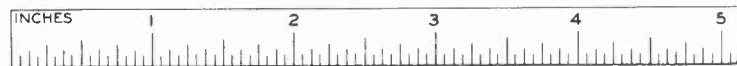


BROADCAST **55 60 70 90 110 130 150** DOMESTIC



SHORT WAVE **6 7 8 9 10 12 14 16 18** FOREIGN

MEX. CT.	49M	LONDON	40M	31M	25M	AM'TR 19M	16M	LONDON
HAYANA	PHILA.	N. YORK	EASTERN	PARIS	SCHENY	LONDON	BERLIN	HUIZEN
BOSTON	BERLIN	PITTSBG	HEMISPHERE	LONDON	H. KONG	TOKYO	PARIS	H. KOA



Calibration Dial for Model 16K

REFER TO PAGE 350C FOR SUPPLEMENTARY INFORMATION

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagrams.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or Volt Ohmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. Or, if necessary, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

- Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

- After completion of the alignment, replace the glass dial in cabinet, taking care that the fibre light shields are in correct position at ends of dial.

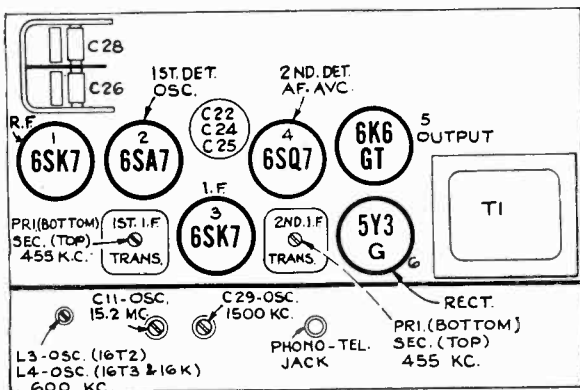
Using Calibration Scale.—

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

- Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.

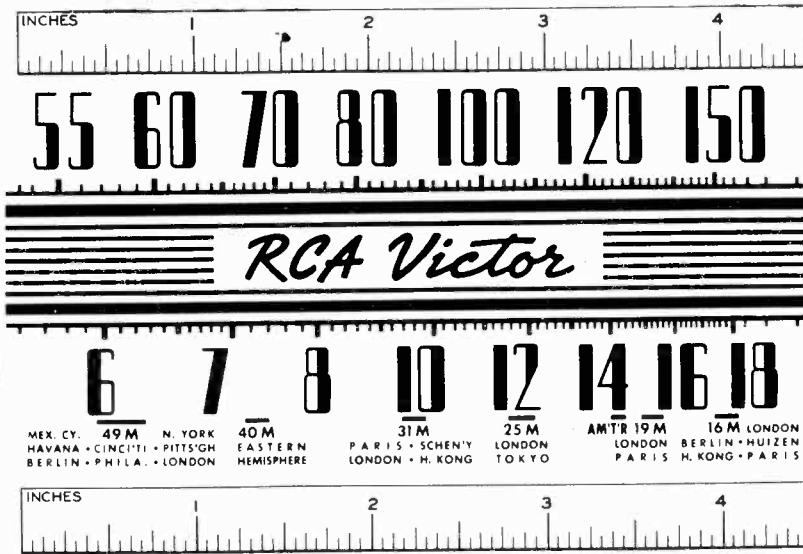
- Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale. For example, 1,500 kc is approximately 4 inches from the reference mark.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.



Models 16K, 16T2, 16T3

At Right—Calibration scale for 16T2, 16T3



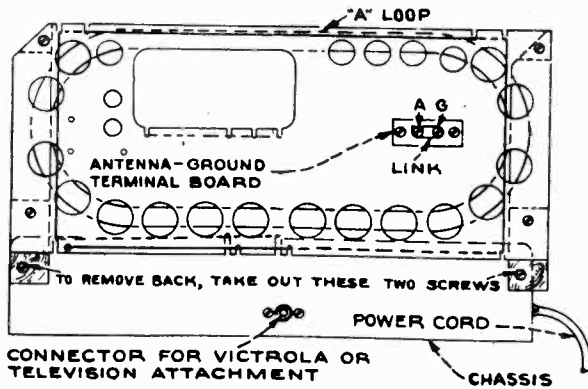
MEX. CY. 49M HAVANA • CINCINNATI • PITTS'GH BERLIN • PHILA. • LONDON N. YORK 40M EASTERN HEMISPHERE P. PARIS • S. SCHEN'Y LONDON • H. KONG 25M LONDON TOKYO 31M AMTR 19M LONDON BERLIN • HUIZEN PARIS H. KONG • PARIS 16M LONDON

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid, in series with .01 mfd.	455 kc	"A" band, Quiet Point at 1,500 kc end of dial	L7 and L8 (2nd I.F. Trans.)
2	1st det. grid, in series with .01 mfd.			L5 and L6 (1st I.F. Trans.)
3	Antenna terminal, in series with 300 ohms (link open)	15.2 mc	15.2 mc "C" band	C11 (osc.)* C2 (ant.)
4	Antenna terminal, in series with 200 mmfd. (link open)	1,500 kc	1,500 kc "A" band	C29 (osc.) C3 (ant.)
5		600 kc	600 kc "A" band	L3 (in 16T2) L4 (in 16K and 16T2) Rock in
6	Repeat steps 4 and 5.			

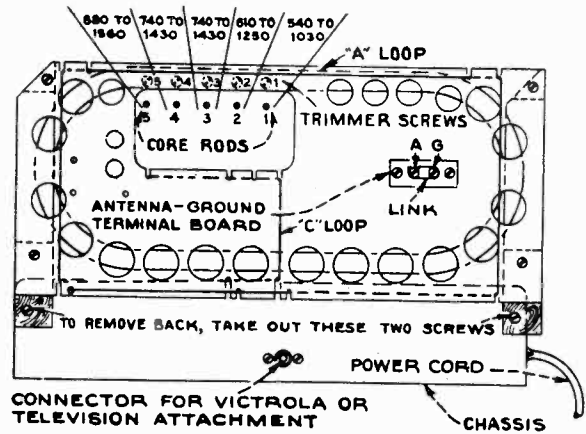
In case of instability during R-F alignment, connect a 27,000 ohm ¼ watt resistor across "D" and "F" of 2nd I-F transformer.

* Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used, by tuning receiver to 14.29 mc, where a weaker signal should be received.

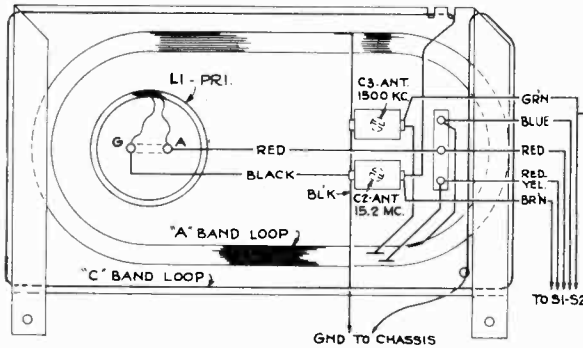
Note: Oscillator tracks above signal on both band



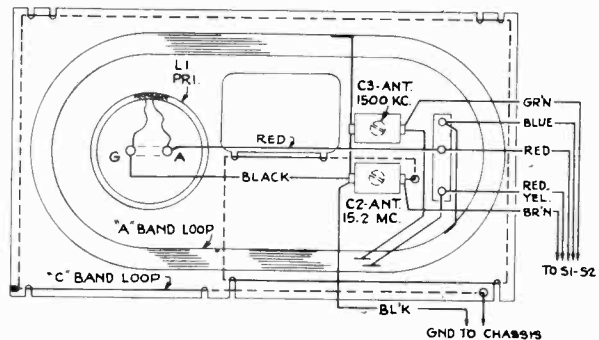
Model 16T2



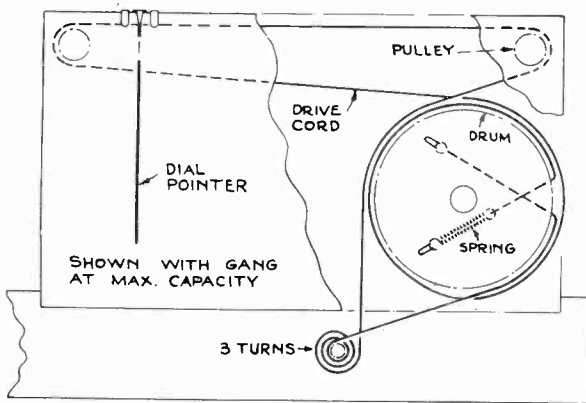
Model 16K, 16T3



Model 16T2



Model 16K, 16T3



Precautionary Lead Dress.—

1. Dress red leads from C band trimmer to coil and switch away from each other (16T2).
2. Keep bus from range switch to lance short as possible (16T2).
3. Tape together red, blue, and brown leads from chassis to loop (16T2).
4. Dress yellow lead from IF to tone switch up away from chassis.
5. Dress C-20 from volume control up away from chassis.
6. Keep grid end of R-12 as short as possible.
7. Dress C-30 away from red and brown A.C. leads.
8. Dress power transformer leads down against chassis.
9. Dress brown power transformer leads back away from IF transformer.

At left—Dial Drive in Models 16K, 16T2, 16T3

Push Button Adjustment (Models 16K and 16T3)

The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

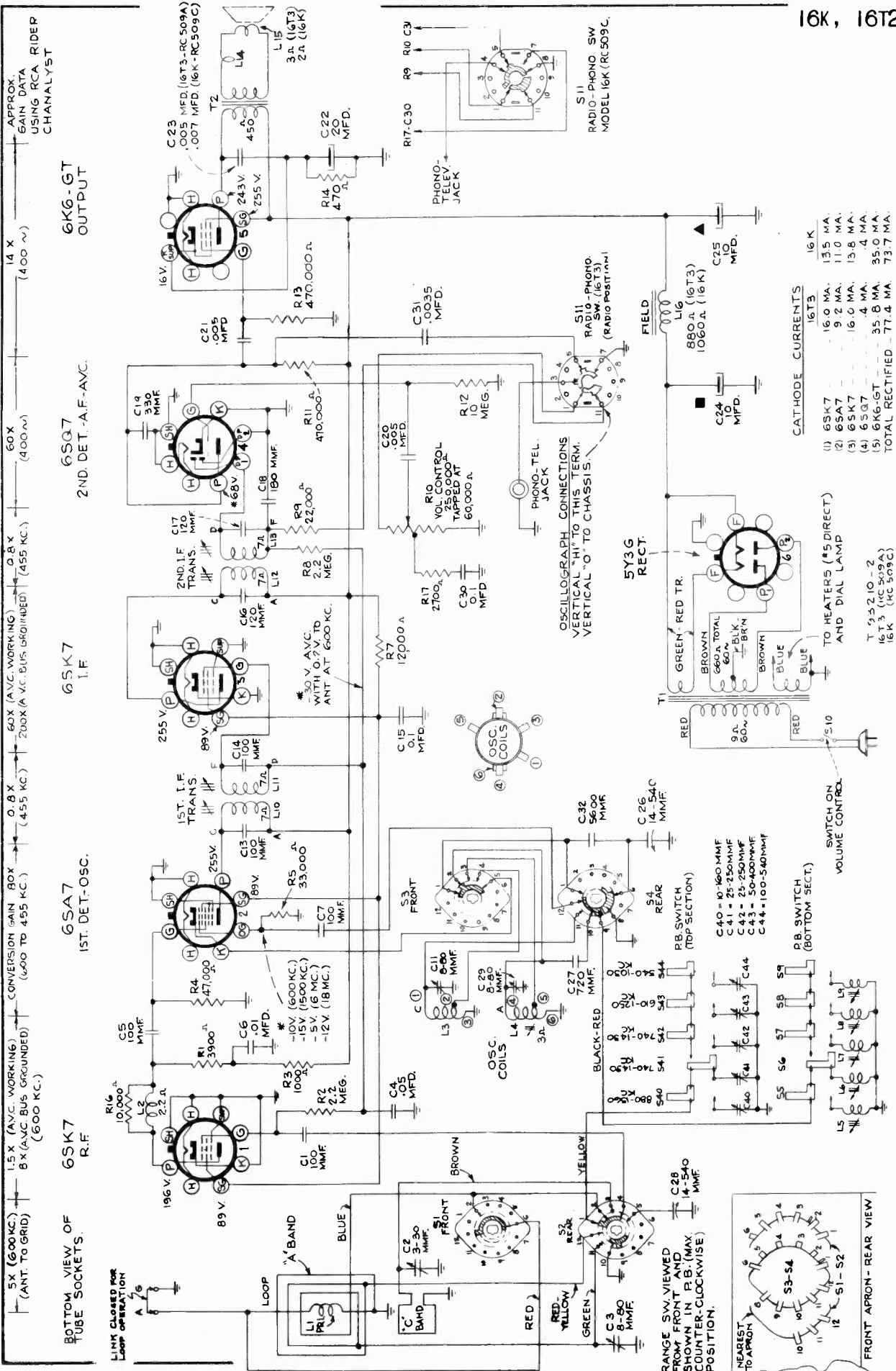
1. Make a list of the five desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast (BC) position and manually tune in the first station on the list.
3. Turn range switch to push-button (PB) position and press in the left-hand button.
4. Unscrew the push-button loop trimmers to minimum capacity.
5. Adjust L9 to receive the first station. To secure the best adjustment, rotate the set for least pickup, and adjust L9 for peak output.

6. Adjust C44 for peak output on the first station.
7. Proceed in the same manner to adjust for the remaining four stations.

Owing to the relatively high R-F gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. The procedure outlined above (backing the push-button loop trimmers to minimum capacity before adjusting the cores) will reduce this effect.

On the 880 to 1,560 kc push-button, the higher frequency stations may be received with L5 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.



APPROX
GAIN DATA
USING RCA RIDER
CHAMALYST

15X (400 \sim)
6K6-GT
OUTPUT

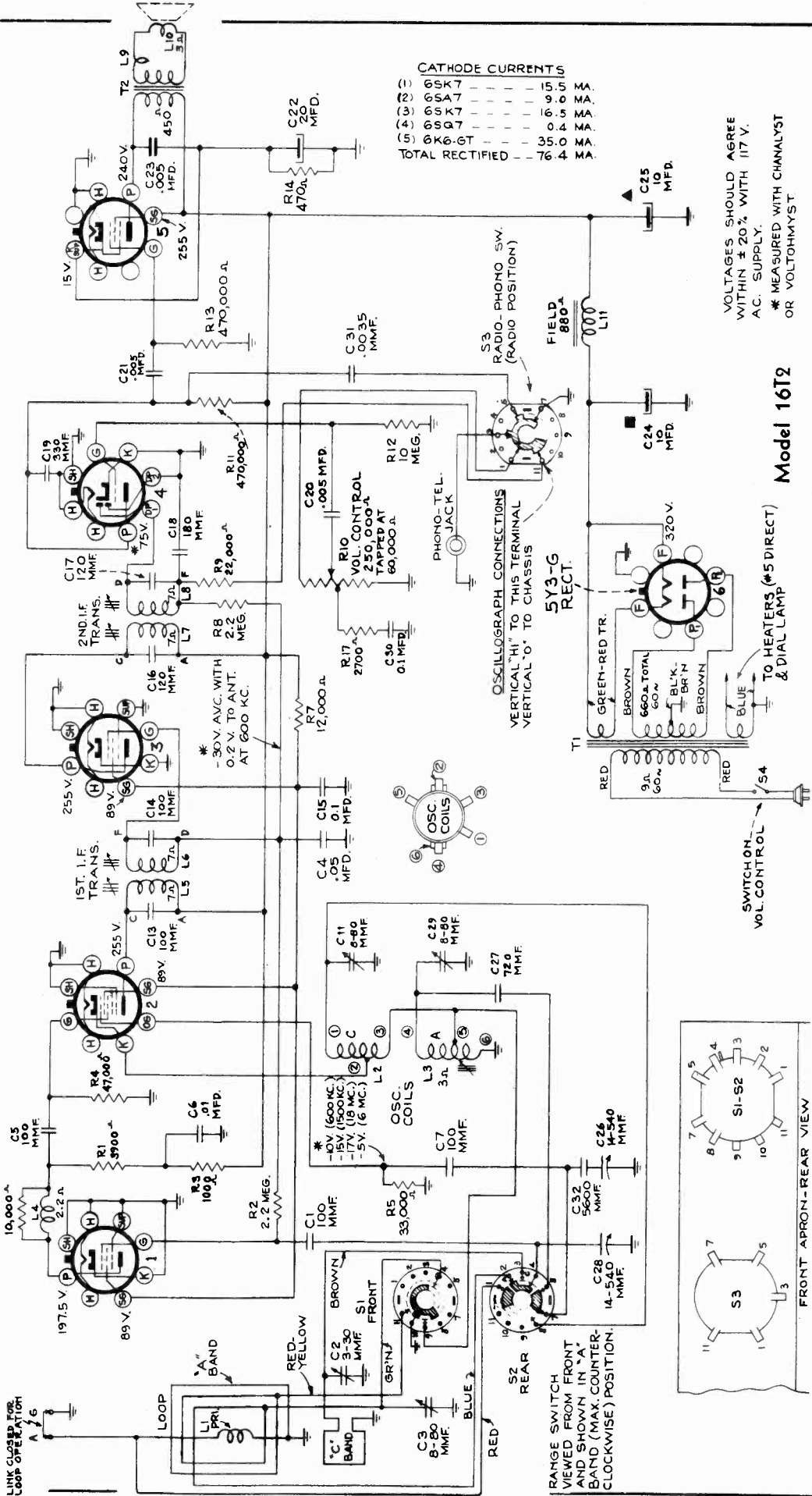
60X (400 \sim)
6SQ7
2ND. DET.-AF. AVC.

0.8X (455 KC.)
0.8X (A.V.C. WORKING)
200X (A.V.C. BUS GROUND'D)
6SK7
I.F.

0.8X (455 KC.)
0.8X (A.V.C. WORKING)
200X (A.V.C. BUS GROUND'D)
6SA7
1ST. DET.-OSC.

3X (600 KC.)
1.5X (A.V.C. WORKING)
8X (A.V.C. BUS GROUND'D)
6SK7
R.F.

LINK CLOSED FOR
LOOP OPERATION
A 7 6

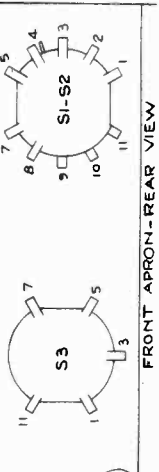


CATHODE CURRENTS

(1)	6SK7	1.1	MA.
(2)	6SA7	1.1	MA.
(3)	6SQ7	1.1	MA.
(4)	6K6-GT	0.6-0.5	MA.
(5)	6K6-GT	0.5-0.5	MA.
(6)	6K6-GT	0.5-0.5	MA.
(7)	6K6-GT	0.5-0.5	MA.
(8)	6K6-GT	0.5-0.5	MA.
(9)	6K6-GT	0.5-0.5	MA.
(10)	6K6-GT	0.5-0.5	MA.
(11)	6K6-GT	0.5-0.5	MA.
(12)	6K6-GT	0.5-0.5	MA.
(13)	6K6-GT	0.5-0.5	MA.
(14)	6K6-GT	0.5-0.5	MA.
(15)	6K6-GT	0.5-0.5	MA.
(16)	6K6-GT	0.5-0.5	MA.
(17)	6K6-GT	0.5-0.5	MA.
(18)	6K6-GT	0.5-0.5	MA.
(19)	6K6-GT	0.5-0.5	MA.
(20)	6K6-GT	0.5-0.5	MA.
(21)	6K6-GT	0.5-0.5	MA.
(22)	6K6-GT	0.5-0.5	MA.
(23)	6K6-GT	0.5-0.5	MA.
(24)	6K6-GT	0.5-0.5	MA.
(25)	6K6-GT	0.5-0.5	MA.
(26)	6K6-GT	0.5-0.5	MA.
(27)	6K6-GT	0.5-0.5	MA.
(28)	6K6-GT	0.5-0.5	MA.
(29)	6K6-GT	0.5-0.5	MA.
(30)	6K6-GT	0.5-0.5	MA.
(31)	6K6-GT	0.5-0.5	MA.
(32)	6K6-GT	0.5-0.5	MA.
(33)	6K6-GT	0.5-0.5	MA.
(34)	6K6-GT	0.5-0.5	MA.
(35)	6K6-GT	0.5-0.5	MA.
(36)	6K6-GT	0.5-0.5	MA.
(37)	6K6-GT	0.5-0.5	MA.
(38)	6K6-GT	0.5-0.5	MA.
(39)	6K6-GT	0.5-0.5	MA.
(40)	6K6-GT	0.5-0.5	MA.
(41)	6K6-GT	0.5-0.5	MA.
(42)	6K6-GT	0.5-0.5	MA.
(43)	6K6-GT	0.5-0.5	MA.
(44)	6K6-GT	0.5-0.5	MA.
(45)	6K6-GT	0.5-0.5	MA.
(46)	6K6-GT	0.5-0.5	MA.
(47)	6K6-GT	0.5-0.5	MA.
(48)	6K6-GT	0.5-0.5	MA.
(49)	6K6-GT	0.5-0.5	MA.
(50)	6K6-GT	0.5-0.5	MA.
(51)	6K6-GT	0.5-0.5	MA.
(52)	6K6-GT	0.5-0.5	MA.
(53)	6K6-GT	0.5-0.5	MA.
(54)	6K6-GT	0.5-0.5	MA.
(55)	6K6-GT	0.5-0.5	MA.
(56)	6K6-GT	0.5-0.5	MA.
(57)	6K6-GT	0.5-0.5	MA.
(58)	6K6-GT	0.5-0.5	MA.
(59)	6K6-GT	0.5-0.5	MA.
(60)	6K6-GT	0.5-0.5	MA.
(61)	6K6-GT	0.5-0.5	MA.
(62)	6K6-GT	0.5-0.5	MA.
(63)	6K6-GT	0.5-0.5	MA.
(64)	6K6-GT	0.5-0.5	MA.
(65)	6K6-GT	0.5-0.5	MA.
(66)	6K6-GT	0.5-0.5	MA.
(67)	6K6-GT	0.5-0.5	MA.
(68)	6K6-GT	0.5-0.5	MA.
(69)	6K6-GT	0.5-0.5	MA.
(70)	6K6-GT	0.5-0.5	MA.
(71)	6K6-GT	0.5-0.5	MA.
(72)	6K6-GT	0.5-0.5	MA.
(73)	6K6-GT	0.5-0.5	MA.
(74)	6K6-GT	0.5-0.5	MA.
(75)	6K6-GT	0.5-0.5	MA.
(76)	6K6-GT	0.5-0.5	MA.
(77)	6K6-GT	0.5-0.5	MA.
(78)	6K6-GT	0.5-0.5	MA.
(79)	6K6-GT	0.5-0.5	MA.
(80)	6K6-GT	0.5-0.5	MA.
(81)	6K6-GT	0.5-0.5	MA.
(82)	6K6-GT	0.5-0.5	MA.
(83)	6K6-GT	0.5-0.5	MA.
(84)	6K6-GT	0.5-0.5	MA.
(85)	6K6-GT	0.5-0.5	MA.
(86)	6K6-GT	0.5-0.5	MA.
(87)	6K6-GT	0.5-0.5	MA.
(88)	6K6-GT	0.5-0.5	MA.
(89)	6K6-GT	0.5-0.5	MA.
(90)	6K6-GT	0.5-0.5	MA.
(91)	6K6-GT	0.5-0.5	MA.
(92)	6K6-GT	0.5-0.5	MA.
(93)	6K6-GT	0.5-0.5	MA.
(94)	6K6-GT	0.5-0.5	MA.
(95)	6K6-GT	0.5-0.5	MA.
(96)	6K6-GT	0.5-0.5	MA.
(97)	6K6-GT	0.5-0.5	MA.
(98)	6K6-GT	0.5-0.5	MA.
(99)	6K6-GT	0.5-0.5	MA.
(100)	6K6-GT	0.5-0.5	MA.

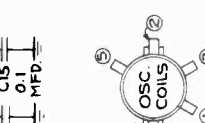
VOLTAGES SHOULD AGREE
WITHIN $\pm 20\%$ WITH 117 V.
AC. SUPPLY.
* MEASURED WITH CHAMALYST
OR VOLTOHMYST

Model 16T2

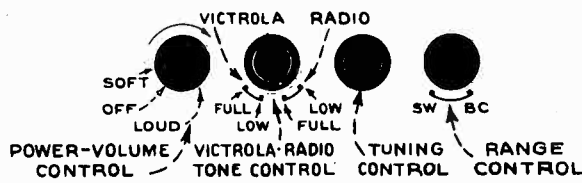


FRONT APRON-REAR VIEW

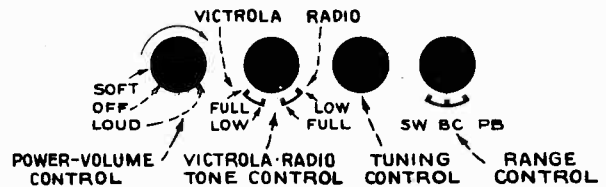
RANGE SWITCH
VIEWED FROM FRONT
AND SHOWN IN 'A'
BAND (MAX. COUNTER-
CLOCKWISE) POSITION.



OSCILLOGRAPH CONNECTIONS
VERTICAL 'HI' TO THIS TERMINAL
VERTICAL 'O' TO CHASSIS



Model 16T2



Model 16K, 16T3

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	MODEL 16T2 (RC-509B) MODEL 16T3 (RC-509A) MODEL 16K (RC-509C)	31418	Spring—Drive cord spring
		35868	Switch—Push button switch—(Models 16T3 and 16K)
34785	Board—"Antenna-Ground" board	35864	Switch—Range switch—(Models 16T3 and 16K)
35857	Capacitor—Mica trimmer—1 section of 3-30 mmfd. and 1 section of 8-80 mmfd.	35865	Switch—Range switch—(Model 16T2)
35867	Capacitor—Mica trimmer comprising 2 sections of 8-80 mmfd.	35636	Transformer—First I-F transformer
35869	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd. (Models 16T3 and 16K)	35790	Transformer—Second I-F transformer
34699	Capacitor—100 mmfd., mica	35588	Transformer—Power transformer—110 volts, 25 cycle
12720	Capacitor—100 mmfd., moulded	35587	Transformer—Power transformer—110 volts, 60 cycle—(Model 16K)
34700	Capacitor—120 mmfd.	35853	Transformer—Power transformer—less end shields—110 volts, 60 cycle (Models 16T2 and 16T3)
13003	Capacitor—180 mmfd.	33726	Washer—"C" washer for tuning shaft
12952	Capacitor—330 mmfd.		SPEAKER ASSEMBLIES (RL-70H6) Model 16K
35877	Capacitor—720 mmfd.		
13895	Capacitor—5,600 mmfd.	31825	Cap—Cone center dust cap
30303	Capacitor—.0035 mfd. (Models 16T2 and 16T3)	11469	Coil—Hum neutralizing coil
33640	Capacitor—.005 mfd.	33116	Coil—Speaker field coil
5148	Capacitor—.007 mfd.	31275	Cone—Speaker cone, voice coil, and dust cap
4937	Capacitor—.01 mfd.	5118	Plug—3-contact male for speaker
32787	Capacitor—.05 mfd.	31301	Transformer—Output transformer
4839	Capacitor—.01 mfd.		SPEAKER ASSEMBLIES (RL-79B1) Models 16T2 and 16T3
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts		
35876	Coil—Coil and resistor assembly [R16 and L2 (L4 in 16T2)]	35849	Cap—Dust cap
35785	Coil—Loop primary (L1)	35880	Coil—Field coil
35803	Coil—Oscillator coils for push button switch—(Models 16T3 and 16K)	35441	Cone—Cone complete with voice coil
35854	Coil—Oscillator coil	35879	Transformer—Output transformer
35874	Condenser—Variable tuning condenser		MISCELLANEOUS ASSEMBLIES
35861	Control—Tone control—(Models 16T3 and 16T2)	35883	Button—Push button—(Models 16T3 and 16K) (dark brown)
35935	Control—Tone control—(Model 16K)	36299	Button—Push button (light brown)
35859	Control—Volume control and power switch	35921	Decalcomania—Control panel decal—(Model 16T2)
32634	Cord—Drive cord	35920	Decalcomania—Control panel decal—(Models 16T3 and 16K)
35871	Core—Adjusting core and stud for oscillator coils—(Models 16T3 and 16K)	35393	Decalcomania—"Television" decal
35788	Core—Core and stud for oscillator coil	35938	Dial—Glass dial scale—(Model 16K)
35870	Indicator—Station selector indicator	35918	Dial—Glass dial scale—(Model 16T2)
35856	Loop—Antenna loop winding	35917	Dial—Glass dial scale—(Model 16T3)
35855	Loop—Antenna loop complete	35937	Escutcheon—Dial scale escutcheon—(Model 16K)
35936	Plate—Dial back plate—(Model 16K)	35882	Escutcheon—Dial scale escutcheon—(Model 16T2)
35873	Plate—Dial back plate—(Model 16T2)	35915	Escutcheon—Dial scale escutcheon—less dial—(Model 16T3)
35872	Plate—Dial back plate—(Model 16T3)	35881	Escutcheon—Push button escutcheon—(Models 16T3 and 16K)
5119	Plug—3-contact female plug for speaker cable—(Model 16K)	35814	Knob—Tone control or range switch knob (dark brown)
32289	Pulley—Drive cord pulley and rivet	36297	Knob—Tone control or range switch knob (light brown)
30681	Resistor—470 ohms, 1 watt	35775	Knob—Tuning or volume control knob (dark brown)
14720	Resistor—1,000 ohms, 1/2 watt	36298	Knob—Tuning or volume control knob (light brown)
14024	Resistor—2,700 ohms, 1/2 watt	11765	Lamp—Dial lamp
30694	Resistor—3,900 ohms, 1/2 watt	36149	Marker—Station selector marker
35875	Resistor—12,000 ohms, 3 watts	34053	Spring—Retaining spring for button Stock No. 35883
13998	Resistor—22,000 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs Stock Nos. 35814 and 35775
12454	Resistor—33,000 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
12285	Resistor—470,000 ohms, 1/2 watt		
12679	Resistor—2.2 meg., 1/2 watt		
13601	Resistor—10 meg., 1/2 watt		
35862	Shaft—Tuning shaft		
35772	Shield—Power transformer bottom shield		
35934	Shield—Power transformer top shield assembly		
31364	Socket—Dial lamp socket		
35787	Socket—Phono. input socket		
31251	Socket—Tube socket		

REFER TO PAGE 350C FOR SUPPLEMENTARY INFORMATION

MODELS 16T2, 16T3, 16T4

2nd Production (RC-509J, H, F):

In the 1st Production of these models, "A" band covers 540-1,560 k. c. In 2nd Production, the range is extended to cover 540-1,600 k. c.

Calibration scales for use in alignment of the 2nd Production receivers are printed on this page.

Also in 2nd Production, the volume control is changed from .25 meg. to 2 meg. and the circuit is revised to isolate the control from the diode d.c. current as shown in the accompanying sketches. This isolation reduces the possibility of controls becoming "noisy." These changes should be made on any 1st Production receivers with this trouble is encountered.

For replacement parts lists, refer to the original Service Notes, except for the following items which are used in 2nd Production:

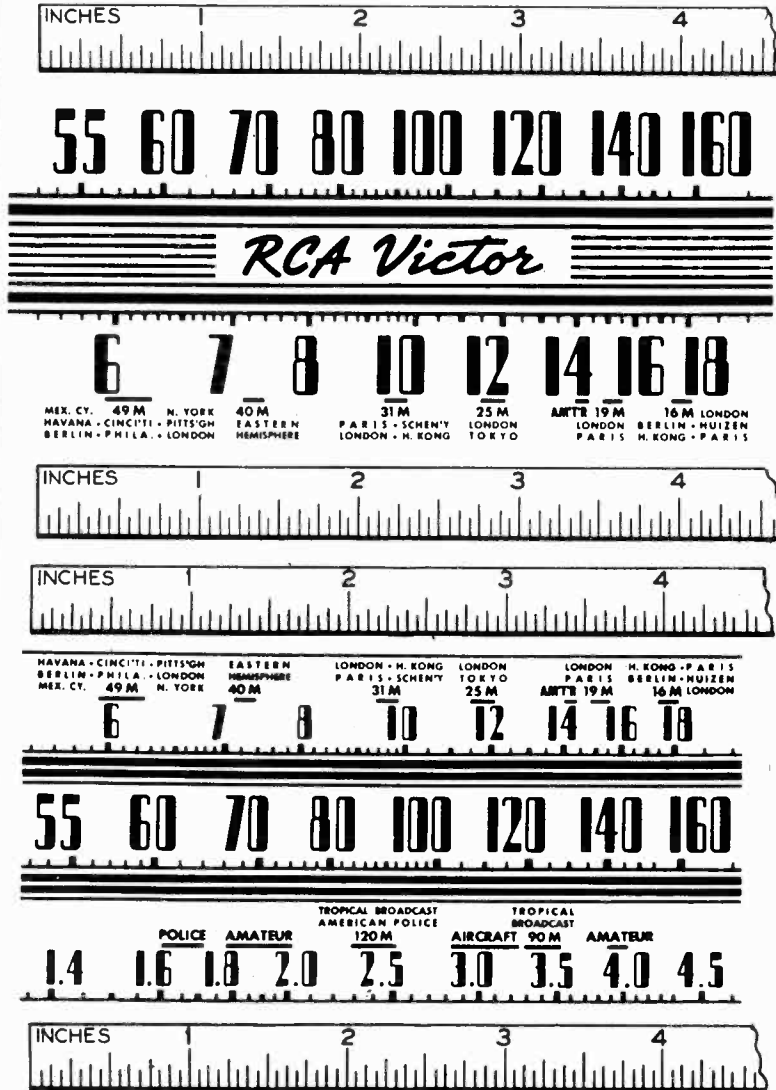
MODEL 16T4 (2nd Prod., RC-509F)

Stock No.	Description
37133	Coil—Push button oscillator coil for 540-1,030 kc range (used in 1st and 2nd production)
37955	Control—Tone control
36486	Control—Volume control and power switch
35883	Button—Push button, dark brown
36300	Button—Push button, light brown
37956	Dial—Glass dial scale
36149	Marker—Push button markers

MODEL 16T2 (2nd Prod., RC-509J)

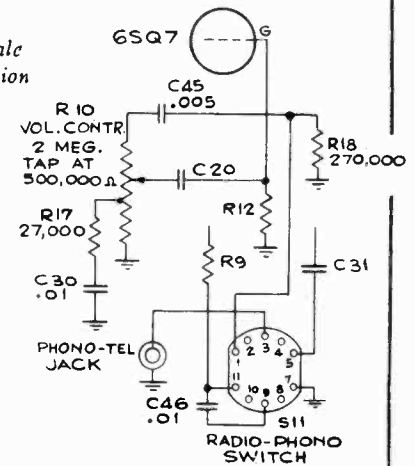
MODEL 16T3 (2nd Prod., RC-509H)

Stock No.	Description
37133	Coil—Push button oscillator coil for 540-1,030 kc range (used in 1st and 2nd production)
36486	Control—Volume control and power switch
12738	Resistor—27,000 ohm, 1/2 watt
30651	Resistor—270,000 ohm, 1/2 watt
37608	Switch—Tone switch
35883	Button—Push button, dark brown (16T3)
36300	Button—Push button, light brown (16T3)
37346	Dial—Glass dial scale for 16T2
37345	Dial—Glass dial scale for 16T3
36149	Marker—Push button markers (16T3)

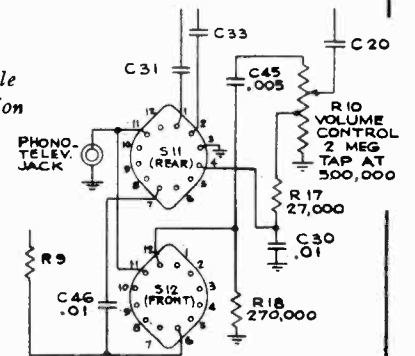


Calibration Scale for 2nd Production 16T2, 16T3.

Calibration Scale for 2nd Production 16T4.



Volume Control Circuit in 2nd Production 16T2, 16T3.



Volume Control Circuit in 2nd Production 16T4.

MODELS 16K and 16T3

2,400 KC Police Band:

Where desirable, reception of a police station in the 2,400 kc band may be obtained by adding a jumper connection from trimmer C-3 to trimmer C-40, and lining up push button No. 5 to the desired police station. Re-alignment of C-3 at 1,500 kc will be necessary.

MODELS 16K, 16T3, 16T4

Failure to Oscillate on Push-Button Tuning:

Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 33,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133, is used for the 540-1,030 kc push-button oscillator ranges.

16K, 16T2, 16T3, 16T4

Increasing Sensitivity:

These models have an untuned R-F stage which is resistance-coupled to the 1st-detector. The sensitivity may be increased by changing the R-F plate load resistor to a higher value, between 6,000 and 10,000 ohms. This change is not recommended in metropolitan localities owing to possibility of cross-modulation.

MODEL 16T4

Chassis No. RC-509

Six-Tube, Three-Band, AC, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast..... 540-1,560 kc
 "B" Band..... 1.4-4.5 mc
 "C" Band..... 5.8-18 mc

INTERMEDIATE FREQUENCY..... 455 kc

PUSH BUTTON FREQUENCY RANGES

One station between approximately 540-1,030 kc
 One station between approximately 610-1,250 kc
 Two stations between approximately 740-1,430 kc
 One station between approximately 880-1,560 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Det., Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Det., A.V.C. and A-F Amplifier
- (5) RCA-6K6GT..... Power Output
- (6) RCA-5Y3-G..... Rectifier

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles..... 70 watts
 105-125 volts, 25-60 cycles..... 70 watts

TUNING DRIVE RATIO..... 12 to 1

Height (inches)..... 9 3/4
 Width (inches)..... 19 1/2
 Depth (inches)..... 8 3/4
 Weight, lbs. net..... 17 1/2

PILOT LAMP

Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted..... 2.5 watts
 Maximum..... 4.5 watts

LOUDSPEAKERS

Size..... 6-inch
 V.C. impedance at 400 cycles..... 3.4 ohms
 Identification Number..... RL-79B1



Push Button Adjustment

The push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across "A" and "G" terminals on back of set. In either case the procedure is as follows:

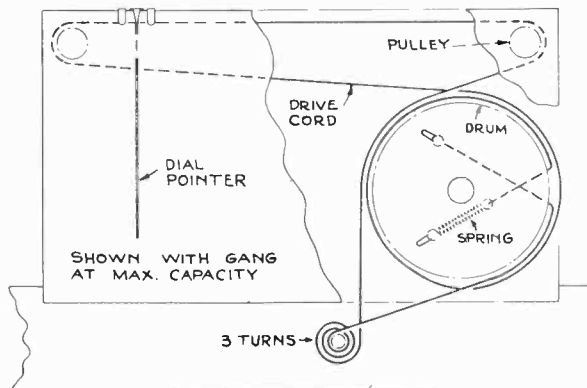
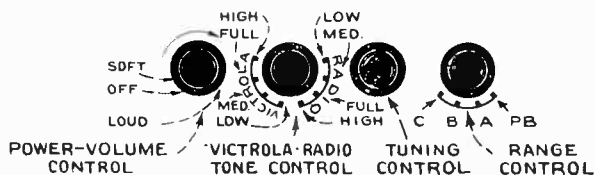
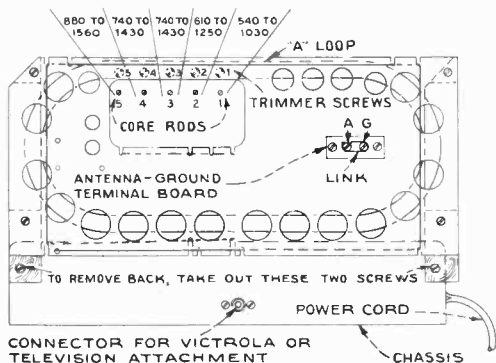
1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. Turn range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L9) to receive the station.
4. After oscillator core is adjusted properly, adjust C-44 for maximum output.
 Owing to the relatively high RF gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases it is advisable to unscrew the push-button loop trimmers to minimum capacity before adjusting the push-button magnetite cores.
 Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Tone Control

The tone control has four positions for radio, and four positions for Victrola or Television sound:

- No. 1—Radio—maximum low—minimum high
- No. 2—Radio—maximum low—reduced high
- No. 3—Radio—maximum low—maximum high
- No. 4—Radio—minimum low—maximum high
- No. 5—Phono—maximum low—minimum high
- No. 6—Phono—maximum low—reduced high
- No. 7—Phono—maximum low—maximum high
- No. 8—Phono—minimum low—maximum high

(No. 1 is full counter-clockwise, and No. 8 is full clockwise.)



REFER TO PAGE 350C FOR SUPPLEMENTARY INFORMATION

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagrams.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or Volt Ohmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. Or, if necessary, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

- Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.
- After completion of the alignment, replace the glass dial in cabinet, taking care that the fibre light shields are in correct position at ends of dial.

Using Calibration Scale.—

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

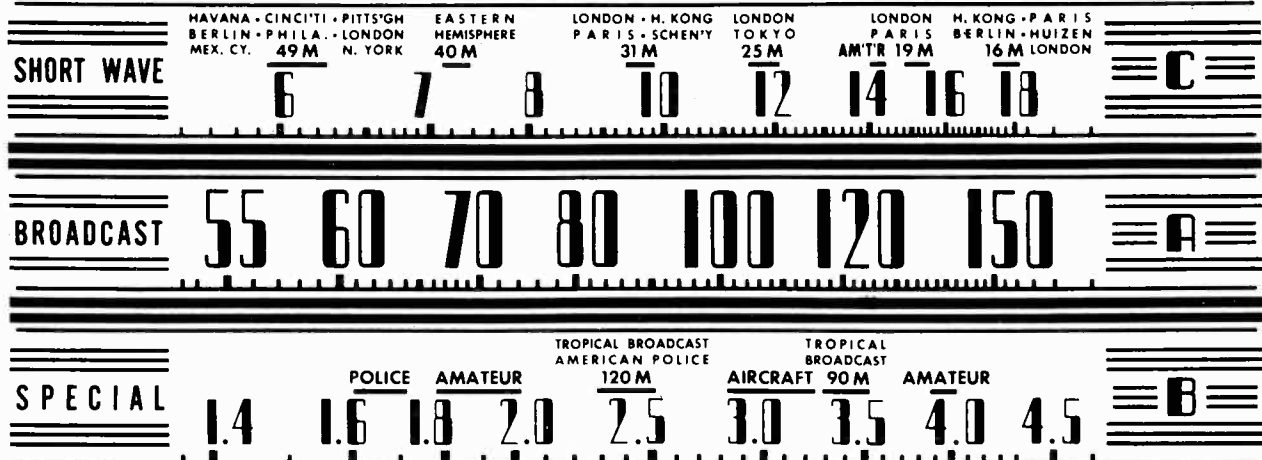
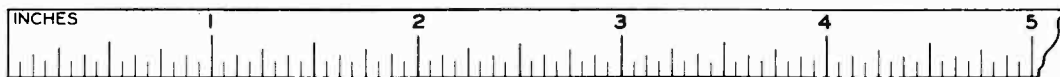
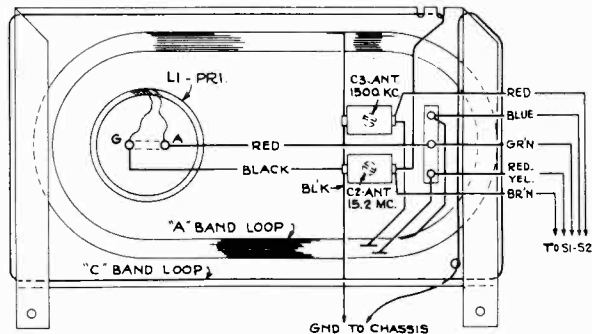
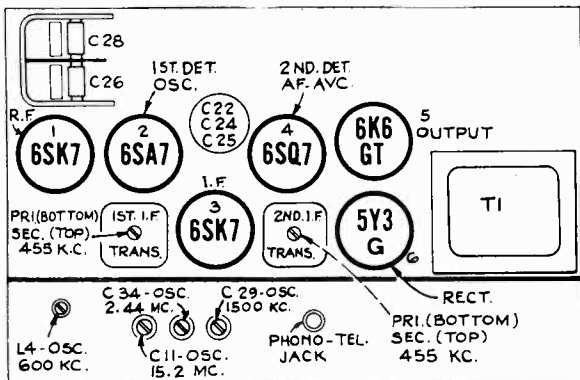
2. Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.

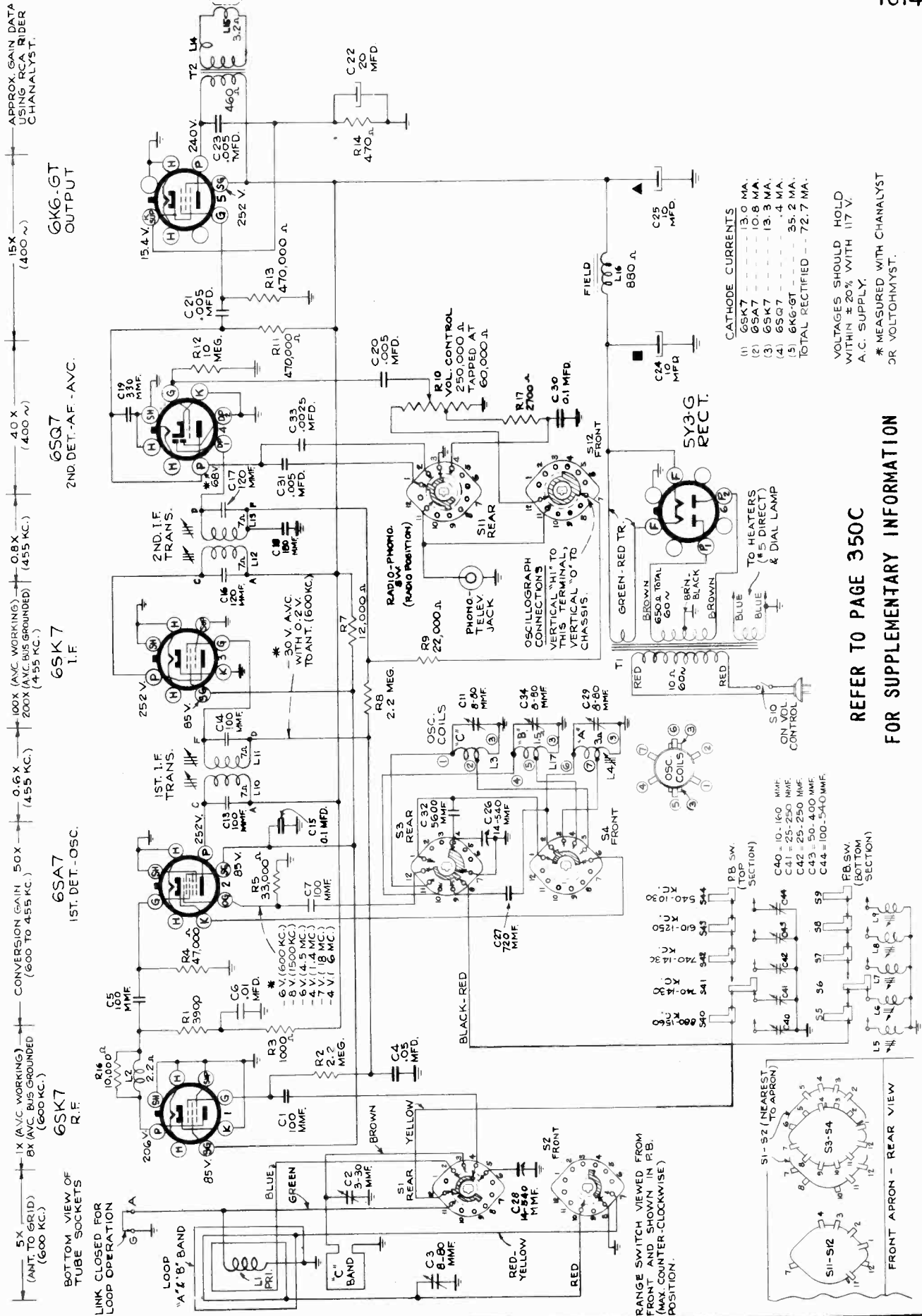
3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale. For example, 1,500 kc is approximately 4 inches from the reference mark.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid, in series with .01	455 kc	"A" band, Quiet Point at 1,500 kc end of dial	L12 and L13 (2nd I.F. Trans.)
2	1st-Det. grid, in series with .01			L10 and L11 (1st I.F. Trans.)
3	Antenna terminal, in series with 300 ohms (link open)	15.2 mc	15.2 mc "C" band	C11 (osc.)* C2 (ant.)
4		2.44 mc	2.44 mc "B" band	C3' (osc.) Rock in
5	Antenna terminal, in series with 200 mmfd. (link open)	1,500 kc	1,500 kc "A" band	C29 (osc.) C3 (ant.)
6		600 kc	600 kc "A" band	L4 Rock in
7	Repeat steps 5 and 6.			

* Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used, by tuning receiver to 14.29 mc, where a weaker signal should be received.
Note: Oscillator tracks above signal on all bands.





REFER TO PAGE 350C
FOR SUPPLEMENTARY INFORMATION

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-509)			
34785	Board—"Antenna-Ground" board	12285	Resistor—470,000 ohms, 1/4 watt (R11, R13)
35857	Capacitor—Mica trimmer—1 section of 3-30 mmfd. and 1 section of 8-80 mmfd.	12679	Resistor—2.2 meg., 1/4 watt (R2, R8)
35866	Capacitor—Mica trimmer—3 sections of 8-80 mmfd.	13601	Resistor—10 meg., 1/4 watt (R12)
35869	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd.	35862	Shaft—Tuning shaft
12720	Capacitor—100 mmfd. (C1, C5, C7)	35772	Shield—Power transformer bottom shield
34699	Capacitor—100 mmfd.	35934	Shield—Power transformer top shield assembly
34700	Capacitor—120 mmfd.	31364	Socket—Dial lamp socket
13003	Capacitor—180 mmfd. (C18)	35787	Socket—Phono. input socket
12852	Capacitor—330 mmfd. (C19)	31251	Socket—Tube socket
35877	Capacitor—720 mmfd. (C27)	31418	Spring—Drive cord spring
13895	Capacitor—5,600 mmfd. (C32)	35868	Switch—Push button switch
34459	Capacitor—.0025 mfd. (C33)	35863	Switch—Range switch
33640	Capacitor—.005 mfd. (C20, C21, C23, C31)	35636	Transformer—First I-F transformer
4937	Capacitor—.01 mfd. (C6)	35790	Transformer—Second I-F transformer
32787	Capacitor—.05 mfd. (C4)	35888	Transformer—Power transformer—110 volts, 25 cycle
4839	Capacitor—0.1 mfd. (C15, C30)	35853	Transformer—Power transformer—less end shields 110 volts, 60 cycle
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 450 volts and 1 section of 20 mfd., 25 volts	33726	Washer—"C" washer for tuning shaft
35876	Coil—Coil and resistor assembly (L2 and R16)	SPEAKER ASSEMBLIES (RL-79B1)	
35785	Coil—Loop primary (L1)	35849	Cap—Dust cap
35789	Coil—Oscillator coil	35880	Coil—Field coil
35803	Coil—Oscillator coils for push button switch	35441	Cone—Cone complete with voice coil
35874	Condenser—Variable tuning condenser	35879	Transformer—Output transformer
35860	Control—Tone control	MISCELLANEOUS ASSEMBLIES	
35859	Control—Volume control and power switch	35883	Button—Push button (dark brown)
32634	Cord—Drive cord	36299	Button—Push button (light brown)
35871	Core—Adjusting core and stud for oscillator coils	35919	Decalomania—Control panel decal
35788	Core—Core and stud for oscillator coil	35393	Decalomania—"Television" decal
35870	Indicator—Station selector indicator	35916	Dial—Glass dial scale
35855	Loop—Antenna loop complete	35915	Escutcheon—Dial scale escutcheon—less dial
35856	Loop—Antenna loop winding	35881	Escutcheon—Push button escutcheon
35872	Plate—Dial back plate	35814	Knob—Tone control or range switch knob (dark brown)
32289	Pulley—Drive cord pulley and rivet	36297	Knob—Tone control or range switch knob (light brown)
30681	Resistor—470 ohms, 1 watt (R14)	35775	Knob—Tuning or volume control knob (dark brown)
14720	Resistor—1,000 ohms, 1/4 watt (R3)	36298	Knob—Tuning or volume control knob (light brown)
14024	Resistor—2,700 ohms, 1/4 watt (R17)	11765	Lamp—Dial lamp
30694	Resistor—3,900 ohms, 1/4 watt (R1)	36149	Marker—Station selector marker
35875	Resistor—12,000 ohms, 3 watts (R7)	34053	Spring—Retaining spring for button Stock No. 35883
13998	Resistor—22,000 ohms, 1/4 watt (R9)	30900	Spring—Retaining spring for knobs Stock Nos. 35814 and 35775
12454	Resistor—33,000 ohms, 1/4 watt (R5)		
12412	Resistor—47,000 ohms, 1/4 watt (R4)		

REFER TO PAGE 350C FOR SUPPLEMENTARY INFORMATION

MODEL 16X-4

Chassis No. RC-462-C

Specifications

FREQUENCY RANGE..... 535-1,720 kc
 Intermediate Frequency..... 455 kc
 LOUDSPEAKER..... 5 inch permanent-magnet dynamic
 POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted..... 0.9 watts Maximum..... 1.4 watts
 POWER SUPPLY RATINGS
 AC Rating....105-125 volts, direct current, or 50-60 cycles 30 watts



Alignment Procedure

Output Meter Alignment.—If this method is used connect the meter across the voice coil and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a .01 mfd. capacitor. When the electronic voltmeter is used as an alignment indicator the output of the test oscillator should be adjusted to produce several volts of AVC. With the output meter alignment method the oscillator output should be kept as low as possible.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Push Button Adjustment:

1. Make a list of the six desired stations, arranged in order from low to high frequencies, and manually tune-in the first station on this list.
2. Push in station button No. 1 (extreme left) and adjust No. 1 oscillator core to receive the station.
3. Adjust antenna trimmer for maximum output. Clockwise core and trimmer adjustment tunes circuits to lower frequencies.
4. Adjust for each of the four remaining stations in a similar manner.
5. Make a final careful re-adjustment of oscillator cores and antenna trimmers.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio to—	Adjust the following for maximum peak output
1	12SK7 I-F grid, in series with 0.1 mfd.	455 kc	Quiet Point at 1,700 kc end of dial	C23, C22 2nd I-F transformer
2	12SA7 1st det. grid, in series with 0.1 mfd.			C21, C20 1st I-F transformer
3	12SK7 R-F grid, in series with 0.1 mfd.	1,720 kc	1,720 kc	C18 (osc.)
4	Radiation Loop	1,300 kc	Resonance on signal	C16 (ant.)
5	Repeat steps 3 and 4			

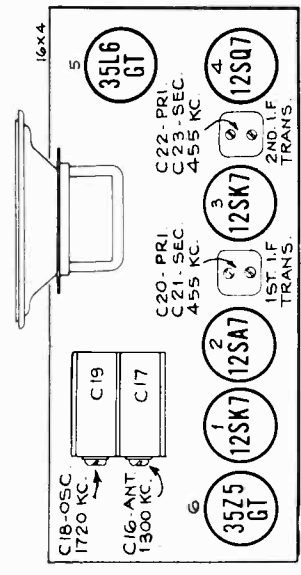
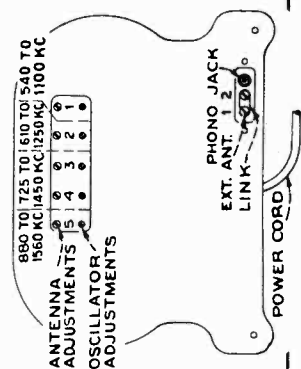
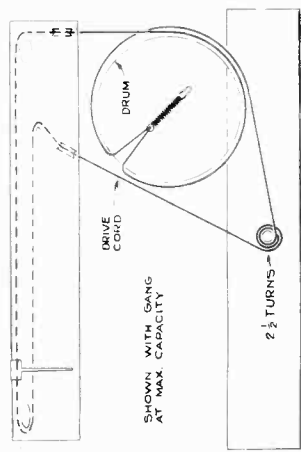
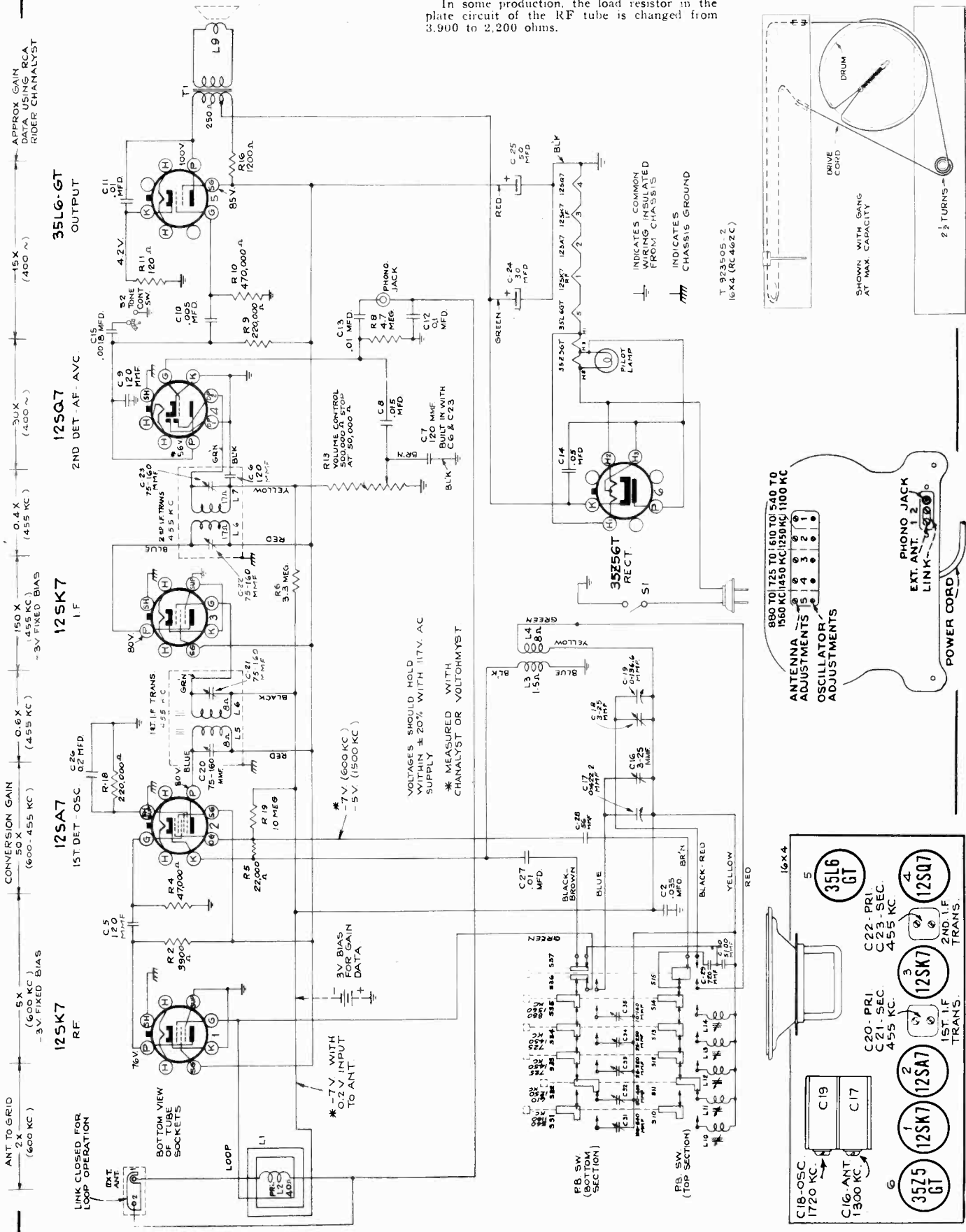
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-462C)			
36239	Board—Terminal and receptacle board.....	12264	Resistor—220,000 ohms, 1/4 watt.....
36238	Bracket—Lamp bracket.....	30648	Resistor—470,000 ohms, 1/4 watt.....
36871	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd. each, 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd.....	12928	Resistor—3.3 meg., 1/4 watt.....
37509	Capacitor—56 mmfd.....	30271	Resistor—4.7 meg., 1/4 watt.....
12724	Capacitor—120 mmfd.....	30992	Resistor—10 meg., 1/4 watt.....
31435	Capacitor—750 mmfd.....	30886	Screw—No. 8 x 1/2 self-tapping screw for adjusting lamp bracket.....
36679	Capacitor—5,100 mmfd.....	36235	Shaft—Tuning shaft.....
34506	Capacitor—.0018 mfd.....	34449	Socket—Dial lamp socket.....
33584	Capacitor—.005 mfd.....	31251	Socket—Tube socket.....
4937	Capacitor—.01 mfd.....	31418	Spring—Drive cord spring.....
11315	Capacitor—.015 mfd.....	36870	Switch—Selector switch.....
5196	Capacitor—.035 mfd.....	36232	Transformer—First I.F. transformer.....
32787	Capacitor—.05 mfd.....	36233	Transformer—Second I.F. transformer.....
4839	Capacitor—0.1 mfd.....	36800	Transformer—Output transformer.....
34505	Capacitor—0.2 mfd.....	33726	Washer—"C" washer for tuning shaft.....
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd. 150 volts, and 1 section of 50 mfd. 150 volts.....	SPEAKER ASSEMBLIES	
35096	Coil—Loop primary coil.....	SPEAKERS STAMPED	
36872	Coil—Oscillator coil.....	"RL-81-A5" or "RL-81-B2"	
35803	Coil—P.B. oscillator coil.....	32907	Cap—Dust cap.....
37638	Coil—P.B. oscillator coil.....	35570	Cone—Cone complete with voice coil.....
36226	Condenser—Variable tuning condenser.....	SPEAKERS STAMPED	
36228	Control—Tone control.....	"92161-1" or "92161-3"	
36242	Control—Volume control and power switch.....	38352	Cone—Cone complete with voice coil.....
34662	Cord—Drive cord (approx. 52-in. overall lg.).....	MISCELLANEOUS ASSEMBLIES	
35871	Core—Adjustable core and stud for P.B. oscillator coils.....	37115	Back—Cabinet back.....
36237	Drum—Drive drum.....	36874	Button—Push button.....
36236	Indicator—Station selector indicator.....	36873	Clamp—Dial clamp.....
36869	Loop—Antenna loop complete.....	31095	Cover—Station selector cover.....
36868	Plate—Dial back plate and pulley assembly complete.....	36308	Dial—Glass dial scale.....
36230	Pulley—Drive cord pulley.....	37831	Fastener—Set of 4 push fasteners for cabinet back (2 sets required).....
30189	Resistor—120 ohms, 1/4 watt.....	36722	Knob—Control knob.....
6134	Resistor—1,200 ohms, 1 watt.....	11765	Lamp—Dial lamp.....
12955	Resistor—3,900 ohms, 1/4 watt.....	34610	Marker—Station selector marker.....
13998	Resistor—22,000 ohms, 1/4 watt.....	30900	Spring—Retaining spring for knob.....
12412	Resistor—47,000 ohms, 1/4 watt.....	36875	Spring—Retaining spring for push button.....

RF Plate Load Resistor:

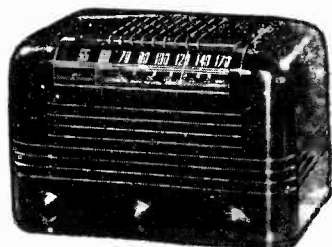
In some production, the load resistor in the plate circuit of the RF tube is changed from 3,900 to 2,200 ohms.



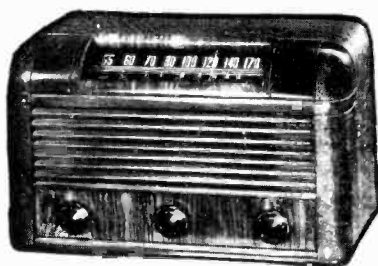
Models 16X-11, 16X-13, 16X-14, & RADIOLA 515

Chassis Nos. RC-1000 RC-1000A RC-1000-B RC-1000C

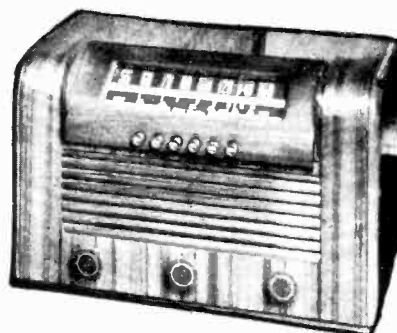
Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



MODEL 16X11



MODEL 16X13



MODEL 16X14



RADIOLA MODEL 515

Alignment Procedure

Steps	Connect the high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with 0.1 mfd.	455 kc	"A" Band Quiet Point 1,600 kc end of dial	C23, C22 2nd I-F Transformer
2	12SA7 1st Det. grid in series with 0.1 mfd.			C21, C20 1st I-F Transformer
3	Ant. terminal in series with 47 mmfd.	19 mc	"C" Band 19 mc	C18 (osc.)
4	Radiation Loop	18 mc	"C" Band Resonance on Signal	C31 (ant.)
5	Radiation Loop	6.1 mc	Resonance on Signal	Inductance of L12*
6	Ant. terminal in series with 200 mmfd.	1,720 kc	"A" Band 1,720 kc	C35 (osc.)
7	Radiation Loop	1,400 kc	"A" Band Resonance on Signal	C33 (ant.)
8	Ant. terminal in series with 200 mmfd.	590 kc	"A" Band 590 kc	C36 (osc.)
9	Repeat steps 6, 7 and 8			

* Adjust by dressing proximity of AVC lead to coil.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Specifications

FREQUENCY RANGE: { "A" Band..... 535-1,720 kc
"C" Band..... 5.74-19 mc

Intermediate Frequency..... 455 kc

LOUDSPEAKER..... 5-inch permanent-magnet dynamic

POWER SUPPLY RATINGS
AC Rating... 105-125 volts, direct current, or 50-60 cycles, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)
Undistorted..... 0.9 watts Maximum..... 1.4 watts

Power Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

16X-11, -13, -14

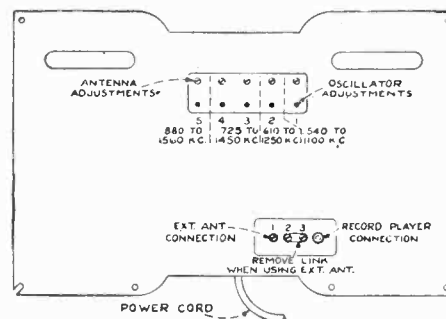
Four different speakers have been used on these models. The replacement parts are listed below:

SPEAKERS STAMPED
"RL-81-A5" or "RL-81-B2"

Stock No.
32907 Cap—Dust cap.....
35570 Cone—Cone complete with voice coil.....

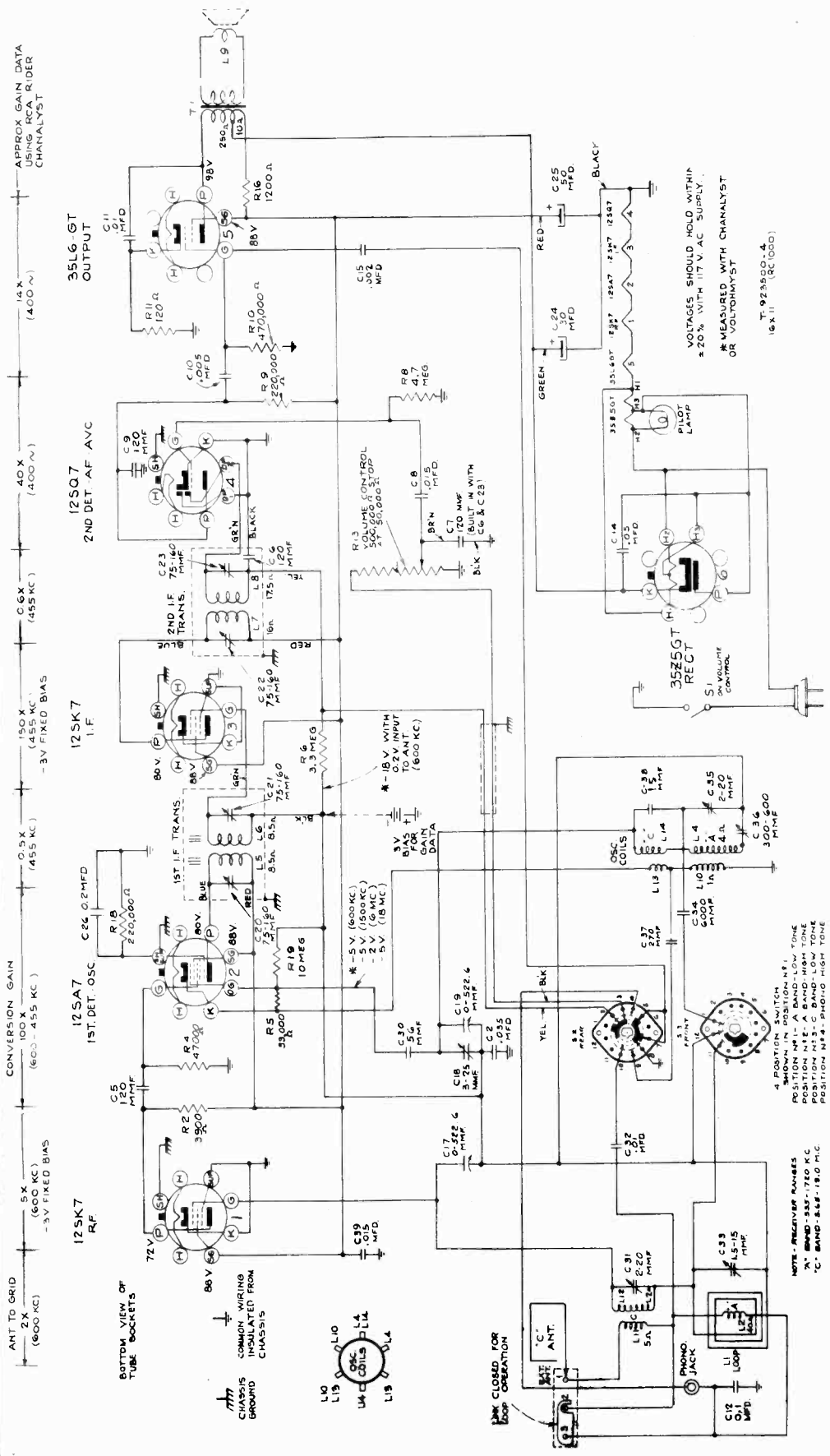
SPEAKERS STAMPED
"92161-1" or "92161-3"
38352 Cone—Cone complete with voice coil.....

MODEL 16X14 ONLY



Push Button Adjustment.—

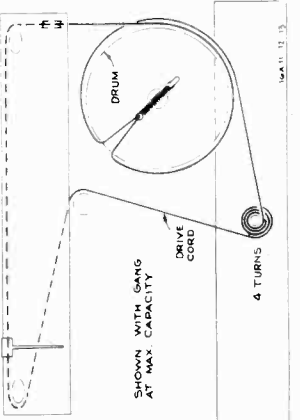
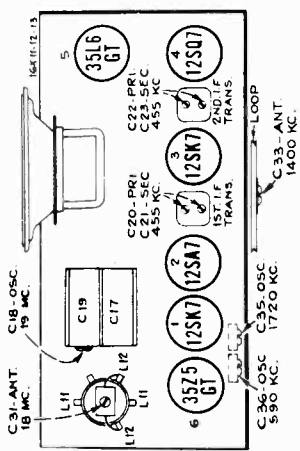
1. Make a list of the six desired stations, arranged in order from low to high frequencies, and manually tune-in the first station on this list.
2. Push in station button No. 1 (extreme left) and adjust No. 1 oscillator core to receive the station.
3. Adjust antenna trimmer for maximum output. Clockwise core and trimmer adjustment tunes circuits to lower frequencies.
4. Adjust for each of the four remaining stations in a similar manner.
5. Make a final careful re-adjustment of oscillator cores and antenna trimmers.

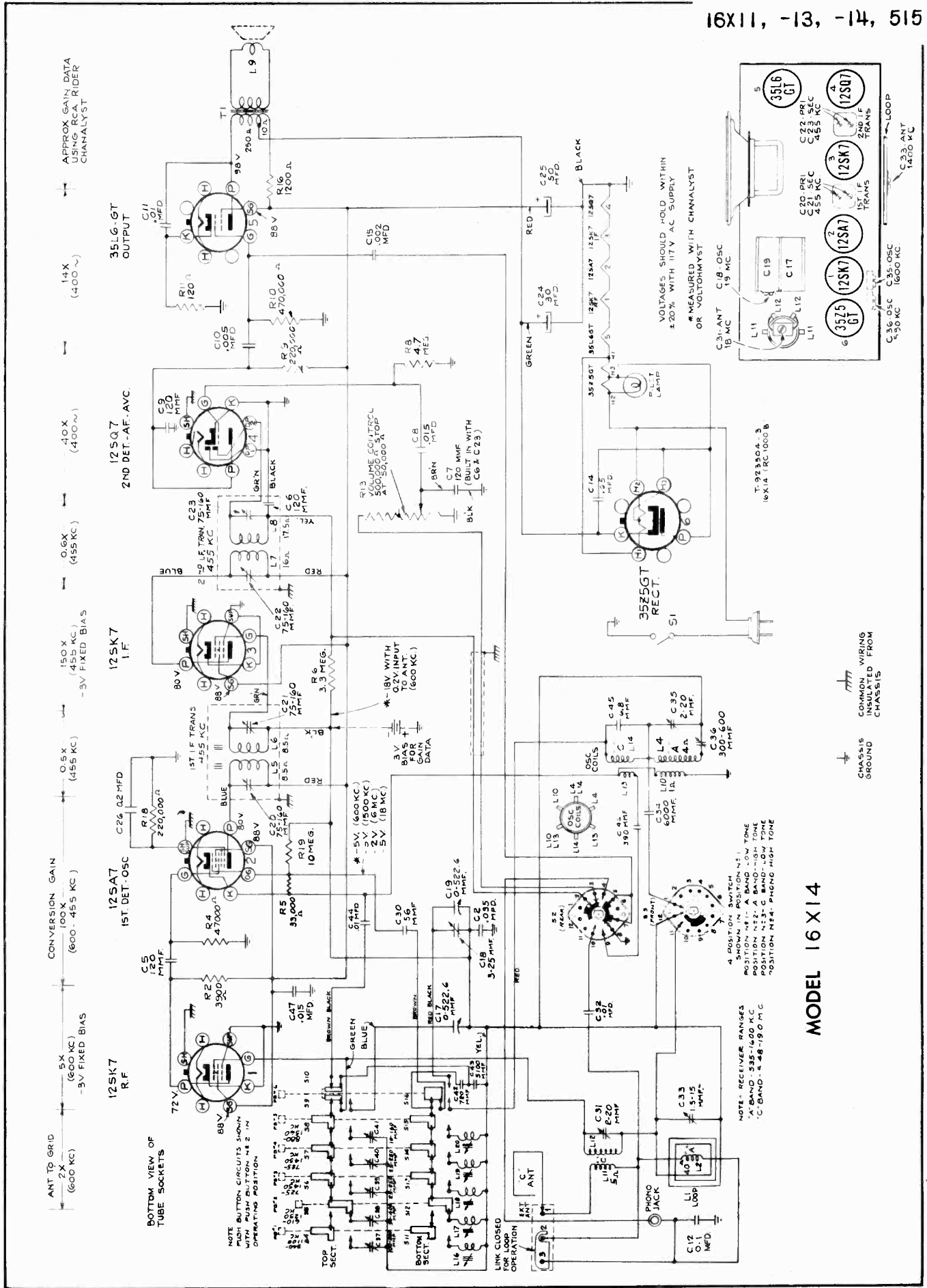


MODELS 16X11-13, RAD. 515

Precautionary Lead Dress—

1. Dress all capacitors, leads, etc., coming close to osc. coil rigidly and as far as possible from it.
2. Dress blue lead from loop trimmer against loop and around outside of board as possible.
3. Dress leads of 120 mmfd. capacitor from terminal board to grid of 12SA7 as short and direct as possible.
4. Dress leads of peaking coil from plate of 12SK7 RF tube to terminal board as short and direct as possible.
5. Dress blue lead from SW ant. coil through same hole in base through passes, which green lead from stator of rear section of the variable condenser.





MODEL 16X14

NOTE: RECEIVER RANGES SHOWN IN POSITION N.E.1.
 POSITION N.E.1 - A BAND - 535-1600 KC
 POSITION N.E.2 - B BAND - 200-400 KC
 POSITION N.E.3 - C BAND - 5.48-19.0 MC
 POSITION N.E.4 - PHONO HIGH TONE

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V AC SUPPLY
 * MEASURED WITH CHANNALYST OR VOLTOHMYST

CHASSIS GROUND
 COMMON WIRING INSULATED FROM CHASSIS

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES Model 16X11 (RC-1000) Model 16X13 (RC-1000A)		
36947	Board—Ant. and Grd., and Phono input terminal board	12723	Capacitor—56 mmfd.
36879	Cap—Second I.F. transformer shield cap	12724	Capacitor—120 mmfd.
35998	Capacitor—Mica trimmer for loop	13894	Capacitor—390 mmfd.
36880	Capacitor—Mica trimmer, 1 section 2-20 mmfd. and 1 section 300-800 mmfd.	31435	Capacitor—750 mmfd.
11859	Capacitor—Adjustable trimmer 3-30 mmfd.	36679	Capacitor—5,100 mmfd.
12896	Capacitor—15 mmfd. — Models 16X11 and 16X13 only	31405	Capacitor—6,000 mmfd.
12723	Capacitor—56 mmfd.	34506	Capacitor—0.018 mfd.
12724	Capacitor—120 mmfd.	33584	Capacitor—.005 mfd.
12488	Capacitor—270 mmfd. — Models 16X11 and 16X13 only	4937	Capacitor—.01 mfd.
31405	Capacitor—6,000 mmfd.	11315	Capacitor—.015 mfd.
34506	Capacitor—.0018 mfd.	5196	Capacitor—.035 mfd.
33584	Capacitor—.005 mfd.	32787	Capacitor—.05 mfd.
4937	Capacitor—.01 mfd.	4839	Capacitor—0.1 mfd.
11315	Capacitor—.015 mfd.	34505	Capacitor—0.2 mfd.
5196	Capacitor—.035 mfd.	36301	Capacitor—Electrolytic 1 section of 30 mfd. 150 volts, and 1 section of 50 mfd. 150 volts.
32787	Capacitor—.05 mfd.	36939	Coil—Antenna coil
4839	Capacitor—0.1 mfd.	35096	Coil—Loop primary coil
34505	Capacitor—0.2 mfd.	36938	Coil—Oscillator coil
36301	Capacitor—Electrolytic 1 section of 30 mfd. 150 volts, and 1 section of 50 mfd. 150 volts.	37638	Coil—P.B. oscillator coil (1 used)
35713	Coil—Antenna coil	35803	Coil—P.B. oscillator coil (4 used)
35096	Coil—Loop primary coil	36876	Condenser—2 gang variable tuning
36937	Coil—Oscillator coil—Models 16X11 and 16X13 only	36242	Control—Volume, with power switch
36876	Condenser—2-gang variable tuning	34662	Cord—Drive cord (approx. 52 in. lg.)
36242	Control—Volume, with power switch	35871	Core—Adjusting core and stud for P.B. oscillator coils
32634	Cord—Drive cord (approx. 50-in. lg.)	36237	Drum—Tuning condenser drive cord drum
36237	Drum—Tuning condenser drive cord drum	37068	Indicator—Station selector indicator
37068	Indicator—Station selector indicator	36883	Loop—Antenna loop complete
36882	Loop—Antenna loop complete	36878	Loop—Loop winding only—less support, primary coil, and trimmer
36877	Loop—Loop winding only—less support, primary coil, and trimmer	36868	Plate—Dial back plate, pulleys, and supports
36229	Plate—Dial back plate, pulleys and supports	30189	Resistor—120 ohms, ½ watt
12071	Resistor—120 ohms, ½ watt	6134	Resistor—1,200 ohms, 1 watt
6134	Resistor—1,200 ohms, 1 watt	12955	Resistor—3,900 ohms, ½ watt
12955	Resistor—3,900 ohms, ½ watt	12454	Resistor—33,000 ohms, ½ watt
12454	Resistor—33,000 ohms, ½ watt	12412	Resistor—47,000 ohms, ½ watt
12412	Resistor—47,000 ohms, ½ watt	12264	Resistor—220,000 ohms, ½ watt
12264	Resistor—220,000 ohms, ½ watt	30648	Resistor—470,000 ohms, ½ watt
30648	Resistor—470,000 ohms, ½ watt	12928	Resistor—3.3 meg., ½ watt
12928	Resistor—3.3 meg., ½ watt	30271	Resistor—4.7 meg., ½ watt
30271	Resistor—4.7 meg., ½ watt	30992	Resistor—10 meg., ½ watt
13601	Resistor—10 meg., ½ watt	36897	Shaft—Tuning knob shaft
36897	Shaft—Tuning knob shaft	34449	Socket—Dial lamp socket
34449	Socket—Dial lamp socket	31251	Socket—Tube socket
31251	Socket—Tube socket	31418	Spring—Drive cord spring
31418	Spring—Drive cord spring	36881	Switch—Tone control switch
36881	Switch—Tone control switch	36232	Transformer—First I.F. transformer
36232	Transformer—First I.F. transformer	36233	Transformer—Second I.F. transformer
36233	Transformer—Second I.F. transformer	36800	Transformer—Output transformer
36800	Transformer—Output transformer	33726	Washer—"C" washer to hold tuning shaft
33726	Washer—"C" washer to hold tuning shaft		
	MISCELLANEOUS ASSEMBLIES		
36884	Back—Cabinet back—Model 16X11 only	37802	Back—Cabinet back less wire
37803	Back—Cabinet back less wire—Model 16X13 only	36874	Button—Push button
36873	Clamp—Dial clamp (2 req'd)—Model 16X13	36873	Clamp—Dial clamp (2 required)
36890	Clamp—Dial clamp—left hand—Model 16X11 only	31095	Cover—Push button celluloid covers (1 set)
36891	Clamp—Dial clamp—right hand—Model 16X11 only	36889	Dial—Tuning dial
31095	Cover—Push button celluloid covers (1 set)	36886	Knob—Brown tone switch knob
36888	Dial—Tuning dial—Model 16X11 and 16X13 only	36722	Knob—Brown volume, or tuning knob
36153	Fastener—Push on fastener—Model 16X11	11765	Lamp—Dial lamp
36886	Knob—Brown tone switch knob	34610	Marker—Station call letter markers
36722	Knob—Brown volume, or tuning knob	30900	Spring—Knob retaining spring
11765	Lamp—Dial lamp	36875	Spring—Push button retaining spring
34610	Marker—Station call letter markers		
30900	Spring—Knob retaining spring		
36875	Spring—Push button retaining spring		
	CHASSIS ASSEMBLIES Model 16X14 (RC-1000B)		
36947	Board—Ant. and Grd., and Phono input terminal board	37928	Plate—Dial back plate complete
36879	Cap—Second I.F. transformer shield cap	36230	Pulley—Drive cord pulley
35998	Capacitor—Mica trimmer for loop	30189	Resistor—120 ohms, ½ watt
36880	Capacitor—Mica trimmer, 1 section 2-20 mmfd. and 1 section 300-800 mmfd.	36992	Resistor—10 meg., ½ watt
11859	Capacitor—Adjustable trimmer 3-30 mmfd.		
14079	Capacitor—6.8 mmfd.		
36871	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd. and 1 section of 100-540 mmfd.		
			SPEAKER ASSEMBLIES (RL-81B2)
		35570	Cone—Cone complete with voice coil
		37612	Speaker—5-inch permanent magnet speaker complete with cone and voice coil—less output transformer
			MISCELLANEOUS ASSEMBLIES
		36302	Back—Cabinet back—less red lead wire and terminal
		36873	Clamp—Dial clamp
		37929	Dial—Glass dial scale
		37831	Fastener—Push-on fastener
		37386	Knob—Range switch knob
		36541	Knob—Tuning or volume control knob
		11765	Lamp—Dial lamp, Mazda No. 51
		11349	Spring—Retaining rings for knobs

MODELS Q16 and Q16 E

Chassis No. RC-561

RC-561-C

Five-Tube, Five-Band, A-C, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540-1,720 kc (556-174 m)
Medium Wave ("B" Band).....	3.0-9.5 mc (100-31.6 m)
"31" Meter Spread Band.....	9.5-11.7 mc (31.6-25.6 m)
"25" Meter Spread Band.....	11.7-15.1 mc (25.6-19.9 m)
"19-13" Meter Spread Band.....	15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

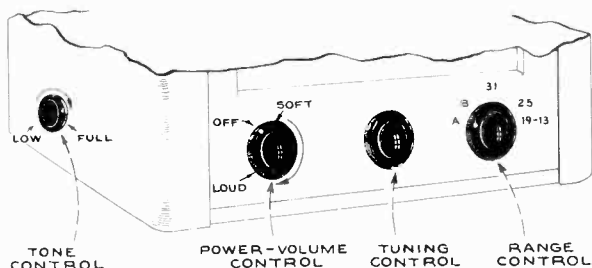
- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
- (4) RCA-6F6-G..... Power Output
- (5) RCA-5Y3-G..... Rectifier

LOUDSPEAKER (RL-92-A1)*

Type..... 6-inch permanent magnet dynamic
 V.C. Impedance at 400 Cycles..... 3.4 ohms

POWER SUPPLY RATINGS

	Voltages	Frequency (cycles)	Watts
(1)	105-125	50-60	50
(2)	105-125	25-60	50
(3)	105-125, 200-250	50-60	50



Controls

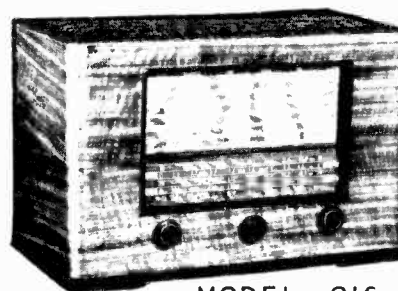
Record Player Attachment.—A jack is provided on the rear of chassis for connection to a Record Player Attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug to fit the jack.

POWER OUTPUT

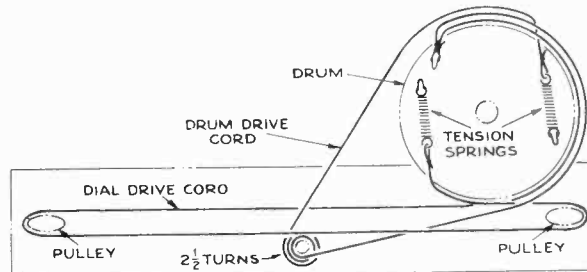
Undistorted.....	1.8 watts
Maximum.....	3.25 watts

Height Width Depth

CABINET DIMENSIONS (inches).....	11 1/8	17 1/8	8 3/4
Chassis Base Dimensions (inches).....	2 3/4	15 1/8	5 1/4
Overall Chassis Height.....	6 3/4 inches		
Weight (net).....	18 pounds		
Tuning Drive Ratio.....	24 to 1		



MODEL Q16, Q16E



Dial-Indicator and Drive Mechanism

Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible, bunched together, and kept away from oscillator coils, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.

Q16E (RC-561-C)

Service Data:

Model Q16E is similar to Model Q16, except that it has an EM speaker, as shown in accompanying sketch, and the following parts are different:

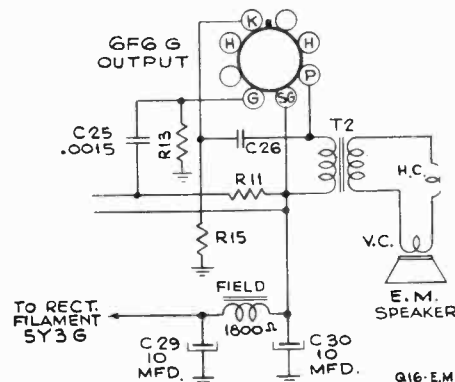
Stock No.	Description
12896	Capacitor—15 mmfd., moulded mica
33806	Capacitor—.0015 mfd.
32342	Capacitor—Electrolytic, comprising 2 sections of 10 mfd., 450 volts each
38409	Control—Tone control
34761	Resistor—10 ohms, 1/2 watt
30492	Resistor—22,000 ohms, 1/2 watt
30652	Resistor—1 meg., 1/2 watt
30649	Resistor—2.2 meg., 1/2 watt
32911	Transformer—Power transformer—105-120 volts, 50-60 cycle

- 32852 Transformer—Power transformer—110-220 volts, 50-60 cycle
- 2917 Washer—"C" washer to hold tuning shaft

*** SPEAKER ASSEMBLIES (RL-79C-1)**

- 31825 Cap—Dust cap
- 32903 Coil—Field coil—1,800 ohms
- 38392 Cone—Cone complete with voice coil
- 5118 Plug—3-prong male plug for speaker
- 32905 Transformer—Output transformer

Note.—If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.



Speaker connections in Model Q16E (RC-561-C).

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

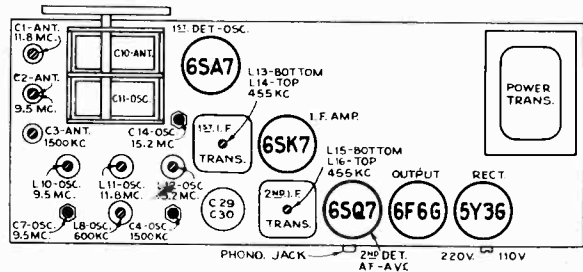
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid in series with .01 mfd.	455 kc	A	Quiet Point at high-frequency end	L15 and L16 2nd I-F Trans.
2	1st Det. grid in series with .01 mfd.				L13 and L14 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.6°	L11 (osc.) C1 (ant.)
4		15.2 mc			17°	C14 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13M	156°	L12 (osc.)**
7		9.5 mc	31M	156°	L10 (osc.)** C2 (ant.)
8	9.5 mc	B	11.5°	C7 (osc.)***	
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C4 (osc.) C3 (ant.)
10		600 kc			150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

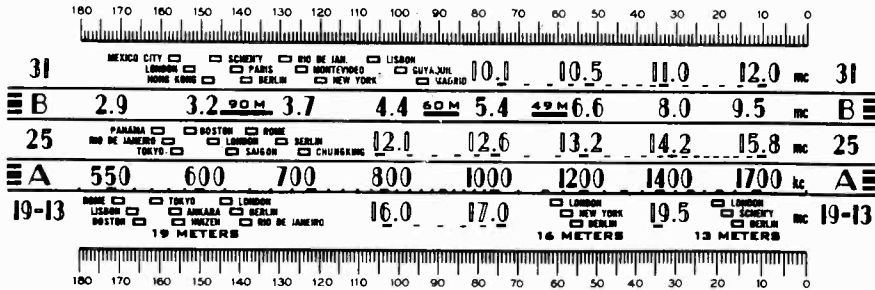
**Peak at minimum position of plunger if two peaks can be obtained.

***Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.



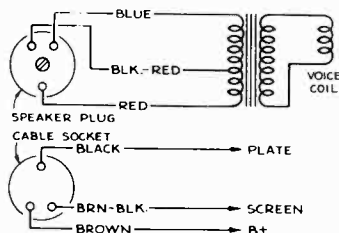
Tube and Trimmer Location



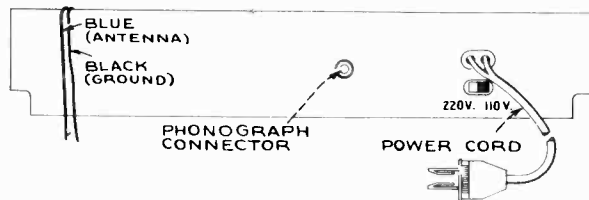
Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

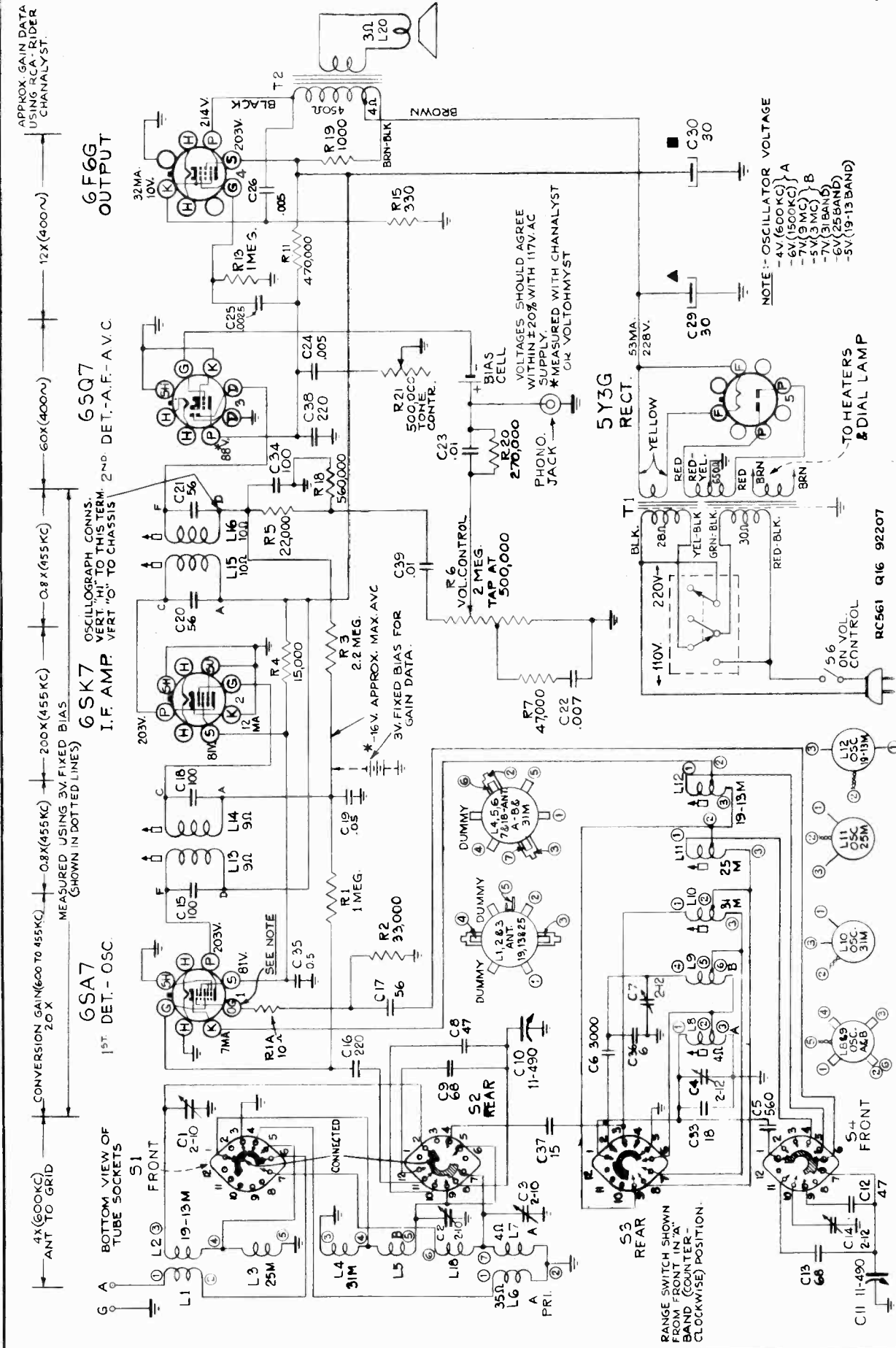
The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."



Connections and Colors of Loudspeaker and Cable



Rear of Chassis



Capacitor Change:
 To reduce flutter in Q16 with "EM" speaker, the audio coupling capacitor C25 is changed from .0025 to .0015 mfd.

Schematic Circuit Diagram

Contacts 2, 3 and 4 on switch S3 are connected to contacts 2, 3 and 4 on switch S4.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES Model Q16 (RC-561)			
37981	Bracket—Drive cord pulley and bracket.....	12412	Resistor—47,000 ohms, 1/4 watt.....
37976	Bracket—Tone control support bracket.....	30651	Resistor—270,000 ohms, 1/4 watt.....
35642	Calibrator—Drive drum calibrator dial.....	30648	Resistor—470,000 ohms, 1/4 watt.....
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5-10 mmfd.....	12486	Resistor—560,000 ohms, 1/4 watt.....
12714	Capacitor—Air trimmer—2-12 mmfd.....	13730	Resistor—1 meg., 1/4 watt.....
35646	Capacitor—6 mmfd.....	12679	Resistor—2.2 meg., 1/4 watt.....
36012	Capacitor—15 mmfd., ceramic (C37).....	14350	Screw—No. 8-32 square head set screw for drive drum.....
12722	Capacitor—18 mmfd.....	37979	Shaft—Tuning knob shaft.....
35644	Capacitor—47 mmfd., ceramic (C12).....	35772	Shield—Bottom shield for power transformers—Stock Nos. 35757 and No. 35758.....
13141	Capacitor—47 mmfd., silvered mica (C8).....	35709	Shield—Top shield for power transformers—Stock Nos. 35757 and No. 35758.....
30949	Capacitor—56 mmfd., mica (1F).....	31364	Socket—Dial lamp socket.....
12723	Capacitor—56 mmfd., moulded mica.....	33742	Socket—Phono input socket.....
35645	Capacitor—68 mmfd., ceramic (C13).....	31251	Socket—Tube socket.....
13057	Capacitor—68 mmfd., silvered mica (C9).....	31418	Spring—Pointer cord or drive cord spring.....
30904	Capacitor—100 mmfd., mica (1F).....	31261	Spring—Retaining spring for adjustable core and stud assemblies.....
12720	Capacitor—100 mmfd., moulded mica.....	35622	Support—Flywheel and shaft support bracket.....
12694	Capacitor—220 mmfd.....	37978	Switch—Range switch.....
12537	Capacitor—560 mmfd.....	32827	Switch—Voltage change switch.....
35643	Capacitor—3,000 mmfd.....	35636	Transformer—First I.F. transformer.....
34459	Capacitor—.0025 mfd.....	35628	Transformer—Second I.F. transformer.....
33584	Capacitor—.005 mfd.....	35758	Transformer—Power transformer—105-120 volts, 25 cycle—less end shields.....
5148	Capacitor—.007 mfd.....	36757	Transformer—Power transformer—105-120 volts, 50-60 cycle—less end shields.....
4937	Capacitor—.01 mfd.....	35759	Transformer—Power transformer—110-125-150-210-240 volts, 50-60 cycles.....
32787	Capacitor—.05 mfd.....	2917	Washer—"C" washer to hold tuning shaft.....
13701	Capacitor—.5 mfd.....		
18975	Capacitor—Electrolytic comprising 2 sections of 30 mfd. 300 volts.....		
31581	Cell—Bias cell.....		SPEAKER ASSEMBLIES (RL-92-A1) Model Q16
35632	Coil—Antenna coil—"A" band.....	32907	Cap—Dust cap.....
35631	Coil—Antenna coil—spread band.....	36077	Cone—Cone complete with voice coil.....
35623	Coil—Oscillator coil—"A" and "B" band.....	5118	Plug—3 prong male plug for speaker.....
35624	Coil—Oscillator coil—"19-13 meter" band.....	37984	Transformer—Output transformer.....
35625	Coil—Oscillator coil—"25 meter" band.....		MISCELLANEOUS ASSEMBLIES
35626	Coil—Oscillator coil—"31 meter" band.....	36103	Decalcomania—"Off-Volume" decal.....
35619	Condenser—Two gang variable tuning condenser.....	37839	Decalcomania—Range switch decal.....
37977	Control—Tone control.....	35392	Decalcomania—Trade mark decal.....
37980	Control—Volume control and power switch.....	35391	Decalcomania—Tuning decal.....
32634	Cord—Drive cord—(approx. 27 in. overall lgth.).....	37986	Dial—Glass dial scale.....
34662	Cord—Pointer cord (approx. 43 in. overall lgth.).....	37989	Indicator—Station selector indicator.....
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil.....	35814	Knob—Range switch or volume control knob.....
31259	Core—Adjustable core and stud for "19-13 meter", "25 meter" and "31 meter" oscillator coils.....	35650	Knob—Tone control knob.....
35627	Drum—Tuning condenser drive drum—less calibrator.....	35775	Knob—Tuning knob.....
35638	Flywheel—Tuning shaft flywheel.....	11891	Lamp—Dial lamp.....
31580	Holder—Bias cell holder.....	35653	Mounting—Complete set of hardware to mount 1 speaker.....
33825	Plug—2 prong male plug for power input.....	36793	Rail—Pointer guide rail.....
5119	Plug—3 contact female socket for speaker cable.....	14270	Spring—Retaining spring for knob Stock No. 35650.....
36627	Pulley—Drive cord pulley.....	30900	Spring—Retaining spring for knobs Stock Nos. 35814 and 35775.....
13988	Resistor—10 ohms, 1/4 watt.....		
11670	Resistor—330 ohms, 1 watt.....		
30152	Resistor—1,000 ohms, 1 watt.....		
3358	Resistor—3,000 ohms, 1/4 watt.....		
35595	Resistor—15,000 ohms, 3 watts.....		
13998	Resistor—22,000 ohms, 1/4 watt.....		

Capacitor C33:

C33 is changed from 18 to 15 mmfd., Stock No. 12896.

MODEL 17K

Chassis No. RC-512

Seven-Tube, Three-Band, AC, Superheterodyne Receiver**Electrical Specifications****FREQUENCY RANGES**

Standard Broadcast..... 540-1,600 kc
 Medium Wave..... 1.5-4.0 mc
 Short Wave..... 5.8-18.0 mc

INTERMEDIATE FREQUENCY 455 kc

PUSH-BUTTON RANGES

One station between approximately..... 540-1,030 kc
 Two stations between approximately..... 610-1,250 kc
 Two stations between approximately..... 740-1,430 kc
 One station between approximately..... 880-1,550 kc

TUBE COMPLEMENT

(1) RCA-6SK7..... R-F Amplifier
 (2) RCA-6SA7..... 1st Detector-Oscillator
 (3) RCA-6SK7..... I-F Amplifier
 (4) RCA-6H6..... 2nd Detector, A.V.C.
 (5) RCA-6SF5..... A-F Amplifier
 (6) RCA-6K6GT..... Power Output
 (7) RCA-5Y3-G..... Rectifier

PILOT LAMPS

(2).... Mazda No. 51, 6.3 volts,
 0.20 amp.

POWER OUTPUT RATING

Undistorted..... 2.5 watts
 Maximum..... 4.5 watts

LOUDSPEAKER (RL-70-L5)

Type..... 12-inch Electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles, 90 watts
 105-125 volts, 25-60 cycles, 90 watts

Cabinet Dimensions	Height	Width	Depth
(inches).....	39	26	13
Chassis Base Dimensions (inches).....	2½	16	6½
Overall Chassis Height.....	9½		
Tuning Drive Ratio.....	15-1		

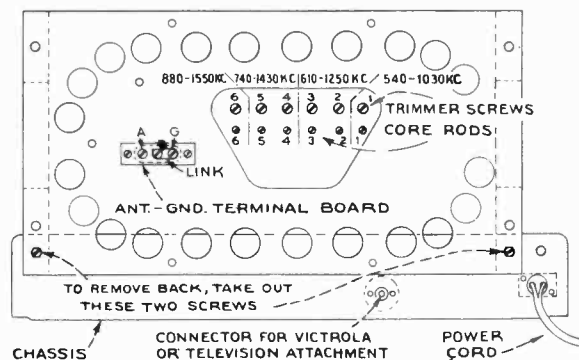
**Push Button Adjustment**

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L-14) to receive the station.
4. After oscillator core is set correctly, adjust C-8 for maximum output.
 Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Owing to the relatively high r-f gain, it may be found that a given station can be tuned in at several different settings of the



magnetite-core oscillator push-button coils. In such cases, it is advisable to unscrew the loop push-button trimmers to minimum capacity before adjusting the magnetite cores.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L-9 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

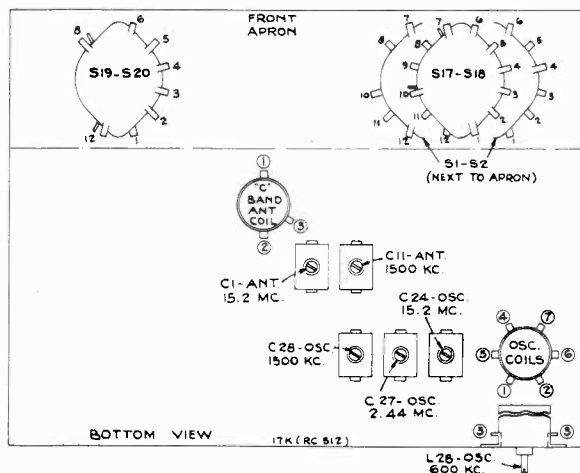
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

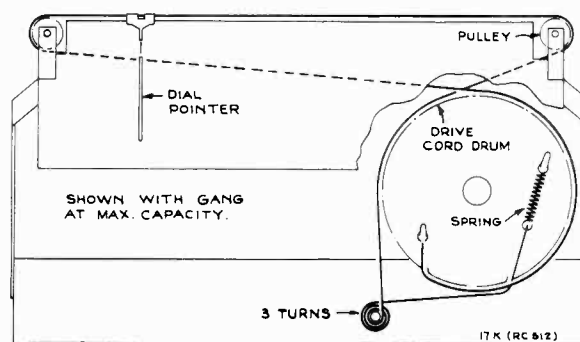
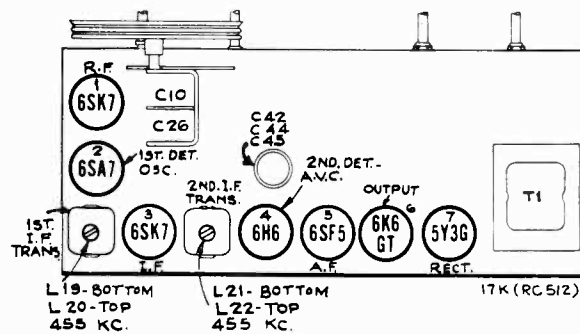
Calibration for Alignment.—The proper dial calibration for alignment purposes can be set up in two ways:

1. The dial may be removed from the cabinet by sliding out the two spring pieces which clamp it in its mounting position. The condenser plates should then be turned into full mesh, the pointer adjusted to the scratch at the left end of the dial backing plate, and the dial slipped under the pointer so that its extreme left calibration mark coincides with the pointer. The dial may be held in place with scotch tape. In this manner the actual receiver dial is used for alignment. When alignment is finished, the scale should be replaced including the fibre light shields which are folded under the ends of the glass scale.
2. A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 0 degree scale mark is horizontal with the gang in full mesh.

Pointer for Calibration Scale.—If method (2) is used, improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0 degree mark on the calibration scale when the plates are fully meshed.

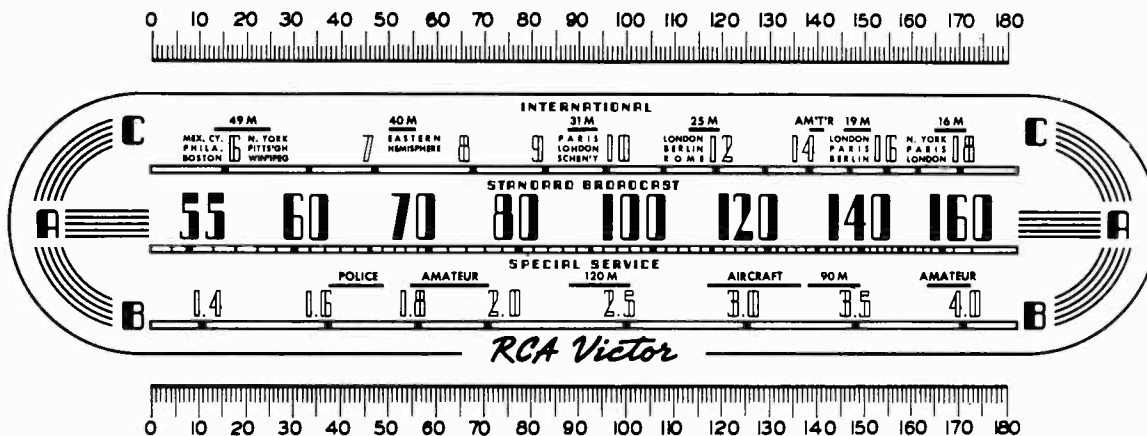


Steps	Connect high side of test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	6SK7 I-F grid in series with 0.01 mfd.	455 kc	"A" band Quiet Point between 550 and 750 kc	L-21 and L-22 (2nd I-F Trans.)
2	6SA7 grid in series with 0.01 mfd.			L-19 and L-20 (1st I-F Trans.)
3	Antenna terminal in series with 47 mmfd.	15.2 mc	15.2 mc (149°) "C" band	C-24 (Osc.)* C-1 (R-F) Rock gang
4	Antenna terminal in series with 200 mmf. (link open)	2.44 mc	2.44 mc (97°) "B" band	C-27 (Osc.)
5	Antenna terminal in series with 200 mmf.	600 kc	600 kc (30.5°) "A" band	L-28 (Rock in)
6	Antenna terminal in series with 200 mmf.	1,500 kc	1,500 kc (158°) "A" band	C-28 (Osc.) C-11 (R-F)
7	Repeat steps 5 and 6.			



* Use minimum capacity peak if two can be obtained. Check to determine that C-24 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.

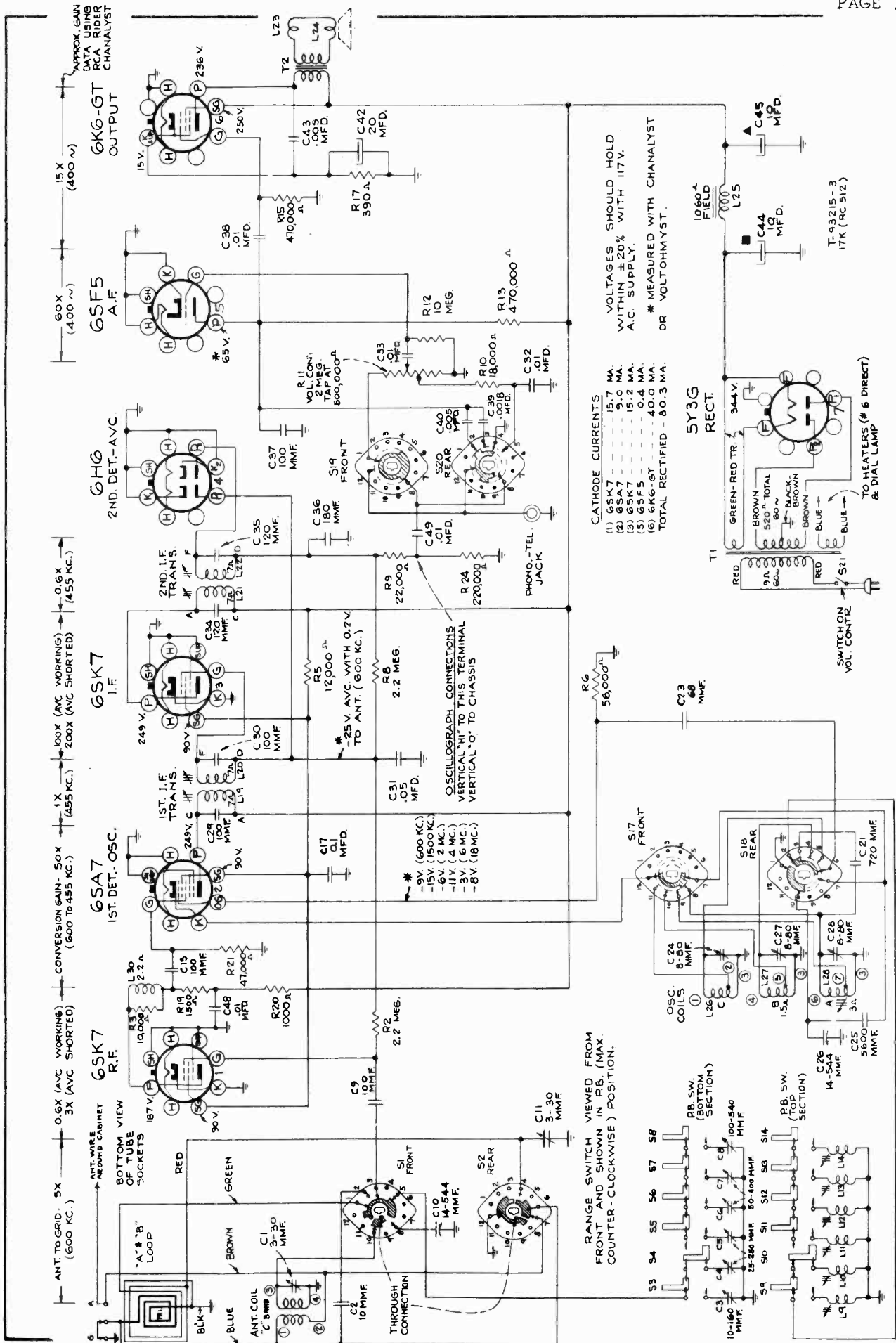
Note.—Oscillator tracks above signal on all bands.

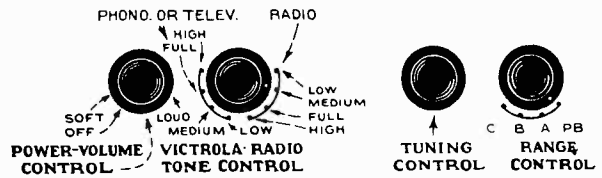


Receiver Dial Scales, and Corresponding Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example, 30.5° on the calibration scale corresponds to 600 kc on "A" band. Read instructions under "Alignment Procedure."

For correct dial calibration, the pointer should fall on the scratch mark on the dial backing plate with condenser fully meshed. This scratch is 3/8 inches from the left extremity of the plate.





Failure to Oscillate on Push-Button Tuning:

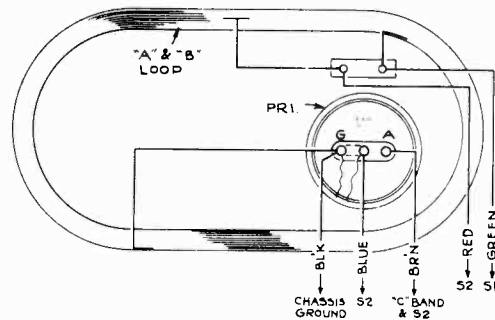
Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 33,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133, is used for the 540-1,030 kc push-button oscillator ranges.

Increasing Sensitivity:

These models have an untuned R-F stage which is resistance-coupled to the 1st-detector. The sensitivity may be increased by changing the R-F plate load resistor to a higher value, between 6,000 and 10,000 ohms. This change is not recommended in metropolitan localities owing to possibility of cross-modulation.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-512)			
34025	Board—"Antenna-Ground" board.....	12454	Resistor—33,000 ohms, 1/2 watt.....
35795	Calibrator—Drive drum calibrator.....	12412	Resistor—47,000 ohms, 1/2 watt.....
35792	Capacitor—Trimmer comprising 2 sections of 3-30 mmfd. each.....	12264	Resistor—220,000 ohms, 1/2 watt.....
35791	Capacitor—Mica trimmer comprising 3 sections of 8-80 mmfd. each.....	12285	Resistor—470,000 ohms, 1/2 watt.....
13200	Capacitor—10 mmfd.....	12679	Resistor—2.2 meg., 1/2 watt.....
35804	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.....	13601	Resistor—10 meg., 1/2 watt.....
13057	Capacitor—68 mmfd.....	35797	Shaft—Tuning shaft and pulley.....
12720	Capacitor—100 mmfd.....	35772	Shield—Bottom end shield for power transformer.....
13003	Capacitor—180 mmfd.....	35709	Shield—Top end shield for power transformer.....
35877	Capacitor—720 mmfd.....	31364	Socket—Dial lamp socket.....
13895	Capacitor—5,600 mmfd.....	31251	Socket—Tube socket.....
34506	Capacitor—.0018 mfd.....	31418	Spring—Drive cord spring.....
33584	Capacitor—.005 mfd.....	36025	Switch—Push button selector switch.....
4937	Capacitor—.01 mfd.....	36024	Switch—Range switch.....
32787	Capacitor—.05 mfd.....	35636	Transformer—First I-F transformer.....
4839	Capacitor—.01 mfd.....	35790	Transformer—Second I-F transformer.....
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts each and 1 section of 20 mfd., 25 volts.....	35588	Transformer—Power transformer—110 volts, 25 cycle.....
35965	Coil—Antenna coil—"C" band.....	35959	Transformer—Power transformer—110 volts, 60 cycle—less end shields.....
35876	Coil—Coil and resistor assembly.....	35969	Washer—"C" washer for tuning shaft.....
36031	Coil—Loop loading coil.....	SPEAKER ASSEMBLIES (RL-70L5)	
35789	Coil—Oscillator coil.....	13867	Cap—Dust cap.....
35803	Coil—Push button switch oscillator coil.....	12079	Coil—Field coil—1,060 ohms.....
35960	Condenser—Variable tuning condenser.....	11469	Coil—Neutralizing coil.....
36249	Control—Tone control.....	36145	Cone—Cone complete with voice coil.....
36250	Control—Volume control and power switch.....	5118	Plug—3-prong male speaker plug.....
34662	Cord—Drive cord.....	31301	Transformer—Output transformer.....
35788	Core—Adjusting core and stud for oscillator coil.....	MISCELLANEOUS ASSEMBLIES	
35871	Core—Adjusting core and stud for push button oscillator coils.....	36027	Bezel—Push button bezel—less buttons.....
35794	Drum—Tuning condenser drive drum—less calibrator.....	35883	Button—Push button—dark brown.....
38784	Frame—Dial frame complete with lamp bracket and pulleys—less dial.....	36299	Button—Push button—light brown.....
35798	Indicator—Station selector indicator and carriage.....	35914	Decalcomania—Control panel decal.....
36029	Loop—Antenna loop complete.....	36028	Dial—Glass dial scale.....
36030	Loop—Loop winding only.....	36026	Escutcheon—Dial scale escutcheon—less dial.....
36009	Plug—2-contact male plug for loop cable.....	35814	Knob—Range switch or tone control knob—dark brown.....
5119	Plug—3-contact female plug for speaker cable.....	36297	Knob—Range switch or tone control knob—light brown.....
5040	Plug—4-contact female plug for speaker cable.....	35775	Knob—Tuning or volume control knob—dark brown.....
35787	Plug—Phono. input plug.....	36298	Knob—Tuning or volume control knob—light brown.....
35973	Pulley—Drive cord pulley.....	11765	Lamp—Dial lamp.....
30498	Resistor—390 ohms, 1/2 watt.....	36149	Marker—Push button station marker.....
14720	Resistor—1,000 ohms, 1/2 watt.....	36007	Mounting—Antenna loop mounting hardware.....
30654	Resistor—1,500 ohms, 1/2 watt.....	33774	Mounting—Speaker mounting hardware comprising 1 eyelet and 1 grommet.....
35876	Resistor—10,000 ohms.....	34053	Spring—Retaining spring for button Stock No. 35883 and 36299.....
35875	Resistor—12,000 ohms, 3 watts.....	30900	Spring—Retaining spring for knob Stock No. 35775, 35814, 36297, 36298.....
13045	Resistor—18,000 ohms, 1/2 watt.....		
13998	Resistor—22,000 ohms, 1/2 watt.....		

MODEL Q17

Chassis No. RC-561A

Five-Tube, Five-Band, AC-DC, Superheterodyne Receiver

REFER TO MODEL Q16 FOR ALIGNMENT PROCEDURE

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)... 540-1,720 kc (556-174 m)
 Medium Wave ("B" Band)... 3.0-9.5 mc (100-31.6 m)
 "31" Meter Spread Band... 9.5-11.7 mc (31.6-25.6 m)
 "25" Meter Spread Band... 11.7-15.1 mc (25.6-19.9 m)
 "19-13" Meter Spread Band... 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7..... 1st Detector-Oscillator
- (2) RCA-12SK7..... I-F Amplifier
- (3) RCA-12SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
- (4) RCA-50L6-GT..... Power Output
- (5) RCA-35Z5-GT..... Rectifier

LOUDSPEAKER (RL-92-6)

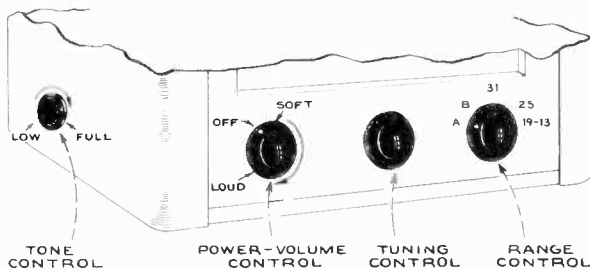
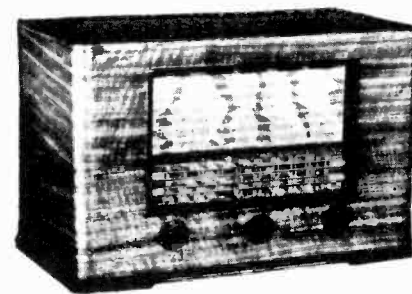
Type..... 6-inch permanent magnet dynamic
 V.C. Impedance at 400 Cycles..... 3.4 ohms

POWER SUPPLY RATINGS

105-125 volts A-C 40-100 cycles or D-C..... 35 watts
 160-200 volts A-C 40-100 cycles or D-C..... 55 watts
 210-250 volt A-C 40-100 cycles or D-C..... 70 watts

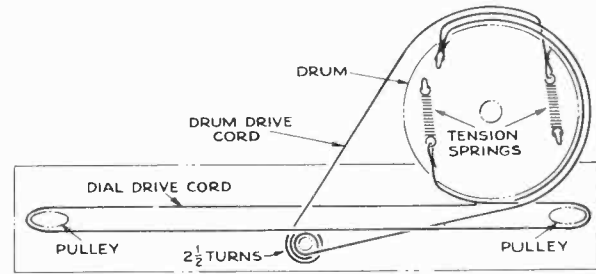
POWER OUTPUT 117 V-DC 230 V-DC
 Undistorted..... 1.5 watts 2.3 watts
 Maximum..... 2.6 watts 3.9 watts

CABINET DIMENSIONS (inches)... 11¹/₈ ... 17¹/₈ ... 8³/₄
Chassis Base Dimensions (inches) 2³/₄ ... 15¹/₈ ... 5¹/₄
Overall Chassis Height..... 6³/₄ inches
Weight (net)..... 18 pounds
Tuning Drive Ratio..... 24 to 1



Controls

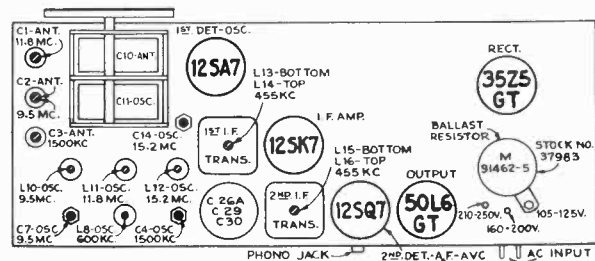
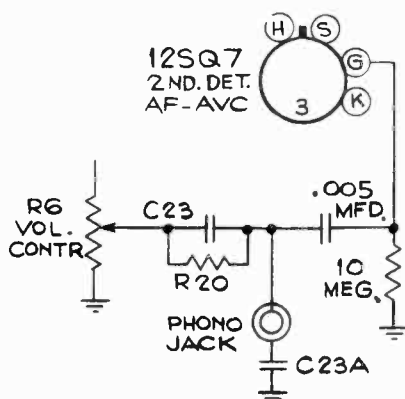
Record Player Attachment.—A jack is provided on the rear of chassis for connection to a Record Player Attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug to fit the jack.



Dial-Indicator and Drive Mechanism

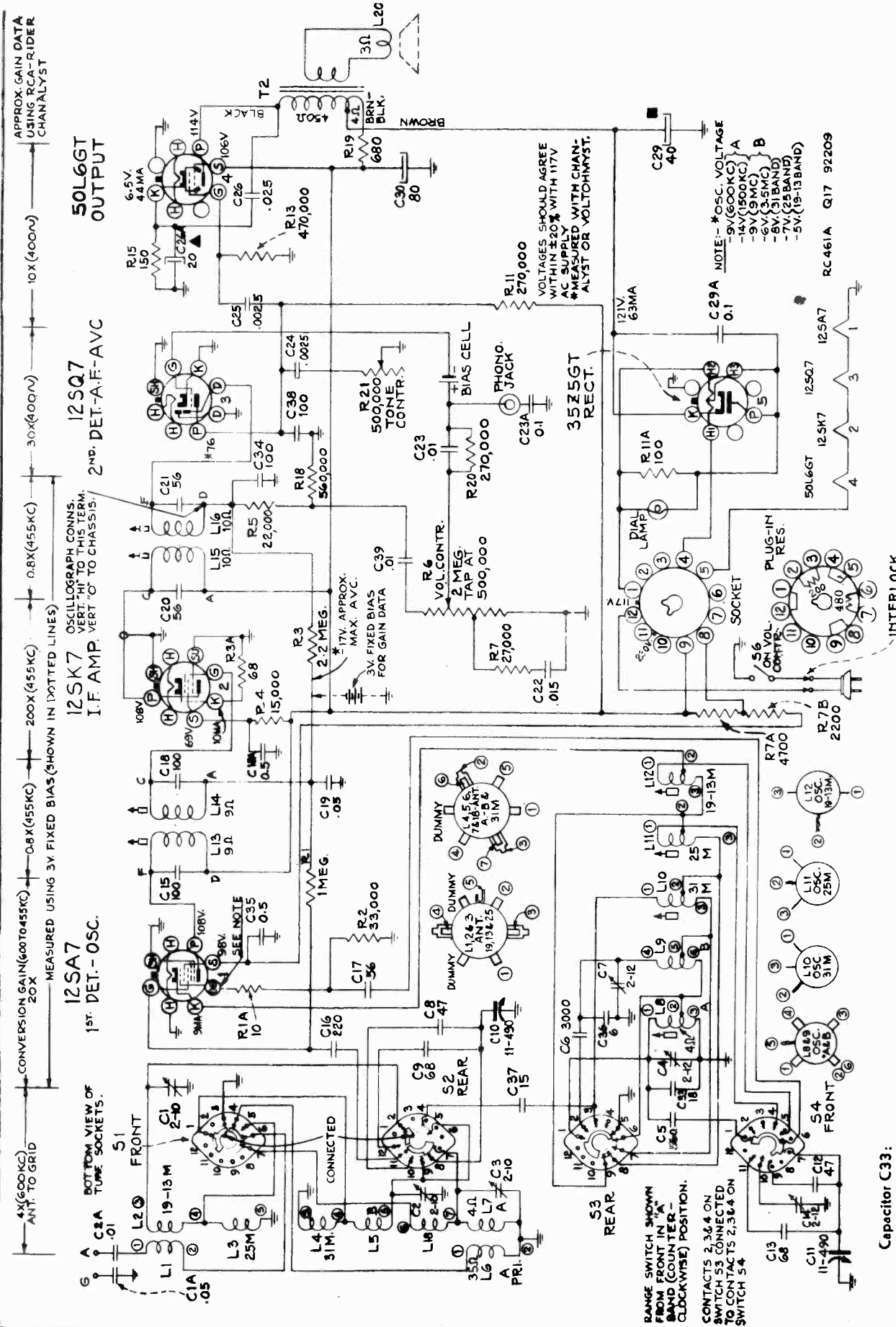
Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible, bunched together, and kept away from oscillator coils, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.

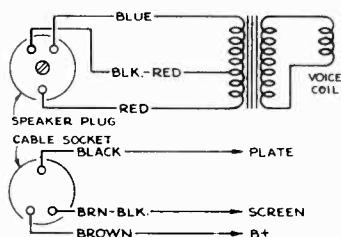


Tube and Trimmer Location

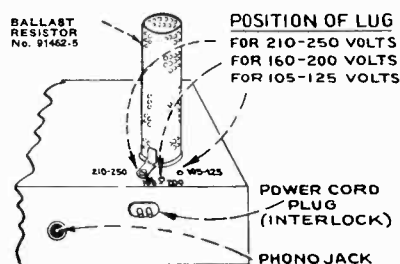
When Model Q17 is used on 110-volt DC supply, the 1st-audio grid circuit should be changed as shown above to prevent distortion due to incorrect bias.



Schematic Circuit Diagram



Connections and Colors of Loudspeaker and Cable



Ballast Resistor

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES Model Q17 (RC-561A)		
37983	Ballast—Ballast tube resistor	14281	Resistor—68 ohms, 1/2 watt
37981	Bracket—Drive cord pulley and bracket	35711	Resistor—100 ohms, 1/2 watt
37976	Bracket—Tone control support bracket	30785	Resistor—150 ohms, 1 watt
35642	Calibrator—Drive drum calibrator dial	32686	Resistor—680 ohms, 1 watt
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5-10 mmfd.	34767	Resistor—2,200 ohms, 1/2 watt
12714	Capacitor—Air trimmer—2-12 mmfd.	3358	Resistor—3,000 ohms, 1/2 watt
35646	Capacitor—6 mmfd.	30494	Resistor—4,700 ohms, 1/2 watt
36012	Capacitor—15 mmfd., ceramic (C37)	36714	Resistor—15,000 ohms, 1/2 watt
12722	Capacitor—18 mmfd.	13998	Resistor—22,000 ohms, 1/2 watt
35644	Capacitor—47 mmfd., ceramic (C12)	12738	Resistor—27,000 ohms, 1/2 watt
13141	Capacitor—47 mmfd., silvered mica (C8)	30651	Resistor—270,000 ohms, 1/2 watt
30949	Capacitor—56 mmfd., mica (1F)	30648	Resistor—470,000 ohms, 1/2 watt
12723	Capacitor—56 mmfd., moulded mica	12486	Resistor—560,000 ohms, 1/2 watt
35645	Capacitor—68 mmfd., ceramic (C13)	13730	Resistor—1 meg., 1/2 watt
13057	Capacitor—68 mmfd., silvered mica (C9)	12679	Resistor—2.2 meg., 1/2 watt
30904	Capacitor—100 mmfd., mica (1F)	14350	Screw—No. 8-32 square head set screw for drive drum
12720	Capacitor—100 mmfd., moulded mica	37979	Shaft—Tuning knob shaft
12694	Capacitor—220 mmfd.	35634	Socket—Ballast tube resistor socket—“Cut-off terminals not required”
12537	Capacitor—560 mmfd.	31365	Socket—Dial lamp socket
35643	Capacitor—3,000 mmfd.	33742	Socket—Phono input socket
34459	Capacitor—.0025 mfd.	31251	Socket—Tube socket
4937	Capacitor—.01 mfd.	31418	Spring—Pointer cord or drive cord spring
11315	Capacitor—.015 mfd.	31261	Spring—Retaining spring for adjustable core and stud assemblies
4870	Capacitor—.025 mfd.	35622	Support—Flywheel and shaft support bracket
12480	Capacitor—.05 mfd.	37978	Switch—Range switch
32787	Capacitor—.05 mfd.	35636	Transformer—First I.F. transformer
4839	Capacitor—.01 mfd.	35628	Transformer—Second I.F. transformer
31701	Capacitor—.05 mfd.	37983	Tube—Ballast tube resistor
35747	Capacitor—Electrolytic comprising 1 section of 80 mfd. 300 volts, 1 section of 40 mfd. 300 volts, and 1 section of 20 mfd. 25 volts	2917	Washer—“C” washer to hold tuning shaft
31581	Cell—Bias cell		SPEAKER ASSEMBLIES (RL-92-6)
35632	Coil—Antenna coil—“A” band	32907	Cap—Dust cap
35631	Coil—Antenna coil—spread band	36077	Cone—Cone complete with voice coil
35623	Coil—Oscillator coil—“A” and “B” band	5118	Plug—3 prong male plug for speaker
35624	Coil—Oscillator coil—“19-13 meter” band	37985	Transformer—Output transformer
35625	Coil—Oscillator coil—“25 meter” band		MISCELLANEOUS ASSEMBLIES
35626	Coil—Oscillator coil—“31 meter” band	36103	Decalcomania—“Off-Volume” decal
35619	Condenser—Two gang variable tuning condenser	37839	Decalcomania—Range switch decal
37977	Control—Tone control	35392	Decalcomania—Trade mark decal
37980	Control—Volume control and power switch	35391	Decalcomania—Tuning decal
32634	Cord—Drive cord—(approx. 27 in. overall lgth.)	37987	Dial—Glass dial scale
34662	Cord—Pointer cord (approx. 43 in. overall lgth.)	37989	Indicator—Station selector indicator
35788	Core—Adjustable core and stud for “A” and “B” band oscillator coil	35814	Knob—Range switch or volume control knob
31259	Core—Adjustable core and stud for “19-13 meter,” “25 meter” and “31 meter” oscillator coils	35650	Knob—Tone control knob
35627	Drum—Tuning condenser drive drum—less calibrator	35775	Knob—Tuning knob
35638	Flywheel—Tuning shaft flywheel	31480	Lamp—Dial lamp
31580	Holder—Bias cell holder	35653	Mounting—Complete set of hardware to mount 1 speaker
37982	Insulator—Insulator for phono socket	36793	Rail—Pointer guide rail
33825	Plug—2 prong male plug for power input	14270	Spring—Retaining spring for knob Stock No. 35650
5119	Plug—3 contact female socket for power input	30900	Spring—Retaining spring for knobs Stock Nos. 35814 and 35775
36627	Pulley—Drive cord pulley		
37983	Resistor—Ballast tube resistor		
13988	Resistor—10 ohms, 1/2 watt		

MODEL 18T

Chassis No. RC-511

Eight-Tube, Three-Band, AC, Superheterodyne Receiver**Electrical Specifications****FREQUENCY RANGES**

Broadcast	540-1,560 kc
Medium Wave	1.56-4.0 mc
Short Wave	5.8-18.0 mc
INTERMEDIATE FREQUENCY	455 kc

PUSH-BUTTON RANGES

One station between approximately	540-1,080 kc
Two stations between approximately	610-1,250 kc
Two stations between approximately	740-1,430 kc
One station between approximately	880-1,560 kc

TUBE COMPLEMENT

(1) RCA-6SK7	R-F Amplifier
(2) RCA-6SA7	1st Detector-Oscillator
(3) RCA-6SK7	I-F Amplifier
(4) RCA-6SQ7	2nd Detector, A.V.C., and A-F Amplifier
(5) RCA-6SF5	Phase Inverter
(6) RCA-6K6GT	Power Output
(7) RCA-6K6GT	Power Output
(8) RCA-5Y3-G	Rectifier

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles, 90 watts
105-125 volts, 25-60 cycles, 90 watts

PILOT LAMPS

(2) Mazda No. 51, 6.3 volts, 0.20 amp.
--

POWER OUTPUT RATING

Undistorted	5.0 watts
Maximum	5.5 watts

LOUDSPEAKER (RL-79-A5)

Type	6-inch Electrodynamic
V.C. Impedance	3.4 ohms at 400 cycles

Mechanical Specifications

	Height	Width	Depth
Cabinet Dimensions (inches)	11 $\frac{1}{2}$	18	10 $\frac{1}{2}$
Chassis Base Dimensions (inches)	2 $\frac{1}{2}$	6 $\frac{1}{2}$	16
Overall Chassis Height			10 $\frac{1}{2}$
Weight		25 $\frac{1}{2}$ lbs. (Shipping), 21 $\frac{1}{2}$ lbs. (Net)	
Tuning Drive Ratio			15-1

Push Button Adjustment

Six station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across "A" and "G" terminals on back of set. In either case the procedure is as follows:

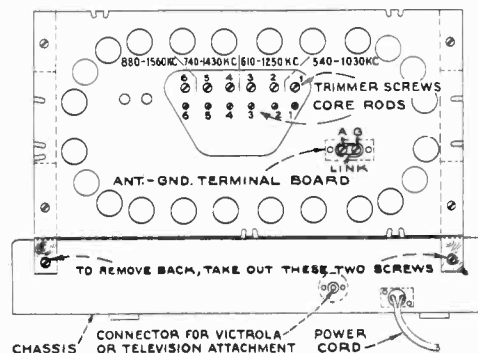
1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L-14) to receive the station. It may be necessary to maintain approximate tracking between antenna and oscillator to receive weak stations. Approximate tracking will be indicated by noise, when tuned off a station, which will disappear when the station is correctly tuned.
4. After oscillator core is adjusted properly, adjust C-8 for maximum output.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the five remaining stations in the same manner.

6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Owing to the relatively high RF gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases, it is advisable to unscrew the push-button loop trimmers to minimum capacity before adjusting the push-button magnetite cores.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

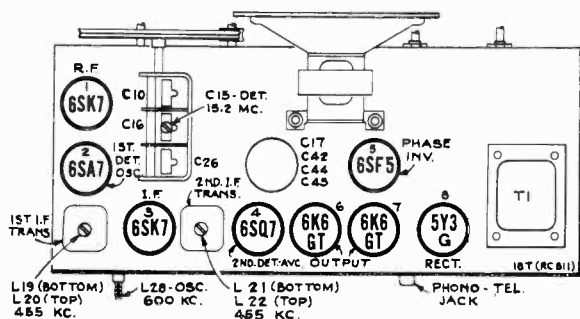
Calibration for Alignment.—The proper dial calibration for alignment purposes can be set up in two ways:

1. The dial may be removed from the cabinet by sliding out the two spring pieces which clamp it in its mounting position. The condenser plates should then be turned into full mesh, the pointer adjusted to the scratch at the left end of the dial backing plate, and the dial slipped under the pointer so that its extreme left calibration mark coincides with the pointer. The dial may be held in place with scotch tape. In this manner the actual receiver dial is used for alignment. When alignment is finished, the scale should be replaced including the fibre light shields which are folded under the ends of the glass scale.
2. A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 0 degree scale mark is horizontal with the gang in full mesh.

Pointer for Calibration Scale.—If method (2) is used, improvise a pointer for the calibration scale by fastening a piece of wire to the

chassis, and bend the wire so that it points to the 0 degree mark on the calibration scale when the plates are fully meshed.

Steps	Connect high side of test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	6SK7 I-F grid in series with 0.01 mfd.	455 kc	"A" band Quiet Point between 550 and 750 kc	L-21 and L-22 (2nd I-F Trans.)
2	6SA7 grid in series with 0.01 mfd.			L-19 and L-20 (1st I-F Trans.)
3	Antenna terminal in series with 300 ohms ("A" antenna trimmer C-11, should be $\frac{1}{2}$ turn out)	15.2 mc	15.2 mc (149°) "C" band	C-24 (Osc.)* C-15 (Det.) Rock gang C-1 (R-F) Rock gang
4	Antenna terminal in series with 200 mmf.	2.44 mc	2.44 mc (91.5°) "B" band	C-27 (Osc.) C-19 (Det.)
5	Antenna terminal in series with 200 mmf. (Preset "A" osc. trimmer C-28 $\frac{1}{2}$ turn out)	600 kc	600 kc (33.2°) "A" band	L-28 Rock gang
6	Antenna terminal in series with 200 mmf.	1,500 kc	1,500 kc (163.4°) "A" band	C-28 (Osc.) C-20 (Det.) C-11 (R-F)
7	Repeat step 5, then 6			
8	Antenna terminal in series with 300 ohms	15.2 mc	15.2 mc (149°) "C" band	C-1 (R-F) Rock gang

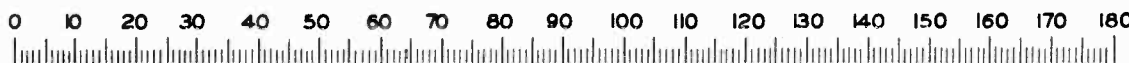
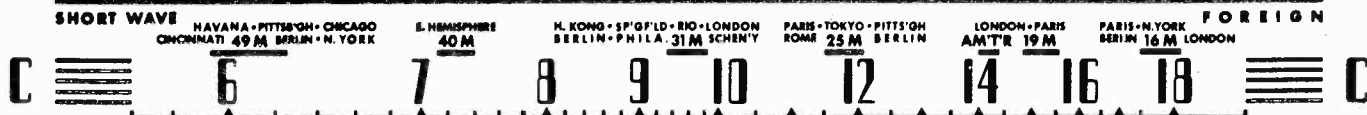
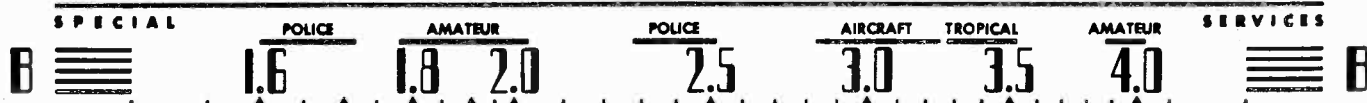


* Use minimum capacity peak if two can be obtained. Check to determine that C-24 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.

Note.—Oscillator tracks above signal on all bands.

To reduce sensitivity during RF Alignment connect a 15,000 ohm, $\frac{1}{2}$ watt resistor across secondary of 1st IF transformer.

Calibration Scale

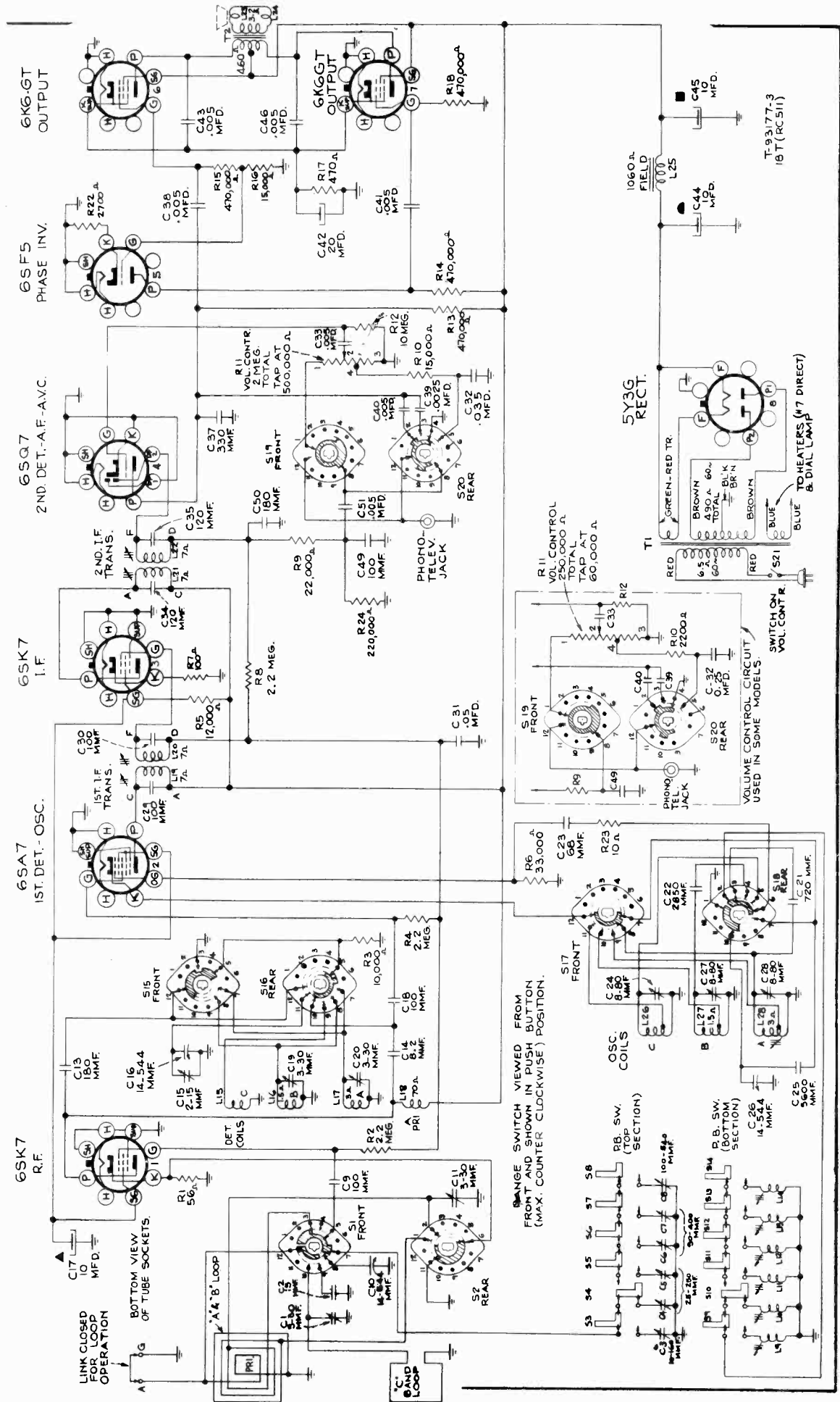


Receiver Dial Scales, and Corresponding Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example, 33.2° on the calibration scale corresponds to 600 kc on "A" band. Read instructions under "Alignment Procedure."

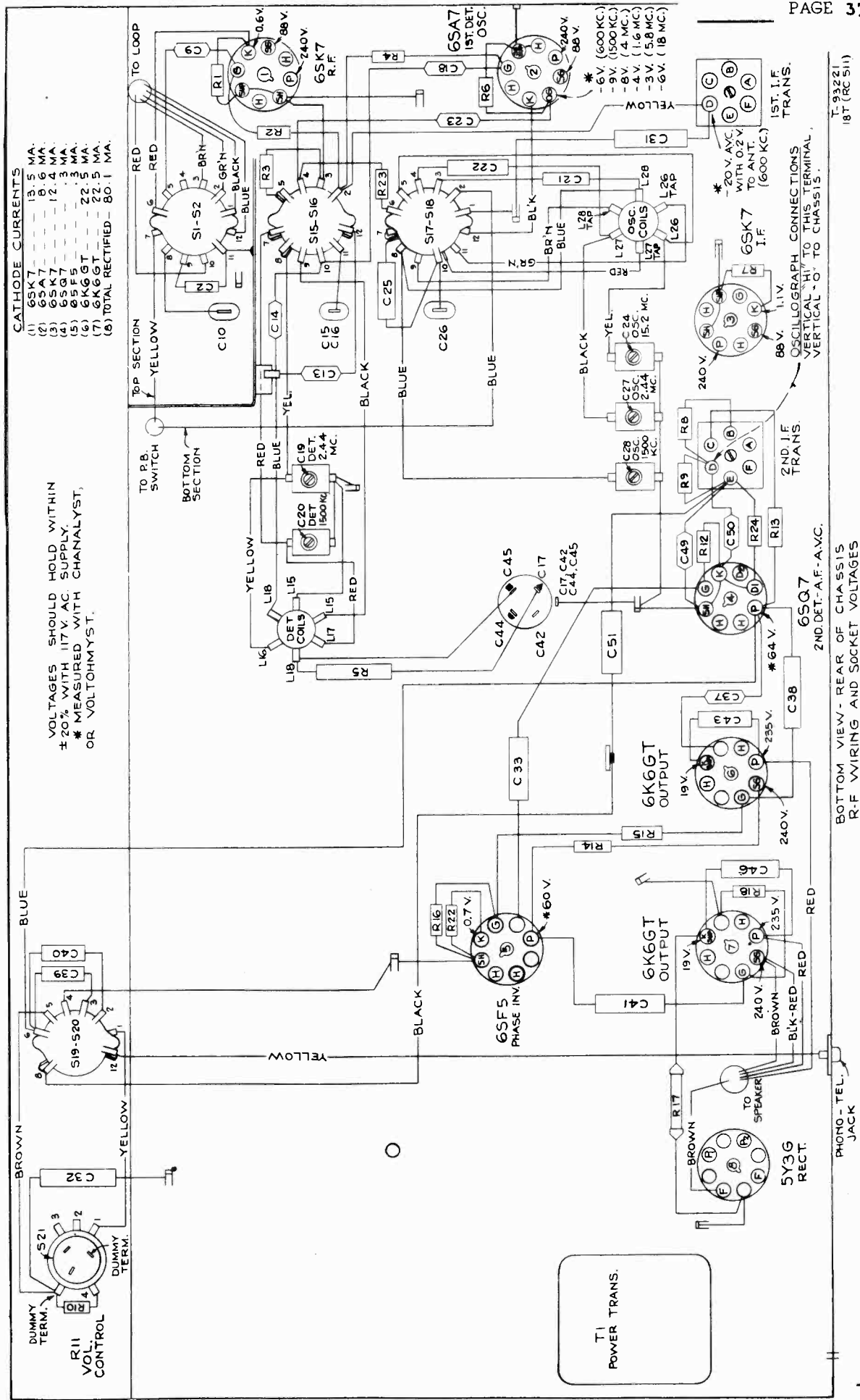
For proper dial calibration, the pointer should fall on the scratch mark on the dial backing plate with condenser fully meshed. This scratch is $\frac{3}{4}$ inches from the left extremity of the plate.

APPROX. GAIN DATA USING RCA RIDER CHANNELYST



- CATHODE CURRENTS**
- (1) 6SK7 - 13.5 MA.
 - (2) 6SA7 - 8.6 MA.
 - (3) 6SK7 - 12.4 MA.
 - (4) 6SF5 - 13 MA.
 - (5) 6K6GT - 22.5 MA.
 - (6) 6K6GT - 22.5 MA.
 - (7) 6K6GT - 22.5 MA.
 - (8) TOTAL RECTIFIED - 80.1 MA.

VOLTAGES SHOULD HOLD WITHIN
±20% WITH 117V. AC SUPPLY.
* MEASURED WITH CHANNELYST,
OR VOLTOHMYST.

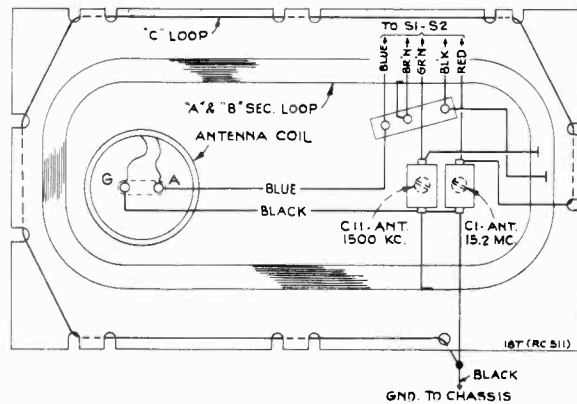
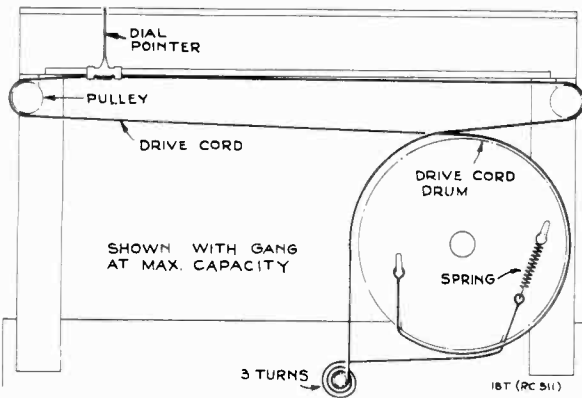


OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL.
VERTICAL "O" TO CHASSIS.

65Q7
2ND DET.-A.F.-A.V.C.
2ND I.F. TRANS.

T-93221
18T (RC 511)

T1
POWER TRANS.

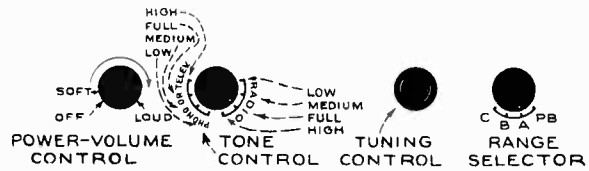


Failure to Oscillate on Push-Button Tuning:

Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 33,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133, is used for the 540-1,030 kc push-button oscillator ranges.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-511)			
34785	Board—"Antenna-Ground" board	13716	Resistor—2,200 ohm, 1/2 watt
31292	Capacitor—Mica trimmer for loop—comprising 2 sections of 3-30 mmfd.	14024	Resistor—2,700 ohm, 1/2 watt
35792	Capacitor—Mica trimmer—comprising 2 sections of 3-30 mmfd.	14559	Resistor—10,000 ohm, 1/2 watt
35791	Capacitor—Mica trimmer—comprising 3 sections of 8-80 mmfd.	35875	Resistor—12,000 ohm, 3/4 watt
13001	Capacitor—8.2 mmfd.	12695	Resistor—15,000 ohm, 1/2 watt
35804	Capacitor—Mica trimmer—comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd. and 1 section of 100-540 mmfd.	13998	Resistor—22,000 ohm, 1/2 watt
12896	Capacitor—15 mmfd.	12454	Resistor—33,000 ohm, 1/2 watt
13057	Capacitor—68 mmfd.	12264	Resistor—220,000 ohms, 1/2 watt
34699	Capacitor—100 mmfd. (in 1st I.F. can)	12285	Resistor—470,000 ohm, 1/2 watt
12720	Capacitor—100 mmfd.	12679	Resistor—2.2 megohm, 1/2 watt
34700	Capacitor—120 mmfd.	13601	Resistor—10 megohm, 1/2 watt
13003	Capacitor—180 mmfd.	14350	Screw—No. 8-32 square-head set-screw for drum
12952	Capacitor—330 mmfd.	35797	Shaft—Tuning shaft and pulley
35877	Capacitor—720 mmfd.	31384	Socket—Dial lamp socket
34787	Capacitor—2,850 mmfd.	35787	Socket—Phonograph input socket
15895	Capacitor—5,800 mmfd.	31251	Socket—Tube socket
34459	Capacitor—.0025 mfd.	31418	Spring—Drive cord spring
33584	Capacitor—.005 mfd.	35802	Switch—Push button switch—less coils and trimmer
32787	Capacitor—.05 mfd.	35793	Switch—Range switch
12484	Capacitor—0.25 mfd.	38249	Switch—Tone switch
33014	Capacitor—Electrolytic—comprising 3 sections of 10 mfd. and 1 section of 20 mfd.	35636	Transformer—First I.F. transformer
35786	Coil—Loop primary (L1)	35790	Transformer—Second I.F. transformer
35803	Coil—Push button oscillator coil	35588	Transformer—Power transformer, 110 volt, 25 cycle
35789	Coil—Oscillator coil	35800	Transformer—Power transformer, 110 volt, 60 cycle
35805	Coil—R. F. coil	33728	Washer—"C" washer for tuning shaft
35796	Condenser—Variable tuning condenser	SPEAKER ASSEMBLIES (RL79A5)	
35807	Control—Volume control (1/2 meg.) and power switch	35849	Cap—Speaker cone dust cap
38250	Control—Volume control (2 meg.) and power switch	35810	Coil—Field coil, 1,060 ohm
32854	Cord—Drive cord	35441	Cone—Cone complete with voice coil
35788	Core—Core and stud for oscillator coil	35809	Transformer—Output transformer
35795	Dial—Calibrator dial	MISCELLANEOUS ASSEMBLIES	
35794	Drum—Tuning condenser drive drum—less calibrator	35813	Bezel—Push button bezel
35799	Frame—Dial frame complete—less dial scale	35812	Button—Push button (dark brown)
35798	Indicator—Station selector indicator	38300	Button—Push button (light brown)
35786	Loop—Antenna loop winding	35914	Decalcomania—Control panel decal
35784	Loop—Complete antenna loop with trimmer, coil and "Antenna-Ground" board	35392	Decalcomania—"RCA Victor" decal
13988	Resistor—10 ohm, 1/2 watt	35811	Dial—Glass dial scale
13220	Resistor—56 ohm, 1/2 watt	35814	Knob—Range or tone switch knob (dark brown)
14439	Resistor—100 ohm, 1/2 watt	38297	Knob—Range or tone switch knob (light brown)
35885	Resistor—470 ohm, 2 watt	35775	Knob—Tuning or volume control knob (dark brown)
		38298	Knob—Tuning or volume control knob (light brown)
		11765	Lamp—Dial lamp
		38149	Marker—Push button marker
		30900	Spring—Retaining spring for knobs, Stock No. 35814

MODEL 19K

Chassis No. RC-512A

Nine-Tube, Three-Band, A-C, Loop, Superheterodyne

Electrical and Mechanical Specifications

FREQUENCY RANGES
 Standard Broadcast "A"..... 540-1,600 kc
 Medium Wave "B"..... 1.5-4.0 mc
 Short Wave "C"..... 5.8-18.0 mc

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6H6..... 2nd Detector, A.V.C.
- (5) RCA-6SF5..... A-F Amplifier
- (6) RCA-6SF5..... Phase Inverter
- (7) RCA-6F6-G..... Power Output
- (8) RCA-6F6-G..... Power Output
- (9) RCA-5Y3-G..... Rectifier

PILOT LAMPS (2)..... Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted..... 5 watts
 Maximum..... 5.5 watts

CABINET DIMENSIONS

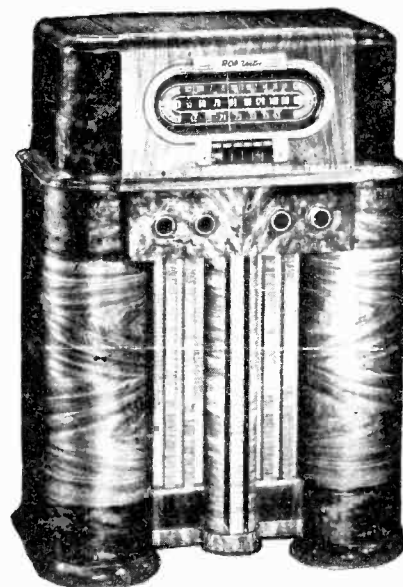
Height..... 41 inches
 Width..... 28 inches
 Depth..... 16 inches
 Weight (shipping)..... 80 pounds
 Weight (net)..... 60 pounds
 Chassis Base Dimensions (inches) Height 2½, Width 18, Depth 6¼
 Overall Chassis Height..... 12½ inches
 Tuning Drive Ratio..... 15 to 1

LOUDSPEAKER (RL 70J-1)

Type..... 12 inch electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 100 watts
 Rating B..... 105-125 volts, 25-60 cycles, 100 watts

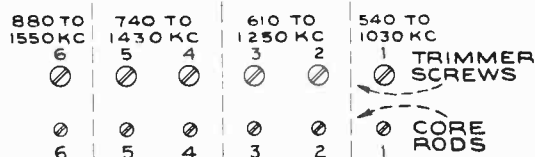


Adjustment for Electric Tuning

This model has six push buttons for electric tuning. The buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the six desired stations, arranged in order from low to high frequencies.
2. Turn Range Control knob to "A" position, and manually tune in the first station on the list.



Push Button Adjustments

Increasing Sensitivity:

These models have an untuned R-F stage which is resistance-coupled to the 1st detector. The sensitivity may be increased by changing the R-F plate load resistor to a higher value, between 6,000 and 10,000 ohms. This change is not recommended in metropolitan localities owing to possibility of cross-modulation.

Turn the Loop Antenna to give minimum pickup of signal, no outside antenna should be used and link on antenna board should be closed.

3. Turn Range Control knob to "PB" and press push button No. 1 and adjust No. 1 oscillator core to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer for maximum output on this station.

Owing to the relatively high R-F gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases it is advisable to unscrew the push button antenna trimmers to minimum capacity before adjusting the oscillator cores.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining five stations in the same manner.
6. After all six stations are tuned-in on the buttons, turn the Loop Antenna to a position giving the best signal pickup and make a final careful adjustment of all core rods until best reception is obtained for each. Outdoor antenna should now be reconnected if used.

Failure to Oscillate on Push-Button Tuning:

Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 33,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133, is used for the 540-1,030 kc push-button oscillator ranges.

Alignment Procedure

Cathode-Ray Augment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "90°" mark on the drum scale must be vertical, and directly under the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improve a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

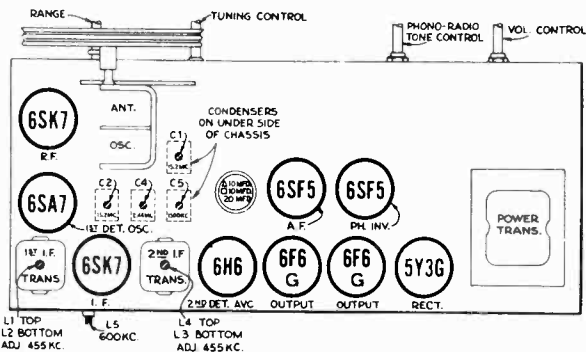
Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Precautionary Lead Dress.—

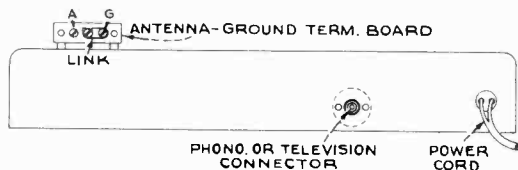
1. Dress 2nd I.F. leads close to chassis.
2. Dress leads from volume control and tone switch away from filaments, diode and power leads.
3. Dress .005 mfd. volume control condenser away from electrolytic.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.			Quiet Point near 180°	L3 and L4 (2nd I-F Trans.)
2	6SA7 1st Detector in series with .01 mfd.	455 kc	"A"		L1 and L2 (1st I-F Trans.)
3	Ant. terminal "A" in series with 47 mmf.	15.2 mc	"C"	148.5°	C1 (ant.) C2 (osc.)*
4	Ant. section of gang condenser in series with 300 ohms	2.44 mc	"B"	97°	C4 (osc.)*
5		1,500 kc	"A"	160°	C5 (osc.)*
6		600 kc		30°	L5 (osc.) (Rock gang)
7	Fasten chassis in cabinet. Connect loop, see that link is closed on the antenna board, attach dial indicator to drive cord, with indicator at 540 kc mark and gang at maximum capacity.				
8	Radiation loop consisting of two turns of wire 18 in. in diameter located 4 to 6 feet from receiver	1,500 kc	"A"	1,500 kc	C3 (ant.) (on loop)
9		600 kc		600 kc	L5 (osc.) (Rock gang)
10		Repeat steps 8 and 9			

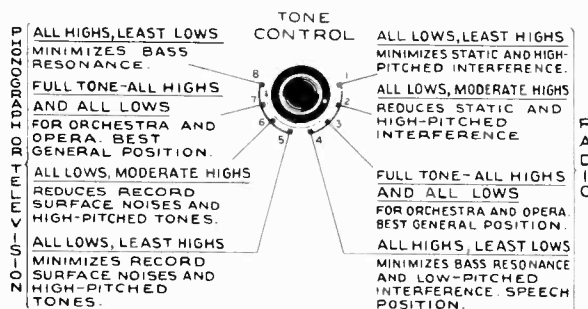
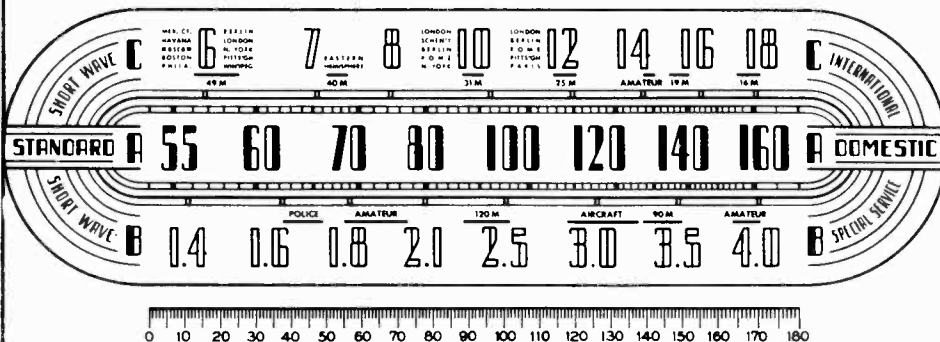
* Use minimum capacity peak of two peaks can be obtained. Note: Oscillator tracks above signal on all bands.



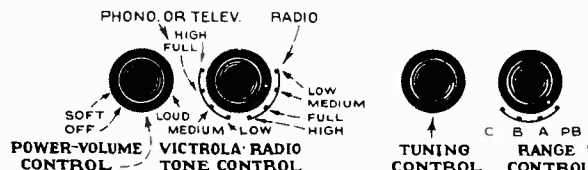
Tube and Trimmer Locations



Back of Chassis



Tone Control and Phono-Radio Switch

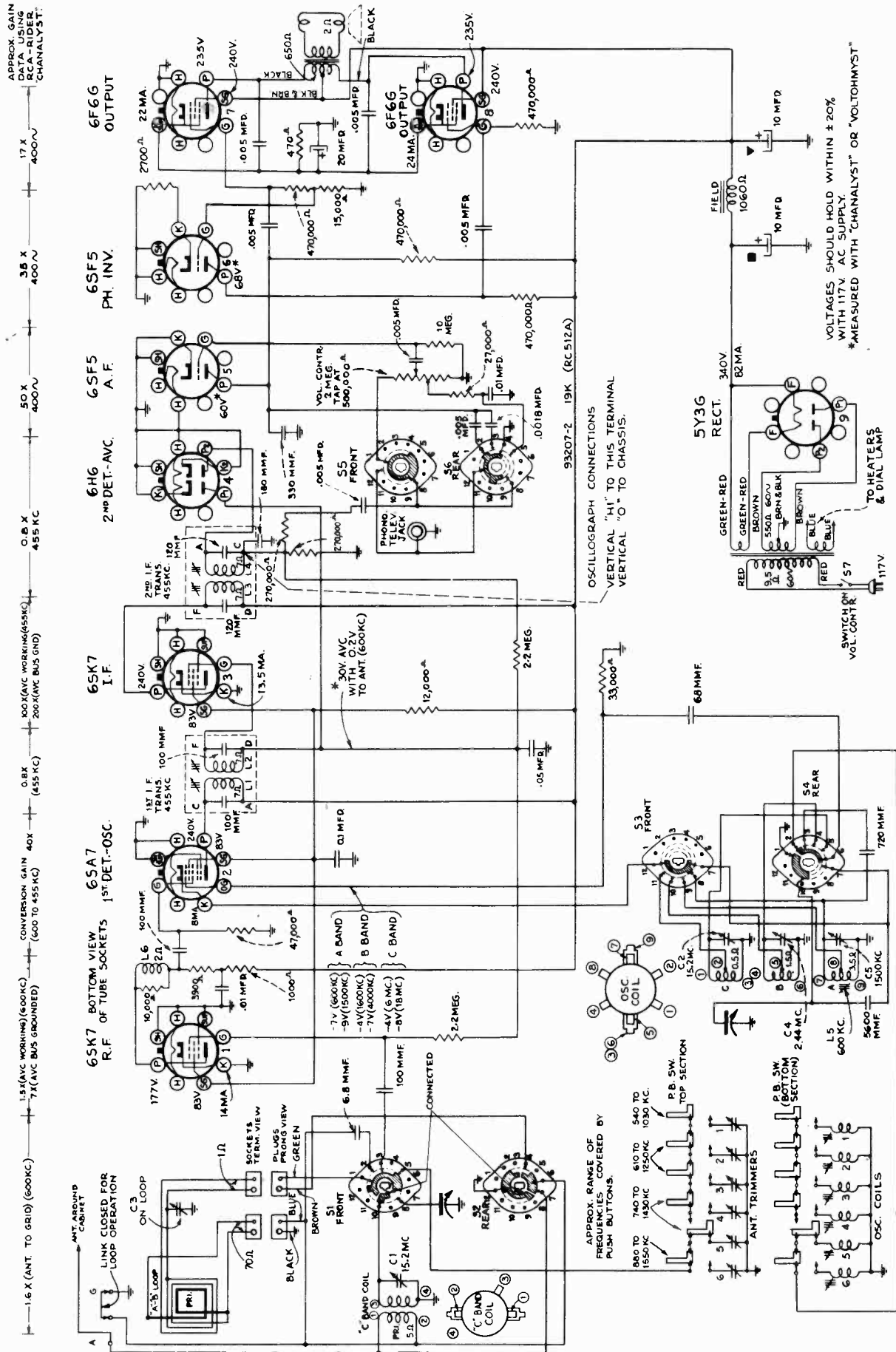


Location of Controls

Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 30° on the calibration scale corresponds to approximately 600 kc on "A" band. Read instructions under "Alignment Procedure."



APPROX. GAIN DATA USING RCA-RIDER CHANALYST:

1.6 X (ANT. TO GRID) (600KC) 1.5 X (AVC WORKING) (455KC) 0.8 X (455 KC) 40 X (600 TO 455 KC) 50 X (400 ~) 3.5 X (400 ~) 17 X (400 ~)

65K7 R.F. BOTTOM VIEW OF TUBE SOCKETS 1ST DET.-OSC. 65A7 1ST DET.-OSC. 65K7 I.F. 6H6 2ND DET.-AVC. 6S5 A.F. 6SF5 PH. INV. 6F6G OUTPUT

OSCILLOGRAPH CONNECTIONS VERTICAL "H" TO THIS TERMINAL VERTICAL "O" TO CHASSIS.

APPROX. RANGE OF FREQUENCIES COVERED BY PUSH BUTTONS.

860 TO 1550 KC 740 TO 1030 KC

ANT. TRIMMERS P.B. SW. TOP SECTION

OSC. COILS

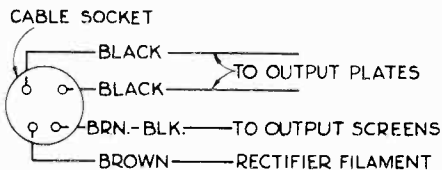
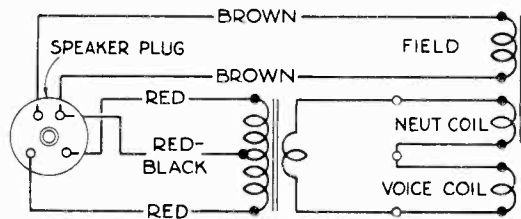
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117V AC SUPPLY *MEASURED WITH 'CHANALYST' OR 'VOLTOHMST'

Schematic Circuit Diagram

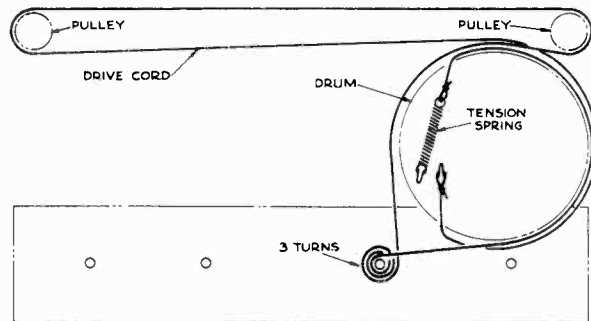
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-512A)			
35966	Board—"Antenna-Ground" board	12738	Resistor—27,000 ohms, ½ watt
35795	Calibrator—Drive drum calibrator	12464	Resistor—33,000 ohms, ½ watt
35961	Capacitor—Mica trimmer (C1)	12412	Resistor—47,000 ohms, ½ watt
14079	Capacitor—8.8 mmfd.	12199	Resistor—270,000 ohms, ½ watt
35791	Capacitor—Mica trimmer comprising 3 sections (C2, C4, C5)	12285	Resistor—470,000 ohms, ½ watt
35804	Capacitor—Mica trimmer comprising 6 sections for push buttons 1, 2, 3, 4, 5, 6	12679	Resistor—2.2 meg., ½ watt
13057	Capacitor—88 mmfd.	13601	Resistor—10 meg., ½ watt
12720	Capacitor—100 mmfd., moulded	35968	Shaft—Tuning shaft and pulley
34699	Capacitor—100 mmfd., mica	35772	Shield—Bottom shield for power transformer
34700	Capacitor—120 mmfd.	35709	Shield—Top shield for power transformer
13003	Capacitor—180 mmfd.	31384	Socket—Dial lamp socket
12952	Capacitor—330 mmfd.	31251	Socket—Tube socket
35877	Capacitor—720 mmfd.	31418	Spring—Drive cord spring
13895	Capacitor—5,600 mmfd.	35787	Socket—Phono. input socket
34506	Capacitor—0018 mfd.	35974	Support—Dial plate support
33584	Capacitor—005 mfd.	35967	Switch—Push button selector switch
14393	Capacitor—.01 mfd.	35964	Switch—Range switch (S1, S2, S3, S4)
32787	Capacitor—.05 mfd.	35963	Switch—Tone switch (S5, S6)
4839	Capacitor—.01 mfd.	35636	Transformer—First I-F transformer
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts each and 1 section of 20 mfd., 25 volts	35790	Transformer—Second I-F transformer
35965	Coil—Antenna coil—"C" band	35588	Transformer—Power transformer—110 volts, 25 cycle
35876	Coil—Coil and resistor assembly L8	35969	Transformer—Power transformer—110 volts, 60 cycle—less end shields
35789	Coil—Oscillator coil (A, B, C)	35969	Washer—"C" washer for tuning shaft
35803	Coil—Push button switch oscillator coil	SPEAKER ASSEMBLIES (RL-70J1)	
35960	Condenser—Variable tuning condenser	31825	Cap—Cone center dust cap
35962	Control—Volume control and power switch	11489	Coil—Hum neutralizing coil
34692	Cord—Drive cord	33118	Coil—Speaker field coil
35788	Core—Adjusting core and stud for oscillator coil (L5)	31275	Cone—Speaker cone, voice coil, and dust cap
35871	Core—Adjusting core and stud for push button oscillator coils 1, 2, 3, 4, 5, 6	5039	Plug—4-prong male, for speaker
35794	Drum—Tuning condenser drive drum—less calibrator	33444	Transformer—Output transformer
35970	Indicator—Station selector indicator and carriage	MISCELLANEOUS ASSEMBLIES	
35972	Plate—Dial plate complete with drive cord pulleys	36005	Button—Push button
36009	Plug—2-contact male plug for loop cable	35998	Capacitor—Mica trimmer (C3) for loop
5040	Plug—4-contact female plug for speaker cable	36002	Coil—Loop primary coil
35973	Pulley—Drive cord pulley	35914	Decalcomania—Control panel decal
32165	Resistor—470 ohms, 2 watts	36019	Dial—Glass dial scale
14720	Resistor—1,000 ohms, ½ watt	36006	Escutcheon—Dial scale escutcheon—less dial
14024	Resistor—2,700 ohms, ½ watt	36003	Knob—Tone or range switch knob
30694	Resistor—3,900 ohms, ½ watt	36004	Knob—Tuning or volume control knob
35875	Resistor—12,000 ohms, 3 watts	11765	Lamp—Dial lamp
12695	Resistor—15,000 ohms, ½ watt	35997	Loop—Antenna loop
		36149	Marker—Station selector push button markers
		36802	Mounting—Loop mounting clip
		35029	Mounting—Speaker mounting hardware
		35999	Socket—Two contact socket for antenna loop
		34053	Spring—Push button spring
		14270	Spring—Retaining spring for knobs



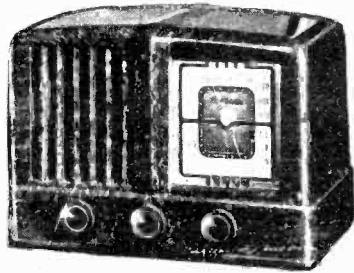
Connections and Colors of Loudspeaker and Cable



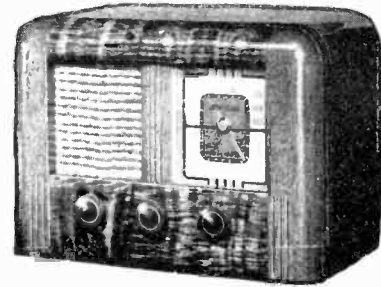
Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

MODELS Q20 and Q21

Five-Tube, Two-Band, A-C, Superheterodyne Receivers Chassis No. RC-514



Model Q20



Model Q21

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast (A)..... 540-1,800 kc (555-166 m)
 Short Wave (C)..... 4.5-18 mc (66.7-16.6 m)
 Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-6SA7..... First Detector—Oscillator
- (2) RCA-6SK7..... Intermediate Amplifier
- (3) RCA-6SQ7.. Second Detector, A.V.C and A-F Amplifier
- (4) RCA-6K6-GT..... Power Output
- (5) RCA-5Y3-G..... Full-Wave Rectifier
 Pilot Lamp..... Mazda 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 50 watts
 Rating B..... 105-125 volts, 25-60 cycles, 50 watts
 Rating C..... 105-125, 200-250 volts, 50-60 cycles, 50 watts

POWER OUTPUT RATING

Undistorted..... 1.5 watts
 Maximum..... 2.3 watts

LOUDSPEAKER

Type (RL-81-A2)..... 5-inch permanent-magnet dynamic
 Voice-coil Impedance..... 4.5 ohms at 400 cycles

CABINET DIMENSIONS

	Model Q20	Model Q21
Height	8 1/4 inches	9 1/2 inches
Width	12 inches	13 1/4 inches
Depth	6 3/4 inches	6 3/4 inches
Weight (net).....	10 3/4 pounds	11 pounds
Chassis Base Dimensions..	10 1/2 in. wide, 5 in. deep, 2 in. high	
Over-all Chassis Height.....	7 3/8 inches	
Tuning Drive Ratio.....	25 to 1	

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-514)			
33817	Capacitor—Mica trimmer (C3)	35709	Shield—Top end shield for power transformer
12723	Capacitor—56 mmfd.	35766	Socket—Dial lamp socket
30949	Capacitor—56 mmfd. (2nd. I-F)	31251	Socket—Tube socket
34699	Capacitor—100 mmfd. (1st. I-F)	31319	Socket—Tube socket (6SA7)
12720	Capacitor—100 mmfd.	13638	Spring—Drive cord spring
12694	Capacitor—220 mmfd.	35767	Support—Tuning condenser support
12537	Capacitor—560 mmfd.	30953	Switch (S3)
31405	Capacitor—8,000 mmfd.	35765	Switch—Range switch (S1)
30303	Capacitor—.0035 mfd.	35636	Transformer—First I-F transformer
4838	Capacitor—.005 mfd.	35628	Transformer—Second I-F transformer
33584	Capacitor—.005 mfd.	35758	Transformer—Power transformer—110 volts, 25 cycle—less end shields
14393	Capacitor—.01 mfd.	35757	Transformer—Power transformer—110 volts, 60 cycle—less end shields
4870	Capacitor—.025 mfd.	35759	Transformer—Power transformer—Univ. 60 cycle
4839	Capacitor—.01 mfd.	35784	Volume control and power switch (S2)
35781	Capacitor—Electrolytic comprising 1 section of 20 mfd. and 1 section of 10 mfd.	33726	Washer—"C" washer for tuning shaft
35782	Coil—Antenna coil	SPEAKER ASSEMBLIES (RL-81A2)	
35783	Coil—Oscillator coil	32907	Cap—Cone dust cap
35760	Condenser—Variable tuning condenser	35570	Cone—Cone complete with voice coil
32713	Core—Adjusting core and stud for oscillator coil (L5)	35774	Transformer—Output transformer
32634	Cord—Drive cord	MISCELLANEOUS ASSEMBLIES	
35770	Dial—Dial scale	35104	Crystal—Escutcheon and crystal for Model Q20
35788	Drum—Drive drum	35105	Crystal—Escutcheon and crystal for Model Q21
36043	Indicator—Station selector indicator	35678	Fastener—Push on fastener for crystal, Stock No. 35104
11765	Lamp—Dial lamp—Mazda No. 51	37682	Knob—Tuning, range switch or volume control knob for Model Q20
35769	Plate—Dial plate—less dial scale	35775	Knob—Tuning, range switch or volume control knob for Model Q21
31024	Resistor—880 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs, Stock Nos. 35678 and 35775
30152	Resistor—1,000 ohms, 1 watt	35787	Socket—Phono input
8073	Resistor—12,000 ohms, 2 watts		
12454	Resistor—33,000 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
12285	Resistor—470,000 ohms, 1/2 watt		
11668	Resistor—5.6 meg., 1/2 watt		
13801	Resistor—10 meg., 1/2 watt		
35771	Shaft—Tuning shaft		
35772	Shield—Bottom end shield for power transformer		

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

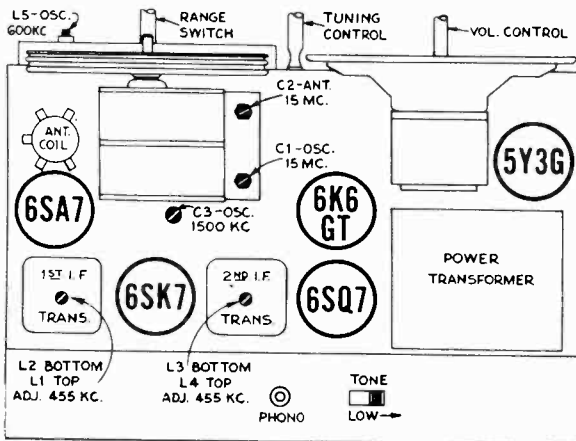
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

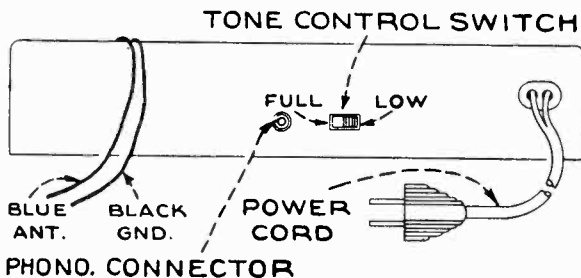
Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Precautionary Lead Dress.—

1. Green lead from oscillator section of var. condenser should be dressed away from antenna leads.
2. 6,000 mmfd. capacitor should bear against electrolytic capacitor.
3. Dress blue I.F. lead against chassis.
4. .005 volume control capacitor should be dressed away from output plate leads.



Tube and Trimmer Location



Back of Chassis



Controls

Alignment Procedure

Steps	Connect test-osc. output to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid through 0.1 mfd. capacitor and ground	455 kc	Quiet point between 550-750 kc	L-3 and L-4 (2nd I-F trans.)
2	1st det. grid through 0.1 mfd. capacitor and ground	455 kc		L-1 and L-2 (1st I-F trans.)
3	Antenna Lead in series with 300 ohms	15 mc	15 mc "C" band	C-1 oscillator*
4		15 mc	Rock at 15 mc	C-2 antenna† while rocking
5	Antenna terminal in series with 200 mmfd.	1,500 kc	1,500 kc "A" band	C-3 oscillator
6		600 kc	Rock at 600 kc "A" band	L-5 oscillator while rocking
7		1,500 kc	1,500 kc "A" band	C-3 oscillator

* Oscillator should track on high frequency side of signal. If two peaks are obtained use high frequency (minimum capacity) peak.

† If two peaks can be obtained use low frequency (maximum capacity) peak.

GAIN DATA

(as taken with the RCA-Rider Chanalyst)

(A) R.F.—I.F. Gain (R.F.—I.F. Channel) Approximate Gain

1. Antenna to 6SA7 grid..... 8 at 600 kc
2. 6SA7 grid to plate (conversion 600 to 455 kc)..... 4
3. 6SA7 plate to 6SK7 grid..... 1 at 455 kc
4. 6SK7 grid to plate..... 80 at 455 kc
5. 6SK7 plate to 6SQ7 diode..... 7 at 455 kc

(B) A.F. Gain (A.F. Channel)

1. 6SQ7 grid to plate..... 50 at 400 cycles
2. 6K6GT grid to plate..... 10 at 400 cycles

(C) Oscillator Grid (OG-6SA7) Voltage (Electronic Volt. Meter)

1. Oscillator Voltage at 600 kc..... —12V
2. Oscillator Voltage at 1,500 kc..... —16V
3. Oscillator Voltage at 4.5 mc..... — 5V
4. Oscillator Voltage at 15 mc..... — 9V

(D) A.V.C. Voltage (Electronic Volt. Meter)

With 0.2V. input to antenna at 600 kc..... —15V

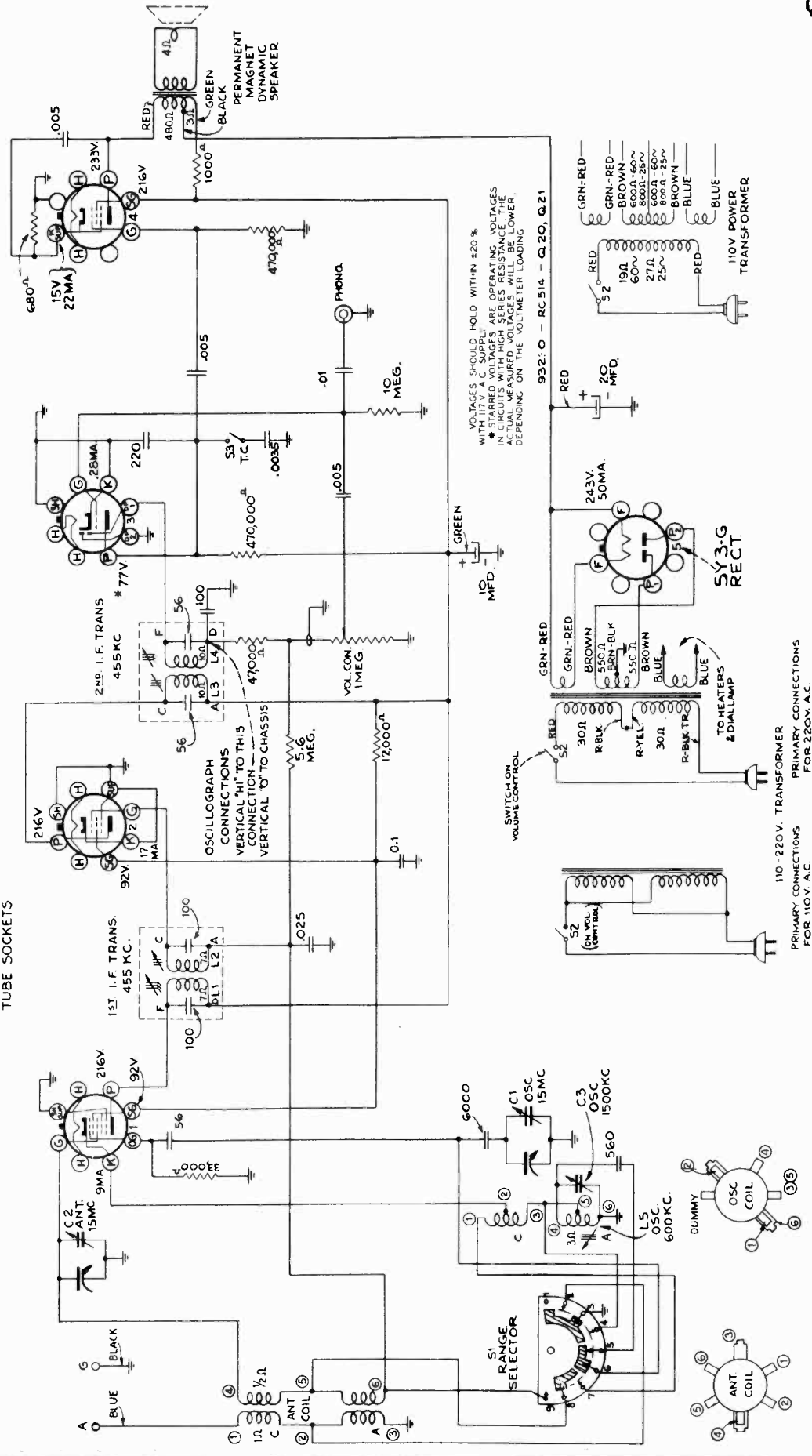
6K6-GT
OUTPUT

6SQ7
2ND DET.-A.F.-A.V.C.

6SK7
I.F.

6SA7
1ST DET.-OSC.

BOTTOM VIEW OF
TUBE SOCKETS



110 - 220V. TRANSFORMER
PRIMARY CONNECTIONS
FOR 110V. A.C.

TO HEATERS
& DIALLAMP

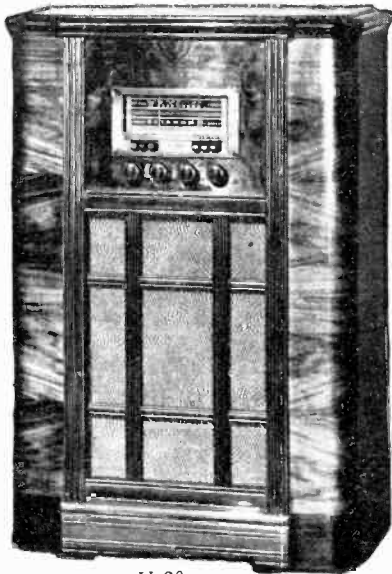
932: O - RC514 - Q.20, Q.21

Schematic Circuit Diagram

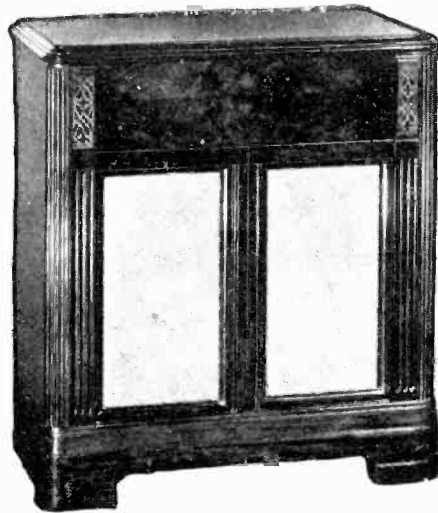
MODELS U-20, U-40, U-42 and U-43

Chassis No. RC-498, RC-498A, RC-498B RC-498E

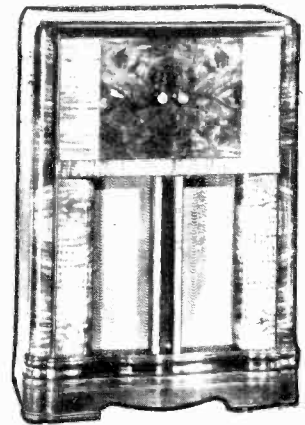
Seven- and Eight-Tube, Electric-Tuning, A-C, Superheterodynes



U-20



U-40



U-42

Electrical and Mechanical Specifications

LOUDSPEAKER (RL-70-K1)

Diameter 12 inch
Voice-Coil Impedance at 400 cycles..... 2.2 ohms

TUBE COMPLEMENT

- (1) 6SA7 First Detector, Oscillator
- (2) 6K7 I-F Amplifier
- (3) 6SQ7 Second Det., A.V.C.
- (4) 6SF5 Phase Inverter
- (5) 6F6G except some RC-498B use 6K6G..... Output
- (6) 6F6G except some RC-498B use 6K6G..... Output
- (7) 5Y3G in RC-498 and RC-498A..... Rectifier
- (7) 6U5 in RC-498B Tuning Eye
- (8) 5Y3G in RC-498B Rectifier

POWER OUTPUT

Undistorted..... 5 watts, Maximum.....6 watts

POWER SUPPLY RATINGS (U-20)

- A-6..... 105-125 volts, 60 cycles, 110 watts total
- A-5..... 105-125 volts, 50 cycles, 110 watts total
- B-2..... 105-125 volts, 25 cycles, 110 watts total
- C-6..... 105-125/210-250 volts, 60 cycles, 110 watts total
- C-5..... 105-125/210-250 volts, 50 cycles, 110 watts total

POWER SUPPLY RATINGS (U-40, U-42, U-43)

- A-6..... 105-125 volts, 60 cycles, 110 watts total
- A-5..... 105-125 volts, 50 cycles, 110 watts total
- B-2..... 105-125 volts, 25 cycles, 110 watts total
- C-6..... 105-130/140-160/200-250 volts, 60 cycles, 110 watts total
- C-5..... 105-130/140-160/200-250 volts, 50 cycles, 110 watts total

Frequency Range..... 540 to 1,560 kc and 5.8 to 18 mc.

	U-20	U-40	U-42
Height.....	38 inches	33 inches	42½ inches
Width.....	25½ inches	30 inches	30 inches
Depth.....	15 inches	16¼ inches	17 inches
Net Weight.....	64 pounds	90 pounds	95 pounds
Shipping Weight.....	79 pounds	115 pounds	120 pounds
Tuning Drive Ratio.....	10 to 1		

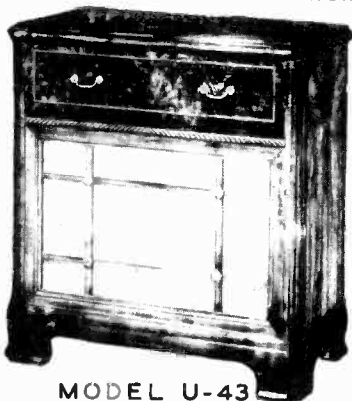
PHONOGRAPH U-20

Type Manual

PHONOGRAPH U-40, U-42 U-43

Type Automatic
Record Capacity..... Eight 10-inch or seven 12-inch

For Phonograph Service Data Refer to RP-139A, RP-145



MODEL U-43

Specifications MODEL U-43 ONLY

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6K7 I-F Amplifier
- (3) RCA-6SQ7 2nd Detector, AVC, and A-F
- (4) RCA-6SF5 Phase Inverter
- (5) RCA-6K6GT Power Output
- (6) RCA-6K6GT Power Output
- (7) RCA-5Y3G Rectifier
- (8) RCA-6U5/6G5 Tuning Indicator

Dimensions

Height (inches) 34 ..
Width (inches) 32 ..
Depth (inches) 16¼ ..
Tuning Drive Ratio .. 10 to 1
Weight 80 lbs (net)

Cabinet

110 lbs. (shipping)

LOUDSPEAKER (RL70L1)

Type 12 inch electrodynamic
Voice Coil Impedance at 400 cycles .2.2 ohms

Alignment Procedure

Before proceeding with alignment the following lead dress should be carefully checked.

1. Dress AC switch leads away from 6SF5 tube socket.
2. Do not twist loop leads together or around each other. Spacing between leads from "C" band loop to chassis is important - see alignment step "5" below.
3. "High side" leads from loop sockets, range switch, oscillator coil, and trimmers must be dressed away from chassis and each other.
4. Dress C-6 and C-33 away from each other.
5. Dress C-17 away from power switch leads.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis schematics.

Output Meter Alignment.—It this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

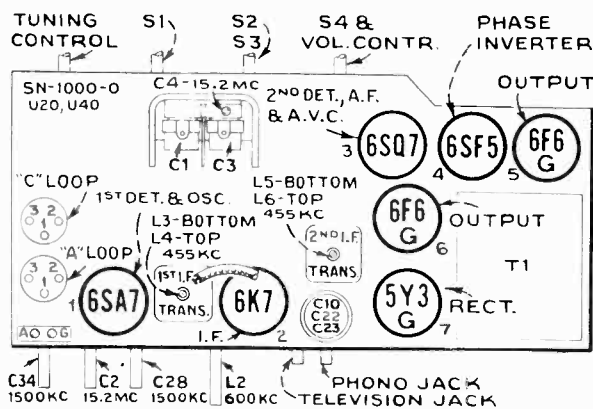
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect test-osc. output to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	I-F grid through 0.1 mfd capacitor and ground	455 kc	Quiet point between 1,720-1,500 kc	L5 and L6 (2nd I-F trans.)
2	1st det. grid through 0.1 mfd capacitor and ground			L3 and L4 (1st I-F trans.)
3		15.2 mc	15.2 mc	C-4 oscillator*
4		15.2 mc	Rock at 15.2 mc	C-2 antenna† while rocking
5		6.1 mc	6.1 mc	Spacing between leads from "C" band loop to chassis
6	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	15.2 mc	Rock at 15.2 mc	C-2 antenna† while rocking
7		1,500 kc	1,500 kc	C-34 antenna C-28 oscillator
8		600 kc	Rock at 600 kc	L-2 oscillator while rocking
9		1,500 kc	1,500 kc	C-34 antenna C-28 oscillator

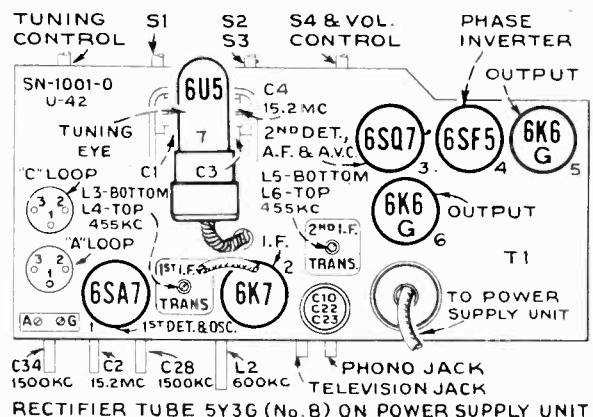
When making adjustments 4 to 9 inclusive the chassis must be in the cabinet, both loops connected, and all leads in their normal positions. When mounting chassis in cabinet if calibration marks on dial plate do not line up with dial scale mounted on cabinet move pointer to agree with dial scale on cabinet.

* Oscillator should track on high frequency side of signal. If two peaks are obtained use high frequency (minimum capacity) peak.

† If two peaks can be obtained use low frequency (maximum capacity) peak.



U-20 and U-40 Tube and Trimmer Locations

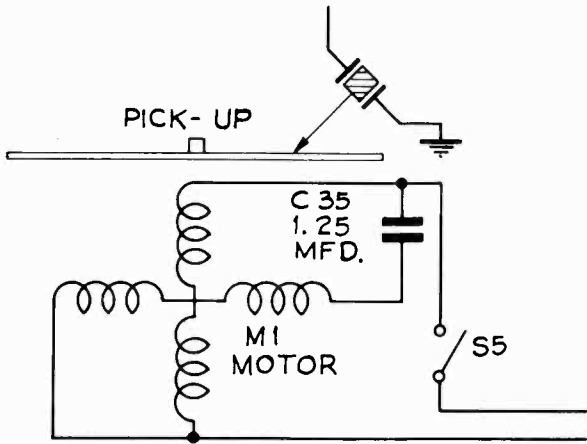


U-42 Tube and Trimmer Locations

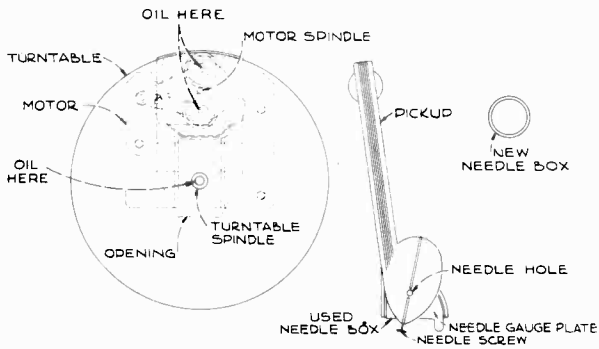
Phonograph Information

The U-20 phonograph motor has its bearing filled with oil and sealed at the factory and hence should not require lubrication in the field. However the two rubber tired idler pulleys should have their bearings lubricated occasionally with S.A.E. 10 oil. Care should be taken not to get any oil, grease, or other foreign matter on the rubber tires. These tires and the motor spindle should be cleaned occasionally with quick drying naphtha.

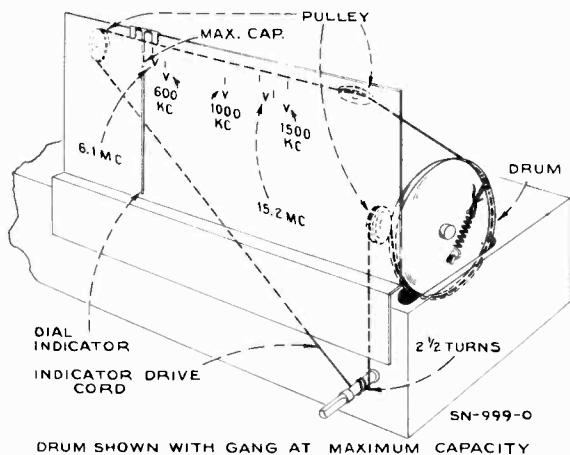
The turntable spindle bearing should also be lubricated occasionally with S.A.E. 10 oil.



U-20 Motor



U-20 Motorboard



Dial-Indicator and Drive Mechanism

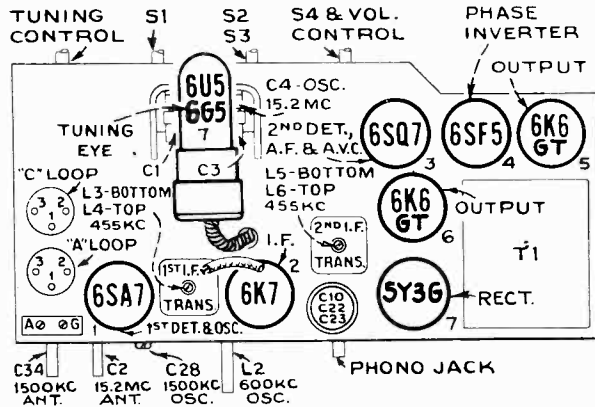
Refer to "Alignment Procedure" for explanation of the "calibration marks" shown in this drawing

U-20

Turntable Wobble:

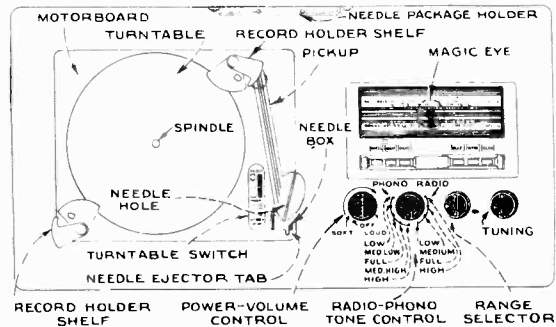
Turntables (Stock No. 33899) found to have excessive wobble (vertical run-out) may be trued-up in the following manner:

- (a) Obtain a motor bearing, Stock No. 31046 (used in R93-B) and clamp same securely in a vise.
- (b) Place turntable spindle in this bearing and make sure that turntable spins freely.
- (c) With turntable spinning, the high side can readily be determined by use of a piece of chalk carefully lowered so that it just touches the high spot of the turntable, leaving a mark.
- (d) With both hands grasp the rim of the turntable, thumbs on top and index fingers underneath turntable at the center of the chalk mark.
- (e) Apply a moderate amount of pressure in a downward direction at right angle to the jaws of the vise.
- (f) Spin turntable again and if still running out, repeat operation mentioned under (c), continuing by trial until turntable runs true.

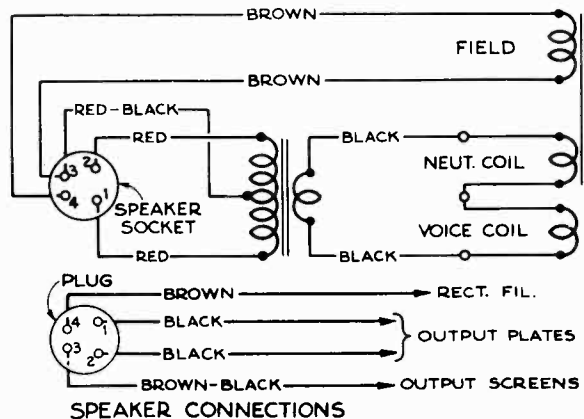


U-43

Tube and Trimmer Locations

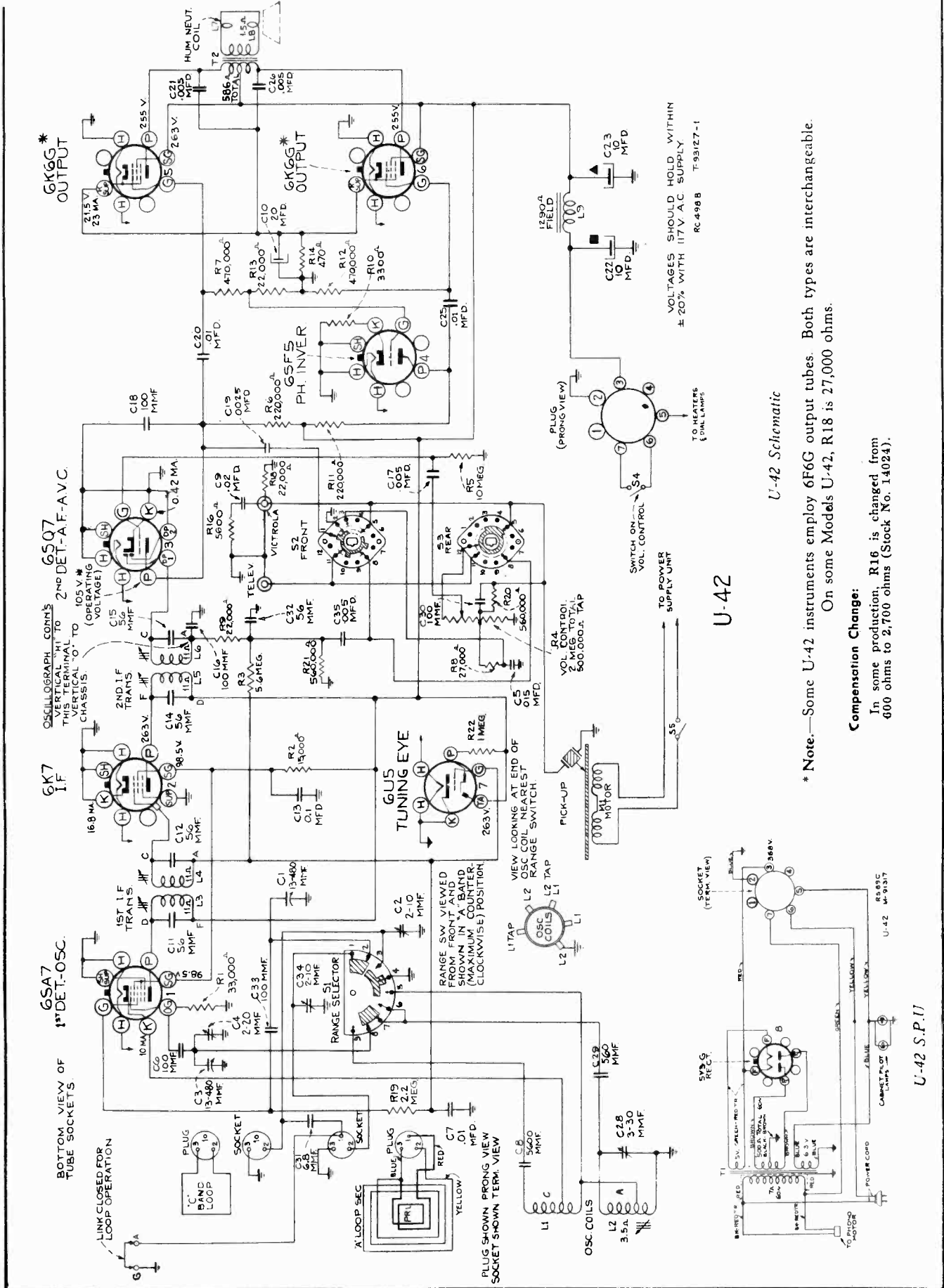


U-43



SPEAKER CONNECTIONS

U-20, U-40, U-42, U-43



U-42 Schematic

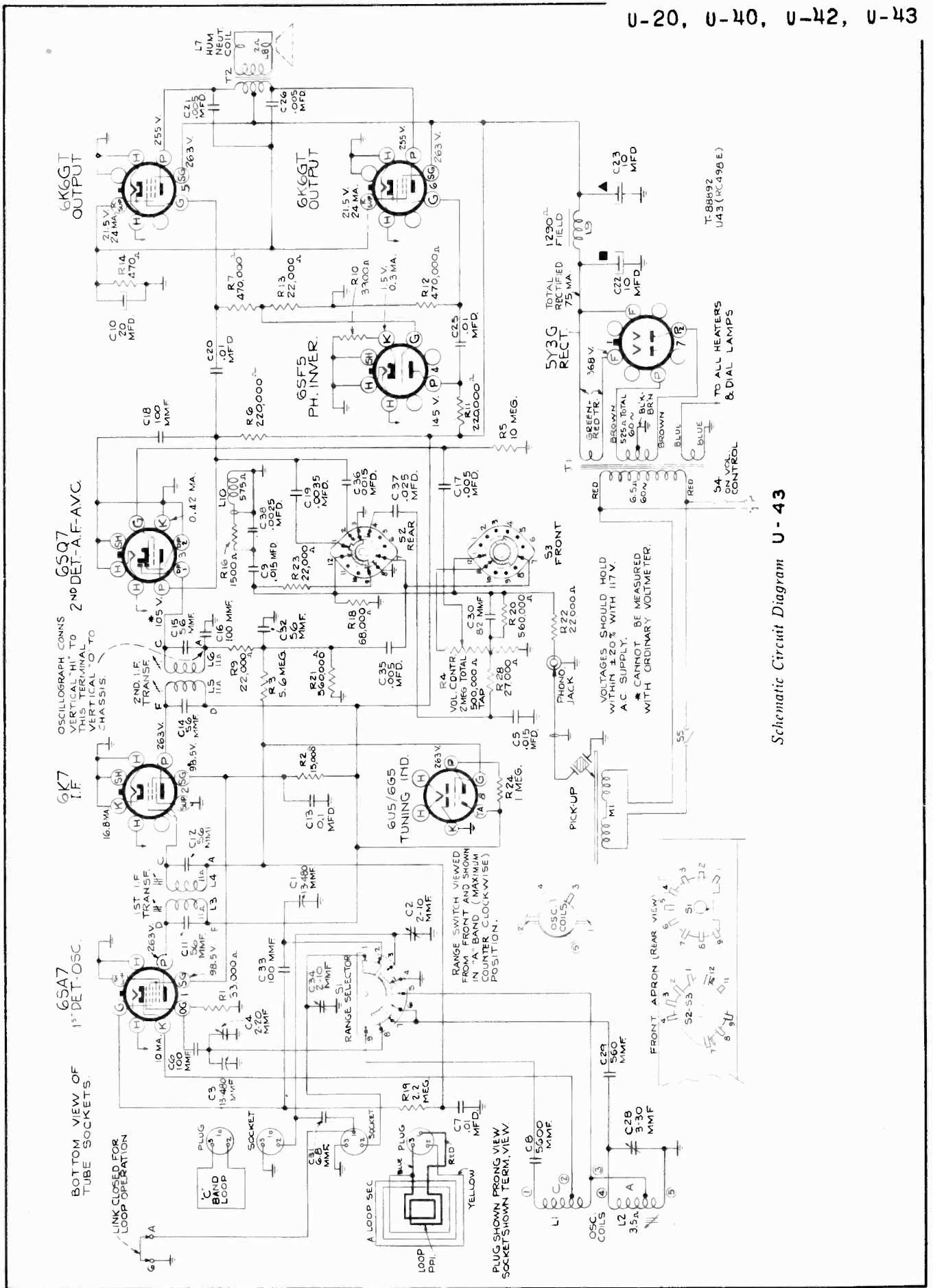
* Note.—Some U-42 instruments employ 6F6G output tubes. Both types are interchangeable. On some Models U-42, R18 is 27,000 ohms.

Compensation Change:

In some production, R16 is changed from 600 ohms to 2,700 ohms (Stock No. 14024).

U-42

U-42 S.P.11



Schematic Circuit Diagram U-43

U-20, U-40, U-42, U-43 Replacement Parts MODELS U-20, U-40, U-42

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES		MOTOR ASSEMBLIES U-20	
33719	Belt—Push button station setting belt (Models U-40, U-42)	34416	Arm—Drive wheel support arm (long)
34724	Board—"Antenna-Ground" board	34415	Arm—Idler wheel support arm (short)
30766	Cap—Rubber cap for "Magic Eye" (Model U-42)	34516	Armature—Motor armature complete
34725	Capacitor—Trimmer comprising 1 section of 3-30 mmfd. and 2 sections of 2-10 mmfd. (Models U-20, U-42) (C2, C4, C28)	34515	Bushing—Motor mounting rubber bushings
34852	Capacitor—Trimmer comprising 1 section of 3-30 mmfd. and 2 sections of 2-10 mmfd. (Model U-40) (C2, C4, C28)	34413	Capacitor—1.25 mfd., 60 cycle motor starting capacitor for motor, Stock No. 34412 (C35)
14079	Capacitor—6.8 mmfd. (C31)	34514	Cover—Bakelite top end shell for motor
12723	Capacitor—56 mmfd. (C32)	34414	Idler—Rubber tired idler or drive wheel
30949	Capacitor—56 mmfd. (C11, C12, C14, C15)	34412	Motor—105-125 volt, 60 cycle phono. motor—less pulleys, capacitor and motor cradle (M1)
12720	Capacitor—100 mmfd. (C6, C16, C18, C30, C33)	34418	Plate—Motor support plate complete with turntable bearing
12537	Capacitor—560 mmfd. (C29)	14887	Retainer—Idler wheel retainer spring
13895	Capacitor—5,600 mmfd. (C8)	34437	Spindle—Turntable spindle
34459	Capacitor—0.025 mfd. (C19)	34417	Spring—Idler arm tension spring
33584	Capacitor—0.05 mfd. (C17, C21, C35)	34419	AUTOMATIC SWITCH ASSEMBLIES U-20
4937	Capacitor—.01 mfd. (C7, C20, C25)	34419	Base—Pickup arm mounting base
11315	Capacitor—.015 mfd. (C5, C9) (C9 Models U-20 and U-40 only)	32865	Bracket—Switch bracket and terminal board
32785	Capacitor—.02 mfd. (C9) model U-42 only	34308	Cam—Switch cam assembly with spring
4839	Capacitor—.01 mfd. (C13)	32864	Lever—Switch actuating lever, roller, and clip
32240	Capacitor—Electrolytic comprising 2 sections of 10 mfd. and 1 section of 20 mfd. (C10, C22, C23)	34309	Mounting—Pickup arm base mounting (rubber grommet, washers, and nut)
34285	Clip—"Magic Eye" clip (Model U-42)	34311	Ring—Retaining ring for pickup arm pivot shaft
32707	Coil—Oscillator coil (L1, L2)	14195	Screw—No. 10-32 x 5/16 set screw for switch cam hub
34721	Control—Volume control and power switch (R4, S4)	34314	Shaft—Pickup arm pivot shaft—for crystal pickup
32634	Cord—Tuning condenser drive cord	34310	Spool—Insulating spool for switch leads
32713	Core—Adjustable core and stud for oscillator coil (Models U-20, U-42)	32868	Spring—Switch lever spring
34853	Core—Adjustable core and stud for oscillator coil (Model U-40)	32867	Spring—Tension spring for switch cam
33633	Indicator—Station selector indicator	32866	Switch—Mercury tube and leads (S5)
34407	Plate—Dial plate less condenser (Models U-40, U-20)	31608	Washer—Retaining washer for switch lever
34798	Plate—Dial plate complete less tuner and push button (Model U-42)	30868	POWER SUPPLY ASSEMBLIES U-42
30868	Plug—2-contact female plug for motor lead (Models U-20, U-40)	14409	Plug—2-contact female plug for motor leads
5040	Plug—4-contact female plug for speaker leads	31319	Plug—7-contact plug for power supply cable
14404	Plug—7-contact female plug for battery cable (Model U-42)	32144	Socket—Tube socket
30546	Resistor—470 ohms, 1/2 watt (R14)	32144	Transformer—Power transformer, 105-120 volts, 50-60 cycles
12312	Resistor—3,300 ohms, 1/2 watt (R10)	31825	SPEAKER ASSEMBLIES (RL-70K1)
13714	Resistor—5,600 ohms, 1/2 watt (R16) (Model U-42 only)	34705	Cap—Dust cap
14075	Resistor—8,200 ohms, 1/2 watt (R16) (Model U-20 and U-40 only)	34728	Cone—Cone complete with voice coil (L8)
13998	Resistor—22,000 ohms, 1/2 watt (R9, R13)	5039	Diffuser—Speaker diffuser
12738	Resistor—27,000 ohms, 1/2 watt (R8, R18) (some models U-42 only)	34727	Plug—4-prong speaker plug
12454	Resistor—33,000 ohms, 1/2 watt (R1)	34727	Speaker—12-ohm dynamic complete with cone and voice coil—less output transformer and plug
12266	Resistor—39,000 ohms, 1/2 watt (R18) (Model U-20 only)	33444	Transformer—Output transformer (T2)
12286	Resistor—56,000 ohms, 1/2 watt (R18) (Model U-40 only)	33731	MISCELLANEOUS ASSEMBLIES
12264	Resistor—220,000 ohms, 1/2 watt (R6, R11)	33730	Button—Push button
12285	Resistor—470,000 ohms, 1/2 watt (R7, R12)	31456	Clamp—Dial clamp (Model U-20)
12486	Resistor—560,000 ohms, 1/2 watt (R20, R21)	33910	Cover—Protective cover for markers (Models U-20, U-42)
12013	Resistor—1 megohm, 1/10 watt (R22) (U-42 only)	33909	Cup—Needle cup (Model U-20)
12679	Resistor—2.2 megohm, 1/2 watt (R19)	34730	Cup—Used needle cup (Model U-20)
11668	Resistor—5.6 megohm, 1/2 watt (R3)	34867	Dial—Glass dial scale (Models U-40, U-20)
13601	Resistor—10 megohm, 1/2 watt (R5)	34420	Dial—Glass dial scale (Model U-42)
33735	Screw—Push arm adjusting screw	34583	Escutcheon—Dial scale and push button escutcheon
34411	Shaft—Tuning condenser drive shaft	34792	Frame—"C" band antenna loop frame
31364	Socket—Dial lamp socket	30698	Gasket—Rubber gasket for motorboard (Model U-42)
34799	Socket—"Magic Eye" socket (Model U-42)	34871	Hinge—Lid hinge (Model U-20)
33514	Socket—Phonograph input socket	34871	Hinge—Door hinge—L.H. for 1 door (Model U-42)
31319	Socket—Tube socket	34870	Hinge—Door hinge—R.H. for 1 door (Model U-42)
34726	Spring—Push arm return spring .018 dia. wire	13103	Jewel—Pilot lamp jewel (Models U-40, U-42)
33720	Spring—Push arm return spring (Model U-42)	23434	Knob—Tuning tone control, range switch or volume control and power switch knob
34720	Switch—Radio, Phono, Television, Tone switch (S2, S3)	31480	Lamp—Dial lamp (Model U-42)
34722	Switch—Range switch (S1)	34800	Loop—"A" band loop antenna (Model U-20)
32263	Transformer—1st i.f. transformer (L3, L4, C11, C12)	34729	Loop—Antenna loop (Model U-40)
34719	Transformer—2nd i.f. transformer (L5, L6, C14, C15)	34868	Loop—Antenna loop for "A" band (Model U-42)
33726	Washer—Retaining washer for shaft, Stock No. 34411	33973	Marker—Station selector push button markers (Model U-20)
33906	PICKUP AND ARM ASSEMBLIES U-20	34866	Marker—Station markers (Model U-42)
33908	Arm—Pickup arm—shell only	34872	Pin—Complete set of dowel pins for antenna loop (Model U-42)
33905	Base—Pickup support arm base and retainer	30870	Plug—2-prong male connector for motor lead (Model U-20)
33907	Crystal—Pickup crystal cartridge	32611	Plug—3-prong plugs for antenna loops (Model U-20)
	Support—Pickup support arm complete—less base	32641	Plug—3-prong male plug for loops (Models U-40, U-42)
		31048	Plug—Phono plug for pickup lead (Model U-20)
		34869	Pull—Door pull (Model U-42)
		35172	Rubber—Spaenge rubber strip for doors
		32870	Screen—Compartment lamp screen (Models U-40, U-42)
		31364	Socket—Dial lamp socket (Model U-42)
		14270	Spring—Retaining spring for knob, Stock No. 33434
		31470	Spring—Motorboard spring mounting hardware (Models U-40, U-42)
		30900	Spring—Retaining spring for button, Stock No. 33731
		34423	Support—Lid support (Model U-20)
		34422	Turntable—Phonograph turntable less spindle (Model U-20)

Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the radio-phono switch to "radio" position and accurately tune in the station for which the first button is to be set.
3. Press in push-button rod No. 1 (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.

MODEL U-20

Additional Replacement Parts:

Stock No.

11765	Lamp—Dial lamp.....
11763	Receptacle—Needle card holder.....
35595	Resistor—15,000 ohms, 3 watts (R2)
30585	Spring—Drive cord spring.....
34723	Socket—3-contact socket for loop.....
34261	Transformer—Power transformer, 105-120 volts, 50-60 cycles.....

Add the following for 50 cycle, 105-125 volt motor for Model U-20:

Same as used for 105-125 volt, 60 cycle motor, except less 34514 cover, 34516 motor cover, and 34412 armature, and add:

35605	Armature—Complete for 105-125 volt, 50 cycle motor.....
35604	Motor—105-125 volt, 50 cycle phono motor, less pulleys, capacitor, and motor cradle.....

MODEL U-40

Additional Replacement Parts:

Stock No.

11765	Lamp—Dial lamp.....
33973	Markers—Station markers.....
11763	Receptacle—Needle card holder.....
35595	Resistor—15,000 ohms, 3 watts (R2)
34723	Socket—3-contact socket for loop.....
30585	Spring—Drive cord spring.....
34478	Support—Lid support.....
34261	Transformer—Power transformer, 105-120 volts, 50-60 cycles.....
31445	Transformer—Power transformer, 105-120 volts, 25 cycles.....

MODEL U-42

Additional Replacement Parts:

Stock No.

11765	Lamp—Dial lamp.....
11763	Receptacle—Needle card holder.....
35595	Resistor—15,000 ohms, 3 watts (R2)
34723	Socket—3-contact socket for loop.....
30585	Spring—Drive cord spring.....
31445	Transformer—Power transformer, 105-125 volts, 25 cycles.....

MODEL U-43

Capacitor Added:

In Model U-43, a 0.1 mfd. capacitor (Stock No. 4839) is added in shunt to electrolytic capacitor C23.

Add Stock No.

35595	Resistor—15,000 ohms, 3 watts (R2)
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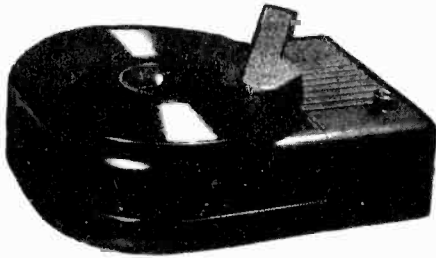
Replacement Parts MODEL U-43

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

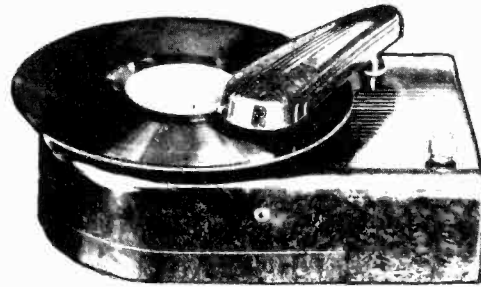
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-498E)		31445	Transformer—Power transformer, 100-120 volts, 25-60 cycle.....
33719	Belt—Push button station setting belt.....	34261	Transformer—Power transformer, 105-120 volts, 50-60 cycle (T1).....
34724	Board—"Antenna-Ground" board.....	33726	Washer—Retaining washer for shaft—Stock No. 34411.....
30766	Cap—Rubber cap for tuning indicator.....	RECORD CHANGER PARTS	
34852	Capacitor—Trimmer—comprising 1 section of 3-30 mmfd. and 2 sections of 2-10 mmfd. (C2, C4, C28).....	See RP-139A—110 volts, 25-50 cycle	RP-145 —110 volts, 60 cycle
12813	Capacitor—82 mmfd. (C30).....	SPEAKER ASSEMBLIES (RL-70L1)	
12720	Capacitor—100 mmfd. (C6, C16, C18, C33).....	13867	Cap—Dust cap.....
33806	Capacitor—0015 mfd. (C36).....	12012	Coil—Field coil.....
34459	Capacitor—0025 mfd. (C38).....	35616	Cone—Cone complete with voice coil.....
30303	Capacitor—0035 mfd. (C19).....	34728	Diffuser—Speaker diffuser.....
4870	Capacitor—025 mfd. (C37).....	5039	Plug—4-prong male speaker plug.....
32240	Capacitor—Electrolytic—comprising 2 sections of 10 mfd. and 1 section of 20 mfd. (C10, C22, C23).....	33444	Transformer—Output transformer.....
34285*	Clip—Clip and thumb screw for tuning indicator.....	MISCELLANEOUS ASSEMBLIES	
35739	Coil—Choke coil.....	35563	Button—Push button.....
32707	Coil—Oscillator coil (L1, L2).....	31456	Cover—Protective covers for markers.....
35738	Control—Tone control.....	35468	Decalcomania—Caution decal for record changer.....
34721	Control—Volume control and power switch (R4, S4).....	35742	Decalcomania—Control decal.....
32634	Cord—Tuning condenser drive cord.....	35592	Decalcomania—Control decal.....
34853	Core—Adjustable core and stud for oscillator coil.....	35741	Decalcomania—"RCA-Victrola" decal.....
33633	Indicator—Station selector indicator.....	35565	Dial—Glass dial scale.....
11891	Lamp—Dial lamp.....	35564	Escutcheon—Dial scale and push button escutcheon.....
35737	Plate—Dial plate.....	34583	Frame—"C" band antenna loop frame.....
30868	Plug—2-contact female plug for motor lead.....	30698	Hinge—Cabinet lid hinge.....
5040	Plug—4-contact female plug for speaker leads.....	13103	Jewel—Pilot lamp jewel.....
14499	Resistor—1,500 ohms, 1/2 watt (R16).....	34998	Knob—Tuning, volume control, and power switch, range switch or tone control knob.....
13998	Resistor—22,000 ohms, 1/2 watt (R9, R13, R22, R23).....	34729	Loop—Antenna loop.....
12738	Resistor—27,000 ohms, 1/2 watt (R8).....	33973	Marker—Station selector push button markers.....
13715	Resistor—68,000 ohms, 1/2 watt (R13).....	32641	Plug—3-prong plug for antenna loops.....
12013	Resistor—1 meg., 1/10 watt (R24).....	35832	Pull—Door pull.....
33735	Screw—Push arm adjusting screw.....	11763	Receptacle—Needle card holder.....
34411	Shaft—Tuning condenser drive shaft.....	35172	Rubber—Sponge rubber strip for doors.....
34723	Socket—3-contact socket for antenna loop.....	35740	Shade—Compartment lamp shade.....
31364	Socket—Dial lamp socket.....	14270	Spring—Retaining spring for knob—Stock No. 34998.....
33742	Socket—Phonograph input socket.....	31470	Spring—Motorboard spring mounting hardware.....
13871	Socket—Tuning indicator socket.....	30900	Spring—Retaining spring for button—Stock No. 35563.....
31319	Socket—Tube socket.....	35831	Support—Lid support—L. H.....
30585	Spring—Drive cord spring.....	35830	Support—Lid support—R. H.....
34726	Spring—Push arm return spring, .018 dia. wire.....		
34722	Switch—Range switch (S1).....		
32263	Transformer—First i-f transformer (L3, L4, C11, C12).....		
34719	Transformer—Second i-f transformer (L5, L6, C14, C15).....		

MODELS VA-20 and VA-21

Two-Tube, A-C, Wireless Record Players



MODEL VA-20



MODEL VA-21

Electrical and Mechanical Specifications

FREQUENCY RANGE	530-625 kc
TUBE COMPLEMENT	
(1) RCA 6A8	Modulator-Oscillator
(2) RCA 25Z6-G	Half-Wave Rectifier
Dial Lamp	Mazda 47, 6-8 volts, .15 amp.
POWER SUPPLY RATINGS	
A-6	105-125 volts, 60 cycles, 50 watts
A-5	105-125 volts, 50 cycles, 50 watts
MOTOR	
Type	Synchronous (Manual Starting)
Turntable Speed	78 r.p.m.

PICKUP	
Type	Crystal
Pickup Impedance	100,000 ohms at 1000 cycles
Average Output Voltage	1 1/2 volts at 1000 cycles with 250,000 ohm load.
CABINET DIMENSIONS	
Height	3 3/4 inches
Width	12 3/4 inches
Depth	8 1/4 inches
Over-All Height	5 inches
Turntable Diameter	7 inches
Weight	7 1/2 lbs. (net), 9 1/2 lbs. (shipping)

Set-Up Procedure

1. Insert plug in power supply outlet, and turn the power-switch—volume control knob on top of VA-20 to full clockwise position. Start a record on the VA-20. The motor is a synchronous manual-starting type, and requires a clockwise spin to start.
2. Tune the radio receiving set to a quiet point between 530-625 kc.
3. Tune the oscillator in the VA-20 to this frequency by adjusting the button on the rear of the VA-20 cabinet to obtain peak output on the receiver. Clockwise rotation decreases the frequency; counter-clockwise rotation increases the frequency.
4. Adjust the radio volume control for the highest volume that is likely to be required, and then use the VA-20 volume control for further adjustment.
5. In noisy locations, it may be desirable to leave the VA-20 volume control turned full clockwise, and regulate the radio volume control for the desired level.
6. If there is insufficient volume, or excessive noise, the remedy is to couple the VA-20 to the radio receiver, by running a piece

Motor Data

Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

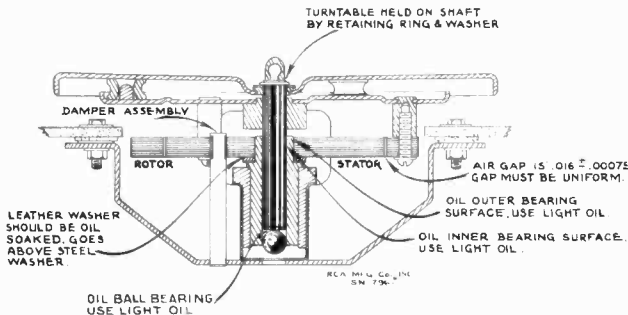
1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)
3. Motor not properly supported from motor board.
4. Burrs on poles of rotor or stator. Remove with fine emery cloth.

Note: Voltages with star () are operating voltages in circuits with high series resistance. The actual measured voltage will be lower, depending on the voltmeter loading. Voltages are measured to chassis, unless otherwise indicated. Values should hold within approximately $\pm 20\%$ with 117 volt a-c supply.

Precautionary Lead Dress

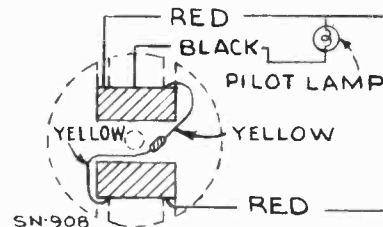
1. The power supply cord must be dressed between chassis and top of cabinet, away from grid of 6A8, and entirely away from 25Z6-G.
2. All leads to oscillator coil must be as short as possible.
3. All motor leads must be dressed away from rotor.
4. Pickup leads must be dressed away from the top grid of 6A8, and kept away from the 25Z6-G.

Caution: Do not remove turntable from motor while power is turned on, as damage to the tubes will result.



of insulated wire between the two units. Wrap one end (three or four turns) around the antenna lead-in on the radio, and wrap the other end (three or four turns) around the short wire that projects from the plug on the power cord of the VA-20. With an RCA Master Antenna, wrap the wire around the counter-poise lead where it attaches to the receiver (terminal A3) or to the coupling unit (terminal B).

7. If the radio receiver has push-button tuning, one of the buttons may be set up to tune in the VA-20 oscillator frequency. This button should be marked "Record Player."



50-Cycle Motor Coil Assembly and Connections
D-C resistance of each coil:

105-125 volts, 60 cycles	36 ohms
105-125 volts, 50 cycles	40 ohms

Over-Modulation or Distortion:

On some records, and particularly with pick-up units having relatively high voltage output, an occasional case may be encountered where distortion occurs at advanced volume control (VA-20) settings. This condition can be eliminated by effecting the following circuit changes:

Remove:
Self bias resistor R-2 and associated bypass capacitor C-4 from cathode circuit of 6A8 modulator-oscillator stage.

- Install:**
- (a) Connection between 6A8 cathode (K) and shell (SH) (or chassis).
 - (b) A 10 megohm resistor Stock No. 13601 between "modulator grid" and cathode (K) on 6A8 socket (or chassis).
 - (c) A .0025 mfd capacitor Stock No. 5107 in series with green lead from arm of volume control to "modulator grid."
 - (d) A 120,000 ohm resistor Stock No. 13734 across the volume control from terminal 1 to terminal 3.

The overmodulation condition can also be avoided by operating the VA-20 volume control at a retarded position, and regulating volume by means of the receiver control. The above changes however, effect a foolproof cure, and should be incorporated on any instruments being serviced. These changes are incorporated in later production instruments.

MODEL VA-20

Additional Replacement Parts:

- Stock No.**
- 33041 Ring—Retaining ring and metal washer to mount turntable plate
 - 5107 Capacitor—.0025 mfd. capacitor (C10)
 - 13734 Resistor—120,000 ohms (R8)
 - 13601 Resistor—10 megohms (R7)

Change in 50-Cycle VA-20:

Late production of 50-cycle models have a 110-volt motor, and a ballast resistor in series with the heater circuit as shown in the accompanying schematic. The following parts apply to the late 50-cycle instrument:

- Stock No.**
- 31034 Motor—110 volt, 50 cycle, less mounting
 - 31037 Rotor—Turntable and rotor lamination assembly complete for 50-cycle operation
 - 31043 Stator—Stator assembly complete with coils and laminations for 50-cycle operation
 - 33484 Resistor—Ballast resistor, 1-24 ohm and 1-271 ohm sections for heater circuit (R10, R9)

Motor Inter-Lock Switch:

An interlock switch has been added to motor base on these models, and is connected in series with the motor supply. This switch "opens" whenever the turntable is removed, and obviates tube damage. Replacement parts as listed in Service Notes apply except as noted below:

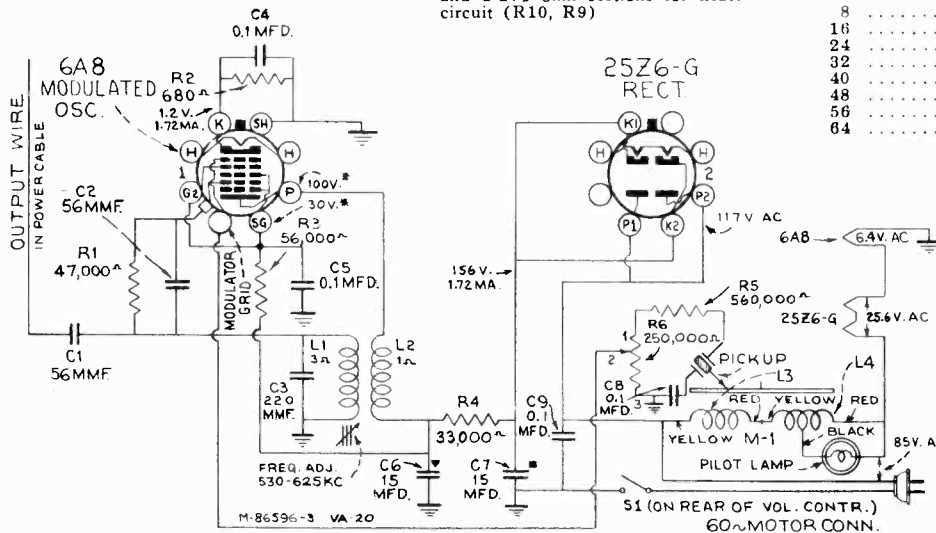
- Omit Stock No.**
- 31046 Bearing Assembly.....
- Add Stock No.**
- 35003 Ball—Steel ball for rotor bearing...
 - 35002 Bearing—Rotor bearing assembly—less ball.....
 - 35004 Plunger—Hard rubber plunger for motor switch.....
 - 35001 Switch—Motor switch complete.....

Changing Frequency Range:

Should it be desirable to employ a different range of frequency on the VA-20 Wireless Record Player, this may be accomplished readily by removing turns from the oscillator coil.

The resultant frequency range for given number of removed turns are:

Turns Removed	Frequency Range
8	580 kc - 710 kc
16	630 kc - 770 kc
24	700 kc - 850 kc
32	760 kc - 940 kc
40	850 kc - 1,050 kc
48	960 kc - 1,200 kc
56	1,100 kc - 1,400 kc
64	1,300 kc - 1,650 kc



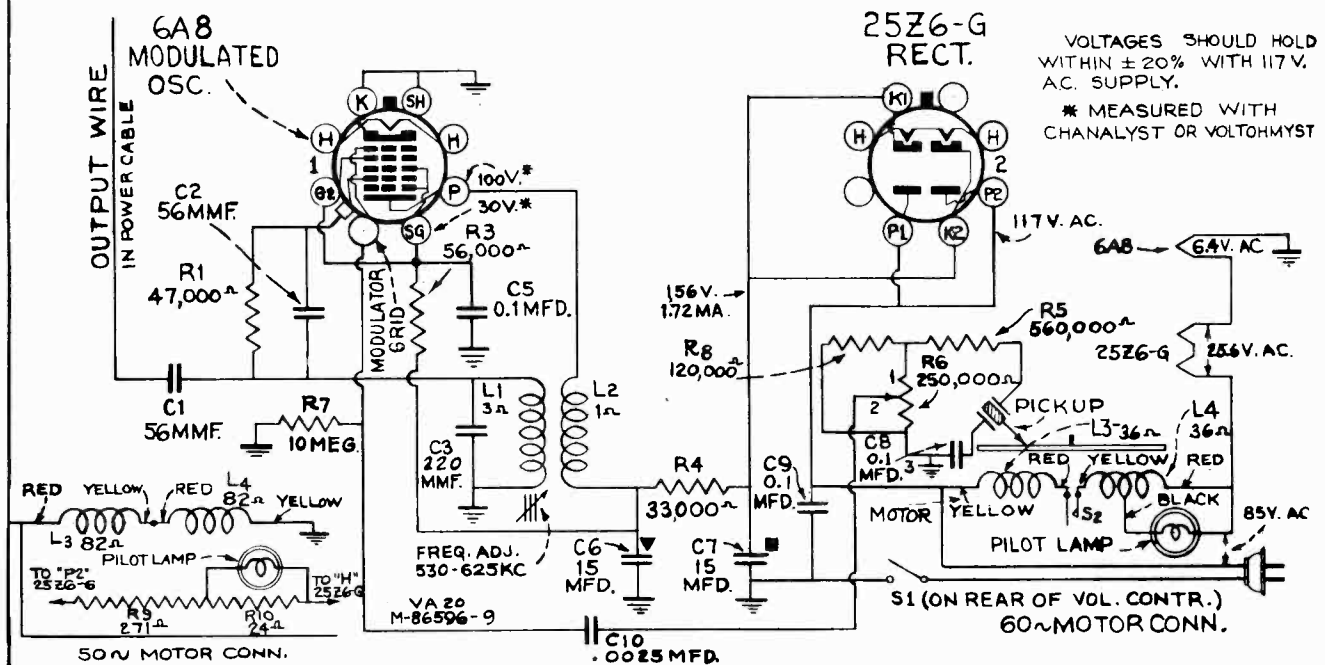
Replacement Parts Model VA-20

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MISCELLANEOUS ASSEMBLIES		MOTOR ASSEMBLIES	
13103	Cap—Pilot lamp cap (bullseye)	32507	Base—Motor support, damper, and bearing cup assembly
32642	Cord—Power and output cord and plug	31046	Bearing—Bearing assembly
31051	Foot—Rubber foot for cabinet	31041	Cap—Rubber spindle cap
32611	Knob—Special knob to adjust oscillator coil	32645	Coil—Motor field coil for 85-volt, 50-cycle operation—less laminations
30885	Knob—Volume control and switch knob	32505	Coil—Motor field coil for 85-volt, 60-cycle operation—less laminations
31480	Lamp—Pilot lamp	31047	Cushion—Rubber cushion for bearing
31053	Mounting—Motor mounting screws and washers complete	32643	Motor—85-volt, 50-cycle (M1)
32500	Mounting—Pickup arm mounting ring and rubber cushion	32508	Motor—85-volt, 60-cycle (M1)
12993	Screw—No. 8-32 x 3/8-inch headless set screw for knob	31040	Mountings—Turntable top rubber mountings sufficient for one turntable
31365	Socket—Pilot lamp socket	32644	Rotor—Turntable plate and rotor lamination assembly complete for 50-cycle operation
32499	Volume control and switch (R6, S1)	32506	Rotor—Turntable plate and rotor lamination assembly complete for 60-cycle operation
OSCILLATOR ASSEMBLIES		32917	Stator—Stator laminations and field coils for 85-volt, 50-cycle operation
12723	Capacitor—56 mmfd. (C1, C2)	32916	Stator—Stator laminations and field coils for 85-volt, 60-cycle operation
12694	Capacitor—220 mmfd. (C3)	31039	Turntable—Finished turntable top plate only—less rubber mountings
4839	Capacitor—0.1 mfd., 400 V. (C4, C5, C8, C9)	4083	Washer—Leather washer
32152	Capacitor—15 mfd. (C6, C7)	14231	Washer—Metal spacing washer
32501	Coil—Oscillator coil (L1, L2)	PICKUP AND ARM ASSEMBLIES	
12262	Resistor—680 ohms, 1/2 watt (R2)	31049	Base—Pickup arm pivot shaft and base assembly
12454	Resistor—33,000 ohms, 1/2 watt (R4)	31050	Crystal—Pickup crystal and needle screw
12412	Resistor—47,000 ohms, 1/2 watt (R1)	9842	Pickup crystal and arm complete with mounting
12286	Resistor—56,000 ohms, 1/2 watt (R3)	12539	Screw—Pickup needle screw
12486	Resistor—560,000 ohms, 1/2 watt (R5)		
31251	Socket—Tube socket		

REVISED MODEL VA-20 IS ELECTRICALLY IDENTICAL TO MODEL VA-21

(Including changes to prevent over modulation or distortion)



MODEL VA-21

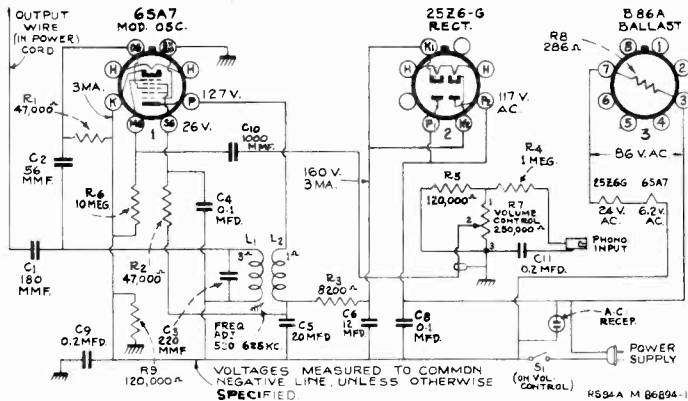
Replacement Parts MODEL VA-21

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MISCELLANEOUS ASSEMBLIES		MOTOR ASSEMBLIES	
13103	Cap—Pilot lamp cap (bullseye)	32654	Ball—Bearing ball only
32642	Cord—Power and output cord and plug	32507	Base—Motor support, damper, and bearing cup assembly
35467	Decalcomania—"RCA-Victrola" decal	31046	Bearing—Bearing assembly
31051	Foot—Rubber foot for cabinet	31041	Cap—Rubber spindle cap
32611	Knob—Special knob to adjust oscillator coil	31918	Coil—Motor field coil for 110 volts, 50 cycle
30885	Knob—Volume control and switch knob	32505	Coil—Motor field coil for 110 volts, 60 cycle
31480	Lamp—Pilot lamp	31047	Cushion—Rubber cushion for bearing
31053	Mounting—Motor mounting screws and washers complete	33653	Frame—Rotor frame—50-60 cycle
35609	Mounting—Pickup mounting grommet, nut and lockwasher	33354	Lamination—Stator lamination—less coils—50 cycle
33484	Resistor—One section 24 ohms, and one section 271 ohms (50 cycle)	34961	Lamination—Stator lamination—less coils—60 cycle
32317	Screw—No. 8-32 x 7/32 headless set screw for knob	33656	Lamination—Rotor lamination—60 cycle
31365	Socket—Pilot lamp socket	31034	Motor—110 volts, 50 cycle (M1) less mounting
32499	Volume control and switch (R6, S1)	32508	Motor—110 volts, 60 cycle (M1)
35004	Plunger—Hard rubber plunger for switch on motor base	31040	Mountings—Turntable top rubber mountings sufficient for one turntable
OSCILLATOR ASSEMBLIES		31037	Rotor—Turntable plate and rotor lamination assembly complete for 50 cycle operation
12723	Capacitor—56 mmfd. (C1, C2)	31043	Stator—Stator laminations and field coils for 110 volts, 50 cycle operation
12694	Capacitor—220 mmfd. (C3)	31039	Turntable—Finished turntable top plate only—less rubber mountings
5107	Capacitor—.0025 mfd.	4083	Washer—Leather washer
4839	Capacitor—0.1 mfd., 400 volts (C5, C8, C9)	14231	Washer—Metal spacing washer
32152	Capacitor—15 mfd. (C6, C7)	PICKUP AND ARM ASSEMBLIES	
32501	Coil—Oscillator coil (L1, L2)	33591	Arm—Pickup arm only—less cartridge, base and cable
12454	Resistor—33,000 ohms, 1/2 watt (R4)	34481	Arm—Pickup pivot arm and shaft
12412	Resistor—47,000 ohms, 1/2 watt (R1)	34482	Base—Pickup mounting base
12286	Resistor—56,000 ohms, 1/2 watt (R3)	33122	Crystal—Pickup crystal cartridge and needle screw
13734	Resistor—120,000 ohms, 1/2 watt	34311	Ring—Retaining ring for pivot shaft
12486	Resistor—560,000 ohms, 1/2 watt (R5)	33529	Screw—Needle screw
13601	Resistor—10 meg., 1/2 watt		
31251	Socket—Tube socket		

OSC-22

Wireless Oscillator



FREQUENCY RANGE..... Approx. 530-625 kc
 TUBE COMPLEMENT
 (1) RCA-6SA7..... Modulator—Oscillator
 (2) RCA-25Z6-G..... Half-Wave Rectifier
 (3) Type B-86-A..... Ballast Resistor

POWER SUPPLY RATINGS
 A-C Rating... 105-125 volts, 25-60 cycles, 35 watts
 D-C Rating..... 105-125 volts, 35 watts

DIMENSIONS
 Chassis Base..... 7½-in. x 4½-in. x 2½-in.

Precautionary Lead Dress.—
 1. Keep 110-volt leads away from oscillator coil.
 2. Leads to oscillator coil must be short and direct.

The RCA Victor Wireless Oscillator is an adapter unit used to convert your Victrola Attachment, such as the RCA Victor Model VA-22, into a wireless record player. This permits you to play phonograph records through your radio receiver without any connecting wires from the Victrola Attachment to the Radio Receiver.

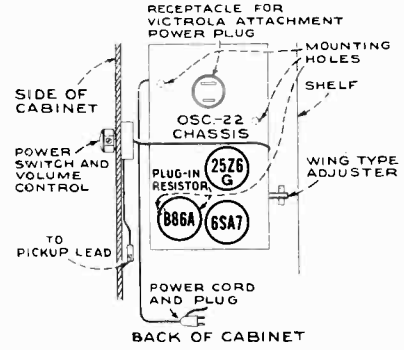
INSTALLATION

Certain RCA Victrola Attachments such as the VA-22 are provided with a side shelf inside the cabinet for mounting the Wireless Oscillator. Three holes are drilled in the shelf correctly spaced for the oscillator mounting bolts to go through and screw into the holes in the OSC-22 chassis base. To install the OSC-22 first detach the VA-22 power cord from the electric outlet, then:

1. Look in the back of the VA-22 or similar Victrola cabinet and locate the connection from the pickup to the volume control on the side of the cabinet. This is a length of wire with a connector plug on one end. Disconnect the plug from the bayonet socket and then loosen the set screw and remove the knob and the volume control on the other end of the wire, together with the wire, from the VA-22 cabinet. It is attached to the cabinet by a nut and washer.
2. Mount the OSC-22 on the cabinet shelf with the three mounting screws and washers provided.
3. Mount the OSC-22 Power Switch and Volume Control unit in the location from which the VA-22 volume control was removed, using the washer and nut taken from the VA-22 volume control. Be sure that the locating pin on the new control is in the correct position. Attach knob on shaft of Power Switch and Volume Control unit and tighten up the set screw.
4. Insert the pickup plug into the connector on the cable of the newly installed Volume Control of the OSC-22.
5. Insert the plug on the end of the VA-22 power cord into the power receptacle on the OSC-22 chassis base.
6. Insert the plug on the end of the OSC-22 power cord into the electric outlet.

Circuit Changes:

The low end of the volume control and resistor R5 and capacitor C11 are connected to the common negative line (not to the chassis). C11 is changed from .2 mfd. to .1 mfd. (Stock No. 4839) in some production.



CONTROLS AND MOVING MECHANISM

In order to obtain best reproduction, the newly installed Volume Control should first be turned on about 2/3 full and the Volume Control on your radio receiver turned to the point that gives the greatest volume you are likely to require. Then all control of volume may be made with the knob on the Wireless Victrola Attachment. In particularly noisy locations it may be preferable to set the Volume Control of the Wireless Victrola Attachment at about 2/3 full and regulate with the volume control knob on the receiver.

The Victrola Adjustment.—On the back of the OSC-22 chassis is a small adjusting rod to give reproduction at the most convenient point on your radio receiver dial. With your radio receiver in operation, set the Tuning Control to bring the pointer on the Standard Broadcast Scale to a point at the low frequency end between 530 and about 630 kilocycles, 530 is preferable, at which no station can be obtained. Then set your Wireless Victrola Attachment in operation and turn the adjusting rod on the OSC-22 slowly and carefully until the record reproduction is heard at its best.

Antenna Modification.—If, due to your particular special conditions, insufficient volume or excessive noise interference affects record reproduction, a simple remedy is to connect a wire from the Wireless Victrola Attachment to your radio antenna lead. This is easily accomplished by means of a length of wire to cover the distance between the Victrola Attachment and Radio Receiver. One end of this should be wound 3 or 4 turns around the outside of the short wire projecting from the OSC-22 plug on the power cord. The other end

of the wire should be wound 3 or 4 turns around the outside of the receiver antenna lead. When an RCA Master Antenna is used, the wire should be wound around the counterpoise lead where it is attached to the A-3 terminal of your radio receiver antenna terminal board

Radio Receiver Controls.—Your radio receiver picks up the record selection as it does a broadcast program. So after the Victrola Adjustment is made, you must tune your radio receiver to the signal from the Wireless Victrola Attachment between 530 and about 630 kilocycles. Do this according to the instructions for operating your particular receiver and turn the Tuning Control to bring the pointer on the dial scale to the low frequency end of the Standard Broadcast band, about 530 to 630 kilocycles, and tune in accurately with the Wireless Victrola Attachment playing a selection. This point is your "Victrola" station. If you have a radio with Push Button Tuning you can set a push button and label it "Victrola." The push button or switch labeled "Victrola," "Record Player" or "Phono" on RCA Victor Radio Receivers previous to 1939 is of no use with the Wireless Victrola Attachment.

PLAYING

Plug the power cord from the OSC-22 into a convenient house outlet, then to play records proceed as follows:

1. Turn on the power to your radio receiver.
2. Set the tuning knob to your new "Victrola" station (530 to 630 kilocycles), or if you have specially adjusted a push button, press it.
3. Turn on power to the Wireless Victrola Attachment.
4. Make the set-up for playing records in accordance with the original instructions accompanying the Victrola Attachment.
5. Turn the Wireless Victrola Attachment Volume Control about 2/3 fully clockwise.
6. Adjust radio receiver Tuning knob to accurately tune in the phonograph selection.
7. Turn Radio Receiver Volume Control to give the loudest reproduction you are likely to require.
8. Adjust the Wireless Victrola Attachment Volume Control to suit.
9. Adjust radio receiver Tone Control if desirable.

Replacement Parts OSC-22 Wireless Oscillator

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
33793	Ballast—Ballast resistor tube—Type B86A (R8)	33792	Receptacle—A.C. receptacle.....
12723	Capacitor—56 mmfd. (C2).....	33793	Resistor—Ballast resistor tube—Type B86A (R8)
13003	Capacitor—180 mmfd. (C1).....	14075	Resistor—8,200 ohms, ¼ watt (R3).....
12694	Capacitor—220 mmfd. (C3).....	12412	Resistor—47,000 ohms, ¼ watt (R1, R2).....
4839	Capacitor—0.1 mfd. (C4, C8).....	13734	Resistor—120,000 ohms, ¼ watt (R5, R9).....
33834	Capacitor—0.2 mfd. (C9, C11).....	13730	Resistor—1 meg., ¼ watt (R4).....
32576	Capacitor—Electrolytic, one section 20 mfd., and one section 12 mfd. (C5, C6).....	13601	Resistor—10 meg., ¼ watt (R6).....
12635	Capacitor—1,000 mfd. (C10).....	31251	Socket—Tube socket.....
32501	Coil—Oscillator coil (L1, L2).....	33793	Tube—Ballast resistor tube—Type B86A (R8)
		33794	Volume control and switch (R7, S1).....

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

MODEL Q23

Chassis No. RC-592

Six-Tube, Five-Band, A-C, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES

- Standard Broadcast ("A" Band)..... 540-1,720 kc (556-174 m)
- Medium Wave ("B" Band)..... 3.0-9.5 mc (100-31.6 m)
- "31" Meter Spread Band..... 9.5-11.7 mc (31.6-25.6 m)
- "25" Meter Spread Band..... 11.7-15.1 mc (25.6-19.9 m)
- "19-13" Meter Spread Band..... 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
- (4) RCA-6AD7-G..... Phase Inverter, Power Output
- (5) RCA-6F6-G..... Power Output
- (6) RCA-5Y3-G..... Rectifier

LOUDSPEAKER (RL-79A6)

Type..... 6-inch Electrodynamic
Voice Coil Impedance..... 2.2 ohms at 400 cycles

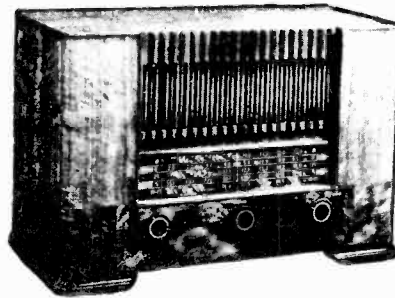
POWER OUTPUT

Undistorted..... 3 watts
Maximum..... 3.5 watts

POWER SUPPLY RATINGS

Symbol	Voltages	Frequency (cycles)	Watts
Rating A	105-125	50-60	65
Rating B	105-125	25-60	65
Rating C	105-125, 200-250	50-60	65

Tuning Drive Ratio..... 22:1
Pilot Lamps..... (2) Mazda No. 44, 6-8 V., 0.25 amp.

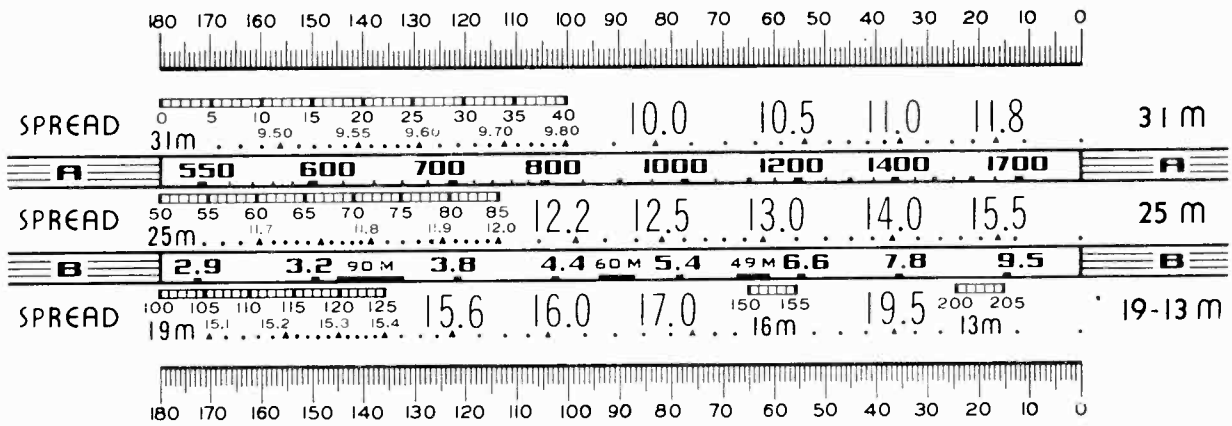


Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC592)			
37981	Bracket—Drive cord pulley bracket (1 pulley)	13734	Resistor—120,000 ohms, 1/2 watt
35622	Bracket—Support bracket for shaft and flywheel	30493	Resistor—150,000 ohms, 1/2 watt
37976	Bracket—Tone control bracket	14983	Resistor—330,000 ohms, 1/2 watt
35642	Calibrator—Drive drum calibrator scale	30648	Resistor—470,000 ohms, 1/2 watt
33014	Capacitor—Electrolytic comprising 3 sections of 10 mfd., 450 volts and 1 section of 20 mfd., 25 volts	30652	Resistor—1 megohm, 1/2 watt
12714	Capacitor—Air trimmer—medium	30649	Resistor—2.2 megohm, 1/2 watt
34654	Capacitor—Mica trimmer comprising 3 sections of 2.5—10 mmf. each	13601	Resistor—10 megohm, 1/2 watt
35646	Capacitor—6 mmf., ceramic	14350	Screw—No. 8-32 square head set screw for drum
36012	Capacitor—15 mmf., ceramic	37979	Shaft—Tuning knob shaft
39608	Capacitor—15 mmf., silvered mica	31364	Socket—Dial lamp socket
35644	Capacitor—47 mmf., ceramic	35787	Socket—Phono input socket
39620	Capacitor—47 mmf., silvered mica	31251	Socket—Tube socket
30949	Capacitor—56 mmf.	31418	Spring—Cord spring
12723	Capacitor—56 mmf., moulded	12007	Spring—Retaining spring for core and stud
35645	Capacitor—68 mmf., ceramic	31261	Spring—Retaining spring for oscillator coils' core and studs
39624	Capacitor—68 mmf., silvered mica	39847	Switch—Range switch
30904	Capacitor—100 mmf.	32827	Switch—Voltage switch
39628	Capacitor—100 mmf., moulded	35636	Transformer—First I. F. transformer
39636	Capacitor—220 mmf., moulded	35628	Transformer—Second I. F. transformer
39646	Capacitor—560 mmf., silvered mica	35588	Transformer—Power transformer, 105-120 volt, 25 cycle
35643	Capacitor—3000 mmf., tubular	32911	Transformer—Power transformer, 105-120 volt, 50-60 cycle
33806	Capacitor—.0015 mfd., 1500 volts	32852	Transformer—Power transformer, 105-120v/200-220 volt, 50-60 cycle
5107	Capacitor—.0025 mfd., 700 volts	2917	Washer—"C" washer for tuning knob shaft
4838	Capacitor—.005 mfd., 1000 volts	SPEAKER ASSEMBLIES (RL79A6)	
4858	Capacitor—.01 mfd., 300 volts	35849	Cap—Dust cap
4937	Capacitor—.01 mfd., 1000 volts	35810	Coil—Field coil
5196	Capacitor—.035 mfd., 400 volts	32906	Coil—Neutralizing coil
4886	Capacitor—.05 mfd., 400 volts	36077	Cone—Cone complete with voice coil
35632	Coil—Antenna coil, "A" band	5039	Plug—4 prong male speaker plug
35631	Coil—Antenna coil, spread band	35809	Transformer—Output transformer
35623	Coil—Oscillator coil, "A" and "B" band	NOTE: If the stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker, and full description of part required.	
35624	Coil—Oscillator coil, "19-13 meter" band	MISCELLANEOUS ASSEMBLIES	
35625	Coil—Oscillator coil, 25 meter band	36103	Decalcomania—Power switch and volume control decal
35626	Coil—Oscillator coil, 31 meter band	37839	Decalcomania—Range switch decal
35619	Condenser—Variable tuning condenser	35392	Decalcomania—Trade mark decal
38409	Control—Tone control	35391	Decalcomania—Tuning decal
38412	Control—Volume control and power switch	39915	Dial—Glass dial scale
32634	Cord—Drive cord (approx. 27-in. overall length)	37989	Indicator—Station selector indicator
34662	Cord—Pointer cord (approx. 43-in. overall length)	35650	Knob—Tone control knob
12006	Core—Adjustable core and stud for I. F. transformers	35775	Knob—Tuning knob
35788	Core—Adjustable core and stud for coil No. 35623	35814	Knob—Volume control or range switch knob
31259	Core—Adjustable core and stud for coils Nos. 35624, 35625 and 35626	11891	Lamp—Dial lamp
35627	Drum—Drive drum less calibrator dial	36793	Rail—Indicator guide rail
35638	Flywheel—Tuning knob shaft flywheel	30900	Spring—Retaining spring for knobs
5040	Plug—4 contact female plug for speaker cable		
36627	Pulley—Drive cord pulley		
34761	Resistor—10 ohms, 1/2 watt		
30735	Resistor—560 ohms, 1 watt		
30436	Resistor—12,000 ohms, 1/2 watt		
35595	Resistor—15,000 ohms, 3 watt		
30492	Resistor—22,000 ohms, 1/2 watt		
12454	Resistor—33,000 ohms, 1/2 watt		

Alignment Procedure



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each

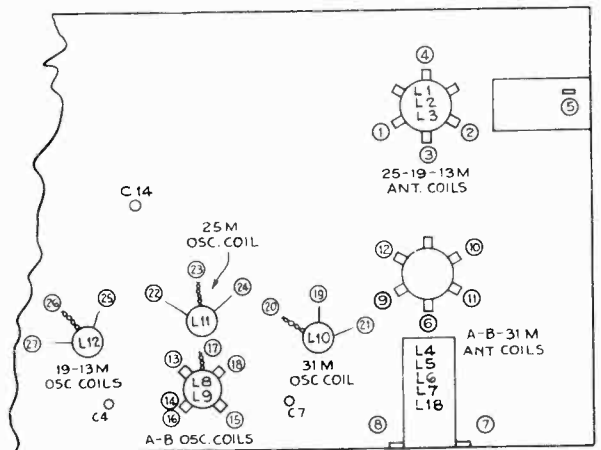
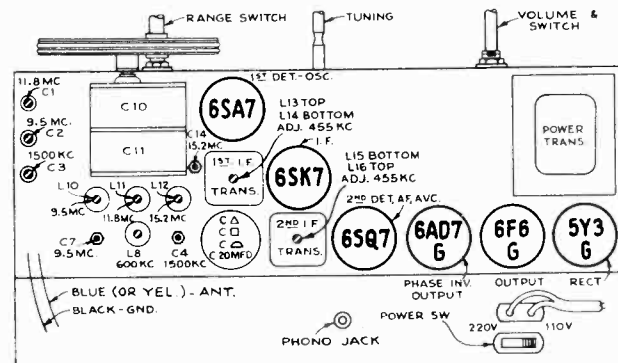
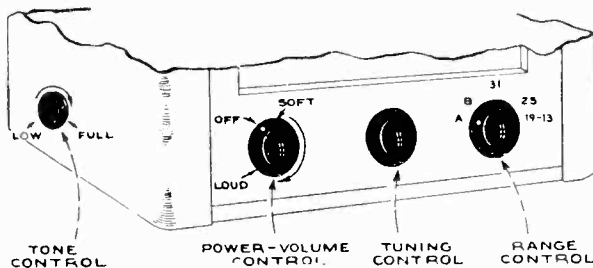
band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output	
On oscillator-circuit cores and trimmers, if two peaks can be obtained, use the one of minimum inductance or minimum capacity.						
1	1st I-F grid cap. in series with .01 mfd.	455 kc	A	Quiet point near 180°	L15 and L16 2nd I-F transformer	
2	1st Det. grid. in series with .01 mfd.				L13 and L14 1st I-F transformer	
3		11.8 mc	25M	138.5°	L11 (osc.) C1 (ant.)	
4		15.2 mc			17°	C14 (osc.)*
5		Repeat steps 3 and 4.				
6	Ant. lead in series with 300 ohms	15.2 mc	19-13M	156°	L12 (osc.)	
7		9.5 mc	31M	156°	L10 (osc.) C2 (ant.)	
8		9.5 mc	B	11.5°	C7 (osc.)	
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C4 (osc.) C3 (ant.)	
10		600 kc			150°	L8 (osc.) (Rock gang)
11	Repeat steps 9 and 10.					

* Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

NOTE: Oscillator tracks above signal on all bands.



Q23

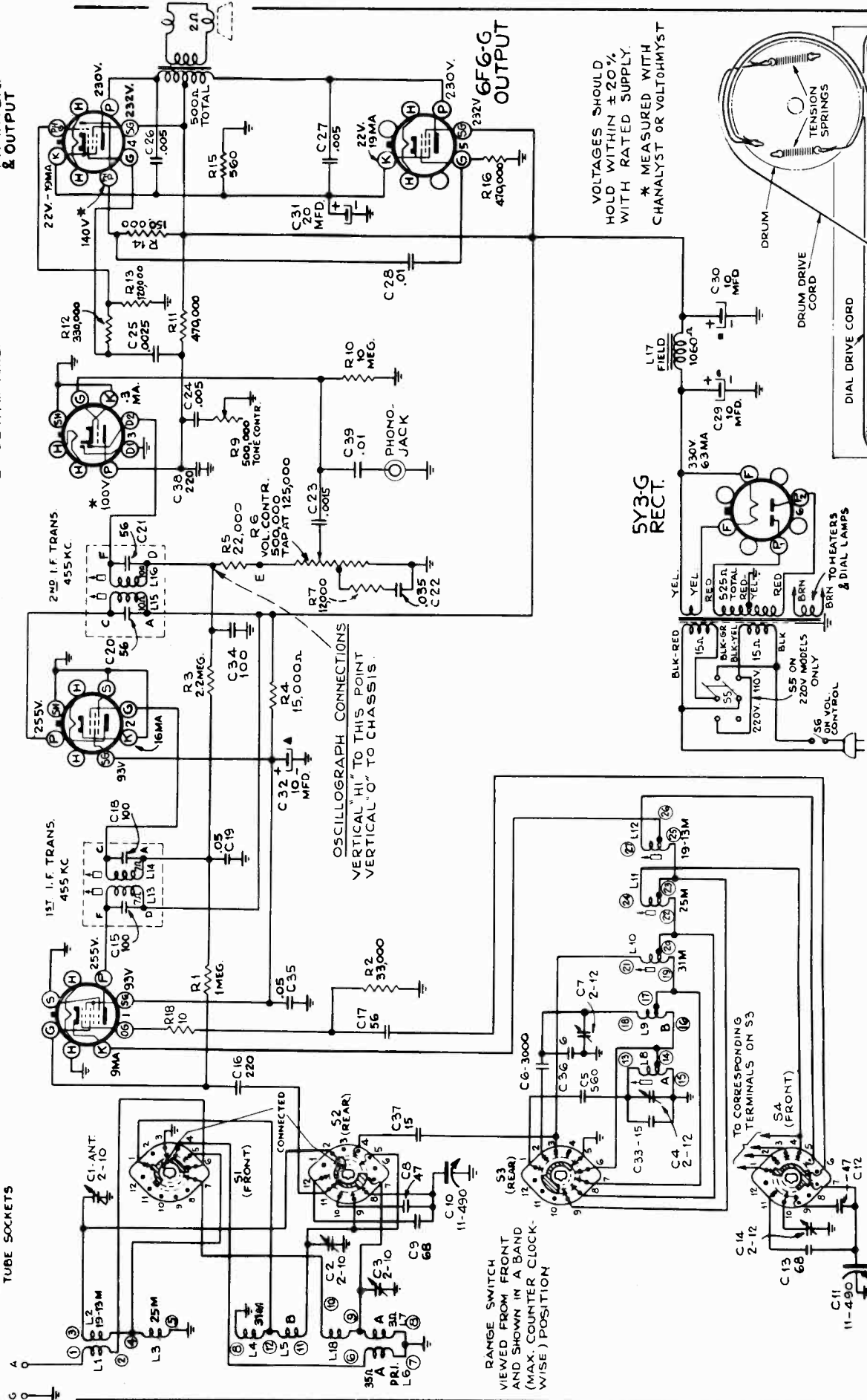
6AD7G
PH INVER.
& OUTPUT

65Q7
2-DET.-A.F.A.V.C.

6SK7
I.F.

6SA7
1ST DET.-OSC.

BOTTOM VIEW OF
TUBE SOCKETS

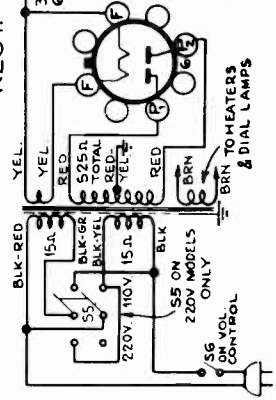
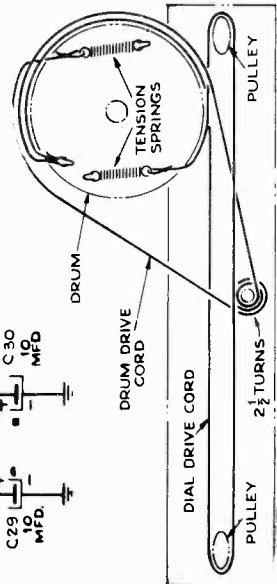


OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS POINT
VERTICAL "O" TO CHASSIS.

RANGE SWITCH
VIEWED FROM FRONT
AND SHOWN IN A BAND
(MAX. COUNTER CLOCK-
WISE) POSITION

VOLTAGES SHOULD
HOLD WITHIN ±20%
WITH RATED SUPPLY.
* MEASURED WITH
CHANALYST OR VOLTOHMYST

5Y3-G
RECT.



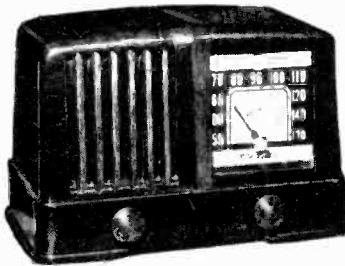
TO CORRESPONDING
TERMINALS ON S3
(FRONT)

MODELS 24BT-1 and 24BT-2 & RADIOLA B-50

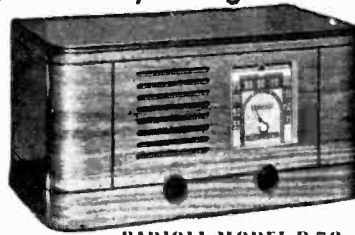
Chassis No. RC-1004-F

RC-1004-H

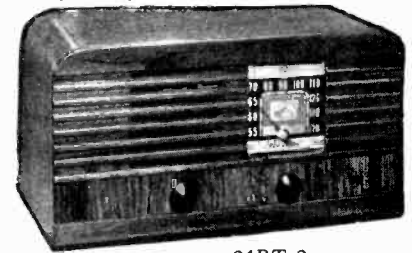
Four-Tube, Single-Band, Battery-Operated Receiver



24BT-1



RADIOLA MODEL B-50



24BT-2

Specifications

FREQUENCY RANGE..... 540-1,720 kc

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA 1A7GT..... 1st Detector-Oscillator
- (2) RCA 1N5GT..... I-F Amplifier
- (3) RCA 1H5GT..... 2nd Detector, A-F, and A.V.C.
- (4) RCA 3Q5GT..... Power Output

BATTERY REQUIRED

POWER SUPPLY

1 "A" - "B" 1½-90 volt pack.

BATTERY DRAIN

"A"..... .25 amperes

"B"..... 14 m.a.

MAX. POWER OUTPUT..... 3 watt

LOUDSPEAKER (5-inch PM)

Identification number..... RL-85-6..... 92322-1
Voice coil impedance at 400 cycles..... 3 ohms..... 3 ohms

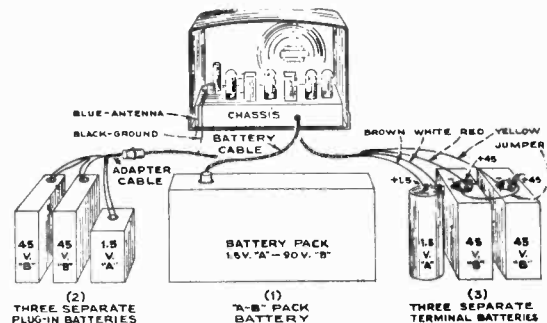
CABINET DIMENSIONS (inches)

	24BT-1	24BT-2
Height	8½	9½
Width	12	17½
Depth	6½	10½

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-1004F)		See following page for Speaker Substitutions
38347	Arm—"On-Off" indicator and arm		MISCELLANEOUS ASSEMBLIES
36082	Can—Shield can for I.F. transformers	35104	Crystal—Dial scale crystal for Model 24BT1...
30314	Cap—Grip cap	38815	Crystal—Dial scale crystal for Model 24BT2...
38593	Capacitor—Electrolytic—10 mfd., 90 volts	35678	Fastener—Push-on fastener for crystal—Model 24BT1
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.	36722	Knob—Control knobs
34506	Capacitor—.0018 mfd.	30900	Spring—Retaining spring for knobs
33584	Capacitor—.005 mfd.		CHASSIS ASSEMBLIES (RC-1004H)
32787	Capacitor—.05 mfd.		SAME AS RC-1004F EXCEPT
32786	Capacitor—0.1 mfd.	38596	Dial - Dial scale.
38344	Coil—Antenna coil	14 138	Resistor - 28,000 ohms, 1/4 watt
38345	Coil—Oscillator coil		MISCELLANEOUS ASSEMBLIES
38311	Condenser—Variable tuning condenser	38815	Crystal—Station selector crystal
36080	Control—Volume control and power switch	36722	Knob—Control knob
32634	Cord—Drive cord (approx. 17-in. overall length)	30900	Spring—Retaining spring for knobs
38348	Dial—Dial scale		
38314	Indicator—Station selector indicator		
38350	Lever—Indicator arm actuating lever		
38346	Plate—Dial back plate complete with indicator arm—less dial scale		
30550	Plug—4-prong male plug for battery cable		
30498	Resistor—390 ohms, ½ watt		
12412	Resistor—47,000 ohms, ½ watt		
13715	Resistor—68,000 ohms, ½ watt		
14583	Resistor—220,000 ohms, ½ watt		
13730	Resistor—1 meg., ½ watt		
30649	Resistor—2.2 meg., ½ watt		
12928	Resistor—3.3 meg., ½ watt		
30992	Resistor—10 meg., ½ watt		
3903	Screw—No. 8-32 cup point set screw		
36235	Shaft—Tuning knob shaft		
31251	Socket—Tube socket		
31418	Spring—Drive cord spring		
38349	Spring—Indicator arm spring		
35098	Spring—Used to hold I.F. transformers in shield can		
36082	Transformer—First I.F. transformer—less shield can and grid cap		
38343	Transformer—Second I.F. transformer—less shield can		
33726	Washer—"C" washer for tuning shaft		
	SPEAKER ASSEMBLIES (RL 85-6)		
32907	Cap—Dust cap		
38397	Cone—Cone complete with voice coil		
33779	Transformer—Output transformer		
	SPEAKER ASSEMBLIES (92322-501)		
38594	Cone—Cone complete with voice coil		
38595	Transformer—Output transformer		



Alignment Procedure

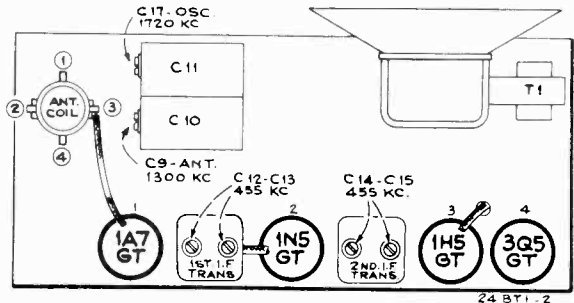
Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid AVC action.

Electronic Voltmeter—The electronic voltmeter in the Chalyxst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Pre-Setting Dial—With gang condenser in full mesh, the pointer should be adjusted so that it is horizontal.



Step	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid in series with .01 mfd.	455 kc	Quiet point between 550 and 750 kc	C14, C15 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			C12, C13 (1st I-F Trans.)
3	Antenna terminal in series with 220 mmfd.	1,720 kc	Tuning condenser rotor plates all out	C17 (osc.)
4		1,300 kc	1,300 kc signal	C9 (ant.)

24BT-2, Speakers RL-85-5, RL-85-6, 92377-1, 92377-3:

Four different speakers have been used on these models. The replacement parts are listed below:

Stock No.	Description
32907	Cap—Dust cap (RL-85-5, RL-85-6)
39307	Cone—Cone complete with voice coil
33779	Transformer—Output transformer (92377-1)
39849	Cone—Cone complete with voice coil
39850	Transformer—Output transformer (92377-3)
39965	Cone—Cone complete with voice coil
39966	Transformer—Output transformer

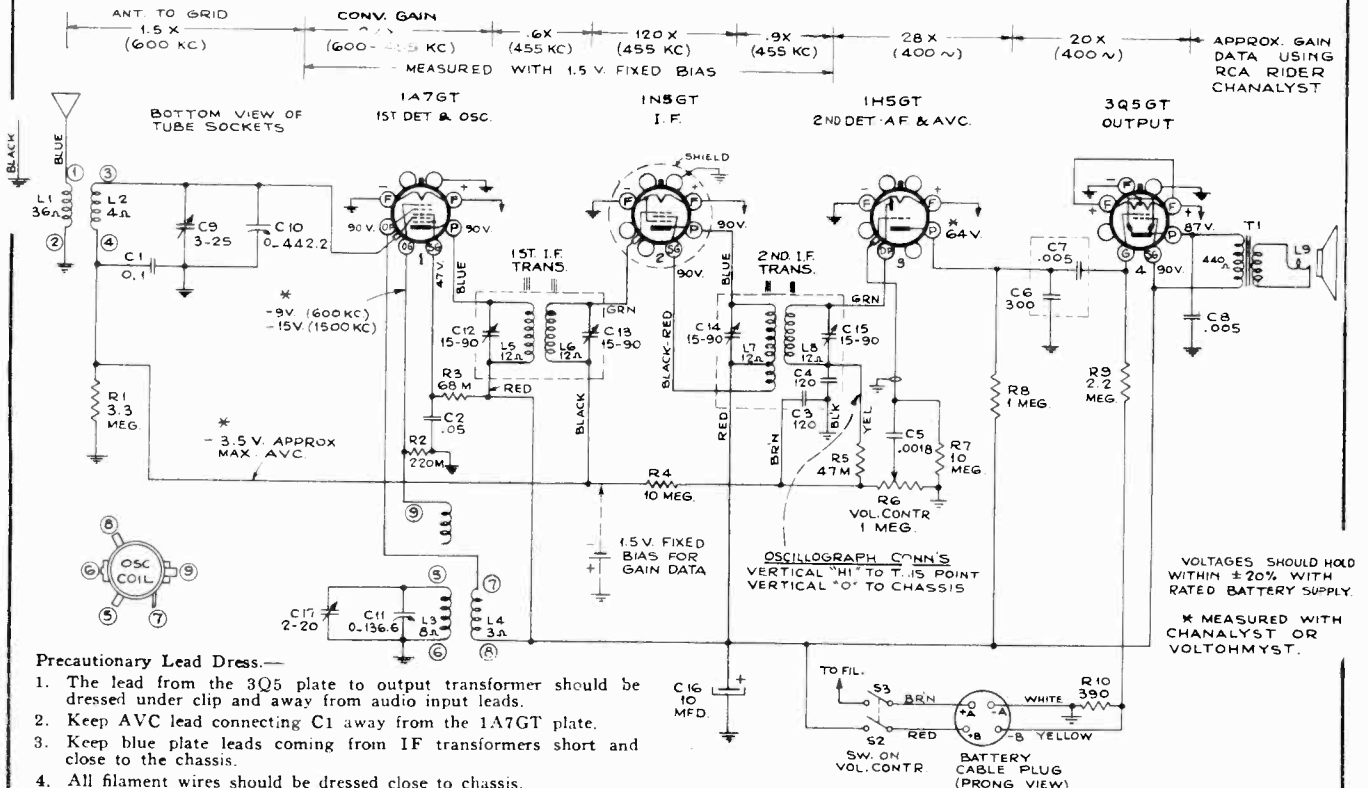
NOTE: If number stamped on your speaker frame does not appear on above list, order part required by description giving number stamped on your speaker and receiver model.

Substitute Speakers:

The following speakers may have been used as a substitute for Speaker RL-85-6 in Model 24BT-1.

Number Stamped on Speaker	Cone and Voice Coil Stk. No.	Output Trans.
92161-3	38352	39538
92161-4	39535	39538
92161-5	38352	39538
92322-2	39536	39538
92374-1	39537	39538
RL-81-B2	35570	39538

Dust can for above is No. 32907.



Precautionary Lead Dress—

1. The lead from the 3Q5 plate to output transformer should be dressed under clip and away from audio input leads.
2. Keep AVC lead connecting C1 away from the 1A7GT plate.
3. Keep blue plate leads coming from IF transformers short and close to the chassis.
4. All filament wires should be dressed close to chassis.

MODEL Q24

Six-Tube, Five-Band, AC-DC, Superheterodyne Receiver Chassis No. RC-508

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)	540-1,720 kc (556-174 m)
Medium Wave ("B" Band)	3.0-9.5 mc (100-31.6 m)
31 Meter Spread Band	9.5-11.7 mc (31.6-25.6 m)
25 Meter Spread Band	11.7-15.1 mc (25.6-19.9 m)
19-13 Meter Spread Band	15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7..... 1st Detector—Oscillator
- (2) RCA-12C8..... I-F Amplifier, 2nd Detector, A.V.C.
- (3) RCA-12SC7..... A-F Amplifier, Phase Inverter
- (4) RCA-50L6GT..... Power Output
- (5) RCA-50L6GT..... Power Output
- (6) RCA-35Z5GT..... Rectifier

POWER SUPPLY RATINGS

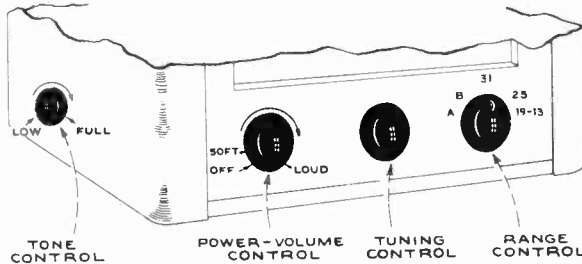
105-125 volts A-C 40-100 cycles or D-C	50 watts
160-180 volts A-C 40-100 cycles or D-C	55 watts
210-250 volts A-C 40-100 cycles or D-C	65 watts

LOUDSPEAKER (RL-92-1)

Type..... 6-inch permanent magnet dynamic
V. C. Impedance at 400 cycles..... 3.4 ohms

POWER OUTPUT

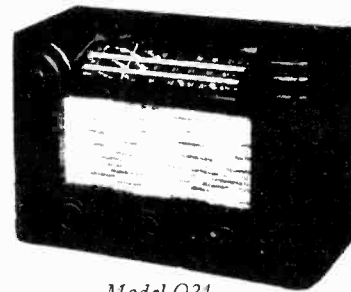
Undistorted.....	3 watts
Maximum.....	3.5 watts



Controls

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.



Model Q24

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-508)			
35635	Ballast—Ballast resistor (M-91462-2)	18190	Resistor—47 ohms, 1 watt
35640	Bracket—Bracket with one pulley for indicator cord	35711	Resistor—100 ohms, 4 watts
35622	Bracket—Flywheel and shaft mounting bracket	2736	Resistor—180 ohms, 1 watt
35639	Bracket—Long bracket with three pulleys for indicator cord	32165	Resistor—470 ohms, 2 watts
12714	Capacitor—Medium air trimmer (C4, C5)	3526	Resistor—2,200 ohms, 1/2 watt
34654	Capacitor—Mica trimmer—comprising 3 sections (C1, C3, C8)	30494	Resistor—4,700 ohms, 1/2 watt
35646	Capacitor—6 mmfd.	30128	Resistor—12,000 ohms, 1/2 watt
33089	Capacitor—15 mmfd.	12759	Resistor—15,000 ohms, 1/2 watt
31350	Capacitor—18 mmfd.	13998	Resistor—22,000 ohms, 1/2 watt
35644	Capacitor—47 mmfd., ceramic	12454	Resistor—33,000 ohms, 1/2 watt
13141	Capacitor—47 mmfd., moulded	30651	Resistor—270,000 ohms, 1/2 watt
30949	Capacitor—56 mmfd., mica (I-F)	12285	Resistor—470,000 ohms, 1/2 watt
12723	Capacitor—56 mmfd., moulded	13730	Resistor—1 meg., 1/2 watt
35645	Capacitor—68 mmfd., ceramic	12679	Resistor—2.2 meg., 1/2 watt
13057	Capacitor—68 mmfd., mica	13601	Resistor—10 meg., 1/2 watt
30904	Capacitor—100 mmfd., mica (I-F)	35633	Shaft—Range switch indicator knob shaft
12720	Capacitor—100 mmfd., moulded	35637	Shaft—Tuning shaft
12694	Capacitor—220 mmfd.	35634	Socket—Ballast resistor socket (Remove terminals not required.)
31433	Capacitor—560 mmfd.	31639	Socket—Dial lamp socket
35643	Capacitor—3,000 mmfd.	31251	Socket—Tube socket
33806	Capacitor—.0015 mfd.	33742	Socket—Phono. input socket
5107	Capacitor—.0025 mfd.	13638	Spring—Drive spring
4838	Capacitor—.005 mfd.	35621	Switch—Range switch
4858	Capacitor—.01 mfd., 500 volts	35636	Transformer—First I-F transformer—less grid lead and clip
14393	Capacitor—.01 mfd., 1,000 volts	35628	Transformer—Second I-F transformer
4870	Capacitor—.025 mfd.	35635	Tube—Ballast resistor
5196	Capacitor—.035 mfd.	33726	Washer—"C" washer for pulley, Stock No. 35630
4839	Capacitor—.01 mfd.	SPEAKER ASSEMBLIES (RL-92-1)	
33824	Capacitor—Electrolytic comprising two sections of 40 mfd., one section of 10 mfd. and one section of 20 mfd.	32907	Cap—Dust cap
35632	Coil—Antenna coil—"A" band	36077	Cone—Cone complete with voice coil
35631	Coil—Antenna coil—spread band	5118	Plug—3-prong male plug for speaker
35623	Coil—Oscillator coil—A and B bands	35940	Transformer—Output transformer
35624	Coil—Oscillator coil—19-13 meter band	MISCELLANEOUS ASSEMBLIES	
35625	Coil—Oscillator coil—25 meter band	35655	Back—Back cover—less power cord
35626	Coil—Oscillator coil—31 meter band	32836	Cord—Power cord complete with plugs
35619	Condenser—Variable tuning condenser	35392	Decalcomania—"RCA Victor" decal
35629	Control—Tone control	35712	Dial—Glass dial scale
35620	Control—Volume control and power switch	35911	Frame—Dial frame complete except—less pointer and dial
32635	Cord—Condenser drive cord	35648	Indicator—Station selector indicator
34662	Cord—Indicator drive cord	35652	Knob—Band indicator knob
35642	Dial—Calibrator dial for drive drum	35651	Knob—Range switch knob
35627	Drum—Tuning condenser drive drum—less calibrator	35650	Knob—Tone control knob
35638	Flywheel—Tuning shaft flywheel	35955	Knob—Volume control or tuning knob
5119	Plug—3-contact female plug for speaker cable	35976	Lamp—Dial lamp
35641	Pulley—Indicator cord pulley	35653	Mounting—One set speaker mounting hardware
35630	Pulley—Pulley operating between the tuning shaft and drive drum	14270	Spring—Retaining spring for knobs, Stock Nos. 35650, 35955, and 35651
35635	Resistor—Ballast resistor (M-91462-2)	4982	Spring—Retaining spring for knob, Stock No. 35652

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

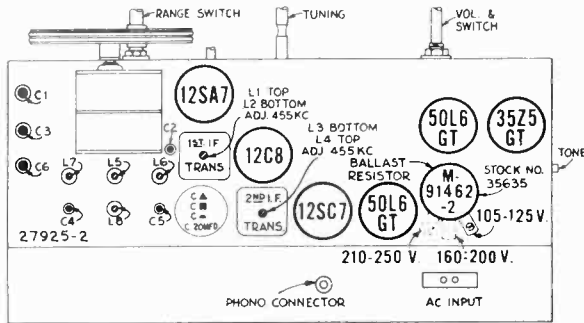
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

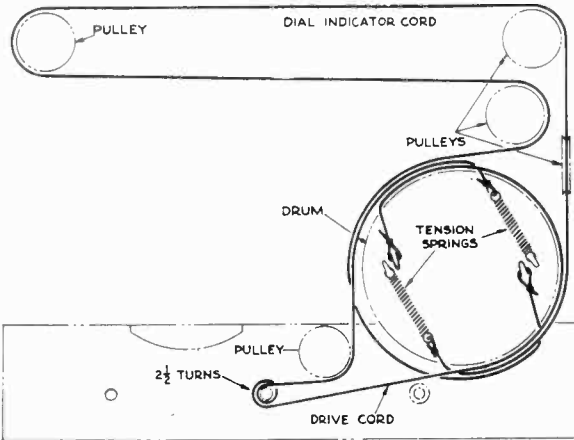
To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

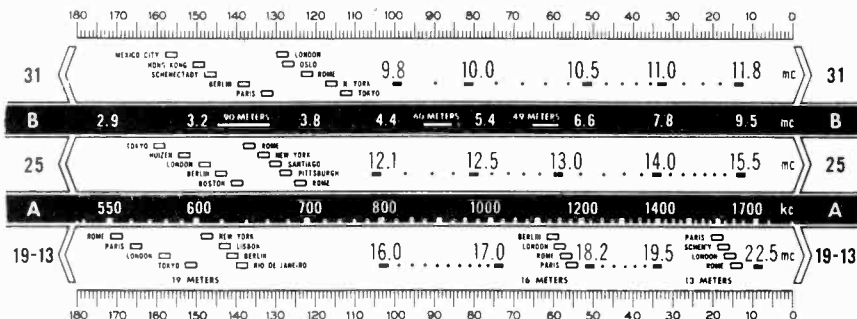
Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.



Tube and Trimmer Location



Dial-Indicator and Drive Mechanism



Calibration Scale

Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

Precautionary Lead Dress.

- All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
- All oscillator coil leads must be kept apart from each other and other leads and parts.
- Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.
- Filament lead of 50L6GT should be dressed against chassis and away from 12SC7 socket.

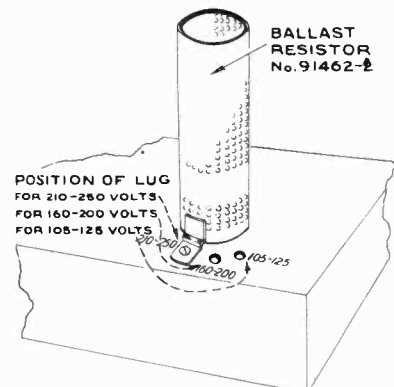
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	12C8 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L3 and L4 2nd I-F Trans.
2	12SA7 1st Det. grid in series with .01 mfd.				L1 and L2 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)
4		15.2 mc		17°	C2 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13M	156°	L6 (osc.)**
7	Ant. lead in series with 200 mmf.	9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)
8		9.5 mc	B	11.5°	C4 (osc.)***
9		1,500 kc	A	26°	C5 (osc.) C8 (ant.)
10	600 kc	150°		L8 (osc.) (Rock gang)	
11	Repeat steps 9 and 10				

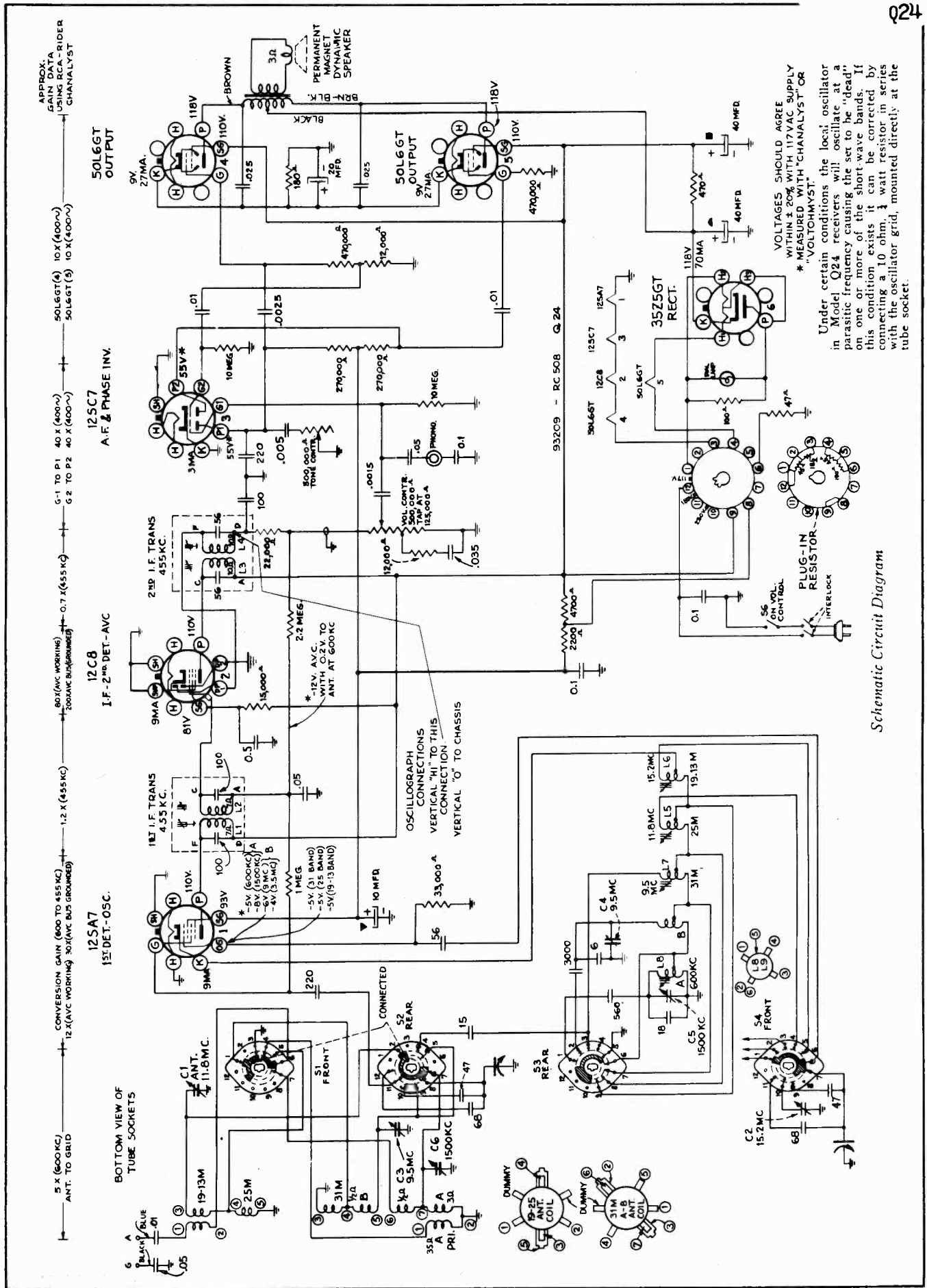
* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.

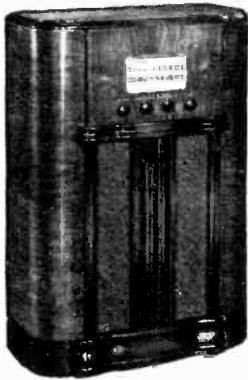




Schematic Circuit Diagram

MODELS 25BK and 25BT-3 Chassis No. (RC-1004B) and CV-42 Electrifier

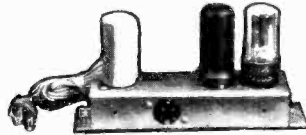
Specifications



25BK



25BT-3



CV-42

IMPORTANT

Remove any external ground connections when using the Electrifier.

CAUTION: Turn power switch off (counter-clockwise) when installing or replacing tubes or batteries.

DO NOT TURN THE "BATTERY-ELECTRIC" SWITCH TO ELECTRIC POSITION WHILE THE RECEIVER IS CONNECTED TO BATTERIES.

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540—1720 kc
Short Wave ("C" Band)..... 6.0—18.0 mc

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

(1) RCA 1N5-GT..... R-F Amplifier
(2) RCA 1A7-GT..... Detector-Oscillator
(3) RCA 1N5-GT..... I-F Amplifier
(4) RCA 1H5-GT..... 2nd Detector, A-F and A.V.C.
(5) RCA 3Q5-GT..... Power Output

POWER SUPPLY

1 "A" - "B" 1½-90 volt pack.

These models can be operated on 105-125 AC, 50-60 cycles or 105-125 volts DC, by means of an RCA CV-42 Electrifier.

MAX. POWER OUTPUT..... .3 watt

BATTERY DRAIN

"A"..... 3 amperes
"B"..... 10 m.a. (Switch at "Battery Saver" position)
14 m.a. ("Maximum output" position)

LOUDSPEAKERS (PM)

	25BK	25BT3
Identification number	92355-1	RL-93-1
Diameter	9¼ inch elliptical	5 inches

POWER CONSUMPTION (CV-42)..... 22.5 watts

Alignment Procedure

Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid A.V.C. action.

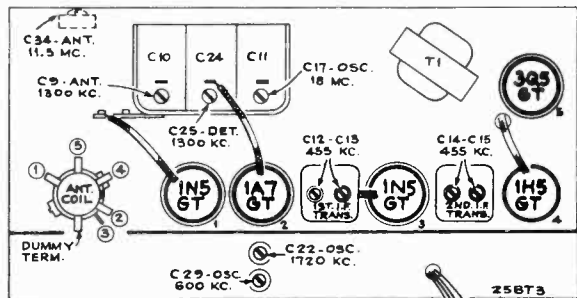
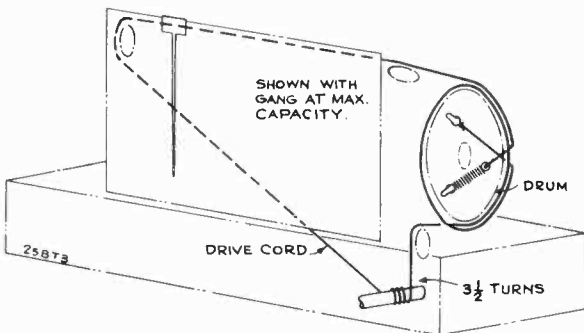
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the A.V.C. bus.

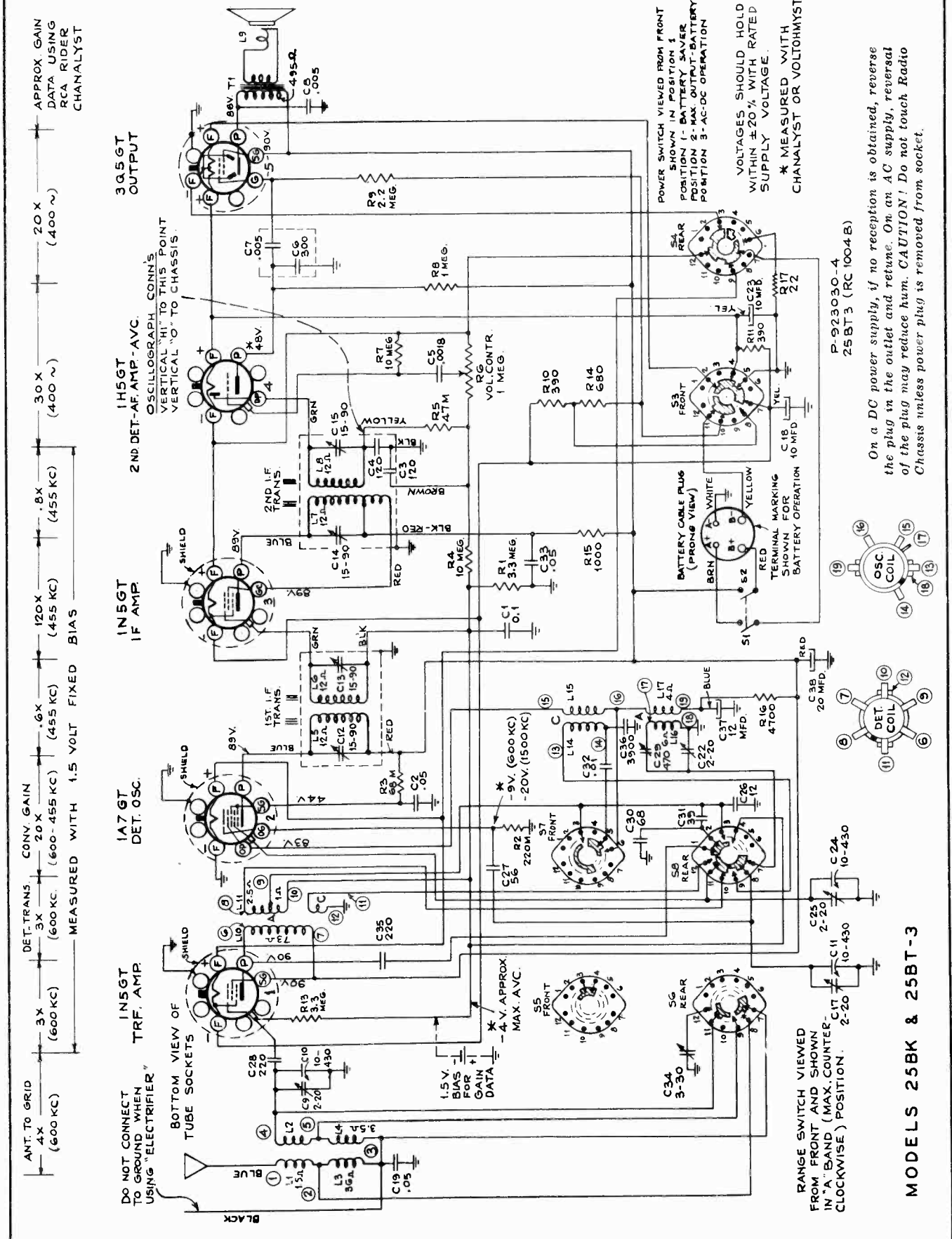
Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be set at the left-hand end dial calibration mark.

Precautionary Lead Dress:—

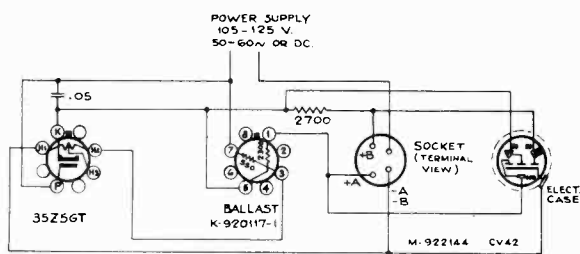
1. All filament wires should be dressed close to chassis.
2. Keep AVC lead connecting .1 Mfd. Filter to Ant. Coil away from 1A7GT plate.
3. Keep grid lead coming from first IF transformer short.
4. Keep Blue leads coming from IF transformer short and close to chassis.
5. Keep grid leads of 1N5GT and 1A7GT tubes away from each other.

Step	Connect high side of test osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid, in series with .01 mfd.	455 kc	"A" Band, Quiet point between 550 and 750 kc	C14 and C15 (2nd I-F trans.)
2	1st Det. grid in series with .01 mfd.			C12 and C13 (1st I-F trans.)
3		18 mc	18 mc	C17 (Osc.)
4	Antenna terminal in series with 220 mfd.	1720 kc	Tuning condenser rotor plates all out	G22 (Osc.)
5		600 kc	600 kc	C29 (Rock)
6		1300 kc	1300 kc signal	C9 (Ant.) C25 (Det.)
7	Repeat steps 4, 5, and 6			
8	Antenna terminal in series with 300 ohms	11.5 mc	11.5 mc signal	C34 (Ant.)

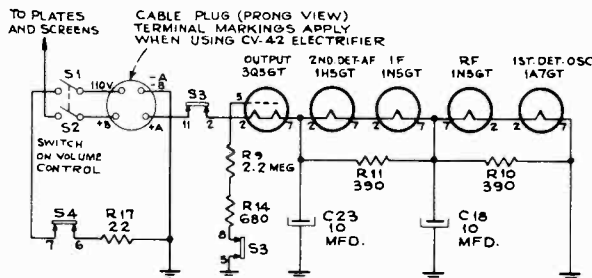




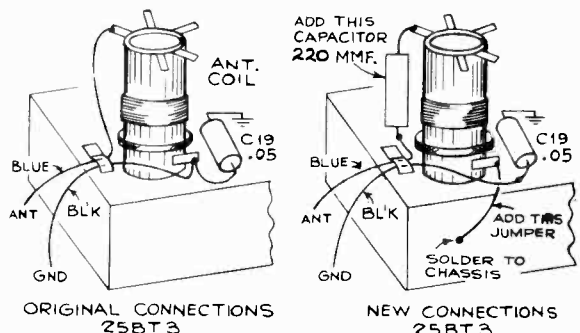
On a DC power supply, if no reception is obtained, reverse the plug in the outlet and return. On an AC supply, reversal of the plug may reduce hum. CAUTION! Do not touch Radio Chassis unless power plug is removed from socket.



Circuit of CV-42 Electrifier



Simplified Diagram of Filament Circuit when using CV-42



Hum Modulation on Model 25BT3 When Using CV-42 "Electrifier."

The following changes should be made in cases where hum modulation is experienced when operating Model 25BT3 from a CV-42 electrifier power unit. It is *not* necessary to remove the chassis from the cabinet to make these changes.

- (1) Connect a 220 mmfd. molded mica capacitor in series with the blue antenna lead as shown.
- (2) Disconnect the black ground lead and C19 from the bottom lug on the antenna coil. Connect a jumper from this lug to chassis. Connect the black ground lead to C19 and tape the joint.

The original and revised connections are shown at left.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-1004B)			
38675	Arm—"On-Off" indicator and arm assembly	31251	Socket—Tube socket
36083	Can—Shield can for I.F. transformers	31418	Spring—Drive cord spring
30314	Cap—Grid cap	38349	Spring—Indicator arm return spring
38706	Capacitor—Electrolytic, comprising 1 section of 20 mfd., 90 volts, 1 section of 12 mfd., 90 volts, and 2 sections of 10 mfd., 10 volts	35098	Spring—To hold I.F. transformers in shield cans
38671	Capacitor—Adjustable capacitor comprising 1 section of 450-600 mmfd., and 1 section of 5-20 mmfd.	38670	Switch—Power switch
36192	Capacitor—Mica trimmer—3-30 mmfd.	36188	Switch—Range switch
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.	36082	Transformer—First I.F. transformer—less shield can, spring and grid cap
13002	Capacitor—12 mmfd.	38343	Transformer—Second I.F. transformer—less shield can and spring
13545	Capacitor—39 mmfd.	36194	Transformer—Output transformer
12723	Capacitor—56 mmfd.	SPEAKER ASSEMBLIES FOR MODEL 25BT3 (RL-93-1)	
13057	Capacitor—68 mmfd.	32907	Cap—Dust cap
12694	Capacitor—220 mmfd.	36426	Cone—Cone complete with voice coil
36247	Capacitor—3900 mmfd.	SPEAKER ASSEMBLIES FOR MODEL 25BK (92378-1)	
34506	Capacitor—.0018 mfd.	39066	Cone—Cone complete with voice coil
33584	Capacitor—.005 mfd.	MISCELLANEOUS ASSEMBLIES	
4858	Capacitor—.01 mfd.	38824	Decalcomania—Control panel decal
32787	Capacitor—.05 mfd.	38822	Dial—Glass dial scale for 25BK
32786	Capacitor—.01 mfd.	38838	Escutcheon—Dial scale escutcheon—less dial
38819	Coil—Antenna coil	36886	Knob—Range switch or power switch knob
38820	Coil—Oscillator coil	36722	Knob—Volume control or tuning knob
36191	Coil—R.F. coil	30900	Spring—Retaining spring for knobs
36186	Condenser—Variable tuning condenser	CV-42 ELECTRIFIER (No. 38700)	
36080	Control—Volume control	38702	Ballast—Plug-in ballast tube resistor
32634	Cord—Drive cord (approx 42-in. overall length)	38701	Capacitor—Electrolytic, comprising 1 section of 50 mfd., 150 volts, 1 section of 30 mfd., 150 volts, and 1 section of 100 mfd., 10 volts
38822	Dial—Dial scale for 25BT3	30847	Capacitor—.05 mfd., 400 volts
38678	Drum—Drive drum for tuning condenser	28451	Cover—Insulating cover for electrolytic capacitor
36193	Indicator—Station selector indicator	35069	Fastener—Push fastener for bottom cover
38350	Lever—Indicator arm actuating lever	28452	Plate—Bakelite mounting plate for electrolytic capacitor
38676	Plate—Dial back plate complete with pulleys and "Off-On" indicator arm	38702	Resistor—Ballast tube resistor
30550	Plug—4-prong male plug for battery cable	30730	Resistor—2,700 ohms, 1/2 watt
38674	Pulley—Drive cord pulley	31027	Socket—Power output socket
13999	Resistor—22 ohms, 1 watt	31251	Socket—Tube or ballast resistor socket
30498	Resistor—390 ohms, 1/2 watt	38702	Tube—Ballast tube resistor
12262	Resistor—680 ohms, 1/2 watt		
14720	Resistor—1,000 ohms, 1/2 watt		
30146	Resistor—4,700 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
13715	Resistor—68,000 ohms, 1/2 watt		
14583	Resistor—220,000 ohms, 1/2 watt		
13730	Resistor—1 meg., 1/2 watt		
30649	Resistor—2.2 meg., 1/2 watt		
12928	Resistor—3.3 meg., 1/2 watt		
30992	Resistor—10 meg., 1/2 watt		
3903	Screw—No. 8-32 cup point set screw		
36195	Shaft—Tuning knob shaft		

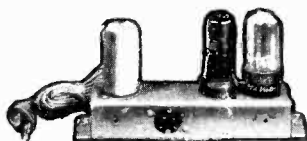
MODEL 25BT-2 & RADIOLA B-52

CHASSIS No. RC-1004A RC-1004D
AND CV-42 ELECTRIFIER

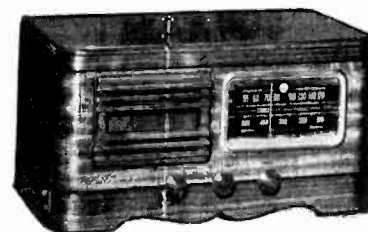
Five-Tube, Single-Band, Battery-Operated Superheterodyne Receivers



Model 25BT-2



CV-42 Electrifier



MODEL B-52

Specifications

FREQUENCY RANGE 540-1,720 kc
INTERMEDIATE FREQUENCY 455 kc

RCA TUBE COMPLEMENT

- (1) RCA 1N5-GT R-F Amplifier
- (2) RCA 1A7-GT 1st Detector-Oscillator
- (3) RCA 1N5-GT I-F Amplifier
- (4) RCA 1H5-GT 2nd Detector, A-F, and A.V.C.
- (5) RCA 3Q5-GT Power Output

POWER SUPPLY

1 "A" - "B" 1½-90 volt pack.

Model 25BT2 can be operated on 105-125 volts AC, 50-60 cycles, or 105-125 volts DC. by means of a RCA CV-42 Electrifier.

BATTERY DRAIN

MAXIMUM POWER OUTPUT3 watt
"A"3 amperes
"B" 10 m.a. (Switch at "Battery Saver" position)
"C" 14 m.a. (Switch at "Maximum Output" position)

POWER CONSUMPTION

With CV-42 Electrifier Unit 22.5 watts

LOUDSPEAKER (5-inch PM) RL-85-6 92322-1
Voice coil impedance at 400 cycles 3 ohms 3 ohms
Cabinet Dimensions 18 inches x 10½ x 9½ high

Replacement Parts

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-1004A)		SPEAKER ASSEMBLIES (RL-85-6)	
38675	Arm—"On-Off" indicator and arm assembly	32907	Cap—Dust cap
36083	Can—Shield can for I.F. transformers	38397	Cone—Cone complete with voice coil
30314	Cap—Grip cap	33779	Transformer—Output transformer
36718	Capacitor—Electrolytic—10 mfd., 10 volts	MISCELLANEOUS ASSEMBLIES	
38705	Capacitor—Electrolytic—25 mfd., 90 volts	36462	Clamp—Dial glass clamp (2 required)
38672	Capacitor—Adjustable capacitor comprising 1 section of 120 mmfd., and 1 section of 45-80 mmfd.	38823	Decalcomania—Control panel decal
37359	Capacitor—Comprising a section of .005 mfd., and 1 section of .0003 mfd.	88822	Dial—Glass dial scale
34506	Capacitor—.0018 mfd.	35915	Escutcheon—Dial scale escutcheon—less dial and window glass
33584	Capacitor—.005 mfd.	38679	Glass—Dial glass—plain
32786	Capacitor—.01 mfd.	36886	Knob—Range switch or power switch knob
38344	Coil—Antenna coil	36722	Knob—Volume control or tuning knob
38345	Coil—Oscillator coil	30900	Spring—Retaining spring for knobs
38677	Coil—Wave trap coil	CV-42 ELECTRIFIER (No. 38700)	
38699	Condenser—Variable tuning condenser	38702	Ballast—Plug-in ballast tube resistor
36080	Control—Volume control	38701	Capacitor—Electrolytic, comprising 1 section of 50 mfd., 150 volts, 1 section of 30 mfd., 150 volts, and 1 section of 100 mfd., 10 volts
32634	Cord—Drive cord (approx. 36-in. overall length)	30847	Capacitor—.05 mfd., 400 volts
38821	Dial—Dial scale	28451	Cover—Insulating cover for electrolytic capacitor
38678	Drum—Drive drum for tuning condenser	35069	Fastener—Push fastener for bottom cover
36090	Indicator—Station selector indicator	28452	Plate—Bakelite mounting plate for electrolytic capacitor
38350	Lever—Indicator arm actuating lever	38702	Resistor—Ballast tube resistor
38673	Plate—Dial back plate complete with pulleys and "Off-On" indicator	30730	Resistor—2,700 ohms, ¼ watt
30550	Plug—4-prong male plug for battery cable	31027	Socket—Power output socket
38674	Pulley—Drive cord pulley	31251	Socket—Tube or ballast resistor socket
13999	Resistor—22 ohms, 1 watt	38702	Tube—Ballast tube resistor
30498	Resistor—390 ohms, ¼ watt	MODEL B-52 (RC 1004-D)	
12262	Resistor—680 ohms, ¼ watt	Same as 1004-A	
13714	Resistor—5,600 ohms, ¼ watt	Except	
12412	Resistor—47,000 ohms, ¼ watt	38900	Plate - Dial plate complete with pulley and indicator - less dial.
13715	Resistor—68,000 ohms, ¼ watt	14138	Resistor - 68,000 ohms, 1/4 watt
14583	Resistor—220,000 ohms, ¼ watt	38901	Dial - Glass dial scale.
13730	Resistor—1 meg., ¼ watt	SPEAKER ASSEMBLIES (92322-1)	
30649	Resistor—2.2 meg., ¼ watt	38594	Cone—Cone complete with voice coil
12928	Resistor—3.3 meg., ¼ watt	38595	Transformer—Output transformer
30992	Resistor—10 meg., ¼ watt		
3903	Screw—No. 8-32 cup point set screw		
36897	Shaft—Tuning knob shaft		
31251	Socket—Tube socket		
31418	Spring—Drive cord spring		
38349	Spring—Indicator arm return spring		
35098	Spring—To hold I.F. transformers in shield cans		
38870	Switch—Power switch		
36082	Transformer—First I.F. transformer—less shield can, spring and grid cap.		
38343	Transformer—Second I.F. transformer—less shield can and spring		
33726	Washer—"C" washer for tuning shaft		

Alignment Procedure

Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in the diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid AVC action.

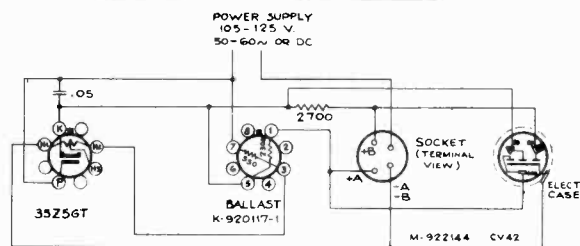
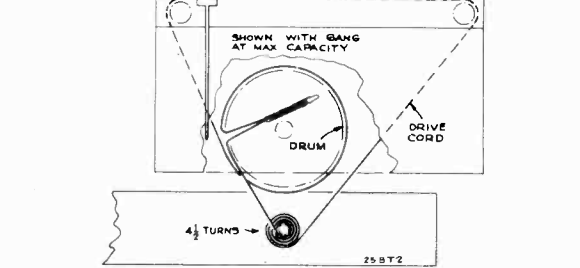
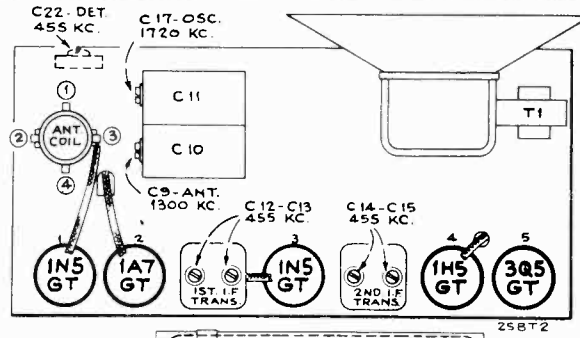
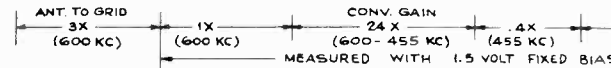
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be set at the left-hand end dial calibration mark.

Step	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid in series with .01 mfd.	455 kc	Quiet point between 550 and 750 kc	C14, C15 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			C12, C13 (1st I-F Trans.)
3		1,720 kc	Tuning condenser rotor plates all out	C17 (osc.)
4	Antenna terminal in series with 200 mmfd.	1,300 kc	1,300 kc signal	C9 (ant.)
5		455 kc	Quiet point between 550 and 750 kc	Adjust C22 for minimum output on strong 455 kc signal

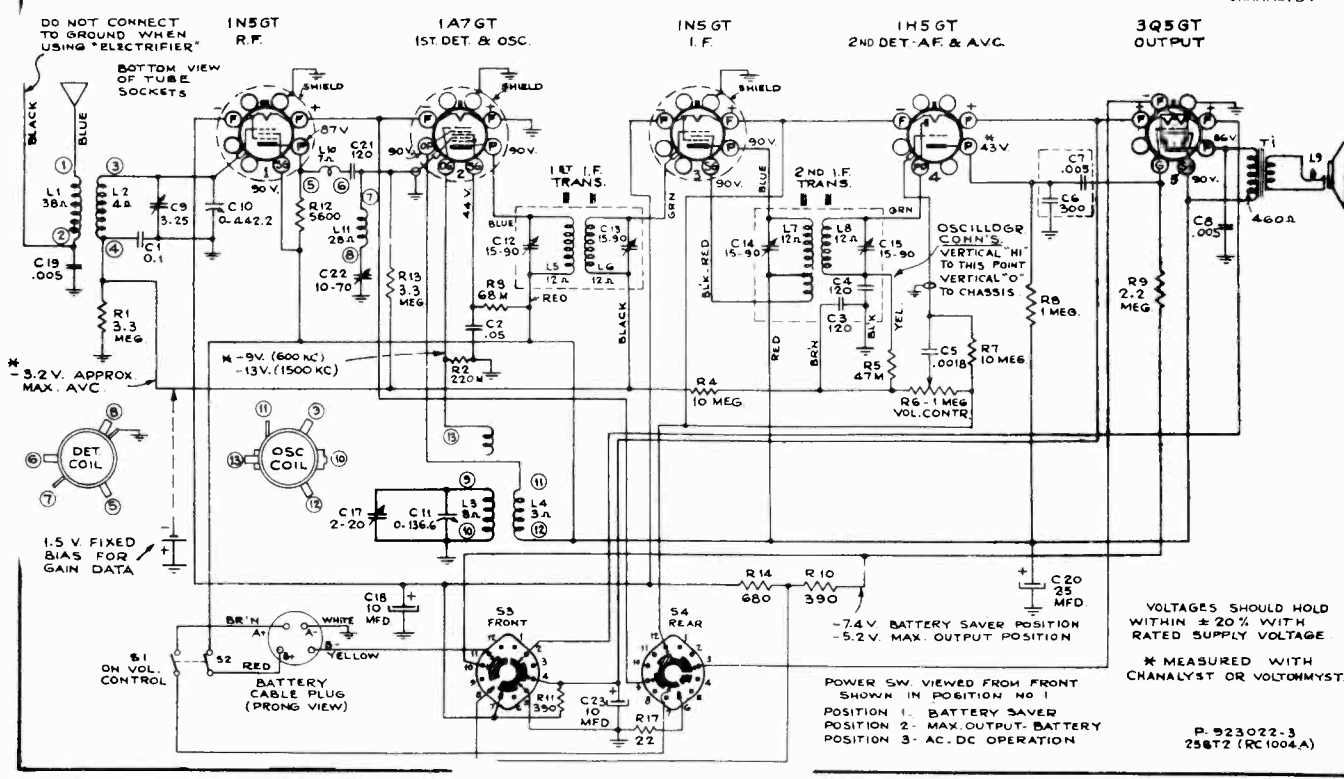
Precautionary Lead Dress.—

1. The lead from the 3Q5 plate to output transformer should be dressed under clip and away from audio input leads.
2. All filament wires should be dressed close to chassis.
3. Keep AVC lead connecting C1 to antenna coil away from the 1A7GT plate.
4. Keep blue plate leads coming from I.F. transformers short and close to chassis.
5. Keep yellow leads connecting to oscillator coil away from trap coil.
6. Keep grid lead of 1N5GT RF tube away from 1A7GT grid.



Remove any external ground connections when using the Electrifier.
CAUTION: Turn power switch off (counter-clockwise) when installing or replacing tubes or batteries.

DO NOT TURN THE "BATTERY-ELECTRIC" SWITCH TO ELECTRIC POSITION WHILE THE RECEIVER IS CONNECTED TO BATTERIES.



DO NOT CONNECT TO GROUND WHEN USING "ELECTRIFIER"

BOTTOM VIEW OF TUBE SOCKETS

3.2V. APPROX. MAX. AVC

1.5 V FIXED BIAS FOR GAIN DATA

BATTERY CABLE PLUG (PRONG VIEW)

OSCILLOGR CONN'S VERTICAL "HI" TO THIS POINT VERTICAL "O" TO CHASSIS

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH RATED SUPPLY VOLTAGE

* MEASURED WITH CHANALYST OR VOLTOHMYST.

POWER SW. VIEWED FROM FRONT SHOWN IN POSITION NO 1

POSITION 1- BATTERY SAVER POSITION 2- MAX. OUTPUT- BATTERY POSITION 3- AC. DC OPERATION

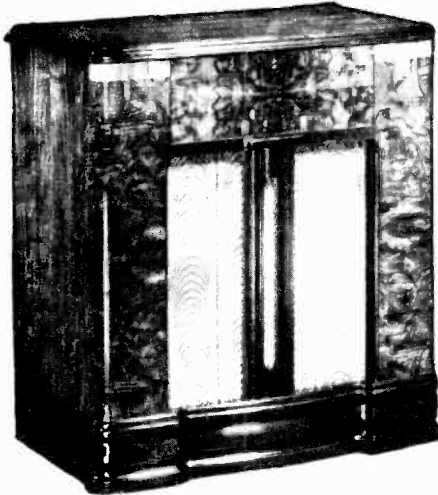
P- 923022-3 258T2 (RC1004A)

MODELS U-25 U-26 98T and 98K2

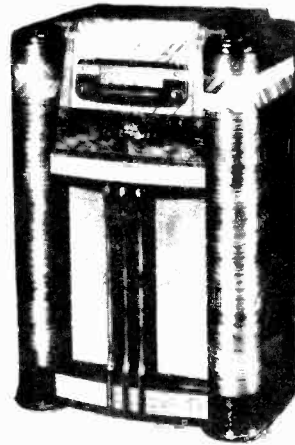
Chassis No. RC-386B

RC-386A

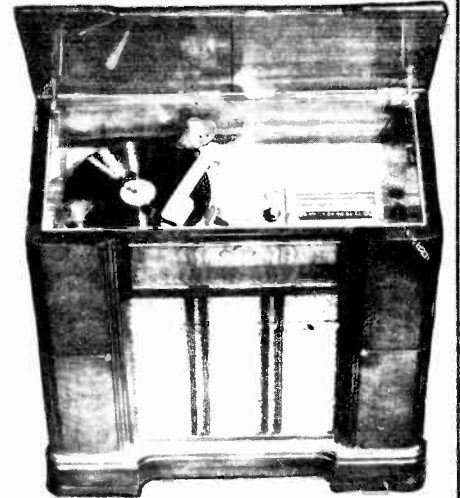
Eight-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Receivers



Model U-25



Model 98K2



Model U-26

Electrical and Mechanical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"Medium Wave" (B).....	2.3-7 mc
"Short Wave" (C).....	7-22 mc
Six Electric Tuning Positions.....	550-1,500 kc
2 stations between approximately 550- 950 kc (Buttons 1 and 2)	
2 stations between approximately 690-1,225 kc (Buttons 3 and 4)	
2 stations between approximately 890-1,500 kc (Buttons 5 and 6)	
Intermediate Frequency.....	455 kc

POWER SUPPLY RATINGS

A.....	105-125 volts, 50-60 cycles, 115 watts
B.....	105-125 volts, 25-60 cycles, 115 watts
C.....	100-130/140-160/200-250 volts, 40-60 cycles, 115 watts

POWER OUTPUT

Undistorted.....	5 watts
Maximum.....	5.5 watts

LOUDSPEAKER

Type.....	Electrodynamic
Diameter.....	98T, 6 inches; 98K2, 12 inches
Voice Coil Impedance.....	2.2 ohms at 400 cycles

RCA TUBE COMPLEMENT

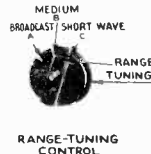
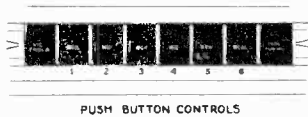
- (1) RCA-6A8-G..... First Detector—Oscillator
 - (2) RCA-6K7..... Intermediate-Frequency Amplifier
 - (3) RCA-6Q7-G..... Second Detector, 1st A-F, and A.V.C.
 - (4) RCA-6J5..... Phase Inverter
 - (5) RCA-6K6-G..... Power Output
 - (6) RCA-6K6-G..... Power Output
 - (7) RCA-6U5..... "Magic Eye" Tuning Indicator
 - (8) RCA-5Y3-G..... Rectifier
- Pilot Lamps (2)..... Mazda 44, 6.3 volts, 0.25 amp.

PHONOGRAPH U-25, U-26

- Type..... RP-132..... Automatic
- Record Capacity..... Eight 10-inch or seven 12-inch
- Turntable Speed..... 78 r.p.m. adjustable

PICKUP

- Type..... Crystal
- Impedance..... 100,000 ohms at 1,000 cycles
- Average Output..... 1.5 volts at 1,000 cycles across 500,000 ohm load



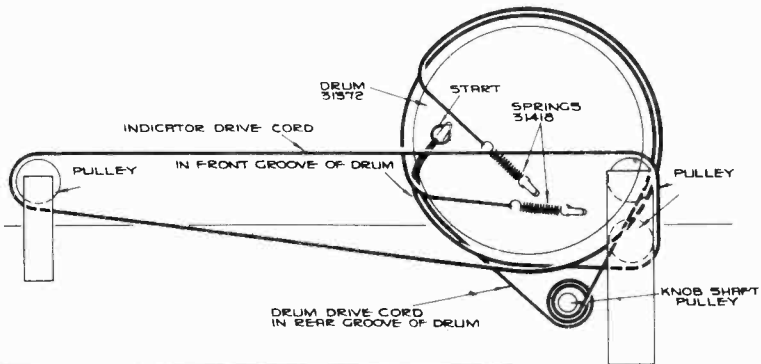
Location of Controls

The left-hand push button is a Victrola-Attachment switch.
The right-hand push button is for dial tuning.

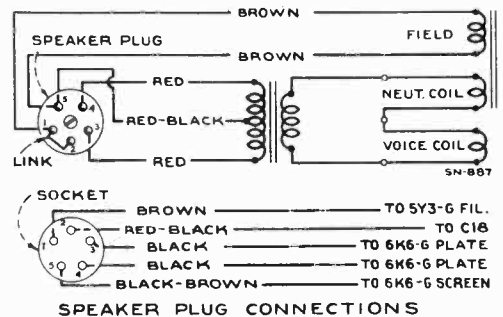
REFER TO INDEX FOR DATA ON AUTOMATIC RECORD CHANGER



Model 98T



DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

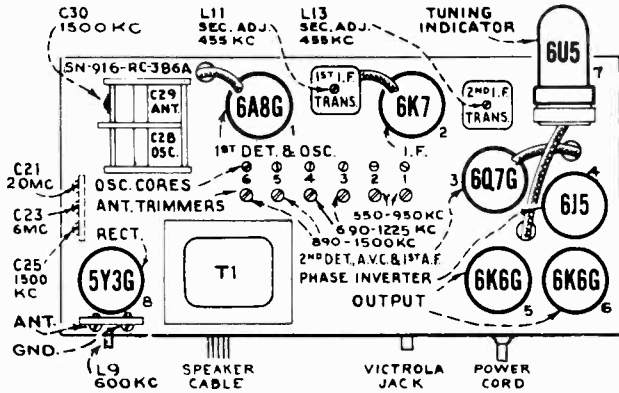
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 1/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.



Tube and Trimmer Locations

Adjustments for Electric Tuning

These models have eight push buttons. The left-hand button is a Victrola switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

- Make a list of the desired six stations, arranged in order from low to high frequencies.
- Push in the dial-tuning button, and manually tune in the first station on the list.
- Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
- Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

- Adjust for each of the remaining five stations in the same manner.
- Make a final careful adjustment of the oscillator cores and antenna trimmers.

Precautionary Lead Dress.—

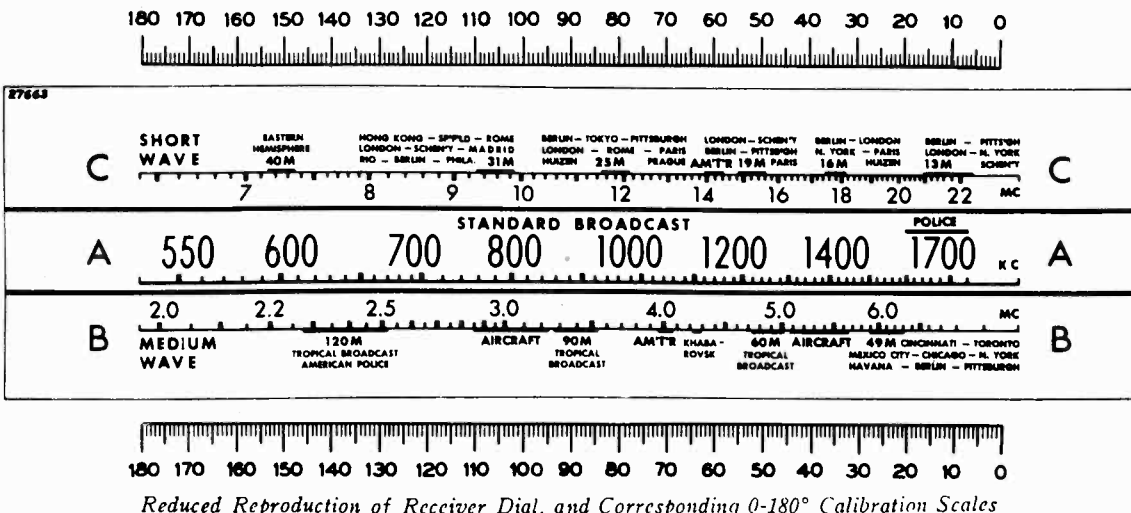
- Dress red leads from power transformer to power switch (S3), in corner of chassis and away from volume control terminals.
- Dress brown lead from push-button switch to gang over end of switch, and away from C27 and bus between S5 and range switch.
- Leads to C27 must be as short as possible.
- Blue lead from range switch to oscillator coil must be as short as possible and dressed away from other leads. All leads should be dressed away from antenna coil.
- Leads across back of chassis must be dressed under electrolytic away from Victrola jack.
- Parts and leads should be dressed away from R22-R14 as it becomes heated.
- Leads from oscillator coil to trimmers must be dressed away from coil.
- Green lead from S4 to range switch must be clear of other leads and away from front edge of chassis.

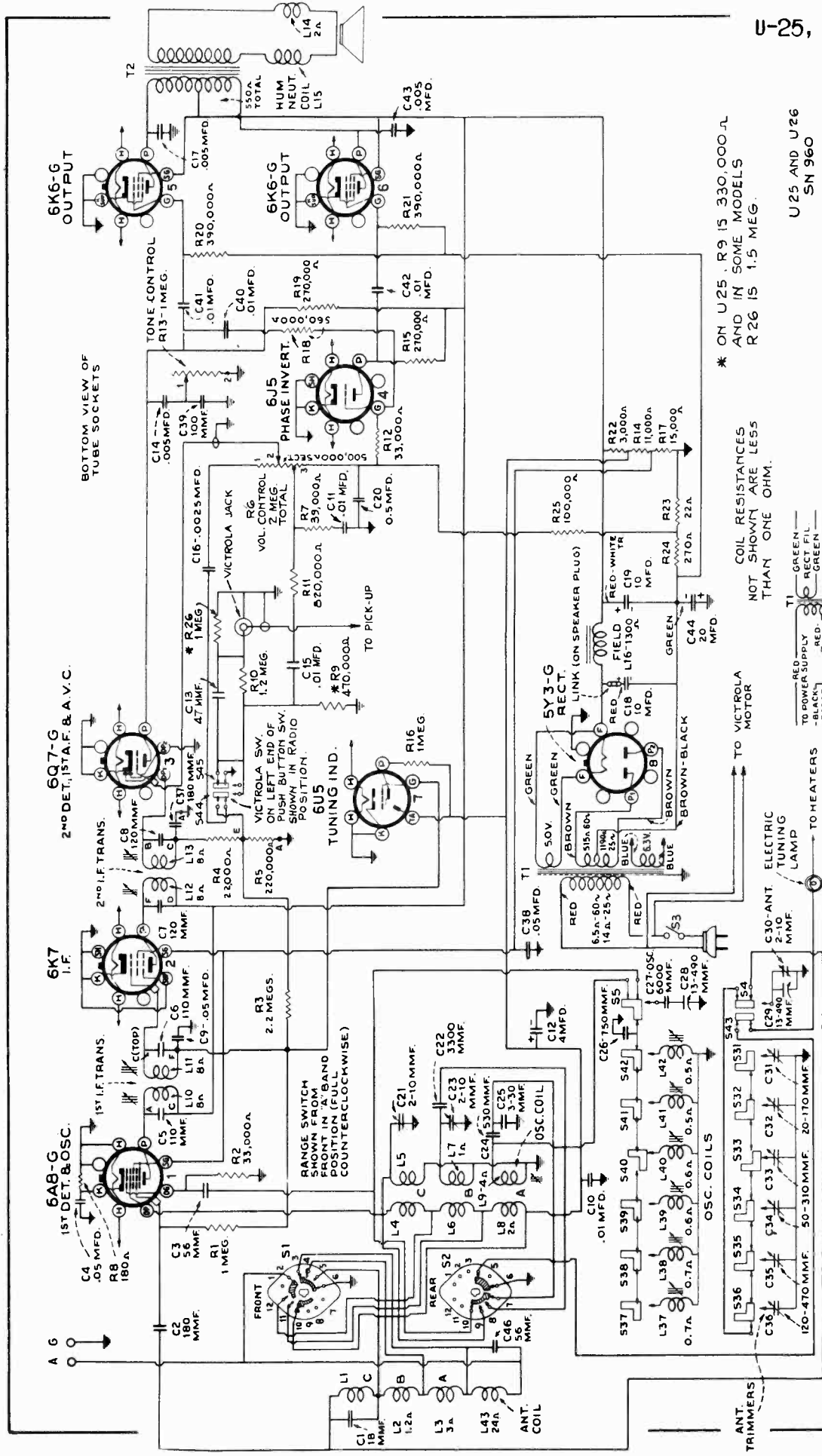
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio-dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Transformer)
2	6A8G det. grid cap, in series with .01 mfd.	455 kc	550-750 kc	L10 and L11 (1st I-F Transformer)
3	Antenna Terminal, in series with 200 mmf.	600 kc	600 kc (150.5°) "A" band	L9
4		1,500 kc	1,500 kc (28°) "A" band	C25 (osc.) C30 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna Terminal, in series with 400 ohms.	6 mc	6 mc (26.5°) "B" band	C23 (osc.)*
7		20 mc	20 mc (22°) "C" band	C21 (osc.)*
8	Follow "Adjustments for Electric Tuning."			

*Use minimum capacity peak if two peaks can be obtained, and rock gang condenser slightly while adjusting C23 and C21. Note.—Oscillator tracks 455 kc above signal on all bands.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, move the dial indicator on the drive cable to the left-hand end mark on dial, with gang condenser fully meshed.

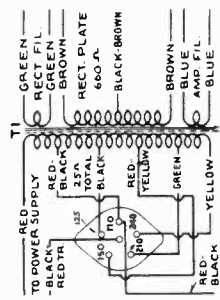
For additional details, refer to booklet "RCA Victor Receiver Alignment."





* ON U25, R9 IS 330,000 Ω
AND IN SOME MODELS
R26 IS 1.5 MEG.

COIL RESISTANCES
NOT SHOWN ARE LESS
THAN ONE OHM.

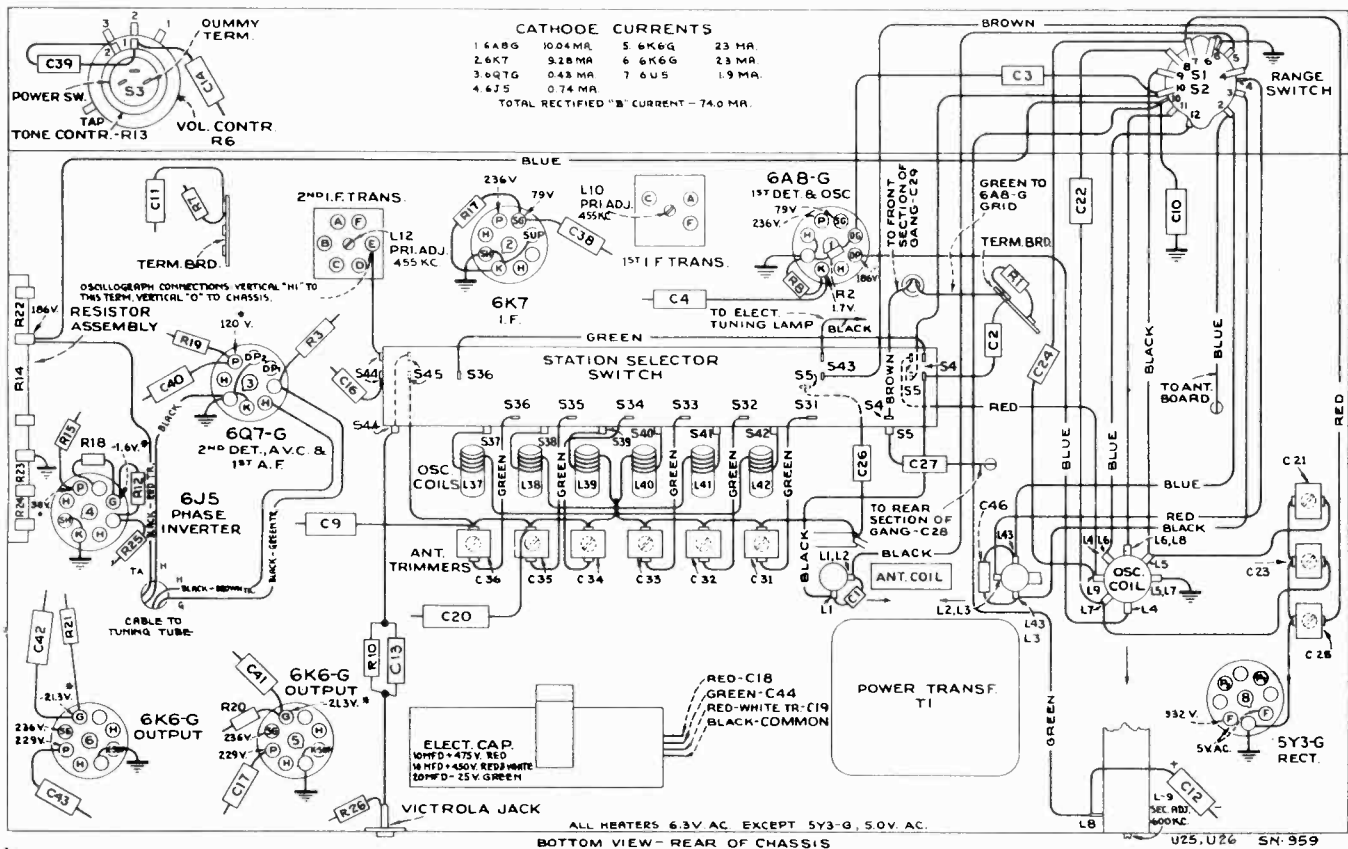


TONE COMPENSATION CIRCUIT

C13, C15, R9, R10, R11, R26 omitted in Models 98K2 and 98T

U25 AND U26
SN 960

NOTE: INSERT CONNECTOR
BETWEEN COMMON CONTACT
OF VICTROLA JACK AND
POWER SUPPLY RATING
UNIVERSAL TRANS. CONNECTIONS



R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within $\pm 20\%$ with 117-volt a-c supply.

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Replacement Parts MODELS 98K2 & 98T

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-388-A)		SPEAKER ASSEMBLIES (RL-70H-5) MODEL 98K2
	MODELS 98K2 AND 98T	13886	Cap—Dust cap for cone center.....
	Same as Models U-25 and U-28	12012	Coil—Field coil (L16).....
	EXCEPT	11469	Coil—Neutralizing coil (L15).....
30786	Cap - Rubber cap for Magic Eye	31275	Cone—Speaker cone and voice coil (114).....
30406	Capacitor - 100 mmfd (C39)	31539	Plug—5-contact male plug for speaker.....
32888	Control - Volume control, tone control and power switch (R6, R13, S3)	32146	Speaker complete.....
32870	Plate - Dial color plate.	14534	Transformer—Output transformer (T2).....
32871	Shaft - Tuning drive shaft and pulley.	14357	Washer—Spring washer to hold field coil securely.....
31199	Shield - Dial lamp shield.		SPEAKER ASSEMBLIES (84308-3) MODEL 98T
31365	Socket - Insulated socket for electric tuning indicator lamp.	32689	Coil—Speaker field coil (L16).....
32889	Switch - Range switch (S1, S2)	32688	Cone—Cone and voice coil mounted and centered on housing (L14).....
C13, C15, R9, R10, R11, R28	not used in Models 98K2 and 98T.	31539	Plug—5-contact plug or speaker.....
		32687	Speaker—Speaker complete.....
		32690	Transformer—Output transformer (T2).....
			MISCELLANEOUS ASSEMBLIES
		31397	Button—Station selector push button.....
		31456	Covers—8 Protective covers for push button markers.....
		32673	Dial—Station selector glass dial.....
		32674	Escutcheon—Station selector escutcheon—less push buttons.....
		31355	Knob—Range switch knob.....
		31391	Knob—Tone control knob.....
		14359	Knob—Tuning knob.....
		30773	Knob—Volume control knob.....
		31458	Marker—"Dial Tuning" push button marker.....
		31457	Marker—"Record Player" push button marker.....
		31589	Marker—Station markers.....
		30330	Spring for tone control knob.....
		4982	Spring for tuning knob.....
		14270	Spring for volume control or range switch knob.....

REPLACEMENT PARTS MODELS U25 & U26

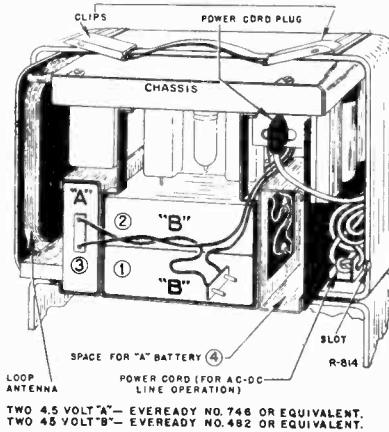
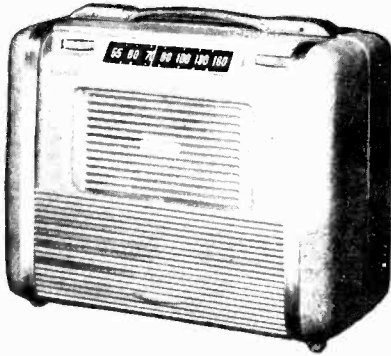
Insist on genuine factory-tested parts, which are readily indentified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-386-B)			
14517	Board—Antenna ground terminal board.....	31251	Socket—Tube socket.....
30752	Bracket—Magic Eye mounting bracket.....	31418	Spring—Indicator or drum drive cord tension spring.....
31400	Capacitor—Triple adjustable trimmer, two sections 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25).....	32451	Switch—Range switch (S1, S2).....
32486	Capacitor—Antenna coil trimmer capacitor bank 20-470 mmfd. (C31, C32, C33, C34, C35, C36).....	32498	Switch—Station selector push-button switch and Radio-Record switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45).....
12722	Capacitor—18 mmfd. (C1).....	14376	Transformer—First i-f transformer (L10, L11, C5, C6).....
13141	Capacitor—47 mmfd. (C13).....	14283	Transformer—Second i-f transformer (L12, L13, C7, C8, C37, R4, R5).....
12723	Capacitor—56 mmfd. (C3, C46).....	31445	Transformer—Power transformer 105-125 volts, 25-60 cycles (T1).....
12720	Capacitor—100 mmfd. (C39).....	31446	Transformer—Power transformer 100-130/140-160/200-250 volts, 50-60 cycles (T1).....
14262	Capacitor—109 mmfd. (C5, C8).....	32144	Transformer—Power transformer 105-125 volts, 50-60 cycles (T1).....
12404	Capacitor—120 mmfd. (C7, C8).....		
13003	Capacitor—180 mmfd. (C37).....	SPEAKER ASSEMBLIES (RL-70H-5)	
14712	Capacitor—180 mmfd. (C2).....	13866	Cap—Dust cap for cone center.....
32492	Capacitor—530 mmfd. (C24).....	12012	Coil—Field coil (L16).....
31435	Capacitor—750 mmfd. (C26).....	11469	Coil—Neutralizing coil (L15).....
4881	Capacitor—3,300 mmfd. (C22).....	31275	Cone—Speaker cone and voice coil (L14).....
31405	Capacitor—6,000 mmfd. (C27).....	31539	Plug—5-contact male plug for speaker.....
5107	Capacitor—0025 mfd. (C16).....	32146	Speaker complete.....
4838	Capacitor—005 mfd. (C14, C17, C43).....	14534	Transformer—Output transformer (T2).....
4858	Capacitor—.01 mfd. (C10, C40, C41, C42).....	14357	Washer—Spring washer to hold field coil securely.....
14393	Capacitor—.01 mfd. (C11, C15).....		
30882	Capacitor—.05 mfd. (C4, C9, C38).....	MISCELLANEOUS ASSEMBLIES	
30867	Capacitor—0.5 mfd. (C20).....	12038	Band—Rubber band for Magic Eye.....
32145	Capacitor—4 mfd. (C12).....	31397	Button—Station selector push-button.....
32142	Capacitor—Comprising two 10 mfd., one 20 mfd. sections (C18, C19, C44).....	13103	Cap—Pilot light jewel.....
31382	Clip—Oscillator coil and core mounting clip.....	31456	Cover—8 protective covers for push-button markers.....
32493	Coil—Antenna coil—A, B, and C bands (L1, L2, L3, L43).....	31541	Cushion—Motor plate mounting cushions and clamps sufficient for one instrument.....
31951	Coil—Oscillator coil—A, B, and C bands (L4, L5, L7, L9).....	32495	Dial—Glass dial scale (Model U25 only).....
31383	Coil—Oscillator coil—A band (L41, L42).....	32494	Dial—Glass dial scale (Model U26 only).....
32487	Coil—Oscillator coil—A band (L39, L40).....	31407	Escutcheon—Magic Eye or Electric Tuning indicator escutcheon.....
31385	Coil—Oscillator coil—A band (L37, L38).....	31395	Escutcheon—Tuning dial escutcheon only, less push-buttons and dial scale.....
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30).....	30698	Hinge—Lid hinge complete with screws.....
31366	Control—VOLUME control, tone control, and on-off switch (R6, R13, S3).....	4585	Hinge—One upper and one lower door hinge (Model U26 only).....
32635	Cord—Indicator pointer drive cord.....	31564	Holder—Needle card holder.....
32634	Cord—Variable condenser drum drive cord.....	31543	Indicator—Electric tuning indicator disc.....
30905	Core—Adjustable core and stud for i-f transformer.....	31392	Indicator—Indicator pointer, carriage and clip.....
31386	Core—Adjustable core and stud for oscillator coil, Stock Nos. 31383, 32487, and 31385.....	31355	Knob—Range switch knob.....
12800	Core—Adjustable core for oscillator coil, Stock No. 31951.....	14359	Knob—Station selector knob.....
31372	Drum—Variable condenser drive cord drum and calibration dial.....	31391	Knob—Tone control knob.....
11891	Lamp—Phono. compartment lamp.....	30773	Knob—Volume control knob.....
31480	Lamp—Dial and "Electric Tuning" lamp.....	31460	Marker—"Dial Tuning" push-button marker (Model U25 only).....
30868	Plug—2-contact female plug for motor cable.....	31458	Marker—"Dial Tuning" push-button marker (Model U26 only).....
5040	Plug—4-contact female plug for speaker cable.....	31459	Marker—"Victrola" push-button marker (Model U25 only).....
31373	Pulley—Drive cord pulley.....	31457	Marker—"Victrola" push-button marker (Model U26 only).....
32143	Resistor—Voltage divider comprising one 11,000 ohm, one 3,000 ohm, one 22 ohm, and one 270 ohm sections (R14, R22, R23, R24).....	31590	Markers—1 set station call letter markers (Model U25 only).....
30545	Resistor—180 ohms, 1/2 watt (R8).....	31589	Markers—1 set station call letter markers (Model U26 only).....
5114	Resistor—18,000 ohms, 1 watt (R17).....	11210	Screw—Chassis mounting, screws, washers, and lockwashers.....
14284	Resistor—22,000 ohms, 1/10 watt (R4).....	31393	Screen—Dial color screen.....
12454	Resistor—33,000 ohms, 1/2 watt (R2, R12).....	32870	Screen—Phono. compartment lamp screen.....
12266	Resistor—39,000 ohms, 1/2 watt (R7).....	33083	Spring—Actuating spring for lid support (Model U26 only).....
14560	Resistor—100,000 ohms, 1/2 watt (R25).....	30330	Spring—Retaining spring for knob, Stock No. 31391.....
11398	Resistor—220,000 ohms, 1/10 watt (R5).....	14270	Spring—Retaining spring for knob, Stock Nos. 30773 and 31355.....
12199	Resistor—270,000 ohms, 1/2 watt (R15, R19).....	4982	Spring—Retaining spring for knob, Stock No. 14359.....
14983	Resistor—330,000 ohms, 1/2 watt (R9).....	31470	Spring—Motorboard suspension top spring, bottom spring, screw, and lockwasher (4 req'd).....
13479	Resistor—390,000 ohms, 1/2 watt (R20, R21).....	33081	Support—Right-hand lid support (Model U26 only).....
12486	Resistor—560,000 ohms, 1/2 watt (R18).....	33082	Support—Left-hand lid support (Model U26 only).....
30963	Resistor—820,000 ohms, 1/2 watt (R11).....	31478	Support—Lid support (Model U25).....
12013	Resistor—1 meg., 1/10 watt (R16).....		
13730	Resistor—1 meg., 1/2 watt (R1, R26).....		
30208	Resistor—1.2 meg., 1/2 watt (R10).....		
12679	Resistor—2.2 meg., 1/2 watt (R3).....		
14343	Retainer—Retaining spring for station selector knob shaft.....		
14887	Retainer—Drive cord pulley retainer.....		
4669	Screw—No. 8-32 square head set screw for drum, Stock No. 31372.....		
31368	Shaft—Station selector knob shaft and pulley.....		
3682	Shield—Tube shield.....		
30868	Socket—2-contact female socket for motor power cable.....		
12493	Socket—5-contact female socket for speaker cable.....		
13871	Socket—Magic Eye socket.....		
14278	Socket—Pickup input socket.....		

FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON
RP-132

MODEL 26BP PORTABLE

Chassis No. RC-559



Specifications

Frequency Range..... 540-1,600 kc
 Intermediate Frequency..... 455 kc
 110 to 125 volts, AC 50 or 60 cycles, or DC..... 30 watts

BATTERIES REQUIRED

"A" two 4.5 volt dry plug-in type "A," (Eveready No. 746 or equivalent)
 "B" two 45 volt dry plug-in type "B," (Eveready No. 482 or equivalent)

CURRENT CONSUMPTION

Battery Operation..... "A" 0.05 amperes, "B" 15 milliamperes
 Total Rect. "B" (117 volt, 60 cycle)..... 16 mils.
 Total Rect. "A" (117 volt, 60 cycle)..... 42 mils.

POWER OUTPUT

Undistorted..... .19 watt Maximum..... .32 watt

LOUDSPEAKER..... 5-inch permanent-magnet dynamic

CABINET DIMENSIONS

Height..... 9 inches, Width..... 11½ inches, Depth..... 5¼ inches

Replacement Parts

Insist on genuinz factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-559)			
38775	Capacitor—Electrolytic comprising 1 section of 40 mfd., 25 volts, and 1 section of 160 mfd., 25 volts	11668	Resistor—5.6 meg., ¼ watt
38910	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts, 1 section of 20 mfd., 150 volts, and 1 section of 10 mfd., 150 volts	30992	Resistor—10 meg., ¼ watt
39043	Capacitor—6.8 mmfd.—ceramic	38904	Socket—2 contact female socket for A.C. line
39044	Capacitor—15 mmfd.—ceramic	38917	Socket—2 contact female socket for loop cable
12896	Capacitor—15 mmfd.—moulded	38911	Socket—Tube socket—moulded—for miniature base tubes
39041	Capacitor—18 mmfd.—ceramic	31251	Socket—Tube socket—wafer—for standard base tubes
39042	Capacitor—47 mmfd.—ceramic	32481	Spring—Pointer cord spring
12723	Capacitor—56 mmfd.	38922	Spring—Tension spring for adjustable core and stud
12720	Capacitor—100 mmfd.	38905	Switch—Battery change switch
12488	Capacitor—270 mmfd.	38906	Transformer—First I.F. transformer
37705	Capacitor—.0015 mfd.	38907	Transformer—Second I.F. transformer
36854	Capacitor—.0025 mfd.	38908	Transformer—Output transformer
33584	Capacitor—.005 mfd.	70022	POWER CORD
4937	Capacitor—.01 mfd.		SPEAKER ASSEMBLIES (RL-81B2)
32787	Capacitor—.05 mfd.	35570	Cone—Cone complete with voice coil
32786	Capacitor—0.1 mfd., 300 volts		(92181-3)
4839	Capacitor—0.1 mfd., 400 volts	38352	Cone—Cone complete with voice coil
38774	Coil—Choke coil		(92181-4)
70052	Coil—Oscillator coil	39535	Cone—Cone complete with voice coil
38912	Coil—R.F. coil		(92181-5)
38903	Condenser—Variable tuning condenser	38352	Cone—Cone complete with voice coil
38915	Control—Volume control and power switch		(92322-2)
32634	Cord—Pointer cord (Approx. 30-in. overall lgth.)	39536	Cone—Cone complete with voice coil
38920	Core—Adjustable core and stud for I.F. transformer—adjusted from the bottom of I.F.		(92374-1)
38921	Core—Adjustable core and stud for I.F. transformer—adjusted from the top of I.F.	39537	Cone—Cone complete with voice coil
36606	Core—Adjustable core and stud for oscillator coil		MISCELLANEOUS ASSEMBLIES
38914	Disc—Tuning disc complete with bracket and drive cord pulleys	39962	ROLL COVER
38919	Disc—Tuning or volume control disc	39148	Clamp—Dial clamp
38918	Indicator—Station selector indicator	39385	Dial—Dial scale
38916	Loop—Antenna loop complete—less capacitor	38990	Feet—Rubber feet for 1 case
38913	Plate—Dial back plate	39692	Grille—Perforated grille
38776	Plug—2 prong male plug for "A" battery cable	38989	Grille—Speaker baffle
32641	Plug—3 prong male plug for "B" battery cable	39833	Handle—Leather strap handle
36230	Pulley—Pointer cord pulley	39963	HANDLE - ROLL COVER
38908	Resistor—Voltage divider—2,700 ohms, 7 watt	70009	LOOP - EXTERNAL LOOP
12267	Resistor—1,200 ohms, ¼ watt		
12194	Resistor—1,800 ohms, ¼ watt	39378	Cup—Suction cup
14421	Resistor—2,700 ohms, 1 watt	39377	Fastener—Snap fastener to attach external antenna to case
12454	Resistor—33,000 ohms, ¼ watt	39379	Plug—2 prong male plug for loop cable
14660	Resistor—100,000 ohms, ¼ watt		
14020	Resistor—150,000 ohms, ¼ watt		
14583	Resistor—220,000 ohms, ¼ watt		
30852	Resistor—1 meg., ¼ watt		
30849	Resistor—2.2 meg., ¼ watt		
30271	Resistor—4.7 meg., ¼ watt		

Alignment

With gang in full mesh, the pointer should be 1/16-inch to the left of the 550 kc dial mark.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point at 1,800 kc end of dial	L10, L11 (2nd I-F trans.)
2	1st-Det. grid cap, in series with .01 mfd.			L8, L9 (1st I-F trans.)
3	radiated signal at 1,800 kc	1,800 kc	1,800 kc	C7 (osc.) C3 (ant.) C13 (det.)
4	radiated signal 800 kc	800 kc	800 kc	L5 (Rock in)
5	Repeat steps 3 and 4			

AC-DC Operation.—

This receiver will operate on 105 to 125 volts, AC 50 or 60 cycles, or DC.

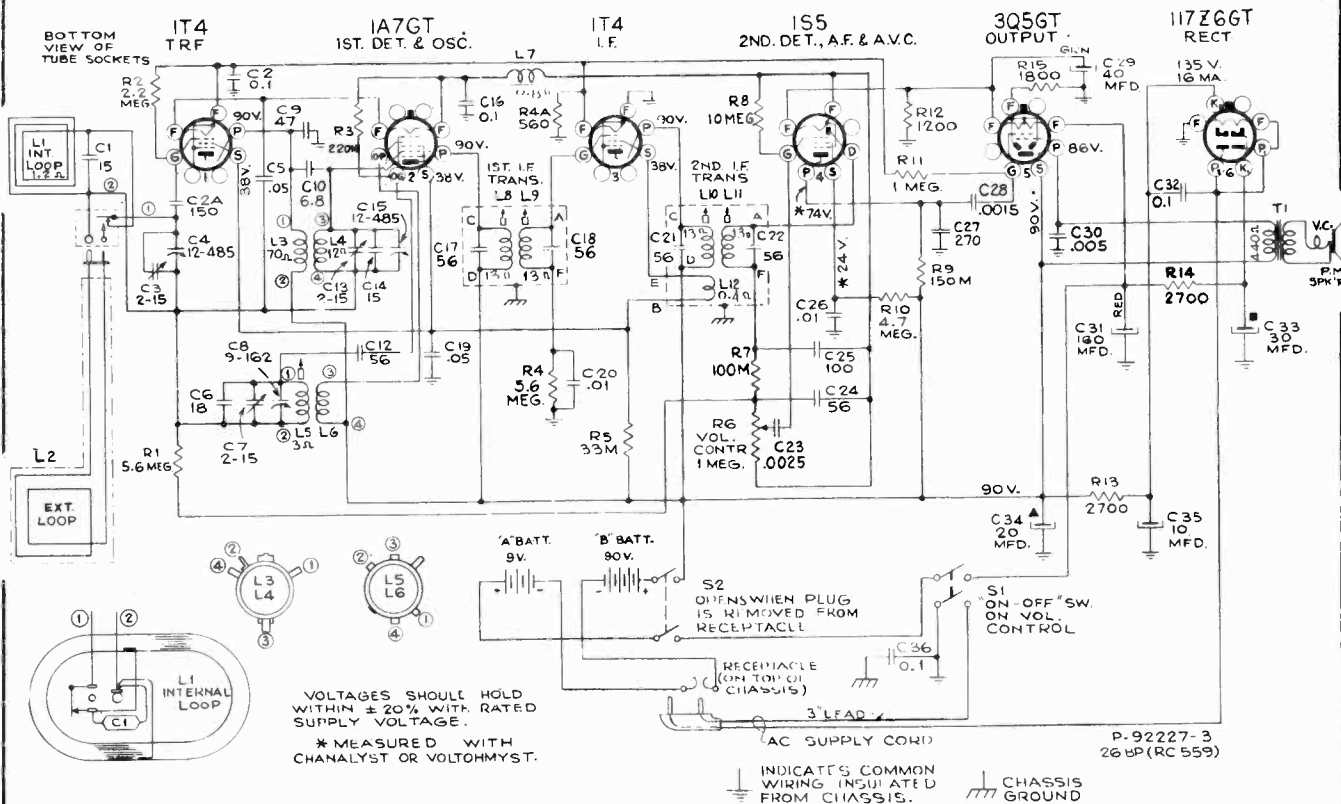
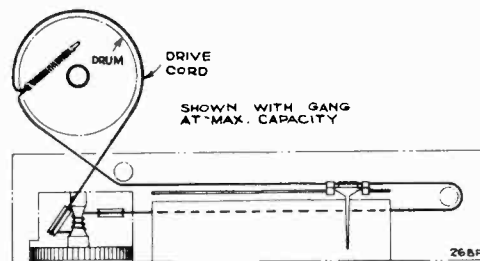
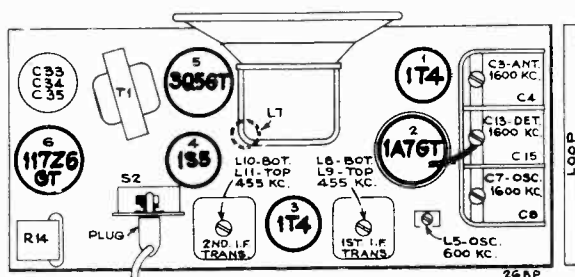
A power cord is housed in the bottom right hand corner looking inside the cabinet as shown in the illustration. Open the cabinet like a suit case, first pushing to one side the little pins under the handle ends to raise the clips. Then pull the power cord plug out of its socket in the top right hand corner as shown, and take out and unroll the power cord. A slot in the bottom allows the closing of the cabinet with the power cord passing through. Close the cabinet with the cord extending and insert the plug into a convenient electrical outlet.

When returning to battery operation, be sure to replace the power plug in its socket inside the case with the cord rolled up.

NOTE.—If reception is not obtained on DC, reverse plug in outlet receptacle. This may also reduce hum on AC operation.

Using External Loop.—

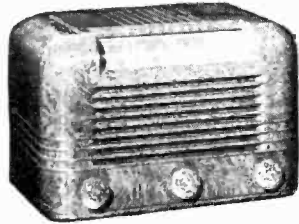
A loop antenna is housed inside the cabinet. Under normal conditions this will give satisfactory reception. If however the receiver is used in a location remote from broadcasting stations where signals are weak, or where interference is excessive, or in a shielded compartment such as an automobile, airplane or railroad train, an RCA Magic Wave Magnifier Antenna with suction cup fastener may be purchased from your dealer. This antenna has a strap connector cord ending in a two-prong plug for attachment to the loop antenna frame. Open the case, plug the antenna cord into the socket (it will only go in one way), bring the strap out at the slot in the case and attach the Antenna by means of the suction cup to any convenient vertical surface. The RCA Magic Wave Magnifier may be attached inside the back case, when not in use, by means of three snap fasteners.



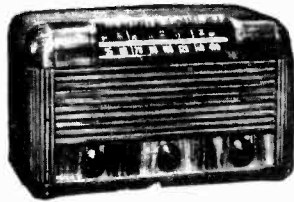
MODELS 26X-1, 26X-3 26X-4 & RADIOLA 515

Chassis No. RC-1014 RC-1014A RC-1014B (2ND PROD.) RC-1014A

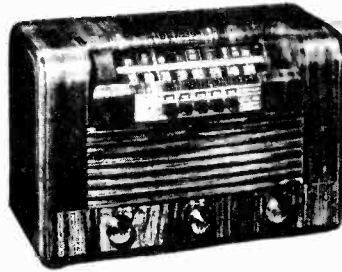
Six-Tube, Two-Band, AC-DC, Superheterodyne Receivers



Model 26X-1



Model 26X-3



MODEL 26X4



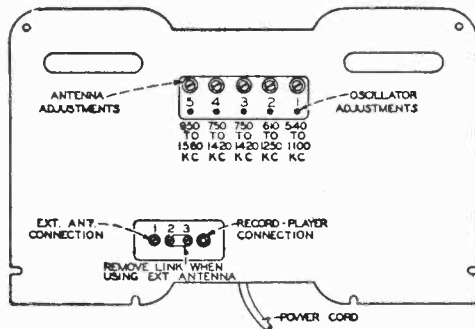
RADIOLA MODEL 515

Electrical and Mechanical Specifications

FREQUENCY RANGE	
Broadcast.....	540-1,720 kc
Short Wave.....	8.7-15.6 mc
INTERMEDIATE FREQUENCY..... 455 kc	
TUBE COMPLEMENT	
(1) RCA-12SG7.....	R-F Amplifier
(2) RCA-12SA7.....	1st Det.—Osc.
(3) RCA-12SK7.....	I-F Amplifier
(4) RCA-12SQ7.....	2nd Det., A.V.C., and A-F Amplifier
(5) RCA-35L6-GT.....	Power Output
(6) RCA-35Z5-GT.....	Rectifier
POWER SUPPLY RATING	
105-125 volts, AC, 50 or 60 cycles, or DC.....	30 watts

PILOT LAMP.....	Mazda No. 51, 6-8 volts, 0.2 amp
POWER OUTPUT	
Undistorted.....	0.9 watts
Maximum.....	1.4 watts
LOUDSPEAKER RL-81B2 "PM," or RL-86B1 "EM."	
Size.....	5-inch
V.C. Impedance.....	4 ohms at 400 cycles
PUSH-BUTTON RANGES 26X4	
One station between approximately.....	540-1,100 kc
One station between approximately.....	610-1,250 kc
Two stations between approximately.....	750-1,420 kc
One station between approximately.....	950-1,560 kc

Push Button Adjustment MODEL 26 X 4



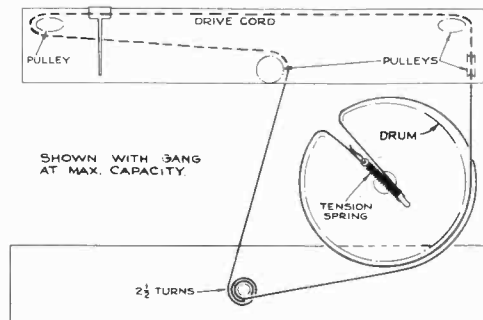
The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. Turn range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core to receive the station.

4. After oscillator core is set correctly, adjust No. 1 antenna trimmer for maximum output.
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On the 950 to 1,560 kc push-button, the higher frequency stations may be received with L24 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.



Alignment Procedure

Test Oscillator.—For all alignment operations, keep the output as low as possible to avoid a.v.c. action.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Power Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

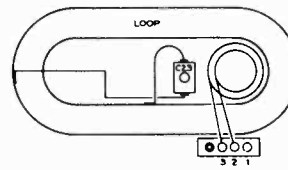
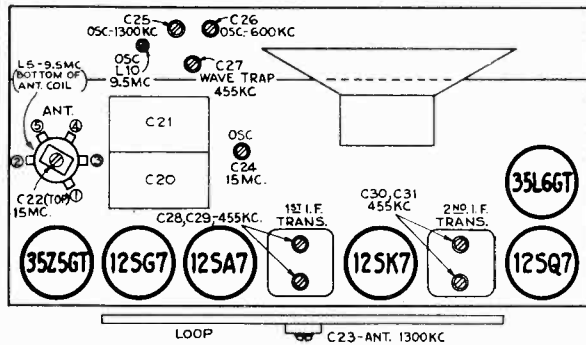
Precautionary Lead Dress

1. Dress output tube plate lead to speaker and output bypass condenser away from terminal board and yellow lead in cable.
2. Dress brown and yellow leads from 2nd I.F. transformer away from output plate and bypass condenser.
3. Dress .02 capacitor C12 away from output capacitor C16.
4. Dress all leads or parts as far as possible away from oscillator coil.
5. Dress lead from C13 to band switch down along front apron of chassis.
6. Dress lead from trimmer condenser on loop to S.W. Ant. coil around outside of rectifier tube. Other leads between rectifier and R.F. tube.

Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output		
1	I.F. grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,700 kc end of dial	C30, C31 2nd I-F trans.		
2	1st det. grid in series with 0.1 mfd.			C-28, C-29 1st I-F trans.		
3	R.F. grid in series with 0.1 mfd.	15 mc	15 mc "C" Band	C-27** Wave trap		
4	Ant. terminal in series with 47 mmf. (link open)			9.5 mc	9.5 mc "C" Band	C-24 (osc.)* C-22 (ant.)
5						L-10 (osc.) L-5 (ant.)
6	Repeat steps 4 and 5.					
7	Ant. terminal in series with 220 mmf. (link open)	1,300 kc	1,300 kc "A" Band	C-25 (osc.) C-23 (ant.)		
8		600 kc	600 kc "A" Band	C-26 (osc.)		
9	Repeat steps 7 and 8.					

*Use minimum capacity peak if two peaks can be obtained.
**Adjust C-27 for minimum signal with 455 kc applied to R.F. grid.

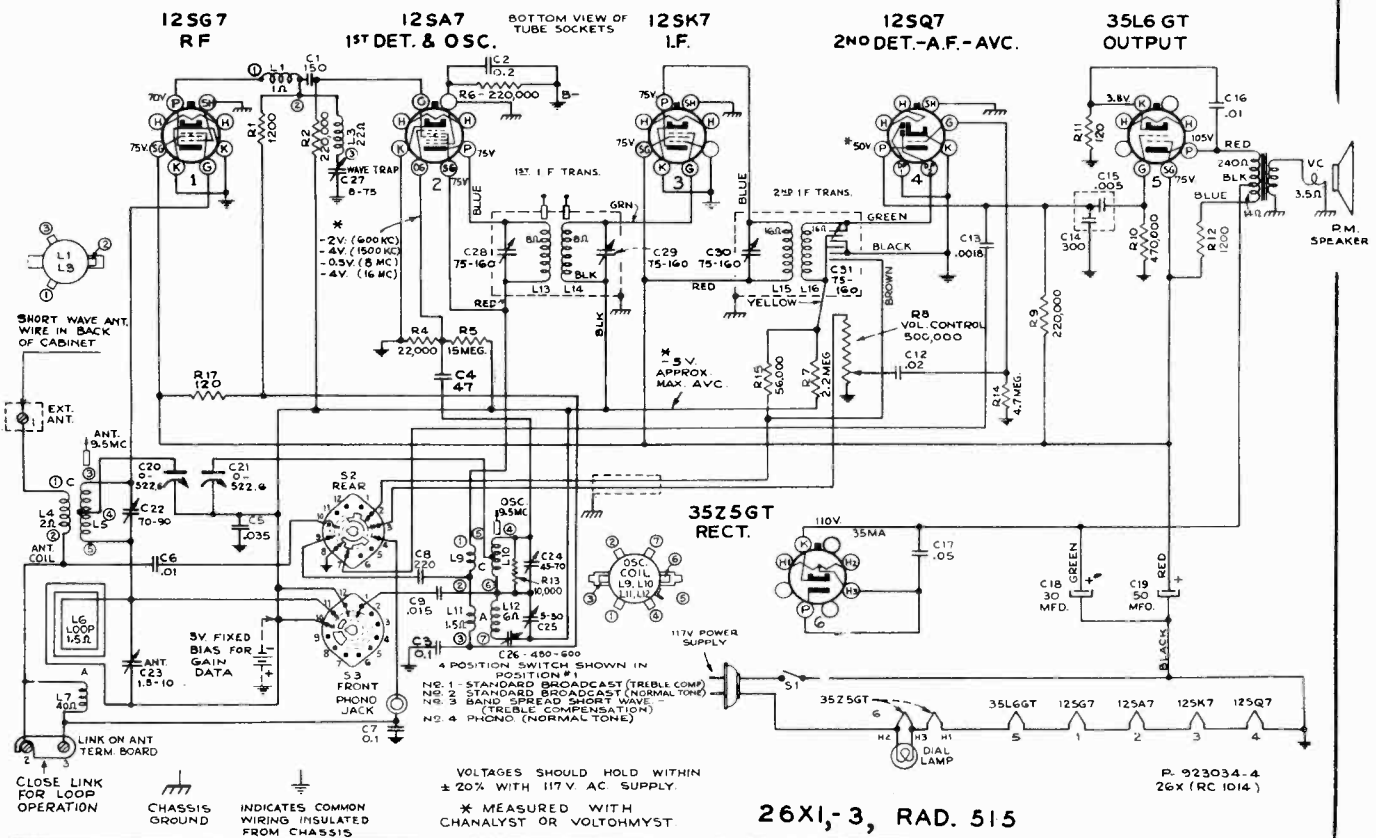
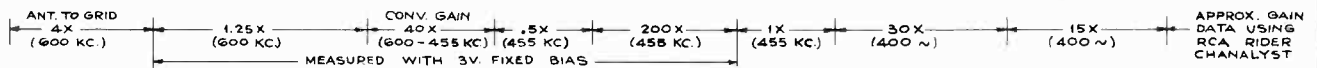
Note.—Oscillator tracks 455 kc above signal on all bands.

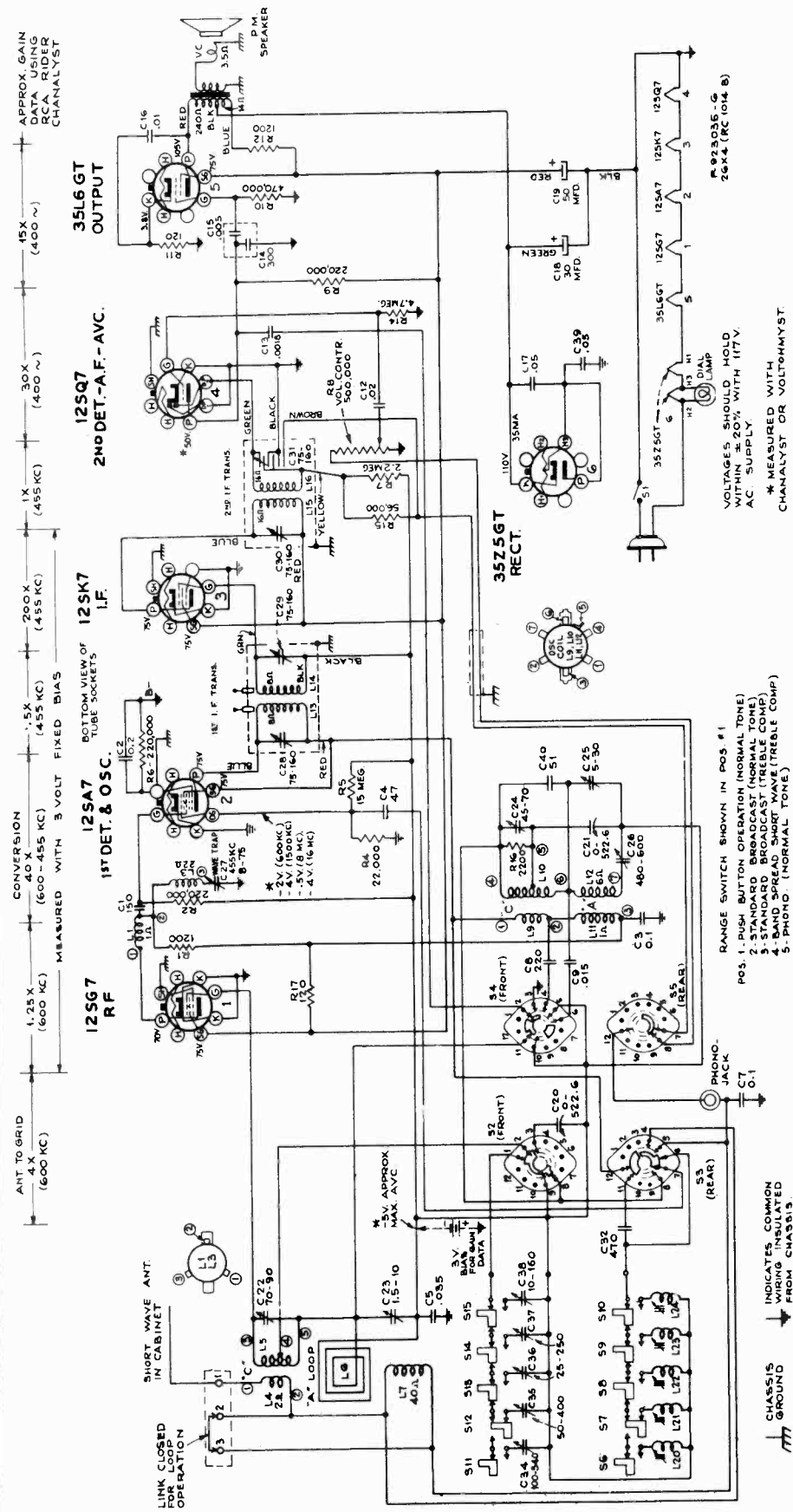


26X-1, -3, -4

Changes in 2nd Production:

In 26X-1 and 26X-3, a 10-mmf. capacitor, Stock No. 13200, is added in parallel to C24 in the "C" band oscillator circuit.
The Stock No. for C4 (47 mmf.) oscillator grid capacitor is 13141.
The adjustable core on L5 antenna coil is omitted, and this adjustment is therefore omitted in the alignment procedure.





4. Dress .02 capacitor C12 away from output capacitor C16.
 5. Dress all leads on parts as far as possible away from oscillator coil.
 6. Dress lead from C18 to band switch down along front apron of chassis.
 7. Dress lead from trimmer condenser on loop to S.W. Ant coil around outside of rectifier tube. Other leads between rectifier and RF tube.
 8. Dress lead to contact No. 11 on front water of switch away from audio leads.

MODEL 26X-4

Critical Lead Dress

1. Dress grid lead to IF amp. tube back into shield can and plate lead from same tube back into shield can to keep exposed length as short as possible.
2. Dress output tube plate lead to speaker and output bypass condenser away from terminal board and yellow lead in cable.
3. Dress brown and yellow leads from 2nd IF transformer away from output plate and bypass condenser.

Replacement Parts

26X1-3, 26X4, RAD. 515

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

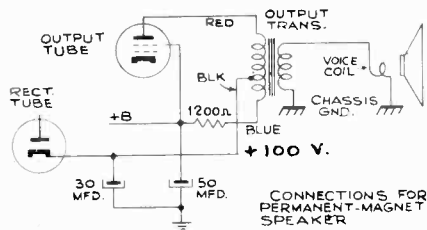
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (26X1 RC-1014) (26X3 RC-1014A)		CHASSIS ASSEMBLIES (26X4 RC-1014B)	
36947	Board—Loop receptacle and terminal board.....	36947	Board—Loop receptacle and terminal board.....
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts and 1 section of 50 mfd., 150 volts.....	36301	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts and 1 section of 50 mfd., 150 volts.....
37359	Capacitor—Comprising 1 section of .005 mfd. and 1 section of .0003 mfd.....	37359	Capacitor—Comprising 1 section of .005 mfd. and 1 section of .0003 mfd.....
38691	Capacitor—Adjustable capacitor—55-75 mmfd. (C24).....	38691	Capacitor—Adjustable capacitor—55-75 mmfd. (C24).....
38692	Capacitor—Adjustable capacitor—90-110 mmfd. (C22).....	38692	Capacitor—Adjustable capacitor—90-110 mmfd. (C22).....
38693	Capacitor—Adjustable capacitor—comprising 1 section of 8-75 mmfd., 1 section of 48-600 mmfd., and 1 section of 5-30 mmfd. (C27, C26, C25).....	38693	Capacitor—Adjustable capacitor—comprising 1 section of 8-75 mmfd., 1 section of 48-600 mmfd., and 1 section of 5-30 mmfd. (C27, C26, C25).....
39327	Capacitor—2-20 mmf. (C23).....	39327	Capacitor—2-20 mmfd. (C23).....
12948	Capacitor—33 mmfd.....	38726	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd.....
12725	Capacitor—150 mmfd.....	12948	Capacitor—33 mmfd.....
12694	Capacitor—220 mmfd.....	39540	Capacitor—51 mmfd.....
34506	Capacitor—.0018 mfd.....	12725	Capacitor—150 mmfd.....
4937	Capacitor—.01 mfd.....	12694	Capacitor—220 mmfd.....
11315	Capacitor—.015 mfd.....	30433	Capacitor—470 mmfd.....
36248	Capacitor—.02 mfd.....	34506	Capacitor—.0018 mfd.....
5196	Capacitor—.035 mfd.....	4937	Capacitor—.01 mfd.....
32787	Capacitor—.05 mfd.....	11315	Capacitor—.015 mfd.....
4839	Capacitor—0.1 mfd.....	36248	Capacitor—.02 mfd.....
34505	Capacitor—0.2 mfd.....	5196	Capacitor—.035 mfd.....
38686	Coil—Antenna coil.....	32787	Capacitor—.05 mfd.....
38690	Coil—Filter coil.....	4839	Capacitor—0.1 mfd.....
35096	Coil—Loop primary coil.....	34505	Capacitor—0.2 mfd.....
38685	Coil—Oscillator coil.....	38813	Coil—Antenna coil.....
38689	Condenser—Variable tuning condenser.....	38690	Coil—Filter coil.....
38410	Control—Volume control and power switch.....	35096	Coil—Loop primary coil.....
32634	Cord—Drive cord (approx. 50-in. overall length).....	38685	Coil—Oscillator coil.....
38694	Core—Adjustable core and stud for antenna and oscillator coils.....	38689	Condenser—Variable tuning condenser.....
36237	Drum—Drive Drum.....	37638	Coil—P.B. oscillator coil—540-1,100 K.C.....
37068	Indicator—Station selector indicator.....	35803	Coil—P.B. oscillator coil—610-1,250 K.C.....
11765	Lamp—Dial lamp.....	38772	Coil—P.B. oscillator coil—750-1,420 K.C.....
31193	Lead—Antenna lead.....	38773	Coil—P.B. oscillator coil—950-1,560 K.C.....
38769	Loop—Antenna loop.....	38689	Condenser—Variable tuning condenser.....
38767	Plate—Dial back plate complete with pulleys—less dial.....	38410	Control—Volume control and power switch.....
36230	Pulley—Drive cord pulley.....	34662	Cord—Drive cord (approx. 54-in. overall length).....
30189	Resistor—120 ohms, ½ watt.....	38694	Core—Adjustable core and stud for antenna and oscillator coils.....
12267	Resistor—1,200 ohms, ½ watt.....	35871	Core—Adjustable core and stud for P.B. oscillator coils.....
6134	Resistor—1,200 ohms, 1 watt.....	36237	Drum—Drive drum.....
34767	Resistor—2,200 ohms, ½ watt.....	37068	Indicator—Station selector indicator.....
3078	Resistor—10,000 ohms, ½ watt.....	11765	Lamp—Dial lamp.....
30492	Resistor—22,000 ohms, ½ watt.....	31193	Lead—Antenna lead.....
30650	Resistor—56,000 ohms, ½ watt.....	38770	Loop—Antenna loop.....
14583	Resistor—220,000 ohms, ½ watt.....	38768	Plate—Dial back plate complete with pulleys—less dial.....
30648	Resistor—470,000 ohms, ½ watt.....	36230	Pulley—Drive cord pulley.....
30649	Resistor—2.2 meg., ½ watt.....	30189	Resistor—120 ohms, ½ watt.....
30271	Resistor—4.7 meg., ½ watt.....	12267	Resistor—1,200 ohms, ½ watt.....
38785	Resistor—15 meg., ½ watt.....	6134	Resistor—1,200 ohms, 1 watt.....
36897	Shaft—Tuning knob shaft.....	34767	Resistor—2,200 ohms, ½ watt.....
34449	Socket—Dial lamp socket.....	30492	Resistor—22,000 ohms, ½ watt.....
37605	Socket—Tube socket—moulded type.....	30650	Resistor—56,000 ohms, ½ watt.....
31251	Socket—Tube socket—wafer type.....	14583	Resistor—220,000 ohms, ½ watt.....
31418	Spring—Drive cord spring.....	30648	Resistor—470,000 ohms, ½ watt.....
12007	Spring—Retaining spring for core and stud.....	80649	Resistor—2.2 meg., ½ watt.....
38687	Switch—Range switch.....	30271	Resistor—4.7 meg., ½ watt.....
36232	Transformer—First I.F. transformer.....	38785	Resistor—15 meg., ½ watt.....
36233	Transformer—Second I.F. transformer.....	36897	Shaft—Tuning knob shaft.....
36800	Transformer—Output transformer (for RL-81-B2).....	34449	Socket—Dial lamp socket.....
38994	Transformer—Output transformer (for RL-86-B1).....	37605	Socket—Tube socket—moulded type.....
33726	Washer—"C" washer for tuning shaft.....	31251	Socket—Tube socket—wafer type.....
"PM" SPEAKER ASSEMBLIES (RL-81B-2)		MISCELLANEOUS ASSEMBLIES	
35570	Cone—Cone complete with voice coil.....	39067	Back—Cabinet back.....
SPEAKER ASSEMBLIES (“EM” RL-86-B1)		38375	Button—Push button.....
32907	Cap—Dust cap.....	36873	Clamp—Dial clamp.....
39448	Coil—Field coil, 350 ohms.....	38814	Decalcomania—Control panel decal.....
39447	Cone—Cone complete with voice coil.....	38840	Dial—Glass dial scale.....
MISCELLANEOUS ASSEMBLIES		38376	Escutcheon—Push button escutcheon.....
38695	Back—Cabinet back for Model 26X1.....	37831	Fastener—Push-on fastener for back.....
38993	Back—Cabinet back for Model 26X3.....	38886	Knob—Range switch knob.....
Y947	Cabinet—Moulded cabinet for Model 26X1.....	36722	Knob—Control knob (volume or tuning).....
36873	Clamp—Dial clamp for Models 26X3.....	34317	Marker—Station selector marker.....
36890	Clamp—L.H. dial clamp for Model 26X1.....	30900	Spring—Retaining spring for knobs.....
36891	Clamp—R.H. dial clamp for Model 26X1.....	34053	Spring—Retaining spring for push buttons.....
38874	Decalcomania—Control panel decal for Model 26X3.....		
38839	Dial—Glass dial scale.....		
37831	Fastener—Push-on fastener for back.....		
36722	Knob—Control knob (tuning, volume, or range) for 26X1, or volume or tuning knob for 26X3.....		
38886	Knob—Range switch knob for 26X3.....		
30900	Spring—Retaining spring for knobs.....		

MODELS 26X1,-3, -4. SUBSTITUTE SPEAKERS

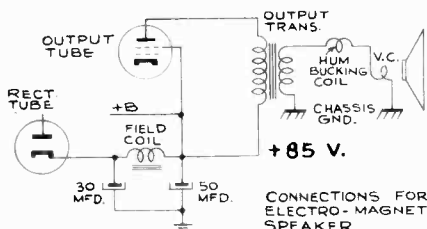
In 1st production of the following models, the speaker is RL-81-B2. In later production, several substitute speakers are used, as listed below.

WHEN ORDERING REPLACEMENT PARTS FOR SPEAKERS, NOTE THE IDENTIFICATION NUMBER STAMPED ON THE SPEAKER FRAME. IF THE NUMBER STAMPED ON THE SPEAKER DOES NOT APPEAR IN THE FOLLOWING LIST, ORDER THE REQUIRED PART BY DESCRIPTION, AND SPECIFY THE IDENTIFYING NUMBER STAMPED ON THE SPEAKER AND THE RECEIVER MODEL NUMBER.

Alternate "EM" and "PM" speaker connections are shown in the accompanying diagrams.

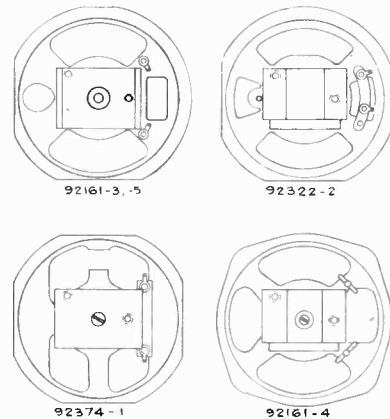


CONNECTIONS FOR PERMANENT-MAGNET SPEAKER



CONNECTIONS FOR ELECTRO-MAGNET SPEAKER

NUMBER STAMPED ON SPEAKER	CONE AND VOICE COIL STOCK No.	FIELD COIL STOCK No.
RL-86-A3	35570	39543
RL-86-B1	39447	39448
RL-86-B4	39447	39448
92161-3	38352	PM
92161-4	39535	PM
92161-5	38352	PM
92322-2	39536	PM
92374-1	39537	PM



Identifying Sketches of Five "PM" Speakers.

RADIOLA 515 Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES MODEL 515A RC1014A		"EM" SPEAKER ASSEMBLIES (RL-86-B1)
	Same as 26 x 3 RC1014A	32907	Cap—Dust cap
	EXCEPT	39448	Coil—Field coil, 350 ohms
		39447	Cone—Cone complete with voice coil
36998	Capacitor - 3-30 mmf (C23)		MISCELLANEOUS ASSEMBLIES
13141	Capacitor - 47 mmf (C4)	39693	Back - Cabinet back.
38694	Core - Adjustable core and stud for oscillator coil.	38873	Clamp - Dial clamp.
	DELETE	38874	Decalcamania - Control panel decal.
39237	Capacitor - 2-20 mmfd (C23)	39045	Dial - Glass dial scale.
8134	Resistor - 1200 ohms (R12)	37831	Fastener - Push-on fastener for back.
36800	Transformer - output transformer.	38541	Knob - Volume or tuning knob.
		37386	Knob - Range switch knob.
		11349	Spring - Retaining spring for knobs.

MODEL 27K

Chassis No. RC-567

Seven-Tube, Two-Band, AC, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast..... 540-1,600 kc
Short Wave..... 9.4-15.4 mc

INTERMEDIATE FREQUENCY..... 455 kc

PUSH-BUTTON RANGES

One station between approximately..... 540-1,030 kc
One station between approximately..... 610-1,250 kc
Two stations between approximately..... 740-1,430 kc
One station between approximately..... 880-1,600 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Detector, A.V.C.
- (5) RCA-6SQ7..... A-F Amplifier
- (6) RCA-6K6GT..... Power Output
- (7) RCA-5Y3-G..... Rectifier

PILOT LAMPS (2)..... Mazda No. 51, 6.3 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted..... 2.5 watts
Maximum..... 4.5 watts

LOUDSPEAKER (RL-70-L5)

Type..... 12-inch Electrodynamic
V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles, 90 watts
105-125 volts, 25-60 cycles, 90 watts
Universal, 40-60 cycles, 90 watts

	Height	Width	Depth
Cabinet Dimensions (inches).....	38	26½	12
Chassis Base Dimensions (inches).....	2½	18	6½
Overall Chassis Height.....	7½		
Tuning Drive Ratio.....	10-1		
Weight.....	(Net, 41 lbs.) (Shipping, 55 lbs.)		

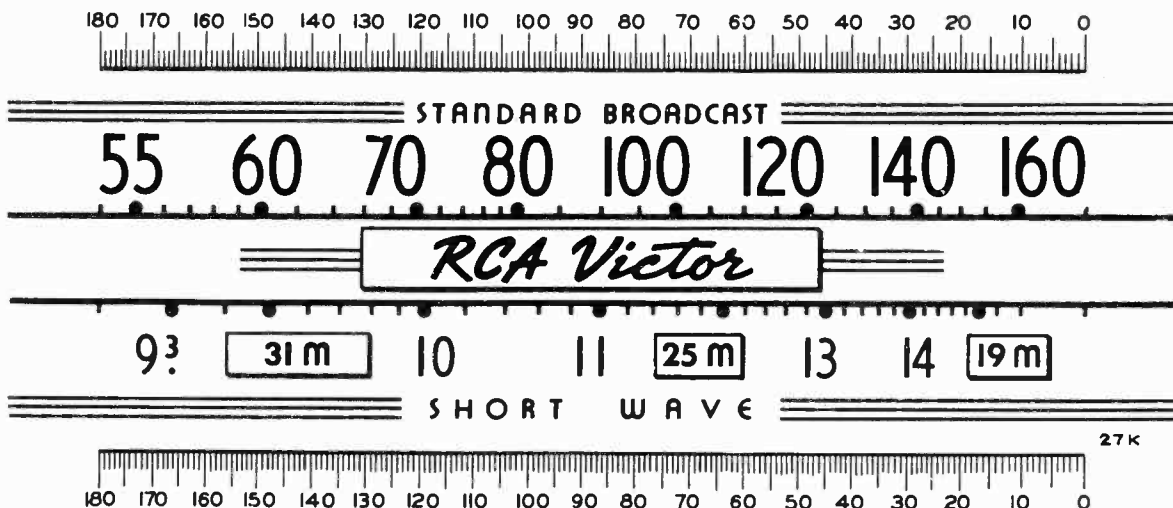
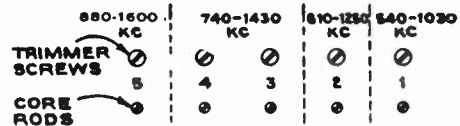
Push Button Adjustment

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L-15) to receive the station.
4. After oscillator core is set correctly, adjust C-37 for maximum output.
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with L-11 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

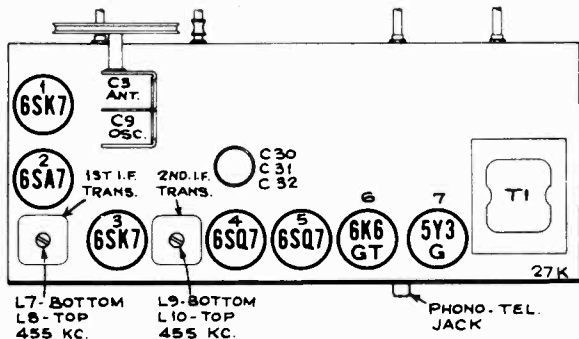
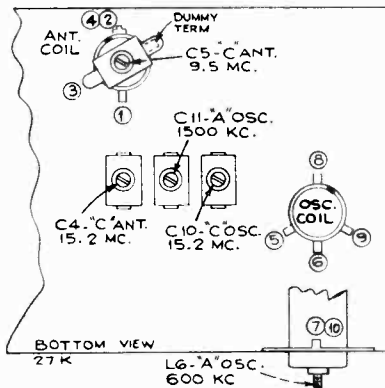
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "90°" mark on the drum scale must be vertical, and directly under the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by plastic cement which must be tight when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

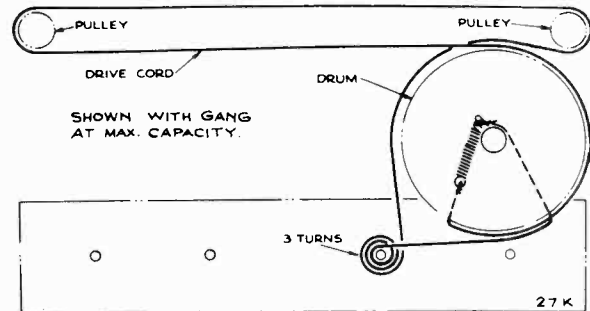
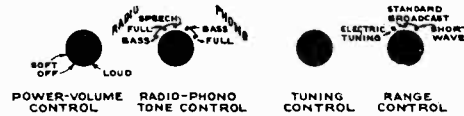


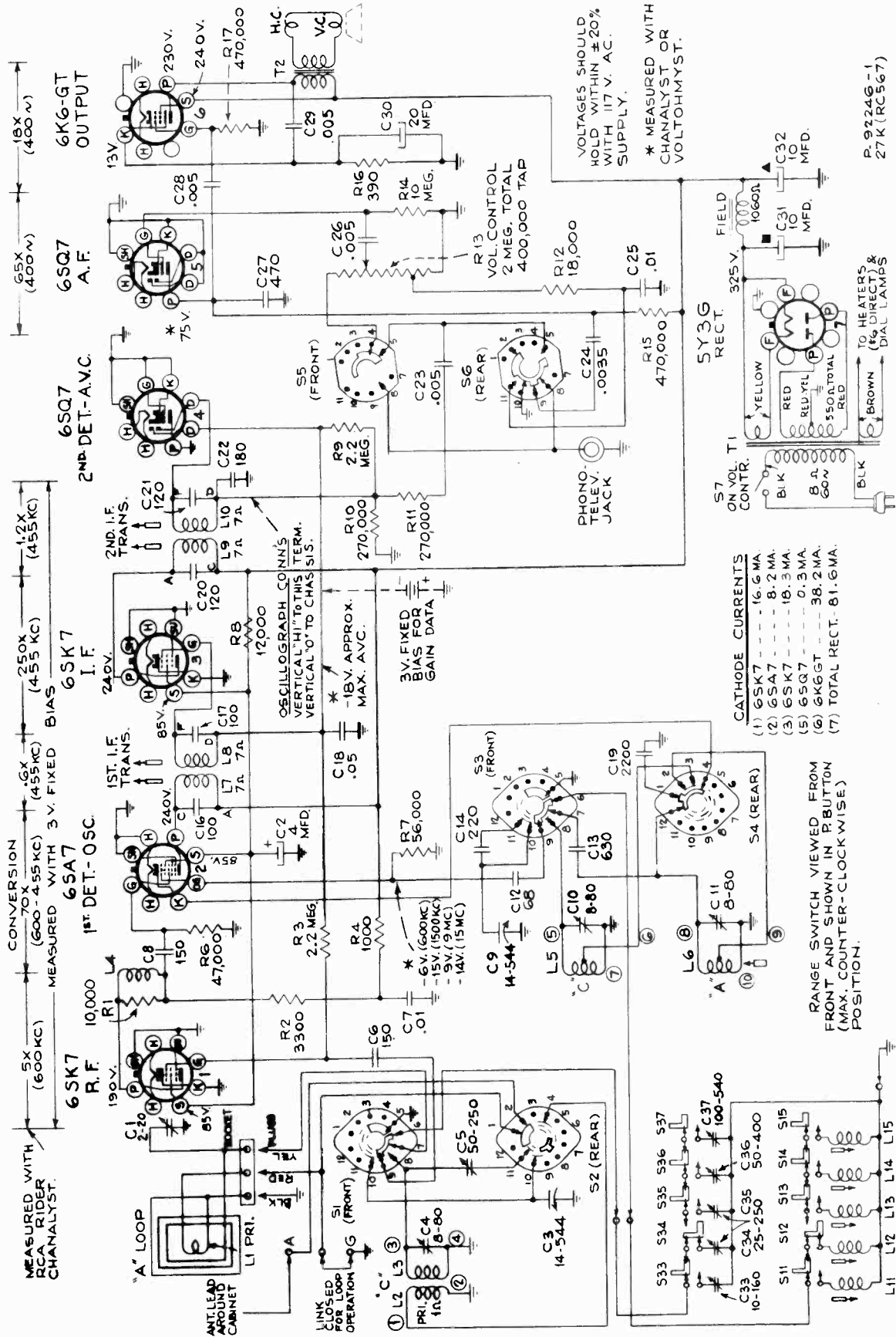
Steps	Connect high side of test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	6SK7 I-F grid in series with 0.01 mfd.	455 kc	"A" Band Quiet Point between 650 and 750 kc	L-9 and L-10 (2nd I-F Trans.)
2	6SA7 grid in series with 0.01 mfd.			L-7 and L-8 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf.	1,500 kc	"A" Band 1,500 kc (20°)	C-11 (osc.)
4		600 kc	"A" Band 600 kc (149.5°)	L-6 (osc.)
5	Antenna terminal in series with 47 mmf. (link open)	15.2 mc	"C" Band 15.2 mc (13.5°)	C-10 (osc.)* C-4 (ant.)
6		9.5 mc	"C" Band 9.5 mc (148°)	C-5 (ant.) (Rock gang)
7	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	1,500 kc	"A" Band 1,500 kc	C-1 (on loop)
8		600 kc	600 kc	L-6 (osc.) (Rock gang)
9	Repeat steps 7 and 8.			

*Use minimum capacity peak if two can be obtained.

Note.—Oscillator tracks 455 kc above signal on all bands.

External Antenna.—For best reception on "C" band with an external antenna, peak the trimmer on "C" antenna coil for maximum output on a station in the 31-meter band.





Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-567)			
35966	Board—"Antenna-Ground" board	31251	Socket—Tube socket
32145	Capacitor—Electrolytic—4 mfd., 450 volts	31418	Spring—Cord spring
38571	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts and 1 section of 20 mfd., 25 volts	12007	Spring—Retaining spring of oscillator coil adjustable core and stud
35791	Capacitor—Mica trimmer comprising 3 sections of 8-80 mmfd.	38789	Support—Drive cord pulley support complete with pulley
38368	Capacitor—Mica trimmer—50-350 mmfd. for "C" band antenna coil	38792	Switch—Range switch
13057	Capacitor—68 mmfd.	38791	Switch—Tone control switch
34699	Capacitor—100 mmfd.	35638	Transformer—First I.F. transformer
34700	Capacitor—120 mmfd.	35790	Transformer—Second I.F. transformer
12725	Capacitor—150 mmfd.	35588	Transformer—Power transformer—105-120 volts, 25 cycle
13003	Capacitor—180 mmfd.	35959	Transformer—Power transformer—105-120 volts, 50-60 cycle, less end shields
38858	Capacitor—220 mmfd.	35989	Washer—"C" washer for tuning shaft
30433	Capacitor—470 mmfd.	SPEAKER ASSEMBLIES (RL-70L-5)	
38831	Capacitor—630 mmfd.	13887	Cap—Dust cap
44338	Capacitor—2,200 mmfd.	12079	Coil—Field coil—1,060 ohms
30303	Capacitor—.0035 mfd.	11469	Coil—Neutralizing coil
33584	Capacitor—.005 mfd.	36145	Cone—Cone complete with voice coil
4937	Capacitor—.01 mfd.	5118	Plug—3-prong male speaker plug
32787	Capacitor—.05 mfd.	36146	Suspension—Metal cone suspension
4839	Capacitor—0.1 mfd.	31301	Transformer—Output transformer
38788	Coil—Antenna coil—"C" band	MISCELLANEOUS ASSEMBLIES	
38829	Coil—Coil and resistor—10,000 ohms	38375	Button—Push button
38787	Coil—Oscillator coil	38684	Capacitor—Mica trimmer—2-20 mmfd.
38786	Condenser—Variable tuning condenser	35869	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd.
38404	Control—Volume control and power switch	38584	Channel—Rubber channel for dial scale
34662	Cord—Pointer cord (approx. 54 in. overall lgth.)	38579	Coil—Loop primary coil
35788	Core—Adjustable core and stud for oscillator coil	38315	Coil—P.B. oscillator coil—high frequency
38359	Cup—Oscillator coil mounting cup	37638	Coil—P.B. oscillator coil—low frequency
36397	Dial—Drive drum calibrator	35871	Core—Adjustable core and stud for P.B. oscillator coils
38790	Drum—Drive drum—less calibrator	38798	Decalcomania—Control panel decal
5119	Plug—3-contact female plug for speaker cable	38794	Dial—Glass dial scale
32641	Plug—3-prong male plug for selector switch cable	38793	Escutcheon—Dial scale and push button escutcheon—less dial and buttons
38832	Plug—Pin plug for antenna loop leads	38795	Indicator—Station selector indicator
31373	Pulley—Drive cord pulley	35814	Knob—Control knobs
38857	Resistor—390 ohms, 2 watt	11891	Lamp—Dial lamp
14720	Resistor—1,000 ohms, 1/2 watt	38578	Loop—Antenna loop complete
12312	Resistor—3,300 ohms, 1/2 watt	34317	Marker—Station selector markers
35875	Resistor—12,000 ohms, 3 watt	33774	Mounting—Speaker mounting hardware
3219	Resistor—18,000 ohms, 1/2 watt	38580	Pivot—Loop support and pivot—on top of loop frame
12412	Resistor—47,000 ohms, 1/2 watt	36422	Socket—Loop cable or switch cable socket
30787	Resistor—47,000 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs
30650	Resistor—56,000 ohms, 1/2 watt	34053	Spring—Retaining spring for push button
30651	Resistor—270,000 ohms, 1/2 watt	38581	Support—Loop bracket and support—on bottom of loop frame
30648	Resistor—470,000 ohms, 1/2 watt	38797	Switch—Selector switch
30649	Resistor—2.2 meg., 1/2 watt		
30992	Resistor—10 meg., 1/2 watt		
38589	Shaft—Tuning knob shaft		
35772	Shield—Bottom shield for power transformer, No. 35959		
35709	Shield—Top shield for power transformer, No. 35959		
31364	Socket—Dial lamp socket		
35787	Socket—Phono input socket		

MODEL 28T

Chassis No. RC-569

Eight-Tube, Three-Band, A-C, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES
 "A" Standard Broadcast 540-1600 kc
 "B" Medium Wave 2,300-6,300 kc
 "C" Short Wave 9,400-15,400 kc
INTERMEDIATE FREQUENCY 455 kc

PUSH-BUTTON RANGES
 One station between approximately 540-1,030 kc.
 Two stations between approximately 610-1,250 kc.
 Two stations between approximately 740-1,430 kc.
 One station between approximately 880-1,600 kc.

TUBE COMPLEMENT
 (1) RCA-6SK7 R-F Amplifier
 (2) RCA-6SA7 1st Det.-Osc.
 (3) RCA-6SK7 I-F Amplifier
 (4) RCA-6SQ7 2nd-Det. A.V.C.-A.F.-Amp.
 (5) RCA-6SQ7 Phase Inverter
 (6) RCA-6K6GT Power Output
 (7) RCA-6K6GT Power Output
 (8) RCA-5Y3G Rectifier

DIAL LAMP (2) Mazda No. 51 6-8 volt 0.2 amps.

POWER SUPPLY RATINGS
 105-125 volts, 50-60 cycles 90 watts
 105-125 volts, 25-60 cycles 90 watts

POWER OUTPUT RATING
 Undistorted 4.5 watts
 Maximum 5.5 watts

LOUDSPEAKER (92196-3)
 Type 9x6 inches elliptical, electrodynamic
 V.C. Impedance 4.4 ohms at 400 cycles

	Height	Width	Depth
CABINET (inches)	12 3/4	18	10
Chassis Base (inches)	2 1/2	16	6 1/2
Chassis Height (inches)			10 1/2
Weight	27-lbs. (shipping) 23-lbs. net		
Tuning Drive Ratio	15 to 1		

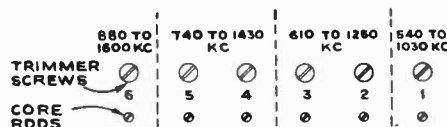


Push Button Adjustment

Six station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

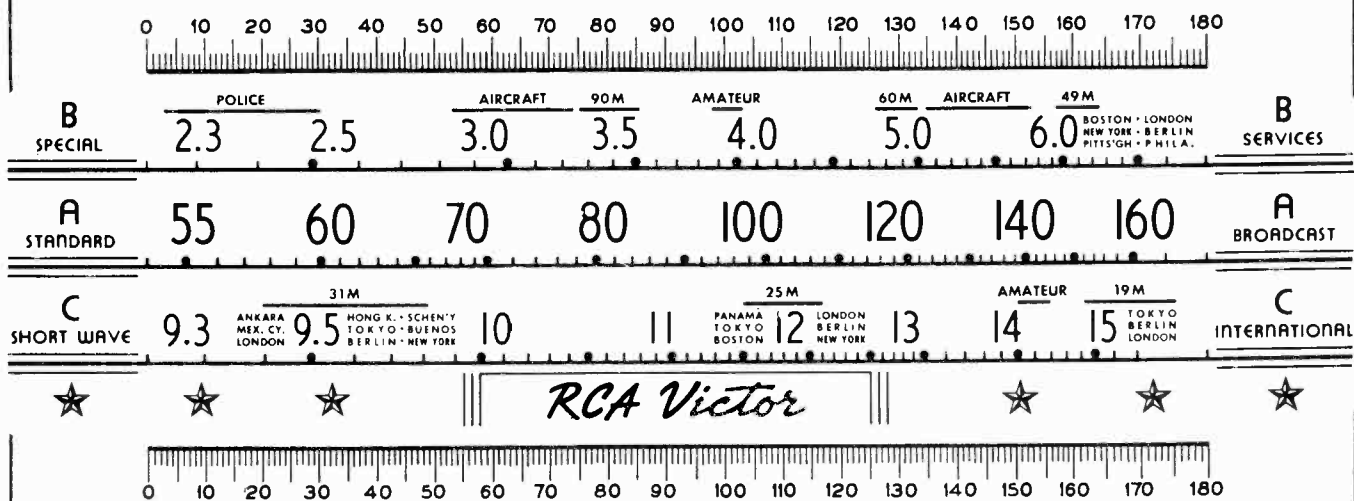
In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core to receive the station. It may be necessary to maintain



approximate tracking between antenna and oscillator to receive weak stations.

4. After oscillator core is adjusted properly, adjust trimmer No. 1 for maximum output.
5. Adjust for each of the five remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.



RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration for Alignment.—The dial calibration for alignment purposes can be set up in two ways:

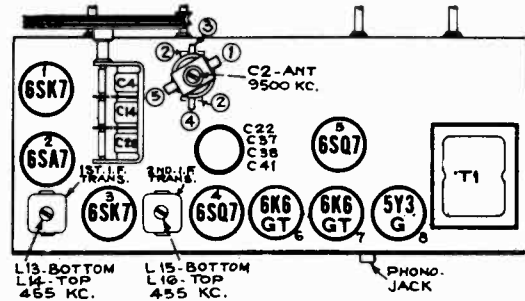
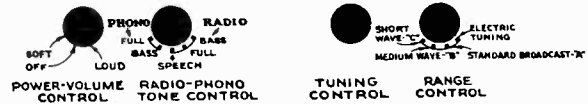
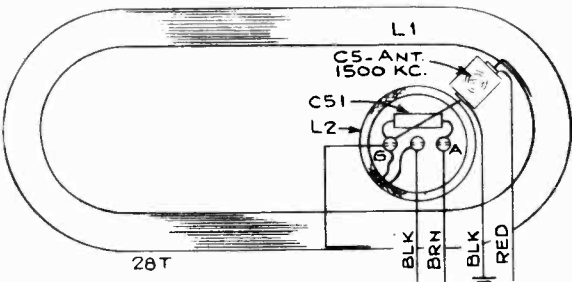
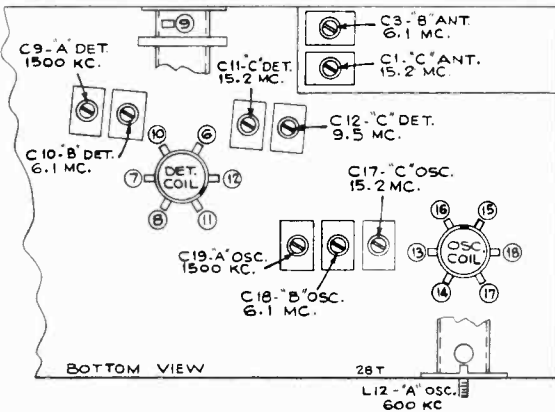
1. The dial may be very easily removed from the cabinet. The condenser plates should then be turned into full mesh, the pointer adjusted to the scratch at the left end of the dial backing plate, and the dial placed on the frame so that its extreme left calibration mark coincides with the pointer. The dial may be held in place with scotch tape. In this manner the actual receiver dial is used for alignment. When alignment is finished, the scale should be replaced.
2. A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 0 degree scale mark is horizontal with the gang in full mesh.

Pointer for Calibration Scale.—If method (2) is used, improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0 degree mark on the calibration scale when the plates are fully meshed.

External Antenna.—For best reception on "C" band with an outside antenna, adjust C2 for peak output on a station in the 31-meter band.

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adj. the following for max. peak output
1	I-F Grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L-15 and L-16 2nd I-F Trans.
2	Det. Grid in series with .01 mfd.			L-13 and L-14 1st I-F Trans.
3	Ant. terminal in series with 200 mmfd. (link open)	1,500 kc	1500 kc (160°) "A" Band	C-19 (osc.) C-9 (Det.) C-5 (on loop)
4		600 kc	600 kc (30.5°)	L-12 Rock Gang
5		Repeat (3) and (4)		
6	Ant. terminal in series with 22 mmfd. (link open)	6,100 kc	6,100 kc (181°) "B" Band	C-18 (osc.)* C-10 (Det.) Rock Gang C-3 (ant.)
7		15,200 kc	15,200 kc (167°) "C" Band	C-17 (osc.)* C-11 (Det.) Rock Gang C-1 (ant.)
8		9,500 kc	9,500 kc (28.6°)	C-2 (ant.) C-12 (Det.) Rock Gang
9		Repeat (7) and (8)		

*Use minimum capacity peak if two peaks can be obtained.
Note—Oscillator tracks 455 kc above signal on all bands.

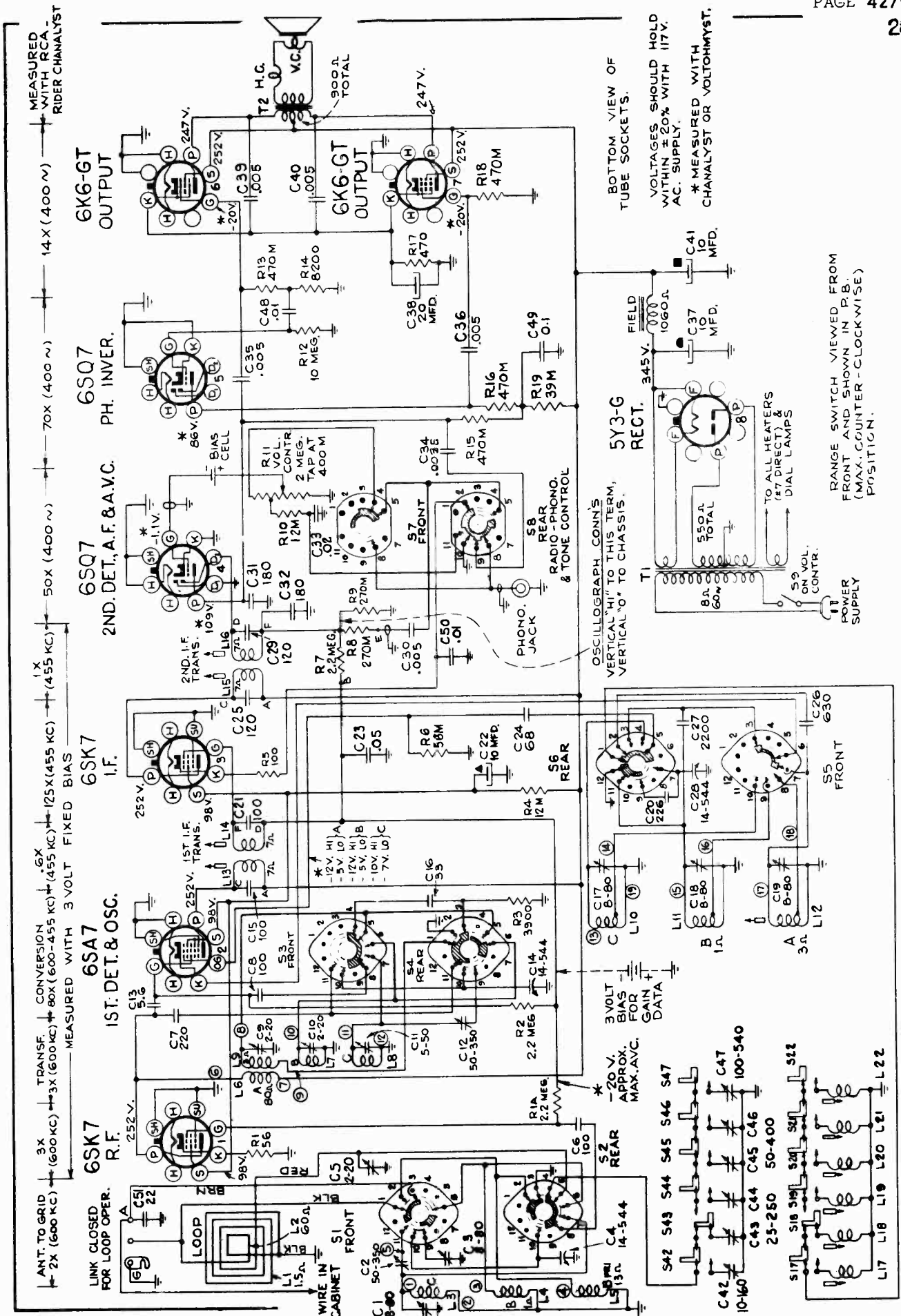


Precautionary Lead Dress.—

1. Dress shielded lead from diode filter to tone control switch away from grid of the 6SQ7 a-f amplifier.
2. Dress shielded lead from grid of 6SQ7 a-f amplifier away from diode output system.
3. Power leads to rear of volume control should be dressed towards side apron.
4. Plate leads on output tubes should be dressed towards chassis.

CATHODE CURRENTS

(1) 6SK7	15.5
(2) 6SA7	8.9
(3) 6SK7	14.3
(4) 6SQ7	.31
(5) 6SQ7	.36
(6) 6K6GT	21.4
(7) 6K6GT	21.4
(8) TOTAL RECT.	82.2



BOTTOM VIEW OF TUBE SOCKETS.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH AC SUPPLY.
* MEASURED WITH CHANNELYST OR VOLTOHMYST.

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER-CLOCKWISE POSITION).

MEASURED WITH RCA RIDER CHANNELYST

14-X (400 V)

70X (400 V)

50X (400 V)

1-X (455 KC)

125 X (455 KC)

3 X (600 KC)

3 X (600 KC)

ANT. TO GRID

TRANS. CONVERSION
3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

LINK CLOSED FOR LOOP OPER.

WIRE IN CABINET S1

ANT. TO GRID

TRANS. CONVERSION

3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

MEASURED WITH 3 VOLT FIXED BIAS

MEASURED WITH RCA RIDER CHANNELYST

6SK7 R.F.

6SA7 1ST. DET. & OSC.

6SK7 I.F.

6SQ7 2ND. DET., A.F. & V.C.

6SQ7 PH. INVER.

6K6-GT OUTPUT

6K6-GT OUTPUT

OSCILLOGRAPH CONN'S VERTICAL "HI" TO THIS TERM, VERTICAL "O" TO CHASSIS.

5Y3-G RECT.

BOTTOM VIEW OF TUBE SOCKETS.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH AC SUPPLY.
* MEASURED WITH CHANNELYST OR VOLTOHMYST.

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER-CLOCKWISE POSITION).

MEASURED WITH RCA RIDER CHANNELYST

14-X (400 V)

70X (400 V)

50X (400 V)

1-X (455 KC)

125 X (455 KC)

3 X (600 KC)

3 X (600 KC)

ANT. TO GRID

TRANS. CONVERSION
3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

LINK CLOSED FOR LOOP OPER.

WIRE IN CABINET S1

ANT. TO GRID

TRANS. CONVERSION

3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

MEASURED WITH 3 VOLT FIXED BIAS

MEASURED WITH RCA RIDER CHANNELYST

6SK7 R.F.

6SA7 1ST. DET. & OSC.

6SK7 I.F.

6SQ7 2ND. DET., A.F. & V.C.

6SQ7 PH. INVER.

6K6-GT OUTPUT

6K6-GT OUTPUT

OSCILLOGRAPH CONN'S VERTICAL "HI" TO THIS TERM, VERTICAL "O" TO CHASSIS.

5Y3-G RECT.

BOTTOM VIEW OF TUBE SOCKETS.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH AC SUPPLY.
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RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER-CLOCKWISE POSITION).

MEASURED WITH RCA RIDER CHANNELYST

14-X (400 V)

70X (400 V)

50X (400 V)

1-X (455 KC)

125 X (455 KC)

3 X (600 KC)

3 X (600 KC)

ANT. TO GRID

TRANS. CONVERSION
3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

LINK CLOSED FOR LOOP OPER.

WIRE IN CABINET S1

ANT. TO GRID

TRANS. CONVERSION

3X (600 KC) → 80X (600-455 KC) → 125 X (455 KC) → 14-X (400 V) → 70X (400 V) → 50X (400 V) → 1-X (455 KC) → 125 X (455 KC) → 3 X (600 KC) → 3 X (600 KC)

MEASURED WITH 3 VOLT FIXED BIAS

MEASURED WITH RCA RIDER CHANNELYST

6SK7 R.F.

6SA7 1ST. DET. & OSC.

6SK7 I.F.

6SQ7 2ND. DET., A.F. & V.C.

6SQ7 PH. INVER.

6K6-GT OUTPUT

6K6-GT OUTPUT

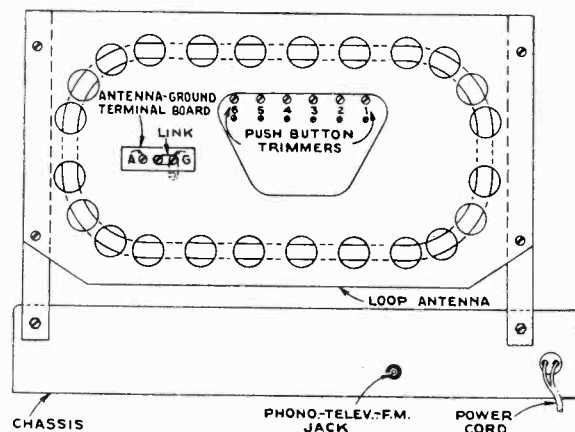
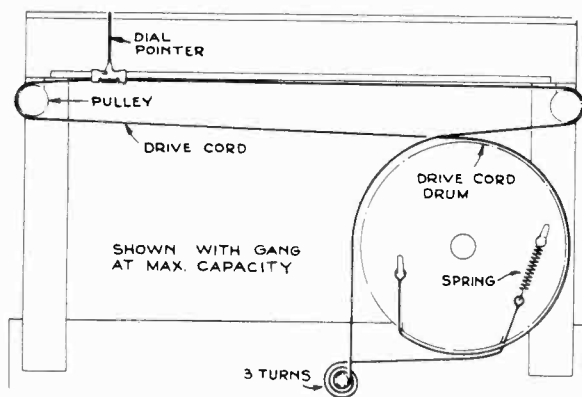
OSCILLOGRAPH CONN'S VERTICAL "HI" TO THIS TERM, VERTICAL "O" TO CHASSIS.

5Y3-G RECT.

BOTTOM VIEW OF TUBE SOCKETS.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH AC SUPPLY.
* MEASURED WITH CHANNELYST OR VOLTOHMYST.

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER-CLOCKWISE POSITION).



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

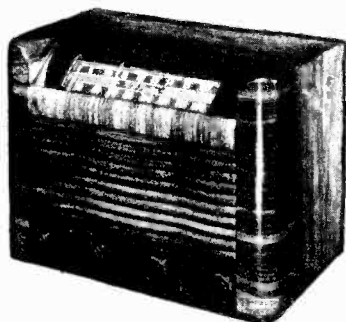
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-569)		
34025	Board—"Antenna-Ground" board.	35798	Indicator—Station selector indicator.
33014	Capacitor—Electrolytic, comprising 3 sections of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts.	38356	Loop—Antenna loop complete—less supports.
38368	Capacitor—Adjustable trimmer (50-350 mmfd.) for antenna coil.	5040	Plug—4-contact female plug for speaker cable.
38357	Capacitor—Mica trimmer—2-20 mmfd.	31373	Pulley—Drive cord pulley.
38363	Capacitor—Mica trimmer comprising 2 sections of 8-80 mmfd.	13220	Resistor—56 ohms, 1/4 watt.
35791	Capacitor—Mica trimmer comprising 3 sections of 8-80 mmfd.	34765	Resistor—100 ohms, 1/4 watt.
36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.	35885	Resistor—470 ohms, 2 watt.
38360	Capacitor—Mica trimmer comprising 1 section of 50-350 mmfd., 1 section of 5-50 mmfd., and 2 sections of 2-20 mmfd.	30694	Resistor—3,900 ohms, 1/4 watt.
12814	Capacitor—5.6 mmfd.	14075	Resistor—8,200 ohms, 1/4 watt.
14021	Capacitor—22 mmfd.	30436	Resistor—12,000 ohms, 1/4 watt.
12948	Capacitor—33 mmfd.	35875	Resistor—12,000 ohms, 3 watt.
13057	Capacitor—68 mmfd.	12266	Resistor—39,000 ohms, 1/4 watt.
12720	Capacitor—100 mmfd., moulded.	30650	Resistor—56,000 ohms, 1/4 watt.
34699	Capacitor—100 mmfd., unmoulded.	30651	Resistor—270,000 ohms, 1/4 watt.
34700	Capacitor—120 mmfd.	30648	Resistor—470,000 ohms, 1/4 watt.
13003	Capacitor—180 mmfd.	30649	Resistor—2.2 meg., 1/4 watt.
12694	Capacitor—220 mmfd.	30992	Resistor—10 meg., 1/4 watt.
38830	Capacitor—226 mmfd.	35797	Shaft—Tuning knob shaft.
38831	Capacitor—630 mmfd.	31364	Socket—Dial lamp socket.
30882	Capacitor—2,200 mmfd.	35787	Socket—Phono input socket.
30303	Capacitor—.0035 mfd.	31251	Socket—Tube socket.
33584	Capacitor—.005 mfd.	31418	Spring—Pointer cord spring.
4937	Capacitor—.01 mfd.	12007	Spring—Retaining spring for oscillator coil core and stud.
36248	Capacitor—.02 mfd.	38362	Switch—Range switch.
32787	Capacitor—.05 mfd.	38384	Switch—Selector switch.
4839	Capacitor—.01 mfd.	38369	Switch—Tone switch.
31581	Cell—Bias cell.	35636	Transformer—First I.F. transformer.
38367	Coil—Antenna coil.	35790	Transformer—Second I.F. transformer.
36031	Coil—Loop primary coil.	35588	Transformer—Power transformer—105-120 volts, 25 cycle.
38358	Coil—Oscillator coil.	35959	Transformer—Power transformer—105-120 volts, 50-60 cycle—less shields.
38315	Coil—Push button oscillator coil—high frequency.	35989	Washer—"C" washer for tuning knob shaft.
37638	Coil—Push button oscillator coil—low frequency.		
38366	Coil—R.F. coil.		SPEAKER ASSEMBLIES (92196-3)
38364	Condenser—S-gang variable tuning condenser.	38817	Coil—Field coil—1,060 ohms.
38404	Control—Volume control and power switch.	38373	Cone—Cone complete with voice coil.
34662	Cord—Pointer cord (approx. 60-in. overall length).	5039	Plug—4-prong male speaker plug.
35788	Core—Adjustable core and stud for oscillator coil.	38374	Transformer—Output transformer.
35871	Core—Adjustable core and stud for push button oscillator coils.		MISCELLANEOUS ASSEMBLIES
38359	Cup—Coil mounting cup and bushing.	38376	Bezel—Push button bezel.
38361	Drum—Condenser drive drum.	38375	Button—Push button.
38365	Frame—Dial frame complete—less dial.	37334	Clip—Dial clip.
31580	Holder—Bias cell holder.	38378	Decalcomania—Control panel decal—Pkg. 5.
		38377	Dial—Glass dial scale.
		35814	Knob—Control knob.
		11765	Lamp—Dial lamp.
		34317	Marker—Station selector marker.
		33774	Mounting—Speaker mounting hardware.
		30900	Spring—Retaining spring for control knobs.
		34053	Spring—Retaining spring for push button.

MODEL 28X and 28X5

Chassis No. RC-1002

RC-1002-A

Eight-Tube, Two-Band, AC-DC Superheterodyne Receiver



MODEL 28X



MODEL 28X5

Electrical and Mechanical Specification

FREQUENCY RANGES	
Standard Broadcast	535-1,720 kc
Short Wave	8.7-15.6 mc
Intermediate Frequency	455 kc

TUBE COMPLEMENT	
(1) RCA-6SG7	R-F Amplifier
(2) RCA-6SA7	1st Det.-Osc.
(3) RCA-6SK7	I-F Amplifier
(4) RCA-6SQ7	2nd Det., A.V.C., A.F. Amp.
(5) RCA-6SQ7	Phase Inverter
(6) RCA-25L6GT	Power Output
(7) RCA-25L6GT	Power Output
(8) RCA-25Z6GT	Rectifier

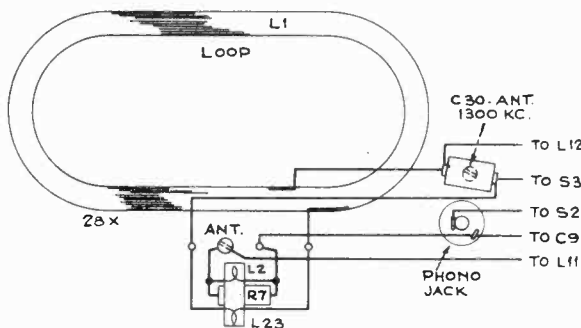
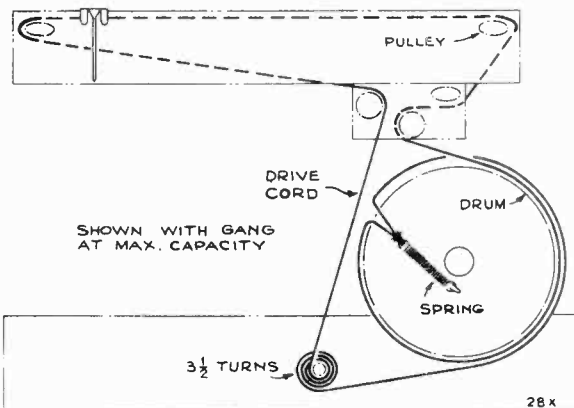
Dial Lamp (2) Mazda 44, 6.3 V., 0.25 A.

LOUDSPEAKER	92136-2 or 92136-3
Type	PM EM
Size	9 1/4-inch 9 1/4-inch
	"Ellipticon" "Ellipticon"
Voice Coil Impedance at 400 cycles	4 ohms 3 ohms

POWER OUTPUT RATING	
Undistorted	2.5 watt
Maximum	4.0 watt

POWER SUPPLY RATING	
105-125 A.C. 50-60 cy. or D.C.	45 watts

Thermal relay cuts in the dial lamps after the set warms up.— This set incorporates a thermal relay to control the dial lamps. When the set is "off," the relay contacts are closed. This shorts out the two lamps. When the set is turned "on," the heater current flows through the relay element R24. This heats up and causes the relay contacts to open, permitting the heater current to flow through the two dial lamps and light them. In normal operation, the lamps light about a half-minute after the set is turned on.



28X

Change in 2nd Production:

In 1st production, a capacitor C47 is connected from chassis to the junction of R1 and R27 in the RF plate circuit. In 2nd production, C47 is omitted, and terminal 11 on the oscillator coil is connected to the junction of R1 and R27 instead of to the "plus B" bus.

28X, 28X-5

Hum Modulation:

This form of hum becomes evident when a station's carrier is tuned in, and disappears when the set is tuned between stations. The hum may be present on only a few locals, or on many stations, depending, among other things, on the type and installation of the a-c supply line.

If hum modulation exists, check to see that there is an .05 mfd., 400-volt capacitor connected from the plate of the 25Z6GT rectifier to -B. Add this capacitor if necessary. The capacitor acts to by-pass RF signals around the rectifier tube.

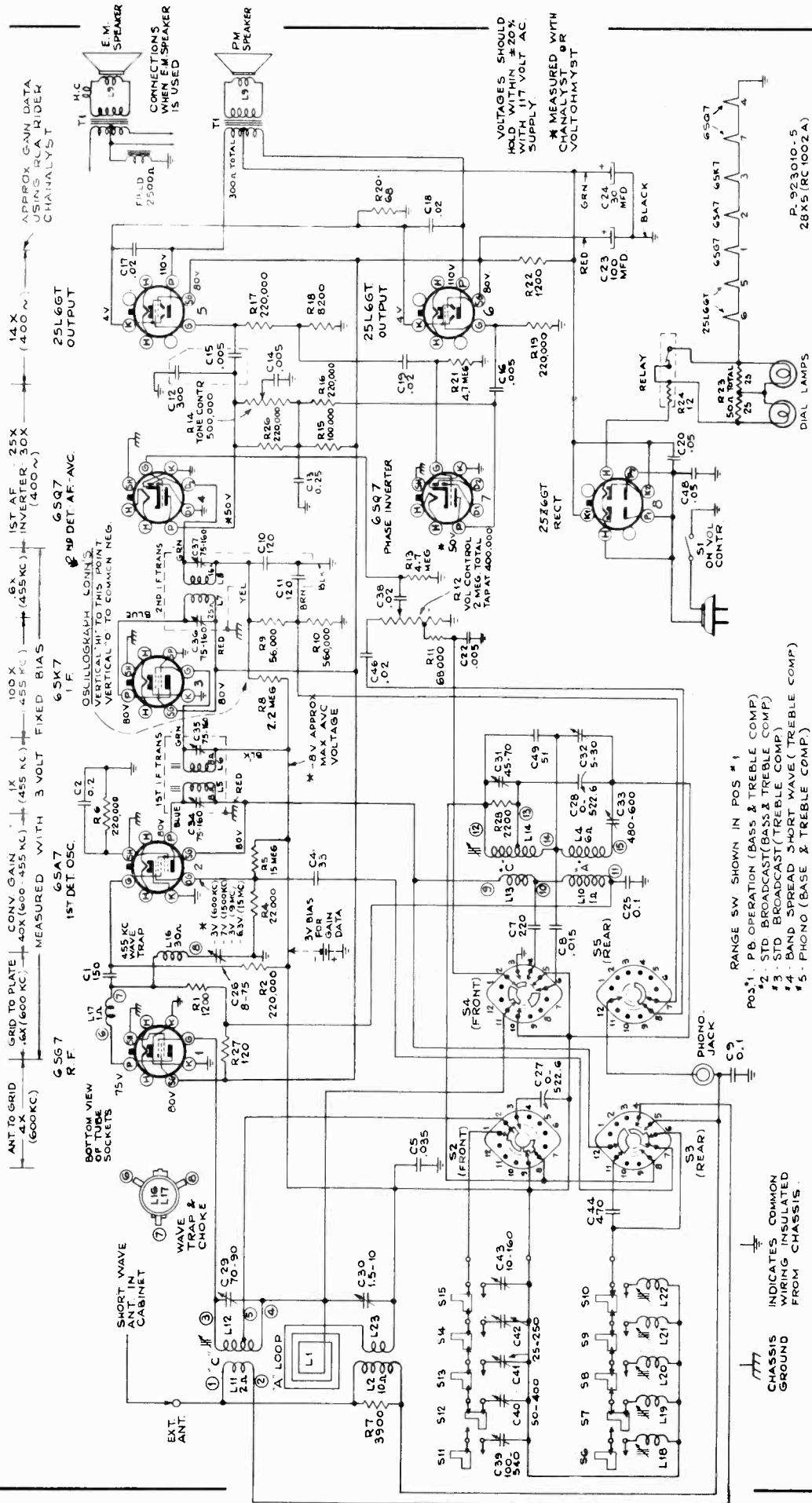
C4 Changed to 47 mmfd:

The oscillator grid capacitor is changed from .33 to 47 mmfd., Stock No. 13141.

28X5

Insufficient Push-Button Range:

In Model 28X5 if the push-buttons have insufficient range, realign IF at exactly 455 kc. If this does not correct the trouble, replace the main oscillator coil Stock No. 38685 and realign the set. The correct coil has no number stamping; do not use coil stamped 95106-501.



MODEL 28X-5

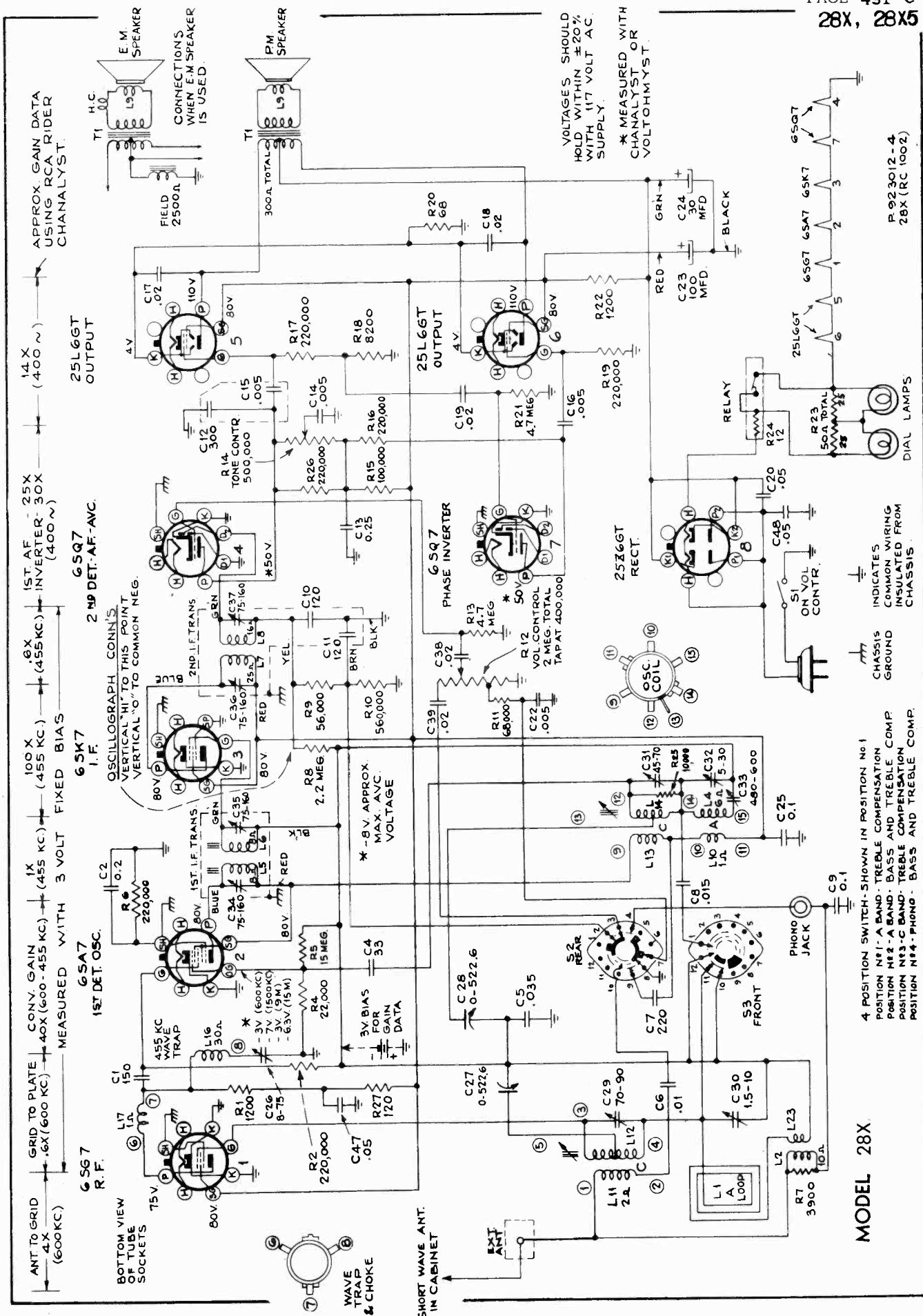
- RANGE SW SHOWN IN POS #1
- #1. PB OPERATION (BASS & TREBLE COMP)
 - #2. STD BROADCAST (BASS & TREBLE COMP)
 - #3. STD BROADCAST (TREBLE COMP)
 - #4. BAND SPREAD SHORT WAVE (TREBLE COMP)
 - #5. PHONO (BASE & TREBLE COMP)

INDICATES COMMON
WIRING INSULATED
FROM CHASSIS

VOLTAGES SHOULD
HOLD WITHIN ±20%
WITH 117 VOLT AC
SUPPLY.
* MEASURED WITH
CHANAALYST OR
VOLTOHMYST

APPROX. GAIN DATA
USING RCA RIDER
CHANAALYST

P-92310-5
28X5 (RC1002A)



APPROX. GAIN DATA USING RCA RIDER CHANALYST.

25L6GT OUTPUT

1ST AF - 25X INVERTER - 30X (400 ~)

6SQ7 2ND DET. AF-AVC. OSCILLOGRAPH CONN'S VERTICAL "HI" TO THIS POINT VERTICAL "O" TO COMMON NEG.

100X (455 KC) 6X (455 KC) 14X (400 ~) MEASURED WITH 3 VOLT FIXED BIAS

6SA7 1ST DET. OSC. 455 KC WAVE TRAP

ANT TO GRID 4X (600KC) GRID TO PLATE 4X (600KC)

E.M. SPEAKER CONNECTIONS WHEN E.M. SPEAKER IS USED.

WAVE TRAP & CHOKE

SHORT WAVE ANT. IN CABINET

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 VOLT AC SUPPLY. * MEASURED WITH CHANALYST OR VOLTOHMYST.

MODEL 28X

4 POSITION SWITCH - SHOWN IN POSITION No 1
POSITION N1 - A BAND - TREBLE COMPENSATION
POSITION N2 - A BAND - BASS AND TREBLE COMP
POSITION N3 - C BAND - TREBLE COMPENSATION
POSITION N4 - PHONO - BASS AND TREBLE COMP.

CHASSIS COMMON WIRING INSULATED FROM CHASSIS.

P-923012-4
28X (RC 100Z)

Alignment Procedure

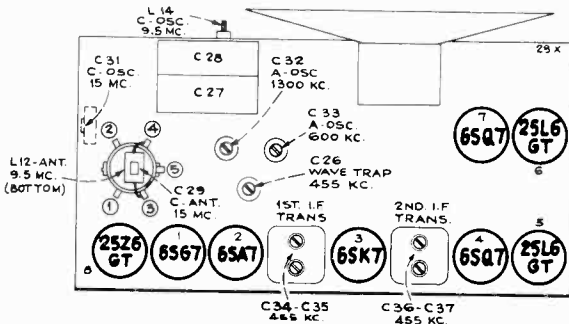
Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Dial Pointer Adjustment.—The dial pointer should be set at the left hand end dial marks, with the gang in full mesh.

Critical Lead Dress

1. Dress all AC filament and power wiring down close to chassis and as far as possible from all audio grid or plate wiring.
2. Dress all leads or parts as far as possible away from oscillator coil.
3. Dress audio coupling capacitor C38 from volume control to grid of 6SQ7 away from filament wire connecting No. 8 pin socket 5 and No. 8 pin socket 7.
4. Dress lead from trimmer condenser on loop to S.W. ant. coil between rectifier and R.F. tube and away from other coil leads.
5. Dress I-F plate and grid leads back into shield can to keep exposed length as short as possible.



Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test osc. to—	Tune test osc. to—	Range Switch to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near middle of dial	C36, C37 2nd I.F. Trans.
2	Det. grid in series with .01 mfd.				C34, C35 1st I.F. Trans.
3	Ant. lead in series with 50 mmfd.	15 mc	C	15 mc	C-31 (osc.)* C-29 (ant.)
4		9.5 mc	C	9.5 mc	L14 (osc.) L12 (ant.)
Repeat steps 3 and 4.					
5	Antenna terminal in series with 200 mmfd.	1,300 kc	A	1,300 kc	C-32 (osc.) C-30 (ant.)
6		600 kc	A	600 kc	C-33 Rock in
7	Repeat steps 5 and 6.				
8	R-F grid in series with .01 mfd.	455 kc	A	low end of dial	C-26**

*Oscillator should track on high frequency side of signal.

If two peaks are obtained use high frequency (minimum capacity peak).

**Feed a high signal level of 455 kc into R.F. grid and adjust C-26 for minimum signal.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (Model 28X RC-1002)			
38722	Board—"Antenna" terminal board	12071	Resistor—120 ohms, 1/4 watt
38734	Bracket—Drive cord pulley bracket	12287	Resistor—1,200 ohms, 1/4 watt
35097	Can—Shield can for 1st I.F. transformer	6134	Resistor—1,200 ohms, 1 watt
39152	Capacitor—Electrolytic comprising 1 section of 30 mmfd., 150 volts and 1 section of 100 mmfd., 150 volts	14075	Resistor—8,200 ohms, 1/4 watt
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.	3078	Resistor—10,000 ohms, 1/4 watt
38691	Capacitor—Adjustable capacitor—55-75 mmfd.	30492	Resistor—22,000 ohms, 1/4 watt
38692	Capacitor—Adjustable capacitor—90-110 mmfd.	30650	Resistor—56,000 ohms, 1/4 watt
38693	Capacitor—Adjustable capacitor comprising 1 section of 8-75 mmfd., 1 section of 480-600 mmfd., and 1 section of 5-30 mmfd.	13715	Resistor—68,000 ohms, 1/4 watt
38723	Capacitor—Mica trimmer—1.5-10 mmfd.	14580	Resistor—100,000 ohms, 1/4 watt
12948	Capacitor—33 mmfd.	14583	Resistor—220,000 ohms, 1/4 watt
12725	Capacitor—150 mmfd.	12486	Resistor—560,000 ohms, 1/4 watt
12694	Capacitor—220 mmfd.	30849	Resistor—2.2 meg., 1/4 watt
33584	Capacitor—.005 mfd.	30271	Resistor—4.7 meg., 1/4 watt
4858	Capacitor—.01 mfd.	38785	Resistor—15 meg., 1/4 watt
11315	Capacitor—.015 mfd.	12071	Resistor—120 ohms, 1/4 watt
38248	Capacitor—.02 mfd.	38715	Shaft—Tuning knob shaft
5198	Capacitor—.035 mfd.	39087	Socket—Dial lamp socket
32787	Capacitor—.05 mfd.	35787	Socket—Phono input socket
32786	Capacitor—.1 mfd.	37605	Socket—Tube socket
34505	Capacitor—.2 mfd.	31418	Spring—Drive cord spring
12484	Capacitor—.25 mfd.	12007	Spring—Retaining spring for core and stud
38720	Clip—Spring clip for dial scale	35098	Spring—Used to hold I.F. transformers in shield cans
38686	Coil—Antenna coil	38733	Support—Left hand dial plate support
37962	Coil—Antenna coupling coil	38732	Support—Right hand dial plate support
38690	Coil—Filter coil	38727	Switch—Range switch
38685	Coil—Oscillator coil	38713	Transformer—Audio transformer
38689	Condenser—Variable tuning condenser	38232	Transformer—First I.F. transformer—less shield can
38409	Control—Tone control	37364	Transformer—Second I.F. transformer—less shield can
38404	Control—Volume control and power switch	33726	Washer—"C" washer for tuning shaft
34662	Cord—Drive cord (approx. 59-in. overall length)	38716	Washer—Spring washer for tuning shaft
38694	Core—Adjustable core and stud	SPEAKER ASSEMBLIES (92136-2)	
38719	Dial—Glass dial scale	38736	Cone—Cone complete with voice coil
38718	Drum—Condenser drive drum	SPEAKER ASSEMBLIES (92136-3)	
38717	Indicator—Station selector indicator	39484	Coil—Field coil 2,500 ohms
11891	Lamp—Dial lamp	38736	Cone—Cone complete with voice coil
31193	Lead—Antenna lead	39483	Plug—3-prong male plug
38721	Loop—Antenna loop complete—less antenna coupling transformer	MISCELLANEOUS ASSEMBLIES	
38729	Plate—Dial back plate only—less support brackets, pulley bracket and pulleys	38738	Decalcomania—Control panel decal—Pkg. 5
38230	Pulley—Drive cord pulley	38686	Knob—Range switch knob
38714	Relay—Thermal relay	38722	Knob—Tuning, volume control or tone control knob
38724	Resistor—Wire wound comprising 2 sections of 50 ohms each	30900	Spring—Retaining spring for knobs
36976	Resistor—68 ohms, 1 watt		

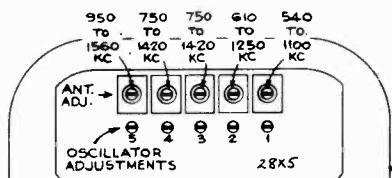
Replacement Parts MODEL 28X-5

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (Model 28X5 RC-1002A)			
38722	Board—"Antenna" terminal board	38729	Plate—Dial back plate only—less support brackets, pulley bracket and pulleys
38734	Bracket—Drive cord pulley bracket	36230	Pulley—Drive cord pulley
35097	Can—Shield can for 1st I.F. transformer	38714	Relay—Thermal relay
39152	Capacitor—Electrolytic comprising 1 section of 30 mmfd., 150 volts and 1 section of 100 mmfd., 150 volts	38724	Resistor—Wire wound comprising 2 sections of 50 ohms each
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.	36976	Resistor—68 ohms, 1 watt
38691	Capacitor—Adjustable capacitor—55-75 mmfd.	12071	Resistor—120 ohms, 1/2 watt
38692	Capacitor—Adjustable capacitor—90-110 mmfd.	12267	Resistor—1,200 ohms, 1/2 watt
38693	Capacitor—Adjustable capacitor comprising 1 section of 8-75 mmfd., 1 section of 480-600 mmfd., and 1 section of 5-30 mmfd.	6134	Resistor—1,200 ohms, 1 watt
38723	Capacitor—Mica trimmer—1.5-10 mmfd.	34767	Resistor—2,200 ohms, 1/2 watt
38726	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 1 section of 50-400 mmfd., and 1 section of 100-540 mmfd.	14075	Resistor—8,200 ohms, 1/2 watt
12948	Capacitor—33 mmfd.	13998	Resistor—22,000 ohms, 1/2 watt
39540	Capacitor—51 mmfd.	30650	Resistor—56,000 ohms, 1/2 watt
12725	Capacitor—150 mmfd.	13715	Resistor—68,000 ohms, 1/2 watt
12694	Capacitor—220 mmfd.	14560	Resistor—100,000 ohms, 1/2 watt
30433	Capacitor—470 mmfd.	14583	Resistor—220,000 ohms, 1/2 watt
33584	Capacitor—.005 mfd.	12486	Resistor—560,000 ohms, 1/2 watt
11315	Capacitor—.015 mfd.	30649	Resistor—2.2 meg., 1/2 watt
36248	Capacitor—.02 mfd.	30271	Resistor—4.7 meg., 1/2 watt
5196	Capacitor—.035 mfd.	38785	Resistor—15 meg., 1/2 watt
32787	Capacitor—.05 mfd.	38715	Shaft—Tuning knob shaft
32786	Capacitor—.1 mfd.	39087	Socket—Dial lamp socket
34505	Capacitor—.2 mfd.	35787	Socket—Phono input socket
12484	Capacitor—.25 mfd.	37605	Socket—Tube socket
38720	Clip—Spring clip for dial scale	31418	Spring—Drive cord spring
38813	Coil—Antenna coil	12007	Spring—Retaining spring for core and stud
37962	Coil—Antenna coupling coil	35098	Spring—Used to hold I.F. transformers in shield cans
38690	Coil—Filter coil	38731	Support—Left hand dial plate support
38685	Coil—Oscillator coil	38730	Support—Right hand dial plate support
37638	Coil—P.B. oscillator coil—540-1,100 K.C.	38712	Switch—Range switch
35803	Coil—P.B. oscillator coil—610-1,250 K.C.	38725	Switch—Selector switch
38772	Coil—P.B. oscillator coil—750-1,420 K.C.	38713	Transformer—Audio transformer
38773	Coil—P.B. oscillator coil—950-1,560 K.C.	36232	Transformer—First I.F. transformer—less shield can
38689	Condenser—Variable tuning condenser	37364	Transformer—Second I.F. transformer—less shield can
38409	Control—Tone control	33726	Washer—"C" washer for tuning shaft
38404	Control—Volume control and power switch	38716	Washer—Spring washer for tuning shaft
34662	Cord—Drive cord (approx. 60-in. overall length)	SPEAKER ASSEMBLIES (92136-2)	
38694	Core—Adjustable core and stud	38736	Cone—Cone complete with voice coil
35871	Core—Adjustable core and stud for P.B. oscillator coils	MISCELLANEOUS ASSEMBLIES	
38728	Dial—Glass dial scale	38737	Bezel—Push button bezel
38718	Drum—Condenser drive drum	38375	Button—Push button
38717	Indicator—Station selector indicator	38739	Decalcomania—Control panel decal—Pkg. 6
11891	Lamp—Dial lamp	36886	Knob—Range switch knob
31193	Lead—Antenna lead	36722	Knob—Tuning, volume control or tone control knob
39514	Loop—Antenna loop complete—less antenna coupling transformer	34317	Marker—Station selector marker
		30900	Spring—Retaining spring for knobs
		34053	Spring—Retaining spring for push button

28X5

Push Button Adjustment



The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure.

1. Make a list of the desired stations, arranged in order from low to high frequencies.

2. Turn the range selector to "A" band, and manually tune in the first station on the list.

3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core to receive the station. It may be necessary to maintain approximate tracking between antenna and oscillator to receive weak stations.

4. After oscillator core is adjusted properly, adjust antenna trimmer No. 1 for maximum output.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the five remaining stations in the same manner.

6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On push-button No. 5, the higher frequency stations may be obtained with the oscillator core No. 5 either in or out. (Oscillator frequency either 455 kc below or above the signal.) The out position should be used so the oscillator is 455 kc above the signal.

MODELS 29K and 29K2

Chassis No. RC-570 and RC-570C & D

Nine-Tube, Three-Band, A-C, Loop, Superheterodyne

29K2 (RC-570-D)

With 5-inch "EM" Speaker:

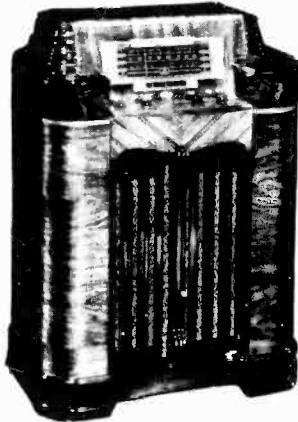
In 2nd production, the 5-inch speaker is changed from "PM" to "EM," as listed below:

SPEAKER ASSEMBLIES (RL-86B-5)

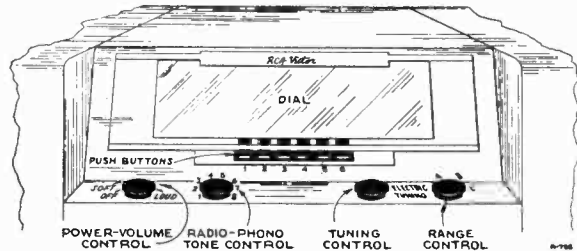
Stock No.	Description
39543	Coil—Field coil—450 ohms
39567	Cone—Cone complete with voice coil
30870	Plug—2-prong male plug for speaker
5118	Plug—3-prong male plug for speaker



Model 29K



Model 29K2



Electrical and Mechanical Specifications

FREQUENCY RANGES	
Standard Broadcast "A"	540-1,600 kc
Medium Wave "B"	2.3-6.3 mc
Short Wave "C"	9.4-15.4 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

(1) RCA-6SG7	R-F Amplifier
(2) RCA-6SA7	1st Detector-Oscillator
(3) RCA-6SK7	I-F Amplifier
(4) RCA-6SQ7	2nd Detector, A.V.C.
(5) RCA-6SQ7	A-F Amplifier
(6) RCA-6SQ7	Phase Inverter
(7) RCA-6K6GT	Power Output
(8) RCA-6K6GT	Power Output
(9) RCA-5Y3-G	Rectifier

PILOT LAMPS (2) Mazda No. 44, 6-8 volts, .25 amp.

POWER OUTPUT RATING

Undistorted	5 watts
Maximum	5.5 watts

CABINET DIMENSIONS

Height	39 3/8 inches
Width	29 inches
Depth	16 inches
Weight (shipping) 29K	67 pounds
Weight (net) 29K	54 pounds
Weight (shipping) 29K2	74 pounds
Weight (net) 29K2	57 pounds
Chassis Base Dimensions (inches)	Height 2, Width 16, Depth 7
Overall Chassis Height	6 1/2 inches
Tuning Drive Ratio	15 to 1

LOUDSPEAKERS

	(RL 70J-1)	(RL 81B-6)
Models	29K and 29K2	29K2
Type	12-inch electrodynamic	5-inch Perm. Magnet
V.C. Impedance	2.2 ohms at 400 cycles	3 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A	105-125 volts, 50-60 cycles, 100 watts
Rating B	105-125 volts, 25-60 cycles, 100 watts

Phasing Speakers in 29K2

For correct tone, it is ESSENTIAL that the two speakers operate "in phase," so that the two cones move in and out together.

It is necessary to check the phasing whenever a new speaker, cone, field coil, or output transformer is installed, or whenever the speaker connections are altered in any way.

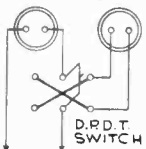
The recommended procedure is as follows:

1. Hook up a "phase checker," using headphones or PM speaker units as shown. Connect the checker to an audio amplifier that has an output meter. (The audio channel in the Chanalyst is excellent for this purpose.)

2. Feed a 400-cycle modulated signal into the receiver. Turn volume up to medium. Hold both units of the checker in front of the large speaker in set. Throw the toggle switch to each position and note which position gives maximum output on meter. Mark this position of the switch "in phase." Mark the other position "out of phase."

3. Place one unit of the phase checker in front of each speaker in the set. Throw the toggle switch to each position and leave it at the position that gives greatest output on the meter. Note the switch marking for this position. If it says "in phase," the set speakers are correctly phased. If it says "out of phase," reverse the leads to the voice-coil terminals of the small speaker in the receiver.

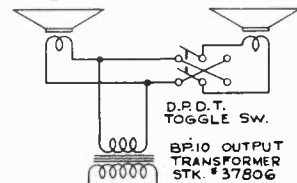
HEAD PHONES
2000 OR 3000 Ω



TO AUDIO CHANNEL OF
CHANALYST OR
AUDIO AMPLIFIER

"Phase Checker," using
Headphones.

2-BP10 SPEAKERS STK. #37807



TO INPUT OF AN AUDIO AMPLIFIER,
OR TO AUDIO CHANNEL OF CHANALYST,
OR TO 200 MICROAMP A.C. METER.

"Phase Checker," using
small PM speakers.

RADIO

ALL HIGHS, LEAST LOWS
MINIMIZES BASS RESONANCE
AND LOW-PITCHED INTERFERENCE.
SPEECH POSITION

FULL TONE—ALL HIGHS
AND ALL LOWS
FOR ORCHESTRA AND OPERA
BEST GENERAL POSITION

ALL LOWS, MODERATE
HIGHS
REDUCES STATIC AND
HIGH-PITCHED INTERFERENCE

ALL LOWS, LEAST HIGHS
MINIMIZES STATIC AND
HIGH-PITCHED INTERFERENCE

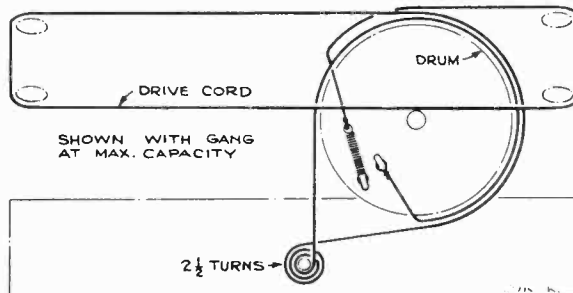
PHONO, TELEV., P.M.

ALL LOWS, LEAST HIGHS
MINIMIZES RECORD SURFACE
NOISES AND HIGH-PITCHED
TONES

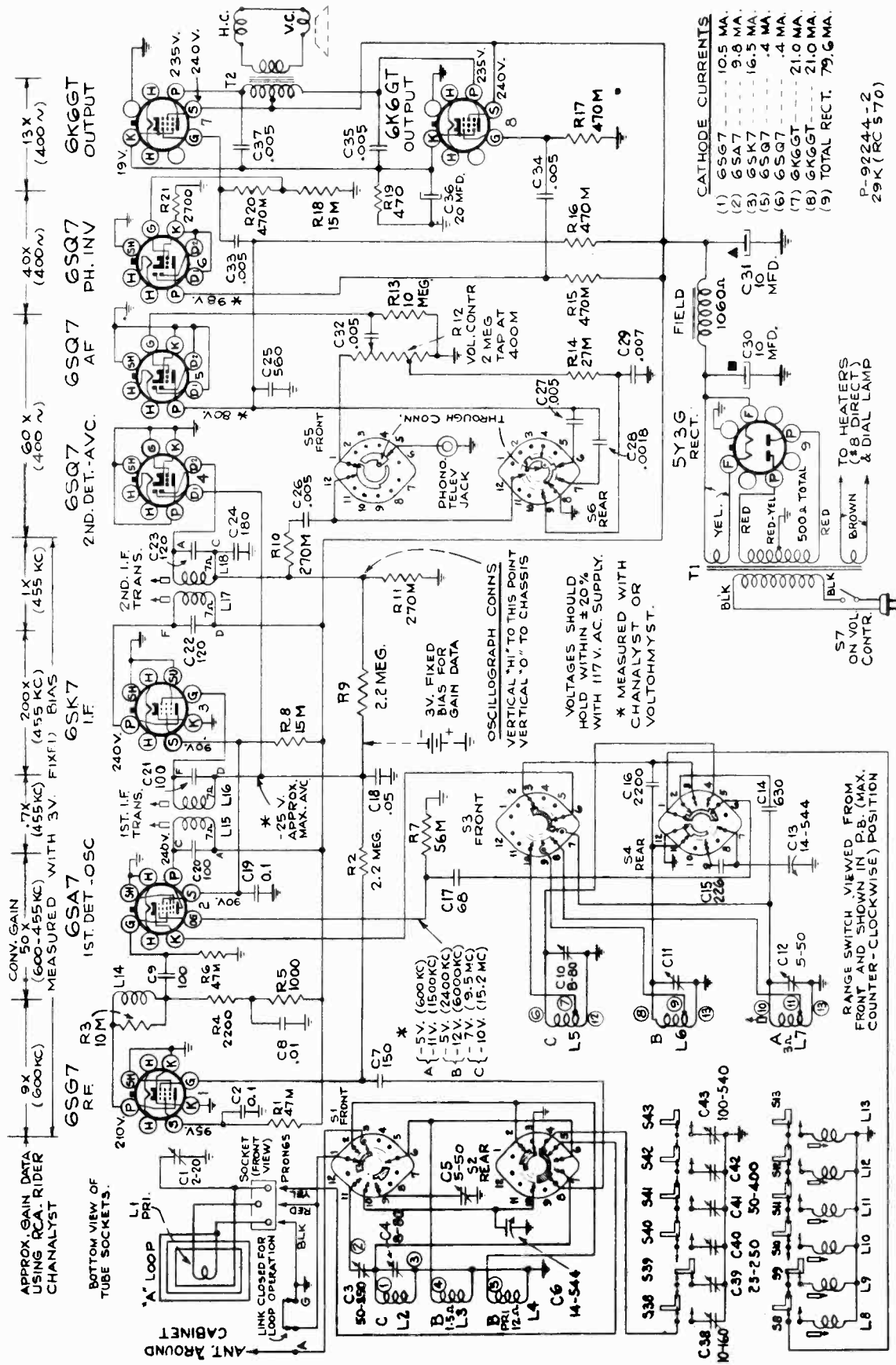
ALL LOWS, MODERATE
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FULL TONE—ALL HIGHS
AND ALL LOWS
FOR ORCHESTRA AND OPERA
BEST GENERAL POSITION

ALL HIGHS, LEAST LOWS
MINIMIZES BASS RESONANCE



External Antenna.—When using an External Antenna, Peak C3 for max. output on a station in the 31-meter band.



Model 29K Schematic Diagram

Model 29K2 has two speakers, connected as shown in the diagram on the facing page

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in R.F. alignment, check the position of the drum. The 135° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are in minimum capacity position. The drum is held to the shaft by means of plastic cement which must be securely fastened when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

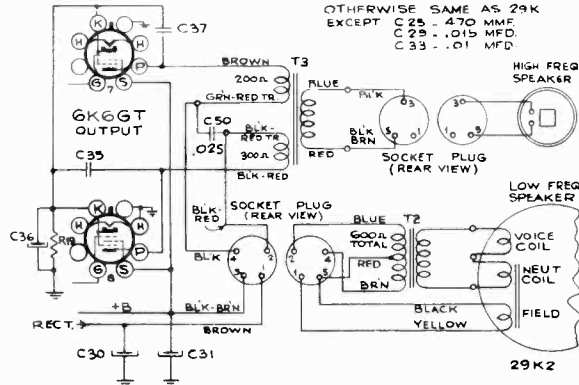
Precautionary Lead Dress.—

1. Dress all filament wiring away from audio and output tube grids.
2. The 226 mmfd. (C15) should be dressed away from all parts and wiring.
3. Leads from 2nd I.F. to tone switch should be dressed under the trimmer bank.
4. Speaker leads should be dressed close to chassis base and away from the phono plug.
5. Primary transformer lead should be twisted around A.C. lead to switch and dressed over top of transformer.
6. Dress C7 (150 mmfd. cap.) from range switch to R.F. socket away from all leads and metal parts.

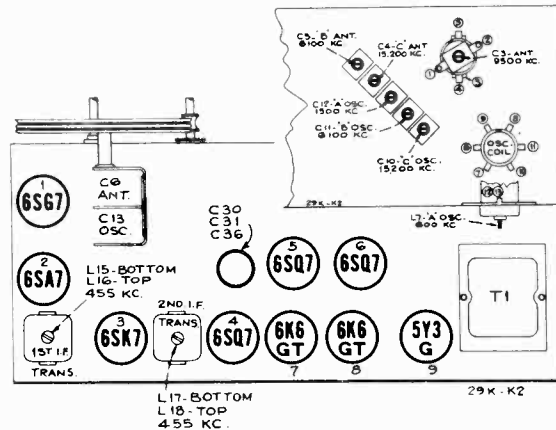
Alignment Procedure

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Range Switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A"	Quiet Point near 180°	L17 and L18 (2nd I-F Trans.)
2	6SA7 Det. grid in series with .01 mfd.				L-15 and L-16 (1st I-F Trans.)
3	Ant. section of Gang Condenser	1,500 kc	"A"	180°	C-12 (osc.)
4		600 kc		30.5°	L-7 (osc.)
5	Ant. terminal "A" in series with 47 mmf. link open	6,100 kc	"B"	161°	C-11 (osc.)* C-5 (ant.)
6		15,200 kc		"C"	167°	C-10 (osc.)* C-4 (ant.)
7		9,500 kc	32°		C-3 (ant.) (Rock Gang)
8	Repeat steps 6 and 7.				
9	Fasten chassis in cabinet, see that link is closed on antenna terminal board, indicator at left end of dial scales with gang at maximum capacity.				
10	A radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	1,500 kc	"A"	1,500 kc signal	C-1 (ant.) on loop
11		800 kc		800 kc	L-7 (osc.) (Rock Gang)
12	Repeat steps 10 and 11.				

*Use minimum capacity peak if two peaks can be obtained.
Note: Oscillator tracks above signal on all bands.



Model 29K2 Speaker Connections



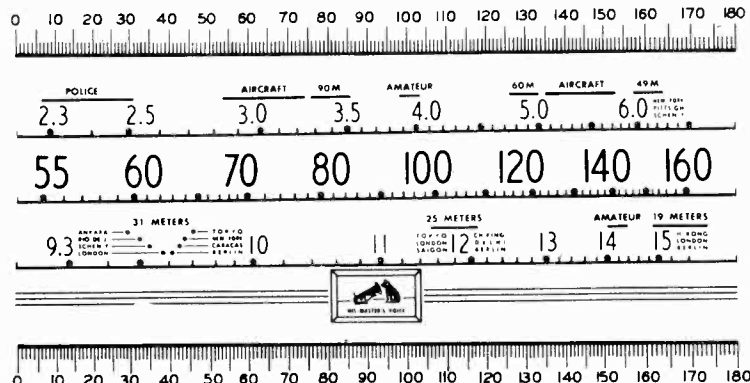
29K2 (RC-570-D)

With 5-inch "EM" Speaker:

In 2nd production, the 5-inch speaker is changed from "PM" to "EM," as listed below:

SPEAKER ASSEMBLIES (RL-86B-5)

Stock No.	Description
39543	Coil—Field coil—450 ohms
39567	Cone—Cone complete with voice coil
30470	Plug—2-prong male plug for speaker
5118	Plug—3-prong male plug for speaker

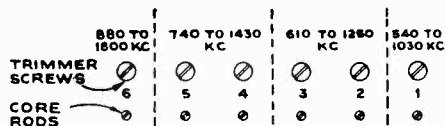


Adjustment for Electric Tuning

This model has six push buttons for electric tuning. The buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the six desired stations, arranged in order from low to high frequencies.
2. Turn Range Control knob to "A" position, and manually tune in the first station on the list.



Push Button Adjustments

Turn the Loop Antenna to give minimum pickup of signal. No outside antenna should be used and link on antenna board should be closed.

3. Turn Range Control knob to "PB" and press push button No. 1 and adjust No. 1 oscillator core to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer for maximum output on this station.
(Owing to the relatively high R-F gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases it is advisable to unscrew the push button antenna trimmers to minimum capacity before adjusting the oscillator cores.)
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining five stations in the same manner.
6. After all six stations are tuned-in on the buttons, turn the Loop Antenna to a position giving the best signal pickup and make a final careful adjustment of all core rods until best reception is obtained for each. Outdoor antenna should now be reconnected if used.

Replacement Parts

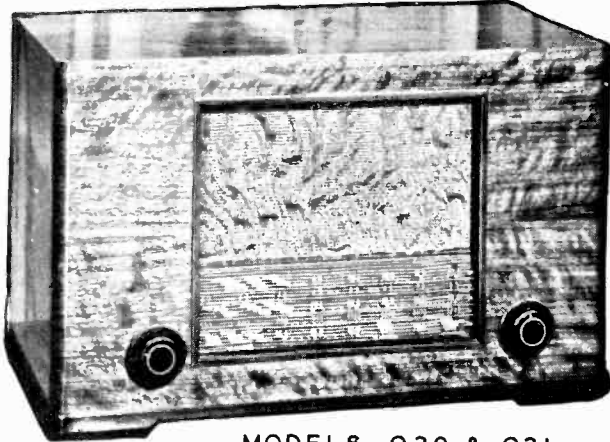
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC-570 (29K) RC-570C (29K2)		
35966	Board—"Antenna-Ground" board	30992	Resistor—10 meg., 1/4 watt
38571	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts, and 1 section of 20 mfd., 25 volts	36589	Shaft—Tuning knob shaft
38368	Capacitor—Adjustable trimmer—50-350 mmfd., for "C" band antenna coil	36772	Shield—Bottom end shield for power transformer No. 35959
38572	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd., and 2 sections of 8-80 mmfd.	35709	Shield—Top end shield for power transformer No. 35969
38424	Capacitor—Mica trimmer comprising 1 section of 10-180 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.	31364	Socket—Dial lamp socket
13057	Capacitor—68 mmfd.	36787	Socket—Phono input socket
12720	Capacitor—100 mmfd., moulded	31251	Socket—Tube socket
34699	Capacitor—100 mmfd., unmoulded	31418	Spring—Pointer cord spring
34700	Capacitor—120 mmfd.	12007	Spring—Retaining spring for adjustable core and stud
12725	Capacitor—150 mmfd.	38575	Switch—P.B. selector switch
13003	Capacitor—180 mmfd.	38577	Switch—Range switch
38830	Capacitor—228 mmfd., silvered mica	38576	Switch—Tone switch
30433	Capacitor—470 mmfd.	35636	Transformer—First I.F. transformer
12537	Capacitor—560 mmfd.	35790	Transformer—Second I.F. transformer
38831	Capacitor—630 mmfd., silvered mica	38799	Transformer—Output transformer (29K2) (T3)
12951	Capacitor—2200 mmfd.	35688	Transformer—Power transformer—105-120 volts, 25 cycle
34506	Capacitor—.0018 mfd.	35959	Transformer—Power transformer—105-120 volts, 50/60 cycle—less end shields
33584	Capacitor—.005 mfd.	35969	Washer—"C" washer for tuning shaft
5148	Capacitor—.007 mfd.		SPEAKER ASSEMBLIES (RL-70J-1)
4937	Capacitor—.01 mfd.	13867	Cap—Dust cap
11315	Capacitor—.015 mfd.	12079	Coil—Field coil—1060 ohms
37706	Capacitor—.025 mfd.	11469	Coil—Neutralizing coil
32787	Capacitor—.05 mfd.	36145	Cone—Cone complete with voice coil
4839	Capacitor—0.1 mfd.	5039	Plug—4 prong male plug for speaker
38367	Coil—Antenna coil	36146	Support—Metal cone support
38829	Coil—Coil and resistor assembly	33444	Transformer—Output transformer (T2)
38358	Coil—Oscillator coil		SPEAKER ASSEMBLY RL-81B-6 (PM) 29K2
38315	Coil—P.B. oscillator coil—high frequency	35849	Cap—Dust cap
37638	Coil—P.B. oscillator coil—low frequency	38683	Cone—Cone complete with voice coil
38570	Condenser—Two gang variable tuning condenser	5118	Plug—3 prong male plug for speaker
38404	Control—Volume control and power switch		MISCELLANEOUS ASSEMBLIES
34662	Cord—Pointer cord (approx. 76 in. overall length)	38375	Button—Push button
35788	Core—Adjustable core and stud for oscillator coil	38684	Capacitor—Mica trimmer—2-20 mmfd.
35871	Core—Adjustable core and stud for P.B. oscillator coils	38584	Channel—Rubber channel to hold dial in escutcheon (2 required)
38359	Cup—Mounting cup and bushing for oscillator coil	38579	Coil—Loop primary coil
38361	Drum—Condenser drive drum	38708	Decalomania—Control panel decal.
5119	Plug—3 contact female plug for connector cable	38583	Dial—Glass dial scale
5040	Plug—4-contact female plug for speaker cable	38582	Escutcheon—Dial scale escutcheon
38832	Plug—Pin plug for loop leads, Pkg. 5	38709	Indicator—Station selector indicator
31373	Pulley—Drive cord pulley	35814	Knob—Control knob
35885	Resistor—470 ohms, 2 watts	11891	Lamp—Dial lamp
14720	Resistor—1000 ohms, 1/2 watt	38578	Loop—Antenna loop complete
34767	Resistor—2200 ohms, 1/2 watt	34317	Marker—Station markers
14024	Resistor—2700 ohms, 1/2 watt	33774	Mounting—Speaker mounting hardware
38714	Resistor—15,000 ohms, 1/2 watt	38580	Pivot—Loop bracket and pivot tube—located on top of loop frame
35595	Resistor—15,000 ohms, 3 watts	38707	Plate—Dial plate complete—less indicator pointer
30409	Resistor—27,000 ohms, 1/2 watt	36422	Socket—Loop cable socket—located on loop
12412	Resistor—47,000 ohms, 1/2 watt	30900	Spring—Retaining spring for knob
30787	Resistor—47,000 ohms, 1/2 watt	34053	Spring—Retaining spring for push button
30650	Resistor—56,000 ohms, 1/2 watt	38581	Swivel—Loop support and swivel—located on bottom of loop frame
30651	Resistor—270,000 ohms, 1/2 watt		
30648	Resistor—470,000 ohms, 1/2 watt		
30649	Resistor—2.2 meg., 1/2 watt		

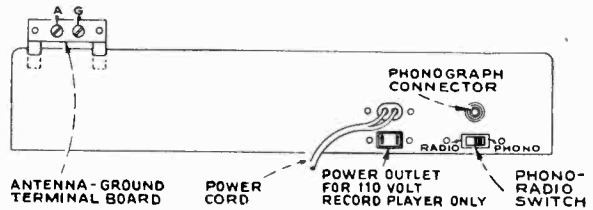
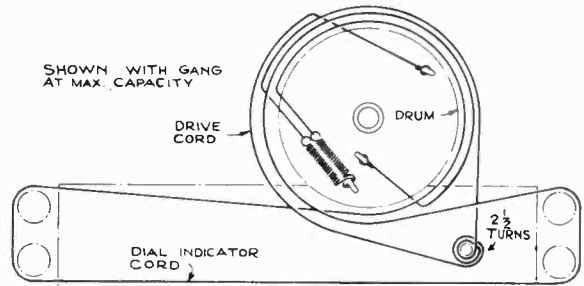
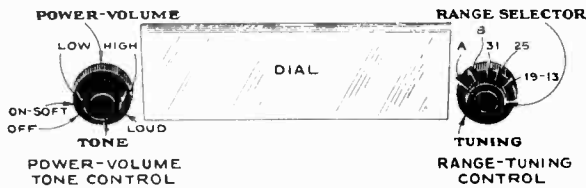
MODELS Q30 and Q31

Chassis No. RC-538B RC-538C

Six-Tube, Five-Band Superheterodyne



MODELS Q30 & Q31



Electrical and Mechanical Specifications MODEL Q30

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540-1,720 kc (556-174 m)
Medium Wave ("B" Band).....	3.0-9.5 mc (100-31.6 m)
31 Meter Spread Band.....	9.5-11.8 mc (31.6-25.4 m)
25 Meter Spread Band.....	11.7-15.2 mc (25.6-19.8 m)
19-13 Meter Spread Band.....	15.05-23.0 mc (20-13.0 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Det. A-F Amplifier AVC
- (5) RCA-6F6G..... Power Output
- (6) RCA-5Y3G..... Rectifier

PILOT LAMPS..... 2—Type 44, 6.3 volts, 0.25 amps.

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles.....	75 watts
105-125 volts, 25-60 cycles.....	75 watts
100-130, 140-160, 200-250 volts, 50-60 cycles.....	75 watts

POWER OUTPUT

Undistorted.....	2.5 watts
Maximum.....	4.5 watts

LOUDSPEAKER

Type..... 9 x 6 1/2 inch elliptical electrodynamic
 V.C. Impedance..... 3.7 ohms at 400 cycles
 Identification Number..... 92196-1

	Height	Width	Depth
CABINET DIMENSIONS (inches).....	11 1/2	18 1/2	10 1/2
Chassis Base Dimensions (inches).....	2 1/2	15 1/2	6 1/2
Overall Chassis Height.....	7 1/2	inches	
Tuning Drive Ratio.....	20 to 1		

Electrical and Mechanical Specifications MODEL Q31

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540-1,720 kc (556-174 m.)
Medium Wave ("B" Band).....	3.0-9.5 mc (100-31.6 m.)
31 Meter Spread Band.....	9.5-11.8 mc (31.6-25.4 m.)
25 Meter Spread Band.....	11.7-15.2 mc (25.6-19.8 m.)
19-13 Meter Spread Band.....	15.05-23.0 mc (20-13 m.)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6S7..... R-F Amplifier
- (2) RCA-12SA7..... 1st Detector-Oscillator
- (3) RCA-6S7..... I-F Amplifier
- (4) RCA-12SQ7..... 2nd Det. A-F Amplifier AVC
- (5) RCA-50L6GT..... Power Output
- (6) RCA-35Z5GT..... Rectifier

PILOT LAMPS..... 1 Type 47, 6-8 v., 0.15 amps.

POWER SUPPLY RATINGS

105-125 volts, 40 to 100 cycles AC, or DC.....	31 watts
160-200 volts, 40 to 100 cycles AC, or DC.....	50 watts
210-250 volts, 40 to 100 cycles AC, or DC.....	68 watts

POWER OUTPUT

Undistorted.....	2.5 watts
Maximum.....	4.5 watts

LOUDSPEAKER

Type..... 9 in. x 6 1/2 in. elliptical permanent magnet dynamic
 V.C. Impedance..... 3.7 ohms at 400 cycles
 Identification Number..... 92196-2

	Height	Width	Depth
CABINET DIMENSIONS (inches).....	11 1/2	18 1/2	10 1/2
Chassis Base Dimensions (inches).....	2 1/2	15 1/2	6 1/2
Overall Chassis Height.....	7 13/16	inches	
Tuning Drive Ratio.....	20 to 1		

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

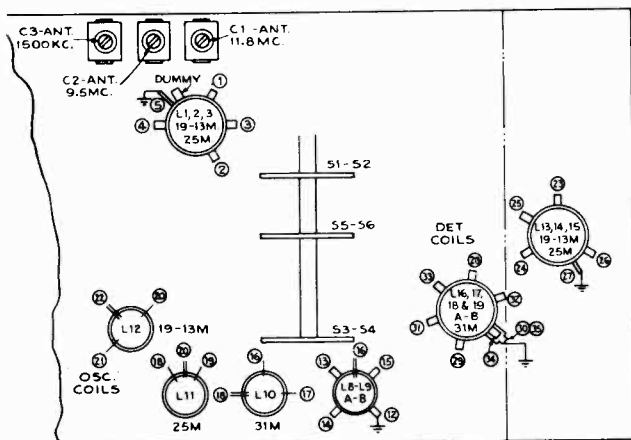
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

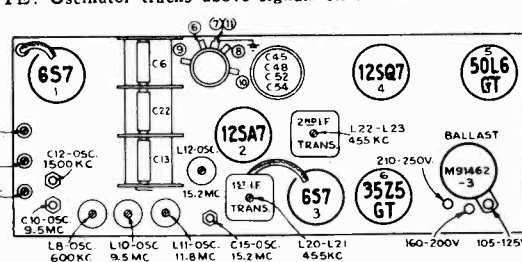
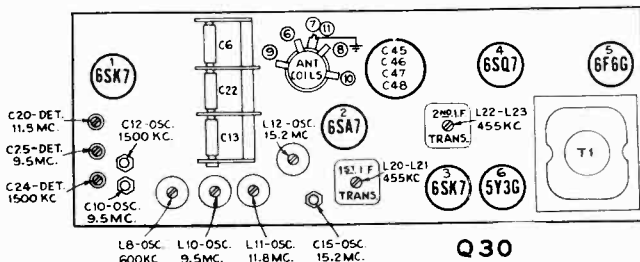
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range Switch	Turn radio Dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd				L23-L22 2nd I-F transformer
2	6SA7 1st det. grid in series with .01 mfd.	455 kc	"A" band	Quiet point near 600 kc (149.5°) end of dial	L21-L20 1st I-F transformer
3	Antenna terminal in series with 300 ohms	11.8 mc	25 meter band	11.8 mc (138.5°)	L11 (osc.) C1 (ant.) C20 (det.) Rock in
4		15.2 mc		15.2 mc (18.5°)	C15 (osc.)*†
5	Repeat steps 3 and 4 until aligned.				
6		15.2 mc	19-13 meter band	15.2 mc (156°)	L12 (osc.)**
7	Antenna terminal in series with 300 ohms	9.5 mc	31 meter band	9.5 mc (156°)	L10 (osc.)** C2 (ant.) C25 (det.)*** Rock in
8		9.5 mc	"B" band	9.5 mc (11.5°)	C10 (osc.)*
9	Antenna terminal in series with 200 mmfd.	1,500 kc	"A" band	1,500 kc (27°)	C12 (osc.) C3 (ant.) C24 (det.)
10		600 kc		600 kc (149.5°)	L8 (osc.) Rock in
11	Repeat steps 9 and 10.				



Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

* Use minimum capacity peak if two can be obtained.
 ** Peak at minimum plunger position if two peaks can be obtained.
 *** Use maximum capacity peak if two peaks can be obtained.
 † Check image to determine that C15 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.

NOTE: Oscillator tracks above signals on all bands.

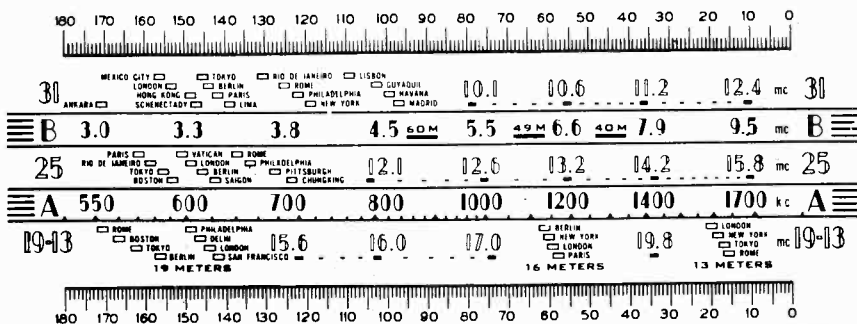


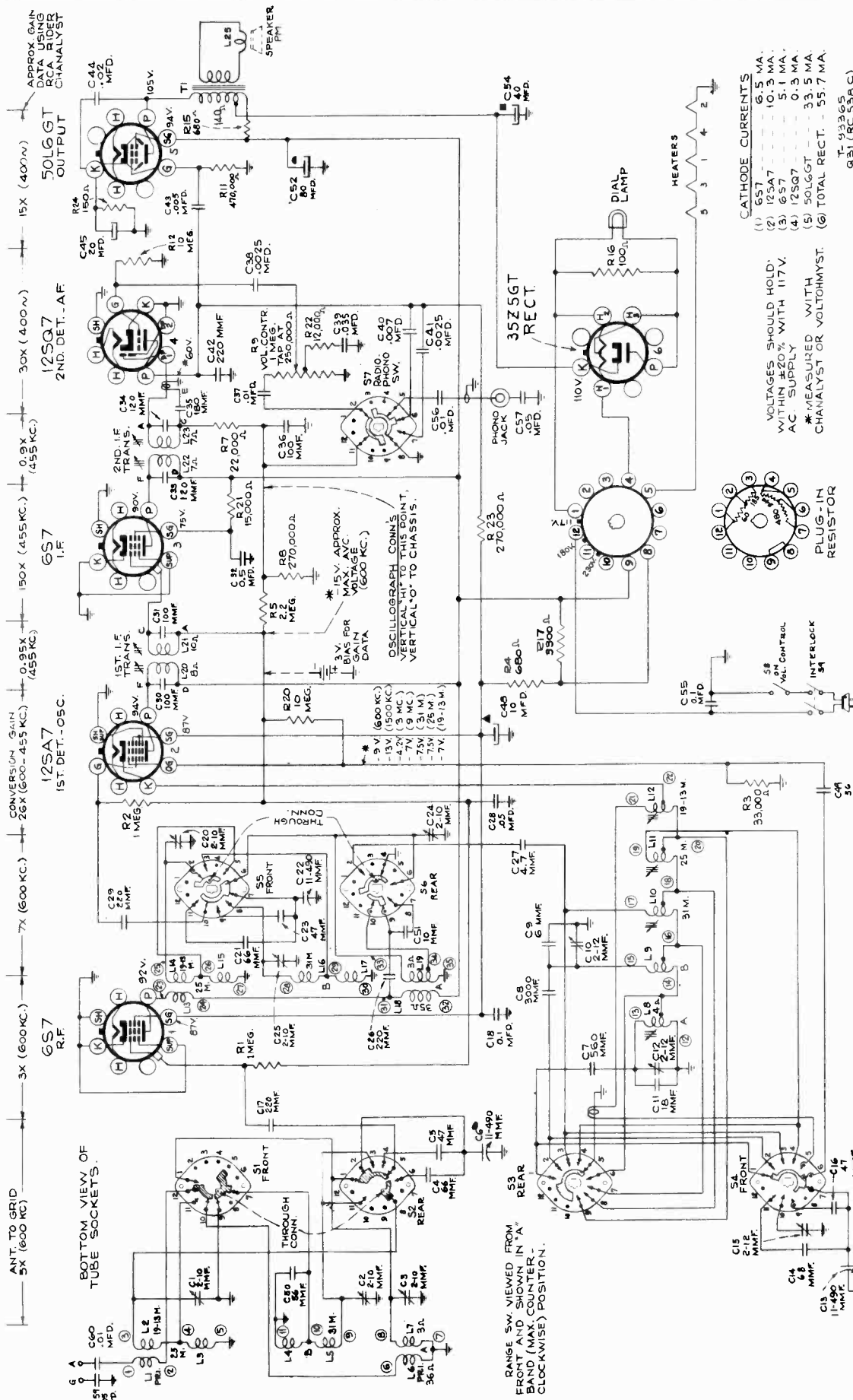
Location and function of trimmers is identical for both models. For Q31 - in tabulation above - substitute 6S7 for 6SK7 and 12SA7 for 6SA7.

Calibration Scale

Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."





CATHODE CURRENTS

(1) 6S7	6.5 MA.
(2) 12SA7	10.5 MA.
(3) 6S7	5.1 MA.
(4) 12SQ7	0.5 MA.
(5) 50L6GT	33.5 MA.
(6) TOTAL RECT.	55.7 MA.

MODEL Q31

MODEL Q30

Precautionary Lead Dress:

1. Dress green leads from antenna and R-F gang sections away from all metal including chassis shield plates. The spaghetti covered braid in the antenna section should be at least 1/4 inch away from gang.
2. Dress toothpick capacitors and switch leads away from and edge on to shield plates.
3. Closely twist ground lead about 2nd I-F transformer diode lead and dress close to chassis.
4. Dress volume control-arm lead and capacitor close to front apron and away from output tubes by-pass capacitors.
5. 6SQ7 10 megohm grid resistor should have no lead length on the grid side.
6. Dress capacitor high side of volume control toward base and as far as possible from a-c switch.
7. Leads to converter socket should not impede flexible mounting.
8. Converter control grid: clear of any other leads, especially filament leads which must be at least 1/4 inch away. The megohm grid leak must have its body as close to grid as possible.
9. Dress oscillator grid and control grid capacitors apart.
10. Dress all filament and B+ leads close to chassis. Dress speaker leads close to base.
11. Dress phono lead and diode return lead to switch away from power circuits and output tube sockets.
12. Dress power transformer leads between back apron, power transformer and 5Y3 socket.
13. Brown lead from electrolytic to rectifier tube should be well away from I.F. transformer parts.
14. AC leads to switch should be twisted and away from all parts.
15. Capacitor to phono switch and its lead should be away from all other leads.
16. Brown speaker leads should be dressed down and away from 6SQ7 socket.
17. C-38 should be close to chassis and away from all other leads.
18. Shielded lead from I.F. to phono switch should be away from all else.

Replacement Parts MODEL Q30

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-538B)			
34502	Arm—Operating arm between knob shaft and range switch.	33773	Drum—Drive drum.
37053	Board—"Antenna-Ground" board.	33185	Gear—Volume control gear and hub.
37898	Bracket—L.H. bracket complete with 2 drive cord pulleys.	33767	Link—Operating link between knob shaft and range switch.
37895	Bracket—R.H. bracket complete with 2 drive cord pulleys.	5119	Plug—3-contact female plug for speaker.
35795	Calibrator—Drive drum calibrator.	35630	Pulley—Drive cord pulley.
37059	Capacitor—Mica trimmer comprising 3 sections of 2.5-10 mmfd. each (C1, C2, C3) (C20, C24, C25).	31388	Resistor—390 ohms, 1 watt (R24).
33097	Capacitor—4.7 mmfd. (C27).	14859	Resistor—6,800 ohms, 1/2 watt (R22).
35646	Capacitor—6 mmfd. (C9).	35595	Resistor—15,000 ohms, 3 watts (R20).
13200	Capacitor—10 mmfd. (C51).	13998	Resistor—22,000 ohms, 1/2 watt (R7).
31350	Capacitor—18 mmfd. (C11).	12454	Resistor—33,000 ohms, 1/2 watt (R3).
35644	Capacitor—47 mmfd., ceramic (C16).	30650	Resistor—56,000 ohms, 1/2 watt (R21).
37329	Capacitor—47 mmfd., silvered mica (C5, C23).	30651	Resistor—270,000 ohms, 1/2 watt (R8).
12723	Capacitor—56 mmfd. (C49, C50).	30648	Resistor—470,000 ohms, 1/2 watt (R11, R23).
36072	Capacitor—66 mmfd. (C4, C21).	13730	Resistor—1 meg., 1/2 watt (R1, R2).
35645	Capacitor—68 mmfd. (C14).	12679	Resistor—2.2 meg., 1/2 watt (R5).
12720	Capacitor—100 mmfd., moulded mica (C36).	30992	Resistor—10 meg., 1/2 watt (R12).
30904	Capacitor—100 mmfd., mica, I.F. (C30, C31).	31611	Screw—No. 8-32 milled head set screw for gear, Stock No. 33185.
31813	Capacitor—120 mmfd., I.F. (C33, C34).	14350	Screw—No. 8-32 square head set screw for drive drum.
36816	Capacitor—220 mmfd., mica (C35).	37893	Shaft—Range switch knob shaft.
12694	Capacitor—220 mmfd., moulded mica (C17, C26, C29, C42).	34132	Shaft—Shaft and gear for tone control.
31433	Capacitor—560 mmfd. (C7).	37894	Shaft—Tuning shaft and flywheel.
35643	Capacitor—3,000 mmfd. (C8).	31364	Socket—Dial lamp socket.
34459	Capacitor—.0025 mfd. (C38).	33742	Socket—Phono input socket.
33584	Capacitor—.005 mfd. (C43, C44).	36637	Socket—Power line receptacle.
5148	Capacitor—.007 mfd. (C40).	31251	Socket—Tube socket.
4937	Capacitor—.01 mfd. (C37).	31418	Spring—Drive cord and pointer cord spring.
5196	Capacitor—.035 mfd. (C39).	33491	Switch—Radio-phonograph switch.
32787	Capacitor—.05 mfd. (C28).	37056	Switch—Range switch.
4839	Capacitor—.1 mfd. (C18, C32).	35638	Transformer—First I.F. transformer (L20, L21).
33014	Capacitor—Electrolytic comprising 3 sections of 10 mfd. 450 volts each, and 1 section of 20 mfd. 25 volts (C46, C47, C48, C45).	36615	Transformer—Second I.F. transformer (L22, L23).
37055	Coil—Antenna coil—"A," "B" and "31 meter" band.	31734	Transformer—Power transformer, 105-120 volts, 25 cycles.
37056	Coil—Antenna coil—"25 meter" and "19-13 meter" band.	31735	Transformer—Power transformer, 105-130, 140-160, 200-250 volts, 50-60 cycles.
37093	Coil—Oscillator coil—A, B, C band.	2917	Washer—"C" washer for tuning drive.
35624	Coil—Oscillator coil—"19-13 meter" band.	SPEAKER ASSEMBLIES (92196-501)	
35625	Coil—Oscillator coil—"25 meter" band.	37963	Coil—Field coil—1,060 ohms.
35626	Coil—Oscillator coil—"31 meter" band.	37947	Cone—Cone complete with voice coil.
37057	Coil—R.F. coil—"A," "B" and "31 meter" bands.	5118	Plug—3-prong male plug.
37058	Coil—R.F. coil—"25 meter" and "19-13 meter" bands.	37948	Transformer—Output transformer.
12714	Condenser—Air trimmer—2-12 mmfd. (C10, C12, C15).	MISCELLANEOUS ASSEMBLIES	
37151	Condenser—Variable tuning condenser (C6, C13, C22).	37954	Back—Back cover.
37052	Control—Tone control (R19).	36981	Bracket—Lamp bracket.
37051	Control—Volume control and power switch (R9, S8).	35387	Decalcomania—Power-volume decal.
34662	Cord—Indicator drive cord (approx. 72-in. overall lgth.).	37839	Decalcomania—Range switch decal.
32634	Cord—Tuning condenser drive cord (approx. 29-in. overall lgth.).	35388	Decalcomania—Tone switch decal.
35788	Core—Adjustable core and stud for A, B, C band oscillator coil.	35392	Decalcomania—Trade mark decal.
31259	Core—Adjustable core and stud for "25 meter," "19-13 meter" and "31 meter" band oscillator coils.	35391	Decalcomania—Tuning decal.
		37930	Dial—Glass dial scale.
		37922	Indicator—Station selector indicator.
		34570	Knob—Range switch knob.
		34136	Knob—Tuning or volume control knob.
		34137	Knob—Tone switch knob.
		11891	Lamp—Dial lamp.
		37966	Rail—Station selector indicator guide rail.
		4982	Spring—Retaining spring for knob, Stock No. 34136.
		14270	Spring—Retaining spring for knobs, Stock Nos. 34570 and 34137.

MODEL Q31

Precautionary Lead Dress

Dress the indicated circuit parts as follows:

1. Toothpick condensers in the ant., R. F. circuits and gang leads: away from metal especially shield plates; condensers at right angles to shield plates.
2. Speaker, pilot, and output filament leads: between terminal board and output tube socket and against the base.
3. Leads to converter socket so that they do not impede the flexible mounting.
4. Oscillator grid and control grid condensers (to 6SA7) well apart, but at least 1/2 in. from shield plates.
5. All filament and B+ leads close to chassis.
6. Black lead between the RF trimmer bank and switch: over the short wave RF coil and close to it.
7. Blue plate lead to 2nd I.F. transformer: under the brown and the red leads, and away from first I.F. transformer.
8. 2nd I.F. to diode lead (black): close to chassis and with yellow ground lead twisted about it closely.
9. Volume control high side condenser: close to base.
10. Phono lead and diode return lead to switch: away from power circuits and output tube socket.
11. .05 cond. from phono shield to ground up, under, and against joint of shielded cable.
12. R-12 (10 meg. grid res. on 12SQ7) down against chassis.
13. Yellow lead from switch lug 2 to B lug on 2nd I.F. down against chassis and away from plate and fil. leads.

Replacement Parts MODEL Q31

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-538C)			
34502	Arm—Operating arm between knob shaft and range switch.	33773	Drum—Drive drum.
37891	Ballast—Ballast tube resistor.	33185	Gear—Volume control gear and hub.
37896	Bracket—L.H. bracket complete with 2 drive cord pulleys.	33767	Link—Operating link between knob shaft and range switch.
37895	Bracket—R.H. bracket complete with 2 drive cord pulleys.	5119	Plug—3-contact female plug for speaker.
35795	Calibrator—Drive drum calibrator.	35630	Pulley—Drive cord pulley.
37059	Capacitor—Mica trimmer comprising 3 sections of 2.5—10 mmfd. each (C1, C2, C3, C20, C24, C25).	37891	Resistor—Ballast tube resistor.
33097	Capacitor—4.7 mmfd. (C27).	35711	Resistor—100 ohms, 4 watts.
35646	Capacitor—6 mmfd. (C9).	30785	Resistor—150 ohms, 1 watt.
13200	Capacitor—10 mmfd. (C51).	31024	Resistor—680 ohms, 1/2 watt.
31350	Capacitor—18 mmfd. (C11).	38325	Resistor—680 ohms, 2 watts.
35644	Capacitor—47 mmfd., ceramic (C16).	30150	Resistor—3,300 ohms, 1 watt.
37329	Capacitor—47 mmfd., silvered mica (C5, C23).	30128	Resistor—12,000 ohms, 1/2 watt.
12723	Capacitor—56 mmfd. (C49, C50).	36714	Resistor—15,000 ohms, 1/2 watt.
36072	Capacitor—68 mmfd. (C4, C21).	13998	Resistor—22,000 ohms, 1/2 watt.
35645	Capacitor—68 mmfd. (C14).	12454	Resistor—33,000 ohms, 1/2 watt.
12720	Capacitor—100 mmfd., moulded mica (C36).	30651	Resistor—270,000 ohms, 1/2 watt.
30904	Capacitor—100 mmfd., mica I.F. (C30, C31).	30648	Resistor—470,000 ohms, 1/2 watt.
31813	Capacitor—120 mmfd. I.F. (C33, C34).	13730	Resistor—1 meg., 1/2 watt.
36616	Capacitor—220 mmfd., mica (C35).	12679	Resistor—2.2 meg., 1/2 watt.
12694	Capacitor—220 mmfd., moulded mica (C17, C26, C29, C42).	30992	Resistor—10 meg., 1/2 watt.
31433	Capacitor—560 mmfd. (C7).	31611	Screw—No. 8-32 milled head set screw for gear, Stock No. 33185.
35643	Capacitor—3,000 mmfd. (C8).	14350	Screw—No. 8-32 square head set screw for drive drum.
34459	Capacitor—.0025 mfd. (C38).	37893	Shaft—Range switch knob shaft.
33584	Capacitor—.005 mfd. (C43).	34132	Shaft—Shaft and gear for tone control.
5148	Capacitor—.007 mfd. (C40).	37894	Shaft—Tuning shaft and flywheel.
4937	Capacitor—.01 mfd. (C37).	35634	Socket—Ballast tube resistor socket—"Remove terminals not required".
5196	Capacitor—.035 mfd. (C39).	31365	Socket—Dial lamp socket.
4886	Capacitor—.05 mfd. (C57).	33742	Socket—Phono input socket.
32787	Capacitor—.05 mfd. (C28).	31251	Socket—Tube socket.
4839	Capacitor—.1 mfd. (C18).	31418	Spring—Drive cord and pointer cord spring.
30867	Capacitor—.5 mfd. (C32).	33491	Switch—Radio-phono switch.
37892	Capacitor—Electrolytic comprising 1 section of 80 mfd. 250 volts, 1 section of 40 mfd. 250 volts, 1 section of 10 mfd. 250 volts, and 1 section of 20 mfd. 25 volts (C52, C54, C48, C45).	37050	Switch—Range switch.
37055	Coil—Antenna coil—"A", "B" and "31 meter" band.	34602	Switch—Tone switch.
37056	Coil—Antenna coil—"25 meter" and "19-13 meter" band.	35636	Transformer—First I.F. transformer.
37093	Coil—Oscillator coil—A-B-C band.	36615	Transformer—Second I.F. transformer.
35624	Coil—Oscillator coil—"19-13 meter" band.	37891	Tube—Ballast tube resistor.
35625	Coil—Oscillator coil—"25 meter" band.	2917	Washer—"C" washer for tuning drive.
35626	Coil—Oscillator coil—"31 meter" band.	SPEAKER ASSEMBLIES (92196-502)	
37057	Coil—R.F. coil—"A", "B" and "31 meter" bands.	37947	Cone—Cone complete with voice coil.
37058	Coil—R.F. coil—"25 meter" and "19-13 meter" bands.	5118	Plug—3-prong male plug.
12714	Condenser—Air trimmer—2-12 mmfd. (C10, C12, C15).	37950	Transformer—Output transformer.
37151	Condenser—Variable tuning condenser (C6, C13, C22).	MISCELLANEOUS ASSEMBLIES	
37051	Control—Volume control and power switch.	37953	Back—Back cover complete—less power cord.
34662	Cord—Indicator drive cord (approx. 72 in. overall lgth.).	36981	Bracket—Lamp bracket.
32634	Cord—Tuning condenser drive cord (approx. 29 in. overall lgth.).	32836	Cord—Power cord and plug.
35788	Core—Adjustable core and stud for A-B-C band oscillator coil.	36103	Decalcomania—"Off-Volume" decal.
31259	Core—Adjustable core and stud for "25 meter," "19-13 meter" and "31 meter" band oscillator coils.	37839	Decalcomania—Range switch decal.
		35392	Decalcomania—Trade mark decal.
		35391	Decalcomania—Tuning decal.
		37931	Dial—Glass dial scale.
		37922	Indicator—Station selector indicator.
		34570	Knob—Range switch or tone control knob.
		34136	Knob—Tuning knob.
		38326	Knob—Volume control and power switch knob.
		31480	Lamp—Dial lamp.
		37966	Rail—Station selector indicator guide rail.
		4982	Spring—Retaining spring for knobs, Stock Nos. 34136 and 38326.
		14270	Spring—Retaining spring for knob, Stock No. 34570.

MODELS U-30 U-126 U-128 U-129 and 910KG

Chassis No. RC-335KR,

RC-335D

RC-335K

RC-335F

Ten-Tube, Three-Band, Electric Tuning, A-C, Radio and Victrolas

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)..... 540-1,720 kc
 "Medium Wave" (B)..... 2,300-7,000 kc
 "Short Wave" (C)..... 7,000-22,000 kc

R-F ALIGNMENT FREQUENCIES

Band "C"..... 20,000 kc (osc., ant.)
 Band "B"..... 6,100 kc (osc.)
 Band "A"..... 600 kc (osc.), 1,500 kc (osc., ant.)

INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

(1) RCA-6A8..... First Det.	(5) RCA-6F5..... First Audio	(8) RCA-6F6..... Power Output
(2) RCA-6J7..... Oscillator	(6) RCA-6F5..... Phase Inverter	(9) RCA-5U4-G or 5T4... Rectifier
(3) RCA-6K7..... I-F Amp.	(7) RCA-6F6..... Power Output	(10) RCA-6U5..... "Magic Eye"
(4) RCA-6H6... 2nd Det. and A.V.C.		

POWER SUPPLY RATING—MODELS U-126, U-128, U-30, U-129

A.....	105-125 volts, 50-60 cycles, 120 watts	Radio Only	Total
A-6.....	105-125 volts, 60 cycles, 120 watts		145 watts
B-2.....	105-125 volts, 25 cycles, 120 watts		145 watts
C.....	105-130/140-160/200-250 volts, 50-60 cycles, 120 watts		145 watts
C-6.....	105-130/140-160/200-250 volts, 60 cycles, 120 watts		145 watts

POWER SUPPLY RATING—MODEL 910KG

A.....	105-125 volts, 50-60 cycles, 125 watts
B.....	105-125 volts, 25 cycles, 125 watts
C.....	105-130/140-160/200-250 volts, 50-60 cycles, 125 watts

POWER OUTPUT

Undistorted..... 10 watts
 Maximum..... 12 watts

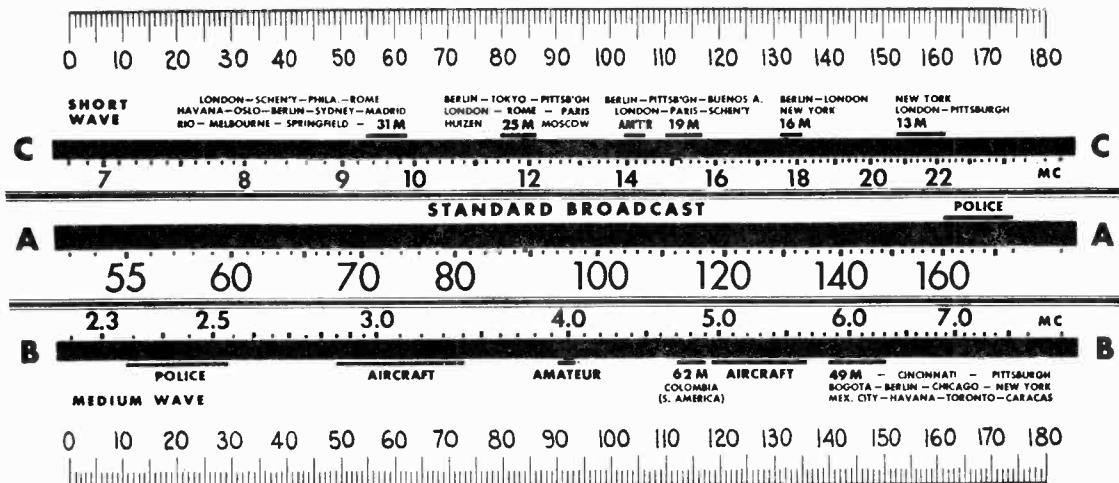
LOUDSPEAKER

Type..... 12-inch Electrodynamic
 Voice Coil Impedance..... 2.2 ohms at 400 cycles

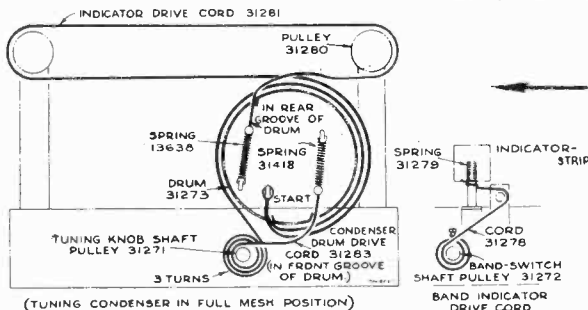
PHONOGRAPH

Type..... Model U-126
 Record Capacity..... one 10-inch or one 12-inch
 Turntable Speed..... 78 R.P.M. (Adjustable)
 Type Pickup..... Crystal
 Pickup Impedance..... 80,000 ohms at 1,000 cycles

MODEL U-128, U-30, U-129
 Automatic—Manual
 Seven ten or twelve inch
 78 R.P.M. (Adjustable)
 Crystal
 80,000 ohms at 1,000 cycles

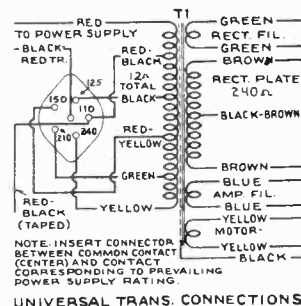


-Tuning Dial, and Corresponding 0-180° Calibration Scale



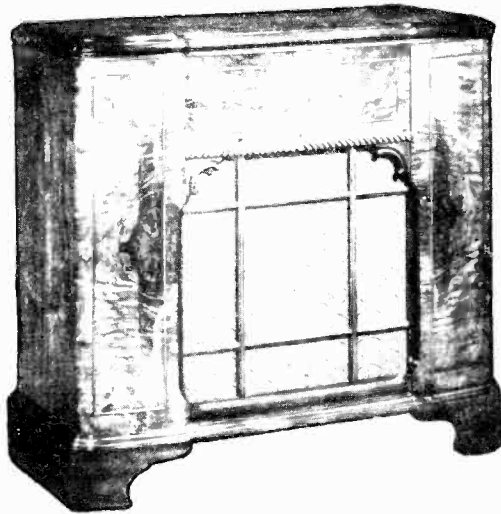
Dial Mechanism

Universal Power Transformer Connections. (110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.)

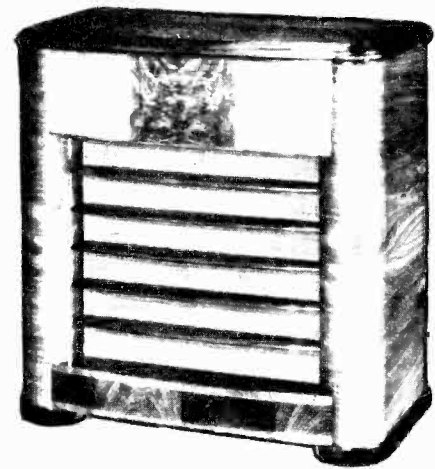


REFER TO INDEX FOR DATA ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER

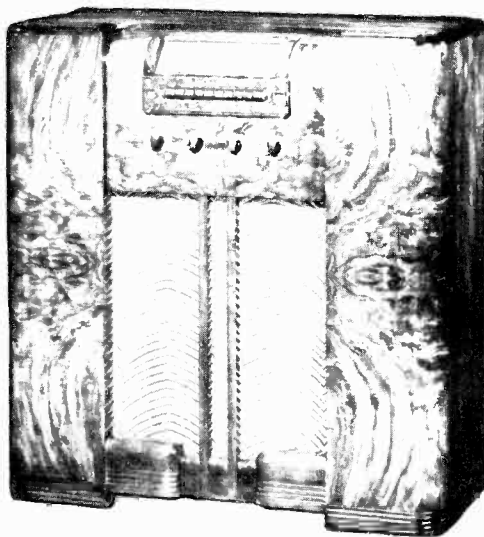
RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.



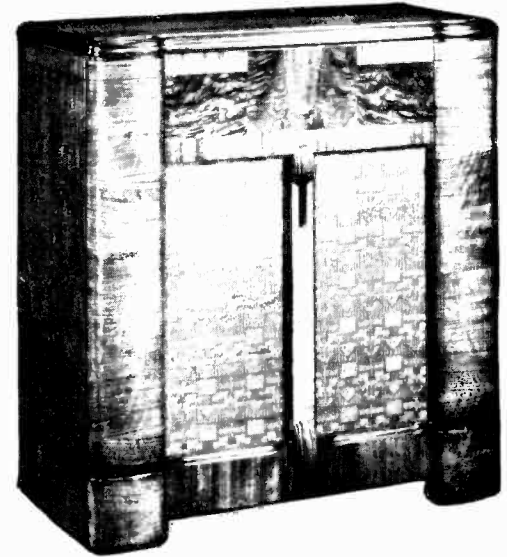
←
Model
U-30



→
Model
U-129



←
Model
U-126
Manual
Victrola



←
Model
U-128
Automatic
Victrola

→
Model
910KG

RCA Victor Master Antenna Kit.—Connect the twisted-pair transmission line to terminals A1 and A2 on the terminal board at rear of chassis. Connect the counter-poise to A3. Terminal G may be connected to ground, but this connection is not necessary for correct operation.

Noise-Reducing Adjustment.—After the RCA Victor Master Antenna Kit is connected to the receiver, tune the receiver to a point near 900 kc where no station is heard. Turn volume control clockwise until noise is heard. If no noise of a regular character is audible, start any brush-type motor-driven appliance, such as a vacuum cleaner, electric razor, refrigerator, etc., but do not bring it too near the receiver. This will generate noise as a continuous crackling, or buzz. Adjust C5, which is mounted behind the antenna terminal

board, to a point where this noise is reduced to a minimum.

Adjustment of the noise reducing trimmer C5 should be made in the customer's home, with the RCA Victor Master Antenna connected to the receiver.

This adjustment is effective only when the RCA Victor Master Antenna is used. For all other types of antenna, the noise-adjustment trimmer C5 should be screwed all the way down.

Other Antennas.—Use terminals A1 and A3 on the receiver terminal board as antenna and ground connecting points respectively. Terminal A3 may be connected to terminal G, unless this causes interference, in which case this connection should be omitted.

MODELS U-126, U-128

Dial Drive Cord Tension:

Additional tension is required on the drive cord when slippage or irregular tuning action is experienced on these models. The proper remedy is to fasten a spring Stock No. 31418 to the end of the cord which is normally fixed solid to the drum, and anchor its other end to the same lug occupied by the other No. 31418 spring. Refer to service note dial drive illustrations.

MODEL 910KG

Dial Light Diffusion Screen:

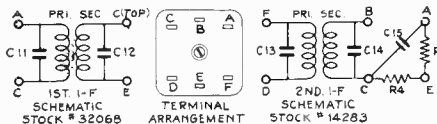
Where warpage of the light diffusion screen tends to obstruct movement of the dial pointer, it is usually possible to bend the pointer outward so that clearance is obtained. It is also possible to reduce the warpage by leaving the set in a reasonably dry place for several days. Should replacement of the screen be necessary, it may be ordered as Stock No. 32083—Dial Color Screen and Frame Assembled, less pointer carriage and rods. This part supersedes Stock No. 31306.

MODELS U-126, U-128, 910KG 911K

I. F. Transformer Modification:

Later production instruments include I-F transformers having circuit and connection arrangements as shown. These transformers have a bakelite top closure as contrasted to the original completely closed metal shield. The 1st I-F is stamped No. 76456-8 and the 2nd is stamped 76456-3. For replacement purposes, these units are mechanically interchangeable with the original transformers. Connections are, however, different and details are provided in the accompanying diagram.

Note.—R-4, R-5 and C-15 (C18 in 911K) are included in the second I-F assembly, and must be removed from the external circuit.



1ST I-F TRANS.

- A—To plate 1st detector
- C—To +B high voltage
- C (top)—To 6K7 I-F grid
- E—To AVC circuit

2ND I-F TRANS.

- F—To plate 6K7 I-F stage
- D—To +B high voltage
- B—To diode plate 2nd det.
- E—To capacitor C-17 (C19 in 911K)
- C—To R-3, 2.2 meg. resistor
- A—To chassis ground

Replacements

- Stock No.**
- 32068 First I-F Transformer
 - 14283 Second I-F Transformer
- Components of No. 32068 and No. 14283**
- 14262 Capacitor—109 mmfd. (C11-C12)
 - 12404 Capacitor—120 mmfd. (C13-C14)
 - 14712 Capacitor—180 mmfd. (C15) (C18 in 911K)
 - 11398 Resistor—220,000 ohms (R5)
 - 14284 Resistor—22,000 ohms (R4)

ALIGNMENT PROCEDURE

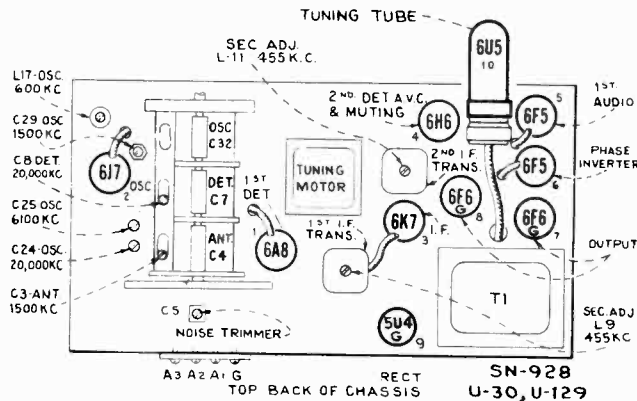
Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the



Tube and Trimmer Locations

"0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-oscillator to —	Tune test-oscillator to —	Range Selector	Set tuning gang to—	Adjust the following for max. peak output
No. 1	6K7 I-F grid cap in series with .01 mfd.	455 kc	"A"	Quiet point between 550-750 kc	L10, L11 (2nd I-F Transformer)
No. 2	6A8 Det. grid cap in series with .01 mfd.	455 kc	"A"		L8, L9 (1st I-F Transformer)
No. 3	A2 Connect A1 to chassis.	20 mc	"C"	20 mc (147.5°)	C24 (osc.)* C8 (det.)†
No. 4	A2, in series with 100 mmfd. Connect A3 to chassis.	6,100 kc	"B"	6,100 kc (145.5°)	C25 (osc.)**
No. 5	A2, in series with 100 mmfd. Connect A3 to chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C29 (osc.) C3 (ant.)
No. 6	A2, in series with 100 mmfd. Connect A3 to chassis.	600 kc	"A"	600 kc (29.5°)	L17 (osc.)
No. 7	A2, in series with 100 mmfd. Connect A3 to chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C29 (osc.)

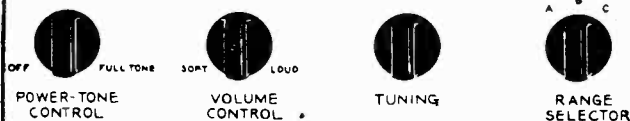
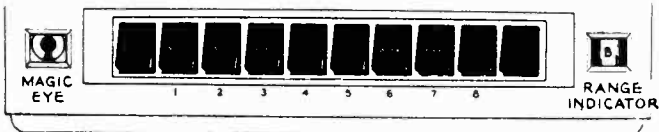
* Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used by turning to 141.5° (19,090 kc), at which point a weaker signal should be received.

** Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used by turning to 124° (5,190 kc), at which point a weaker signal should be received.

† Rock gang condenser and use maximum capacity peak if two peaks can be obtained with C8.

ADJUSTMENTS FOR ELECTRIC TUNING

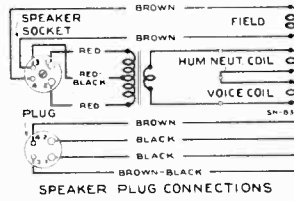
1. Make a list of the desired eight stations, arranged in order from low to high frequencies.
2. Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.
3. Press down the "dial-tuning" (right-hand) button.
4. Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.
5. Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons will stay down. Move adjusting pin No. 1 to the insulating line on the disc at rear of gang. When the pin is correctly centered on the insulating line, the central dial lamp will go out.
6. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
7. Repeat this process for the remaining stations.



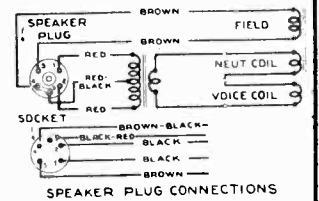
Location of Controls

The left-hand push-button is a Victrola-Attachment switch.
The right-hand push-button is for dial tuning.

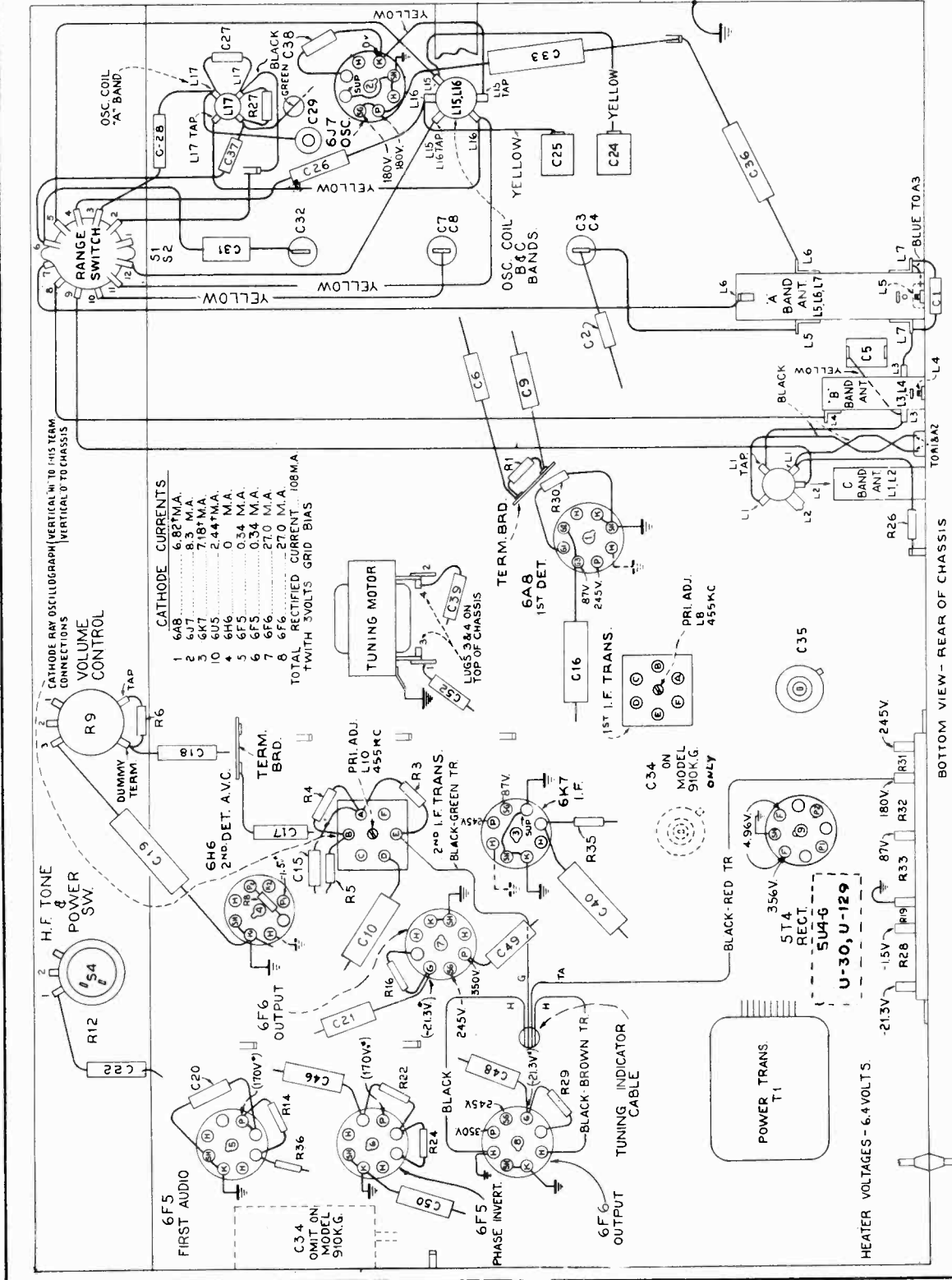
Precautionary Lead Dress. — (1) The lead from the left pilot light should be kept behind the bulb and toward the "Magic Eye," to keep it away from the 6F5 grid cap, (2) leads from mica trimmers to coil should be kept away from the coil and other parts, (3) leads on oscillator coil which are an extended part of the coil winding should be as short as possible, (4) "C" band series capacitor C31 must have leads as short as possible, (5) all leads from antenna board to antenna coils should be dressed toward back apron, (6) the one lead of the line cord and the primary lead of the power transformer which run to the power switch should be twisted together, (7) shielding on leads to Victrola switch should be kept away from the switch terminals and jack.



Model 910KG.



Models U-126, U-128. U-30, U-129



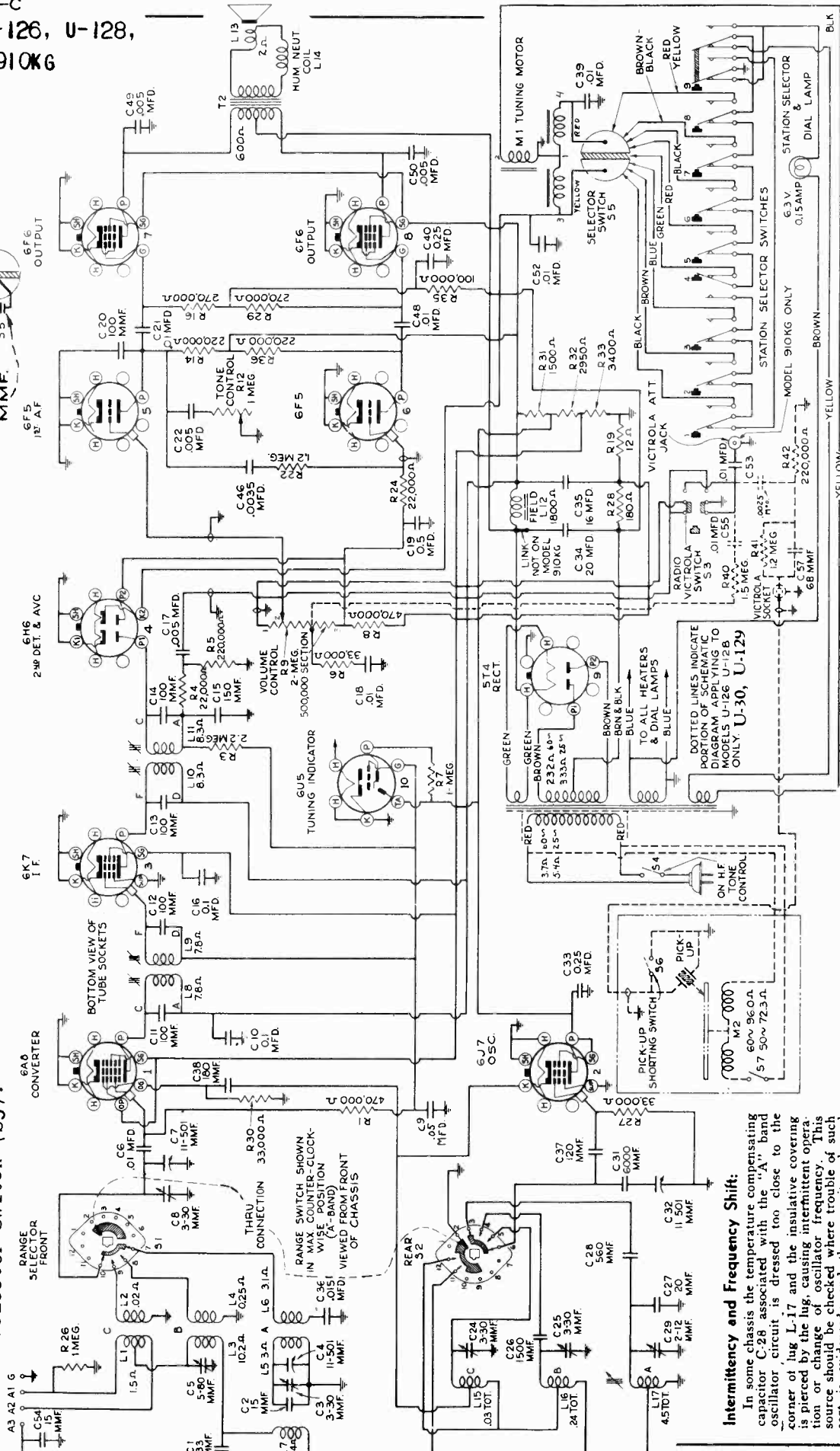
R-F Wiring Diagram and Socket Voltages

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance, and when measured will read lower depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, volume control at minimum. Values should hold within approximately ±20% with 117-volt a-c supply.

U-30, U-126, U-128,
U-129, 910KG

Models U-30 and U-129. RCA 5U4G Rect. is used capacitor type tuning motor is used. R40 is 1. meg, C57 is 39 mmf. An 820 mmf capacitor (C61) is connected across the two segments of selector switch (S5).



Intermittency and Frequency Shift:

In some chassis the temperature compensating capacitor C-28 associated with the "A" band oscillator circuit is dressed too close to the corner of lug L-17 and the insulative covering is pierced by the lug, causing intermittent operation or change of oscillator frequency. This source should be checked where trouble of such sort is evidenced; and the capacitor dressed safely away from the lug. It will be advisable to effect the same operation on any chassis being serviced for other reasons as a preventative measure.

In Model U-30, a 1.0 megohm resistor (R43) is connected from the Victrola socket to chassis.

Turntable Mechanism Model U-126

The turntable is started by pushing to the rear the motor starting lever, which appears to the right of the turntable. The adjustment on the automatic motor stopping switch should be made so that the switch will snap to the "off" position when the needle in the pickup head is 1 3/4 inches away from the center of the turntable. The locking screw and details of the switch mechanism are shown in figure 14. The locking screw and nut may be reached, from underneath the motor board, or, by an open end wrench, under the turntable.

The turntable drive is a self-starting, variable-speed, governor-type, induction motor. The motor speed adjusting screw is located under the turntable, and may be adjusted by inserting a screwdriver thru one of the holes in the turntable, after the hole has been lined up with the screw.

In addition, an application of oil to the felt pad, which rubs against the governor disc, will insure smooth operation.

ADJUST SWITCH TO TRIP WHEN NEEDLE IS ON 1-3/4" RADIUS FROM C. OF MOTOR SPINDLE

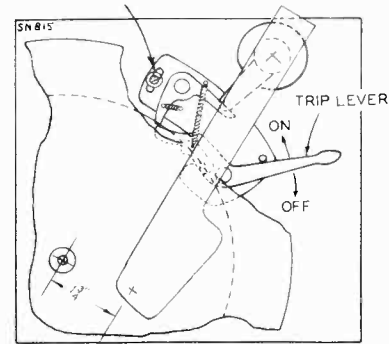


Figure 14—Adjustment of Automatic Stop Switch

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	910KG, U-126, U-128		
	RECEIVER ASSEMBLIES		
31492	Bearing—Variable condenser motor rotor adjustment bearing—less bracket and cup assembly (Models U-126 and U-128)	31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip
31253	Board—Antenna and ground terminal board (Model 910KG)	31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip
31531	Board—Antenna and ground terminal board (Models U-126 and U-128)	31278	Cord—Band indicator drive cord
31276	Bracket—Band indicator mounting bracket complete—less indicator strip, cord, and tension spring	31281	Cord—Indicator pointer drive cord
31491	Bracket—Bracket and bearing cup for variable condenser motor rotor adjustment (Models U-126 and U-128)	31283	Cord—Variable condenser drum drive cord
31282	Bracket—Magic Eye mounting bracket and holder	31260	Core—Adjustable core and stud for i-f transformers
12714	Capacitor—Adjustable trimmer 2-12 mmfd. (C29)	31260	Core—Adjustable core and stud for "A" band oscillator coil
31292	Capacitor—Dual adjustable trimmer 3-30 mmfd. each section (C24, C25)	31273	Drum—Indicator drive cord drum
31252	Capacitor—Adjustable trimmer 5-80 mmfd. (C5)	31240	Flywheel—Variable condenser drive motor flywheel
12896	Capacitor—15 mmfd. (C2, C54)	31239	Gear—Variable condenser knob shaft drive gear and hub
12948	Capacitor—33 mmfd. (C1)	31545	Gear—Variable condenser intermediate drive gear and pinion gear—25 cycle models only
31432	Capacitor—20 mmfd. (C27)	31238	Gear—Variable condenser intermediate drive gear and pinion gear—50-60 cycle models only
13057	Capacitor—68 mmfd. (C57) (Models U-126 and U-128)	31304	Indicator—Band indicator strip (Model 910KG)
12720	Capacitor—100 mmfd. (C20)	31532	Indicator—Band indicator strip (Models U-126 and U-128)
31270	Capacitor—100 mmfd. (C11, C12, C13, C14)	11891	Lamp—Dial, pilot, or compartment lamp, 6.3 V, 0.25 amp.
12724	Capacitor—120 mmfd. (C37, C38)	31480	Lamp—Electric tuning adjustment indicator lamp, 6.3 V, 0.15 amp.
12725	Capacitor—150 mmfd. (C15)	31243	Leather—Friction leather for flywheel
31433	Capacitor—560 mmfd. (C28)	31346	Lock—Push button switch lock plate—comprising 10 contact locks in one strip
31033	Capacitor—1,500 mmfd. (C26)	31246	Motor—Variable condenser drive motor (M1)—25 cycle models only
31405	Capacitor—6,000 mmfd. (C31)	31E35	Motor—Variable condenser drive motor (M1)—50-60 cycle models only
5107	Capacitor—.0025 mfd. (C53) (Models U-126, U-128)	31228	Plate—Selector contact plate—less contacts
30303	Capacitor—.0035 mfd. (C46)	31227	Plate—Selector mounting plate—mounts on rear of variable condenser
4838	Capacitor—.005 mfd. (C17, C22, C49, C50)	30868	Plug—2-contact female plug for phono. motor cable (Models U-126 and U-128)
4858	Capacitor—.01 mfd. (C21, C48) (Models U-126 and U-128)	5040	Plug—4-contact female plug for speaker cable (Model 910KG)
14393	Capacitor—.01 mfd. (C6, C18, C21, C39, C48, C52, C53, C55) (C21, C48, C53, in Model 910KG only) (C55 in Models U-126 and U-128 only)	12493	Plug—5-contact female plug for speaker cable (Models U-126 and U-128)
11315	Capacitor—.015 mfd. (C36)	31280	Pulley—Indicator pointer drive cord pulley
30882	Capacitor—.05 mfd. (C9)	31271	Pulley—Motor pulley
4839	Capacitor—.1 mfd. (C10, C16)	31272	Pulley—Range switch pulley
12484	Capacitor—.025 mfd. (C33)	31250	Resistor—Voltage divider comprising one 1,500 ohm, one 2,950 ohm, one 3,400 ohm, one 12 ohm, and one 180 ohm sections (R19, R28, R31, R32, R33)
30965	Capacitor—.025 mfd. (C40)	14284	Resistor—22,000 ohms, 1/2 watt (R24)
30867	Capacitor—.05 mfd. (C19)	13998	Resistor—22,000 ohms, 1/2 watt (R4)
5212	Capacitor—.16 mfd. (C35) (Model 910KG)	11300	Resistor—33,000 ohms, 1/2 watt (R27, R30)
31496	Capacitor—.16 mfd. (C35) (Models U-126 and U-128)	12454	Resistor—33,000 ohms, 1/2 watt (R6)
31495	Capacitor—.20 mfd. (C34) (Models U-126 and U-128)	14660	Resistor—100,000 ohms, 1/2 watt (R35)
14531	Capacitor—.25 mfd. (C34) (Model 910KG)	12264	Resistor—220,000 ohms, 1/2 watt (R5, R36, R42) (R42 Models U-126 and U-128 only)
31237	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft—50-60 cycle models only	11398	Resistor—220,000 ohms, 1/2 watt (R14)
31544	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft—25 cycle models only	11453	Resistor—270,000 ohms, 1/2 watt (R16, R29)
31293	Coil—"A" band antenna coil (L5, L6, L7)	11452	Resistor—470,000 ohms, 1/2 watt (R1)
31296	Coil—"A" band oscillator coil (L17)	12285	Resistor—470,000 ohms, 1/2 watt (R8)
31294	Coil—"B" band antenna coil (L3, L4)	12013	Resistor—1 meg., 1/2 watt (R7, R26)
31295	Coil—"B" and "C" band oscillator coil (L15, L16)	30208	Resistor—1.2 meg., 1/2 watt (R22, R41) (R41 Models U-126 and U-128 only)
31297	Coil—"C" band antenna coil (L1, L2)	11981	Resistor—1.5 meg., 1/2 watt (R40) (Models U-126 and U-128 only)
31290	Condenser—3-gang variable condenser (C3, C4, C7, C8, C32)	5131	Resistor—2.2 meg., 1/2 watt (R3)
31231	Contact—Contact tip for station-setting contact.	14887	Retainer—Indicator pointer drive cord pulley retainer
		31233	Rotor—Selector rotor disc—mounts on rear of variable condenser shaft

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31241	Screw— $\frac{1}{4}$ x 20 headless, cone point set screw for flywheel		Additional Replacement Parts:
4119	Screw—No. 8-32 headless set screw for gear Stock No. 31239		
14350	Screw—No. 8-32 square head set screw for selector rotor disc		Stock No.
4669	Screw—No. 8-32 square head set screw for pulley Stock Nos. 31271 and 31272, and drum Stock No. 31273		32083 Screen—Dial color screen and frame—less pointer, carriage, and rods
31364	Socket—Dial lamp socket		31312 Switch—Station selector push-button switch and bracket complete
13871	Socket—Magic Eye socket		MOTORBOARD ASSEMBLIES
31347	Socket—Pickup socket and bracket		Model U-126
31251	Socket—Tube socket	31536	Coupling—Flexible motor coupling complete
31365	Socket—Tuning indicator lamp insulated socket	9848	Cup—Used needle cup and lid complete
31279	Spring—Band indicator tension spring	31465	Mounting—Pickup arm base rubber mounting
31232	Spring—Contact tip spring for station-setting contact	31535	Pin—Drive pin to fasten flexible coupling to turntable shaft
13638	Spring—Indicator pointer drive cord tension spring	30870	Plug—2-contact male plug for automatic switch leads
31418	Spring—Variable condenser drive cord tension spring	14195	Screw—Set screw for flexible coupling
12007	Spring—Retaining spring for core Stock No. 31269	30100	Springs—1 set of springs for automatic switch
31230	Spring—Station-setting contact body spring	31155	Spring—Used needle cup cover tension spring
31262	Spring—Tension spring for core Stock No. 31260	31147	Strip—Complete set of rubber strips for flexible couplings
31242	Spring—Tension spring for flywheel	31534	Switch—Automatic switch and lever complete
31970	Spring—Tension spring for push button switch latch bar	31467	Switch—Switch only for automatic switch (S7)
31194	Spring—Variable condenser motor rotor adjustment bearing spring for 25 cycle models only (Models U-126 and U-128 only)	31533	Turntable—Turntable with spindle shaft and nose complete
31493	Spring—Variable condenser motor rotor adjustment bearing spring for 50-60 cycle models only (Models U-126 and U-128 only)	31537	Washers—Turntable bearing and shim washers
31236	Support—Variable condenser drive gear mounting support and studs assembly		SPEAKER ASSEMBLIES
31245	Support—Variable condenser motor mounting support and studs for 25 cycle models only (Model 910KG only)	13866	Cap—Dust cap for cone center
31490	Support—Variable condenser motor mounting support and studs for 25 cycle models only (Models U-126 and U-128 only)	11234	Coil—Field coil (L12)
31244	Support—Variable condenser motor mounting support and studs for 50-60 cycle models only (Model 910KG only)	11469	Coil—Neutralizing coil (L14)
31489	Support—Variable condenser motor mounting support and studs for 50-60 cycle models only (Models U-126 and U-128 only)	31275	Cone—Speaker cone and voice coil (L13)
31360	Switch—Pickup switch for mounting on push button switch assembly (S3)	5039	Plug—4-contact male plug for speaker (Model 910KG only)
31291	Switch—Range switch (S1, S2)	31539	Plug—5-contact male plug for speaker (Models U-126 and U-128 only)
31248	Tone Control—H.t. tone control and power switch (R12, S4)	31530	Speaker complete (RL70H-2) (Model 910KG only)
31267	Transformer—First i-f transformer (L8, L9, C11, C12)	31538	Speaker complete (RL70H-4) (Models U-126 and U-128 only)
31268	Transformer—Second i-f transformer (L10, L11, C13, C14)	14534	Transformer—Output transformer (T2)
31308	Transformer—Power transformer 105 130-140/160-200 250 volts, 50-60 cycle (T1)	14357	Washer—Spring washer to hold field coil securely
31226	Transformer—Power transformer 110 volts, 25-60 cycle (T1)		MISCELLANEOUS ASSEMBLIES
31225	Transformer—Power transformer 110 volts, 50-60 cycle (T1)	31356	Button—Station selector push buttons
31450	Volume Control (R9) (Model 910KG only)	13103	Cap—Pilot lamp cap (Bulls Eye) (Models U-126 and U-128 only)
31249	Volume Control (R9) (Models U-126 and U-128 only)	31456	Cover—8-protective covers for push button markers
	PICKUP AND ARM ASSEMBLIES	31540	Cushion—Chassis mounting cushion and screw assemblies—sufficient for one chassis (Models U-126 and U-128 only)
	Model U-126	31541	Cushion—Motor plate mounting cushion and clamp assembly—sufficient for one instrument (Models U-126 and U-128 only)
31469	Base—Pickup arm base and pivot shaft	31451	Dial—Station selector dial scale and crystal
31156	Crystal—Pickup crystal cartridge and needle screw	31356	Escutcheon—Tuning dial escutcheon—less dial and buttons (Model 910KG only)
31468	Pickup and arm complete	31361	Escutcheon—Tuning dial escutcheon—less dial and buttons (Models U-126 and U-128 only)
31160	Screw—Pickup needle screw	30698	Hinge—Cabinet lid hinge (Models U-126 and U-128 only)
31161	Shaft—Pickup pivot arm and shaft assembly	31305	Indicator—Station selector indicator pointer (Model 910KG only)
	MOTOR ASSEMBLIES	31542	Indicator—Station selector indicator pointer (Models U-126 and U-128 only)
	Models U-126,	31355	Knob—Station selector, volume control, tone control, or range switch knob
31448	Motor—105-125 volts, 25 cycle (M2)	31458	Marker—"Dial Tuning" push button marker
31163	Motor—105-125 volts, 50-60 cycle (M2)	31457	Marker—"Record Player" push button marker
31157	Motor—105-125 volts, 60 cycle (M2)	31589	Marker—Station call letter push button markers
30868	Plug—2-contact female plug for motor leads	31760	Screen—Compartment lamp screen (Models U-126 and U-128 only)
30870	Plug—2-contact male plug for motor power cable		MODELS U-30, U-129
31447	Screw—Complete set of motor mounting screws, washers, and spacers—for 25 cycle models only	11210	Screw—Chassis mounting screws and washers—(4 required) (Model 910KG only)
31158	Screw—Complete set of motor mounting screws, washers, and spacers—for 50-60 cycle models only	14270	Spring—Retaining spring for knob Stock No. 31355
		31470	Suspension—Motor board suspension springs, screw, and lockwasher (4 required) (Models U-126 and U-128 only)
		11831	Support—Cabinet lid support (Models U-126 and U-128 only)
			CHASSIS ASSEMBLIES
			(RC-335K and RC-335KR)
		31531	Board—Antenna and ground terminal board
		32232	Body—Comprising one plunger body and one body spring
		31276	Bracket—Band indicator mounting bracket complete—less indicator strip, cord, and tension spring
		31282	Bracket—Magic Eye mounting bracket and holder
		32090	Bracket—Motor mounting bracket and studs
		12714	Capacitor—Adjustable trimmer, 2-12 mmfd. (C29)

MODELS U-30, U-128, U-129. REFER TO RP-132 FOR AUTOMATIC RECORD CHANGER REPLACEMENT PARTS

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31292	Capacitor—Dual adjustable trimmer, 3-30 mmfd. each section (C24, C25)	13730	Resistor—1 meg., $\frac{1}{2}$ watt (R43) (U-30 only)
31252	Capacitor—Adjustable trimmer, 5-80 mmfd. (C5)	30208	Resistor—1.2 meg., $\frac{1}{2}$ watt (R41)
12896	Capacitor—15 mmfd. (C2, C54)	5131	Resistor—2.2 meg., 1 10 watt (R3)
12948	Capacitor—33 mmfd. (C1)	14887	Retainer—Indicator pointer drive cord pulley retainer
31432	Capacitor—20 mmfd. (C27)	32086	Roller—Rubber friction roller for front end of motor (attach to motor shaft with shellac)
13545	Capacitor—39 mmfd. (C57)	31253	Rotor—Selector rotor disc—mounts on rear of variable condenser shaft
12720	Capacitor—100 mmfd. (C20)	4119	Screw—No. 8-32 headless set screw for gear, Stock No. 31239
31270	Capacitor—100 mmfd. (C11, C12, C13, C14)	14350	Screw—No. 8-32 square head set screw for selector rotor disc
12724	Capacitor—120 mmfd. (C37, C38)	4669	Screw—No. 8-32 square head set screw for pulley, Stock Nos. 31271 and 31272, and drum, Stock No. 31273
12725	Capacitor—150 mmfd. (C15)	31681	Shaft—Dial drive knob shaft
31433	Capacitor—560 mmfd. (C28)	31364	Socket—Dial lamp socket
31033	Capacitor—1,500 mmfd. (C26)	13871	Socket—Magic Eye socket
31405	Capacitor—6,000 mmfd. (C31)	31347	Socket—Pickup socket and bracket
5107	Capacitor—.0025 mfd. (C53)	31251	Socket—Tube socket
30303	Capacitor—.0035 mfd. (C46)	31365	Socket—Tuning indicator lamp insulated socket
4838	Capacitor—.005 mfd. (C17, C22, C49, C50)	31279	Spring—Band indicator tension spring
4858	Capacitor—.01 mfd. (C21, C48)	31232	Spring—Contact tip spring for station-setting contact
14393	Capacitor—.01 mfd. (C6, C18, C39, C52)	13638	Spring—Indicator pointer drive cord tension spring
11315	Capacitor—.015 mfd. (C36)	31418	Spring—Variable condenser drive cord tension spring
30882	Capacitor—.05 mfd. (C9)	12007	Spring—Retaining spring for core, Stock No. 31269
4839	Capacitor—.01 mfd. (C10, C16)	31230	Spring—Station-setting contact body spring
12484	Capacitor—0.25 mfd. (C33)	31262	Spring—Tension spring for core, Stock No. 31260
30965	Capacitor—0.25 mfd. (C40)	31970	Spring—Tension spring for push button switch latch bar
30867	Capacitor—0.5 mfd. (C19)	31236	Support—Variable condenser drive gear mounting support and studs assembly
31496	Capacitor—16 mfd. (C35)	31360	Switch—Pickup switch for mounting on push button switch assembly (S3)
31495	Capacitor—20 mfd. (C34)	31291	Switch—Range switch (S1, S2)
32088	Capacitor—60 mfd., a-c electrolytic, 40 V. (50-60 cycle only)	31312	Switch—Station selector push button switch and bracket complete
32435	Capacitor—180 mfd., a-c electrolytic, 40 V. (25 cycle only)	31248	Tone Control—H.f. tone control and power switch (R12, S4)
31293	Coil—"A" band antenna coil (L5, L6, L7)	31267	Transformer—First i-f transformer (L8, L9, C11, C12)
31296	Coil—"A" band oscillator coil (L17)	31268	Transformer—Second i-f transformer (L10, L11, C13, C14)
31294	Coil—"B" band antenna coil (L3, L4)	31308	Transformer—Power transformer, 105/130-140/160-200 250 volts, 50-60 cycle (T1)
31295	Coil—"B" and "C" band oscillator coil (L15, L16)	31226	Transformer—Power transformer, 110 volts, 25-60 cycle (T1)
31297	Coil—"C" band antenna coil (L1, L2)	31225	Transformer—Power transformer, 110 volts, 50-60 cycle (T1)
31290	Condenser—3-gang variable condenser (C3, C4, C7, C8, C32)	31249	Volume Control (R9)
31231	Contact—Contact tip for station-setting contact	32231	Washer—Comprising 1 metal washer, 2 fibre washers, and 1 solder lug or retainer for station selector plunger
31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip	32094	Washers—One set of washers for mounting damper on 50-60 cycle motors only—comprising 2 "C" washers, 1 spring washer, and 1 flat washer
31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip		
31278	Cord—Band indicator drive cord	SPEAKER ASSEMBLIES (RL-70H-4)	
32635	Cord—Indicator pointer drive cord	Same as for U-126, U-128	
32634	Cord—Variable condenser drum drive cord	MISCELLANEOUS ASSEMBLIES	
31269	Core—Adjustable core and stud for i-f transformers	31358	Button—Station selector push button
31260	Core—Adjustable core and stud for "A" band oscillator coil	13103	Cap—Pilot lamp cap
32093	Damper—Flywheel damper—less mounting washers for rear end of tuning motor shaft (50-60 cycle motors only)	31456	Cover—8 protective covers for push button markers
32096	Disc—Friction disc and pinion gear	31540	Cushion—Chassis mounting cushion and screw assemblies—sufficient for one chassis
32091	Drive—Drive gear assembly—comprising friction disc and pinion gear, drive gear, and knob shaft, assembled on gear-mounting bracket	31541	Cushion—Motor plate mounting cushion and clamp assembly—sufficient for one instrument
31273	Drum—Indicator drive cord drum	31451	Dial—Station selector dial scale and crystal
31239	Gear—Knob shaft drive gear and hub	31361	Escutcheon—Tuning dial escutcheon, less dial and push buttons
31545	Gear—Variable condenser intermediate drive gear and pinion gear—25 cycle models only	30698	Hinge—Cabinet lid hinge
31532	Indicator—Band indicator strip	31542	Indicator—Station selector indicator pointer and carriage
11891	Lamp—Dial, pilot, or compartment lamp, 6.3 V, 0.25 amp	31355	Knob—Station selector, volume control, tone control, or range switch knob
31480	Lamp—Electric tuning adjustment indicator lamp, 6.3 V, 0.15 amp	31478	Lid Support—Cabinet lid support
31346	Lock—Push button switch lock plate—comprising 10 contact locks in one strip	31589	Marker—Station call letter push button markers
32095	Motor—Electric tuning motor, 60 mfd. capacitor, friction roller, and damper, assembled (50-60 cycle only)	31457	Marker—"Victrola" push button marker
32434	Motor—Electric tuning motor, 180 mfd. capacitor, and friction roller (25 cycle only)	31458	Marker—"Dial Tuning" push button marker
31228	Plate—Selector contact plate—less contacts	32083	Screen—Dial color screen
31227	Plate—Selector mounting plate—mounts on rear of variable condenser	14270	Spring—Retaining spring for knob, Stock No. 31355
30868	Plug—2-contact female plug for phone, motor cable	31470	Suspension—Motorboard suspension spring, screw, and lockwasher, 4 required
12493	Plug—5-contact female plug for speaker cable		
32232	Plunger—Station setting contact tip	ANTENNA ASSEMBLIES	
31280	Pulley—Indicator pointer drive cord pulley	31426	Counterpoise Line—Additional length 60 ft. long
31271	Pulley—Motor pulley	12426	Insulator—Strain and counterpoise insulator
31272	Pulley—Range switch pulley	9816	Transmission Line—Additional length 60 ft. long
31250	Resistor—Voltage divider—comprising one 1,500 ohm, one 2,950 ohm, one 3,400 ohm, one 12 ohm, and one 180 ohm sections (R19, R28, R31, R32, R33)		
14284	Resistor—22,000 ohms, $\frac{1}{10}$ watt (R24)		
13998	Resistor—22,000 ohms, $\frac{1}{2}$ watt (R4)		
11300	Resistor—33,000 ohms, $\frac{1}{10}$ watt (R27, R30)		
12454	Resistor—33,000 ohms, $\frac{1}{2}$ watt (R6)		
14560	Resistor—100,000 ohms, $\frac{1}{2}$ watt (R35)		
12264	Resistor—220,000 ohms, $\frac{1}{2}$ watt (R5, R36)		
11398	Resistor—220,000 ohms, $\frac{1}{10}$ watt (R14)		
11453	Resistor—270,000 ohms, $\frac{1}{10}$ watt (R16, R29)		
11452	Resistor—470,000 ohms, $\frac{1}{10}$ watt (R1)		
12285	Resistor—470,000 ohms, $\frac{1}{2}$ watt (R8)		
12013	Resistor—1 meg., $\frac{1}{10}$ watt (R7, R26, R40)		

PAGE 452-C
MODEL Q33

Chassis No. RC-539

Seven-Tube and Magic Eye, Five-Band, Superheterodyne

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band) . . . 540-1,720 kc (556-174 m)
 Medium Wave ("B" Band) 3.0-9.5 mc (100-31.6 m)
 3i Meter Spread Band 9.5-11.7 mc (31.6-25.6 m)
 25 Meter Spread Band 11.7-15.1 mc (25.6-19.9 m)
 19-13 Meter Spread Band 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Detector-Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6U5 Tuning Indicator
- (5) RCA-6SQ7 2nd Det. A-F Amplifier AVC
- (6) RCA-6AD7G Phase Inverter & Power Output
- (7) RCA-6F6G Power Output
- (8) RCA-5Y3G Rectifier

PILOT LAMPS 2—Type 44, 6.3 volts, 0.25 amps.

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles 80 watts
 105-125 volts, 25-60 cycles 80 watts
 100-130, 140-160, 200-250 volts, 50-60 cycles 80 watts

POWER OUTPUT

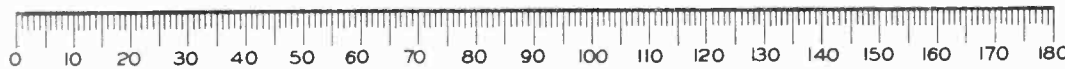
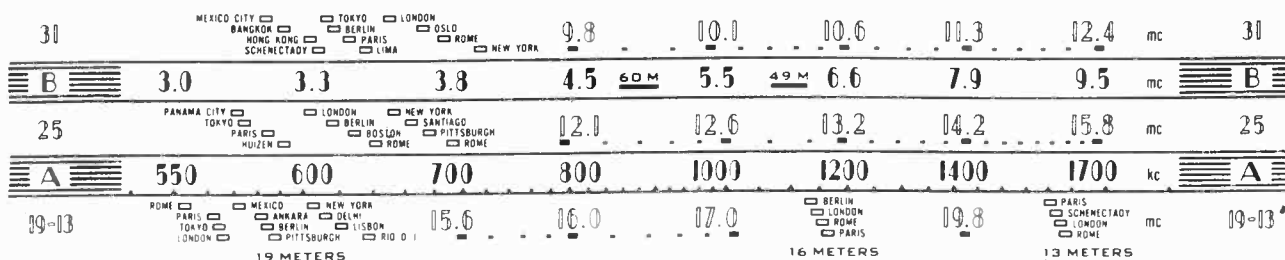
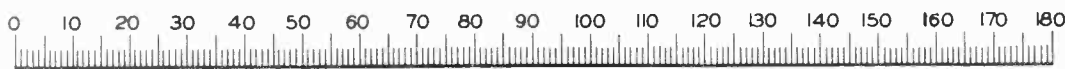
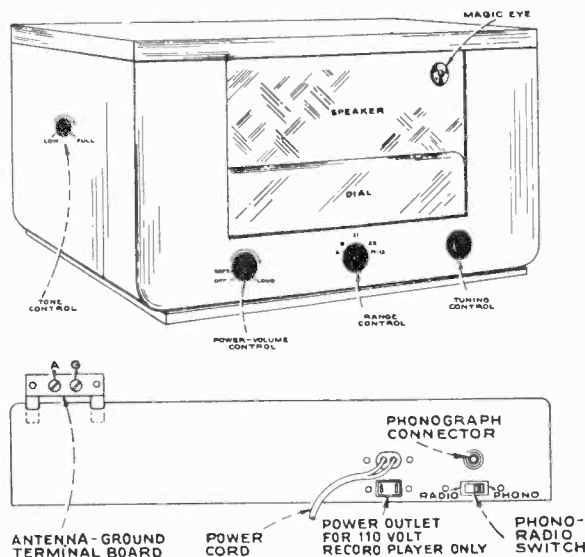
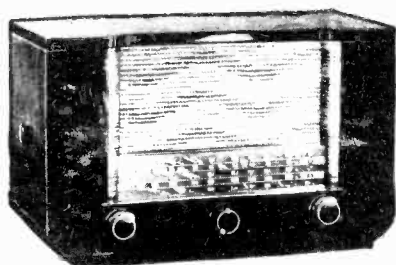
Undistorted 3 watts
 Maximum 3.5 watts

LOUDSPEAKER

Type 8-inch electrodynamic
 V.C. Impedance 2.2 ohms at 400 cycles
 Identification Number RL-63K5

Height Width Depth

CABINET DIMENSIONS (inches) 13 5/8 . . . 21 1/2 . . . 10 7/16
 Chassis Base Dimensions (inches) 2 7/8 . . . 15 1/2 . . . 6 1/2
 Overall Chassis Height 7 13/16 inches
 Weight 34 1/2 lbs. (net) 42 1/2 lbs. (gross)
 Tuning Drive Ratio 20 to 1



Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 30° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

ANT TO GRID 3.5X (600 KC.)
 3.5X (600 KC.)
 -3V. FIXED BIAS

5X (600 KC.)
 5X (600 KC.)

CONVERSION GAIN 25X (600-455 KC.)
 25X (600-455 KC.)
 -3V. FIXED BIAS

1X (455 KC.)
 1X (455 KC.)

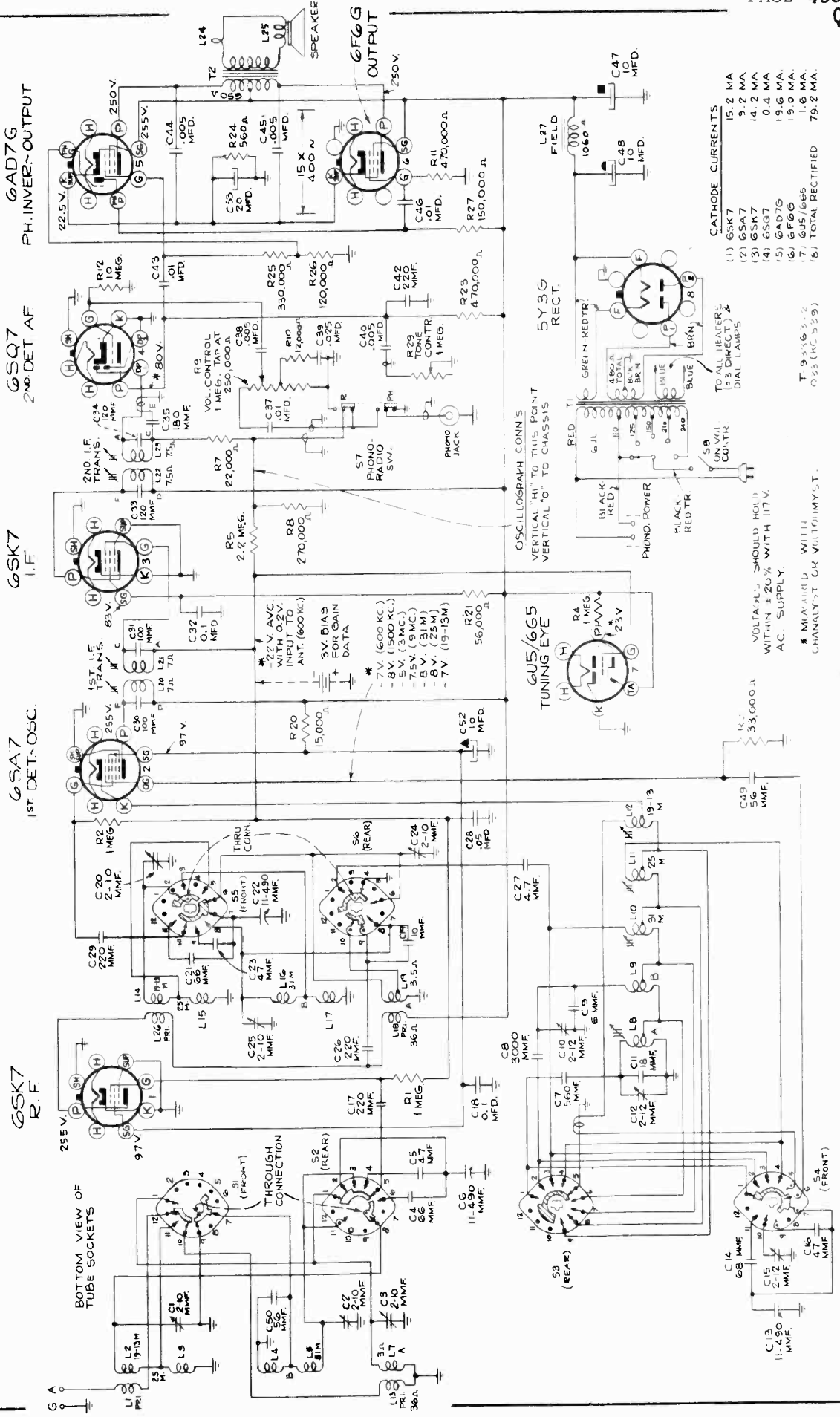
200X (455 KC.)
 200X (455 KC.)

0.9X (455 KC.)
 0.9X (455 KC.)

45X (400 N)
 45X (400 N)

12X (400 N)
 12X (400 N)

APPROX. GAIN DATA USING CALA RIDER CHANNELYST



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

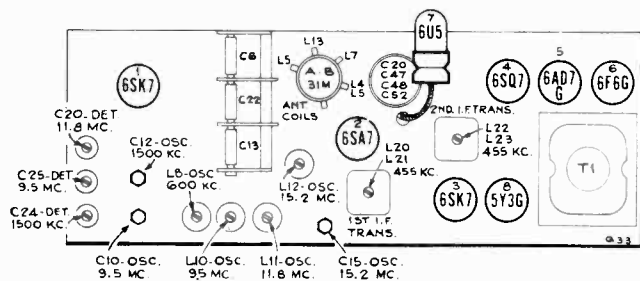
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.

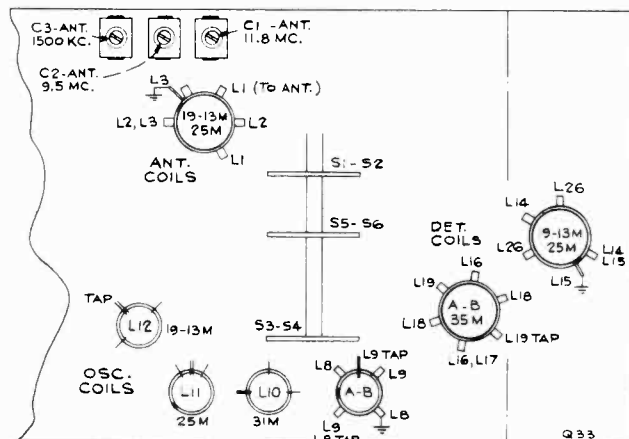
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Tube and Trimmer Locations (Top View)



Coil and Trimmer Locations (Bottom View)

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range Switch	Turn Radio Dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" band	Quiet point 600 kc end of dial	L23-L22 2nd I-F transformer
2	6SA7 1st det. grid in series with .01 mfd.				L21-L20 1st I-F transformer
3	Antenna terminal in series with 300 ohms	11.8 mc	25 meter band	11.8 mc (41.5°)	L11 (osc.) C1 (ant.) C20 (det.)
4		15.2 mc		15.2 mc (161.7°)	C15 (osc.) [†]
5	Repeat steps 3 and 4 until aligned.				
6	Antenna terminal in series with 300 ohms	15.2 mc	19-13 meter band	15.2 mc (24°)	L12 (osc.) ^{**}
7		9.5 mc	31 meter band	9.5 mc (23.8°)	L10 (osc.) ^{**} C2 (ant.) C25 (det.) ^{***}
8		9.5 mc	"B" band	9.5 mc (168.5°)	C10 (osc.) [*]
9	Antenna terminal in series with 200 mmfd.	1,500 kc	"A" band	1,500 kc (153°)	C12 (osc.) C3 (ant.) C24 (det.)
10		600 kc		600 kc (30.5°)	L8 (osc.) Rock in
11	Repeat steps 9 and 10.				

* Use minimum capacity peak if two can be obtained.

** Peak at minimum plunger position if two peaks can be obtained.

*** Use maximum capacity peak if two peaks can be obtained.

† Check image to determine that C15 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc where a weaker signal should be received.

NOTE: Oscillator tracks above signals on all bands.

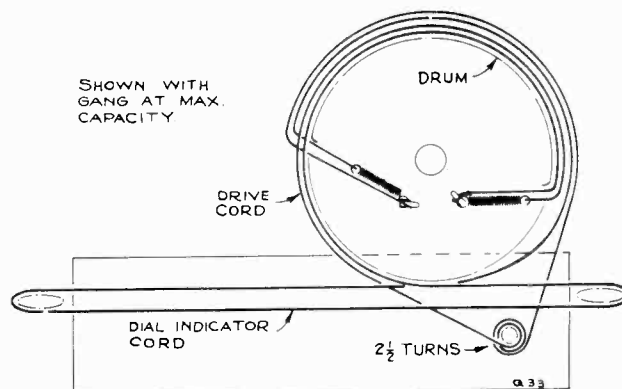
Precautionary Lead Dress:

1. Dress green leads from antenna and R-F gang sections away from all metal including chassis shield plates. The spaghetti covered braid in the antenna section should be at least 1/4 inch away from gang.
2. Black and brown twisted filament leads between 6SA7 and 6SK7-RF must run along front side of the shield plate.
3. Dress toothpick capacitors and switch leads away from and edge on to shield plates.
4. Closely twist ground lead about 2nd I-F transformer diode lead and dress close to chassis.
5. Dress volume control-arm lead and capacitor close to front apron and away from output tubes by-pass capacitors.
6. 6SQ7 10 megohm grid resistor should have no lead length on the grid side.
7. Dress capacitor high side of volume control toward base and as far as possible from a-c switch.
8. Leads to converter socket should not impede flexible mounting.
9. Converter control grid: clear of any other leads, especially filament leads which must be at least 1/4 inch away. The megohm grid leak must have its body as close to grid as possible.
10. Dress oscillator grid and control grid capacitors apart. Dress oscillator grid coupling condenser away from coil form and 1/4 inch from any other parts.

11. 6AD7G plate to cathode capacitor must be flat against chassis.
12. Dress all filament and B+ leads close to chassis.

Oscillation:

Audio oscillation may be encountered if the receiver is switched to the phonograph position and the pickup is not plugged into the jack provided in the rear chassis apron.



Replacement Parts

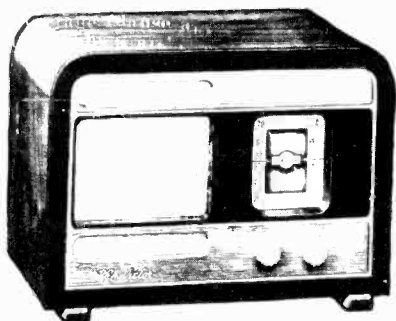
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-539)			
34502	Arm—Range switch actuating arm	37088	Pulley—Right hand dial cord pulley and bracket
37092	Calibrator—Printed chart for Stock No. 37090 drum	36637	Receptacle—AC power receptacle
12714	Capacitor—Plunger type air-trimmer	30735	Resistor—560 ohms, 1 watt
37059	Capacitor—3 section mica trimmer 2.5 to 10 mmfd. each section	30128	Resistor—12,000 ohms, 1/2 watt
33097	Capacitor—1.7 mmfd.	35595	Resistor—15,000 ohms, 3 watts
35646	Capacitor—6 mmfd.	13998	Resistor—22,000 ohms, 1/2 watt
13200	Capacitor—10 mmfd., moulded	12454	Resistor—33,000 ohms, 1/2 watt
31350	Capacitor—18 mmfd.	30650	Resistor—56,000 ohms, 1/2 watt
35644	Capacitor—47 mmfd., ceramic	13734	Resistor—120,000 ohms, 1/2 watt
37329	Capacitor—47 mmfd., silvered mica	30493	Resistor—150,000 ohms, 1/2 watt
12723	Capacitor—56 mmfd.	12199	Resistor—270,000 ohms, 1/2 watt
36072	Capacitor—66 mmfd.	14983	Resistor—330,000 ohms, 1/2 watt
35645	Capacitor—68 mmfd.	30648	Resistor—470,000 ohms, 1/2 watt
30904	Capacitor—100 mmfd., mica	12013	Resistor—1 meg., 1/10 watt
31813	Capacitor—120 mmfd.	13730	Resistor—1 meg., 1/2 watt
36616	Capacitor—220 mmfd., mica	12679	Resistor—2.2 meg., 1/2 watt
12694	Capacitor—220 mmfd., moulded	13601	Resistor—10 meg., 1/2 watt
33760	Capacitor—220 mmfd., silvered mica	37096	Shaft—Indicator shaft
31433	Capacitor—560 mmfd.	37095	Shaft—Range switch actuating shaft
35643	Capacitor—3,000 mmfd.	31251	Socket—Eight prong tube socket
33584	Capacitor—.005 mfd.	35787	Socket—Phono input socket
4937	Capacitor—.01 mfd.	31418	Spring—Drive cord spring
4870	Capacitor—.025 mfd.	33491	Switch—"Radio-Phono" switch
32787	Capacitor—.05 mfd.	37050	Switch—Range switch
4839	Capacitor—.01 mfd.	35636	Transformer—First I.F. transformer
33014	Capacitor—Electrolytic comprising 3 sections of 10-10-10 mfd., and 1 section of 20 mfd.	36615	Transformer—Second I.F. transformer
37093	Coil—A-B band oscillator coil	31734	Transformer—105-120 volts, 25 cycle power transformer
37055	Coil—A-B and 31 meter band antenna coil	31735	Transformer—105-125-150-210-240 volt, 50-60 cycle power transformer
37057	Coil—A-B and 31 meter band R.F. coil	13638	Spring—Dial cord tension spring
35624	13 and 19 meter band oscillator coil	SPEAKER ASSEMBLIES (RL-63K5)	
37056	Coil—13-19 and 25 meter band antenna coil	31825	Cap—Cone center dust cap
37058	Coil—13-19 and 25 meter band R.F. coil	12079	Coil—1,060 ohm field coil
35625	Coil—25 meter band oscillator coil	11469	Coil—Hum neutralizing coil
35626	Coil—31 meter band oscillator coil	34615	Cone—Cone and voice coil assembly
37086	Condenser—3 gang variable tuning condenser	5039	Plug—4 prong male speaker plug
36109	Control—Tone control	14534	Transformer—Output transformer
37087	Control—Volume control and power switch	MISCELLANEOUS ASSEMBLIES	
32634	Cord—Drive or pointer cord (approx. 50 in. lg.)	37387	Back—Finished back cover
37090	Drum—Tuning condenser drum—less calibration chart	35392	Decal—"RCA Victor" decal
37091	Flywheel—Wheel and tuning shaft assembly	37281	Dial—Station selector dial scale
37094	Link—Link arm and bushing assembly	35652	Knob—Range indicator knob
14028	Nut—Clamping nut for Stock No. 12714 capacitor	35651	Knob—Range switch knob
31817	Plate—Cushion socket mounting plate	35650	Knob—Tone control knob
35641	Pulley—Drive cord pulley	35955	Knob—Volume or tuning knob
37089	Pulley—Left hand dial cord pulley and bracket	11891	Lamp—6.3 volts, 0.25 ampere dial lamp
37921	Crystal—"Magic Eye" crystal	5040	Plug—4 contact female speaker cable plug
37922	Indicator—Station selector indicator	12959	Socket—6 contact female Magic Eye socket
30716	Clip—"Magic Eye" clip and thumb screw	31364	Socket—Pilot lamp socket
33438	Screw—Thumb screw for "Magic Eye" clip		

MODEL BT-40

Chassis No. RC-408

Four-Tube, Single-Band, Battery-Operated, Superheterodyne Receiver



CAUTION. — Before attempting to install or replace batteries or tubes or to make any repairs or changes, be sure to turn the left hand knob fully to the left (counter-clockwise), to turn off the power.

Electrical and Mechanical Specifications

Frequency Range..... 540-1,720 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G..... 1st-Det.—Osc.
- (2) RCA-1N5-G..... I-F Amplifier
- (3) RCA-1H5-G..... 2nd-Det., A-F, and A.V.C.
- (4) RCA-1C5-G..... Output

BATTERIES REQUIRED

1 "A"—"B" Pack (Eveready No. 748 or equivalent).

CURRENT CONSUMPTION

"A," 0.24 ampere—"B," 9.0 milliamperes

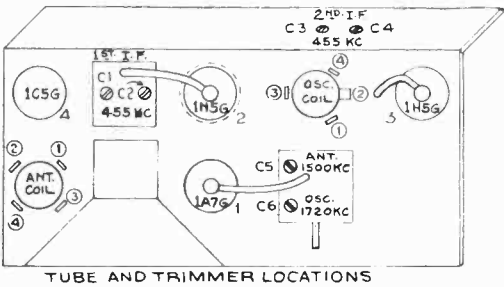
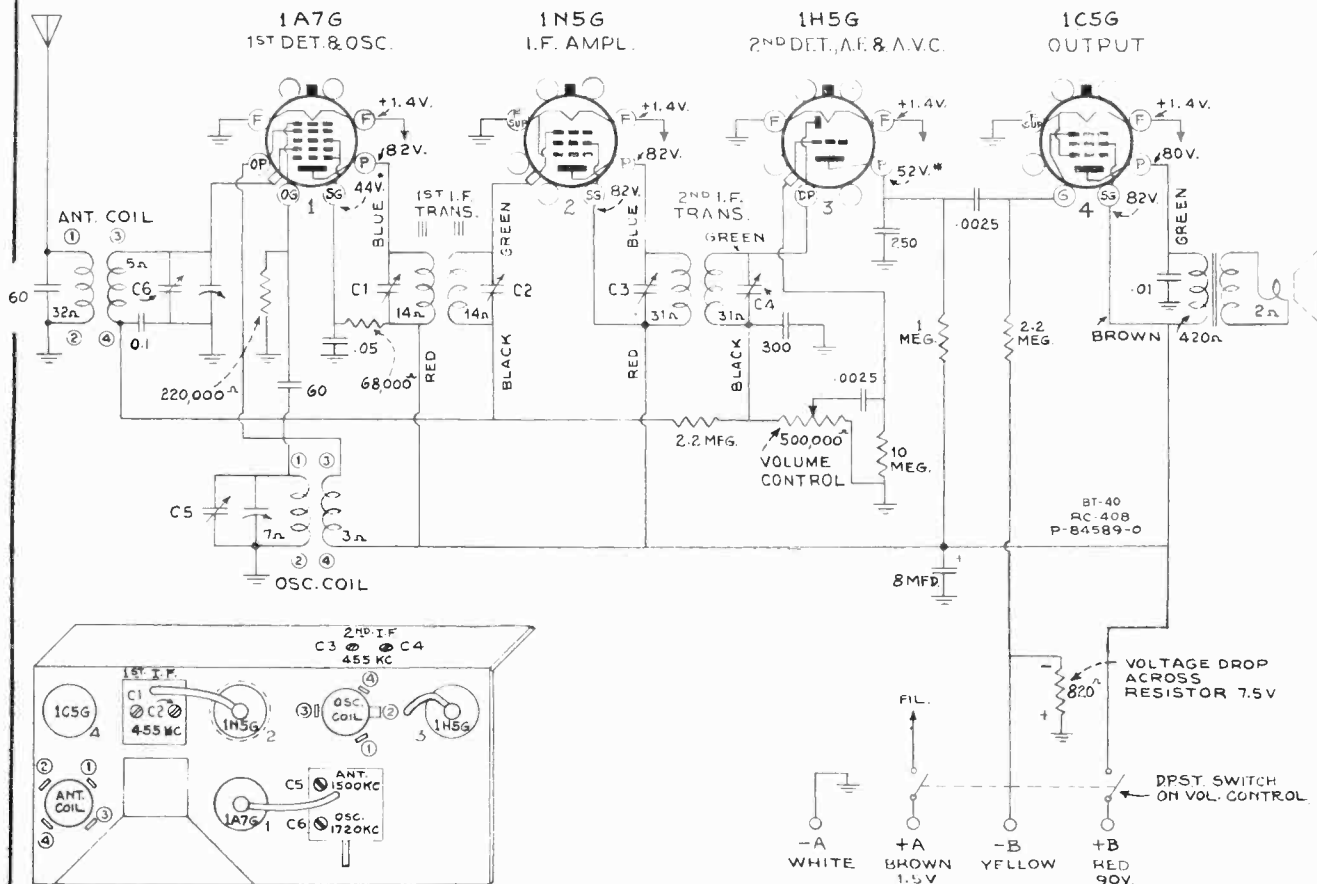
POWER OUTPUT

Undistorted..... 0.10 watt
Maximum..... 0.21 watt

LOUDSPEAKER

Type..... 4-inch permanent-magnet dynamic
Voice-coil Impedance..... 2 ohms at 400 cycles

	Height	Width	Depth
Cabinet Dimensions (inches).....	6½	9½	4-11/16
Chassis Base Dimensions (inches).....	1½	8½	3½
Over-all Chassis Height.....	5½ inches		
Weight—Shipping weight.....	6½ pounds		
Net weight.....	4¾ pounds		
Tuning Drive Ratio.....	11 to 1		



Schematic Circuit Diagram

Alignment Procedure

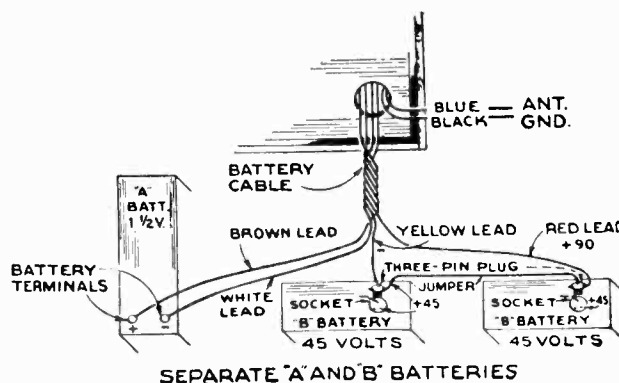
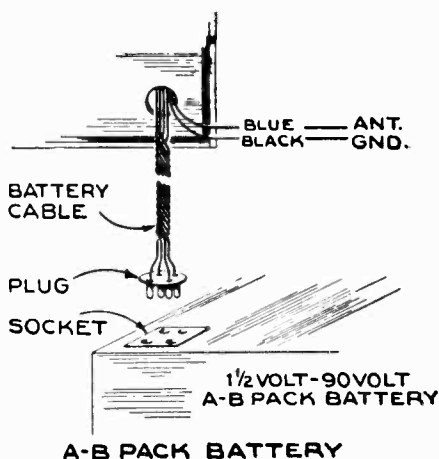
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1A7G 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna lead (blue) in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)



Installation of Batteries

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
11591	Button—Plug button for chassis	14076	Resistor—820 ohms, 1/4 watt
13057	Capacitor—60 mmfd.	13715	Resistor—68,000 ohms, 1/4 watt
12488	Capacitor—250 mmfd.	12264	Resistor—220,000 ohms, 1/4 watt
12952	Capacitor—300 mmfd.	13730	Resistor—1 meg., 1/4 watt
5107	Capacitor—.0025 mfd.	12679	Resistor—2.2 meg., 1/4 watt
4937	Capacitor—.01 mfd.	13601	Resistor—10 meg., 1/4 watt
32787	Capacitor—.05 mfd.	33061	Shaft—Tuning knob drive shaft
4839	Capacitor—.01 mfd.	32595	Shield—Tube shield—less cap.
32187	Capacitor—Electrolytic, 8 mfd.	32537	Socket—Tube socket
32572	Coil—Antenna coil	33058	Speaker complete (39128-1)
33055	Coil—Oscillator coil	30585	Spring—Drive cord tension spring
33060	Condenser—2-gang tuning	32667	Spring—Retaining spring for knobs or drive drum
32634	Cord—Drive cord	33056	Transformer—First i-f transformer
33310	Dial—Glass dial scale	33057	Transformer—Second i-f transformer
32946	Drum—Variable condenser drive drum	33062	Transformer—Output transformer
32571	Knob—Tan volume or tuning knob	33059	Volume control and switch
30550	Plug—4-prong male plug for battery cable		

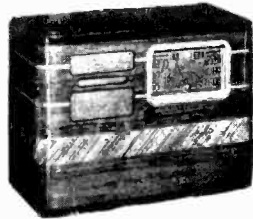
Off-Center Cone:

In many cases, an off-center original cone may be quickly centered by bending the support webs of the speaker housing in the required direction.

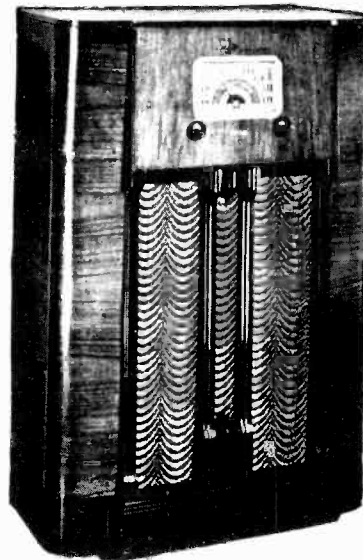
MODELS BK-41 and BT-41

Chassis No. RC-449

Four-Tube, Single-Band, Battery-Operated Superheterodyne Receivers and Model CV-40 (RS-98) A-C Power Unit



Model BT-41



Model BK-41

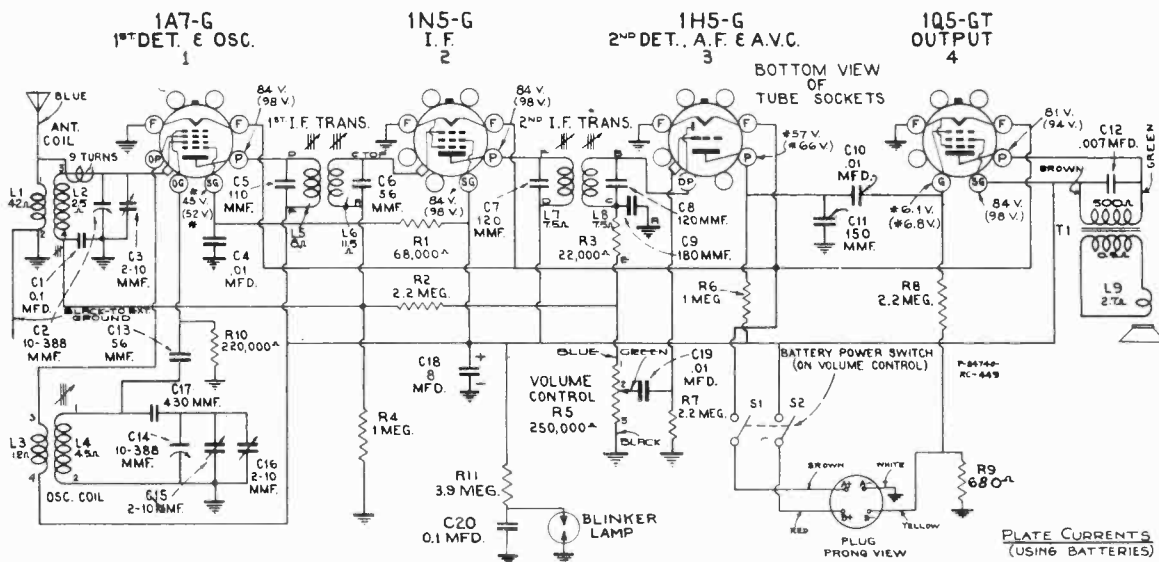
Electrical and Mechanical Specifications

FREQUENCY RANGE	540-1,720 kc
Intermediate Frequency	455 kc
TUBE COMPLEMENT	
(1) RCA-1A7-G	1st. Detector-Oscillator
(2) RCA-1N5-G	I-F Amplifier
(3) RCA-1H5-G	Second Detector A.V.C., and A-F
(4) RCA-1Q5GT	Power Output
CV-40	
Rectifier	RCA-5U4-G
Plug-in Resistor	WW48, Stock No. 34563
POWER OUTPUT (Battery Operation)	
Undistorted	0.125 watt
Maximum	0.300 watt
LOUDSPEAKER	
Type	Permanent Magnet Dynamic
Diameter	BK41, 8 inches; BT41, 5 inches
Voice Coil Impedance	BK41, 2.2 ohms; BT41, 3.0 ohms at 400 cycles

BATTERY REQUIRED	
Combination 1 1/2 volt-90 volt A-B Pack	
CURRENT CONSUMPTION	
"A" at 1.4 volts,	0.25 amp.
"B" at 90 volts,	9.4 ma.
A-C Operation	

Use of power unit CV-40 with either Model BK41 or BT41 adapts that receiver for A-C operation.

	Height	Width	Depth
Cabinet Dimensions, BK41	30 in.	25 1/2 in.	12 1/2 in.
Cabinet Dimensions, BT41	17 3/8 in.	17 1/2 in.	7 1/2 in.
Chassis Base Dimensions	2 in.	9 1/2 in.	5 1/2 in.
Over-All Chassis Height	6 1/2 in.		
Weight, BK41	48 lbs. (shipping)		
Weight, BT41	15 lbs. (shipping)		
Tuning Drive Ratio	8 to 1		



STARRED (*) VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE; THE ACTUAL MEASURED VOLTAGES WILL BE LOWER, DEPENDING ON THE VOLTMETER LOADING.

VOLTAGES IN PARENTHESES ARE THOSE OBTAINED BY USING POWER SUPPLY CV-40. WHEN BATTERIES ARE USED VOLTAGES NOT IN PARENTHESES APPLY.

PLATE CURRENTS (USING BATTERIES)	
1A7G	
OSC	0.85 MA
DET.	0.49 MA
1N5G	1.2 MA
1H5G	0.26 MA
1Q5GT	6.0 MA

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are as follows: Vertical "Hi" to E on the 2nd I-F transformer. Vertical "O" to chassis.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

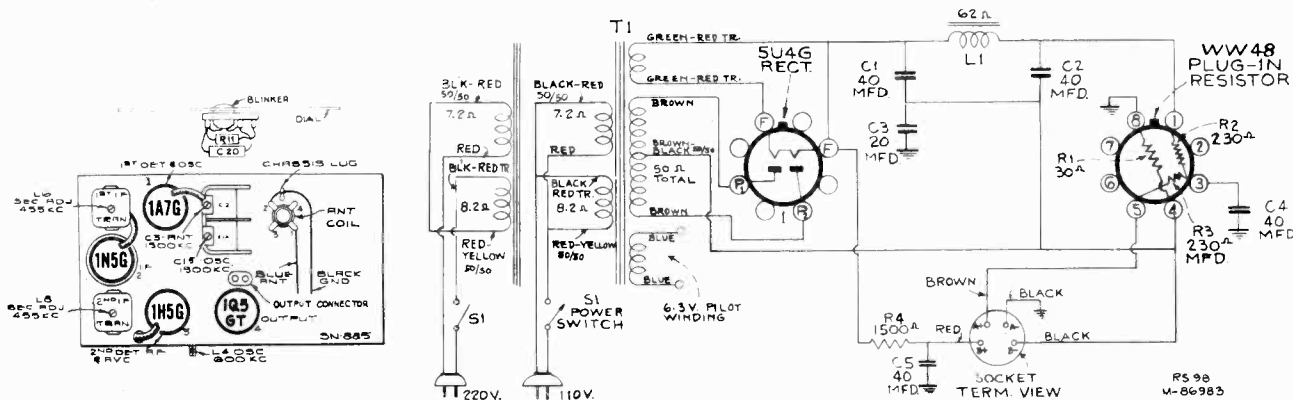
Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Precautionary Lead Dress

1. Red lead from second i-f transformer to screen terminal of 1N5-G must be dressed close to and along edge of chassis.
2. Twisted green wire from antenna coil to gang must be 9 turns and kept clear of rotor.
3. Blue and green leads to volume control must be dressed close to chassis and between gang and front apron.
4. The opening in the shield of the 1N5-G should be turned away from the chassis and the i-f transformers.
5. Antenna and ground wires should be twisted together.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	1N5-G I-F grid cap, in series with 0.01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	1A7-G 1st-det. grid cap in series with 0.01 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead, in series with 200 mmfd.	600 kc	600 kc	L4 (oscillator) L2 (antenna)
No. 4	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C15† (oscillator) C3 (antenna)

† Trimmer C16 on gang condenser should be unscrewed one complete turn from tight, before adjusting C15.



Schematic Diagram—Model CV-40

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

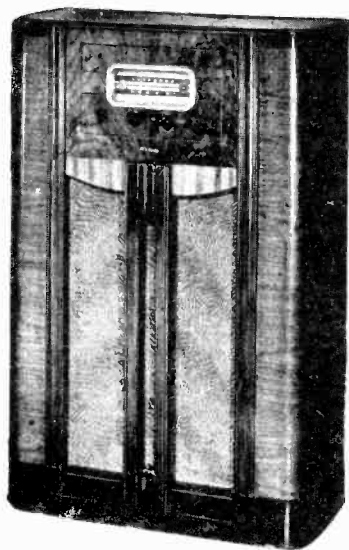
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES BT41 (RC-449)—BK41 (RC-449A)		SPEAKER ASSEMBLIES (MODEL BT41) (84226-3)	
12629	Capacitor—56 mmfd. (C6)	32183	Cone—Speaker cone and voice coil (L9)
12723	Capacitor—56 mmfd. (C13)	5133	Pin—Contact pin for speaker leads
14262	Capacitor—110 mmfd. (C5)	32164	Transformer—Output transformer (T1)
12404	Capacitor—120 mmfd. (C7, C8)	SPEAKER ASSEMBLIES (MODEL BK41) (84760-1)	
12725	Capacitor—150 mmfd. (C11)	34385	Cone—Speaker cone, voice coil, and metal housing
14712	Capacitor—180 mmfd. (C9)	5133	Pin—Contact pin for speaker leads
32599	Capacitor—430 mmfd. (C17)	34388	Transformer—Output transformer
5148	Capacitor—.007 mfd. (C12)	MISCELLANEOUS ASSEMBLIES	
14393	Capacitor—.01 mfd. (C4, C10, C19)	34380	Escutcheon—Dial escutcheon and crystal
4839	Capacitor—.01 mfd. (C1, C20)	30863	Knob—Tuning or volume control knob (Model BT41)
32187	Capacitor—8 mfd., 150 volts (C18)	33434	Knob—Tuning or volume control knob (Model BK41)
32150	Coil—Antenna coil assembly (L1, L2)	30900	Spring—Retaining spring for knobs (Model BT41)
32148	Coil—Oscillator coil assembly (L3, L4)	14270	Spring—Retaining spring for knobs (Model BK41)
34375	Condenser—2 gang variable tuning with drum (C2, C3, C14, C15, C16)	MODEL CV 40	
32634	Cord—Drive cord	34563	Ballast—Ballast resistor tube WW48 (R1, R2)
34377	Dial—Dial scale only	32826	Capacitor—Electrolytic, 2 sections 40 mfd. and 1 section 20 mfd. (2 used) (C1, C2, C3, C4, C5)
34378	Indicator—Dial pointer	34564	Cover—Power switch cover
34256	Lamp—Blinker lamp	34560	Reactor—Filter reactor (L1)
34376	Plate—Dial scale mounting plate and bracket, complete with scale	34563	Resistor—Ballast resistor tube WW48 (R1, R2)
34498	Plug—4-prong male for battery cable	14499	Resistor—1,500 ohms, 1/2 watt (R4)
12262	Resistor—680 ohms, 1/2 watt (R9)	34562	Socket—4-contact female for power output
14284	Resistor—22,000 ohms, 1/10 watt (R3)	13119	Socket—Rectifier or ballast tube socket
13715	Resistor—68,000 ohms, 1/2 watt (R1)	34561	Switch—S.P.S.T. power switch (S1)
12264	Resistor—220,000 ohms, 1/2 watt (R10)	34569	Transformer—Power transformer 105-125 and 200-250 volts, 50-60 cycle (T1)
13730	Resistor—1 megohm, 1/2 watt (R4, R6)	34563	Tube—Ballast resistor tube WW48 (R1, R2)
12679	Resistor—2.2 megohm, 1/2 watt (R2, R7, R8)		
13167	Resistor—3.9 megohm, 1/2 watt (R11)		
14887	Retainer—Retaining ring for tuning shaft		
30952	Shaft—Tuning knob shaft (Model BT41)		
32597	Shaft—Tuning knob shaft (Model BK41)		
4233	Shield—Tube shield		
30956	Socket—Speaker socket		
31251	Socket—Tube socket		
14191	Spring—Drive cord tension spring		
14261	Transformer—First i-f transformer		
14308	Transformer—Second i-f transformer		
30947	Volume control and switch (Model BT41)		
34557	Volume control and switch (Model BK41)		

MODELS BK-42 and BT-42

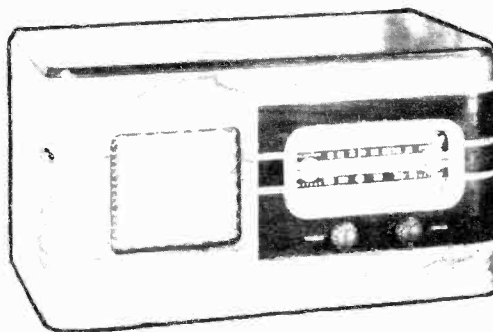
Chassis No. RC-408C

RC-408A

Four-Tube, Single-Band, Battery-Operated Superheterodyne Receivers



Model BK-42 (RC-408C).



Precautionary Lead Dress.—

1. All filament (brown) and B+ (red) leads must be dressed away from unshielded I.F. coil.
2. Green grid lead of 1A7G tube to be twisted around antenna (blue) lead for capacity coupling.
3. Red and brown battery cable leads to be dressed and held against front apron with tape.

Electrical and Mechanical Specifications

Frequency Range 540-1,720 kc
Intermediate Frequency 455 kc

RCA TUBE COMPLEMENT

- (1) RCA 1A7-G 1st-Det.—Osc.
- (2) RCA 1X5-G I-F Amplifier
- (3) RCA 1H5-G 2nd-Det., A-F, and A.V.C.
- (4) RCA 1Q5-G Output

BATTERIES REQUIRED

- 1 "A"—"B" Pack (Eveready No. 748 or equivalent).

CURRENT CONSUMPTION

- "A," 0.24 ampere—"B," 10 milliamperes.

POWER OUTPUT

Undistorted 0.15 watt
Maximum 0.25 watt

LOUDSPEAKER BT-42

Type 5-inch permanent-magnet dynamic
Voice-coil Impedance 3.3 ohms at 400 cycles

MODEL BK-42,

Technical Information and Service Data:

Refer to Service Data on Model BT-42 and the following parts:

Stock No.

12635 Capacitor—1,000 mmfd. (C16).....

SPEAKER ASSEMBLY, BK-42 (84649-2) 6-in. P. M.

34507 Cone—Speaker cone and voice coil.
34508 Transformer—Output transformer.....

MODELS BK-42, BT-42

Oscillator Grid Resistor:

In some production, the oscillator grid resistor (R1) is changed from 220,000 ohms to 150,000 ohms (Stock No. 14020).

Dial Drive Slippage, or Cord Breakage:

In cases where abnormal slippage or breakage of the dial cord is experienced, the following corrective measures are suggested:

SLIPPAGE: Slippage may be due to one or more of the following conditions:

- (a) Chassis mounted too far into cabinet causing dial pointer to rub against cabinet.
- (b) A bent cord drum touching chassis.
- (c) Dial cord rubbing against parts in chassis.
- (d) Tuning condenser bearing too stiff.

BREAKAGE: Breakage of dial cord may be caused by any one of the following or a combination thereof:

- (a) The machined surface at the drive pulley being rough.
- (b) Surface of guide rivets being rough.
- (c) Dial cord rubbing against head of guide pin rivets due to poor alignment between rivets and dial cord drum.
- (d) Guide pin rivets should be flush with mounting plate and tightly riveted at right angle to the plate, so as to avoid the possibility of a crack between rivet shoulder and dial plate, permitting dial cord to enter and resulting in a premature failure of cord.

A revised replacement shaft Stock No. 34124 is available for correcting slippage.

Pull out tuning shaft after first removing the slotted spring washer used for holding tuning shaft in place.

Insert replacement shaft and lock in place with spring washer after first having applied a drop of oil to the shaft bearing.

Install new dial cord, placing 3½ turns around the tuning shaft pulley.



REPLACEMENT SHAFT



ORIGINAL SHAFT

Replacement Dial, Pulley, and Shaft:

A complete Dial Assembly (Stock No. 38781) consisting of dial plate, dial scale, pulleys, drive drum, drive cord and spring, shaft, lamp bracket, and terminal strip is available for replacement on the Model BT-42 receiver.

However, the original assembly may be brought up to date by replacing the studs and shaft as follows:

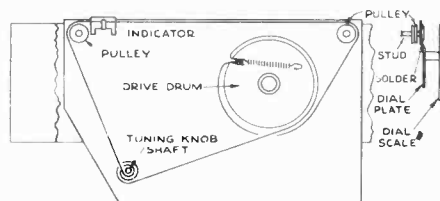
File off the two old studs on the dial plate. Tin, with solder, the surface (between dial and plate) around the stud holes, and insert the new pulley studs with the heads against the plate.

Solder the studs so their heads are flat against the plate and the shanks are at right angles to the plate.

The pulleys can now be slipped over the studs with the bearing surface toward the plate. Apply a drop of oil on each stud.

Thread the drive cord as shown in the drawing.

Stock No.	Description	Unit List Price
38781	Dial assembly complete (New type, including Stock No. 38783 and 34124)	2.50
38783	Pulley (2 pulleys, 2 studs) .....	.25
34124	Shaft (Shaft and spring washer) .....	.35



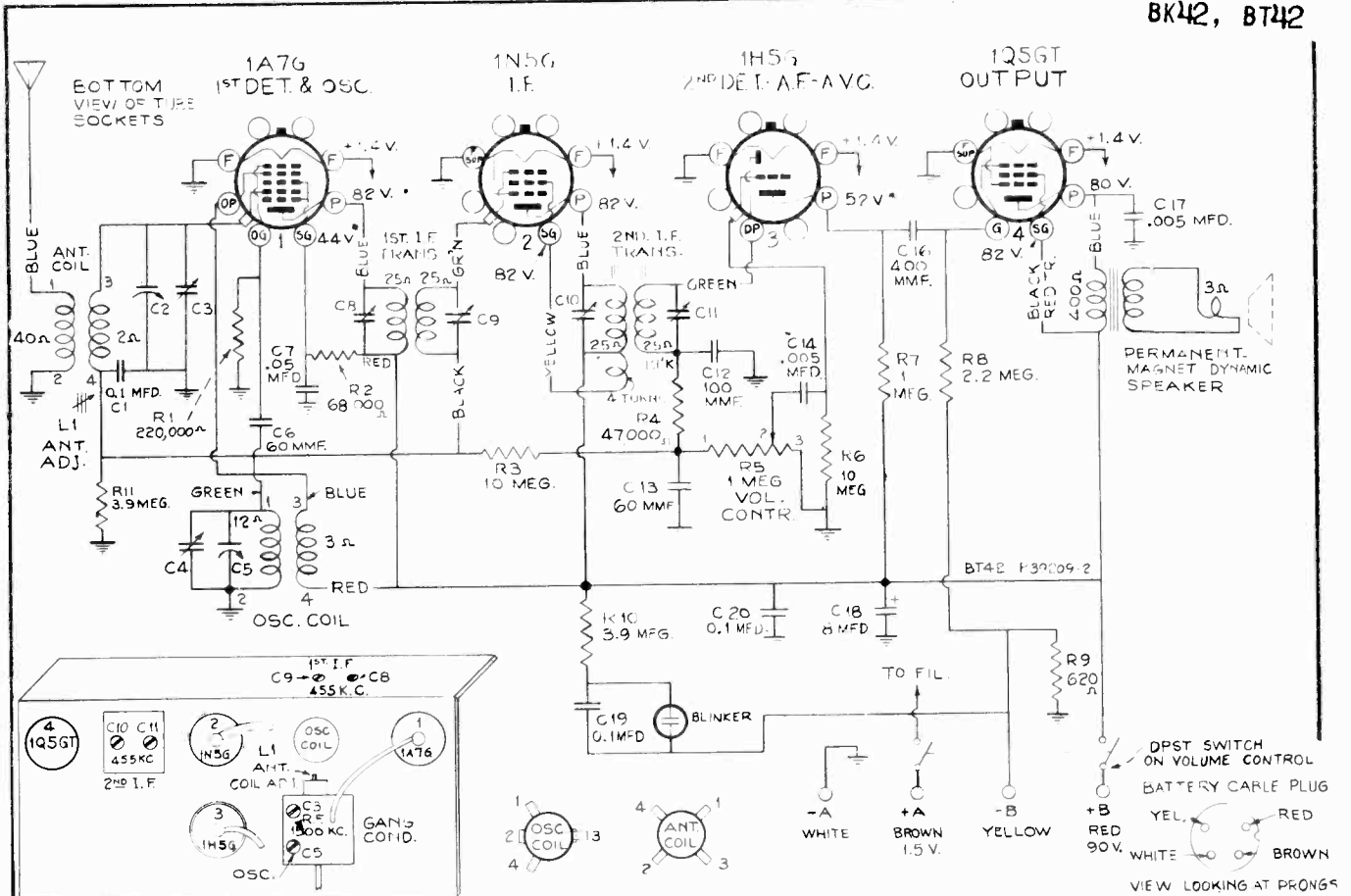
MODEL BT-42

Replacement Loudspeaker Cones:

Three types of loudspeakers have been employed in Model BT-42. Replacement cones are identified and available as follows:

Speaker Marking	Cone Stock No.
84650-1	33458
84650-2	35483
84650-5	35127

The speaker marked 84650-5 uses output transformer Stock No. 35128.



Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Pre-setting Dial.—With the gang condenser fully out of mesh, the indicator should point to the extreme right (high frequency) mark on the dial scale.

CAUTION.—When ready to install or replace batteries or tubes or to make any repairs or changes, be sure to turn off power switch.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn Radio Dial to—	Adjust the following for max. peak output—
1	1A7G 1st-Det. grid cap. in series with .01 mfd.	455 kc	Quiet point at 550 kc End of Dial	C8, C9, C10, C11 (1st and 2nd I-F transformers)
2	Antenna lead (blue) in series with 100 mmfd.	1,500 kc	1,500 kc	C5 (oscillator)
3		600 kc	600 kc	L1 (antenna)*
4		1,500 kc	1,500 kc	C3 (antenna)

* When adjusting L1 (antenna), trimmer C3 should be in a minimum capacity position (unscrewed).

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLY			
13057	Capacitor—60 mmfd (C6, C13)	12679	Resistor—2.2 megohm 1/2 watt (R8)
12720	Capacitor—100 mmfd (C12)	13167	Resistor—3.9 megohm 1/2 watt (R10, R11)
30433	Capacitor—400 mmfd (C16)	13601	Resistor—10 megohm 1/2 watt (R3, R6)
33584	Capacitor—.005 mfd (C14, C17)	34124	Shaft—Tuning knob shaft
32787	Capacitor—.05 mfd (C7)	32595	Shield—Tube shield
4839	Capacitor—.01 mfd (C1, C19, C20)	32537	Socket—Tube socket
33952	Capacitor—8 mfd (C18)	31615	Spring—Drive cord tension spring
34126	Clip—Dial lamp clip	33296	Spring—Retaining spring for drum
32150	Coil—Antenna coil	34118	Transformer—First I-F transformer
32573	Coil—Oscillator coil	34119	Transformer—Second I-F transformer
34121	Condenser—2 gang variable tuning	34120	Volume Control and switch
32634	Cord—Indicator drive cord	SPEAKER ASSEMBLY	
34125	Dial—Dial scale	81650-1	
33453	Drum—Indicator drive cord drum	33458	Cone—Speaker cone and voice coil
34123	Indicator—Dial scale pointer	33459	Transformer—Output transformer
34256	Lamp—Blinker lamp	MISCELLANEOUS ASSEMBLY	
34122	Plate—Metal support plate and bushing for dial	34127	Escutcheon—Dial escutcheon
30550	Plug—1/4 contact male plug for battery cable	31659	Knob—Tuning or volume control knob
3708	Resistor—620 ohms, 1/2 watt (R9)	33312	Nut—Speed nut for tuning condenser support plate
12412	Resistor—47,000 ohms, 1/2 watt (R4)	31646	Spring—Retaining spring for knob
13715	Resistor—68,000 ohms, 1/2 watt (R2)		
12264	Resistor—220,000 ohms, 1/2 watt (R1)		
13730	Resistor—1 megohm 1/2 watt (R7)		

MODEL Q44

Chassis No. RC-531

Eleven-Tube and Magic Eye, Eight-Band, Superheterodyne

Electrical and Mechanical Specifications

FREQUENCY RANGES

Long Wave ("X" Band).....	140-410 kc (2145-735 m)
Medium Wave ("A" Band).....	540-1,720 kc (555-174 m)
Short Wave ("B" Band).....	3.1-9.5 mc (97.5-31.5 m)
31 Meter Spread Band.....	9.45-11.8 mc (31.8-25.4 m)
25 Meter Spread Band.....	11.65-15.2 mc (25.6-19.9 m)
19 Meter Spread Band.....	15.1-17.75 mc (19.9-16.9 m)
16 Meter Spread Band.....	17.73-18.5 mc (16.9-16.2 m)
13 Meter Spread Band.....	21.45-22.5 mc (13.95-13.3)

INTERMEDIATE FREQUENCY 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... Oscillator
- (3) RCA-6SA7..... 1st Detector
- (4) RCA-6B8-G..... A.V.C. Amplifier
- (5) RCA-6U5/6G5..... Tuning Indicator
- (6) RCA-6SK7..... 1st I-F Amplifier
- (7) RCA-6SK7..... 2nd I-F Amplifier
- (8) RCA-6R7..... 2nd Detector and 2nd A-F Amplifier
- (9) RCA-6SK7..... 1st Audio Amplifier
- (10) RCA-6AD7-G..... Phase Inverter and Power Output
- (11) RCA-6F6-G..... Power Output
- (12) RCA-5U4-G..... Rectifier

PILOT LAMPS 10 Type No. 51 6-8 volts, 0.2 amps.

POWER SUPPLY RATING

105-125 volts, 50-60 cycles.....	125 watts
105-125 volts, 25-60 cycles.....	125 watts
100-130, 140-160, 195-250 volts, 40-60 cycles.....	125 watts

POWER OUTPUT RATING

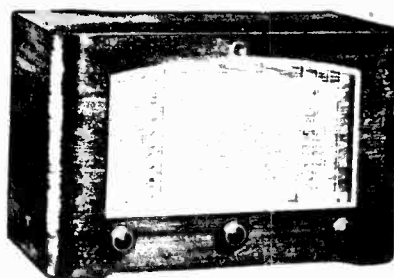
Undistorted.....	10 watts
Maximum.....	12 watts

LOUDSPEAKER

Type.....	10-inch Electrodynamic
Voice Coil Impedance.....	2.4 ohms at 400 cycles
Identification Number.....	88885-502

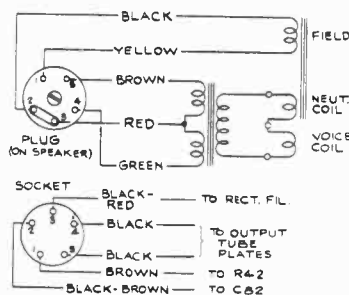
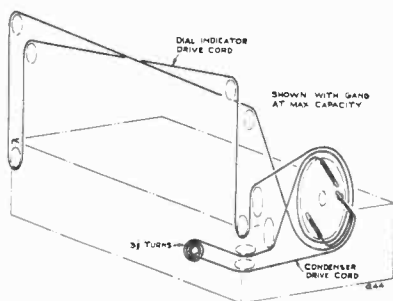
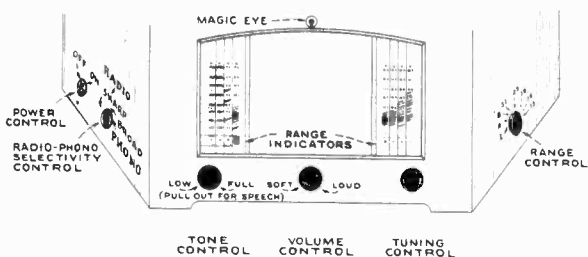
Height Width Depth

Cabinet Dimensions (inches).....	15 ²⁹ / ₃₂	24 ⁷ / ₁₆	12 ¹ / ₂
Chassis Base Dimensions (inches).....	3 ¹ / ₈	20.....	8 ⁷ / ₈
Weight.....	49 lbs (net).....	56 lbs (shipping)	
Tuning Drive Ratio.....	25 to 1		



General Description

Model Q44 is an eleven tube, eight band superheterodyne receiver that uses a Magic Eye tube for tuning indications. Features of design include: Selectivity control, spread bands for short wave reception, two new vertical thermometer type dials, magnetite core I-F and oscillator coils, temperature compensated circuits, one R-F and 2 I-F amplifier stages, separate A. V. C. amplifier stage, plug in phonograph connection and radio-phonograph switch, speech-music switch with continuously variable bass-treble tone control, and air core trimming capacitors.



Q44

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dials are fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "0°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at the sides.

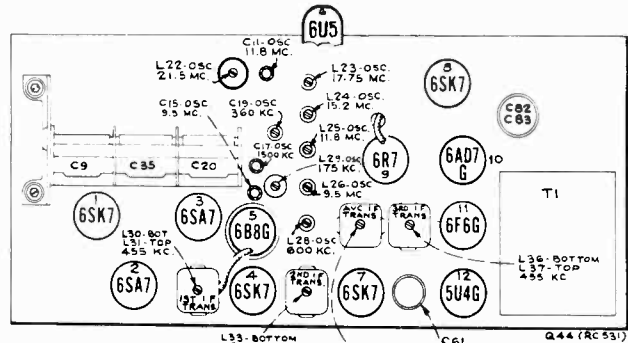
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.

°	KC	KC	MC	MC	MC	MC	MC	MC
180	400	1700	9.4	11.8	15.0	18.7	18.6	22.6
150	350	1400	7.9	11.0	14.0	17.5	18.2	22.1
120	300	1200	6.8	10.5	13.1	16.6	18.0	21.8
90	250	1000	5.6	10.1	12.6	16.0	17.9	21.5
60	200	800	4.5	9.7	12.1	15.5	17.5	21.2
30	175	700	3.9	9.3	11.7	15.1	17.2	21.0
0	150	600	3.1	9.0	11.4	14.8	17.0	20.8
	140	550	3.1	8.8	11.2	14.6	16.8	20.6
	X	A	B	31	25	19	16	13

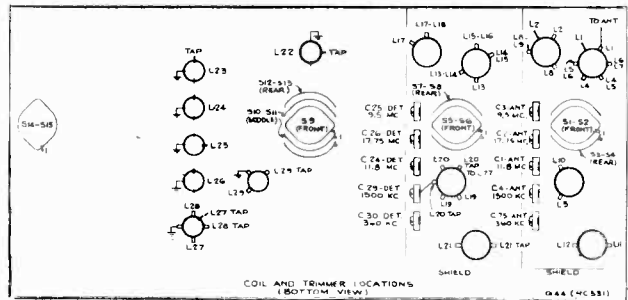
Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Tube and Trimmer Locations (Top View)



Coil and Trimmer Locations (Bottom View)

Precautionary Lead Dress:—

1. All oscillator leads should be kept as short as possible.
2. Both yellow leads in the antenna switch section must be dressed towards the lug end and away from the coil windings, and also held to length.
3. Both yellow leads to adjacent lugs on detector coil must be dressed towards lug end and away from the coil windings, and also held to length.
4. The following leads should be held to length
from No. 8 on S1
from No. 5 on S2
from No. 8 on S5
5. Lead from No. 4 on S15 must be dressed along the chassis away from all heater leads.
6. Lead from No. 5 on S15: well away from all heater leads.
7. The diode lead and the ground lead from the third I-F must be twisted.
8. The diode lead and the ground lead from A.V.C. I-F transformer must be twisted.
9. The lead on No. 9 of S15 should be away from the volume control and first audio tube.
10. The two condensers on the oscillator heater must be as short as possible and dressed away by at least 1/4" from the bracket, parts wired to it, the yellow lead, and the oscillator grid lead.
11. Green, blue and double enamel leads from the oscillator coil nearest the rear apron must bear tightly against each other.
12. The oscillator grid coupling condenser must bear tightly against the styrol; the sprayed mica must likewise bear on the styrol from the opposite side.
13. The long ground lead from the oscillator heater must be kept away from all condensers, resistors, and leads to R-F tubes.



I.F. Selectivity Curves
At Left—"Sharp"
At Right—"Broad"



Step	Connect the high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—	
1	Turn selectivity control maximum counter-clockwise for maximum selectivity.				
2	6SK7 2nd I-F grid in series with .01 mfd.	455 kc	"A" Band Quiet point between 550-750 kc	L37, L36 Third I-F Transformer	
3	6SK7 1st I-F grid in series with .01 mfd.			L34, L33 Second I-F Transformer	
4	6SA7 1st Det. grid in series with .01 mfd.			L31, L30 First I-F Transformer	
5	With selectivity control in broad position retouch L37, L36 for selectivity curve 2.				
5A	With selectivity control in sharp position see that curve 1 has not changed appreciably.				
6	6SA7 1st Det. grid in series with .01 mfd.	455 kc	"A" Band quiet point 550-750 kc	L39, L38 AVC Transformer*	
7	Antenna Terminal in series with 200 mmfd.	360 kc	"X" Band 360 kc (149°)	C19 (osc.)** C30 (det.) C75 (ant.)	
8		175 kc	"X" Band 175 kc (51°)	L29 (osc.) (Rock-in)	
9	Repeat steps 7 and 8.				
10	Antenna Terminal in series with 200 mmfd.	1,500 kc	"A" Band 1,500 kc (150.5°)	C17 (osc.) C29 (det.) C4 (ant.)	
11		600 kc	"A" Band 600 kc (26°)	L28 (osc.) (Rock-in)	
12	Repeat steps 10 and 11.				
13	Antenna Terminal in series with 300 ohms	9.5 mc	"31M" Band 9.5 mc (21.5°)	L26 (osc.)*** C25 (det.) C3 (ant.)	
14		11.8 mc	"31M" Band 11.8 mc (169.5°)	C11 (osc.)***	
15		Repeat steps 13 and 14 until correct on dial.			
16		9.5 mc	"B" Band 9.5 mc (172.5°)	C15 (osc.)***	
17		11.8 mc	"25M" Band 11.8 mc (36°)	L25 (osc.)*** C24 (det.) C1 (ant.)	
18		15.2 mc	"19M" Band 15.2 mc (37°)	L24 (osc.)***	
19		17.75 mc	"16M" Band 17.75 mc (28°)	L23 (osc.)**** C26 (det.) C2 (ant.)	
20		21.5 mc	"13M" Band 21.5 mc (59°)	L22 (osc.)****	

* Connect oscilloscope to lug C of A.V.C. transformer.

** Core of L29 should be approximately $\frac{1}{8}$ inches out before adjusting C19.

*** Use minimum capacity or inductance peak.

**** Use maximum inductance peak.

NOTE: Oscillator tracks above all signals except on 16 and 13 meter bands.

Q44

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-531)		36618	Resistor—Voltage divider comprising 1 section of 3,450 ohms, 7.5 watt, 1 section of 3,000 ohms, 3 watt, 1 section of 22 ohm 0.5 watt and 1 section 135 ohms, 3 watt.
31767	Board—"Antenna-Ground" board	36842	Resistor—5 ohms, 1 watt.
36625	Bracket—Angular support bracket complete with 2 pulleys	30152	Resistor—1,000 ohms, 1 watt.
36624	Bracket—Dial support bracket complete with 5 pulleys	30654	Resistor—1,500 ohms, 1/2 watt.
36626	Bracket—Support bracket with double pulley	34767	Resistor—2,200 ohms, 1/2 watt.
35642	Calibrator—Drive drum calibrator	30128	Resistor—12,000 ohms, 1/2 watt.
12714	Capacitor—Air trimmer—medium—2-12 mmf.	36714	Resistor—15,000 ohms, 1/2 watt.
36631	Capacitor—Mica trimmer comprising 3 sections of 2-20 mmf. each, 1 section of 5-50 mmf. and 1 section of 3-30 mmf.	13998	Resistor—22,000 ohms, 1/2 watt.
36636	Capacitor—Mica trimmer—1 section of 8-80 mmf.	12454	Resistor—33,000 ohms, 1/2 watt.
36630	Capacitor—Mica trimmer comprising 5 sections of 3-30 mmf. each.	30787	Resistor—47,000 ohms, 1/2 watt.
35646	Capacitor—6 mmf.	13715	Resistor—68,000 ohms, 1/2 watt.
33381	Capacitor—8.2 mmf.	14138	Resistor—68,000 ohms, 1/2 watt.
13200	Capacitor—10 mmf.	14560	Resistor—100,000 ohms, 1/2 watt.
13002	Capacitor—12 mmf., silvered mica	3252	Resistor—100,000 ohms, 1/2 watt.
33380	Capacitor—12 mmf., ceramic	13734	Resistor—120,000 ohms, 1/2 watt.
12948	Capacitor—33 mmf.	14583	Resistor—220,000 ohms, 1/2 watt.
13141	Capacitor—47 mmf., silvered mica	12199	Resistor—270,000 ohms, 1/2 watt.
33102	Capacitor—47 mmf., ceramic	14983	Resistor—330,000 ohms, 1/2 watt.
12723	Capacitor—56 mmf., silvered mica	30784	Resistor—330,000 ohms, 1/2 watt.
36843	Capacitor—56 mmf., ceramic	12285	Resistor—470,000 ohms, 1/2 watt.
12813	Capacitor—82 mmf.	12013	Resistor—1 megohm, 1/10 watt.
12720	Capacitor—100 mmf.	13730	Resistor—1 megohm, 1/2 watt.
31813	Capacitor—120 mmfd., mica	12679	Resistor—2.2 megohm, 1/2 watt.
12724	Capacitor—120 mmf., moulded mica	14350	Screw—No. 8-32 square head set screw for drive drum
30232	Capacitor—200 mmf.	36622	Shaft—Tuning shaft and flywheel
36616	Capacitor—220 mmf., mica	31364	Socket—Dial lamp socket
12694	Capacitor—220 mmf., moulded mica	35787	Socket—Phono input socket
30964	Capacitor—330 mmf.	31251	Socket—Tube socket
13894	Capacitor—390 mmf.	34864	Socket—Tuning tube socket
33235	Capacitor—580 mmf.	31418	Spring—Drive cord spring
36174	Capacitor—680 mmf.	31261	Spring—Retaining spring for adjustable cores and studs
12536	Capacitor—820 mmfd.	36620	Switch—Phono-radio-selectivity switch
30057	Capacitor—2,700 mmf.	36724	Switch—Power switch
30303	Capacitor—.0035 mfd.	36628	Switch—Range switch
4886	Capacitor—.05 mfd.	34664	Switch—Slide switch for tone control
33584	Capacitor—.005 mfd.	36614	Transformer—1st I.F. transformer
4937	Capacitor—.01 mfd.	36443	Transformer—2nd I.F. transformer
4870	Capacitor—.025 mfd.	36615	Transformer—3rd I.F. and AVC transformer
4839	Capacitor—.01 mfd.	36977	Transformer—Power transformer—105-120 volt, 25 cycle
36623	Capacitor—Electrolytic comprising 1 section of 30 mfd. 350 volts, 1 section of 5 mfd. 350 volts and 1 section of 20 mfd. 250 volts	36473	Transformer—Power transformer—100-130 volt, 140-160 volt, 190-220 volt, 230-250 volt, 50-60 cycles
35016	Capacitor—Electrolytic comprising 1 section of 40 mfd. 450 volts and 1 section of 100 mfd. 25 volts	33726	Washer—"C" washer to hold drive cord pulley
34649	Coil—Antenna coil—"A" band	37435	Washer—"C" washer for tuning shaft
34647	Coil—Antenna coil—"B" and 31 meter band	SPEAKER ASSEMBLY (88865-502)	
32823	Coil—Antenna coil—"X" band	36914	Coil—Field coil
36629	Coil—Antenna coil—25-19-16-13 meter band	36913	Cone—Cone complete with voice coil
36632	Coil—Oscillator coil—"A" and "B" band	31539	Plug—5-prong male plug for speaker
31837	Coil—Oscillator coil—"X" band	36912	Transformer—Output transformer
36617	Coil—Oscillator coil—13 meter band	MISCELLANEOUS ASSEMBLIES	
34657	Coil—Oscillator coil—16 meter band	37013	Back—Cabinet back
36633	Coil—Oscillator coil—19 meter band	36639	Bracket—Lamp bracket
36634	Coil—Oscillator coil—25 meter band	36638	Clamp—Dial clamp
36635	Coil—Oscillator coil—31 meter band	34285	Clip—Tuning indicator tube clip
34652	Coil—R.F. coil—"A" band	36640	Crystal—Tuning indicator tube crystal
34650	Coil—R.F. coil—"B" and 31 meter band	36796	Dial—Glass dial scale for 25, 19, 16 and 13 meter bands
34651	Coil—R.F. coil—25-19-16-13 meter band	36795	Dial—Glass dial scale for "X," "A," "B" and 31 meter bands
33765	Coil—R.F. coil—"X" band	36593	Indicator—Station selector indicator
34645	Condenser—Variable tuning condenser	35650	Knob—Power or selector switch knob
36621	Control—Tone control	34490	Knob—Range switch knob
36619	Control—Volume control	35955	Knob—Volume control, tuning or tone control knob
36093	Core—Adjustable core and stud for "X" band oscillator coil	11765	Lamp—Dial lamp
31259	Core—Adjustable core and stud for oscillator coils, Stock Nos. 36617, 34657, 36632, 36633, 36634, 36635	12567	Plug—5-contact female plug for band indicator cable
35627	Drum—Drive drum less calibrator	36792	Rail—Indicator pointer rail—L. H.
12493	Plug—5-contact female plug for speaker cable or band indicator cable	36793	Rail—Indicator pointer rail—R. H.
36627	Pulley—Drive cord pulley—7/8-in. O.D.	36641	Retainer—Tuning indicator tube crystal retainer
35630	Pulley—Drive cord pulley—1 1/4-in. O.D.	36794	Screen—Band indicator screen
35641	Pulley—Drive cord pulley—1 1/4-in. O.D.	31482	Screw—No. 8-32 square head set screw for extension shaft
36637	Receptacle—Power line receptacle	36658	Shaft—Selectivity switch extension shaft
		31365	Socket—Band indicator lamp socket
		14270	Spring—Retaining spring for knobs

MODELS U-44 and U-45

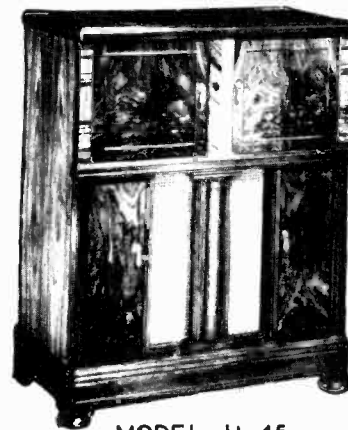
Chassis No. RC-486-B

RC-486-C

Ten-Tube, Three-Band, AC, Superheterodyne. Radio-Phonographs



MODEL U-44



MODEL U-45

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast 540-1,550 kc
 Medium Wave 1.5-4.0 mc
 Short Wave 5.8-18.0 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) 6SK7 R-F Amplifier
- (2) 6SA7 1st Detector, Oscillator
- (3) 6SK7 I-F Amplifier
- (4) 6H6 2nd Detector, A.V.C.
- (5) 6SF5 A-F Amplifier
- (6) 6SF5 Phase Inverter
- (7) 6F6G Power Output
- (8) 6F6G Power Output
- (9) 6U5/6G5 Tuning Indicator
- (10) 5U4-G Rectifier

POWER OUTPUT RATING

Undistorted 10 watts
 Maximum 12 watts

LOUDSPEAKER

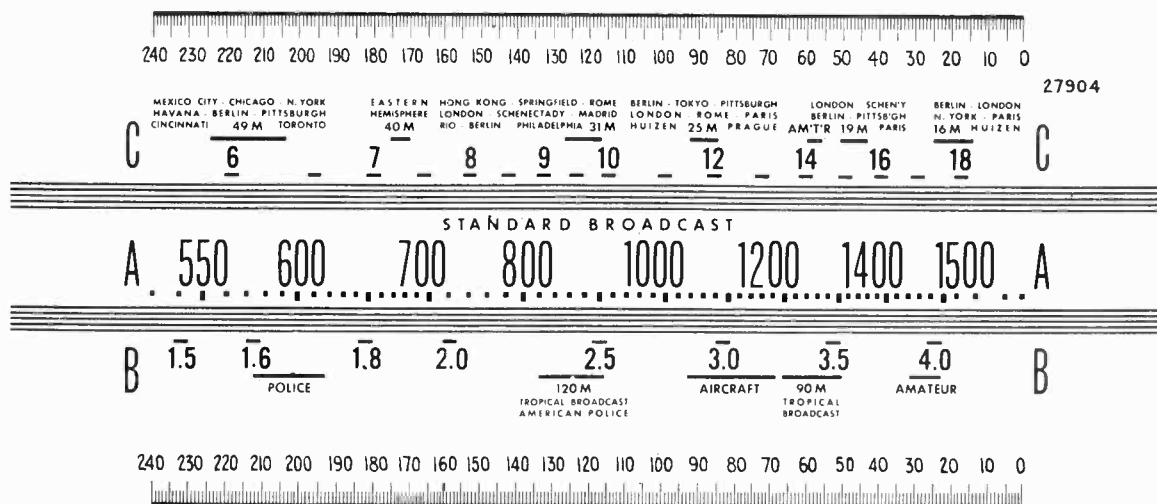
Type 12-inch electrodynamic
 V.C. Impedance 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

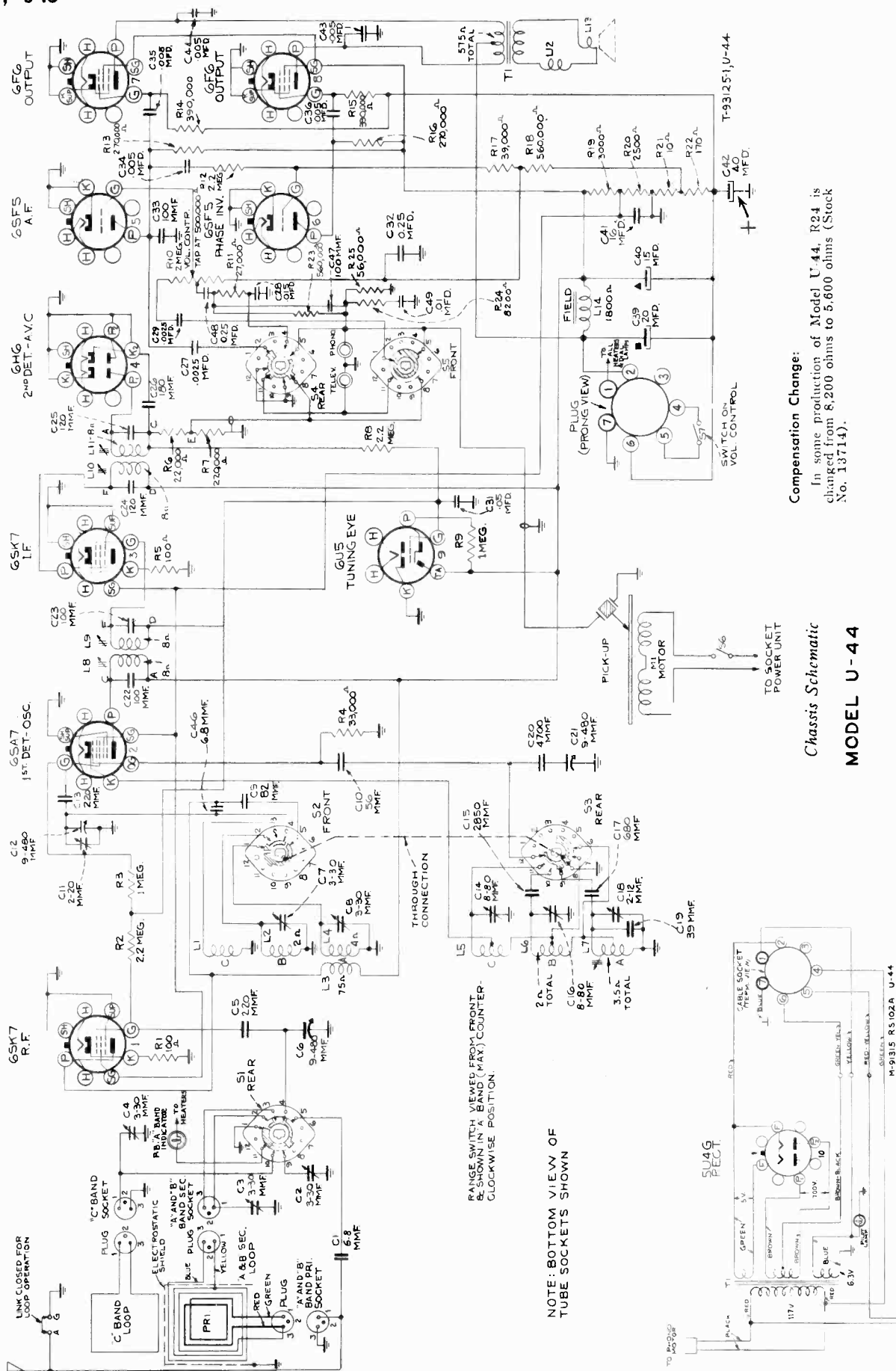
A-6 105-125 volts, 60 cycles, } **U-44**
 A-5 105-125 volts, 50 cycles, } **137 Watts**
 B-2 105-125 volts, 25 cycles, } **U-45**
 C6, 105-130/140-160/200-250 volts, 60 cycles, } **165 Watts**
 C-5 105-130/140-160/200-250 volts, 50 cycles, }

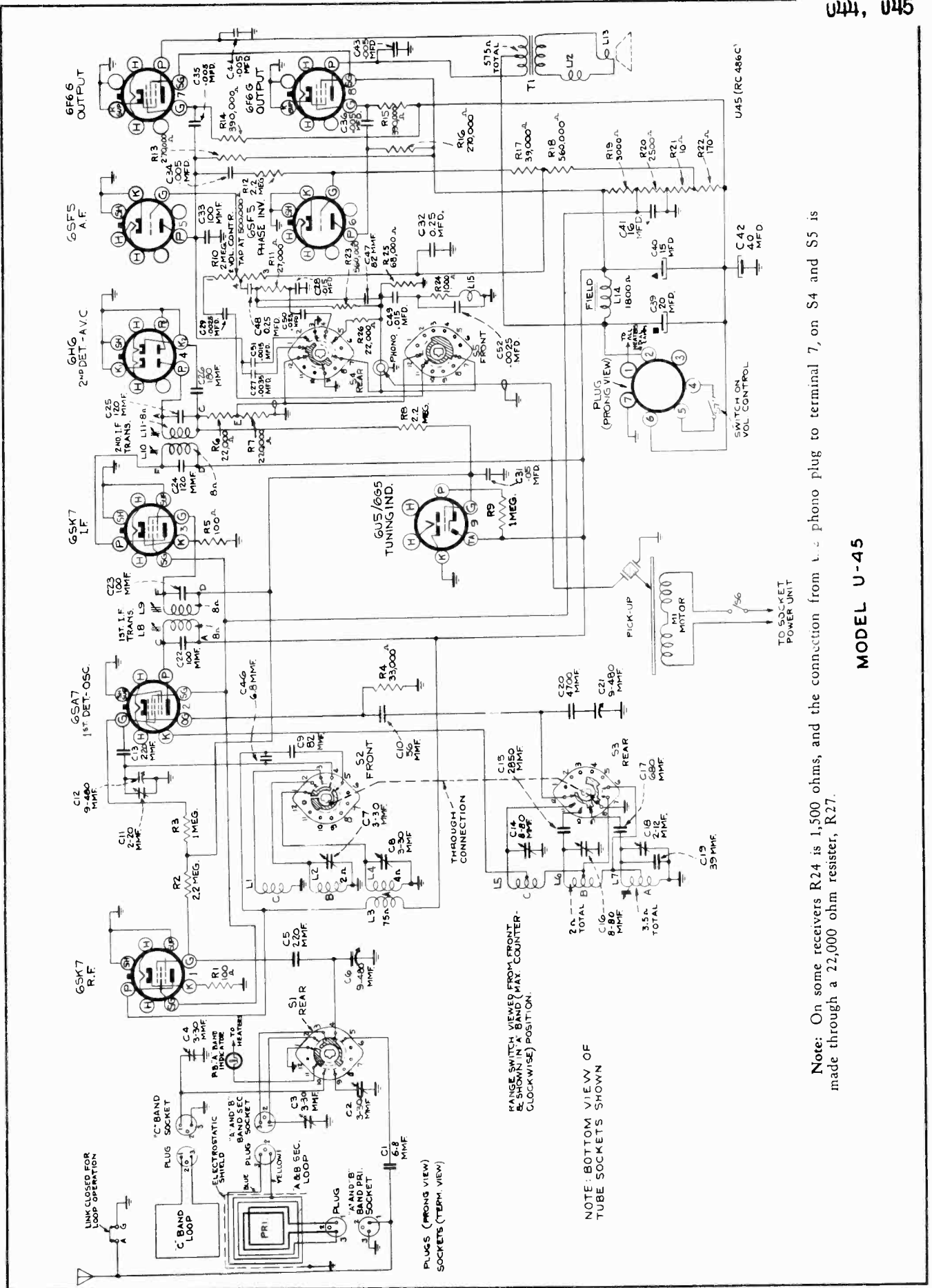
PHONOGRAPH

Type **RP-139 & RP-145** Automatic
 Record Capacity Eight 10-inch or seven 12-inch
 Pickup Crystal



Receiver Dial Scales, and Corresponding 0-240° Calibration Scales

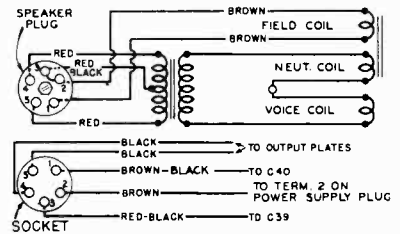
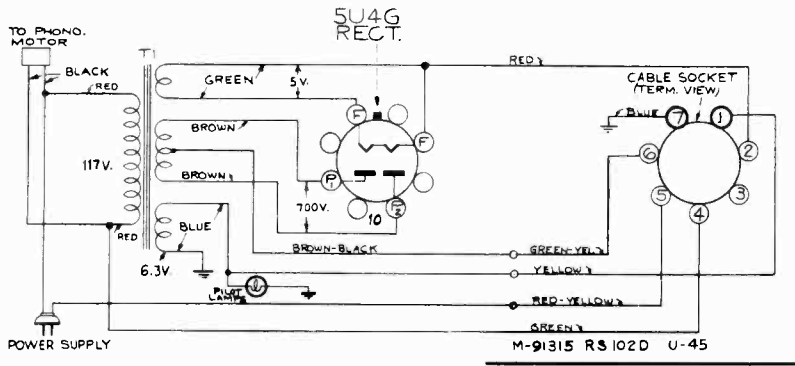




Note: On some receivers R24 is 1,500 ohms, and the connection from the phono plug to terminal 7, on S4 and S5 is made through a 22,000 ohm resistor, R27.

MODEL U-45

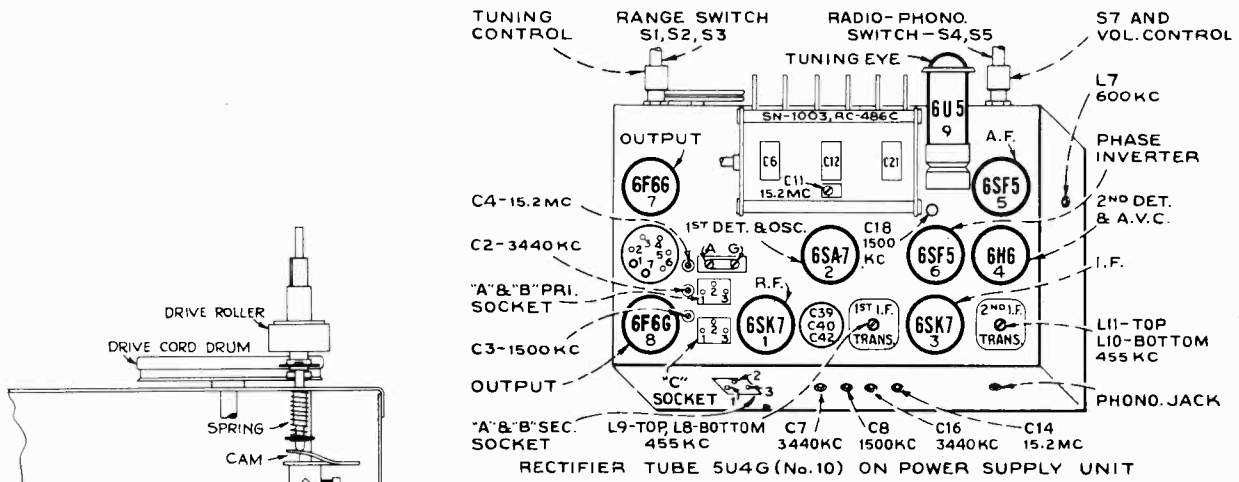
NOTE: BOTTOM VIEW OF TUBE SOCKETS SHOWN



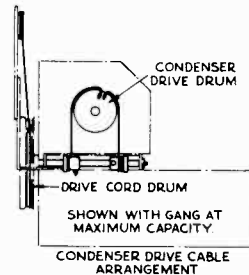
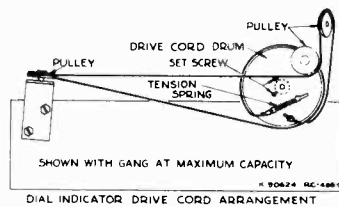
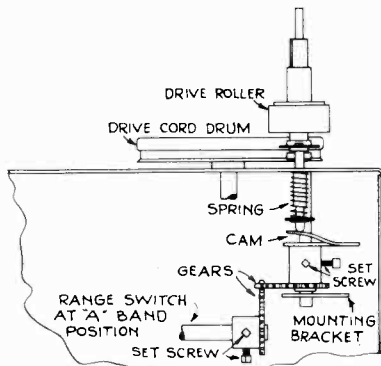
Above—Speaker Connections
At Left—S. P. U. Schematic

Phonograph Information

For information regarding the automatic record changer refer to service note covering RP-139-A and RP-145 record changers. Model U-45 uses the RP-139-A mechanism.



Tube and Trimmer Locations



Note: Adjustment of the cam should be such that in "A" band position when push-buttons are operated, the drive cord drum will turn freely without rubbing or binding against the drive roller.

Adjustments for Push-Button Tuning

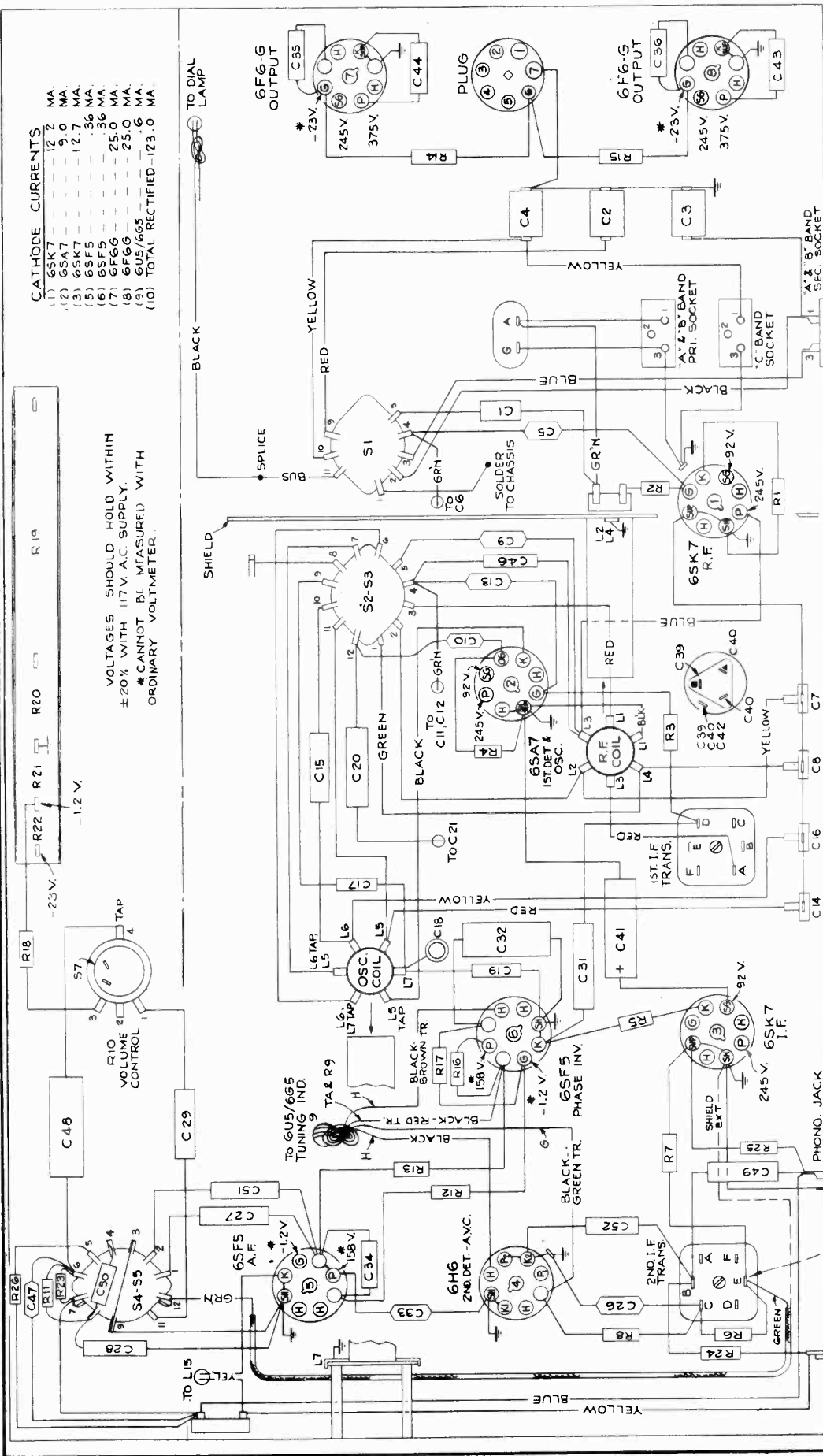
The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Remove station marker tabs; reach through tab holes in escutcheon with small screwdriver and loosen push-button rods.
2. Set the radio-phonograph switch to "radio" position and accurately tune in the station for which the first button is to be set.

3. Press in push-button rod No. 1 with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.

4. Proceed in a similar manner for the remainder of the push-buttons.

5. Insert the station marker tabs in the recesses adjacent to the push-buttons.



CATHODE CURRENTS

(1) 6SK7	12.2 MA.
(2) 6SA7	9.0 MA.
(3) 6SK7	12.7 MA.
(5) 6SF5	36 MA.
(6) 6SF5	36 MA.
(7) 6F6-G	25.0 MA.
(8) 6F6-G	25.0 MA.
(9) 6S5/665	.6 MA.
(10) TOTAL RECTIFIED	123.0 MA.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V. A.C. SUPPLY.
 * CANNOT BE MEASURED WITH ORDINARY VOLTMETER.

T-93006
 U-45 (RC486C)

BOTTOM VIEW- REAR OF CHASSIS

R-F WIRING AND SOCKET VOLTAGES

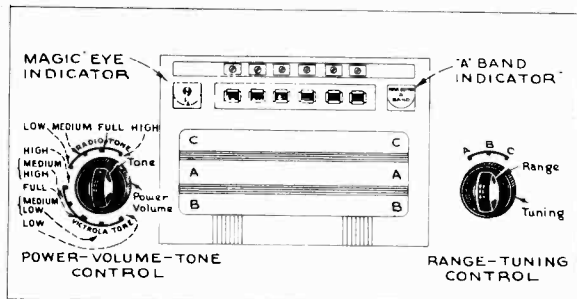
OSCILLOGRAPH CONNECTIONS
 VERTICAL "HI" TO THIS TERMINAL
 VERTICAL "0" TO CHASSIS

Precautionary Lead Dress:

1. A.C. leads at volume control dressed away from audio leads.
2. C-29 dressed close to chassis.
3. C-48 dressed under volume control.
4. Dress C-44 and 6F6-G plate leads away from antenna leads.

5. Leads to phono jack dressed close to end of chassis.
6. Red lead from R.F. coil to range switch short and direct as possible.
7. Leads to loop sockets dressed away from chassis and other leads.
8. Green lead from volume control arm to A.F. grid close to chassis.

Alignment Procedure



Controls

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis wiring drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action. For the first six steps in alignment the low side of the test-oscillator should

be connected to the receiver chassis. Following step 6, the signal must be radiated (see alignment table).

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 240° mark on the calibration scale when the plates are fully meshed.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" band Quiet point near 600 kc	L10 and L11 (2nd I-F trans.)
2	6SA7 det. grid in series with .01 mfd.			L8 and L9 (1st I-F trans.)
3	6SK7 R-F grid in series with 0.1 mfd.	15.2 mc	15.2 mc (47°) "C" band	C14 (osc.)* C11 (det.)***
4		3.44 mc	3.44 mc (57°) "B" band	C16 (osc.)** C7 (det.)
5		600 kc	600 kc (200°) "A" band	L7 (osc.) Rock gang
6		1,500 kc	1,500 kc (22°) "A" band	C18 (osc.) C8 (det.)
7		15.2 mc	15.2 mc "C" band	C4 (ant.)
8		6.1 mc	8.1 mc "C" band	Inductance of "C" band loop†
9	Repeat step 7			
10	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	3.44 mc	3.44 mc "B" band	C2 (ant.)
11		1,500 kc	1,500 kc "A" band	C3 (ant.)
12		600 kc	600 kc "A" band	L7 (osc.) Rock gang
13		1,500 kc	1,500 kc "A" band	C18 (osc.) C8 (det.)

Note.—For steps 7 to 13 inclusive the chassis must be in the cabinet, all loop leads connected and in their normal positions. The dial indicator pointer must be fastened to the drive cord in such a position that it is at the 530 kc mark on "A" scale when the gang condenser plates are fully meshed.

* Use **minimum** capacity peak if two can be obtained. Check to determine that C14 has been adjusted to the correct peak by tuning the receiver to approximately 14.29 mc where a weaker signal should be received.

** Use **minimum** capacity peak if two can be obtained. Check to determine that C16 has been adjusted to the correct peak by tuning the receiver to approximately 2.53 mc where a weaker signal should be received.

*** Use **maximum** capacity peak if two peaks can be obtained and rock gang condenser while adjusting.

† Adjust the inductance of "C" band loop by varying the spacing between the leads of the loop. Moving the leads closer together decreases the inductance and tunes the loop to a higher frequency; moving the leads farther apart increases the inductance and tunes the loop to a lower frequency.

Important.—The oscillator tracks above the signal on all bands.

Replacement Parts MODEL U-44

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-486B)			
33620	Arm—Push arm and cam assembly on tuning unit less lock screw	34778	Shaft—Range switch knob shaft
34785	Board—"Antenna-ground" board	34038	Shaft—Tuning knob shaft with rubber drive roller and pulley assembled
33510	Bracket—Drive cord pulleys and bracket (2 pulleys)	34575	Socket—2-terminal loop sockets
34268	Cap—Rubber cap for "Magic Eye"	31365	Socket—Insulated dial lamp socket
12714	Capacitor—Air trimmer—2-12 mmfd.	31364	Socket—Non-insulated dial lamp socket
34784	Capacitor—Trimmer comprising 1 section of 3-30 mmfd., 1 section of 2-20 mmfd., and 2 sections of 8-80 mmfd.	33514	Socket—"Phono-Television" input socket
34783	Capacitor—Trimmer comprising 3 sections of 3-30 mmfd. each	31319	Socket—Tube socket
14079	Capacitor—6.8 mmfd. (C1, C46)	33544	Spring—Drive cord spring
34779	Capacitor—39 mmfd. (C19)	33622	Spring—Push arm return spring
12723	Capacitor—56 mmfd. (C10)	34042	Spring—Spring and pin for range switch shaft
12813	Capacitor—82 mmfd. (C9)	33515	Spring—Tension spring for spring and pin
12720	Capacitor—100 mmfd. (C33, C47)	34781	Switch—Range switch
34669	Capacitor—100 mmfd.	34782	Switch—Tone control
34700	Capacitor—120 mmfd.	34698	Transformer—First i-f transformer
13003	Capacitor—180 mmfd. (C26)	34524	Transformer—Second i-f transformer
12694	Capacitor—220 mmfd. (C5, C13)	33726	Washer—"C" washer for spring and pin, Stock No. 34042
31552	Capacitor—680 mmfd. (C17)	34037	Washer—"C" washer for tuning shaft
34787	Capacitor—2,850 mmfd. (C15)	POWER SUPPLY UNIT	
31399	Capacitor—4,700 mmfd. (C20)	11891	Lamp—Pilot lamp
34459	Capacitor—.0025 mfd. (C27, C29)	30868	Plug—2-contact female plug for motor cable
33584	Capacitor—.005 mfd. (C34, C35, C36, C43, C44)	14409	Plug—Female plug for power supply to chassis cable
4937	Capacitor—.01 mfd. (C49)	31364	Socket—Pilot lamp socket
11315	Capacitor—.015 mfd. (C28)	31251	Socket—Tube socket
32787	Capacitor—.05 mfd. (C31)	34539	Transformer—Power transformer 105-125 volts, 50-60 cycles
30965	Capacitor—0.25 mfd. (C32, C48)	SPEAKER ASSEMBLIES (RL-70-K3)	
31323	Capacitor—Electrolytic, 16 mfd. (C41)	31825	Cap—Dust cap
34533	Capacitor—Electrolytic comprising 1 section of 20 mfd., 1 section of 15 mfd. and 1 section of 40 mfd.	35170	Coil—Speaker field coil
33508	Clip—"Magic Eye" mounting clip and bracket	347.5	Cone—Cone complete with voice coil
34579	Coil—Oscillator coil	34728	Diffuser—Speaker diffuser
34697	Coil—R.F. coil	31539	Plug—5-prong male plug for speaker
34780	Control—Volume control and power switch	14534	Transformer—Output transformer
32634	Cord—Tuning condenser drive cord	MISCELLANEOUS ASSEMBLIES	
32713	Core—Core and stud for Oscillator coil	33474	Button—Push button
33627	Drum—Cone drive drum	34791	Dial—Glass dial scale
34267	Drum—Tuning condenser drive drum	33549	Escutcheon—Dial and push button escutcheon, less screen and push buttons
34779	Gear—Gear and cam assembly located on range switch shaft	34789	Frame—"C" band antenna loop frame only
34532	Gear—Gear sector for range switch	34792	Gasket—Rubber gasket for motorboard
33185	Gear—Volume control gear and hub with set screws	4585	Hinge—Cabinet door hinges
33186	Gear—Volume control knob shaft and gear	30698	Hinge—Cabinet lid hinge
11891	Lamp—Dial lamp	34790	Indicator—Station selector indicator and carriage
12493	Plug—5 contact female plug for speaker cable	13103	Jewel—Pilot lamp cap
14404	Plug—7 contact male plug	33470	Knob—Range switch
35005	Pulley—Drive pulley less bronze drive cord	33553	Knob—Tone control
33509	Pulley—Tuning condenser drive cord pulley and support	33471	Knob—Tuning control
34537	Resistor—Voltage divider—1 section of 3,000 ohms, 1 of 2,500 ohms, 1 of 10 ohms, and 1 of 170 ohms	33505	Knob—Volume control
14439	Resistor—100 ohms, 1/2 watt (R1, R5)	34794	Loop—"A" and "B" band antenna loop complete
14075	Resistor—8,200 ohms, 1/2 watt (R24)	33842	Marker—Push button station marker
13998	Resistor—22,000 ohms, 1/2 watt (R6)	32641	Plug—3-prong plug for antenna loop leads
12738	Resistor—27,000 ohms, 1/2 watt (R11)	34794	Pull—Door pull
12454	Resistor—33,000 ohms, 1/2 watt (R4)	32427	Receptacle—Packaged needle receptacle
12266	Resistor—39,000 ohms, 1/2 watt (R17)	35129	Screen—Compartment lamp screen
12286	Resistor—56,000 ohms, 1/2 watt (R25)	33550	Screen—"Push Button 'A' Band" marker screen
12264	Resistor—220,000 ohms, 1/2 watt (R7)	34491	Shaft—Pointer carriage guide rod
12199	Resistor—270,000 ohms, 1/2 watt (R13, R16)	30330	Spring—Retaining spring for knob, Stock No. 33470
13479	Resistor—390,000 ohms, 1/2 watt (R14, R15)	14270	Spring—Retaining spring for knob, Stock No. 33553 and Stock No. 33471
12486	Resistor—560,000 ohms, 1/2 watt (R18, R23)	4982	Spring—Retaining spring for knob, Stock No. 33505
13730	Resistor—1 megohm, 1/2 watt (R3)	31470	Spring—Spring mounting for motorboard
12679	Resistor—2.2 megohm, 1/2 watt (R2, R8, R12)	34793	Support—L.H. lid support
34040	Ring—Retaining ring for tuning shaft	34423	Support—R.H. lid support
31611	Screw—No. 8-32 milled head set screw for gear, Stock No. 33185	For Record Changer mechanism refer to Service Notes and Parts Lists RP-139A and RP-145.	
4669	Screw—No. 8-32 square head set screw for drum, Stock No. 34267 and gear, Stock No. 34779		
33621	Screw—Push arm lock screw		
14350	Screw—Square head set screw for gear, Stock No. 34532		

Additional Replacement Parts:

Stock No.	
33551	Frame—Dial frame complete with shaft supports, lamp bracket, pointer rod, pointer, less dial
35942	Rubber lining for phono compartment lid
34693	Transformer—Power transformer, 25 cycles, 110 volts

MODEL U-45

Replacement Parts

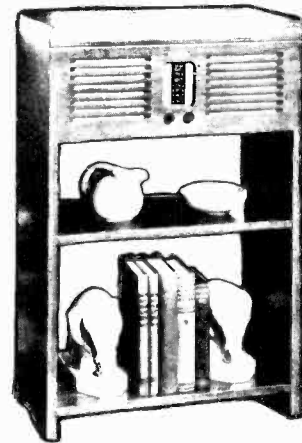
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-486C)			
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw	34575	Socket—2-terminal loop sockets
34785	Board—"Antenna-ground" board	31365	Socket—Insulated dial lamp socket
33510	Bracket—Drive cord pulleys and bracket (2 pulleys)	31364	Socket—Non-insulated dial lamp socket
34268	Cap—Rubber cap for "Magic Eye"	33742	Socket—"Phono" input socket
12714	Capacitor—Air-trimmer, 2-12 mmfd.	34864	Socket—Tuning indicator socket
34784	Capacitor—Trimmer, comprising 1 section of 3-30 mmfd., 1 section of 2-20 mmfd., and 2 sections of 8-80 mmfd.	31319	Socket—Tube socket
34783	Capacitor—Trimmer, comprising 3 sections of 3-30 mmfd. each	33544	Spring—Drive cord spring
14079	Capacitor—8.8 mmfd. (C1, C46)	33622	Spring—Push arm return spring
34779	Capacitor—39 mmfd. (C19)	34042	Spring—Spring and pin for range switch shaft
12723	Capacitor—56 mmfd. (C10)	33515	Spring—Tension spring for spring and pin
12813	Capacitor—82 mmfd. (C9, C47)	34781	Switch—Range switch
12720	Capacitor—100 mmfd. (C33)	34698	Transformer—First i-f transformer
13003	Capacitor—180 mmfd. (C26)	34524	Transformer—Second i-f transformer
12694	Capacitor—220 mmfd. (C5, C13)	34693	Transformer—Power transformer, 110 volts, 25 cycle
31552	Capacitor—680 mmfd. (C17)	33726	Washer—"C" washer for spring and pin, Stock No. 34042
34787	Capacitor—2,850 mmfd. (C15)	34037	Washer—"C" washer for tuning shaft
31399	Capacitor—4,700 mmfd. (C20)	RECORD CHANGER PARTS	
33806	Capacitor—.0015 mfd. (C51)	Same as RP-139A	
34459	Capacitor—.0025 mfd. (C29, C52)	POWER SUPPLY ASSEMBLIES	
30303	Capacitor—.0035 mfd. (C27)	11891	Lamp—Indicator lamp
33584	Capacitor—.005 mfd. (C34, C35, C36, C43, C44)	30868	Plug—2-contact female plug for motor lead
11315	Capacitor—.015 mfd. (C28, C49)	14409	Plug—7-contact female plug for power input cable
4870	Capacitor—.025 mfd. (C50)	31364	Socket—Indicator lamp socket
32787	Capacitor—.05 mfd. (C31)	31251	Socket—Tube socket
30965	Capacitor—.025 mfd. (C32, C48)	34693	Transformer—Power transformer—110 volts, 25 cycle
31323	Capacitor—Electrolytic, 16 mfd. (C41)	34539	Transformer—Power transformer—110 volts, 60 cycle
34533	Capacitor—Electrolytic, comprising 1 section of 20 mfd., 1 section of 15 mfd. and 1 section of 40 mfd.	SPEAKER ASSEMBLIES (RL-70K8)	
33508	Clip—"Magic Eye" mounting clip and bracket	13867	Cap—Dust cap
35687	Coil—Choke coil	35170	Coil—Field coil
34579	Coil—Oscillator coil	35616	Cone—Cone, complete with voice coil
34697	Coil—R.F. coil	34728	Diffuser—Speaker diffuser
35686	Control—Tone control	31539	Plug—5-prong male speaker plug
34780	Control—Volume control and power switch	14534	Transformer—Output transformer
32634	Cord—Tuning condenser drive cord	MISCELLANEOUS ASSEMBLIES	
32713	Core—Core and stud for oscillator coil	34994	Button—Push button
33627	Drum—Condenser drive drum	13103	Cap—Pilot lamp cap
34267	Drum—Tuning condenser drive drum	35743	Decalcomania—Band switch decal
34779	Gear—Gear and cam assembly located on range switch shaft	35468	Decalcomania—Caution decal for record changer
34532	Gear—Gear sector for range switch	35744	Decalcomania—"Power-Volume" decal
33185	Gear—Volume control gear and hub with set screws	35467	Decalcomania—"RCA-Victrola" decal
33186	Gear—Volume control knob shaft and gear	35741	Decalcomania—"RCA-Victrola" decal
11891	Lamp—Dial lamp	35393	Decalcomania—"Television" decal
12493	Plug—5-contact female plug for speaker cable	35691	Dial—Glass dial scale
14404	Plug—7-contact male plug	35455	Escutcheon—Dial scale and push button escutcheon—less scale and buttons
35005	Pulley—Drive pulley—less bronze drive cord	35690	Frame—Dial frame, complete—less dial scale, pointer and pointer guide rods
33509	Pulley—Tuning condenser drive cord pulley and support	34789	Frame—Frame only for "C" band loop
34537	Resistor—Voltage divider—1 section of 3,000 ohms, 1 of 2,500 ohms, 1 of 10 ohms, and 1 of 170 ohms	34792	Gasket—Rubber gasket for motorboard
14439	Resistor—100 ohms, 1/2 watt (R1, R5)	4585	Hinge—1 set of bottom door hinges
14499	Resistor—1,500 ohms, 1/2 watt (R24)	34871	Hinge—Top door hinge—L.H.
13998	Resistor—22,000 ohms, 1/2 watt (R6, R26, R27)	34870	Hinge—Top door hinge—R.H.
12738	Resistor—27,000 ohms, 1/2 watt (R11)	34790	Indicator—Station selector indicator and carriage
12454	Resistor—33,000 ohms, 1/2 watt (R4)	35458	Knob—Range switch knob
12286	Resistor—39,000 ohms, 1/2 watt (R17)	35459	Knob—Tone control knob
13715	Resistor—68,000 ohms, 1/2 watt (R25)	35460	Knob—Tuning knob
12264	Resistor—220,000 ohms, 1/2 watt (R7)	35461	Knob—Volume control and power switch knob
12199	Resistor—270,000 ohms, 1/2 watt (R13, R16)	5117	Lamp—Compartment lamp
13479	Resistor—390,000 ohms, 1/2 watt (R14, R15)	35689	Loop—"A" and "B" band antenna loop, complete
12486	Resistor—580,000 ohms, 1/2 watt (R18, R23)	33842	Markers—Station selector markers
12013	Resistor—1 meg., 1/10 watt	31470	Mounting—Motorboard spring mounting
13730	Resistor—1 meg., 1/2 watt (R3)	34990	Plug—2-prong male plug for "C" band loop
12679	Resistor—2.2 meg., 1/2 watt (R2, R8, R12)	32841	Plug—3-prong male plug for "A" and "B" band loops
34040	Ring—Retaining ring for tuning shaft	35042	Pull—Door pull
31811	Screw—No. 8-32 milled head set screw for gear, Stock No. 33185	32427	Receptacle—Packaged needle holder
14350	Screw—No. 8-32 sq. hd. set screw for drum, Stock No. 34267, and gears, Stock Nos. 34779 and 34532	33550	Screen—"Push Button 'A' Band" marker screen
33621	Screw—Push arm lock screw	35688	Shade—Compartment lamp shade
34778	Shaft—Range switch knob shaft	34491	Shaft—Pointer guide shaft
34038	Shaft—Tuning knob shaft with rubber drive roller and pulley, assembled	31384	Socket—Compartment lamp socket
		4982	Spring—Retaining spring for knob, Stock No. 35461
		14270	Spring—Retaining spring for knob, Stock Nos. 35459 and 35460
		30330	Spring—Retaining spring for knob, Stock No. 35458

Model 45E Series

Chassis No. RC-435A

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



Model 45E Maple Finish

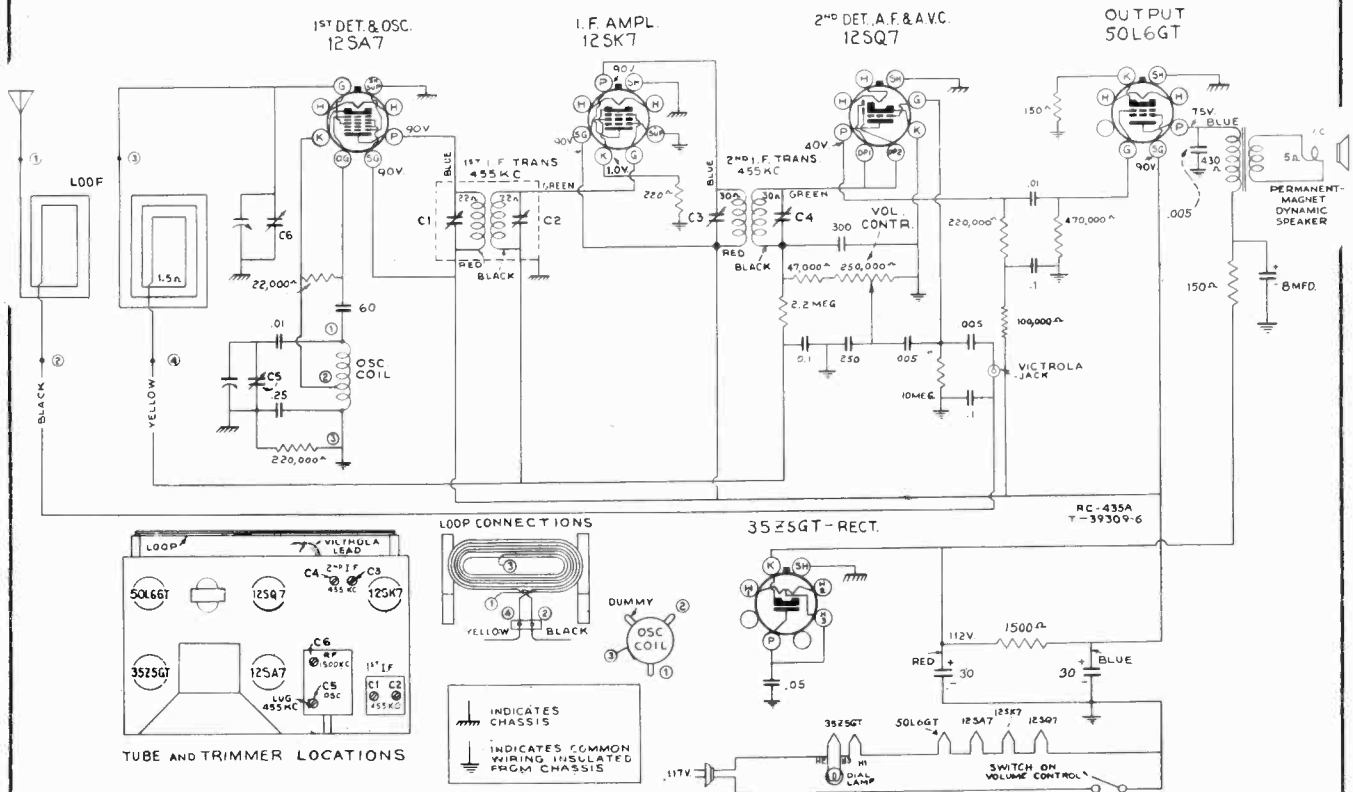
Model 45E-M Mahogany Finish

Model 45E-W Walnut Finish

Electrical and Mechanical Specifications

FREQUENCY RANGE 540-1,720 kc
 Intermediate Frequency 455 kc
 TUBE COMPLEMENT
 (1) RCA-12SA7 1st-Detector-Oscillator
 (2) RCA-12SK7 I-F Amplifier
 (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C.
 (4) RCA-50L6GT Power Output
 (5) RCA-35Z5GT Half-Wave Rectifier
 Dial Lamp (1) Mazda 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS
 A-C Rating 105-125 volts, 50-60 cycles, 30 watts
 D-C Rating 105-125 volts, direct current, 30 watts
 POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted6 watts
 Maximum 2.0 watts
 LOUDSPEAKER
 Type 5-inch permanent magnet dynamic
 Cabinet Dimensions (inches) Height 25 $\frac{1}{2}$, Width 16, Depth 10
 Weight (net) 17 pounds



Schematic Circuit Diagram

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that top edge of pointer just touches rivet in dial plate.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Victrola Attachment.—A jack is provided on the rear of cabinet for connecting a Victrola Attachment into the audio-amplifying circuit. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna term. of ant. loop in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)

Precautionary Lead Dress

1. Dress 2nd I-F green lead close to chassis and under other parts.
2. Dress lead from gang condenser to grid of 12SA7 close to chassis and away from 12SQ7 socket.
3. Dress blue 1st I-F lead under volume control close to chassis.
4. Dress blue 2nd I-F lead close to chassis and behind 12SK7 socket.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
CHASSIS ASSEMBLIES			
13057	Capacitor—60 mmfd.	12679	Resistor—2.2 meg., 1/4 watt
12488	Capacitor—250 mmfd.	33293	Shaft—Tuning knob shaft and bushing
12952	Capacitor—300 mmfd.	33557	Socket—Dial lamp socket
4838	Capacitor—.005 mfd.	32537	Socket—Tube socket
32787	Capacitor—.05 mfd.	31615	Spring—Drive cord spring
4839	Capacitor—0.1 mfd.	33296	Spring—Retaining spring for drum
12484	Capacitor—0.25 mfd.	32966	Transformer—First I-F transformer
33952	Capacitor—Electrolytic, 8 mfd.	32967	Transformer—Second I-F transformer
33850	Capacitor—Electrolytic, 2 sections 30 mfd. each	33291	Volume control and switch
34259	Coil—Oscillator coil	SPEAKER ASSEMBLIES	
32968	Condenser—Variable tuning condenser	(39213-1)	
32634	Cord—Drive cord	33853	Cone—Speaker cone and voice coil
33662	Drum—Drive drum	33851	Speaker complete
33295	Indicator—Dial pointer	33854	Transformer—Output transformer
11765	Lamp—Dial lamp	MISCELLANEOUS ASSEMBLIES	
33663	Loop—Antenna loop complete	33852	Dial—Glass dial scale
33294	Pulley—Drive cord pulley	34015	Knob—Volume or tuning knob—Models 45EM, 45EW only
13428	Resistor—150 ohms, 1/4 watt	34016	Knob—Volume or tuning knob—Model 45E only
14561	Resistor—220 ohms, 1/4 watt	34043	Spring—Retaining spring for knobs Stk. 34015 and 34016
3153	Resistor—1,500 ohms, 1 watt		
13998	Resistor—22,000 ohms, 1/4 watt		
12412	Resistor—47,000 ohms, 1/4 watt		
14560	Resistor—100,000 ohms, 1/4 watt		
12264	Resistor—220,000 ohms, 1/4 watt		
12199	Resistor—270,000 ohms, 1/4 watt		

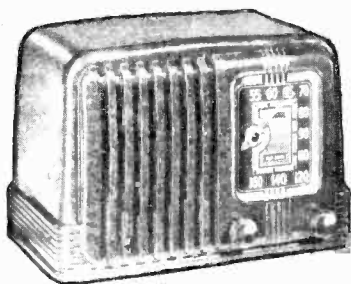
Additional Replacement Part:

- Stock No.
33139 Rubber grommet for dial shaft.

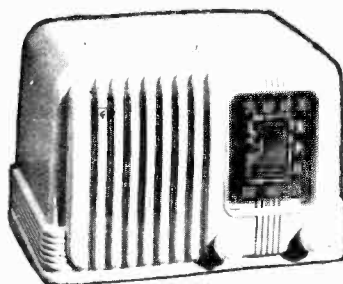
Models 45X 45X11, 45X12 and 45X13

Chassis No. RC-459 L RC-459 RC-459 RC-459A
 2ND PROD. RC-459D RC-459D RC-459E
 3RD PROD. RC-459T RC-459T

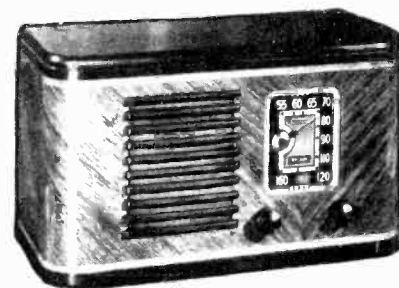
Five-Tube, Single-Band, AC-DC Superheterodyne Receivers



Model 45X-11



Model 45X-12



Model 45X-13

Electrical and Mechanical Specifications

FREQUENCY RANGE 540-1,600 kc
 Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA 12SA7 1st-Detector-Oscillator
- (2) RCA 12SK7 I-F Amplifier
- (3) RCA 12SQ7 2nd-Detector, 1st A-F, and A.V.C.
- (4) RCA-50L6GT Power Output
- (5) RCA-35Z5GT Rectifier
- Dial Lamp (1) Mazda 51, 7.5 volts, .2 amp.

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 50-60 cycles, 30 watts
 D-C Rating 105-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted 1.0 watts
 Maximum 1.5 watts

LOUDSPEAKER

Type 5-inch Electrodynamic

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that pointer is vertical.

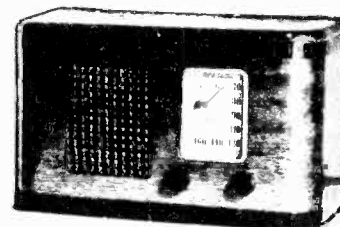
Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 (I-F) grid in series with .01 mfd.	455 kc	Quiet point at 800 kc end of dial	C8, C9 (2nd I-F trans.)
2	Tuning condenser stator (ant.) in series with .01 mfd.			C6, C7 (1st I-F trans.)
3	Radiation loop consisting of two turns of wire 18 inches in diameter	1,600 kc	Full clockwise (out of mesh)	C3 (oscillator)
4		1,400 kc	Resonance on 1,400 kc signal	C1 (antenna)

Precautionary Lead Dress

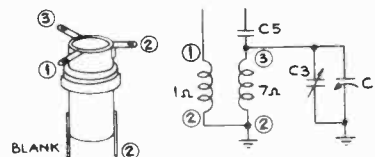
1. Audio coupling capacitor to volume control must be dressed under the terminal board and down against the corner of the chassis.
2. The voice coil leads from the output transformer to the speaker must be dressed away from the terminal on the terminal-board to which the above audio coupling capacitor is connected.
3. The output tube bypass condenser must be dressed away from the 12SQ7 tube.



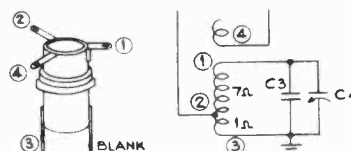
Model 45X (RC-459L)

Oscillator Coil Connections:

The oscillator coil in the 2nd production of these models is different from the 1st production. The correct connections are shown below. Note that when installing a No. 34443 coil, it is necessary to connect a jumper from the bottom lug No. 2 to the top lug No. 2.

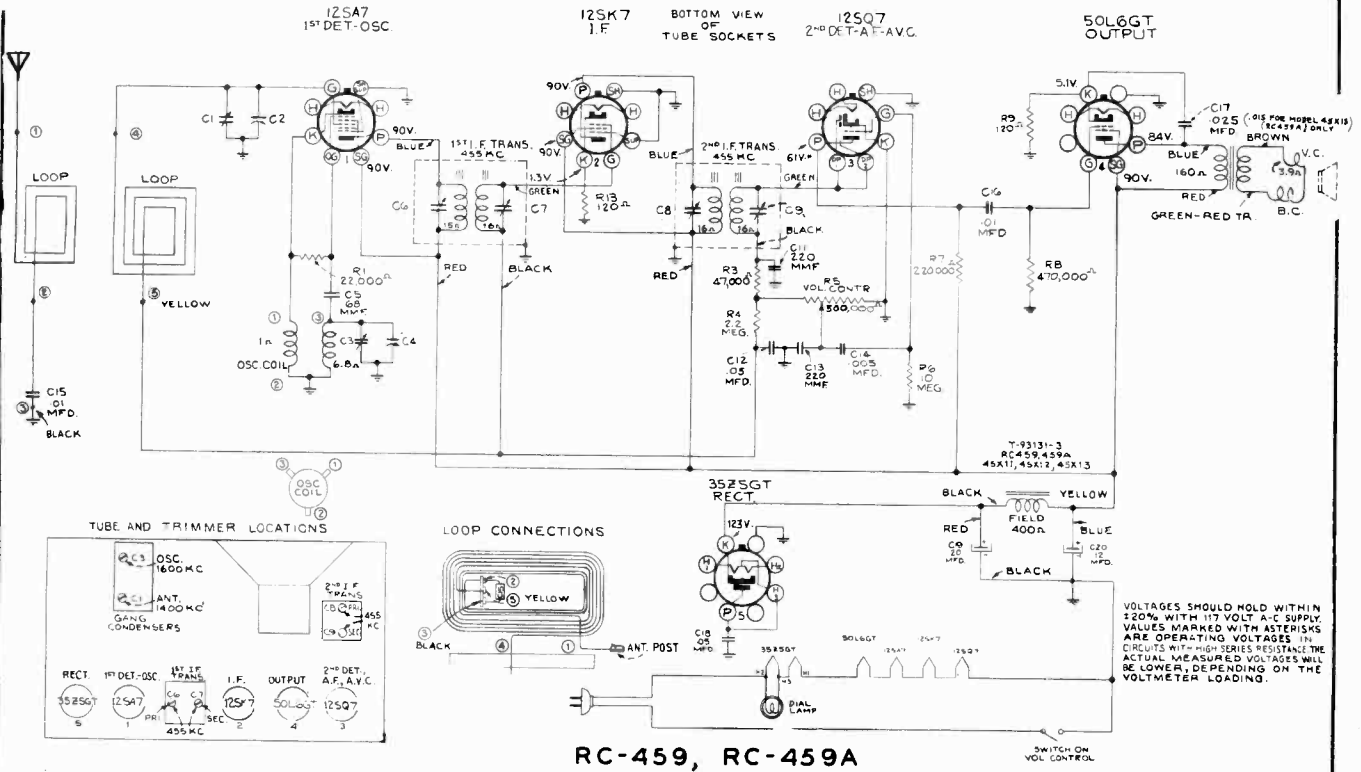


STOCK NO. 34443 OSC. COIL USED IN FIRST PRODUCTION 45X11,12,13 (RC 459 AND 459A)



STOCK NO. 35579 OSC. COIL USED IN SECOND PRODUCTION 45X11,12,13 (RC459D AND 459E)

45X, 45X11, -12, -13,



RC-459, RC-459A

Microphonic Howl:

Vibration of parts in the oscillator circuit may cause microphonic howl, which can be corrected by the following:

- (a) See that the drive pulley does not touch the dial.
- (b) Squeeze in the rear of the gang condenser frame, in order to center the rotor plates within the stator.
- (c) Loosen the tuning condenser mounting screws slightly to ensure free floating of the gang.

MODELS 45X-11, -12, -13

Two changes have been made in 2nd Production:

- (a) C-13 is connected to the grid of the 12SQ7 instead of to the arm of the volume control, to provide more effective I-F filtering.
- (b) Diode plate No. 1 is connected to chassis instead of to diode plate No. 2, to reduce residual hum.

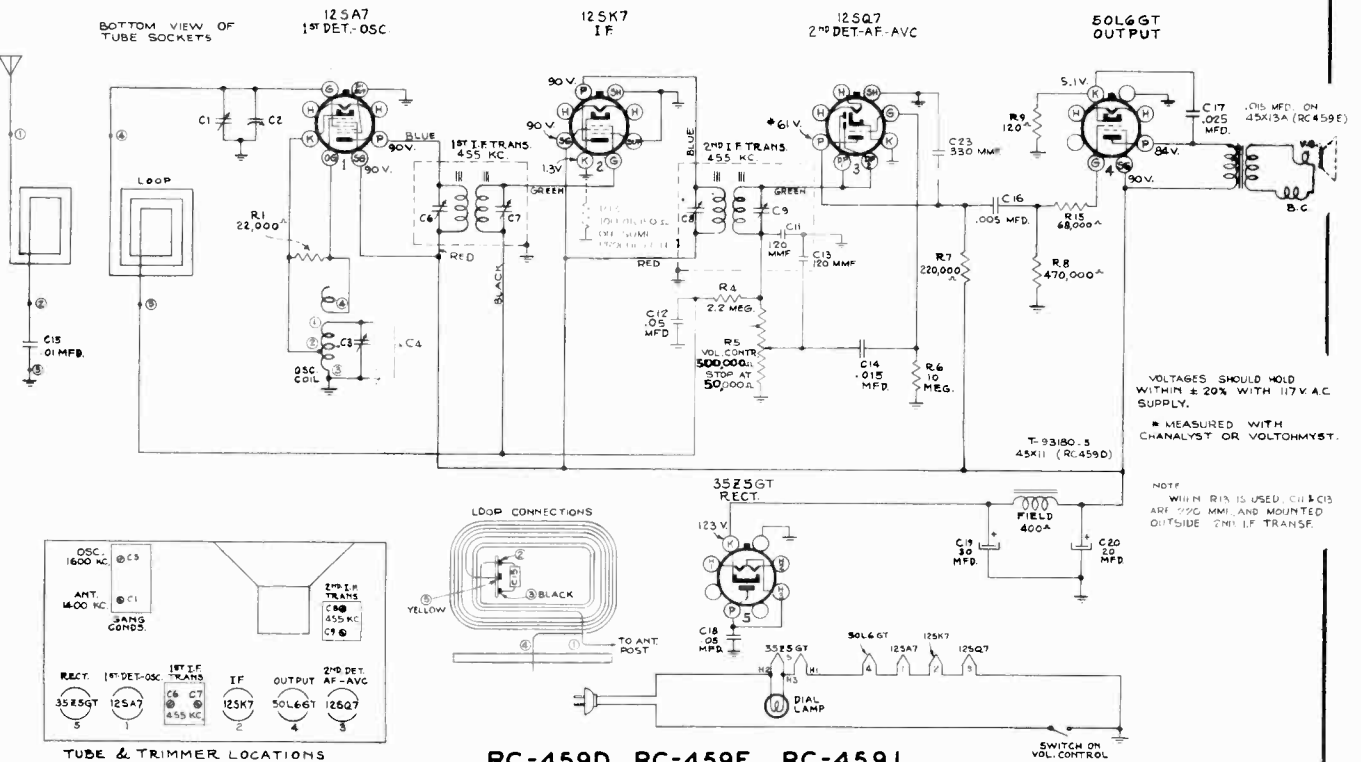
45X11, 12, 13 (2nd Prod.)

Circuit Revisions:

- (a) R15 eliminated and a connection made from C16 direct to the 50L6GT grid.
- (b) Terminal DP1 (1st diode plate) of tube 12SQ7 (2nd Det.-A.F.-AVC) connected direct to ground instead of to its illustrated connection.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 VOLT A-C SUPPLY. VALUES MARKED WITH ASTERISHS ARE OPERATING VOLTAGES. IN CIRCUITS WITH HIGH SERIES RESISTANCE THE ACTUAL MEASURED VOLTAGES WILL BE LOWER, DEPENDING ON THE VOLTMETER LOADING.

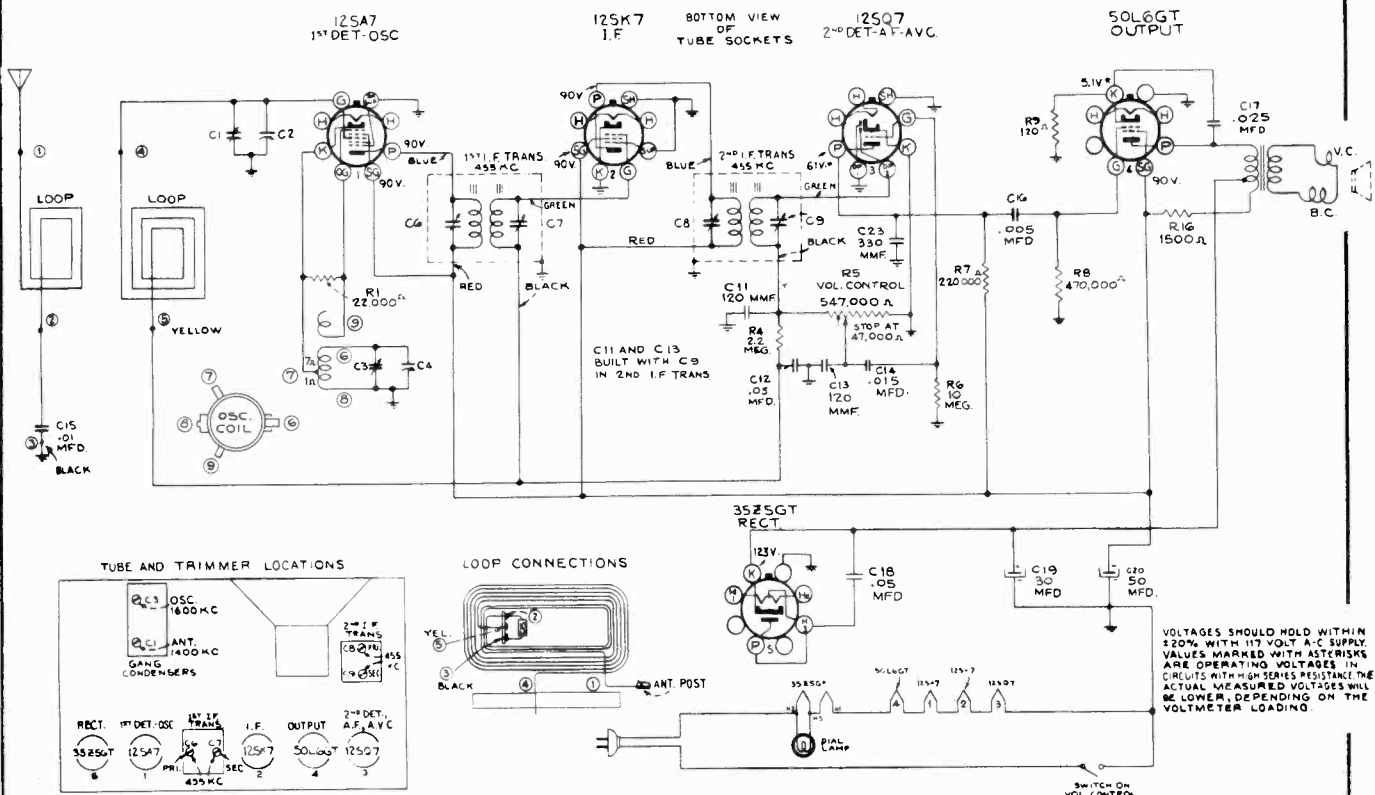
BOTTOM VIEW OF TUBE SOCKETS



RC-459D, RC-459E, RC-459L

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V A.C. SUPPLY. * MEASURED WITH CHANALYST OR VOLTOMHYST.

NOTE: WITH R15 IS USED, C16 & C15 ARE 220 MMF. AND MOUNTED OUTSIDE 2ND I.F. TRANS.



45X11B, 45X12B
(RC-459T)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-459) (RC-459A)		SPEAKER ASSEMBLIES (RL 86-2)
13057	Capacitor—68 mmfd. (C5)	32907	Cap—Dust cap
12694	Capacitor—220 mmfd. (C11, C13)	35066	Cone—Cone complete with voice coil
33584	Capacitor—.005 mfd. (C14)	34450	Speaker—5-inch dynamic speaker complete with cone and voice coil less output transformer
4937	Capacitor—.01 mfd. (C15, C16)		MISCELLANEOUS ASSEMBLIES
11315	Capacitor—.015 mfd. (C17) (RC-459A)	35068	Back—Cabinet back for Model 45X11
30938	Capacitor—.025 mfd. (C17) (RC-459)	35070	Back—Cabinet back for Model 45X12
32787	Capacitor—.05 mfd. (C12)	35072	Back—Cabinet back for Model 45X13
32576	Capacitor—Electrolytic comprising 1 section of 20 mfd. and 1 section of 12 mfd.	35079	Crystal—Dial scale crystal for Models 45X11, 45X12
34443	Coil—Oscillator coil	35067	Crystal—Dial scale crystal for Model 45X13
35053	Condenser—Variable tuning condenser less drive drum	35069	Fastener—1 set Push Fastener for crystal on Models 45X11, 45X12
35057	Control—Volume control and power switch	35078	Knob—Light mahogany tuning or volume control knob for Model 45X11
32634	Cord—Tuning condenser drive cord	35071	Knob—Ivory tuning or volume control knob Model 45X12
35063	Drum—Tuning condenser drive drum	30863	Knob—Walnut tuning or volume control knob Model 45X13
35062	Indicator—Station selector indicator	30900	Spring—Retaining spring for knobs Stock No. 30863, 35071 and 35078
11765	Lamp—Dial lamp		Additional Replacement Parts:
35061	Loop—Antenna loop complete		Stock No.
12071	Resistor—120 ohms, 1/2 watt (R13)	33317	Fastener—Push fastener for cabinet back (45X-11, 45X-12)
32535	Resistor—120 ohms, 1/2 watt (R9)	31393	Plate—Dial scale mounting plate
13998	Resistor—22,000 ohms, 1/2 watt (R1)	11909	Spring—Spring and fibre washer to take up play in drive shaft
12412	Resistor—47,000 ohms, 1/2 watt (R3)		
12264	Resistor—220,000 ohms, 1/2 watt (R7)		
12285	Resistor—470,000 ohms, 1/2 watt (R8)		
12679	Resistor—2.2 megohms, 1/2 watt (R4)		
13601	Resistor—10 megohms, 1/2 watt (R6)		
35059	Scale—Dial scale		
35058	Shaft—Tuning condenser drive shaft		
34449	Socket—Dial lamp socket		
31319	Socket—Tube socket		
30685	Spring—Drive cord tension spring		
35056	Transformer—Output transformer		
35054	Transformer—1st I.F. transformer		
35055	Transformer—2nd I.F. transformer		
	SPEAKER ASSEMBLIES (39223-2)		
35065	Cone—Cone complete with voice coil		

Models 45X1, 45X2, 45X3, 45X4

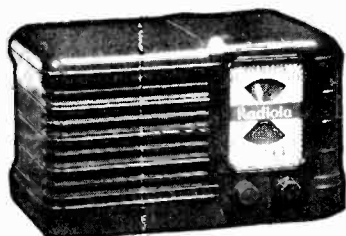
Chassis No. RC-457

RC-457E

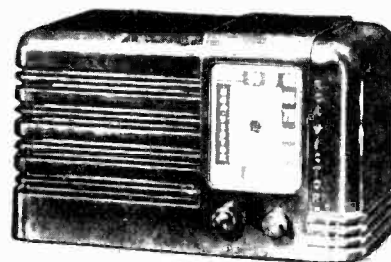
2ND PROD. RC-457A

AND RADIOLA 500 & 501
RC-464

Five-Tube, Single-Band, AC-DC Superheterodyne Receivers

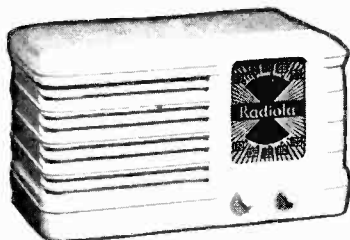


← Radiola 500
Walnut Finish Plastic Cabinet

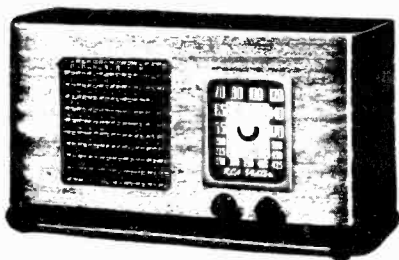


Model 45X1
Walnut Finish Plastic Cabinet

Radiola 501 →
Ivory Finish Plastic Cabinet

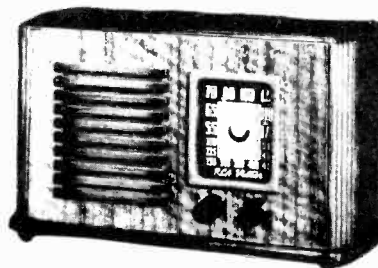


Model 45X2
Ivory Finish Plastic Cabinet



At Left—
Model 45X3

At Right—
Model 45X4



Electrical and Mechanical Specifications

FREQUENCY RANGE... RC-457 ONLY 540-1,680 kc
 FREQUENCY RANGE..... 535-1,720 kc
 Intermediate Frequency..... 455 kc
TUBE COMPLEMENT
 (1) RCA-12SA7..... 1st-Detector-Oscillator
 (2) RCA-12SK7..... I-F Amplifier
 (3) RCA-12SQ7..... 2nd-Detector, 1st A-F, and A.V.C.
 (4) RCA-50L6GT..... Power Output
 (5) RCA-35Z5GT..... Half-Wave Rectifier
 Dial Lamp (1)..... Mazda 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS
 A-C Rating..... 105-125 volts, 50-60 cycles, 30 watts
 D-C Rating..... 105-125 volts, direct current, 30 watts
POWER OUTPUT (125 volt, 60 cycle supply)
 Undistorted..... .6 watts
 Maximum..... 2.0 watts

LOUDSPEAKER
 Type..... 4-inch Electrodynamic
 Voice-coil impedance at 400 cycles..... 4 ohms

Alignment Procedure

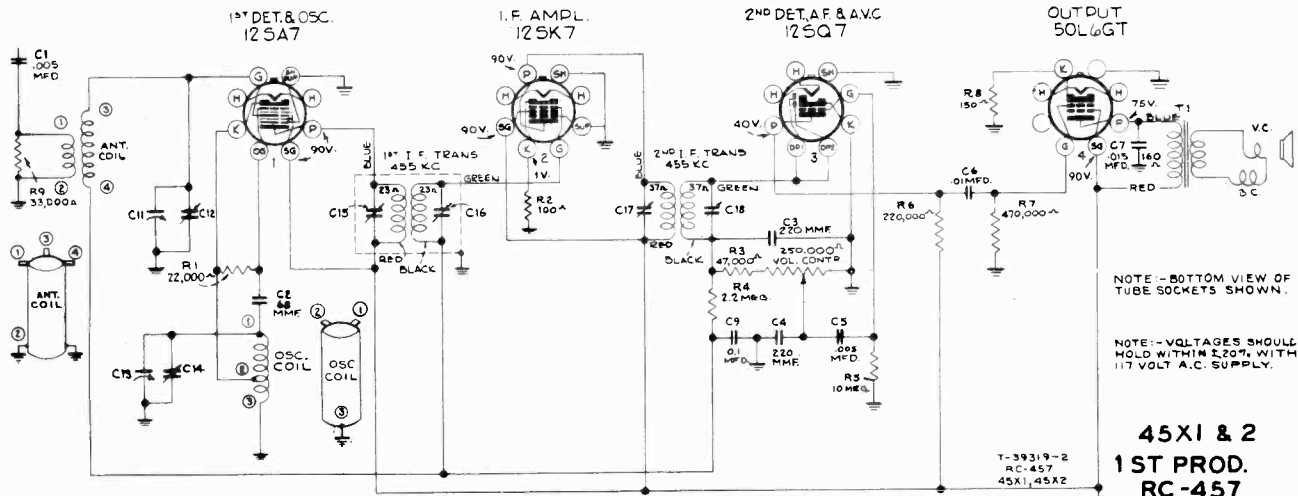
Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a.c. reversal of the plug may reduce hum.

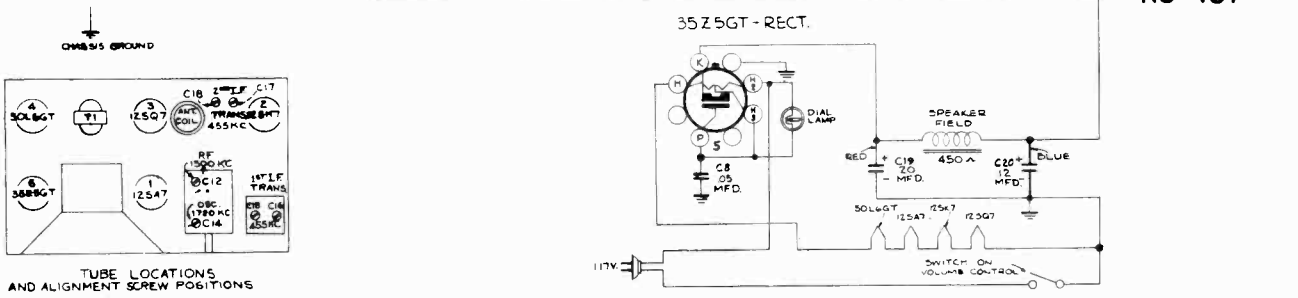
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with .001 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C17, C18 (2nd I-F Trans.)
2	12SA7 grid in series with .001 mfd.			C15, C16 (1st I-F Trans.)
3	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C14 (oscillator)
4		1,500 kc	Resonance on 1,500 kc signal	C12 (antenna)

45X-1, -2, -3, -4, RADIOLA 500, 501

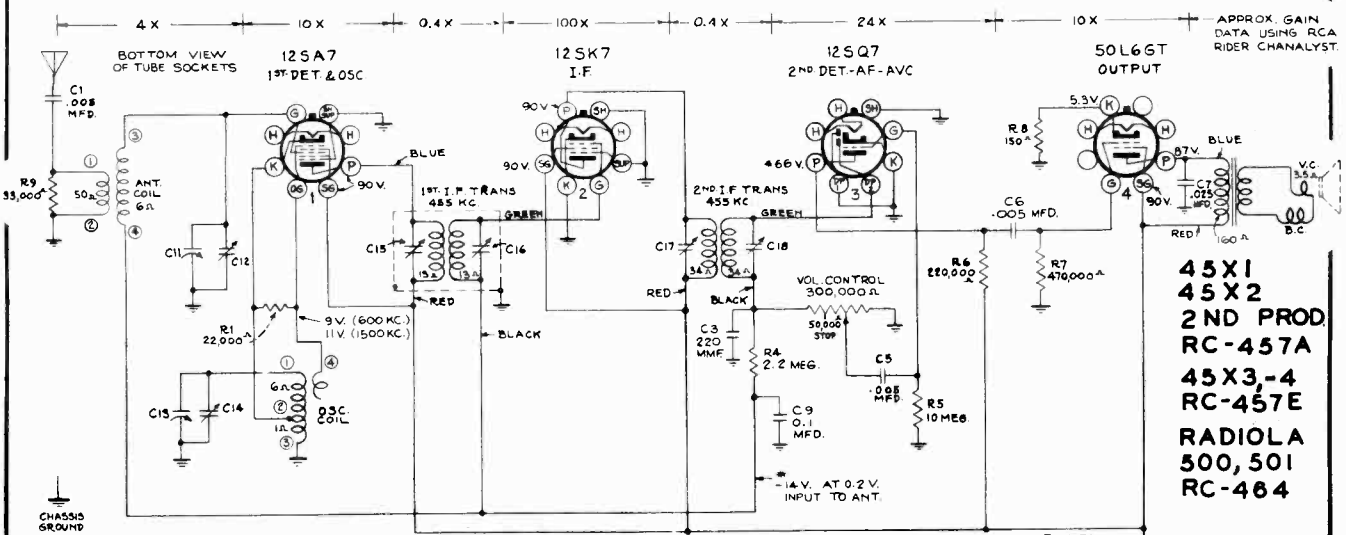


NOTE: - BOTTOM VIEW OF TUBE SOCKETS SHOWN.
NOTE: - VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 VOLT A.C. SUPPLY.

45X1 & 2
1ST PROD.
RC-457

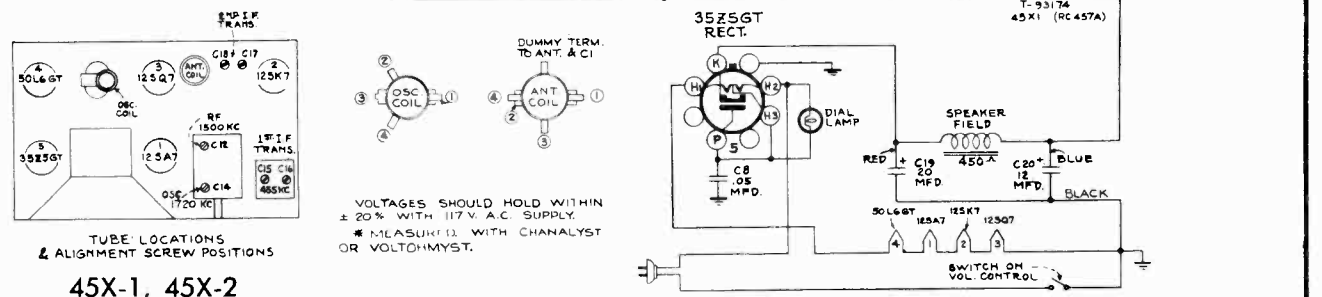


TUBE LOCATIONS AND ALIGNMENT SCREW POSITIONS



APPROX GAIN DATA USING RCA RIDER CHANNELYST.

45X1
45X2
2ND PROD
RC-457A
45X3,-4
RC-457E
RADIOLA
500, 501
RC-484



TUBE LOCATIONS & ALIGNMENT SCREW POSITIONS

45X-1, 45X-2

Changes in 2nd Production:

The AVC filter resistor R4 is changed from 2.2 to 3.3 megs., Stock No. 12928.
The output tube bias resistor, R8, is changed from 150 to 120 ohms, Stock No. 30189.

45X -1, -2, -3, -4, RADIOLA 500, 501

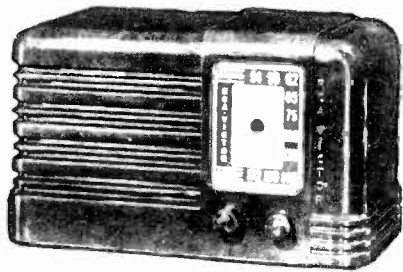
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODELS 45X-1, 45X-2 (RC-457)		MODELS 45X3, 45X4 CHASSIS ASSEMBLIES (RC-457E)	
CHASSIS ASSEMBLIES			
13057	Capacitor—68 mmfd. (C2)	12694	Capacitor—220 mmfd.
12694	Capacitor—220 mmfd. (C3, C4)	33584	Capacitor—.005 mfd.
33584	Capacitor—.005 mfd. (C1, C5)	4870	Capacitor—.025 mfd.
4937	Capacitor—.01 mfd. (C6)	32787	Capacitor—.05 mfd.
30856	Capacitor—.015 mfd. (C7)	4839	Capacitor—.1 mfd.
32787	Capacitor—.05 mfd. (C8)	32576	Capacitor—Electrolytic comprising 1 section of 20 mfd., and 1 section of 12 mfd.
4839	Capacitor—.1 mfd. (C9)	35115	Coil—Antenna coil
32576	Capacitor—Electrolytic comprising 1 section of 20 mfd and 1 section of 12 mfd.	35333	Coil—Oscillator coil
35115	Coil—Antenna coil	35977	Condenser—Variable tuning condenser
35116	Coil—Oscillator coil	35979	Control—Volume control and power switch
34843	Condenser—Variable tuning condenser	32634	Cord—Drive cord
35113	Control—Volume control and power switch	35982	Dial—Dial scale
32634	Cord—Drive cord	35980	Indicator—Station selector indicator
35117	Drum—Tuning condenser drive drum	11765	Lamp—Dial lamp
11765	Lamp—Dial lamp	31193	Lead—Antenna lead
31193	Lead—Antenna lead	35981	Plate—Dial plate—less dial
14439	Resistor—100 ohms, ½ watt (R2)	30880	Resistor—150 ohms, ½ watt
30880	Resistor—150 ohms, ½ watt (R8)	13998	Resistor—22,000 ohms, ½ watt
13998	Resistor—22,000 ohms, ½ watt (R1)	12454	Resistor—33,000 ohms, ½ watt
12412	Resistor—47,000 ohms, ½ watt (R3)	12264	Resistor—220,000 ohms, ½ watt
12264	Resistor—220,000 ohms, ½ watt (R6)	12285	Resistor—470,000 ohms, ½ watt
12285	Resistor—470,000 ohms, ½ watt (R7)	12679	Resistor—2.2 meg., ½ watt
12679	Resistor—2.2 megohms, ½ watt (R4)	13601	Resistor—10 meg., ½ watt
13601	Resistor—10 megohms, ½ watt (R5)	35978	Shaft—Tuning shaft
33305	Shaft—Condenser drive shaft	35332	Shield—Shield for first I-F transformer
35118	Shield—Shield can for I.F. transformer Stock No. 35114	35345	Socket—Dial lamp socket
32969	Socket—Dial lamp socket	31251	Socket—Tube socket
31319	Socket—Tube socket	30585	Spring—Drive cord spring
30585	Spring—Drive cord tension spring	35098	Spring—Spring to hold I-F transformer in shield can
34846	Transformer—Audio transformer	34846	Transformer—Audio transformer
35114	Transformer—1st I.F. transformer	35331	Transformer—First I-F transformer—less shield
33301	Transformer—2nd I.F. transformer	33301	Transformer—Second I-F transformer
	Additional Replacement Parts:	34373	Washer—"C" washer for tuning shaft
	Stock No.		MISCELLANEOUS ASSEMBLIES
	12454 Resistor—33,000 ohms, ½ watt (R9)	36017	Back—Cabinet back—Model 45X3
	31251 Socket—Tube socket	36018	Back—Cabinet back—Model 45X4
	11909 Spring—Spring and fibre washer to take up play in drive shaft	35983	Bezel—Dial scale bezel and crystal
	CHASSIS ASSEMBLIES (RC-457A)	35121	Knob—Walnut volume control or tuning knob
35332	Can—I.F. transformer shield can	35128	Spring—Retaining spring for knob Stock No. 35121
12694	Capacitor—220 mmfd. (C3)		CHASSIS ASSEMBLIES
33584	Capacitor—.005 mfd. (C1, C5, C6)		Radiola 500 (RC-464)
4870	Capacitor—.025 mfd. (C7)		Radiola 501 (RC-464)
32787	Capacitor—.05 mfd. (C8)		SAME AS RC457A
4839	Capacitor—.1 mfd. (C9)		EXCEPT
32576	Capacitor—Electrolytic, comprising 1 section of 20 mfd. and 1 section of 12 mfd.		
35115	Coil—Antenna coil		
35333	Coil—Oscillator coil	36783	Drum - Indicator drive drum
34843	Condenser—Variable tuning condenser		MISCELLANEOUS ASSEMBLIES
35330	Control—Volume control and power switch		Radiola 500
32634	Cord—Drive cord		
35117	Drum—Tuning condenser drive drum	37154	Back—Cabinet back
11765	Lamp—Dial lamp	36784	Dial—Dial scale
31193	Lead—Antenna lead	33317	Fastener—Push fastener to hold cabinet
30880	Resistor—150 ohms, ½ watt (R8)	34016	Knob—Volume control or tuning knob
13998	Resistor—22,000 ohms, ½ watt (R1)	35126	Spring—Retaining spring for knob, Stock No. 34016
12454	Resistor—33,000 ohms, ½ watt (R9)		MISCELLANEOUS ASSEMBLIES
12264	Resistor—220,000 ohms, ½ watt (R6)		Radiola 501
12285	Resistor—470,000 ohms, ½ watt (R7)	37155	Back—Cabinet back
12679	Resistor—2.2 meg., ½ watt (R4)	36784	Dial—Dial scale
13601	Resistor—10 meg., ½ watt (R5)	33317	Fastener—Push fastener to hold cabinet
35329	Shaft—Tuning condenser drive shaft	36670	Knob—Volume control or tuning knob
35334	Socket—Dial lamp socket	35126	Spring—Retaining spring for knob
31251	Socket—Tube socket		MISCELLANEOUS ASSEMBLIES
30585	Spring—Drive cord tension spring		Radiola 501
35098	Spring—Spring necessary to hold I.F. transformer in can	37155	Back—Cabinet back
34846	Transformer—Audio transformer	36784	Dial—Dial scale
35331	Transformer—First i.f. transformer—less shield can	33317	Fastener—Push fastener to hold cabinet
33301	Transformer—Second i.f. transformer	36670	Knob—Volume control or tuning knob
34373	Washer—"C" washer for drive shaft	35126	Spring—Retaining spring for knob
	MISCELLANEOUS ASSEMBLIES		ALL MODELS
35122	Back—Cabinet back for Model 45X1		SPEAKER ASSEMBLIES
35125	Back—Cabinet back for Model 45X2		(39105-505)
35124	Dial—Glass dial scale	35120	Cone—Cone complete with voice coil
33317	Fastener—Push fastener to hold cabinet	35119	Speaker—4-inch dynamic speaker complete with cone and voice coil
35123	Knob—Ivory tuning or volume control knob for Model 45X2		
35121	Knob—Walnut tuning or volume control knob for Model 45X1		
35126	Spring—Retaining spring for knobs, Stock Nos. 35121 and 35123		

Models 45X5 and 45X6 (Chassis No. RC-457-D)

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



Model 45X5
Walnut Finish Plastic Cabinet

Model 45X6
Ivory Finish Plastic Cabinet

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,680 kc
Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA 12SA7..... 1st-Detector-Oscillator
- (2) RCA 12SK7..... I-F Amplifier
- (3) RCA 12SQ7..... 2nd Detector, 1st A-F, and A.V.C.
- (4) RCA 50L6GT..... Power Output
- (5) RCA 35Z5GT..... Half-Wave Rectifier

Dial Lamp (1)..... Mazda 51, 7.5 volts, 0.2 amp.

POWER SUPPLY RATINGS

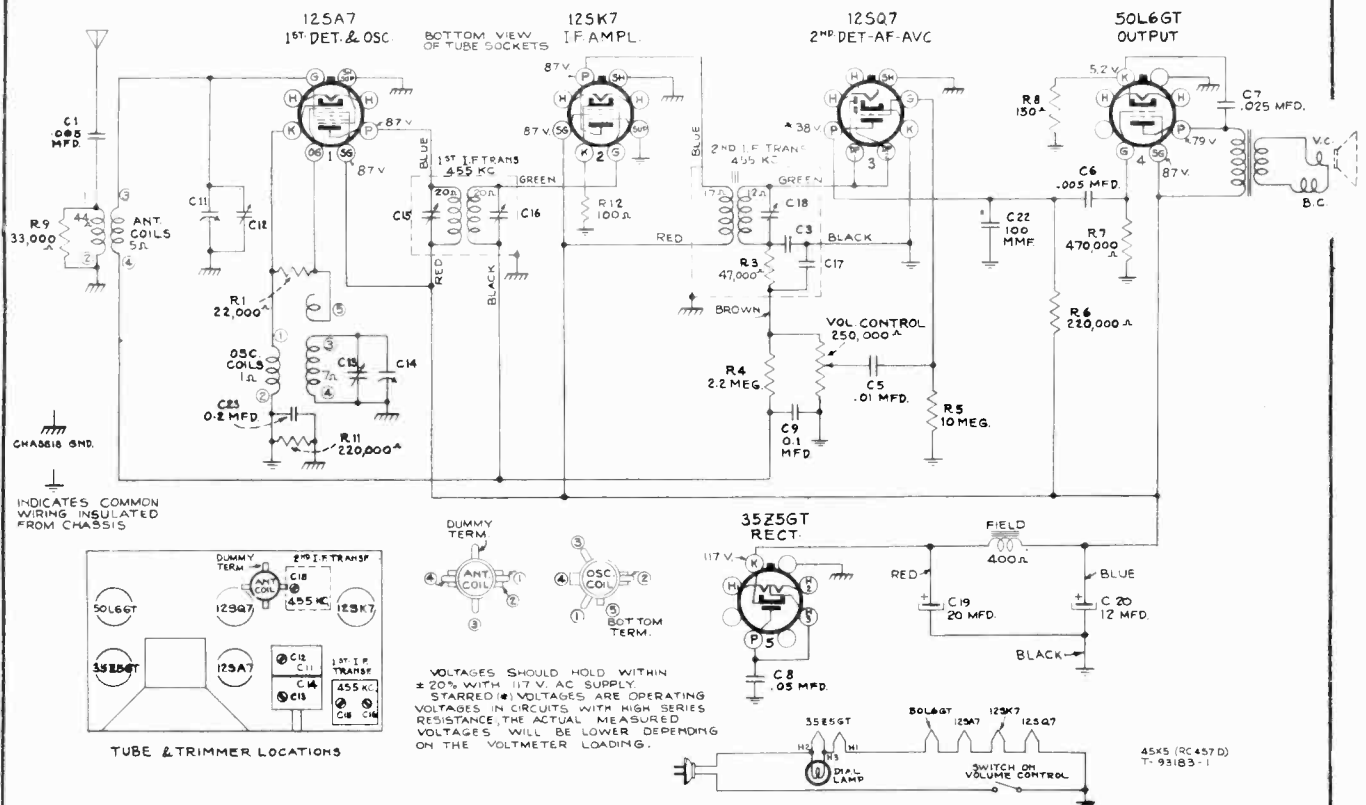
A-C Rating..... 105-125 volts, 50-60 cycles, 30 watts
D-C Rating..... 105-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted..... 1.0 watts
Maximum..... 1.25 watts

LOUDSPEAKER

Type..... 4-inch Electrodynamic
Cabinet Dimensions (inches)..... Height 5-1/16, Width 8 1/2, Depth 4 1/2
Weight (net)..... 4 pounds



Line Bypass Capacitor:
In some production, the .005 mfd. line bypass is connected from plate to cathode on the rectifier tube, instead of from plate to chassis.

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For I-F alignment, connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

Antenna.—The set is equipped with length of antenna wire. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C18 (2nd I-F trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd.			C15 and C16 (1st I-F trans.)
3	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C13 (oscillator)
4		1,400 kc	Resonance on 1,400 kc signal	C12 (antenna)

Precautionary Lead Dress

1. Green and blue leads from 1st I.F. transformer should be dressed apart and against chassis.
2. Blue lead of the 2nd I.F. transformer must be dressed against the shield and down between the tube socket and chassis.
3. Dress green diode lead away from 12SQ7 grid resistor and condenser.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-457D)			
12720	Capacitor—100 mmfd. (C22)	32969	Socket—Dial lamp socket
33584	Capacitor—.005 mfd. (C1, C6)	31319	Socket—Tube socket
4937	Capacitor—.01 mfd. (C5)	30585	Spring—Drive cord spring
4870	Capacitor—.025 mfd. (C7)	32966	Transformer—First I-F transformer
32787	Capacitor—.05 mfd. (C8)	34442	Transformer—Second I-F transformer
4839	Capacitor—.1 mfd. (C9)	34373	Washer—"C" washer for tuning shaft
34505	Capacitor—.2 mfd. (C23)		SPEAKER ASSEMBLIES (39105-506)
32576	Capacitor—Electrolytic, comprising 1 section of 20 mfd. and 1 section of 12 mfd. (C19, C20)	35120	Cone—Cone, complete with voice coil
35115	Coil—Antenna coil	35611	Speaker—4-inch dynamic speaker, complete with cone—less output transformer
33452	Condenser—2-gang variable tuning condenser	34174	Transformer—Output transformer
35113	Control—Volume control and power switch		MISCELLANEOUS ASSEMBLIES
32634	Cord—Drive cord	35122	Back—Cabinet back for Model 45X5
35117	Drum—Tuning condenser drive drum	35125	Back—Cabinet back for Model 45X6
11765	Lamp—Dial lamp	35124	Dial—Glass dial scale
31193	Lead—Antenna lead	35123	Knob—Ivory tuning or volume control knob for Model 45X6
14439	Resistor—100 ohms, 1/4 watt (R12)	35121	Knob—Walnut tuning or volume control knob for Model 45X5
30880	Resistor—150 ohms, 1/4 watt (R8)	35126	Spring—Retaining spring for knobs, Stock Nos. 35121 and 35123
13998	Resistor—22,000 ohms, 1/4 watt (R1)		
12454	Resistor—33,000 ohms, 1/4 watt (R9)		
12264	Resistor—220,000 ohms, 1/4 watt (R6, R11)		
12285	Resistor—470,000 ohms, 1/4 watt (R7)		
12679	Resistor—2.2 meg., 1/4 watt (R4)		
13601	Resistor—10 meg., 1/4 watt (R5)		
35329	Shaft—Tuning shaft		

Additional Replacement Parts:

- Stock No.
 35337 Coil—Oscillator coil
 11909 Spring—Spring and fibre washer to take up play in drive shaft

Models 45X-16, 45X-17 45X111, 45X112 and 45X113

Chassis No. RC-459M

RC-459J

RC-459K

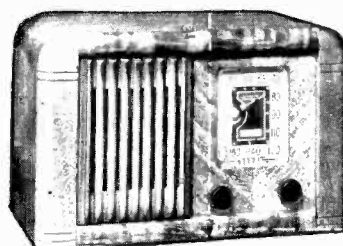
AND RADIOLA 510, 511, 512, 513, ETC.

Chassis No. RC-459, RC-464A, RC-464B

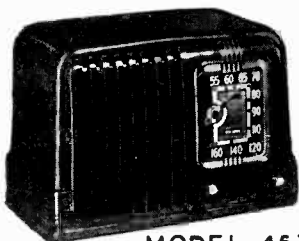
Five-Tube, Single-Band, AC-DC, Superheterodyne Receivers



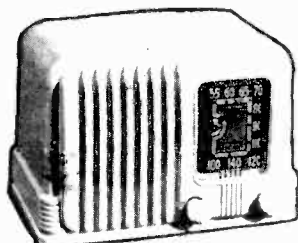
At Left—
Model 45X-16



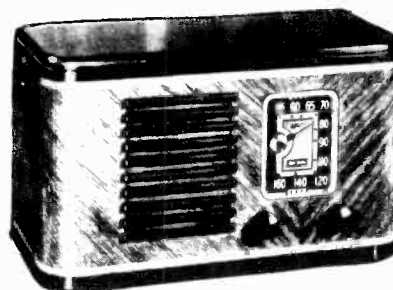
At Right—
Model 45X-17



MODEL 45X111



MODEL 45X112



Model 45X113

Model	Description	Cabinet Dimensions (inches)
45X111	Mahogany plastic finish	6 19/32 x 9 25/32 x 5 7/8
45X112	Antique-ivory plastic finish	6 19/32 x 9 25/32 x 5 7/8
45X113	Walnut finish	8 3/4 x 13 1/2 x 6 5/16

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,600 kc
Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7 1st Detector—Oscillator
 - (2) RCA-12SK7 I-F Amplifier
 - (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C.
 - (4) RCA-50L6GT Power Output
 - (5) RCA-35Z5GT Rectifier
- Dial Lamp (1)..... Mazda 51, 7.5 volts, .20 amp.

POWER SUPPLY RATINGS

A C Rating..... 105-125 volts, 50-60 cycles, 30 watts
D C Rating..... 105-125 volts, direct current, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted..... .8 watts
Maximum..... 1.3 watts

LOUDSPEAKER

Type..... 5-inch electrodynamic

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For I-F alignment, connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

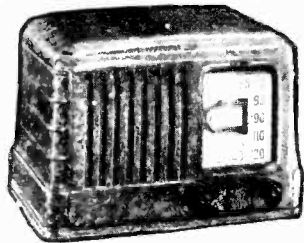
Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with .01 mfd.	455 kc	Quiet point at 1,800 kc end of dial	C9 and C10 (2nd I-F trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd.			C7 and C8 (1st I-F trans.)
3	Radiation loop consisting of two turns of wire 18 inches in diameter	1,600 kc	Full clockwise (out of mesh)	C3 (oscillator)
4		1,400 kc	Resonance on 1,400 kc signal	C1 (antenna)

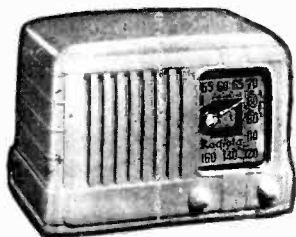
Precautionary Lead Dress

1. Dress grid lead of 12SK7 close to chassis under condenser (C12).
2. Dress green and blue leads from i-f transformers close to chassis and away from each other.
3. Dress leads from terminal board on loop support away from loop.

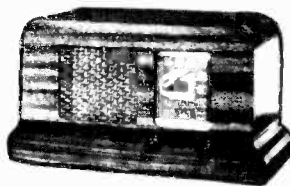
45X16, -17, 45X111, -112, -113, RADIOLA 510, 511, 512, 513



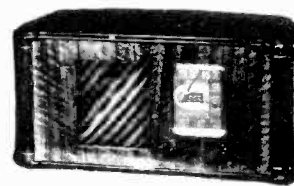
Radiola 510



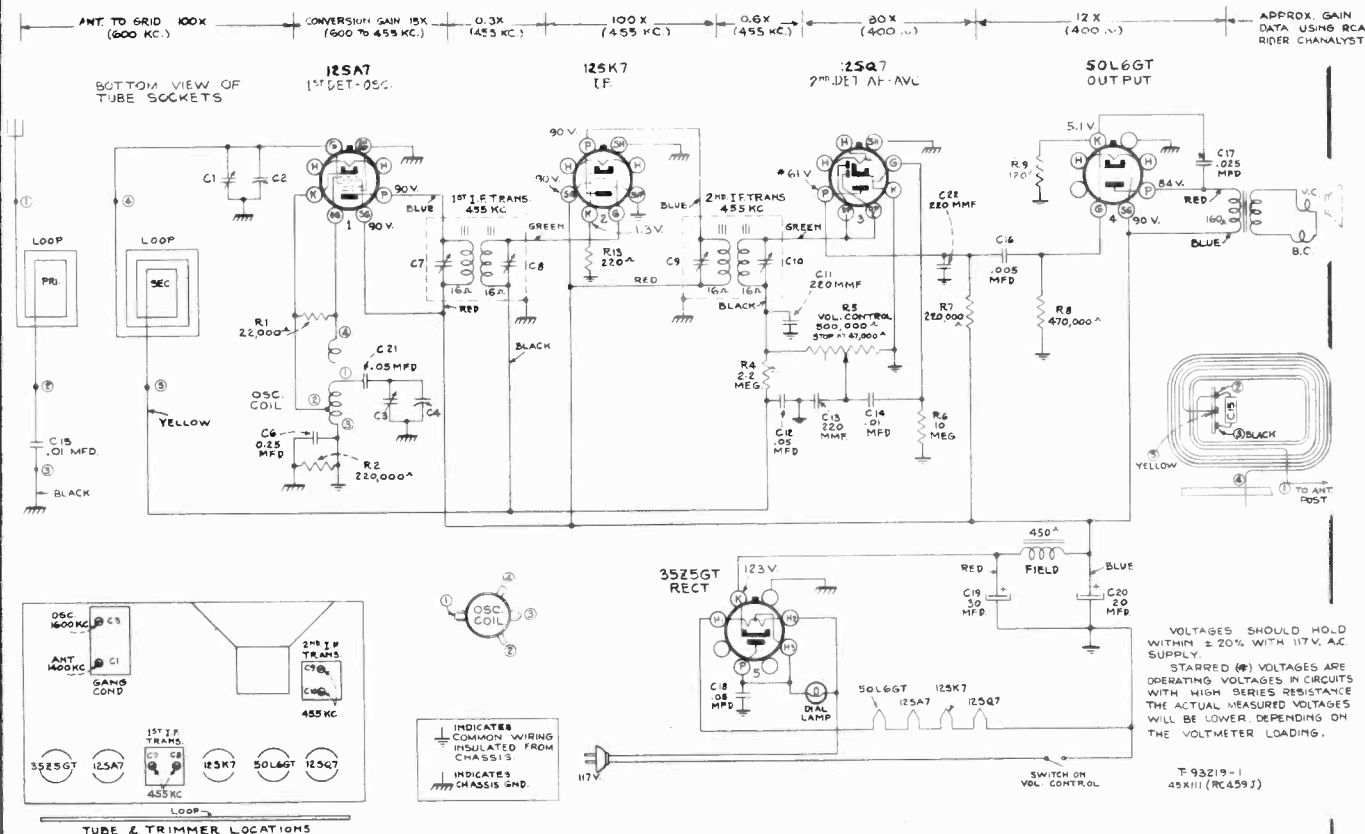
Radiola 511



Radiola 512



Radiola 513



NOTE: C17 is .015 mfd on RCA Victor Model 45 x 113 and Radiola 512 and 513.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-459M)			
35097	Can—Shield can for transformers—Stock Nos. 35348 and 35347	35062	Indicator—Station selector indicator
12894	Capacitor—220 mmfd.	11765	Lamp—Dial lamp
33584	Capacitor—.005 mfd.	35061	Loop—Antenna loop
4937	Capacitor—.01 mfd.	30189	Resistor—120 ohms, 1/2 watt
11315	Capacitor—.015 mfd.	14561	Resistor—220 ohms, 1/2 watt
32787	Capacitor—.05 mfd.	13998	Resistor—22,000 ohms, 1/2 watt
12484	Capacitor—.025 mfd.	12264	Resistor—220,000 ohms, 1/2 watt
35348	Capacitor—Electrolytic, comprising 1 section of 30 mfd., and 1 section of 20 mfd.	12285	Resistor—470,000 ohms, 1/2 watt
35571	Coil—Oscillator coil	12679	Resistor—2.2 meg., 1/2 watt
35534	Condenser—Variable tuning condenser	13601	Resistor—10 meg., 1/2 watt
35344	Control—Volume control and power switch	35343	Shaft—Drive shaft
32634	Cord—Drive cord	34449	Socket—Dial lamp socket
35992	Dial—Dial scale	31251	Socket—Tube socket
35083	Drum—Drive drum	31418	Spring—Drive cord spring
35993	Frame—Dial frame—less dial	35098	Spring—Retaining spring for transformers Stock Nos. 35348 and 35347
		35056	Transformer—Audio transformer
		35346	Transformer—First I-F transformer—less shield can
		35347	Transformer—Second I-F transformer
		34373	Washer—"C" washer for drive shaft

45X16, -17, 45X111, -112, -113, RADIOLA 510, 511, 512, 513

Replacement Parts (Continued)

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MISCELLANEOUS ASSEMBLIES		Radiola 510 (RC-459J) Radiola 511 (RC-464A) Radiola 512, 513 (RC-464B)	
36041	Back—Cabinet back for Model 45X16		
36042	Back—Cabinet back for Model 45X17		
35996	Bushing—Bushing and wood screw for rotor discs	35097	Can—Shield can for transformers—Stock Nos. 35346 and 35347
35079	Crystal—Dial scale escutcheon and crystal	12694	Capacitor—220 mmfd.
35995	Disc—Rotor disc (cardboard)	33584	Capacitor—.005 mfd.
35994	Disc—Stationary disc (masonite) and rubber feet	4937	Capacitor—.01 mfd.
33006	Foot—Rubber foot	11315	Capacitor—.015 mfd. (Radiola 512, 513)
30863	Knob—Tuning or volume control knob	30938	Capacitor—.025 mfd. (Radiola 510, 511)
30900	Spring—Retaining spring for knob	32787	Capacitor—.05 mfd.
		12484	Capacitor—.025 mfd.
		35348	Capacitor—Electrolytic, comprising 1 section of 30 mfd., and 1 section of 20 mfd.
CHASSIS ASSEMBLIES		35571	Coil—Oscillator coil
	MODEL 45X111 } RC-459J	35534	Condenser—Variable tuning condenser
	MODEL 45X112 } RC-459J	35344	Control—Volume control and power switch
	MODEL 45X113 } RC-459K	32634	Cord—Drive cord
35097	Can—Shield can for transformers—Stock Nos. 35346 and 35347	36790	Dial—Dial scale
12694	Capacitor—220 mmfd. (C11, C13, C22)	35063	Drum—Drive drum
33640	Capacitor—.005 mfd. (C16)	36786	Indicator—Station selector pointer
4937	Capacitor—.01 mfd. (C15)	11765	Lamp—Dial lamp
11315	Capacitor—.015 mfd. (C14) (C17 for Model 45X113)	35061	Loop—Antenna loop
30938	Capacitor—.025 mfd. (C17 for Models 45X111, 45X112)	35993	Plate—Dial scale mounting plate
32787	Capacitor—.05 mfd. (C12, C18, C21)	30189	Resistor—120 ohms, 1/2 watt
12484	Capacitor—.025 mfd. (C6)	14561	Resistor—220 ohms, 1/2 watt
35348	Capacitor—Electrolytic, comprising 1 section of 30 mfd., and 1 section of 20 mfd.	13998	Resistor—22,000 ohms, 1/2 watt
35571	Coil—Oscillator coil	12264	Resistor—220,000 ohms, 1/2 watt
35534	Condenser—Variable tuning condenser	12285	Resistor—470,000 ohms, 1/2 watt
35344	Control—Volume control and power switch	12679	Resistor—2.2 meg., 1/2 watt
32634	Cord—Drive cord	13601	Resistor—10 meg., 1/2 watt
35059	Dial—Dial scale	35343	Shaft—Drive shaft
35063	Drum—Drive drum	34449	Socket—Dial lamp socket
35062	Indicator—Station selector indicator	31251	Socket—Tube socket
11765	Lamp—Dial lamp	31418	Spring—Drive cord spring
35061	Loop—Antenna loop	35098	Spring—Retaining spring for transformers—Stock Nos. 35346 and 35347
30189	Resistor—120 ohms, 1/2 watt (R9)	35056	Transformer—Audio transformer
14561	Resistor—220 ohms, 1/2 watt (R13)	35346	Transformer—First I.F. transformer—less shield can
13998	Resistor—22,000 ohms, 1/2 watt (R1)	35347	Transformer—Second I.F. transformer
12264	Resistor—220,000 ohms, 1/2 watt (R2, R7)	34373	Washer—"C" washer for drive shaft
12285	Resistor—470,000 ohms, 1/2 watt (R8)	MISCELLANEOUS ASSEMBLIES	
12679	Resistor—2.2 meg., 1/2 watt (R4)	35068	Back—Cabinet back (Radiola 510)
13601	Resistor—10 meg., 1/2 watt (R6)	35070	Back—Cabinet back (Radiola 511)
35343	Shaft—Drive shaft	36791	Back—Cabinet back (Radiola 512, 513)
34449	Socket—Dial lamp socket	35067	Crystal—Station selector crystal (Radiola 512, 513)
31251	Socket—Tube socket	33317	Fastener—Push fastener to hold backs, Stock Nos. 35068 and 35070
31418	Spring—Drive cord spring	35069	Fastener—Push fastener to hold crystal (Radiola 512, 513)
35098	Spring—Retaining spring for transformers—Stock Nos. 35346 and 35347	36787	Knob—Volume control or tuning knob (Radiola 510, 512, 513)
35056	Transformer—Audio transformer	36789	Knob—Volume control or tuning knob (Radiola 511)
35346	Transformer—First I.F. transformer—less shield can	30900	Spring—Retaining spring for knob, Stock No. 36787
35347	Transformer—Second I.F. transformer	ALL MODELS	
34373	Washer—"C" washer for drive shaft	SPEAKER ASSEMBLIES (39223-502)	
MISCELLANEOUS ASSEMBLIES		35065	Cone—Cone complete with voice coil
35068	Back—Cabinet back for Model 45X111	SPEAKER ASSEMBLIES (RL-86-2)	
35070	Back—Cabinet back for Model 45X112	32907	Cap—Dust cap
35072	Back—Cabinet back for Model 45X113	35086	Cone—Cone complete with voice coil
35067	Crystal—Station selector crystal for Model 45X113	34450	Speaker—5 inch dynamic speaker complete with cone and voice coil—less output transformer
33317	Fastener—Push fastener to hold backs—Stock Nos. 35068 and 35070		
35069	Fastener—Push fastener to hold crystal—Stock No. 35067		
35071	Knob—Ivory tuning or volume control knob for Model 45X112		
35078	Knob—Light mahogany tuning or volume control knob for Model 45X111		
30863	Knob—Walnut tuning or volume control knob for Model 45X113		
30900	Spring—Retaining spring for knobs—Stock Nos. 35071, 35078, 30863		

Additional Replacement Parts:

- Stock No.
35993 Plate—Dial scale mounting plate...
11909 Spring—Spring and fibre washer to take up play in drive shaft.....

Model 45X18

Chassis No. RC-541-C

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is horizontal.

Push Button Adjustment.—The push-buttons should be adjusted for five favorite stations after the receiver is operating, and has had a brief warm-up period. Any standard broadcasting stations may be chosen, it being preferable to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Push in each button and loosen the push-button screws in back of the station marker recesses.
2. Accurately tune-in the first station manually.
3. With the station accurately tuned, press in the first push-button and tighten the screw.
4. Place station marker tab in the recess.
5. Adjust four remaining push buttons in a similar manner.



Precautionary Lead Dress:

1. Dress 1st I-F plate and grid leads against chassis and away from each other.
2. Dress plate lead from 12SK7 close to chassis.
3. Dress leads from terminal board on loop support away from loop.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for max. peak output
1	12SK7 I-F grid, in series with .01 mfd.	455 kc	Quiet point 1600 kc end of dial	C10, C9 2nd I-F Transformer
2	12SA7 1st Det. grid in series with .01 mfd.			C8, C7 1st I-F Transformer
3	Ant. terminal in series with 100 mmfd.	1800 kc	1600 kc	C3 (osc.)
4	Radiation Loop	1,300 kc	Signal	C1 (ant.)
5	Repeat steps 3 and 4.			

Specifications

FREQUENCY RANGE.....	540-1,600 kc
Intermediate Frequency.....	455 kc
POWER-SUPPLY RATINGS	
105-125 volts, direct current, or 50-60 cycles.....	30 watts
POWER OUTPUT (125 volts, 60 cycle supply)	
Undistorted.....	0.8 watts
Maximum.....	1.2 watts
LOUDSPEAKER.....	5 inch electrodynamic

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-541C)			
36088	Bearing—Tuning shaft bearing and nut.....	36316	Screw—Push arm screw.....
36217	Button—Push button.....	36309	Shaft—Push button shaft.....
35332	Can—Shield can for I.F. transformer Stock No. 37364.....	36916	Shaft—Tuning shaft.....
12952	Capacitor—.330 mmfd.....	34449	Socket—Dial lamp socket.....
33584	Capacitor—.005 mfd.....	31251	Socket—Tube socket.....
4937	Capacitor—.01 mfd.....	36131	Spring—Drive cord spring.....
11315	Capacitor—.015 mfd.....	35098	Spring—Spring to hold I.F. transformer in shield can.....
32787	Capacitor—.05 mfd.....	36232	Transformer—First I.F. transformer.....
34505	Capacitor—.02 mfd.....	37364	Transformer—Second I.F. transformer—less shield can.....
35348	Capacitor—Electrolytic comprising 1 section of 30 mfd., and 1 section of 20 mfd.....	35066	Transformer—Output transformer.....
35571	Coil—Oscillator coil.....	34373	Washer—"C" washer for tuning shaft.....
36315	Condenser—Variable tuning condenser and push button mechanism.....	36311	Washer—Dial drum "C" washer.....
35728	Control—Volume control and power switch.....	SPEAKER ASSEMBLIES (RL-86-2)	
37365	Dial—Dial scale.....	32907	Cap—Dust cap.....
36310	Drum—Dial drum.....	35570	Cone—Cone complete with voice coil.....
36645	Fastener—Dial scale fastener.....	34450	Speaker—5 inch dynamic speaker, complete with cone and voice coil—less output transformer.....
36314	Frame—Dial frame complete with 3 wood pulleys—less drum and dial.....	SPEAKER ASSEMBLIES (39223-2)	
36216	Indicator—Station selector indicator.....	35065	Cone—Cone complete with voice coil.....
11765	Lamp—Dial lamp.....	MISCELLANEOUS ASSEMBLIES	
37366	Loop—Antenna loop complete.....	37367	Back—Cabinet back.....
36317	Plate—Push arm lock plate.....	36219	Crystal—Dial scale crystal.....
36312	Pulley—Large drive cord pulley.....	33317	Fastener—Push fastener for cabinet back.....
36313	Pulley—Small drive cord pulley.....	35078	Knob—Volume control or tuning knob.....
32535	Resistor—120 ohms, ½ watt.....	34317	Marker—Station selector marker.....
13998	Resistor—22,000 ohms, ½ watt.....	30900	Spring—Retaining spring for knob.....
12264	Resistor—220,000 ohms, ½ watt.....		
30648	Resistor—470,000 ohms, ½ watt.....		
12679	Resistor—2.2 meg., ½ watt.....		
13601	Resistor—10 meg., ½ watt.....		

Models 46X-1, 46X-2, and 46X-3

Chassis Nos. RC-459B RC-459C
 2ND PROD. RC-459F RC-459H

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



Model 46X-1
Mahogany

Model 46X-2
Ivory

Model 46X-3



Electrical and Mechanical Specifications

FREQUENCY RANGE 540-1,600 kc
 Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7 1st-Detector-Oscillator
- (2) RCA-12SK7 I-F Amplifier
- (3) RCA-12SQ7 2nd-Detector, 1st A-F, and A.V.C.
- (4) RCA-50L6GT Power Output
- (5) RCA-35Z5GT Rectifier
- Dial Lamp (1) Mazda 47, 6.3 volts, .15 amp.

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 50-60 cycles, 50 watts
 D-C Rating 105-125 volts, direct current, 50 watts

POWER OUTPUT (125 volt, 60 cycle supply)

Undistorted6 watts
 Maximum 2.0 watts

LOUDSPEAKER

Type 5-inch electrodynamic

Model	Weight (shipping)	Description	Cabinet Dimensions (inches)
46X1	8 3/4 lbs.	Mahogany plastic finish	6 19/32 x 9 25/32 x 5 7/8
46X2	8 3/4 lbs.	Antique-ivory plastic finish	6 19/32 x 9 25/32 x 5 7/8
46X3	13 1/2 lbs.	Walnut finish	8 5/16 x 14 1/2 x 7 7/16

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For I-F alignment, connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

Antenna.—The set is equipped with a built-in loop antenna. If an outdoor antenna is used, it may be connected to the "ANT" terminal on rear of cabinet. It should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with .01 mfd.	455 kc		C9 and C10 (2nd I-F trans.)
2	Tuning condenser stator (osc.) in series with .01 mfd.			C7 and C8 (1st I-F trans.)
3	Radiation loop consisting of two turns of wire 18 inches in diameter	1,600 kc	Full clockwise (out of mesh)	C3 (oscillator)
4		1,400 kc	Resonance on 1,400 kc signal	C1 (antenna)

Precautionary Lead Dress

1. Dress grid lead of 12SK7 close to chassis under condenser (C12).
2. Dress green and blue leads from i-f transformers close to chassis and away from each other.
3. Dress leads from terminal board on loop support away from loop.

Microphonic Howl:

Vibration of parts in the oscillator circuit may cause microphonic howl, which can be corrected by the following:

- (a) See that the drive pulley does not touch the dial.
- (b) Squeeze in the rear of the gang condenser frame, in order to center the rotor plates within the stator.
- (c) Loosen the tuning condenser mounting screws slightly to ensure free floating of the gang.

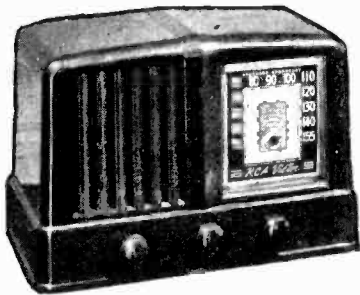
Dial Lamp Burnout:

In Models 46X-1, -2, -3, -11, -12, -13, -21, -23, -24, the dial lamp is Mazda No. 47 (.15 amp.). In case of frequent burnout, Mazda No. 51 (.2 amp.) can be used for replacement.

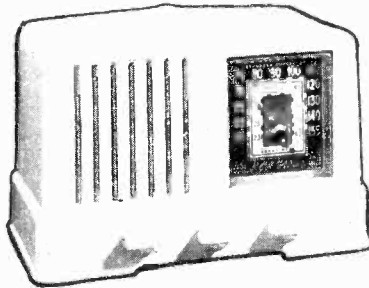
Models 46X11, 46X12, and 46X13

Chassis Nos. RC456 and RC456A

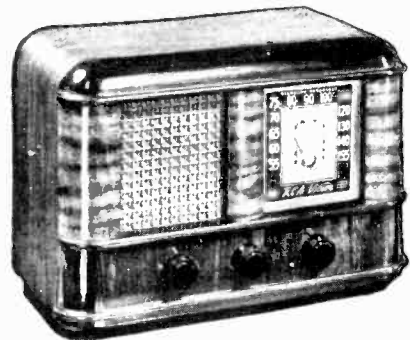
Five-Tube, Two-Band, AC-DC Superheterodyne Receiver



46X-11.



RCA Victor 46X-12.



RCA Victor 46X-13.

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast..... 540-1,600 kc
 Medium Wave..... 2.3-6.3 mc

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7..... 1st Detector—Oscillator
 - (2) RCA-12SK7..... I-F Amplifier
 - (3) RCA-12SQ7..... 2nd Detector, A.V.C., and A-F Amplifier
 - (4) RCA-50L6GT..... Power Output
 - (5) RCA-35Z5GT..... Rectifier
- Dial Lamp (1)..... Mazda 47, 6.3 volts, .15 amp.

POWER OUTPUT RATING

Undistorted..... 1 watt
 Maximum..... 2 watts

LOUDSPEAKER

Type..... 5-inch electrodynamic
 V.C. Impedance..... 4 ohms at 400 cycles

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
 D-C Rating..... 105-125 volts, direct current, 50 watts

Model	Cabinet Description	Cabinet Dimensions (inches)
46X11	Mahogany Plastic	8 x 12 x 7
46X12	Antique-Ivory Plastic	8 x 12 x 7
46X13	Walnut Veneer	9-5/16 x 13 1/2 x 7-3/16

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
	Model 46X11 (RC-456)	13601	Resistor—10 meg., 1/4 watt (R7)
	Model 46X12 (RC-456)	35085	Shaft—Tuning condenser drive shaft
	Model 46X13 (RC-456A)	35094	Socket—Dial lamp socket
35000	Ballast—Ballast tube resistor	31319	Socket—Tube socket
34025	Board—Antenna terminal board	30585	Spring—Drive cord tension spring
35084	Bracket—Tuning condenser mounting bracket with bearing bushing for tuning shaft	35087	Switch—Range switch
32830	Capacitor—Mica trimmer comprising 2 sections of 2-20 mmfd. (C3, C16)	35054	Transformer—First I-F transformer
13200	Capacitor—10 mmfd. (C10)	35055	Transformer—Second I-F transformer
12724	Capacitor—120 mmfd. (C18, C21)	35056	Transformer—Output transformer
31870	Capacitor—415 mmfd. (C15)	35000	Tube—Ballast tube resistor
35099	Capacitor—2,100 mmfd. (C7)	SPEAKER ASSEMBLIES	
33584	Capacitor—.005 mfd. (C22)	32907	Cap—Dust cap
4937	Capacitor—.01 mfd. (C2, C11, C23, C28)	35066	Cone—Cone complete with voice coil (For Spkr. No. RL86-4)
4870	Capacitor—.025 mfd. (C24)	35065	Cone—Cone complete with voice coil (For Spkr. No. 39223-4)
32787	Capacitor—.05 mfd. (C17, C27)	34450	Speaker—5-inch dynamic speaker complete with cone and voice coil (RL86-4)
34505	Capacitor—.02 mfd. (C4, C29)	MISCELLANEOUS ASSEMBLIES	
32576	Capacitor—Electrolytic, comprising 1 section of 20 mfd. and 1 section of 12 mfd. (C25, C26)	35101	Back—Cabinet back for Model 46X11
33724	Coil—Oscillator coil ("A" band)	35102	Back—Cabinet back for Model 46X12
35090	Coil—Antenna coil—"B" band (L1, L2)	35103	Back—Cabinet back for Model 46X13
35096	Coil—Loop loading coil (L3)	X-818	Cloth—Baffle board and grille cloth for Model 46X13
35251	Coil—Oscillator coil—"B" band (L6)	35104	Crystal—Dial scale crystal for Models 46X11 and 46X12
35082	Condenser—Variable tuning condenser—less drum	35105	Crystal—Dial scale crystal for Model 46X13
35086	Control—Volume control and power switch	33317	Fastener—Push on fastener for cabinet backs Models 46X11 and 46X12
32634	Cord—Drive cord	35069	Fastener—Push-on fastener for crystal Stock No. 35104
35093	Dial—Dial scale	35107	Knob—Ivory tuning, range switch or volume control knob for Model 46X12
35083	Drum—Tuning condenser drive drum	35106	Knob—Light mahogany tuning, range switch or volume control knob for Model 46X11
35091	Indicator—Station selector indicator	11455	Knob—Walnut tuning, range switch or volume control knob for Model 46X13
31480	Lamp—Dial lamp	11349	Spring—Retaining spring for knob Stock No. 11455
35095	Loop—Antenna loop complete	14270	Spring—Retaining spring for knobs Stock Nos. 35106 and 35107
35092	Plate—Dial plate—less dial scale		
35000	Resistor—Ballast tube resistor		
30936	Resistor—120 ohms, 1 watt (R9)		
13428	Resistor—150 ohms, 1/4 watt (R4)		
13998	Resistor—22,000 ohms, 1/4 watt (R2, R3, R6)		
14560	Resistor—100,000 ohms, 1/4 watt (R13)		
12264	Resistor—220,000 ohms, 1/4 watt (R1, R8)		
12285	Resistor—470,000 ohms, 1/4 watt (R10)		
12679	Resistor—2.2 meg., 1/4 watt (R5)		

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A.

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Pointer.—With gang condenser in full mesh, the pointer should be adjusted to a horizontal position.

Antenna.—The set is equipped with a built-in loop antenna. If the loop antenna is used, the antenna terminal board should be closed. This link should be open when an external antenna is used. Connect the external antenna to terminal 1. If an antenna longer than 100 feet (including lead in) is used, connect a 100 to 200 mmf. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not operate, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with .01 mfd.	455 kc	"Standard Broadcast" band quiet point with gang nearly open	2nd I-F Trans.
2	12SA7 grid in series with .01 mfd.			1st I-F Trans.
3	Ant. terminal 1 in series with 200 mmfd. Link closed	600 kc	"600 kc Standard Broadcast" band	L5 (osc.)
4		1,560 kc	Pointer at second from bottom mark at extreme right edge of dial plate* "Standard Broadcast" band	C8 (osc.)
5		1,400 kc	Resonance on 1,400 kc signal "Standard Broadcast" band	C6 (ant.)
6		600 kc	Resonance on 600 kc signal "Standard Broadcast" band	L5 (osc.) Rock gang
7	Repeat steps 4, 5, and 6			
8	Ant. terminal 1 in series with 200 mmfd. Link closed	6.1 mc	Pointer on dot at extreme right edge of dial* "Short Wave" band	C16 (osc.)** C3 (ant.) Rock gang
9		2.44 mc	Resonance on 2.44 mc signal "Short Wave" band	L6 (osc.) Rock gang
10	Repeat steps 8 and 9			

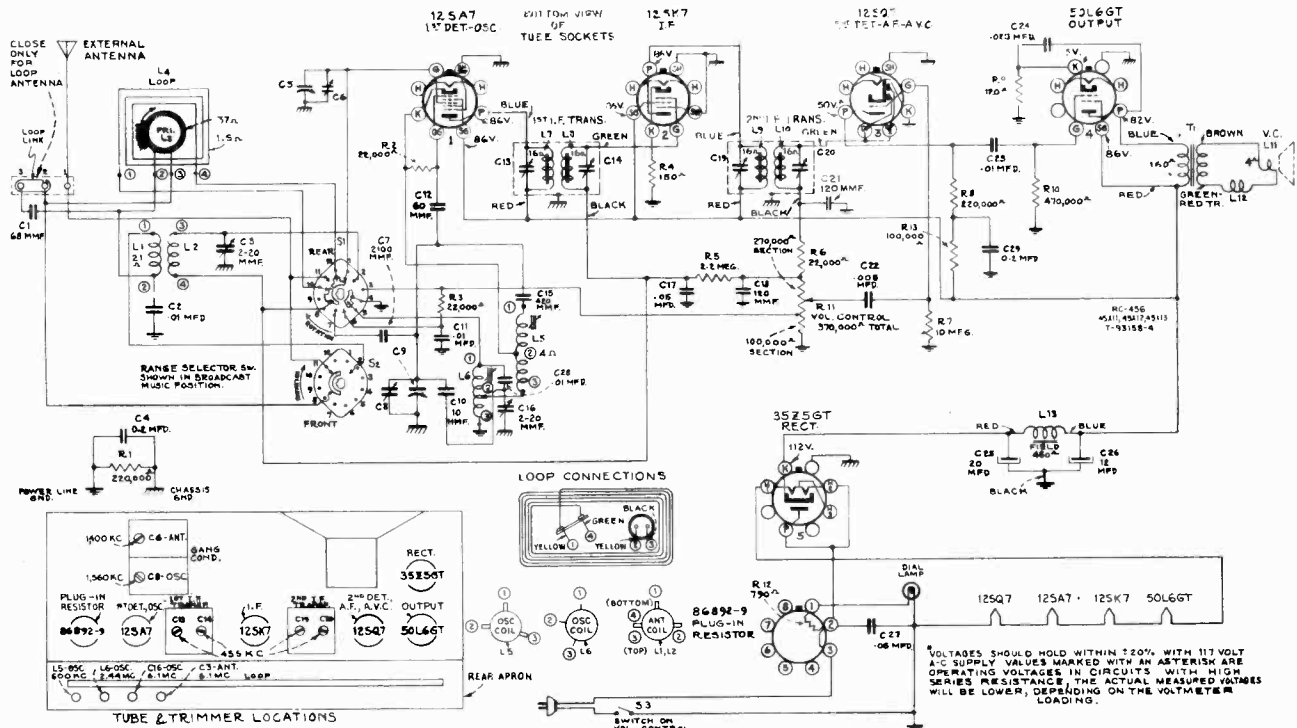
Antenna Circuit Change:

In some production of these models, capacitor C1 (68 mmfd.) is removed, and a through connection is made from terminal No. 3 on the antenna terminal board to terminal No. 2 on the loop.

Dial Lamp Burnout:

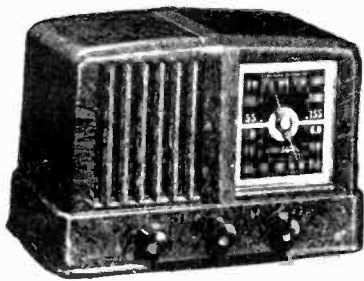
In Models 46X-1, -2, -3, -11, -12, -13, -21, -23, -24, the dial lamp is Mazda No. 47 (.15 amp.). In case of frequent burnout, Mazda No. 51 (.2 amp.) can be used for replacement.

*These calibration marks are concealed when chassis is in cabinet.
**Use minimum capacity peak if two can be obtained. Check for selection of correct peak by tuning receiver to approximately 5.19 mc where a weaker signal should be received.



Models 46X21, 46X23, and 46X24

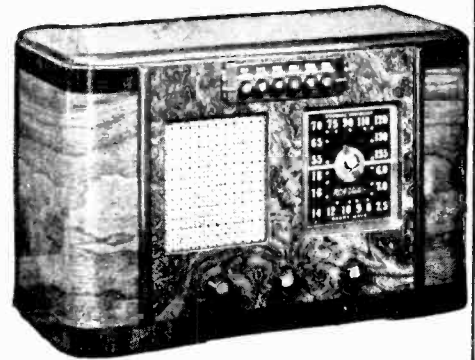
Chassis Nos. RC-461B, RC-461A and RC-461



RCA Victor 46X-21.



RCA Victor 46X-23.



RCA Victor 46X-24.

Electrical and Mechanical Specifications

Frequency Ranges..... 550-1,550 kc and 6-18 mc

PUSH BUTTON RANGES (Model 46X24 only)

- (1) Approximately 540-945 kc
- (2) Approximately 580-1,020 kc
- (3) Approximately 650-1,320 kc
- (4) Approximately 760-1,440 kc
- (5) Approximately 990-1,560 kc

Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA 12SA7..... 1st Detector—Oscillator
 - (2) RCA 12SK7..... I.F. Amplifier
 - (3) RCA 12SQ7..... 2nd Detector, AVC, A.F. Amplifier
 - (4) RCA 50L6GT..... Power Output
 - (5) RCA 35Z5GT..... Rectifier
- Dial Lamp (1)..... Mazda No. 47, 6.3 volts, 0.15 amps.

POWER OUTPUT RATING

Undistorted..... 1.1 watts
Maximum..... 1.4 watts

LOUDSPEAKER (RL81A1)

Type..... 5-inch permanent magnet dynamic
Voice Coil Impedance at 400 Cycles..... 4.5 ohms

POWER SUPPLY RATINGS

A.C. Rating..... 105-125 volts, 50-60 cycles, 50 watts
D.C. Rating..... 105-125 volts, direct current, 50 watts

Model	Cabinet Dimensions	Shipping Wt.
46X21	8 x 12 x 7 (inches)	10½ lbs.
46X23	9½ x 14 x 7½ (inches)	12½ lbs.
46X24	10½ x 16 x 7¾ (inches)	14½ lbs.

Replacement Parts

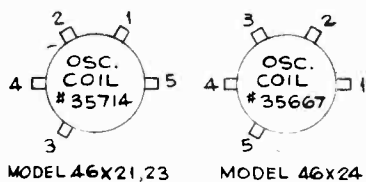
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
35000	Ballast—Ballast tube resistor.....	35672	Plate—Dial plate less dial scale—46X21.....
35097	Can—Shield can for I.F. transformers.....	35671	Plate—Dial plate less scale—46X23, 24.....
12722	Capacitor—18 mmfd. (C44 for 46X-21, 23).....	35000	Resistor—Ballast tube resistor.....
12896	Capacitor—15 mmfd. (C44 for 46X-24).....	14439	Resistor—100 ohms, ¼ watt (R15).....
14021	Capacitor—22 mmfd. (C41).....	30936	Resistor—120 ohms, 1 watt (R9).....
13057	Capacitor—68 mmfd. (C12).....	13428	Resistor—150 ohms, ¼ watt (R4).....
35683	Capacitor—Mica trimmer comprising 2 sections of 115-440 mmfd., 2 sections of 90-365 mmfd., 2 sections of 42-280 mmfd., 2 sections of 25-190 mmfd. and 2 sections of 10-80 mmfd. for 46X24.....	3153	Resistor—1,500 ohm, 1 watt (R14).....
12725	Capacitor—150 mmfd. (C18, C21, C42).....	13998	Resistor—22,000 ohm, ¼ watt (R3, R6).....
35665	Capacitor—Mica trimmer comprising 1 section of 300-600 mmfd. and 2 sections of 2-20 mmfd. (C10).....	12454	Resistor—33,000 ohms, ¼ watt (R2).....
13895	Capacitor—5,600 mmfd. (C10).....	12264	Resistor—220,000 ohm, ¼ watt (R1, R8).....
33640	Capacitor—.005 mfd. (C23).....	12285	Resistor—470,000 ohm, ¼ watt (R10).....
4937	Capacitor—.01 mfd. (C2, C11, C16).....	12679	Resistor—2.2 megohm, ¼ watt (R5).....
14393	Capacitor—.01 mfd. (C1).....	13601	Resistor—10 megohm, ¼ watt (R7).....
35338	Capacitor—.015 mfd. (C24 for 46X-23, 24).....	35085	Shaft—Tuning condenser drive shaft.....
30938	Capacitor—.025 mfd. (C24 for 46X-21).....	31418	Spring—Drive cord spring.....
32787	Capacitor—.05 mfd. (C27, C43, C45).....	35098	Spring—Spring to hold I.F. transformer in cans.....
4886	Capacitor—.05 mfd. (C7).....	31319	Socket—Tube socket.....
4839	Capacitor—.01 mfd. (C28).....	35094	Socket—Dial lamp socket.....
34505	Capacitor—.02 mfd. (C4).....	35660	Switch—Range switch.....
35673	Capacitor—Electrolytic comprising 1 section of 50 mfd. and 1 section of .30 mfd. (C25, C26).....	35662	Switch—Push button switch for 46X24.....
35713	Coil—Antenna coil—"C" band—46X21, 23.....	35666	Transformer—Audio transformer.....
35661	Coil—Antenna coil—"C" band for Model 46X24.....	35088	Transformer—First I.F. trans. less shield can.....
35096	Coil—Loop loading coil.....	35089	Transformer—Second I.F. trans. less shield can.....
35714	Coil—Oscillator coil—"A" and "C" bands for Models 46X21 and 46X23.....	35000	Tube—Ballast tube resistor.....
35667	Coil—Oscillator coil—"A" and "C" bands for Model 46X24.....	34373	Washer—Spring washer for tuning shaft.....
35658	Condenser—Tuning condenser—46X21.....	SPEAKER ASSEMBLIES (RL81A1)	
35657	Condenser—Tuning condenser—46X23.....	32907	Cap—Dust cap.....
35656	Condenser—Tuning condenser—46X24.....	35569	Cone—Cone complete with voice coil.....
35086	Control—Volume control and power switch.....	MISCELLANEOUS ASSEMBLIES	
32634	Cord—Drive cord.....	35676	Back—Back cover for Model 46X21.....
35670	Dial—Dial scale for Model 46X21.....	35675	Back—Back cover for Model 46X23.....
35669	Dial—Dial scale for Model 46X23 and 46X24.....	35674	Back—Back cover for Model 46X24.....
35659	Drum—Tuning condenser drive drum.....	32279	Button—Push button for Model 46X24.....
35668	Indicator—Station selector indicator.....	35104	Crystal—Escutcheon and crystal—46X21.....
31480	Lamp—Dial lamp.....	35677	Crystal—Escutcheon and crystal—46X23, 24.....
35664	Loop—Antenna loop complete.....	35680	Escutcheon—Push button escutcheon—46X24.....
		35678	Fastener—Push on fastener to hold crystal for Model 46X21.....
		33006	Foot—Rubber foot for Model 46X23.....
		35679	Knob—Volume control, tuning or range switch.....
		34317	Marker—Push button markers for Model 46X24.....
		35681	Rotor—Cabinet rotating disc for Model 46X21.....
		35682	Rotor—Cabinet rotating disc for Model 46X23.....
		34293	Spring—Retaining spring for button Stock No. 32279 for Model 46X24.....
		30900	Spring—Retaining spring for knob Stock No. 35679.....

Alignment Procedure

Step	Connect high side of test oscillator to—	Tune test oscillator to—	Turn radio dial to—	Adjust following for max. output—
1	Grid 12SK7 in series with 0.01 mfd.	455 kc	"A" Band Quiet Point at 1,550 kc end of dial	C19 and C20 (2nd I-F Trans.)
2	Grid 12SA7 in series with 0.01 mfd.			C13 and C14 (1st I-F Trans.)
3	Antenna in series with 200 mmfd.	600 kc	"A" Band 600 kc	C15 (osc.)
4		1,560 kc	"A" Band Full Clockwise	C8 (osc.)
5		1,400 kc	Resonance on 1,400 kc "A" Band	C6 (ant.)
6	Repeat steps 3 (rock in), 4 and 5			
7	Antenna in series with 300 ohms	18.5 kc	"C" Band Full Clockwise	C17 (osc.)*
8		17.8 kc	"C" Band Resonance on 17.8 kc Signal	C3 (ant.)
9	Repeat steps 7 and 8			

* Use minimum capacity peak if two can be obtained.
Note: Oscillator tracks above signal on all bands.



Oscillator Coil Terminals in Models 46X-21, 46X-23

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Pointer.—With gang condenser in full mesh, the pointer should be adjusted to a horizontal position.

Antenna.—The set is equipped with a built-in loop antenna. If the loop antenna is used, the antenna terminal board link should be closed. This link should be open when an external antenna is used. Connect the external antenna to terminal 1. If an antenna longer than 100 feet (including lead-in) is used, connect a 100 to 200 mmfd. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not operate, reverse the plug. On a.c. reversal of the plug may reduce hum.

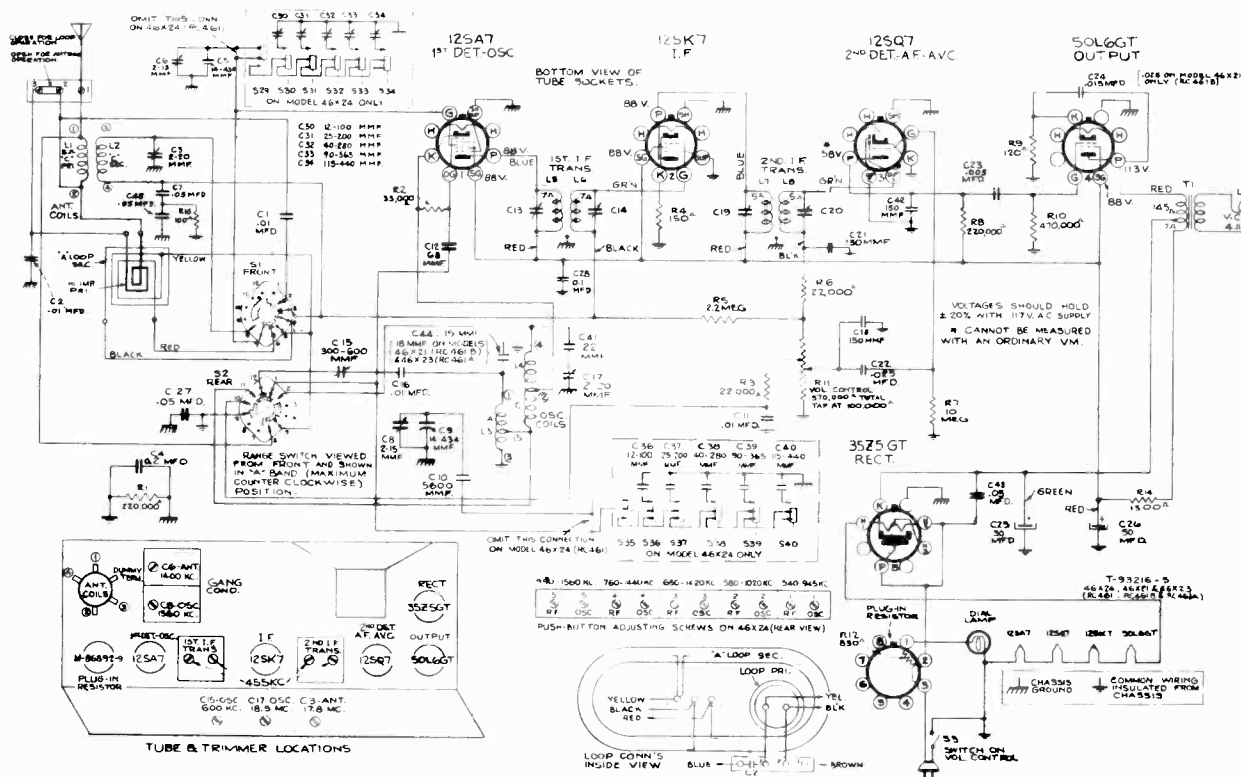
Adjustments for Electric Tuning:

The push buttons and corresponding frequency ranges are given in the schematic diagram. Allow the set to warm up for about 15 minutes and proceed as follows:

- (1) List five desired stations in order of the push button ranges.
- (2) Push in the dial tuning (right hand) button and manually tune in the first station on the list.
- (3) Press button No. 1. Turn R-F screw half way in; next turn the oscillator screw entirely in and then gradually back out until the station is heard.
- (4) Adjust the R-F trimmer for maximum output. (Clockwise adjustment of oscillator and R-F trimmers tunes the circuits to lower frequencies.)
- (5) By turning the set to a position in which reception is weak a final more accurate adjustment may be made.
- (6) Adjust for each of the remaining stations in a similar manner and place corresponding station tabs in recesses above buttons. A "Dial Tuning" tab should be above button No. 6.

Precautionary Lead Dress:

- (1) Dress all leads away from oscillator and antenna coils.
- (2) Dress cathode resistor (R4) and B+ lead across 12SK7 socket between plate and grid terminals.
- (3) (46X24 only) Dress leads to push button switch straight up and parallel so that they do not touch each other.
- (4) Dress black lead from 1st I-F transformer over green lead.
- (5) Keep plate-cathode bypass (C43) of rectifier tube away from volume control.

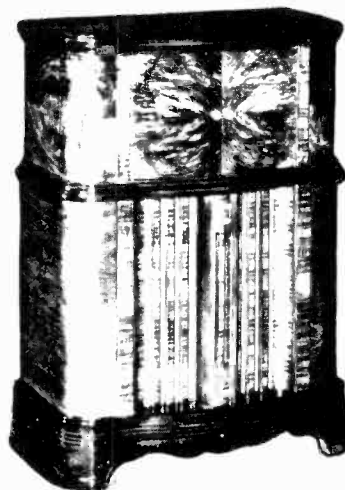
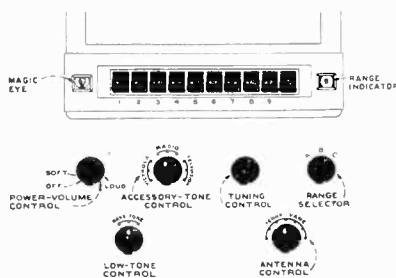
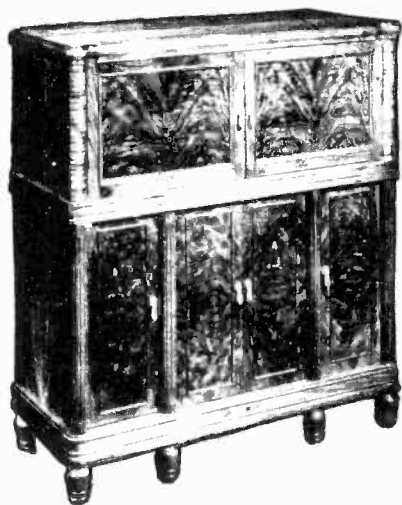


MODEL U-46 Victrola and MODEL K-130

Chassis No. RC-501

Chassis No. RC-501A

13-Tube, Three-Band, Electric Tuning, A-C Superheterodynes



Above—Operating Controls

At Right—Model K-130

At Left—Model U-46

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast.....	540-1,560 kc
Medium Wave.....	1.55-4.0 mc
Short Wave.....	5.8-18.0 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Det., Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6H6 2nd Det., A.V.C.
- (5) RCA-6SF5 A-F Amplifier
- (6) RCA-6SF5 Phase Inverter
- (7) RCA-6F6-G Power Output
- (8) RCA-6F6-G Power Output
- (9) RCA-6F6-G Power Output
- (10) RCA-6F6-G Power Output
- (11) RCA-6U5/6G5 Tuning Indicator
- (12) RCA-5U4-G } Rectifiers in Power Supply Unit.
- (13) RCA-5U4-G }

LOUDSPEAKER (RL-76B-5)

Type 12-inch electrodynamic
 V.C. Impedance 11.5 ohms at 400 cycles

POWER SUPPLY RATINGS K-130 (U-46, 50 watts additional)

Rating A 105-125 volts, 50-60 cycles, 200 watts
 Rating B 105-125 volts, 25-60 cycles, 200 watts
 Rating C 105-130, 140-160, 200-250 volts,
 40-60 cycles, 200 watts

PHONOGRAPH (Model U-46 only) RP-140

Type Automatic
 Record Capacity Eight 10-inch or Seven 12-inch
 Turntable Speed 78 r.p.m. (Adjustable)
 Type Pickup Crystal
 Pickup Impedance 100,000 ohms at 1,000 cycles

POWER OUTPUT RATING

Undistorted 20 watts
 Maximum 22 watts

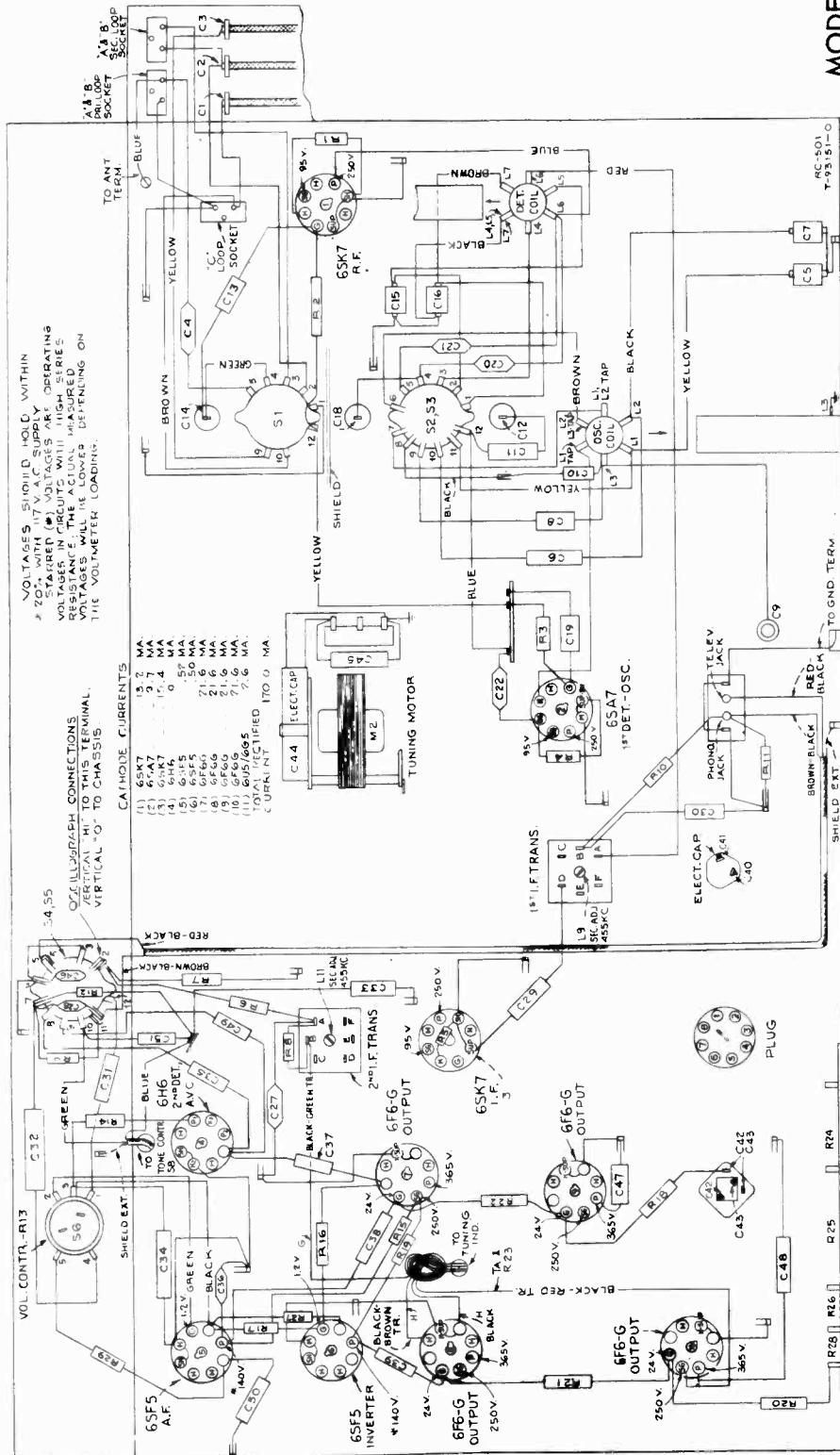
Adjustments for Electric Tuning

1. Make a list of the desired nine stations, arranged in order from low to high frequencies.
2. Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.
3. Turn "Accessory-Tone Control" to most clockwise "Radio" position.
4. Press down the "dial-tuning" (right-hand) button.
5. Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.
6. Hold down the "dial-tuning" button, and press down station button No. 1 (at left). Both buttons will stay

down, central dial lamp will light brightly or dimly, depending on which side of disc contact is made. Move station-setting contact No. 1 to the insulating line on the disc at rear of gang. When the contact is correctly centered on the insulating line, the central dial lamp will go out.

7. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
8. Repeat this process for the remaining stations.

U-46, K130



VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. A.C. SUPPLY. STARRED (*) VOLTAGES ARE OPERATING VOLTAGES FOR TUBES. VOLTAGES MEASURED BETWEEN "H" TO THIS TERMINAL. VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

OSCILLOSCOPE CONNECTIONS VERTICAL "H" TO THIS TERMINAL. VERTICAL "O" TO CHASSIS.

CATHODE CURRENTS	MA
(1) 6SK7	15.2
(2) 6SK7	15.2
(3) 6SK7	15.4
(4) 6H6	0
(5) 6SF5	15.0
(6) 6SF5	15.0
(7) 6F6	71.6
(8) 6F6	21.6
(9) 6F6	21.6
(10) 6F6	21.6
(11) 6F6/6G5	7.6
(12) 6F6/6G5	7.6

TUBES IDENTIFIED TO 0 MA. CURRENT.

MODEL U-46

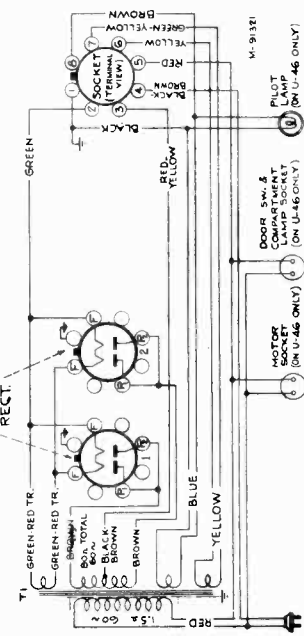
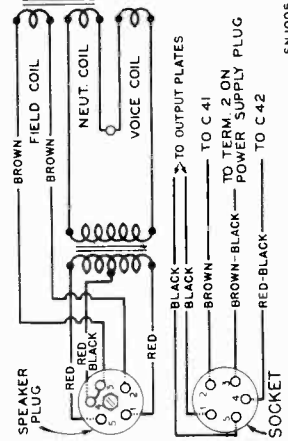
Low-Frequency Response:

Some instruments have tone compensation which provides the conventional amount of low-frequency response. Later production, however, has a revised circuit which predominates response below 100 cycles on one position of the "bass" for low-tone control. Should it be desirable to obtain this type of response on earlier instruments, the following changes are necessary:

- Replace the 82,000 ohm resistor (R11) with one of 56,000 ohms (Stock No. 12286).
- Replace the .035 mfd capacitor (C33) with one of .01 mfd. (Stock No. 4937).
- Replace the .05 mfd. capacitor (C51) with one of .025 mfd. (Stock No. 4870).

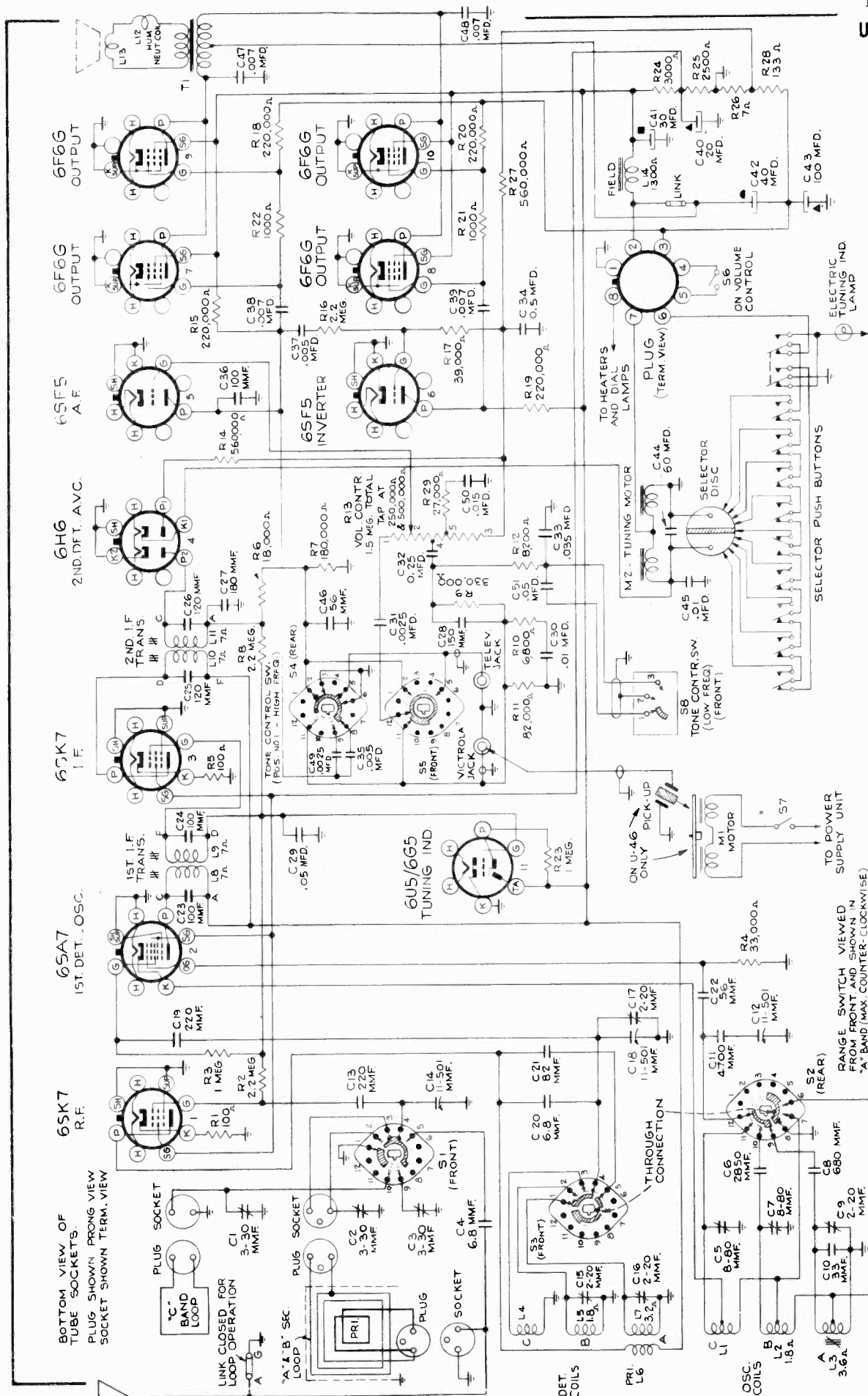
Add Stock No. 4585 Hinge—Top and bottom hinges for top doors on some cabinets (hinge leaf bent 90°).

R-F Wiring Diagram and Socket Voltages



Speaker Plug Connections

Power Supply Schematic Circuit Diagram



U46, K130 (RC501)
T-93005

REFER TO INDEX FOR DATA ON ELECTRIC TUNING AND AUTOMATIC RECORD CHANGER

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN 'A' BAND (MAX. COUNTER-CLOCKWISE) POSITION.

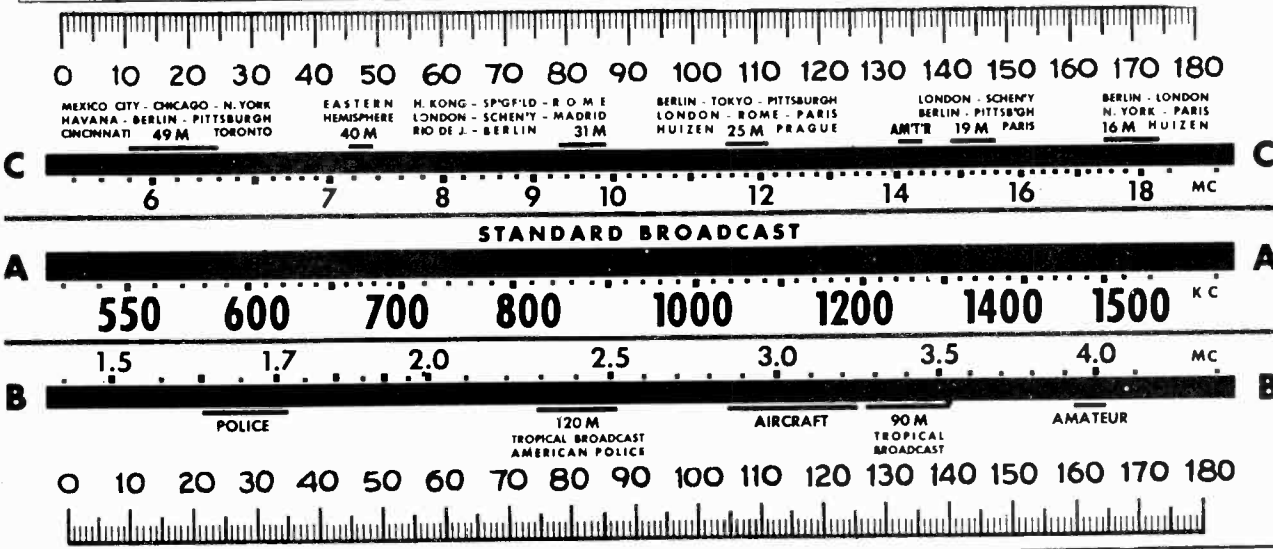
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
35018	Board—Antenna-Ground board	12013	Resistor—1 megohm, 1/10 watt (R23)
32232	Body—Comprising one plunger body and one body spring	13730	Resistor—1 megohm, 1/2 watt (R3)
31276	Bracket—Band indicator mounting bracket complete except less band indicator, cord and tension spring	12679	Resistor—2.2 megohm, 1/2 watt (R2, R8, R18)
31282	Bracket—"Magic Eye" mounting bracket	35020	Resistor—Voltage divider tapped at 3,000 ohms, 2,500 ohms, 7 ohms and 133 ohms
32090	Bracket—Motor mounting bracket	14887	Retainer—Drive cord pulley retainer
30766	Cap—Rubber cap for "Magic Eye"	35024	Rod—Trimmer capacitor adjusting rod
12884	Capacitor—Air trimmer—long (C9)	32086	Roller—Rubber friction roller for front end of motor shaft
32088	Capacitor—Dial motor capacitor for 50-60 cycle models	31233	Rotor—Selector rotor disc—mounts on rear of variable tuning condenser shaft
32830	Capacitor—Trimmer comprising 2 sections of 2-20 mmfd. each (C15, C16)	5042	Screw—No. 8-32-1/8-inch set screw for pulley Stock No. 31271
35019	Capacitor—Trimmer comprising 3 sections of 3-30 mmfd. each (C1, C2, C3)	4669	Screw—No. 8-32-3/8-inch square head set screw for drum Stock No. 31273
34702	Capacitor—Trimmer comprising 2 sections of 8-80 mmfd. each (C5, C7)	31681	Shaft—Dial drive knob shaft
14079	Capacitor—6.8 mmfd. (C4, C20)	34575	Socket—3-contact female, loop socket
12948	Capacitor—33 mmfd. (C10)	31364	Socket—Insulated dial lamp socket
12723	Capacitor—56 mmfd. (C22, C46)	31365	Socket—Non-insulated dial lamp socket
12813	Capacitor—82 mmfd. (C21)	13871	Socket—"Magic Eye" socket
12720	Capacitor—100 mmfd. (C36)	33514	Socket—"Phonograph-Television" socket
34699	Capacitor—100 mmfd. (C23, C24)	31251	Socket—Tube socket
34700	Capacitor—120 mmfd. (C25, C26)	31232	Spring—Contact tip spring for station setting contact
12725	Capacitor—150 mmfd. (C28)	13638	Spring—Indicator drive cord spring
13003	Capacitor—180 mmfd. (C27)	31970	Spring—Push button lock bar spring
12694	Capacitor—220 mmfd. (C13, C19)	31230	Spring—Station setting contact body spring
31552	Capacitor—680 mmfd. (C8)	31418	Spring—Variable condenser drive cord spring
34787	Capacitor—2,850 mmfd. (C6)	35021	Switch—Range switch
31399	Capacitor—4,700 mmfd. (C11)	31968	Switch—Station selector push button switch complete
34459	Capacitor—.0025 mfd. (C31, C49)	34698	Transformer—First i-f transformer
33684	Capacitor—.005 mfd. (C35, C37)	34524	Transformer—Second i-f transformer
5148	Capacitor—.007 mfd. (C38, C39, C47, C48)	32231	Washer—comprising 1 metal washer, 2 fibre washers and 1 solder lug for station selector plunger
4937	Capacitor—.01 mfd. (C30, C45)	32094	Washer—Spring washer for mounting damper
11315	Capacitor—.015 mfd. (C50)	POWER SUPPLY UNIT ASSEMBLIES	
5196	Capacitor—.035 mfd. (C33)	11765	Lamp—Pilot lamp, —Model U46
32787	Capacitor—.05 mfd. (C29, C51)	35052	Plug—Power input cable plug
30965	Capacitor—0.25 mfd. (C32)	30868	Plug—2 contact female plug for motor lead and for compartment lamp—Model U46
12741	Capacitor—0.5 mfd. (C34)	31364	Socket—Pilot lamp socket—Model U46
32436	Capacitor—180 mfd. 24 volts for electric tuning motor 110 volt 25 cycle models	31251	Socket—Tube socket
35017	Capacitor—Electrolytic comprising 1 section of 30 mfd. and 1 section of 20 mfd. (C30, C40)	35249	Transformer—Power transformer—110 volt, 25 cycle
35016	Capacitor—Electrolytic comprising 1 section of 40 mfd. and 1 section of 100 mfd. (C42, C43)	35250	Transformer—Power transformer—Univ. 60 cycle
34579	Coil—Oscillator coil	35027	Transformer—Power transformer—110 volt, 60 cycle
34697	Coil—Det. Coil	PICKUP AND ARM ASSEMBLIES	
35015	Condenser—Variable tuning condenser	Model U46	
31231	Contact—Contact tip for station setting contact	34011	Arm—Pickup arm shell
31971	Contact—Push button switch contact (11 contacts riveted on insulating strip)	33905	Crystal—Pickup cartridge
31972	Contact—Push button switch contact (14 contacts riveted on insulating strip)	34013	Pin—Used to fasten pivot arm in pickup arm shell
35022	Control—H.F. tone control	33529	Screw—Needle screw
35026	Control—L.F. tone control	34012	Shaft—Pickup pivot shaft and pivot arm
35023	Control—Volume control and power switch	MOTOR BOARD MECHANISM	
32634	Cord—Band indicator cord	Model U46	
32635	Cord—Station selector indicator drive cord	33998	Base—Tone arm mounting base
32713	Core—Adjusting core and stud for oscillator coil	33996	Board—Motor board complete with all riveted and welded posts and brackets—less operating mechanisms
32096	Disc—Friction disc and pinion gear	32556	Cable—Shielded pickup cable (8)
32091	Drive—Friction drive gear assembly	33999	Cup—Needle cup (6)
31273	Drum—Variable tuning condenser drive drum	33997	Escutcheon—Index escutcheon
32093	Flywheel—Flywheel for rear end of motor shaft	31151	Guide—Lift cable guide
31239	Gear—Knob shaft drive gear and hub	31150	Mounting—Pickup arm base rubber mounting complete
31304	Indicator—Band indicator strip	34875	Switch—Pickup shorting switch (44)
31480	Lamp—Station setting indicator lamp	OPERATING MECHANISM	
11891	Lamp—Dial lamp—Mazda No. 44	Model U46	
32095	Motor—Dial drive motor, capacitor, friction roller, and damper for 50-60 cycle models	33580	Arm—Drive arm and bushing for flexible coupling (motor end)
32434	Motor—Electric tuning drive motor, 110 volt, 25 cycle	34009	Arm—Drive arm and gear for flexible coupling (T.T. end) (24)
18469	Plate—Bakelite mounting plate for electrolytic capacitor	33984	Bracket—Pickup locating lever mounting bracket (3)
31228	Plate—Contact plate for station setting contacts less contacts	33987	Cam—Cam and gear complete (42)
31969	Plate—Lock plate for push button switch comprising 10 contact locks in one strip	6808	Clutch—Friction clutch complete (5)
31227	Plate—Selector mounting plate—mounts on rear of variable tuning condenser	31116	Finger—Friction finger complete (7)
12493	Pfug—5 contact female plug for speaker cable	33581	Frame—Flexible coupling metal frame
31280	Pulley—Indicator pointer drive cord pulley	32879	Gear—Rack gear for front left hand record post (41)
31272	Pulley—Range switch knob shaft pulley for band indicator cord	32880	Gear—Rack gear for rear right hand record post (40)
31271	Pulley—Tuning knob shaft drive cord pulley	31121	Gear—Record post gear (10)
35025	Receptacle—Receptacle for power input cable	33982	Guide—Main lever spring guide (11)
14439	Resistor—100 ohms, 1/2 watt (R1, R5)	34999	Lever—Locating lever and pawl assembly (14)
14720	Resistor—1,000 ohms, 1/2 watt (R22, R21)	31137	Lever—Index lever pawl (13)
12265	Resistor—8,800 ohms, 1/2 watt (R10)	34000	Lever—Index lever complete (12)
14075	Resistor—8,200 ohms, 1/2 watt (R12)	33985	Lever—Main lever complete (15)
13045	Resistor—18,000 ohms, 1/2 watt (R6)	34007	Lever—Mercury switch actuating lever (29)
12738	Resistor—27,000 ohms, 1/2 watt (R29)		
12454	Resistor—33,000 ohms, 1/2 watt (R4)		
12266	Resistor—39,000 ohms, 1/2 watt (R17)		
14023	Resistor—82,000 ohms, 1/2 watt (R11)		
13698	Resistor—180,000 ohms, 1/2 watt (R7)		
12264	Resistor—220,000 ohms, 1/2 watt (R19, R15, R18, R20)		
14983	Resistor—330,000 ohms, 1/2 watt (R9)		
12486	Resistor—560,000 ohms, 1/2 watt (R27, R14)		

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31140	Lever—Pickup lift cable lever and spring assembly (16)		SPEAKER ASSEMBLIES (RL-76B-5)
31130	Lever—Record separator elevating lever complete with adjusting screws (18)	13867	Cap—Dust cap
34002	Lever—10-inch and 12-inch record discriminating lever (17)	14922	Coil—Field coil (1,300 ohms)
31132	Lever—Trip detaining lever (19)	14604	Coil—Neutralizing coil
34014	Lever—Trip lever and cam complete (20)	14602	Cone—Cone complete with voice coil
31131	Lever—Trip regulator lever (21)	34728	Diffuser—Speaker diffuser
34086	Link—Index lever link	31539	Plug—5-prong male speaker plug
34004	Link—Mercury switch disengaging lever	12568	Transformer—Output transformer
31133	Pawl—Trip pawl assembly (22)		MISCELLANEOUS ASSEMBLIES
31124	Pin—Record post drive pin (23)	35046	Bearing—Antenna loop bearing comprising pivot and spindle
31535	Pin—Turntable spindle pin	X-816	Board—Baffle board and grille cloth—Model K130
30870	Plug—2 contact male plug for switch leads	35033	Button—Push button
34008	Roller—Mercury switch lead roller	13103	Cap— lamp cap—Model U46
31147	Rubber—1 set of rubber strips for flexible coupling	X-815	Cloth—Grille cloth—Model U46 net
31118	Screw—No. 10-32 cone-pointed set screw	31456	Cover—Marker protective cover
32869	Screw—No. 10-32 set screw	31359	Cushion—Push button rubber cushion
34001	Screw—Record separator elevator lever ball point adjusting screw	35035	Dial—Glass dial scale
33983	Screw—Record separator shelf elevating lever screw	35045	Dowel—One foot of dowel material
14195	Screw—Set screw for flexible coupling	35034	Escutcheon—Dial scale escutcheon—less dial scale and push buttons
31117	Screw—Trip lever and cam adjusting screw	34583	Frame—Frame only for "C" band antenna loop—less wire and plug
33990	Separator—Record separator knife (25)	32983	Frame—Dial frame complete—less dial, pointer and carriage, pointer carriage guide rods
33988	Shaft—Record post gear shaft (34)	35038	Gasket—Rubber gasket for motorboard—Model U46
33989	Shelf—Record post shelf assembly (27)	35043	Hinge—Bottom door hinge—L.H.—Model U46
31141	Spindle—Turntable spindle	35044	Hinge—Bottom door hinge—R.H.—Model U46
3676	Spring—Cam pawl tension spring	34870	Hinge—R.H. top door hinge for U46
31136	Spring—Index lever pawl spring (30)	34871	Hinge—L.H. top door hinge for U46
32436	Spring—Locating lever and pawl spring (35)	4585	Hinge—Top door hinges—R.H. and L.H. (Model K-130)
32882	Spring—Main lever tension spring (43)	31305	Indicator—Station selector indicator and carriage
32868	Spring—Mercury switch cam spring (49)	35041	Knob—Magic Antenna or tone control knob
34005	Spring—Mercury switch disengaging lever spring (50)	35031	Knob—Range switch, tuning or volume control and power switch knob
3666	Spring—Pickup lift cable lever spring (31)	4206	Lamp—Compartment lamp—Model U46
14190	Spring—Pickup locating lever pawl spring (28)	35030	Loop—"A" and "B" band antenna loop
33994	Spring—Pickup locating lever spring (9)	35036	Marker—"Dial Tuning" marker
14191	Spring—Trip detaining lever spring (33)	33973	Marker—Push button call letter markers
32867	Spring—Trip lever cam tension spring	31470	Mounting—Motorboard suspension springs, lock-washers and screws—Model U46
34006	Support—Mercury switch support bracket and terminal board	35029	Mounting—One set speaker mounting hardware consisting of rubber grommets and eyelets
32866	Switch—Mercury switch (4)	30870	Plug—2-prong male plug for motor leads—Model U46
34003	Turntable—Record turntable	34990	Plug—2-prong male plug for "C" band antenna loop
31143	Washer—Turntable shim washers	32641	Plug—3-prong male plug for "A" and "B" band loop
	MOTOR ASSEMBLIES Model U46	35042	Pull—Door pull—Model U46
31617	Bracket—Governor and bearing bracket	35050	Pull—Door pull—Model K130
31626	Coil—Field coil and laminations for 110 volts, 25 cycles motor	31514	Receptacle—Needle receptacle—Model U46
31619	Coil—Field coil and laminations for 110 volts, 50/60 cycles motor	4669	Screw—No 8-32 square head set screw for holding flexible shaft to antenna loop
31624	Governor—Complete for 110 volts, 25 cycles motor	35184	Shade—Compartment lamp shade—Model U46
11703	Governor—Complete for 110 volts, 50/60 cycles motor	35037	Shaft—Flexible shaft to turn loop (74-inches) Model U46
31448	Motor—Motor 110 volts, 25 cycles	35049	Shaft—Flexible shaft to turn loop (134-inches) Model K130
31163	Motor—Motor 110 volts, 50-60 cycles net	34491	Shaft—Pointer carriage guide rods
30870	Plug—2 prong male plug for motor leads	35032	Shaft—Push button pivot shaft
31616	Screw—Rotor thrust bearing screw and nut	35040	Socket—Compartment lamp socket—Model U46
31620	Screw—Speed regulator screw and nut	14270	Spring—Retaining spring for knobs Stock 35031
30868	Socket—2 contact female socket for motor leads	35039	Switch—Compartment lamp switch—Model U46
31636	Spindle—Motor spindle and gear for 110 volts, 25 cycles motor		
31634	Spindle—Motor spindle and gear for 110 volts, 60 cycles and 110 volts, 50-60 cycles motors.		



Receiver Dial Scales and Corresponding 0-180° Calibration Scales

MODELS K-50 T-55 and T-56

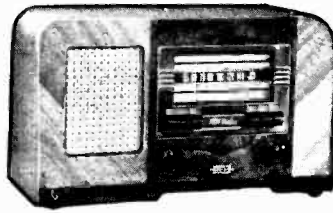
Chassis Nos. RC-418A RC-418 RC-418

2ND PROD. RC-497

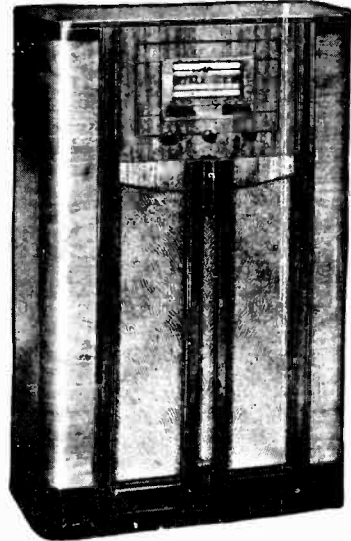
Five-Tube, Single-Band, A-C, Superheterodynes



Model T-55



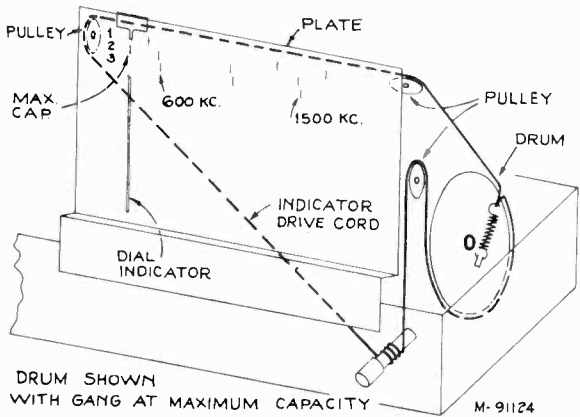
Model T-56



Model K-50

Electrical Specifications

FREQUENCY RANGE		
Standard Broadcast	.....	540-1,720 kc
Standard Broadcast	.....	RC-497 ONLY 540-1,560 kc
INTERMEDIATE FREQUENCY	.....	455 kc
TUBE COMPLEMENT		
(1) RCA-6SA7.....	1st Detector-Oscillator	
(2) RCA-6K7.....	I-F Amplifier	
(3) RCA-6SQ7.....	2nd Detector, A.V.C., and A-F Amplifier	
(4) RCA-6F6-G.....	Power Output	
(5) RCA-5Y3-G.....	Rectifier	
PILOT LAMP (1)..... Mazda No. 51, 6.3 volts, 0.20 amp.		
LOUDSPEAKER		
Type.....	5 inch electrodynamic	12 inch electrodynamic
V. C. impedance at 400 cycles.....	3.4 ohms	2.2 ohms
POWER OUTPUT RATING		
Undistorted.....	2 watts	
Maximum.....	4 watts	
POWER SUPPLY RATINGS		
Rating A.....	105-125 volts, 50-60 cycles, 75 watts	
Rating B.....	105-125 volts, 25-60 cycles, 75 watts	
Rating C.....	105-125, 200-250 volts, 50-60 cycles, 75 watts	



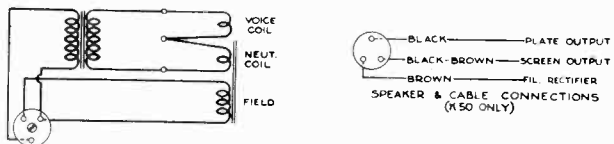
Dial-Indicator and Drive Mechanism
Refer to "Alignment Procedure" for explanation of the "calibration marks" shown in this drawing

Power line antenna: Model K50 is provided with a built in power line antenna. To use this antenna a jumper should be connected between terminals "A" and "L" on the antenna terminal strip. If an outside antenna is used it should be connected to "A", no connection being made to terminal "L".

Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the radio-phono switch to "radio" position and accurately tune in the station for which the first button is to be set.
3. Press in push-button rod No. 1 (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons
6. Insert the station marker tabs in the recesses above the push-buttons.



Alignment Procedure

K-50, T55, T56

Precautionary Lead Dress:

Before proceeding with alignment dress power cord leads away from 6SQ7 socket and close as possible to end of chassis; dress ground wire to volume control between power leads and audio grid; and dress lead from phono switch to volume control as far away from power leads as possible.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis schematics.

Output Meter Alignment.—If this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.— For all alignment operations, keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.— The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.— With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

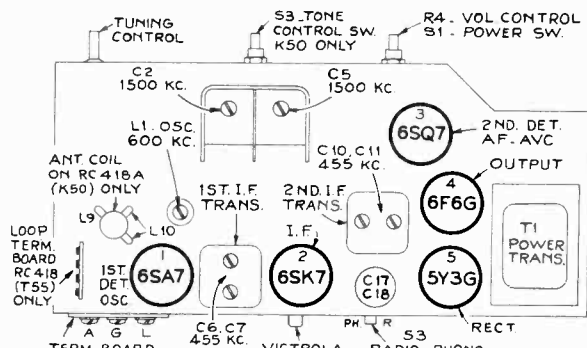
RC-418, RC-418A

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	Quiet Point between 1,720-1,500 kc	C10 and C11 (2nd I-F trans.)
2	Antenna terminal			C6 and C7 (1st I-F trans.)
3	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc calibration mark	C5 (osc.) C2 (ant.)
4		600 kc	600 kc calibration mark	L1 (osc.) (Rock in)
5	Repeat step 3			

RC-497

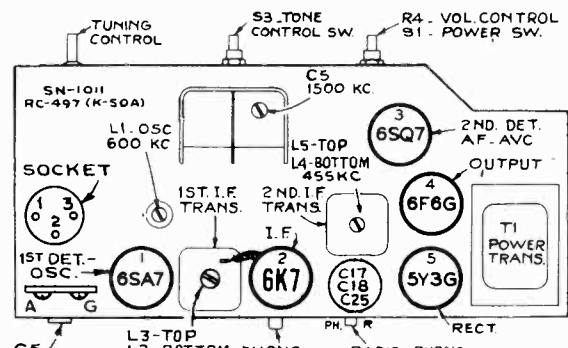
Steps	Connect test-osc. output to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid through 0.1 mfd. capacitor and ground	455 kc	Quiet point between 600-700 kc	L4 and L5 (2nd I-F trans.)
2	1st det. grid through 0.1 mfd. capacitor and ground			L2 and L3 (1st I-F trans.)
3	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	1,500 kc	1,500 kc	C2 antenna C5 oscillator
4		600 kc	Rock at 600 kc	L1 oscillator while rocking
5		1,500 kc	1,500 kc	C2 antenna C5 oscillator*

When making adjustments 3 to 5 inclusive the chassis must be in the cabinet, the loop connected, and all leads in their normal positions. When mounting chassis in cabinet if calibration marks on dial plate do not line up with dial scale mounted on cabinet move pointer to agree with dial scale on cabinet.



Tube and Trimmer Locations

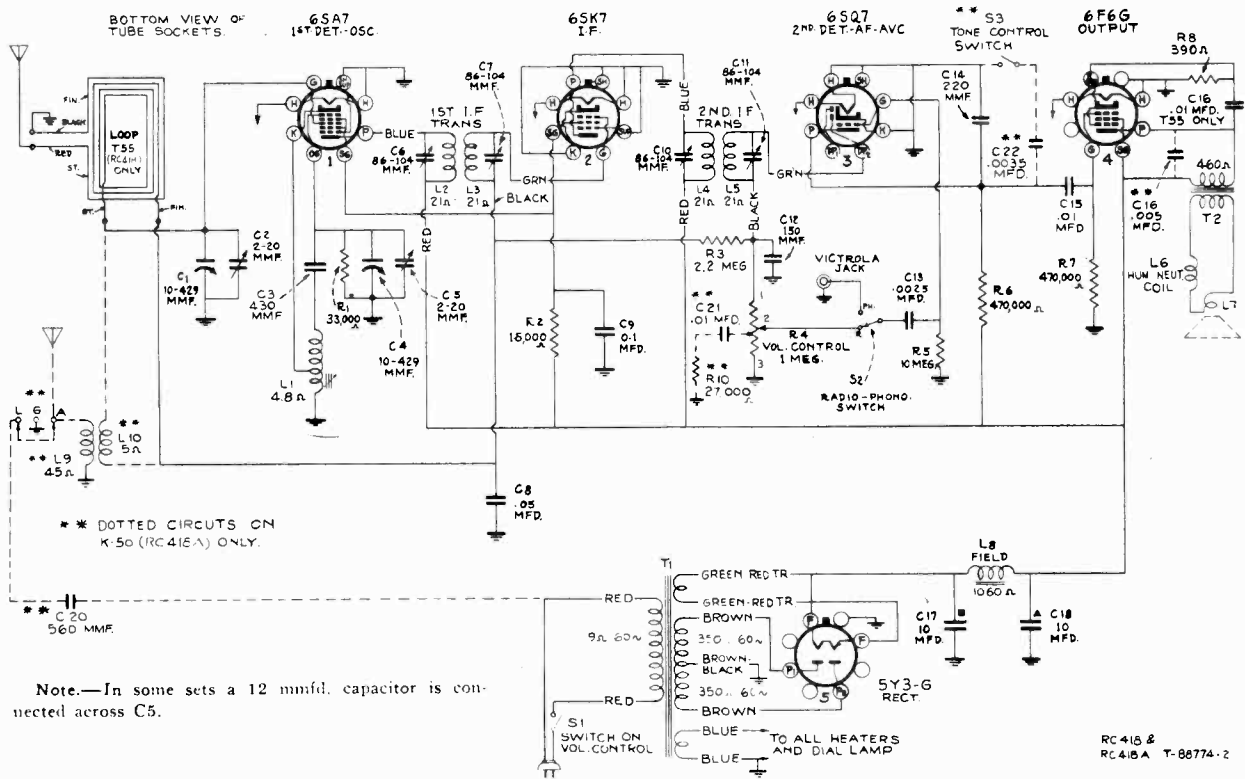
MODELS K-50 (RC-418A) T-55, T-56 (RC-418)



Tube and Trimmer Locations

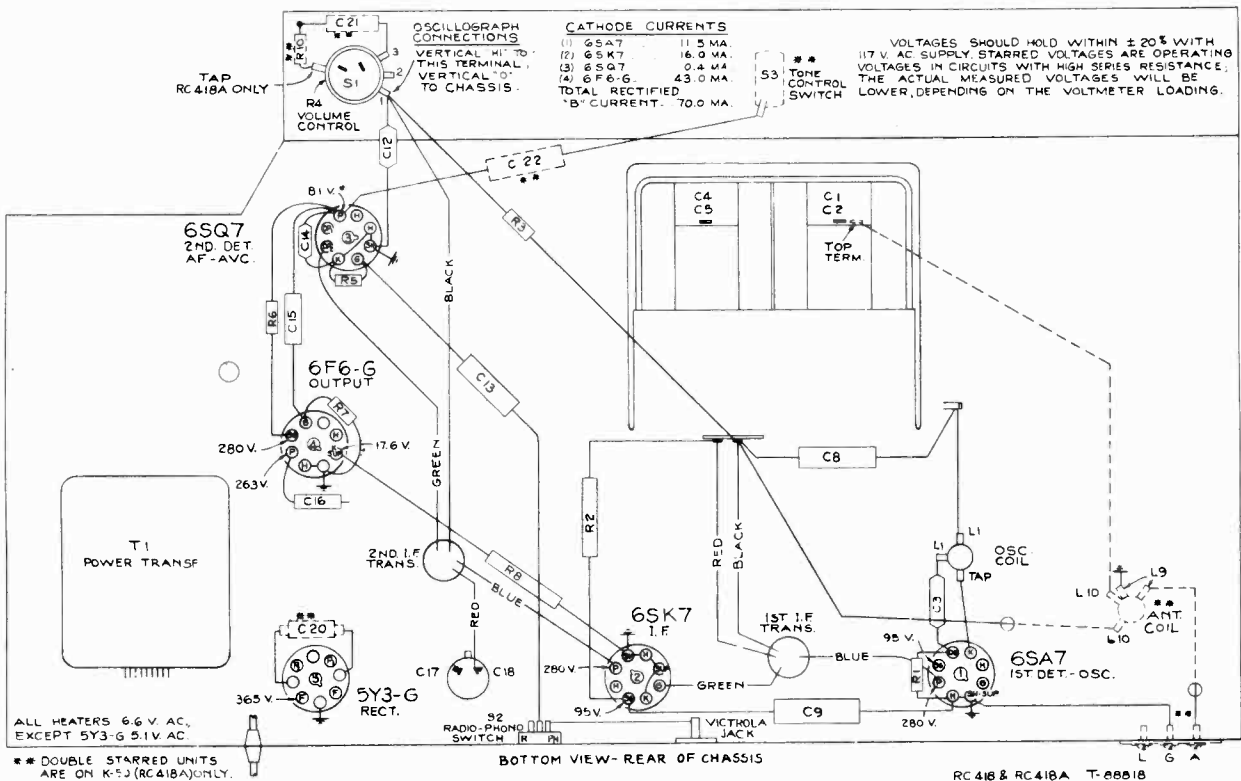
MODEL K-50 (RC-497)

K-50, T55, T56

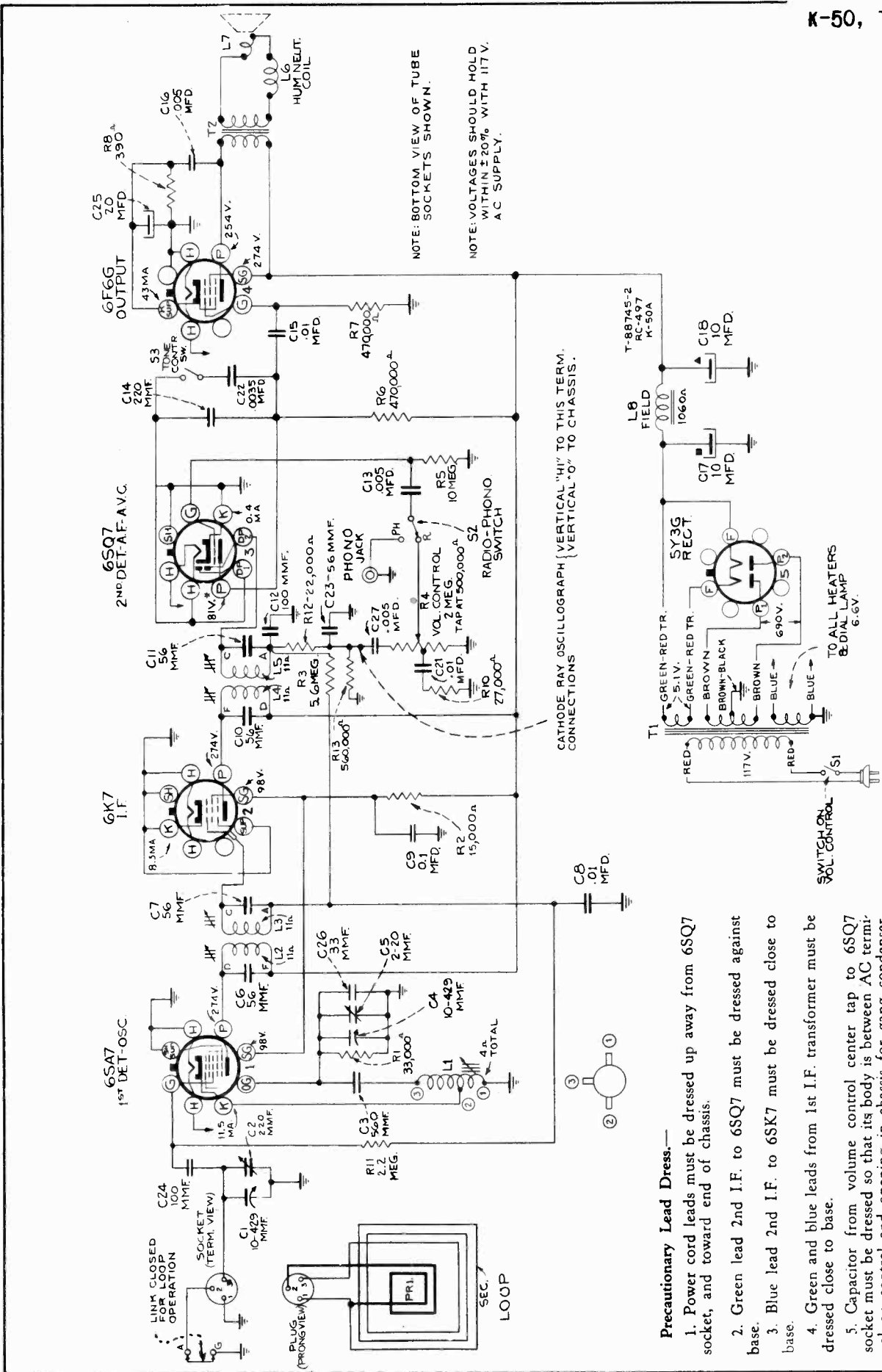


Schematic Circuit Diagram

MODELS K-50 (RC-418A) T-55, T-56 (RC-418)



R-F Wiring Diagram and Socket Voltages



NOTE: BOTTOM VIEW OF TUBE SOCKETS SHOWN.

NOTE: VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. A.C. SUPPLY.

CATHODE RAY OSCILLOGRAPH (VERTICAL "HI" TO THIS TERM. CONNECTIONS)

Precautionary Lead Dress.—

1. Power cord leads must be dressed up away from 6SQ7 socket, and toward end of chassis.
2. Green lead 2nd I.F. to 6SQ7 must be dressed against base.
3. Blue lead 2nd I.F. to 6SK7 must be dressed close to base.
4. Green and blue leads from 1st I.F. transformer must be dressed close to base.
5. Capacitor from volume control center tap to 6SQ7 socket must be dressed so that its body is between AC terminal on control and opening in chassis for gang condenser.
6. Red lead from "L" terminal on antenna board to 5Y3G socket must be dressed against base.
7. Green lead from gang to 6SA7 socket must be dressed toward side apron away from other parts.

Schematic Circuit Diagram MODEL K-50 (RC-497)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES		MODEL T-55-S (Silver)	
Model T-55 (RC-418) Model K-50 (RC-418A)		Technical Information and Service Data:	
33719	Belt—Tuning unit push arm belt	Model T-55-S is similar to Model T-55, except for the following parts used in T-55-S:	
33718	Board—Antenna-Ground terminal board	Stock No.	
12725	Capacitor—150 mmfd. (C12)	35180	Button—Push button
12694	Capacitor—220 mmfd. (C14)	35181	Escutcheon—Dial escutcheon
32599	Capacitor—430 mmfd. (C3)	35179	Knob—Tuning or volume control knob
12537	Capacitor—560 mmfd. (C20) Model K50	MODEL T-56, RC-418	
5107	Capacitor—0025 mfd. (C13)	Technical Information and Service Data:	
30303	Capacitor—0035 mfd. (C22) Model K50	Model T-56 has the same chassis as T-55.	
33584	Capacitor—005 mfd. (C16) Model K50	For Service Data and replacement parts, refer to Model T-55, and these additional parts used in T-56:	
4937	Capacitor—.01 mfd. (C15, C16, C21) (C16 in Model T55 only) (C21 in Model K50 only)	Stock No.	
32787	Capacitor—.05 mfd. (C8)	X-834	Baffle—Baffle board and grille cloth
4839	Capacitor—.01 mfd. (C9)	35393	Decalcomania—"Television"
33775	Coil—Antenna coil (L9, L10) Model K50	35392	Decalcomania—"RCA Victor"
33724	Coil—Oscillator coil (L1)	CHASSIS ASSEMBLIES	
32342	Condenser—Electrolytic, 2 sections 10 mfd. each (C17, C18)	(RC-497)	
33630	Control—Tone control (S3) Model K50	33719	Belt—Adjusting belt for push button arms
32634	Cord—Drive cord	34724	Board—Antenna-Ground board
33633	Indicator—Dial scale pointer	33817	Capacitor—Mica trimmer comprising 1 section of 2-20 mmfd. (C2, C5)
11765	Lamp—Dial lamp	12948	Capacitor—33 mmfd. (C26)
33431	Link—Antenna terminal board link	30949	Capacitor—56 mmfd. (C6, C7, C10, C11)
33721	Loop—Antenna loop Model T55	12723	Capacitor—56 mmfd. (C23)
33727	Plate—Dial plate assembly	12720	Capacitor—100 mmfd. (C12, C24)
31388	Resistor—390 ohms, 1 watt (R8)	12694	Capacitor—220 mmfd. (C14)
33489	Resistor—15,000 ohms, 2½ watts (R2)	12537	Capacitor—560 mmfd. (C3)
12738	Resistor—27,000 ohms, ½ watt (R10) Model K50	30303	Capacitor—.0035 mfd. (C22)
12454	Resistor—33,000 ohms, ½ watt (R1)	33584	Capacitor—.005 mfd. (C13, C16, C27)
12285	Resistor—470,000 ohms, ½ watt (R6, R7)	4937	Capacitor—.01 mfd. (C8, C15, C21)
12679	Resistor—2.2 meg., ½ watt (R3)	4839	Capacitor—.01 mfd. (C9)
13601	Resistor—10 meg., ½ watt (R5)	32240	Capacitor—Electrolytic comprising 2 sections of 10 mfd. and 1 section of 20 mfd.
33725	Shaft—Tuning knob shaft	33724	Coil—Oscillator coil
31364	Socket—Dial lamp socket	33635	Condenser—6 button tuning condenser
14278	Socket—Phono-input socket	33630	Control—Tone control
5119	Socket—3 contact female for speaker cable—Model K50	34796	Control—Volume control and power switch
31319	Socket—Tube socket	32634	Cord—Drive cord
33720	Spring—Push arm return spring	33633	Indicator—Station selector indicator
33634	Switch—Radio-Phono switch (S2)	11765	Lamp—Dial lamp
33722	Transformer—First i-f transformer (L2, L3, C6, C7)	34795	Plate—Dial plate complete less tuner and dial
33723	Transformer—Second i-f transformer (L4, L5, C10, C11)	5119	Plug—3 contact female plug for speaker cable
31575	Transformer—Power transformer 110-220 volts, 60 cycle (T1)	31388	Resistor—390 ohms, 1 watt (R8)
33619	Transformer—Power transformer 105-120 volts, 25-60 cycle (T1)	33489	Resistor—15,000 ohms, 2½ watt (R2)
33112	Transformer—Power transformer 105-120 volts, 50-60 cycle (T1)	13998	Resistor—22,000 ohms, ½ watt (R12)
33631	Volume control and power switch (R4, S1) Model T55	12738	Resistor—27,000 ohms, ½ watt (R10)
33776	Volume control and power switch (R4, S1) Model K50	12454	Resistor—33,000 ohms, ½ watt (R1)
33726	Washer—"C" washer for tuning shaft	12285	Resistor—470,000 ohms, ½ watt (R6, R7)
SPEAKER ASSEMBLIES		12486	Resistor—560,000 ohms, ½ watt (R13)
(Model T55) (RL-78-6)		12679	Resistor—2.2 megohms, ½ watt (R11)
32907	Cap—Cone center dust cap	11668	Resistor—5.6 megohms, ½ watt (R3)
32906	Coil—Hum neutralizing coil (L6)	13601	Resistor—10 megohms, ½ watt (R5)
33601	Coil—Speaker field coil (L8)	33735	Screw—Push button adjusting and locking screw
32904	Cone—Speaker cone and voice coil (L7)	33725	Shaft—Drive shaft
32905	Transformer—Output transformer (T2)	34411	Shaft—Drive shaft
SPEAKER ASSEMBLIES		34723	Socket—Antenna loop socket
(Model K50) (RL-70J-2)		31364	Socket—Dial lamp socket
31825	Cap—Cone center dust cap	14278	Socket—Phonograph input socket and jack
11469	Coil—Hum neutralizing coil (L6)	31319	Socket—Tube socket
33116	Coil—Speaker field coil (L8)	31418	Spring—Drive cord spring
31275	Cone—Speaker cone and voice coil (L7)	33720	Spring—Push button arm return spring
5118	Plug—3 contact male for speaker	33634	Switch—"Radio-Phono" switch
33779	Transformer—Output transformer (T2)	31575	Transformer—Power transformer (100-120 and 200-240) volt 50-60 cycle
MISCELLANEOUS ASSEMBLIES		33112	Transformer—Power transformer 105-125 volt, 50-60 cycle
33637	Bezel—Dial escutcheon	33618	Transformer—Power transformer 110 volt, 25-60 cycle
33731	Button—Push button	32263	Transformer—1st I.F. transformer
33730	Clamp—Dial mounting clamp	34719	Transformer—2nd I.F. transformer
31456	Covers—8-protective covers for push button markers	33726	Washer—"C" washer for drive shaft
33729	Dial—Glass dial scale	MISCELLANEOUS ASSEMBLIES	
30863	Knob—Tuning or volume control knob	33731	Button—Push button
33973	Marker—Station selector marker	31456	Cover—Protective cover for push button markers
30900	Spring—Knob or push button retaining spring	34801	Dial—Glass dial scale
Additional Replacement Parts:		33637	Escutcheon—Dial and push button escutcheon
Stock No.		30863	Knob—Tuning, tone control, or volume control knob
30585	Spring—Drive cord spring	34800	Loop—Antenna loop
38735	Screw—Push-button lock screw	33973	Marker—Station markers
		32841	Plug—3 prong male plug for antenna loop
		30900	Spring—Retaining spring for knob Stock 30863 and Button Stock 33731

MODELS O-50 and R-60 Three-Tube Electric Phonographs

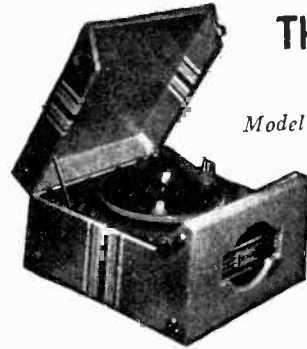
Increasing Victrola Gain:

The over-all amplification of these models, when used as Victrolas, is limited by the voltage divider circuit comprised of a resistor in series with, and a capacitor across the pickup circuit. Values of these components are established on the basis of:

- (a) Average available voltage output from pickup under average climatic conditions.
- (b) Degree of "rumble" likely with given amplification.
- (c) Danger of "microphonic howl" with high amplification.
- (d) Possible consumer reaction to overload occurring at a low volume control setting with heavily cut records.

If these points are kept in mind, additional gain may be obtained, wherever desired, by decreasing the value of the pickup shunt capacitor; C-1 in Model O-50

The substitute capacitor should be approximately $\frac{1}{4}$ to $\frac{1}{3}$ the value of the original.



Model O-50



RCA Victrola R-60.

Electrical and Mechanical Specifications

TUBE COMPLEMENT

- (1) RCA—6SF5..... A-F Amplifier
- (2) RCA—6F6-G..... Output
- (3) RCA—5Y3-G..... Rectifier

POWER SUPPLY RATINGS

- A-6..... 105-125 volts, 60 cycles, 90 watts
- A-5..... 105-125 volts, 50 cycles, 90 watts

LOUDSPEAKER O-50

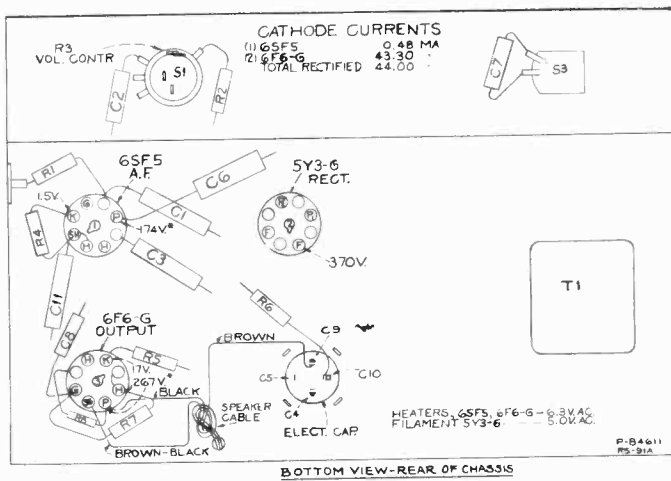
- Type..... 8 inch electrodynamic
- V. C. Impedance at 400 cycles..... 3.2 ohms

PICKUP

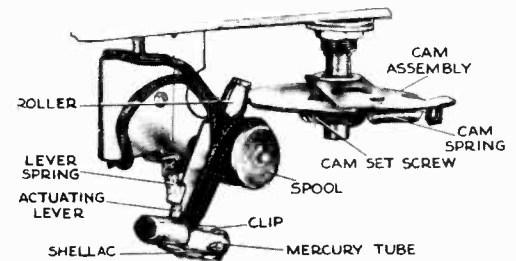
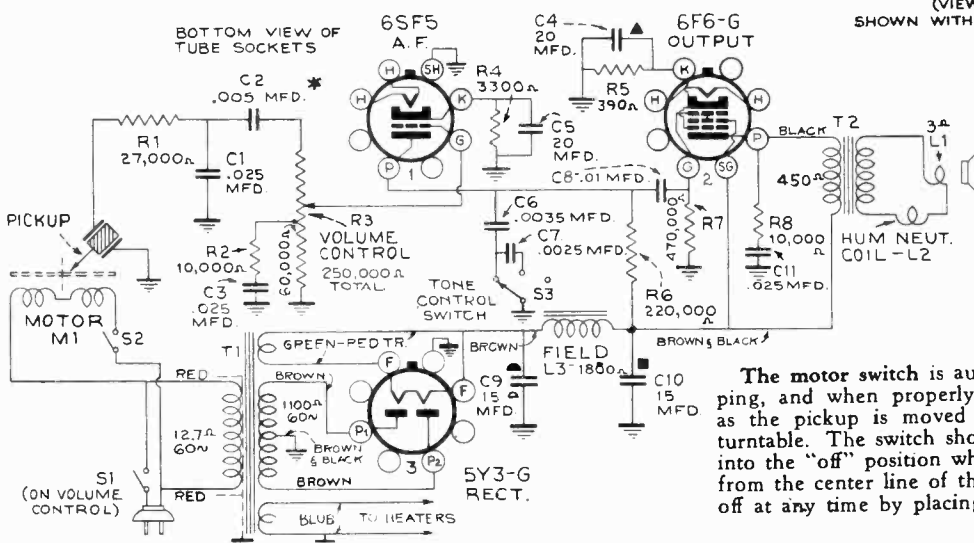
- Type..... Crystal
- Impedance..... 100,000 ohms at 400 cycles
- Average Output.... 1 1/2 volts at 1,000 cycles with 250,000 ohms load

LOUDSPEAKER (RL-79-2) R60

- Type..... 6-inch electrodynamic
- V. C. Impedance at 400 cycles..... 3.4 ohms



Parts Layout and Socket Voltages



NOTE: Values with star () are operating voltages in circuits with high series-resistance, and when measured will read lower depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, volume control at minimum. Values should hold within approximately ±20% with 117-volt a.c. supply.

*NOTE: MODEL O-50
C2 IS 1800 MMFD

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1 3/4 inches from the center line of the spindle. The motor may be shut off at any time by placing the pickup on the pickup rest.

The phonograph motor is a self-starting, constant-speed induction type. It should be lubricated every six months by applying a few drops of light machine oil to the top and bottom motor spindle bearings, to the turntable spindle, and to the turntable drive wheel bearing.

CAUTION: Keep oil away from drive bushing on top of motor spindle and from rubber driving tire on turntable drive wheel.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL O-50		MODEL R-60	
AMPLIFIER ASSEMBLY		AMPLIFIER ASSEMBLIES	
13580	Capacitor—1800 mmfd. (C2)	5107	Capacitor—.0025 mfd. (C7)
5107	Capacitor—.0025 mfd. (C7)	30303	Capacitor—.0035 mfd. (C6)
30303	Capacitor—.0035 mfd. (C6)	33584	Capacitor—.005 mfd. (C2)
4937	Capacitor—.01 mfd. (C8)	4858	Capacitor—.01 mfd. (C8)
4870	Capacitor—.025 mfd. (C1, C3, C11)	4870	Capacitor—.025 mfd. (C1, C3, C11)
33214	Capacitor—Electrolytic, 2 sections 15 mfd. and 2 sections 20 mfd. (C4, C5, C9, C10)	33214	Capacitor—Electrolytic, comprising 2 sections 15 mfd. and 2 sections 20 mfd.
33212	Control—Tone control switch (S3)	33212	Control—Tone control
30868	Plug—2-contact female motor cable plug	33215	Control—Volume control and power switch
12493	Plug—5-contact female speaker cable plug	30868	Plug—2 contact female plug for motor leads
31388	Resistor—390 ohms, 1 watt (R5)	5119	Plug—3 contact female plug for speaker
12312	Resistor—3300 ohms, 1/2 watt (R4)	31388	Resistor—390 ohms, 1 watt (R5)
14559	Resistor—10,000 ohms, 1/2 watt (R2, R8)	12312	Resistor—3,300 ohms, 1/2 watt (R4)
12738	Resistor—27,000 ohms, 1/2 watt (R1)	14559	Resistor—10,000 ohms, 1/2 watt (R2, R8)
12264	Resistor—220,000 ohms, 1/2 watt (R6)	12738	Resistor—27,000 ohms, 1/2 watt (R1)
12285	Resistor—470,000 ohms, 1/2 watt (R7)	12264	Resistor—220,000 ohms, 1/2 watt (R6)
14278	Socket—Pickup input socket	12285	Resistor—470,000 ohms, 1/2 watt (R7)
32537	Socket—Tube socket	32537	Socket—Tube socket
14796	Transformer—Power transformer 105-125 volts, 50-60 cycle (T1)	14796	Transformer—Power transformer, 110 volts, 60 cycles
33215	Volume control and power switch (R3, S1)		
PICKUP AND ARM ASSEMBLIES		PICKUP AND ARM ASSEMBLIES	
33216	Arm—Pickup arm—less crystal, needle screw, and cable	33591	Arm—Pickup arm shell
33218	Base—Pickup arm mounting base and pivot shaft	34299	Arm—Pivot arm and shaft
33217	Crystal—Pickup crystal cartridge and needle screw	34758	Bushing—Rubber and metal bushings for pickup pivot arm
33114	Damper—Viscoloid damper for pickup armature	33122	Crystal—Pickup unit crystal cartridge
31160	Screw—Pickup needle screw	33123	Damper—Viscoloid damper
		33529	Screw—Needle screw
MOTOR ASSEMBLIES		MOTOR ASSEMBLIES	
32650	Field—Motor field coils and laminations, 110 volts, 50 cycle (84569-8)	35248	Arm—Turntable drive wheel arm and stud
32336	Field—Motor field coils and laminations, 110 volts, 60 cycle (84569-7)	34276	Coil—Field coil complete
33220	Motor—105-125 volts, 50 cycles—less mounting plate (M1)	34280	Clip—Spring clip for turntable shaft and drive wheel
33219	Motor—105-125 volts, 60 cycles—less mounting plate (M1)	35247	Mounting—1 set of motor plate mountings
33361	Shaft—Turntable spindle shaft and gear—50 cycle	35246	Plate—Motor plate with spindle bearing
33360	Shaft—Turntable spindle shaft and gear—60 cycle	34277	Pulley—Motor pulley and set screw
		34279	Shaft—Turntable shaft and spring clip
		34281	Spring—Drive wheel arm spring
		34278	Wheel—Turntable drive wheel and spring clip
AUTOMATIC SWITCH ASSEMBLIES		SPEAKER ASSEMBLIES	
33221	Cam—Cam assembly comprising main and auxiliary cams, hub, and set screws	32907	Cap—Speaker cone center dust cap
32864	Lever—Actuating lever with roller and mercury tube clip	32903	Coil—Speaker field coil (L3)
14195	Screw—No. 10-32 x 5/16 cone pointed set screw for cam hub	32906	Coil—Speaker hum neutralizing coil (L2)
32869	Screw—No. 10-32 x 5/16 set screw for cam hub	35441	Cone—Speaker cone and voice coil
32868	Spring—Actuating lever tension spring	5118	Plug—3-prong male for speaker
32867	Spring—Cam tension spring	32905	Transformer—Output transformer (T2)
32865	Support—Switch support and terminal board		
32866	Switch—Mercury tube with leads (S2)	AUTOMATIC SWITCH ASSEMBLIES	
31608	Washer—"C" washer for actuating lever shaft	32863	Cam—Cam assembly comprising main and auxiliary cam, hub and set screws
SPEAKER ASSEMBLIES		32864	Lever—Actuating lever with roller and mercury switch clip
33406	Cone—Speaker cone and voice coil (L1)	31118	Screw—No. 10-32 x 5/16 fillister cone pointed set screw
5118	Plug—3-contact male for speaker	32868	Spring—Actuating lever tension spring
33222	Speaker complete	32867	Spring—Cam tension spring
33407	Transformer—Output transformer (T2)	32865	Support—Switch support and terminal board
		32866	Switch—Mercury tube with leads (S2)
		31608	Washer—"C" washer for holding actuating lever
MISCELLANEOUS ASSEMBLIES		MISCELLANEOUS ASSEMBLIES	
11865	Cup—Needle cup	4288	Cap—Pickup lead cap
31464	Damper—Damper plate and rubber sleeve for spindle	4286	Ferrule—Pickup lead ferrule and bushing
11771	Foot—Cabinet foot	31355	Knob—Tone control or volume control knob
32633	Handle—Carrying handle	34264	Mounting—Motor mounting hardware
13085	Hinge—Cabinet lid hinge	30870	Plug—2 contact male plug for motor leads
31355	Knob—Volume control or tone control knob	32610	Rest—Pickup rest
33223	Mounting—Complete set motor mounting screws, washers, and spacers	14270	Spring—Retaining spring for knob Stock No. 31355
31054	Mounting—Pickup arm mounting cushion, washer, and nut	34265	Turntable—Complete
30870	Plug—2-contact male for motor leads		
31048	Plug—2-contact male plug for phono. cable		
33364	Support—Cabinet lid support (LH)		
33673	Support—Pickup arm support		
33404	Turntable		

MODELS QU51C, QU51M and QU55

Chassis No. RC-568

RC-568A

Seven-Tube and Magic Eye, Five-Band, Radio-Phonographs



← QU51C
QU51M

QU55 →



Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540-1,720 kc (556-174 m)
Medium Wave ("B" Band).....	3.0-9.5 mc (100-31.6 m)
31 Meter Spread Band.....	9.5-11.7 mc (31.6-25.6 m)
25 Meter Spread Band.....	11.7-15.1 mc (25.6-19.9 m)
19-13 Meter Spread Band.....	15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6U5..... Tuning Indicator
- (5) RCA-6SQ7..... 2nd Det. A-F Amplifier AVC
- (6) RCA-6AD7G..... Phase Inverter and Power Output
- (7) RCA-6F6G..... Power Output
- (8) RCA-5U4G*(in QU51C and M)..... Rectifier
- (8) RCA-5T4 (in QU55)..... Rectifier

PILOT LAMPS..... 2—Type 44, 6.3 volts, 0.25 amps.

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles.....	115 watts*
105-125 volts, 25-60 cycles.....	115 watts*
100-130, 140-160, 200-250 volts, 50-60 cycles.....	115 watts*

* Including phono motor.

POWER OUTPUT

	QU51	QU55
Undistorted.....	9.5 watts	12 watts
Maximum.....	11 watts	15 watts

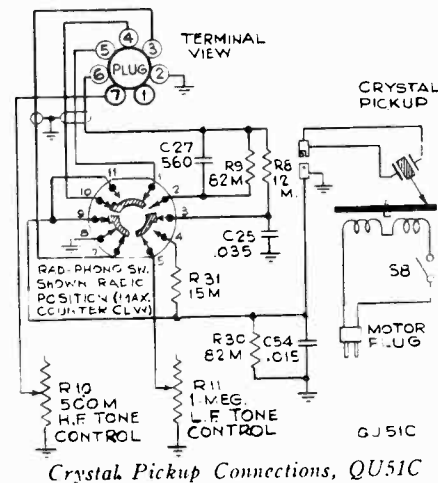
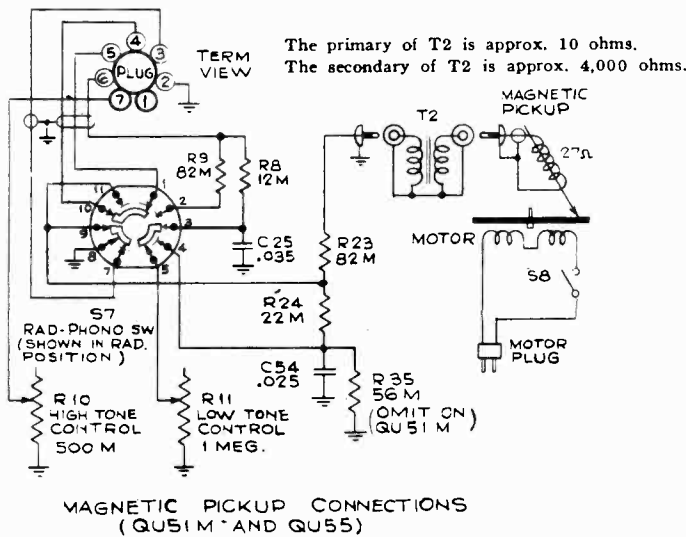
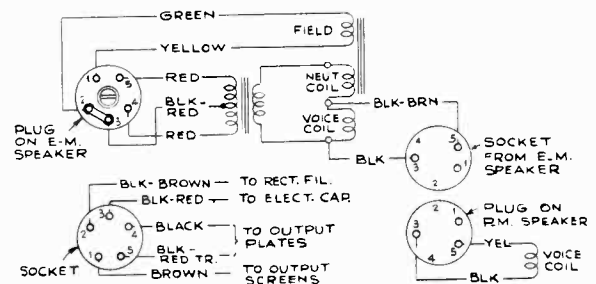
LOUDSPEAKERS

	RL70N1	RL70N3	RL71A4
Type.....	12-in EM	12-in. EM	12-in. PM
Used in.....	QU51	QU55	QU51 & QU55

V.C. Impedance at 400 cycles 2.2 ohms at 400 cycles.

PHONOGRAPHS

- Type RP145E..... Used in QU51C
- Type RP152R..... Used in QU51M and QU55
- Record Capacity..... Eight 10-inch or seven 12-inch
- Turntable Speed..... 78 r.p.m.
- Pickup Type..... Crystal in RP145E, magnetic in RP152R
- Crystal Pickup Impedance..... 100,000 ohms at 1,000 cycles
- Magnetic Pickup Impedance..... 96 ohms at 1,000 cycles
- Motor..... Self starting, constant speed, induction type



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

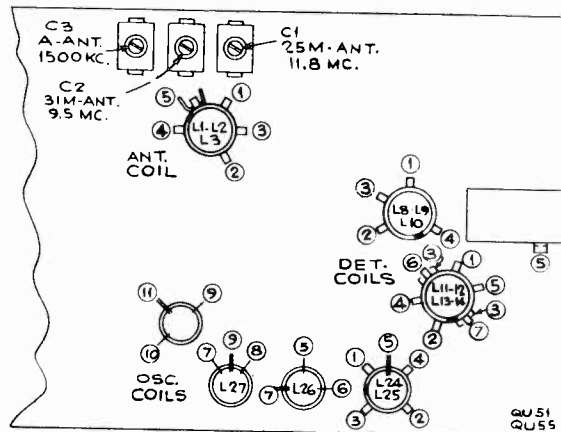
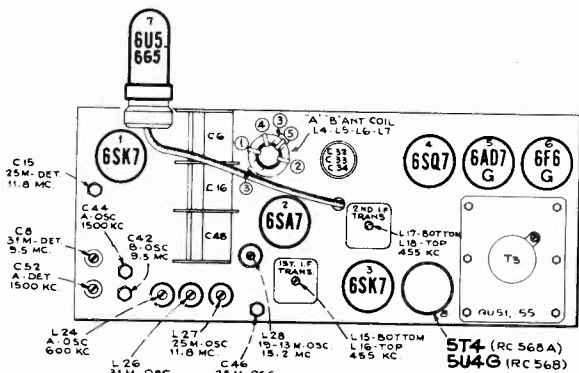
As the first step in r-f alignment, check the position of the drum. With the gang condenser plates fully meshed the drum of the RC568 or RC568A should be in the position shown in the dial drive cord diagram for that chassis. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



COIL AND TRIMMER LOCATIONS
(BOTTOM VIEW)

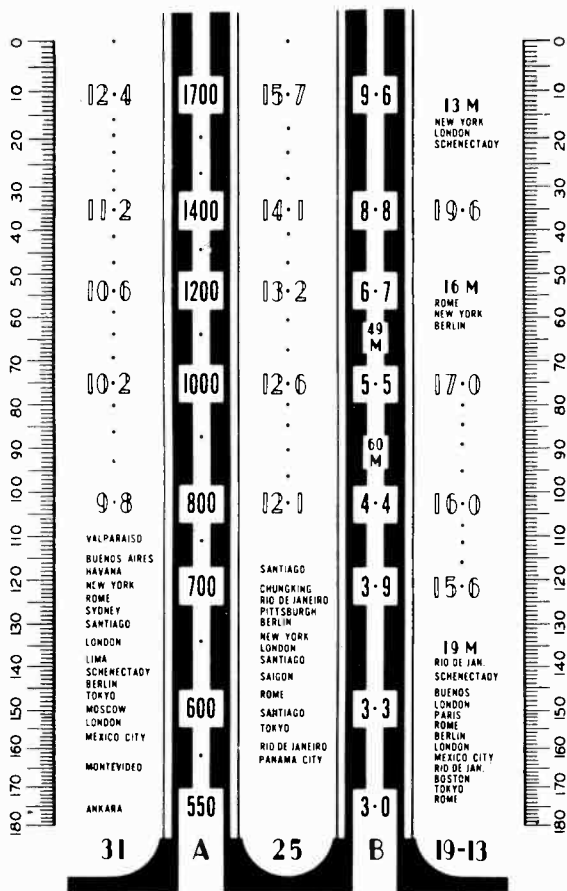
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range Switch	Turn Radio Dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" band	Quiet point 600 kc end of dial	L18-L17 2nd I-F transformer
2	6SA7 1st det. grid in series with .01 mfd.				L16-L15 1st I-F transformer
3	Antenna terminal in series with 300 ohms	11.8 mc	25 meter band	11.8 mc (138.5°)	L27 (osc.)** C1 (ant.) C15 (det.)***
4		15.2 mc			15.2 mc (18.5°)	C46 (osc.)*†
5	Repeat steps 3 and 4 until aligned.				
6	Antenna terminal in series with 300 ohms	15.2 mc	19-13 meter band	15.2 mc (156°)	L28 (osc.)**
7		9.5 mc	31 meter band	9.5 mc (156°)	L26 (osc.)** C2 (ant.) C8 (det.)***
8		9.5 mc	"B" band	9.5 mc (11.5°)	C42 (osc.)*
9	Antenna terminal in series with 200 mmfd.	1,500 kc	"A" band	1,500 kc (27°)	C44 (osc.) C3 (ant.) C52 (det.)
10		600 kc		600 kc (149.5°)	L24 (osc.) Rock in
11	Repeat steps 9 and 10.				

† Check image to determine that C15 has been adjusted to correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

* Use minimum capacity peak if two can be obtained.
** Peak at minimum plunger position if two peaks can be obtained.
*** Use maximum capacity peak if two peaks can be obtained.

NOTE: Oscillator tracks above signals on all bands.

QU-51C, -M, QU55



Precautionary Lead Dress:

- (1) Dress all spread band oscillator coil leads to clear each other by 1/4-inch.
- (2) Dress toothpick condensers and switch leads away from and edge on to shield plates.
- (3) Dress 2nd I.F. transformer lead to diode close to chassis and twist ground lead about it.
- (4) Dress high side and tap condensers on vol. control close to chassis.
- (5) Dress leads to converter socket so that they do not impair flexible mounting.
- (6) Dress oscillator grid condenser and R.F. grid condenser well apart.
- (7) Dress AVC resistor to R.F. converter grid close to lug on socket.
- (8) Dress twisted AC wiring to power switch away from volume control wiring.
- (9) Dress excess power trans. leads between trans. bell and back apron.
- (10) Dress C23 away from front apron.
- (11) Brown lead on 19-25M ant. coil must be dressed over top of coil.
- (12) Dress C24 cap. with short lead to terminal board on rear apron. Power cord leads must be kept away from this section.

Phasing Loudspeakers

The two loudspeakers used in Models QU51 and QU55 have their voice coils connected in parallel and must be phased so that both cones will move in the same direction at the same time. If the phasing is incorrect a decided reduction in bass response will be produced. A very simple test for phasing can be made as follows:

1. Turn the instrument on and reduce the volume control setting until no signal is heard.
2. Momentarily connect the leads from a battery (4 to 6 volts) across the voice coils and note whether or not both cones move in the same direction. If they do the phasing is correct.
3. If the cones move in opposite directions the phasing is incorrect and the two voice coil leads going to the RL71A4 (P.M.) speaker should be reversed.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

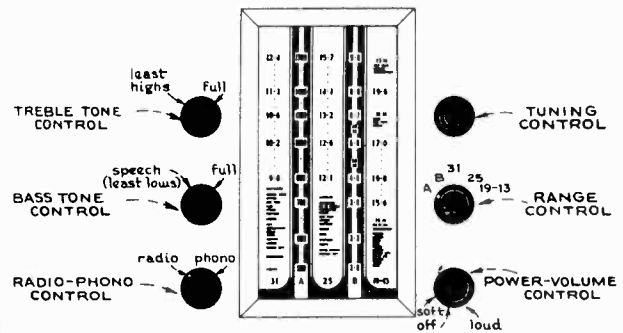
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
QU51 RC568			
37053	Board—"Antenna-Ground" board	35624	Coil—Oscillator coil—19-13 meter band
37994	Bracket—Pulley bracket assembly (long bracket)	35625	Coil—Oscillator coil—25 meter band
37995	Bracket—Pulley bracket assembly (short bracket)	35626	Coil—Oscillator coil—31 meter band
35642	Calibrator—Drive drum calibrator	37057	Coil—R.F. coil—"A," "B" and 31 meter bands
32187	Capacitor—Electrolytic, 8 mfd., 150 volts	37058	Coil—R.F. coil—25 meter and 19-13 meter bands
34186	Capacitor—Electrolytic, comprising one section of 20 mfd., 450 volts, one section of 15 mfd., 450 volts, and one section of 20 mfd., 25 volts	37151	Condenser—3 gang variable tuning condenser
12714	Capacitor—Air trimmer—medium 2-12 mmfd.	37992	Control—Volume control and power switch
37996	Capacitor—Mica trimmer, comprising 2 sections of 2.5-10 mmfd. each	32634	Cord—Condenser drive cord (approx. 60-in. over-all length)
37059	Capacitor—Mica trimmer, comprising 3 sections of 2.5-10 mmfd. each	32634	Cord—Pointer drive cord (approx. 60-in. over-all length)
33097	Capacitor—4.7 mmfd., ceramic	31259	Core—Adjustable core and stud assembly for 25 meter, 31 meter, and 19-13 meter bands oscillator coils
35646	Capacitor—8 mmfd., silvered mica	35788	Core—Adjustable core and stud for ABC band oscillator coil
13200	Capacitor—10 mmfd.	35768	Drum—Drive drum—less calibrator
12722	Capacitor—18 mmfd.	38842	Flywheel—Flywheel and tuning knob shaft
35644	Capacitor—47 mmfd., ceramic	30868	Plug—2 contact female plug for motor cable
13141	Capacitor—47 mmfd., moulded	12493	Plug—5 contact female plug for speaker cable
12723	Capacitor—56 mmfd.	35641	Pulley—Drive cord pulley
36072	Capacitor—66 mmfd.	34189	Resistor—Voltage divider comprising one section of 5000 ohms, 6 watt, one section of 5000 ohms, 2 1/2 watt, and one section of 195 ohms, 5 watt
35645	Capacitor—88 mmfd., ceramic	30492	Resistor—22,000 ohms, 1/2 watt
30904	Capacitor—100 mmfd.	12454	Resistor—33,000 ohms, 1/2 watt
12724	Capacitor—120 mmfd., moulded	30650	Resistor—56,000 ohms, 1/2 watt
31813	Capacitor—120 mmfd., unmoulded	14560	Resistor—100,000 ohms, 1/2 watt
12694	Capacitor—220 mmfd., moulded	14583	Resistor—220,000 ohms, 1/2 watt
36616	Capacitor—220 mmfd., unmoulded	30651	Resistor—270,000 ohms, 1/2 watt
12537	Capacitor—560 mmfd.	14983	Resistor—330,000 ohms, 1/2 watt
35643	Capacitor—3000 mmfd.	30648	Resistor—470,000 ohms, 1/2 watt
33584	Capacitor—.005 mfd.	30652	Resistor—1 meg., 1/10 watt
5148	Capacitor—.007 mfd.	13730	Resistor—1 meg., 1/2 watt
4937	Capacitor—.01 mfd.	30649	Resistor—2.2 meg., 1/2 watt
32787	Capacitor—.05 mfd.	30992	Resistor—10 meg., 1/2 watt
4839	Capacitor—.1 mfd.	14350	Screw—No. 8-32 square head set screw for drum
12484	Capacitor—.25 mfd.	36107	Socket—7 contact socket located on rear apron of chassis
37055	Coil—Antenna coil—"A," "B" and 31 meter bands	31364	Socket—Dial lamp socket
37056	Coil—Antenna coil—25 meter and 19-13 meter bands	31251	Socket—Tube socket
37093	Coil—Oscillator coil—"A," "B," "C" band	34864	Socket—Tuning tube socket

Replacement Parts (Continued)

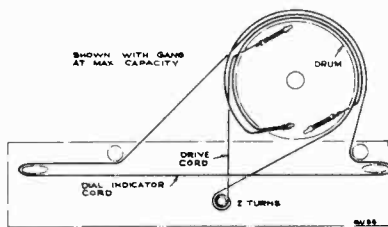
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31418	Spring—Drive cord spring	36593	Indicator—Station selector indicator
31261	Spring—Retaining spring for oscillator coils core and stud assemblies	13103	Jewel—Pilot lamp jewel
37993	Switch—Range switch	35814	Knob—Range switch or radio-phonograph switch knob
36636	Transformer—First I.F. transformer	35775	Knob—Tuning, volume control, treble or bass control knob
36615	Transformer—Second I.F. transformer	11891	Lamp—Dial lamp
34183	Transformer—Power transformer—110-125-150-210-240 volts, 50-60 cycle	33774	Mounting—Complete set of mounting hardware to mount one speaker
2917	Washer—"C" washer for tuning shaft	31470	Mounting—Motorboard spring mounting
	CHASSIS ASSEMBLIES QU55, RC568A (Same as QU51, RC568 except the following)	37998	Plate—Dial plate complete—less dial, pointer, and tube clip
	DELETE	36395	Plug—7-prong male plug for radio-phonograph cable
37053	Board—"Antenna-Ground" board	31048	Plug—Phono input cable plug for QU51M
37994	Bracket—Pulley bracket assembly (long bracket)	38302	Pull—Door pull and screw
37993	Switch—Range switch	36246	Receptacle—Packaged needle holder
	ADD	30128	Resistor—12,000 ohms, 1/4 watt
31373	Pulley—Drive cord pulley (1/4-in. dia.)	30492	Resistor—22,000 ohms, 1/4 watt
38307	Pulley—Pulley (1/4-in. dia.) and bracket assembly	14023	Resistor—82,000 ohms, 1/4 watt
38308	Switch—Range switch	37800	Shade—Lamp shade
	SPEAKER ASSEMBLIES (RL70N1)	33083	Spring—Cabinet lid support spring
13867	Cap—Dust cap	30900	Spring—Retaining spring for knobs
12079	Coil—Field coil, 1060 ohms	35831	Support—Cabinet lid support
11469	Coil—Neutralizing coil	38301	Switch—radio-phonograph switch
36145	Cone—Cone complete with voice coil	14609	Transformer—Input transformer for QU51M
31539	Plug—5 prong male plug		MISCELLANEOUS ASSEMBLIES QU55 (Same as QU51 except the following)
36146	Suspension—Metal cone suspension		DELETE
37997	Transformer—Output transformer	38303	Hinge—Cabinet door hinge
	SPEAKER ASSEMBLIES (RL70N3)	30698	Hinge—Cabinet lid hinge
13867	Cap—Dust cap	37998	Plate—Dial plate complete—less pointer and tube clip
36331	Coil—Field coil, 1630 ohms	38302	Pull—Door pull and screw
11469	Coil—Neutralizing coil	33083	Spring—Cabinet lid support spring
36145	Cone—Cone complete with voice coil	35831	Support—Cabinet lid support
5119	Plug—3-contact female plug for speaker cable		ADD
31539	Plug—5 prong male plug for speaker	38704	Back—Cabinet back
36146	Suspension—Metal cone suspension	38310	Board—"Antenna-Ground"
37997	Transformer—Output transformer	38382	Hinge—Cabinet lid hinge L.H.
	SPEAKER ASSEMBLIES (RL71A4)	38381	Hinge—Cabinet lid hinge R.H.
13867	Cap—Dust cap	38309	Plate—Dial plate complete—less pointer and tube clip
36145	Cone—Cone complete with voice coil	36413	Pull—Door pull
5118	Plug—3 prong male plug	30650	Resistor—56,000 ohms, 1/4 watt
36146	Suspension—Metal cone suspension	35575	Spring—Cabinet lid support spring
	MISCELLANEOUS ASSEMBLIES QU51	36414	Support—Cabinet lid support L.H.
36461	Button—Plug button	36693	Support—Cabinet lid support R.H.
12537	Capacitor—560 mmfd., for QU51C only		FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON
11315	Capacitor—.015 mfd., for QU51C only		RP-145E for MODEL QU-51C
4870	Capacitor—.025 mfd.		RP-152R for MODELS QU-51M and QU-55
30716	Clip—Tuning tube clip		
36109	Control—Bass tone control		
35629	Control—Treble tone control		
36328	Cover—Compartment leads cover		
33680	Cup—Used needle cup		
36155	Decal—Bass tone control decal		
35387	Decal—Power—volume decal		
36074	Decal—Radio—Phono switch decal		
37839	Decal—Range switch decal		
36386	Decal—Trade mark decal (His Master's Voice)		
35392	Decal—Trade mark decal (RCA Victor)		
36156	Decal—Treble tone control decal		
35391	Decal—Tuning decal		
38225	Dial—Glass dial scale		
38303	Hinge—Cabinet door hinge		
30698	Hinge—Cabinet lid hinge		

FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON

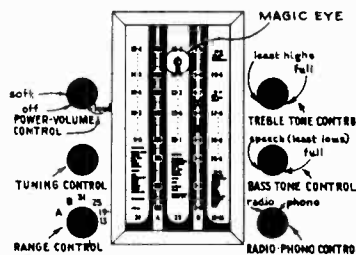
RP-145E for MODEL QU-51C
RP-152R for MODELS QU-51M and QU-55



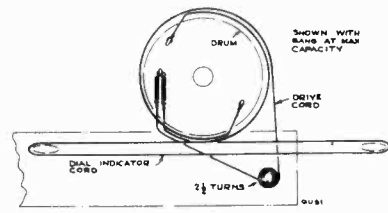
QU51C and QU51M



QU55



QU55



QU51

MODELS QU52C and QU52M

Chassis No. RC-507L

RC-507N

Six-Tube, Five-Band, A-C, Superheterodyne Radio-Phonograph Combinations

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" band)..... 540-1,720 kc (556-174 m)
 Medium Wave ("B" band)..... 3.0-9.5 mc (100-31.6 m)
 "31" Meter Spread Band..... 9.5-11.7 mc (31.6-25.6 m)
 "25" Meter Spread Band..... 11.7-15.1 mc (25.6-19.9 m)
 "19-13" Meter Spread Band..... 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

POWER SUPPLY RATING

105-125, 200-250 volts, 50-60 cycles..... 80 watts total
 105-125 volts, 25 cycles..... 80 watts total

TUBE COMPLEMENT

(1) RCA-6SA7..... 1st Detector-Oscillator
 (2) RCA-6SK7..... I-F Amplifier
 (3) RCA-6SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
 (4) RCA-6AD7-G..... Phase-Inverter, Power Output
 (5) RCA-6F6-G..... Power Output
 (6) RCA-5Y3-G..... Rectifier

POWER OUTPUT

Undistorted..... 3 watts
 Maximum..... 3.5 watts

PHONOGRAPH (Automatic)

CRYSTAL PICKUP (QU52C)

Impedance..... 100,000 ohms at 1,000 c.p.s.
 Average Output... 1.5 volts at 1,000 c.p.s. across 500,000 ohm load

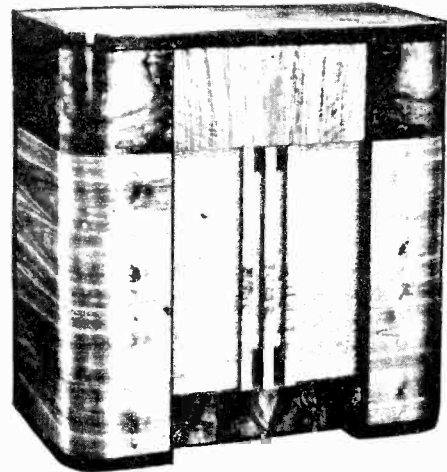
MAGNETIC PICKUP (QU52M)

Impedance..... 96 ohms at 1,000 c.p.s.
 Average Output..... 0.14 volts at 400 c.p.s. across open circuit

LOUDSPEAKER (RL-70M1)

Type..... 12-inch Electrodynamic
 V-C Impedance at 400 c.p.s..... 2.2 ohms

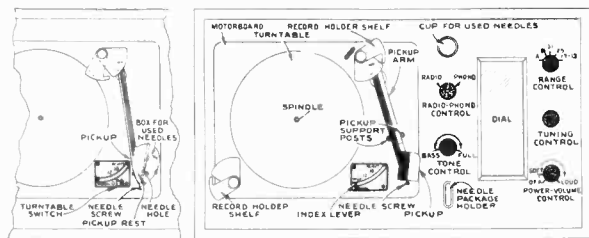
	Height	Width	Depth
CABINET DIMENSIONS (inches).....	32	29 3/4	17 1/2
Chassis Base Dimensions (inches).....	2 3/4	15 1/2	5 3/4
Overall Chassis Height.....	7 1/4 inches		
Weight (net).....	71 pounds		
Tuning Drive Ratio.....	25 to 1		



Phonograph Information

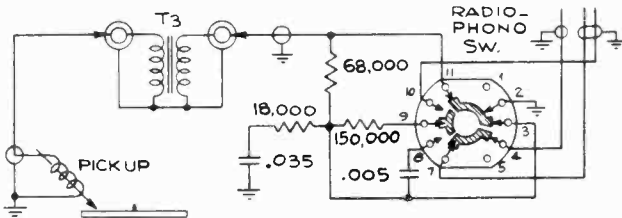
For information on Automatic Mechanism refer to Service Notes for RP152

The QU52M is equipped with a magnetic pickup, the QU52C with a crystal pickup. The output of the crystal pickup is fed into the audio end of the receiver through a switch and compensating circuit. On instruments using a magnetic pickup, a transformer and compensating circuit are used between the pickup and the audio input (see schematic diagram). The transformer has two jacks, the larger one (primary) for input from the pickup and the smaller one (secondary) for output to the compensating circuit. The components of the compensating circuit are mounted externally to the chassis on a terminal board in the cabinet.



QU52C

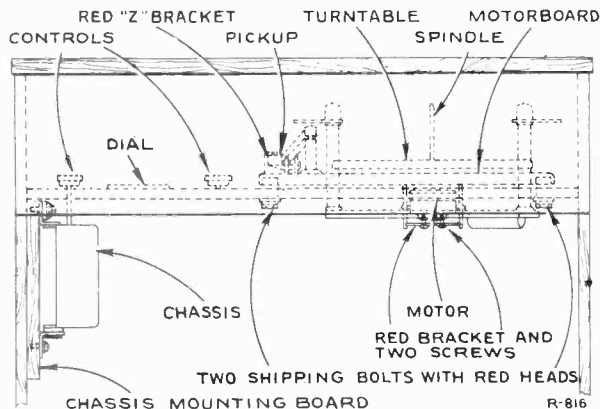
QU52M



Schematic Showing Magnetic Pickup Connections (QU52M)

Caution.—

1. This instrument is not recommended for playing 10-inch and 12-inch records in mixed sequence.
2. Never use force to start or stop the motor or any part of the record-changing mechanism or pickup arm.
3. Warped or damaged records may cause the mechanism to jam.
4. Warped records may slide on one another when playing, resulting in unsatisfactory reproduction.
5. Do not leave records on the record-holder posts as they may warp, particularly in warm climates. Warped records may be flattened by placing them on a flat surface with a flat heavy article placed on top of them for a few days.
6. Do not leave pickup needle resting on a record or on the turntable. Always place it on the pickup rest.
7. Do not insert a used needle in the pickup, and avoid turning a needle after it has been used.
8. If for any reason the phonograph stalls, turn off the turntable switch and remove the records from the record holder shelves. Start the turntable and allow the pickup arm to complete its cycle.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

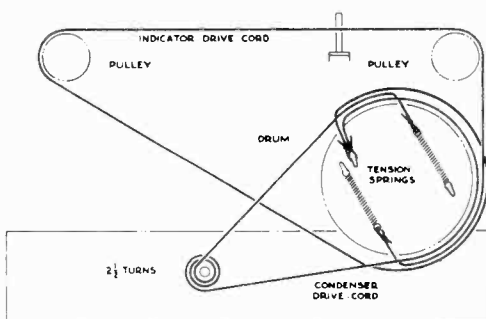
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Dial-Indicator and Drive Mechanism

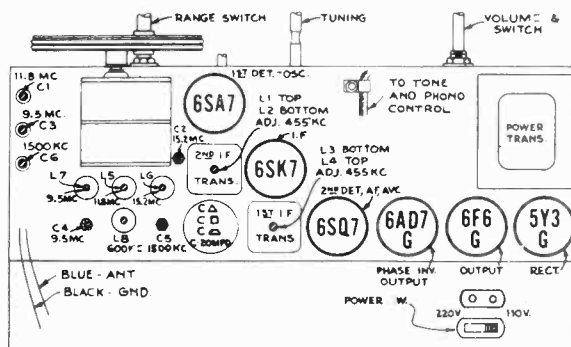
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output	
1	6SK7 I-F grid in series with .01 mfd.			Quiet Point near 180°	L3 and L4 2nd I-F Trans.	
2	6SA7 1st Det. grid in series with .01 mfd.	455 kc	A		L1 and L2 1st I-F Trans.	
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)	
4		15.2 mc		17°	C2 (osc.)*	
5		Repeat steps 3 and 4				
6		15.2 mc	19-13M	156°	L6 (osc.)**	
7	Ant. lead in series with 200 mmf.	9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)	
8		9.5 mc	B	11.5°	C4 (osc.)***	
9		1,500 kc	A	26°	C5 (osc.) C6 (ant.)	
10	600 kc	150°		L8 (osc.) (Rock gang)		
11	Repeat steps 9 and 10					

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity if two peaks can be obtained.

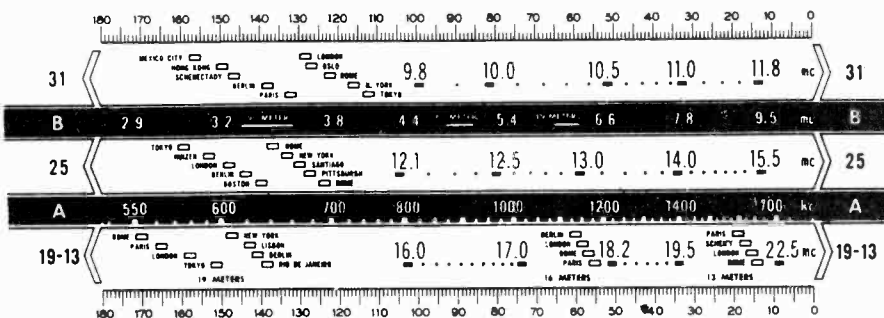
NOTE: Oscillator tracks above signal on all bands.



Tube and Trimmer Location

Precautionary Lead Dress.—

- All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
- All oscillator coil leads must be kept apart from each other and other leads and parts.
- Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.



On actual Dial Scale the markings and calibration are rotated 90°

Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES		
	(RC 507L) For Crystal Type Pickup (RC 507N) For Magnetic Type Pickup		
38923	Bracket—L. H. pulley support bracket complete with pulley	30651	Resistor—270,000 ohms, $\frac{1}{2}$ watt (for crystal type only)
38924	Bracket—R. H. pulley support bracket complete with pulley	14983	Resistor—330,000 ohms, $\frac{1}{2}$ watt
32556	Cable—Phono input cable (for magnetic type)	30648	Resistor—470,000 ohms, $\frac{1}{2}$ watt
36398	Cable—Shielded cable for radio-phono connector	30648	Resistor—470,000 ohms, $\frac{1}{2}$ watt
33014	Capacitor—Electrolytic, comprising 3 sections of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts	13730	Resistor—1 meg., $\frac{1}{2}$ watt
12714	Capacitor—Air trimmer—medium—2-12 mmfd.	30649	Resistor—2.2 meg., $\frac{1}{2}$ watt
34654	Capacitor—Mica trimmer, comprising 3 sections of 2.5-10 mmfd. each	30992	Resistor—10 meg., $\frac{1}{2}$ watt
35646	Capacitor—6 mmfd., ceramic	14350	Screw—No. 8-32 sq. head set screw for drive drum
36012	Capacitor—15 mmfd., ceramic	38925	Shaft—Flywheel and tuning knob shaft
12896	Capacitor—15 mmfd., moulded mica	31364	Socket—Dial lamp socket
35644	Capacitor—47 mmfd., ceramic	31251	Socket—Tube socket
13141	Capacitor—47 mmfd., moulded	31418	Spring—Pointer cord or drive cord spring
12723	Capacitor—56 mmfd., moulded	31261	Spring—Retaining spring for adjustable core and studs
30949	Capacitor—56 mmfd., un moulded	35622	Support—Tuning knob shaft and flywheel support
35645	Capacitor—68 mmfd., ceramic	38927	Switch—Phono switch
13057	Capacitor—68 mmfd., moulded	38926	Switch—Range switch
12720	Capacitor—100 mmfd., moulded	32827	Switch—Voltage switch
30904	Capacitor—100 mmfd., un moulded	35636	Transformer—First I.F. transformer
12694	Capacitor—220 mmfd.	35628	Transformer—Second I.F. transformer
12537	Capacitor—560 mmfd.	35588	Transformer—Power transformer—105-120 volts, 25 cycle
35643	Capacitor—3,000 mmfd.	32911	Transformer—Power transformer—105-120 volts, 50-60 cycle
4838	Capacitor—.005 mfd., 1,000 volts	32852	Transformer—Power transformer, 105-125/200-240 volts, 50-60 cycle
33584	Capacitor—.005 mfd., 1,200 volts		SPEAKER ASSEMBLIES (RL 70M-1)
4937	Capacitor—.01 mfd., 1,000 volts		
4870	Capacitor—.025 mfd.	13867	Cap—Dust cap
5196	Capacitor—.035 mfd. (for magnetic type)	12079	Coil—Field coil
4886	Capacitor—.05 mfd.	11469	Coil—Neutralizing coil
35632	Coil—Antenna coil—"A" band	36145	Cone—Cone complete with voice coil
35631	Coil—Antenna coil—spread band	5039	Plug—4-prong male plug for speaker
35623	Coil—Oscillator coil—"A" and "B" bands	37899	Transformer—Output transformer
35624	Coil—Oscillator coil—19-13 meter band		MISCELLANEOUS ASSEMBLIES
35625	Coil—Oscillator coil—25 meter band	36461	Button—Plug button
35626	Coil—Oscillator coil—31 meter band	36328	Cover—Compartment lamp lead cover
35619	Condenser—Variable tuning condenser	33680	Cup—Used needle cup
38409	Control—Tone control	36074	Decalcomania—Radio-Phono switch decal.
38412	Control—Volume control and power switch	37839	Decalcomania—Range switch decal.
32634	Cord—Drive cord (approx. 27 in. overall lgth.)	35388	Decalcomania—Tone control decal.
32634	Cord—Pointer cord (approx. 47 in. overall lgth.)	36386	Decalcomania—Trade mark decal. (His Master's Voice)
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil	35392	Decalcomania—Trade mark decal. (RCA Victrola)
31259	Core—Adjustable core and stud for "19-13 meter band," "25 meter band," and "31 meter band" oscillator coils	35391	Decalcomania—Tuning decal.
35642	Dial—Drive drum calibrator dial	35387	Decalcomania—Volume-power switch decal.
35627	Drum—Drive drum—less calibrator dial	38982	Dial—Glass dial scale
35638	Flywheel—Tuning shaft flywheel	30698	Hinge—Cabinet lid hinge
30868	Plug—2-contact female plug for motor cable	36039	Indicator—Station selector indicator
5040	Plug—4-contact female plug for speaker cable	13103	Jewel—Compartment lamp cap
35630	Pulley—Drive cord pulley—between tuning knob and range switch shafts	38334	Knob—Range switch or phono switch knob
30735	Resistor—560 ohms, 1 watt	37256	Knob—Tuning, volume control or tone control knob
30436	Resistor—12,000 ohms, $\frac{1}{2}$ watt	11765	Lamp—Dial lamp
36714	Resistor—15,000 ohms, $\frac{1}{2}$ watt (for crystal type only)	5117	Lamp—Compartment lamp
35595	Resistor—15,000 ohms, 3 watt	31470	Mounting—Motorboard spring mounting hardware
3219	Resistor—18,000 ohms, $\frac{1}{2}$ watt (for magnetic type)	33774	Mounting—Speaker mounting hardware
30492	Resistor—22,000 ohms, $\frac{1}{2}$ watt	36246	Receptacle—Packaged needle receptacle
12454	Resistor—33,000 ohms, $\frac{1}{2}$ watt	37800	Shade—Compartment lamp shade
14138	Resistor—68,000 ohms, $\frac{1}{2}$ watt (for magnetic type only)	35575	Spring—Lid support spring
13734	Resistor—120,000 ohms, $\frac{1}{2}$ watt	30900	Spring—Retaining spring for knobs
30493	Resistor—150,000 ohms, $\frac{1}{2}$ watt	36414	Support—Lid support
14020	Resistor—150,000 ohms, $\frac{1}{2}$ watt (for magnetic type)	14609	Transformer—Input transformer (for magnetic type only)

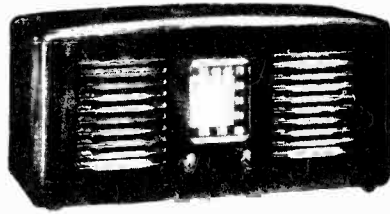
FOR RECORD CHANGER REPLACEMENT PARTS SEE
SERVICE NOTES ON

RP-152

MODEL 55X

Chassis No. RC-1003C

Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



Specifications

FREQUENCY RANGE 540-1,720 kc
Intermediate Frequency 455 kc

POWER SUPPLY RATINGS
105-125 volts, direct current, or 50-60 cycles 30 watts

POWER OUTPUT (125 volts, 60 cycle supply)
Undistorted 0.8 watts Maximum 1.2 watts

LOUDSPEAKERS
RL-86-A3 5-inch "EM." 4-ohm voice coil
RL-81-B2 5-inch "PM." 4-ohm voice coil
"PM" Speaker 92388-1:

The cone and voice coil for this speaker is Stock No. 39572.

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil and turn the receiver volume control to maximum.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test-Oscillator.—For I-F alignment, connect the low side of the test-oscillator to the common negative through a .01 mfd. capacitor, and keep the output as low as possible.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be adjusted so that it is vertical.

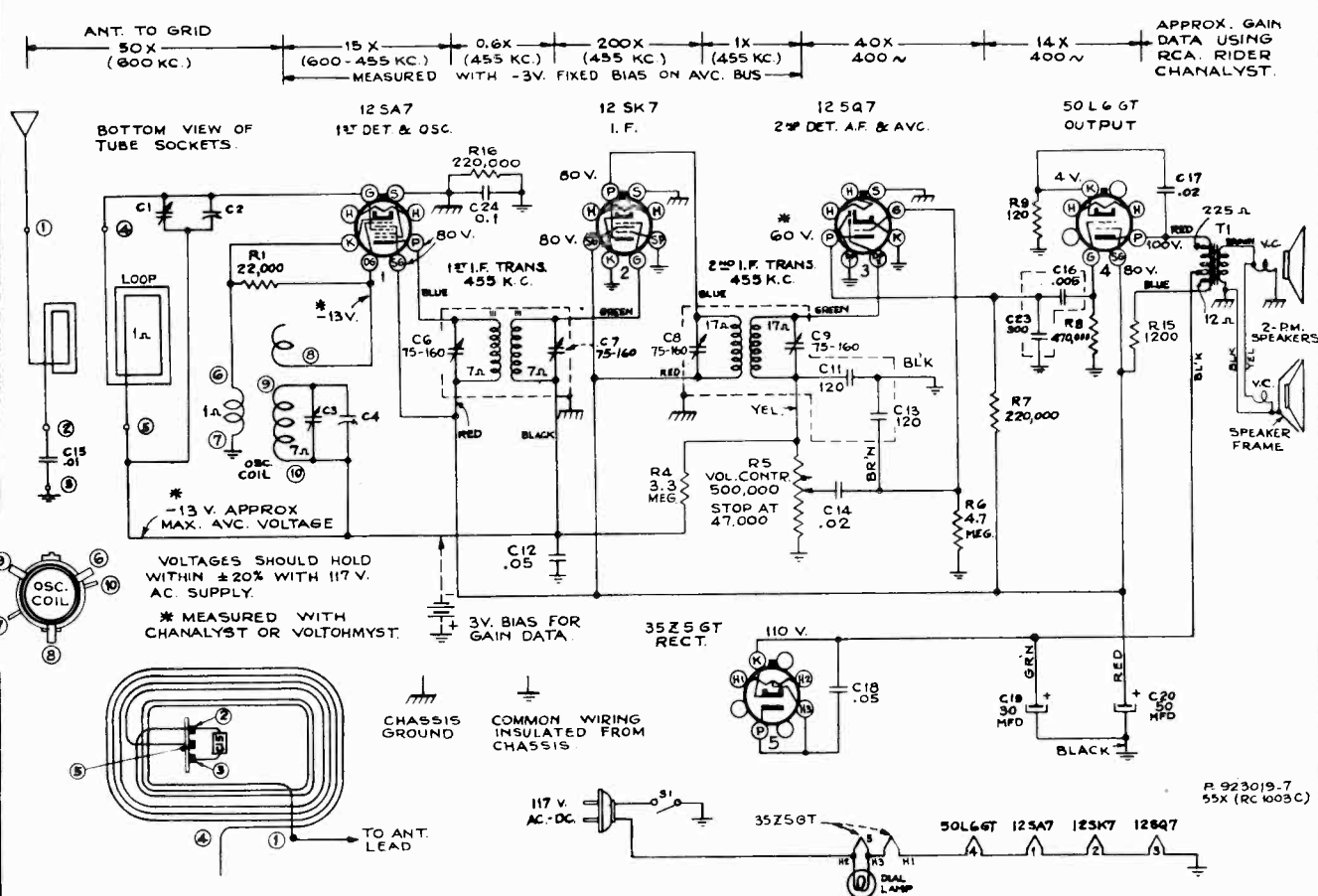
Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	C8, C9 2nd I-F Transformer
2	1st Det. grid in series with .01 mfd.			C6, C7 1st I-F Transformer
3	Ant. terminal in series with 100 mmfd.	1,720 kc	Gang at minimum	C3 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C1 (ant.)
5	Repeat steps 3 and 4.			

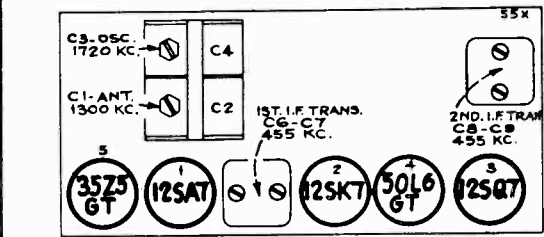
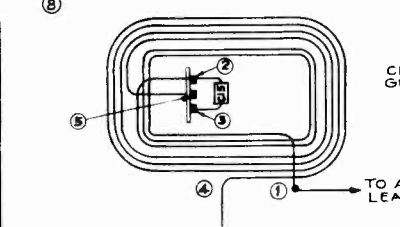
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

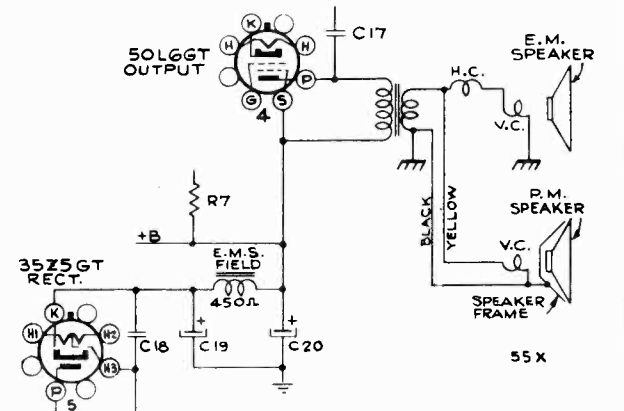
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-1003C)			
35097	Can—Shield can for 1st I.F. transformer.....	34449	Socket—Dial lamp socket
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd., 150 volts, and 1 section of 50 mfd., 150 volts	31251	Socket—Tube socket
37359	Capacitor—Comprising 1 section of .005 mfd., and 1 section of .0003 mfd.	31418	Spring—Drive cord spring
4937	Capacitor—.01 mfd.	35098	Spring—To hold I.F. transformer in shield can.
36248	Capacitor—.02 mfd.	36232	Transformer—First I.F. transformer—less shield can
32787	Capacitor—.05 mfd.	37364	Transformer—Second I.F. transformer—less shield can
43763	Capacitor—.01 mfd.	38851	Transformer—Output transformer for P.M. speaker
36801	Coil—Oscillator coil	33726	Washer—"C" washer for shaft No. 38846
37911	Condenser—Variable tuning condenser	34373	Washer—"C" washer for tuning shaft No. 35343
35344	Control—Volume control	E. M. SPEAKER ASSEMBLIES (RL-86A-3)	
32634	Cord—Drive cord (approx. 18-in. overall length)	35570	Cone—Cone complete with voice coil
37913	Dial—Dial scale	P. M. SPEAKER ASSEMBLIES (RL-81B-2)	
37914	Indicator—Station selector indicator	35570	Cone—Cone complete with voice coil
11765	Lamp—Dial lamp	MISCELLANEOUS ASSEMBLIES	
37915	Loop—Antenna loop	38748	Back—Cabinet back
35993	Plate—Dial plate complete—less dial	35079	Crystal—Dial scale crystal
30189	Resistor—120 ohms, ½ watt	37831	Fastener—Push fastener for back
6134	Resistor—1,200 ohms, 1 watt, for P.M. speaker	30863	Knob—Control knob
13998	Resistor—22,000 ohms, ½ watt	30900	Spring—Retaining spring for knob
14583	Resistor—220,000 ohms, ½ watt		
30648	Resistor—470,000 ohms, ½ watt		
12928	Resistor—3.3 meg., ½ watt		
30271	Resistor—4.7 meg., ½ watt		
35343	Shaft—Tuning knob shaft (1½-in. overall length)		
38846	Shaft—Tuning knob shaft (1¼-in. overall length)		



VOLTAGES SHOULD HOLD WITHIN $\pm 20\%$ WITH 117 V. AC SUPPLY.
 * MEASURED WITH CHANNELYST OR VOLTOHMYST.



Phasing Speakers in Model 55X.—
 For correct sound quality, it is ESSENTIAL that the cones of the two loudspeakers move in and out together.
 To check the phasing, connect a 1½-volt dry cell across the secondary of the output transformer and observe, by sight or feel, whether the two cones move in the same direction. If one moves in while the other moves out, reverse the external connections to the voice coil of the permanent-magnet speaker.



Above—Circuit of Model 55X Using one "PM" and one "EM" Speaker.

MODELS BP-55, BP-56, and BP-85

Chassis No. RC-455

Five-Tube, Single-Band, Battery or House Current Superheterodyne Receiver

Electrical and Mechanical Specifications

Frequency Range..... 540-1,600 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-GT..... 1st. Det.—Osc.
- (2) RCA-1N5-GT..... I-F Amplifier
- (3) RCA-1H5-GT..... 2nd. Det., A-F, and A.V.C.
- (4) RCA-1T5-GT..... Output
- (5) RCA-117Z6-G or 35Z5-GT..... Rectifier

LINE CURRENT SUPPLY

110 to 125 volts, AC 50 or 60 cycles, or DC

BATTERIES REQUIRED

"A" one 6 volt dry plug-in type (Eveready No. 747 or equivalent)
"B" two 45 volt dry plug-in type (Eveready No. 482 or equivalent)

CURRENT CONSUMPTION

"A," 0.05 ampere—"B," 10.5 milliamperes full power;
6.0 milliamperes save power.

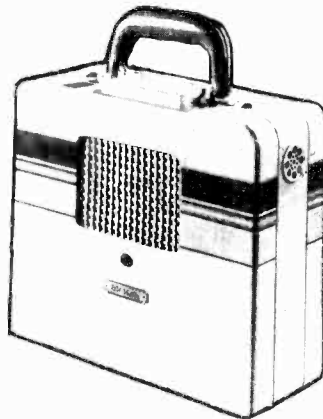
POWER OUTPUT

Undistorted..... 0.125 watt
Maximum..... 0.17 watt

LOUDSPEAKER

Type..... 5-inch permanent-magnet dynamic
Voice-coil Impedance..... 4.5 ohms at 400 cycles

Cabinet Dimensions (inches).....	Height	Width	Depth
Weight—(Net) less batteries.....	10 1/2	13	5
Weight.....		8 1/2	pounds
Weight.....		15 1/2	pounds
Tuning Drive Ratio.....			6 to 1



The following models comprise the BP-55 series. All contain the RC-455 chassis.

- BP-55 Light Cloth
- BP-56 Dark Cloth
- BP-85 Leatherette

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-455)		
13001	Capacitor—8.2 mmfd. (C25)	34473	Resistor—2,000 ohms, 10 watts (R12)
30949	Capacitor—56 mmfd. (C8, C9, C11, C12)	12312	Resistor—3,300 ohms, 1/2 watt (R11)
13057	Capacitor—60 mmfd. (C6)	12412	Resistor—47,000 ohms, 1/2 watt (R2)
12720	Capacitor—100 mmfd. (C13, C14, C24)	12264	Resistor—220,000 ohms 1/2 watt (R1)
12635	Capacitor—1,000 mmfd. (C16)	13730	Resistor—1 meg., 1/2 watt (R7)
34459	Capacitor—.0025 mfd. (C17)	12679	Resistor—2.2 meg., 1/2 watt (R5, R8, R15)
33584	Capacitor—.005 mfd. (C23)	14661	Resistor—6.8 meg., 1/2 watt (R3, R4, R6)
4937	Capacitor—.01 mfd. (C7, C15)	31319	Socket—Tube socket
32787	Capacitor—.05 mfd. (C1, C10, C18)	34467	Switch—Power selector switch (S1)
4839	Capacitor—0.1 mfd. (C22)	34466	Transformer—First i-f transformer (L2, L3, C8, C9)
34472	Capacitor—Electrolytic comprising 2 sections of 20 mfd. each, and 1 of 200 mfd. (C19, C20, C21)	34466	Transformer—Second i-f transformer (L6, L7, C11, C12)
34965	Capacitor—Electrolytic 20 mfd. (C26)		SPEAKER ASSEMBLIES (RL-85-1)
34468	Coil—Loop loading coil (L1)	32907	Cap—Cone center dust cap
34877	Coil—Oscillator coil (L4, L5)	34554	Cone—Speaker cone, voice coil, and center suspension (L8)
34464	Condenser—Variable tuning condenser (C2, C3, C4, C5)	34555	Transformer—Output transformer (T1)
34465	Control—Volume control and power switch (R13, S2)		MISCELLANEOUS ASSEMBLIES
34469	Indicator—"On-Off" indicator	34476	Dial—Dial scale and mounting plate
34471	Indicator—Station selector indicator	34611	Handle—Carrying handle for Model BP-55 and BP-85
5133	Pin—Pin on loop leads	34612	Handle—Carrying handle for Model BP-56
34470	Plate—Power selector switch indicator plate	34015	Knob—Tuning, volume control or voltage switch knob
34689	Plug—2-contact male plug for battery cable	31193	Lead—Antenna lead—approximately 25 ft. long
32641	Plug—3-contact male plug for battery cable	34556	Loop—Complete loop and support
12414	Resistor—560 ohms, 1/2 watt (R14)		
30499	Resistor—470 ohms, 1/2 watt (R10)		
14720	Resistor—1,000 ohms, 1/2 watt (R9)		

Resistance Power Cord:

In Models BP-55, -56, -85 that use a 35Z5GT rectifier, the 545-ohm resistance power cord is Stock No. 35311.

Distortion or Low Volume:

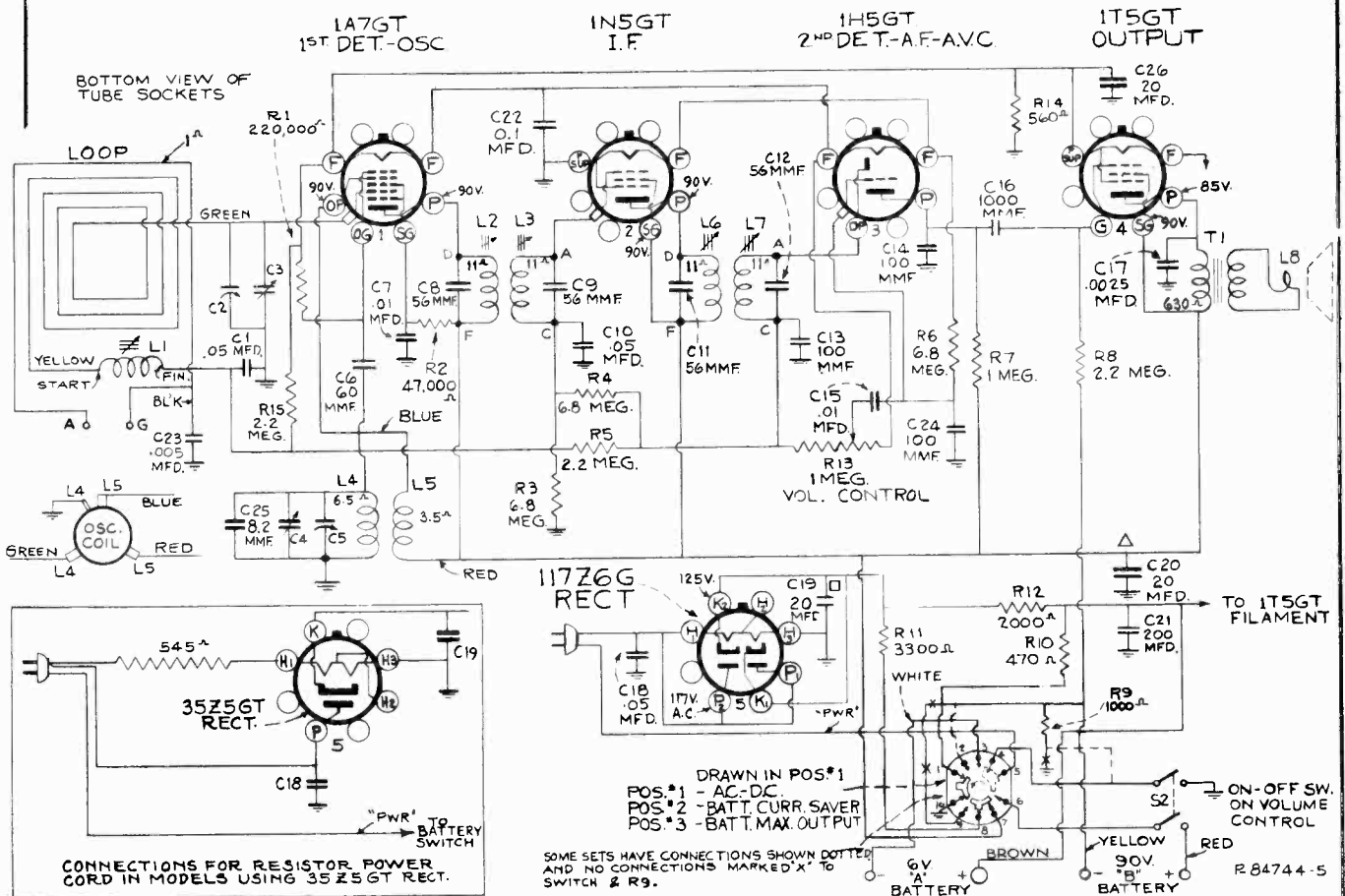
Distortion or low output on these models may be related to premature loss of emission of the 1T5GT output tube. This condition develops when the receiver is used on an AC or DC power supply, particularly where the line voltage is comparatively low. The 1T5GT now incorporates an over-sized filament that eliminates the trouble.

Chassis and Speaker Mounting:

Add Stock No.
35297 Mounting—Chassis and speaker mounting screw and cap.....

Hum:

Hum in Models BP-55, -56, -85 is generally due to an intermittent or open common connection between the electrolytic and chassis. Solder securely or add a jumper from the electrolytic ground lug to lance on chassis.



Schematic Circuit Diagram

Measurements are made to chassis unless otherwise indicated, with set tuned to quiet point. Values should hold within approximately $\pm 20\%$ with rated battery voltage.

Alignment Procedure

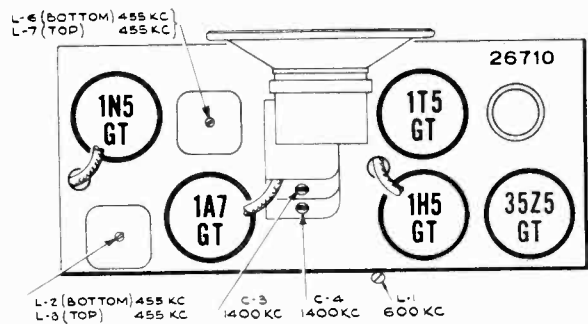
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1A7GT 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	L2, L3, L6, L7 (1st and 2nd I-F transformers)
2		1,600 kc	1,600 kc	C4 osc.
3	radiated signal near 600 kc		signal frequency	L1
4	radiated signal near 1,400 kc		signal frequency	C3
5	radiated signal near 600 kc		signal frequency	L1

For steps 3, 4, and 5 the chassis must be in the cabinet and the batteries in place and connected. L-1 is then reached through the small hole in the cabinet which is normally covered with a small plug located farthest away from C-3 and C-3 is reached through an eyelet in the speaker grille. If a broadcast signal is used it should be weak to avoid a-v-c action. Turning loop to minimum pickup

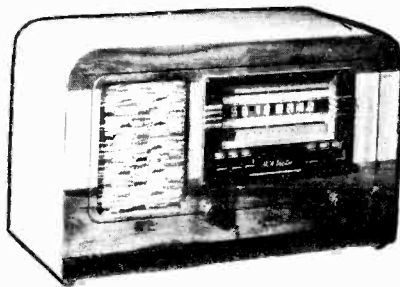
position will sometimes be helpful. If no broadcast signal is available connect test oscillator output to a suitable radiation loop located several feet away from receiver.



MODEL X55

Chassis No. RC-473A

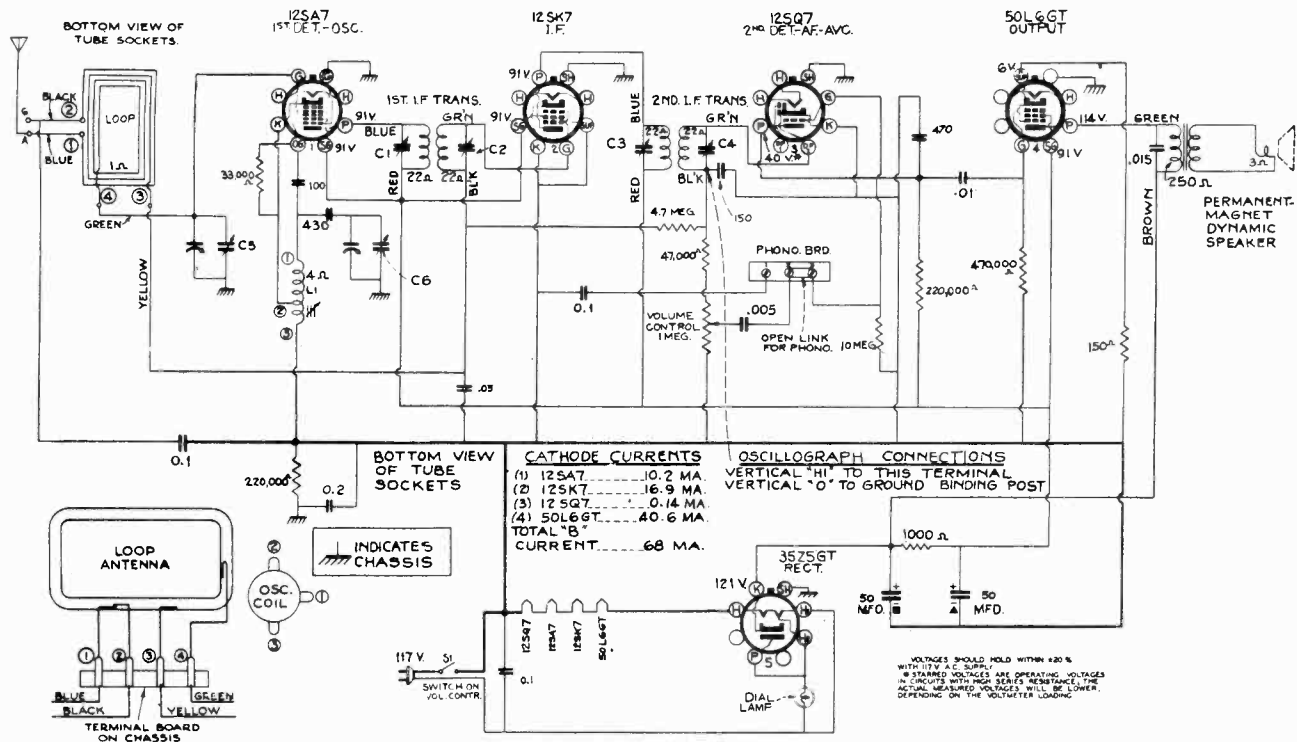
Five-Tube, Single-Band, AC-DC Superheterodyne Receiver



Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,720 kc
 INTERMEDIATE FREQUENCY..... 455 kc
 Number of Push Buttons..... Six
TUBE COMPLEMENT
 (1) RCA-12SA7..... First Detector-Oscillator
 (2) RCA-12SK7..... I-F Amplifier
 (3) RCA-12SQ7..... Second Det., A-F and A.V.C.
 (4) RCA-50L6GT..... Beam Power Output
 (5) RCA-35Z5GT..... Rectifier
 DIAL LAMP (1)..... Mazda No. 51, 7.5 volt, 0.2 amp.
POWER OUTPUT (125 volts, 60 cycle supply)
 Undistorted..... 0.8 watts
 Maximum..... 1.4 watts

POWER SUPPLY RATINGS
 A-C Rating..... 105-125 volts, 50-60 cycles, 35 watts
 D-C Rating..... 105-125 volts, direct current, 35 watts
LOUDSPEAKER (RL 85-2)
 Type..... 5-inch permanent magnet dynamic
 Voice Coil Impedance..... 4.5 ohms at 400 cycles
Height Width Depth
 Cabinet Dimensions (inches)..... 9-7/16...15...7
 Chassis Base Dimensions (inches)..... 2-3/16...12...5 1/2
 Overall Chassis Height..... 6 1/2 inches
 Weight (net)..... 12 pounds
 Weight (shipping)..... 14 pounds
 Tuning Drive Ratio..... 10 to 1



Schematic Circuit Diagram

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the schematic drawing.

Output Meter Alignment.—If this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver ground binding post, and keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should be set to the extreme left (low frequency) mark on the dial scale.

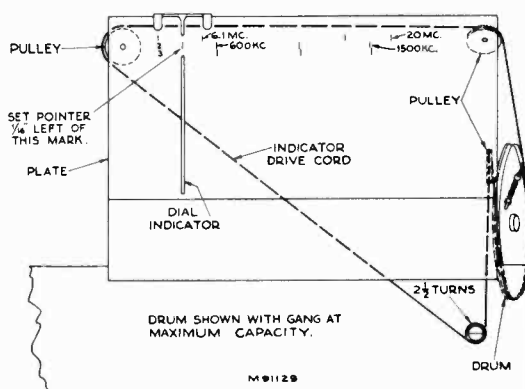
Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	Ant. terminal	455 kc	Quiet Point between 1,720-1,600 kc	C3 and C4 (2nd I-F trans.)
2	Ant. terminal			C1 and C2 (1st I-F trans.)
3	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc calibration mark	C8 (osc.) C5 (ant.)
4		600 kc	600 kc calibration mark	L1 (osc.) (Rock in)
5	Repeat step 3.			

After mounting chassis in cabinet, check the dial calibration on stations of known frequency. If calibration is not correct, move pointer to agree with dial calibration. Note.—Oscillator tracks above signal.

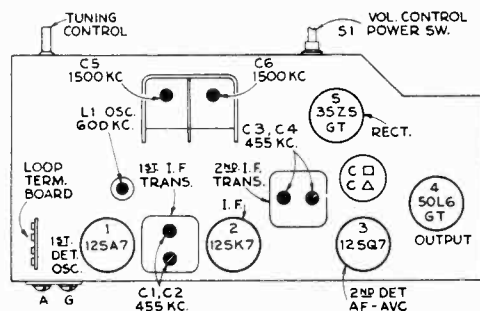
Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

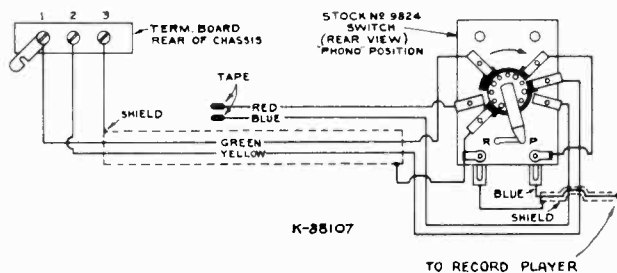
1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Turn the accessory switch to "Radio" position and accurately tune in the station for which the first button is to be set.
3. Press in push-button rod No. 1 (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.



Dial-Indicator and Drive Mechanism



Tube and Trimmer Locations



Record Player Connections, Using a No. 9824 Switch

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLY (RC-473A)			
33719	Belt—Push button arm adjustment belt and rivets	12285	Resistor—470,000 ohms, 1/4 W.
34024	Board—"Antenna-Ground" board	30271	Resistor—4.7 megohm, 1/4 W.
34025	Board—"Radio-Phono" board	13601	Resistor—10 megohm, 1/4 W.
33731	Button—Push button	33735	Screw—Push arm lock screw
12720	Capacitor—100 mmfd., moulded mica	33725	Shaft—Tuning condenser drive shaft and retainer
12725	Capacitor—150 mmfd., moulded mica	31365	Socket—Lamp socket
34213	Capacitor—430 mmfd., mica	31319	Socket—Tube socket
30433	Capacitor—470 mmfd., moulded mica	33720	Spring—Push button arm return spring
14393	Capacitor—.01 mfd., 300 volt	31418	Spring—Tuning condenser drive cord spring
11315	Capacitor—.015 mfd., 400 volt	33722	Transformer—1st i.f. transformer
32787	Capacitor—.05 mfd., 400 volt	34026	Transformer—2nd i.f. transformer
4839	Capacitor—0.1 mfd., 400 volt	33726	Washer—"C" washer for drive shaft
34505	Capacitor—0.2 mfd., 300 volt	SPEAKER ASSEMBLIES (RL 85-2)	
34212	Capacitor—Electrolytic comprising 2 sections of 50 mfd. each, 150 volts	32907	Cap—Cone center dust cap
33724	Coil—Oscillator coil (L1)	34554	Cone—Speaker cone and voice coil
33728	Condenser—Tuning condenser and drum assembly	34802	Speaker—5-inch permanent magnet—less transformer
33631	Control—Volume control and power switch (S1)	34803	Transformer—Output transformer
32634	Cord—Tuning condenser drive cord	MISCELLANEOUS ASSEMBLIES	
33633	Indicator—Station selector pointer	31456	Cover—8 protective covers for push-button markers
11765	Lamp—Pilot lamp—Mazda No. 51	33729	Dial—Glass dial scale
33721	Loop—Antenna loop	33637	Escutcheon—Dial and button escutcheon
33727	Plate—Dial plate frame	30863	Knob—Tuning, volume control, or power switch knob
30880	Resistor—150 ohm, 1/4 W.	30900	Spring—Retaining spring for knob or button
30152	Resistor—1,000 ohms, 1/4 W.	33973	Marker—1 set push-button marker
12454	Resistor—33,000 ohms, 1/4 W.		
12412	Resistor—47,000 ohm, 1/4 W.		
12264	Resistor—220,000 ohms, 1/4 W.		

MODELS QU56C, QU56M

Chassis No. RC-566A

Five-Tube, Three-Band, AC, Superheterodyne Radio-Phonograph Combinations

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)..... 540-1,720 kc (555-174 m)
 Medium Wave ("B" Band)..... 2.3-7.0 mc (130-42.9 m)
 Short Wave ("C" Band)..... 7.0-22.0 mc (42.9-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

(1) RCA 6SA7..... 1st Detector-Oscillator
 (2) RCA 6SK7..... I-F Amplifier
 (3) RCA 6SQ7..... 2nd Detector AVC, and A.F. Amplifier
 (4) RCA 6K6GT..... Power Output
 (5) RCA 5Y3G..... Rectifier

PILOT LAMP..... Mazda 44

POWER OUTPUT

Undistorted..... 1.4 watts
 Maximum..... 2.3 watts

LOUDSPEAKER

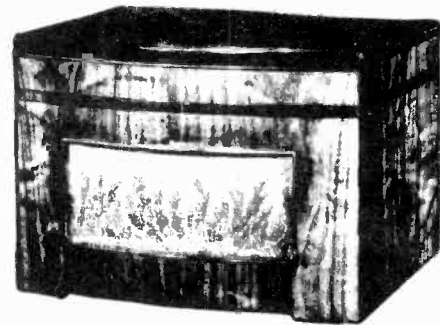
Speaker No..... QU56M and C 92196-504
 Type..... 6-in. x 9-in. Elliptical PM
 V.C. Impedance at 400 cycles..... 3.7 ohms

POWER SUPPLY RATING

105-125 volts, 50-60 cycles..... 65 watts
 105-125, 210-250 volts, 50-60 cycles..... 65 watts
 105-125 volts, 25 cycles..... 65 watts

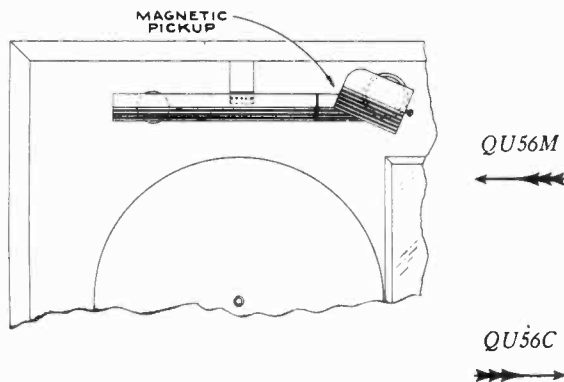
PHONOGRAPH

	QU56M	QU56C
Type of Pickups.....	Magnetic	Crystal
Type of Mechanism.....	Manual	Manual
Turntable Speed.....	78 r.p.m.	78 r.p.m.



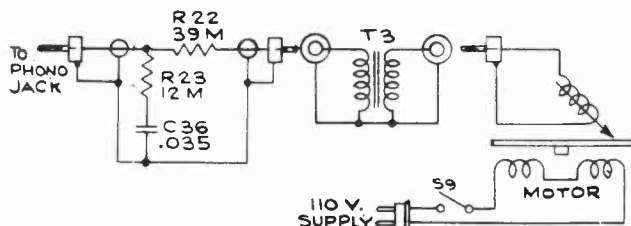
CABINET DIMENSIONS

Height..... 12 1/2 inches
 Width..... 17 1/2 inches
 Depth..... 14 1/2 inches
 Weight (net)..... 26 1/2 pounds
 Chassis Base Dimensions..... 10 1/2 in. wide, 5 in. deep, 2 in. high
 Over-all Chassis Height..... 8 1/2 inches

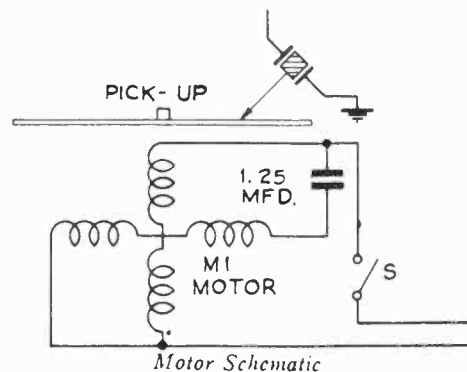
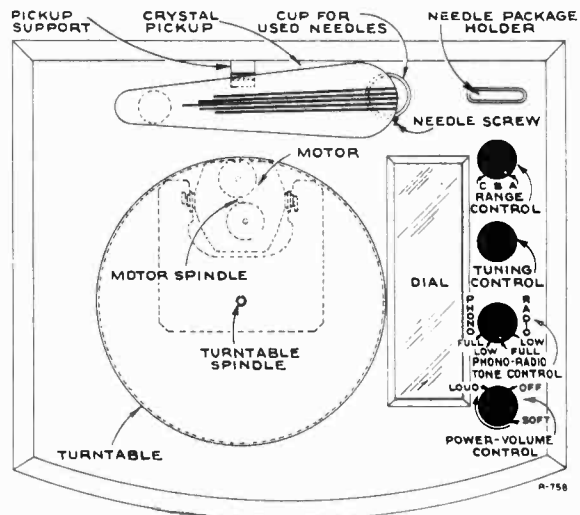


Phonograph Information

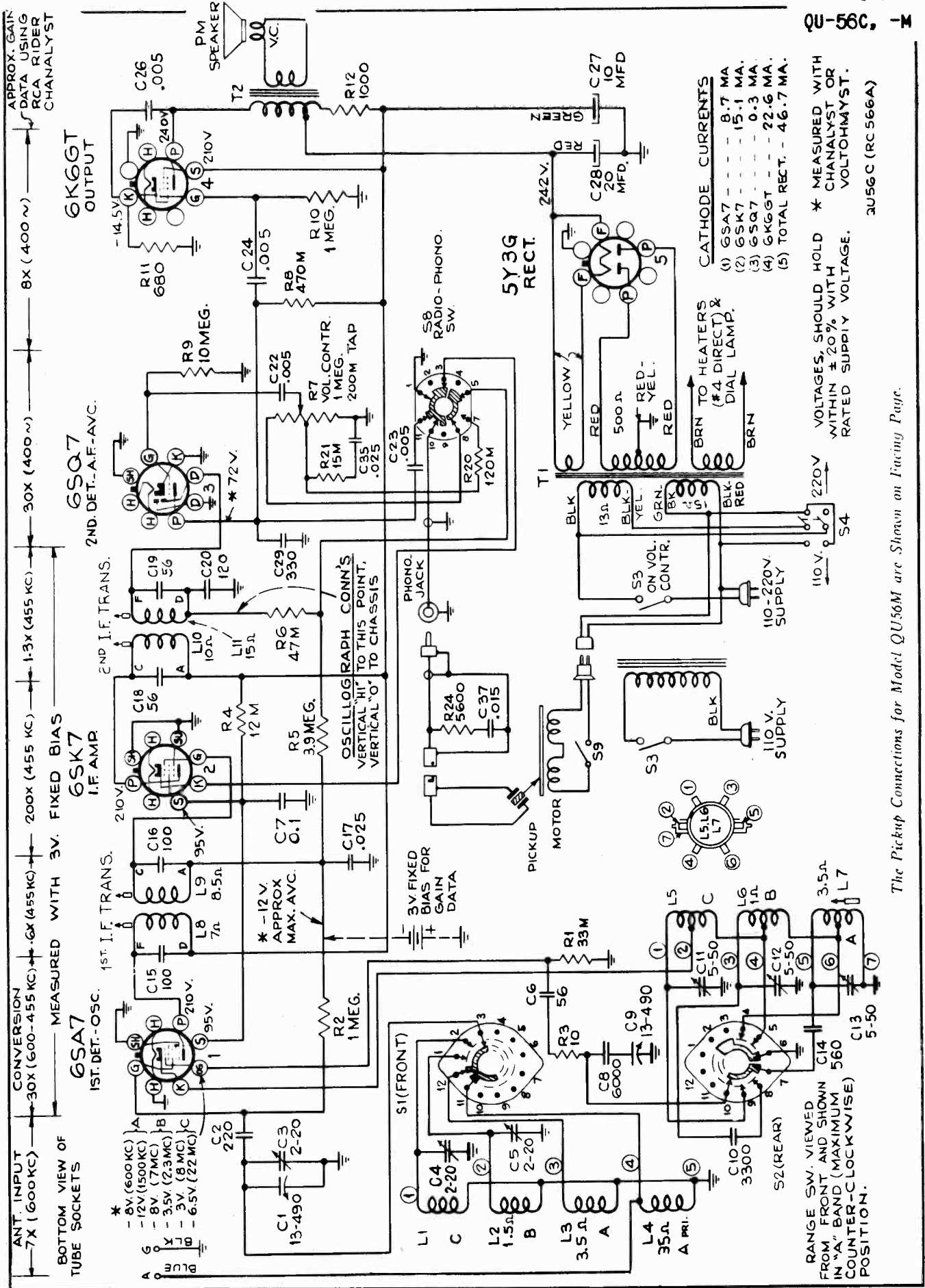
The QU56M is equipped with a magnetic pickup, the QU56C with a crystal pickup. The output of the crystal pickup is fed into the audio end of the receiver through a switch and compensating circuit. On instruments using a magnetic pickup, a transformer and compensating circuit are used between the pickup and the audio input (see schematic diagram). The transformer has two jacks, the larger one (primary) for input from the pickup and the smaller one (secondary) for output to the compensating circuit. The components of the compensating circuit are mounted externally to the chassis on a terminal board in the cabinet.



Schematic Showing Magnetic Pickup Connections (QU56M)



Motor Schematic



The Pickup Connections for Model QU56M are Shown on Facing Page.

Alignment Procedure

Precautionary Lead Dress.

1. "B" and "C" band antenna trimmer leads to be dressed away from "B" and "C" band oscillator trimmer leads.
2. Excess power transformer leads to be dressed between power transformer bell and rear apron of chassis.
3. R9 1st Audio grid lead, dressed down to chassis.
4. "B" Band Antenna coil lead to be wired so that it is dressed around "B" band section in a clockwise direction to coil lug in order to obtain proper "B" band tracking.
5. "C" band oscillator cathode lead to be dressed around coil in clockwise direction as shown in sample.
6. Dress tone control capacitor C23 up and away from A.C. switch leads.
7. Dress capacitor C25 from phono. socket to 6SQ7 socket up and away from all parts and leads.
8. Dress audio coupling C22 from volume control clear of A.C. wiring.
9. Red lead from A.C. switch to power switch to be dressed down against base.
10. Drive front gang mounting screw first.
11. Green lead to phono. socket dress up from chassis.
12. Dress A.C. switch leads to side apron.
13. Dress R20, R21 close to front apron.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

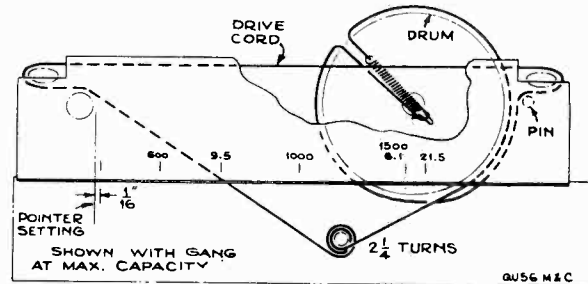
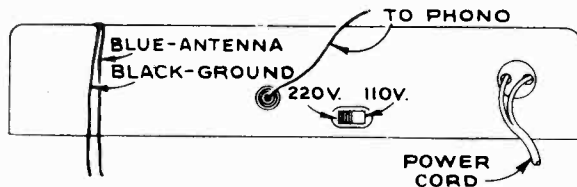
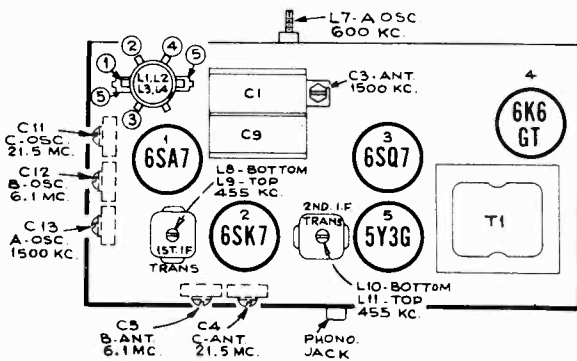
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Pre-Setting Dial.—With gang condenser in full mesh, the pointer should be 1/16 inch to the left of first mark on dial backing plate.

Steps	Range Switch	Connect high side test osc. to—	Tune test osc. to—	Turn radio dial to	Adjust following for max. peak output
1	"A"	I-F grid in series with .01 mfd.	455 kc	"A" band quiet point at high freq. end.	L10, L11 (2nd I-F trans.)
2		1st det. grid, in series with .01 mfd.			L9, L8† (1st I-F trans.)
3		Antenna lead in series with 200 mmf.	1,500 kc (200 m)	1,500 kc mark (5th mark)	C13, C3
4			600 kc (500 m)	600 kc mark (2nd mark)	L7** Rock gang
5			Repeat steps 3 and 4.		
6	"B"	Antenna lead in series with 300 ohms	6.1 mc	6.1 mc mark (5th mark)	C12* (osc.) C5 (ant.)
7	"C"		21.5 mc	21.5 mc mark (6th mark)	C11,* C4

* Use minimum capacity peak if two peaks can be obtained.
 ** Rock gang slightly for peak output.
 † Do not readjust L11 or L10 when test oscillator is applied to the 6SA7 Grid.
 NOTE: Oscillator tracks above signal on all bands.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers

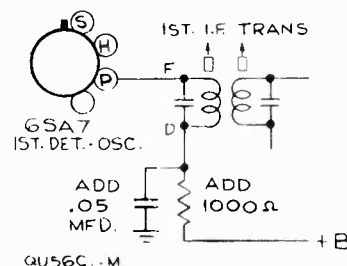
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC 566-A)	38432	Plate—Dial back plate complete with pulleys—less dial.
35761	Capacitor—Electrolytic—comprising 1 section of 20 mfd., 350 volts, and 1 section of 10 mfd., 350 volts.	30868	Plug—2-contact female plug for motor cable.
32830	Capacitor—Mica trimmer—comprising 2 sections of 2-20 mmfd. each.	5119	Plug—3-contact female plug for speaker cable.
32829	Capacitor—Mica trimmer—comprising 3 sections of 5-60 mmfd. each.	31373	Pulley—Drive cord pulley (3/8-in. dia.)
12723	Capacitor—56 mmfd., moulded.	32289	Pulley—Drive cord pulley (1/2-in. dia.)
30949	Capacitor—56 mmfd., un-moulded.	13988	Resistor—10 ohms, 1/2 watt.
30904	Capacitor—100 mmfd.	32686	Resistor—680 ohms, 1 watt.
12724	Capacitor—120 mmfd.	30152	Resistor—1,000 ohms, 1 watt.
12694	Capacitor—220 mmfd.	43765	Resistor—12,000 ohms, 2 watt.
12952	Capacitor—330 mmfd.	36714	Resistor—15,000 ohms, 1/2 watt.
12537	Capacitor—560 mmfd.	12454	Resistor—33,000 ohms, 1/2 watt.
31403	Capacitor—3,300 mmfd.	12412	Resistor—47,000 ohms, 1/2 watt.
31405	Capacitor—6,000 mmfd.	13734	Resistor—120,000 ohms, 1/2 watt.
4838	Capacitor—.005 mfd., 1,000 volts.	30648	Resistor—470,000 ohms, 1/2 watt.
33584	Capacitor—.005 mfd., 1,200 volts.	13730	Resistor—1 meg., 1/2 watt.
4870	Capacitor—.025 mfd.	32809	Resistor—3.9 meg., 1/2 watt.
4839	Capacitor—.01 mfd.	30992	Resistor—10 meg., 1/2 watt.
32821	Coil—Antenna coil—"A," "B," and "C" bands	38433	Shaft—Tuning knob shaft.
38292	Coil—Oscillator coil—"A," "B," and "C" bands	35772	Shield—Bottom end shield for power transformer
38287	Condenser—Variable tuning condenser.	35709	Shield—Top end shield for power transformer.
38408	Control—Volume control and power switch.	36932	Socket—Dial lamp socket.
32634	Cord—Drive cord (approx. 42 in. overall lgth.)	35787	Socket—Phono input socket.
32713	Core—Adjustable core and stud for oscillator coil	31251	Socket—Tube socket.
36237	Drum—Tuning condenser drive drum.	31418	Spring—Drive cord spring.
38331	Indicator—Station selector indicator.	38431	Switch—Range switch.
		38434	Switch—Tone control switch.
		32827	Switch—Voltage change switch.
		35636	Transformer—First I.F. transformer.
		35628	Transformer—Second I.F. transformer.

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
35758	Transformer—Power transformer — 105/125 volts, 25 cycle—less end shields.	36985	Motor—105-125 volts, 50 cycle motor—less pulleys, capacitor and cradle.
35757	Transformer—Power transformer — 105/125 volts, 50/60 cycle—less end shields.	36984	Motor—105-125 volts, 60 cycle motor—less pulleys, capacitor and cradle.
35759	Transformer—Power transformer — 105/125-210/225 volts, 50/60 cycle.	36995	Plate—Motor support plate complete with turntable bearing.
33726	Washer—"C" washer for tuning shaft and pulley, No. 31373.	36997	Spring—Idler arm tension spring.
	PICKUP AND ARM ASSEMBLY (CRYSTAL TYPE)	36996	Spindle—Turntable spindle.
33591	Arm—Pickup arm shell only.		Wheel—Rubber tired idler or drive wheel.
38435	Arm—Pivot arm and shaft complete.		AUTOMATIC SWITCH ASSEMBLIES
34758	Bushing—Rubber bushing and metal bushing for pivot arm.	34419	Base—Pickup arm mounting base.
33122	Crystal—Pickup crystal complete.	36772	Cam—Automatic switch cam.
33529	Screw—Needle screw.	36771	Mounting—Pickup arm mounting.
	PICKUP AND ARM ASSEMBLY (MAGNETIC TYPE)	36773	Plug—3-prong male plug.
38420	Arm—Pickup arm shell only—less mechanism, support arm, pins and shielded cable.	36521	Spring—Cam tension spring.
38436	Arm—Pickup support arm complete—less rubber bushings.	38995	Switch—Automatic switch—less cam, base, and shaft.
14291	Armature—Pickup armature assembly.		SPEAKER ASSEMBLIES (92196-504)
34550	Bushing—Rubber bushing for support arm.	37947	Cone—Cone complete with voice coil.
32635	Cable—Pickup lift cable.	5118	Plug—3-prong male speaker plug.
38215	Cable—Shielded pickup cable.	37948	Transformer—Output transformer.
38216	Catch—Pickup head catch.		MISCELLANEOUS ASSEMBLIES
14672	Coil—Pickup coil.	38996	Cam—Automatic switch cam.
38197	Cover—Insulating cover.	4288	Cap—Connector cap for pickup—Model QU56C.
38421	Head—Pickup head shell only.	11315	Capacitor—.015 mfd.
37291	Mechanism—Pickup mechanism complete.	5196	Capacitor—.035 mfd.
38198	Pin—Pin to attach head to arm ($\frac{1}{8}$ -in. dia.) Pkg. 2.	38354	Clamp—Dial clamp.
38199	Pin—Pin to attach support arm to shell ($\frac{3}{32}$ -in. dia.)	38437	Cup—Used needle cup.
38196	Screw—Needle screw.	36763	Decalcomania—Control panel decal.
38217	Screw—Pickup mechanism support screw—Pkg. 2.	38441	Decalcomania—"His Master's Voice" decal—Pkg. 5.
38213	Spring—Needle point weight adjustment spring.	35392	Decalcomania—"RCA Victrola" decal.
38214	Stud—Shouldered stud to hold tension spring and head catch.	38440	Dial—Glass dial scale.
	MOTOR ASSEMBLIES	4286	Ferrule—Ferrule and bushing for pickup—Model QU56C.
36986	Arm—Drive wheel or idler wheel support arm.	38334	Knob—Tone switch or range switch knob.
36988	Armature—Armature complete for 105-125 volts, 50 cycle motor.	37256	Knob—Tuning or volume control knob.
36987	Armature—Armature complete for 105-125 volts, 60 cycle motor.	11891	Lamp—Dial lamp.
36989	Bushing—Motor mounting rubber bushings.	38439	Mounting—Motor mounting hardware (1 set).
36991	Capacitor—Motor capacitor for 105-125 volts, 50 cycle motor.	30870	Plug—2-contact female plug for motor leads.
36990	Capacitor—Motor capacitor for 105-125 volts, 60 cycle motor.	31572	Plug—3-prong male plug for motor leads.
36993	Cover—Bakelite top end shell for 105-125 volts, 50 cycle motor.	33960	Plug—Phonograph output plug—Model QU56M.
36992	Cover—Bakelite top end shell for 105-125 volts, 60 cycle.	31048	Plug—Single prong male plug for phono input cable or pickup cable.
		36246	Receptacle—Packaged needle receptacle.
		13714	Resistor—5,600 ohms, $\frac{1}{2}$ watt.
		30436	Resistor—12,000 ohms, $\frac{1}{2}$ watt.
		12266	Resistor—39,000 ohms, $\frac{1}{2}$ watt.
		30900	Spring—Retaining spring for knobs.
		38870	Support—Pickup arm support for Model QU56C.
		38871	Support—Pickup arm support for Model QU56M.
		14609	Transformer—Input transformer for Model QU56M.
		38438	Turntable.

Instability:

Development of appreciable RF impedance in the electrolytic filter capacitor creates common coupling and may cause IF oscillation. To eliminate this possibility, an RC filter is connected in the +B lead of the 1st-detector plate circuit, as shown in accompanying sketch.



In Q56-C, -M, an RC filter is added in the 1st-detector plate circuit.

MODEL R-56 Two-Tube, A-C, Electric Phonograph

Specifications

TUBE COMPLEMENT

- (1) RCA 50L6GT Power Amplifier
- (2) RCA 50Y6GT Rectifier

POWER SUPPLY

105-125 volts, 60 cycles 50 watts

LOUDSPEAKER

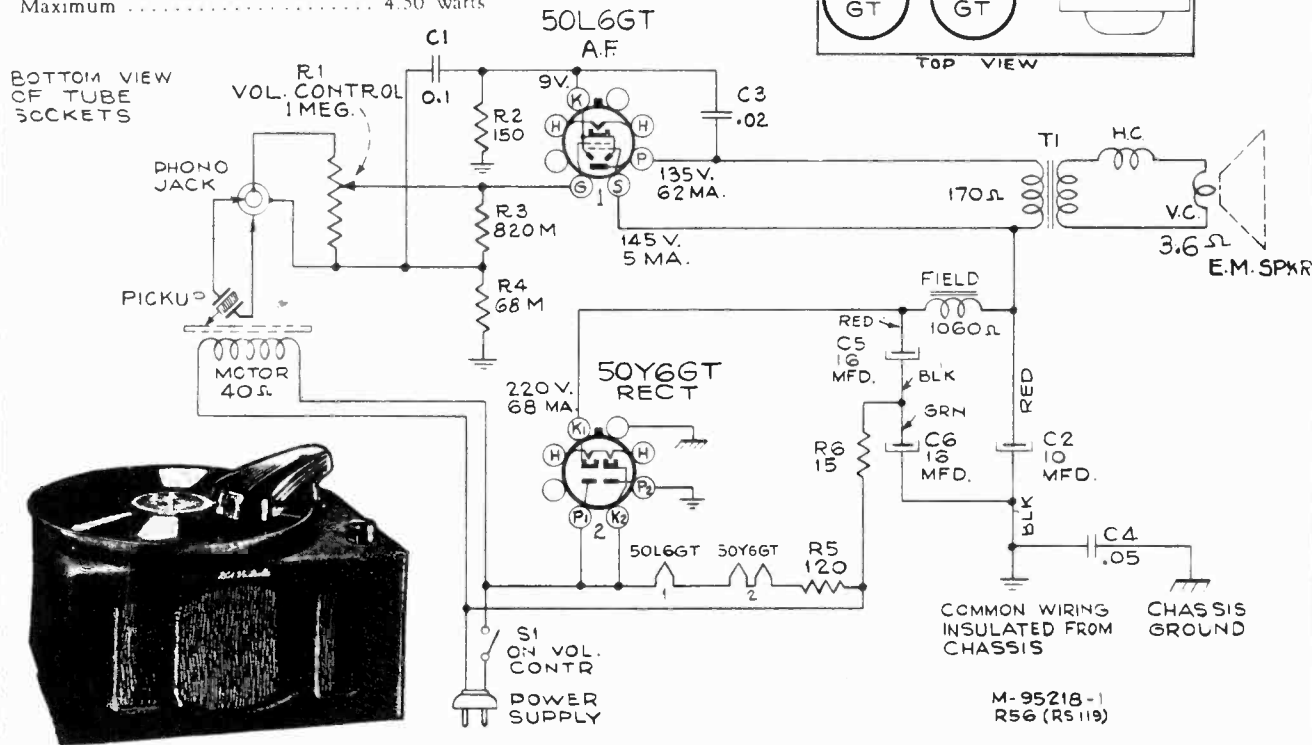
RL-86-C1 5-inch Electrodynamic
V. C. Impedance at 400 cycles 4 ohms

POWER OUTPUT RATING

Undistorted 2.25 watts
Maximum 4.50 watts

PHONOGRAPH

- Motor Self-starting Induction
- Drive Rim Drive, 78.25 R.P.M.
- Pickup Crystal



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
AMPLIFIER ASSEMBLY			
39684	Capacitor—Electrolytic, one section of 10 mfd., 250 volts, and one section of 18 mfd., 150 volts	39688	Coil—Field coil
36248	Capacitor—.02 mfd., 700 volts	39689	Coil—Neutralizing coil
32787	Capacitor—.05 mfd., 400 volts	39539	Cone—Cone, voice coil, center suspension, and dust cap
43783	Capacitor—.01 mfd., 400 volts	MOTOR ASSEMBLY	
39500	Capacitor—.18 mfd., 150 volts	38402	Arm—Idler arm and stud for motor
38410	Control—Volume control and power switch	20134	Ball—Steel ball for turntable bearing
11565	Resistor—15 ohms, 1/4 watt	36404	Motor—105-125 volts, 60 cycle motor
39685	Resistor—120 ohms, 3.1 watt	38403	Mounting—One set of motor mounting grommets, spacers, and washers
30785	Resistor—150 ohms, 1 watt	38408	Plate—Idler arm guide plate for motor
14138	Resistor—68,000 ohms, 1/4 watt	38401	Plate—Motor plate complete with bearing and ball
30161	Resistor—820,000 ohms, 1/4 watt	30340	Retainer—Motor fan retainer
33742	Socket—Phono input socket	30585	Spring—Motor idler arm tension spring
31251	Socket—Tube socket	38399	Turntable—Turntable and bushing complete with spindle
39683	Transformer—Output transformer	33728	Washer—"C" washer for motor idler wheel
PICKUP AND ARM ASSEMBLY			
33591	Arm—Pickup arm only—less cartridge, and pivot shaft and base assembly	38405	Washer—Flat washer for motor idler wheel
34482	Base—Pickup arm base—less pivot shaft	38274	Wheel—Motor idler wheel and bearing
34768	Bushing—One rubber and one metal bushing for pickup arm	MISCELLANEOUS ASSEMBLIES	
39686	Crystal—Pickup crystal cartridge	38990	Foot—Cabinet foot
34311	Ring—Retaining ring for pivot shaft	38710	Knob—Volume control knob
33974	Screw—Needle screw	33530	Mounting—Rubber grommet, washers, and nut for mounting pickup arm
34481	Shaft—Pickup arm pivot shaft	39690	Screw—Finish screw and washer for mounting amplifier (1 set)
SPEAKER ASSEMBLY (RL-86C-1)			
32907	Cap—Cone center dust cap		

Models K-60 and K-80

Chassis Nos. RC-415 RC-415-A

Six and Eight-Tube, Three-Band, AC, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES	
Standard Broadcast	540-1,720 kc
Medium Wave	2.3-7.0 mc
Short Wave	7.0-22.0 mc
INTERMEDIATE FREQUENCY	455 kc

Model K-60

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6H6 2nd Detector, A.V.C.
- (4) RCA-6SF5 A-F Amplifier
- (5) RCA-6F6-G Power Output
- (6) RCA-5Y3-G Rectifier

PILOT LAMPS (2) ... Mazda No. 44, 6.3 volts, 0.25 amp

POWER OUTPUT RATING

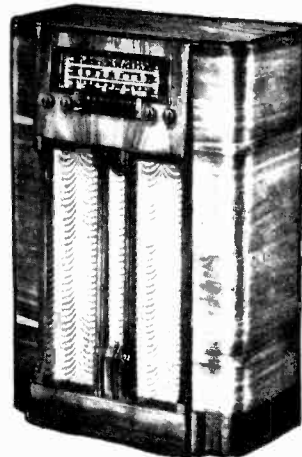
Undistorted 2.5 watts
Maximum 4.5 watts

LOUDSPEAKER (RL-70H-6)

Type 12-inch electrodynamic
V.C. Impedance 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A. 105-125 volts, 50-60 cycles, 75 watts
Rating B. 105-125 volts, 25-60 cycles, 75 watts
Rating C. 100-130, 140-160, 195-250 volts, 40-60 cycles, 75 watts



MODEL K-60



MODEL K-80

Model K-80

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7 2nd Detector, A.V.C., and A-F Amplifier
- (4) RCA-6SF5 Inverter
- (5) RCA-6F6-G Power Output
- (6) RCA-6F6-G Power Output
- (7) RCA-5Y3-G Rectifier
- (8) RCA-6U5/6G5 Tuning Indicator

PILOT LAMPS (2) Mazda No. 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

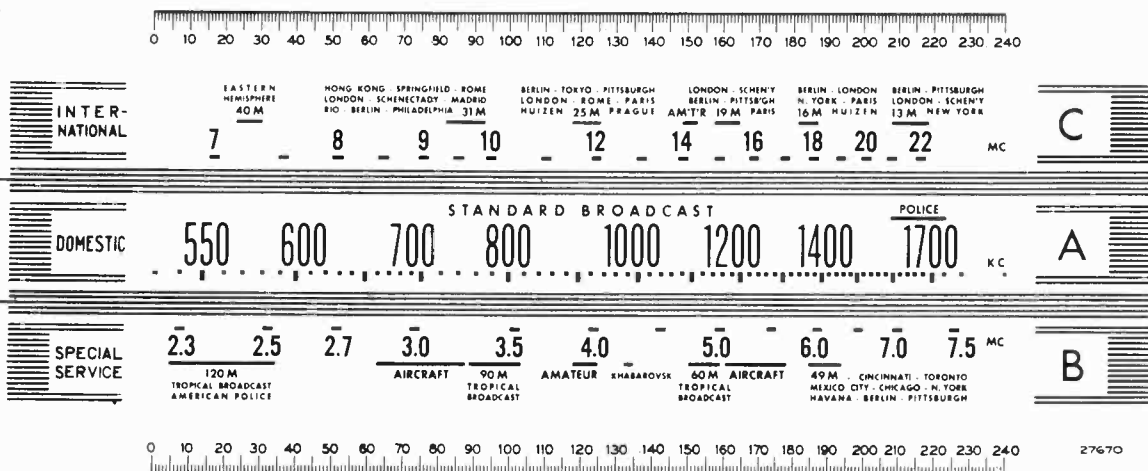
Undistorted 5.0 watts
Maximum 5.5 watts

LOUDSPEAKER (RL-70J-1)

Type 12-inch electrodynamic
V.C. Impedance 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A. 105-125 volts, 50-60 cycles, 85 watts
Rating B. 105-125 volts, 25-60 cycles, 85 watts
Rating C. 100-130, 140-160, 195-250 volts, 40-60 cycles, 85 watts



Receiver Dial Scales, and Corresponding 0-240° Calibration Scales

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical and directly under the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

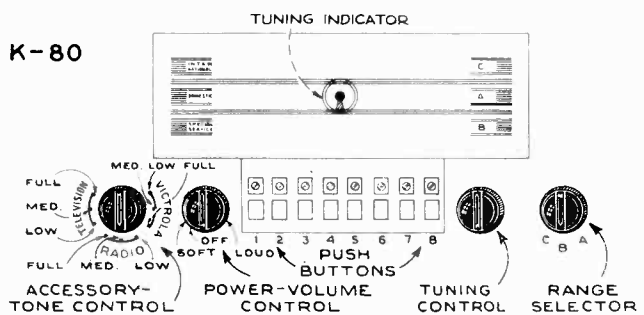
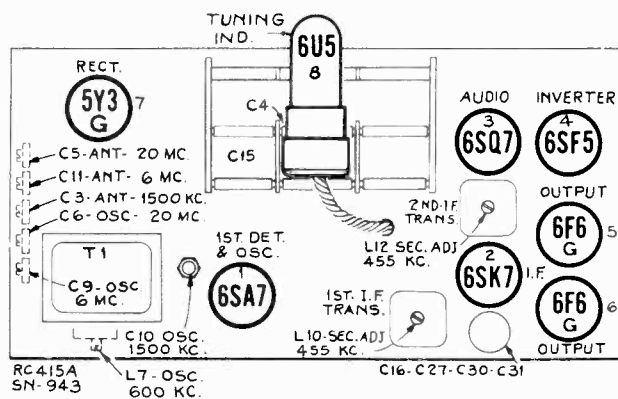
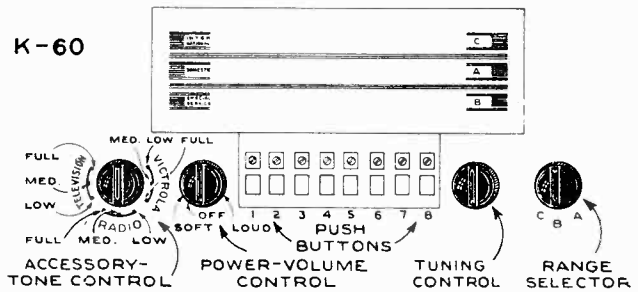
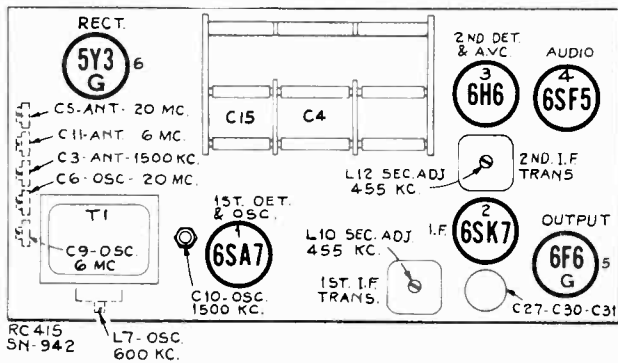
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L11 and L12 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L9 and L10 (1st I-F Trans.)
3	Ant. terminal in series with 300 ohms	20 mc	20 mc (200) "C" Band	C6 (osc.)* C5 (ant.)
4		6 mc	6 mc (187.5°) "B" Band	C9 (osc.)** C11 (ant.)
5	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc (198.25°) "A" Band	C10 (osc.) C3 (ant.)
6		600 kc	600 kc (39.75°) "A" Band	L7 (osc.) Rock Gang
7	Repeat step 5.			

* Use minimum capacity peak if two can be obtained. Check to determine that C6 has been adjusted to correct peak by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

** Use minimum capacity peak if two can be obtained. Check to determine that C9 has been adjusted to correct peak by tuning receiver to approximately 5.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on all bands.



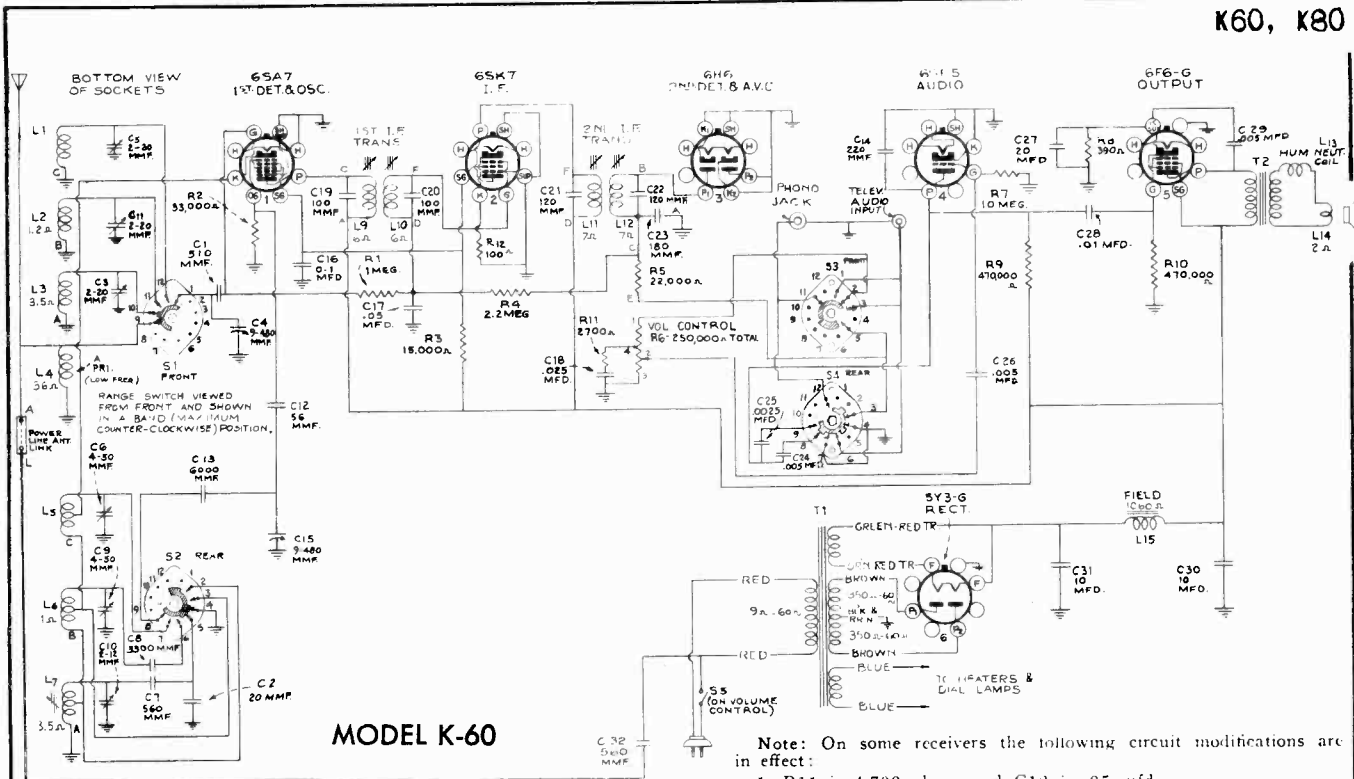
Push Button Adjustment

The push-buttons should be adjusted for eight favorite stations after the receiver is operating, and has had a brief warm-up period.

Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Loosen the push-button screws in back of the station-marker recesses

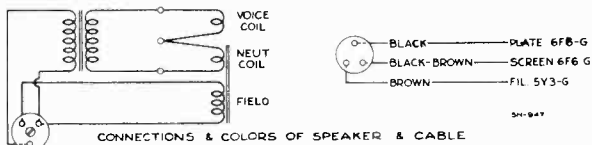
2. Set Accessory-Tone Knob to "Radio" and turn the range selector to "A."
3. Press in the tuning knob and accurately tune in the first station.
4. With station accurately tuned in, press in the first push-button and tighten the screw.
5. Place the station marker tab in the recess.
6. Proceed in a similar manner to adjust the remainder of the push-buttons.



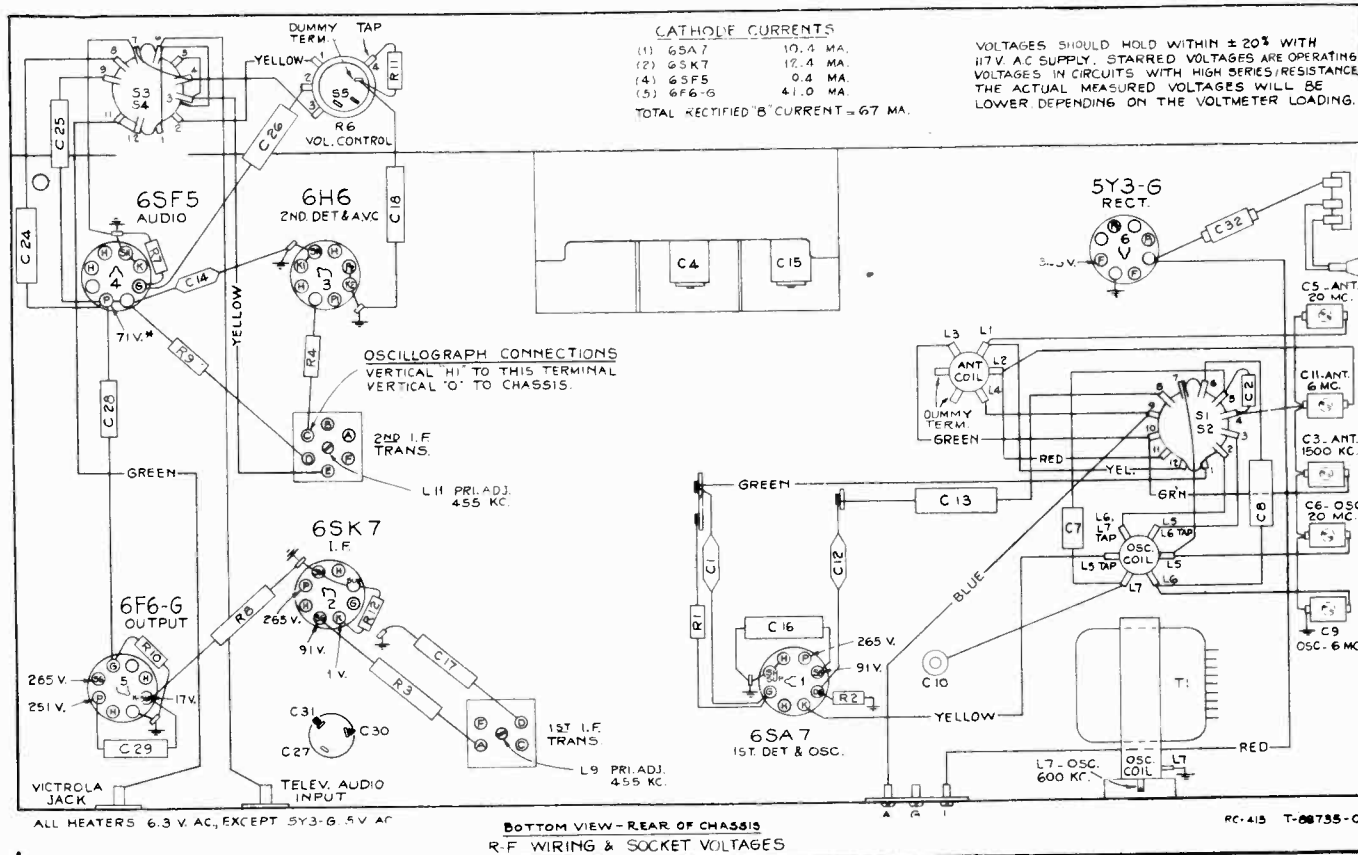
MODEL K-60

Note: On some receivers the following circuit modifications are in effect:

1. R11 is 4,700 ohms, and C18 is .05 mfd.
 2. C1 is 470 mmfd.
 3. There are three types of 2nd I-F transformers in use.
 - a. The first type (Stock No. 14308) has C23 and R5 mounted inside the case, and is connected exactly as shown above.
 - b. In the second type R5 is omitted and the lead from S4 connects to C instead of E. E is not used.
 - c. In the third type R5 is omitted and C23 is connected externally from C to ground. E is not used. The lead from the diode plate connects to A instead of B. When replacing this transformer with Stock No. 14308, remove the external C23 and connect the replacement transformer as shown in the above diagram.
- Important: Stock No. 14308 is used as replacement for all three of the above types, and should be connected as shown in the diagram.



CONNECTIONS & COLORS OF SPEAKER & CABLE



CATHODE CURRENTS

- | | |
|--------------------------------------|----------|
| (1) 6SA7 | 10.4 MA. |
| (2) 6SK7 | 12.4 MA. |
| (4) 6SF5 | 0.4 MA. |
| (5) 6F6-G | 4.0 MA. |
| TOTAL RECTIFIED 'B' CURRENT = 67 MA. | |

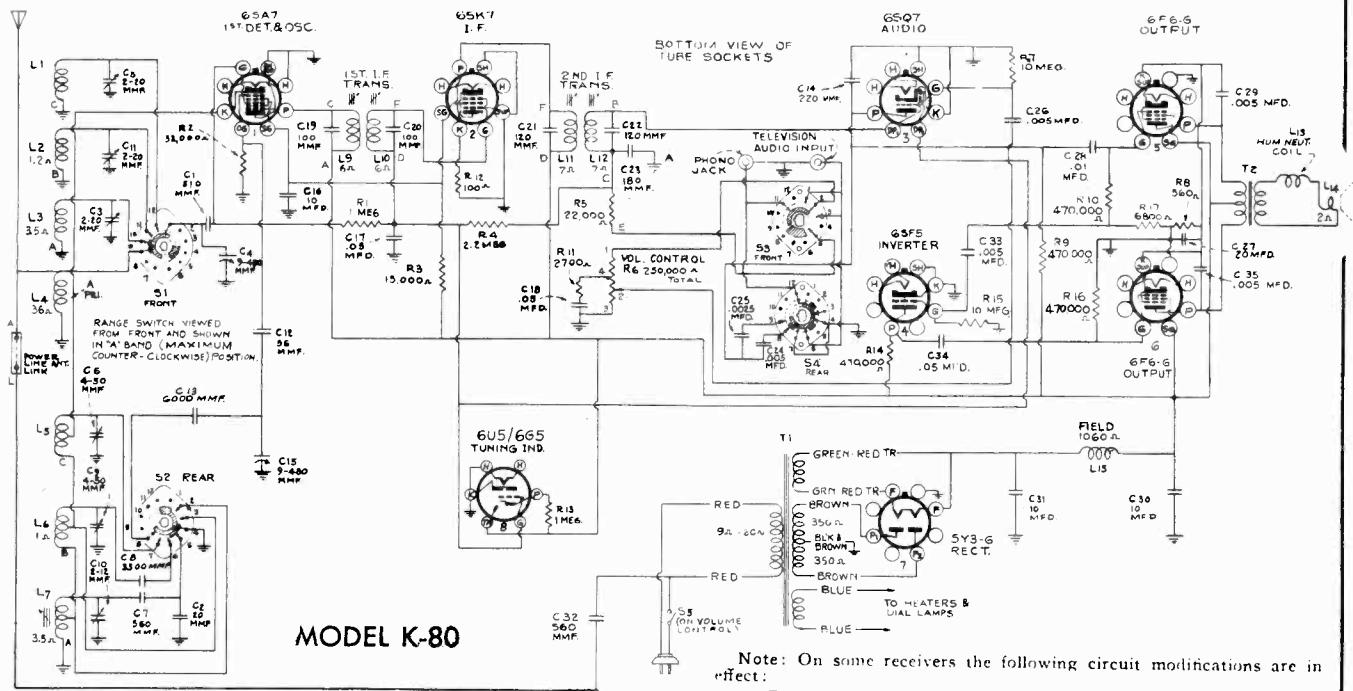
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC SUPPLY. STARRED VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

ALL HEATERS 6.3 V. AC, EXCEPT 5Y3-G .5 V AC

BOTTOM VIEW - REAR OF CHASSIS
R.F. WIRING & SOCKET VOLTAGES

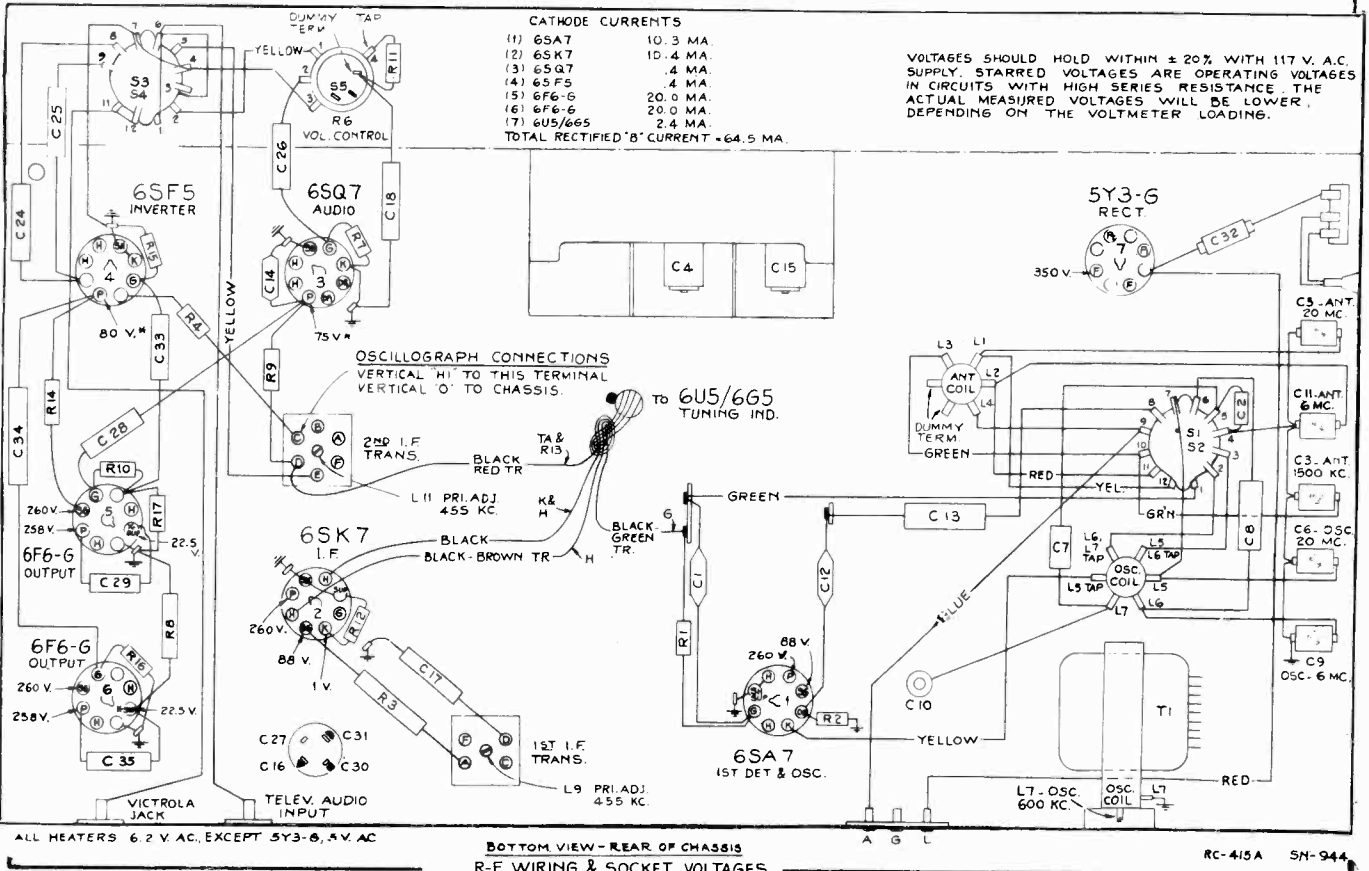
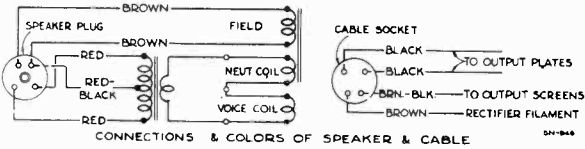
PC-413 T-28735-0

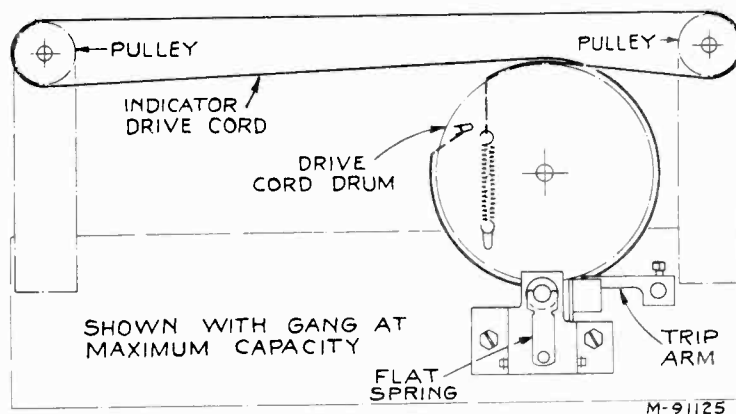
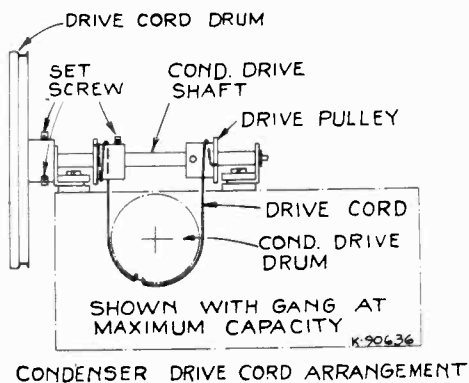
K60, K80



Note: On some receivers the following circuit modifications are in effect:

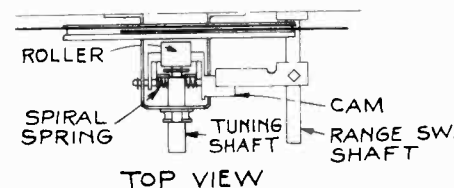
1. R11 is 5,600 ohms, and C18 is 0.1 mfd.
 2. C1 is 470 mmfd.; R15 is 2,700 ohms and is connected from cathode of 6SF5 Inverter to ground; R17 is 15,000 ohms; and C33 is omitted.
 3. There are three types of 2nd I-F transformers in use.
 - a. The first type (Stock No. 14308) has C23 and R5 inside the case, and is connected exactly as shown above.
 - b. In the second type R5 is omitted and the lead from S4 connects to C instead of E. E is not used.
 - c. In the third type R5 is omitted and C23 is connected externally from C to ground. E is not used. The lead from the diode plate connects to A instead of B. When replacing this transformer with Stock No. 14308, remove the external C23 and connect the replacement transformer as shown in the above diagram.
- Important: Stock No. 14308 is used as replacement for all three of the above types, and should be connected as shown in the diagram.





Note: In the Dial Indicator Drive Cord Assembly drawing at the right the mechanism is shown with the range switch in the "A" band position. In this position the trip arm on the range switch shaft must be adjusted so that when push-buttons are operated, the drive cord drum will turn freely without rubbing or binding against the drive roller.

DIAL INDICATOR DRIVE CORD ASSEMBLY.



Replacement Parts MODEL K-60

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-415)		4669	Screw—No. 8-32 square head set screw for drum
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw	33621	Screw—Push arm lock screw
33432	Arm—Trip arm and set screw located on range switch shaft	33624	Shaft—Tuning condenser drive shaft and washer
33430	Board—Antenna and ground terminal board	33422	Shaft—Tuning shaft—less friction roller
12714	Capacitor—Air-trimmer, 2-12 mmfd. (C10)	31364	Socket—Dial lamp socket
33429	Capacitor—Trimmer capacitor bank, 2 sections 4-50 mmfd., and 3 sections 2-20 mmfd. (C3, C5, C6, C9, C11)	14278	Socket—Phonograph or Television input socket
31871	Capacitor—20 mmfd. (C2)	31319	Socket—Tube socket
12723	Capacitor—56 mmfd. (C12)	33175	Spring—Drive cord tension spring
30904	Capacitor—100 mmfd. (C19, C20)	33623	Spring—Drive drum cord spring
12404	Capacitor—120 mmfd. (C21, C22)	33622	Spring—Push arm return spring
14712	Capacitor—180 mmfd. (C23)	33421	Spring—Tuning shaft flat spring
30232	Capacitor—220 mmfd. (C14)	33420	Spring—Tuning shaft cam spiral spring
30608	Capacitor—510 mmfd. (C1)	33426	Switch—Range switch (S1, S2)
31433	Capacitor—560 mmfd. (C7)	33428	Transformer—First i-f transformer (L9, L10, C19, C20)
12537	Capacitor—560 mmfd. (C32)	14308	Transformer—Second i-f transformer (L11, L12, C21, C22, C23, R5)
31403	Capacitor—3,300 mmfd. (C8)	33618	Transformer—Power transformer—105-120 volts, 25 cycle (T1)
31405	Capacitor—6,000 mmfd. (C13)	33112	Transformer—Power transformer—105-120 volts, 50-60 cycle (T1)
5107	Capacitor—.0025 mfd. (C25)	SPEAKER ASSEMBLIES (RL-70H6)	
4838	Capacitor—.005 mfd. (C24, C26, C29)	31825	Cap—Cone center dust cap
4937	Capacitor—.01 mfd. (C28)	11469	Coil—Hum neutralizing coil (L13)
32787	Capacitor—.05 mfd., 400 V. (C17, C18)	33116	Coil—Speaker field coil (L15)
4839	Capacitor—0.1 mfd. (C16)	31275	Cone—Speaker cone, voice coil and dust cap (L14)
32240	Capacitor—Electrolytic, 2 sections 10 mfd., one section 20 mfd. (C27, C30, C31)	5118	Plug—3-contact male, for speaker
32821	Coil—Antenna coil (L1, L2, L3, L4)	31301	Transformer—Output transformer (T2)
32824	Coil—Oscillator coil (L5, L6, L7)	MISCELLANEOUS ASSEMBLIES	
33424	Control—Tone control (S3, S4)	33474	Button—Push button
33425	Control—Volume control and power switch (R6, S5)	33437	Dial—Dial scale (glass)
32635	Cord—Condenser drive cord	33439	Escutcheon—Dial escutcheon—less push buttons
32634	Cord—Indicator drive cord	33436	Frame—Dial scale holder, mounting brackets, and pointer assembled—less dial
32713	Core—Adjustable core and stud for oscillator coil	34383	Indicator—Dial pointer, carriage and clip
33627	Drum—Condenser drive drum	33434	Knob—Volume control, tone control, range switch, or station selector knob
33174	Drum—Drive cord drum with set screws and calibrator dial	33431	Link—Link for "Antenna-Ground" terminal board
11891	Lamp—Dial lamp	33842	Marker—Station selectors call letter markers
33625	Plate—Front guide plate for push arms	34143	Shaft—Pointer carriage slide rod
5119	Plug—3-contact female for speaker cable	14270	Spring—Retaining spring for knob
33427	Pulley—Drive cord pulley and mounting bracket		
33626	Pulley—Drive pulley—less bronze drive cord		
31388	Resistor—390 ohms, 1 watt (R8)		
30146	Resistor—4,700 ohms, 1/2 watt (R11)		
33489	Resistor—15,000 ohms, 2.5 watt (R3)		
14284	Resistor—22,000 ohms, 1/10 watt (R5)		
12454	Resistor—33,000 ohms, 1/2 watt (R2)		
12285	Resistor—470,000 ohms, 1/2 watt (R9, R10)		
13730	Resistor—1 meg., 1/2 watt (R1)		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
13601	Resistor—10 meg., 1/2 watt (R7)		
30340	Retainer—Retainer for shaft of tuning shaft cam and arm		
33419	Roller—Friction roller for tuning knob shaft		

Additional Replacement Parts:

- Stock No.
 35014 Mounting—Rubber cushion, spacer and washers for chassis mounting (4 required)
 14439 Resistor—100 ohms, 1/2 watt (R12)
 34969 Washer—For under control knobs

Replacement Parts MODEL K-80, RC-415A

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-415A)			
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw	13730	Resistor—1 meg., ½ watt (R1)
33432	Arm—Trip arm and set screw located on range switch shaft	12679	Resistor—2.2 meg., ½ watt (R4)
33430	Board—Antenna and ground terminal board	13601	Resistor—10 meg., ½ watt (R7, R15)
30766	Cap—Rubber cap for Magic Eye—Model K80 only	30340	Retainer—Retainer for shaft of tuning shaft cam and arm
12714	Capacitor—Air-trimmer, 2-12 mmfd. (C10)	33419	Roller—Friction roller for tuning knob shaft
33429	Capacitor—Trimmer capacitor bank, 2 sections 4-50 mmfd., and 3 sections 2-20 mmfd. (C3, C5, C6, C9, C11)	4669	Screw—No. 8-32 square head set screw for drum
31871	Capacitor—20 mmfd. (C2)	33621	Screw—Push arm lock screw
12723	Capacitor—56 mmfd. (C12)	33624	Shaft—Tuning condenser drive shaft and washer
30904	Capacitor—100 mmfd. (C19, C20)	33422	Shaft—Tuning shaft—less friction roller
12404	Capacitor—120 mmfd. (C21, C22)	31364	Socket—Dial lamp socket
14712	Capacitor—180 mmfd. (C23)	13871	Socket—Magic Eye tube socket
30232	Capacitor—220 mmfd. (C14)	14278	Socket—Phonograph or Television input socket
30608	Capacitor—510 mmfd. (C1)	31319	Socket—Tube socket
31433	Capacitor—560 mmfd. (C7)	33175	Spring—Drive cord tension spring
12537	Capacitor—560 mmfd. (C32)	33623	Spring—Drive drum cord spring
31403	Capacitor—3,300 mmfd. (C8)	33622	Spring—Push arm return spring
31405	Capacitor—6,000 mmfd. (C13)	33421	Spring—Tuning shaft flat spring
4838	Capacitor—.005 mfd. (C24, C26, C29, C33, C35)	33420	Spring—Tuning shaft cam spiral spring
4937	Capacitor—.01 mfd. (C28)	33426	Switch—Range switch (S1, S2)
32787	Capacitor—.05 mfd., 400 V. (C17, C34)	33428	Transformer—First i-f transformer (L9, L10, C19, C20)
32786	Capacitor—.1 mfd. (C18)	14308	Transformer—Second i-f transformer (L11, L12, C21, C22, C23, R5)
33014	Capacitor—Electrolytic, 3 sections 10 mfd., one section 20 mfd. (C16, C27, C30, C31)	33618	Transformer—Power transformer—105-120 volts, 25 cycle (T1)
32821	Coil—Antenna coil (L1, L2, L3, L4)	33112	Transformer—Power transformer—105-120 volts, 50-60 cycle (T1)
32824	Coil—Oscillator coil (L5, L6, L7)	SPEAKER ASSEMBLIES (RL-70J1)	
33424	Control—Tone control (S3, S4)	31825	Cap—Cone center dust cap
33425	Control—Volume control and power switch (R6, S5)	11469	Coil—Hum neutralizing coil (L13)
32635	Cord—Condenser drive cord	33116	Coil—Speaker field coil (L15)
32634	Cord—Drive cord	31275	Conc—Speaker cone, voice coil, and dust cap (L14)
32713	Core—Adjustable core and stud for oscillator coil	5039	Plug—4-prong male, for speaker
33627	Drum—Condenser drive drum	33444	Transformer—Output transformer (T2)
33174	Drum—Drive cord drum with set screws and calibrator dial	MISCELLANEOUS ASSEMBLIES	
11891	Lamp—Dial lamp	33473	Button—Push button
33625	Plate—Front guide plate for push arms	30716	Clip—Magic Eye clip
5040	Plug—4-contact female for speaker cable	33437	Dial—Dial scale (glass)
33427	Pulley—Drive cord pulley and mounting bracket	33439	Escutcheon—Dial escutcheon—less push buttons
33626	Pulley—Drive pulley—less bronze drive cord	33435	Frame—Dial scale holder, mounting brackets, pointer, and Magic Eye bracket and clip assembled—less dial
14439	Resistor—100 ohms, ½ watt (R12)	34383	Indicator—Dial pointer, carriage, and clip
30735	Resistor—560 ohms, ½ watt (R8)	33434	Knob—Volume control, tone control, range switch, or station selector knob
13714	Resistor—5,600 ohms, ½ watt (R11)	33431	Link—Link for "Antenna-Ground" terminal board
12265	Resistor—6,800 ohms, ½ watt (R17)	33842	Marker—Station selectors call letter markers
33489	Resistor—15,000 ohms, 2.5 watt (R3)	33438	Screw—Thumb screw for Magic Eye clip
14284	Resistor—22,000 ohms, 1 10 watt (R5)	34143	Shaft—Pointer carriage slide rod
12454	Resistor—33,000 ohms, ½ watt (R2)	14270	Spring—Retaining spring for knob
12285	Resistor—470,000 ohms, ½ watt (R9, R10, R14, R16)		
12013	Resistor—1 meg., 1 10 watt (R13)		

Additional Replacement Parts:

- Stock No.**
 35014 Mounting for chassis, rubber cushion, spacer and washers (4 required)
 36078 Drive—Tuning knob drive assembly
 34969 Washer—Felt washer for under control knobs

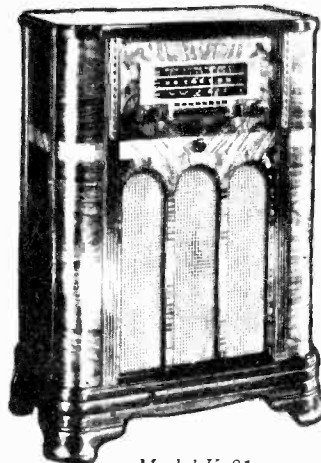
MODELS K-60, K-62 K-80, K-81 and K-82

Chassis No. RC-415B, RC-415C, RC-415D, RC-415C RC-415C

Three-Band, A-C, Loop, Superheterodynes



Model K-62 (RC-415B)



Model K-81



Model K-82 (RC-415C).

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast..... 540-1,560 kc
 Medium Wave..... 1.52-4.0 mc

Short Wave..... 5.8-18.0 mc
 INTERMEDIATE FREQUENCY..... 455 kc

MODEL K-60 (RC-415B) K-62

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6H6..... 2nd Detector, A.V.C.
- (4) RCA-6SF5..... A-F Amplifier
- (5) RCA-6F6-G..... Power Output
- (6) RCA-5Y3-G..... Rectifier

POWER OUTPUT RATING

Undistorted..... 2.5 watts
 Maximum..... 4.5 watts

LOUDSPEAKER (RL-70H-6)

Type..... 12-inch electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER CONSUMPTION

Watts..... 75

MODELS K-80, K-81, K-82

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6SQ7..... 2nd Detector, A.V.C., and A-F Amplifier
- (4) RCA-6SF5..... Inverter
- (5) RCA-6F6-G..... Power Output
- (6) RCA-6F6-G..... Power Output
- (7) RCA-5Y3-G..... Rectifier
- RCA-6U5/6G5..... Tuning Indicator
- PILOT LAMPS (2)..... Mazda No. 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

Undistorted..... 5.0 watts
 Maximum..... 5.5 watts

LOUDSPEAKER (RL-70J-1)

Type..... 12-inch electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER CONSUMPTION

Watts..... 85

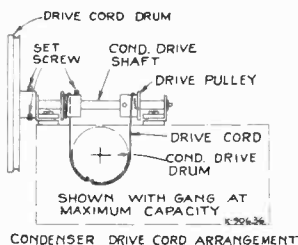
Push Button Adjustment

The push-buttons should be adjusted for eight favorite stations after the receiver is operating, and has had a brief warm-up period.

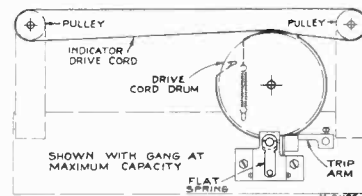
Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Loosen the push-button screws in back of the station-marker recesses.

2. Set Accessory-Tone Knob to "Radio" and turn the range selector to "A."
3. Press in the tuning knob and accurately tune in the first station.
4. With station accurately tuned in, press in the first push-button and tighten the screw.
5. Place the station marker tab in the recess.
6. Proceed in a similar manner to adjust the remainder of the push-buttons.



Note: In the Dial Indicator Drive Cord Assembly drawing the mechanism is shown with the range switch in the "A" band position. In this position the trip arm on the range shaft must be adjusted so that when the push-buttons are operated, the drive cord drum will turn freely without rubbing or binding against the drive roller.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference when the chassis is removed; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees.

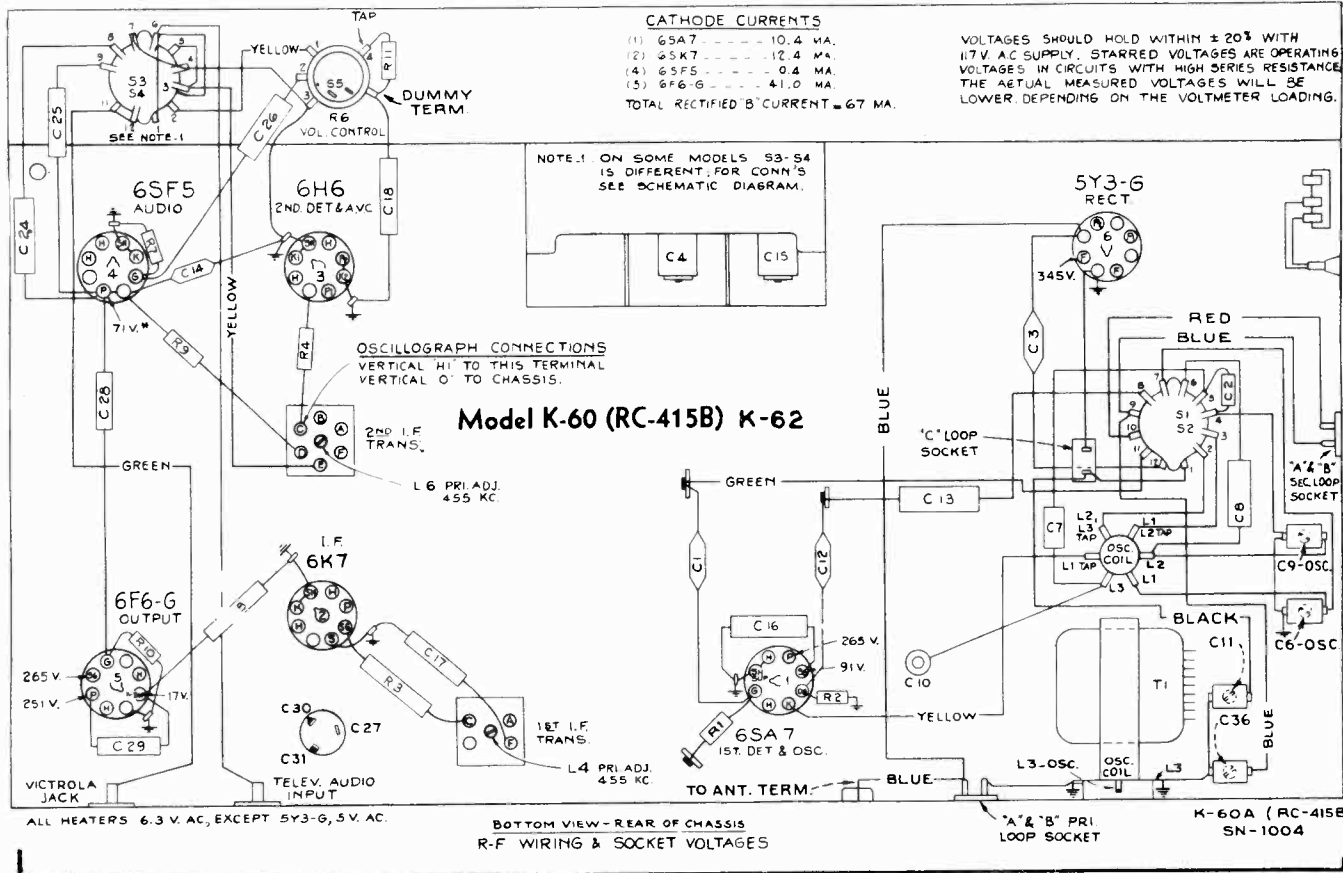
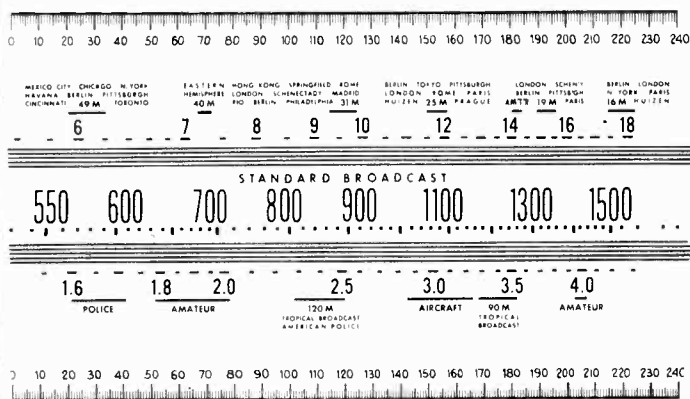
As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical and directly under the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

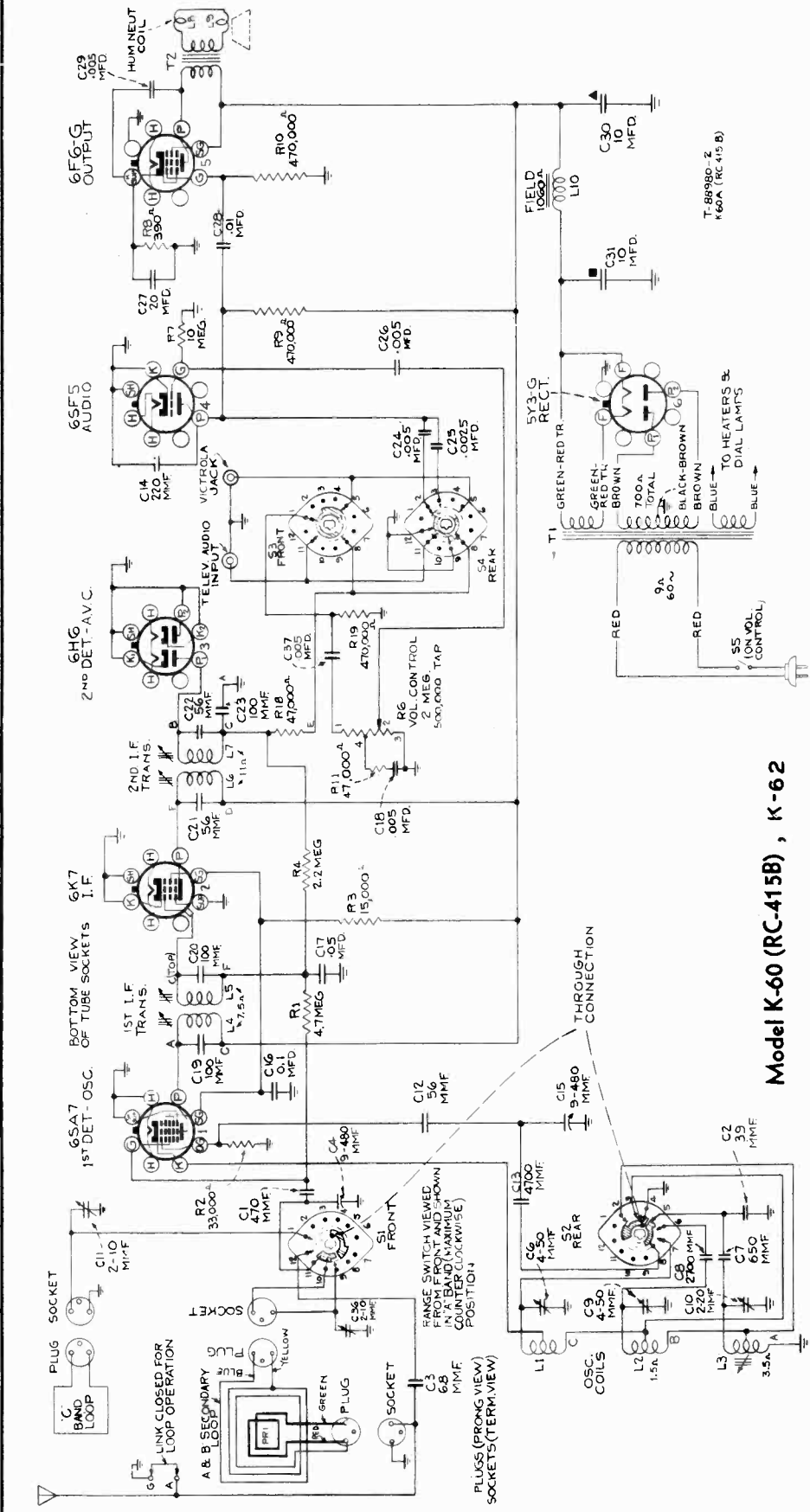
On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

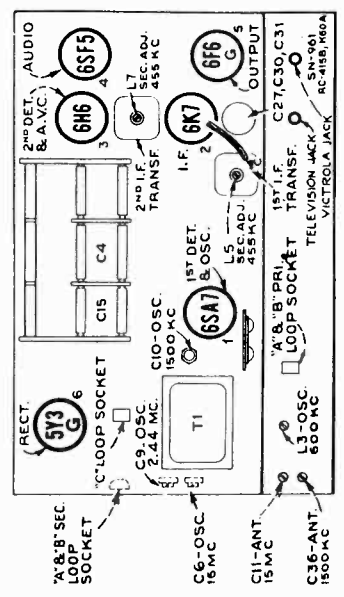
Steps	Connect test-osc. output to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	1st-det. grid, in series with .01 mfd.	455 kc	"C" band quiet point	L6 and L7 (2nd I-F trans.) L4 and L5 (1st I-F trans.)
2		15 mc	191° "C" band	C6 (osc.)*
3		2.44 mc	115° "B" band	C9 (osc.)
4	Fasten chassis in cabinet, see that link is closed on the antenna board, attach dial indicator to drive cord, with indicator at 530 kc mark and gang at maximum capacity.			
5	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	15 mc	15 mc signal "C" band	C11 Rock gang
6		6.0 mc	6.0 mc signal "C" band	"C" loop leads**
7		Repeat step 5		
8		600 kc	600 kc "A" band	L3 (osc.) Rock gang
9		1,500 kc	1,500 kc "A" band	C10 (osc.) C38 (loop)
10	Repeat steps 8 and 9			
11	2.44 mc	2.44 kc "B" band	C9 (osc.) Rock gang	

* Use minimum capacity peak if two peaks can be obtained.
** Adjust spacing between two leads from "C" band loop.
NOTE: Oscillator tracks above signal on all bands.





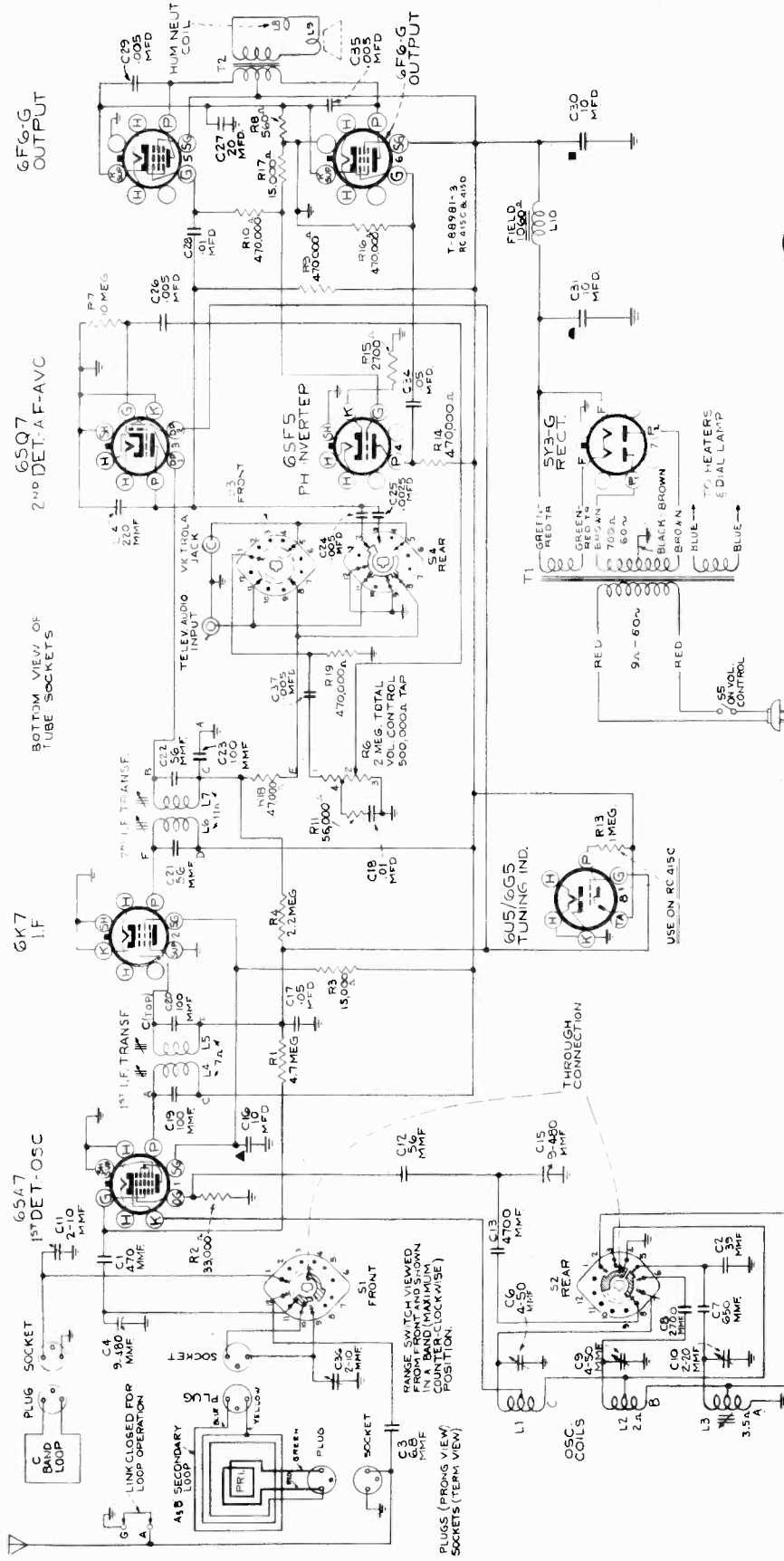
Model K-60 (RC-415B), K-62



Improved Reception on "C" Band:
 Connecting an antenna directly to "C" band loop, 2 or 3 inches from the low-end of the loop, provides a step-up transformer action and gives noticeable improvement on short-wave reception. A 1,000-mmfid. capacitor should be connected in series with the antenna.

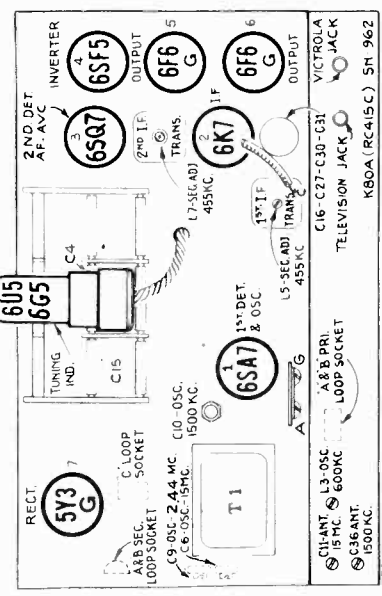
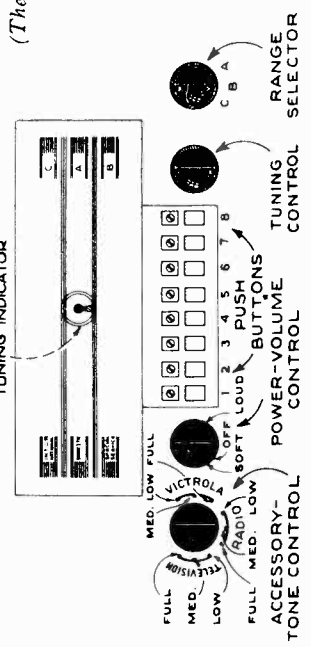
Oscillation or Instability:
 Tendency of loop receivers (K-60, K-80) to oscillate, or the presence of excessive regeneration, may be caused by improper i-f. alignment. To correct, re-align the chassis for "symmetrical" wave shape as shown on an oscillograph, rather than for maximum peak output.

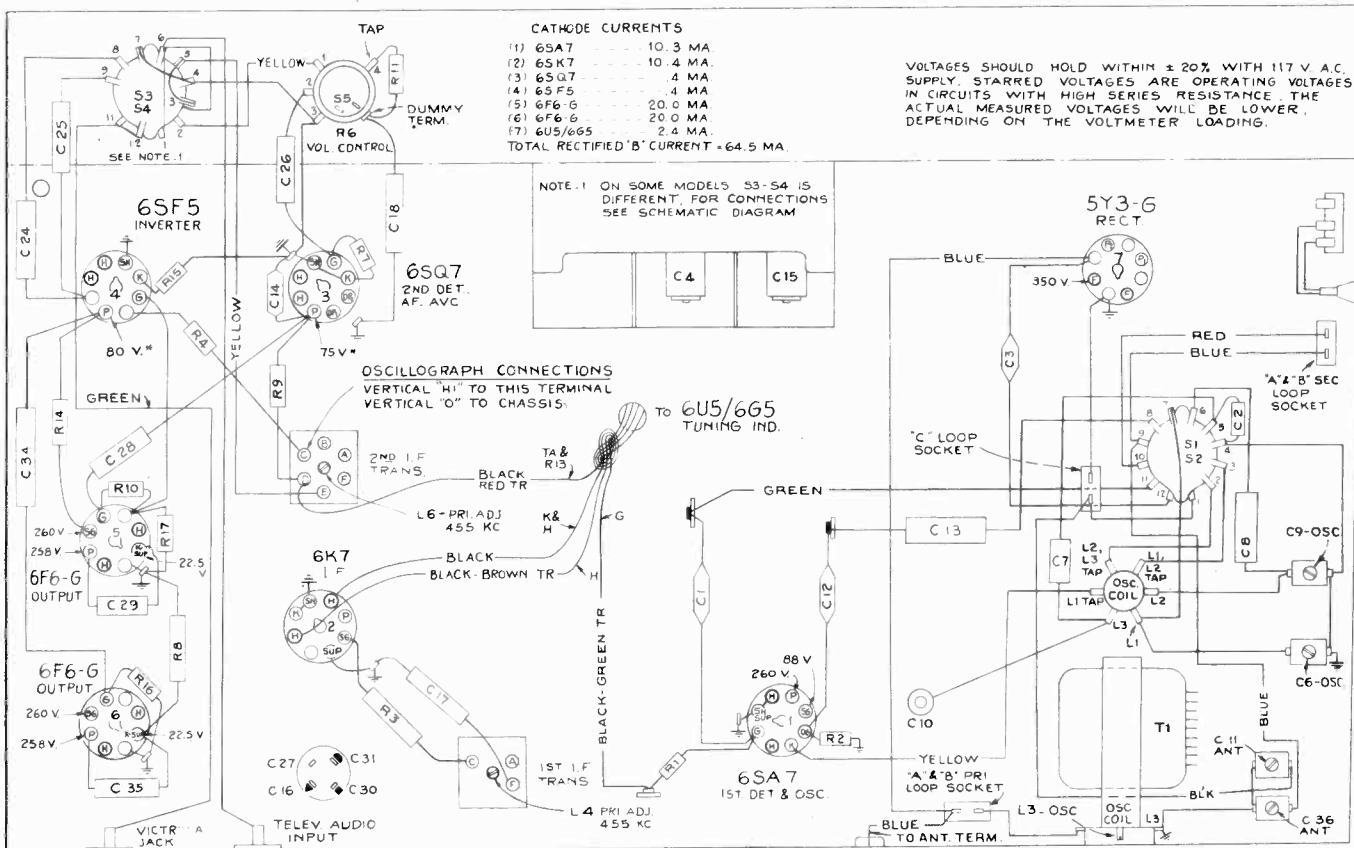
T-88980-Z
 K60A (RC-415 B)



Models K-80 and K-81, K-82
(The Tuning Indicator is not used in RC-415D)

Hum Modulation and Howl:
 Tendency of occasional receivers towards hum modulation and howl may be alleviated by:
 (a) Rubbing-mounting the loudspeaker by means of rubber grommets (Stock No. 33774).
 (b) "Rigidizing" loop antenna by taping winding in six places (2 each side, 1 top, and 1 bottom), using cellulose tape.





ALL HEATERS 6.2 V AC, EXCEPT 5Y3-6, 5V AC

BOTTOM VIEW - REAR OF CHASSIS
R-F WIRING & SOCKET VOLTAGES

5N-1002
RC-415C-K80A

Models K-80 (RC-415C, RC-415D), and K-81 (RC-415C), K-82

* The Tuning Indicator is not used in RC-415D

MODEL K-62, RC-415B

Technical Information and Service Data:

Refer to Service Data for loop-type K-80 (RC-415B), and the following parts used in K-82:

- | | |
|-----------|---|
| Stock No. | Transformer—1st i-f transformer.... |
| 32068 | MISCELLANEOUS ASSEMBLIES |
| 34994 | Button—Push button..... |
| 34285 | Clip—Tuning indicator clip..... |
| 35387 | Decalcomania—"Power-Volume" decal. |
| 35392 | Decalcomania—"RCA Victor" decal.. |
| 35454 | Decalcomania—"Range" decal. |
| 35453 | Decalcomania—"Television-Radio-Victrola" decal..... |
| 35391 | Decalcomania—"Tuning" decal..... |
| 34997 | Dial—Glass dial scale..... |
| 35561 | Escutcheon—Dial scale and push button escutcheon, less scale and buttons..... |
| 35683 | Frame—Dial frame complete, less dial, pointer and pointer rods..... |
| 34789 | Frame—Frame only for "C" band loop..... |
| 34383 | Indicator—Station selector indicator and carriage..... |
| 34998 | Knob—Tuning, volume control, tone control or range switch knob..... |
| 35931 | Loop—Antenna loop for "A" and "B" bands..... |
| 83842 | Marker—Station selector marker..... |
| 34872 | Pin—Complete set of dowel pins for antenna loop..... |
| 34990 | Plug—2-prong male plug for "C" band loop..... |
| 32641 | Plug—3-prong male plug for antenna loop for "A" and "B" bands..... |
| 33550 | Screen—Push button "A Band" marker screen..... |
| 34491 | Shaft—Pointer carriage guide rod..... |
| 14270 | Spring—Retaining spring for knob, Stock No. 34998..... |

MODELS K-60, K-80

Additional Replacement Parts:

(In RC-415B, 415C, and 415D.)

- | | |
|-----------|--|
| Stock No. | Drive—Tuning knob drive assembly..... |
| 36078 | Frame—Dial scale holder, mounting brackets, and pointer, assembled, less dial (RC-415B and 415D)..... |
| 33436 | Frame—Dial scale holder, mounting brackets, pointer, and "Magic Eye" bracket and clip, assembled, less dial (K-80, RC-415C)..... |
| 33435 | Lamp—Dial lamp..... |
| 11765 | Mounting—Rubber cushion, spacer, and washers, for mounting chassis (4 required)..... |
| 35014 | |

MODEL K-82, RC-415C

Technical Information and Service Data:

Refer to Service Data for loop-type K-80, which uses the same chassis (RC-415C).

Replacement parts for Model K-82 are listed below:

- | | |
|-----------|--|
| Stock No. | Transformer—First 1-F transformer..... |
| 32068 | MISCELLANEOUS ASSEMBLIES |
| 34994 | Button—Push button..... |
| 34285 | Clip—Tuning indicator clip..... |
| 35387 | Decalcomania—"Power-Volume" decal |
| 35454 | Decalcomania—"Range" decal..... |
| 35392 | Decalcomania—"RCA Victor" decal.. |
| 35453 | Decalcomania—"Television-Radio-Victrola" decal..... |
| 35391 | Decalcomania—"Tuning" decal..... |
| 34997 | Dial—Glass dial scale..... |
| 35561 | Escutcheon—Dial scale and push button escutcheon—less scale and buttons..... |
| 35683 | Frame—Dial frame complete—less dial, pointer and pointer rods..... |
| 34789 | Frame—Frame only for "C" band loop..... |
| 34383 | Indicator—Station selector indicator and carriage..... |
| 34998 | Knob—Tuning, volume control, tone control or range switch knob..... |
| 35933 | Loop—Antenna loop complete..... |
| 33842 | Marker—Station selector marker..... |
| 34872 | Pin—Complete set of dowel pins for antenna loop..... |
| 34990 | Plug—2-prong male plug for "C" band loop..... |
| 32641 | Plug—3-prong male plug for antenna loop for "A" and "B" bands..... |
| 33550 | Screen—Push button "A band" marker screen..... |
| 34491 | Shaft—Pointer carriage guide rod..... |
| 14270 | Spring—Retaining spring for knob, Stock No. 34998..... |

K60, K62, K80, K81, K82

MODELS K-60, K-80 & K-81

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw.	31364	Socket—Dial lamp socket.
33432	Arm—Trip arm and set screw located on range switch shaft.	13871	Socket—Magic Eye tube socket (Models K-80, K-81)
34574	Board—"Ant.-Grd." terminal board.	14278	Socket—Phonograph or Television input socket
12581	Cap—i-f transformer shield cap.	31319	Socket—Tube socket.
30766	Cap—Rubber cap for Magic Eye—Models K-80, K-81	33175	Spring—Drive cord tension spring.
34573	Capacitor—Trimmer, 2 sections 2-10 mmfd. each	33623	Spring—Drive drum cord spring.
34572	Capacitor—Trimmer, 2 sections 4-50 mmfd. each	33622	Spring—Push arm return spring.
12714	Capacitor—Air-trimmer, 2-12 mmfd. (C10)	33421	Spring—Tuning shaft flat spring.
14079	Capacitor—8.8 mmfd. (C3)	33420	Spring—Tuning shaft cam spiral spring.
34580	Capacitor—39 mmfd. (C2)	34577	Switch—Range switch.
12723	Capacitor—56 mmfd. (C12)	14376	Transformer—First i-f transformer.
30949	Capacitor—56 mmfd. (C21, C22)	32825	Transformer—Second i-f transformer.
30904	Capacitor—100 mmfd. (C19, C20)	33618	Transformer—Power transformer—105-120 volts, 25-60 cycle (T1).
30232	Capacitor—220 mmfd. (C14)	33112	Transformer—Power transformer—105-120 volts, 50-60 cycle (T1).
30433	Capacitor—470 mmfd. (C1)	SPEAKER ASSEMBLIES	
34581	Capacitor—650 mmfd. (C7)	(K-80)	
30057	Capacitor—2,700 mmfd. (C8)	(RL-70H6)	
31399	Capacitor—4,700 mmfd. (C13)	31825	Cap—Cone center dust cap.
5107	Capacitor—.0025 mfd. (C25)	11469	Coil—Hum neutralizing coil.
33584	Capacitor—.005 mfd. (C18—Model K-60 only), (C35—Models K-80, K-81), (C37—All Models)	33116	Coil—Speaker field coil.
4838	Capacitor—.005 mfd. (C24, C26, C29)	31275	Cone—Speaker cone, voice coil and dust cap.
4937	Capacitor—.01 mfd. (C18—Models K-80, K-81), (C28—All Models)	5118	Plug—3-contact male, for speaker.
32787	Capacitor—.05 mfd. (C34—Models K-80, K-81), (C17—All Models)	31301	Transformer—Output transformer (T2).
4839	Capacitor—0.1 mfd. (C16) (Model K-60 only).	SPEAKER ASSEMBLIES	
32786	Capacitor—0.1 mfd.	(K-80, K-81)	
32240	Capacitor—Electrolytic, 2 sections 10 mfd., one section 20 mfd. (C27, C30, C31) (Model K-60 only)	(RL-70J1)	
33014	Capacitor—Electrolytic, 3 sections 10 mfd., one section 20 mfd. (C16, C27, C30, C31) (K-80, K-81)	31825	Cap—Cone center dust cap.
34579	Coil—Oscillator coil.	11469	Coil—Hum neutralizing coil.
34578	Control—Tone control.	33116	Coil—Speaker field coil.
34695	Control—Volume control and power switch.	31275	Cone—Speaker cone, voice coil and dust cap.
32635	Cord—Condenser drive cord.	5039	Plug—4 prong male, for speaker.
32634	Cord—Drive cord.	33444	Transformer—Output transformer (T2).
32713	Core—Adjustable core and stud for oscillator coil	MISCELLANEOUS ASSEMBLIES	
33627	Drum—Condenser drive drum.	33474	Button—Push button (K-60, K-80)
33174	Drum—Drive cord drum with set screws and calibrator dial.	34994	Button—Push button (K-81)
33625	Plate—Front guide plate for push arms.	34992	Cap—Spindle cap for antenna loop (K-81)
5119	Plug—3-contact female for speaker cable (Model K-60-A only)	30716	Clip—Magic Eye clip (K-80)
5040	Plug—4-contact female for speaker cable (Models K-80, K-81)	34582	Dial—Dial scale (glass) (K-60, K-80)
33427	Pulley—Drive cord pulley and mounting bracket	34997	Dial—Dial scale (glass) (K-81)
33626	Pulley—Drive pulley—less bronze drive cord.	33439	Escutcheon—Dial escutcheon—less push buttons (K-60, K-80)
31388	Resistor—390 ohms, 1 watt (R8) (Model K-60 only)	34993	Escutcheon—Dial scale and push button escutcheon (K-81)
30735	Resistor—560 ohms, 1 watt (R8) (Models K-80, K-81)	34996	Frame—Dial frame complete with brackets—less pointer guide rods, pointer and carriage, dial scale and Magic Eye clip (K-81)
14024	Resistor—2,700 ohms, ½ watt (R11, R15) (Models K-80, K-81)	34583	Frame—Frame only for "C" band loop—less wire and plug.
12695	Resistor—15,000 ohms, ½ watt (R17) (Models K-80, K-81)	34383	Indicator—Dial pointer, carriage, and clip.
33489	Resistor—15,000 ohms, 2.5 watt (R3)	34998	Knob—Tuning, tone control, range switch, volume control and power switch or antenna loop shaft knob (K-81)
12454	Resistor—33,000 ohms, ½ watt (R2)	33434	Knob—Volume control, tone control, range switch or station selector knob (K-60, K-80)
5132	Resistor—47,000 ohms, 1/10 watt.	34988	Loop—"A" and "B" band loop complete for K-60
12412	Resistor—47,000 ohms, ½ watt (R11) (Model K-60 only)	34991	Loop—"A" and "B" band antenna loop complete (K-81)
12286	Resistor—56,000 ohms, ½ watt (R11) (Models K-80, K-81)	33842	Marker—Station selector markers.
12285	Resistor—470,000 ohms, ½ watt.	34872	Pin—Complete set of dowel pins for antenna loop (K-60, K-80)
12013	Resistor—1 meg., 1/10 watt (R13) (Models K-80, K-81)	34990	Plug—2-prong male plug for antenna loop—"C" band (K-81)
12679	Resistor—2.2 meg., ½ watt (R4)	32641	Plug—3-prong male plug for "A" and "B" band antenna loop.
30271	Resistor—4.7 meg., ½ watt (R1)	31482	Screw—No. 8-32 square head set screw (K-81)
13601	Resistor—10 meg., ½ watt (R7)	33438	Screw—Thumb screw for Magic Eye clip (K-60, K-80)
30340	Retainer—Retainer for shaft of tuning shaft cam and arm.	34995	Shaft—Flexible shaft for antenna loop (K-81)
33419	Roller—Friction roller for tuning knob shaft.	34491	Shaft—Pointer and carriage guide rods (K-81)
4669	Screw—No. 8-32 square head set screw for drum	14270	Spring—Retaining spring for knob.
33621	Screw—Push arm lock screw.		
33624	Shaft—Tuning condenser drive shaft and washer		
33422	Shaft—Tuning shaft—less friction roller		
34575	Socket—3-contact female, for loop input.		

MODELS T-60 and T-62

Chassis No. RC-425

RC-425D

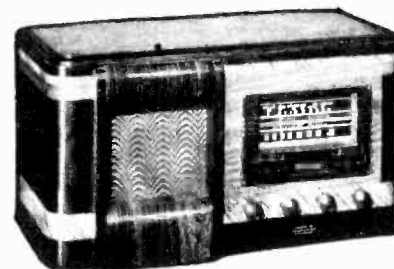
Six-Tube, Two-Band, AC, Superheterodyne Receivers



Model T-60

Power Line Antenna

Each of these models is equipped with a built-in power line antenna. To use this antenna, the link on the antenna terminal board should be connected between "A" and "L", thus connecting the antenna input of the receiver through a capacitor to the powerline. If an outside antenna is used, it should be connected to "A", a ground connection made to "G", and the link removed.



Model T-62

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast	540-1,720 kc
Short Wave	5.6-20 mc
INTERMEDIATE FREQUENCY	455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7 1st. Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7. 2nd. Detector, A.V.C., and A-F Amplifier
- (4) RCA-6F6-G Power Output
- (5) RCA-6U5/6G5 Tuning Indicator
- (6) RCA-5Y3-G Rectifier

PILOT LAMP (1) Mazda No. 51, 6.3 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted	2.2 watts
Maximum	4.2 watts

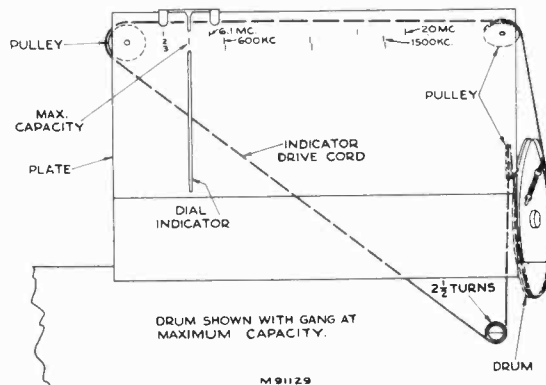
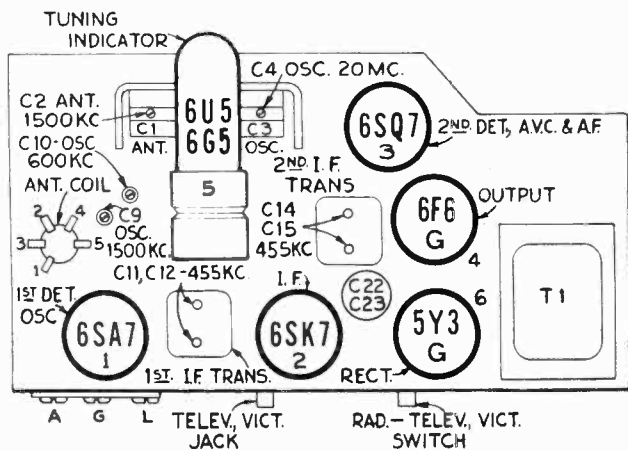
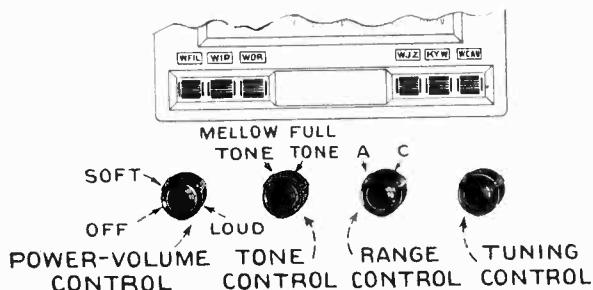
LOUDSPEAKER (T-60, RL-78-6; T-62, RL-79A-4)

Type T-60, 5-inch electrodynamic; T-62, 6-inch electrodynamic.

V. C. Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

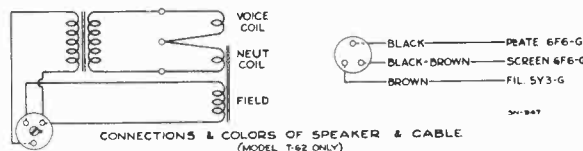
Rating A	105-125 volts, 50-60 cycles, 80 watts
Rating B	105-125 volts, 25-60 cycles, 80 watts
Rating C.....	100-130, 140-160, 195-250 volts, 40-60 cycles, 80 watts

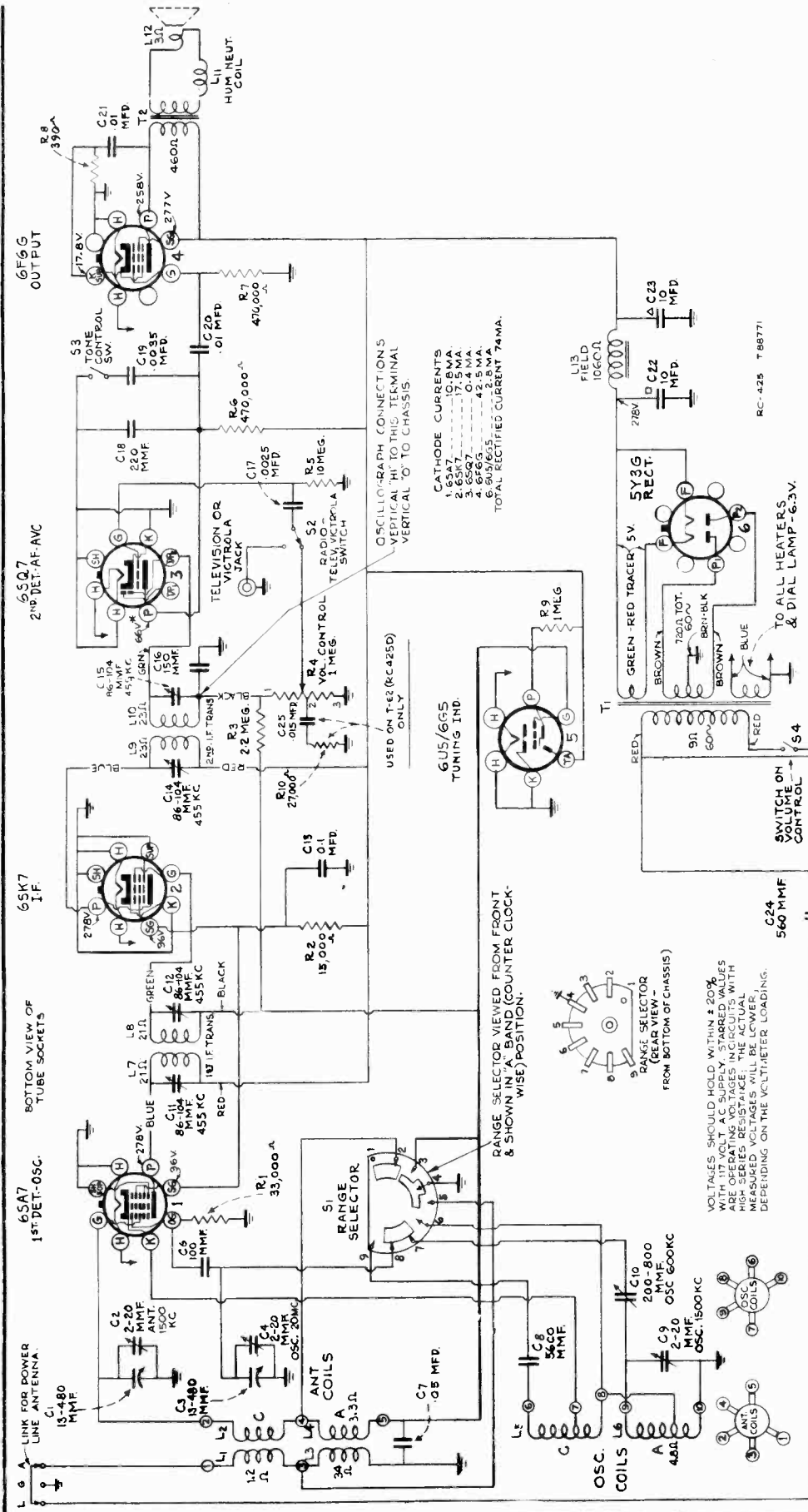


DIAL MECHANISM AND CALIBRATION MARKS.

Precautionary Lead Dress.—

1. Dress the Power Line Antenna lead close to the chassis base and near the back flange.
2. Power switch leads should be dressed around the 6SQ7 socket.





Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Turn the accessory switch on the back apron of the chassis to "Radio" position and accurately tune in the station for which the first button is to be set.
3. Press in the first push-button rod (left) with the screwdriver, as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid A.V.C. action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, 6.1 mc, and 20 mc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the mark at the extreme left (low frequency) end of the dial scale.

Steps	Connect the high side of the test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	"A" Band Quiet point between 550-750 kc	C14 and C15 (2nd I-F trans.)
2				C11 and C12 (1st I-F trans.)
3	Antenna terminal in series with 300 ohms	20 mc	"C" Band 20 mc calibration mark	C4 (osc.)*
4	Antenna terminal in series with 200 mmf.	1,500 kc	"A" Band 1,500 kc calibration mark	C9 (osc.) C2 (ant.)
5		600 kc	"A" Band 600 kc calibration mark	C10 (osc.) Rock gang
6	Repeat step 4			

* Use **minimum** peak if two can be obtained. Check to determine that C4 has been adjusted properly by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on both bands.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
	T-60 (RC-425)		
	T-62 (RC-425-D)		
33719	Belt—Tuning unit push arm belt	31319	Socket—Tube base socket
33718	Board—Antenna-ground board	31364	Socket—Pilot lamp socket
30766	Cap—Rubber cap for tuning tube	30585	Spring—Drive cord spring
12720	Capacitor—100 mmfd. (C6)	33720	Spring—Push arm return spring
12725	Capacitor—150 mmfd. (C16)	33630	Switch—Tone control (S3)
12694	Capacitor—220 mmfd. (C18)	33632	Switch—Range switch (S1)
12537	Capacitor—560 mmfd. (C24)	33634	Switch—Radio phonograph switch (S2)
13895	Capacitor—5,600 mmfd. 500 volt (C8)	33722	Transformer—First i-f transformer (L7, L8, C11, C12)
33629	Capacitor—Trimmer capacitor, one section 2-20 mmfd. and one section 300-800 mmfd. (C9, C10)	33723	Transformer—Second i-f transformer (L9, L10, C14, C15)
30303	Capacitor—0035 mfd. (C19)	33619	Transformer—Power transformer—105/125 volts, 25/60 cycles (T1)
5107	Capacitor—0025 mfd. (C17)	33112	Transformer—Power transformer—105/125 volts, 50/60 cycles (T1)
11315	Capacitor—.015 mfd. (C25) Model T-62	31575	Transformer—Power transformer—105/125, 200/250 volts, 50/60 cycle (T1)
32787	Capacitor—.05 mfd. (C7)	SPEAKER ASSEMBLIES	
4937	Capacitor—.01 mfd. (C20, C21)	(RL-78-6) Model T60	
4839	Capacitor—0.1 mfd. (C13)	32907	Cap—Cone center dust cap
32342	Capacitor—Comprising 2 sections, 10 mfd. each (C22, C23)	32906	Coil—Hum neutralizing coil (L11)
33732	Coil—Antenna coil (L1, L2, L3, L4)	33601	Coil—Speaker field coil (L13)
33733	Coil—Oscillator coil (L5, L6)	32904	Cone—Speaker cone and voice coil (L12)
33631	Control—Volume control and power switch (R4, S4) Model T-60	32905	Transformer—Output transformer (T2)
33776	Control—Volume control and power switch (R4, S4) Model T-62	SPEAKER ASSEMBLIES	
32634	Cord—Braided silk cord	(RL-79A-4) Model T62	
33633	Indicator—Station selector indicator pointer	32907	Cap—Cone center dust cap
11765	Lamp—Pilot lamp	32906	Coil—Neutralizing coil (L11)
33734	Plate—Dial plate assembly mounting on condenser	33601	Coil—Speaker field coil (L13)
5119	Plug—3 contact female for speaker cable Model T-62	32934	Cone—Speaker cone and voice coil (L12)
12261	Resistor—390 ohms, 1/2 watt (R8)	5118	Plug—3 prong male for speaker
33489	Resistor—15,000 ohms, 2 1/2 watt (R2)	32905	Transformer—Output transformer (T2)
12738	Resistor—27,000 ohms, 1/2 watt (R10) Model T-62	MISCELLANEOUS ASSEMBLIES	
12454	Resistor—33,000 ohms, 1/2 watt (R1)	33637	Bezel—Station selector escutcheon
12285	Resistor—470,000 ohms, 1/2 watt (R6, R7)	33731	Button—Push button
12013	Resistor—1 megohm 1/10 watt (R9)	34270	Dial—Glass dial scale
12679	Resistor—2.2 megohms, 1/2 watt (R3)	30863	Knob—Station selector, or volume control and power switch knob
13601	Resistor—10 megohm, 1/2 watt (R5)	33973	Marker—Station marker
33735	Screw—Push button lock screw	30900	Spring—Retaining spring for push button Stock No. 33731
33725	Shaft—Tuning drive shaft		
13871	Socket—Magic Eye socket		
14278	Socket—Single contact socket and plate		

MODEL X60

Chassis No. RC-474D

Six-Tube, Push-Button, AC-DC, Superheterodyne Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast.....	540-1,720 kc
Short Wave.....	5.6-20 mc
Intermediate Frequency.....	455 kc
Number of Push Buttons.....	Six

TUBE COMPLEMENT

(1) RCA-12SA7.....	First Detector-Oscillator
(2) RCA-12SK7.....	I-F Amplifier
(3) RCA-12SQ7.....	Second Detector, A-F, and A.V.C.
(4) RCA-35L6GT.....	Power Output
(5) RCA-6N5.....	Magic Eye
(6) RCA-35Z5GT.....	Rectifier
Dial Lamp.....	Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT (125 volts, 60 cycle supply)

Undistorted.....	0.8 watts
Maximum.....	1.4 watts

POWER SUPPLY RATINGS

A-C Rating.....	105-125 volts, 50-60 cycles, 35 watts
D-C Rating.....	105-125 volts, direct current, 35 watts

LOUDSPEAKER (RL 85-2)

Type.....	5-inch permanent magnet dynamic
V.C. impedance at 400 cycles.....	4.5 ohms

	Height	Width	Depth
Cabinet Dimensions (inches).....	9 7/8	16	7
Chassis Base Dimensions (inches).....	2 3/16	12 1/2	5 1/2
Overall Chassis Height.....		6 1/2 inches	
Shipping Weight.....		15 pounds	
Tuning Drive Ratio.....		10:1	



Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Check to be sure the link connection on back of chassis is in "Radio" position (connected between terminals 2 and 3).

3. Press in push-button No. 1 (left) as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the screw begins to grip or damage to the mechanism may result.

4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.

Replacement Parts

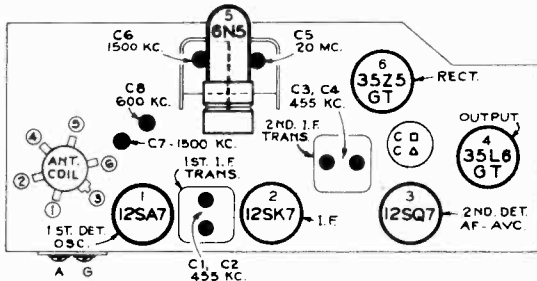
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-474D)			
33719	Belt—Push button adjusting belts.....	14284	Resistor—22,000 ohms, 1/10 watt.....
34024	Board—"Antenna-Ground" board.....	13998	Resistor—22,000 ohms, 1/4 watt.....
34025	Board—"Radio-Phono" board.....	12454	Resistor—33,000 ohms, 1/4 watt.....
33731	Button—Push button.....	12412	Resistor—47,000 ohms, 1/4 watt.....
30766	Cap—Rubber shield for Magic Eye.....	12264	Resistor—220,000 ohms, 1/4 watt.....
33629	Capacitor—Trimmer capacitor comprising of 2 sections (C7, C8).....	12285	Resistor—470,000 ohms, 1/4 watt.....
12723	Capacitor—56 mmfd., moulded mica.....	30271	Resistor—4.7 megohm, 1/4 watt.....
12720	Capacitor—100 mmfd., moulded mica.....	13601	Resistor—10 megohm, 1/4 watt.....
12725	Capacitor—150 mmfd., moulded mica.....	33438	Screw—Magic Eye clip screw.....
12694	Capacitor—220 mmfd., moulded mica.....	33725	Shaft—Tuning knob drive shaft and retainer.....
13895	Capacitor—5,600 mmfd., moulded mica.....	31365	Socket—Dial lamp socket.....
30303	Capacitor—.0035 mfd., 700 volts.....	13871	Socket—Magic Eye socket.....
33584	Capacitor—.005 mfd., 1,200 volts.....	31319	Socket—Tube socket.....
4937	Capacitor—.01 mfd., 500 volts.....	31418	Spring—Tuning condenser drive cord spring.....
11315	Capacitor—.015 mfd., 400 volts.....	33720	Spring—Push arm return spring.....
4870	Capacitor—.025 mfd., 400 volts.....	33946	Switch—Range switch (S1).....
32787	Capacitor—.05 mfd., 400 volts.....	34336	Switch—Tone control switch (S3).....
4839	Capacitor—.1 mfd., 400 volts.....	33722	Transformer—First i-f transformer (C1, C2).....
34505	Capacitor—.2 mfd., 300 volts.....	34026	Transformer—Second i-f transformer (C3, C4).....
34212	Capacitor—Comprising 2 sections of 50 mfd., each, 150 volts.....	33726	Washer—"C" washer for drive shaft.....
30716	Clip—Magic Eye clip.....	SPEAKER ASSEMBLIES (RL 85-2)	
33732	Coil—Antenna coil.....	32907	Cap—Cone center dust cap.....
33733	Coil—Oscillator coil.....	34554	Cone—Speaker cone and voice coil.....
33635	Condenser—Tuning condenser and drum assembly.....	84803	Transformer—Output transformer.....
33631	Control—Volume control and power switch.....	MISCELLANEOUS ASSEMBLIES	
32634	Cord—Tuning condenser drive cord.....	31456	Cover—8-protective covers for push button markers.....
33633	Indicator—Station selector pointer.....	34270	Dial—Glass dial scale.....
11765	Lamp—Dial lamp—Mazda No. 51.....	33637	Escutcheon—Dial and button escutcheon.....
33734	Plate—Dial plate complete less condenser and button.....	30863	Knob—Tuning, tone, range or volume control.....
30880	Resistor—150 ohms, 1/4 watt.....	33973	Marker—1 set push button markers.....
30152	Resistor—1,000 ohms, 1 watt.....	30900	Spring—Retaining spring for knob or button.....

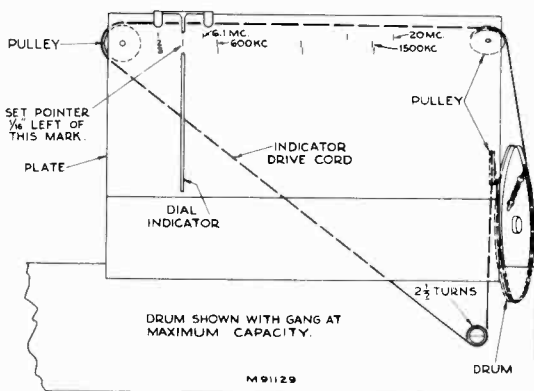
Short-Wave Sensitivity:

Where insufficient sensitivity is noted on the short-wave band of Model X-60, addition of capacity coupling of 3 or 4 mmfd. between signal and oscillator grids of converter tube will usually restore normal sensitivity to entire band. This coupling can be effected in several ways:

- (a) Unsolder one grid lead, take several turns around other lead to give desired capacity, resolder.
- (b) Twist several turns of insulated wire around both grid leads to give desired value of capacity coupling.
- (c) Install a 3 to 4 mmfd. capacitor between tube grids.



Tube and Trimmer Locations



Dial-Indicator and Drive Mechanism

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground binding post, and keep the output as low as possible to avoid A.V.C. action.

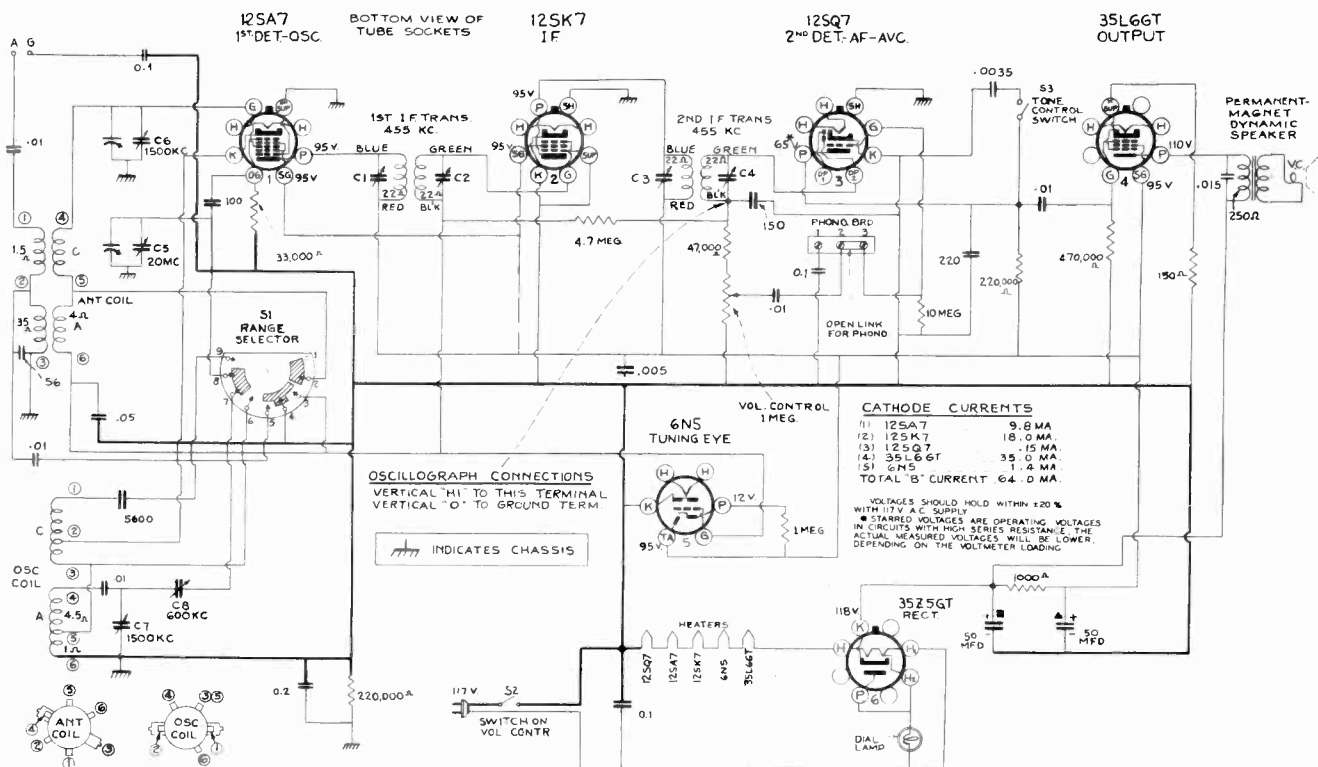
Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, 6.1 mc, and 20 mc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point 1/16 inch to the left of the mark at the extreme left (low frequency) end of the dial scale.

Steps	Connect the high side of the test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	"A" Band Quiet Point between 550-750 kc	C3 and C4 (2nd I-F trans.)
2				C1 and C2 (1st I-F trans.)
3	Antenna terminal in series with 300 ohms	20 mc	"C" Band 20 mc calibration mark	C5 (osc.) *
4	Antenna terminal in series with 200 mmf.	1,500 kc	"A" Band 1,500 kc calibration mark	C7 (osc.) C8 (ant.)
5		600 kc	"A" Band 600 kc calibration mark	C8 (osc.) Rock gang
6	Repeat step 4			

* Use minimum peak if two can be obtained. Check to determine that C5 has been adjusted properly by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on both bands.



MODEL K61

Chassis No. RC-498F Six Tube, Two Band, AC, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast	540 to 1,560 kc
Short-Wave	5.8 to 18 mc
Intermediate Frequency	455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7.... 1st Detector—Oscillator
 - (2) RCA-6K7..... I-F Amplifier
 - (3) RCA-6H6..... 2nd Detector—AVC
 - (4) RCA-6SF5..... Audio Amplifier
 - (5) RCA-6F6G..... Power Output
 - (6) RCA-5Y3G..... Rectifier
- Pilot Lamp (1)..... Mazda No. 51
6.3 volts, 0.20 amp.

POWER OUTPUT RATING

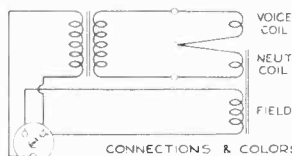
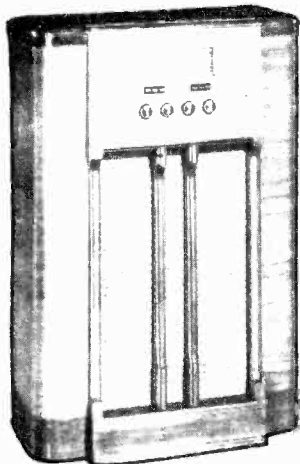
Undistorted	2.5 watts
Maximum	4.5 watts

POWER SUPPLY RATINGS

Rating A.....	105-125 volts, 50-60 cycles, 75 watts
Rating B.....	105-125 volts, 25-60 cycles, 75 watts
Rating C.....	105-125, 200-250 volts, 50-60 cycles, 75 watts

LOUDSPEAKER (RL 70 H 6)

Type..... 12-inch electrodynamic
Voice Coil Impedance at 400 cycles.2.2 ohms



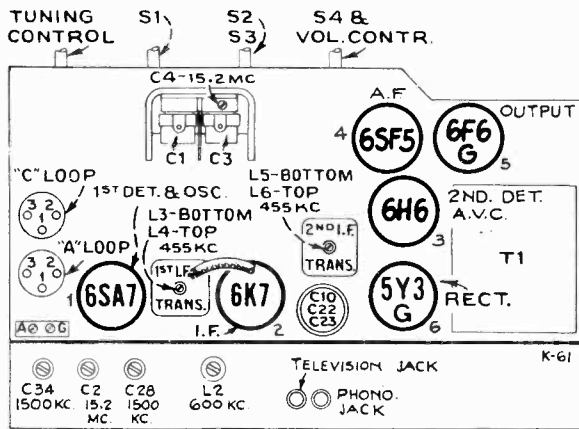
CONNECTIONS & COLORS OF SPEAKER & CABLE

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-498F)		34720	Switch—Radio, Phono, Television, Tone switch (S2, S3)
34724	Board—"Antenna-Ground" board	34722	Switch—Range switch (S1)
34725	Capacitor—Trimmer comprising 1 section of 3-30 mmfd. (C28) and 2 sections of 2-10 mmfd. (C2, C34)	32263	Transformer—First i-f transformer (L3, L4, C11, C12)
14079	Capacitor—6.8 mmfd. (C31)	34524	Transformer—Second i-f transformer
30949	Capacitor—56 mmfd. (C11, C12, C14, C15)	33818	Transformer—Power transformer, 110 volts, 25 cycle
12720	Capacitor—100 mmfd. (C6, C33)	33112	Transformer—Power transformer, 110 volts, 60 cycle
34700	Capacitor—120 mmfd. (C14, C15)	31575	Transformer—Power transformer, 110-220 volts, 60 cycle
13003	Capacitor—180 mmfd. (C16)	33728	Washer—Retaining washer for shaft Stock No. 34411
12694	Capacitor—220 mmfd. (C18)	SPEAKER ASSEMBLIES (RL-70H6)	
12537	Capacitor—560 mmfd. (C29)	31825	Cap—Cone center dust cap
13895	Capacitor—5600 mmfd. (C8)	11469	Coil—Hum neutralizing coil (L13)
34459	Capacitor—.0025 mfd. (C19)	33116	Coil—Speaker field coil (L15)
33584	Capacitor—.005 mfd. (C17, C21)	31275	Cone—Speaker cone, voice coil and dust cap (L14)
4937	Capacitor—.01 mfd. (C7, C20)	5118	Plug—3-contact male for speaker
4839	Capacitor—0.1 mfd. (C13, C5)	31301	Transformer—Output transformer (T2)
32240	Capacitor—Electrolytic comprising 2 sections of 10 mfd. and 1 section of 20 mfd. (C10, C22, C23)	MISCELLANEOUS ASSEMBLIES	
32707	Coil—Oscillator coil (L1, L2)	35563	Button—Push button
33215	Control—Volume control and power switch	31456	Cover—Protective cover for push button markers
32634	Cord—Tuning condenser drive cord	35386	Decalcomania—"Gramo" decal
32713	Core—Adjustable core and stud for oscillator coil	35387	Decalcomania—"Power-Volume" decal
33633	Indicator—Station selector indicator	35389	Decalcomania—"Range" decal
11765	Lamp—Dial lamp	35392	Decalcomania—"RCA Victor" decal
35562	Plate—Dial plate complete less dial scale and tuner	35390	Decalcomania—"Shortwave-Broadcast" decal
5119	Plug—3 contact female plug for speaker cable	35388	Decalcomania—"Tone" decal
31388	Resistor—390 ohms, 1 watt (R14)	35391	Decalcomania—"Tuning" decal
30546	Resistor—470 ohms, 1/2 watt (R14)	35385	Decalcomania—"Victrola-Radio-Television" decal
14024	Resistor—2,700 ohms, 1/2 watt (R8)	35565	Dial—Glass dial scale
12312	Resistor—3,300 ohms, 1/2 watt (R10)	35564	Escutcheon—Dial scale and push button escutcheon less scale and buttons
14075	Resistor—8,200 ohms, 1/2 watt (R16)	34583	Frame—Frame only for "C" band loop
35595	Resistor—15,000 ohms, 3 watts (K2)	34998	Knob—Tuning, volume, tone, and range switch knob
13998	Resistor—22,000 ohms, 1/2 watt (K9)	34800	Loop—Antenna loop complete for "A" band
12454	Resistor—33,000 ohms, 1/2 watt (R1)	33973	Marker—Station selector markers
12266	Resistor—39,000 ohms, 1/2 watt (R18)	34872	Pins—Dowel pins for "A" band loop
12285	Resistor—470,000 ohms, 1/2 watt (R7, R12)	34990	Plug—2-prong male plug for "C" band loop
12679	Resistor—2.2 megohm, 1/2 watt (R3, R19)	32641	Plug—3-prong male plug for "A" band loop
13601	Resistor—10 megohm, 1/2 watt (R5)	14270	Spring—Retaining spring for button Stock No. 35563 and knob Stock No. 34998
33735	Screw—Push arm adjusting screw		
34411	Shaft—Tuning condenser drive shaft		
31364	Socket—Dial lamp socket		
33514	Socket—Phonograph input socket		
13139	Socket—Tube socket		
30585	Spring—Drive cord spring		
34726	Spring—Push arm return spring .018 dia. wire		

Alignment Procedure



Tube and Trimmer Locations

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis schematic.

Output Meter Alignment.—If this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

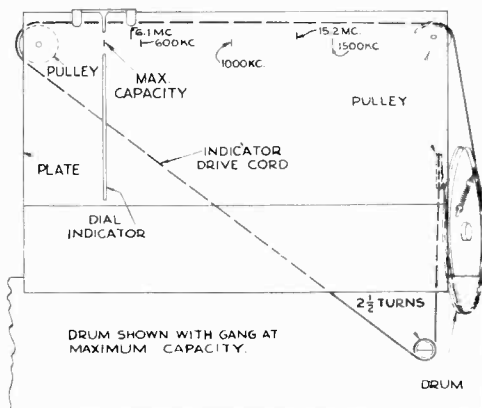
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect test-osc. output to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for maximum peak output
1	I-F grid through 0.1 mfd capacitor and ground	455 kc	Quiet point between 1,720-1,500 kc	L5 and L6 (2nd I-F trans.)
2	1st det. grid through 0.1 mfd capacitor and ground			L3 and L4 (1st I-F trans.)
3		15.2 mc	15.2 mc	C-4 oscillator*
4		15.2 mc	Rock at 15.2 mc	C-2 antenna† while rocking
5		6.1 mc	6.1 mc	Spacing between leads from "C" band loop to chassis
6	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	15.2 mc	Rock at 15.2 mc	C-2 antenna† while rocking
7		1,500 kc	1,500 kc	C-34 antenna C-28 oscillator
8		600 kc	Rock at 600 kc	L-2 oscillator while rocking
9		1,500 kc	1,500 kc	C-34 antenna C-28 oscillator

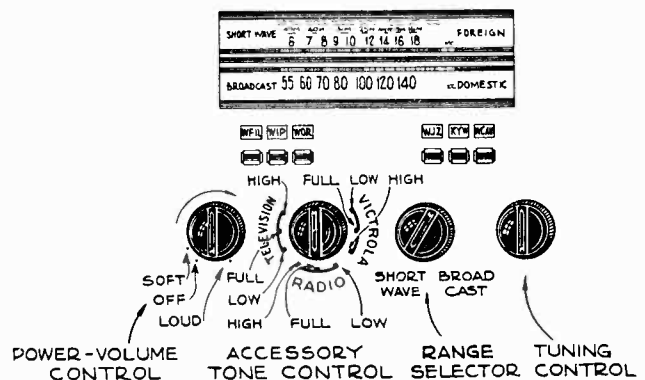
When making adjustments 4 to 9 inclusive the chassis must be in the cabinet, both loops connected, and all leads in their normal positions. When mounting chassis in cabinet if calibration marks on dial plate do not line up with dial scale mounted on cabinet move pointer to agree with dial scale on cabinet.

* Oscillator should track on high frequency side of signal. If two peaks are obtained use high frequency (minimum capacity) peak.

† If two peaks can be obtained use low frequency (maximum capacity) peak.



Dial Indicator and Drive Mechanism



Dial and Controls

K-61

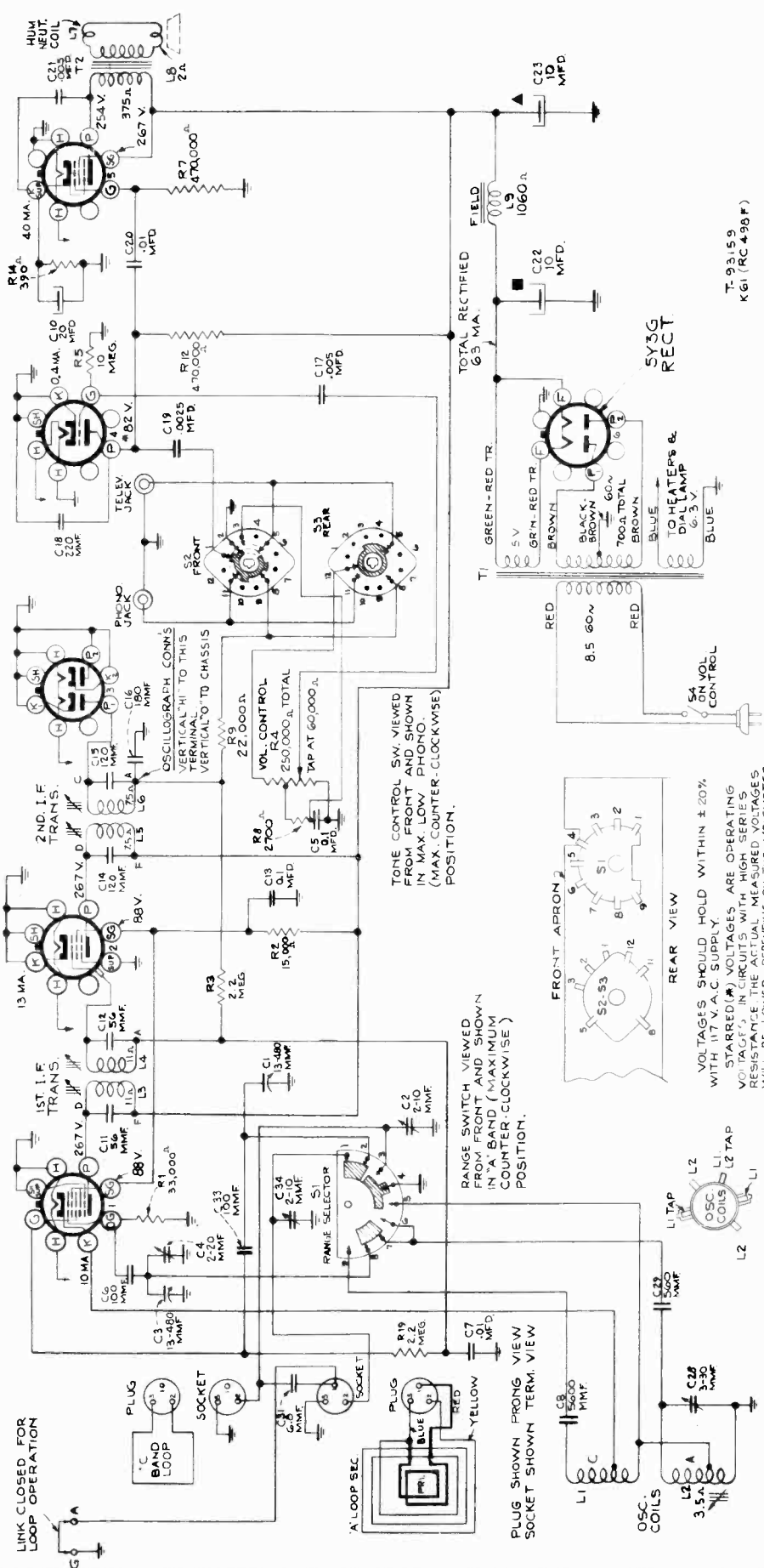
6SA7
1ST DET.-OSC.
I.F.

6SF5
A.F.

6H6
2ND DET.-A.V.C.
I.F.

6K7
I.F.

6F6G
OUTPUT



Adjustments for Push-Button Tuning

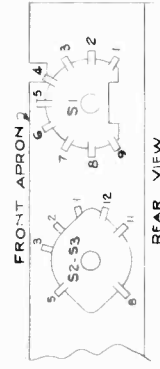
1. Dress AC switch leads away from 6SF5 tube socket.
2. Do not twist loop leads together or around each other. Spacing between leads from "C" band loop to chassis is important—see alignment step "5".
3. "High side" leads from loop sockets, range switch, oscillator coil, and trimmers must be dressed away from chassis and each other.
4. Dress C-6 and C-33 away from each other.
5. Dress C-17 away from power switch leads.

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up for any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the receiver for "Radio" operation, range selector on "Broadcast", and accurately tune in the station for which the first button is to be set.

Precautionary Lead Dressing

1. Dress AC switch leads away from 6SF5 tube socket.
2. Do not twist loop leads together or around each other. Spacing between leads from "C" band loop to chassis is important—see alignment step "5".
3. "High side" leads from loop sockets, range switch, oscillator coil, and trimmers must be dressed away from chassis and each other.
4. Dress C-6 and C-33 away from each other.
5. Dress C-17 away from power switch leads.



OSCILLOGRAPH CONNS. VERTICAL "HI" TO THIS TERMINAL. VERTICAL "O" TO CHASSIS. VERTICAL "LO" TO THIS TERMINAL.

RANGE SWITCH, VIEWED FROM FRONT AND SHOWN IN "A" BAND (MAXIMUM COUNTER-CLOCKWISE) POSITION.

PLUG SHOWN PRONG VIEW. SOCKET SHOWN TERM. VIEW.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. A.C. SUPPLY. STARRED (*) VOLTAGES ARE OPERATING VOLTAGES, IN CIRCUITS WITH HIGH SERIES RESISTANCE THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

T-93159
K61 (RC 498 F)

3. Press in the first push-button rod (left) with the screwdriver as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.

4. Replace the push-button on its shaft.

5. Proceed in a similar manner for the remainder of the push-buttons.

6. Insert the station marker tabs in the recesses above the push-buttons.

MODEL T63

Six-Tube, Two-Band, A-C, Superheterodyne Receiver Chassis No. RC-472F

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast 550-1,550 kc
 Short Wave 5.8-18 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7 1st Detector-Oscillator
- (2) RCA-6K7 I-F Amplifier
- (3) RCA-6SQ7 .. 2nd Detector, AVC, and A-F Amplifier
- (4) RCA-6F6G Power Output
- (5) RCA-6U5/6G5 Tuning Indicator
- (6) RCA-5Y3G Rectifier

PILOT LAMP (1) Mazda No. 51, 6.3 volts, 0.20 amps.

POWER OUTPUT RATING

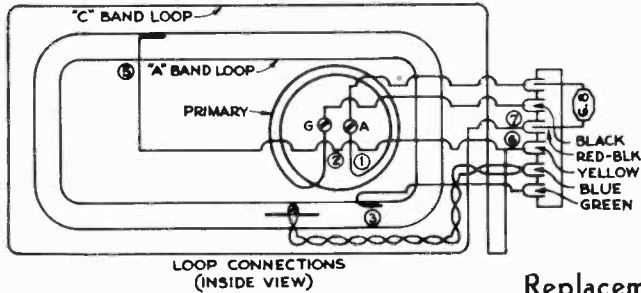
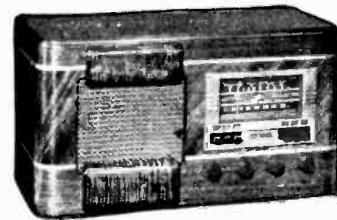
Undistorted 2.5 watts
 Maximum 4.5 watts

LOUDSPEAKER (RL 79 A 4)

Type 6 inch Electrodynamic
 Voice Coil Impedance at 400 Cycles..... 3.4 ohms

POWER SUPPLY RATINGS

Rating A 105-125 volts, 50-60 cycles, 75 watts
 Rating B 105-125 volts, 25-60 cycles, 75 watts
 Rating C 105-125, 200-250 volts, 50-60 cycles, 75 watts



Additional Replacement Parts:

- Stock No.
 31456 Cover—Celluloid covers (20) for push buttons
 33973 Marker—Station call letter markers.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC 472-F)			
35586	Back—Back complete with loops	12928	Resistor—3.3 megohm, 1/2 watt (R3)
33719	Belt—Tuning unit push arm belt	13601	Resistor—10 megohm, 1/2 watt (R5)
30766	Cap—Rubber cap for tuning tube	33735	Screw—Push button lock screw
34725	Capacitor—Mica trimmer consisting of 1 section of 3-30 mmfd. (C9) and 2 sections of 2-10 mmfd. (C26 and C27)	33725	Shaft—Tuning condenser drive shaft
14079	Capacitor—6.8 mmfd. (C2)	31364	Socket—Dial lamp socket
30949	Capacitor—56 mmfd. (C11, C12, C14, C15)	31319	Socket—Tube socket
12720	Capacitor—100 mmfd. (C6)	34799	Socket—Tuning tube socket
12725	Capacitor—150 mmfd. (C16, C25)	31418	Spring—Drive cord spring
12694	Capacitor—220 mmfd. (C18)	33720	Spring—Push arm return spring
12537	Capacitor—560 mmfd. (C10)	35584	Switch—Radio—Record switch
13895	Capacitor—5,600 mmfd. (C8)	35177	Switch—Range switch
30303	Capacitor—.0035 mfd. (C19)	32263	Transformer—First I.F. transformer
33584	Capacitor—.005 mfd. (C17, C21, C30)	34719	Transformer—Second I.F. transformer
4937	Capacitor—.01 mfd. (C20, C28)	35587	Transformer—Power transformer, 110 volt, 60 cycle
4839	Capacitor—.01 mfd. (C13)	35588	Transformer—Power transformer, 110 volt, 25 cycle
12484	Capacitor—.025 mfd. (C31)	33635	Tuner—6 button tuning condenser
4870	Capacitor—.025 mfd. (C29)	33726	Washer—"C" washer for tuning shaft
32787	Capacitor—.05 mfd. (C7)	SPEAKER ASSEMBLIES (RL 79A4)	
32240	Capacitor—Electrolytic—comprising 2 sections of 10 mfd. (C22 and C23) and 1 section of 20 mfd (C24)	32907	Cap—Dust cap.
34285	Clip—Clip and screw for tuning tube	32906	Coil—Neutralizing coil (L11)
35443	Coil—Loop loading coil	33601	Coil—Field coil (L13)
32707	Coil—Oscillator coil	35441	Cone—Cone complete with voice coil and center suspension
35585	Control—Volume control and power switch	5118	Plug—3 contact male connector plug for reproducer
32713	Core—Adjusting core and stud for oscillator coil	32905	Transformer—Output transformer
32634	Cord—Drive cord	MISCELLANEOUS ASSEMBLIES	
33633	Indicator—Station selector indicator	35563	Button—Push button
11765	Lamp—Dial lamp	35592	Decalcomania—Control decal
35586	Loop—Loops ("A" and "C" bands) complete with back	35392	Decalcomania—"RCA Victor" decal
35594	Plate—Dial plate complete less tuner and dial	35462	Decalcomania—"Television — Radio — Victrola" decal
5119	Plug—3 contact female plug for speaker cable	35589	Dial—Glass dial scale
30681	Resistor—470 ohms, 1 watt (R8)	35591	Escutcheon—Dial scale and push button escutcheon less scale and button
35595	Resistor—15,000 ohms, 3 watt (R2)	35590	Knob—Tuning, range, volume control, or radio record switch knob
13045	Resistor—18,000 ohms, 1/2 watt (R11)	30900	Spring—Retaining spring for button, Stock No. 35563, and knob, Stock No. 35590
12454	Resistor—33,000 ohms, 1/2 watt (R1)		
12412	Resistor—47,000 ohms, 1/2 watt (R10)		
12285	Resistor—470,000 ohms. 1/2 watt (R6, R7, R12)		
12013	Resistor—1 megohm, 1/10 watt (R13)		

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action. The low side of the test-oscillator should be connected to the receiver chassis.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, adjust the dial indicator along the drive cable to the 540 kc mark, gang condenser fully meshed. The indicator has a clip for attachment to the cable.

Precautionary Lead Dress:

- (1) Dress C8 (Oscillator coil to range switch) and its leads away from surrounding wires and chassis.
- (2) Dress R2 (Screen to B+) away from surrounding wires and parts.
- (3) Dress power switch leads away from 6SQ7 and 6F6G tube sockets.

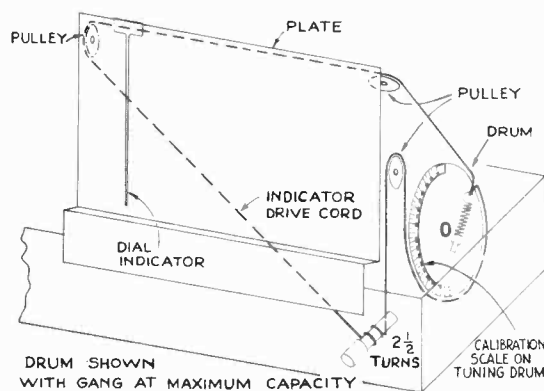
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect high side of test-osc. to—	Tune test osc. to—	Turn radio Dial to	Adjust the following for max. peak output
1	Grid of 6K7 through 0.01 mfd.	456 kc	"A" band Quiet point between 550-750 kc	L5 and L6 (2nd I-F trans.)
2	Grid of 6SA7 through 0.01 mfd.		L3 and L4 (1st I-F trans.)	
3	Antenna terminal through 300 ohms	15 mc	"C" band 15 mc (132°)	C4 osc.* C27 ant.**
4	Antenna terminal through 200 mmfd.	600 kc	"A" band 800 kc (23.5°)	L2 osc. (Rock in)
5		1,500 kc	"A" band 1,500 kc (156.5°)	C9 osc. C26 ant.
6	Repeat Steps 4 and 5			

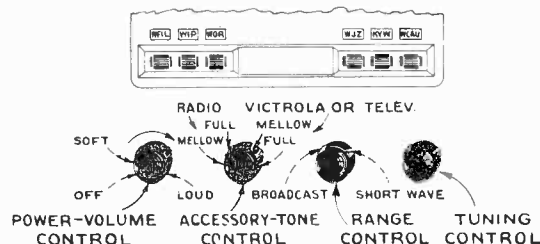
* Use minimum capacity peak if two can be obtained.

** Use maximum capacity peak if two can be obtained.

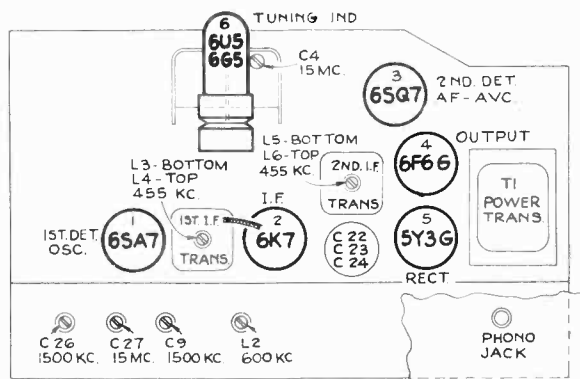
NOTE: Oscillator tracks above signal on all bands.



Dial Indicator and Drive Mechanism

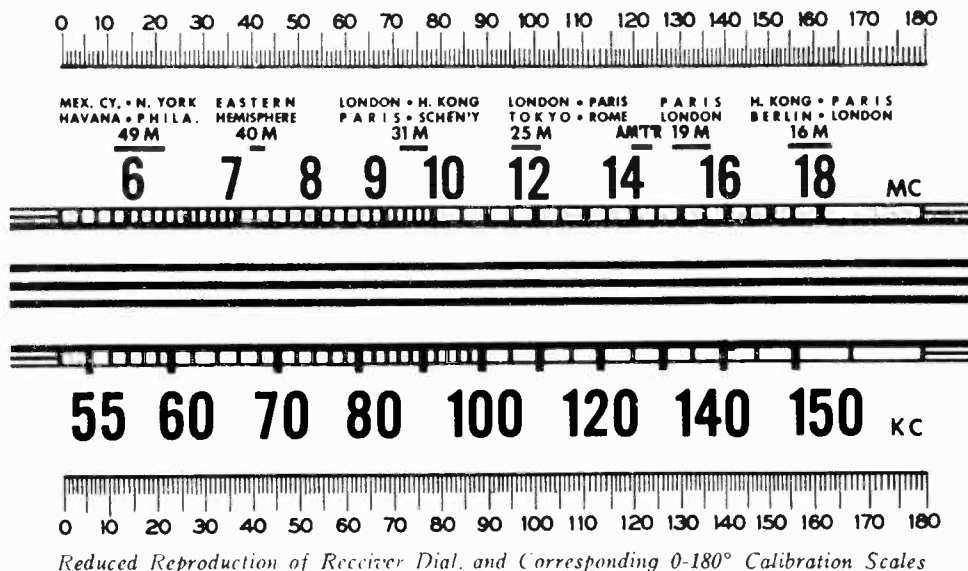


Dial and Controls



Tube and Trimmer Locations

Calibration Scale



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

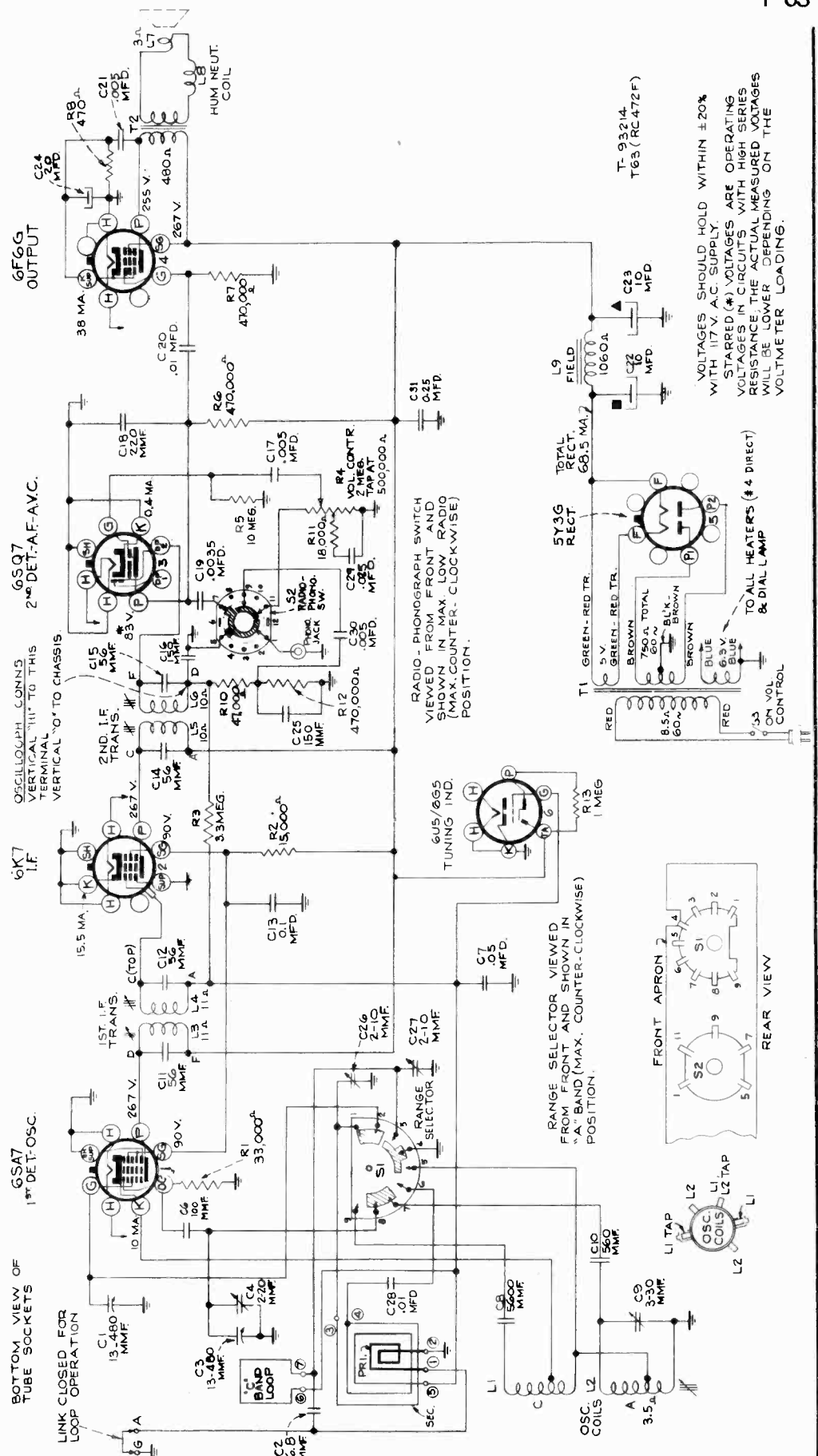
Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up for any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.
2. Set the receiver for "Radio" operation, range selector on "Broadcast", and accurately tune in the station for which the first button is to be set.
3. Press in the first push-button rod (left) with the screwdriver as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than 1/4 turn after the rod begins to grip or damage to the mechanism may result.
4. Replace the push-button on its shaft.
5. Proceed in a similar manner for the remainder of the push-buttons.
6. Insert the station marker tabs in the recesses above the push-buttons.



CONNECTIONS & COLORS OF SPEAKER & CABLE



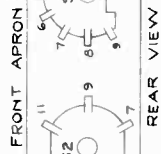
BOTTOM VIEW OF TUBE SOCKETS

LINK CLOSED FOR LOOP OPERATION

OSCILLOSCOPE CONNS VERTICAL "III" TO THIS TERMINAL VERTICAL "O" TO CHASSIS.

RADIO- PHONOGRAPH SWITCH VIEWED FROM FRONT AND SHOWN IN MAX. LOW RADIO (MAX. COUNTER, CLOCKWISE) POSITION.

RANGE SELECTOR VIEWED FROM FRONT AND SHOWN IN "A" BAND (MAX. COUNTER-CLOCKWISE) POSITION.



FRONT APRON 2 REAR VIEW

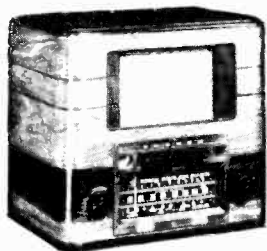
VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V A.C. SUPPLY STATED (*) VOLTAGES ARE OPERATING VOLTAGES OCCURING WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

Models T-64 T-65 and T-80

Chassis No. RC-416

RC-416A

Six- and Eight-Tube, Three-Band, AC, Superheterodyne Receivers



RCA Victor T-64.



T-65



RCA Victor T-80.

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast.....	540-1,720 kc
Medium Wave.....	2.3-7.0 mc
Short Wave.....	7.0-22.0 mc

INTERMEDIATE FREQUENCY..... 455 kc

MODELS T-64, T-65

TUBE COMPLEMENT

- (1) RCA-6SA7... 1st Detector—Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6SQ7..... 2nd Detector, A.V.C.,
and A-F Amplifier
- (4) RCA-6F6-G..... Power Output
- (5) RCA-6U5/6G5..... Tuning Indicator
- (6) RCA-5Y3-G..... Rectifier

PILOT LAMPS (2).. Mazda No. 44, 6.3 volts,
0.25 amp.

POWER OUTPUT RATING

Undistorted..... 2.5 watts
Maximum..... 4.5 watts

LOUDSPEAKER (RL-79-4)

Type..... 6-inch Electrodynamic
V.C. Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles,
75 watts

Rating B..... 105-125 volts, 25-60 cycles,
75 watts

Rating C..... 100-130, 140-160, 195-250
volts, 40-60 cycles, 75 watts

MODEL T-80

TUBE COMPLEMENT

- (1) RCA-6SA7 1st. Detector-Oscillator
- (2) RCA-6SK7 I-F Amplifier
- (3) RCA-6SQ7 2nd. Detector, A.V.C.,
and A-F Amplifier
- (4) RCA-6SF5 Inverter
- (5) RCA-6F6-G Output
- (6) RCA-6F6-G Output
- (7) RCA-5Y3-G Rectifier
- (8) RCA-6U5/6G5 Tuning Indicator

PILOT LAMPS (2)..... Mazda No. 44, 6.3
volts, 0.25 amp.

POWER OUTPUT RATING

Undistorted 5.0 watts
Maximum 5.5 watts

LOUDSPEAKER (RL-79-5)

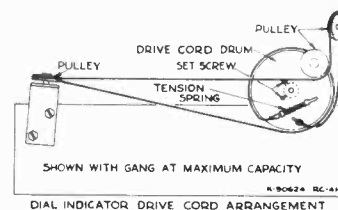
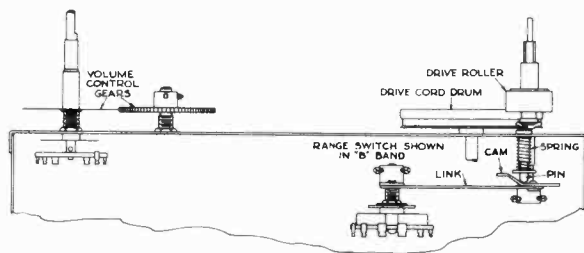
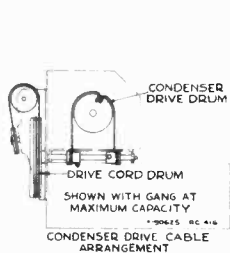
Type 6-inch electrodynamic
V.C. Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating "A" 105-125 volts, 50-60
cycles, 85 watts

Rating "B" 105-125 volts, 25-60
cycles, 85 watts

Rating "C" 100-130, 140-160, 195-250
volts, 40-60 cycles, 85 watts

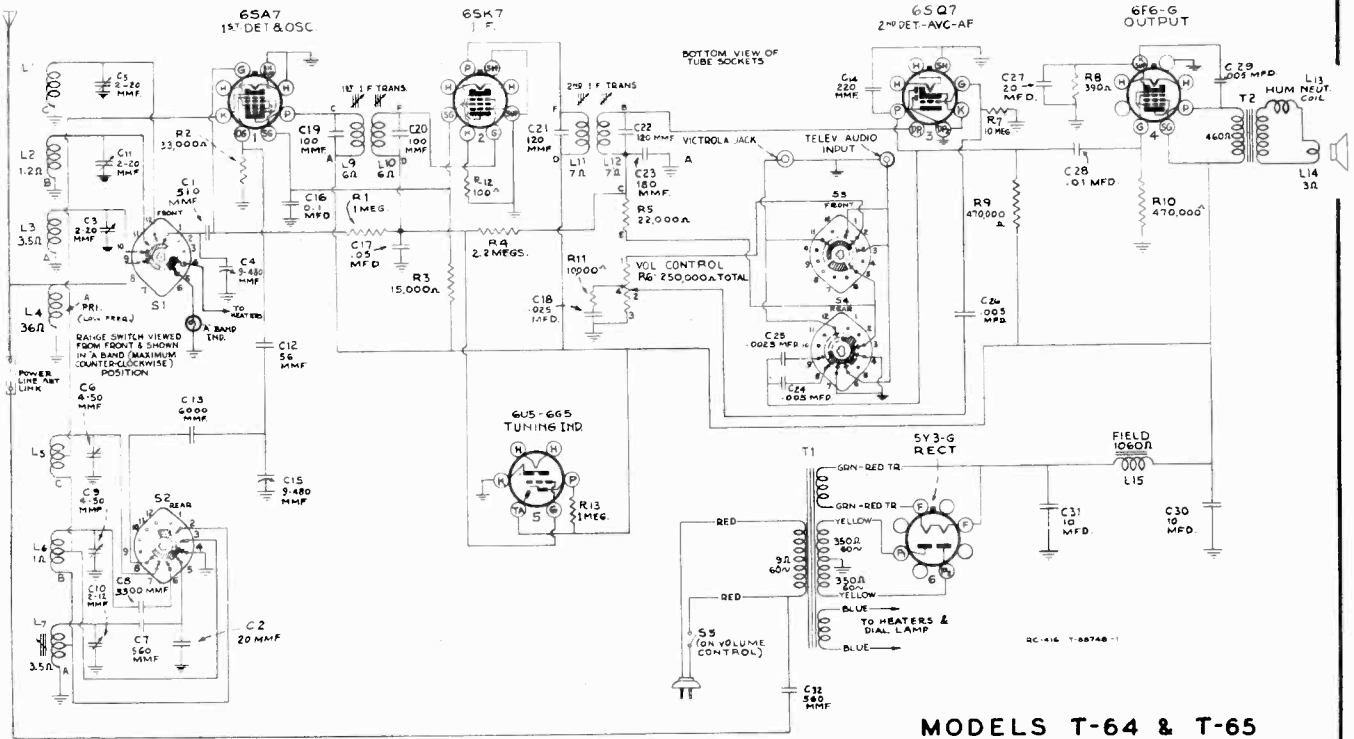
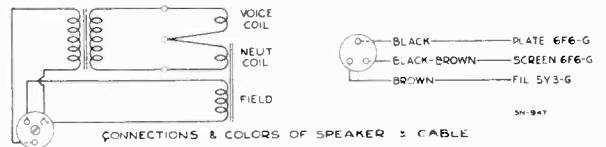


Note: Adjustment of the link and cam should be such that in "A" band position when push-buttons are operated, the drive cord drum will turn freely without rubbing or binding against the drive roller.

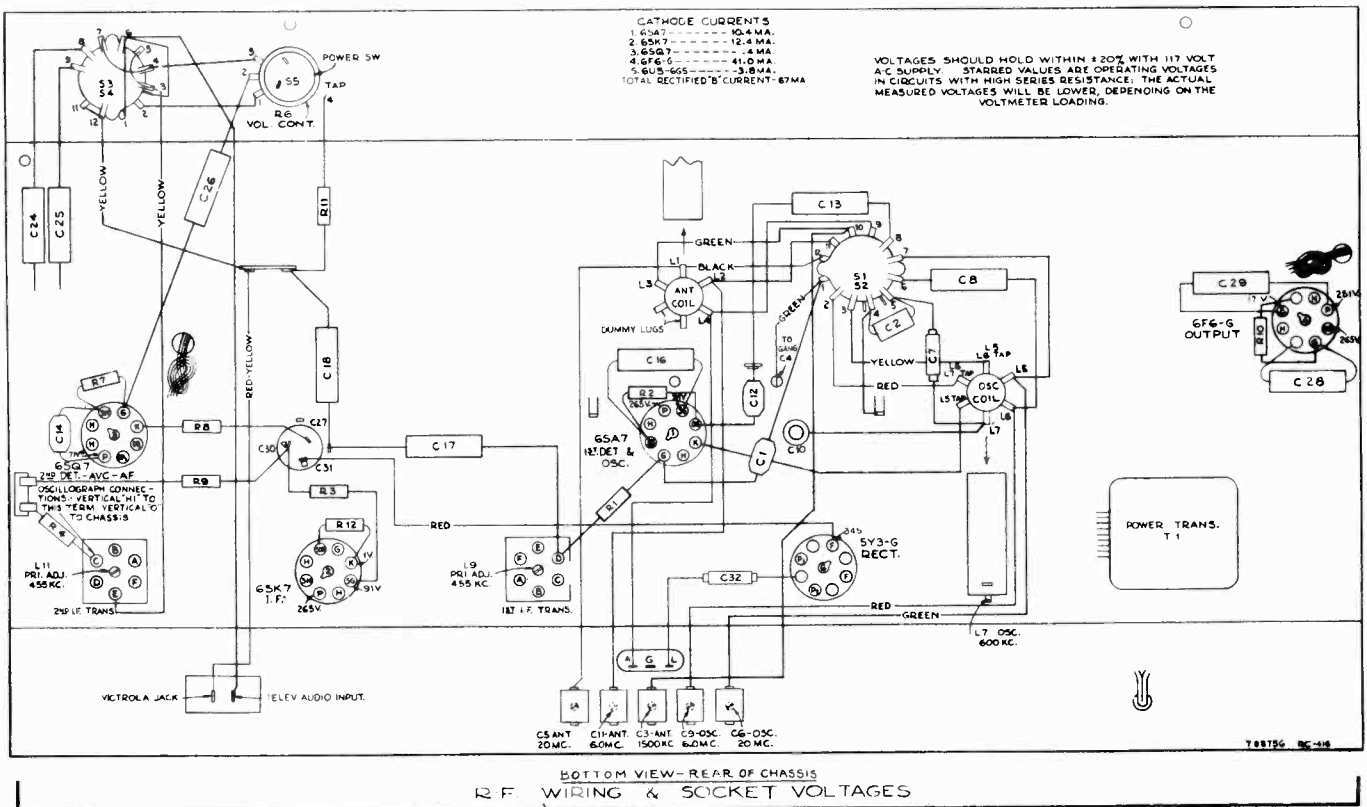
Note: On some receivers the following circuit changes are in effect:

1. C1 is 470 mmfd.
2. There are three types of 2nd. I-F transformers in use.
 - a. The first type (Stock No. 14308) has C23 and R5 mounted inside the case, and is connected exactly as shown below.
 - b. In the second type R5 is omitted and the lead from S4 connects to C instead of E. E is not used.
 - c. In the third type R5 is omitted and C23 is connected externally from C to ground. E is not used. The lead from the diode plate connects to A instead of B. When replacing this transformer with Stock No. 14308, remove the external C23 and connect the replacement transformer as shown in the schematic diagram.

Important: Stock No. 14308 is used as replacement for all three of the above types, and should be connected as shown in the schematic diagram.

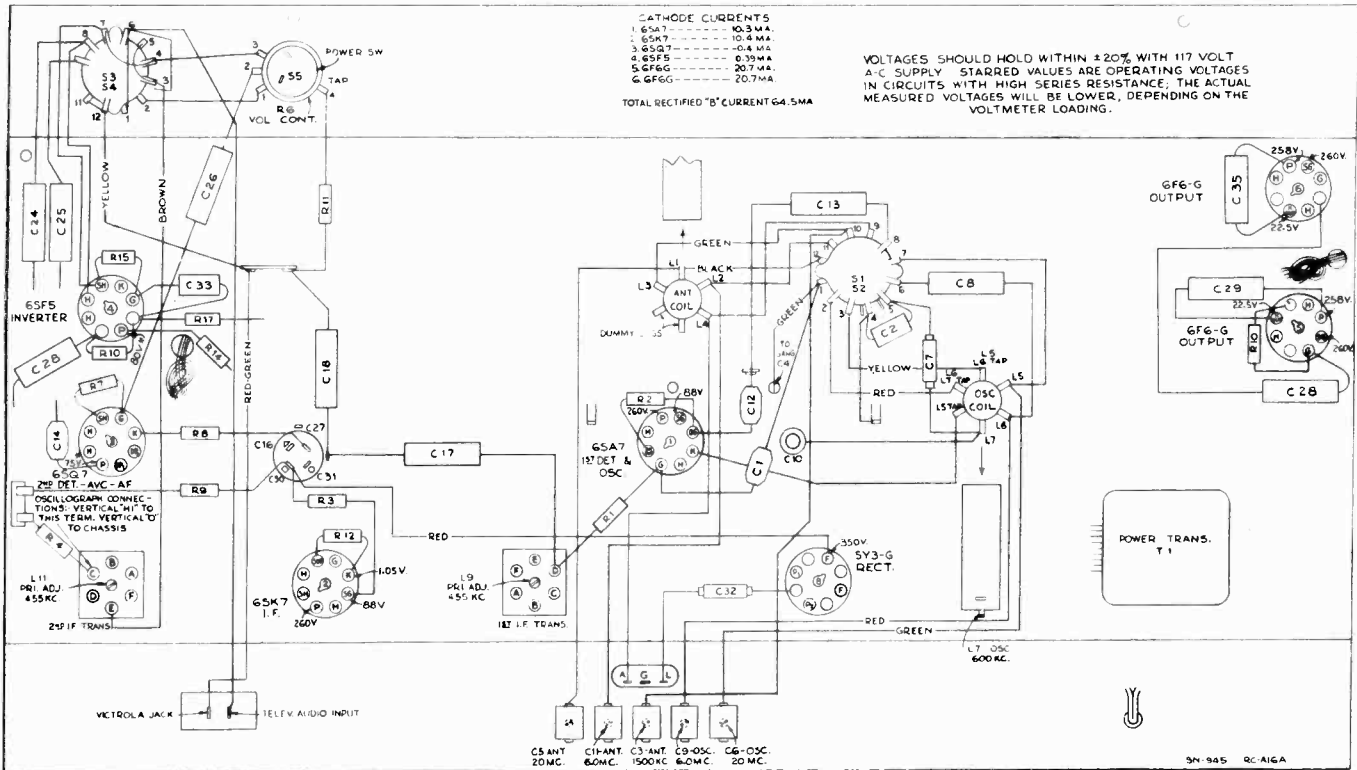


MODELS T-64 & T-65



BOTTOM VIEW - REAR OF CHASSIS
R.F. WIRING & SOCKET VOLTAGES

T-64, T-65, T-80



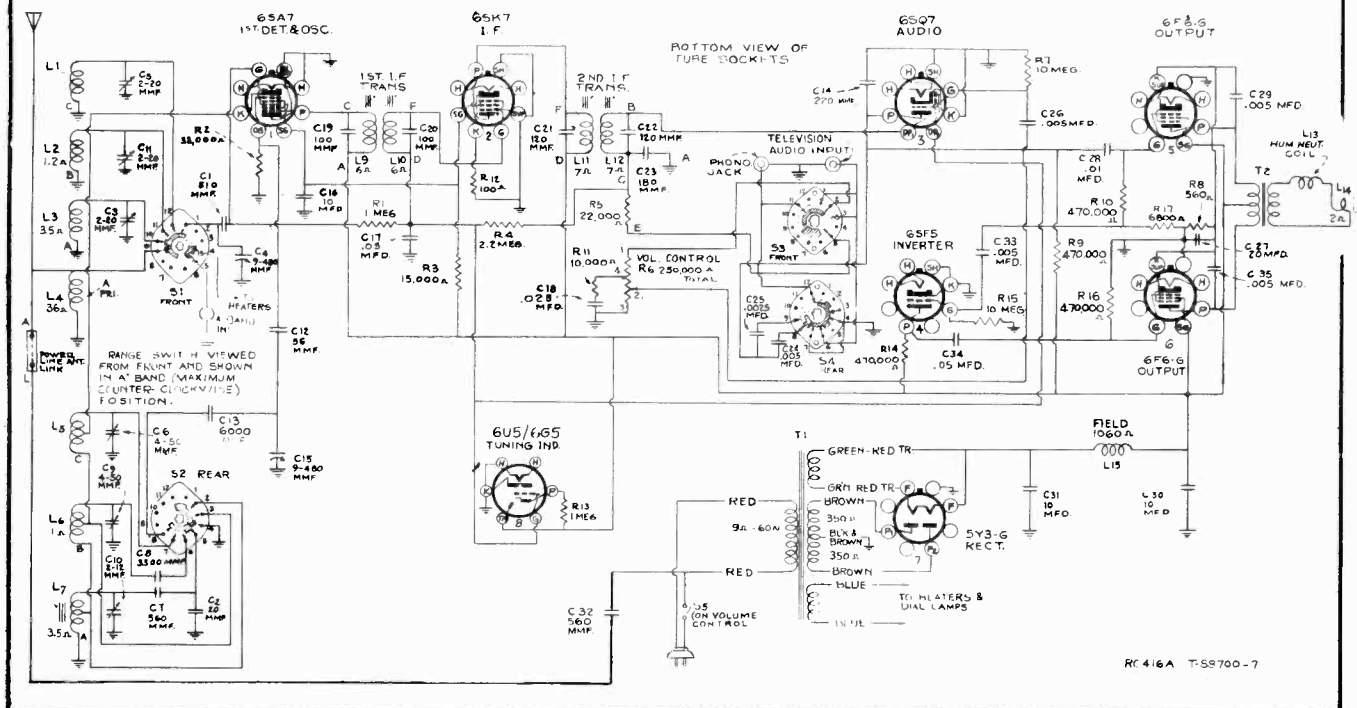
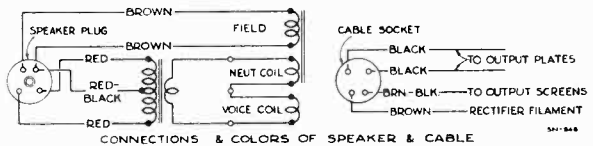
MODEL T-80

RF WIRING & SOCKET VOLTAGES

Note: On some receivers the following circuit modifications are in effect:

1. R11 is 5,600 ohms, and C18 is 0.1 mfd.
2. C1 is 470 mfd.; R15 is 3,700 ohms and is connected from cathode of 65F5 inverter to ground; R17 is 15,000 ohms; and C33 is omitted.
3. There are three types of 2nd I-F transformers in use.
 - a. The first type (Stock No. 14308) has C23 and R5 mounted inside the case, and is connected exactly as shown below.
 - b. In the second type R5 is omitted and the lead from S4 connects to C instead of E. E is not used.
 - c. In the third type R5 is omitted and C23 is connected externally from C to ground. E is not used. The lead from the diode plate connects to A instead of B. When replacing this transformer with Stock No. 14308, remove the external C23 and connect the replacement transformer as shown in the schematic diagram.

Important: Stock No. 14308 is used as replacement for all three of the above types, and should be connected as shown in the schematic



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

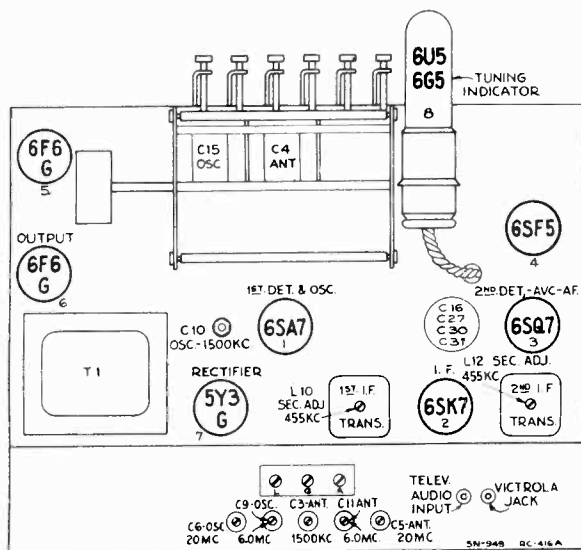
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 240° mark on the calibration scale when the plates are fully meshed.

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L11 and L12 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L9 and L10 (1st I-F Trans.)
3	Ant. terminal in series with 300 ohms	20 mc	20 mc (40°) "C" Band	C6 (osc.)* C5 (ant.)
4		6 mc	6 mc (52.5°) "B" Band	C9 (osc.)** C11 (ant.)
5	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc (41.75°) "A" Band	C10 (osc.) C3 (ant.)
6		600 kc	600 kc (200.25°) "A" Band	L7 (osc.) Rock Gang
7	Repeat step 5.			

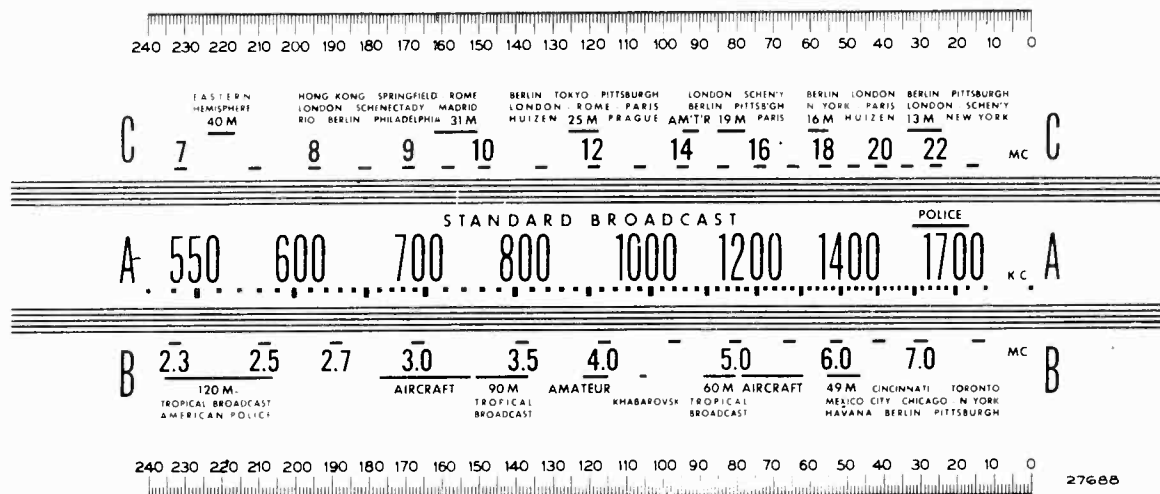
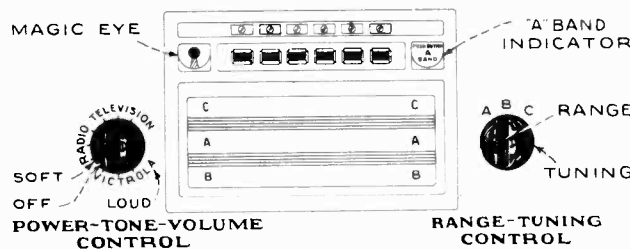
* Use minimum capacity peak if two can be obtained. Check to determine that C6 has been adjusted to correct peak by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

** Use minimum capacity peak if two can be obtained. Check to determine that C9 has been adjusted to correct peak by tuning receiver to approximately 5.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on all bands.



*Tube and Trimmer Locations
Note: Tube #485 used on
Model T-80 only*



Receiver-Dial Scales, and Corresponding 0-240° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example, 200.25° on the calibration scale corresponds to 600 kc on "A" band. Read instructions under "Alignment Procedure."

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-416)			
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw	34040	Ring—Retaining ring for tuning shaft
33430	Board—Antenna and ground terminal board	4689	Screw—No. 8-32 sq. hd. set screw for volume control gear and drum
34268	Cap—Rubber cap for tuning tube	33621	Screw—Push arm lock screw
12714	Capacitor—Air trimmer, 2-12 mmfd. (C10)	34039	Shaft—Range switch knob shaft
33429	Capacitor—Trimmer capacitor bank, two 4-50 mmfd., three 2-20 mmfd., sections (C3, C5, C6, C9, C11)	33624	Shaft—Tuning condenser drive shaft and washer
32792	Capacitor—25 mmfd. (C2)	34038	Shaft—Tuning knob shaft with rubber drive roller and pulley assembled
12723	Capacitor—56 mmfd. (C12)	33545	Shield—Dial lamp shield
30904	Capacitor—100 mmfd. (C19, C20)	31364	Socket—Dial lamp socket
12404	Capacitor—120 mmfd. (C21, C22)	33514	Socket—Phonograph and Television socket
14712	Capacitor—180 mmfd. (C23)	31319	Socket—Tube socket
12694	Capacitor—220 mmfd. (C14)	33544	Spring—Drive cord tension spring
30433	Capacitor—470 mmfd. (C1)	33623	Spring—Drive drum cord spring
12537	Capacitor—560 mmfd. (C32)	33622	Spring—Push arm return spring
31433	Capacitor—560 mmfd. (C7)	34042	Spring—Spring and pin for range switch shaft
31403	Capacitor—3,300 mmfd. (C8)	33515	Spring—Tension spring for spring and pin
31405	Capacitor—6,000 mmfd. (C13)	33513	Switch—Range switch (S1, S2)
5107	Capacitor—.0025 mfd. (C25)	33511	Tone Control, Television and Phono switch (S3, S4)
4838	Capacitor—.005 mfd. (C24, C26, C29)	33428	Transformer—First i-f transformer (L9, L10, C19, C20)
4937	Capacitor—.01 mfd. (C28)	14308	Transformer—Second i-f transformer (L11, L12, C21, C22, C23, R5)
4870	Capacitor—.025 mfd. (C18)	33619	Transformer—Power transformer 105-120 volts, 25-60 cycles (T1)
32787	Capacitor—.05 mfd. (C17)	33112	Transformer—Power transformer 105-120 volts, 50-60 cycles (T1)
4839	Capacitor—.1 mfd. (C16)	31446	Transformer—Power transformer—Universal 60 cycle (T1)
32240	Capacitor—Electrolytic, two 10 mfd., and one 20 mfd. sections (C27, C30, C31)	33512	Volume control and power switch (R6, S5)
33508	Clip—Magic Eye mounting clip and bracket	33726	Washer—"C" washer for spring and pin
32821	Coil—Antenna coil (L1, L2, L3, L4)	34037	Washer—"C" washer for tuning shaft
32824	Coil—Oscillator coil (L5, L6, L7)	SPEAKER ASSEMBLIES (RL-79-4)	
32635	Cord—Condenser drive cord	32907	Cap—Cone center dust cap
32634	Cord—Drive cord	32906	Coil—Hum neutralizing coil (L13)
32713	Core—Adjustable core and stud for oscillator coil	33547	Coil—Speaker field coil (L15)
33827	Drum—Condenser drive drum	5118	Plug—3-contact male plug for speaker
34267	Drum—Drive cord drum	32905	Transformer—Output transformer (T2)
33186	Gear—Volume control knob shaft and gear	MISCELLANEOUS ASSEMBLIES	
33185	Gear—Volume control gear and hub, with set screws	33474	Button—Push button
11891	Lamp—Dial lamp	33552	Dial—Glass dial scale
33431	Link—Antenna and ground terminal board link	33549	Escutcheon—Dial and push button escutcheon—less buttons and screen
34041	Link—Link complete with arm and cam for operating range switch	33551	Frame—Dial frame, holder, and pointer assembled—less dial
33628	Plate—Front guide plate for push arms	33842	Marker—Station selector call letter markers
13871	Plug—Eye cable plug	33550	Screen—"Push button 'A' Band" marker screen
5119	Plug—Speaker cable plug	30330	Spring—Retaining spring for knob Stk. No. 33470
33509	Pulley—Drive cord pulley and bracket (1 pulley)	14270	Spring—Retaining spring for knob Stk. No. 33553 and Stock No. 33471
33510	Pulley—Drive cord pulleys and bracket (2 pulleys)	4982	Spring—Retaining spring for knob Stk. No. 33505
33626	Pulley—Drive pulley		
14439	Resistor—100 ohms, 1/2 watt (R12)		
31388	Resistor—390 ohms, 1 watt (R8)		
14559	Resistor—10,000 ohms, 1/2 watt (R11)		
33489	Resistor—15,000 ohms, 2.5 watts (R3)		
14284	Resistor—22,000 ohms, 1/10 watt (R5)		
12454	Resistor—33,000 ohms, 1/2 watt (R2)		
12285	Resistor—470,000 ohms, 1/2 watt (R9, R10)		
12013	Resistor—1 meg., 1/10 watt (R13)		
13730	Resistor—1 meg., 1/2 watt (R1)		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
14343	Retainer—Retaining ring for volume control knob shaft		

MODEL T-64

MODEL T-65, RC-416

Additional Replacement Parts:

Technical Information and Service Data:

- Stock No. 35441 Cone—Speaker cone and voice coil.
 33471 Knob—Tuning knob
 33553 Knob—Tone control knob
 33470 Knob—Range selector knob
 33505 Knob—Volume control knob

Refer to Model T-64 Service Data, and the following parts used in T-65:

- Stock No. 34994 Button—Push button
 35392 Decalcomania—"RCA Victor" decal.
 35463 Decalcomania—"Range" decal.
 35462 Decalcomania—"Television — Radio — Victrola" decal.
 35457 Dial—Glass dial scale.
 35455 Escutcheon—Dial scale and push button escutcheon less dial scale and buttons
 35456 Frame—Dial frame complete less dial scale, station selector indicator, and indicator guide rods.
 34790 Indicator—Station selector indicator.
 35458 Knob—Range switch knob.
 35459 Knob—Tone control knob.
 35460 Knob—Tuning knob.
 35461 Knob—Volume control and power switch knob.
 33842 Marker—Station selector markers.
 33550 Screen
 34491 Shaft—Station selector indicator pointer guide shaft.
 4982 Spring—Retaining spring for knob, Stock No. 35461.
 14270 Spring—Retaining spring for knob, Stock Nos. 35459, 35460.
 30330 Spring—Retaining spring for knob, Stock No. 35458.

Push Button Adjustment

The push-buttons should be adjusted for six favorite stations after the receiver is operating, and has had a brief warm-up period.

Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Loosen the push-button screws in back of the station-marker recesses.
2. Set Accessory-Tone Knob to "Radio" and turn the range selector to "A," so that the "A" band indicator lights up.

3. Press in the tuning knob and accurately tune in the first station.
4. With station accurately tuned in, press in the first push-button and tighten the screw.
5. Place the station marker tab in the recess.
6. Proceed in a similar manner to adjust the remainder of the push-buttons.

Replacement Parts MODEL T-80

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-416A)		34040	Ring—Retaining ring for tuning shaft
		4669	Screw—No. 8-32 sq. hd. set screw for volume control gear and drum
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw	33621	Screw—Push arm lock screw
33430	Board—Antenna and ground terminal board	34039	Shaft—Range switch knob shaft
34268	Cap—Rubber cap for tuning tube	33624	Shaft—Tuning condenser drive shaft and washer
12714	Capacitor—Air trimmer, 2-12 mmfd. (C10)	34038	Shaft—Tuning knob shaft with rubber drive roller and pulley assembled
33429	Capacitor—Trimmer capacitor bank, two 4-50 mmfd., three 2-20 mmfd., sections (C3, C5, C6, C9, C11)	33545	Shield—Dial lamp shield
32792	Capacitor—25 mmfd. (C2)	31364	Socket—Dial lamp socket
12723	Capacitor—56 mmfd. (C12)	33514	Socket—Phonograph and Television socket
30904	Capacitor—100 mmfd. (C19, C20)	31319	Socket—Tube socket
12404	Capacitor—120 mmfd. (C21, C22)	33544	Spring—Drive cord tension spring
14712	Capacitor—180 mmfd. (C23)	33623	Spring—Drive drum cord spring
12694	Capacitor—220 mmfd. (C14)	33622	Spring—Push arm return spring
30433	Capacitor—470 mmfd. (C1)	34042	Spring—Spring and pin for range switch shaft
12537	Capacitor—560 mmfd. (C32)	33515	Spring—Tension spring for spring and pin
31433	Capacitor—560 mmfd. (C7)	33513	Switch—Range switch (S1, S2)
31403	Capacitor—3,300 mmfd. (C8)	33511	Tone Control, Television and Phono switch (S3, S4)
31405	Capacitor—6,000 mmfd. (C13)	33428	Transformer—First i-f transformer (L9, L10, C19, C20)
5107	Capacitor—.0025 mfd. (C25)	14308	Transformer—Second i-f transformer (L11, L12, C21, C22, C23, R5)
4838	Capacitor—.005 mfd. (C24, C26, C29, C33, C35)	33619	Transformer—Power transformer 105-120 volts, 25-60 cycles (T1)
4937	Capacitor—.01 mfd. (C28)	33112	Transformer—Power transformer 105-120 volts, 50-60 cycles (T1)
4870	Capacitor—.025 mfd. (C18)	31446	Transformer—Power transformer—Universal—60 cycle (T1)
32787	Capacitor—.05 mfd. (C17, C34)	33512	Volume control and power switch (R6, S5)
33014	Capacitor—Electrolytic, three 10 mfd., and one 20 mfd. sections (C16, C27, C30, C31)	33726	Washer—"C" washer for spring and pin
33508	Clip—Magic Eye mounting clip and bracket	34037	Washer—"C" washer for tuning shaft
32821	Coil—Antenna coil (L1, L2, L3, L4)	SPEAKER ASSEMBLIES (RL79-5)	
32824	Coil—Oscillator coil (L5, L6, L7)	32907	Cap—Cone center dust cap
32635	Cord—Condenser drive cord	32906	Coil—Hum neutralizing coil
32634	Cord—Drive cord	33547	Coil—Speaker field coil
32713	Core—Adjustable core and stud for oscillator coil	5039	Plug—4-prong male speaker connection plug
33627	Drum—Condenser drive drum	33599	Transformer—Speaker output transformer
34267	Drum—Drive cord drum	MISCELLANEOUS ASSEMBLIES	
33186	Gear—Volume control knob shaft and gear	33474	Button—Push button
33185	Gear—Volume control gear and hub, with set screws	33552	Dial—Glass dial scale
11891	Lamp—Dial lamp	33549	Escutcheon—Dial and push button escutcheon—less buttons and screen
33431	Link—Antenna and ground terminal board link	33551	Frame—Dial frame, holder, and pointer assembled—less dial
34041	Link—Link complete with arm and cam for operating range switch	33842	Marker—Station selector call letter markers
33628	Plate—Front guide plate for push arms	33550	Screen—"Push Button "A" Band" marker screen
13871	Plug—Eye cable plug	30330	Spring—Retaining spring for knob, Stock No. 33470
5040	Plug—Speaker cable plug	14270	Spring—Retaining spring for knob, Stock No. 33553 and Stock No. 33471
33509	Pulley—Drive cord pulley and bracket (1 pulley)	4982	Spring—Retaining spring for knob, Stock No. 33505
33510	Pulley—Drive cord pulleys and bracket (2 pulleys)		
33626	Pulley—Drive pulley		
14439	Resistor—100 ohms, 1/2 watt (R12)		
30735	Resistor—560 ohms, 1 watt (R8)		
12266	Resistor—6,800 ohms, 1/2 watt (R17)		
14559	Resistor—10,000 ohms, 1/2 watt (R11)		
33489	Resistor—15,000 ohms, 2.5 watts (R3)		
14284	Resistor—22,000 ohms, 1/10 watt (R5)		
12454	Resistor—33,000 ohms, 1/2 watt (R2)		
12285	Resistor—470,000 ohms, 1/2 watt (R9, R10, R14, R18)		
12013	Resistor—1 meg., 1/10 watt (R13)		
13730	Resistor—1 meg., 1/2 watt (R1)		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
13601	Resistor—10 meg., 1/2 watt (R7, R15)		
14343	Retainer—Retaining ring for volume control knob shaft		

Additional Replacement Part:

- Stock No.
- 35014 Mounting—Rubber cushion, spacer, and washers for chassis mounting (4 required)
- 35441 Cone—Speaker cone and voice coil
- 33471 Knob—Tuning knob
- 33553 Knob—Tone control knob
- 33470 Knob—Range selector knob
- 33505 Knob—Volume control knob

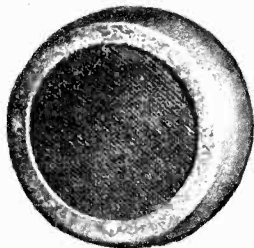
MODEL M-70

Chassis No. RC-394

Seven-Tube, Push-Button, Superheterodyne Automobile Receiver



RCA Victor M-70.



Model M-70 consists of a 7-tube, superheterodyne automobile receiver and an eight-inch electrodynamic loudspeaker built in two separately housed components. A small tuning unit for mounting under the instrument panel contains four tubes, while the cylindrical loudspeaker housing for firewall mounting contains three tubes.

Electrical Specifications

RCA TUBE COMPLEMENT

- (1) RCA-6K7..... R-F Amplifier
- (2) RCA-6A8..... First Detector—Oscillator
- (3) RCA-6SK7..... I-F Amplifier

- (4) RCA-6R7..... Second Det., A-F Amp., and A.V.C.
- (5) RCA-6V6-G..... Power Output
- (6) RCA-6V6-G..... Power Output
- (7) RCA-0Z4-G..... Rectifier

Tuning Range 550 to 1,550 kc

INTERMEDIATE FREQUENCY..... 260 kc

POWER OUTPUT RATINGS

Maximum..... 8 watts
Undistorted 6 watts

LOUDSPEAKER

Type..... Electrodynamic
Voice-Coil Impedance..... 3 ohms at 400 cycles

POWER SUPPLY RATING

Supply Voltage 6.3 volts
Current Drain 8.7 amperes
Fuse Protection 15 ampere

PILOT LAMP..... Mazda No. 51, 6.8 volts, 0.2 ampere

Mechanical Specifications

RECEIVER CASE DIMENSIONS..... Height, 2½ inches; Width, 5⅞ inches; Depth, 9¼ inches

SPEAKER CASE DIMENSIONS..... Diameter, 9½ inches; Depth, 5 inches

OPERATING CONTROLS..... (Left)—(Plastic Knob) Power-Volume; (Wing Knob) Tone; (Center)—Five Station Push Buttons; (Right)—Manual Tuning; Ratio 7½ : 1.

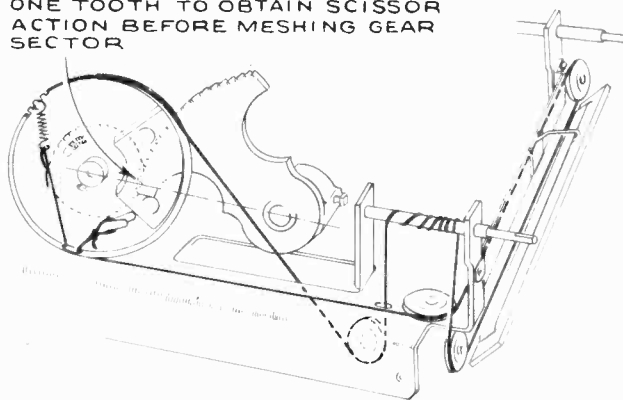
WEIGHT..... Net, 20 pounds; Shipping, 22 pounds

Adjustment of Push-Button Mechanism

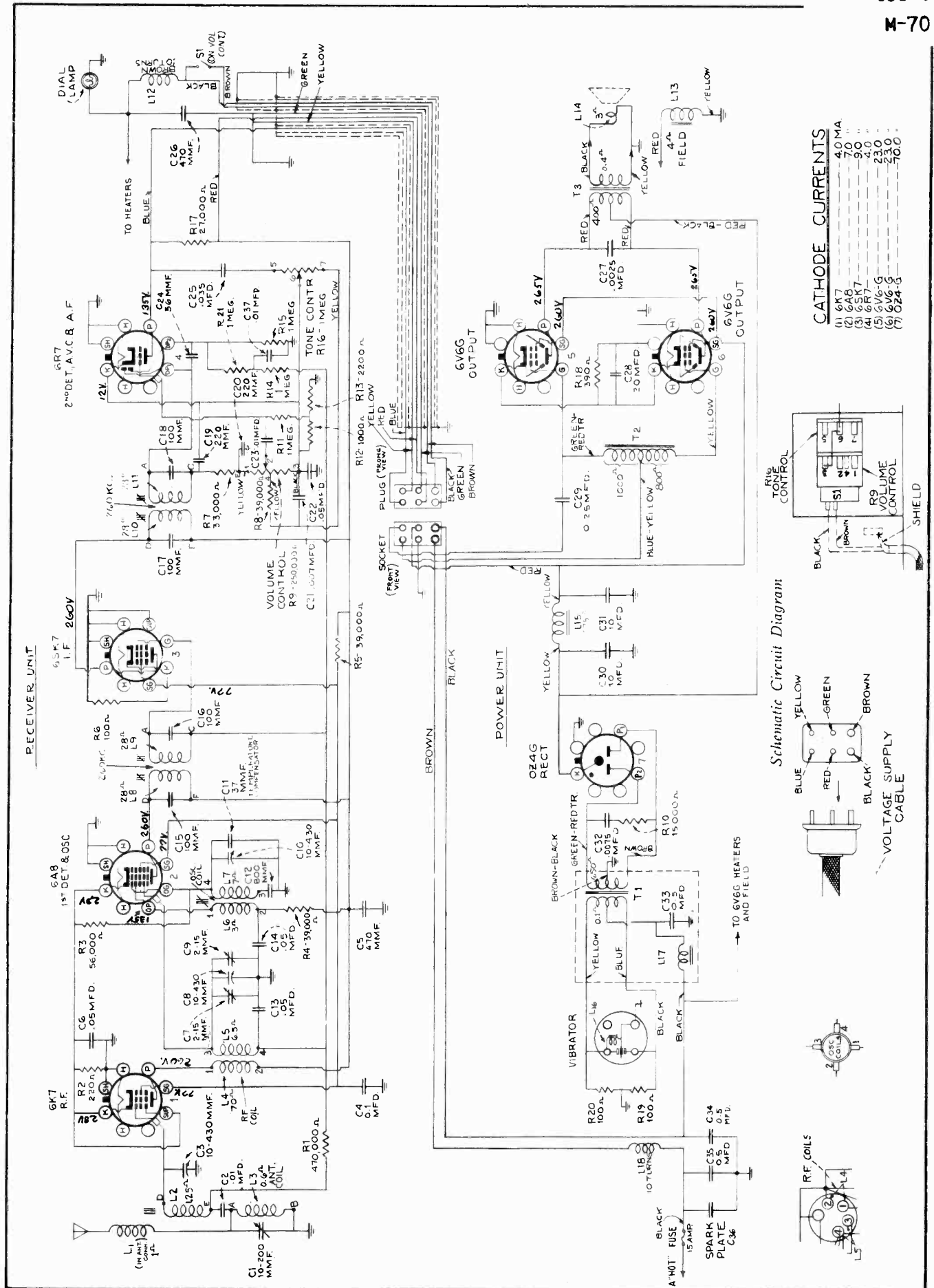
The mechanism should be adjusted so that when using either manual or push-button tuning, it operates positively and without backlash or bind. The following hints will be found helpful in adjusting the mechanism properly.

1. With the gang condenser in full mesh, the sector gear should have the two end teeth fully meshed in the scissor gear, as shown in the illustration.
2. The position of the sector gear on the rocker-plate shaft should be adjusted so that there is clearance between the rocker-plates and the frame of the push-button mechanism at both extremities of gang rotation. Thus correct adjustment prevents the rotation of the gang being limited by the rocker plates touching the frame.
3. The drive cord should have 6½ turns around the tuning shaft as shown in the illustration. Three degrees of adjustment of the tension on the drive cord may be obtained by use of the three positions for connecting the drive-cord-tension spring to the drive-cord drum on the condenser shaft as shown.
4. The push-arms, rocker-plate shaft, and pulleys should be lubricated with light grease (sparingly). Care should be taken to keep the lubricant off of the drive cord.

TURN FREE GEAR CLOCKWISE ONE TOOTH TO OBTAIN SCISSOR ACTION BEFORE MESHING GEAR SECTOR



Drive Cord Hookup



Alignment Procedure

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output signal as low as possible to avoid a-v-c action.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are as follows: Vertical "H1" to terminal "C" on 2nd I-F transformer; vertical "0" to chassis.

Output Meter.—Connect the output meter across the speaker voice-coil and turn the receiver volume control to maximum (fully clockwise) and tone control to middle of range.

Dial Calibration.—Rotate the gang condenser to its full-mesh (maximum-capacity) position and then adjust dial scale so that the pointer is aligned to the last calibration mark at the low-frequency end of the scale.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid (No. 4 pin) in series with .01 mfd.	260 kc	No Signal 550-750 kc	L10 and L11 (2nd I-F Trans.)
2	6A8 Det. grid cap in series with .01 mfd.	260 kc		L8 and L9 (1st I-F Trans.)
3 †	* Ant. connector in series with 60 mmfd.	600 kc	600 kc	L7 (osc.)
4 †	* Ant. connector in series with 60 mmfd.	1,400 kc	1,400 kc signal	C7 (det.) C1 (ant.)
5 †	* Ant. connector in series with 60 mmfd.	600 kc	600 kc (rock)	L7 (osc.)
6 †	* Ant. connector in series with 60 mmfd.	1,400 kc	1,400 kc signal	C7 (det.) C1 (ant.)**

* **Note 1.**—This 60 mmfd. capacitor must be inserted at the antenna connector of the receiver. The lead from the test oscillator to the 60 mmfd. capacitor may be shielded if desired, but no shielding should be used between capacitor and antenna connector.

† **Note 2.**—These adjustments should be made with unit enclosed in its shielded case, through holes provided for adjustment purposes.

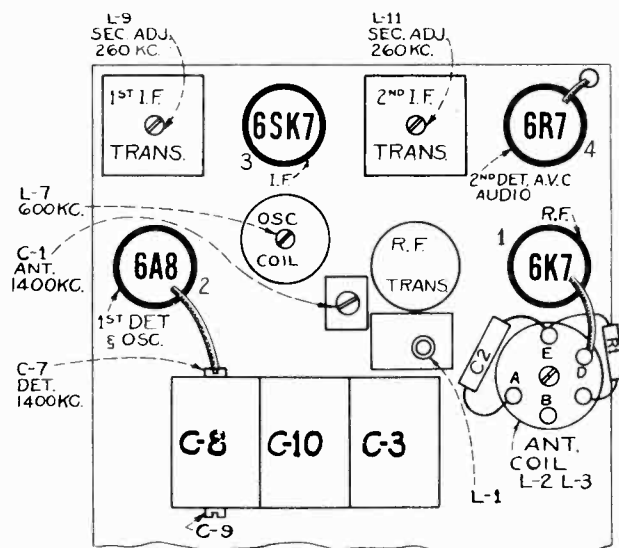
** **Note 3.**—Final adjustment of C1 must be made after the receiver has been installed and the antenna connected. See "Antenna Circuit."

Antenna Circuit

It is very important that these instructions be followed when installing the M-70 receiver.

The antenna circuit is designed to work with an antenna having a total capacity including the shielded lead-in not to exceed 150 mmf. If an antenna having a larger capacity is to be used, it will be necessary to add a capacitor in series with the lead from the antenna filter L-1 to the antenna coil terminal ("A"). Where a "Double Under the Running Board" type of antenna is to be used having a capacity of approximately 200 mmf., the capacitor added should be approximately 500 mmf. The insulated running board type having an approximate capacity of 550 mmf. will require a capacitor of approximately 150 mmf. Cars using an insulated steel top of approximately 3,500 mmf. will require a series capacitor of 150 mmf.

After installation and with antenna connected, tune in a weak station near 1,400 kc and adjust compensator trimmer C-1 for maximum signal output. This trimmer is accessible by removing plug button near antenna jack on top of receiver. If a maximum (peak) signal output cannot be obtained in the range of the antenna trimmer, the effective capacity should be checked and compensated for by varying series capacity as described above.



Receiver Unit, Tubes and Trimmers

Push Button Adjustment

The push buttons should be adjusted for five favorite stations after the receiver is installed and operating.

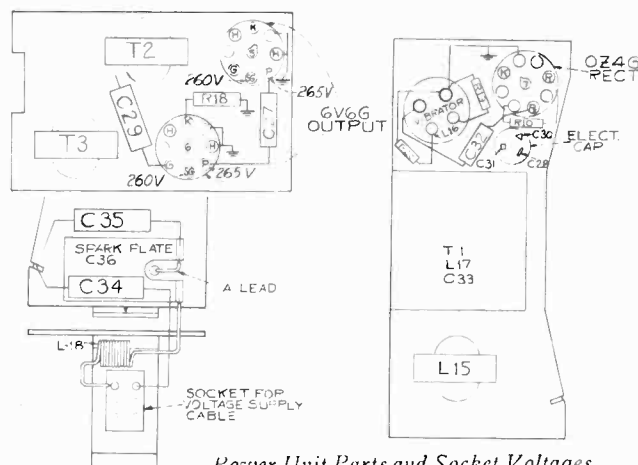
Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Loosen the push buttons one-half turn.
2. Using the tuning control, accurately tune in the first station.
3. With station accurately tuned in, press the first push button fully in and then gently release so as not to jar mechanism.
4. Tighten the push button securely with fingers. Do not force with pliers.
5. Proceed in same manner to adjust the other four push buttons.

Push-Arm Inserts:

Special push-arm inserts are now available to take care of stripped threads on the push button mechanism in these models.

Stock No. 36161 Insert is for use in Models M-50, M-60, and M-70.



Power Unit Parts and Socket Voltages

Additional Replacement Part:

Stock No. 35253 Power cable and plug.....

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-394)		32991	Transformer—Second I.F. transformer (L10, L11, C17, C18).....
32973	Button—Push button.....	32972	Tuner—Tuning mechanism—comprising push arms, and cam plates, assembled in metal frame—less push buttons.....
32979	Capacitor—Adjustable trimmer, 15-150 Mmfd. (C1).....	2917	Washer—"C" washer for tuning shaft.....
31728	Capacitor—37 Mmfd. (C11 temperature compensating).....	POWER UNIT ASSEMBLY	
12723	Capacitor—56 Mmfd. (C24).....	32240	Capacitor—Electrolytic—2 sections 10 mfd., one section 20 Mfd. (C28, C30, C31).....
30904	Capacitor—100 Mmfd. (C15, C16, C17, C18).....	5107	Capacitor—0025 Mfd. (C27).....
12694	Capacitor—220 Mmfd. (C19, C20).....	30626	Capacitor—0075 Mfd. (C32).....
30433	Capacitor—470 Mmfd. (C5, C26).....	30965	Capacitor—0.25 Mfd. (C29).....
33052	Capacitor—800 Mmfd. (C12).....	12741	Capacitor—0.5 Mfd. (C34, C35).....
5148	Capacitor—.007 Mfd. (C21).....	30641	Lead—"A" lead complete with male section of fuse holder.....
14393	Capacitor—.01 Mfd. (C2, C37).....	33064	Reactor—Filter reactor (L15).....
4937	Capacitor—.01 Mfd. (C23).....	30540	Resistor—100 ohms, 1/2 watt (R19, R20).....
5196	Capacitor—.035 Mfd. (C25).....	31388	Resistor—390 ohms, 1 watt (R18).....
32787	Capacitor—.05 Mfd. (C6, C13, C14, C22).....	12695	Resistor—15,000 ohms, 1/2 watt (R10).....
4839	Capacitor—.01 Mfd. (C4).....	13686	Socket—4-contact vibrator socket.....
31601	Coil—Antenna coil—less shield (L2, L3).....	33063	Socket—6-contact socket for power cable.....
31977	Coil—Antenna choke coil (L1).....	32299	Socket—Octal base tube socket.....
32977	Coil—Oscillator coil—less shield (L6, L7).....	32243	Transformer—Driver transformer (T2).....
32978	Control—Volume control, tone control, and power switch (R9, R16, S1).....	32241	Transformer—Output transformer (T3).....
31600	Coil—R.F. coil—less shield (L4, L5).....	32986	Transformer—Vibrator power transformer (T1, L17, C33).....
32974	Condenser—3-gang variable tuning with gear (C3, C7, C8, C9, C10).....	13688	Vibrator—Plug-in unit (L16).....
32634	Cord—Drive cord.....	SPEAKER ASSEMBLIES	
32975	Dial—Dial scale only—less frame.....	32988	Case—Speaker and power unit case—less screen.....
32982	Drum—Variable condenser drive drum.....	33017	Cone—Speaker cone and voice coil (L14).....
32976	Frame—Dial scale frame and holder.....	32989	Screen—Speaker case grille and screen.....
32290	Gear—Tuning unit gear sector.....	12252	Screw—No. 8 x 1/4 self-tapping screw for speaker case.....
32985	Indicator—Dial indicator pointer.....	32987	Speaker unit only (L13, L14).....
11765	Lamp—Dial lamp.....	MISCELLANEOUS ASSEMBLIES	
32981	Pulley—Drive cord pulley (1) and bracket.....	32755	Button—Plug button for receiver case.....
32980	Pulley—Drive cord pulleys (2) and bracket.....	5025	Capacitor—Generator capacitor, .5 Mfd.....
14439	Resistor—100 ohms, 1/2 watt (R6).....	32992	Case—Receiver case—less push button escutcheon.....
14561	Resistor—220 ohms, 1/2 watt (R2).....	4291	Clip—Ammeter clip.....
14720	Resistor—1,000 ohms, 1/2 watt (R12).....	31456	Cover—8 celluloid covers for station call letter markers.....
13716	Resistor—2,200 ohms, 1/2 watt (R13).....	32994	Escutcheon—Push button escutcheon.....
30409	Resistor—27,000 ohms, 1/2 watt (R17).....	5023	Fuse—15 amperes.....
12454	Resistor—33,000 ohms, 1/2 watt (R7).....	4290	Insulator—Fuse insulator sleeve.....
12266	Resistor—39,000 ohms, 1/2 watt (R4, R8).....	32996	Knob—Dummy knob.....
30434	Resistor—39,000 ohms, 1 watt (R5).....	32995	Knob—Tone control and switch knob.....
12286	Resistor—56,000 ohms, 1/2 watt (R3).....	32993	Knob—Volume control, or tuning knob.....
12285	Resistor—470,000 ohms, 1/2 watt (R1).....	7766	Lead—Ammeter lead and clip.....
13730	Resistor—1 Meg., 1/2 watt (R11, R14, R15, R21).....	31589	Marker—Push button station marker.....
13471	Ring—Retaining ring for antenna coil shield.....	32998	Mounting—Complete set of hardware for mounting speaker unit.....
3584	Ring—Retaining ring for R.F. coil.....	32997	Mounting—Complete set of hardware for mounting receiver unit.....
14350	Screw—No. 8-32 x 3/16 sq. hd. set screw for drum.....	32317	Screw—No. 8-32 x 7/32 set screw for volume control or tuning knob.....
31482	Screw—No. 8-32 x 1/4 sq. hd. set screw for gear sector.....	12252	Screw—No. 8 x 1/4-in. lg. self-tapping screw for speaker case.....
32983	Shaft—Tuning knob shaft.....	5024	Suppressor—Distributor suppressor.....
32302	Shield—Antenna coil shield.....	32769	Washer—Felt washer for under knob.....
12883	Shield—Oscillator coil shield.....		
32984	Slide—Dial pointer slide rail.....		
31364	Socket—Dial lamp socket.....		
32299	Socket—Octal base tube socket.....		
30585	Spring—Push button arm spring.....		
31615	Spring—Drive cord tension spring.....		
32990	Transformer—First I.F. transformer (L8, L9, C15, C16).....		

MODEL 86T6

Six-Tube, Electric-Tuning, Three-Band, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"Medium Wave" (B).....	2,300-7,000 kc
"Short Wave" (C).....	7,000-22,000 kc
Six Electric Tuning Positions.....	540-1,550 kc

R-F ALIGNMENT FREQUENCIES

"Medium Wave" (B).....	6,000 kc (osc., ant.)
"Short Wave" (C).....	20,000 kc (osc.)
"Standard Broadcast" (A)...	600 kc (osc.), 1,500 kc (osc.)
Six Electric Tuning Positions...	Desired Station (osc., ant.)

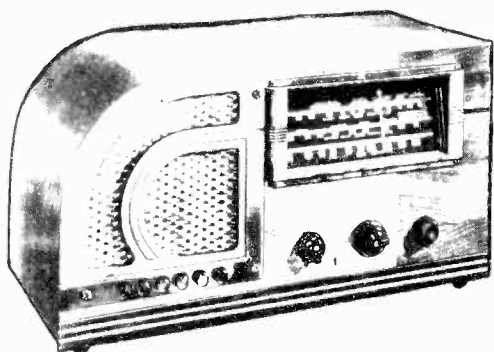
Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6A8-G..... First Detector and Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6H6..... Second Detector and A.V.C.
- Pilot Lamps (2).....

- (4) RCA-6F5..... Audio Voltage Amplifier
- (5) RCA-6F6..... Audio Power Amplifier
- (6) RCA-5W4..... Full-Wave Rectifier

Mazda No. 46, 6.3 volts, 0.25 amp.



POWER SUPPLY RATINGS

Rating A—105-125 volts, 50-60 cycles.....	75 watts
Rating B—105-125 volts, 25-60 cycles.....	75 watts
Rating C—100-130/200-250 volts, 50-60 cycles..	75 watts

LOUDSPEAKER

Type..... 6-inch Electrodynamic
 Voice coil impedance at 400 cycles.. { 2.5 ohms—84091—1
 { 4.7 ohms—84091—2

POWER OUTPUT

Undistorted.....	2.2 watts
Maximum.....	4.5 watts

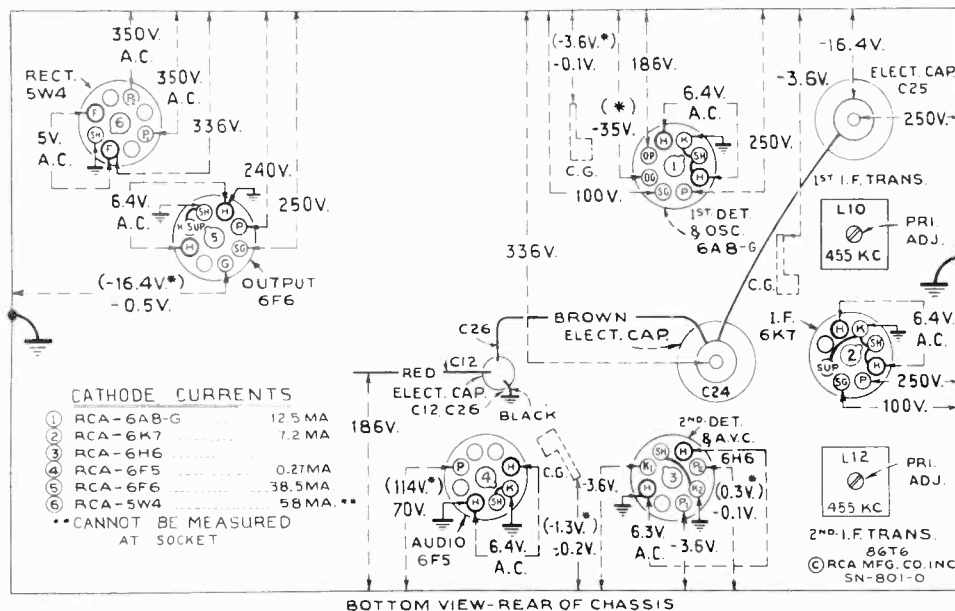


Figure 1—Radiotron Socket Voltages and Trimmer Locations

Measured at 117 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("Standard Broadcast")—No signal being received—Volume control minimum—Tone control optional

Note: Two voltage values are shown for some readings. The value shown in parentheses with asterisk (*) indicates operating conditions without voltmeter loading. The other value (generally lower) is the actual measured voltage and differs from the value shown in parentheses because of the additional loading of the voltmeter through the high series circuit resistance.

Voltage values as specified should hold within ±20% when the receiver is normally operative at its rated line voltage. To duplicate the conditions under which the voltages were measured requires a 1,000-ohm-per-volt d-c meter, having ranges of 10, 50, 250, and 500 volts. Use the nearest range above the specified measured voltage. A-c voltages were measured with a corresponding a-c meter.

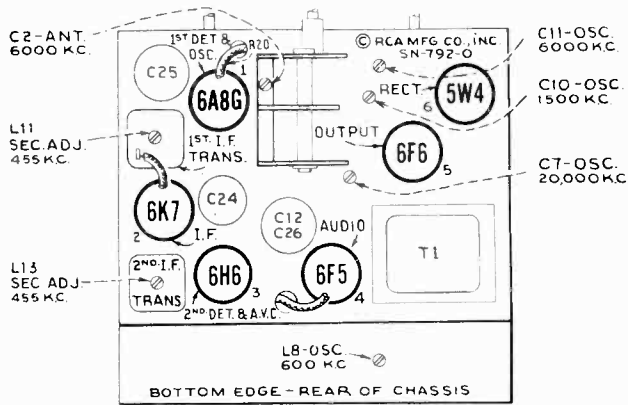


Figure 2—Radiotron, Component Part, and Trimmer Locations

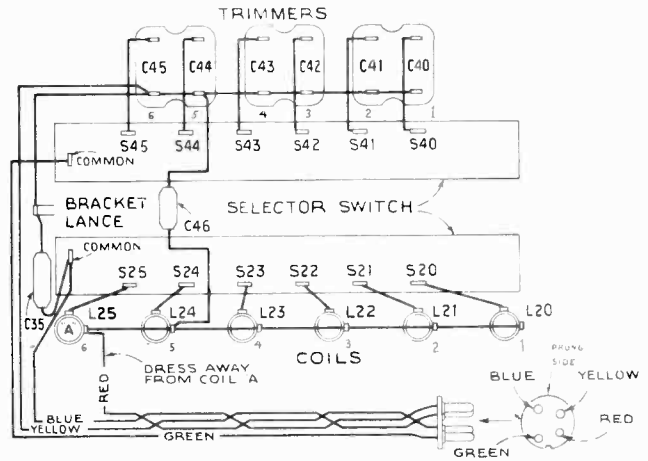


Figure 3—Wiring Diagram of Electric Tuning Unit

Alignment Procedure

With the gang tuning-condenser plates in full-mesh position, adjust the pointer to the low-frequency (end) calibration mark on the dial scale. The pointer is soldered in place on the drive cable.

Connect the "low" output terminal of the test oscillator to the receiver "G" (ground) terminal for all alignment operations. Regulate the output of the test oscillator so that minimum signal is applied to the receiver to obtain an observable output indication. This will avoid a-v-c action.

The term "Dummy antenna" means the device which must be connected between the "high" test-oscillator output and the point of connection to the receiver in order to obtain ideal alignment. "No signal, 550-750 kc" means that the receiver should be tuned to a point between 550 and 750 kc where no signal or interference is received from a station or local (heterodyne) oscillator.

For further details on alignment, refer to booklet "RCA Victor Receiver Alignment."

Precautionary Lead Dress.—(1) 6F5 grid lead should be dressed away from adjacent electrolytic, C-12. (2) Leads from push-button socket on side apron must be twisted and dressed away from chassis. Maintain original length, size, and position of: (3) C-band antenna lead; (4) Antenna series condenser, C-1, lead; (5) C-band oscillator leads to range switch and chassis; (6) Oscillator plate lead to range switch.

Adjustments for Electric Tuning

Each push-button connects a particular oscillator coil and antenna trimmer condenser. The tuning of this coil and this condenser selects a station. Clockwise rotation of cores or trimmer screws lowers frequency.

The frequency ranges for various push-buttons are:

- No. 1 540 to 1,160 kc — Adjust L-20 and C-40.
- No. 2 540 to 1,160 kc — Adjust L-21 and C-41.
- No. 3 600 to 1,265 kc — Adjust L-22 and C-42.
- No. 4 600 to 1,265 kc — Adjust L-23 and C-43.
- No. 5 785 to 1,550 kc — Adjust L-24 and C-44.
- No. 6 785 to 1,550 kc — Adjust L-25 and C-45.

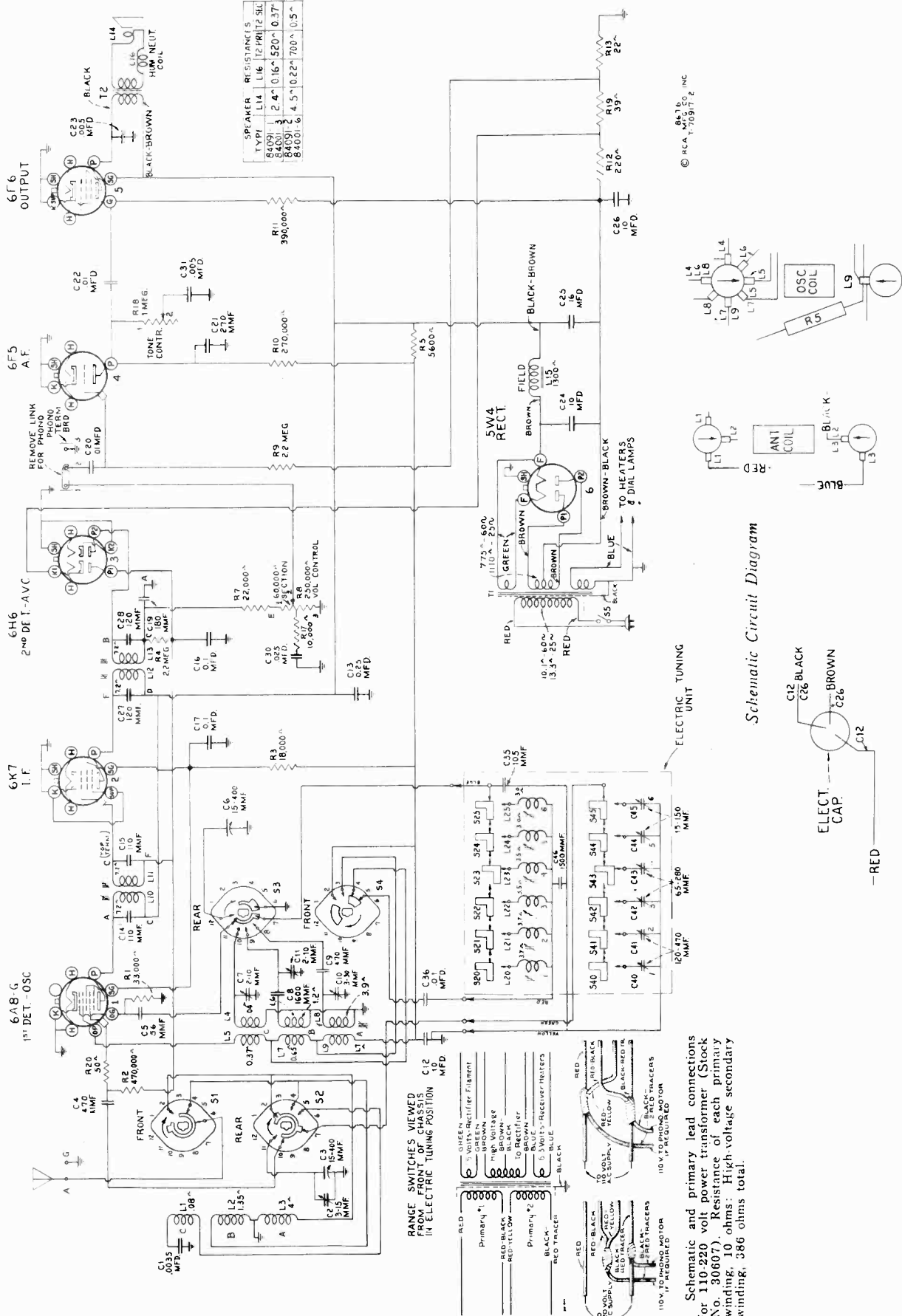
Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting					
1	6K7 I-F Grid Cap	.001 Mfd.	455 kc	"A" Left	No Signal 550-750 kc	2nd I-F Trans.	L12 and L13	Max. (peak)
2	6A8 Det. Grid Cap	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	1st I-F Trans.	L10 and L11	Max. (peak)
3	Ant. Term.	300 Ohms	6,000 kc	"B" Center	6.0 mc	"B" Osc.	C11	Max. (peak)*
4	Ant. Term.	300 Ohms	6,000 kc	"B"	6.0 mc	"B" Ant.	C2	Max. (peak)†
5	Ant. Term.	300 Ohms	20,000 kc	"C" Right	20.0 mc	"C" Osc.	C7	Max. (peak)‡
6	Ant. Term.	200 Mmfd.	600 kc	"A"	600 kc	"A" L-F Osc.	L8	Max. (peak)
7	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C10	Max. (peak)
8	Ant. Term.	200 Mmfd.	600 kc	"A"	600 kc	"A" L-F Osc.	L8	Max. (peak)
9	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C10	Max. (peak)
10	Set up electric tuning as outlined under "Adjustments for Electric Tuning."							

* Use minimum capacity peak if two peaks can be obtained.

† After this adjustment, check for image signal by shifting receiver dial to 5.09 mc.

‡ Use maximum capacity peak if two peaks can be obtained. After this adjustment, check for image signal by shifting receiver dial to 20.91 mc.

Note that the heterodyne oscillator tracks above the signal frequency on bands "A" and "B," and below the signal frequency on band "C."



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Schematic Circuit Diagram

Schematic and primary lead connections for 110-220 volt power transformer (Stock No. 30607). Resistance of each primary winding, 10 ohms. High-voltage secondary winding, 386 ohms total.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14380	Arm—Hub and arm for operating band indicator shutter—fastens on range switch shaft	14340	Shaft—Drive pulley and knob shaft—fastens on range switch shaft
14352	Belt—Station selector drive belt	12008	Shield—I.F. transformer shield can
13216	Board—Antenna and ground terminal board	11196	Socket—8-contact Radiotron socket
12717	Board—Phonograph terminal board	31027	Socket—4-contact female socket for electric tuning unit cable plug
12607	Cap—Top shield cap for first I.F. transformer	14114	Socket—Dial-lamp socket
12581	Cap—Top shield cap for second I.F. transformer	12007	Spring—Retaining spring for core, Stock No. 12006
11350	Cap—Grid contact cap	30585	Spring—Tension spring for pointer cord
12723	Capacitor—56 Mmfd. (C5)	30588	Spring—Tension spring for idler pulley
14262	Capacitor—110 Mmfd. (C14, C15)	31025	Switch—Range switch (S1, S2, S3, S4)
12404	Capacitor—120 Mmfd. (C27, C28)	30574	Tone control and power switch (R18, S5)
12406	Capacitor—180 Mmfd. (C19)	14376	Transformer—First I.F. transformer (L10, L11, C14, C15)
12488	Capacitor—270 Mmfd. (C21)	14308	Transformer—Second I.F. transformer (L12, L13, C19, C27, C28, R7)
30433	Capacitor—470 Mmfd. (C4, C9)	30571	Transformer—Power transformer, 105-125 volts, 25-60 cycle (T1)
30592	Capacitor—1,600 Mmfd. (C8)	30607	Transformer—Power transformer, 105-125 and 200-250 volts, 50-60 cycle (T1)
30303	Capacitor—.0035 Mfd. (C1)	30575	Volume Control (R8)
4838	Capacitor—.005 Mfd. (C23, C31)	REPRODUCER ASSEMBLIES	
14393	Capacitor—.01 Mfd. (C20, C22)	13677	Cone—Reproducer cone and dust cap (for speaker marked 84091-1 or 84001-3) (L14)
4858	Capacitor—.01 Mfd. (C36)	14934	Cone—Reproducer cone and dust cap (for speaker marked 84091-2 or 84001-6) (L14)
4870	Capacitor—.025 Mfd. (C30)	14613	Reproducer complete (marked 84001-3 or 6 but interchangeable with speaker marked 84091-1 or 2)
4839	Capacitor—.01 Mfd. (C16, C17)	14615	Transformer—Output transformer (for speaker marked 84091-1 or 84001-3) (T2)
12484	Capacitor—.025 Mfd. (C13)	14935	Transformer—Output transformer (for speaker marked 84091-2 or 84001-6) (T2)
11203	Capacitor—10 Mfd. (C24)	MISCELLANEOUS ASSEMBLIES	
30577	Capacitor Pack—Comprising two sections each 10 Mfd. (C12, C26)	30981	Button—Push button for electric tuning switch
5212	Capacitor—16 Mfd. (C25)	31029	Capacitor—Adjustable trimmer 15-150 Mmfd. (C44, C45)
4358	Clamp—Mounting clamp for capacitor pack, Stock No. 30577	30764	Capacitor—Adjustable trimmer 65-280 Mmfd. (C42, C43)
30578	Coil—Antenna coil (L1, L2, L3)	30765	Capacitor—Adjustable trimmer 120-470 Mmfd. (C40, C41)
30579	Coil—Oscillator coil (L4, L5, L6, L7, L8, L9)	31032	Capacitor—105 Mmfd. (C35)
30573	Condenser—2-gang variable tuning condenser (C2, C3, C6)	13762	Capacitor—1,500 Mmfd. (C46)
30580	Condenser—3-gang mica trimmer—two sections each 2-10 Mmfd., one section 3-30 Mmfd. (C7, C10, C11)	30747	Coil—Electric tuning oscillator coil (L24, L25)
30586	Cord—Station-selector indicator pointer cord	30748	Coil—Electric tuning oscillator coil (L22, L23)
12800	Core—Adjustable core and stud for oscillator coil	30749	Coil—Electric tuning oscillator coil (L20, L21)
12006	Core—Adjustable core and stud for I.F. transformer	30846	Core—Adjustable core and stud for electric tuning oscillator coils
30589	Dial—Station-selector dial scale	31095	Discs—10 celluloid protector discs for call letter markers
31026	Disc—Band indicator disc, complete with operating hub and arm, and connecting link	30593	Escutcheon—Dial escutcheon and crystal
30572	Drive—Vernier drive shaft and pinion gear for variable condenser	14359	Knob—Station selector knob
30584	Drum—Station-selector drive-cord drum with set screws	14269	Knob—Tone control, volume control, or range switch knob
30583	Indicator—Station-selector indicator pointer and holder assembly	31028	Marker—Station call letter markers for electric tuning push buttons
5226	Lamp—Dial lamp	30550	Plug—4-prong male plug for electric tuning unit cable
30587	Pulley—Drive-belt pulley for condenser shaft	14267	Screw—Chassis-mounting screw and washer assembly
14636	Pulley—Drive-belt idler pulley	14270	Spring—Retaining spring for knob, Stock No. 14269
14525	Resistor—22 ohms, carbon type, 1/4 watt (R13)	4982	Spring—Retaining spring for knob, Stock No. 14359
30590	Resistor—39 ohms, carbon type, 1/4 watt (R19)	12007	Spring—Retaining spring for core, Stock No. 30846
30771	Resistor—50 ohms, flexible type, 1/10 watt (R20)	31030	Switch—Electric tuning station selector switch only—less push buttons (S20, S21, S22, S23, S24, S25, S40, S41, S42, S43, S44, S45)
30591	Resistor—220 ohms, insulated wire wound, 1.1 watt (R12)		
11298	Resistor—5,600 ohms, carbon type, 1 watt (R5)		
14559	Resistor—10,000 ohms, insulated, 1/4 watt (R17)		
30151	Resistor—18,000 ohms, insulated, 1 watt (R3)		
14284	Resistor—22,000 ohms, carbon type, 1/10 watt (R7)		
12454	Resistor—33,000 ohms, insulated, 1/4 watt (R1)		
11323	Resistor—270,000 ohms, carbon type, 1/4 watt (R10)		
13005	Resistor—390,000 ohms, carbon type, 1/10 watt (R11)		
11452	Resistor—470,000 ohms, carbon type, 1/10 watt (R2)		
12679	Resistor—2.2 meg., insulated, 1/4 watt (R4, R9)		
14887	Retainer—Band-indicator disc retainer		
14343	Ring—Retaining ring for range switch shaft		
14350	Screw—No. 8-32 x 3/16 in. square-head set screw for drum, Stock No. 30584, arm, Stock No. 14380, and pulley, Stock No. 30587		

ADDITIONAL REPLACEMENT PART

Stock No.

14616 Coil - Field coil for loudspeaker

MODEL R-89 Three-Tube, A-C, Electric Victrola (Phono. only)

Electrical and Mechanical Specifications

RCA TUBE COMPLEMENT

- (1) RCA 6F5 Audio Voltage Amplifier
- (2) RCA 25L6 Audio Power Output
- (3) RCA 25Z6 Rectifier

LOUDSPEAKER

- Type Electrodynamic
- Voice Coil Impedance 4.5 ohms at 400 cycles
- Undistorted 1.0 watts
- Maximum 2.0 watts

POWER SUPPLY RATING

- A-5 105-125 volts, 50 cycles, 45 watts
- A-6 105-125 volts, 60 cycles, 45 watts

VICTROLA MECHANISM

- Motor Manual Starting Synchronous
- Turntable Speed 78 r.p.m.
- Pickup Crystal
- Impedance 80,000 ohms at 1,000 cycles

General Description and Service Data

The model R-89 Electric Victrola consists of a crystal pickup, a three tube audio amplifier, a dynamic speaker, and motor turntable mechanism in a table type walnut veneer cabinet. Any record, up to and including the 12-inch size, may be played on this instrument.

This instrument may also be used to play records through a radio receiver, if so desired. To do this remove shielded lead at rear of cabinet from pickup jack, and plug into shorting jack, and plug lead from radio receiver into pickup jack.

Phonograph Motor

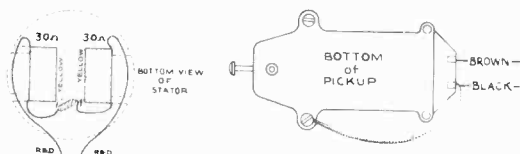
The synchronous motor used in this instrument is designed to be simple and foolproof. The parts that may require attention are plainly shown. The motor is started by turning "on" the power switch and giving the turntable a clockwise spin with the hand. Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)
3. Motor not properly supported from motor board.
4. Burrs on poles of rotor or stator. Remove with fine emery cloth.
5. Stator should be free to rotate between limits of damping assembly.

Removing Rotor.—The rotor and turntable assembly simply rests on the ball bearing at bottom of vertical bearing. Remove by lifting upward.

Rotor Adjustment.—Remove motor from cabinet. Loosen the three screws that hold the rotor to the turntable, insert three 16-mil shims at equal distances around the gap between the rotor and stator, and then carefully tighten the three screws. The top of rotor must be flush with top of stator; add additional steel washers beneath the stator if necessary.



Blocking or Distortion at High Volume:

The amount of reserve amplification provided in this instrument is such that on records having very "heavy" modulation, there may be a tendency to block or produce a choking type of distortion. This condition can be removed by reducing the value of R-9 from 10 megohms to 1 megohm. This resistor is in the grid return circuit of the 6F5. The 1 megohm may be added in multiple with the 10 megohms.

Circuit Changes:

Capacitor C-5 changed in value from .025 to .015 mfd.

A 330,000 ohm resistor (R10) added across pickup output jack.

These changes are incorporated in later production instruments.

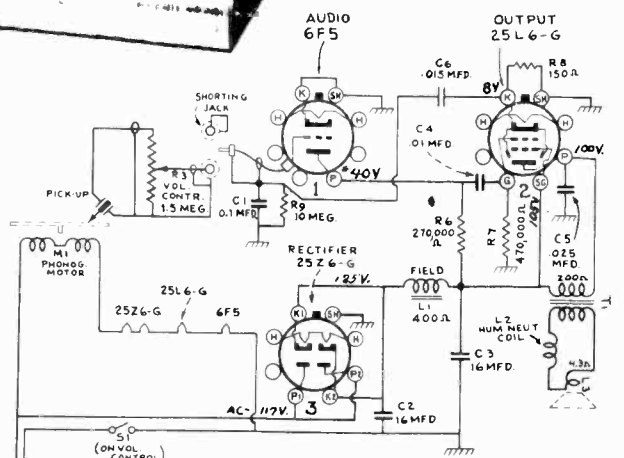
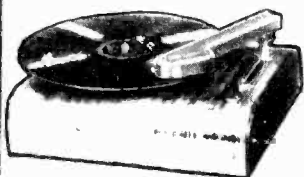
Additional Replacement Parts:

Stock No.

- 11315 Capacitor—.015 mfd. (C5)
- 11297 Resistor—330,000 ohm, 1/10 watt (R10)
- 13730 Resistor—1 meg., 1/2 watt (R9)
- 33041 Ring—Retaining ring and metal washer to mount turntable plate

Replacement Parts

STOCK No.	DESCRIPTION
AMPLIFIER ASSEMBLIES	
31886	Cable—Shielded amplifier input cable complete with plug
14393	Capacitor—.01 mfd. (C4)
11315	Capacitor—.015 mfd. (C6)
30899	Capacitor—.01 mfd. (C1)
31323	Capacitor—.16 mfd. (C2, C3)
13428	Resistor—150 ohms, 1/2 watt (R8)
12199	Resistor—270,000 ohms, 1/2 watt (R6)
12285	Resistor—470,000 ohms, 1/2 watt (R7)
31319	Socket—Tube socket
PICKUP AND ARM ASSEMBLIES	
31888	Base—Pickup arm base and pivot shaft
31050	Crystal—Pickup crystal and needle screw
31887	Pickup arm and crystal complete
31745	Ring—Retaining ring for pickup arm base
12539	Screw—Pickup needle screw
MOTOR ASSEMBLIES	
31045	Base—Motor support, damper, and bearing cup assembly
31046	Bearing—Bearing assembly
31041	Cap—Rubber spindle cap
31047	Cushion—Rubber cushion for bearing
31924	Motor—60 volt, 50 cycle (M1)
31923	Motor—60 volt, 60 cycle (M1)
31040	Mountings—Turntable rubber mountings sufficient for one turntable
32023	Rotor—Turntable and rotor laminations for 50 cycle motor
31926	Rotor—Turntable and rotor laminations for 60 cycle motor
32022	Stator—Stator assembly complete with coils and laminations for 60 volt, for 50 cycle motor
31925	Stator—Stator assembly complete with coils and laminations for 60 volt, for 60 cycle motor
31039	Turntable—Finished turntable top plate only—less rubber mountings
14231	Washer—Bearing shim washers
4083	Washer—Leather washer
SPEAKER ASSEMBLIES	
31202	Cone—Speaker cone and voice coil (L3)
31201	Speaker Complete
31203	Transformer—Output transformer (T1)
MISCELLANEOUS ASSEMBLIES	
31986	Cable—Pickup-to-receiver interconnecting cable required when instrument is used as record player only
3961	Knob—Volume control knob
31053	Screw—Motor mounting screws, cushions and nuts, sufficient for one motor
14278	Socket—Amplifier shorting socket or pickup output socket
31889	Volume control and switch (R9, S1)



Do not remove Turntable while set is turned on

MODEL R-91

Four-Tube, A-C, Electric Victrola (Phono. only)

Electrical and Mechanical Specifications

RCA TUBE COMPLEMENT

- (1) RCA-6F5..... Audio Voltage Amplifier
- (2) RCA-25L6..... Audio Power Output
- (3) RCA-25Z6..... Rectifier
- (4) RCA-BK61B..... Ballast Tube

POWER SUPPLY RATING

- A-5..... 105-125 volts, 50 cycles, 65 watts
- A-6..... 105-125 volts, 60 cycles, 65 watts

POWER OUTPUT

- Undistorted..... 1.5 watts
- Maximum..... 2.0 watts

Cabinet Dimensions.....	Height 9 inches.....	Width 15-1/8 inches.....	Depth 13-1/16 inches.....
Chassis Base Dimensions.....	Height 1 1/8 inches.....	Width 5 1/4 inches.....	Depth 3 3/8 inches.....
Weight (Shipping).....	30 pounds.....	Weight (Net).....	26 pounds.....
Operating Controls.....	(1) Right Front, Volume; (2) Right Rear, Power-Tone		

LOUDSPEAKER

- Type..... Electrodynamic
- Voice Coil Impedance..... 4.9 ohms at 400 cycles

MOTOR BOARD

- Motor..... Manual Starting Synchronous
- Turntable Speed..... 78 r.p.m.

PICKUP

- Type..... Crystal
- Impedance..... 80,000 ohms at 1,000 cycles

General Description and Service Data

The model R-91 Electric Victrola consists of a crystal pickup, a four tube audio amplifier, a five-inch dust-proof dynamic speaker, and a motor turntable mechanism all combined in a hinged-top, table type walnut veneer cabinet. Any record, up to and including the 12-inch size, may be played on this instrument.

The crystal pickup unit is securely sealed in a metal casing, against extreme changes of climate. If failure occurs due to a defective crystal unit, no attempt should be made to repair it, but a new replacement crystal unit should be installed.

Phonograph Motor

The synchronous motor used in this instrument is designed to be simple and foolproof. The parts that may require attention are plainly shown in figure 2. The motor is started by turning "on" the power switch and giving the turntable a clockwise spin with the hand. Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)
3. Motor not properly supported from motor board.
4. Burrs on poles of rotor or stator. Remove with fine emery cloth.
5. Stator should be free to rotate between limits of damping assembly.

Removing Rotor.—The rotor and turntable assembly simply rests on the ball bearing at bottom of vertical bearing. Remove by lifting upward.

Rotor Adjustment.—Remove motor from cabinet. Loosen the three screws that hold the rotor to the turntable, insert three 16-mil shims at equal distances around the gap between the rotor and stator, and then carefully tighten the three screws. The top of rotor must be flush with top of stator; add additional steel washers beneath the stator if necessary.

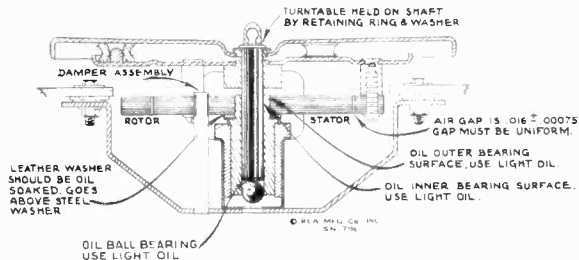


Figure 2—Motor Details

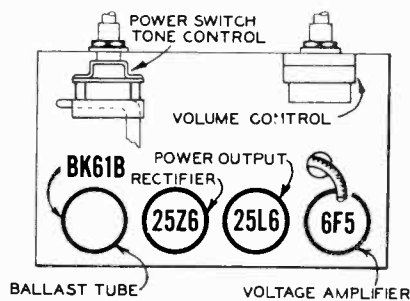
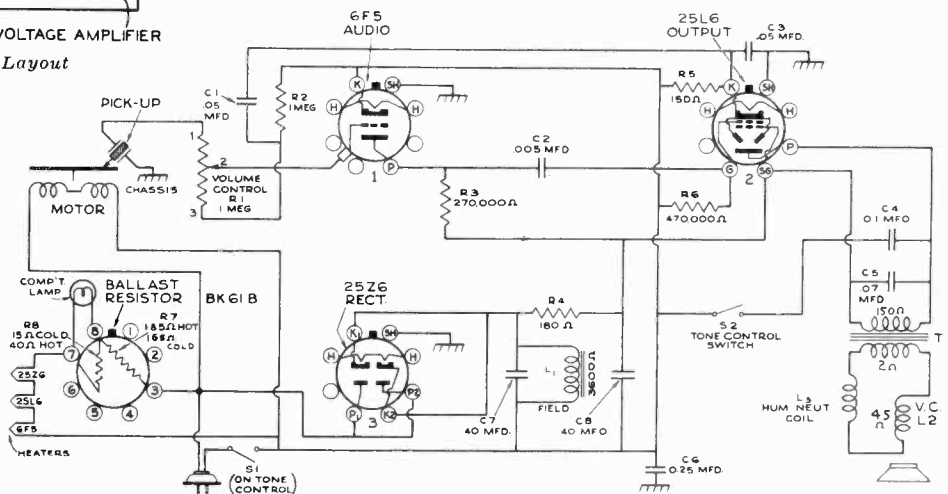


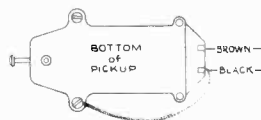
Figure 3—Tube Layout

Figure 4 Schematic Diagram

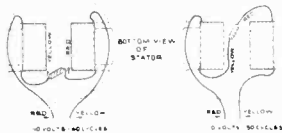


Reduction of Rumble:

It is possible to reduce the mechanical vibration and resultant hum by reversing one of the coils of the stator assembly. This may be done in a simple manner, without disconnecting leads, by removing one coil from the stator, turning it end-for-end, and replacing it on the stator so that its leads are toward the center bearing.



Pickup Wiring

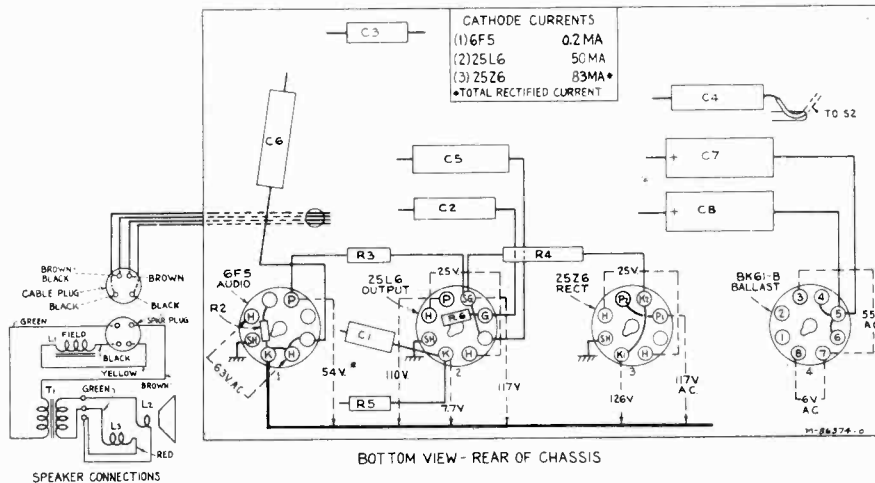


Motor Coil Connections

D.C. resistance of each coil (for 110 volts, 50 and 60 cycles) is approximately 82 ohms

Figure 5
Wiring and Socket Voltages

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance, and when measured will read lower depending on the voltmeter loading. Measurements made to chassis unless otherwise indicated, volume control at minimum. Values should hold within approximately ± 20% with 117-volt a-c supply.



Replacement Parts

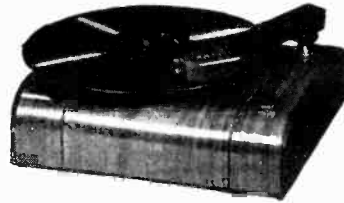
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
AMPLIFIER ASSEMBLIES			
31585	Ballast—Ballast resistor tube—Type BK61-B (R7, R8)	31040	Mountings—Turntable top rubber mountings sufficient for one turntable.
4287	Body—Connector shell for phono. input cable.	31037	Rotor—Turntable and rotor lamination assembly—complete for 50 cycle operation.
4286	Bushing—Bushing and ferrule for phono. input cable connector.	31036	Rotor—Turntable and rotor lamination assembly—complete for 60 cycle operation.
4838	Capacitor—.005 mfd. (C2)	31043	Stator—Stator assembly complete with coils and laminations for 50 cycle operation.
30882	Capacitor—.05 mfd. (C1, C3)	31042	Stator—Stator assembly comprising coils and laminations for 60 cycle operation.
14626	Capacitor—.07 mfd. (C5)	31039	Turntable—Finished turntable top plate only—less rubber mountings.
4839	Capacitor—0.1 mfd. (C4)	4083	Washer—Leather washer.
30965	Capacitor—0.25 mfd. (C6)	14231	Washer—Metal spacing washer.
31584	Capacitor—40 mfd. (C7, C8)	PICKUP AND ARM ASSEMBLIES	
31480	Lamp—Pilot lamp.	31049	Base—Pickup arm pivot shaft and base assembly
30868	Plug—2-contact female plug for motor cable.	4286	Bushing—Bushing and ferrule insert for connector cap.
5040	Plug—4-contact male plug for speaker cable.	4288	Cap—Pickup cable connector cap.
31585	Resistor—Ballast resistor tube—Type BK61-B (R7, R8)	31050	Crystal—Pickup crystal and needle screw.
30880	Resistor—150 ohms, 1/4 watt (R5)	9842	Pickup Crystal and arm complete with mounting—less connector.
2736	Resistor—180 ohms, 1 watt (R4)	12539	Screw—Pickup needle screw.
12199	Resistor—270,000 ohms, 1/4 watt (R3)	SPEAKER ASSEMBLIES (Speaker 84265-2)	
12285	Resistor—470,000 ohms, 1/4 watt (R6)	31587	Cone—Speaker cone and voice coil (L2)
13730	Resistor—1 meg., 1/4 watt (R2)	31586	Speaker—Complete
31365	Socket—Pilot lamp socket.	31588	Transformer—Output transformer (T1)
31319	Socket—Radiotron socket.	MISCELLANEOUS ASSEMBLIES	
4284	Spring—Tension spring for phono. input cable connector.	13103	Cap—Pilot lamp cap.
31583	Switch—Tone and power switch (S1, S2)	13085	Hinge—Cabinet lid hinge.
31585	Tube—Ballast resistor tube—Type BK61-B (R7, R8)	30885	Knob—Volume control, or tone control knob.
31582	Volume Control—(R1)	31053	Mounting—Complete set of motor mounting screw assemblies.
4285	Washer—Insulating washer for phono. input cable connector.	31054	Mounting—Pickup arm rubber mounting washer and nut.
MOTOR ASSEMBLIES			
31045	Base—Motor support, damper, and bearing cup assembly.	30870	Plug—2-contact male plug for motor leads.
31046	Bearing—Bearing assembly.	12993	Screw—Set screw for knob Stock No. 30885.
31041	Cap—Rubber spindle cap.	31213	Support—Cabinet lid support.
31047	Cushion—Rubber cushion for bearing.		
31034	Motor—110 volt, 50 cycle—less mounting (M1)		
9841	Motor—110 volt, 60 cycle—complete with mounting (M1)		

MODELS R-93B and R-93C Victrola Attachment



Model R-93B



Model R-93C

The two models are electrically and mechanically similar; they differ in that Model R-93B has a molded plastic cabinet, whereas Model R-93C has a veneer wood cabinet.

Electrical Specifications

VOLTAGE RATINGS

A-6.....	105-125 volts, 60 cycles, 9 watts
A-5.....	105-125 volts, 50 cycles, 9 watts
B-2.....	105-125 volts, 25 cycles, 9 watts
C-5.....	200-250 volts, 50 cycles, 9 watts

MOTOR AND PICKUP

Type of Motor.....	Synchronous (Manual Starting)
Turntable Speed.....	78 r.p.m.
Type Pickup.....	Crystal
Pickup Impedance.....	80,000 ohms at 1,000 cycles
Average Output Voltage.....	1½ volts at 1,000 cycles with 250,000 ohm load
Volume Control Resistance.....	250,000 ohms

REFER TO MODEL R-93F FOR ADDITIONAL DATA

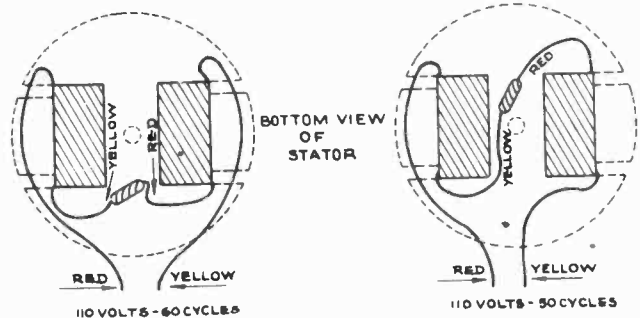
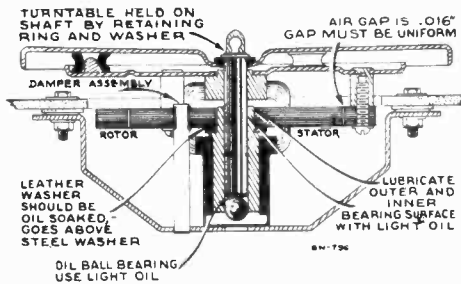
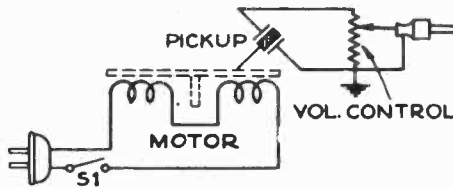


Figure 3—Motor Coil Assembly and Connections



Additional Replacement Parts:

Stock No.	33641 Rotor laminations (60-cycle) only
	33642 Wood wedges for stator coils

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MOTOR ASSEMBLIES			
31045	Base—Motor support, damper, and bearing cup assembly	31039	Turntable—Finished turntable top plate only—less rubber mountings (50-60 cycle only)....
31046	Bearing—Bearing assembly.....	4083	Washer—Leather washer.....
31041	Cap—Rubber spindle cap.....	14231	Washer—Metal spacing washer.....
31047	Cushion—Rubber cushion for bearing.....	PICKUP AND ARM ASSEMBLIES	
31034	Motor—110 volt, 50 cycle—less mounting (M1)	31050	Crystal—Pickup crystal and needle screw.....
9841	Motor—110 volt, 60 cycle—complete with mounting (M1).....	9842	Pickup crystal and arm complete with mounting
31040	Mountings—Turntable top rubber mountings sufficient for one turntable.....	12539	Screw—Pickup needle screw.....
MISCELLANEOUS ASSEMBLIES			
31037	Rotor—Turntable and rotor lamination assembly complete for 50 cycle operation.....	31055	Cabinet—Model R-93B cabinet with bottom cover—less rubber feet.....
31036	Rotor—Turntable and rotor lamination assembly complete for 60 cycle operation.....	31051	Foot—Rubber foot for cabinet.....
		3961	Knob—Volume control knob.....
		31054	Mounting—Pickup arm mounting nuts, washer, and rubber spacer.....
31043	Stator—Stator assembly complete with coils and laminations for 50 cycle operation.....	31053	Mounting—Motor mounting screw assembly complete
31042	Stator—Stator assembly comprising coils and laminations for 60 cycle operation.....	31048	Plug—2-contact male plug for output cable...
		31052	Volume Control and on-off switch (R1, S1)...

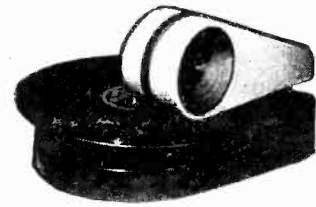
Models R-93F, R-100 and VICT. JR.#41918 RECORD PLAYERS



MODEL R-93-F



MODEL R-100



RCA Victrola Junior.

Electrical and Mechanical Specifications

MOTOR

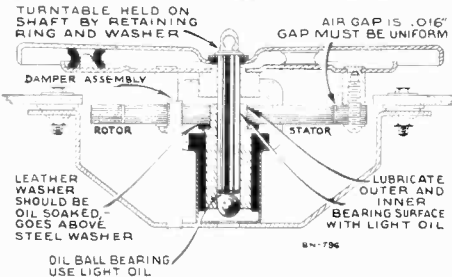
78 r.p.m. Synchronous (Manual Starting)

POWER SUPPLY RATINGS

105-125 volts, 60 cycles	10 watts
105-125 volts, 50 cycles	10 watts
105-125 volts, 25 cycles	10 watts

CRYSTAL PICKUP

Impedance..... 100,000 ohms at 1,000 cycles
Average Output Voltage..... 1½ volts, at 1,000 cycles
Across 250,000 ohms load

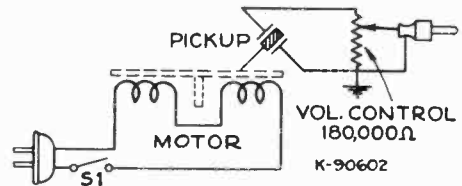
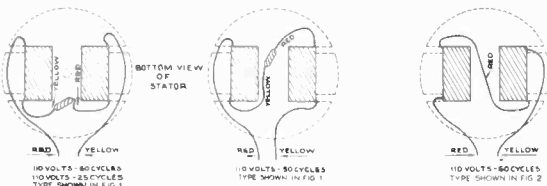
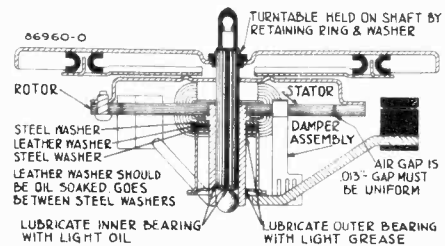


At Left—Fig. 1

At Right—Fig. 2

Lower Left—Motor Coil Connections

Lower Right—R-100 Schematic Diagram



Motor Data

Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs, it may be due to:

1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make sure that the leather and steel washers are arranged in proper sequence, as shown in the drawings.)
3. Motor not properly fastened in cabinet.
4. Burrs on poles of motor or stator.
5. Slight eccentricity of rotor or spindle.
6. Loose laminations of the stator.
7. Improper horizontal alignment of the rotor and stator (pertaining only to the type motor shown in Figure 1). Correct

horizontal alignment is as shown in the motor assembly drawing. The position of the stator is raised or lowered by adding or removing washers below the leather washer. In the type motor shown in Figure 2, no adjustment is necessary because correct horizontal alignment is provided by the design of the motor.

The damper spring must fit without binding or chattering, in the slot in the stator. The stator must be free to deflect in either direction between the limits of the damper spring. Any binding in the washers or stator bearing which prevents the movement of the stator may cause speed variations in the motor. The damper spring must exert equal force in restoring the stator to its mid-position when the stator is deflected manually in either direction.

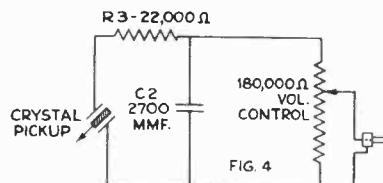
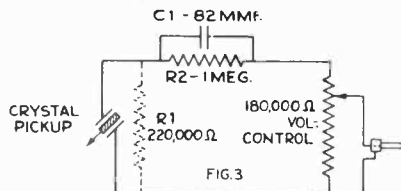
Tone Compensation

Because of the widely varying frequency characteristics of various types of audio amplifiers with which the Player may be used, it may be desirable in some cases to make refinements in the pickup circuit of the Player to compensate for the characteristics of the amplifier. The following circuits show means of making such refinements.

In Figure 3, R1 controls the low-frequency response; larger values of R1 give increased lows. For maximum low-frequency response, remove R1. R2 controls pickup output, smaller values of R2 giving increased output. C1 controls high-frequency response; to increase highs, increase C1.

Where a decrease in high-frequency response may be desired (for example, as an aid in reducing "needle scratch" on worn records), the circuit in Figure 4 is applicable. In this circuit, C2 acts as loading on the pickup and is also a controlling factor on the high-frequency response. Smaller values of C2 give more pickup output and also more highs. R3 gives a sharper high-frequency reduction; increasing R3 decreases highs.

The suggested values shown in Figures 3 and 4 should serve as a basis from which slight alterations may be made to suit individual cases.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL R93F		MODEL R-100	
MOTOR ASSEMBLIES (See Figure 1) (110 volts, 25 cycle) (110 volts, 50 cycle)		PICKUP AND ARM ASSEMBLIES	
31045	Base—Motor support, damper, and bearing cup assembly	33121	Arm—Pickup arm complete—less crystal cartridge
31046	Bearing—Bearing assembly	33124	Base—Pickup arm base and pivot shaft
31041	Cap—Rubber spindle cap	33122	Crystal—Pickup crystal cartridge and needle screw
31047	Cushion—Rubber cushion for bearing	33123	Damper—Viscoloid damper for pickup armature
32077	Motor—110 volt, 25 cycle—less mounting	33529	Screw—Pickup needle screw
31034	Motor—110 volt, 50 cycle—less mounting	MOTOR ASSEMBLIES (see figure 1)	
31040	Mountings—Turntable top rubber mountings sufficient for one turntable	31045	Base—Motor support, damper, and bearing cup assembly
32073	Rotor—Turntable and rotor lamination assembly complete for 25 cycle operation	31046	Bearing—Rotor bearing—50 and 25 cycle
31037	Rotor—Turntable and rotor lamination assembly complete for 50 cycle operation	33353	Cap—Turntable spindle cap (rubber)
32072	Stator—Stator coil, laminations, and weights for 105-120 volts, 25 cycles	33357	Coil—Motor field coil—105-120 volts, 25 cycle
31043	Stator—Stator assembly complete with coils and laminations for 50 cycle operation	31918	Coil—Motor field coil—105-120 volts, 50 cycle
31039	Turntable—Finished turntable top plate only—less rubber mountings	31917	Coil—Motor field coil, 105-120 V., 60 cycle
4083	Washer—Leather washer	31040	Cushion—One seat rubber cushion for turntable mounting
14231	Washer—Metal spacing washer	31047	Cushion—Rubber cushion for rotor bearing
MOTOR ASSEMBLIES (See Figure 2) (110 volts, 60 cycle)		33941	Frame—Rotor frame and spindle—60 cycle
30244	Bushing—Rubber bushing for turntable center	33641	Lamination—Rotor lamination—60 cycle
33345	Cap—Rubber cap for turntable spindle	33358	Lamination—Stator laminations—25 cycle
33346	Coil—Motor field coil	33354	Lamination—Stator laminations—less coil 50 cycle
33350	Frame—Motor mounting frame and bearing cup assembled	33355	Motor—105-120 volts, 25 cycle
33344	Frame—Rotor frame, spindle shaft and laminations	33351	Motor—105-120 volts, 50 cycle
34480	Hanger—Rubber hanger for mounting motor	33940	Motor—105-120 V., 60 cycle
34479	Lamination—Stator laminations and bearing assembled	32075	Ring—Lead ring for turntable—25 cycle
33041	Ring—Retaining ring for turntable	33041	Ring—Retaining ring and washer for spindle cap
31039	Turntable	33356	Rotor—Rotor frame, laminations, and spindle shaft assembled—25 cycle
PICKUP AND ARM ASSEMBLIES		33352	Rotor—Rotor frame, laminations, and spindle shaft assembled—50 cycle
33591	Arm—Pickup arm only—less cartridge, base and cable	31036	Rotor—Turntable and rotor lamination for 60 cycle operation
34481	Arm—Pickup pivot arm and shaft	31042	Stator—Stator assembly comprising coils and laminations for 60 cycle operation
34482	Base—Pickup mounting base	32076	Turntable—Finished turntable plate only—25 cycle
33122	Crystal—Pickup crystal cartridge and needle screw	31039	Turntable—Finished turntable plate only—50 cycle
33123	Damper—Viscoloid damper for pickup armature	4083	Washer—Leather washer
34311	Ring—Retaining ring for pivot shaft	33348	Washers—Leather and metal washers for stator bearing
33529	Screw—Needle screw	14231	Washer—Metal spacing washer
MISCELLANEOUS ASSEMBLIES		32074	Weight—One upper and one lower weight for stator—25 cycle (2 each required)
31051	Foot—Rubber foot for cabinet	MOTOR ASSEMBLIES (see figure 2)	
3961	Knob—Volume control knob	33345	Cap—Turntable spindle cap (rubber) 60 cycle
31054	Mounting—Pickup arm mounting nuts, washer, and rubber spacer	33346	Coil—Motor field coil—105-120 volts, 60 cycle
31048	Plug—2-contact male plug for output cable	31040	Cushion—One set rubber cushion for turntable mounting
33359	Volume control and switch	33350	Frame—Motor support frame and bearing cup
		33349	Hanger—Rubber hanger for mounting motor
		33347	Lamination—Stator laminations and bearing—less field coils—60 cycle
		33343	Motor—105-120 volts, 60 cycle
		33041	Ring—Retaining ring and washer for spindle cap
		33344	Rotor—Rotor frame, laminations, and spindle shaft assembled—60 cycle
		31039	Turntable—Finished turntable plate only—60 cycle
		33348	Washers—Leather and metal washers for stator bearing
		MISCELLANEOUS ASSEMBLIES	
		31051	Foot—Cabinet foot
		32500	Mounting—Pickup arm mounting comprising one rubber cushion, 1 washer, and 1 snap ring
		31048	Plug—2-contact male plugs for output cable
		33359	Volume control and switch R1, S1

RCA VICTROLA JUNIOR No. 41918

Service Data:

The motor in the RCA Victrola Junior is similar to the three-point suspension type used in Model R-100.

Refer to R-100 Service Data for mechanical and electrical data.

Replacement Parts:

Stock No.

- 34431 Arm—Tone arm complete with diaphragm, armature and needle screw
- 34433 Base—Tone arm swivel base assembly
- 33346 Coil—Motor coil, 105-125 volt, 60 cycle (heavy stack)
- 33350 Frame—Motor support frame and bearing cup
- 33349 Hanger—Rubber hanger block for motor
- 33347 Lamination—Motor stator laminations and bearing—less field coils (heavy stack)
- 35394 Lamination—Motor stator lamination and bearing, less field coils— for motor using thin stack
- 33041 Ring—One retaining ring and one washer for turntable spindle tip

Additional Replacement Parts:

Stock No.

- 34429 Spring—Spring for 34428 volume control knob
- 34758 Bushing—1 rubber and 1 metal for pickup arm
- 34428 Knob—Volume control and switch knob
- 34863 Wedge—Wood wedge

MODELS 94BK and 94BT

Four-Tube, Single-Band, Battery-Operated Superheterodyne Receivers

Electrical and Mechanical Specifications

Frequency Range..... 540 to 1,750 kc
 R F Alignment Frequency..... 1,500 kc (osc. ant.)
 Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-1C7-G..... First Det.-Osc.
- (2) RCA-1D5-G..... Intermediate Amp.
- (3) RCA-1F7-G..... Second Det., A-F Amp., A.V.C.
- (4) RCA-1G5-G..... Power Output

BATTERIES REQUIRED

"A", one 2½-volt air cell, or one 2-volt storage battery, or one 3-volt dry "A" battery. (With latter, use No. 30935, 2.2-ohm resistor in series with positive "A" lead.)
 "B", two or three 45-volt heavy-duty "B" batteries.

CURRENT CONSUMPTION

"A", at 2 volts, 0.36 amperes.
 "B", 90 volts } 12.2 ma (switch at "Current Cutter" position).
 } 17.9 ma (switch at "Full Power" position).
 "B", 135 volts, 17.0 ma. (switch left in "Current Cutter" position).

POWER OUTPUT

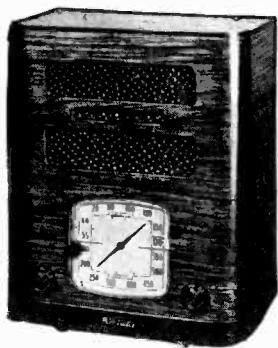
	Switch at "Current Cutter"	Switch at "Full Power"
90-volts "B" { Undistorted	0.02 watts	0.16 watts
{ Maximum	0.23 watts	0.29 watts
135-volts "B" { Undistorted	0.30 watts	.....
{ Maximum	0.70 watts	.....

LOUDSPEAKER

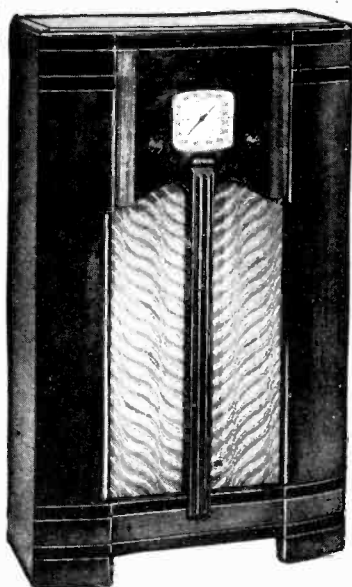
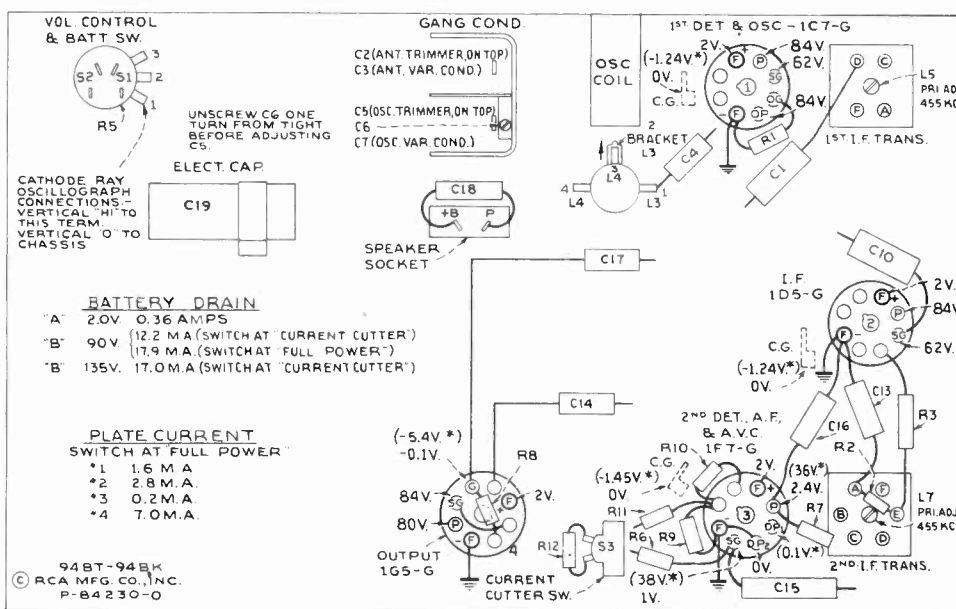
Type..... Permanent-magnet Dynamic
 Diameter (94BT)..... 5in. (94BK)..... 6½ in.
 Voice-coil Impedance..... 3 ohms at 400 cycles

Precautionary Lead Dress

1. I.F. plate lead should be dressed close to and along edge of chassis.
2. Lead from antenna terminal should be wrapped (9 turns) around lead from ant. coil secondary to gang condenser (see schematic).
3. Antenna and ground leads should be arranged as shown in top view.



Model 94BT



Model 94BK

Bottom View - Rear of Chassis

Radiotron Socket Voltages, and Location of Parts

Measurements made to chassis unless otherwise indicated.
 Measurements made with set tuned to quiet point, switch at "Full Power" position, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, and 250 volts. (Use the nearest range above the specified measured voltage.)
 Values should hold within approximately ± 20% with 90-volts "B."
 * Note: Values with star (*) are operating voltages.
 Values not starred are actual measured voltages.

Adaption for 1½-Volt Operation:

It is a relatively simple operation to convert the Model 94BT and 94BK battery receivers for use on 1½ volts. The following procedure should be used:

Parts Required

- 1 820 ohm, ¼ watt resistor, Stock No. 14078
- 1 1 megohm, ¼ watt resistor, Stock No. 13730
- 1 RCA-1A7G tube
- 1 RCA-1N5G tube
- 1 RCA-1H5G tube
- 1 RCA-1C5G tube

Refer to the Model 94BT-94BK Service Notes and effect the following changes:

- Remove R-3, R-6, R-9, R-11, R-12 and C-15 from the circuit.
- Connect 820 ohm resistor between yellow battery cable lead (pin No. 1 on the output tube socket), and the chassis.
- Re-connect R-10 between the green detector grid lead (pin No. 1 on the second detector socket) and the chassis.
- Interchange the connections to DP-1 and DP-2 (pins No. 4 and No. 5) on the second detector socket. DP-2 should connect to terminal "C" on the second I-F transformer, and DP-1 to the chassis.

- Connect 1 megohm resistor (Stock No. 13730) between terminal "E" on the second I-F transformer and the chassis.
- Remove the green lead connecting the I-F screen-grid to the first detector screen grid; and connect the I-F screen grid to terminal "A" on first I-F transformer.
- Disconnect ungrounded end of C-10 from I-F screen grid and connect to the first detector screen-grid.
- Disconnect the green battery cable lead from the +67½ volt plug pin and connect it to the black lead on the same plug (+45 volts).
- Replace 1C7-G 1st detector with 1A7-G. Replace 1D5-G I-F with 1N5-G. Replace 1F7-G 2nd detector with 1H5-G. Replace 1G5-G output with 1C5-G.
- Use standard 1½ volt dry battery or "Air Cell" for filament supply and two 45 volt "B" batteries for plate supply.
- The "Current Cutter" switch label should be removed or covered, and instructions corrected, as this switch no longer has effect.

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

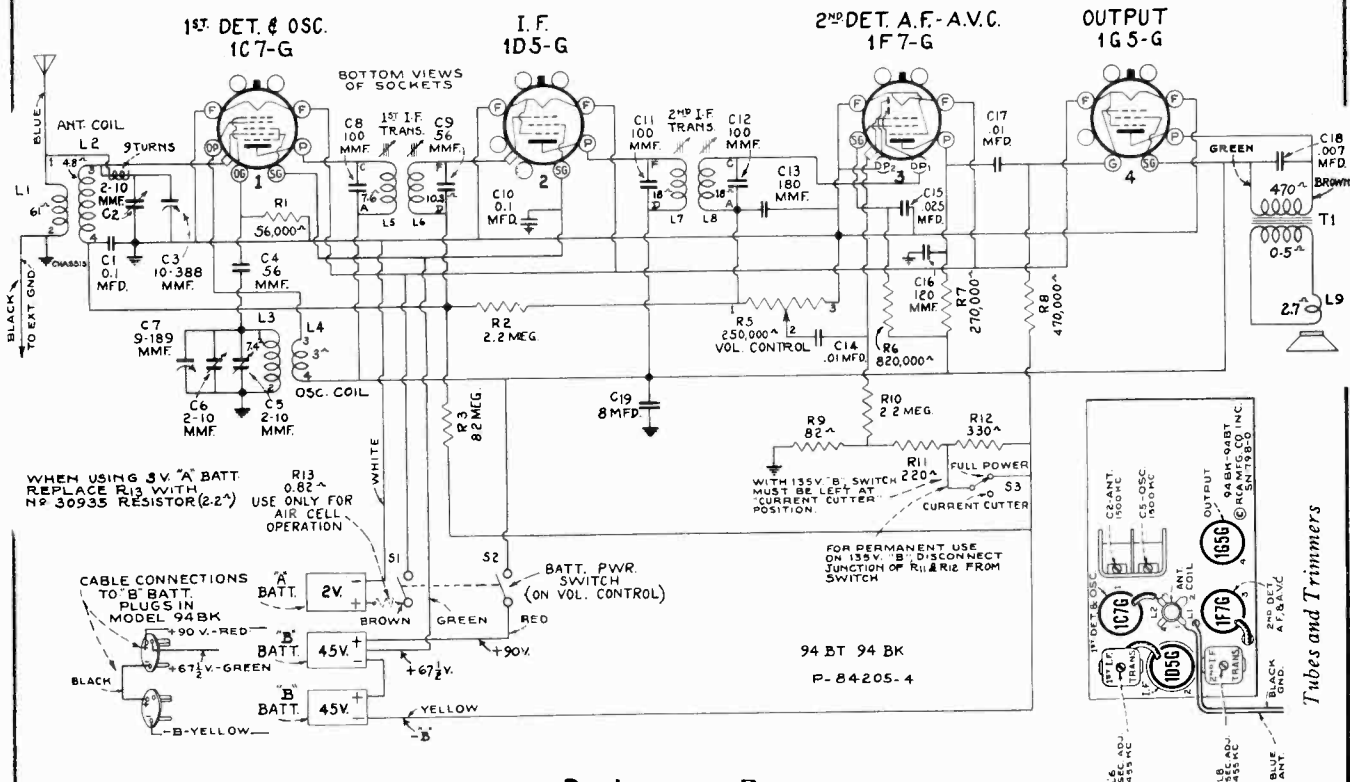
For additional details, refer to booklet "RCA Victor Receiver Alignment."

Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Re-sealing I.F. Adjustment Screws.—After completion of alignment, seal the I.F. magnetite-core adjustment screws with a few drops of household cement.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	1D5-G I-F grid cap. in series with .001 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	1C7-G 1st-det. grid cap. in series with .001 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C5* (oscillator) C2 (antenna)

* Trimmer C6 on gang condenser should be unscrewed one complete turn from tight, before adjusting C5.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

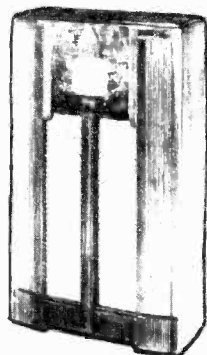
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
30954	Cable—Battery cable complete	30952	Shaft—Station selector knob shaft
30949	Capacitor—56 Mmfd. (C9)	3682	Shield—Radiotron shield
12723	Capacitor—56 Mmfd. (C4)	11196	Socket—Radiotron socket
30904	Capacitor—100 Mmfd. (C8, C11, C12)	30956	Socket—Speaker socket
12724	Capacitor—120 Mmfd. (C16)	14191	Spring—Drive cord tension spring
13003	Capacitor—180 Mmfd. (C13)	30953	Switch—Current-cutter switch (S3)
5148	Capacitor—.007 Mfd. (C18)	30948	Transformer—First I.F. (L5, L6, C8, C9)
14393	Capacitor—.01 Mfd. (C14, C17)	30903	Transformer—Second I.F. (L7, L8, C11, C12)
4870	Capacitor—.025 Mfd. (C15)	30947	Volume control and on-off switch (R5, S1, S2)
30899	Capacitor—0.1 Mfd. (C1, C10)	REPRODUCER ASSEMBLIES	
13610	Capacitor—8 Mfd. (C19)	Model 94BT (Speaker 84226-1)	
30950	Coil—Antenna coil (L1, L2)	30970	Cone—Reproducer cone and voice coil (L9)
30895	Coil—Oscillator coil (L3, L4)	30969	Reproducer complete
30945	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C7)	30971	Transformer—Output transformer (T1)
30877	Cord—Drive cord	Model 94BK (Speaker 84145-2)	
30905	Core—Adjustable core for I.F. transformers	30973	Cone—Reproducer cone and voice coil (L9)
30951	Dial—Dial scale and dial scale holder and bracket assembly	30972	Reproducer complete
30701	Drum—Tuning condenser drive cord drum with set screw	30974	Transformer—Output transformer (T1)
14635	Indicator—Station selector indicator pointer	MISCELLANEOUS ASSEMBLIES	
30955	Resistor—0.82 ohm, flexible type (R13)	30975	Crystal—Station selector celluloid crystal
14074	Resistor—220 ohms, 1/2 watt (R9)	14269	Knob—Station selector or volume control knob
14561	Resistor—220 ohms, 1/2 watt (R11)	12827	Plug—3-contact male plug for battery cable—94BK only
30538	Resistor—330 ohms, 1/2 watt (R12)	30935	Resistor—2.2 ohms, flexible type to replace Stock No. 30955 when using 3-volt battery
5029	Resistor—56,000 ohms, 1/2 watt (R1)	30308	Screw—Chassis mounting screw and washer—94BT only—Package of 4
12199	Resistor—270,000 ohms, 1/2 watt (R7)	30467	Screw—Chassis mounting screw and washer—94BK only—Package of 4
11172	Resistor—470,000 ohms, 1/2 watt (R8)	14270	Spring—Retaining spring for knob
30963	Resistor—820,000 ohms, 1/2 watt (R6)		
12679	Resistor—2.2 meg., 1/2 watt (R2, R10)		
30962	Resistor—8.2 meg., 1/2 watt (R3)		
14887	Retainer—Retainer for knob shaft		

MODELS 94BK1 and 94BT1

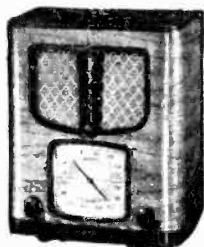
Chassis No. RC-333-B

RC-333-B

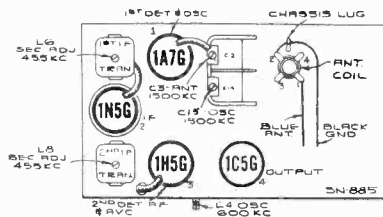
Four-Tube, Single-Band, Battery-Operated Superheterodyne Receivers



Model 94BK1



Model 94BT1



Tube and Trimmer Locations

Electrical and Mechanical Specifications

Frequency Range..... 540 to 1,720 kc
 RF Alignment Frequencies... 600 kc (osc., ant.), 1,500 kc (osc., ant.)
 Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G..... First Detector—Oscillator
- (2) RCA-1N5-G..... IF Amplifier
- (3) RCA-1H5-G..... 2nd Det., A.F., A.V.C.
- (4) RCA-1C5-G..... Power Output

BATTERIES REQUIRED

- "A," one 1.4-volt Air Cell or 1.5-volt Dry Cell.
- "B," two 45-volt heavy duty "B" batteries.

CURRENT CONSUMPTION

- "A" at 1.4 volts, 0.26 amp.
- "B" at 90 volts, 9.6 ma.

POWER OUTPUT

Undistorted..... 0.115 watt
 Maximum..... 0.280 watt

LOUDSPEAKER

Type..... Permanent Magnet Dynamic
 Diameter..... 94BK1, 6 inches; 94BT1, 5 inches
 Voice Coil Impedance..... 3 ohms at 400 cycles

Cabinet Dimensions (94BT1)..... Height 12 3/4 in. Width 10 1/2 in. Depth 6 3/4 in.
 Cabinet Dimensions (94BK1)..... 37 1/2 in. 22 in. 10 1/2 in.
 Chassis Base Dimensions..... 2 in. 9 3/4 in. 5 3/4 in.
 Over-all Chassis Height..... 6 in.
 Weight (94BT1)..... 7 3/4 lbs. net; 10 1/2 lbs. shipping
 Weight (94BK1)..... 26 1/2 lbs. net; 39 1/2 lbs. shipping
 Operating Controls..... (1) Power Switch—Volume; (2) Tuning
 Tuning Drive Ratio..... 8 to 1

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
12629	Capacitor—56 mmfd. (C6)	30952	Shaft—Station selector knob shaft
12723	Capacitor—56 mmfd. (C13)	32149	Shield—Tube shield
14262	Capacitor—110 mmfd. (C5)	11196	Socket—Tube socket
12404	Capacitor—120 mmfd. (C7, C8)	30956	Socket—Speaker socket
12725	Capacitor—150 mmfd. (C11)	14191	Spring—Drive cord tension spring
14712	Capacitor—180 mmfd. (C9)	14261	Transformer—First I.F. (L5, L6, C5, C6)
30433	Capacitor—430 mmfd. (C17)	14308	Transformer—Second I.F. (L7, L8, C7, C8, C9, R3)
5148	Capacitor—.007 mfd. (C12)	30947	Volume control and on-off switch (R5, S1, S2)
14393	Capacitor—.01 mfd. (C4, C10, C19)	SPEAKER ASSEMBLIES	
4839	Capacitor—.01 mfd. (C1)	Model 94BT1 (Speaker 84226-3)	
32187	Capacitor—.08 mfd. (C18)	32163	Cone—Speaker cone and voice coil (L9)
32150	Coil—Antenna coil (L1, L2)	32162	Speaker—Complete
32148	Coil—Oscillator coil (L3, L4)	32164	Transformer—Output transformer (T1)
32147	Condenser—2-gang variable tuning condenser (C2, C3, C14, C15, C16)	SPEAKER ASSEMBLIES	
30877	Cord—Drive cord	Model 94BK1 (Speaker 84145-2)	
30905	Core—Adjustable core for I.F. transformers	30973	Cone—Speaker cone and voice coil (L9)
32186	Dial—Dial scale, plate, and brackets assembled	30972	Speaker—Complete
30701	Drum—Tuning condenser drive cord drum with set screw	30974	Transformer—Output transformer (T1)
14635	Indicator—Station selector indicator pointer	MISCELLANEOUS ASSEMBLIES	
32208	Plug—2-prong male plug for battery cable	30975	Crystal—Station selector celluloid crystal
12827	Plug—3-prong male plug for battery cable	31355	Knob—Tuning or volume control knob
14076	Resistor—820 ohms, 1/2 watt (R9)	30308	Screw—Chassis mounting screw and washer—(94BT1 only) 4 required
14284	Resistor—22,000 ohms, 1/10 watt (R3)	30467	Screw—Chassis mounting screw and washer—(94BK1 only) 4 required
13715	Resistor—68,000 ohms, 1/2 watt (R1)	14270	Spring—Retaining spring for knob
12264	Resistor—220,000 ohms, 1/2 watt (R10)		
13730	Resistor—1 meg., 1/2 watt (R4, R6)		
12679	Resistor—2.2 meg., 1/2 watt (R2, R7, R8)		
14887	Retainer—Retainer for knob shaft		

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

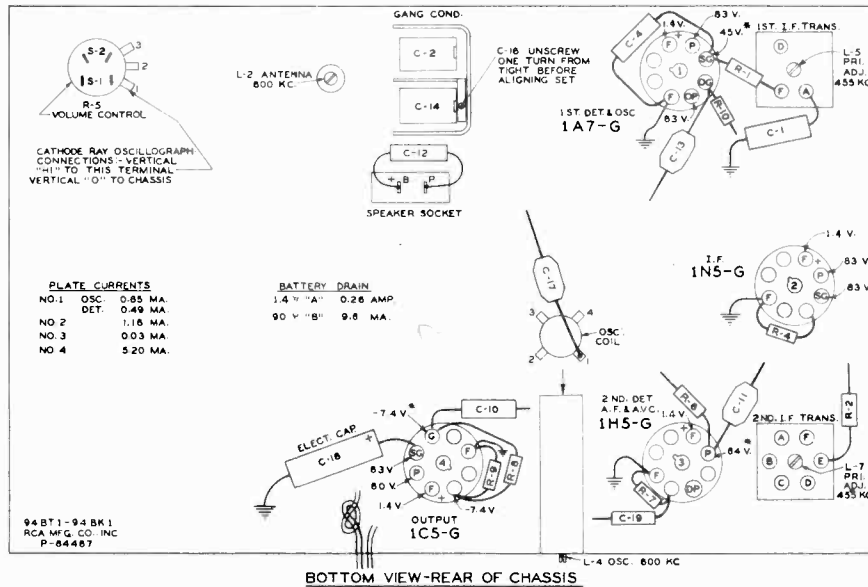
Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Precautionary Lead Dress

1. Red lead from second i-f transformer to screen terminal of 1N5-G must be dressed close to and along edge of chassis.
2. Twisted green wire from antenna coil to gang must be 9 turns and kept clear of rotor.
3. Blue and green leads to volume control must be dressed close to chassis and between gang and front apron.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	1N5-G I-F grid cap, in series with 0.01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	1A7-G 1st det. grid cap, in series with 0.01 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead, in series with 200 mmfd.	600 kc	600 kc	L4 (oscillator) L2 (antenna)
No. 4	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C15† (oscillator) C3 (antenna)

† Trimmer C16 on gang condenser should be unscrewed one complete turn from tight, before adjusting C15.

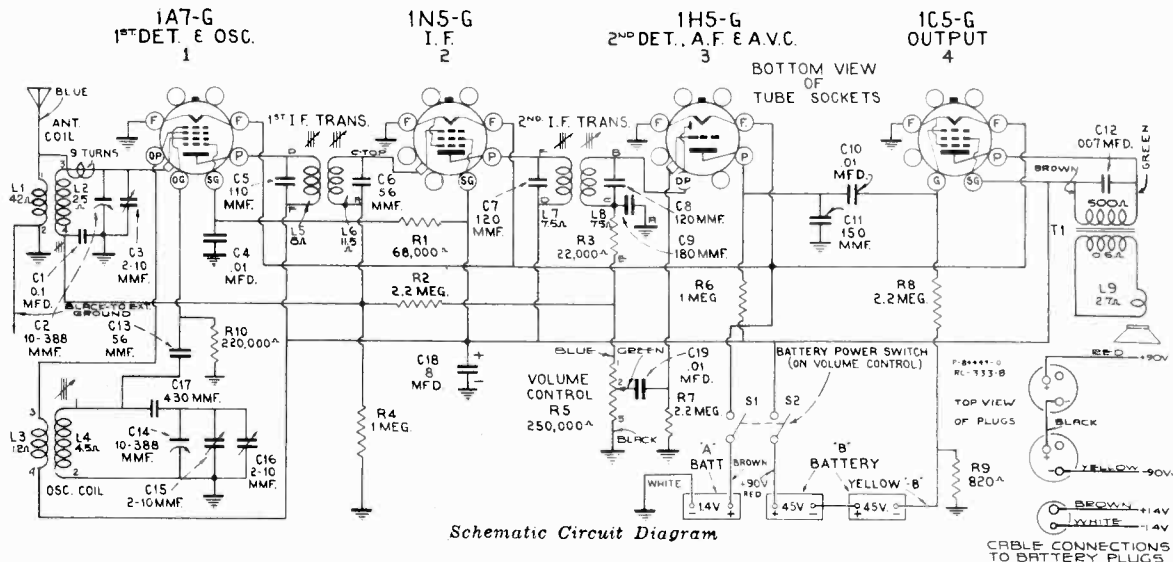


BOTTOM VIEW-REAR OF CHASSIS

Socket Voltages, and Location of Parts

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured value will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to a quiet point and the volume control at minimum. Values should hold within approximately ± 20% with rated battery voltage.



Schematic Circuit Diagram

MODELS 94BK2 and 94BT2

Chassis No. RC-390

RC-390

RC-390

Four-Tube, Electric-Tuning, Two-Band, Battery-Operated, Superheterodyne Receivers

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band).....	540—1,720 kc
Short Wave ("C" Band).....	5.8—15.4 mc
Four Electric Tuning Positions.....	550—1,500 kc
One station between approximately 550—950 kc (Button No. 1)	
One station between approximately 610—1,090 kc (Button No. 2)	
One station between approximately 750—1,370 kc (Button No. 3)	
One station between approximately 845—1,500 kc (Button No. 4)	
Intermediate Frequency.....	455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G..... First Detector—Oscillator
- (2) RCA-1N5-G..... I-F Amplifier
- (3) RCA-1H5-G..... 2nd Detector, A.V.C., and 1st A.F.
- (4) RCA-1A5-G..... Power Output

BATTERIES REQUIRED

"A," one 1.4-volt Air Cell or 1.5-volt Dry Cell
 "B," two 45-volt heavy-duty "B" batteries

CURRENT CONSUMPTION

"A," 0.2 amp. at 1.4 volts
 "B," 6.8 ma. at 90 volts

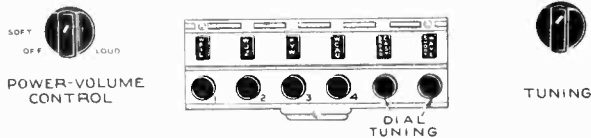
POWER OUTPUT

Undistorted.....	0.08 watt
Maximum.....	0.18 watt

LOUDSPEAKER

Type.....	Permanent Magnet Dynamic
Diameter.....	94BK2, 8 inches; 94BT2, 6 inches
Voice Coil Impedance (at 400 cycles).....	94BK2, 3 ohms; 94BT2, 2.2 ohms

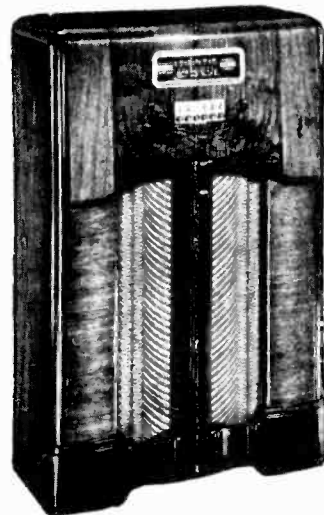
	Model 94BK2	Model 94BT2
Height.....	37 $\frac{1}{4}$ inches	10 $\frac{1}{2}$ inches
Width.....	22 inches	20-13/16 inches
Depth.....	10 inches	9 $\frac{3}{4}$ inches
Net Weight.....	40 $\frac{1}{2}$ pounds	15 $\frac{1}{2}$ pounds
Shipping Weight.....	53 $\frac{1}{2}$ pounds	19 pounds
Chassis Base Dimensions.....	3 inches x 11 $\frac{1}{4}$ inches x 5 inches	
Over-all Height of Chassis.....		7 $\frac{3}{4}$ inches
Tuning Drive Ratio.....		12 to 1



Location of Controls



Model 94BT2

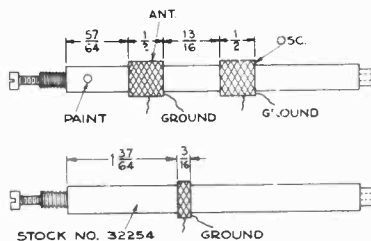


Model 94BK2

Alignment Data:

Before aligning these receivers, it is suggested that the following trimmer and core adjustments be pre-set to the mechanical dimensions given below:

- (a) The three trimmer condensers C-30, C-3, and C-2 on rear apron should be set to maximum capacity (screws turned full clockwise) and then unscrew each about $\frac{1}{4}$ turn.



Models 94BK2, 94BT2 Coil Spacing.

- (b) Unscrew L-4 to its minimum inductance position (screw all way out) and then screw in 8 full turns.
- (c) Unscrew L-6 to its minimum inductance position (screw all way out) and then screw in 6 full turns. Do not run this adjustment screw in too far (more than 12 to 15 turns) as the core will contact a lug on this coil at plus "B" potential causing a high resistance short and no signal (dead set).
- (d) Screw L-9 all the way in and then unscrew 13 full turns (about $\frac{1}{8}$ inch of threads exposed).

These pre-settings will assist in quicker alignment, especially if the adjustments have been tampered with or new parts installed.

When servicing these receivers, do not shift the positions of either the oscillator section (front) or antenna section (rear) on any of the four tandem push button coil assemblies, since their positions on the form governs the tracking between the two circuits. The illustrations show the proper spacings of coils.

The coils are coded with a spot of paint as follows:

- Black—Stock No. 32250
- White—Stock No. 32251
- Red—Stock No. 32252
- Green—Stock No. 32253

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis drawing.

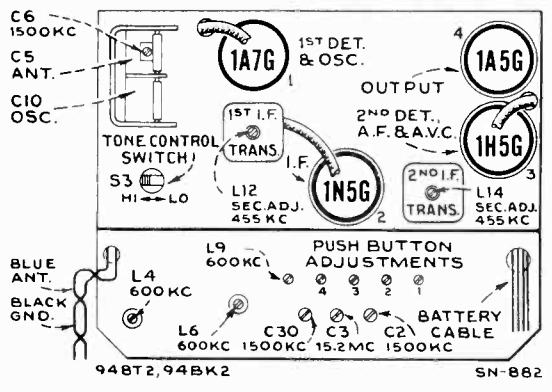
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, and 15.2 mc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

For additional details, refer to booklet "RCA Victor Receiver Alignment".



Tube and Trimmer Locations

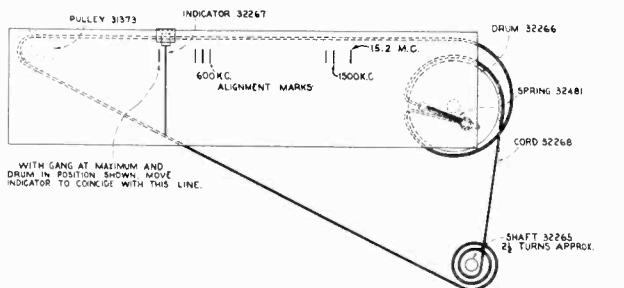
Steps	Connect the High Side of Test Oscillator to:	Tune Test Oscillator to:	Push Button	Turn Radio Dial to:	Adjust for Maximum Peak Output:
1	1N5-G I-F grid cap in series with .01 mfd.	455 kc	B.C. (5)	No Signal between 550—750 kc.	L13 and L14 (2nd I-F Trans.)
2	1A7-G Det. grid cap in series with .01 mfd.	455 kc	B.C. (5)		L11 and L12 (1st I-F Trans.)
3	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	No. 4		L20-L26 (No. 4 Push Button Adj.) C2 (ant.)
4	Antenna Lead (blue) in series with 200 mmfd.	600 kc	No. 1		L23-L29 *(No. 1 Push Button Adj.) L6 (osc.)
5	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	No. 4		L20-L26 (No. 4 Push Button Adj.) C2 (ant.)
6	Antenna Lead (blue) in series with 200 mmfd.	600 kc	No. 1		L23-L29 *(No. 1 Push Button Adj.) L6 (osc.)
7	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	B.C. (5)	1,500 kc Cal. Mark	C30 (osc.) C6 (ant.)
8	Antenna Lead (blue) in series with 200 mmfd.	600 kc	B.C. (5)	600 kc Cal. Mark	L9 (osc.) L4 (ant.)
9	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	B.C. (5)	1,500 kc Cal. Mark	C30 (osc.) C6 (ant.)
10	Antenna Lead (blue) in series with 300 ohms	15.2 mc	S.W. (6)	Signal Near 15.2 mc Cal. Mark†	**C3 (ant.)
11	Follow the "Adjustments for Electric Tuning."				

* Adjust L23—L29 (No. 1 push button adjustment) and L6 at the same time, rocking in for maximum signal.

** Use maximum capacity peak if two peaks can be obtained, rock in for maximum signal. A weaker signal (image) should be received about one-quarter inch to the left on the dial plate.

† If two signals are received, set the dial to the higher frequency (right hand) position.

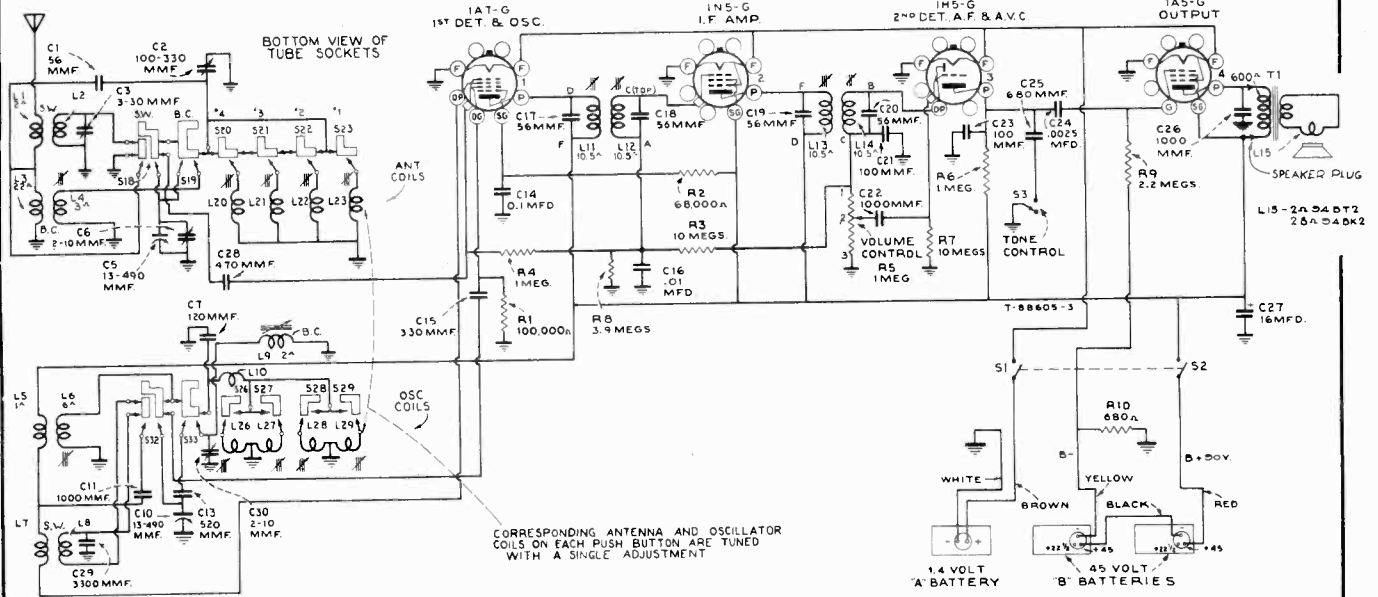
Note: The oscillator tracks 455 kc above the signal on all bands. After the receiver has been installed and the antenna connected, it is sometimes advisable to make a slight change in the adjustment of the antenna trimmer, C2. In most cases it is desirable to make this adjustment while receiving a station on No. 4 push button. However, if a station received on one of the other buttons is especially weak, it may be advisable to make the adjustment while receiving the weak station on this button.



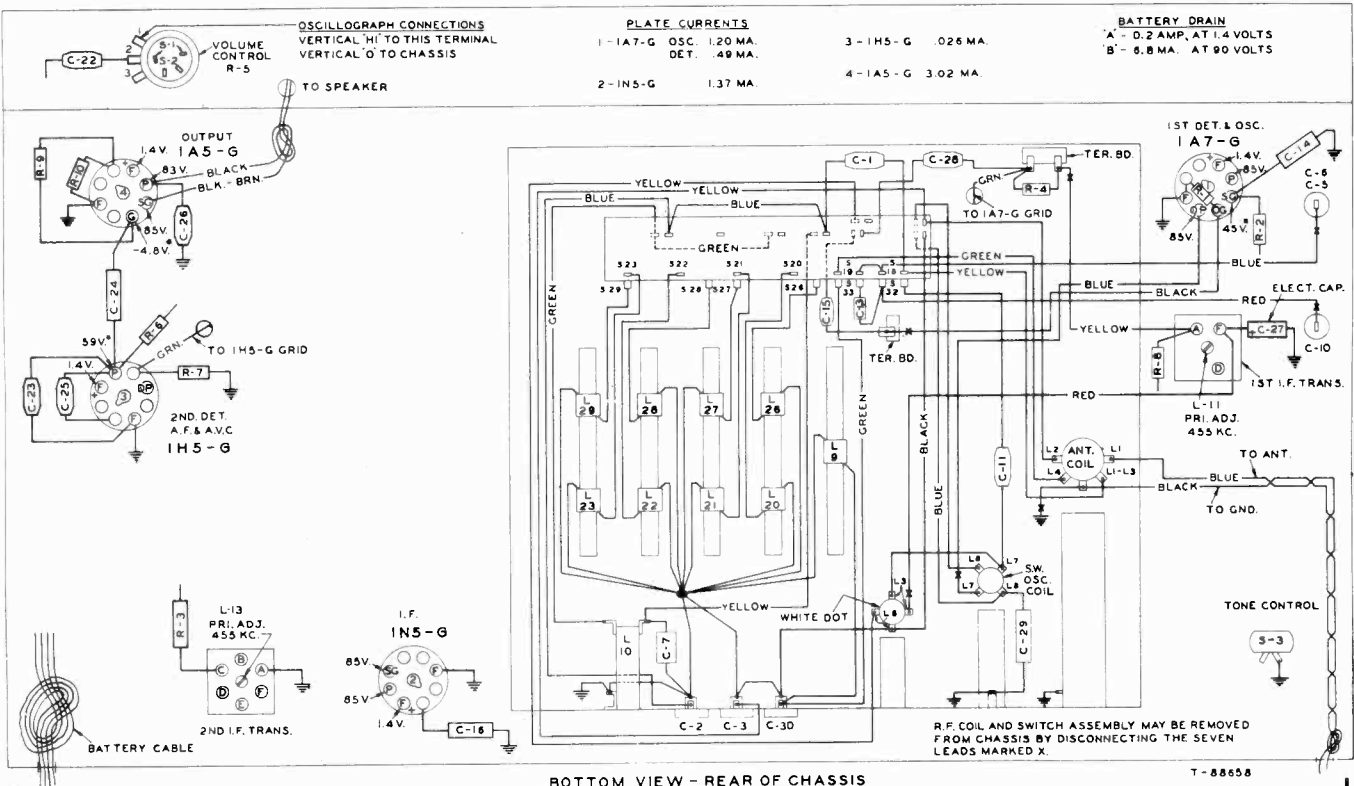
Dial Drive Hookup and Alignment Marks

Precautionary Lead Dress

- Green lead to first detector grid cap should be pulled out of the chassis as far as possible, and dressed away from the tube envelope.
- Blue lead from push button switch to gang condenser must be dressed over the top of the switch.
- Leads to push button coils must be dressed close to the coils.
- Red and blue leads to gang condenser must be dressed away from chassis.
- Blue antenna lead must be dressed in the end of the chassis away from gang leads and coil windings.



Schematic Circuit Diagram



BOTTOM VIEW - REAR OF CHASSIS

R-F Wiring Diagram and Socket Voltages

NOTE: Values with star () are operating voltages in circuits with high series resistance. The actual measured value will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to a quiet point and the volume control at minimum. Values should hold within approximately $\pm 20\%$ with rated battery voltage.

Adjustments for Electric Tuning

These models have six push buttons. The right-hand button connects the receiver for dial tuning on the "Short-wave" band, the next button connects for dial tuning on the "Standard-broadcast" band, and the other four buttons are for electric tuning of four different stations in the standard-broadcast band. Each station button connects separate oscillator and antenna coils which are tandem-tuned by ganged magnetite cores, and may be adjusted for the desired stations. Use a small screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use a regular antenna for the preliminary adjustments.

The procedure is as follows:

1. Make a list of the four desired stations, arranged in order from low to high frequencies.

2. Push in the broadcast dial-tuning button (second from right), and manually tune in the first station on the list.
3. Push in station button No. 1 (left-hand) and adjust No. 1 push button adjustment to receive this station. Turn the adjusting screw all the way in, to lowest frequency, and then unscrew slowly until the station is received.
4. Adjust for each of the remaining three stations in the same manner. (Clockwise adjustment of the screw tunes the circuits to lower frequencies.)
5. After installation, and with antenna properly connected, re-adjust C2 as outlined in Note under "Alignment Procedure."

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
32259	Capacitor—3-section variable trimmer capacitor 2-10, 3-30, 100-330 mmfd. (C30, C3, C2)	4669	Screw—No. 8-32 square head set screw from drum
30949	Capacitor—56 mmfd. (C17, C18, C19, C20)	32261	Screw—Push button oscillator coil adjustment screw and mounting nut
12723	Capacitor—56 mmfd. (C1)	32265	Shaft—Tuning knob shaft
30904	Capacitor—100 mmfd. (C21)	3682	Shield—Tube shield
12720	Capacitor—100 mmfd. (C23)	31251	Socket—Tube socket
12724	Capacitor—120 mmfd. (C7)	32481	Spring—Drive cord tension spring
12952	Capacitor—330 mmfd. (C15)	12007	Spring—Retaining spring for oscillator coil adjustment screw
30433	Capacitor—470 mmfd. (C28)	32255	Switch—Push button switch (S18, S19, S20, S21, S22, S23, S26, S27, S28, S29, S32, S33)
32269	Capacitor—520 mmfd. (C13)	30953	Switch—Tone control switch (S3)
14498	Capacitor—680 mmfd. (C25)	32263	Transformer—First I-F transformer (L11, L12, C17, C18)
12635	Capacitor—1,000 mmfd. (C11, C22, C26)	32264	Transformer—Second I-F transformer (L13, L14, C19, C20, C21)
4881	Capacitor—3,300 mmfd. (C29)	32262	Volume control and power switch (R5, S1, S2)
5107	Capacitor—0025 mfd. (C24)	SPEAKER ASSEMBLIES (84307-2) Model 94BT2	
14393	Capacitor—.01 mfd. (C16)	32271	Cone—Speaker cone and voice coil (L15)
4839	Capacitor—.01 mfd. (C14)	5118	Plug—3-contact male for speaker
31323	Capacitor—.16 mfd. (C7)	32270	Speaker complete
32254	Coil—Broadcast oscillator coil (L9)	32272	Transformer—Output transformer (T1)
32258	Coil—Antenna coil (L1, L2, L3, L4)	SPEAKER ASSEMBLIES (84477-1) Model 94BK2	
32260	Coil—Short wave oscillator coil (L7, L8)	32274	Cone—Speaker cone and voice coil (L15)
32256	Coil—Push button osc. series coil (L10)	5118	Plug—3-contact male for speaker
32250	Coil—Push button ant. and oscillator coil (L23, L29)	32273	Speaker complete
32251	Coil—Push button ant. and oscillator coil (L22, L28)	32272	Transformer—Output transformer (T1)
32252	Coil—Push button ant. and oscillator coil (L21, L27)	MISCELLANEOUS ASSEMBLIES	
32253	Coil—Push button ant. and oscillator coil (L20, L26)	32279	Button—Push button
32257	Coil—Push button osc. shunt coil (L5, L6)	31935	Clip—Spring clip to hold dial scale
32249	Condenser—2-gang variable condenser (C5, C6, C10)	32276	Dial—Dial scale (glass)
32268	Cord—Drive cord	32277	Escutcheon—Dial scale escutcheon and crystal
12800	Core—Variable core and stud for antenna coil No. 32258	32278	Escutcheon—Push button escutcheon
32266	Drum—Variable condenser drive drum	31355	Knob—Station selector or volume control knob
32267	Indicator—Dial scale pointer	32281	Marker—"Broadcast" marker tab
32208	Plug—2-prong male for battery cable	32067	Marker—Push button call letter markers
5119	Plug—3-contact female for speaker cable	32280	Marker—"Short Wave" marker tab
12627	Plug—3-prong male for battery cable	14267	Screw—Chassis mounting screw and washer (4 required), Model 94BT2
31373	Pulley—Drive cord pulley	30467	Screw—Chassis mounting screw and washer (4 required), Model 94BK2
14887	Retainer—Tuning knob shaft retainer or drive cord pulley retaining washer	14270	Spring—Retaining spring for knob
12262	Resistor—680 ohms, 1/2 watt (R10)		
13715	Resistor—68,000 ohms, 1/2 watt (R2)		
14560	Resistor—100,000 ohms, 1/2 watt (R1)		
13730	Resistor—1 meg., 1/2 watt (R4, R6)		
12679	Resistor—2.2 meg., 1/2 watt (R9)		
13167	Resistor—3.9 meg., 1/2 watt (R8)		
13601	Resistor—10 meg., 1/2 watt (R3, R7)		

MODEL 94BP SERIES

Chassis No. RC-407 RC-407B

Four-Tube, Single-Band, Battery-Operated, Superheterodyne Receiver

The following models comprise the 94BP1 Series—all contain the No. RC-407 chassis.

- 94BP61 Dark Brown
- 94BP62 Tan
- 94BP64 Light Brown
- 94BP66 Gray
- 94BP80 Brown Leather
- 94BP81 Black Leather



The following models comprise the 2nd Production 94BP1 Series—all contain the No. RC-407B chassis.

- 94BP61 Dark Brown
- 94BP62 Tan
- 94BP64 Light Brown
- 94BP66 Gray

Electrical and Mechanical Specifications RC 407

Frequency Range..... 550-1,720 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G..... 1st-Det.—Osc.
- (2) RCA-1N5-G..... I-F Amplifier
- (3) RCA-1H5-G..... 2nd-Det., A-F, and A.V.C.
- (4) RCA-1C5-G..... Output

BATTERIES REQUIRED

- "A," one 1.5 volt dry plug-type "A," 2½-in. x 2½-in. x 4-in. (Eveready No. 742 or equivalent)
- "B," two 45 volt dry plug-type "B," 2½-in. x 4-in. x 5½-in. (Eveready No. 762 or equivalent)

CURRENT CONSUMPTION

"A," 0.24 ampere—"B," 9.0 milliamperes

POWER OUTPUT

Undistorted..... 0.10 watt
Maximum..... 0.21 watt

LOUDSPEAKER

Type..... 4-inch permanent-magnet dynamic
Voice-coil Impedance..... 2 ohms at 400 cycles

	Height	Width	Depth
Cabinet Dimensions (inches).....	9½	12½	6½
Weight—(Net) less batteries.....			6 pounds
With batteries.....			12½ pounds
Tuning Drive Ratio.....			10 to 1

Electrical and Mechanical Specifications RC 407B

Frequency Range..... 530-1,650 kc
Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1A7-G..... 1st-Det.—Osc.
- (2) RCA-1N5-G..... I-F Amplifier
- (3) RCA-1H5-G..... 2nd-Det., A-F, and A.V.C.
- (4) RCA-1Q5-GT..... Output

POWER OUTPUT

Undistorted..... 0.12 watt
Maximum..... 0.25 watt

CURRENT CONSUMPTION

"A," 0.24 ampere—"B," 11.6 milliamperes

1st-Production, RC-407:

The following notes apply only to the 1st-production of Models 94BP1 Series (94BP-61, -62, -64, -66, -80, -81).

Antenna Attachment:

Due to the "extended" service that the 94BP1 Series radio has been put to use by many of its owners—such as service on small boats, camping trips, and other uses in locations far distant from a reliable broadcasting source—there have been requests for information on the use of an antenna to be used in conjunction with the receiver.

The radio is one of high sensitivity, but where few stations are receivable, two methods of using an external antenna may be used:

- (a) Five to ten turns of wire may be wrapped around the left end (loop end) of the cabinet attaching one end of the wire to a high antenna and the other to ground.
- (b) One to two turns of insulated wire may be wrapped around one end of the loop in the cabinet, making connections to the end of an external antenna and ground. The wire may be fastened to the loop supports with scotch tape or string and the ends brought out through the rear of the cabinet making a permanent attachment for an outside antenna.

If care is taken in placing the wire around the loop (using small 22 gauge D.C.C. wire spaced as far as possible from the loop winding) the receiver will not have to be realigned, and the directional effect of the loop will not be so prevalent.

Oscillator Grid Resistor in 1st-Production:

The oscillator grid resistor is changed from 220,000 ohms to 150,000 ohms (Stock No. 14020).

Volume Control Change in 1st-Production:

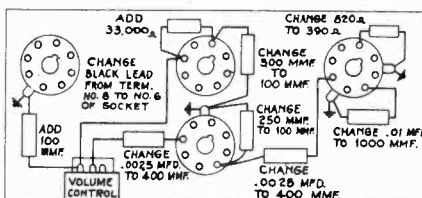
The volume control is changed from Stock No. 33304 to 34427.

Additional Replacement Parts:

Stock No.	Description
34426	Indicator—On-off indicator.....
32571	Knob—Tan volume control or tuning knob for 94BP-61, -80, and tuning knob for 94BP-64.....
33309	Knob—Tan volume control knob, 94BP-64.....

Circuit Modifications:

Circuit modifications as explained and illustrated below have been effected on the 1st-production (RC-407) Model 94BP1 Series, battery-operated portable receivers. These changes are incorporated on the bulk of production. Wherever it is necessary to service an instrument not having the revised circuit, it is recommended that the changes shown be made.



Circuit Revisions in 1st Production Model 94BP1 Series (RC-407).

MATERIAL REQUIRED:

Quantity	Part	RCA Stock No.
2	Capacitor—400 mmf	13894
3	Capacitor—100 mmf	12720
1	Capacitor—1,000 mmf	12635
1	Resistor—390 ohm	30498
1	Resistor—33,000 ohm	30685

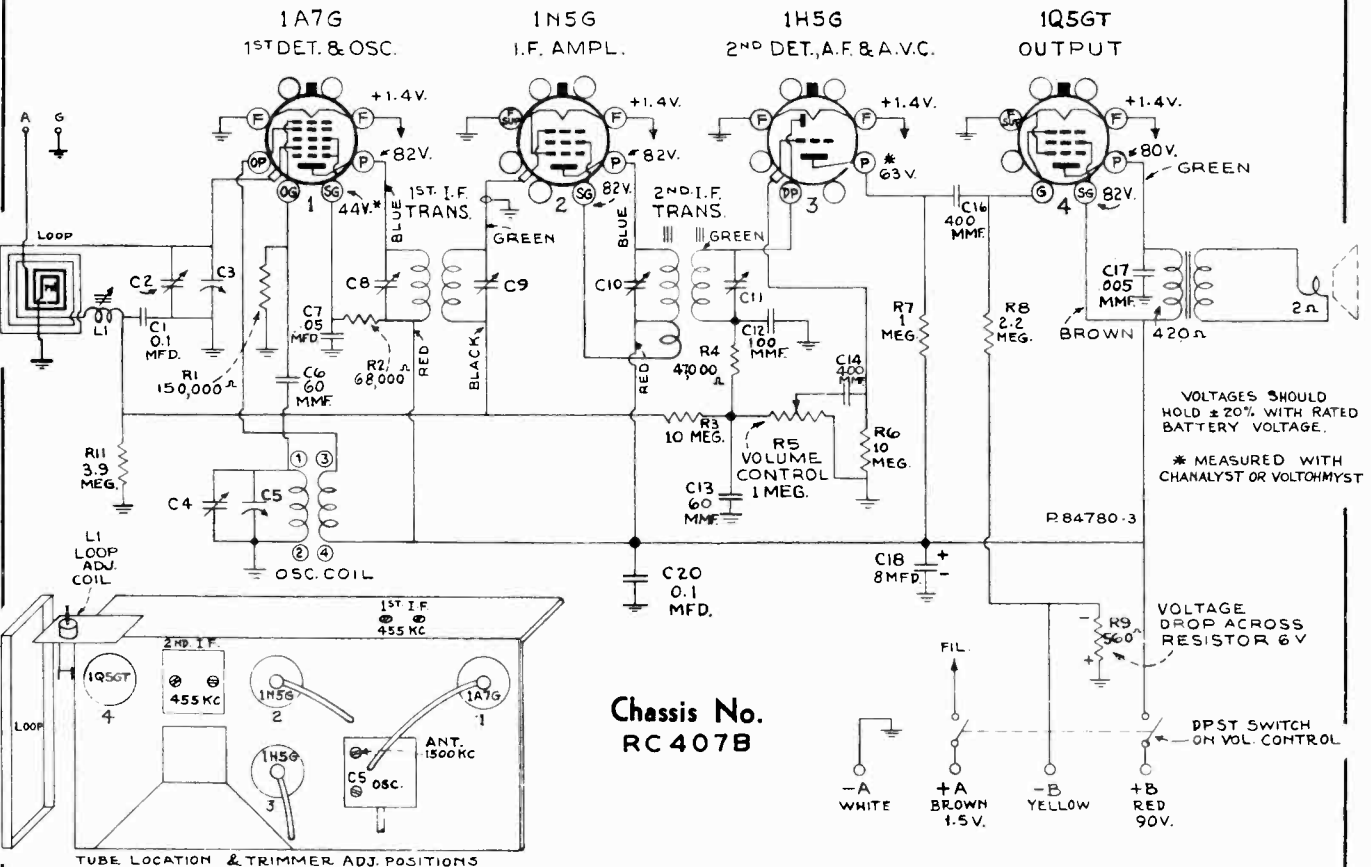
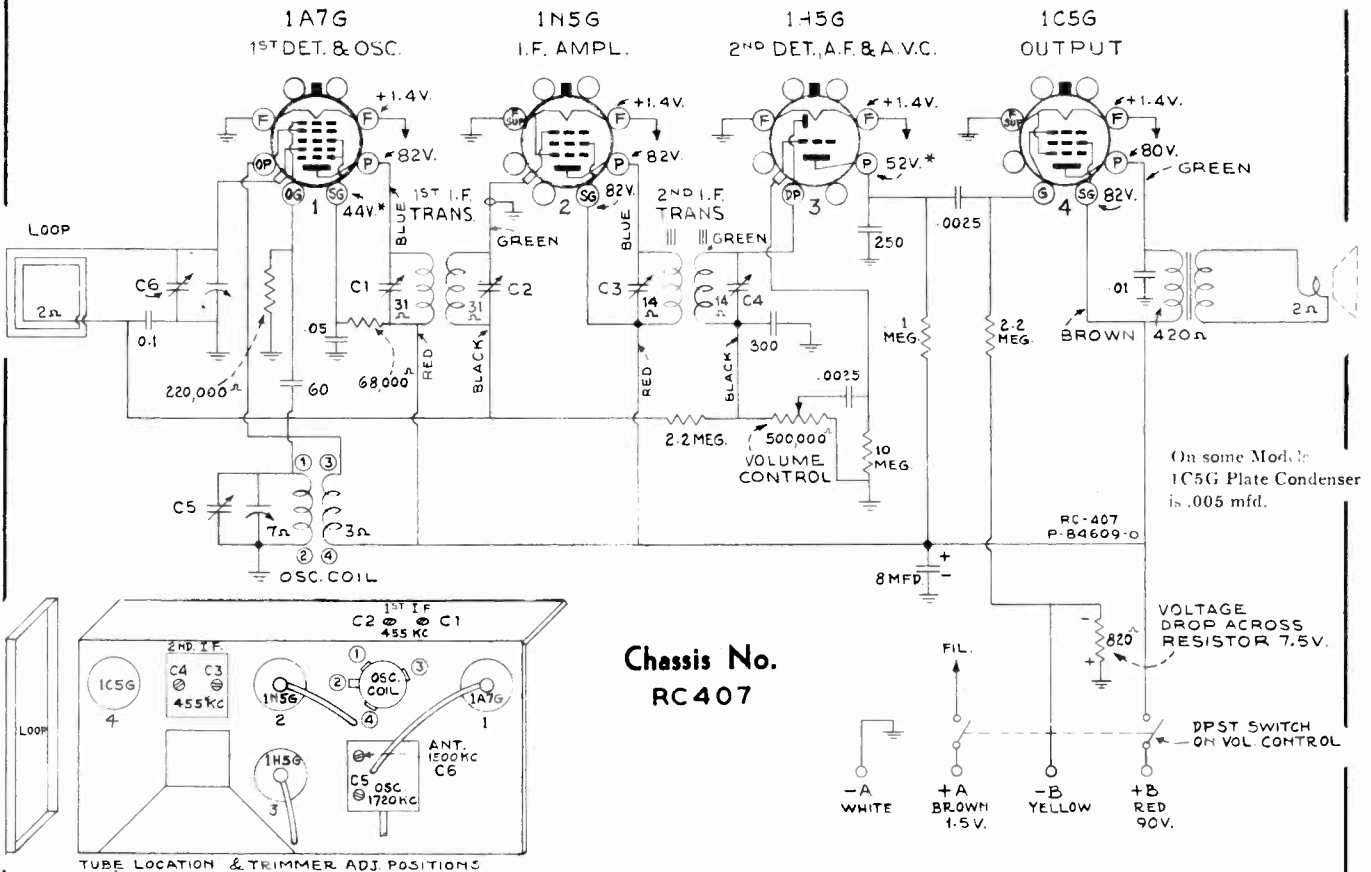
PROCEDURE:

- (a) Change 820 ohm bias resistor of 1C5G stage to 390 ohms.
- (b) Change plate coupling capacitor from .0025 to 400 mmfd.
- (c) Change 1H5G plate by-pass from 250 mmfd to 100 mmfd.
- (d) Change 800 mmfd of 2nd I-F secondary by-pass to 100 mmfd.
- (e) Change .0025 mfd of volume control arm circuit to 400 mmfd.
- (f) Change 1C5G plate by-pass from .01 mfd to .001 mfd.
- (g) Add 33,000 ohm resistor in series with high end of volume control.
- (h) By-pass high end of volume control to chassis with 100 mmfd.

Loudspeakers:

Three types of loudspeakers have been employed in Models BT-40 and 94BP1. Though of different design and using non-interchangeable cones, unfortunately, two of these speakers were identically marked. As a consequence, there has been considerable misunderstanding in ordering and in filling orders for replacement cones, with resultant delay.

In order to prevent delays in the filling of future orders, the complete speakers only will be stocked. This may be ordered by Stock Number 33058.



Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action. Connect low-side of oscillator to the receiver chassis.

CHASSIS NO. R407

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1A7G 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C1, C2, C3, C4 (1st and 2nd I-F transformers)
2	Antenna coil loop by means of one turn of wire placed near loop	1,720 kc	Full clockwise (out of mesh)	C5 (oscillator)
3		1,500 kc	Resonance on 1,500 kc signal	C6 (antenna)

Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Loop-Adjusting Coil.—The second production of 94BP-1 series incorporates a loop inductance adjustment coil (L1) which is adjusted at 600 kc. For best performance, it is recommended that the alignment procedure be followed exactly as given. This will ensure maximum sensitivity over the entire broadcast band.

CHASSIS NO. 407B

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1A7G 1st-Det. grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C11, C10, C9, C8 (1st and 2nd I-F transformers)
2	Antenna terminal, in series with 15 mmfd.	1,650 kc	Full clockwise (out of mesh)	C4 (oscillator)
3		Set antenna trimmer C2 approximately 1/2 turn from maximum capacity		
4		600 kc	600 kc signal	L1 (ant.)
5		1,500 kc	1,500 kc	C2 (ant.)
6	Repeat steps 4 and 5			

Replacement Parts

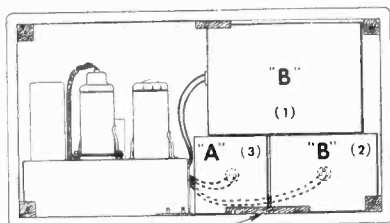
Instal on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-407)		CHASSIS ASSEMBLIES (RC-407-B)	
13057	Capacitor—60 mmfd.	34121	Capacitor—2-gang variable tuning
12488	Capacitor—250 mmfd.	13057	Capacitor—60 mmfd.
12952	Capacitor—300 mmfd.	12720	Capacitor—100 mmfd.
5107	Capacitor—.0025 mfd.	30433	Capacitor—400 mmfd.
4838	Capacitor—.005 mfd.	33584	Capacitor—.005 mfd.
32787	Capacitor—.05 mfd.	32787	Capacitor—.05 mfd.
4839	Capacitor—.01 mfd.	4839	Capacitor—.01 mfd.
33303	Capacitor—Electrolytic, 8 mfd.	33303	Capacitor—Electrolytic—8 mfd.
33055	Coil—Oscillator coil	34592	Coil—Antenna loop adjusting coil
33060	Condenser—2-gang variable tuning	32573	Coil—Oscillator coil
32634	Cord—Drive cord	34590	Control—Volume control and power switch
32946	Drum—Drive cord drum	32634	Cord—Drive cord
33300	Loop—Complete antenna loop	32946	Drum—Drive cord drum
32208	Plug—2-contact plug for battery cable	34591	Loop—Antenna loop less adjusting coil
32641	Plug—3-contact male plug for battery cable	32208	Plug—2-contact plug for battery cable
14076	Resistor—820 ohms, 1/2 watt	32641	Plug—3-contact plug for battery cable
13715	Resistor—68,000 ohms, 1/2 watt	12414	Resistor—560 ohms, 1/2 watt
12264	Resistor—220,000 ohms, 1/2 watt	12412	Resistor—47,000 ohms, 1/2 watt
13730	Resistor—1 meg., 1/2 watt	13715	Resistor—68,000 ohms, 1/2 watt
12679	Resistor—2.2 meg., 1/2 watt	14020	Resistor—150,000 ohms, 1/2 watt
13601	Resistor—10 meg., 1/2 watt	13730	Resistor—1 megohm, 1/2 watt
33305	Shaft—Tuning knob shaft and bushing	12679	Resistor—2.2 megohm, 1/2 watt
32595	Shield—Tube shield—less cap.	13167	Resistor—3.9 megohm, 1/2 watt
32537	Socket—Tube socket	13601	Resistor—10 megohm, 1/2 watt
30585	Spring—Drive cord spring	33305	Shaft—Tuning knob shaft and bushing
33296	Spring—Drive drum retaining spring	32595	Shield—Tube shield less cap.
33301	Transformer—First i-f transformer	31319	Socket—Tube socket
33302	Transformer—Second i-f transformer	30585	Spring—Drive cord spring
		33296	Spring—Drive drum retaining spring
		34118	Transformer—1st I.F. transformer
		34119	Transformer—2nd I.F. transformer
SPEAKER ASSEMBLIES (39128-1)		SPEAKER ASSEMBLIES (39128-1)	
33058	Speaker complete.	35601	Cone and voice coil
33062	Transformer—Output transformer	33058	Speaker—Complete
		33062	Transformer—Output transformer
MISCELLANEOUS ASSEMBLIES		MISCELLANEOUS ASSEMBLIES	
33310	Dial—Glass dial scale	33310	Dial—Glass dial scale
33311	Escutcheon—Dial scale escutcheon	34426	Disc—"On-Off" indicator disc (with flat of shaft hole opposite white segment in disc)
33006	Feet—Cabinet feet	34774	Disc—"On-Off" indicator disc (with flat of shaft hole 90° counter-clockwise from white segment in disc)
33376	Handle—Carrying handle—Models 94BP61, 94BP62, 94BP64	33376	Handle—Carrying handle—Models 94BP-61, -62, -64
33377	Handle—Carrying handle—Model 94BP66	33377	Handle—Carrying handle—Model 94BP-66
33306	Knob—Black tuning knob—Model 94BP66	33306	Knob—Black tuning or volume control and power switch knob for Model 94BP-66
33308	Knob—Black volume control knob—Model 94BP66	32571	Knob—Tan tuning or volume control and power switch knob for Models 94BP-61, -64
32895	Knob—Walnut tuning knob—Models 94BP62, 94BP81	32895	Knob—Walnut tuning or volume control and power switch knob for Model 94BP-62
33307	Knob—Walnut volume control knob—Models 94BP62, 94BP81	33312	Nut—Speed nut to mount dial
33312	Nut—Speed nut to mount dial	31646	Spring—Knob retaining spring
31646	Spring—Knob retaining spring		

MODEL 94BP4 SERIES

Chassis No. RC-410

Four-Tube, Single-Band, Battery-Operated, Superheterodyne Receiver



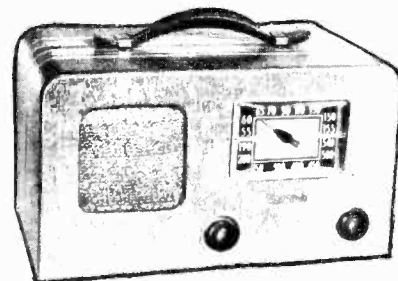
REMOVE THIS BLOCK, PLUG IN CABLES AND PLACE BATTERIES IN CABINET AS SHOWN, IN THE ORDER INDICATED. REPLACE CLAMPING BLOCK.

MODELS 94BP4-B, -C, -R

Technical Information and Service Data:

These models are identical to Model 94BP4 except for the material covering the case.

- "B" indicates Buffalo covering.
- "C" indicates Cowhide covering.
- "R" indicates Rawhide covering.



Model 94BP4

Electrical and Mechanical Specifications

Frequency Range 550-1,560 kc
 Intermediate Frequency 455 kc
 RCA TUBE COMPLEMENT

- (1) RCA-1A7-G 1st-Det.—Osc.
- (2) RCA-1N5-G I-F Amplifier
- (3) RCA-1H5-G 2nd-Det., A-F, and A.V.C.
- (4) RCA-1C5-G Output

BATTERIES REQUIRED

- "A," one 1.5 volt dry plug-type "A," 2½ in. x 2½ in. x 4 in. (No. 742)
- "B," two 45 volt dry plug-type "B," 2½ in. x 4 in. x 5½ in. (No. 732)

CURRENT CONSUMPTION

- "A" 0.24 ampere—"B," 9.0 milliamperes

POWER OUTPUT

Undistorted 0.10 watt
 Maximum 0.21 watt

LOUDSPEAKER

Type 5 inch permanent-magnet dynamic
 Voice-coil Impedance 2.2 ohms at 400 cycles

	Height	Width	Depth
Cabinet Dimensions (inches)	7½	14	8½
Chassis Base Dimensions (inches)	2	7½	5½
Over-all Chassis Height	6½ inches		
Weight—Shipping weight, less batteries	12½ pounds		
Net weight, with batteries	16 pounds		
Tuning Drive Ratio	8 to 1		

Elimination of Audio Oscillation or Howl:

Should the green lead from No. 8 pin (to volume control) of the 1C5-G socket be in too close proximity to the blue lead connected to the same socket, a high pitched audio oscillation is likely to result. The two leads should be spaced from each other as far as possible. It is also important that the green lead from tuning condenser to loop antenna be dressed between the 1C5-G and 1H5-G tubes.

Additional Replacement Parts:

Stock No.

- 33010 Knob—Tuning knob
- 32778 Knob—Volume knob (with dot)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-410)			
32592	Bracket—Dial bracket	12679	Resistor—2.2 meg., ¼ watt (R8)
12607	Cap—Shield cap for first i.f. transformer	13167	Resistor—3.9 meg., ¼ watt (R4)
12581	Cap—Shield cap for second i.f. transformer	13601	Resistor—10 meg., ¼ watt (R3, R6)
32598	Cap—Shield cap for 1H5G	14887	Retainer—Tuning knob shaft retainer
32596	Cap—Tube shield cap	4669	Screw No. 8-32 x ¼ set screw for drum, Stock No. 30701
14021	Capacitor—22 mmfd. (C18)	32609	Shaft—Dial pointer shaft and pulley
12948	Capacitor—33 mmfd. (C20)	32597	Shaft—Tuning knob shaft
30949	Capacitor—56 mmfd. (C3, C4, C5, C6)	32595	Shield—Tube shield—less cap
12723	Capacitor—56 mmfd. (C7)	31251	Socket—Tube socket
30904	Capacitor—100 mmfd. (C9)	30956	Socket—2-contact female
12720	Capacitor—100 mmfd. (C12)	14191	Spring—Condenser drive cord spring
30433	Capacitor—470 mmfd. (C15)	30631	Spring—Pointer drive cord spring
12635	Capacitor—1,000 mmfd. (C10)	32263	Transformer—First i.f. transformer (L3, L4, C3, C4)
5107	Capacitor—.0025 mfd. (C13, C14)	32264	Transformer—Second i.f. transformer (L5, L6, C5, C6, C9)
14393	Capacitor—.01 mfd. (C8)	32594	Volume control and switch (R5, S1, S2)
4886	Capacitor—.05 mfd. (C11)	MISCELLANEOUS ASSEMBLIES	
32187	Capacitor—8 mfd., 150 volts (C19)	32602	Bezel—Dial bezel and crystal
32148	Coil—Oscillator coil (L1, L2)	32163	Cone—Speaker cone and voice coil (L7)
32591	Condenser—2-gang variable (C1, C2, C16, C17)	32600	Escutcheon—Knob escutcheon
32634	Cord—Condenser and pointer drive cord	32603	Grille—Speaker grille and screen
32593	Dial—Dial scale	32633	Handle—Carrying handle
30701	Drum—Drive cord drum	32604	Loop—Antenna loop complete
32505	Indicator—Dial indicator pointer	32601	Retainer—Knob escutcheon retainer
32208	Plug—2-contact male for "A" leads	32162	Speaker complete (84226-3)
32641	Plug—3-contact male for "B" leads	11349	Spring—Knob retaining spring
14076	Resistor—820 ohms, ¼ watt (R9)	32164	Transformer—Output transformer (T1)
13715	Resistor—68,000 ohms, ¼ watt (R2)		
14560	Resistor—100,000 ohms, ¼ watt (R10)		
12264	Resistor—220,000 ohms, ¼ watt (R1)		
13730	Resistor—1 meg., ¼ watt (R7)		

Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

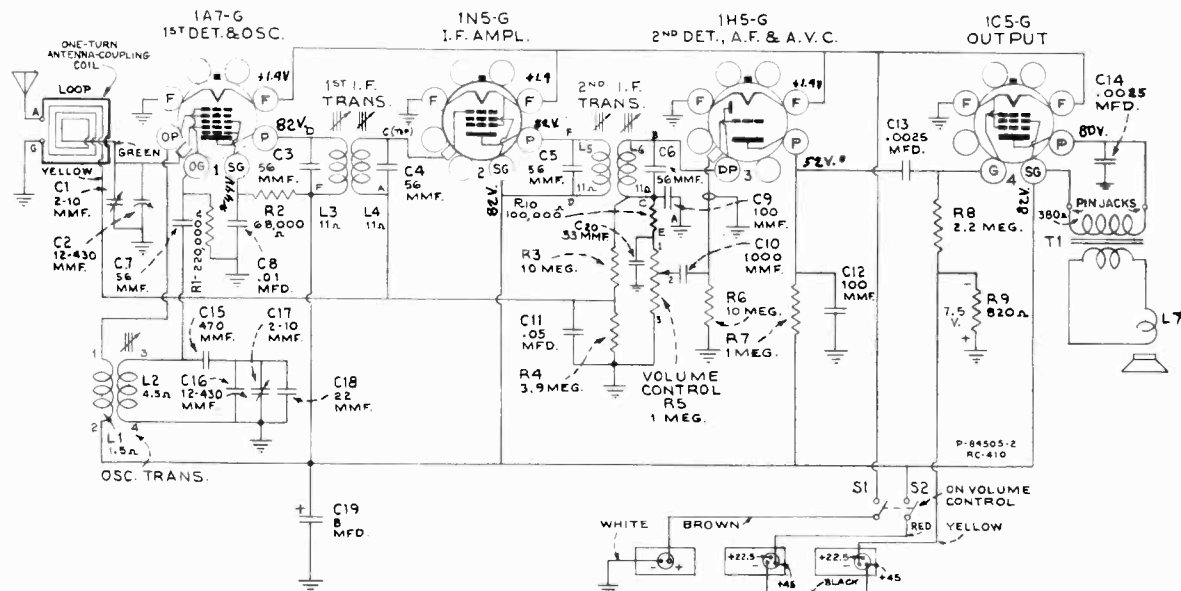
Precautionary Lead Dress.—

1. Dress speaker leads down to chassis.
2. The green lead from the loop to the antenna section of the gang should be dressed between the output and detector tube shields and pulled toward the far corner of the loop by means of the rubber band.
3. The spiral shield on the 1st A.F. grid lead should be brought as close as possible to the grid cap.
4. Leads to the high side and tap of the volume control should be dressed down to the chassis and away from the output tube plate lead.

Antenna.—An antenna and ground may be connected to "A" and "G" at bottom of cabinet. If total length of antenna and lead-in is more than 150 feet, connect a 300 mmf capacitor in series with lead-in.

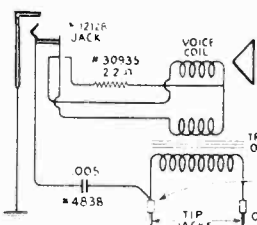
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	1N5-G grid cap, in series with .001 mfd.	455 kc	Quiet point between 550-750 kc	L5 and L6 (2nd I-F transformer)
2	1A7-G grid cap, in series with .001 mfd.	455 kc		L3 and L4 (1st I-F transformer)
3	Assemble chassis and batteries in correct position in cabinet, and fasten rear cover (loop) in place while making the following adjustments, which are accessible through holes in the bottom of the cabinet.			
4	Antenna terminal, in series with 200 mfd. Connect low side of test-osc. to "G" term.	1500 kc	1500 kc*	C17 (osc.) C1 (ant.)
5		600 kc	600 kc*	L2 (osc.) Rock in
6	Repeat steps 4 and 5.			

* Use bottom of "1" in "150" for 1500 kc calibration point, and use center of "0" in "60" for 600 kc calibration point.



Note: Values with star (*) are operating voltages. Values not starred are actual measured voltages.

Measurements are made to chassis unless otherwise indicated, with set tuned to quiet point. Values should hold within approximately $\pm 20\%$ with rated battery voltage.



Headphone Attachments:

A jack for headphone operation can be installed quickly and easily without removing the chassis. The method outlined below permits operation with either headphones or loudspeaker, or both together. The set and loudspeaker function in the normal manner when the headphones are not plugged in the jack. When the plug is inserted part way in the jack, the loudspeaker and headphones both operate. Pushing the plug all the way into the jack disconnects the loudspeaker but leaves the headphones in operation. (A 2.2 ohm resistor is automatically connected as a dummy voice-coil load when the plug is inserted all the way.)

MATERIAL REQUIRED:

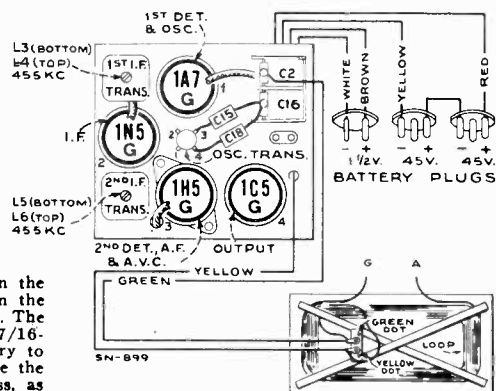
- Stock No. Description
- (1) 12128 Jack—Telephone jack
 - (1) 30935 Resistor—2.2 ohm flexible type
 - (1) 4638 Capacitor—.005 mfd.

Also one pair of radio headphones of standard "2,000-ohm" or "3,000-ohm" type (d-c resistance) complete with plug.

Model 94BP4 Headphone Attachment Circuit.

PROCEDURE:

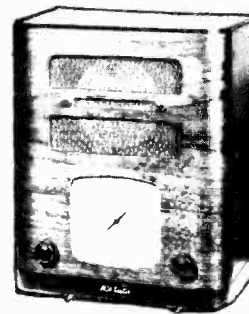
- Remove the back cover.
- Drill a 7/16-inch hole for the jack in the top of the cabinet at a point between the output tube (1C5-G) and the batteries. The top of the cabinet is approximately 7/16-inch thick and it is therefore necessary to chisel the inside of the cabinet (where the jack fits) to about 5/16-inch thickness, as otherwise the plug cannot be inserted all the way into the jack.
- Remove the batteries.
- Make connections as shown in the diagram. Leave sufficient slack in these connections so that the batteries can be installed. Keep the leads grouped together and dressed away from the tubes.



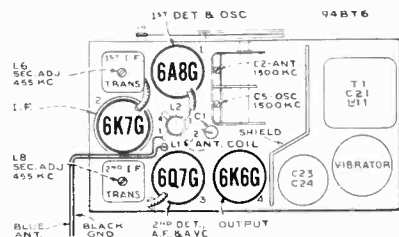
Tube Location

MODEL 94BT6

Four-Tube, Single-Band, Battery-Operated, Superheterodyne Receiver



Model 94BT6



Electrical and Mechanical Specifications

Frequency Range 540 to 1,750 kc
 R-F Alignment Frequency 1,500 kc
 Intermediate Frequency 455 kc

RADIOTRON COMPLEMENT
 (1) RCA-6A8-G First Det.-Osc.
 (2) RCA-6K7-G Intermediate Amp.
 (3) RCA-6Q7-G Second-Det., A-F Amp., A.V.C.
 (4) RCA-6K6-G Power Output

BATTERY REQUIRED CURRENT CONSUMPTION
 6-volt Storage "A" Battery. At 6 volts, 2.8 amperes.

POWER OUTPUT (6 volts "A")
 Undistorted 0.45 watts
 Maximum 0.7 watts

LOUDSPEAKER
 Type 5-inch Permanent-magnet Dynamic
 Voice-coil Impedance 3 ohms at 400 cycles

Cabinet Dimensions	Height	Width	Depth
12 1/2 in.	10 1/2 in.	6 1/2 in.	5 1/2 in.
Chassis Base	2 in.	9 1/2 in.	5 1/2 in.

Over-all Chassis Height 6 1/2 in.
 Weight 11 lbs. net, 13 1/2 lbs. shipping
 Operating Controls (1) Power Switch—Volume; (2) Tuning
 Tuning Drive Ratio 8 to 1

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	6K7-G I-F grid cap. in series with .001 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	6A8-G 1st-det. grid cap. in series with .001 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead. in series with 200 mmfd.	1,500 kc	1,500 kc	C5* (oscillator) C2 (antenna)

* Adjust C6 on gang condenser to one complete turn from tight, before adjusting C5.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
30959	Cable—Battery cable complete	11353	Resistor—680 ohms, 1/2 watt (R10)
30967	Cable—Shielded volume control cable	5175	Resistor—5,600 ohms, 1/2 watt (R17)
12723	Capacitor—56 Mmfd. (C8)	12759	Resistor—15,000 ohms, 1/2 watt (R3)
30904	Capacitor—100 Mmfd. (C9, C10, C12, C13)	14284	Resistor—22,000 ohms, 1/10 watt (R15)
12724	Capacitor—120 Mmfd. (C17)	5029	Resistor—56,000 ohms, 1/2 watt (R1)
13003	Capacitor—180 Mmfd. (C14)	11172	Resistor—470,000 ohms, 1/2 watt (R7, R11)
30964	Capacitor—330 Mmfd. (C4)	12679	Resistor—2.2 meg., 1/2 watt (R4, R6)
30966	Capacitor—1,000 Mmfd. (C22)	30271	Resistor—4.7 meg., 1/2 watt (R2)
14393	Capacitor—.01 Mfd. (C15, C18, C19)	14887	Retainer—Retainer for knob shaft
4937	Capacitor—.01 Mfd. (C27)	30952	Shaft—Station selector knob shaft
4886	Capacitor—.05 Mfd. (C11)	3682	Shield—Radiotron shield
4839	Capacitor—.1 Mfd. (C16)	11196	Socket—Radiotron socket
30899	Capacitor—.1 Mfd. (C1)	30956	Socket—Speaker socket
30965	Capacitor—.25 Mfd. (C20)	14312	Socket—Vibrator socket
30961	Capacitor—0.05 Mfd. 2 sections each 16 Mfd. (C23, C24)	14191	Spring—Drive cord tension spring
30968	Coil—"A" filter choke coil (L10)	30957	Transformer—First I.F. transformer (L5, L6, C9, C10)
30950	Coil—Antenna coil (L1, L2)	30903	Transformer—Second I.F. transformer (L7, L8, C12, C13)
30895	Coil—Oscillator coil (L3, L4)	30960	Transformer—Vibrator transformer (T1, C21, L11)
30945	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C7)	14309	Vibrator—Plug in vibrator (L12)
30877	Cord—Drive cord	30958	Volume control and on-off switch (R5, S1)
30905	Core—Adjustable core for I.F. transformers	REPRODUCER ASSEMBLIES (Speaker 84226-1)	
14289	Clips—Battery clips—1 marked "+" and 1 unmarked	30970	Cone—Reproducer cone and voice coil (L9)
30951	Dial—Dial scale and dial scale holder and bracket assembly	30969	Reproducer complete
30701	Drum—Tuning condenser drive cord drum with set screw	30971	Transformer—Output transformer (T2)
5140	Fuse—Battery cable fuse (F1)	MISCELLANEOUS ASSEMBLIES	
14635	Indicator—Station selector indicator pointer	30975	Crystal—Station selector celluloid crystal
13220	Resistor—56 ohms, 1/2 watt (R18)	14269	Knob—Station selector or volume control knob
14074	Resistor—82 ohms, 1/2 watt (R9)	30308	Screw—Chassis mounting screw and washer—Package of 4
30498	Resistor—390 ohms, 1/2 watt (R18)	14270	Spring—Retaining spring for knob
30681	Resistor—470 ohms, 1 watt (R12)		

Precautionary Lead Dress

1. Leads on C16 and C20, and lead from R16 to terminal board, must be short. C22 and C4 are soldered direct (no leads).
2. Dress L10 away from chassis. Dress T1 secondary leads (brown and green) away from base and free of other leads (same applies to R17 and C27). Dress T1 secondary midtap (brown-black) free of other leads and close to chassis.
3. Maintain original ground points.

4. Antenna and ground leads 36 inches long, twisted, and arranged as shown in top view.
5. I.F. plate lead (blue) dressed close to and along edge of chassis.

Battery Charger Connections.—The positive side of the 6-volt "A" circuit is connected to the receiver chassis, and the chassis is normally grounded. If the charger has a ground on the negative side, the ground should be removed, or changed to the positive side. Do not change the length of leads from the receiver to the battery.

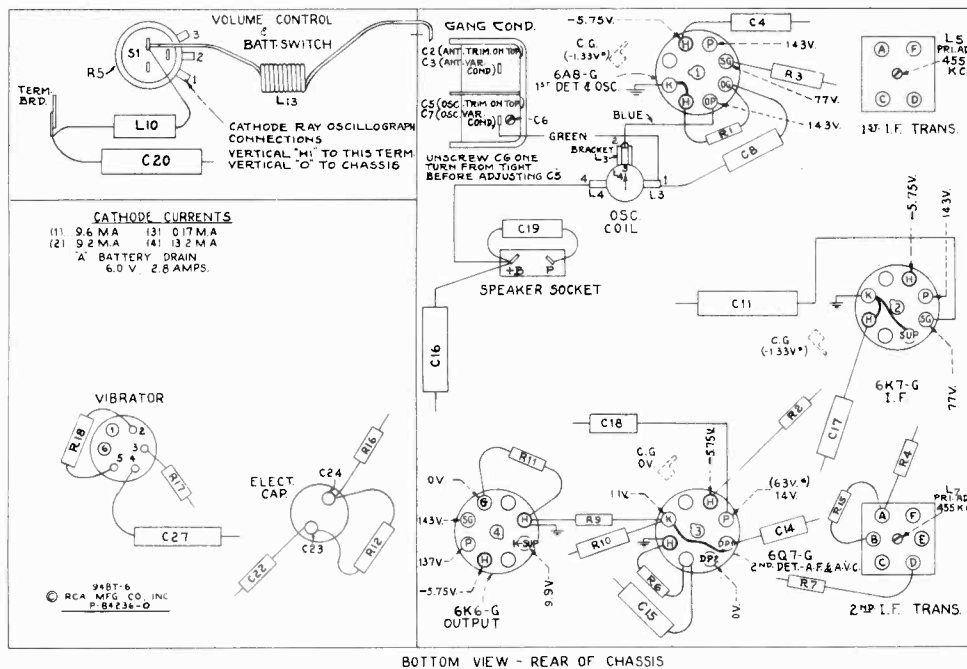


Figure 2—Radiotron Socket Voltages, and Location of Parts

Measurements made to chassis unless otherwise indicated. Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, and 250 volts. (Use the nearest range above the specified measured voltage.)

Values should hold within approximately $\pm 20\%$ with 6 volts "A."

* Note: Values with star (*) are operating voltages.

Values not starred are actual measured voltages.

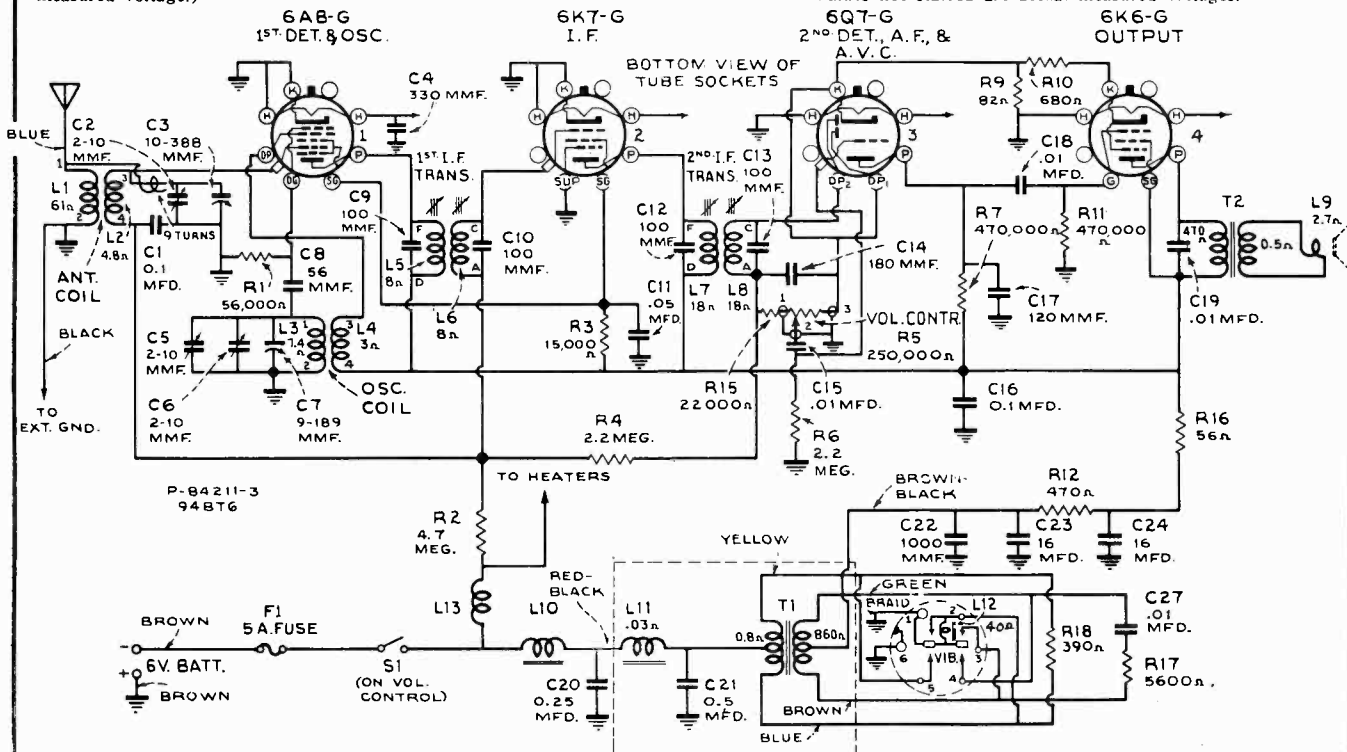
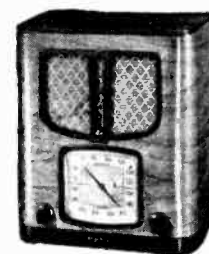
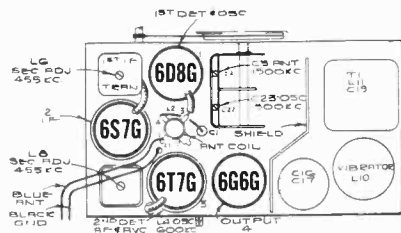


Figure 3—Schematic Circuit Diagram

MODEL 94BT61

Chassis No. RC-333-C

Four-Tube, Single-Band, Battery-Operated, Superheterodyne Receiver



Tube and Trimmer Locations

Electrical and Mechanical Specifications

Frequency Range..... 540 to 1,720 kc
 R F Alignment Frequencies..... 600 kc (osc.), 1,500 kc (osc., ant.)
 Intermediate Frequency..... 455 kc
RCA TUBE COMPLEMENT
 (1) RCA-6D8-G..... First Detector—Oscillator
 (2) RCA-6S7-G..... I-F Amplifier
 (3) RCA-6T7-G..... 2nd Det., A.F., A.V.C.
 (4) RCA-6G6-G..... Power Output
BATTERY REQUIRED..... **CURRENT CONSUMPTION**
 6-volt Storage "A" Battery..... At 6 volts, 1.6 amperes.
 Power Output (6 volts "A").....
 Undistorted..... 0.45 watt
 Maximum..... 0.8 watt

LOUDSPEAKER
 Type..... 5-inch Permanent Magnet Dynamic
 Voice-coil Impedance..... 3 ohms at 400 cycles

	Height	Width	Depth
Cabinet Dimensions.....	12 3/8 in.	10 3/8 in.	6 3/8 in.
Chassis Base.....	2 in.	9 3/8 in.	5 3/8 in.

Over-all Chassis Height..... 6 3/8 in.
 Weight..... 11 1/2 lbs. net, 14 lbs. shipping
 Operating Controls..... (1) Power Switch—Volume; (2) Tuning
 Tuning Drive Ratio..... 8 to 1

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
30959	Cable—Battery cable complete.....	14284	Resistor—22,000 ohms, 1/10 watt (R5).....
30967	Cable—Shielded volume control cable.....	12454	Resistor—33,000 ohms, 1/2 watt (R2).....
12581	Cap—Second I.F. transformer shield cap.....	14023	Resistor—82,000 ohms, 1/2 watt (R9).....
12629	Capacitor—56 mmfd. (C6).....	14560	Resistor—100,000 ohms, 1/2 watt (R1).....
12723	Capacitor—56 mmfd. (C21).....	12285	Resistor—170,000 ohms, 1/2 watt (R7, R8).....
14262	Capacitor—110 mmfd. (C5).....	12679	Resistor—2.2 meg., 1/2 watt (R3).....
12404	Capacitor—120 mmfd. (C7, C8).....	30271	Resistor—4.7 meg., 1/2 watt (R4).....
12725	Capacitor—150 mmfd. (C13).....	13601	Resistor—10 meg., 1/2 watt (R13).....
14712	Capacitor—180 mmfd. (C10).....	14887	Retainer—Retainer for knob shaft.....
13894	Capacitor—390 mmfd. (C4, C27).....	30952	Shaft—Station selector knob shaft.....
30433	Capacitor—430 mmfd. (C25).....	3682	Shield—Tube shield.....
14393	Capacitor—.01 mfd. (C11, C12, C15).....	31251	Socket—Tube socket.....
4937	Capacitor—.01 mfd. (C18).....	30956	Socket—Speaker socket.....
30882	Capacitor—.05 mfd. (C9).....	14312	Socket—Vibrator socket.....
30899	Capacitor—.01 mfd. (C1, C14).....	14191	Spring—Drive cord tension spring.....
30965	Capacitor—.025 mfd. (C20, C26).....	14261	Transformer—First I.F. transformer (L5, L6, C5, C6).....
32152	Capacitor—Comprising 2 sections each 15 mfd. (C16, C17).....	14308	Transformer—Second I.F. transformer (L7, L8, C7, C8, C10, R5).....
30968	Coil—"A" filter choke coil (L12).....	32151	Transformer—Vibrator transformer (T1, L11 C19).....
30950	Coil—Antenna coil (L1, L2).....	14309	Vibrator—Plug in vibrator (L10).....
32148	Coil—Oscillator coil (L3, L4).....	30958	Volume control and on-off switch (R6, S1).....
32147	Condenser—2-gang variable tuning condenser (C2, C3, C22, C23, C24).....	SPEAKER ASSEMBLIES (Speaker 84226-3)	
30877	Cord—Drive cord.....	32163	Cone—Speaker cone and voice coil (L9).....
30905	Core—Adjustable core for I.F. transformers.....	32162	Speaker complete.....
14289	Clips—Battery clips—1 marked "+" and 1 unmarked.....	32164	Transformer—Output transformer (T2).....
32186	Dial—Dial scale, plate, and brackets assembled.....	MISCELLANEOUS ASSEMBLIES	
30701	Drum—Tuning condenser drive cord drum with set screw.....	30975	Crystal—Station selector celluloid crystal.....
5140	Fuse—Battery cable fuse (F1).....	31355	Knob—Tuning or volume control knob.....
14635	Indicator—Station selector indicator pointer.....	30308	Screw—Chassis mounting screw and washer—4 required.....
12848	Resistor—47 ohms, 1/2 watt (R14).....	14270	Spring—Retaining spring for knob, Stock No. 31355.....
8063	Resistor—330 ohms, 1/2 watt (R11).....		
30152	Resistor—1,000 ohms, 1 watt (R10).....		
30734	Resistor—5,600 ohms, 1/2 watt (R12).....		

Precautionary Lead Dress

- Capacitors C20 and C26 must be grounded with as short a lead as possible. C4 and C27 are soldered direct (no leads).
- The "A" supply choke (L13) must be dressed clear of chassis. The H.V. secondary leads (brown and green). C13, and R12 must be dressed clear of the chassis and away from other leads.
- The H.V. secondary mid-tap (brown-black) lead, and the brown lead from L13 to 6G6-G filament must be dressed close to the chassis and away from other parts.

- The lead from the antenna coil (L1 and L2) to the gang must be 9 turns and kept clear of the rotor.
- The I-F plate lead (blue) must be dressed close along edge of chassis.
- R10 must be wired with body as close to terminal board as possible.

Battery Charger Connections.—The positive side of the 6-volt "A" circuit is connected to the receiver chassis, and the chassis is normally grounded. If the charger has a ground on the negative side, the ground should be removed, or changed to the positive. Do not change the length of the leads from the receiver to the battery.

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

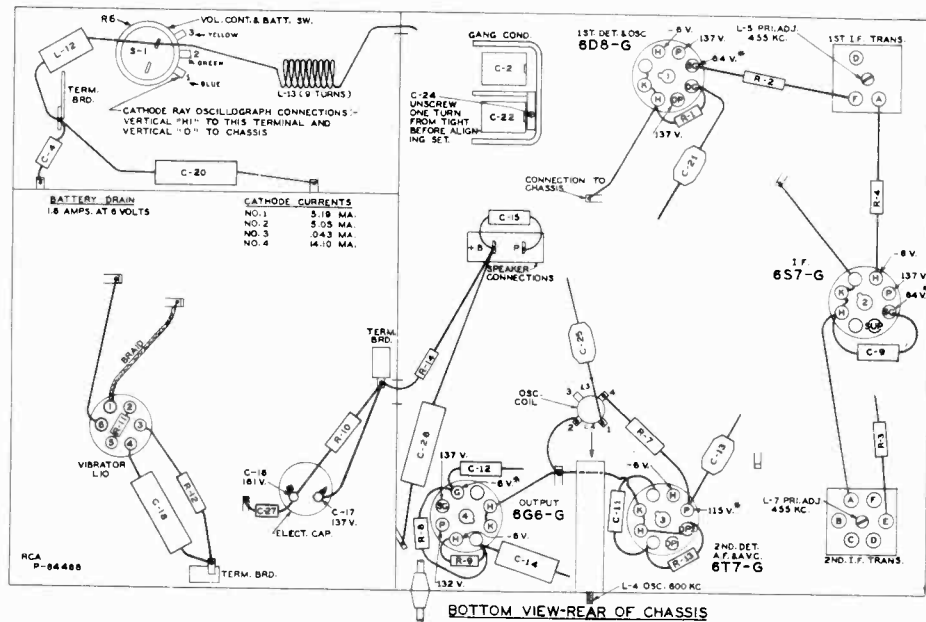
Pre-setting Dial.—With gang condenser in full mesh, the pointer should be horizontal.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	6S7-G I-F grid cap. in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	6D8-G 1st-det. grid cap. in series with .01 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead, in series with 200 mmfd.	600 kc	600 kc	L4 (oscillator)
No. 4	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C23† (oscillator) C3 (antenna)

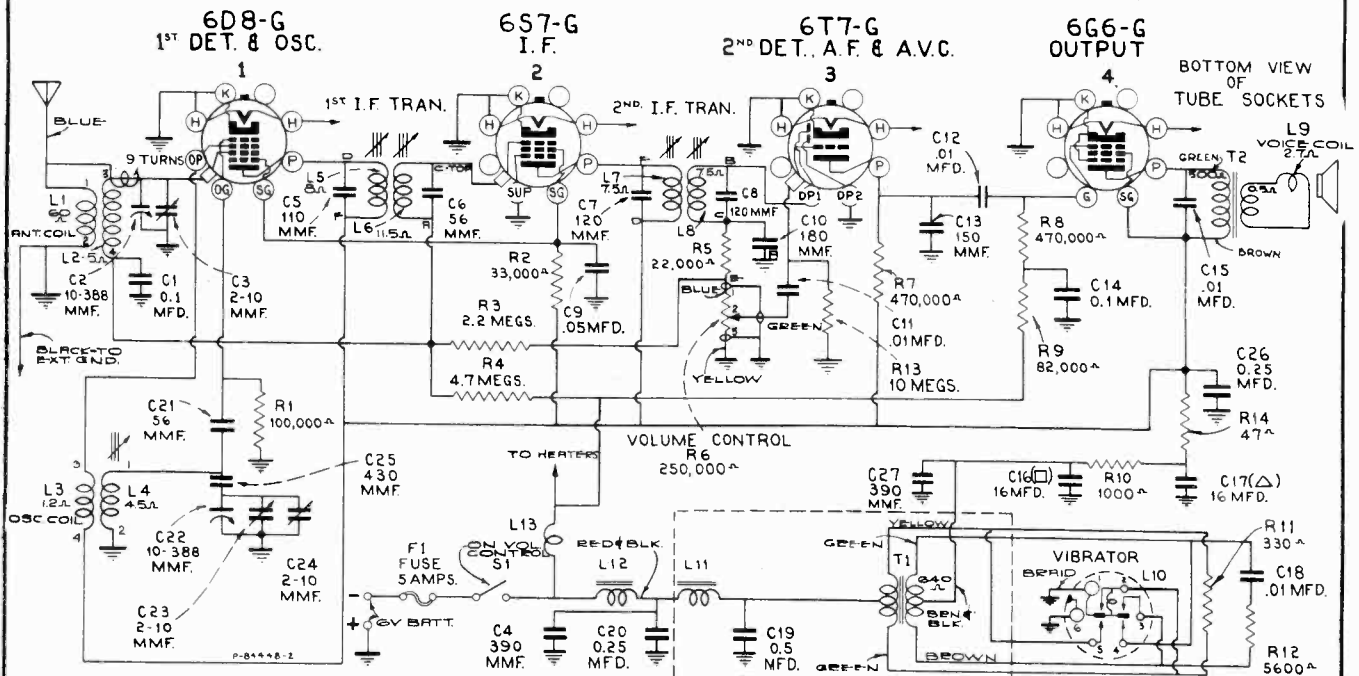
† Adjust C24 on gang condenser to one complete turn from tight before adjusting C23.

* NOTE: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with the set tuned to a quiet point and the volume control at minimum. Values should hold within approximately ± 20% with 6 volts "A."

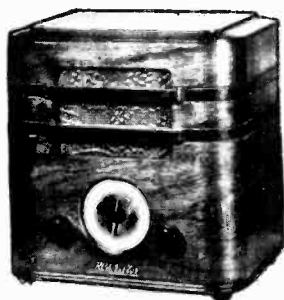


Socket Voltages and Location of Parts

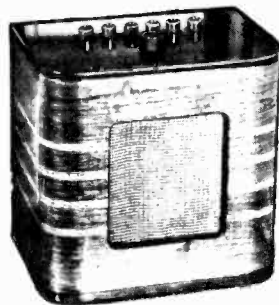


MODELS 94X 94X1 and 94X2

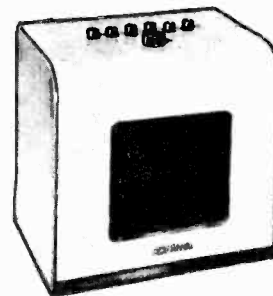
Four-Tube, Single-Band, AC-DC, T-R-F Receivers



MODEL 94X



Model 94X1



Model 94X2

MODEL 94x

Electrical and Mechanical Specifications

MODELS 94x-1, -2

Frequency Range..... 530-1,800 kc
 Alignment Frequency..... 1,800 kc (ant., det.)

FREQUENCY RANGE

Two stations between 540-900 kc
 Two stations between 680-1,200 kc
 Two stations between 850-1,500 kc

RADIOTRON COMPLEMENT

(1) RCA-6K7..... R-F Amp.
 (2) RCA-6J7..... Detector
 (3) RCA-25L6-G..... Output
 (4) RCA-25Z6-G..... Rectifier

RADIOTRON COMPLEMENT

(1) RCA 6K7..... R-F Amplifier
 (2) RCA-6J7..... Detector
 (3) RCA-25L6-G..... Output
 (4) RCA-25Z6-G..... Rectifier

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-100 cycles, 50 watts
 D-C Rating..... 105-125 volts, 50 watts

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-100 cycles, 50 watts
 D-C Rating..... 105-125 volts, 50 watts

POWER OUTPUT (125-volt, 60-cycle supply)

Undistorted..... 1.0 watt
 Maximum..... 1.5 watts

POWER OUTPUT (125-volt, 60-cycle supply)

Undistorted..... 1.0 watt
 Maximum..... 1.5 watts

LOUDSPEAKER

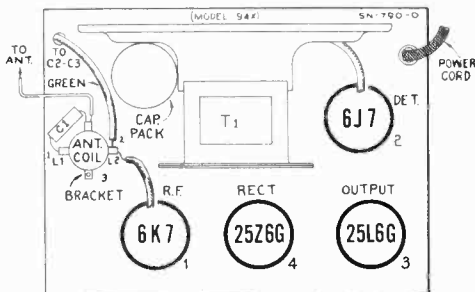
Type..... 5-inch Electrodynamic
 Voice-Coil Impedance..... 3 ohms at 400 cycles

LOUDSPEAKER

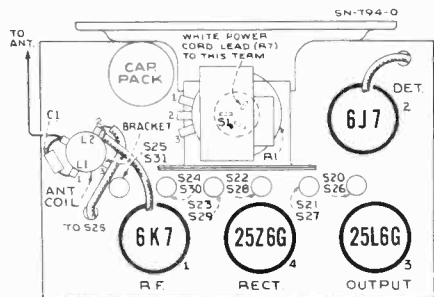
Type..... 5-inch Electrodynamic
 Voice-Coil Impedance..... 3 ohms at 400 cycles

Cabinet Dimensions	Height	Width	Depth
8-5/16 in.	8 1/2 inches	5 1/2 inches	5 1/2 inches
Chassis Base	2-7/16 in.	6 1/2 inches	4-9/16 in.
Over-all Chassis Height	6 1/2 inches		
Weight	5 3/4 lbs. (Net), 7 1/4 lbs. (Shipping)		
Operating Controls	(1) Power Switch—Volume; (2) Tuning		

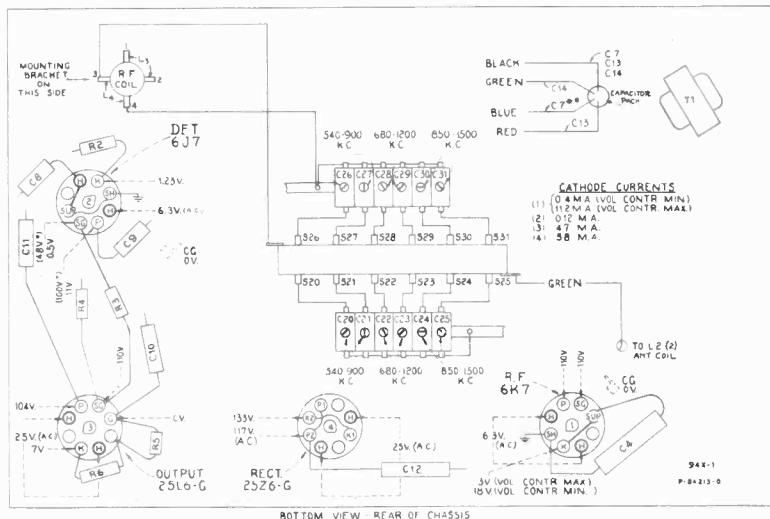
Cabinet Dimensions (94X1)	Height	Width	Depth
8 1/2 inches	8 1/2 inches	5 1/2 inches	5 1/2 inches
Cabinet Dimensions (94X2)	8 1/2 inches	8 1/2 inches	5 1/2 inches
Chassis Base	2 1/2 inches	6 1/2 inches	4-9/16 in.
Over-all Chassis Height	8 inches		
Weight	6 lbs. (Net), 7 1/4 lbs. (Shipping)		
Operating Controls	(1) Power Switch—Volume (2) Six Station Buttons		



MODEL 94x



MODELS 94x-1, -2



Radiotron Socket Voltages, and Location of Parts

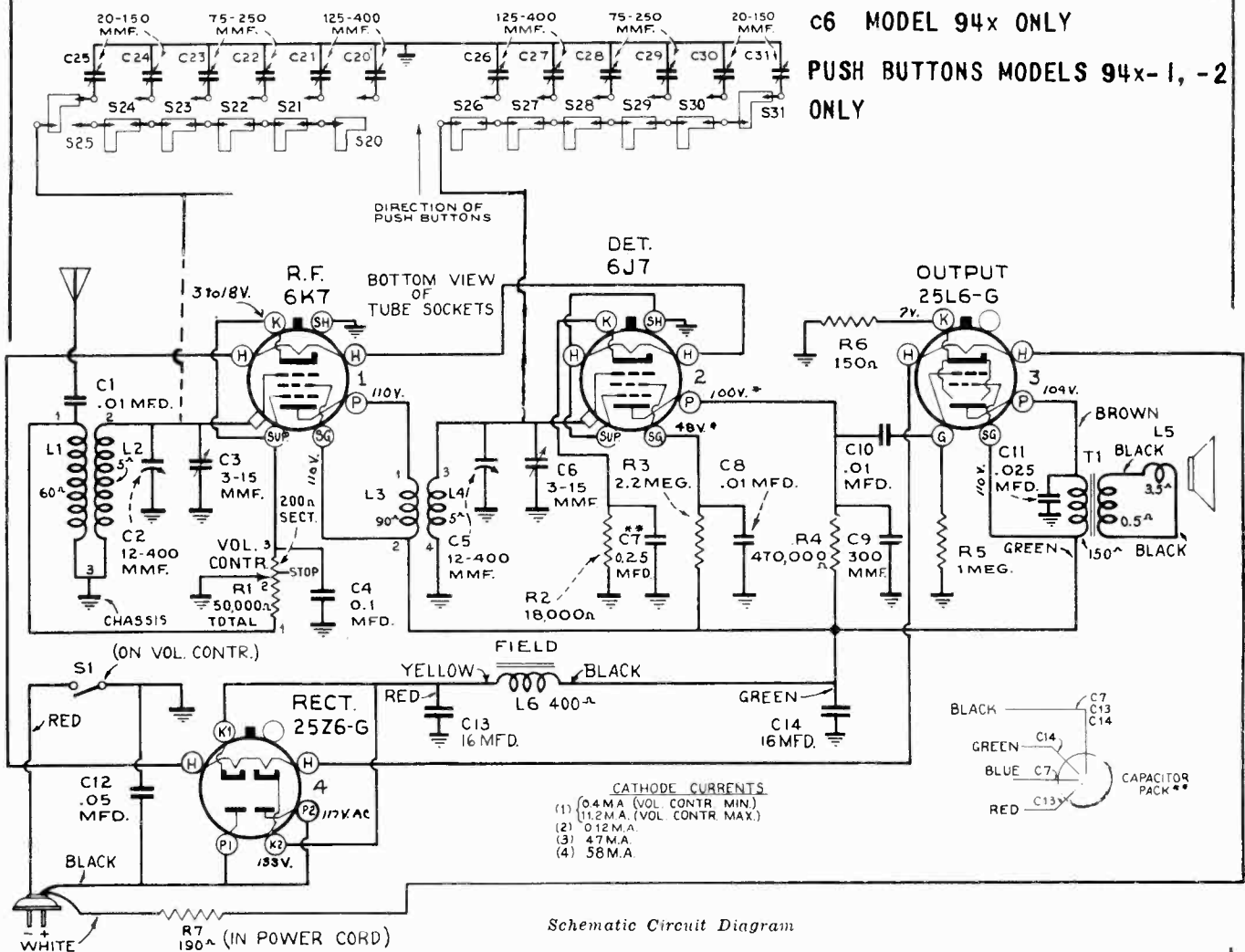
Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.

* Note: Values with (*) are operating voltages.

Values not starred are actual measured voltages.

NOTE: PUSH BUTTON ASSEMBLY NOT USED WITH MODEL 94X

TUNING CONDENSER c2, c3, c5,
c6 MODEL 94X ONLY
PUSH BUTTONS MODELS 94X-1, -2
ONLY



Schematic Circuit Diagram

** Some sets have a three-section capacitor pack (C7, C13, C14). In other sets, the pack contains only two capacitors (C13, C14); a separate 0.25 mfd. capacitor being used as C7. The pack furnished for replacement (No. 30873) is a two-section pack and does not include C7. Therefore, when an original three-section pack is replaced

by No. 30873, it is necessary to connect a No. 30965 200-volt 0.25 mfd. capacitor from the cathode of the 6J7 to terminal 2 (chassis) on the volume control. This capacitor should be dressed close to the front of chassis.

MODELS 94X, 94X1, 94X2

Increase in Filter Capacitors:

Capacitor No. 30873 originally specified to comprise one 16 mfd. and 5 mfd. sections has been revised to include two 16 mfd. sections. All replacement capacitors will have the larger capacitor in the second section.

Speaker Rattle:

The mounting of the dry electrolytic adjacent to the speaker is such that the cone may possibly strike it, causing a bad rattle in the reproduction. This source should always be checked before replacing speaker parts. The electrolytic clamp can be bent so as to give ample clearance.

Residual Hum:

Residual hum level evidenced on some of these instruments, both on and between carriers, may be reduced to an insignificant intensity by making the following circuit changes:

- Cut off the blue lead from the dry electrolytic capacitor and disconnect it from the 6J7 cathode terminal.
- Install a 0.25 mfd. paper capacitor, Stock No. 30965 from the 6J7 cathode terminal to chassis ground.

Should there be a tendency for the receiver to oscillate only when tuned to a station, the lead from the 25L6-G plate to the output transformer should be carefully dressed away from the 6J7 socket, preferably along the rear side of the chassis.

Model 94X Receivers above Serial No. 002600 will not require the above changes.

Models 94X1 and 94X2 above Serial No. 001400 will not require the above changes.

Instability:

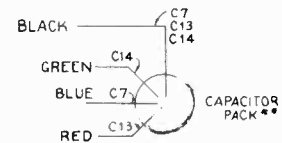
The following circuit changes should be effected when cases of instability are experienced:

- 94X-94X1-94X2 — Change 25L6-G plate by-pass capacitor C-11 (marked 72050-569) so as to connect from the 25L6-G plate to 25L6-G heater (H) lug adjacent to cathode (K).
- 94X only—Change 6J7 screen by-pass capacitor C-8 (marked 72050-503) so as to connect between 6J7 screen (SG) and the 6J7 heater (H) lug adjacent to cathode (K).

Additional Replacement Parts:

- Stock No.
- 30873 Capacitor—Comprising two 16 mfd. sections (C13, C14)
 - 31095 Discs—10 celluloid protector discs for call letter markers (Models 94X1 and 94X2 only)

- CATHODE CURRENTS
- 0.4 M.A. (VOL. CONTR. MIN.)
 - 1.2 M.A. (VOL. CONTR. MAX.)
 - 4.7 M.A.
 - 5.8 M.A.



MODEL 94x

Alignment Procedure

MODELS 94x-1, -2

Remove dial pointer by pulling it carefully off the pointer shaft. Remove chassis from cabinet.

CAUTION: The chassis is connected to one side of the power supply. Avoid contact of chassis or parts to external ground when servicing.

Reel up the antenna wire, and connect the high side of test-oscillator through an 80 mmfd. capacitor to the antenna terminal on the antenna transformer. Connect low side of oscillator to receiver chassis through a 0.1 mfd. capacitor. Turn gang condenser to minimum (full out), tune oscillator to 1,800 kc. connect an output meter across the voice coil, and turn volume control to maximum.

Adjust the two trimmers (C3 and C6) on side of gang condenser for maximum output, using lowest possible output from test-oscillator.

Assemble chassis in cabinet and press the pointer on the shaft. Turn pointer, while holding tuning knob, so that the pointer is horizontal and pointing to low-frequency end when the gang condenser is at maximum. Check pointer adjustment on a station.

The preferable and quickest method of adjusting the tuning capacitors for six different stations, is to employ a test-oscillator, as described below:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.

2. Determine the correct settings of the test-oscillator for these six frequencies. This is accomplished as follows: Tune in each of the six stations on any standard receiver; zero-beat the test-oscillator against each station, and note the exact setting of the oscillator in each case.

3. Reel up the antenna wire. Connect the high side of test-oscillator through a 60 mmfd. fixed capacitor to the end of the antenna wire. Clip the low side of the oscillator through a 0.1 mfd. capacitor to one of the chassis-mounting screws on the bottom of the cabinet. Tune the oscillator to the previously-determined point for the lowest-frequency station, and adjust for a strong output.

4. Turn the volume control of the push-button receiver full clockwise, and push in the left-hand end button. Using an insulated screw-driver, peak capacitors C20 and C26, at the same time reducing the output of the oscillator in order to secure a sharp peak. (Clockwise adjustment of the capacitors tunes the circuits to lower frequencies, and counter-clockwise adjustment tunes the circuits to higher frequencies. The range of each trimmer is three full counter-clockwise turns from the tight position. Do not unscrew more than three turns.)

5. Push in the second button from left, and adjust C21 and C27 for peak output with the oscillator tuned to the frequency of the second station.

6. Proceed in this manner to adjust each pair of capacitors for the desired frequencies.

7. Final adjustment may be made in actual reception of the stations.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL 94x		MODELS 94x-1, -2	
RECEIVER ASSEMBLIES		RECEIVER ASSEMBLIES	
11350	Cap—Grid contact cap.	30314	Cap—Grid contact cap.
30883	Capacitor—300 Mmfd. (C9)	30977	Capacitor—Antenna tuning capacitor bank (C20, C21, C22, C23, C24, C25)
14393	Capacitor—.01 Mfd. (C1, C8, C10)	30978	Capacitor—Det. tuning capacitor bank (C26, C27, C28, C29, C30, C31)
30938	Capacitor—.025 Mfd. (C11)	30883	Capacitor—300 Mmfd. (C9)
30882	Capacitor—.05 Mfd. (C12)	14393	Capacitor—.01 Mfd. (C1, C8, C10)
30899	Capacitor—.01 Mfd. (C4)	30882	Capacitor—.05 Mfd. (C12)
30965	Capacitor—.025 Mfd. (C7)	30938	Capacitor—.025 Mfd. (C11)
		30899	Capacitor—.01 Mfd. (C4)
		30965	Capacitor—.025 Mfd. (C7)
20875	Coil—Antenna coil (L1, L2)	30875	Coil—Antenna coil (L1, L2)
30876	Coil—R.F. coil (L3, L4)	30876	Coil—R.F. coil (L3, L4)
30671	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)	30878	Cord—Resistance power cord complete with plug —190 ohms (R7)
30877	Cord—Indicator drive cord		
30878	Cord—Resistance power cord complete with plug —190 ohms (R7)	13199	Lead—Antenna lead—approx. 15 ft. long
13199	Lead—Antenna lead—approx. 15 ft. long	30880	Resistor—150 ohms, ½ watt (R6)
30880	Resistor—150 ohms, ½ watt (R6)	13045	Resistor—18,000 ohms, ¼ watt (R2)
13045	Resistor—18,000 ohms, ¼ watt (R2)		
12285	Resistor—470,000 ohms, ¼ watt (R4)	13045	Resistor—18,000 ohms, ¼ watt (R2)
13730	Resistor—1 Meg., ¼ watt (R5)	12285	Resistor—470,000 ohms, ¼ watt (R4)
11626	Resistor—2.2 Meg., ¼ watt (R3)	13730	Resistor—1 Meg., ¼ watt (R5)
30879	Shaft—Indicator drive shaft	11626	Resistor—2.2 Meg., ¼ watt (R3)
11196	Socket—Radiotron socket	30976	Switch—Station selector switch (S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31)
30631	Spring—Indicator drive cord tension spring	30979	Transformer—Output Transformer (T1)
30874	Volume Control and power switch (R1, S1)	30874	Volume control and power switch (R1, S1)
	REPRODUCER ASSEMBLIES		REPRODUCER ASSEMBLIES
	(Speaker 84202-1)		(Speaker 84243-1)
30943	Cone—Reproducer cone and voice coil (L5)	30943	Cone—Reproducer cone and voice coil (L5)
30942	Reproducer complete	30980	Reproducer complete
30944	Transformer—Output transformer (T1)		
	MISCELLANEOUS ASSEMBLIES		MISCELLANEOUS ASSEMBLIES
30887	Dial—Station selector dial scale	30981	Button—Station selector switch push button
30884	Indicator—Station selector indicator pointer	30885	Knob—Volume control knob
30885	Knob—Station selector or volume control knob	30991	Marker—Station call letter markers
30886	Screw—Chassis mounting screw and washer	30886	Screw—Chassis mounting screw and washer
12993	Screw—Set screw for knob Stock No. 30885	12993	Screw—Set screw for knob Stock No. 30885

MODEL R-94B RECORD PLAYER

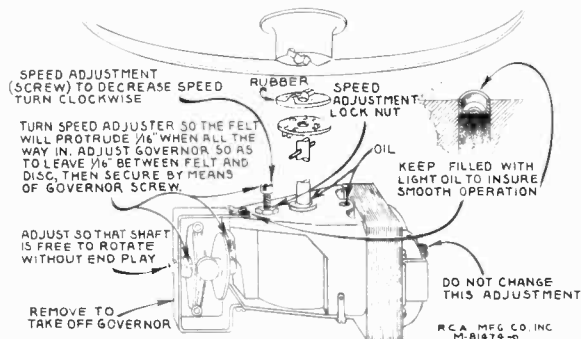


Figure 1—Motor Adjustments

ADJUST SWITCH TO TRIP WHEN NEEDLE IS ON 1/4 1/2 RAD. FROM E OF MOTOR SPINDLE

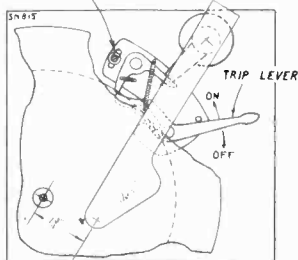


Figure 2—Motor Switch Adjustment



Model R-94B

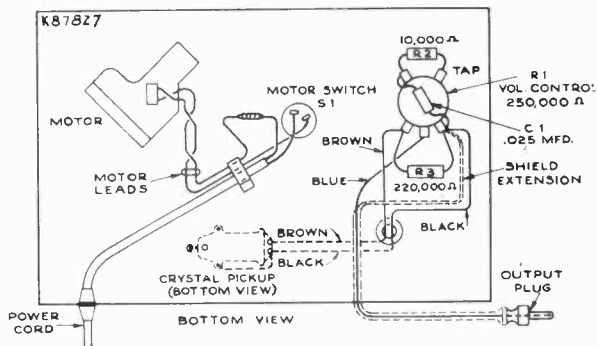


Figure 3—Wiring Diagram

Low-Frequency Rumble:

It has been found beneficial to check the tone arm mounting, in cases where "rumble" is experienced. The mounting nut will probably be found screwed too tight; and it will be necessary to loosen it about 1 complete turn.

Electrical and Mechanical Specifications

MOTOR

Type.....	Self-starting Induction
Turntable Speed.....	78 r.p.m. (Adjustable)
Turntable Diameter.....	10 inches
D-C Resistance.....	110 volts, 60 cycles, 96.3 ohms; 110 volts, 50-60 cycles, 72.3 ohms

POWER SUPPLY RATING

A-6.....	105-125 volts, 60 cycles, 25 watts
A-5-6.....	105-125 volts, 50-60 cycles, 25 watts

PICKUP

Type.....	Crystal
Impedance.....	80,000 ohms at 1,000 cycles
Volume Control Resistance.....	250,000 ohms
Average Output Voltage.....	1 1/2 volts at 1,000 cycles across 250,000 ohm load

CABINET DIMENSIONS

Height.....	7-13/16 inches
Depth.....	12-31/32 inches
Width.....	15 1/2 inches
Net Weight.....	12 1/2 pounds
Shipping Weight.....	18 pounds

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MOTOR ASSEMBLIES			
11703	Governor—Motor governor complete.....	14559	Resistor—10,000 ohms, 1/2 watt (R2).....
30475	Motor—105-125 volts, 50-60 cycle (M50)....	12264	Resistor—220,000 ohms, 1/2 watt (R3).....
14800	Motor—105-125 volts, 60 cycle (M50).....	13573	Screw—Motor mounting screws, washers and rubber cushions.....
PICKUP AND ARM ASSEMBLIES			
31212	Base—Pickup arm pivot shaft, trip lever, and base assembly.....	30100	Spring—Tension springs for automatic brake—one long and one short spring.....
31050	Crystal—Pickup crystal and needle screw.....	31213	Support—Lid support.....
31211	Pickup and arm complete—less rubber mounting and nut.....	14804	Switch—Motor switch—located on automatic brake (S1).....
12539	Screw—Pickup needle screw.....	14801	Turntable.....
MISCELLANEOUS ASSEMBLIES			
14803	Brake—Automatic brake complete.....	31108	Volume control (R1).....
4870	Capacitor—.025 mfd. (C1).....	ACCESSORIES	
11704	Damper—Turntable rubber damper and damper plate.....	9824	Switch and cable assembly—for use with receivers requiring a switch for changing from Phonograph to Radio—complete with mounting screws, washers, and knob.....
31051	Foot—Rubber foot for cabinet.....	14179	Adapter—Special octal base adapter with grid connection (pin No. 5) split and a 2,700 ohm resistor internally connected from cathode (pin No. 8) to shell (pin No. 1), 3 terminals on side.....
13085	Hinge—Lid hinge.....	14180	Adapter—Special octal base adapter with grid connection (pin No. 5) split, 2 terminals on side.....
3961	Knob—Volume control knob.....		
31054	Mounting—Pickup mounting nut, washer, and rubber cushion.....		

MODELS 95T and 95T1

Five-Tube, Single-Band, A-C, Superheterodyne Receiver

MODEL 95T1

Technical Information and Service Data:

Model 95T1 is identical to Model 95T except for cabinet styling. All Service Data for Model 95T apply to Model 95T1.

Fidelity Change:

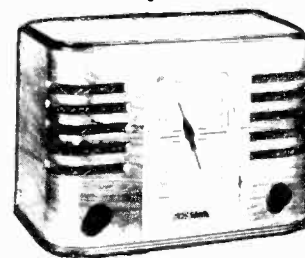
Capacitor C-15, connected across the output transformer primary circuit, may be increased from .015 mfd. to .025 mfd. if accentuation of the lower audio frequency range is desired. Some production instruments will have this change already applied, therefore, circuit-note diagrams should be revised accordingly. The .025 mfd. capacitor is available as Stock No. 4870.

Microphonic Howl:

In order to minimize any "howl" that may occur at high volume, on very strong stations, the blue lead which runs from the 6A8 oscillator plate terminal to the oscillator coil should be cut as short as possible and kept separated from the chassis, tuning condenser and other leads.

Replacement Cone for Loudspeaker:

The replacement cone No. 30940 being supplied for the 95T and 95T1 loudspeaker has a modified type (circular) of center suspension providing 360 degrees of support as compared to the original two point spider. When using the present cone on original speaker, it will be



Model 95T

necessary to add a metal center suspension plate with a felt washer between it and the speaker frame.

The metal suspension plate and the felt washer are provided with the No. 30940 cone.

Electrical and Mechanical Specifications

Frequency Range..... 540 to 1,750 kc
R-F Alignment Frequency..... 1,500 kc (osc., ant.)
Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

- (1) RCA-6A8..... First-Det., Osc.
- (2) RCA-6K7..... Intermediate Amp.
- (3) RCA-6Q7-G..... Second-Det., A-F, A.V.C.
- (4) RCA-6K6-G..... Power Output
- (5) RCA-5Y3-G..... Rectifier

Dial lamp..... Mazda No. 46, 6.3 volts, 0.25 amps.

POWER OUTPUT (125-volt, a-c supply)

Undistorted..... 1.0 watt
Maximum..... 2.0 watts

LOUDSPEAKER

Type..... 5-inch Electrodynamic
Voice-coil Impedance..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles, 50 watts
Rating B..... 105-125 volts, 25-60 cycles, 50 watts
Rating C..... 105-125/200-250 volts, 50-60 cycles, 50 watts

Cabinet Dimensions..... Height..... 8 inches Width..... 11 inches Depth..... 5-15/16 in.
Chassis Base..... 2 3/4 inches 10-1/16 in. 4 3/8 inches
Over-all Chassis Height..... 6 3/4 inches
Weight (net)..... 9 3/4 pounds
Weight (shipping)..... 10 1/2 pounds
Operating Controls..... (1) Power Switch—Volume, (2) Tuning

Alignment Procedure

Cathode-ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output meter alignment. If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-oscillator. For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Pre-setting dial. With gang condenser in full mesh, move dial pointer to coincide with horizontal lines. This is a friction adjustment.

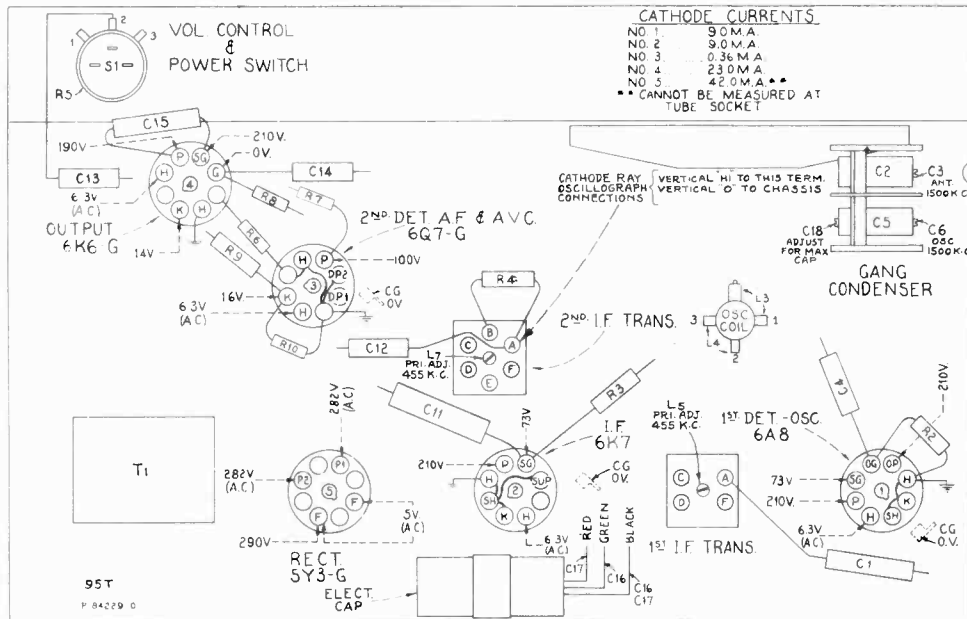
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F Transformer)
No. 2	6A8 1st-det. grid cap, in series with .01 mfd.	455 kc		L5 and L6 (1st I-F Transformer)
No. 3	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc (Top of "1" in 150)	C6* (oscillator) C3 (antenna)

* Trimmer C18 on gang condenser should be screwed clockwise for maximum capacity before adjusting C6.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
30892	Bracket—Station selector dial scale holder with indicator shaft and drive bearing assembly...	5029	Resistor—56,000 ohms, 1/4 watt (R2).....
11350	Cap—Grid connector cap.....	12199	Resistor—270,000 ohms, 1/4 watt (R7).....
12723	Capacitor—56 Mmfd. (C4).....	11172	Resistor—470,000 ohms, 1/4 watt (R8).....
30904	Capacitor—100 Mmfd. (C7, C8, C9, C10).....	12679	Resistor—2.2 Meg., 1/4 watt (R4, R6).....
13003	Capacitor—180 Mmfd. (C12).....	14114	Socket—Dial lamp socket assembly.....
5107	Capacitor—.0025 Mfd. (C14).....	11196	Socket—Radiotron socket.....
4858	Capacitor—.01 Mfd. (C13).....	30631	Spring—Indicator drive cord tension spring...
11315	Capacitor—.015 Mfd. (C15).....	30902	Transformer—First I.F. transformer (L5, L6, C7, C8).....
4886	Capacitor—.05 Mfd. (C11).....	30903	Transformer—Second I.F. transformer (L7, L8, C9, C10).....
30899	Capacitor—.01 Mfd. (C1).....	30883	Transformer—Power transformer 105-125 volts, 25-60 cycle (T1).....
30898	Capacitor—Comprises two 5 Mfd. sections (C16, C17).....	30888	Transformer—Power transformer 110 and 220 volts, 50-60 cycle (T1).....
30894	Coil—Antenna coil (L1, L2).....	30891	Volume Control and power switch (R5, S1)...
30895	Coil—Oscillator coil (L3, L4).....	REPRODUCER ASSEMBLIES (Speaker 84202-2)	
30890	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C18).....	30940	Cone—Reproducer cone and voice coil (L9)...
30877	Cord—Indicator drive cord.....	30939	Reproducer complete.....
30905	Core—Adjustable core for I.F. transformers.....	30941	Transformer—Output transformer (T2).....
30893	Dial—Station selector dial scale and lamp bracket assembly.....	MISCELLANEOUS ASSEMBLIES	
30896	Indicator—Station selector indicator pointer...	30901	Crystal—Station selector crystal.....
5226	Lamp—Dial lamp.....	30863	Knob—Station selector or power switch knob...
11361	Resistor—68 ohms, 1/4 watt (R10).....	30886	Screw—Chassis mounting screw and washer...
5164	Resistor—560 ohms, 1/4 watt (R9).....	30900	Spring—Retaining spring for knob Stock No. 30863.....
8072	Resistor—33,000 ohms, 1/4 watt (R3).....		



BOTTOM VIEW - REAR OF CHASSIS

Figure 2—Radiotron Socket Voltages and Location of Parts

* Note: Values with star (*) are operating voltages.
Values not starred are actual measured voltages.

Measurements made to chassis unless otherwise indicated.
Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, 250, and 500 volts. (Use nearest range above the specified measured voltage.)
Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle supply.

Precautionary Lead Dress

1. Keep lead from high side of volume control (contact 3) away from capacitor in plate circuit of output tube.
2. Keep dial lamp leads away from 6Q7-G grid lead.
3. Keep a-c leads away from volume-control wiring.

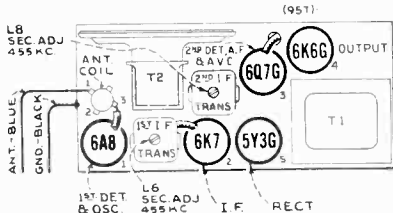


Figure 1—Radiotron and Trimmer Locations

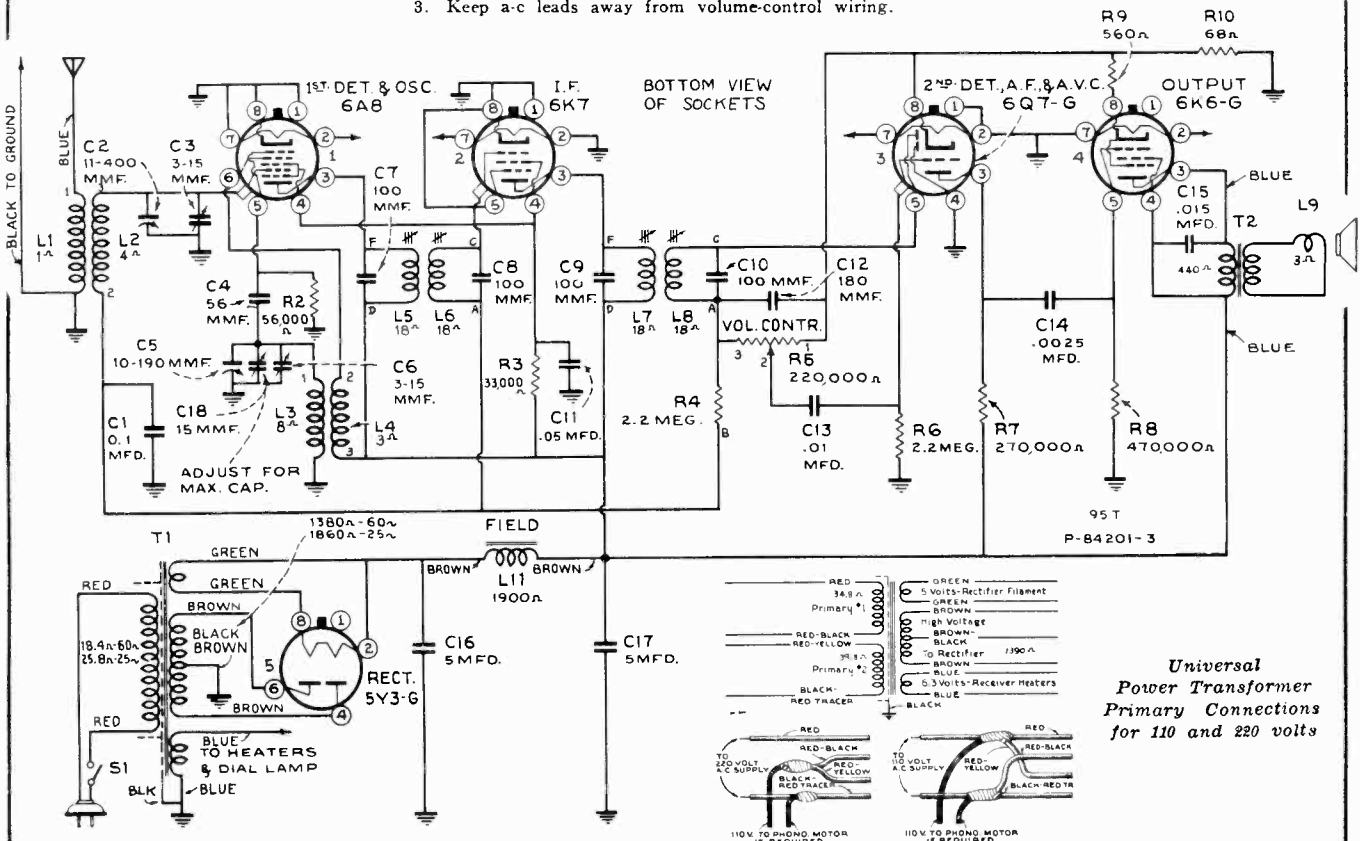


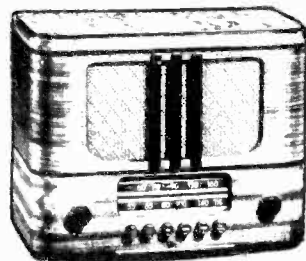
Figure 3—Schematic Circuit Diagram

MODELS 95T5, 96E, 96T and 96T1

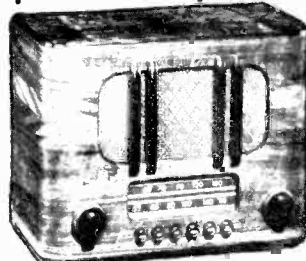
Five- and Six-Tube, Electric-Tuning, Single-Band, A-C, Superheterodyne Receivers



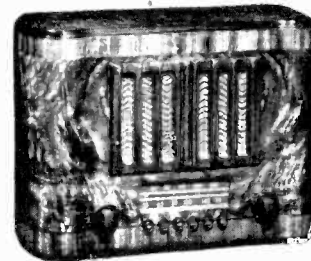
Model 96E



Model 95T5



Model 96T



Model 96T1

Electrical Specifications

Frequency Range..... 540-1,720 kc
 One Station between approximately 550-980 kc (Button No. 1—left)
 Two Stations between approximately 650-1,080 kc (Buttons 2 and 3)
 Two Stations between approximately 850-1,500 kc (Buttons 4 and 5)

R-F Alignment Frequency..... 1,500 kc (osc., ant.)
 Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

Model 95T5

- (1) RCA-6A8-G..... First Detector—Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6Q7-G..... Second Det., A.V.C., and A-F Amp
- (4) RCA-6K6-G..... Power Output
- (5) RCA-5Y3-G..... Full-Wave Rectifier

Models 96E, 96T, and 96T1

- (1) RCA-6A8-G..... First Detector—Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6H6..... Second Det., and A.V.C.
- (4) RCA-6F5..... Audio Voltage Amplifier
- (5) RCA-6K6-G..... Power Output
- (6) RCA-5Y3-G..... Full-Wave Rectifier

Pilot Lamp (1)..... Mazda 44, 6.3 volts, .25 amp.

POWER OUTPUT

	Model 95T5	Models 96E, 96T, 96T1
Undistorted.....	1.0 watts	2 watts
Maximum.....	1.5 watts	4 watts

POWER SUPPLY RATINGS

Rating A.....	105-125 volts, 50-60 cycles.....	50 watts	75 watts
Rating B.....	105-125 volts, 25-60 cycles.....	50 watts	75 watts
Rating C.....	105-125/200-250 volts, 50-60 cycles.....	50 watts	75 watts

LOUDSPEAKER (ELECTRODYNAMIC)

	95T5	96E	96T	96T1
Diameter (inches).....	5	6	5	6
V. C. Impedance at 400 cycles (ohms).....	3.1	2.6	5.0	2.6

MODELS 95T5, 96E, 96T, 96T1, 97X

Changes in 2nd and 3rd Production:

PUSH-BUTTON FREQUENCY RANGES

Button No. 1 (left).....	550- 980 kc	550- 980 kc	550- 980 kc
Button No. 2.....	650-1,080 kc	650-1,080 kc	550- 980 kc
Button No. 3.....	650-1,080 kc	650-1,080 kc	690-1,225 kc
Button No. 4.....	850-1,500 kc	850-1,500 kc	850-1,500 kc
Button No. 5.....	850-1,500 kc	850-1,500 kc	850-1,500 kc

ANTENNA TRIMMER-BANK CAPACITANCE

C20.....	100-400 mmfd.	100-400 mmfd.	100-400 mmfd.
C21.....	70-290 mmfd.	100-400 mmfd.	100-400 mmfd.
C22.....	70-290 mmfd.	70-290 mmfd.	40-250 mmfd.
C23.....	20-160 mmfd.	20-160 mmfd.	20-160 mmfd.
C24.....	20-160 mmfd.	20-160 mmfd.	20-160 mmfd.

	1ST PRO- DUCTION	2ND PRO- DUCTION (Chassis Stamped "MOD")	3RD PRO- DUCTION (Chassis Stamped "M")
Capacitor—Antenna trimmer capacitor bank (includes C20, C21, C22, C23, C24).....	31416	32066	32339
Capacitor—Electrolytic Capacitor* (C16, C17)			
5 and 5 mfd. (95T5 only).....	31423	31423	32341
8 and 8mfd. (96T, 96T1, 96E only).....	31424	31424	32342
10 and 10 mfd. (96T, 96T1, 96E only).....	31479	31479	31479
16 and 16 mfd. (97X only).....	30894	30894	32338
Coil—Antenna coil (L1, L2)**.....	31415	31415	31415
Coil—Oscillator coil (L12).....	31384	31415	31415
Coil—Oscillator coil (L13).....	31384	31384	32340
Coil—Oscillator coil (L14).....	31383	31383	31383
Coil—Oscillator coil (L15).....	31383	31383	31383
Coil—Oscillator coil (L16).....	31383	31383	31383

* Electrolytic capacitors Stock Nos. 31423, 31424 and 31479 have leads; Stock Nos. 32341 and 32342 have lug contacts, C16 identified by a triangle, and C17 identified by a square.

** Stock No. 30894 antenna coil has a high-frequency primary (1 ohm d-c resistance) for use with a normal-length antenna. Stock No. 32338 antenna coil has a low-frequency primary (35 ohms d-c resistance) for use with a short antenna. No. 32338 may be used as replacement for No. 30894.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing. Turn the receiver volume control to maximum.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc and 1,500 kc have been stamped in the plate on the front of the chassis, as shown in the accompanying drawing. These marks are used for reference during alignment.

Drum and Dial Indicator Adjustment.—As the first step in r-f alignment, check the position of the drum on the front

shaft of the gang condenser. With the gang at maximum (full mesh) the drum set-screw should be pointing directly down as shown in the drawing. With the drum in this position, and the gang at maximum, move the dial indicator along the drive cord to coincide with the left-hand line as shown. The indicator is held to the drive cord by means of spring clips.

After completion of alignment, and after the chassis has been fastened in the cabinet, turn the gang to maximum and note whether the dial indicator is at the left-hand end mark on the dial; if it is not, loosen the drum set-screw (which is accessible through a slot in the bottom of the cabinet), turn the drum slightly so that the indicator is at this mark, and then tighten the set-screw.

After completion of alignment, seal the r-f core-adjustment screws with household cement.

For additional details, refer to booklet, "RCA Victor Receiver Alignment."

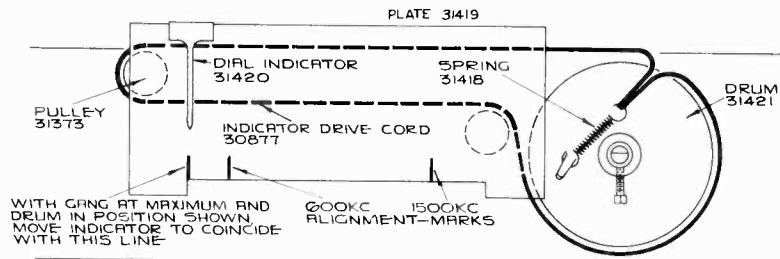
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F Trans.)
2	6A8-G grid cap, in series with .01 mfd.	455 kc		L5 and L6 (1st I-F Trans.)
3	Antenna lead (blue) in series with 200 mmf.	1,500 kc	1,500 kc calibration mark.	C6 (osc.)* C3 (ant.)
4	Follow "Adjustments for Electric Tuning."			

* The oscillator section of the gang condenser has two trimmers, one on top, accessible through a hole in the chassis, and the other on bottom. It may be necessary to adjust both of these trimmers to secure a peak on 1,500 kc.

Low-Frequency Alignment:

Where additional sensitivity is desired on these single band receivers, it can be obtained by alignment of the tuning condenser at 600 KC and re-alignment of the trimmer at 1,500 KC as follows:

- Check alignment of antenna coil with "Tuning Wand" at 600 KC. If brass end gives increase in signal, bend rotor plates of antenna section of tuning condenser outward to produce maximum peak output. If magnetite end gives increase in signal, bend plates of oscillator section of tuning condenser to obtain maximum output.
- Re-align 1,500 KC antenna and oscillator trimmers in the usual manner.



DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY

Dial-Indicator and Drive Mechanism

Refer to "Alignment Procedure" for explanation of the "calibration marks" shown in this drawing

Adjustments for Electric Tuning

These models have six push buttons. The right-hand button connects the gang condenser for dial tuning. The other five buttons are for electric tuning of five different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use a regular antenna for the preliminary adjustments.

The procedure is as follows:

- Make a list of the five desired stations, arranged in order from low to high frequencies.
- Push in the dial-tuning (right-hand) button, and manually tune in the first station on the list.

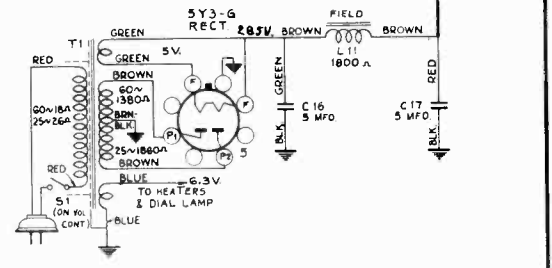
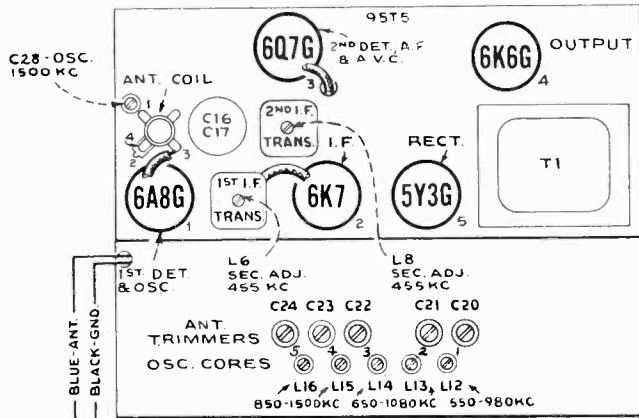
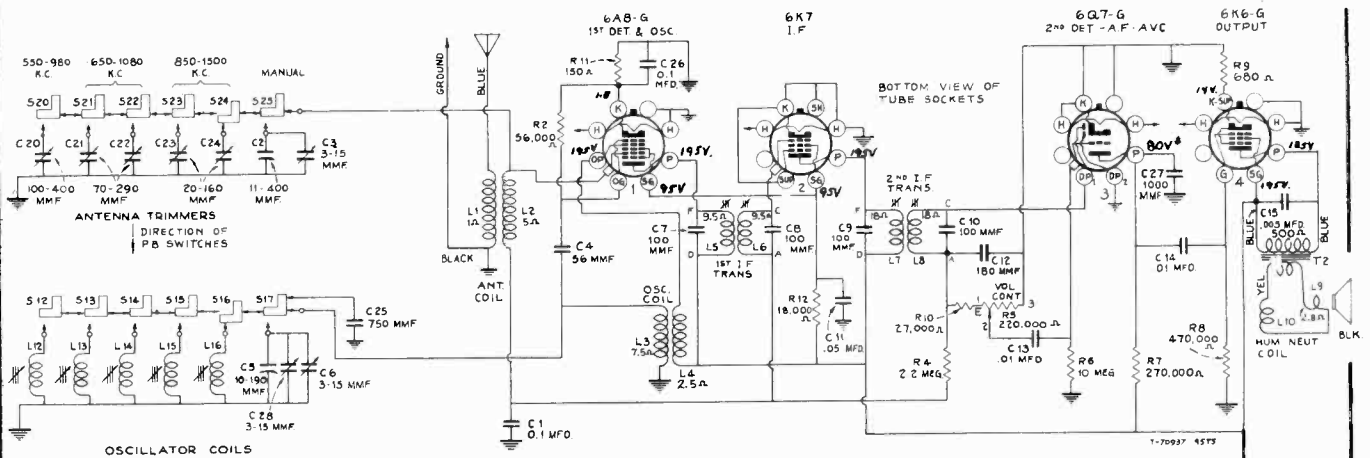
Precautionary Lead Dress.—

- Dress green lead from antenna coil to switch away from the chassis and gang.
- Dress green leads from oscillator coils away from the adjustment screws.

- Push in station-button No. 1 (left-hand) and adjust No. 1 oscillator core (L12) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until the station is received.
 - Adjust No. 1 antenna trimmer (C20) for maximum output on this station.
 - Adjust for each of the remaining four stations in the same manner.
- (Clockwise adjustment of oscillator cores and antenna trimmers tunes the circuits to lower frequencies.)
- Make a final careful adjustment of the oscillator cores and antenna trimmers, using one or two feet of wire as an antenna to ensure sharp peaking.

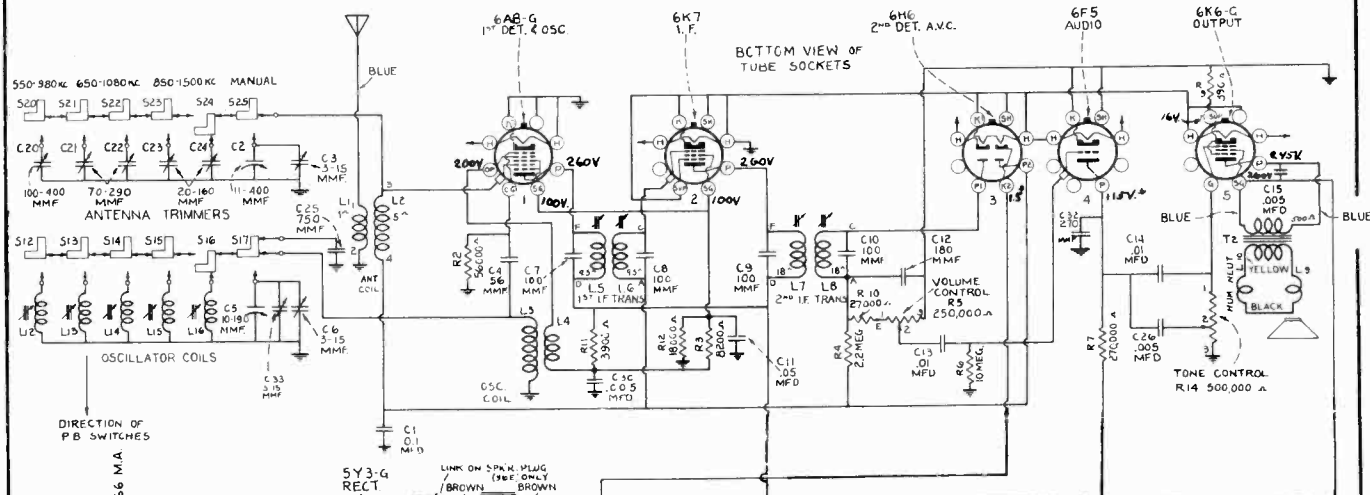
- Dress leads in power-transformer primary circuit to left end of chassis.
- In 95T5, C27 must be dressed close to chassis and clear of rotor.
- In 96E, 96T, and 96T1, dress ground bus from heater of 6H6 close to chassis, and dress blue lead from 2nd I-F transformer to volume control close to chassis.

95T5, 96E, 96T, 96T1



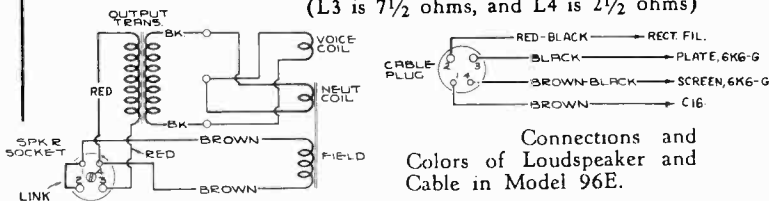
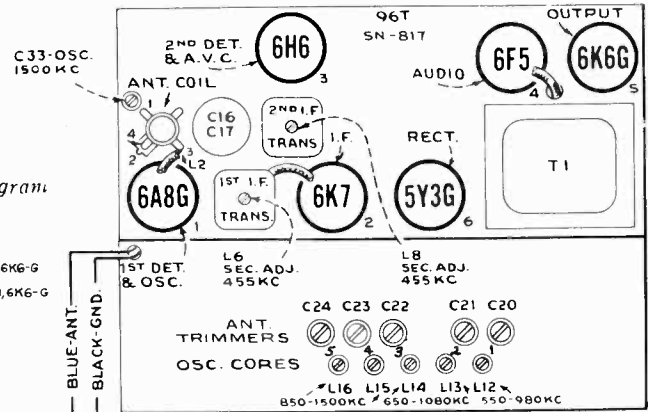
Model 95T5 Schematic Circuit Diagram

- CATHODE CURRENTS
- (1) 6A8-G ----- 9 M.A.
 - (2) 6K7 ----- 12.1 M.A.
 - (3) 6Q7-G ----- 0.48 M.A.
 - (4) 6K6-G ----- 22 M.A.
- TOTAL RECTIFIED "B" CURRENT 44 M.A.



- CATHODE CURRENTS
- (1) 6A8-G ----- 10.9 M.A.
 - (2) 6K7 ----- 10.5 M.A.
 - (3) 6H6 ----- 0.48 M.A.
 - (4) 6K6-G ----- 22 M.A.
- TOTAL RECTIFIED "B" CURRENT 66 M.A.

Models 96E, 96T, and 96T1 Schematic Circuit Diagram
(L3 is 7 1/2 ohms, and L4 is 2 1/2 ohms)



Connections and Cable in Model 96E.

95T5, 96E, 96T, 96T1

MODEL 96E

ADDITIONAL REPLACEMENT PART
Stock No.
14616 Coil - Field coil for
speaker stamped 84308-1

MODEL 96E

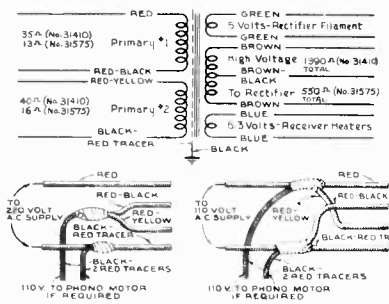
SPEAKER STAMPED 84308-4:
Replacement parts:
Stock No.

- 32918 Cone - Cone and voice coil
 - 32919 Coil - Field coil
 - 32920 Transformer - output trans.
 - 31302 Plug - 4 contact male plug
- Voice coil impedance 2.2 ohms
Field coil resistance 1290 ohms

MODEL 96T1

Speaker Stamped 84327-3:
The following replacement parts apply to
speaker stamped 84327-3:

- Stock No.
- 32586 Cone—Speaker cone and voice coil
 - 32587 Coil—Field coil
 - 31663 Speaker complete
 - 32588 Transformer—Output transformer
- Voice coil impedance 2.2 ohms at 400 cycles;
field d.c. resistance 1,800 ohms.
Primary d.c. resistance of output transformer
500 ohms.



Replacement Uni-
versal Power Transformer.
(Stock No. 31410 in 95T5,
Stock No. 31575 in 96E,
96T, and 96T1.)

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31416	Capacitor—trimmer capacitor bank (C20, C21, C22, C23, C24)	31414	Switch—Push button station selector switch (S12, S13, S14, S15, S16, S17, S20, S21, S22, S23, S24, S25)
12723	Capacitor—56 mmfd. (C4)	31412	Volume control and power switch (R5, S1)—Model 95T5 only
30904	Capacitor—100 mmfd. (C7, C8, C9, C10)	30957	Transformer—First i-f transformer (L5, L6, C7, C8)
13003	Capacitor—180 mmfd. (C12)	30903	Transformer—Second i-f transformer (L7, L8, C9, C10)
12488	Capacitor—270 mmfd. (C32)—Models 96T, 96T1 and 96E only	31409	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1)—Model 95T5 only
31435	Capacitor—750 mmfd. (C25)	31574	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1)—Models 96T, 96T1 and 96E only
12635	Capacitor—1,000 mmfd. (C27)—Model 95T5 only	31408	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1)—Model 95T5 only
4838	Capacitor—.005 mfd. (C15, C26, C30) (C26, C30—Models 96T, 96T1 and 96E only)	31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1)—Models 96T, 96T1 and 96E only
14393	Capacitor—.01 mfd. (C13, C14)	31410	Transformer—Power transformer 100-120 and 200-240 volts, 50-60 cycle (T1)—Model 95T5 only
4886	Capacitor—.05 mfd. (C11)	31575	Transformer—Power transformer 100-120 and 200-240 volts, 50-60 cycle (T1)—Models 96T, 96T1 and 96E only
30899	Capacitor—.1 mfd. (C1, C26, C31) (C26 Model 95T5 only) (C31 Models 96T, 96T1 and 96E only)	SPEAKER ASSEMBLIES Model 95T5 (Speaker 84326-2)	
31423	Capacitor—Comprising 2 sections 5 mfd. each (C16, C17)—Model 95T5 only	31473	Cone—Speaker cone and voice coil (L9)
31424	Capacitor—Comprising 2 sections 8 mfd. each (C16, C17)—Models 96T, 96T1 and 96E only	31472	Speaker—Complete
31382	Clip—Oscillator coil and core mounting clip	31474	Transformer—Output transformer (T2)
30894	Coil—Antenna coil (L1, L2)	SPEAKER ASSEMBLIES Model 96T (Speaker 84326-1)	
31098	Coil—Oscillator coil (L3, L4)	31476	Cone—Speaker cone and voice coil (L9)
31383	Coil—Oscillator coil (L15, L16)	31475	Speaker—Complete
31384	Coil—Oscillator coil (L13, L14)	31477	Transformer—Output transformer (T2)
31415	Coil—Oscillator coil (L12)	SPEAKER ASSEMBLIES Model 96T1 (Speaker 84327-1)	
31097	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C28)—Model 95T5 only	31443	Cone—Speaker cone and voice coil (L9)
31422	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C33)—Models 96T, 96T1 and 96E only	31477	Transformer—Output transformer (T2)
31413	Control—Volume control, tone control, and power switch (R5, R14, S1)—Models 96T, 96T1 and 96E only	SPEAKER ASSEMBLIES Model 96E (Speaker 84308-1)	
30877	Cord—Indicator drive cord	31443	Cone—Speaker cone and voice coil (L9)
30905	Core—Adjustable core for i-f transformers	31442	Speaker—Complete
31386	Core—Adjustable core and stud for oscillator coils	31444	Transformer—Output transformer (T2)
31421	Drum—Variable condenser drive cord drum	MISCELLANEOUS ASSEMBLIES	
31420	Indicator—Station selector indicator pointer	31428	Button—Station selector switch push button
11891	Lamp—Dial lamp	31429	Dial—Station selector dial scale
31419	Plate—Dial color plate	31095	Discs—10 celluloid protector discs for call letter markers
5040	Plug—4-contact female plug for speaker cable—Model 96E* only	31667	Escutcheon—Dial escutcheon—Model 96T1 only
31373	Pulley—Indicator drive cord pulley	30773	Knob—Volume control or tuning condenser large knob—Models 96T, 96T1 and 96E only
31425	Resistor—Voltage divider comprising one 22 ohm, one 18,000 ohm, one 8,200 ohm, and one 3,900 ohm sections (R3, R11, R12, R15)—Models 96T, 96T1 and 96E only	31355	Knob—Tuning condenser small knob—Models 96T, 96T1 and 96E only
13428	Resistor—150 ohms, 1/2 watt (R11)—Model 95T5 only	30863	Knob—Volume control and power switch, or tuning condenser knob—Model 95T5 only
31388	Resistor—390 ohms, 1 watt (R9)—Models 96T, 96T1 and 96E only	31391	Knob—Tone control and power switch knob—Models 96T, 96T1 and 96E only
31024	Resistor—680 ohms, 1/2 watt (R9)—Model 95T5 only	30991	Marker—Station call letter markers
30151	Resistor—18,000 ohms, 1 watt (R12)—Model 95T5 only	14270	Spring—Retaining spring for knob Stock Nos. 30773 and 31355
12738	Resistor—27,000 ohms, 1/2 watt (R10)	30330	Spring—Retaining spring for knob Stock No. 31391
12286	Resistor—56,000 ohms, 1/2 watt (R2)	30900	Spring—Retaining spring for knob Stock No. 30863
13734	Resistor—120,000 ohms, 1/2 watt (R16)—Models 96T, 96T1 and 96E only		
12199	Resistor—270,000 ohms, 1/2 watt (R7)		
12285	Resistor—470,000 ohms, 1/2 watt (R8)—Model 95T5 only		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
13601	Resistor—10 meg., 1/2 watt (R6)		
14887	Retainer—Pulley retainer		
14350	Screw—No. 8-32 square head set screw for drum Stock No. 31421		
31364	Socket—Dial lamp socket		
31251	Socket—Radiotron socket		
31418	Spring—Indicator drive cord tension spring		

MODEL 95T5LW

Chassis No. RC-348F

Five-Tube, Electric-Tuning, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES
Standard Broadcast (Manual Tuning)..... 540-1,720 kc

Push Button Ranges:

- Two stations between approximately 150- 300 kc
- One station between approximately 550- 980 kc
- One station between approximately 650-1,080 kc
- One station between approximately 850-1,500 kc

Intermediate Frequency..... 455 kc

TUBE COMPLEMENT (3) RCA-6Q7-G... 2nd Detector, A.V.C., and A-F Amplifier
(1) RCA-6A8-G..... First Detector-Oscillator (4) RCA-6K6-G..... Power Output
(2) RCA-6K7..... I-F Amplifier (5) RCA-5Y3-G..... Full-Wave Rectifier

POWER SUPPLY RATINGS

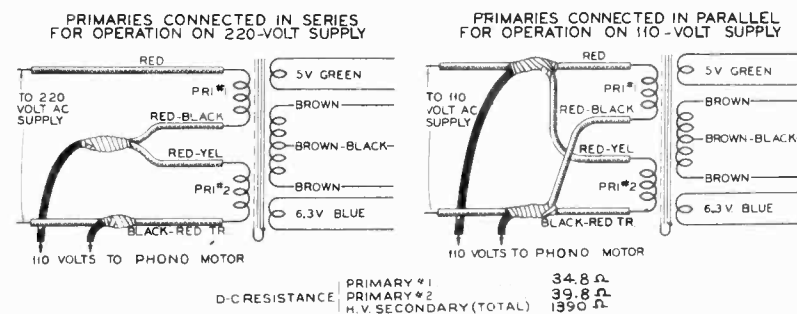
Rating A..... 105-125 volts, 50-60 cycles, 50 watts
Rating C..... 100-120, 200-240 volts, 50-60 cycles, 50 watts

POWER OUTPUT

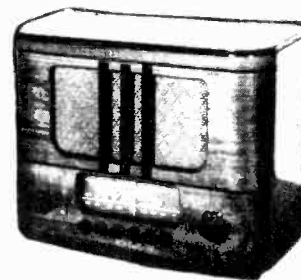
Undistorted..... 1.0 watt
Maximum..... 1.5 watts

LOUDSPEAKER

Type..... 5-inch Electrodynamic
V.C. Impedance..... 3.1 ohms at 400 cycles



Replacement Universal Power Transformer



Model 95T5LW

REFER TO MODEL 95T5 FOR ALIGNMENT PROCEDURE

Precautionary Lead Dress.—

1. Blue, green, and black leads to the volume control should be dressed away from the 6K6-G socket and from leads to this socket.
2. Leads to the power transformer should be dressed toward the end of the chassis and away from wires to the push button assembly.
3. Power cord lead should be dressed toward the end of the chassis.

Adjustments for Electric Tuning

This model has six push buttons. The right-hand button connects the gang condenser for dial tuning. The other five buttons are for electric tuning of five different stations. The station buttons connect to separate magnetite-core coils and trimmers and to separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use a regular antenna for preliminary adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in the order of the push button ranges shown on the schematic diagram.
2. To adjust buttons Nos. 1 and 2, best results are obtained by using a test-oscillator. Using a separate receiver, tune in the desired station for button No. 1 and zero-beat the test-oscillator against the carrier of this station. Then, keeping the same setting on the test-oscillator, connect its output to the antenna of the

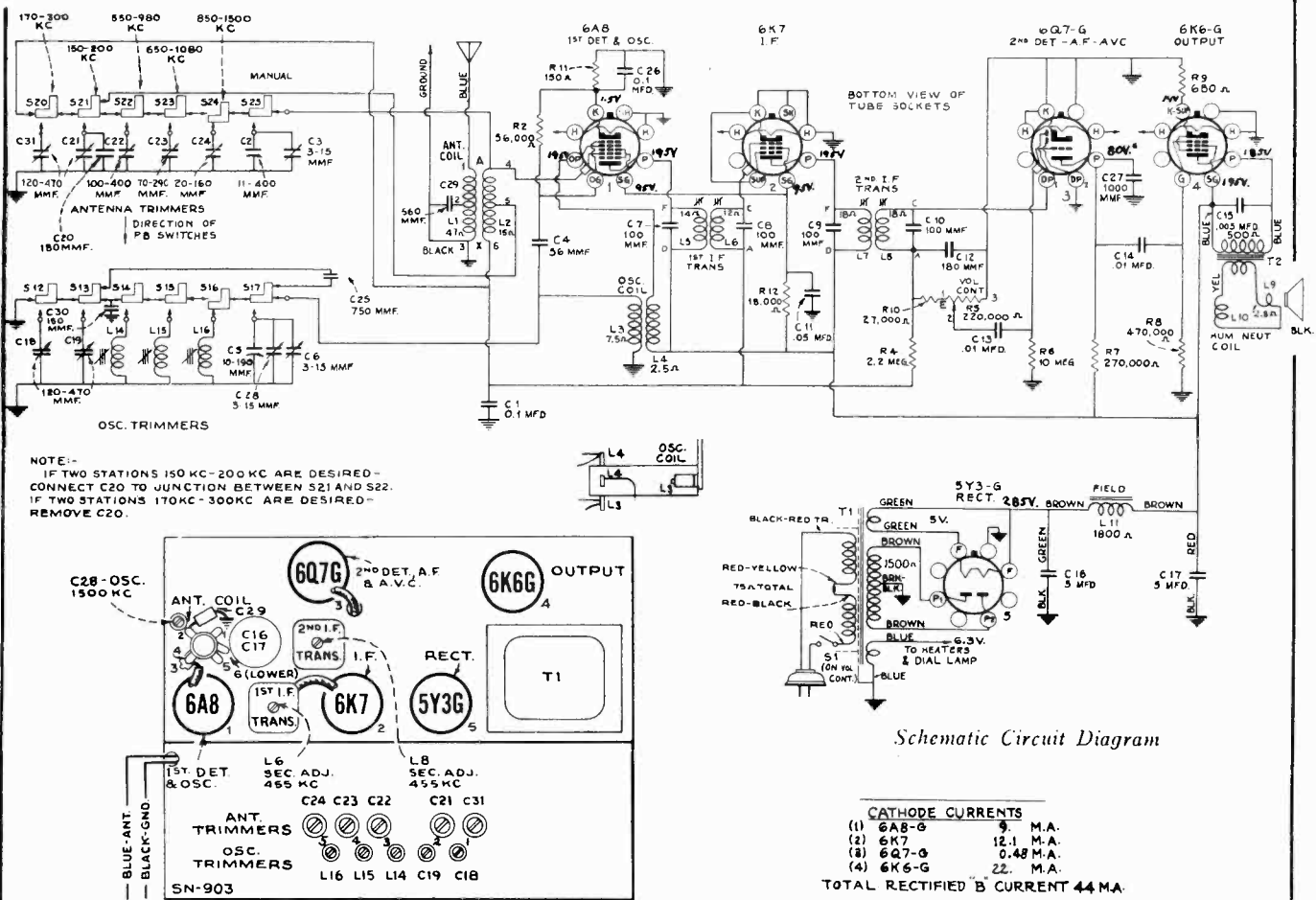
95T5LW. Adjust the antenna and oscillator trimmers of button No. 1 for maximum output. Proceed in a similar fashion for button No. 2.

3. To adjust buttons Nos. 3, 4 and 5, proceed as follows:
 - a. Push in the dial-tuning (right-hand) button, and manually tune in the third station on the list.
 - b. Push in station-button No. 3 and adjust No. 3 oscillator core (L14) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until the station is received.
 - c. Adjust No. 3 antenna trimmer (C22) for maximum output on this station.
 - d. Adjust for each of the remaining stations in a similar manner.

(Clockwise adjustment of oscillator and antenna trimmers tunes the circuits to lower frequencies.)

- e. Make a final careful adjustment of the oscillator and antenna trimmers, using one or two feet of wire as an antenna to insure sharp peaking.

95T5LW



REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

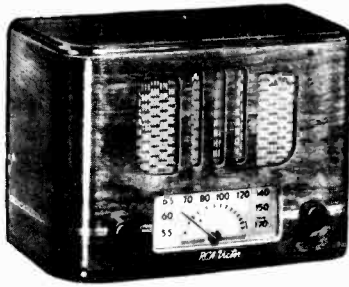
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-348-F)			
32216	Capacitor—Antenna trimmer capacitor bank (C31, C21, C22, C23, C24)	12286	Resistor—56,000 ohms, 1/2 watt (R2)
32217	Capacitor—Trimmer capacitor bank (C18, C19)	12199	Resistor—270,000 ohms, 1/2 watt (R7)
12723	Capacitor—56 mmfd. (C4)	12285	Resistor—470,000 ohms, 1/2 watt (R8)
30904	Capacitor—100 mmfd. (C7, C8, C9, C10)	12679	Resistor—2.2 meg., 1/2 watt (R4)
12725	Capacitor—150 mmfd. (C30)	13601	Resistor—10 meg., 1/2 watt (R6)
13003	Capacitor—180 mmfd. (C12, C20)	14887	Retainer—Pulley retainer
12537	Capacitor—560 mmfd. (C29)	14350	Screw—No. 8-32 square head set screw for drum Stock No. 31421
31435	Capacitor—750 mmfd. (C25)	31364	Socket—Dial lamp socket
12635	Capacitor—1,000 mmfd. (C27)	31251	Socket—Tube socket
4838	Capacitor—.005 mfd. (C15)	31418	Spring—Indicator drive cord tension spring
14393	Capacitor—.01 mfd. (C13, C14)	32215	Switch—Push button station selector switch (S12, S13, S14, S15, S16, S17, S20, S21, S22, S23, S24, S25)
4886	Capacitor—.05 mfd. (C11)	31412	Volume control and power switch (R5, S1)
30899	Capacitor—.01 mfd. (C1, C26)	30902	Transformer—First i-f transformer (L5, L6, C7, C8)
31423	Capacitor—Comprising 2 sections 5 mfd. each (C16, C17)	30903	Transformer—Second i-f transformer (L7, L8, C9, C10)
31382	Clip—Oscillator coil and core mounting clip	31410	Transformer—Power transformer, 100-120 and 200-240 volts, 50-60 cycle (T1)
32218	Coil—Antenna coil (L1, L2)	SPEAKER ASSEMBLIES (Speaker 84326-2)	
31098	Coil—Oscillator coil (L3, L4)	31473	Cone—Speaker cone and voice coil (L9)
31383	Coil—Oscillator coil (L18)	31472	Speaker—Complete
31384	Coil—Oscillator coil (L15)	31474	Transformer—Output transformer (T2)
31384	Coil—Oscillator coil (L15)	MISCELLANEOUS ASSEMBLIES	
31415	Coil—Oscillator coil (L14)	31428	Button—Station selector switch push button...
31097	Condenser—2-gang variable tuning condenser (C2, C3, C5, C8, C28)	32220	Dial—Station selector dial scale
30877	Cord—Indicator drive cord	31095	Discs—10 celluloid protector discs for call letter markers
30905	Core—Adjustable core and stud for i-f trans- formers	30863	Knob—Volume control and power switch, or tun- ing condenser knob
31386	Core—Adjustable core and stud for oscillator coils	30991	Marker—Station call letter markers
31421	Drum—Variable condenser drive cord drum	30800	Spring—Retaining spring for knob Stock No. 30863
32219	Indicator—Station selector indicator pointer		
11891	Lamp—Dial lamp		
31419	Plate—Dial color plate		
31373	Pulley—Indicator drive cord pulley		
13428	Resistor—150 ohms, 1/2 watt (R11)		
31024	Resistor—680 ohms, 1/2 watt (R9)		
30151	Resistor—18,000 ohms, 1 watt (R12)		
12738	Resistor—27,000 ohms, 1/2 watt (R10)		

MODELS 95X 95XL and 95X6

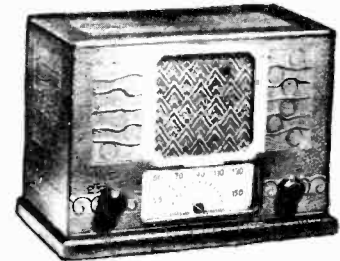
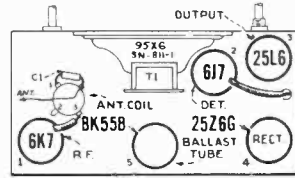
Chassis No. RC345D RC345E

RC-381A

Five-Tube, Single-Band, AC-DC, T-R-F Receivers



95X & 95X6



95XL

Electrical and Mechanical Specifications

Frequency Range..... 540-1,760 kc
 Alignment Frequency..... 1,760 kc (ant., det.)

RADIOTRON COMPLEMENT

- (1) RCA-6K7..... R-F Amp.
 - (2) RCA-6J7..... Detector
 - (3) RCA-25L6..... Output
 - (4) RCA-25Z6-G..... Rectifier
 - (5) RCA-BK55B..... Ballast Tube
- Dial Lamp..... Mazda No. 40, 6.3 volts, .15 amps.

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
 D-C Rating..... 105-125 volts, 50 watts

POWER OUTPUT (125-volt, 60-cycle supply)

Undistorted..... 1.0 watt
 Maximum..... 1.5 watts

LOUDSPEAKER

Type..... 5-inch Electrodynamic
 Voice-Coil Impedance..... 3 ohms at 400 cycles

Cabinet Dimensions (95X)..... Height 7½ in. Width 10½ in. Depth 5-9/16 in.
 Cabinet Dimensions (95XL)..... 7½ in. 10½ in. 5-7/16 in.
 Chassis Base..... 2½ in. 9 in. 4½ in.
 Over-all Chassis Height..... 6½ inches
 Weight..... 5½ lbs. (Net), 7½ lbs. (Shipping)
 Operating Controls..... (1) Power Switch—Volume; (2) Tuning

Alignment Procedure

Reel up the antenna wire, and connect the high side of test-oscillator through an 80 mmfd. capacitor to the antenna terminal on the antenna transformer. Connect low side of oscillator to receiver chassis through a 0.1 mfd. capacitor. Turn gang condenser to minimum (full out), tune oscillator to 1,760 kc, connect an output meter across the voice coil, and turn volume control to maximum.

Keep antenna roll and lead clear of chassis during alignment.

Adjust the two trimmers (C3 and C6) on side of gang condenser for maximum output, using lowest possible output from test-oscillator.

Turn pointer, while holding tuning knob, so that the pointer is horizontal and pointing to low-frequency end when the gang condenser is at maximum. Check pointer adjustment on a station.

25-Cycle Operation

For 25-cycle operation, connect a 16 mfd., 150-volt dry electrolytic capacitor (Stock No. 31323) in parallel to C13.

Antenna.—The set is equipped with a 25-foot antenna. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100 to 200 mmfd. capacitor in series with the lead-in.

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

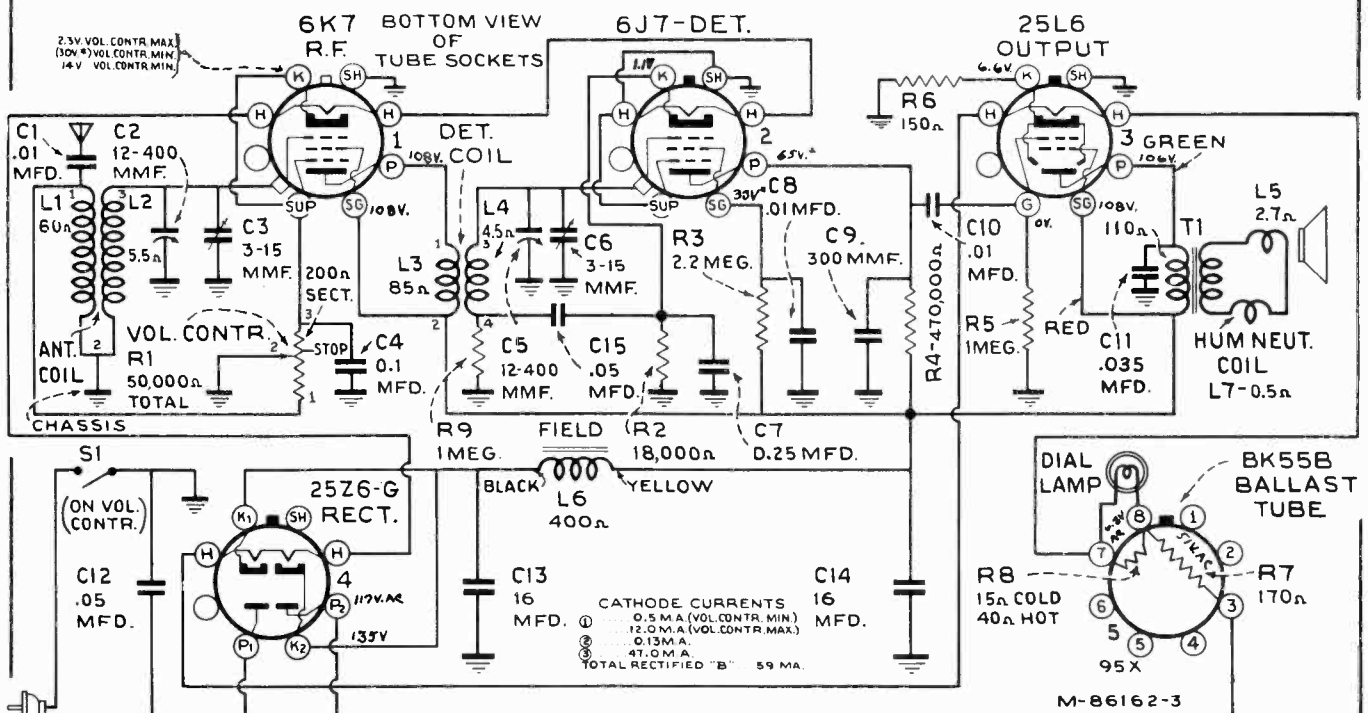
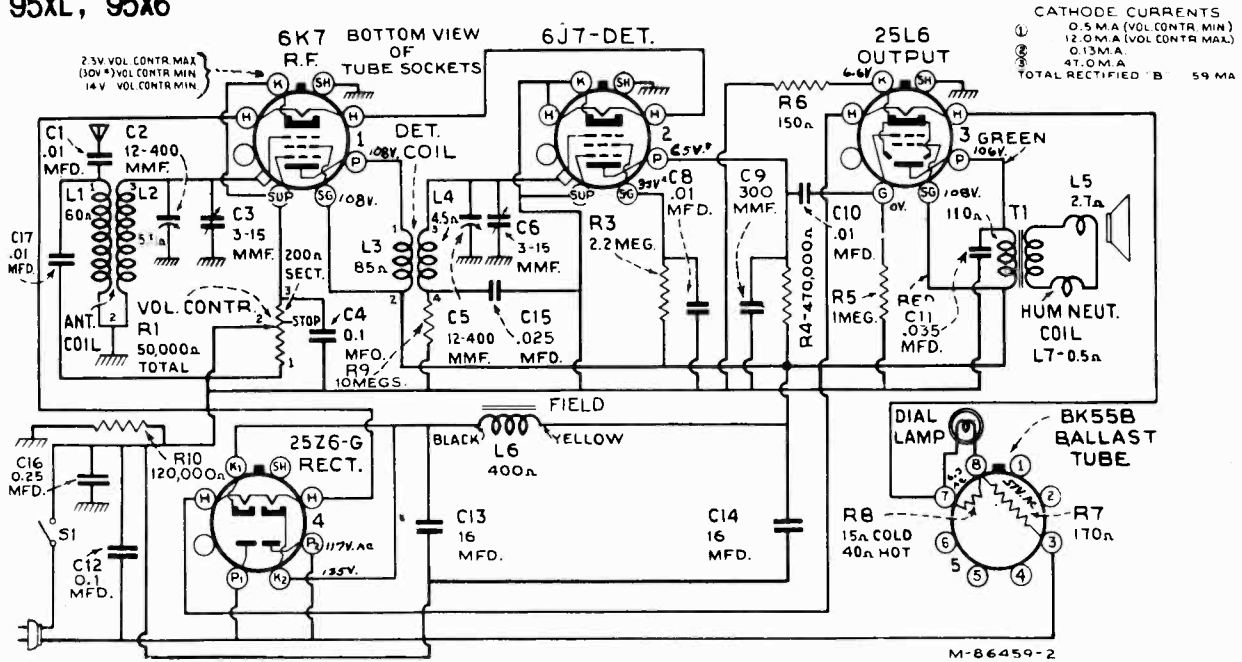


Figure 2—Schematic Circuit Diagram Model 95X Model 95XL
 The line by-pass, C12, is changed to .25 mfd. (Stock No. 12484) in some sets.

95X, 95XL, 95X6



Schematic Circuit Diagram 95X6

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	MODELS 95X 95XL		
	RECEIVER ASSEMBLIES		
31198	Ballast—Ballast resistor tube type BK55B (R7, R8)	31079	Screw—Chassis mounting screws and washers
30883	Capacitor—300 mmf. (C9)	30900	Spring—Retaining spring for knob Stock No. 31204—Model 95XL only
14393	Capacitor—.01 mfd. (C1, C8, C10)		MODEL 95X6
5196	Capacitor—.035 mfd. (C11)		RECEIVER ASSEMBLIES
30882	Capacitor—.05 mfd. (C15)	31198	Ballast—Ballast resistor tube type BK55B (R7, R8)
30899	Capacitor—.1 mfd. (C4)	30883	Capacitor—300 mmf. (C9)
30965	Capacitor—.25 mfd. (C7)	14393	Capacitor—.01 mfd. (C1, C8, C10)
12484	Capacitor—.25 mfd. (C12)	4858	Capacitor—.01 mfd. (C17)
30873	Capacitor—Comprising two 16 mfd. sections (C13, C14)	30938	Capacitor—.025 mfd. (C15)
30875	Coil—Antenna coil (L1, L2)	5196	Capacitor—.035 mfd. (C11)
30876	Coil—Det. coil (L3, L4)	30899	Capacitor—.1 mfd. (C4)
31195	Condenser—2-gang variable tuning condenser—Model 95X only (C2, C3, C5, C6)	4839	Capacitor—.1 mfd. (C12)
31191	Condenser—2-gang variable tuning condenser—Model 95XL only (C2, C3, C5, C6)	12484	Capacitor—.25 mfd. (C16)
30877	Cord—Indicator drive cord	31323	Capacitor—16 mfd (C13, C14)
31200	Dial—Station selector dial scale and plate assembly	30875	Coil—Antenna coil (L1, L2)
31196	Indicator—Station selector indicator pointer	30876	Coil—Det. coil (L3, L4)
4340	Lamp—Dial lamp	31195	Condenser—2-gang variable tuning condenser—(C2, C3, C5, C6)
31193	Lead—Antenna lead—approximately 25 ft. long	30877	Cord—Indicator drive cord
31198	Resistor—Ballast resistor tube type BK55B (R7, R8)	31200	Dial—Station selector dial scale and plate assembly
30880	Resistor—150 ohms, 1/2 watt (R6)	31196	Indicator—Station selector indicator pointer
13045	Resistor—18,000 ohms, 1/2 watt (R2)	4340	Lamp—Dial lamp
12285	Resistor—470,000 ohms, 1/2 watt (R4)	31193	Lead—Antenna lead—approximately 25 ft. long
13730	Resistor—1 meg., 1/2 watt (R5, R9)	31198	Resistor—Ballast resistor tube type BK55B (R7, R8)
12679	Resistor—2.2 meg., 1/2 watt (R3)	30880	Resistor—150 ohms, 1/2 watt (R6)
31197	Shaft—Indicator pointer shaft and pulley	13734	Resistor—120,000 ohms, 1/2 watt (R10)
31199	Shield—Dial lamp shield	12285	Resistor—470,000 ohms, 1/2 watt (R4)
14171	Socket—Dial lamp socket	13730	Resistor—1 meg., 1/2 watt (R5)
11196	Socket—Radiotron and ballast resistor socket	12679	Resistor—2.2 meg., 1/2 watt (R3)
30631	Spring—Indicator drive cord tension spring	13601	Resistor—10 meg., 1/2 watt (R9)
31198	Tube—Ballast resistor tube type BK55B (R7, R8)	31197	Shaft—Indicator pointer shaft and pulley
31194	Volume control and power switch—Model 95X only (R1, S1)	31199	Shield—Dial lamp shield
31192	Volume control and power switch—Model 95XL only (R1, S1)	14171	Socket—Dial lamp socket
	SPEAKER ASSEMBLIES (84202-3)	31251	Socket—Tube and ballast resistor socket
31202	Cone—Speaker cone and voice coil (L5)	30631	Spring—Indicator drive cord tension spring
31201	Speaker—Complete	31198	Tube—Ballast resistor tube type BK55B (R7, R8)
31203	Transformer—Output transformer (T1)	31966	Volume control and power switch (R1, S1)
	MISCELLANEOUS ASSEMBLIES		SPEAKER ASSEMBLIES (84202-4)
31205	Crystal—Station selector dial crystal	31202	Cone—Speaker cone and voice coil (L5)
30885	Knob—Tuning or volume control knob—Model 95X only	31201	Speaker—Complete
31204	Knob—Tuning or volume control knob—Model 95XL only	31203	Transformer—Output transformer (T1)
12993	Screw—Set screw for knob Stock No. 30885—Model 95X only		MISCELLANEOUS ASSEMBLIES
		31205	Crystal—Station selector dial crystal
		30883	Knob—Tuning or volume control knob
		31079	Screw—Chassis mounting screws and washers
		30900	Spring—Retaining spring for knob

Models 95X1 and 95X11

Chassis No. RC345C

RC-381

Five-Tube, Electric-Tuning, Single-Band, AC-DC, T-R-F Receiver

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,560 kc
Alignment Frequency..... 1,560 kc (ant., det.)

One station between approximately 540-860 kc
Two stations between approximately 860-1,200 kc
Two stations between approximately 1,200-1,560 kc

RADIOTRON COMPLEMENT

- (1) RCA-6K7..... R-F Amplifier
 - (2) RCA-6J7..... Detector
 - (3) RCA-25L6..... Output
 - (4) RCA-25Z6-G..... Rectifier
 - (5) RCA-BK-55-B..... Ballast Tube
- Dial Lamp..... Mazda 40, 6.3 volts, .15 ampere

POWER SUPPLY RATINGS

A-C Rating..... 105-125 volts, 50-60 cycles, 50 watts
D-C Rating..... 105-125 volts, 50 watts

POWER OUTPUT (125-volt, 60-cycle supply)

Undistorted..... 1.0 watt
Maximum..... 1.5 watts

LOUDSPEAKER

Type..... 5-inch Electrodynamic
Voice-Coil Impedance..... 3 ohms at 400 cycles

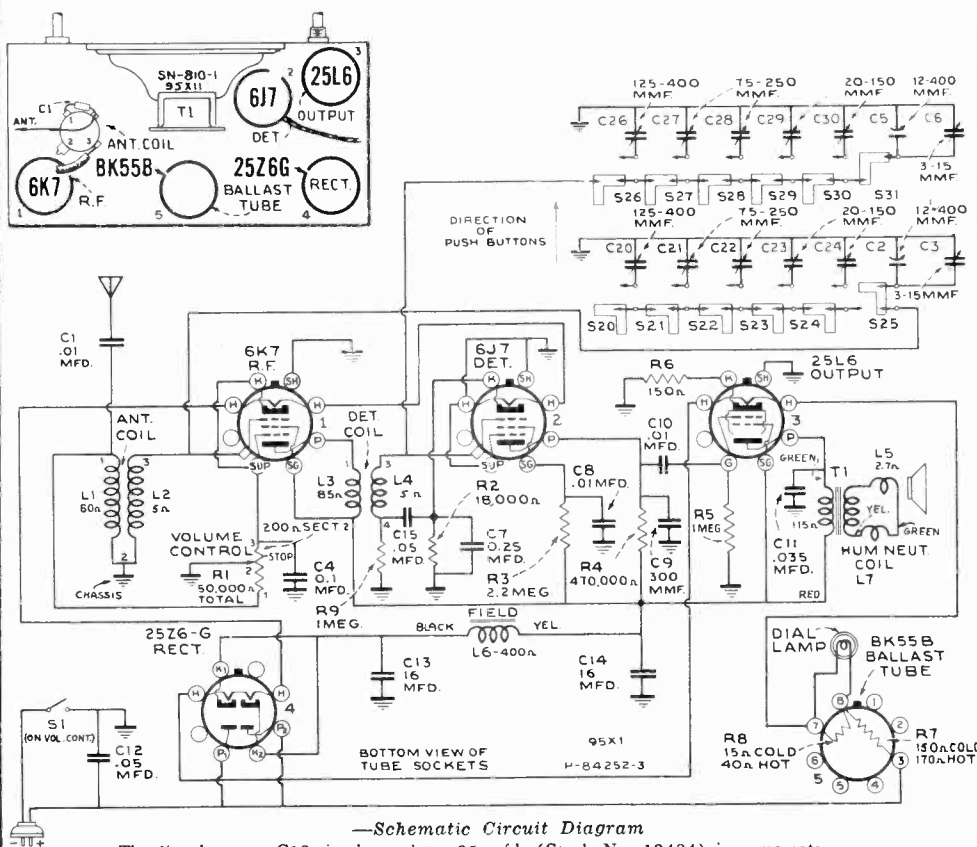
Height Width Depth

Cabinet Dimensions (95X1)..... 7 1/2 inches . . . 10 1/2 inches . . . 5-9/16 inches
Chassis Base..... 2 1/2 inches . . . 9 inches . . . 4 1/2 inches

Over-all Chassis Height..... 6 1/2 inches

Weight..... 5 1/2 lbs. (Net), 7 1/2 lbs. (Shipping)

Operating Controls..... (1) Power Switch—Volume, (2) Tuning,
(3) Five Station Buttons, One Manual Tuning Button



—Schematic Circuit Diagram

The line by-pass, C12, is changed to .25 mfd. (Stock No. 12484) in some sets.

MODEL 95x1

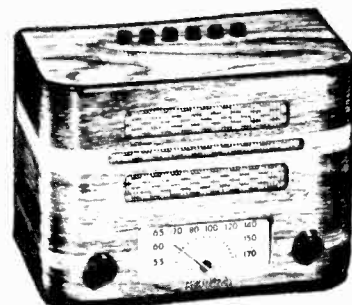
Adjustment of Tuning Capacitors

The preferable and quickest method of adjusting the tuning capacitors for five different stations, is to employ a test-oscillator, as described below:

1. Make a list of the desired five stations, arranged in order from low to high frequencies.
2. Determine the correct settings of the test-oscillator for these five frequencies. This is accomplished as follows: Tune in each of the five stations on any standard receiver; zero-beat the test-oscillator against each station, and note the exact setting of the oscillator in each case.
3. Reel up the antenna wire. Connect the high side of test-oscillator through an 80-mmf. fixed capacitor to the end of the antenna wire. Clip the low side of the oscillator through a 0.1-mfd. capacitor to one of the chassis-mounting screws on the bottom of the cabinet. Tune the oscillator to the previously-determined point for the lowest-frequency station, and adjust for a strong output.

4. Turn the volume control of the push-button receiver full clockwise, and push in the left-hand end button. Using an insulated screw-driver, peak capacitors C20 and C26, at the same time reducing the output of the oscillator in order to secure a sharp peak. (Clockwise adjustment of the capacitors tunes the circuits to lower frequencies, and counter-clockwise adjustment tunes the circuits to higher frequencies. The range of each trimmer is three full counter-clockwise turns from the tight position. Do not unscrew more than three turns.)

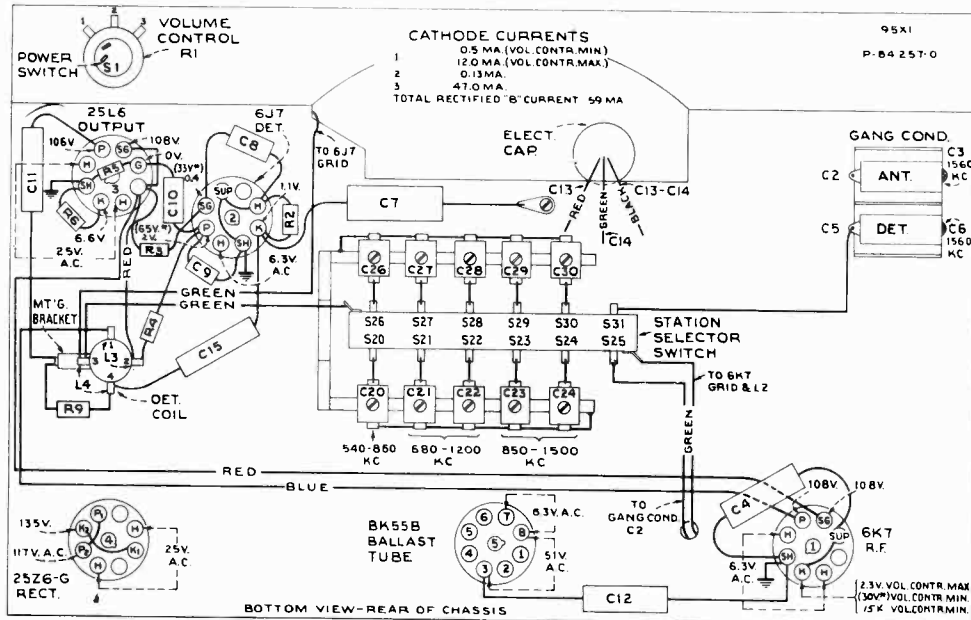
5. Push in the second button from left, and adjust C21 and C27 for peak output with the oscillator tuned to the frequency of the second station.
6. Proceed in this manner to adjust each pair of capacitors for the desired frequencies.
7. Final adjustment may be made in actual reception of the stations.



MODEL 95X1 OR 95X11

Alignment Procedure

Remove chassis from cabinet.
Reel up the antenna wire, and connect the high side of test-oscillator through an 80-mmf. capacitor to the antenna terminal on the antenna transformer. Connect low side of oscillator to receiver chassis through an .01-mfd. capacitor. Turn gang condenser to minimum (full out), push in the manual-tuning (right-hand) button, tune oscillator to 1,560 kc, connect an output meter across the voice coil, and turn volume control to maximum.
Keep antenna roll and lead clear of chassis during all adjustments.
Adjust the two trimmers (C3 and C6) on side of gang condenser for maximum output, using lowest possible output from test-oscillator.
Turn pointer, so that it is horizontal and pointing to low-frequency end when the gang condenser is at maximum. Check pointer adjustment on a station.



—Radiotron Socket Voltages, and Location of Parts **MODEL 95x1**

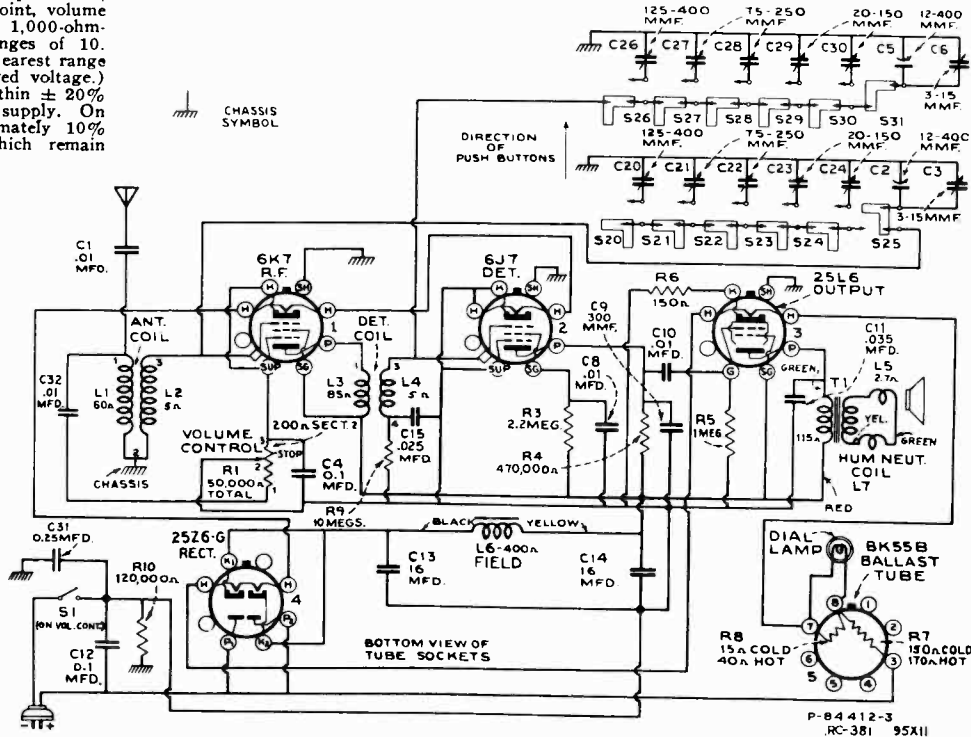
Note: Values with star () are operating voltages. Values not starred are actual measured voltages.

Measurements made to chassis unless otherwise indicated.

Measurements made with manual-tuning button (right-hand) pushed in, and set tuned to a quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, and 250 volts. (Use nearest range above the specified measured voltage.)

Values should hold within $\pm 20\%$ for 117-volt 60-cycle a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.

VOLTAGES MEASURED TO COMMON NEGATIVE ON MODEL 95 x 11



Schematic Circuit Diagram

MODEL 95x11

Precautionary Lead Dress

1. Dress Power cord away from detector coil, heater leads close to base, leads from electrolytic close to base and free of grid leads.
2. Dress blue lead from r-f plate to detector coil along front edge of push-button shaft holes. Dress all leads to prevent rubbing against push button shafts.

25-Cycle Operation

For 25-cycle operation, connect a 16 mfd., 150-volt dry electrolytic capacitor (Stock No. 31823) from the cathode of the rectifier tube to chassis. (Positive to contact K1 of 25Z6-G, and negative to shell contact of 6K7 r-f socket.)

MODEL 95x I
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31198	Ballast—Ballast resistor-tube type BK55B (R7, R8)	12285	Resistor—470,000 ohms, 1/4 watt (R4)
31208	Capacitor—Antenna tuning capacitor bank (C20, C21, C22, C23, C24)	13730	Resistor—1 meg., 1/4 watt (R5, R9)
31209	Capacitor—Detector tuning capacitor bank (C26, C27, C28, C29, C30)	12679	Resistor—2.2 meg., 1/4 watt (R3)
30883	Capacitor—300 mmf. (C9)	31197	Shaft—Indicator pointer shaft and pulley
14393	Capacitor—.01 mfd. (C1, C8, C10)	31199	Shield—Dial lamp shield
5196	Capacitor—.035 mfd. (C11)	14171	Socket—Dial lamp socket
30882	Capacitor—.05 mfd. (C15)	11196	Socket—Radiotron and ballast resistor socket
30899	Capacitor—.1 mfd. (C4)	30631	Spring—Indicator drive cord tension spring
30965	Capacitor—.25 mfd. (C7)	31207	Switch—Station selector switch (S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31)
12484	Capacitor—.25 mfd. (C12)	31198	Tube—Ballast resistor tube type BK55B (R7, R8)
30873	Capacitor—Comprising two 16 mfd. sections (C13, C14)	31194	Volume control and power switch (R1, S1)
60875	Coil—Antenna coil (L1, L2)	SPEAKER ASSEMBLIES	
30876	Coil—Det. coil (L3, L4)	31202	Cone—Speaker cone and voice coil (L5)
31195	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)	31201	Speaker—Complete
30877	Cord—Indicator drive cord	31203	Transformer—Output transformer (T1)
31206	Dial—Station selector dial and dial plate assembly	MISCELLANEOUS ASSEMBLIES	
31196	Indicator—Station selector indicator pointer	31210	Button—Station selector push button
4340	Lamp—Dial lamp	31205	Crystal—Station selector dial crystal
31193	Lead—Antenna lead—approximately 25 ft. long	31095	Disc—10 celluloid protector discs for call letter markers
31198	Resistor—Ballast resistor tube type BK55B (R7, R8)	30885	Knob—Tuning or volume control knob
30880	Resistor—150 ohms, 1/4 watt (R6)	30991	Markers—Station selector button call letter markers
13045	Resistor—18,000 ohms, 1/4 watt (R2)	12993	Screw—Set screw for knob Stock No. 30885
		31079	Screw—Chassis mounting screws and washers

MODEL 95x 11
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31198	Ballast—Ballast resistor-tube type BK55B (R7, R8)	13730	Resistor—1 meg., 1/4 watt (R5)
31208	Capacitor—Antenna tuning capacitor bank (C20, C21, C22, C23, C24)	12679	Resistor—2.2 meg., 1/4 watt (R3)
31209	Capacitor—Detector tuning capacitor bank (C26, C27, C28, C29, C30)	13601	Resistor—10 meg., 1/4 watt (R9)
30883	Capacitor—300 mmf. (C9)	31197	Shaft—Indicator pointer shaft and pulley
14393	Capacitor—.01 mfd. (C1, C8, C10)	31199	Shield—Dial lamp shield
4858	Capacitor—.01 mfd. (C32)	14171	Socket—Dial lamp socket
30938	Capacitor—.025 mfd. (C15)	31251	Socket—Tube and ballast resistor socket
5196	Capacitor—.035 mfd. (C11)	30631	Spring—Indicator drive cord tension spring
30899	Capacitor—.1 mfd. (C4)	31207	Switch—Station selector switch (S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31)
4839	Capacitor—.1 mfd. (C12)	31198	Tube—Ballast resistor tube type BK55B (R7, R8)
12484	Capacitor—.25 mfd. (C31)	31966	Volume control and power switch (R1, S1)
31323	Capacitor—.16 mfd. (C13, C14)	SPEAKER ASSEMBLIES	
30875	Coil—Antenna coil (L1, L2)	31202	Cone—Speaker cone and voice coil (L5)
30876	Coil—Det. coil (L3, L4)	31201	Speaker—Complete
31195	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)	31203	Transformer—Output transformer (T1)
32634	Cord—Indicator drive cord	MISCELLANEOUS ASSEMBLIES	
31206	Dial—Station selector dial and dial plate assembly	31210	Button—Station selector push button
31196	Indicator—Station selector indicator pointer	31205	Crystal—Station selector dial crystal
4340	Lamp—Dial lamp	31095	Disc—10 celluloid protector discs for call letter markers
31193	Lead—Antenna lead—approximately 25 ft. long	30863	Knob—Tuning or volume control knob
31198	Resistor—Ballast resistor tube type BK55B (R7, R8)	30991	Markers—Station selector button call letter markers
30880	Resistor—150 ohms, 1/4 watt (R6)	31079	Screw—Chassis mounting screws and washers
13734	Resistor—120,000 ohms, 1/4 watt (R10)	30900	Spring—Retaining spring for knob
12285	Resistor—470,000 ohms, 1/4 watt (R4)		

MODEL 95XLW

Chassis No. RC-345F

Five-Tube, Two-Band, AC-DC, T-R-F Receiver

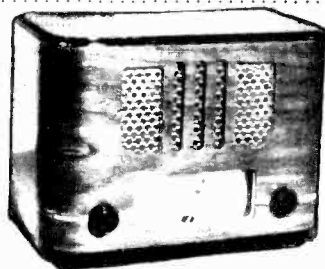
Electrical and Mechanical Specifications

FREQUENCY RANGES

Long Wave (X) 150-360 kc
 Standard Broadcast (A) 530-1,500 kc

TUBE COMPLEMENT

(1) RCA-6K7 R-F Amp.
 (2) RCA-6J7 Detector
 (3) RCA-25L6 Output
 (4) RCA-25Z6-G Rectifier
 (5) RCA-BK55B Ballast Tube
 Dial Lamp, Mazda No. 40, 6.3 volts, .15 amps.



95 XLW

LOUDSPEAKER

Type 5-inch electrodynamic
 Voice-Coil Impedance ... 3 ohms at 400 cycles

POWER OUTPUT

(125 volt, 60 cycle supply)
 Undistorted 1.0 watt
 Maximum 1.5 watts

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 25-60 cycles, 50 watts
 D-C Rating 105-125 volts, 50 watts

	Height	Width	Depth
Cabinet Dimensions	7½ in.	10½ in.	5½ in.
Chassis Base	2¾ in.	9 in.	4½ in.
Over-all Chassis Height			6¼ in.
Weight			5¾ lbs. (Net), 7½ lbs. (Shipping)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	SPEAKER ASSEMBLIES (84202-3)		
31202	Cone—Speaker cone (L5)	4286	Ferrule—Ferrule for dial lamp connector
31201	Speaker—Speaker complete	4340	Lamp—Pilot lamp
31203	Transformer—Output transformer (T1)	31193	Lead—Antenna lead
	CHASSIS ASSEMBLIES (RC-345F)	31196	Pointer—Station selector indicator pointer
31198	Ballast—Ballast resistor tube (R7, R8)	31198	Resistor—Ballast resistor tube (R7, R8)
4287	Body—Connector body for dial lamp connector	30880	Resistor—150 ohms, ¼ watt (R6)
13002	Capacitor—12 mmfd. (C16, C18)	13045	Resistor—18,000 ohms, ¼ watt (R2)
13003	Capacitor—180 mmfd. (C17)	12285	Resistor—470,000 ohms, ¼ watt (R4)
30883	Capacitor—300 mmfd. (C9)	13730	Resistor—1 megohm, ¼ watt (R5, R9)
14383	Capacitor—.01 mfd., 300 V. (C1, C8, C10)	12679	Resistor—2.2 megohms, ¼ watt (R3)
5196	Capacitor—.035 mfd. (C11)	31197	Shaft—Indicator pointer shaft and pulley
30899	Capacitor—.01 mfd., 200 V. (C4)	31251	Socket—8-contact tube socket
30882	Capacitor—.05 mfd. 200 V. (C15)	14171	Socket—Lamp socket assembly
12484	Capacitor—.25 mfd., 400 V. (C12)	4284	Spring—Spring for dial lamp connector
30965	Capacitor—0.25 mfd., 350 V. (C7)	32210	Switch—Range switch (S2)
31323	Capacitor—16 mfd., 150 V. (C14)	31198	Tube—Ballast resistor tube (R7, R8)
31584	Capacitor—40 mfd., 150 V. (C13)	31194	Volume Control—Volume control and power switch (R1, S1)
32213	Coil—Antenna coil (L1, L2, C19)	4285	Washer—Insulating washer for dial lamp connector
32214	Coil—R.F. coil (L3, L4)		MISCELLANEOUS ASSEMBLIES
31195	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)	31205	Crystal—Station selector dial crystal
14086	Cord—Power cord	31204	Knob—Range switch knob
32634	Cord—Variable condenser drive cord	30885	Knob—Station selector or volume control knob
32211	Dial—Station selector dial scale and plate assembly	30870	Plug—2 contact male plug for motor leads
		31079	Screw—Chassis mounting screws and washers
		30900	Spring—Retaining spring for knob Stock No. 31204

Alignment Procedure

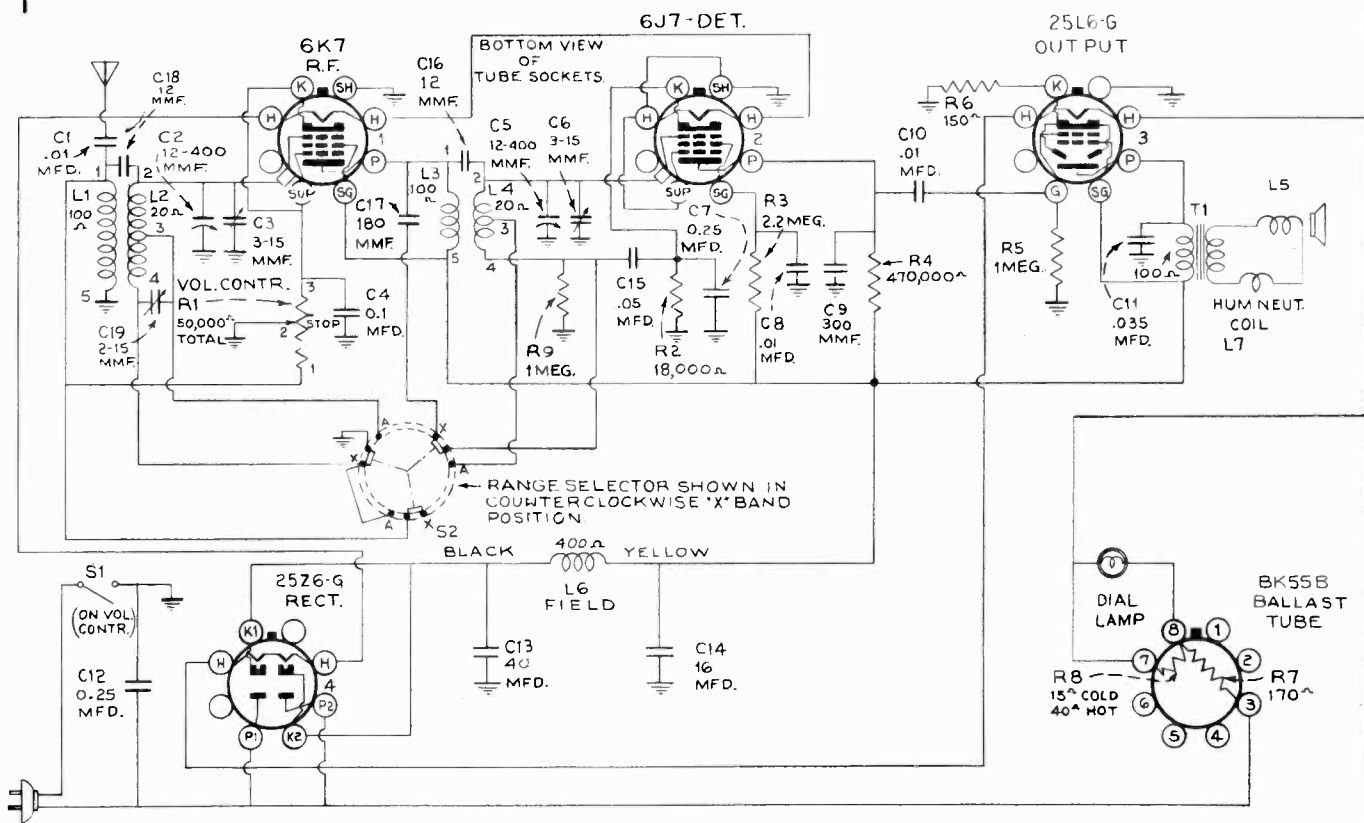
CAUTION: The chassis is connected to one side of the power line. Avoid contact of chassis or parts to external ground when servicing.

Turn pointer, while holding tuning knob, so that the pointer is horizontal and pointing to low frequency end when the gang condenser is at maximum.

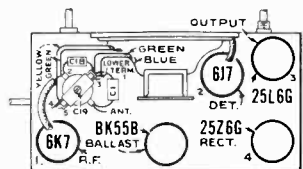
Reel up the antenna wire, and connect the high side of test-oscillator through an .80 mmfd. capacitor to the antenna terminal on the antenna transformer. Connect low side of oscillator to receiver chassis through a 0.1 capacitor. Keep antenna roll and lead clear of chassis during alignment.

To align "A" band, turn range switch to "A" band (clockwise) position, turn receiver dial to 1,500 kc, tune test-oscillator to 1,500 kc, connect an output meter across the voice coil, and turn volume control to maximum. Adjust the two trimmers (C3 and C6) on side of gang condenser for maximum output, using lowest possible output from test-oscillator.

To align "X" band, turn range switch to "X" band (counterclockwise) position, tune test-oscillator to 360 kc, and adjust C19 for maximum output. The gang should be rocked during "X" band alignment.

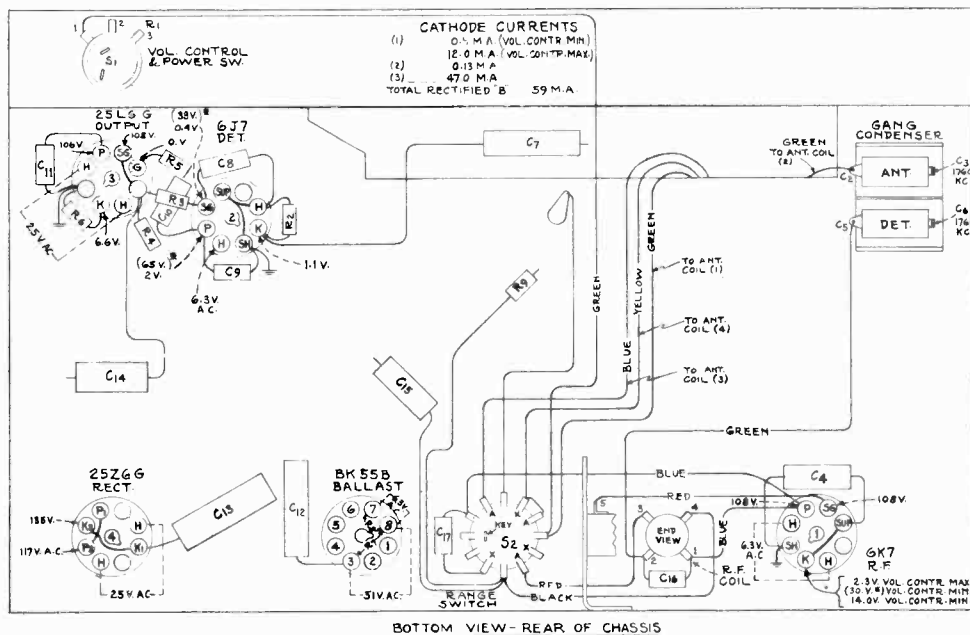


Schematic Circuit Diagram



Tube and Trimmer Locations

* Note: Values with (*) are operating voltages.
Values not starred are actual measured voltages.
Measurements made to chassis unless otherwise indicated.
Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter, having ranges of 10, 50, and 250 volts. (Use nearest range above the specified measured voltage.)
Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.



BOTTOM VIEW - REAR OF CHASSIS

Precautionary Lead Dress

1. Dress power cord away from yellow lead to volume control.
2. Dress all leads away from antenna coil.
3. Green lead from gang to detector coil must be dressed under switch shaft and over detector coil (looking from bottom of chassis).
4. Yellow lead from volume control to 6K7 cathode must be dressed down against rear apron of chassis.
5. Green lead from switch to volume control must be dressed away from all other wires.
6. All leads to detector coil, except green lead in No. 3 (above) must be dressed down against the chassis base.

MODELS 96BK6 and 96BT6

Chassis No. RC-392

RC-392

Six-Tube, Electric-Tuning, Two-Band, Battery-Operated, Superheterodyne Receiver and MODEL CV-9 A-C Power Unit

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band)	540—1,720 kc
Short Wave ("C" Band)	5.8—18 mc
Four Electric Tuning Positions	550—1,500 kc
One station between approximately 550—950 kc (Button No. 1)	
One station between approximately 610—1,090 kc (Button No. 2)	
One station between approximately 750—1,370 kc (Button No. 3)	
One station between approximately 845—1,500 kc (Button No. 4)	
Intermediate Frequency	455 kc

RCA TUBE COMPLEMENT

(1) RCA-6D8-G	First Detector—Oscillator
(2) RCA-6S7-G	I-F Amplifier
(3) RCA-6T7-G	2nd Detector, A.V.C., and 1st A.F.
(4) RCA-6W7-G	Audio Driver
(5) RCA-6L5-G	Power Output
(6) RCA-6L5-G	Power Output
Pilot Lamp (1)	Mazda No. 47, 6.3 volts, 0.15 amp.

POWER SUPPLY RATINGS

With CV-9 a-c power supply unit:
100-130/140-160/195-250 volts, 25-60 cycles, 45 watts

With RS-79B d-c power supply unit:
6.3 volts; total current drain 1.85 amps.

POWER OUTPUT

	Undistorted	Maximum
With a-c power unit	2.2 watts	3.5 watts
With d-c power unit	1.7 watts	2.2 watts

LOUDSPEAKER

Type..... Permanent Magnet Dynamic
Voice Coil Impedance..... 2.2 ohms at 400 cycles
Diameter..... 96BK6, 8 inches; 96BT6, 6 inches

	Model 96BT6	Model 96BK6
Height	10 $\frac{1}{2}$ inches	39 $\frac{1}{2}$ inches
Width	20 $\frac{1}{2}$ inches	26 inches
Depth	9 $\frac{3}{4}$ inches	12 $\frac{1}{2}$ inches
Net Weight	17 $\frac{1}{2}$ pounds	21 pounds
Shipping Weight	46 pounds	61 pounds
Chassis Base Dimensions	3 inches x 11 $\frac{1}{2}$ inches x 5 inches	
Over-all Height of Chassis		7 $\frac{3}{4}$ inches
Tuning Drive Ratio		12 to 1

Power Supply Units

The receiver chassis has a seven-prong male plug for connection to the power-supply unit. Both a-c and d-c power supply units are available, as listed under "Power Supply Ratings." The receivers are shipped with a d-c power unit for use with a 6-volt supply. If an a-c unit is desired, it must be purchased separately, as Model CV-9.

If no receiver chassis is available the a-c unit (CV-9) may be tested for proper operation by connecting a 6,500-ohm, 10-watt resistor between terminals 2 and 4 on the cable socket, and shorting terminals 1 and 7. With one voltmeter prod on terminal 2 (ground) the following readings should be obtained: terminal 3, + 200 volts d.c.; terminal 4, + 200 volts d.c.; terminal 5, -5.9 volts d.c.; terminal 6, 6.5 volts a.c. Values should be within $\pm 20\%$ with rated supply voltage.

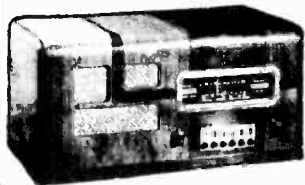
Precautionary Lead Dress.—

- Blue lead from push button switch to gang condenser must be dressed over the top of the switch.
- Leads to push button coils must be dressed close to the coils.
- Red and blue leads to gang condenser must be dressed away from chassis.
- Blue antenna lead must be dressed in the end of the chassis away from gang leads and coil windings.
- Bias cell must be installed with carbon disc connected to chassis.
- Leads from power switch to connector plug must be dressed away from other leads.
- Parts under push button coils must be dressed down away from them.
- Green lead to first detector grid cap should be pulled out of the chassis as far as possible, and dressed away from the tube envelope.

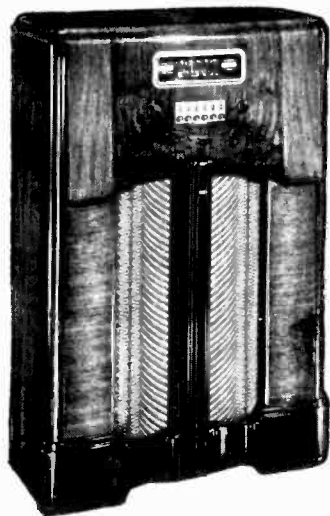
Miscellaneous Service Data

To center the loudspeaker voice coil, first remove the front dust cover, then loosen the screws holding the spider assembly. Insert three narrow feelers into the air gap, and tighten the spider screws. Remove the feelers and fasten a dust cover in place with loudspeaker cement.

The push button switch and coil assembly may be removed from the chassis by removing two screws from the front apron, one from the rear apron, removing the 6D8-G grid connector from the grid cap, and disconnecting the seven leads indicated on the Wiring Diagram.



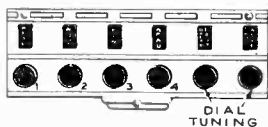
Model 96BT6



Model 96BK6



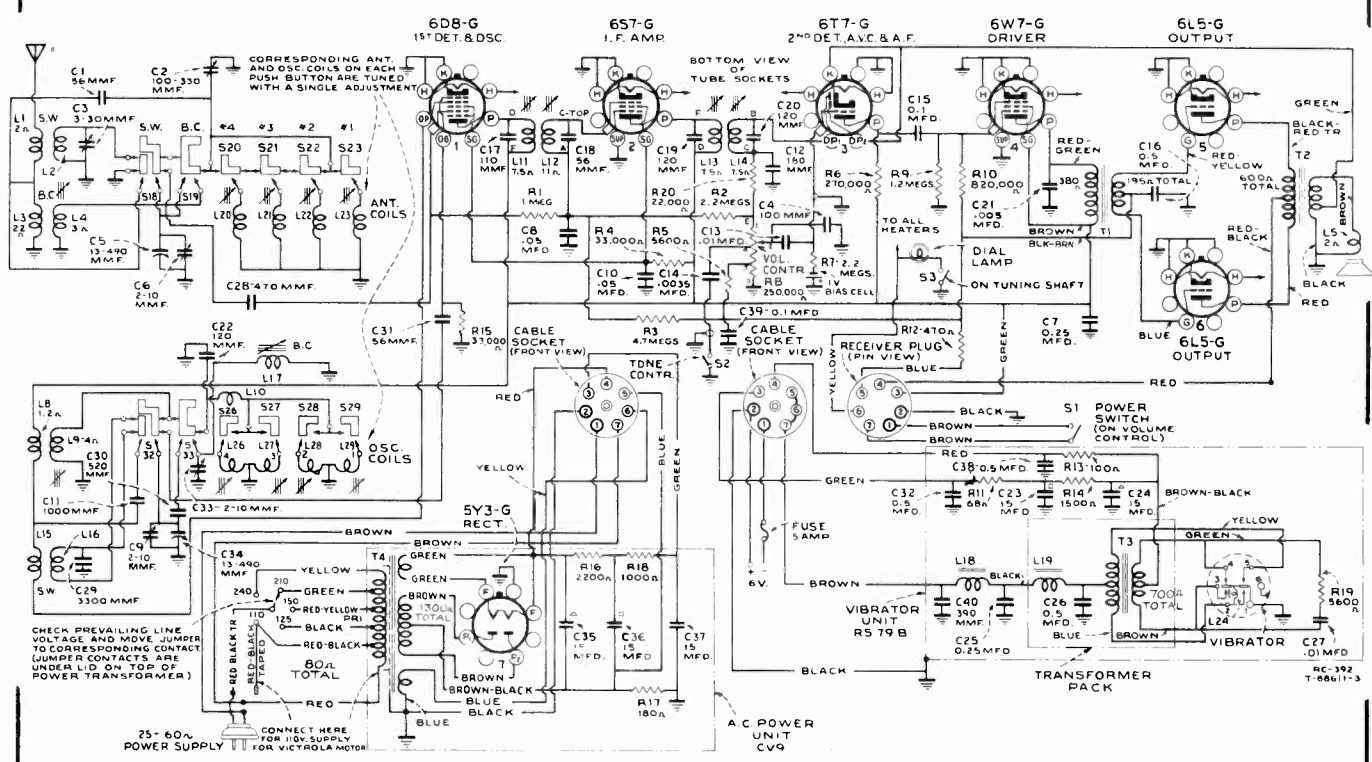
POWER-VOLUME CONTROL



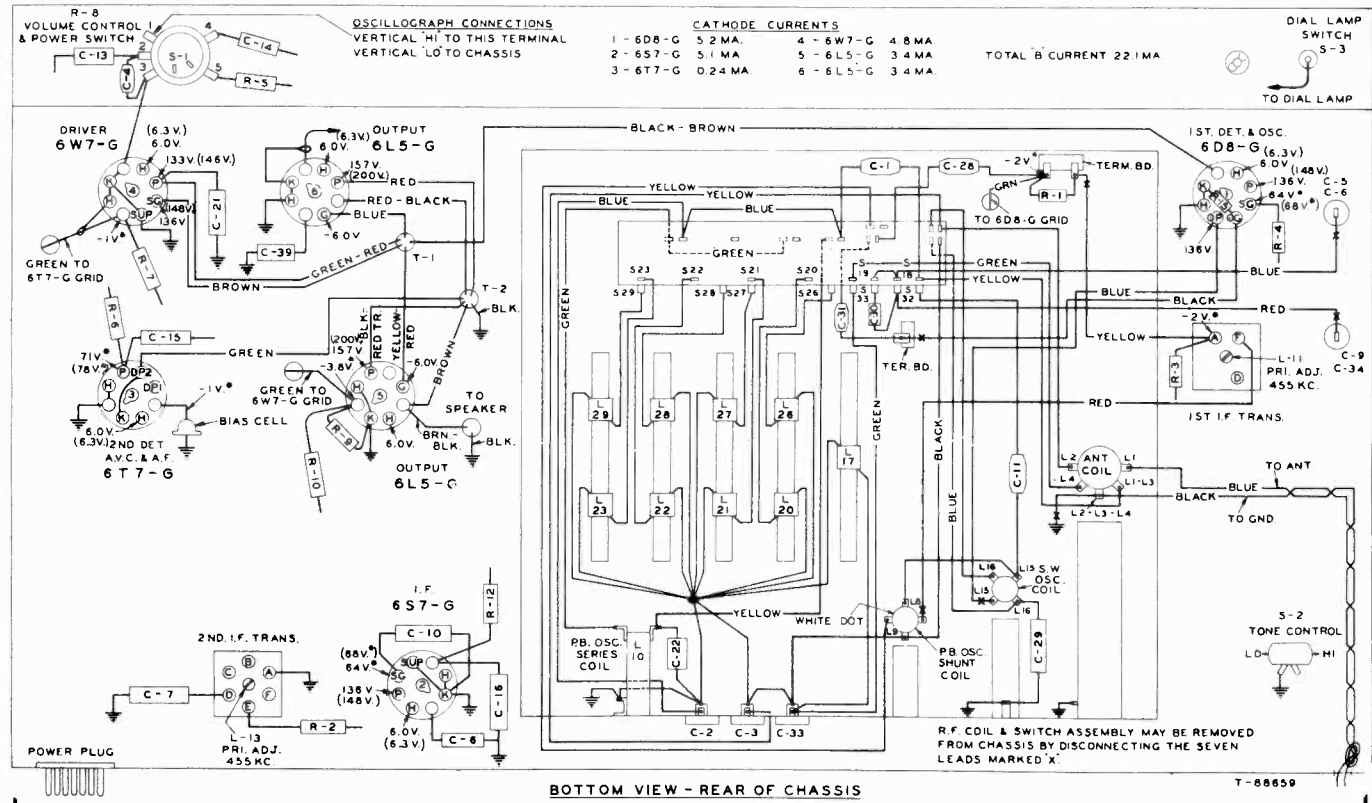
Location of Controls



TUNING



Schematic Circuit Diagram for Models 96BK6, 96BT6 and CV-9 A-C Power Unit



R-F Wiring Diagram and Socket Voltages

Measurements made to chassis unless otherwise indicated, with set tuned to a quiet point and the volume control at minimum. Values should hold within approximately $\pm 20\%$ with rated supply voltage.

* Note: Values with star (*) are operating voltages in circuits with high series resistance. The actual measured values will be lower, depending on the voltmeter loading. Bracketed voltages () refer to operation with CV-9 a-c power unit.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the chassis drawing.

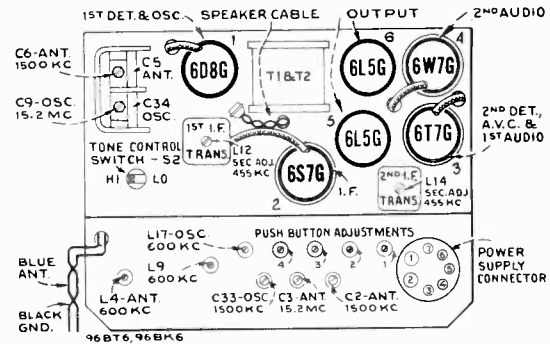
Output Meter Alignment.—If this method is used, connect the output meter across the voice coil, and turn the receiver volume control to maximum.

Test Oscillator.—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, and 15.2 mc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left (low frequency) mark on the dial scale.

For additional details, refer to booklet "RCA Victor Receiver Alignment."



Tube and Trimmer Locations

Steps	Connect the High Side of Test Oscillator to:	Tune Test Oscillator To:	Press Push Button:	Turn Radio Dial to:	Adjust for Maximum Peak Output:	
1	6S7-G I-F grid cap in series with .01 mfd.	455 kc	B.C. (No. 5)	No Station Point between 550—750 kc.	L13 and L14 (2nd I-F Trans.)	
2	6D8-G Det. grid cap in series with .01 mfd.	455 kc	B.C. (No. 5)		L11 and L12 (1st I-F Trans.)	
3	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	No. 4		L20-L28 (No. 4 Push Button Adj.) C2 (ant.)	
4	Antenna Lead (blue) in series with 200 mmfd.	600 kc	No. 1		L23-L29* (No. 1 Push Button Adj.) L9 (osc.)	
5	Repeat steps 3 and 4 until maximum signal is obtained.					
6	Unscrew C9 (osc.) to minimum capacity.					
7	Antenna Lead (blue) in series with 200 mmfd.	600 kc	B.C. (No. 5)	600 kc Calibration Mark	L17 (osc.)** L4 (ant.)	
8	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	B.C. (No. 5)	1,500 kc Calibration Mark	C33 (osc.) C6 (ant.)	
9	Repeat steps 7 and 8 until maximum signal is obtained.					
10	Antenna Lead (blue) in series with 300 ohms	15.2 mc	S.W. (No. 6)	15.2 mc Calibration Mark	C9 (osc.) † C3 (ant.) ††	
11	Antenna Lead (blue) in series with 200 mmfd.	1,500 kc	B.C. (No. 5)	1,500 kc Calibration Mark	C33 (osc.)	
12	Follow the "Adjustments for Electric Tuning."					

* Adjust L23-L29 (No. 1 push button adjustment) and L9 at the same time, rocking in for maximum signal.

** Turn L17 adjusting screw all the way out, then turn in slowly until a peak is reached. If two peaks can be obtained the lower inductance setting (screw out) should be used.

† Use minimum capacity peak if two peaks can be obtained. A weaker signal (image) should be received about one quarter inch to the left on the dial plate.

†† Use maximum capacity peak if two peaks can be obtained, rock in for maximum signal.

Note: The oscillator tracks 455 kc above the signal on all bands. After the receiver has been installed and the antenna connected, it is advisable to make a slight change in the adjustment of the antenna trimmer, C2. In most cases it is desirable to make this adjustment

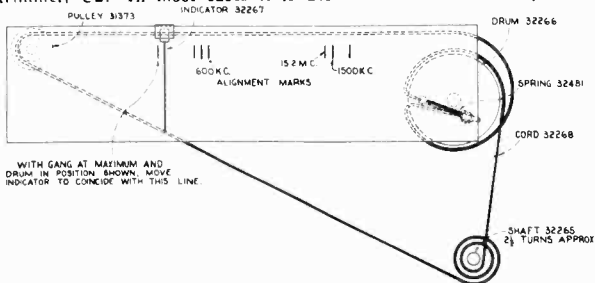
while receiving a station on No. 4 push button. However, if a station received on one of the other buttons is especially weak, it may be advisable to make the adjustment while receiving the weak station on that particular button.

Adjustment for Electric Tuning

These models have six push buttons. The right-hand button connects the receiver for dial tuning on the "Short-wave" band, the next button connects for dial tuning on the "Standard-broadcast" band, and the other four buttons are for electric tuning of four different stations in the standard-broadcast band. Each station button connects separate oscillator and antenna coils which are tuned by ganged magnetite cores, and may be adjusted for the desired stations. Use a small screw-driver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use the regular antenna for all adjustments.

The procedure is as follows:

1. Make a list of the four desired stations, arranged in order from low to high frequencies.
2. Push in the broadcast dial-tuning button (second from right), and manually tune in the first station on the list.
3. Push in station button No. 1 (left-hand) and adjust No. 1 push button adjustment to receive this station. Turn the adjusting screw all the way in, to lowest frequency, and then unscrew slowly until the station is received.
4. Adjust for each of the remaining three stations in the same manner. (Clockwise adjustment of the screw tunes the circuits to lower frequencies.)
5. After installation, and with antenna properly connected, re-adjust C2 as outlined in note under "Alignment Procedure."



Dial Drive Hookup and Alignment Marks

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
32259	Capacitor—3-section trimmer bank 2-10, 3-30, 100-330 mmfd. (C33, C3, C2)	32368	Transformer—Driver and output transformer pack (T1, T2)
12629	Capacitor—56 mmfd. (C18)	14261	Transformer—First I.F. transformer (L11, L12, C17, C18)
12723	Capacitor—56 mmfd. (C1, C31)	14308	Transformer—Second I.F. transformer (L13, L14, C12, C19, C20, R20)
30406	Capacitor—100 mmfd. (C4)	32367	Volume Control and Power Switch (R8, S1)
14262	Capacitor—110 mmfd. (C17)	SPEAKER ASSEMBLIES	
12404	Capacitor—120 mmfd. (C19, C20)	Model 96BT6 (Speaker 84307-3)	
32370	Capacitor—120 mmfd. (C22)	32328	Cone—Speaker cone and voice coil
14712	Capacitor—180 mmfd. (C12)	5118	Plug—3-prong male plug
30433	Capacitor—470 mmfd. (C28)	32325	Speaker—Complete
32269	Capacitor—520 mmfd. (C30)	SPEAKER ASSEMBLIES	
12635	Capacitor—1,000 mmfd. (C11)	Model 96BK6 (Speaker 84477-2)	
4881	Capacitor—3,300 mmfd. (C29)	32328	Cone—Speaker cone and voice coil
30303	Capacitor—.0035 mfd. (C14)	5118	Plug—3-prong male plug
4838	Capacitor—.005 mfd. (C21)	32327	Speaker—Complete
14393	Capacitor—.01 mfd. (C13)	VIBRATOR POWER UNIT ASSEMBLIES	
4886	Capacitor—.05 mfd. (C8, C10)	(RS-79B)	
4839	Capacitor—.1 mfd. (C15, C39)	13894	Capacitor—390 mmfd. (C40)
30965	Capacitor—.25 mfd. (C7)	4937	Capacitor—.01 mfd. (C27)
12741	Capacitor—.5 mfd. (C16)	12484	Capacitor—.25 mfd. (C25)
31581	Cell—1 volt bias cell	30867	Capacitor—.05 mfd. (C32, C38)
32257	Coil—Push button osc. shunt coil (L8, L9)	32152	Capacitor—Capacitor - 15-15 mfd. Electrolytic (C23, C24)
32254	Coil—Broadcast oscillator coil (L17)	14289	Clip—Battery clip for cable
32258	Coil—Antenna coil (L1, L2, L3, L4)	31794	Coil—Choke coil (L18)
32366	Coil—"C" band oscillator coil (L15, L16)	6516	Connector—Fuse connector
32256	Coil—Push button osc. series coil	5140	Fuse—5 ampere
32253	Coil—Push button antenna and oscillator coil (L20, L26)	14281	Resistor—68 ohms, 1/2 watt (R11)
32252	Coil—Push button antenna and oscillator coil (L21, L27)	14439	Resistor—100 ohms, 1/2 watt (R13)
32251	Coil—Push button antenna and oscillator coil (L22, L28)	3153	Resistor—1,500 ohms, 1 watt (R14)
32250	Coil—Push button antenna and oscillator coil (L23, L29)	30734	Resistor—5,600 ohms, 1/2 watt (R19)
32365	Condenser—2-gang variable condenser (C5, C6, C9, C34)	4786	Socket—6-prong socket for plug-in vibrator unit
32369	Contact—Dial lamp spring contact (S3)	14409	Socket—7-contact female socket for vibrator cable
12006	Core—Variable core and stud for I.F. transformers	32371	Transformer—Vibrator transformer (T3, L19, C26)
12800	Core—Variable core and stud for antenna coil	14309	Vibrator—(L24)
32268	Cord—Drive cord	A. C. POWER UNIT ASSEMBLIES	
32266	Drum—Variable condenser drive drum	Model CV-9	
31580	Holder—Bias cell holder	32223	Capacitor—15 mfd. (C37)
32267	Indicator—Dial scale pointer	32222	Capacitor—2-sections 15 mfd. each (C35, C36)
31480	Lamp—Dial lamp	14409	Plug—7-contact female plug for power out cable
14404	Plug—7-prong plug—mates with socket on supply cable	30545	Resistor—180 ohms, 1/2 watt (R17)
31373	Pulley—Drive cord pulley	4687	Resistor—1,000 ohms, 1/2 watt (R18)
30546	Resistor—470 ohms, 1/2 watt (R12)	13486	Resistor—2,200 ohms, 1 watt (R16)
13714	Resistor—5,600 ohms, 1/2 watt (R5)	31251	Socket—Tube socket
14284	Resistor—22,000 ohms, 1/10 watt (R20)	32221	Transformer—Power transformer 100-130, 140-160, 195-250 volts, 25-60 cycles (T4)
12454	Resistor—33,000 ohms, 1/2 watt (R4, R15)	MISCELLANEOUS ASSEMBLIES	
12199	Resistor—270,000 ohms, 1/2 watt (R6)	32279	Button—Station selector push button
30963	Resistor—820,000 ohms, 1/2 watt (R10)	31935	Clip—Spring clips to hold dial
13730	Resistor—1 meg., 1/2 watt (R1)	32372	Dial—Station selector dial scale
30208	Resistor—1.2 meg., 1/2 watt (R9)	32277	Escutcheon—Dial bezel and crystal
12679	Resistor—2.2 meg., 1/2 watt (R2, R7)	32278	Escutcheon—Push button bezel
30271	Resistor—4.7 meg., 1/2 watt (R3)	31713	Knob—Tuning knob
14887	Retainer—Drive cord pulley retaining washer	31355	Knob—Volume control knob
32261	Screw—Push button oscillator coil adjustment screw and mounting nut	32281	Marker—Push button marker for broadcast band
3993	Screw—No. 6-32 x 1/4 square head set screw for switch collar	32280	Marker—Push button marker for short wave band
4669	Screw—No. 8-32 square head set screw from drive drum	32067	Marker—One set station call letter markers
32265	Shaft—Tuning knob shaft and retainer	12993	Screw—Set screw for knob, Stock No. 31713
3682	Shield—Detector tube shield	14267	Screw—Chassis mounting screw assembly—Model 96BT6 only
3950	Shield—Oscillator tube shield	30467	Screw—Chassis mounting screw assembly—Model 96BK6 only
31365	Socket—Dial lamp socket	14270	Spring—Spring for knob, Stock No. 31355
5119	Socket—3-contact speaker cable socket		
31251	Socket—8-contact tube socket		
32481	Spring—Drive cord tension spring		
32255	Switch—Push button switch (S18, S19, S20, S21, S22, S23, S26, S27, S28, S29, S32, S33)		
30953	Switch—Tone control switch (S2)		

MODELS 96E2, 96K5, 96K6, 96T7, 97K2, and 97T2

Chassis No. RC-351L RC-351L RC-351L RC-351L RC-351K RC-351K

Six- and Seven-Tube, Three-Band, Electric-Tuning, A-C Superheterodyne Receivers



Model 96E2
6 Tubes, 8-in. Speaker



Model 96T7
6 Tubes, 6-in. Speaker



Model 97T2
7 Tubes, 6-in. Speaker

Electrical Specifications

FREQUENCY RANGES
 "Standard Broadcast" (A)..... 540-1,720 kc "Medium Wave" (B)..... 2.3-7.0 mc
 "Short Wave" (C)..... 7.0-22 mc
 Six Electric Tuning Positions..... 550-1,500 kc

2 stations between approximately 550- 950 kc
 2 stations between approximately 690-1,225 kc
 2 stations between approximately 890-1,500 kc

TUBE COMPLEMENT

- | | |
|--|---|
| (1) RCA-6K8..... First Detector—Oscillator | (4) RCA-6F5..... Audio Voltage Amplifier |
| (2) RCA-6K7..... Intermediate-Frequency Amplifier | (5) RCA-6F6-G..... Audio Power Amplifier |
| (3) RCA-6H6..... Second Detector and A.V.C. | (6) RCA-5Y3-G..... Full-Wave Rectifier |
| Pilot Lamps (1 on Models 96K5, 96K6, 96E2, 96T7) (2 on Models 97K2, 97T2)..... Mazda No. 47, 6.3 volts, .15 amp. | (7) RCA-6U5 (Models 97K2 and 97T2)..... Tuning Tube |

POWER SUPPLY RATING

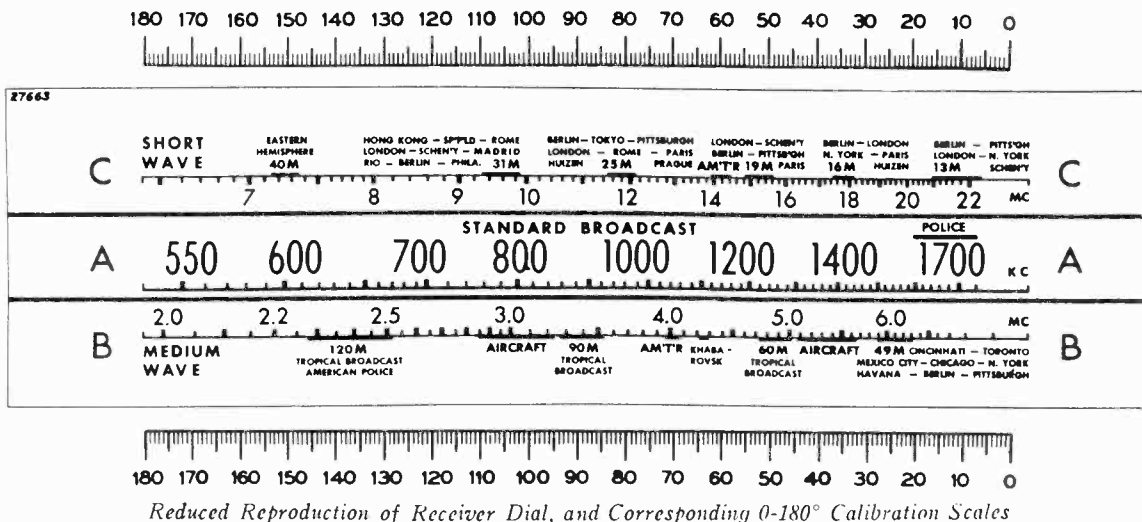
Rating A 105-125 volts, 50-60 cycles, 80 watts
 Rating B 105-125 volts, 25-60 cycles, 80 watts
 Rating C 100-130/140-160/195-250 volts, 40-60 cycles, 80 watts

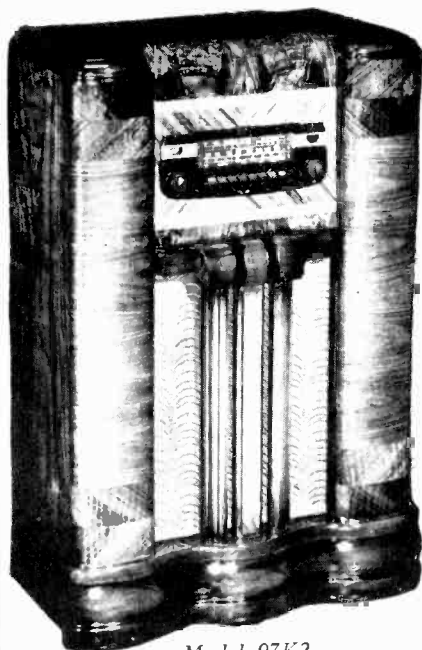
POWER OUTPUT

	96T7, 97T2	96E2, 96K5, 96K6, 97K2
Undistorted.....	2.0 watts	2.5 watts
Maximum.....	4.0 watts	4.5 watts

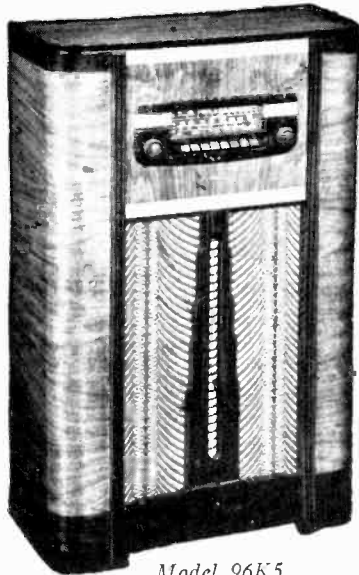
LOUDSPEAKER

Type..... Electrodynamic
 Voice-coil impedance 84308-1, 84308-4, RL63H-3, RL70H-1.. 2.2 ohms, RL79-1..... 3.4 ohms..... at 400 cycles

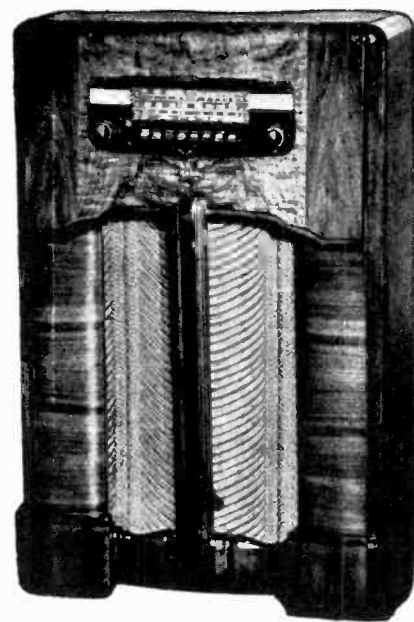




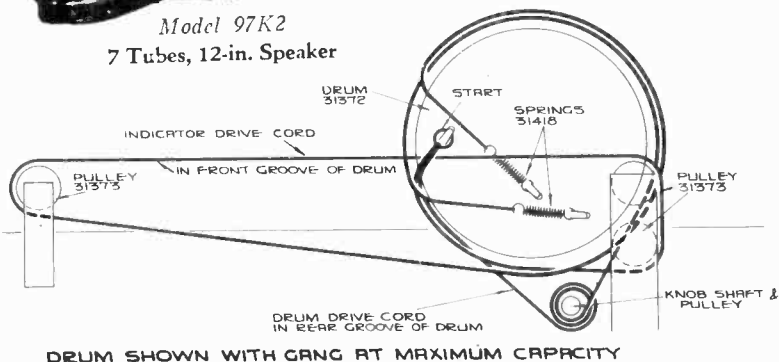
Model 97K2
7 Tubes, 12-in. Speaker



Model 96K5
6 Tubes, 12-in. Speaker

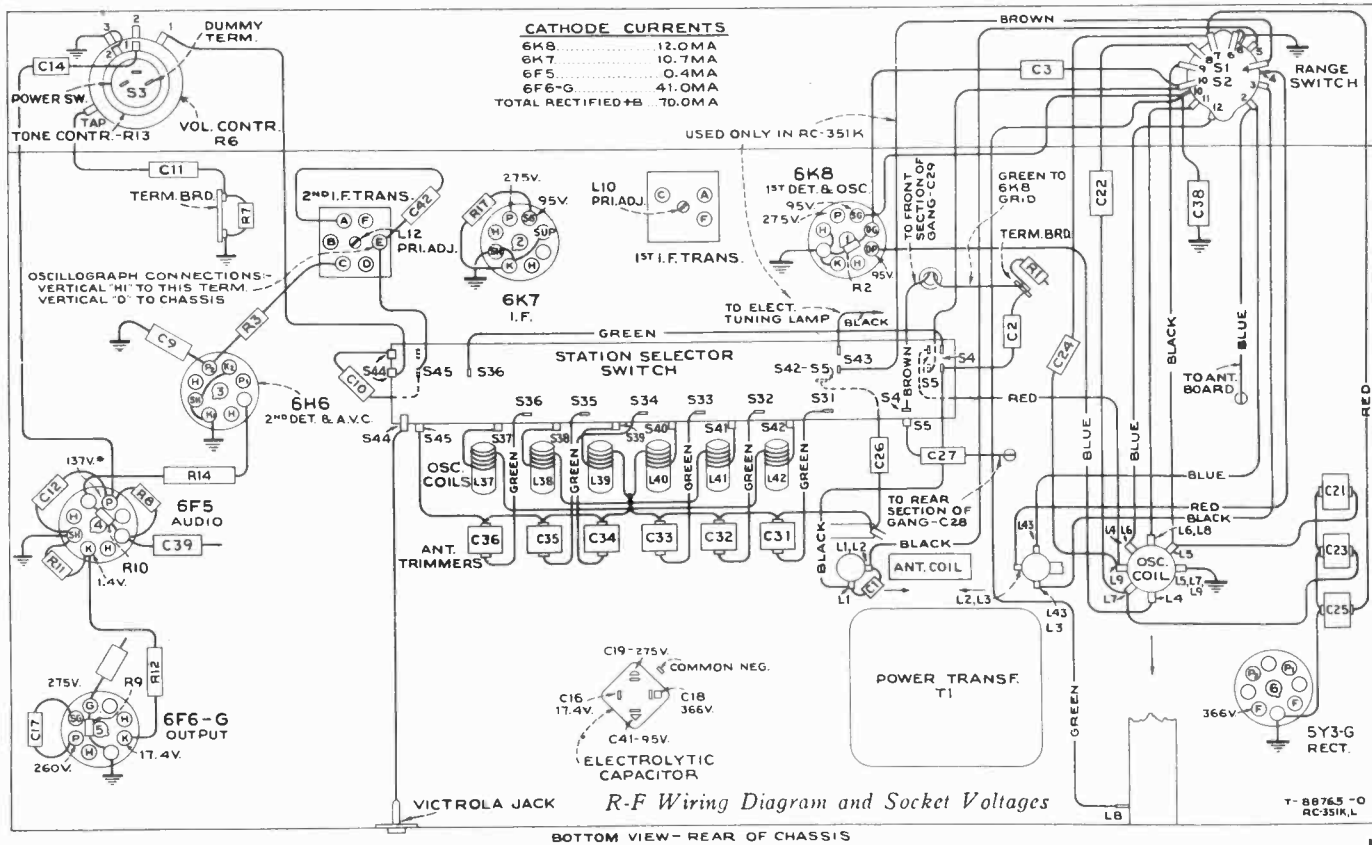


Model 96K6
6 Tubes, 12-in. Speaker



VOLTAGES SHOULD HOLD WITHIN $\pm 20\%$ WITH 117 V. AC. SUPPLY.

* MEASURED WITH CHANALYST OR VOLTOHMYST.



BOTTOM VIEW - REAR OF CHASSIS

96E2, 96K5, 96K6, 96T7, 97K2, 97T2

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

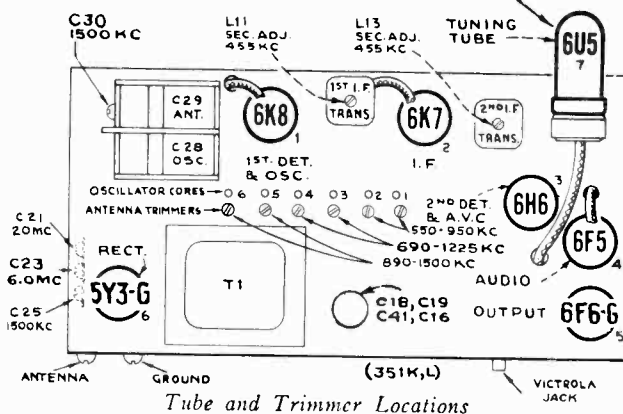
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

ALIGNMENT PROCEDURE

IN 97K2, 97T2 ONLY



Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the left-hand end mark, and gang condenser fully meshed.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point	L12 and L13 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc	between 550-750 kc	L10 and L11 (1st I-F Trans.)
3	Antenna Terminal, in series with 200 mmf.	600 kc	600 kc (150.5°) "A" band	L9
4		1,500 kc	1,500 kc (28°) "A" band	C25 (osc.) C30 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna Terminal, in series with 400 ohms	6 mc	6 mc (26.5°) "B" band	C23 (osc.)*
7		20 mc	20 mc (22°) "C" band	C21 (osc.)*
8	Follow "Adjustments for Electric Tuning."			

* Use minimum capacity peak if two peaks can be obtained, and rock gang condenser slightly while adjusting C23 and C21.

Note.—Oscillator tracks 455 kc above signal on all bands.

ADJUSTMENTS FOR ELECTRIC TUNING

These models have eight push buttons. The left-hand button is a Victrola switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an in-

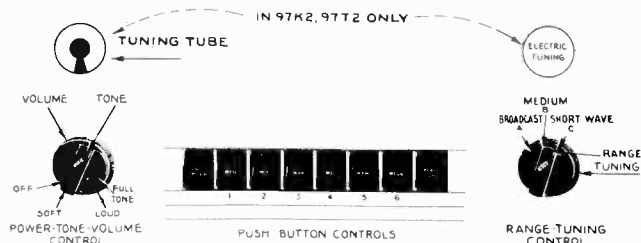
sulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button, and manually tune in the first station on the list.
3. Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

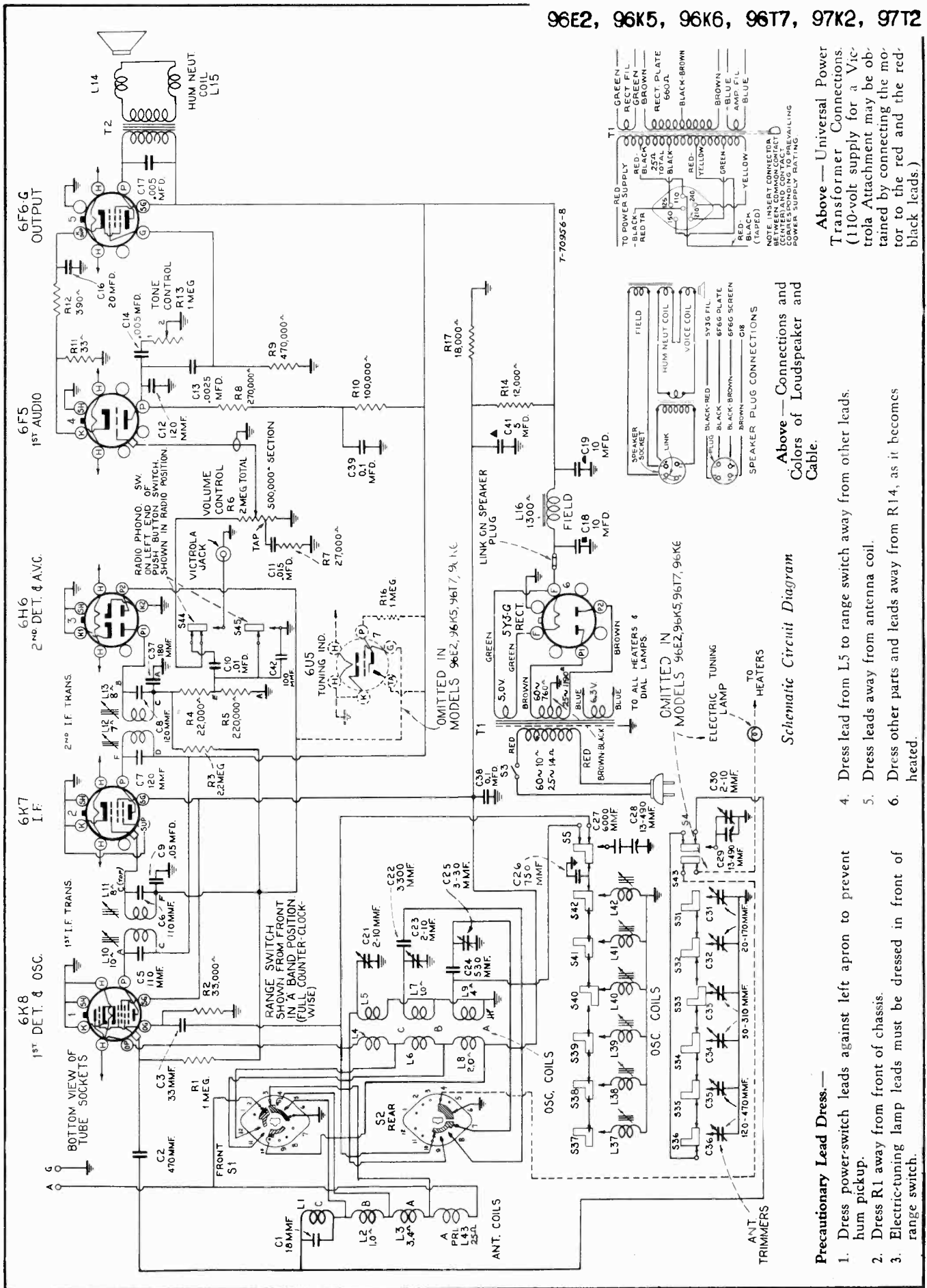
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining five stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.



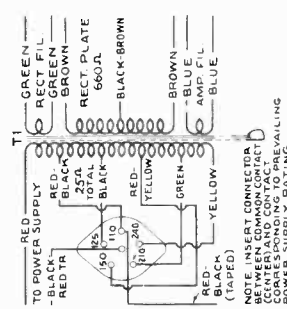
Location of Controls

The left-hand push button is a Victrola-Attachment switch. The right-hand push button is for dial tuning.



Precautionary Lead Dress.

1. Dress power-switch leads against left apron to prevent hum pickup.
2. Dress R1 away from front of chassis.
3. Electric-tuning lamp leads must be dressed in front of range switch.
4. Dress lead from L5 to range switch away from other leads.
5. Dress leads away from antenna coil.
6. Dress other parts and leads away from R14, as it becomes heated.



Above — Universal Power Transformer Connections.
 (110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.)

Above — Connections and Colors of Loudspeaker and Cable.

TO ALL HEATERS & DIAL LAMPS
 TO HEATERS

Schematic Circuit Diagram

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

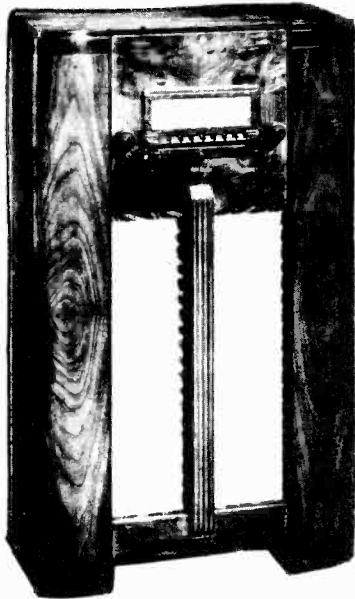
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
14517	Board—Antenna ground terminal board	32869	Switch—Range switch (S1, S2)
30752	Bracket—Magic Eye bracket and holder—Models 97T2 and 97K2	31370	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45)
32670	Bracket—Dial color plate and lamp brackets	14376	Transformer—First i-f transformer (L10, L11, C5, C8)
32884	Cable—Indicator drive cable	14283	Transformer—Second i-f transformer (L12, L13, C7, C8, C37, R4, R5)
30766	Cap—Magic Eye cap	31445	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1)
12110	Cap—Tube shield cap	31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1)
31400	Capacitor—Triple adjustable trimmer two sections 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25)	31448	Transformer—Power transformer 100-130, 140-160, 200-250 volts, 50-60 cycle (T1)
12722	Capacitor—18 mmfd. (C1)	SPEAKER ASSEMBLIES (84308-4) Model 96T7	
32486	Capacitor—Antenna trimmer capacitor bank. (C31, C32, C33, C34, C35, C36)	32918	Cone and Voice Coil assembly complete with metal housing
12948	Capacitor—33 mmfd. (C3)	32919	Field Coil Complete
12720	Capacitor—100 mmfd. (C42)	32920	Output Transformer
14282	Capacitor—109 mmfd. (C5, C6)	31302	Plug—4-contact male for speaker
12724	Capacitor—120 mmfd. (C12)	SPEAKER ASSEMBLIES (84308-1) Models 96T7 and 97T2	
12404	Capacitor—120 mmfd. (C7, C8)	31443	Cone—Speaker cone and voice coil (L14)
14712	Capacitor—180 mmfd. (C37)	31442	Speaker—Complete
30433	Capacitor—470 mmfd. (C2)	31444	Transformer—Output transformer (T2)
32492	Capacitor—530 mmfd. (C24)	SPEAKER ASSEMBLIES (RL-79-1) Model 97T2	
31435	Capacitor—750 mmfd. (C26)	32907	Cap—Cone center dust cap
31403	Capacitor—3300 mmfd. (C22)	32906	Coil—Hum neutralizing coil
31405	Capacitor—6000 mmfd. (C27)	33077	Coil—Speaker field coil
5107	Capacitor—.0025 mfd. (C13)	32934	Cone—Cone and voice coil assembly
4838	Capacitor—.005 mfd. (C14, C17)	31302	Plug—4-prong male speaker plug
14393	Capacitor—.01 mfd. (C10)	33078	Speaker—Speaker complete
4839	Capacitor—.01 mfd. (C38, C39)	32905	Transformer—Output transformer (T2)
11315	Capacitor—.015 mfd. (C11)	SPEAKER ASSEMBLIES (RL-63H-3) Model 96E2	
4888	Capacitor—.05 mfd. (C9)	31825	Cap—Speaker cone center dust cap
32486	Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41)	11489	Coil—Hum neutralizing coil (L17)
31382	Clip—Oscillator coil and core mounting clip	12012	Coil—Speaker field coil (L18)
32493	Coil—Antenna coil—A, B, and C bands (L1, L2, L3, L43)	31310	Cone—Speaker cone and voice coil (L16)
31951	Coil—Oscillator coil—A, B, and C bands (L4, L5, L6, L7, L8, L9)	31302	Plug—4-contact male plug for speaker
31383	Coil—Oscillator coil—A band (L41, L42)	31824	Speaker complete
32487	Coil—Oscillator coil—A band (L39, L40)	14355	Transformer—Output transformer (T2)
31385	Coil—Oscillator coil—A band (L37, L38)	SPEAKER ASSEMBLIES (RL-70H-1) Models 96K5 and 97K2	
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31825	Cap—Dust cap for cone center
32668	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	12012	Coil—Field coil (L16)
32634	Cord—Indicator pointer and variable condenser drum drive cord	11489	Coil—Hum neutralizing coil (L15)
30905	Core—Adjustable core for i-f transformer	31275	Cone—Speaker cone and voice coil (L14)
31386	Core—Adjustable core and stud for oscillator coil Stock Nos. 31383 and 31385	31302	Plug—4-contact male plug
12800	Core—Adjustable core and stud for oscillator coil Stock No. 32487	31592	Speaker—Speaker complete
31372	Drum—Variable condenser drive cord drum and calibrator dial	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
32552	Indicator—Dial pointer and clip	14355	Transformer—Output transformer (T2)
11891	Lamp—Dial or Electric Tuning indicator lamp	14357	Washer—Spring washer to hold field coil
5040	Plug—4-contact female plug for speaker cable	MISCELLANEOUS ASSEMBLIES	
31373	Pulley—Indicator drive cord pulley	31397	Button—Push button
14671	Resistor—33 ohms, 1/2 watt (R11)	31456	Cover—8-protective covers for push button markers
31388	Resistor—390 ohms, 1/2 watt (R12)	32873	Dial—Dial scale and crystal (glass)
31389	Resistor—12,000 ohms, wire wound, 5 watts (R14)	32872	Escutcheon—Dial escutcheon and dial—less buttons—Models 96K5, 96E2, and 96T7
30151	Resistor—18,000 ohms, 1 watt (R17)	32874	Escutcheon—Dial escutcheon and dial—less buttons—Models 97K2 and 97T2
14284	Resistor—22,000 ohms, 1/10 watt (R4)	31355	Knob—Range switch knob
12738	Resistor—27,000 ohms, 1/2 watt (R7)	14359	Knob—Station selector knob
12454	Resistor—33,000 ohms, 1/2 watt (R2)	31391	Knob—Tone control knob
14560	Resistor—100,000 ohms, 1/2 watt (R10)	30773	Knob—Volume control knob
11398	Resistor—220,000 ohms, 1/10 watt (R5)	31589	Marker—1 set station call letter markers
12199	Resistor—270,000 ohms, 1/2 watt (R8)	31458	Marker—"Dial Tuning" push button marker
12285	Resistor—470,000 ohms, 1/2 watt (R9)	31457	Marker—"Victrola" push button marker
12013	Resistor—1 meg., 1/10 watt (R16) Models 97T2 and 97K2	11210	Screw—Chassis mounting screws, washers and lockwashers. Models 96K5, 97K2 and 96E2 (3 required)
13730	Resistor—1 meg., 1/2 watt (R1)	31390	Screw—Chassis mounting screws, washers and lockwashers Models 96T7 and 97T2. (Sufficient for one chassis)
12679	Resistor—2.2 meg., 1/2 watt (R3)	4982	Spring—Retaining spring for knob Stock No. 14359
14343	Retainer—Retaining spring for station selector knob shaft	14270	Spring—Retaining spring for knob Stock Nos. 30773 and 31355
14887	Retainer—Drive cord pulley retainer	30330	Spring—Retaining spring for knob Stock No. 31391
4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372		
32671	Shaft—Station selector knob shaft and pulley		
31199	Shield—Electric tuning lamp shield		
31364	Socket—Dial lamp socket		
31365	Socket—"Electric Tuning" indicator lamp insulated socket Model 97T2 and 97K2		
13871	Socket—Magic Eye socket (Models 97T2 and 97K2)		
31251	Socket—Octal base tube socket		
14278	Socket—Pickup socket		
31418	Spring—Indicator, or drum drive cord tension spring		

MODELS 96K 96T2 and 97K

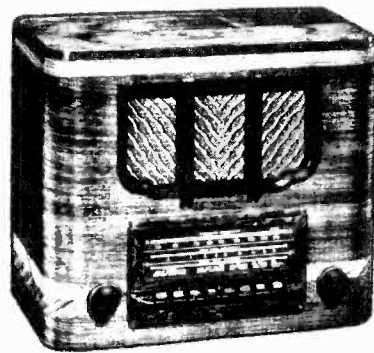
* CHASSIS No. RC-351

RC-351F

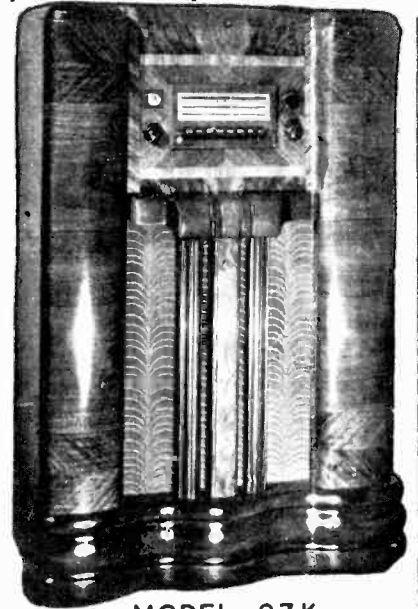
6 AND 7 Tube, Electric-Tuning, Two-Band, A-C, Superheterodyne Receivers



Model 96K



Model 96T2



MODEL 97K

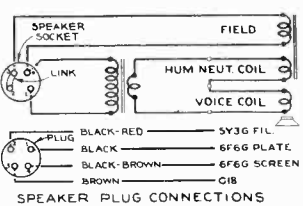
Electrical Specifications

FREQUENCY RANGES			
"Standard Broadcast" (A).....	540-1,720 kc	"Short Wave" (C).....	5.8-18.0 mc
Six Electric Tuning Positions.....	550 to 1,500 kc		
Two stations between approximately	550- 950 kc		
* Two stations between approximately	680-1,180 kc (RC-351F)		
* Two stations between approximately	690-1,225 kc (RC-351F "M," RC 351F "R")		
Two stations between approximately	890-1,500 kc		

Intermediate Frequency.....	455 kc
RCA TUBE COMPLEMENT	
(1) RCA-6K8.....	First Detector-Oscillator
(2) RCA-6K7.....	Intermediate-Frequency Amplifier
(3) RCA-6H6.....	Second Detector and A.V.C.
Pilot Lamps (2).....	Mazda No. 47, 6.3 volts, 0.15 amp.

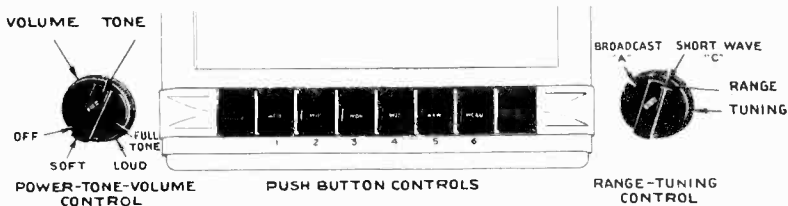
POWER SUPPLY RATINGS			
Rating A.....	105-125 volts, 50-60 cycles, 75 watts	80 watts	
Rating B.....	105-125 volts, 25-60 cycles, 75 watts	80 watts	
Rating C.....	100-130/140-160/195-250 volts, 40-60 cycles, 75 watts	80 watts	
POWER OUTPUT		96T2	96K 97K
Undistorted.....	2.0 watts		2.5 watts
Maximum.....	4.0 watts		4.5 watts

LOUDSPEAKER			
Model	96T2	96K	97K
Type.....	6 inch, electrodynamic	12 inch, electrodynamic	
Voice Coil Impedance at 400 cycles.....	2.6 ohms	2.2 ohms	



* 2ND PROD			
96K, 96T2	RC-351	"M"	
97K	RC-351F	"M"	
* 3RD PROD			
96K, 96T2	RC-351	"R"	
97K	RC-351F	"R"	

See following page



MODEL 96T2	
ADDITIONAL REPLACEMENT PART:	
Stock No.	
14616	Coil - Field coil for speaker stamped 84308-1
SPEAKER STAMPED 84308-4	
Replacement parts:	
Stock No.	
32918	Cone - Cone and voice coil
32919	Coil - Field coil
32920	Transformer - output trans.
31302	Plug - 4 contact male plug
Voice coil impedance 2.2 ohms	
Field coil resistance 1290 ohms	

MODELS 96K, 96T2

Changes in 2nd and 3rd Production:

The 2nd and 3rd productions are identified by the letters "M" and "R" respectively after the RC number stamping. (Thus: RC-351M, or RC-351R.)

For service data applying to circuit, alignment, chassis layout, R-F and I-F coils, electrolytic capacitors, and push-button ranges of the 2nd and 3rd production runs, refer to the corresponding "M" and "R" changes in the Service Note for Model 97K.

	1ST PRO- DUCTION	2ND PRO- DUCTION (Chassis Stamped "M")	3RD PRO- DUCTION (Chassis Stamped "R")
PUSH-BUTTON FREQUENCY RANGES			
Button No. 1 (left), and No. 2.....	550- 950 kc	550- 950 kc	550- 950 kc
Button No. 3 and 4.....	680-1,180 kc	690-1,225 kc	690-1,225 kc
Button No. 5 and 6.....	890-1,500 kc	890-1,500 kc	890-1,500 kc

ANTENNA TRIMMER BANK CAPACITANCE

	1ST PRO- DUCTION	2ND PRO- DUCTION (Chassis Stamped "M")	3RD PRO- DUCTION (Chassis Stamped "R")
C31 and C32.....	20-170 mmfd.	20-170 mmfd.	20-170 mmfd.
C33 and C34.....	50-310 mmfd.	50-310 mmfd.	50-310 mmfd.
C35 and C36.....	120-470 mmfd.	120-470 mmfd.	120-470 mmfd.

TUBES

	6F6 5W4	6F6-G 5Y3-G	6F6-G 5Y3-G
	Stock No.	Stock No.	Stock No.
Power output tube.....	6F6	6F6-G	6F6-G
Rectifier tube.....	5W4	5Y3-G	5Y3-G
Cap—Tube shield cap for 6F5.....	.....	12110	12110
Capacitor—6.8 mmfd. (C1).....	14079	14079	.....
Capacitor—15 mmfd. (C1).....	.....	.....	12896
Capacitor—Antenna trimmer capacitor bank (C31, C32, C33, C34, C35, C36).....	31387	32486	32486
Capacitor—100 mmfd. (C5, C6, C7, C8).....	30904	30904	.....
Capacitor—109 mmfd. (C5, C6).....	.....	.....	14262
Capacitor—120 mmfd. (C7, C8).....	.....	.....	12404
Capacitor—180 mmfd. (C37) mounted under chassis.....	13003	13003	.....
Capacitor—180 mmfd. (C37) in 2nd I-F trans.....	.....	.....	14712
Capacitor—620 mmfd. (C24).....	31381	31381	.....
Capacitor—530 mmfd. (C24).....	.....	.....	32492
Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41), cardboard case, mounted horizontally.....	31371	.....	.....
Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41), metal-case type, mounted vertically.....	.....	32485	32485
Coil—Antenna coil "A" and "C" bands (L1, L2, L3) mounted vertically.....	31378	31378	.....
Coil—Antenna coil "A" and "C" bands (L1, L2, L3, L43) mounted horizontally.....	.....	.....	32488
Coil—Oscillator coil "A" and "C" bands (L4, L5, L6, L7) mounted vertically (no magnetite core).....	31377	31377	.....
Coil—Oscillator coil "A" and "C" bands (L4, L5, L6, L7) mounted horizontally (with magnetite core).....	.....	.....	32489
Coil—Push button oscillator coil (L37 or L38).....	31385	31385	31385
Coil—Push button oscillator coil (L39 or L40).....	31384	32487	32487
Coil—Push button oscillator coil (L41 or L42).....	31383	31383	31383
Core—Adjustable core and stud for oscillator coil. Stock No. 32489.....	.....	.....	12800
Resistor—220,000 ohms. 1/2 watt (R5).....	12264	12264	.....
Resistor—220,000 ohms. 1/10 watt (R5).....	.....	.....	11398
Switch—Range switch (S1).....	31367	31367	32490
Transformer—1st I-F trans. (L10, L11, C5, C6).....	30902	30902	14376
Transformer—2nd I-F trans. (L12, L13, C7, C8).....	30903	30903	.....
Transformer—2nd I-F trans. (L12, L13, C7, C8, C37, R4, R5).....	.....	.....	14283
Dial—Dial scale (glass).....	31396	31396	32356

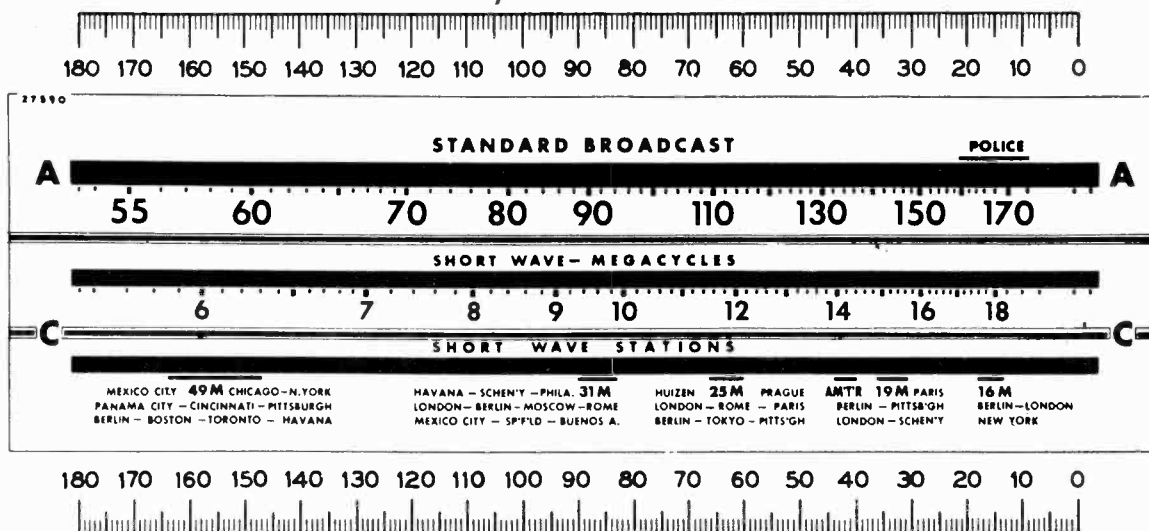
There are three different productions of Model 97K, conveniently identified by rear chassis stamping as RC-351F, RC-351F "M," and RC-351F "R."

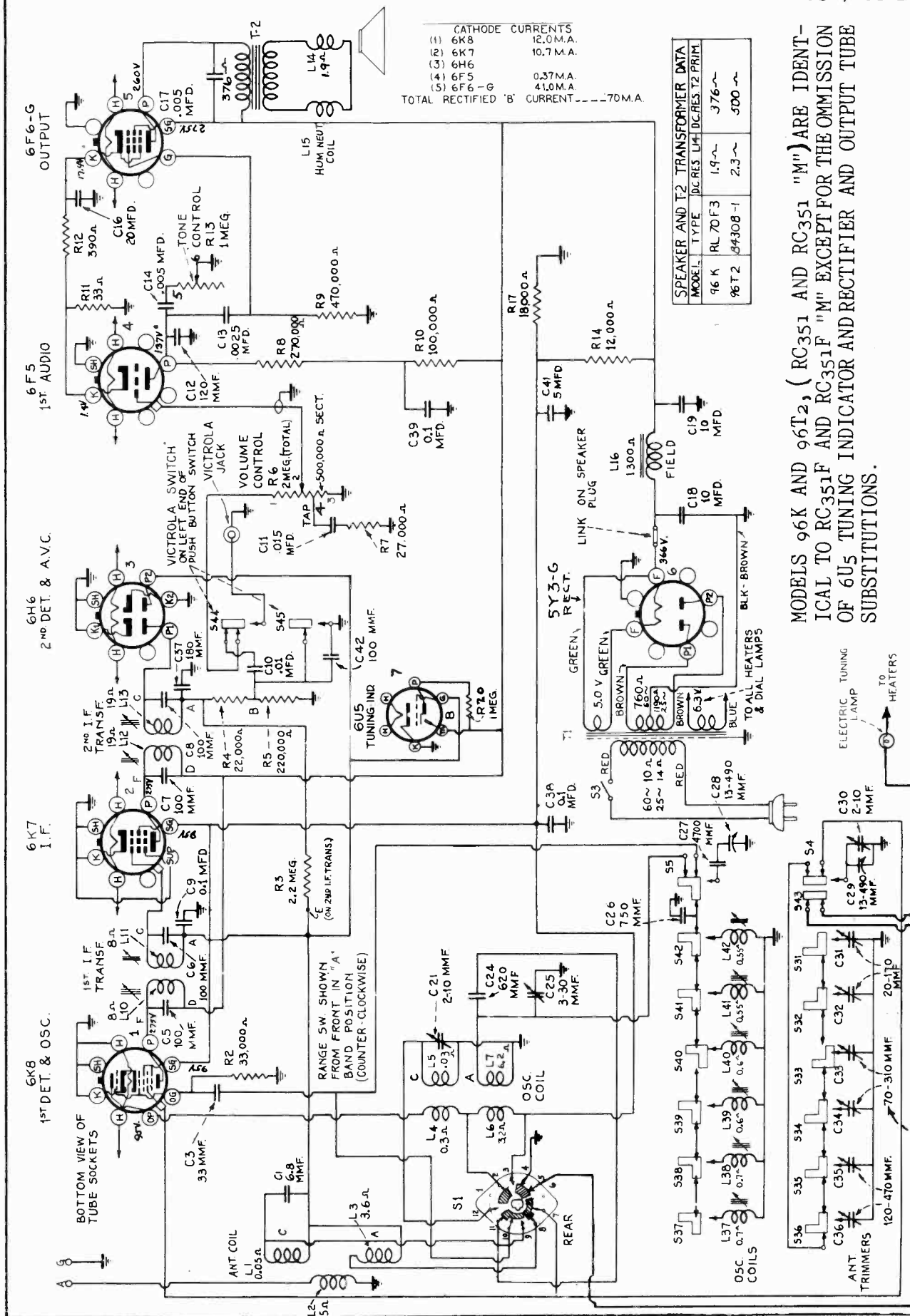
RC-351F has a cardboard-case electrolytic with five leads. RC-351F "M" has a metal-case electrolytic with lug contacts, and the range of No. 3 and 4 push buttons is 690-

1,225 kc instead of 680-1,180 kc as in RC-351F.

RC-351F "R" has the metal-case electrolytic, and the same push-button ranges as RC-351F "M," and in addition has different antenna coil, oscillator coil, range switch, and i-f transformers.

Calibration Scale, RC-351F and RC-351F "M"





CATHODE CURRENTS

(1)	6K8	12.0 M.A.
(2)	6K7	10.7 M.A.
(3)	6H6	0.37 M.A.
(4)	6F5	41.0 M.A.
(5)	6F6-G	---

TOTAL RECTIFIED 'B' CURRENT --- 70 M.A.

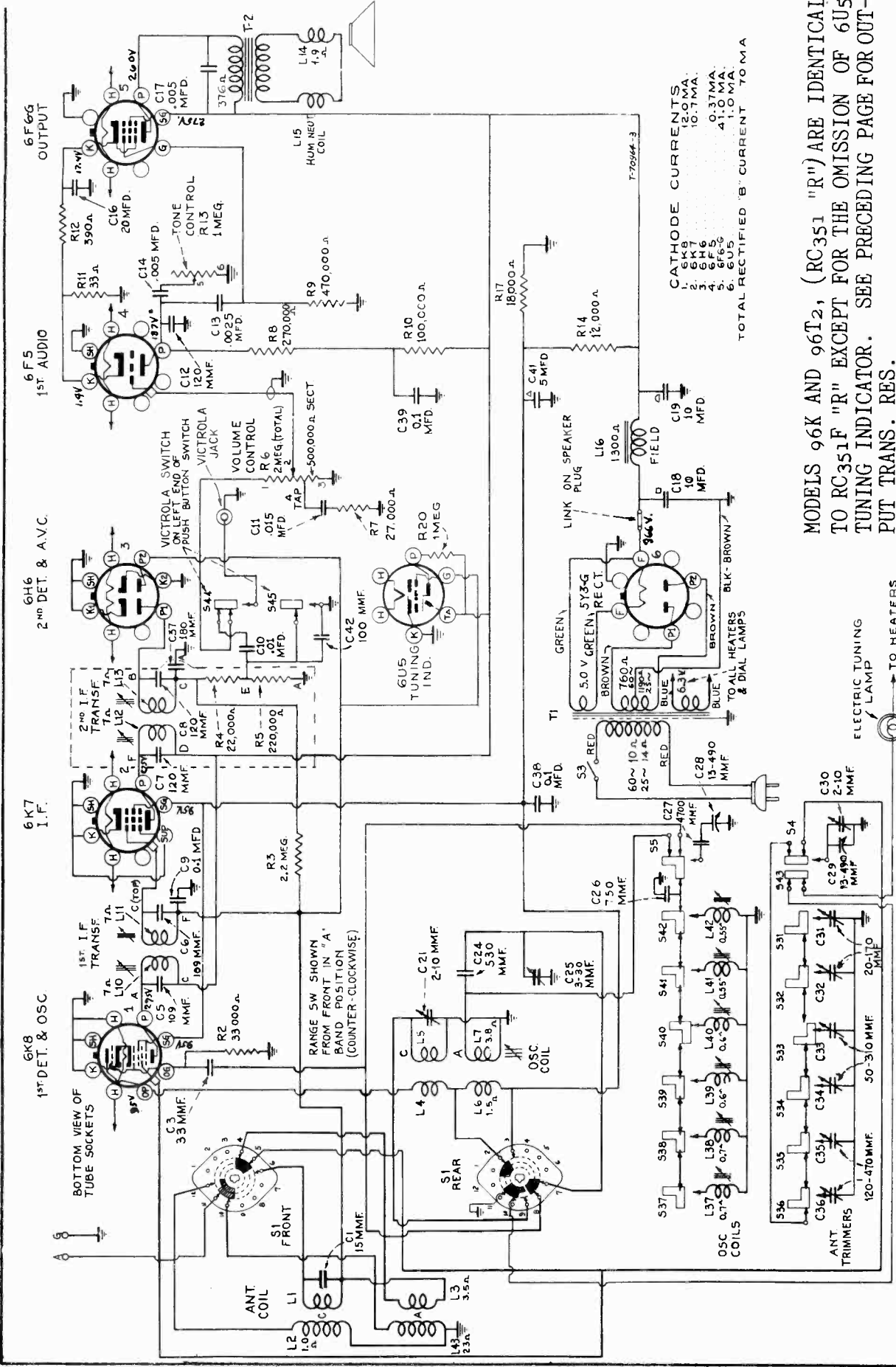
SPEAKER AND T2 TRANSFORMER DATA

MODEL	TYPE	DC RES L/H	DC RES T2 PRIM	376 ~	500 ~
96 K	RL 70 F3	1.9 ~	376 ~		
96 T2	94308-1	2.3 ~	500 ~		

MODELS 96K AND 96T2, (RC351 AND RC351 "M") ARE IDENTICAL TO RC351F AND RC351F "M" EXCEPT FOR THE OMISSION OF 6U5 TUNING INDICATOR AND RECTIFIER AND OUTPUT TUBE SUBSTITUTIONS.

Chassis No. RC-351F and RC-351F "M"

50-310 MMF IN RC-351F "M"



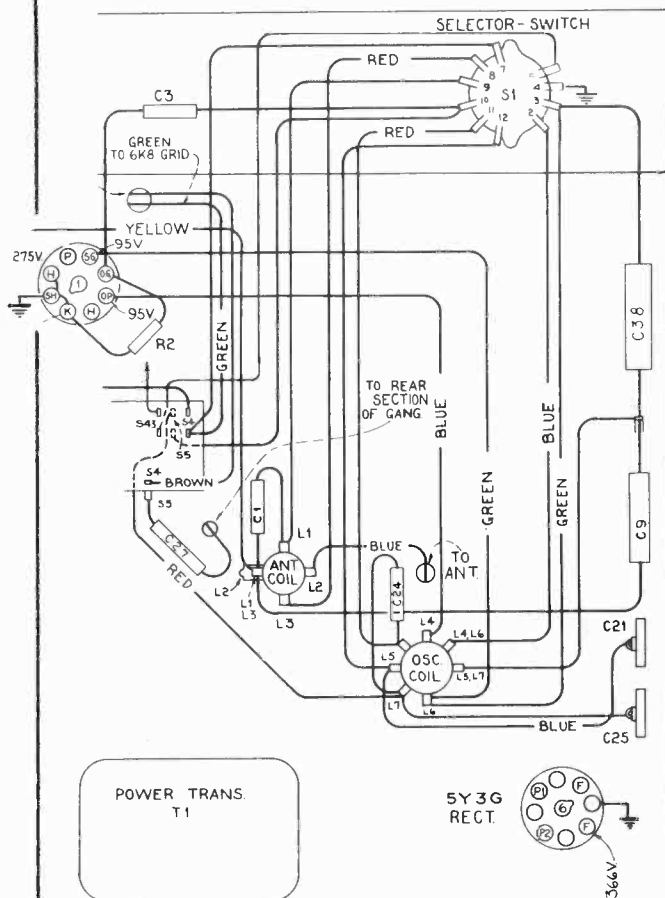
CATHODE CURRENTS

1. 6K8	12.0 MA.
2. 6H6	10.7 MA.
3. 6F5	0.37 MA.
4. 6F6G	41.0 MA.
5. 6F6G	1.0 MA.
6. 6U5	1.0 MA.

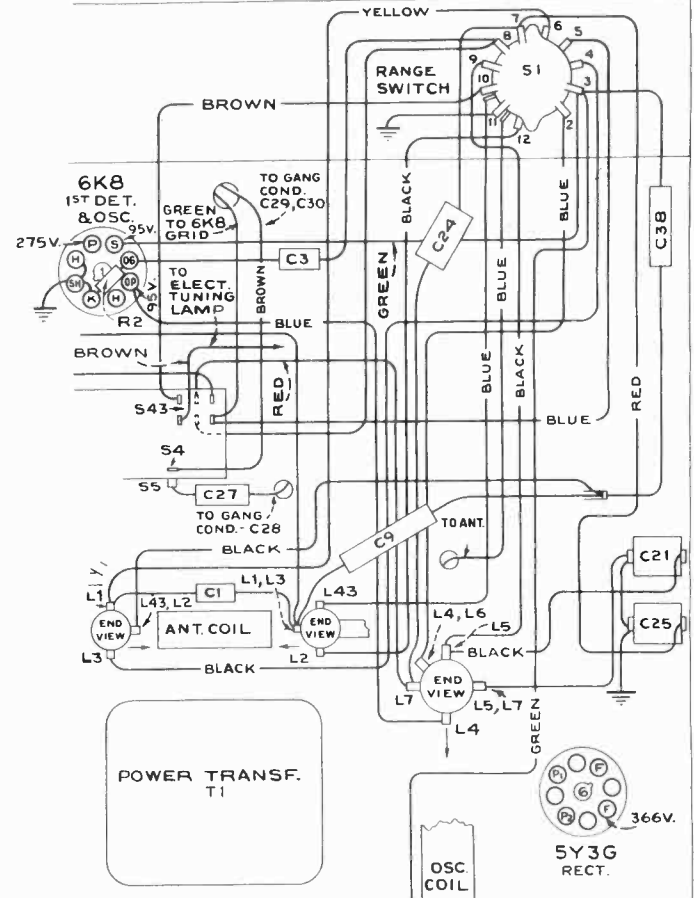
TOTAL RECTIFIED 'B' CURRENT TO MA

MODELS 96K AND 96T2, (RC351 "R") ARE IDENTICAL TO RC351F "R" EXCEPT FOR THE OMISSION OF 6U5 TUNING INDICATOR. SEE PRECEDING PAGE FOR OUTPUT TRANS. RES.

Chassis No. RC-351F "R"
Schematic Circuit Diagram

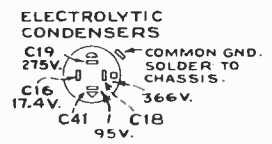
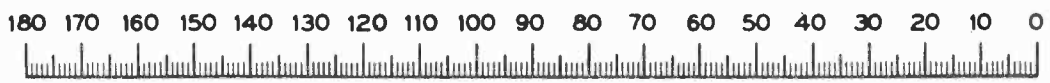
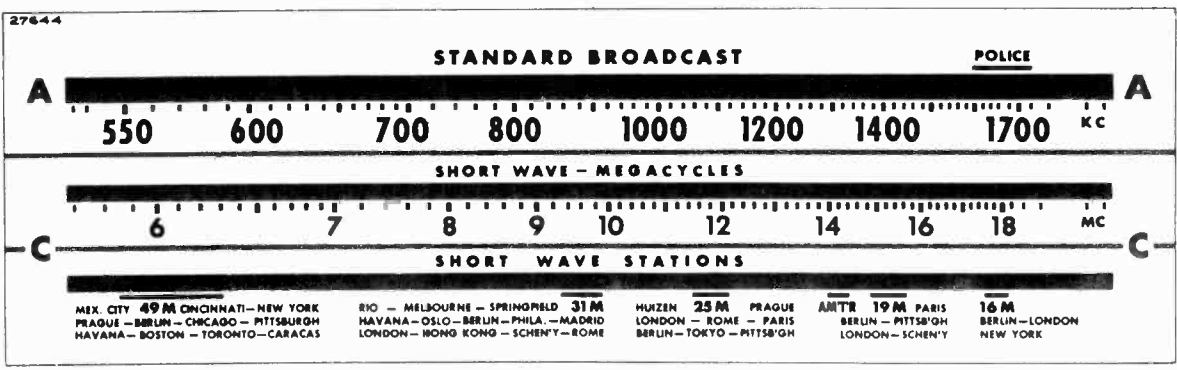
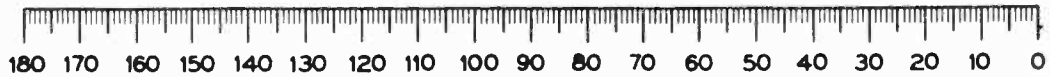


Chassis No. RC-351F and RC-351F "M"

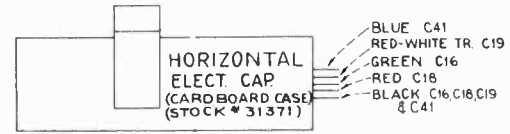


RC-351F "R"

Calibration Scale, RC-351F "R"



VERTICAL ELECT. CAP. PACK WITH METAL CASE (STOCK #32485)



ALIGNMENT PROCEDURE

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

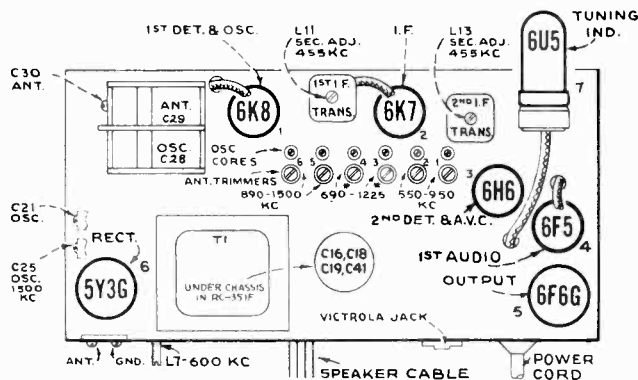
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—I provide a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.



* In RC-351F, push buttons 3 and 4 cover 680-1,180 kc.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

RC-351F and RC-351F "M"

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 650-760 kc	L12 and L13 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc		L10 and L11 (1st I-F Trans.)
3	Antenna Terminal, in series with 400 ohms	15.2 mc	15.2 mc (33.5°) "C" band	C21* (osc.) C30** (ant.)
4	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (28°) "A" band	C25 (osc.)
5	Follow "Adjustments for Electric Tuning."			

* Use minimum capacity peak if two peaks can be obtained.
 ** Rock gang slightly while adjusting C30. Check to determine that C21 has been adjusted to the correct peak by tuning to approximately 40.5° (14.29 mc), where a weaker signal should be received.
 Note.—Oscillator tracks 455 kc above signal on both bands.

RC-351F "R"

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc		L10 and L11 (1st I-F Trans.)
3	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (27.4°) "A" band	C25 (osc.) C30 (ant.)
4	Antenna Terminal, in series with 200 mmf.	600 kc	600 kc (148°) "A" band	L7 (osc.)
5	Repeat steps 3 and 4.			
6	Antenna Terminal, in series with 400 ohms	18 mc	18 mc (15°) "C" band	C21 (osc.)*
7	Follow "Adjustments for Electric Tuning."			

* Rock gang slightly while peaking C21, and use minimum capacity peak if two peaks can be obtained on C21.
 Note.—Oscillator tracks 455 kc above signal on both bands.

ADJUSTMENTS FOR ELECTRIC TUNING

These models have eight push buttons. The left-hand button is a Victrola switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

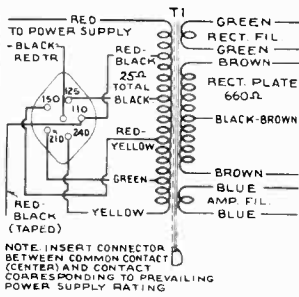
1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Use one or two feet of wire as an antenna to ensure sharp peaking.

3. Push in the dial-tuning button, and manually tune in the first station on the list.
4. Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
5. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

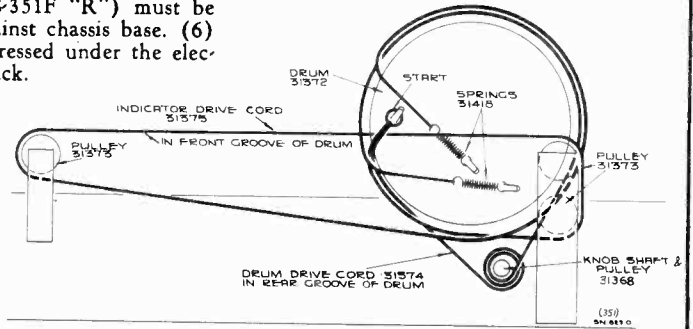
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

6. Adjust for each of the remaining five stations in the same manner.
7. Make a final readjustment of the magnetite-cores.

Precautionary Lead Dress.—(1) Dress 110-volt leads away from audio wiring. (2) All leads in vicinity of antenna and oscillator coils must be dressed away from the coils. (3) Electric Tuning lamp leads from push-button switch must be dressed against front apron. (4) Keep speaker leads away from Victrola jack. (5) Lead from C19 in electrolytic (RC-351F "R") must be dressed around left-end of push-button switch, and against chassis base. (6) The leads across back of chassis in RC-351F must be dressed under the electrolytic capacitor to prevent approaching the Victrola jack.



Universal Power Transformer Connections. 110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.



DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY

REPLACEMENT PARTS 96K 96T2

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14517	Board—Antenna—ground terminal board.	31364	Socket—Dial lamp socket.
31379	Capacitor—Dual trimmer 2-10 Mmfd. and 3-30 Mmfd. (C21, C25).	14278	Socket—Pickup socket.
14079	Capacitor—6.8 Mmfd. (C1).	31251	Socket—Radiotron socket.
31387	Capacitor—Antenna coil trimmer capacitor bank 20-470 Mmfd. (C31, C32, C33, C34, C35, C36).	31367	Switch—Range switch (S1).
12948	Capacitor—33 Mmfd. (C3).	31370	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45).
12720	Capacitor—100 Mmfd. (C42).	30957	Transformer—First I.F. transformer (L10, L11, C5, C6).
30904	Capacitor—100 Mmfd. (C5, C6, C7, C8).	30903	Transformer—Second I.F. transformer (L12, L13, C7, C8).
12724	Capacitor—120 Mmfd. (C12).	31445	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1).
13003	Capacitor—180 Mmfd. (C37).	31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1).
31381	Capacitor—620 Mmfd. (C24).	31446	Transformer—Power transformer 100-130/140-160/195-250 volts, 50-60 cycle (T1).
31435	Capacitor—750 Mmfd. (C26).	SPEAKER ASSEMBLIES	
31399	Capacitor—4,700 Mmfd. (C27).	Model 96T2 (Speaker No. 84308-1)	
5107	Capacitor—.0025 Mfd. (C13).	31443	Cone—Speaker cone and voice coil (L14).
4838	Capacitor—.005 Mfd. (C14, C17).	31442	Speaker—Complete.
14393	Capacitor—.01 Mfd. (C10).	31444	Transformer—Output transformer (T2).
11315	Capacitor—.015 Mfd. (C11).	SPEAKER ASSEMBLIES	
4839	Capacitor—0.1 Mfd. (C9, C38, C39).	Model 96K (Speaker No. RL70F-3)	
31371	Capacitor—Comprising two 10 Mfd., one 20 Mfd., and one 5 Mfd. sections (C18, C19, C16, C41).	13866	Cap—Dust cap for cone center.
31382	Clip—Oscillator coil and core mounting clip.	12012	Coil—Field coil (L16).
31378	Coil—Antenna coil—"A" and "C" bands (L1, L2, L3).	11469	Coil—Hum neutralizing coil (L15).
31377	Coil—Oscillator coil—"A" and "C" bands (L4, L5, L6, L7).	31275	Cone—Speaker cone and voice coil (L14).
31383	Coil—Oscillator coil—"A" band (L41, L42).	31302	Plug—4-contact male plug.
31384	Coil—Oscillator coil—"A" band (L39, L40).	31300	Speaker—Speaker complete.
31385	Coil—Oscillator coil—"A" band (L37, L38).	14358	Screw—Screw, washer, and lockwasher to hold core in yoke.
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30).	31301	Transformer—Output transformer (T2).
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3).	14357	Washer—Spring washer to hold field coil.
31375	Cord—Indicator pointer drive cord.	MISCELLANEOUS ASSEMBLIES	
31374	Cord—Variable condenser drum drive cord.	31397	Button—Station selector push-button.
30905	Core—Adjustable core for I.F. transformer.	31456	Cover—8 protective covers for push-button markers.
31386	Core—Adjustable core and stud for oscillator coil Stock Nos. 31383, 31384, 31385.	31396	Dial—Station selector dial scale.
31372	Drum—Variable condenser drive cord drum and calibrator dial.	31395	Escutcheon—Station selector escutcheon less dial scale and push-buttons.
31480	Lamp—Dial lamp.	31392	Indicator—Station selector indicator pointer.
5040	Plug—4-contact female plug for speaker cable.	31355	Knob—Range switch knob.
31373	Pulley—Drive cord pulley.	14359	Knob—Station selector knob.
14671	Resistor—33 ohms, 1/2 watt (R11).	31391	Knob—Tone control knob.
31388	Resistor—390 ohms, 1 watt (R12).	30773	Knob—Volume control knob.
31389	Resistor—12,000 ohms, wire-wound, 5 watts (R14).	31589	Marker—Station call letter markers.
30151	Resistor—18,000 ohms, 1 watt (R17).	31457	Marker—"Victrola" marker for push button.
14284	Resistor—22,000 ohms, 1/10 watt (R4).	31458	Marker—"Dial Tuning" marker for push button.
12738	Resistor—27,000 ohms, 1/2 watt (R7).	31393	Screen—Station selector dial color screen and light diffuser.
12454	Resistor—33,000 ohms, 1/2 watt (R2).	11377	Screw—Chassis mounting screws, washers and lockwashers—Model 96K.
14560	Resistor—100,000 ohms, 1/2 watt (R10).	31390	Screw—Chassis mounting screws, washers and lockwashers—Model 96T2.
12264	Resistor—220,000 ohms, 1/2 watt (R5).	4982	Spring—Retaining spring for knob Stock No. 14359.
12199	Resistor—270,000 ohms, 1/2 watt (R8).	14270	Spring—Retaining spring for knob Stock Nos. 31355 and 30773.
12285	Resistor—470,000 ohms, 1/2 watt (R9).	30330	Spring—Retaining spring for knob Stock No. 31391.
12679	Resistor—2.2 meg., 1/2 watt (R3).	31394	Stop—Indicator pointer slide stop.
14343	Retainer—Retaining spring for station selector knob shaft.		
14887	Retainer—Drive cord pulley retainer.		
4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372.		
31368	Shaft—Station selector knob shaft and pulley.		
31418	Spring—Indicator, or drum drive cord tension spring.		

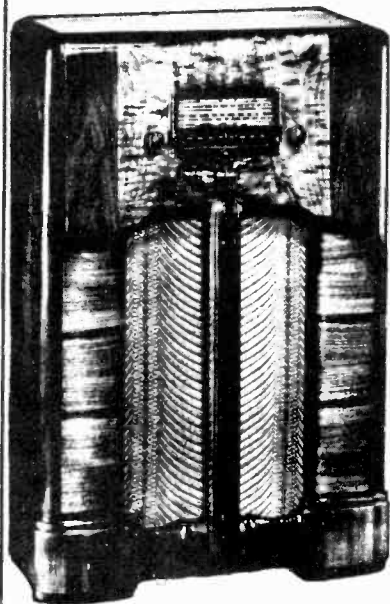
REPLACEMENT PARTS 97K

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

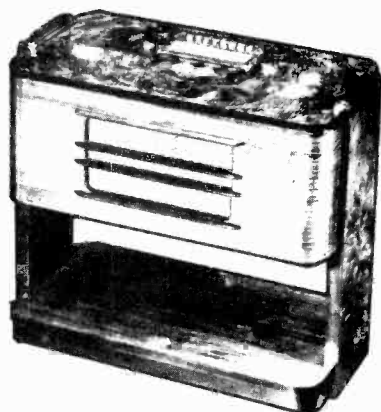
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-351F, RC-351F "M," and RC-351F "R")		
30752	Bracket—Magic Eye mounting bracket	12454	Resistor—33,000 ohms, 1/2 watt (R2)
14517	Board—Antenna—ground terminal board	14560	Resistor—100,000 ohms, 1/2 watt (R10)
12110	Cap—Tube shield cap	11398	Resistor—220,000 ohms, 1/10 watt (R5) used in RC-351F "R"
31379	Capacitor—Dual trimmer 2-10 mmfd. and 3-30 mmfd. (C21, C25)	12264	Resistor—220,000 ohms, 1/2 watt (R5) used in RC-351F and RC-351F "M"
14079	Capacitor—6.8 mmfd. (C1) use in RC-351F and RC-351F "M" only	12199	Resistor—270,000 ohms, 1/2 watt (R8)
12896	Capacitor—15 mmfd. (C1) used in RC-351F "R" only	12285	Resistor—470,000 ohms, 1/2 watt (R9)
31387	Capacitor—Antenna coil trimmer capacitor bank, (C31, C32, C33, C34, C35, and C36) used in RC-351F only	12013	Resistor—1 meg., 1/10 watt (R20)
32486	Capacitor—Antenna coil trimmer capacitor bank, (C31, C32, C33, C34, C35, and C36) used in RC-351F "M" and RC-351F "R" only	12679	Resistor—2.2 meg., 1/2 watt (R3)
12948	Capacitor—33 mmfd. (C3)	14343	Retainer—Retaining spring for station selector knob shaft
12720	Capacitor—100 mmfd. (C42)	14807	Retainer—Drive cord pulley retainer
30904	Capacitor—100 mmfd. (C5, C6, C7, C8) used in RC-351F and RC-351F "M" only	4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372
14262	Capacitor—109 mmfd. (C5 and C6) used in RC-351F "R" only	31368	Shaft—Station selector knob shaft and pulley
12404	Capacitor—120 mmfd. (C7 and C8) used in RC-351F "R" only	31418	Spring—Indicator, or drum drive cord tension spring
12724	Capacitor—120 mmfd. (C12)	31364	Socket—Dial lamp socket
13003	Capacitor—180 mmfd. (C37) mounted under chassis in RC-351F and RC-351F "M" only	31365	Socket—Electric tuning indicator lamp socket (insulated)
14712	Capacitor—180 mmfd. (C37) mounted in 2nd I-F transformer in RC-351F "R" only	13871	Socket—Magic Eye socket
32492	Capacitor—530 mmfd. (C24) in RC-351F "R" only	14278	Socket—Pickup socket
31381	Capacitor—620 mmfd. (C24) in RC-351F and RC-351F "M" only	31251	Socket—Tube socket
31435	Capacitor—750 mmfd. (C26)	31367	Switch—Range switch (S1) used in RC-351F and RC-351F "M" only
31399	Capacitor—4,700 mmfd. (C27)	32490	Switch—Range switch (S1) used in RC-351F "R" only
5107	Capacitor—.0025 mfd. (C13)	32498	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45)
4838	Capacitor—.005 mfd. (C14, C17)	30902	Transformer—1st I-F transformer (L10, L11, C5, C6) used in RC-351F and RC-351F "M" only
14393	Capacitor—.01 mfd. (C10)	14376	Transformer—1st I-F transformer (L10, L11, C5, C6) used in RC-351F "R" only
11315	Capacitor—.015 mfd. (C11)	30903	Transformer—2nd I-F transformer (L12, L13, C7, C8) used in RC-351F and RC-351F "M" only
4939	Capacitor—.01 mfd. (C9, C38, C39)	14283	Transformer—2nd I-F transformer (L12, L13, C7, C8, C37, R4, R5) used in RC-351F "R" only
31371	Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41) (cardboard case type, mounted horizontally and used in RC-351F only)	31445	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1)
32485	Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41) (metal case type, mounted vertically and used in RC-351F "R" and RC-351F "M" only)	31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1)
31382	Clip—Oscillator coil and core mounting clip	31446	Transformer—Power transformer 100-130/140-160/195-250 volts, 50-60 cycle (T1)
31378	Coil—Antenna coil, "A" and "C" bands (L1, L2, L3) mounted vertically and used in RC-351F and RC-351F "M" only		SPEAKER ASSEMBLIES (RL-70-F3)
32488	Coil—Antenna coil, "A" and "C" bands (L1, L2, L3, L43) mounted horizontally and used in RC-351F "R" only	13866	Cap—Dust cap for cone center
31377	Coil—Oscillator coil, "A" and "C" bands (L4, L5, L6, L7) mounted vertically (no magnetite core) and used in RC-351F and RC-351F "M" only	12012	Coil—Field coil (L12)
32489	Coil—Oscillator coil, "A" and "C" bands (L4, L5, L6, L7) mounted horizontally (with magnetite core) and used in RC-351F "R" only	11469	Coil—Hum neutralizing coil (L14)
31383	Coil—Push-button oscillator coil (L41, L42)	31275	Cone—Speaker cone and voice coil (L13)
31384	Coil—Push-button oscillator coil (L39, L40) used in RC-351F only	31302	Plug—4-contact male plug
32487	Coil—Push-button oscillator coil (L39, L40) used in RC-351F "M" and "R"	31300	Speaker—Speaker complete
31385	Coil—Push-button oscillator coil (L37, L38)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31301	Transformer—Output transformer (T2)
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	14357	Washer—Spring washer to hold field coil
31375	Cord—Indicator pointer drive cord		MISCELLANEOUS ASSEMBLIES
31374	Cord—Variable condenser drum drive cord	12038	Band—Rubber band for "Magic Eye"
30905	Core—Adjustable core for i-f transformer	31397	Button—Station selector push button
31386	Core—Adjustable core and stud for oscillator coils Stock Nos. 31383, 31384, 31385, 32487	31456	Cover—8 protective covers for push button markers
12800	Core—Adjustable core and stud for oscillator coil Stock No. 32489	31396	Dial—Dial scale (glass) used in RC-351F and RC-351F "M" only
31372	Drum—Variable condenser drive cord drum and calibrator dial	32356	Dial—Dial scale (glass) used in RC-351F "R" only
31480	Lamp—Dial lamp	31395	Escutcheon—Station selector escutcheon—less dial scale and push buttons
5040	Plug—4-contact female plug for speaker cable	31407	Escutcheon—"Magic Eye" or "Electric Tuning" indicator escutcheon
31373	Pulley—Drive cord pulley	31392	Indicator—Station selector indicator pointer
14671	Resistor—33 ohms, 1/2 watt (R11)	31355	Knob—Range switch knob
31388	Resistor—390 ohms, 1 watt (R12)	14359	Knob—Station selector knob
31389	Resistor—12,000 ohms, wire-wound, 5 watts (R14)	31391	Knob—Tone control knob
30151	Resistor—18,000 ohms, 1 watt (R17)	30773	Knob—Volume control knob
14284	Resistor—22,000 ohms, 1/10 watt (R4)	31589	Marker—Station call letter markers for push buttons
12738	Resistor—27,000 ohms, 1/2 watt (R7)	31458	Marker—"Dial Tuning" marker for push button
		31457	Marker—"Victrola" marker for push button
		31393	Screen—Station selector dial color screen and light diffuser
		4982	Spring—Retaining spring for knob Stock No. 14359
		14270	Spring—Retaining spring for knob Stock Nos. 31355 and 30773
		30330	Spring—Retaining spring for knob Stock No. 31391
		31394	Stop—Indicator pointer slide stop

MODELS 96K2, 96T3, 97E, 97KG and 97T

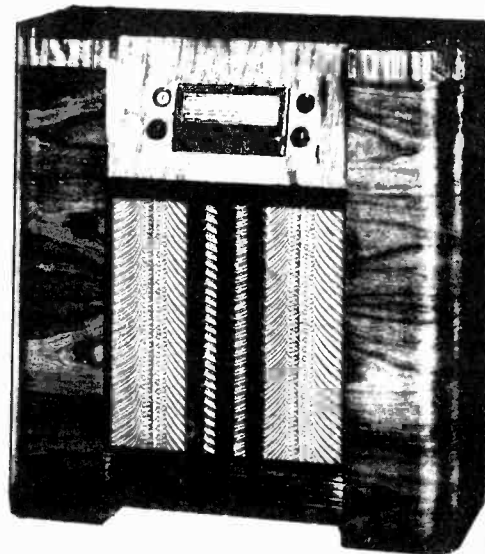
Six- and Seven-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Receivers



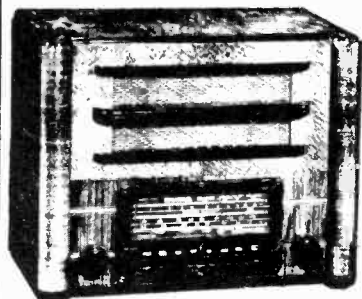
Model 96K2



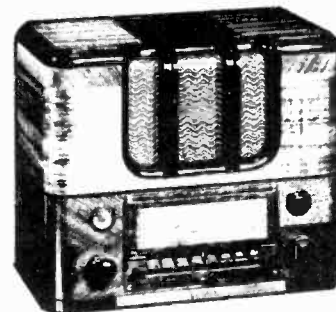
Model 97E



Model 97KG



Model 96T3



Model 97T

Model 96K2 is a six-tube console with 12-inch speaker.

Model 96T3 is a six-tube table model, with 6-inch speaker.

Model 97E is a seven-tube end-table model, with 8-inch speaker.

Model 97KG is a seven-tube console-grand, with 12-inch speaker.

Model 97T is a seven-tube table model, with 6-inch speaker.

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"Medium Wave" (B).....	2.3-7 mc
"Short Wave" (C).....	7-22 mc

R-F ALIGNMENT FREQUENCIES

"Short Wave" (C).....	20 mc (osc., ant.)
"Medium Wave" (B).....	6.1 mc (osc.)
"Standard Broadcast" (A).....	1,500 kc (osc.)

Six Electric Tuning Positions..... 550-1,500 kc

2 stations between approximately 550- 950 kc
2 stations between approximately 680-1,180 kc
2 stations between approximately 890-1,500 kc

RCA TUBE COMPLEMENT

- (1) RCA-6K8..... First-Detector—Oscillator
- (2) RCA-6K7..... Intermediate-Frequency Amplifier
- (3) RCA-6H6..... Second-Detector and A.V.C.

- (4) RCA-6F5..... Audio Voltage Amplifier
- (5) RCA-6F6..... Audio Power Amplifier
- (6) RCA-5W4..... Full-Wave Rectifier
- (7) RCA-6U5 (Models 97E, 97KG and 97T).. Tuning Tube

Pilot Lamps (2 on Models 96K2, 96T3) (3 on Models 97E, 97KG and 97T)..... Mazda 47, 6.3 volts, .15 amp.

POWER SUPPLY RATING

Rating A.....	105-125 volts, 50-60 cycles, 80 watts
Rating B.....	105-125 volts, 25-60 cycles, 80 watts
Rating C.....	100-130/140-160/195-250 volts, 40-60 cycles, 80 watts

POWER OUTPUT

Undistorted.....	96T3, 97T	97E, 96K2, 97KG
Maximum.....	2.0 watts	2.5 watts
	4.0 watts	4.5 watts

LOUDSPEAKER

Type..... Electrodynamic

Voice-coil impedance.....	{ 84308-1 2.6 ohms RL-70F-3 2.25 ohms RL-63H-3 2.25 ohms } at 400 cycles
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96K2, 96T3, 97E, 97KG, 97T

MODELS 96K2, 96T3, 97E, 97KG, 97T, 97Y, 98X, 98EY, 98YG, U-119, U-122E, U-124, U-125

Changes in 2nd and 3rd Production:

The 2nd and 3rd productions are identified by the letters "M" or "R" respectively after the RC number stamping.

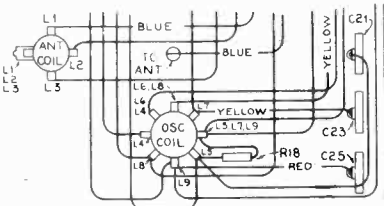
For service data applying to circuit, alignment, chassis layout, R-F and I-F coils, and electrolytic capacitors, for the 3rd production run (chassis with "R" following RC number stamping) of Models 96K2, 96T3, 97E, 97KG, 97T, U-119, U-122E, U-124, and U-125, refer to the Service Note for Model 96E2. This same data applies to the AC-DC Models 97Y, 98X, 98EY, and 98YG, except that the latter models have a common negative line insulated from chassis.

	1ST PRO- DUCTION	2ND PRO- DUCTION (Chassis Stamped "M")	3RD PRO- DUCTION (Chassis Stamped "R")
PUSH BUTTON FREQUENCY RANGES			
Button No. 1 (left), and No. 2	550- 950 kc	550- 950 kc	550- 950 kc
Button No. 3 and 4	680-1,180 kc	690-1,225 kc	690-1,225 kc
Button No. 5 and 6	890-1,500 kc	890-1,500 kc	890-1,500 kc
ANTENNA TRIMMER BANK CAPACITANCE			
C31 and C32	20-170 mmfd.	20-170 mmfd.	20-170 mmfd.
C33 and C34	70-310 mmfd.	50-310 mmfd.	50-310 mmfd.
C35 and C36	120-470 mmfd.	120-470 mmfd.	120-470 mmfd.
TUBES			
Output tube (96K2, 96T3, 97E, 97KG, 97T, U-119, U-122E, U-124)	6F6	6F6-G	6F6-G
Rectifier tube (96K2, 96T3, 97KG, 97T, U-119)	5W4	5Y3-G	5Y3-G
	Stock No.	Stock No.	Stock No.
Cap—Tube shield cap for 6F5 (96K2, 96T3, 97E, 97KG, 97T, U-119, U-122E, U-124)	14079	12110	12110
Capacitor—6.8 mmfd. (C1)	14079	14079	14079
Capacitor—18 mmfd. (C1)	31387	32486	32486
Capacitor—Antenna trimmer capacitor bank (C31, C32, C33, C34, C35, C36)	30904	30904	30904
Capacitor—100 mmfd. (C5, C6, C7, C8)	30904	30904	30904
Capacitor—109 mmfd. (C5, C6)	14262	14262	14262
Capacitor—120 mmfd. (C7, C8)	12404	12404	12404
Capacitor—180 mmfd. (C37) (mounted under chassis)	13003	13003	13003
Capacitor—180 mmfd. (C37) (mounted in 2nd I-F transformer)	14712	14712	14712
Capacitor—620 mmfd. (C24)	31381	31381	31381
Capacitor—530 mmfd. (C24)	32492	32492	32492
Capacitor*—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41), cardboard case, mounted horizontally	31371*	31371*	31371*
Capacitor*—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41), metal case, mounted vertically	32485*	32485*	32485*
Coil—Antenna coil, A, B, and C bands (L1, L2, L3) mounted vertically	31402	31402	31402
Coil—Antenna coil, A, B, and C bands (L1, L2, L3, L43) mounted horizontally	32493	32493	32493
Coil—Oscillator coil, A, B, and C bands (L4, L5, L6, L7, L8, L9) mounted vertically, no magnetite core	31401	31401	31401
Coil—Oscillator coil, A, B, and C bands (L4, L5, L6, L7, L8, L9) mounted horizontally, with magnetite core	31951	31951	31951
Coil—Push-button oscillator coil (L37 or L38)	31385	31385	31385
Coil—Push-button oscillator coil (L39 or L40)	31384	32487	32487
Coil—Push-button oscillator coil (L41 or L42)	31383	31383	31383
Core—Adjustable core and stud for oscillator coil, Stock No. 31951	12738	12738	12738
Resistor—27,000 ohms, 1/2 watt (R18)	12264	12264	12264
Resistor—220,000 ohms, 1/2 watt (R5)	12285	12285	12285
Resistor—220,000 ohms, 1/10 watt (R5)	12285	12285	12285
Resistor—470,000 ohms, 1/2 watt (R1)	13730	13730	13730
Resistor—1.0 megohm, 1/2 watt (R1)	32491	32491	32491
Switch—Range switch (S1, S2) for A-C models	31398	31398	31398
Switch—Range switch (S1, S2) for AC-DC models	31398	31398	31398
Switch—Push-button switch for U-125	31370**	31370**	31370**
Transformer—1st I-F transformer (L10, L11, C5, C6)	30957	30957	30957
Transformer—2nd I-F transformer (L12, L13, C7, C8)	30903	30903	30903
Transformer—2nd I-F transformer (L12, L13, C7, C8, C37, R4, R5)	14283	14283	14283
Dial—Station selector dial scale for Models 96K2, 96T3, 97E, 97KG, 97T, 97Y, 98X, 98EY, 98YG, U-119, U-122E	31406	31406	31406
Dial—Dial scale for Models U-124, U-125	31591	31591	31591

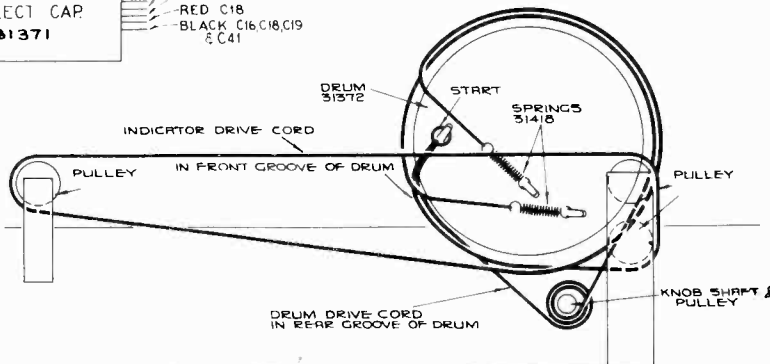
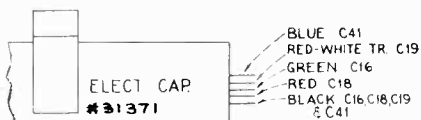
* In all types of Model U-125, the electrolytic capacitor is Stock No. 32142. In all types of Models 97Y, 98X, 98EY, 98YG, the electrolytic capacitor is Stock No. 31576.

** Stock No. 32498 supersedes No. 31370 in U-125.

FOR PARTS NOT LISTED ABOVE, REFER TO THE ORIGINAL SERVICE NOTE FOR THE PARTICULAR MODEL.

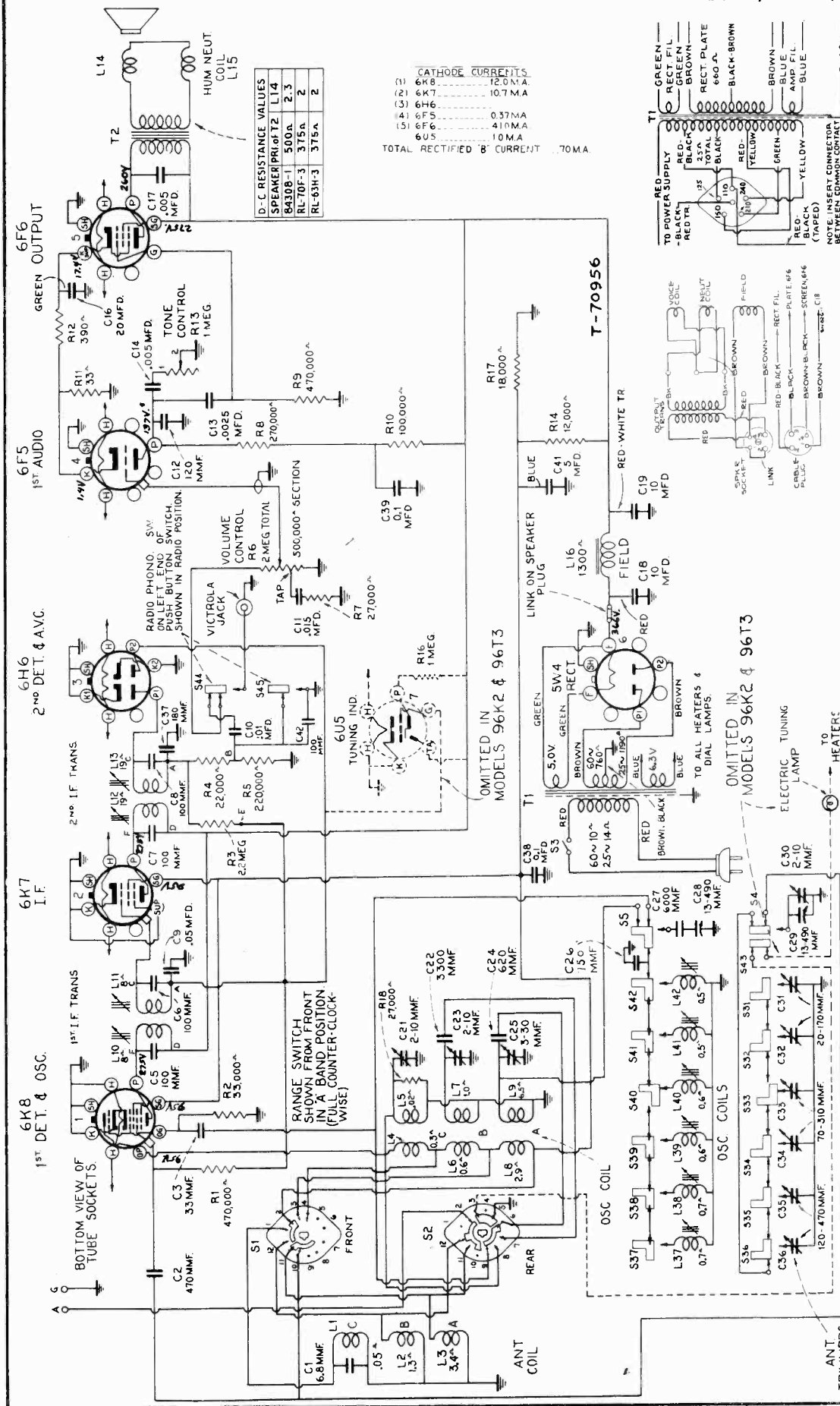


COIL CONNECTIONS
1ST and 2ND PROD.



DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY
Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

REFER TO MODEL 96E2 (PAGE 614C)
FOR ELECTRIC TUNING ADJUSTMENT
AND ALIGNMENT, COIL, CONNECTIONS
ELECTROLYTIC CAPACITOR AND CHAS-
SIS LAYOUT OF 3RD PROD.



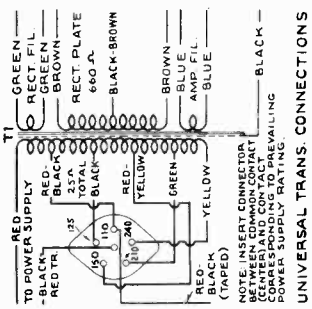
CATHODE CURRENTS

(1)	6K8	12.0 MA
(2)	6K7	10.7 MA
(3)	6H6	10.7 MA
(4)	6F5	0.37 MA
(5)	6F6	1.41 MA
(6)	6F6	10.4 MA

TOTAL RECTIFIED CURRENT 70 MA

D-C RESISTANCE VALUES

SPEAKER PRIO	T2	L14
843108-1	500A	2.3
RL-70F-3	375A	2
RL-63H-3	375A	2



Above — Universal Power Transformer Connections. (110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.)

Above — Connections and Colors of Loudspeaker and Cable.

5. Dress leads away from antenna coil.
6. Dress other parts and leads away from R14, as it becomes heated.
7. Leads across back of chassis should be dressed under electrolytic to prevent approaching Victrola jack.

Precautionary Lead Dress—

1. Dress power-switch leads against left apron to prevent hum pickup.
2. Dress R1 away from front of chassis.
3. Electric-tuning lamp leads must be dressed in front of range switch.
4. Dress lead from L5 to range switch away from other leads.

ALIGNMENT PROCEDURE

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

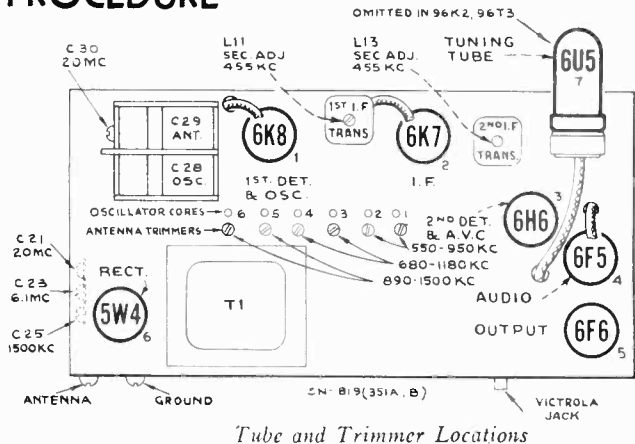
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.



Tube and Trimmer Locations

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

After completion of alignment, seal the i-f core-adjusting screws with household cement.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

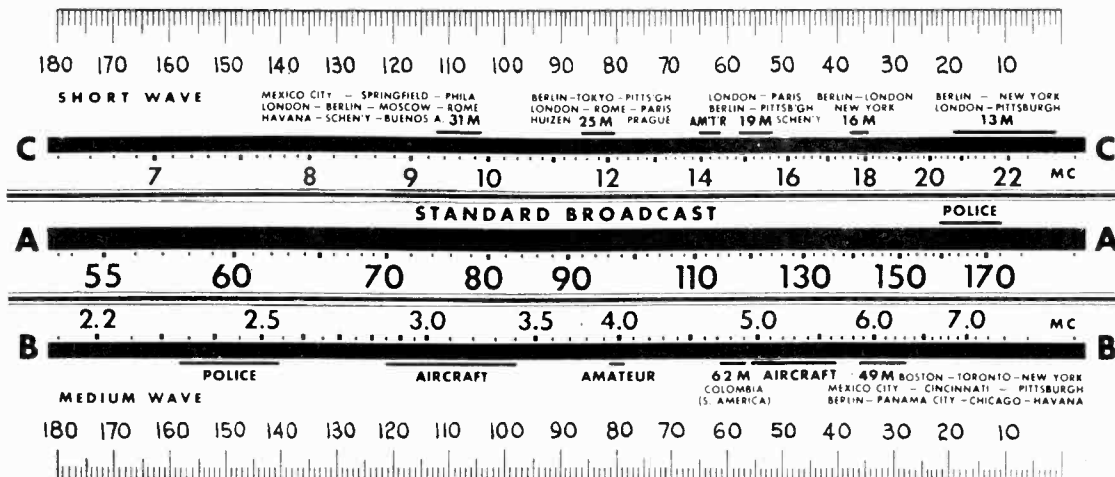
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Trans.)
2	6K8 det. grid cap, in series with .01 mfd.	455 kc		L10 and L11 (1st I-F Trans.)
3	Antenna Terminal, in series with 400 ohms	20 mc	20 mc (23°) "C" band	C21* (osc.) C30** (ant.)
4	Antenna Terminal, in series with 400 ohms	6.1 mc	6.1 mc (31°) "B" band	C23 (osc.)†
5	Antenna Terminal, in series with 200 mmf.	1,500 kc	1,500 kc (28½°) "A" band	C25 (osc.)
6	Follow "Adjustments for Electric Tuning"			

* Use minimum capacity peak if two peaks can be obtained.

** Rock gang slightly and use maximum capacity peak if two peaks can be obtained with C30. Check to determine that C21 has been adjusted to the correct peak by tuning to approximately 28° (19.09 mc), where a weaker signal should be received.

† Use minimum capacity peak if two peaks can be obtained. Check to determine that C23 has been adjusted to the correct peak by turning to approximately 49° (5.19 mc), at which point a weaker signal should be received.

Note: Oscillator tracks 455 kc above signal on all bands.



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

REFER TO MODEL 96E2 FOR 3RD PROD. ALIGNMENT (PAGE 614C)

MODELS 96E, 96T2, 96T3, 97T

MODELS 96T3, 97T

96K2, 96T3, 97E, 97KG, 97T

MODEL 96T3

Speaker Stamped 84308-4:

The following replacement parts apply to speaker stamped 84308-4:

Stock No.

- 32918 Cone—Cone and voice coil
- 32919 Coil—Field coil
- 32920 Transformer—Output transformer
- 31302 Plug—4-contact male plug

Voice coil impedance 2.2 ohms at 400 cycles; field d.c. resistance 1,290 ohms.

ADDITIONAL REPLACEMENT PART

Stock No.

- 14616 Coil - Field coil for speaker stamped 84308-1

Speaker Stamped 72870-1:

The following replacement parts apply to speaker stamped 72870-1:

Stock No.

- 13677 Cone—Cone and voice coil
- 13822 Coil—Field coil
- 13678 Transformer—Output transformer

For complete speaker, order Stock No. 31442 (84308-1) listed in Service Data.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

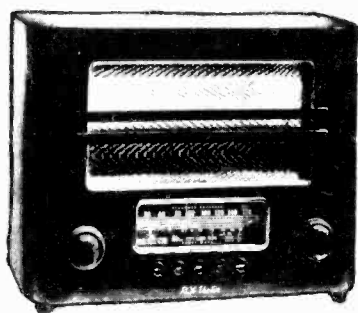
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14517	Board—Antenna ground terminal board.....	31370	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45).....
30752	Bracket—Magic Eye bracket and holder—Models 97T, 97KG, and 97E only.....	30957	Transformer—First i-f transformer (L10, L11, C5, C6).....
31400	Capacitor—Triple adjustable trimmer two sections 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25).....	30903	Transformer—Second i-f transformer (L12, L13, C7, C8).....
14079	Capacitor—6.8 mmfd. (C1).....	21445	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1).....
31387	Capacitor—Antenna trimmer capacitor bank 20-470 mmfd. (C31, C32, C33, C34, C35, C36).....	31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1).....
12948	Capacitor—33 mmfd. (C3).....	31446	Transformer—Power transformer 100-130/140-160/195-250 volts, 50-60 cycle (T1).....
12720	Capacitor—100 mmfd. (C42).....	SPEAKER ASSEMBLIES	
30904	Capacitor—100 mmfd. (C5, C6, C7, C8).....	Models 96T3 and 97T (Speaker 84308-1)	
12724	Capacitor—120 mmfd. (C12).....	31443	Cone—Speaker cone and voice coil (L14).....
13003	Capacitor—180 mmfd. (C37).....	31442	Speaker—Complete.....
30433	Capacitor—470 mmfd. (C2).....	31444	Transformer—Output transformer (T2).....
31381	Capacitor—620 mmfd. (C24).....	SPEAKER ASSEMBLIES	
31435	Capacitor—750 mmfd. (C26).....	Models 96K2 and 97KG (Speaker RL-70F-3)	
31403	Capacitor—3,300 mmfd. (C22).....	13866	Cap—Dust cap for cone center.....
31405	Capacitor—6,000 mmfd. (C27).....	12012	Coil—Field coil (L16).....
5107	Capacitor—.0025 mfd. (C13).....	11469	Coil—Hum neutralizing coil (L15).....
4838	Capacitor—.005 mfd. (C14, C17).....	31275	Cone—Speaker cone and voice coil (L14).....
14393	Capacitor—.01 mfd. (C10).....	31302	Plug—4-contact male plug.....
4839	Capacitor—.01 mfd. (C38, C39).....	31300	Speaker—Speaker complete.....
11315	Capacitor—.015 mfd. (C11).....	14358	Screw—Screw, washer, and lockwasher to hold core in yoke.....
4886	Capacitor—.05 mfd. (C9).....	31301	Transformer—Output transformer (T2).....
31371	Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41).....	14357	Washer—Spring washer to hold field coil.....
31382	Cl.p.—Oscillator coil and core mounting clip.....	SPEAKER ASSEMBLIES	
31402	Coil—Antenna coil—A, B, and C bands (L1, L2, L3).....	Model 97E (Speaker RL-63H-3)	
31401	Coil—Oscillator coil—A, B, and C bands (L4, L5, L6, L7, L8, L9).....	14356	Board—3-contact speaker terminal board.....
31383	Coil—Oscillator coil—A band (L41, L42).....	13866	Cap—Cone center dust cap.....
31384	Coil—Oscillator coil—A band (L39, L40).....	12012	Coil—Field coil (L16).....
31385	Coil—Oscillator coil—A band (L37, L38).....	11469	Coil—Hum neutralizing coil (L15).....
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30).....	31310	Cone—Speaker cone and voice coil (L14).....
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3).....	31826	Plug—4-contact male plug for speaker.....
31375	Cord—Indicator pointer drive cord.....	31458	Screw—Screw, washer, and lockwasher to hold core in yoke.....
31374	Cord—Variable condenser drum drive cord.....	31824	Speaker—Complete.....
30905	Core—Adjustable core for i-f transformer.....	14355	Transformer—Output transformer (T2).....
31386	Core—Adjustable core and stud for oscillator coil Stock Nos. 31383, 31384, and 31385.....	14357	Washer—Spring washer to hold field coil.....
31372	Drum—Variable condenser drive cord drum and calibrator dial.....	MISCELLANEOUS ASSEMBLIES	
31480	Lamp—Dial lamp.....	31397	Button—Station selector push button.....
5040	Plug—4-contact female plug for speaker cable.....	31456	Cover—8 protective covers for push button markers.....
31373	Pulley—Indicator drive cord pulley.....	31406	Dial—Station selector dial scale.....
14671	Resistor—33 ohms, 1/2 watt (R11).....	31543	Disc—"Electric Tuning" indicator disc—Models 97T, 97KG, and 97E only.....
31388	Resistor—390 ohms, 1 watt (R12).....	31395	Escutcheon—Station selector escutcheon—less dial scale and push buttons.....
31389	Resistor—12,000 ohms, wire wound, 5 watts (R14).....	31407	Escutcheon—"Magic Eye and Electric Tuning" indicator escutcheon—Models 97T, 97KG, and 97E only.....
30151	Resistor—18,000 ohms, 1 watt (R17).....	31392	Indicator—Station selector indicator pointer.....
14284	Resistor—22,000 ohms, 1/10 watt (R4).....	31355	Knob—Range switch knob.....
12738	Resistor—27,000 ohms, 1/2 watt (R7, R18).....	14359	Knob—Station selector knob.....
12454	Resistor—33,000 ohms, 1/2 watt (R2).....	31391	Knob—Tone control knob.....
14560	Resistor—100,000 ohms, 1/2 watt (R10).....	30773	Knob—Volume control knob.....
12264	Resistor—220,000 ohms, 1/2 watt (R5).....	31589	Marker—Station call letter markers for push buttons.....
12189	Resistor—270,000 ohms, 1/2 watt (R8).....	31458	Marker—"Dial Tuning" marker for push button.....
12285	Resistor—470,000 ohms, 1/2 watt (R1, R9).....	31457	Marker—"Victrola" marker for push button.....
12013	Resistor—1 meg., 1/10 watt (R16)—Models 97T, 97KG, and 97E.....	31393	Screen—Station selector dial color screen and light diffuser.....
12679	Resistor—2.2 meg., 1/2 watt (R3).....	11377	Screw—Chassis mounting screws, washers, and lockwashers—Models 96K2, and 97KG only (3 required).....
14343	Retainer—Retaining spring for station selector knob shaft.....	31390	Screw—Chassis mounting screws, washers, and lockwashers—Models 96T3, and 97T only (sufficient for 1 chassis).....
14887	Retainer—Drive cord pulley retainer.....	11210	Screw—Chassis mounting screws, washers, and lockwashers—Model 97E only (3 required).....
4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372.....	4982	Spring—Retaining spring for knob Stock No. 14359.....
31368	Shaft—Station selector knob shaft and pulley.....	14270	Spring—Retaining spring for knob Stock Nos. 31355 and 30773.....
31418	Spring—Indicator, or drum drive cord tension spring.....	30330	Spring—Retaining spring for knob Stock No. 31391.....
31364	Socket—Dial lamp socket.....	31394	Stop—Indicator pointer slide stop.....
31365	Socket—"Electric Tuning" indicator lamp insulated socket.....		
13871	Socket—Magic Eye socket—Models 97T, 97KG, and 97E only.....		
14278	Socket—Pickup socket.....		
31251	Socket—Radiotron socket.....		
31398	Switch—Range switch (S1, S2).....		

Models 96T4, 96T5 and 96T6

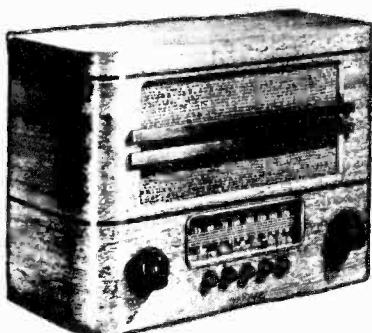
CHASSIS No. RC-399.

RC-399A

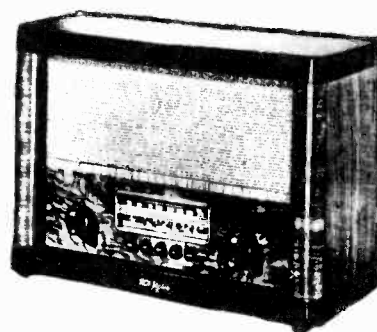
Six-Tube, Electric-Tuning, Two-Band, A-C—D-C, Superheterodyne Receivers



Model 96T4



Model 96T5



Model 96T6

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)..... 540-1,720 kc
 "Short Wave" (C)..... 5.8-18.0 mc
 Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... First Detector—Oscillator
- (2) RCA-6K7..... I-F Amplifier
- (3) RCA-6SQ7... Second Detector, A.V.C., and A-F Amp.
- (4) RCA-25L6..... Power Output
- (5) RCA-25Z6G..... Half-Wave Rectifier
- (6) RCA-BK49B..... Ballast Tube
 Pilot Lamp..... Mazda 47, 6.3 volts, 0.15 amp.

POWER OUTPUT RATING

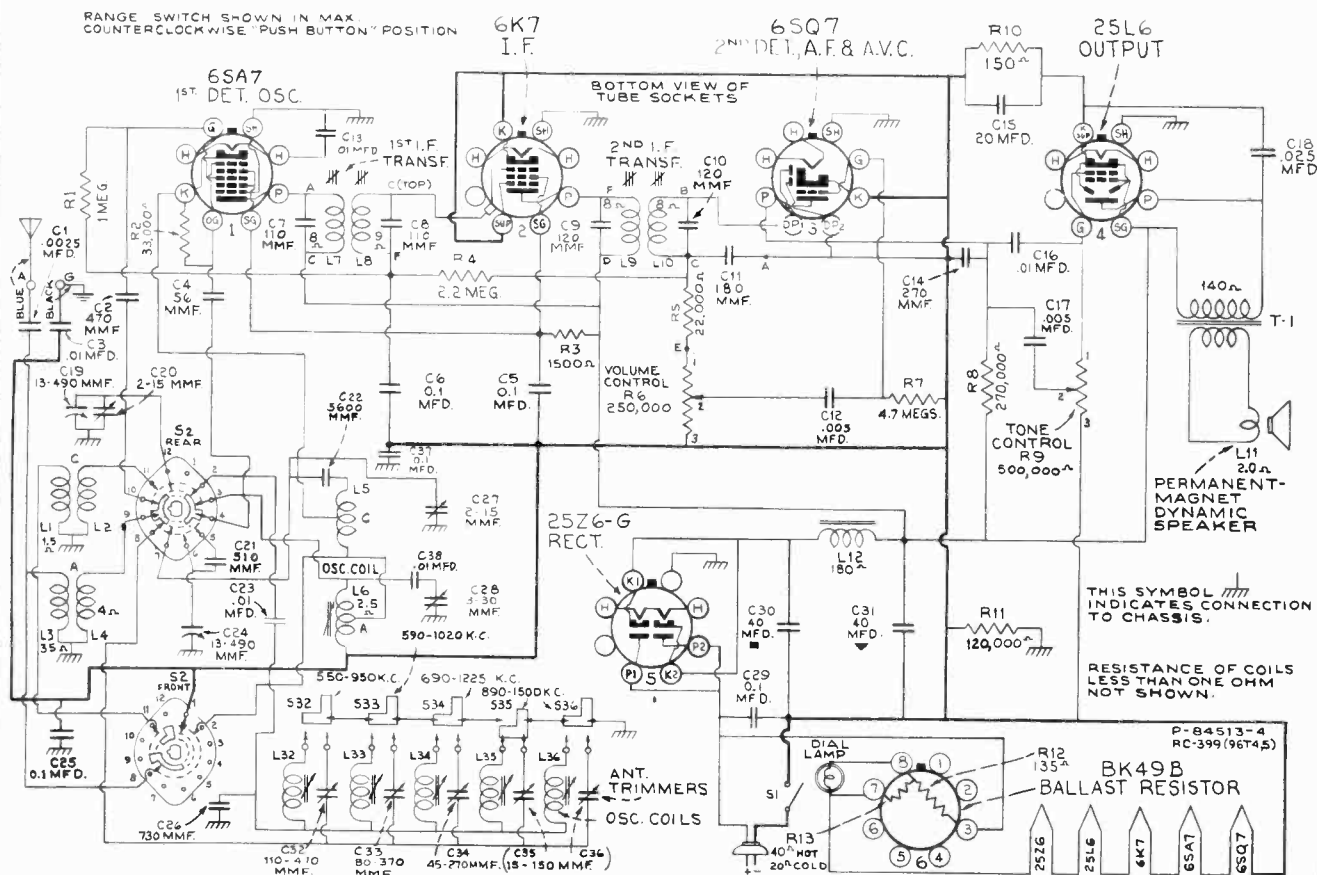
Undistorted..... 1.5 watts
 Maximum..... 2.5 watts

LOUDSPEAKER

Type..... Permanent Magnet Dynamic
 Diameter..... 96T4, 5: 5 inch—96T6: 6 inch
 V.C. Impedance..... 2 ohms at 400 cycles

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 25-60 cycles, 60 watts
 D-C Rating..... 105-125 volts, direct current, 60 watts



Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the black lead and keep the output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, and 15.2 mc. have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point to the extreme left mark on the dial scale.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

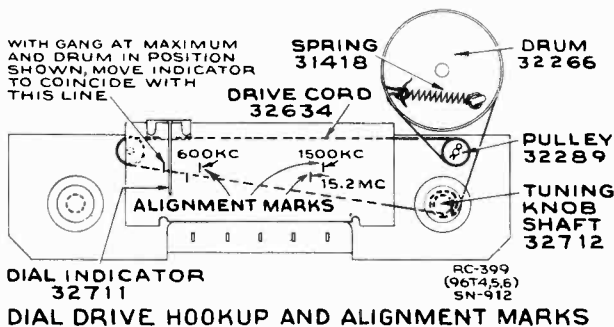


Location of Controls

Power Supply Polarity.—On d-c operation, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the position of the plug. On a-c operation, a similar reversal of the plug may reduce hum.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L9 and L10 (2nd I-F Trans.)
2	Tuning condenser Stator (osc.) in series with .01 mfd.	455 kc		L7 and L8 (1st I-F Trans.)
3	Antenna Lead (Blue), in series with 200 mmf.	1,500 kc	1,500 kc (Cal. Mark) "A" Band	C28 (osc.) C20 (ant.)
4	Antenna Lead (Blue), in series with 200 mmf.	600 kc	600 kc (Cal. Mark) "A" Band	L6 (osc.)
5	Repeat steps 3 and 4.			
6	Antenna Lead (Blue), in series with 400 ohms	15.2 mc	15.2 mc (Cal. Mark) "C" Band	C27 (osc.)*
7	Follow "Adjustments for Electric Tuning."			

* Rock gang slightly while peaking C27, and use minimum capacity peak if two peaks can be obtained on C27.
 Note.—Oscillator tracks 455 kc above signal on both bands.

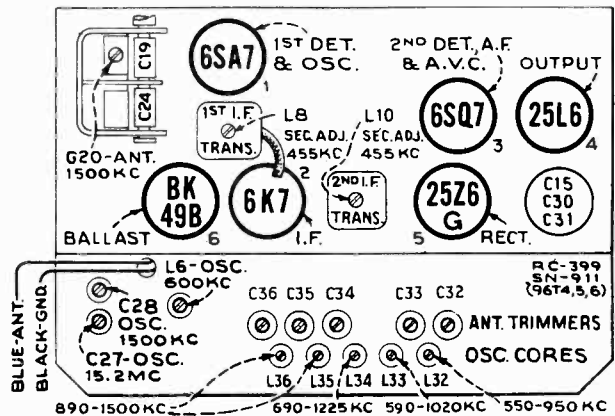


Dial-Indicator and Drive Mechanism

Refer to "Alignment Procedure" for explanation of the "calibration marks" shown in this drawing.

Precautionary Lead Dress.—

1. Volume control lead from 2nd I.F. transformer (E) should be dressed down on chassis.
2. A.C. leads to ballast tube should be dressed away from volume control lead on 2nd I.F. transformer.
3. Coupling condensers C2 and C4 should be dressed away from chassis.



Tube and Trimmer Locations

Removing Push-Button Assembly.—The push-button assembly is held to the chassis by two nuts on the front apron and may be quickly and easily swung out for convenient access to the sockets and other parts. No unsoldering is required, as flexible leads are used for all connections from the chassis to the assembly.

Adjustments for Electric Tuning

These models have five push buttons for electric tuning of five different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use a regular antenna for the preliminary adjustments.

The procedure is as follows:

1. Make a list of the five desired stations, arranged in order from low to high frequencies.
2. Turn Range Control Knob to "Broadcast" position and tune in station No. 1 (560 kc in example) by Manual Dial Tuning, for reference.
3. Push in station-button No. 1 and turn Range Selector to "PB" position. Adjust No. 1 oscillator core (L32) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until the station is received.
4. Adjust No. 1 antenna trimmer (C32) for maximum output on this station.
5. Adjust for each of the remaining four stations in the same manner.

(Clockwise adjustment of oscillator cores and antenna trimmers tunes the circuits to lower frequencies.)

6. Make a final careful adjustment of the oscillator cores and antenna trimmers, using one or two feet of wire as an antenna to ensure sharp peaking.

Oscillation or Instability:

Should an oscillating, squealing, or blocking tendency be experienced on these models it is possible that it results from use of a very short length of wire antenna, causing this circuit to resonate in the I-F range. This may be avoided by increasing length of the antenna, or adding a 100 mfd. capacitor directly across the antenna-ground input terminals. In the event that these operations fail to effect a remedy:

- (a) See that the 0.1 mfd. capacitor C-37 mounted under I-F transformer is kept well away from oscillator coils by dressing same close to rear corner of chassis over the I-F leads.
- (b) Dress the diode bus lead running from "B" of 2nd I-F transformer to 6SQ7 socket toward chassis away from oscillator coils. Dress 270 mmfd. molded capacitor C-14 over the bus lead.
- (c) Add a 0.25 mfd. 200 volt capacitor in parallel with the high capacity electrolytic filter section.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
(RC399—Models 96T4 and 96T5)			
(RC399A—Model 96T6)			
32544	Ballast—Ballast resistor tube—type BK49B (R12, R13)	13734	Resistor—120,000 ohms, 1/4 watt (R11)
31379	Capacitor—Dual trimmer, comprising one 3-30 mmfd. and one 2-10 mmfd. sections (C27, C28)	12199	Resistor—270,000 ohms, 1/4 watt (R8)
12723	Capacitor—56 mmfd. (C4)	13730	Resistor—1 meg., 1/4 watt (R1)
14262	Capacitor—109 mmfd. (C7, C8)	12679	Resistor—2.2 meg., 1/4 watt (R4)
12404	Capacitor—120 mmfd. (C9, C10)	30271	Resistor—4.7 meg., 1/4 watt (R7)
14712	Capacitor—180 mmfd. (C11)	32544	Resistor—Ballast resistor tube—type BK49B (R12, R13)
12488	Capacitor—270 mmfd. (C14)	30340	Retainer—Pulley retaining clip
30433	Capacitor—470 mmfd. (C2)	14343	Retainer—Tuning knob shaft retaining ring
12537	Capacitor—560 mmfd. (C21)	4669	Screw—No. 8-32 x 1/2 square head set screw for drum
32714	Capacitor—730 mmfd. (C26)	32712	Shaft—Tuning knob shaft and pulley
13895	Capacitor—5,600 mmfd. (C22)	31365	Socket—Dial lamp socket
5107	Capacitor—.0025 mfd., 700 volts (C1)	31251	Socket—Octal base tube socket
4838	Capacitor—.005 mfd., 1,000 volts (C12, C17)	31418	Spring—Drive cord tension spring
14393	Capacitor—.01 mfd., 300 volts (C3, C13, C16, C23, C38)	32703	Switch—Push button switch (S32, S33, S34, S35, S36)
4870	Capacitor—.025 mfd., 400 volts (C18)	32702	Switch—Range switch (S2)
4839	Capacitor—.01 mfd., 400 volts (C5, C6, C25, C29, C37)	14376	Transformer—First i.f. transformer (L7, L8, C7, C8)
32708	Capacitor—Electrolytic, comprising two 40 mfd., and one 20 mfd. sections (C15, C30, C31)	14308	Transformer—Second i.f. transformer (L9, L10, C9, C10, C11, R5)
32705	Capacitor—Push button trimmer capacitor bank (C32, C33, C34, C35, C36)	32544	Tube—Ballast resistor tube—type BK49B (R12, R13)
31382	Clip—Push button coil mounting clip	SPEAKER ASSEMBLIES (84226-4)	
32706	Coil—Antenna coil (L1, L2, L3, L4)	Models 96T4 and 96T5	
32707	Coil—Oscillator coil (L5, L6)	32716	Cone—Speaker cone and voice coil in housing (L11)
31385	Coil—Push button oscillator coil—less core 550-950 KC. (L32)	32715	Speaker—Complete
32704	Coil—Push button oscillator coil—less core 590-1,020 KC. (L33)	32717	Transformer—Output transformer (T1)
32340	Coil—Push button oscillator coil—less core 690-1,225 KC. (L34)	SPEAKER ASSEMBLIES (84307-4)	
31383	Coil—Push button oscillator coil—less core 890-1,500 KC. (L35, L36)	Model 96T6	
32249	Condenser—2-gang variable (C19, C20, C24)	32719	Cone—Speaker cone and voice coil in housing (L11)
31413	Control—Volume control, tone control, and power switch (R6, R9, S1)	5118	Plug—3-contact male plug for speaker
32634	Cord—Drive cord	32718	Speaker—Speaker complete
31386	Core—Core and stud for coil, Stock Nos. 31383, 31385, and 32704	32720	Transformer—Output transformer (T1)
30846	Core—Core and stud for coil, Stock No. 32340	MISCELLANEOUS ASSEMBLIES	
32713	Core—Core and stud for oscillator coil, Stock No. 32707	31428	Button—Push button and spring
32266	Drum—Condenser drive cord drum	31487	Clip—Spring clip to hold dial scale
32711	Indicator—Dial indicator pointer	31095	Cover—One set protective covers for call letter markers
31480	Lamp—Dial lamp socket	32722	Dial—Glass dial scale
32710	Plate—Dial color plate and pointer track	31667	Escutcheon—Dial escutcheon (no crystal)
5119	Plug—3-contact female for speaker cable	31355	Knob—Range switch knob
32289	Pulley—Indicator drive cord pulley	31391	Knob—Tone control knob
32709	Reactor—Filter reactor (L12)	14359	Knob—Tuning knob
30880	Resistor—150 ohms, 1/4 watt (R10)	30773	Knob—Volume control knob
14499	Resistor—1,500 ohms, 1/4 watt (R3)	30991	Markers—One set station call letter markers
14284	Resistor—22,000 ohms, 1/10 watt (R5)	32721	Spring—Push button spring
12454	Resistor—33,000 ohms, 1/4 watt (R2)	14270	Spring—Retaining spring for range switch or volume control knob
		30330	Spring—Retaining spring for tone control knob
		4982	Spring—Retaining spring for tuning knob

MODELS 96X-1, -2, -3, -4 and -11, -12, -13, -14

Chassis No. RC-400

and

RC-400A

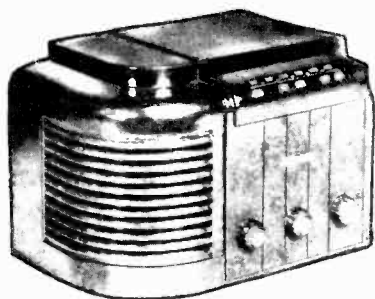
Six-Tube, Two-Band, A-C—D-C, Superheterodyne Receivers

- Models
96X-1
Walnut Finish

96X-2
Black Finish

96X-3
Walnut and
Ivory Finish

96X-4
Ivory Finish



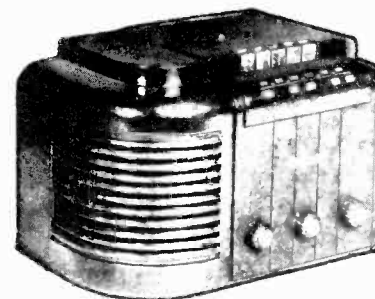
Without Push-Button Tuning

- Models
96X-11
Walnut Finish

96X-12
Black Finish

96X-13
Walnut and
Ivory Finish

96X-14
Ivory Finish



With Push-Button Tuning

Electrical and Mechanical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A) (left) 540-1,720 kc
"Short Wave" (C) (right) 5,800-18,000 kc

TUBE COMPLEMENT

(1) RCA-6K8 1st. Detector—Oscillator
(2) RCA-6SK7 I-F Amplifier
(3) RCA-6SQ7 2nd. Det., 1st A-F, and A.V.C.
(4) RCA-25L6 Power Output
(5) RCA-25Z6G Half-Wave Rectifier
(6) RCA-BK-49B Ballast
Pilot Lamp Mazda No. 47, 6.3 volts, 0.15 amp.

POWER SUPPLY RATINGS

A-C Rating 105-125 volts, 50-60 cycle, 50 watts
D-C Rating 105-125 volts, direct current, 50 watts

INTERMEDIATE FREQUENCY 455 kc

POWER OUTPUT (125 volts, 60 cycle supply)

Undistorted 1.5 watts—Maximum 2.0 watts

LOUDSPEAKER Type 84202-3 5-inch Electrodynamic

Cabinet Dimensions H. 7 1/4 inches W. 11 1/4 inches D. 7 1/4 inches

Weights (net) 96X1, 2, 3, 4—8 1/2 lbs. ... 96X11, 12, 13, 14—9 1/2 lbs.

Tuning Drive Ratio 8 to 1

25 Cycle Operation.—For 25 cycle operation change filter condensers to 40-40 mfd.

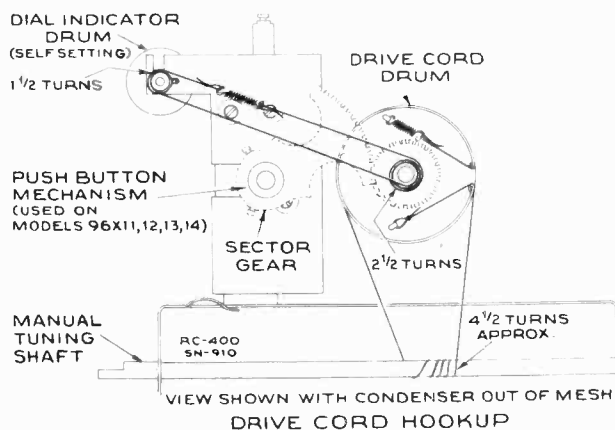
Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Dial Setting.—To set dial indicator drum, turn tuning condensers fully clockwise and then counter-clockwise.

Push-button Adjustments.—Remove bakelite button and loosen screw two turns with a screwdriver or coin. Tune in the desired station by means of the right-hand control knob. Press push lever down as far as it will go and tighten screw. Release lever and put on push-button.



Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (osc.) in series with .01 mfd.†	455 kc	Quiet point between 550-750 kc	C1, C2, C3, C4 (1st and 2nd I-F transformer)
2	Antenna lead (yellow) in series with 400 ohms	19.25 mc	Full clockwise (out of mesh) "C" band	C5* (osc.)
3	Same as step 2	15.0 mc	15.0 mc Test oscillator signal	C6** (ant.) See Note No. 1
4	Antenna lead in series with 200 mmf condenser	1,745 kc	Full clockwise (out of mesh) "A" band	C7 (osc.)

* Use minimum capacity peak if two peaks can be obtained.

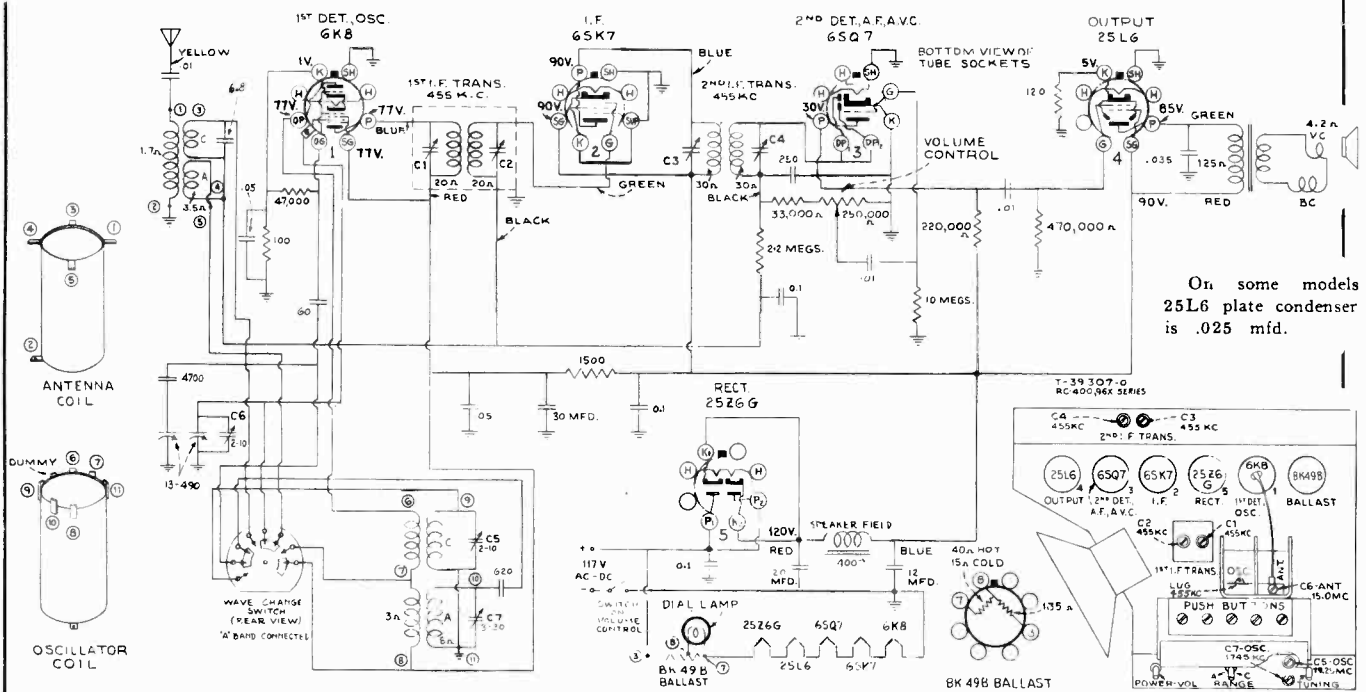
** Rock gang slightly and check to determine that C5 has been adjusted to the correct peak by tuning to approximately 14.09 mc, where a weaker signal should be received.

† Make test oscillator connection to lug on tuning condenser stator (oscillator section) in series with .01 mfd. condenser.

Note No. 1.—Accurately tune receiver to the 15.0 mc test oscillator signal. This signal will appear twice (14.09 and 15.0 mc) as dial is turned. Use the higher frequency setting of the tuning condensers (gang furthest out of mesh).

Note No. 2.—Oscillator tracks 455 kc above signal on all bands.

96X1, -2, -3, -4, -11, -12, -13, -14



On some models 25L6 plate condenser is .025 mfd.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
32999	Back—Cardboard back for cabinet.	31480	Lamp—Dial lamp.
32544	Ballast—Ballast resistor type BK49B.	31589	Marker—1 set push button call letter markers.
32530	Button—Ivory push button for 96X11, 96X12 and 96X14.	32810	Mechanism—Push button tuning mechanism comprising push arms, cam plate, frame, and mounting bracket assembled—Models 96X11, 96X12, 96X13, 96X14.
32528	Button—Walnut push button for 96X13.	32538	Pulley—Condenser drive pulley and gear—Models 96X11, 96X12, 96X13 and 96X14.
X-580	Cabinet for 96X1 (net).	32541	Pulley—Condenser drive pulley—Models 96X1, 96X2, 96X3, 96X4.
X-581	Cabinet for 96X2 (net).	31606	Pulley—Indicator drum pulley.
X-582	Cabinet for 96X3 (net).	32544	Resistor—Ballast resistor type BK49B.
X-583	Cabinet for 96X4 (net).	14439	Resistor—100 ohms, 1/2 watt.
X-644	Cabinet for 96X11 (net).	32535	Resistor—120 ohms, wire wound.
X-585	Cabinet for 96X12 (net).	14499	Resistor—1,500 ohms, 1/2 watt.
X-645	Cabinet for 96X13 (net).	12454	Resistor—33,000 ohms, 1/2 watt.
X-646	Cabinet for 96X14 (net).	12412	Resistor—47,000 ohms, 1/2 watt.
32531	Coil—Antenna coil.	12264	Resistor—220,000 ohms, 1/2 watt.
32532	Coil—Oscillator coil.	12285	Resistor—470,000 ohms, 1/2 watt.
31379	Condenser—Trimmer, one 3-30 mmfd. and one 2-10 mmfd. sections (C5, C7).	12679	Resistor—2.2 meg., 1/2 watt.
14079	Condenser—6.8 mmfd.	13601	Resistor—10 meg., 1/2 watt.
13057	Condenser—60 mmfd.	31482	Screw—No. 8-32 set screw for condenser drive pulley or sector gear.
12488	Condenser—250 mmfd.	32510	Screw—Push button cam locking screw—Models 96X11, 96X12, 96X13, 96X14.
31399	Condenser—4,700 mmfd.	32547	Shaft—Tuning knob shaft.
4858	Condenser—.01 mfd.	32543	Socket—Dial lamp socket and bracket.
5196	Condenser—.035 mfd.	32537	Socket—Tube socket.
4886	Condenser—.05 mfd.	31615	Spring—Drive cord tension spring.
4839	Condenser—.01 mfd.	30585	Spring—Push button lever spring—Models 96X11, 96X12, 96X13, 96X14.
32548	Condenser—Electrolytic, one 12 mfd. and one 20 mfd. sections.	31646	Spring—Retaining spring for knobs.
32536	Condenser—Variable tuning condenser.	32546	Switch—Band change switch.
31456	Cover—1 set protective covers for push button markers.	32533	Transformer—First i.f. transformer.
32539	Cord—Condenser drive cord.	32534	Transformer—Second i.f. transformer.
32540	Cord—Dial drive cord.	32545	Volume control and power switch.
32526	Dial—Black dial scale for 96X2 and 96X12.	SPEAKER ASSEMBLIES (84202-3)	
32527	Dial—Ivory dial scale for 96X4 and 96X14.	31202	Cone—Speaker cone and voice coil.
32525	Dial—Walnut dial scale for 96X1, 96X3, 96X11 and 96X13.	31203	Transformer—Output transformer.
32290	Gear—Sector gear fastens on cam shaft of tuning mechanism—Models 96X11, 96X12, 96X13, 96X14.		
32542	Indicator—Dial indicator drum.		
32522	Knob—Ivory knob for 96X1, 96X2, 96X4, 96X11, 96X12, 96X14.		
32520	Knob—Tan knob for 96X3 and 96X13.		

MODELS 96X-11, -12, -13, -14

Push-Arm Inserts:

Special push-arm inserts are now available to take care of stripped threads on the push button mechanism in these models.

Stock No. 36160 Insert is for use in Models 9M1, 9M2, 96X-11, -12, -13, -14.

Stock No.

34053 Spring—Push button retaining spring

Replacement Speaker RL-78-3:

Stock No. 31201 speaker is superseded by Stock No. 34985 speaker (RL-78-3). The replacement parts for RL-78-3 speaker are:

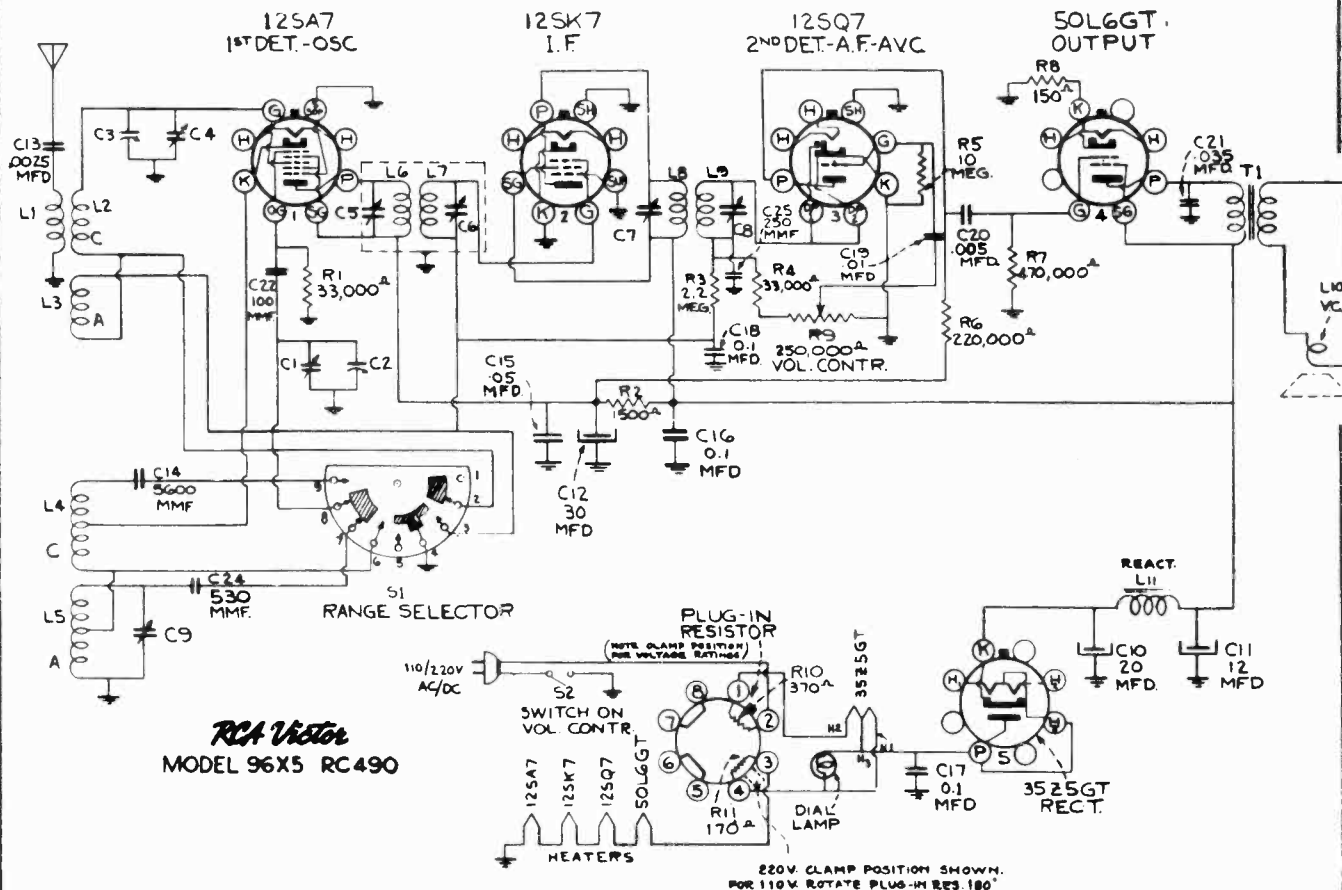
Stock No.

- 32907 Cap—Dust cap.
- 33555 Coil—Field coil.
- 32906 Coil—Neutralizing coil.
- 34374 Cone—Cone and voice coil.
- 34985 Speaker—Complete.
- 33556 Transformer—Output transformer.

MODEL 96X5

Chassis No. RC-490

5-Tube, Two-Band, AC-DC, Superheterodyne Receiver



RCA Victor
MODEL 96X5 RC-490

Replacement Parts

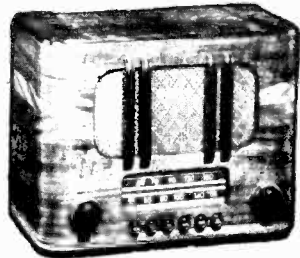
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-490)			
34458	Ballast—Ballast resistor tube.	13428	Resistor—150 ohms, 1/4 watt (R8).
34461	Capacitor—Electrolytic—comprising 1 section of 20 mfd. and 1 section of 12 mfd. (C10, C11).	14499	Resistor—1,500 ohms, 1/4 watt (R2).
31379	Capacitor—Trimmer—comprising 1 section of 3-30 mmfd. and 1 section of 2-15 mmfd.	12454	Resistor—33,000 ohms, 1/4 watt (R1, R4).
12720	Capacitor—100 mmfd. (C22).	12264	Resistor—220,000 ohms, 1/4 watt (R6).
12488	Capacitor—270 mmfd. (C25).	12285	Resistor—470,000 ohms, 1/4 watt (R7).
32492	Capacitor—530 mmfd. (C24).	12679	Resistor—2.2 megohm, 1/4 watt (R3).
13895	Capacitor—5,600 mmfd. (C14).	13601	Resistor—10 megohm, 1/4 watt (R5).
34459	Capacitor—.0025 mfd. (C13).	4669	Screw—No. 8-32 square head set screw for drum, Stock No. 32266.
33584	Capacitor—.005 mfd. (C20).	31482	Screw—No. 8-32 square head set screw for pulley, Stock No. 32541.
4937	Capacitor—.01 mfd. (C19).	34454	Shaft—Tuning condenser drive shaft.
5196	Capacitor—.035 mfd. (C21).	31365	Socket—Dial lamp socket.
32787	Capacitor—.05 mfd. (C15).	31319	Socket—Tube socket.
4839	Capacitor—.1 mfd. (C16, C17, C18).	31418	Spring—Pointer drive cord spring.
34460	Capacitor—Electrolytic—comprising 1 section of 30 mfd. (C12).	31615	Spring—Tuning condenser drive cord spring.
31378	Coil—Antenna coil.	34451	Switch—Range switch.
34452	Coil—Oscillator coil.	34453	Transformer—First i-f transformer.
32536	Condenser—Variable tuning condenser.	32534	Transformer—Second i-f transformer.
32545	Control—Volume control and power switch.	34458	Tube—Ballast resistor tube.
32634	Cord—Indicator pointer drive cord.	2917	Washer—"C" washer for shaft, Stock No. 34454.
32266	Drum—Variable tuning condenser drive drum.	34457	Washer—Spring washer for shaft, Stock No. 34454.
32711	Indicator—Station selector pointer.	MISCELLANEOUS ASSEMBLIES	
11765	Lamp—Dial lamp.	34463	Dial—Glass dial scale.
34497	Plate—Dial plate and pulleys assembled.	31687	Escutcheon—Station selector escutcheon.
32541	Pulley—Drive pulley.	31659	Knob—Tuning, range switch or volume control and power switch.
34458	Resistor—Ballast resistor tube.	31646	Spring—Retaining spring for knob, Stock No. 31659.

MODEL 97X

Seven-Tube, Electric-Tuning, Single-Band, AC-DC Superheterodyne Receiver

Refer to Model 95T5 for Alignment Data and Changes in Chassis marked "MOD" or "M".



97X

Electrical Specifications

25-Cycle Operation.—For operation with 25-cycle power supply, connect a 16 mfd., 150-volt dry electrolytic capacitor (Stock No. 31323) in parallel to C16.

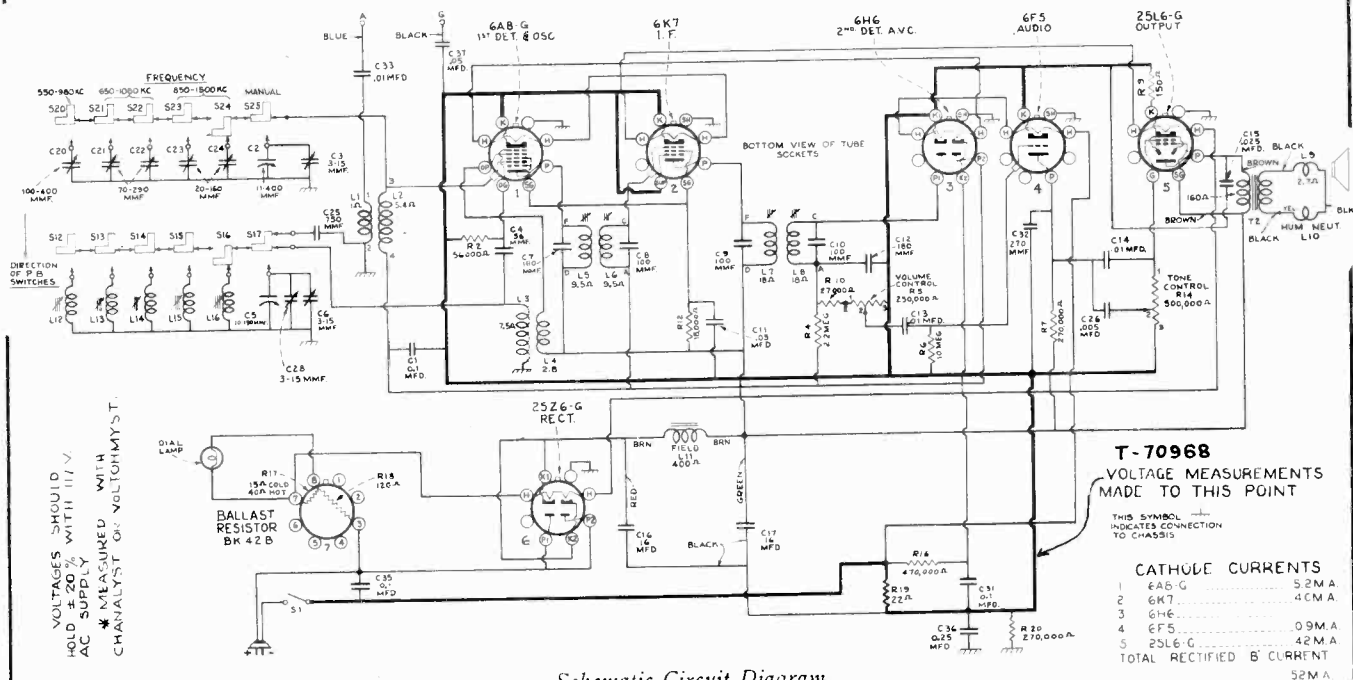
Power Supply Polarity.—On d-c operation, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the position of the plug. On a-c operation, a similar reversal of the plug may reduce hum.

Frequency Range.....	540-1,720 kc
One Station between approximately 550-980 kc (Button No. 1—left)	
Two Stations between approximately 650-1,080 kc (Buttons 2 and 3)	
Two Stations between approximately 850-1,500 kc (Buttons 4 and 5)	
R-F Alignment Frequency.....	1,500 kc (osc., ant.)
Intermediate Frequency.....	455 kc
RCA TUBE COMPLEMENT	
(1) RCA-6A8-G.....	First Detector—Oscillator
(2) RCA-6K7.....	I-F Amplifier
(3) RCA-6H6.....	Second Det., and A.V.C.
(4) RCA-6F5.....	Audio Voltage Amplifier
(5) RCA-25L6-G.....	Power Output
(6) RCA-25Z6-G.....	Half-Wave Rectifier
(7) BK-42B.....	Ballast
Power Output	
Undistorted.....	1.0 watts
Maximum.....	1.5 watts
POWER SUPPLY RATING	
A-C Rating.....	105-125 volts, 50-60 cycles, 55 watts
D-C Rating.....	105-125 volts, 55 watts
Pilot Lamp (1).....	Mazda 47, 6.3 volts, .15 amp.
LOUDSPEAKER (ELECTRODYNAMIC)	
Diameter (inches).....	5 V. C. Impedance at 400 cycles..... 3.0 ohms

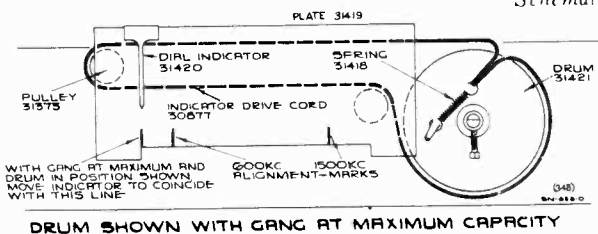
REPLACEMENT PARTS

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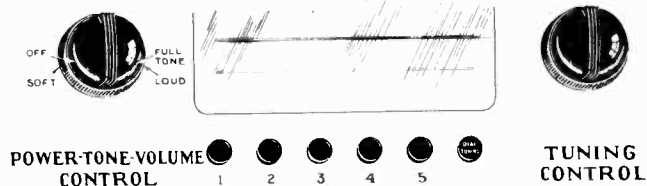
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31483	Ballast—Ballast resistor tube type BK42-B (R17, R18)	13045	Resistor—18,000 ohms, ½ watt (R12)
14338	Bushing—Variable tuning condenser mounting bushing and hardware	12738	Resistor—27,000 ohms, ½ watt (R10)
31416	Capacitor—Antenna coil trimmer capacitor bank (C20, C21, C22, C23, C24)	12286	Resistor—56,000 ohms, ½ watt (R2)
12723	Capacitor—56 mmfd. (C4)	12199	Resistor—270,000 ohms, ½ watt (R7, R20)
30904	Capacitor—100 mmfd. (C7, C8, C9, C10)	12285	Resistor—470,000 ohms, ½ watt (R18)
13003	Capacitor—180 mmfd. (C12)	12679	Resistor—2.2 megohm, ½ watt (R4)
12488	Capacitor—270 mmfd. (C32)	13601	Resistor—10 megohm, ½ watt (R6)
31435	Capacitor—750 mmfd. (C25)	14887	Retainer—Indicator drive cord pulley retainer
4838	Capacitor—.005 mfd. (C26)	31482	Screw—No. 8 square head set screw for drum Stock No. 31421
4870	Capacitor—.025 mfd. (C15)	31365	Socket—Dial lamp socket
14393	Capacitor—.01 mfd. (C13, C14, C33)	31251	Socket—Tube socket
4886	Capacitor—.05 mfd. (C37)	31418	Spring—Indicator drive cord tension spring
30882	Capacitor—.05 mfd. (C11)	31414	Switch—Selector switch (S12, S13, S14, S15, S16, S17, S20, S21, S22, S23, S24, S25)
4839	Capacitor—0.1 mfd. (C1, C31, C35)	30957	Transformer—1st i.f. transformer (L5, L6, C7, C8)
12484	Capacitor—0.25 mfd. (C36)	30903	Transformer—2nd i.f. transformer (L7, L8, C9, C10)
31479	Capacitor—Comprising two sections of 16 mfd. each (C16, C17)	31484	Transformer—Output transformer (T2)
30894	Coil—Antenna coil (L1, L2)	31483	Tube—Ballast resistor tube type BK42-B (R17, R18)
31098	Coil—Oscillator coil (L3, L4)	SPEAKER ASSEMBLIES (Speaker No. 84326-3)	
31383	Coil—Push button oscillator coil (L15, L16)	31486	Cone—Speaker cone and voice coil (L9)
31384	Coil—Push button oscillator coil (L13, L14)	31485	Speaker—Speaker complete
31415	Coil—Push button oscillator coil (L12)	MISCELLANEOUS ASSEMBLIES	
31422	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C28)	31428	Button—Station selector push button
31413	Control—Volume control, tone control and on-off switch (R5, R14, S1)	31487	Clip—Spring clip and washers to hold dial scale
31481	Cord—Drive cord—36-in. long silk cord	31429	Dial—Station selector dial scale
30905	Core—Adjustable core assembly for i.f. transformer	31095	Disc—10 protector discs for call letter markers
31386	Core—Adjustable core and stud for oscillator coils	31355	Knob—Station selector knob
31421	Drum—Indicator drive drum and hub	30773	Knob—Tone control or dummy knob
31420	Indicator—Station selector indicator pointer	31391	Knob—Volume control knob
31480	Lamp—Dial lamp	30991	Marker—Station call letter push button markers
31419	Plate—Colored dial plate comprising plate, spacers and screws	31488	Mounting—Chassis mounting screw and washer
31373	Pulley—Indicator drive cord pulley	14270	Spring—Retaining spring for knob Stock No. 30773 and 31355
31483	Resistor—Ballast resistor tube type BK42-B (R17, R18)	30330	Spring—Retaining spring for knob Stock No. 31391
14525	Resistor—22 ohms, ½ watt (R19)		
30880	Resistor—150 ohms, ½ watt (R9)		



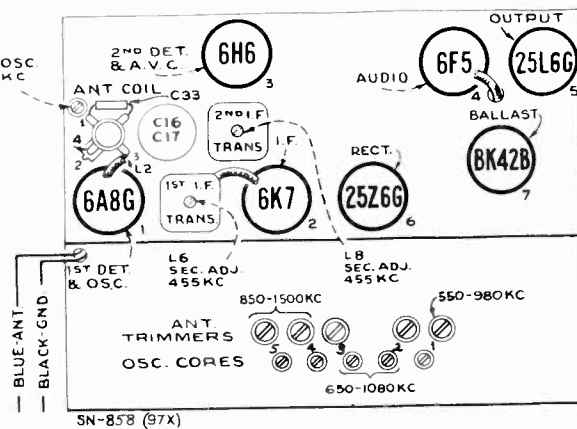
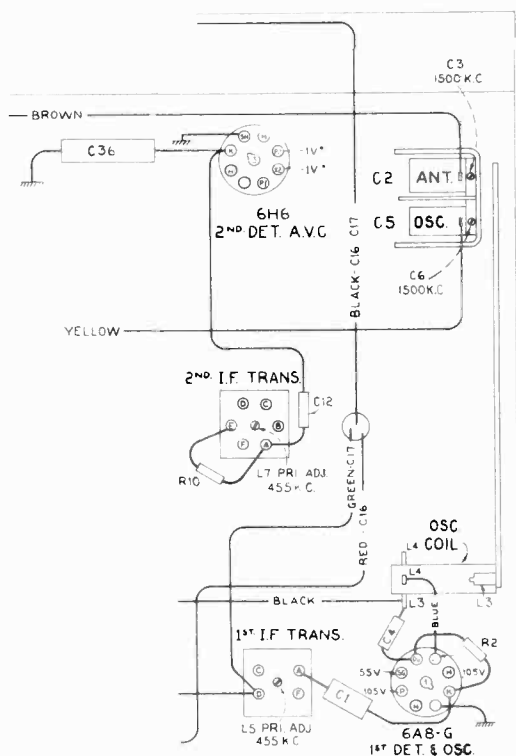
Schematic Circuit Diagram



Dial-Indicator and Drive Mechanism
 Refer to "Alignment Procedure" for explanation of the "calibration marks" shown in this drawing



Location of Controls
 The right-hand push button is for dial tuning



Tube and Trimmer Locations

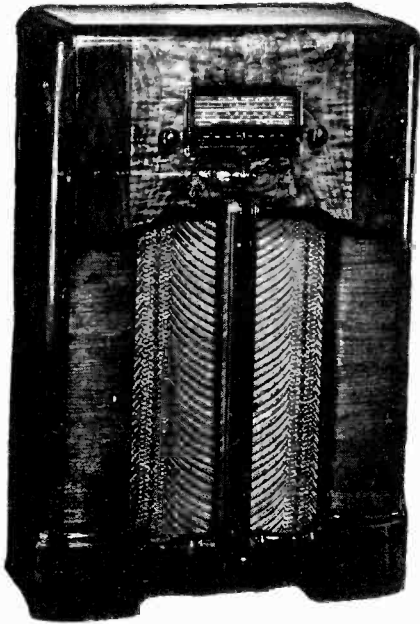
Precautionary Lead Dress.—

1. Dress green lead from antenna coil to switch away from the chassis and gang.
2. Dress green leads from trimmer bank away from the oscillator-core adjustment screws.
3. Dress heater lead from 6H6 to 6A8-G away from the 2nd I.F. transformer.
4. Dress black lead from electrolytic to volume control against front apron.

MODELS 97Y, 98X, 98EY, 98YG

Chassis No. RC-352A RC-352 RC-352 RC-352

Seven- and Eight-Tube, Three-Band, Electric-Tuning, AC-DC Superheterodyne Receivers

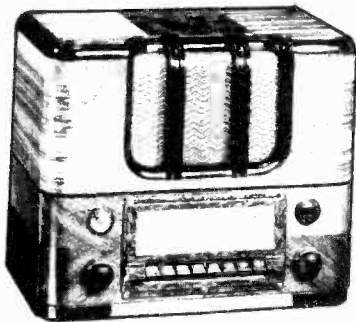
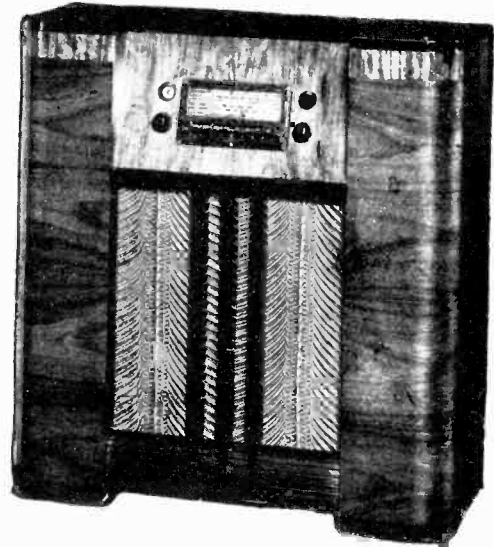


Model 98EY →
END TABLE
8 Tubes, Including
Ballast. 8-inch
Speaker



← **Model 97Y**
CONSOLE
7 Tubes, Including
Ballast. 12-inch
Speaker

Model 98YG →
CONSOLE GRAND
8 Tubes, Including
Ballast. 12-inch
Speaker



← **Model 98X**
TABLE MODEL
8 Tubes, Including
Ballast. 6-inch
Speaker

Electrical Specifications

FREQUENCY RANGES

- "Standard Broadcast" (A)..... 540-1,720 kc
- "Medium Wave" (B)..... 2.3-7 mc
- "Short Wave" (C)..... 7-22 mc

R-F ALIGNMENT FREQUENCIES

- "Short Wave" (C)..... 20 mc (osc., ant.)
- "Medium Wave" (B)..... 6.1 mc (osc.)
- "Standard Broadcast" (A)..... 1,500 kc (osc.)

- Intermediate Frequency..... 455 kc
- Six Electric Tuning Positions..... 550-1,500 kc
- 2 stations between approximately 550- 950 kc (Buttons 1 and 2)
- 2 stations between approximately 680-1,180 kc (Buttons 3 and 4)
- 2 stations between approximately 890-1,500 kc (Buttons 5 and 6)

RCA TUBE COMPLEMENT

- (1) RCA-6K8..... First-Detector—Oscillator
- (2) RCA-6K7..... Intermediate-Frequency Amplifier
- (3) RCA-6H6..... Second-Detector and A.V.C.
- (4) RCA-6J7..... Audio Voltage Amplifier
- (5) RCA-25L6..... Audio Power Amplifier
- (6) RCA-25Z6..... Half-Wave Rectifier
- RCA-6U5 (Models 98X, 98EY, 98YG)..... Tuning Tube
- RCA Stock No. 31577 (Models 98X, 98EY, 98YG)..... Ballast Tube
- RCA-BK36C (Model 97Y)..... Ballast Tube

Pilot Lamps (2 on Model 97Y) (3 on Models 98X, 98EY, 98YG)..... Mazda 47, 6.3 volts, .15 amp.

POWER OUTPUT

- Undistorted..... 1.5 watts
- Maximum..... 2.5 watts

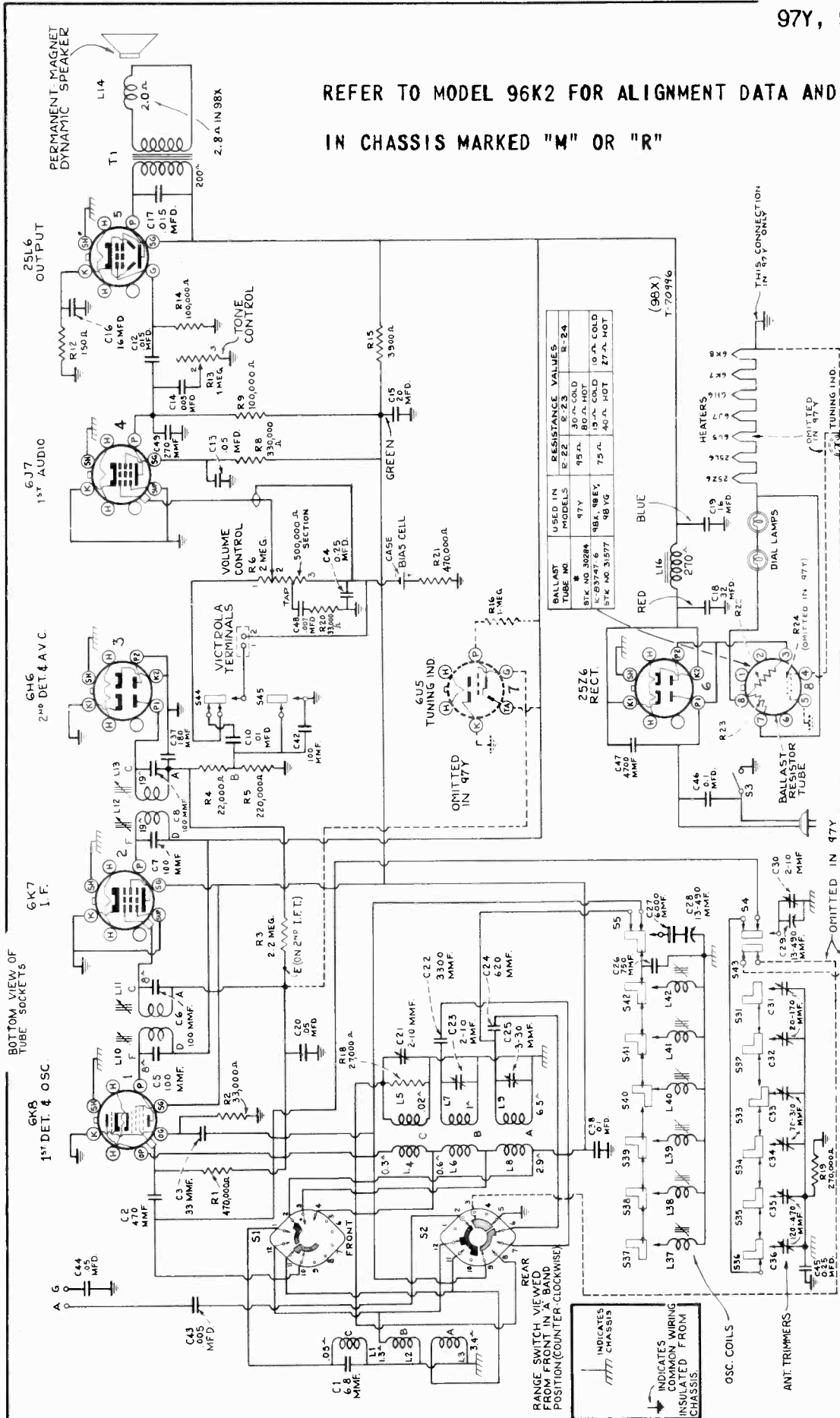
POWER SUPPLY RATING

- A-C Rating..... 105-125 volts, 25-60 cycles, 55 watts
- D-C Rating..... 105-125 volts, 55 watts

LOUDSPEAKER (PERMANENT-MAGNET DYNAMIC)

	97Y	98X	98EY	98YG
Diameter.....	12 inches	6 inches	8 inches	12 inches
V. C. Impedance at 400 cycles.....	2.2 ohms	3 ohms	2.2 ohms	2.2 ohms

REFER TO MODEL 96K2 FOR ALIGNMENT DATA AND CHANGES
IN CHASSIS MARKED "M" OR "R"



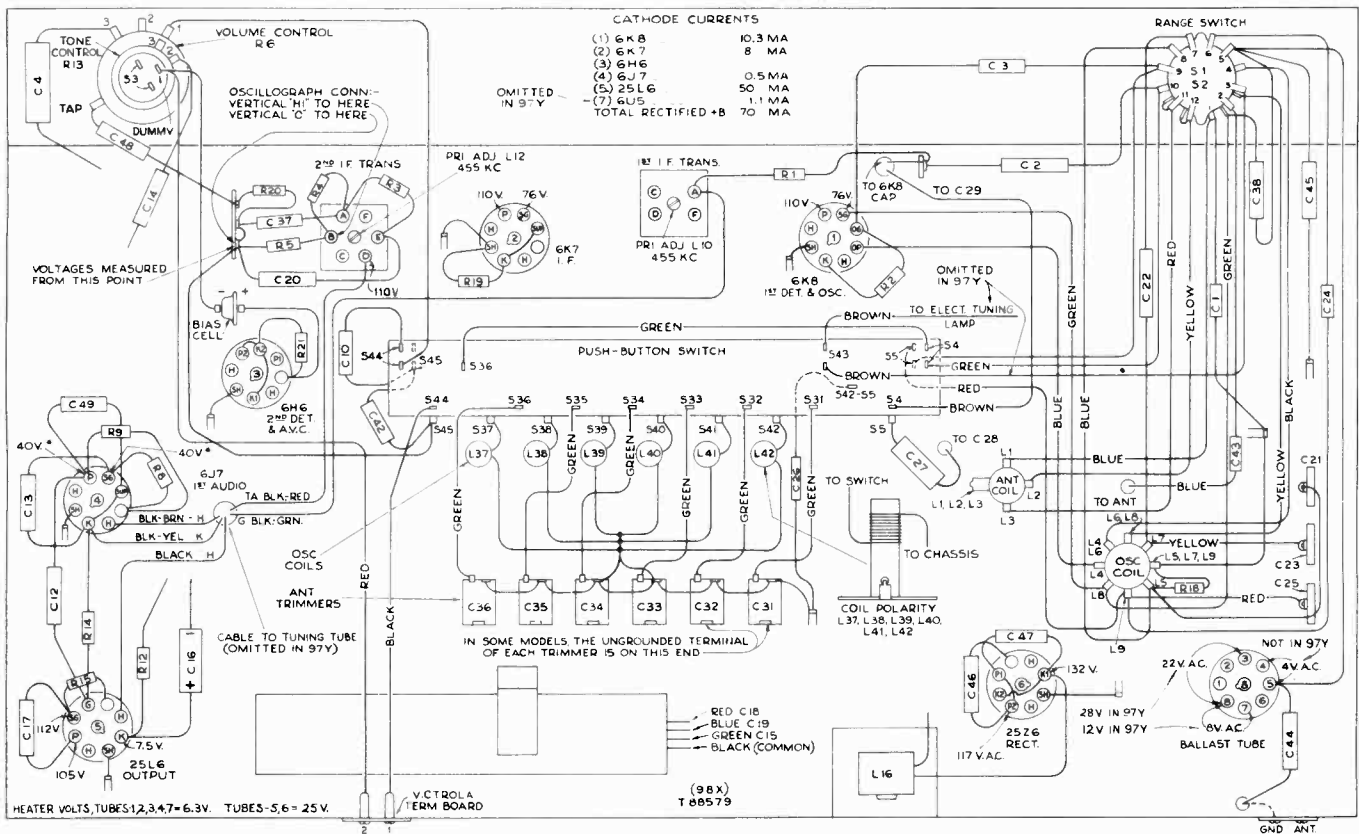
Schematic Circuit Diagram

* The ballast tube in Model 97Y is RCA-BK36B

Precautionary Lead Dress.

1. Dress the bias cell clear of all bus leads.
2. Dress R1 away from front of chassis.
3. Leads from S43 must be dressed in front of range switch.

4. Blue lead from range switch to L5 must be short and clear of other leads.
5. Dress leads away from antenna coil.
6. Leads across back of chassis must be dressed under electrolytic to prevent approaching Victrola jack.



R-F Wiring Diagram and Socket Voltages

Measurements made to low-side of tone control unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately ±20% with 117-volt a-c supply. On d-c, voltages are approximately 10% lower, except heaters, which remain the same.

***NOTE:** Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Miscellaneous Service Notes

Bias Cell.—The bias cell provides approximately 1-volt bias for the 1st-audio grid. The cell should never be shorted, not measured with an ordinary voltmeter or other device that draws current. The cell may be checked by measuring the 1st-audio cathode current with a new tested 6J7 tube in this socket. The current should be approximately 1/2 milliamper. If it is appreciably greater than 1/2 mil., install a new bias cell.

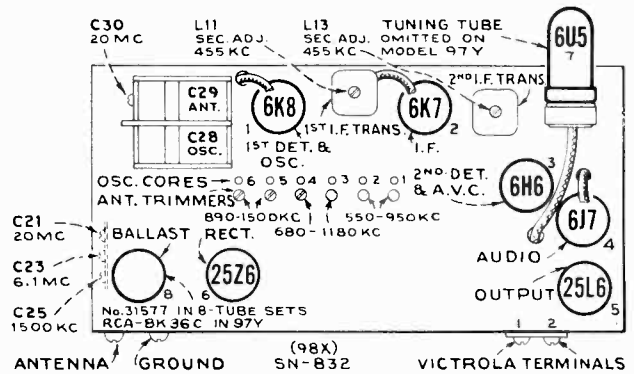
Victrola Attachment.—Two screw-type terminals, numbered 1 and 2, are provided on the rear apron of the chassis for connection to a Victrola Attachment, such as the R-93, R-93-B, etc. (When A-C supply is available.)

Care must be taken that these terminals are never connected in any way to the chassis, otherwise injury will result to the bias cell. To safeguard against this possibility, the following precautions should be observed in connecting the Victrola Attachment to the receiver.

Victrola Attachment with shielded cable.—If the shielded cable has a plug connector, remove the plug, connect the shielding to terminal 1, and connect the lead (inside the shielding) to terminal 2. Tape the shielding for a sufficient distance to prevent the possibility of it shorting against the chassis.

Victrola Attachment with twisted-pair cable.—Connect the low-side of the Attachment to terminal No. 1, and the high-side of the Attachment to terminal No. 2. (In some Attachments, the lead from the low-side is black, and the lead from the high-side is black-brown.)

Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the position of the plug. For operation on a-c, a similar reversal of the plug may reduce hum.



Tube and Trimmer Locations

Wiring Change:

The shield of cable which interconnects the 6J7 grid to the volume control, has been changed from the tone control terminal to terminal No. 3 (one nearest end of chassis) of the volume control. Such a change of return point for the shield minimizes hum and possible audio oscillation.

The correct connection is shown in the Service Data diagram.

REPLACEMENT PARTS

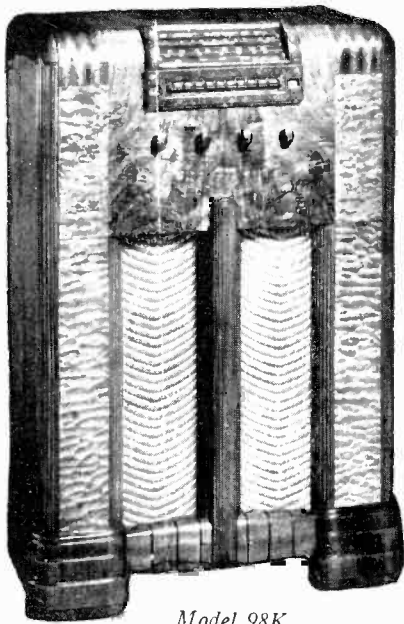
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31577	Ballast—Ballast resistor tube (R22, R23, R24) Models 98X, 98EY and 98YG	14887	Retainer—Retainer for drive cord pulley
30284	Ballast—Ballast resistor tube (R22, R23) Model 97Y	4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372
31767	Board—Antenna-ground terminal board	31368	Shaft—Station selector knob shaft and pulley
31579	Board—Phonograph terminal board	31199	Shield—Dial lamp shield
30752	Bracket—Bracket for holding Magic Eye tube—Models 98X, 98EY and 98YG	12110	Shield—Radiotron shield cap
14338	Bushing—Variable condenser mounting bushing and screws	31365	Socket—Dial lamp socket
31400	Capacitor—Adjustable trimmer capacitor, two sections 2-10 mmfd. and one section 3-30 mmfd. (C21, C23, C25)	13871	Socket—Magic Eye socket—Models 98X, 98EY and 98YG
14079	Capacitor—6.8 mmfd. (C1)	31251	Socket—Tube socket
31387	Capacitor—Antenna coil trimmer capacitor bank—20-470 mmfd. (C31, C32, C33, C34, C35, C36)	31313	Spring—Tension spring for station selector push button switch latch bar
12948	Capacitor—33 mmfd. (C3)	31418	Spring—Indicator or drum drive cord tension spring
12720	Capacitor—100 mmfd. (C42)	31370	Switch—Push button selector switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45)
13003	Capacitor—180 mmfd. (C37)	31398	Switch—Range switch (S1, S2)
12488	Capacitor—270 mmfd. (C49)	30957	Transformer—First i-f transformer (L10, L11, C5, C6)
30433	Capacitor—470 mmfd. (C2)	30903	Transformer—Second i-f transformer (L12, L13, C7, C8)
31381	Capacitor—620 mmfd. (C24)	31577	Tube—Ballast resistor tube (R22, R23, R24)—Models 98X, 98EY and 98YG
31435	Capacitor—750 mmfd. (C26)	30284	Tube—Ballast resistor tube (R22, R23)—Model 97Y
4881	Capacitor—3300 mmfd. (C22)	SPEAKER ASSEMBLIES Model 98X (84307-1)	
12897	Capacitor—4700 mmfd. (C47)	31665	Cone—Speaker cone and voice coil (L14)
31405	Capacitor—6000 mmfd. (C27)	5118	Plug—3 contact male plug for speaker
5148	Capacitor—.007 mfd. (C48)	31664	Speaker complete
4838	Capacitor—.005 mfd. (C14, C43)	31666	Transformer—Output transformer (T1)
14393	Capacitor—.01 mfd. (C10)	SPEAKER ASSEMBLIES Models 97Y and 98YG (Speaker RL 71 A-1)	
11315	Capacitor—.015 mfd. (C12, C17)	31275	Cone—Speaker cone and voice coil (L14)
4886	Capacitor—.05 mfd. (C13, C20, C44)	5118	Plug—3 Contact male plug for speaker
4839	Capacitor—.01 mfd. (C38, C46)	31798	Speaker—Less output transformer
12484	Capacitor—0.25 mfd. (C4, C45)	14628	Transformer—Output transformer (T1)
31323	Capacitor—16 mfd. (C16)	SPEAKER ASSEMBLIES Model 98EY (Speaker RL 73-5)	
31576	Capacitor—Comprising one 32 mfd., one 20 mfd., and one 16 mfd. section (C15, C18, C19)	31310	Cone—Speaker cone and voice coil (L14)
30904	Capacitor—100 mfd. (C5, C6, C7, C8)	5118	Plug—3 Contact male plug for speaker
31581	Cell—Bias cell	31997	Speaker Complete
31382	Clip—Mounting clip for coils and cores on oscillator bank	14628	Transformer—Output transformer (T1)
31402	Coil—Antenna coil (L1, L2, L3)	MISCELLANEOUS ASSEMBLIES	
31401	Coil—Oscillator coil (L4, L5, L6, L7, L8, L9, C24)	12038	Band—Rubber band shield for Magic Eye—Models 98X, 98EY and 98YG
31385	Coil—Push button oscillator coil (L37, L38)	31397	Button—Station selector push button
31384	Coil—Push button oscillator coil (L39, L40)	31456	Cover—8-protective covers for push button markers
31383	Coil—Push button oscillator coil (L41, L42)	31394	Clip—Pointer travel stop clip
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31406	Dial—Station selector dial scale
5119	Connector—3-contact female connector plug for reproducer cable	31543	Disc—Electric Tuning indicator disc—Models 98X, 98EY and 98YG
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	31407	Escutcheon—Magic Eye or Electric Tuning indicator escutcheon—Models 98X, 98EY and 98YG
31374	Cord—Indicator pointer drive cord	31395	Escutcheon—Station selector escutcheon less dial scale and push buttons
31375	Cord—Indicator pointer drive cord	31392	Indicator—Station selector indicator pointer
30905	Core—Adjustable core for i-f transformer	31355	Knob—Range switch knob
31386	Core—Adjustable core and stud assembly for oscillator bank	14359	Knob—Station selector knob
31372	Drum—Variable condenser drive cord drum and calibrator	31391	Knob—Tone control knob
31580	Holder—Bias cell holder	30773	Knob—Volume control knob
31480	Lamp—Dial lamp	31458	Marker—"Dial Tuning" push button marker
31373	Pulley—Drive cord pulley	31457	Marker—"Record Player" push button marker
5066	Reactor (L16)	31589	Marker—Station call letters push button markers
31577	Resistor—Ballast resistor (R22, R23, R24)—Models 98X, 98EY and 98YG	31393	Screen—Color screen for dial frame
30284	Resistor—Ballast resistor (R22, R23)—Model 97Y	4982	Spring—Retaining spring for knob Stock No. 14359
30880	Resistor—150 ohms, 1/2 watt (R12)	30330	Spring—Retaining spring for knob Stock No. 31391
30694	Resistor—3,900 ohms, 1/2 watt (R15)	14270	Spring—Retaining spring for knob Stock Nos. 30773 and 31355
14284	Resistor—22,000 ohms, 1/10 watt (R4)		
12738	Resistor—27,000 ohms, 1/2 watt (R18)		
12454	Resistor—33,000 ohms, 1/2 watt (R2, R20)		
14560	Resistor—100,000 ohms, 1/2 watt (R9, R14)		
12264	Resistor—220,000 ohms, 1/2 watt (R5)		
12199	Resistor—270,000 ohms, 1/2 watt (R19)		
14983	Resistor—330,000 ohms, 1/2 watt (R8)		
12285	Resistor—470,000 ohms, 1/2 watt (R1, R21)		
12013	Resistor—1 meg. 1/10 watt (R16) Models 98X, 98EY and 98YG		
12679	Resistor—2.2 meg. 1/2 watt (R3)		
14343	Retainer—Drive cord pulley retainer		

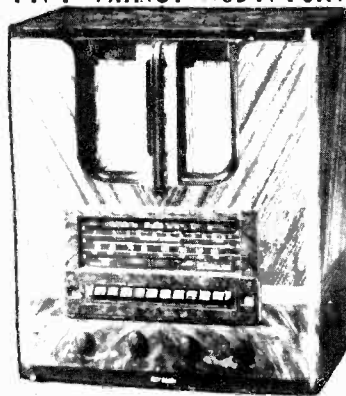
MODELS 98K 99K and 99T

8 & 9 Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Receivers

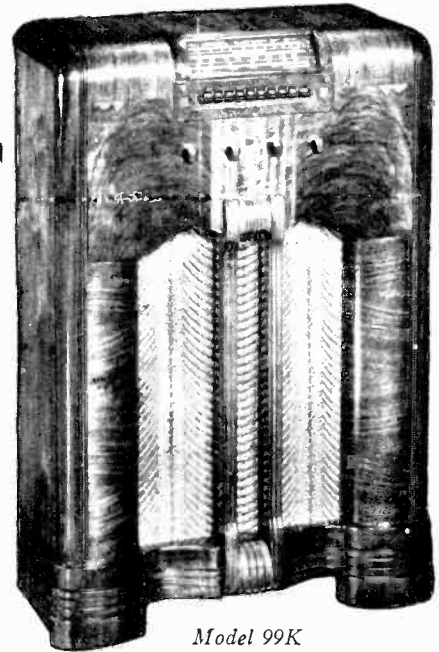
REFER TO MODEL U-126
PAGE 444C
FOR ALIGNMENT PROCEDURE
AND I.F. TRANS. MODIFICATION



Model 98K



Model 99T



Model 99K

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)..... 540-1,720 kc
"Medium Wave" (B)..... 2,300-7,000 kc
"Short Wave" (C)..... 7,000-22,000 kc

R-F ALIGNMENT FREQUENCIES

"Short Wave" (C)..... 20,000 kc (osc., ant.)
"Medium Wave" (B)..... 6,100 kc (osc.)
"Broadcast" (A)..... 600 kc (osc.), 1,500 kc (osc., ant.)

Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT 98K

- (1) RCA-6A8..... First Detector
- (2) RCA-6J7..... Oscillator
- (3) RCA-6K7..... Intermediate Amplifier
- (4) RCA-6H6..... Second Det., A.V.C., and Muting
- (5) RCA-6F5..... Audio Amplifier
- (6) RCA-6F6..... Power Output
- (7) RCA-6G5 or 6U5..... "Magic Eye" Tuning Tube
- (8) RCA-5W4..... Full-Wave Rectifier

RCA TUBE COMPLEMENT 99K, 99T

- (1) RCA-6A8..... First Detector
- (2) RCA-6J7..... Oscillator
- (3) RCA-6K7..... Intermediate Amplifier
- (4) RCA-6Q7..... Second Det., A.V.C., Muting, Audio Amplifier
- (5) RCA-6F5..... Phase Inverter, Audio Amplifier
- (6) RCA-6F6..... Power Output
- (7) RCA-6F6..... Power Output
- (8) RCA-6G5 or 6U5..... "Magic Eye" Tuning Tube
- (9) RCA-5T4..... Full-Wave Rectifier

Pilot Lamps (3)..... one 6-8 volts, .15 amp., and two Mazda 44, 6.3 volts, .25 amp.

POWER SUPPLY RATINGS

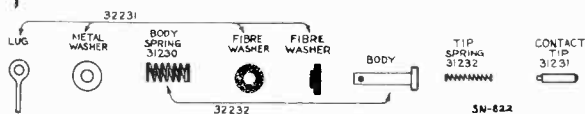
	98K	99K, 99T
Rating A.....	105-125 volts, 50-60 cycles, 80 watts	120 watts
Rating B.....	105-125 volts, 25 cycles, 80 watts	120 watts
Rating C.....	105-125/140-160/200-250 volts, 50-60 cycles, 80 watts	120 watts

POWER OUTPUT

	98K	99K, 99T
Undistorted.....	2.5 watts	10 watts
Maximum.....	4.5 watts	12 watts

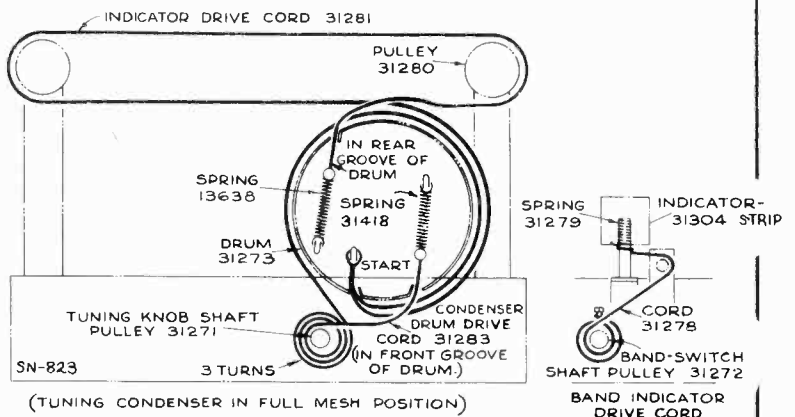
LOUDSPEAKER

Type..... Electrodynamic
Impedance (v.c.)..... 2.2 ohms at 400 cycles

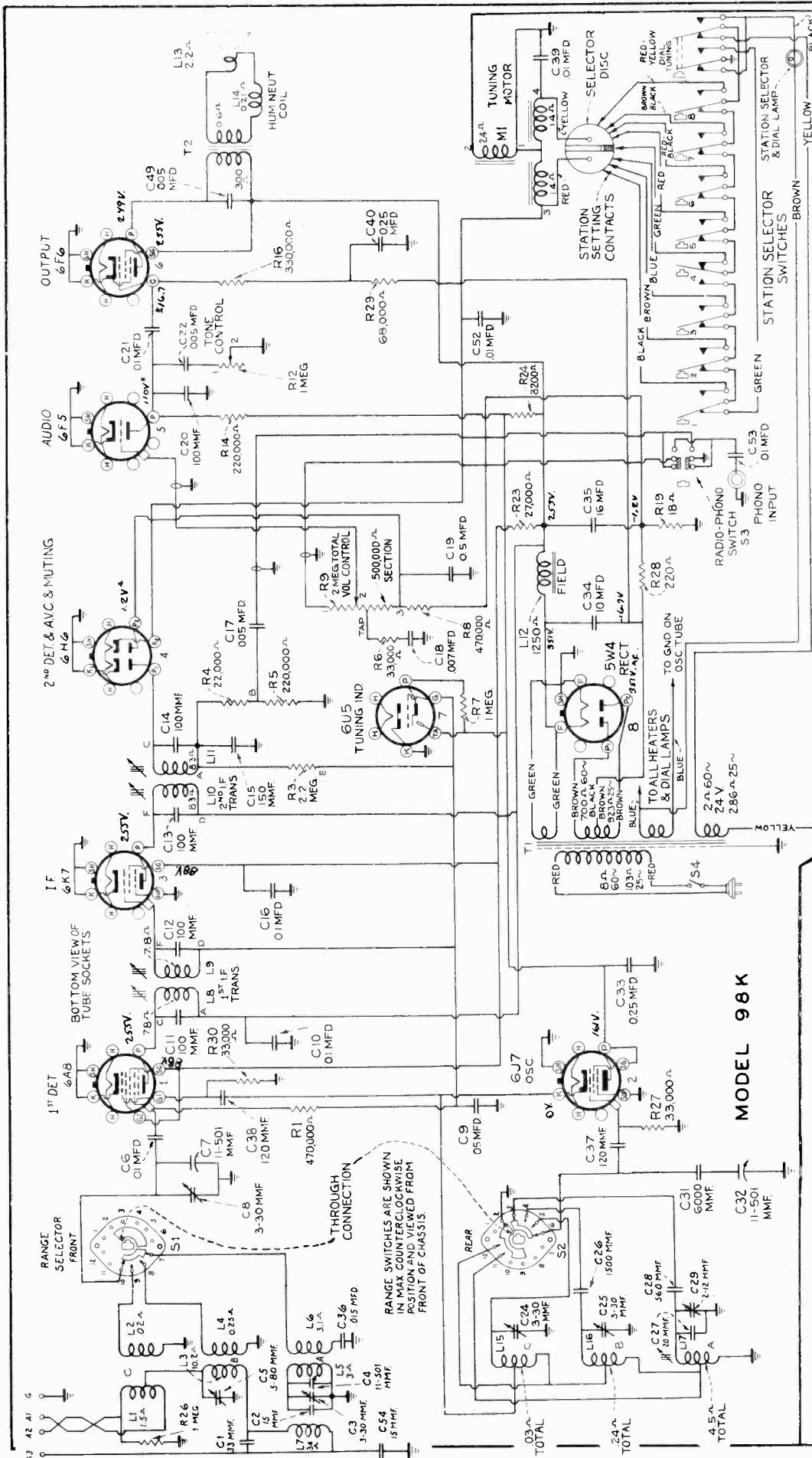


—(Above) Component Parts of Station-Setting Contact

—(At Right) Drive Cord Arrangement for Tuning Condenser, Dial Indicator, and Band Switch

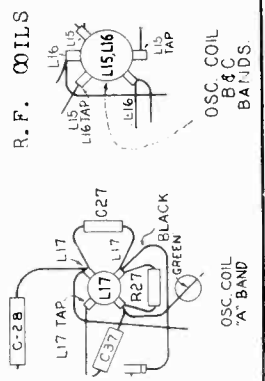


(TUNING CONDENSER IN FULL MESH POSITION)



MODEL 98K

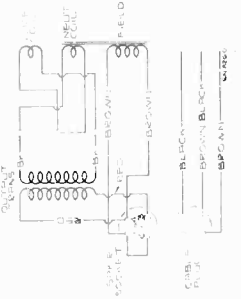
MODELS 98K, 99K and 99T



CATHODE CURRENTS

- No. 1 T. B. MA
- No. 2 8.3 MA
- No. 3 6.3 MA (OPERATING)
- No. 4 10 MA (MEASURED)
- No. 5 0.3 MA
- No. 6 45.5 MA
- No. 7 1.7 MA
- TOTAL RECTIFIED B CURRENT TIME

Connections and Colors of Loudspeaker and Cable.



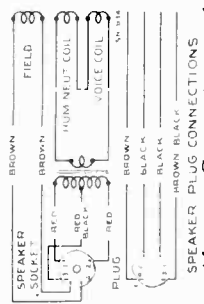
Tuning Motor Connections:

On some instruments, tuning motor terminal No. 4 is grounded. C39 is omitted, and terminal No. 1 is not used.

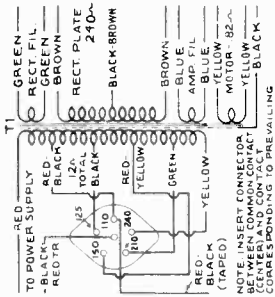
CATHODE CURRENTS

- (1) 6.6 M.A. (5) 35 M.A.
 - (2) 8.3 M.A. (6) 28 M.A.
 - (3) 8.4 M.A. (7) 28 M.A.
 - (4) 0.5 M.A. (8) 1.0 M.A.
- TOTAL RECTIFIED 'B' CURRENT 108MF
 * BASED ON -3 VOLT BIAS

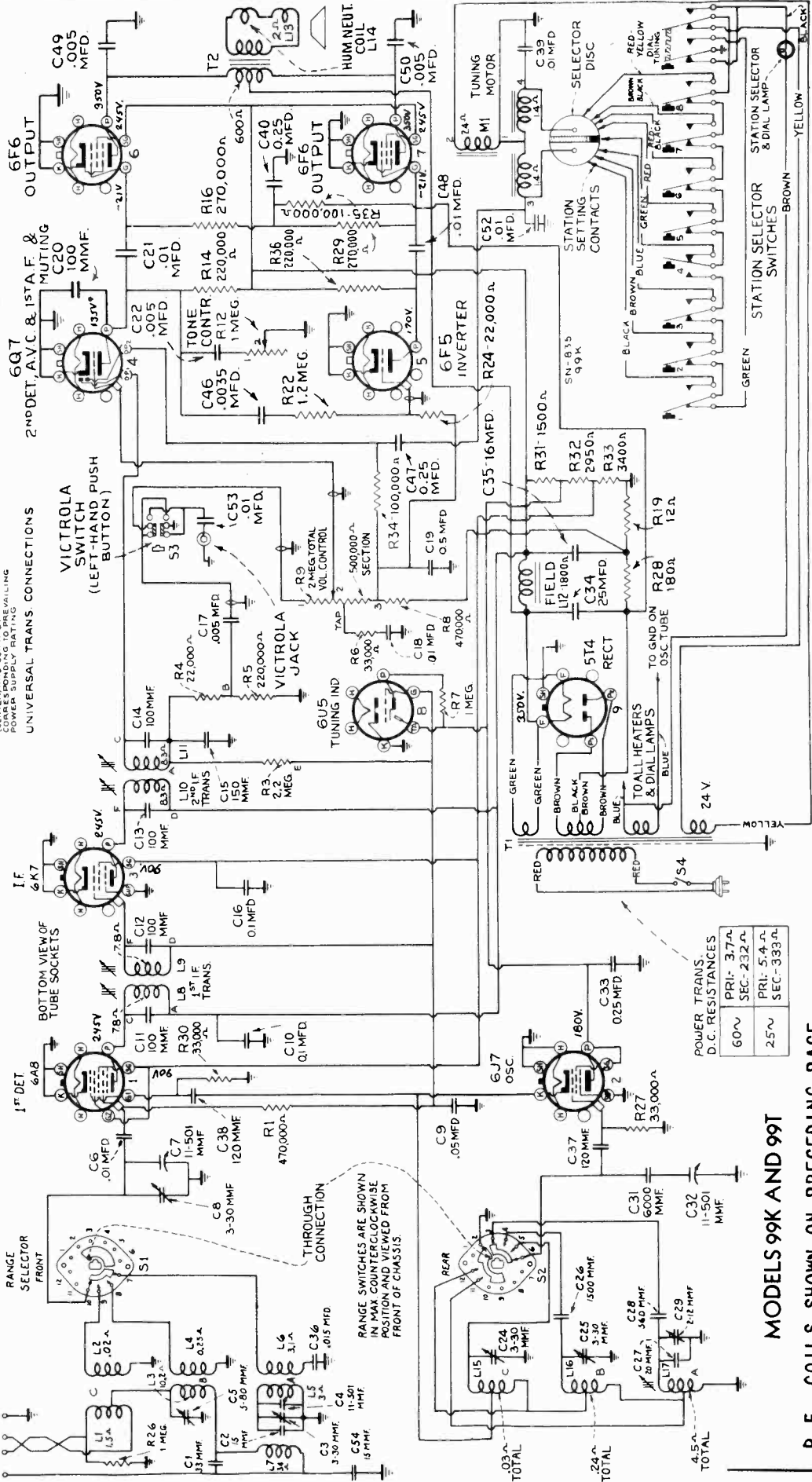
Universal Power Transformer Connections
 (110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.)



Above Connections and Colors of Loudspeaker and Cable.



UNIVERSAL TRANS. CONNECTIONS
 NOTE: INSERT CONNECTOR (CENTER TAP CONTACT) IN POWER SUPPLY RATING.



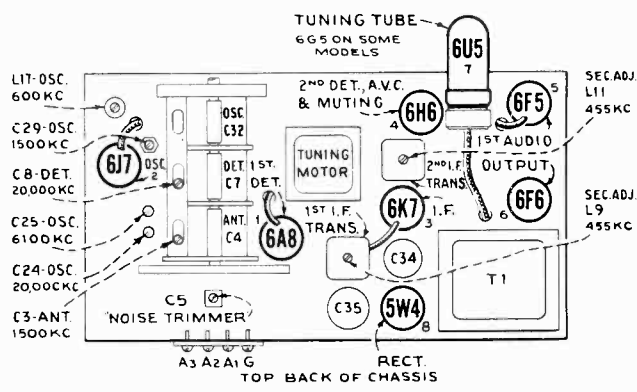
POWER TRANS. D.C. RESISTANCES

60V	PRI- 3.7A
	SEC- 232A
25V	PRI- 5.4A
	SEC- 333A

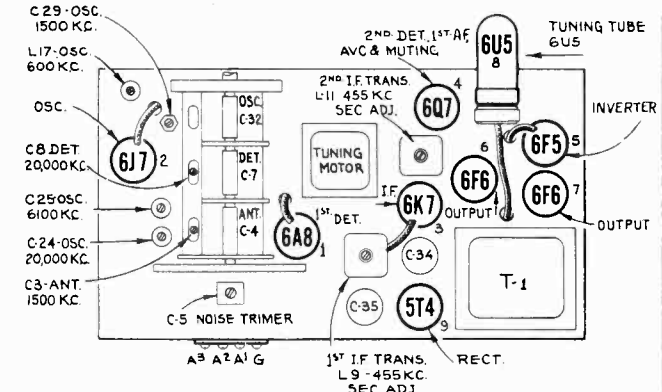
MODELS 99K AND 99T

R.F. COILS SHOWN ON PRECEDING PAGE

REFER TO INDEX FOR DATA ON ELECTRIC TUNING



MODEL 98K Tube and Trimmer Locations



MODELS 99K and 99T Tube and Trimmer Locations

RCA Victor Master Antenna Kit.—Connect the twisted-pair transmission line to terminals A1 and A2 on the terminal board at rear of chassis. Connect the counter-poise to A3. Terminal G may be connected to ground, but this connection is not necessary for correct operation.

Noise-Reducing Adjustment.—After the RCA Victor Master Antenna Kit is connected to the receiver, tune the receiver to a point near 900 kc where no station is heard. Turn volume control clockwise until noise is heard. If no noise of a regular character is audible, start any brush-type motor-driven appliance, such as a vacuum cleaner, electric razor, refrigerator, etc., but do not bring it too near the receiver. This will generate noise as a continuous crackling, or buzz. Adjust C5, which is mounted behind the antenna terminal board, to a point where this noise is reduced to a minimum.

Adjustment of the noise-reducing trimmer should be made in the customer's home, with the Master Antenna connected to receiver.

This adjustment is effective only when the RCA Victor Master Antenna is used. For all other types of antenna, the noise-adjustment trimmer C5 should be screwed all the way down.

Other Antennas.—Use terminals A1 and A3 on the receiver terminal board as antenna and ground connecting points respectively. Terminal A3 may be connected to terminal G, unless this causes interference, in which case this connection should be omitted.

Precautionary Lead Dress.—(1) The lead from the left pilot light should be kept behind the bulb and toward the "Magic Eye," to keep it away from the 6F5 grid cap, (2) leads from mica trimmers to coil should be kept away from the coil and other parts, (3) leads on oscillator coil which are an extended part of the coil winding should be as short as possible, (4) "C" band series capacitor C31 must have leads as short as possible, (5) all leads from antenna board to antenna coils should be dressed toward back apron, (6) the one lead of the line cord and the primary lead of the power transformer which run to the power switch should be twisted together, (7) shielding on leads to Victrola switch should be kept away from the switch terminals and jack.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL 98K		14358	Screw—Screw, washer, and lockwasher to hold core in yoke
SAME AS 99K EXCEPT		31301	Transformer—Output transformer (T2)
RECEIVER ASSEMBLIES		14357	Washer—Spring washer to hold field coil
4838	Capacitor—.005 mfd. (C17, C22, C49)	Additional Replacement Parts: 98K 99K 99T	
5148	Capacitor—.007 mfd. (C18)	Stock No.	
14393	Capacitor—.01 mfd. (C6, C21, C39, C52, C53)	32083	Screen—Dial color screen, and frame, less pointer, carriage, and rods
11315	Capacitor—.015 mfd. (C36)	31312	Switch—Station selector push-button switch and bracket complete (99T only)
4886	Capacitor—.05 mfd. (C9)	32229	Switch—Station selector push-button switch and bracket complete (99K only)
4839	Capacitor—.1 mfd. (C10, C16)	MODELS 99K and 99T	
12484	Capacitor—.25 mfd. (C33, C40)	RECEIVER ASSEMBLIES	
30867	Capacitor—.5 mfd. (C19)	31253	Board—Antenna and ground terminal board
11203	Capacitor—10 mfd. (C34)	12714	Capacitor—Adjustable trimmer 2-12 mmfd. (C29)
14600	Resistor—18 ohms, 1/2 watt (R19)	31292	Capacitor—Dual adjustable trimmer 3-30 mmfd. each section (C24, C25)
31431	Resistor—220 ohms, wire wound, 1.5 watts (R28)	31252	Capacitor—Adjustable trimmer 5-80 mmfd. (C5)
31430	Resistor—8,200 ohms, wire wound, 1.5 watts (R24)	12896	Capacitor—15 mmfd. (C2, C54)
14284	Resistor—22,000 ohms, 1/10 watt (R4)	12948	Capacitor—33 n.mfd. (C1)
14167	Resistor—27,000 ohms, 2 watts (R23)	31432	Capacitor—20 mmfd. (C27)
11300	Resistor—33,000 ohms, 1/10 watt (R6, R27, R30)	12720	Capacitor—100 mmfd. (C20)
12010	Resistor—68,000 ohms, 1/10 watt (R29)	31270	Capacitor—100 mmfd. (C11, C12, C13, C14)
11398	Resistor—220,000 ohms, 1/10 watt (R14)	12724	Capacitor—120 mmfd. (C37, C38)
12264	Resistor—220,000 ohms, 1/2 watt (R5)	12725	Capacitor—150 mmfd. (C15)
11297	Resistor—330,000 ohms, 1/10 watt (R16)	31433	Capacitor—560 mmfd. (C28)
11452	Resistor—470,000 ohms, 1/10 watt (R1, R8)	31033	Capacitor—1,500 mmfd. (C26)
31299	Transformer—Power transformer, 105-120 volts, 25-60 cycle (T1)	31405	Capacitor—6,000 mmfd. (C31)
31298	Transformer—Power transformer, 105-120 volts, 50-60 cycle (T1)	30303	Capacitor—.0035 mfd. (C46)
31454	Volume Control (R9)	4838	Capacitor—.005 mfd. (C17, C22, C49, C50)
SPEAKER ASSEMBLIES		14393	Capacitor—.01 mfd. (C6, C18, C21, C39, C48, C52, C53)
13866	Cap—Dust cap for cone center	11315	Capacitor—.015 mfd. (C36)
12012	Coil—Field coil (L12)	30882	Capacitor—.05 mfd. (C9)
11469	Coil—Hum neutralizing coil (L14)	4839	Capacitor—.1 mfd. (C10, C16)
31275	Cone—Speaker cone and voice coil (L13)	30865	Capacitor—.25 mfd. (C33, C40, C47)
31302	Plug—4-contact male plug	30867	Capacitor—.5 mfd. (C19)
31300	Speaker—Speaker complete		

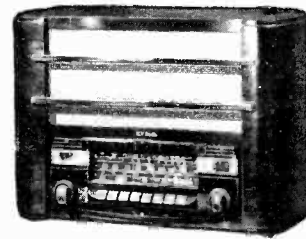
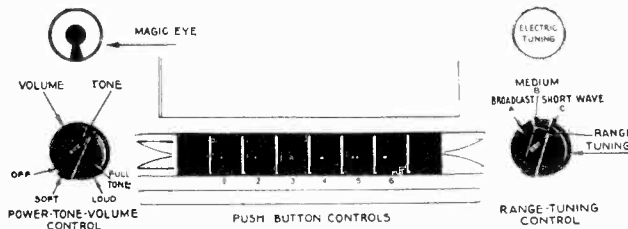
REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
5212	Capacitor—16 mfd. (C35)		
14531	Capacitor—25 mfd. (C34)		
31237	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft (50/60 cycle models only)		
31544	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft (25 cycle models only)		
31293	Coil—"A" band antenna coil (L5, L6, L7)		
31296	Coil—"A" band oscillator coil (L17)		
31294	Coil—"B" band antenna coil (L3, L4)		
31295	Coil—"B" and "C" band oscillator coil (L15, L16)		
31297	Coil—"C" band antenna coil (L1, L2)		
31290	Condenser—3-gang variable condenser (C3, C4, C7, C8, C32)		
31231	Contact—Contact tip for station-setting contact		
31269	Core—Adjustable core and stud for i-f transformers		
31260	Core—Adjustable core and stud for "A" band oscillator coil		
31273	Drum—Indicator drive cord drum		
31240	Flywheel—Variable condenser drive motor flywheel		
31239	Gear—Variable condenser knob shaft drive gear and hub		
31238	Gear—Variable condenser intermediate drive gear and pinion gear (50/60 cycle models only)		
31545	Gear—Variable condenser intermediate drive gear and pinion gear (25 cycle models only)		
11891	Lamp—Dial lamp		
31480	Lamp—Electric tuning adjustment indicator lamp		
31243	Leather—Friction leather for flywheel		
31246	Motor—Variable condenser drive motor (M1)—25 cycle models only		
31235	Motor—Variable condenser drive motor (M1)—50/60 cycle models only		
31228	Plate—Station-setting contact plate—less contacts		
31227	Plate—Station-setting contact mounting plate—mounts on rear of variable condenser		
5040	Plug—4-contact female plug for speaker cable		
31271	Pulley—Motor pulley		
31272	Pulley—Range switch pulley		
31250	Resistor—Voltage divider comprising one 1,500 ohm, one 2,950 ohm, one 3,400 ohm, one 12 ohm, and one 180 ohm sections (R19, R28, R31, R32, R33)		
14284	Resistor—22,000 ohms, 1/10 watt (R24)		
13998	Resistor—22,000 ohms, 1/2 watt (R4)		
11300	Resistor—33,000 ohms, 1/10 watt (R27, R30)		
12454	Resistor—33,000 ohms, 1/2 watt (R6)		
11281	Resistor—100,000 ohms, 1/10 watt (R34)		
14560	Resistor—100,000 ohms, 1/2 watt (R35)		
11398	Resistor—220,000 ohms, 1/10 watt (R14, R36)		
12264	Resistor—220,000 ohms, 1/2 watt (R5)		
11453	Resistor—270,000 ohms, 1/10 watt (R16, R29)		
11452	Resistor—470,000 ohms, 1/10 watt (R1)		
12285	Resistor—470,000 ohms, 1/2 watt (R8)		
12013	Resistor—1 meg., 1/10 watt (R7, R26)		
31056	Resistor—1.2 meg., 1/10 watt (R22)		
5131	Resistor—2.2 meg., 1/10 watt (R3)		
31233	Rotor—Selector rotor disc—mounts on rear of variable condenser shaft		
31241	Screw—1/4 x 20 headless cone point set screw for flywheel		
4119	Screw—No. 8-32 headless set screw for gear Stock No. 31239		
14350	Screw—No. 8-32 square head set screw for selector rotor disc		
4669	Screw—No. 8-32 square head set screw for pulley Stock Nos. 31271 and 31272, and drum Stock No. 31273		
31364	Socket—Dial lamp socket		
13871	Socket—Magic Eye socket		
31251	Socket—Radiator socket		
31365	Socket—Tuning indicator lamp insulated socket		
31232	Spring—Contact tip spring for station-setting contact		
12007	Spring—Retaining spring for core Stock No. 31269		
31262	Spring—Tension spring for core Stock No. 31260		
31230	Spring—Station-setting contact body spring		
31242	Spring—Tension spring for flywheel		
31236	Support—Variable condenser drive gear mounting support and studs assembly		
31244	Support—Variable condenser motor mounting support and studs for 50/60 cycle models only		
31245	Support—Variable condenser motor mounting support and studs—for 25 cycle models		
31291	Switch—Range switch (S1, S2)		
31248	Tone Control—H.f. tone control and power switch (R12, S4)		
31267	Transformer—First i-f transformer (L8, L9, C11, C12)		
31268	Transformer—Second i-f transformer (L10, L11, C13, C14)		
31308	Transformer—Power transformer 105-130, 140-160, 200-250 volts, 50-60 cycle (T1)		
31226	Transformer—Power transformer 110 volts, 25-60 cycle (T1)		
31225	Transformer—Power transformer 110 volts, 50-60 cycle (T1)		
31450	Volume Control (R9)		
			SPEAKER ASSEMBLIES (Speaker RL-63-H6) Model 99T
		14356	Board—3-contact reproducer terminal board
		13866	Cap—Cone center dust cap
		11234	Coil—Field coil (L12)
		11469	Coil—Hum neutralizing coil (L14)
		31310	Cone—Speaker cone and voice coil (L13)
		5039	Plug—4-contact male plug for speaker
		31309	Speaker—Complete
		14358	Screw—Screw, washer, and lockwasher to hold core in yoke
		14534	Transformer—Output transformer (T2)
		14357	Washer—Spring washer to hold field coil
			SPEAKER ASSEMBLIES (Speaker RL-70-H2) Model 99K
		13866	Cap—Dust cap for cone center
		11234	Coil—Field coil (L12)
		11469	Coil—Neutralizing coil (L14)
		31275	Cone—Speaker cone and voice coil (L13)
		5039	Plug—4-contact male plug for speaker
		31530	Speaker—Complete
		14534	Transformer—Output transformer (T2)
		14357	Washer—Spring washer to hold field coil securely
			SPEAKER ASSEMBLIES (Speaker RL-70-E2) Model 99K
		13866	Cap—Dust cap for cone center
		11234	Coil—Field coil (L12)
		11469	Coil—Neutralizing coil (L14)
		12667	Cone—Speaker cone and voice coil (L13)
		5039	Plug—4-contact male plug for speaker
		14535	Speaker—Complete
		14358	Screw—Screws, washers, and lockwashers to hold core in yoke
		14534	Transformer—Output transformer (T2)
		14357	Washer—Spring washer to hold field coil
			MISCELLANEOUS ASSEMBLIES
		31303	Bracket—Band indicator mounting bracket complete less indicator strip, cord, and tension spring—Model 99K
		31276	Bracket—Band indicator mounting bracket complete less indicator strip, cord, and tension spring—Model 99T
		31282	Bracket—Magic Eye mounting bracket and holder
		31358	Button—Station selector push button
		31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip
		31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip
		31278	Cord—Band indicator drive cord
		31281	Cord—Indicator pointer drive cord
		31283	Cord—Variable condenser drum drive cord
		31456	Cover—8 protective covers for push button markers
		31359	Cushion—Station selector push button rubber cushion
		31451	Dial—Station selector dial scale and crystal
		31356	Escutcheon—Station selector dial escutcheon—less dial scale and push buttons—Model 99K
		31361	Escutcheon—Station selector dial escutcheon—less dial scale and push buttons—Model 99T
		31304	Indicator—Band indicator strip
		31305	Indicator—Station selector indicator pointer
		31355	Knob—Range switch, volume control, tone control, or station selector knob
		31346	Lock—Push button switch lock plate—comprising 10 contact locks in one strip
		31589	Markers—Station call letter markers for push buttons
		31457	Marker—"Record Player" marker for push button
		31458	Marker—"Dial Tuning" marker for push button
		31280	Pulley—Indicator pointer drive cord pulley
		14887	Retainer—Indicator pointer drive cord pulley retainer
		11210	Screw—Chassis mounting screws, washers, and lockwashers for one chassis
		3993	Screw—No. 6-32 square head set screw for pointer slide stop
		31287	Shaft—Indicator pointer slide shaft
		31347	Socket—Pickup socket and bracket
		31279	Spring—Band indicator tension spring
		13638	Spring—Indicator pointer drive cord tension spring
		31418	Spring—Variable condenser drum drive-cord tension spring
		14270	Spring—Retaining spring for knob Stock No. 31355
		31970	Spring—Tension spring for push button switch latch bar
		31307	Stop—Indicator pointer slide stop
		31360	Switch—Pickup switch for mounting on push button switch assembly (S3)

MODEL 98T2

Chassis No. RC-352D

Eight-Tube, Three-Band, AC-DC, Superheterodyne Receiver



Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" band)	540-1,720 kc
Medium Wave ("B" band)	2.3-7.0 mc
Short Wave ("C" band)	7.0-22 mc

INTERMEDIATE FREQUENCY 455 kc

Six Electric Tuning Positions

- 2 stations between approximately 550- 950 kc
- 2 stations between approximately 690-1,225 kc
- 2 stations between approximately 890-1,500 kc

TUBE COMPLEMENT

- | | |
|-------------------------|----------------------------------|
| (1) RCA-6K8 | First-Detector—Oscillator |
| (2) RCA-6K7 | Intermediate-Frequency Amplifier |
| (3) RCA-6H6 | Second-Detector and A.V.C. |
| (4) RCA-6J7 | Audio Voltage Amplifier |
| (5) RCA-25L6 | Audio Power Amplifier |
| (6) RCA-25Z6 | Half-Wave Rectifier |
| (7) RCA-6U5 | Tuning Tube |
| (8) RCA Stock No. 31577 | Ballast Tube |

Pilot Lamps Mazda 47, 6.3 volts, .15 amp.

POWER OUTPUT

Undistorted	1.5 watts
Maximum	2.5 watts

POWER SUPPLY RATING

A-C Rating	105-125 volts, 25-60 cycles, 55 watts
D-C Rating	105-125 volts, 55 watts

LOUDSPEAKER (PERMANENT-MAGNET DYNAMIC)

Diameter	6 inches
V. C. Impedance at 400 cycles	8 ohms

Dimensions	Height	Width	Depth
Cabinet	12 3/4 in.	18 1/2 in.	9 1/2 in.
Chassis Base	2 1/2 in.	13 in.	6 1/2 in.
Over-all Chassis Height	6 in.		
Tuning Drive Ratio	12 to 1		
Shipping Weight (approx.)	25 lbs.		

Miscellaneous Service Notes

Bias Cell.—The bias cell provides approximately 1-volt bias for the 1st audio grid. The cell should never be shorted, not measured with an ordinary voltmeter or other device that draws current. The cell may be checked by measuring the 1st-audio cathode current with a new tested 6J7 tube in this socket. The current should be approximately 1/2 milliampere. If it is appreciably greater than 1/2 mil., install a new bias cell.

Victrola Attachment.—Two screw-type terminals, numbered 1 and 2, are provided on the rear apron of the chassis for connection to a Victrola Attachment, such as the R-93, R-93B, etc. (When A-C supply is available.)

Care must be taken that these terminals are never connected in any way to the chassis, otherwise injury will result to the bias cell. To safeguard against this possibility, the following precautions should

be observed in connecting the Victrola Attachment to the receiver.

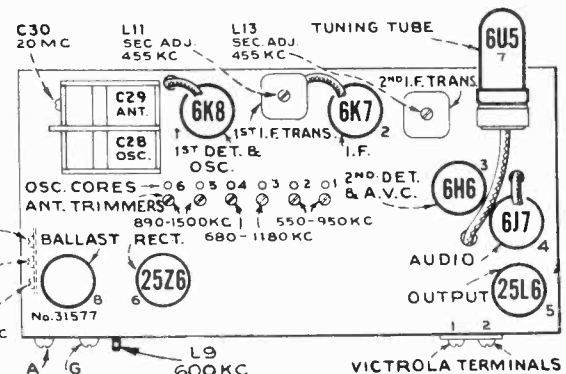
Victrola Attachment with shielded cable.—If the shielded cable has a plug connector, remove the plug, connect the shielding to terminal 1, and connect the lead (inside the shielding) to terminal 2. Tape the shielding for a sufficient distance to prevent the possibility of it shorting against the chassis.

Victrola Attachment with twisted-pair cable.—Connect the low-side of the Attachment to terminal No. 1, and the high-side of the Attachment to terminal No. 2. (In some Attachments, the lead from the low-side is black, and the lead from the high-side is black brown.)

Power-Supply Polarity.—For operation on d.c., the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the position of the plug. For operation on a.c., a similar reversal of the plug may reduce hum.

Precautionary Lead Dress.—

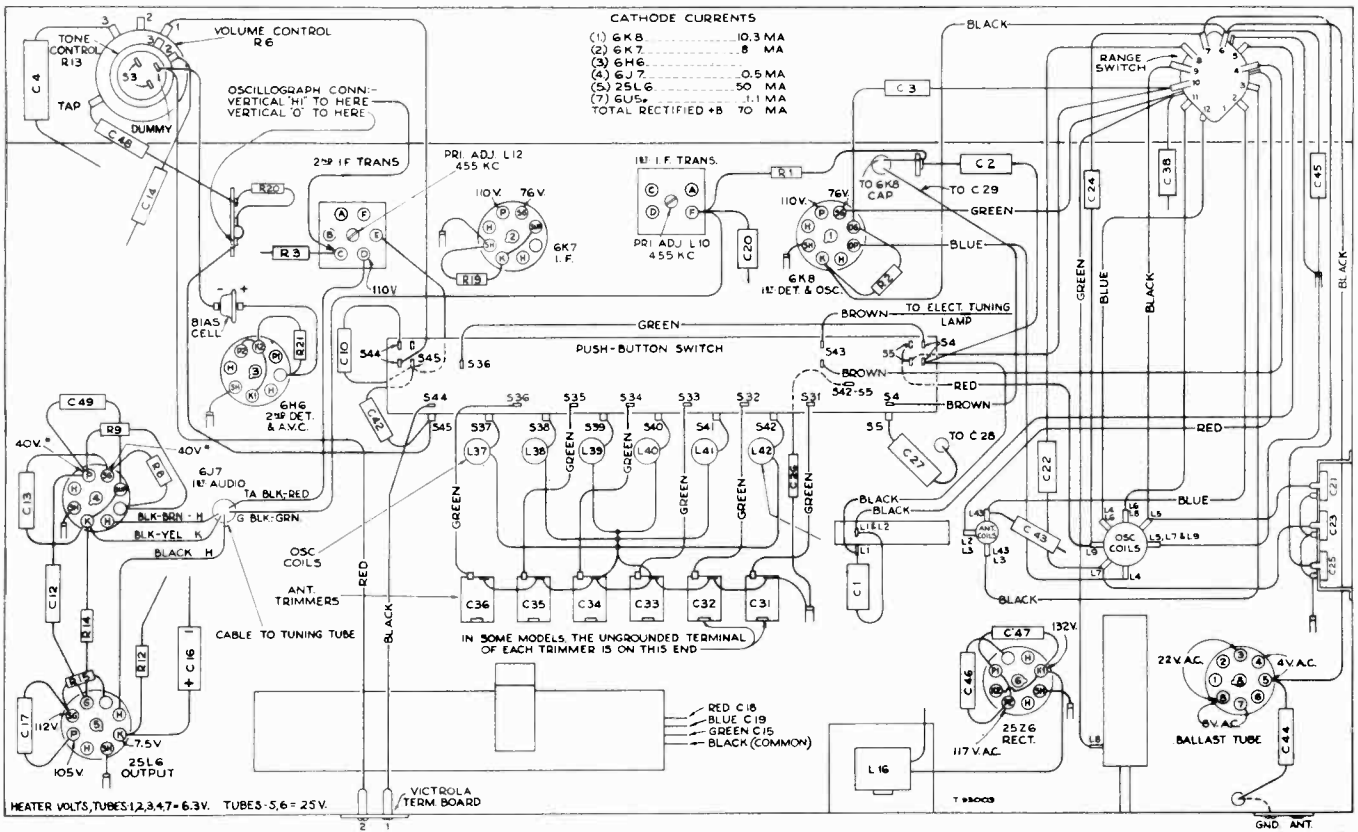
1. Dress the bias cell clear of all bus leads.
2. Leads from S43 must be dressed in front of range switch.
3. Blue lead from range switch to L5 must be short and clear of other leads.
4. Dress leads away from antenna and oscillator coils.
5. Leads across back of chassis must be dressed under electrolytic to prevent approaching Victrola jack.
6. Green lead from range switch to rear contact on oscillator coil must be dressed close to base.



REFER TO MODEL 98K2

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FOR ALIGNMENT PROCEDURE

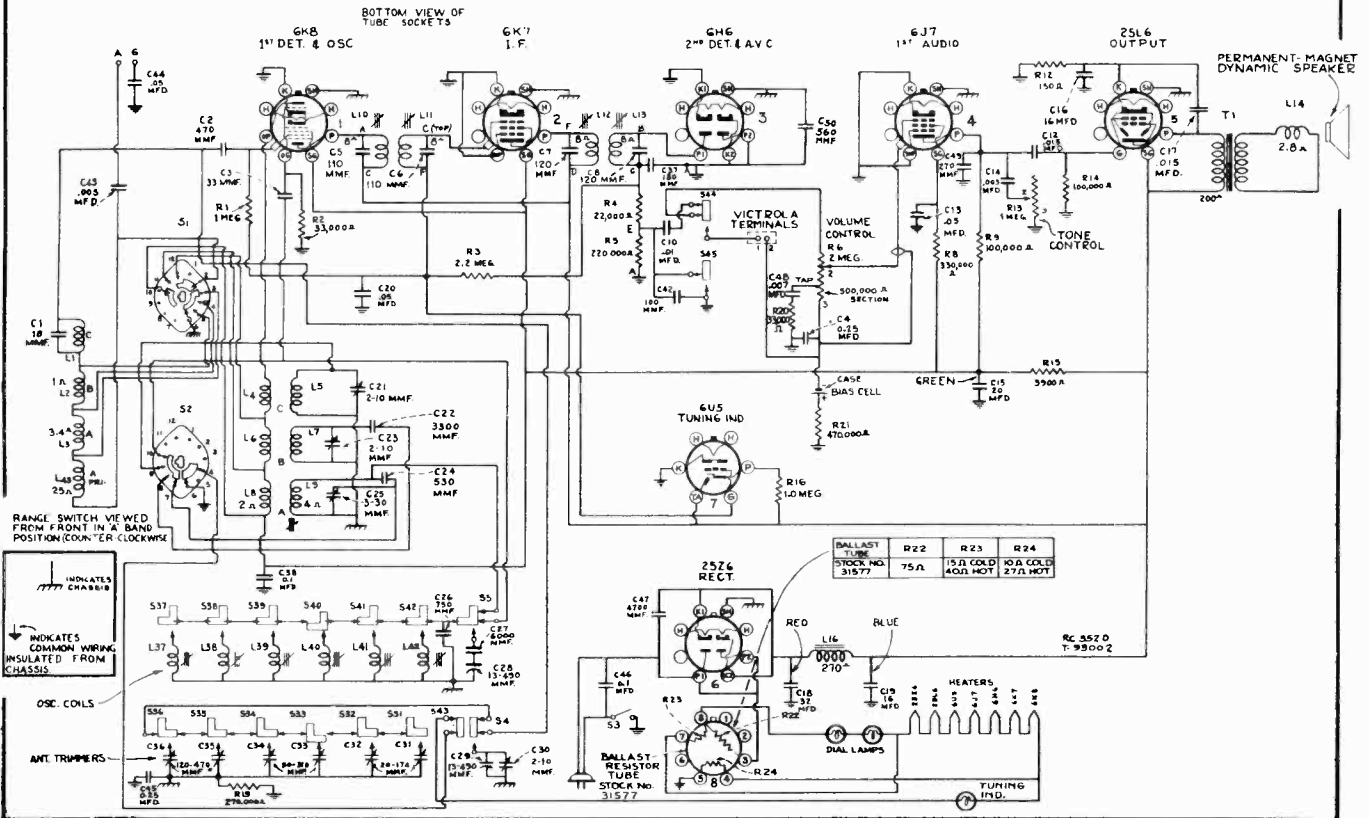


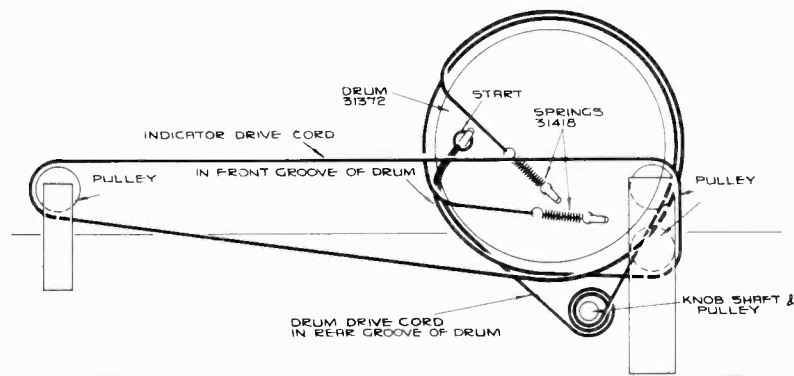
R-F Wiring Diagram and Socket Voltages

Measurements made to low-side of tone control unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately ± 20% with 117-volt a-c supply. On d-c, voltages are approximately 10% lower.

except heaters, which remain the same.

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.





DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY

Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31577	Ballast—Ballast resistor tube (R22, R23, R24)	31373	Pulley—Drive cord pulley
31767	Board—Antenna-ground terminal board	5066	Reactor (L16)
31579	Board—Phonograph terminal board	31577	Resistor—Ballast resistor (R22, R23, R24)
30752	Bracket—Bracket for holding Magic Eye tube	30880	Resistor—150 ohms, 1/2 watt (R12)
14338	Bushing—Variable condenser mounting bushing and screws	30694	Resistor—3,900 ohms, 1/2 watt (R15)
30766	Cap—Cap for Magic Eye	14284	Resistor—22,000 ohms, 1/10 watt (R4)
31400	Capacitor—Adjustable trimmer capacitor, two sections 2-10 mmfd. and one section 3-30 mmfd. (C21, C23, C25)	12454	Resistor—33,000 ohms, 1/2 watt (R2, R20)
32486	Capacitor—Antenna coil trimmer capacitor bank—20-470 mmfd. (C31, C32, C33, C34, C35, C36)	14560	Resistor—100,000 ohms, 1/2 watt (R9, R14)
12948	Capacitor—33 mmfd. (C3)	11398	Resistor—220,000 ohms, 1/10 watt (R5)
12722	Capacitor—18 mmfd. (C1)	12199	Resistor—270,000 ohms, 1/2 watt (R19)
12720	Capacitor—100 mmfd. (C42)	14983	Resistor—330,000 ohms, 1/2 watt (R8)
14262	Capacitor—109 mmfd. (C5, C6)	12285	Resistor—470,000 ohms, 1/2 watt (R21)
12404	Capacitor—120 mmfd. (C7, C8)	13730	Resistor—1 meg., 1/2 watt (R1)
14712	Capacitor—180 mmfd. (C37)	12013	Resistor—1 meg., 1/10 watt (R16)
12488	Capacitor—270 mmfd. (C49)	12679	Resistor—2.2 meg., 1/2 watt (R3)
30433	Capacitor—470 mmfd. (C2)	14343	Retainer—Drive cord pulley retainer
32492	Capacitor—530 mmfd. (C24)	14887	Retainer—Retainer for drive cord pulley
12537	Capacitor—560 mmfd. (C50)	4669	Screw—No. 8-32 square head set screw for drum, Stock No. 31372
31435	Capacitor—750 mmfd. (C26)	32671	Shaft—Station selector knob shaft and pulley
4881	Capacitor—3,300 mmfd. (C22)	12110	Shield—Radiotron shield cap
12897	Capacitor—4,700 mmfd. (C47)	31365	Socket—Dial lamp socket
31405	Capacitor—6,000 mmfd. (C27)	13871	Socket—Magic Eye socket
5148	Capacitor—.007 mfd. (C48)	31251	Socket—Tube socket
4838	Capacitor—.005 mfd. (C14, C43)	31970	Spring—Tension spring for station selector push button switch latch bar
14393	Capacitor—.01 mfd. (C10)	31418	Spring—Indicator or drum drive cord tension spring
11315	Capacitor—.015 mfd. (C12, C17)	31370	Switch—Push button selector switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45)
4886	Capacitor—.05 mfd. (C13, C20, C44)	33009	Switch—Range switch (S1, S2)
4839	Capacitor—.1 mfd. (C38, C46)	14376	Transformer—First i-f transformer (L10, L11, C5, C6)
12484	Capacitor—.25 mfd. (C4, C45)	14283	Transformer—Second i-f transformer (L12, L13, C7, C8, C37, R4, R5)
31323	Capacitor—16 mfd. (C16)	31577	Tube—Ballast resistor tube (R22, R23, R24)
31576	Capacitor—Comprising one 32 mfd., one 20 mfd., and one 16 mfd. section (C15, C18, C19)		
31581	Cell—Bias cell	SPEAKER ASSEMBLIES (84307-1)	
31382	Clip—Mounting clip for coils and cores on oscillator bank	31665	Cone—Speaker cone and voice coil (L14)
32493	Coil—Antenna coil (L1, L2, L3, L43)	5118	Plug—3-contact male plug for speaker
31951	Coil—Oscillator coil (L4, L5, L6, L7, L8, L9, C24)	31664	Speaker complete
31385	Coil—Push button oscillator coil (L37, L38)	31666	Transformer—Output transformer (T1)
32487	Coil—Push button oscillator coil (L39, L40)		
31383	Coil—Push button oscillator coil (L41, L42)	MISCELLANEOUS ASSEMBLIES	
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31397	Button—Station selector push button
5119	Connector—3-contact female connector plug for reproducer cable	31456	Cover—8-protective covers for push button markers
32668	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	32673	Dial—Station selector dial scale (glass)
32634	Cord—Drum drive cord	32674	Escutcheon—Station selector escutcheon less dial scale and push buttons
32635	Cord—Indicator pointer drive cord	31355	Knob—Range switch knob
31386	Core—Adjustable core and stud assembly for oscillator bank	14359	Knob—Station selector knob
12800	Core—Adjustable core and stud for oscillator coil, Stock No. 31951	31391	Knob—Tone control knob
31372	Drum—Variable condenser drive cord drum and calibrator	30773	Knob—Volume control knob
31580	Holder—Bias cell holder	31458	Marker—"Dial Tuning" push button marker
32552	Indicator—Dial pointer	31457	Marker—"Record Player" push button marker
31480	Lamp—Dial lamp (Mazda No. 47)	31589	Marker—Station call letters push button markers
32670	Plate—Dial color plate, pointer slide, and lamp brackets assembled	4982	Spring—Retaining spring for knob, Stock No. 14359
		30330	Spring—Retaining spring for knob, Stock No. 31391
		14270	Spring—Retaining spring for knob, Stock Nos. 30773 and 31355

MODEL R-98

Five-Tube, A-C, Electric Victrola (Phono. only)

Chassis No. RS-77

Electrical and Mechanical Specifications

RCA TUBE COMPLEMENT

- (1) RCA-6J5 1st Audio Amplifier
- (2) RCA-6J5 2nd Audio Amplifier
- (3) RCA-2A3 Power Output
- (4) RCA-2A3 Power Output
- (5) RCA-5U4-G Rectifier

POWER SUPPLY RATING

- A 105-125 volts, 50-60 cycles, 175 watts
- A-6 105-125 volts, 60 cycles, 175 watts

POWER OUTPUT

- Undistorted 12 watts
- Maximum 13.5 watts

- Cabinet Dimension Height 14 1/2 inches Width 19 3/4 inches Depth 14 inches
- Chassis Base Dimensions Height 2 3/4 inches Width 16 1/4 inches Depth 7 3/4 inches
- Weight (Shipping) 54 pounds Weight (Net) 47 1/2 pounds

LOUDSPEAKER

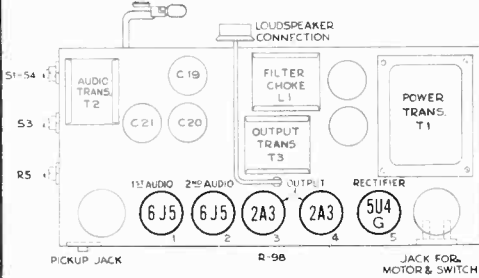
- Type Eight-Inch Electrodynamic
- Voice Coil Impedance 1.3 ohms at 400 cycles

MOTOR BOARD

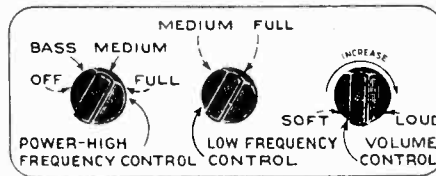
- Motor Self-starting Induction
- Turntable Speed 78 r.p.m. (adjustable)

PICKUP

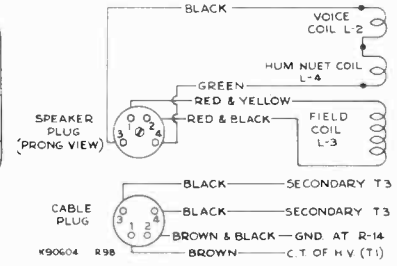
- Type Crystal
- Impedance 100,000 ohms at 1,000 cycles



Top View, Showing Location of Parts



Location of Controls

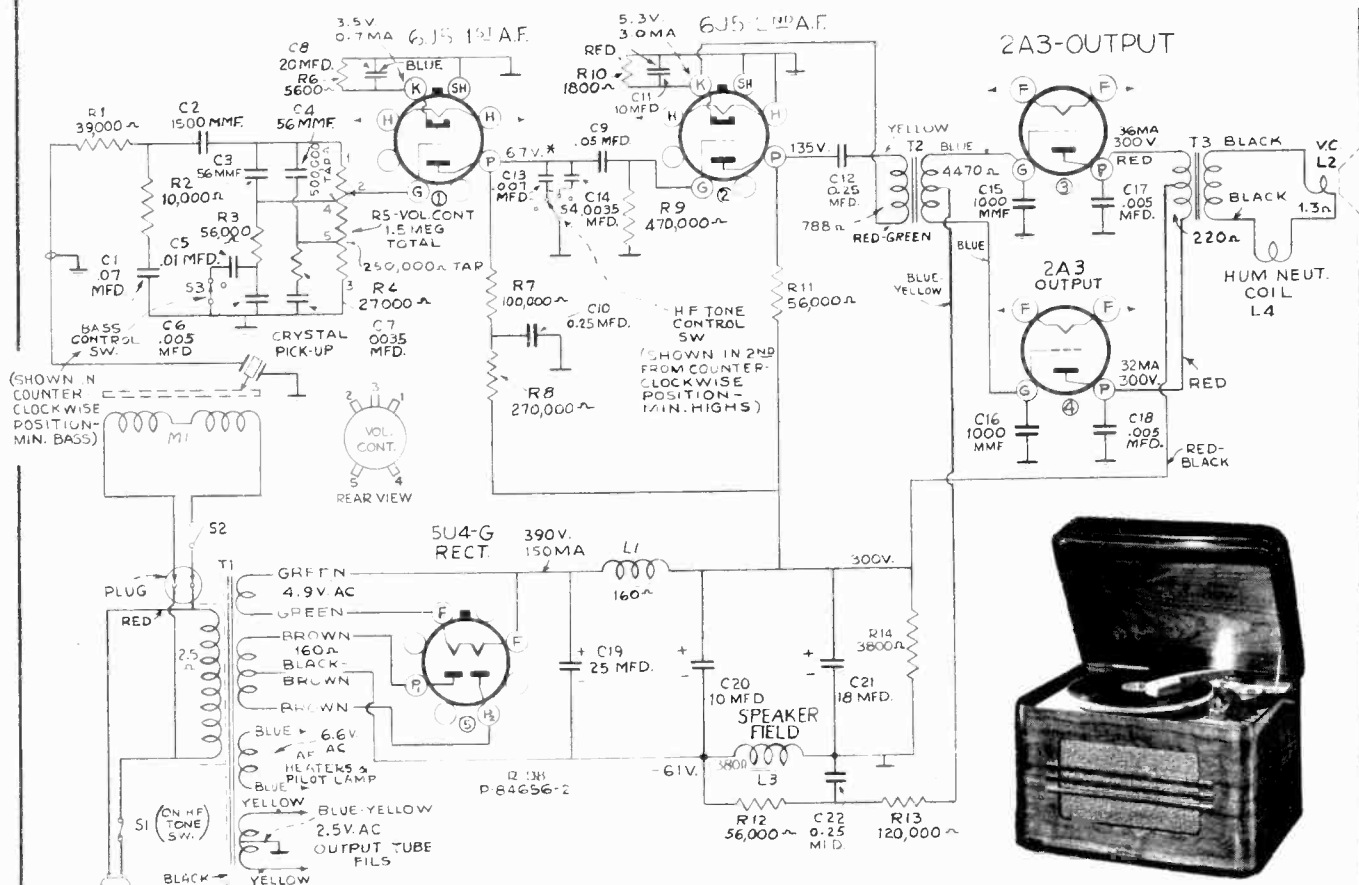


Connections of Loudspeaker and Cable

Replacement Parts

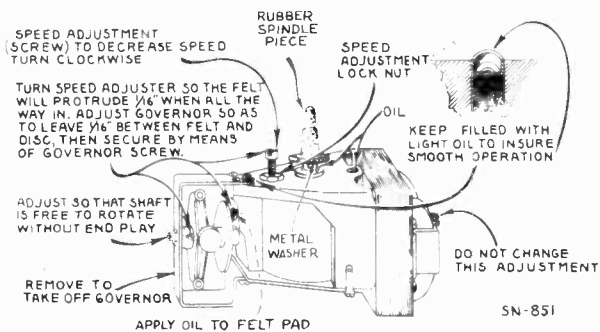
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
AMPLIFIER ASSEMBLIES			
12723	Capacitor—56 mmfd. (C3, C4)	31618	Coil—Field coils and laminations for 60 cycle motor
12635	Capacitor—1,000 mmfd. (C15, C16)	11703	Governor—Governor complete for 50-60 cycle motor
31033	Capacitor—1,500 mmfd. (C2)	31623	Governor—Governor complete for 60 cycle motor
30303	Capacitor—.0035 mfd. (C7, C14)	31462	Motor—105-125 volts, 50-60 cycle
4838	Capacitor—.005 mfd. (C6, C17, C18)	31616	Screw—Rotor bearing screw and nut for 60 and 50-60 cycle motor
5148	Capacitor—.007 mfd. (C13)	31620	Screw—Speed regulator screw and nut for 60 and 50-60 cycle motor
4937	Capacitor—.01 mfd. (C5)	31621	Shaft—Turntable spindle and gear for 60 and 50-60 cycle motor
32787	Capacitor—.05 mfd. (C9)	31622	Washer—one felt and one metal thrust washer for turntable spindle
14626	Capacitor—.07 mfd. (C1)	32914	Weight—Governor weight and spring for 50-60 cycle motor
12484	Capacitor—0.25 mfd. (C10, C12, C22)	32912	Weight—Governor weight and spring for 60 cycle motor
11203	Capacitor—Electrolytic, 10 mfd (C20)	AUTOMATIC SWITCH ASSEMBLIES	
14273	Capacitor—Electrolytic, one 10 mfd., and one 20 mfd. sections (C8, C11)	32863	Cam—Cam assembly comprising main and auxiliary cams, hub, and set screws
11496	Capacitor—Electrolytic, 18 mfd. (C21)	32864	Lever—Actuating lever with roller and mercury tube clip
14531	Capacitor—Electrolytic, 25 mfd. (C19)	14195	Screw—No. 10-32 x 5/16 cone pointer set screw for cam hub
33396	Control—H.F. tone control and switch (S1, S4)	32869	Screw—No. 10-32 x 5/16 set screw for cam hub
33397	Control—L.F. tone control (S3)	32868	Spring—Actuating lever tension spring
5040	Plug—Speaker cable plug	32867	Spring—Cam tension spring
12466	Reactor—Filter reactor (L1)	32865	Support—Switch support and terminal board
12194	Resistor—1,800 ohms, 1/2 watt (R10)	32866	Switch—Mercury tube with leads (S2)
33482	Resistor—voltage divider, 3,800 ohms (R14)	31608	Washer—"C" washer for actuating lever shaft.
13714	Resistor—5,600 ohms, 1/2 watt (R6)	SPEAKER ASSEMBLIES	
14559	Resistor—10,000 ohms, 1/2 watt (R2)	(84613-1)	
12738	Resistor—27,000 ohms, 1/2 watt (R4)	33648	Cone—Cone assembled with voice coil, center suspension and rim gasket
12266	Resistor—39,000 ohms, 1/2 watt (R1)	5039	Plug—4-prong male connector for reproducer
12286	Resistor—56,000 ohms, 1/2 watt (R12) (R3)	33490	Speaker complete (No Output Transformer)
17440	Resistor—56,000 ohms, 1 watt (R11)	MISCELLANEOUS ASSEMBLIES	
14560	Resistor—100,000 ohms, 1/2 watt (R7)	13103	Cap—Pilot lamp bullseye
13734	Resistor—120,000 ohms, 1/2 watt (R13)	33403	Cup—New needle cup
12199	Resistor—270,000 ohms, 1/2 watt (R8)	9848	Cup—Used needle cup and pickup arm support
12285	Resistor—470,000 ohms, 1/2 watt (R9)	31464	Damper—Turntable damper sleeve and plate
4794	Socket—Tube socket—4-prong	11771	Foot—Cabinet foot
32537	Socket—Tube socket—8-prong	13085	Hinge—Cabinet lid hinge
14275	Socket—2 contact female for motor power	31355	Knob—Volume control, or tone control knob
14274	Socket—2 contact female for pickup input	33402	Mounting—Motor mounting screws, washers, and spacers
13964	Transformer—Driver transformer (T2)	14805	Plug—Plug for motor leads
33405	Transformer—Output transformer (T3)	31155	Spring—Coil spring for used needle cup lid
14271	Transformer—Power transformer, 105-120 volts, 50-60 cycles	14270	Spring—Retaining spring for knobs
33398	Volume Control (R5)	31164	Support—Cabinet lid support
PICKUP AND ARM ASSEMBLIES			
33399	Arm—Pickup arm less crystal cartridge, cable, and base and pivot arm		
33400	Base—Pickup arm base and pivot shaft		
32885	Cable—Pickup arm cable and plug		
31156	Crystal—Pickup crystal cartridge and screw		
31160	Screw—Pickup needle screw		
MOTOR ASSEMBLIES			
31617	Bracket—Governor end bearing bracket less bearing screw for 50 and 50-60 cycle motors		
31619	Coil—Field coils and laminations for 50-60 cycle motor		

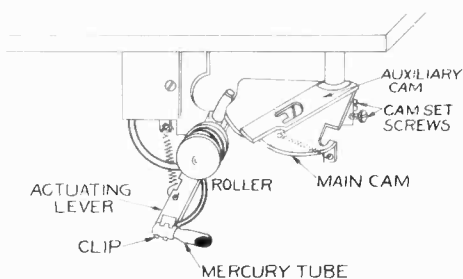


* NOTE: Values with star are operating voltages in circuits with high series-resistance, and when measured will read lower depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a.c. supply.



Motor Lubrication and Adjustments



Mercury Switch Assembly

(Shown with pickup in rest position)

Adjust main cam so that switch trips into the "off" position when needle is $1\frac{3}{4}$ inches from the center line of motor spindle.

Motor Revision:

The governor motor Stock No. 31461 originally specified on Model R-98 is no longer used, and is replaced by the following:

- I—Motor Stock No. 32135—60-cycle, non-governed constant speed type (same as used in U-115).
- II—Mounting Adaptor Kit Stock No. 35735—for Stock No. 32135—containing:
 - (a) 1—Motor mounting adaptor plate.
 - (b) 3—Screws for mounting plate to motor.
 - (c) 3—Screws for mounting plate to motor-board.
 - (d) 3—Spacers for separating plate from motor.
 - (e) 3—Washers for motor mounting screws.

To install, assemble plate (a) to motor No. 32135 using spacers and screws provided. Mount motor and plate assembly to motor-board of cabinet, using the original flexible mounting grommets and eyelets. If necessary, shift motor or chassis slightly to give clearance between the two. Remove plug from leads of original motor and attach same to leads of new motor.

Hum at Maximum Volume:

Wherever excessive hum is apparent, the dress of the pilot lamp lead should be checked. It should be positioned to the rear of the chassis base, well away from the audio circuits.

Additional Replacement Parts:

- Stock No.
- 33401 Turntable—12-inch diameter.....
 - 33404 Turntable—10-inch diameter.....

MODEL V-100

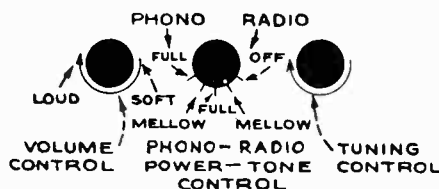
Chassis No. RC-517

Five-Tube, Single-Band, A-C, Superheterodyne Radio & Phonograph

Electrical and Mechanical Specifications

FREQUENCY RANGE.....	540-1,650 kc
INTERMEDIATE FREQUENCY.....	455 kc
TUBE COMPLEMENT	
(1) RCA-12SA7.....	1st Det.—Osc.
(2) RCA-12SK7.....	I-F Amplifier
(3) RCA-12SQ7.....	2nd Det., A.V.C., and A-F Amplifier
(4) RCA-50L6-GT.....	Power Output
(5) RCA-35Z5-GT.....	Rectifier
POWER OUTPUT	
Undistorted.....	0.9 watts
Maximum.....	1.2 watts

PILOT LAMP.....	1—Mazda No. 51, 6-8 volts, 0.2 amps.
POWER SUPPLY RATING	
105-125 volts, 50 cycles.....	55 watts
105-125 volts, 60 cycles.....	55 watts
LOUDSPEAKER (RL-81A-4)	
Type.....	5-inch permanent-magnet dynamic
V.C. Impedance.....	4 ohms at 400 cycles
Cabinet Dimensions (inches)	
Height.....	10 15/16
Width.....	16 9/16
Depth.....	13 11/32
Weight (net).....	19 lbs.
Shipping.....	23 lbs.
Tuning Drive Ratio.....	9:1



Phonograph Motor Service Data:—

The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. Caution—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.

Power Supply—Although this model employs an ac-dc chassis, it is not suitable for use on d.c., as this would damage the motor.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

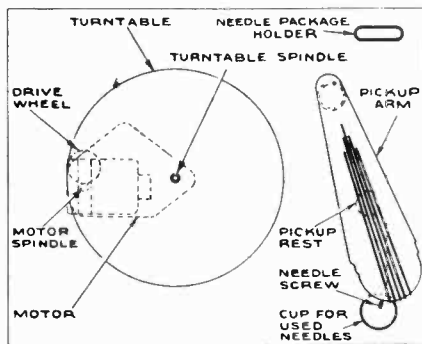
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-517)			
35332	Can—Shield can for I-F transformer Stock No. 36432	34481	Arm—Pickup pivot arm and shaft
35097	Can—Shield can for I-F transformer Stock No. 35088	34482	Base—Pickup mounting base
12720	Capacitor—100 mmfd.	34758	Bushing—Rubber bushing and metal bushing for pickup pivot arm shaft
12694	Capacitor—220 mmfd.	33122	Crystal—Pickup crystal cartridge and needle screw
12952	Capacitor—330 mmfd.	34311	Ring—Retaining ring for pivot shaft
34459	Capacitor—.0025 mfd.	33529	Screw—Needle screw
33584	Capacitor—.005 mfd.	MOTOR ASSEMBLIES	
4937	Capacitor—.01 mfd.	36402	Arm—Idler arm and stud
11315	Capacitor—.015 mfd.	20134	Ball—Steel ball
30938	Capacitor—.025 mfd.	36104	Motor—105-125 volts, 60 cycle motor
32787	Capacitor—.05 mfd.	36403	Mounting—One set of motor mounting grommets, spacers and washers
4839	Capacitor—.01 mfd.	36406	Plate—Idler arm guide plate
34505	Capacitor—.02 mfd.	36101	Plate—Motor plate complete with bearing and ball
12484	Capacitor—.025 mfd.	30340	Retainer—Motor fan retainer
35673	Capacitor—Electrolytic comprising 1 section of 30 mfd., and 1 section of 50 mfd.	30585	Spring—Idler arm tension spring
35571	Coil—Oscillator coil	36399	Turntable—Turntable and bushing complete with spindle
36285	Condenser—Variable tuning condenser	33726	Washer—"C" washer for idler wheel
36287	Control—Volume control	36405	Washer—Flat washer for idler wheel
32634	Cord—Drive cord	36274	Wheel—Idler wheel and bearing
36293	Dial—Dial scale	37215	Motor—50 cycle, 105-125 volts
36291	Indicator—Station selector indicator	SPEAKER ASSEMBLIES (RL-81A-4)	
36289	Loop—Antenna loop	32907	Cap—Dust cap
36286	Plate—Dial plate and support—less dial	36295	Cone—Cone complete with voice coil
30868	Plug—2 contact female plug for motor cable	MISCELLANEOUS ASSEMBLIES	
30189	Resistor—120 ohms, 1/2 watt	36304	Crystal—Dial scale crystal
3153	Resistor—1,500 ohms, 1 watt	37933	Cup—Used needle cup
13998	Resistor—22,000 ohms, 1/2 watt	36384	Decalcomania—Control panel decal
12412	Resistor—47,000 ohms, 1/2 watt	36386	Decalcomania—"His Master's Voice" decal
12264	Resistor—220,000 ohms, 1/2 watt	11771	Foot—Rubber foot
12285	Resistor—470,000 ohms, 1/2 watt	13085	Hinge—Cabinet lid hinge
12679	Resistor—2.2 meg., 1/2 watt	36297	Knob—Tone control, power switch and phono. switch knob
13601	Resistor—10 meg., 1/2 watt	36298	Knob—Volume control or tuning knob
36290	Shaft—Tuning shaft	36305	Mounting—One set of mounting hardware for motor
36292	Socket—Dial lamp socket	36303	Mounting—One set of mounting hardware for pickup arm
31251	Socket—Tube socket	30870	Plug—2 prong male plug for motor leads
31319	Socket—Tube socket—moulded for 12SA7 tube	36246	Receptacle—Needle book receptacle
30585	Spring—Drive cord spring	32610	Rest—Rubber pickup rest
35098	Spring—Used to hold I-F transformers in shield cans	30900	Spring—Retaining spring for knobs Stock Nos. 36297 and 36298
36288	Switch—Phono, tone control, and power switch	31164	Support—Lid support
35088	Transformer—First I-F transformer—less shield can		
36432	Transformer—Second I-F transformer—less shield can		
35666	Transformer—Output transformer		
33726	Washer—"C" washer for tuning shaft		
PICKUP AND ARM ASSEMBLIES			
33591	Arm—Pickup arm only—less cartridge, base and cable		

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with 0.1 mfd.	455 kc	Quiet Point 1,500 kc end of dial	C29, C28 2nd I-F transformer
2	12SA7—1st. det. grid in series with 0.1 mfd.			C27, C26 1st I-F transformer
3	Radiation Loop	1,500 kc	1,500 kc	C25 (osc.)
4	Radiation Loop	1,300 kc	signal frequency	C23 (ant.)
5	Repeat steps 3 and 4.			



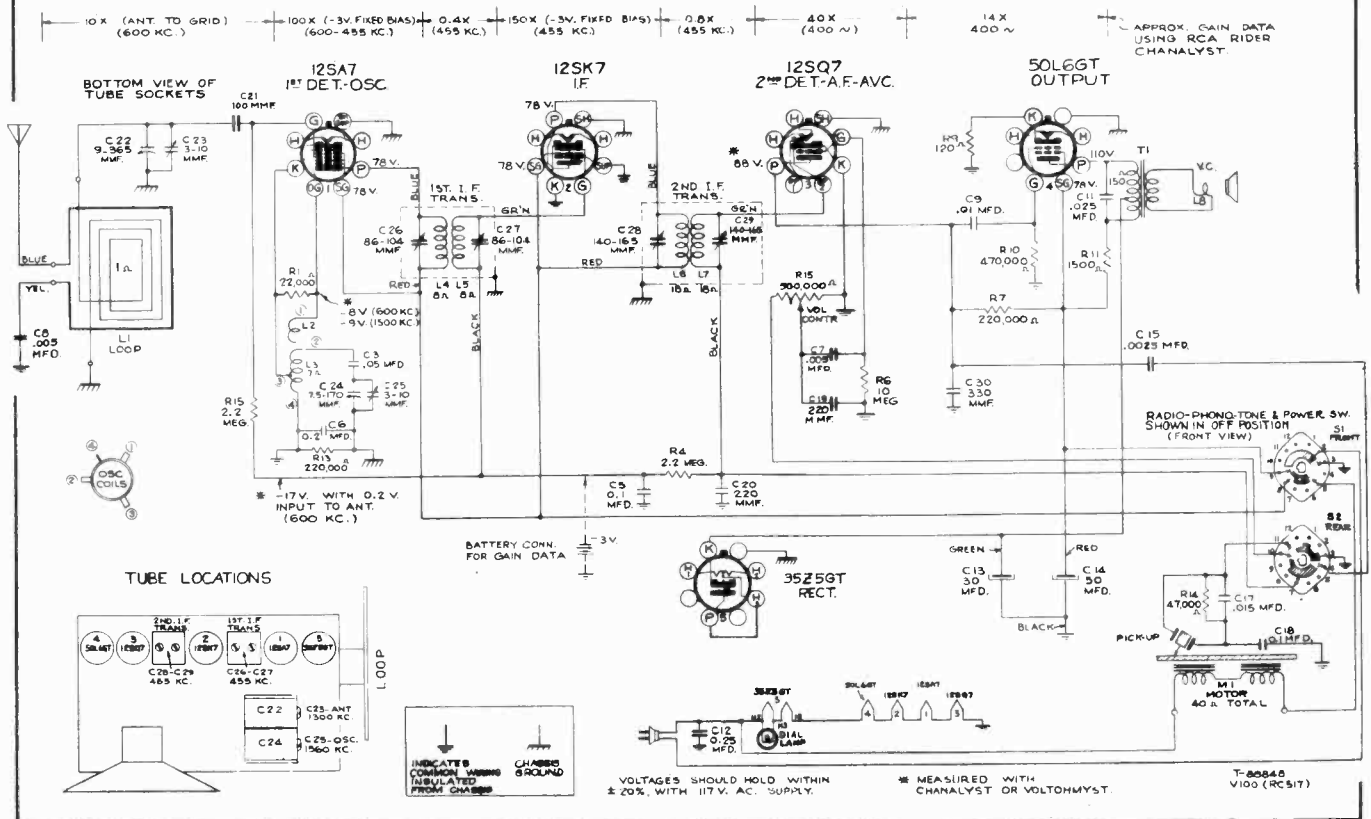
Cabinet Repair:

Cabinets of the V-100 which are coded with the number "34" stamped into the wood are finished with Du Pont "Dulux." Where necessary to refinish, proceed as follows:

- Thoroughly sand the section that is to be refinished with 4/0 sandpaper.
- Spray a coat of Du Pont Regular Flat Patching Lacquer No. 1304 on the surface and allow to dry for three or four hours.
- Restore original appearance by steel wooling and waxing.

Phono Compensation Change:

Capacitor C17 across the pickup is changed from .015 to .01 mfd., Stock No. 4937.



MODEL V-101

Six-Tube, Broadcast-Band, A-C, Radio & Phonograph

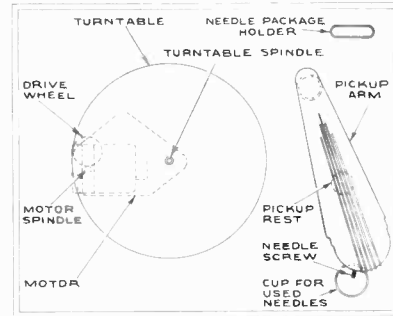
Chassis No. RC-540

Phonograph Motor Service Data.—

The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 oil (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. Caution—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.

IMPORTANT.—DO NOT PLUG CHASSIS INTO A DC POWER SUPPLY.



Electrical and Mechanical Specifications

Frequency Range	
Standard Broadcast and one Police Band	540-1,720 kc
Intermediate Frequency	455 kc
Tube Complement	
(1) RCA-6SA7	1st Det.—Osc.
(2) RCA-6SK7	1-F Amplifier
(3) RCA-6SQ7	2nd Det., A.V.C., and A-F Amplifier
(4) RCA-25L6-GT	Power Output
(5) RCA-35Z5-GT	Rectifier
(6) RCA-35Z5-GT	Rectifier
Ballast Resistor	M-86892-11
Power Output	
Undistorted	3.5 watts
Maximum	5.0 watts
Pilot Lamp	1—Mazda No. 51, 6-8 volts, 0.2 amps.

Power Supply Rating	
105-125 volts, 50 cycles	70 watts total
105-125 volts, 60 cycles	70 watts total
Loudspeaker (RL-79-B4)	
Type	6-inch permanent-magnet dynamic
V.C. Impedance	3.4 ohms at 400 cycles
Phono Mechanism	{ Self-starting motor
	{ Edge-driven turntable
Motor Consumption	22 watts
Pickup	Crystal
Pickup Impedance	0.1 meg. at 1,000 cycles
Cabinet Dimensions	
12 in. high	18½ in. wide
Tuning Drive Ratio	14 to 1
Net Weight	22½ lbs.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-540)			
37847	Ballast—Ballast tube resistor	35790	Transformer—Second I.F. transformer
36239	Board—Terminal and receptacle board	37844	Transformer—Output transformer
34699	Capacitor—100 mmfd., mica	37847	Tube—Ballast tube resistor
12720	Capacitor—100 mmfd., moulded mica	33726	Washer—"C" washer for tuning shaft
34700	Capacitor—120 mmfd.	PICKUP AND ARM ASSEMBLIES	
13003	Capacitor—180 mmfd.	33591	Arm—Pickup arm shell only
14498	Capacitor—680 mmfd.	37848	Arm—Pickup pivot arm and shaft
34459	Capacitor—.0025 mfd.	34482	Base—Pickup mounting base
33584	Capacitor—.005 mfd.	34758	Bushing—Rubber bushing and metal bushing for pivot arm shaft
4937	Capacitor—.01 mfd.	33122	Crystal—Pickup crystal cartridge
11315	Capacitor—.015 mfd.	31048	Plug—2-contact male plug for output cable
4870	Capacitor—.025 mfd.	11125	Ring—Retaining ring for pivot shaft
5196	Capacitor—.035 mfd.	MOTOR ASSEMBLIES	
4886	Capacitor—.05 mfd.	36402	Arm—Idler arm and stud for motor
4839	Capacitor—.01 mfd.	20134	Ball—Steel ball for turntable bearing
12484	Capacitor—0.25 mfd.	36404	Motor—105-125 volts, 60 cycle motor
37846	Capacitor—Electrolytic—30 mfd., 150 volts	37215	Motor—105-125 volts, 50 cycle motor
37845	Capacitor—Electrolytic comprising 1 section of 50 mfd., 250 volts, 1 section of 10 mfd., 250 volts, and 1 section of 30 mfd., 150 volts	36403	Mounting—One set of motor mounting grommets, spacers and washers
35096	Coil—Loop primary coil	36406	Plate—Idler arm guide plate for motor
37843	Coil—Oscillator coil	36401	Plate—Motor plate complete for motor, with bearing and ball
36226	Condenser—Variable tuning condenser	30340	Retainer—Motor fan retainer
37841	Control—Volume control	30585	Spring—Motor idler arm tension spring
32634	Cord—Indicator drive cord (approx. 37-in. overall lg.)	36399	Turntable—Turntable and bushing complete with spindle
36093	Core—Core and stud for oscillator coil	33726	Washer—"C" washer for motor idler wheel
37374	Drum—Drive drum	36405	Washer—Flat washer for motor idler wheel
35870	Indicator—Station selector indicator	36274	Wheel—Motor idler wheel and bearing
36231	Loop—Antenna loop complete (When this loop is used as a replacement part in the V-101, the Bus Wire and Spaghetti must be removed.)	SPEAKER ASSEMBLIES (RL-79B4)	
37840	Plate—Dial plate complete—less dial	37850	Coil—Field coil (500 ohms)
30868	Plug—2-contact female plug for motor cable	32906	Coil—Neutralizing coil
37847	Resistor—Ballast tube resistor	35441	Cone—Cone complete with voice coil
30785	Resistor—150 ohms, 1 watt	MISCELLANEOUS ASSEMBLIES	
30150	Resistor—3,300 ohms, 1 watt	36462	Clamp—Dial clamp
14075	Resistor—8,200 ohms, ½ watt	37933	Cup—Needle cup
13998	Resistor—22,000 ohms, ½ watt	37852	Decalcomania—Control panel decal
12454	Resistor—33,000 ohms, ½ watt	36386	Decalcomania—Trade mark decal
14560	Resistor—100,000 ohms, ½ watt	37851	Dial—Glass dial scale
12264	Resistor—220,000 ohms, ½ watt	35915	Escutcheon—Dial scale escutcheon—less dial
30648	Resistor—470,000 ohms, ½ watt	36297	Knob—Tone switch knob
12679	Resistor—2.2 meg., ½ watt	36298	Knob—Volume control or tuning knob
30992	Resistor—10 meg., ½ watt	11765	Lamp—Dial lamp
14350	Screw—No. 8-32 sq. hd. set screw for drive drum	33530	Mounting—Mounting hardware for pickup arm
35862	Shaft—Tuning shaft	30870	Plug—2-prong male plug for motor leads
31365	Socket—Dial lamp socket	36248	Receptacle—Packaged needle receptacle
31251	Socket—Tube socket	32610	Rest—Rubber pickup rest
31418	Spring—Indicator drive cord spring	30900	Spring—Retaining spring for knob
37842	Switch—Tone switch and phono motor switch		
35636	Transformer—First I.F. transformer		

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the Ground Terminal "G," and keep the output as low as possible.

Using Calibration Scale.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
2. Place a flat 6-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.
3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at the bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

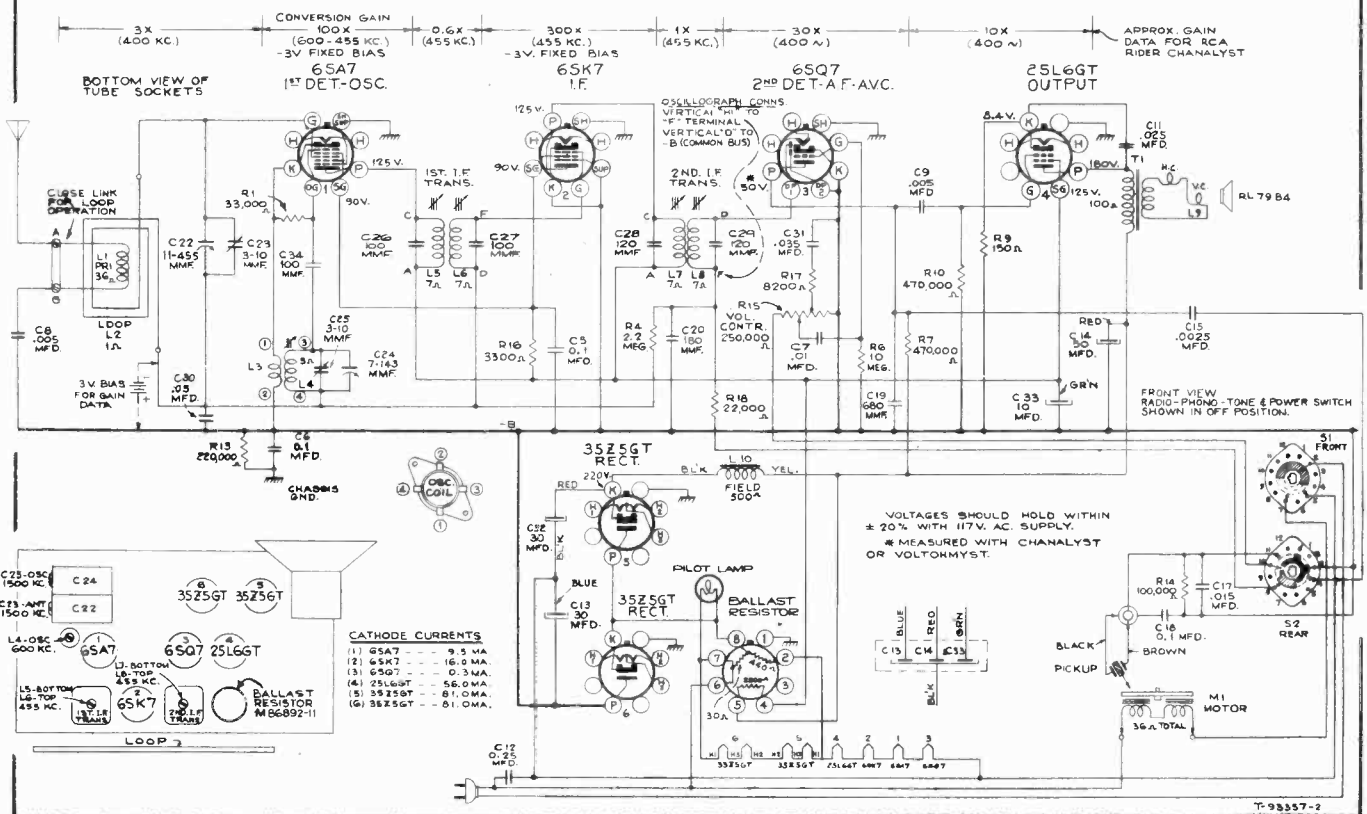
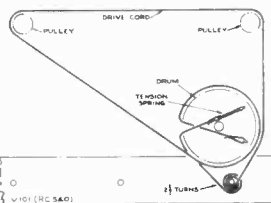


Steps	Connect High Side of Test Oscillator to—	Tune Test Osc. to—	Turn Radio Dial to—	Adjust for max. output—
1	6SK7 Grid Thru 200 mmf.	455 kc	Quiet Point between 550-750 kc	L7, L8 2nd I-F Trans.
2	6SA7 Grid Thru 200 mmf.	455 kc		L5, L6 1st I-F Trans.
3	Radiation Loop	1,500 kc	1,500 kc (See Scale)	C25 osc. C23 ant.
4	Radiation Loop	600 kc	600 kc (See Scale)	L4 osc. Rock In



Precautionary Lead Dress.—

1. Dress the 10 meg. and .01 uf on the 6SQ7 grid; as far away from heater and power leads and the .25 uf condenser as possible. The 10 meg. must be very short and dressed also against the grid, away from the 2nd IF transformer.
2. Dress the yellow lead between 2nd IF transformer and the switch as far away as possible from 10 meg. and .01 uf on 6SQ7 grid.
3. Dress the bus between 6SK7 plate and 2nd IF transformer toward front apron and as far away from the 6SQ7 as possible.
4. Dress the red lead between the rectifier and the switch against the corner of the chassis and front apron.
5. Dress the green 6SA7 control grid lead; close to chassis and as far away from the blue plate lead as possible; the latter also down against the chassis and as short as possible.
6. The brown heater leads, black, and brown pilot light leads, and all power and output leads must clear resistors and condenser on the 2nd IF transformer by at least 1/4-in. Especially the heater lead between 25L6GT and 6SK7, which must be dressed against the rear apron.



MODEL V-102

Chassis No. RC-524

Seven-Tube, Single-Band, A-C, Radio-Phonograph

Electrical and Mechanical Specifications

FREQUENCY RANGE
Broadcast "A"..... 540-1,700 kc

INTERMEDIATE FREQUENCY..... 455 kc

PUSH-BUTTON RANGES

One station between approximately 540-1,030 kc
One station between approximately 610-1,250 kc
Two stations between approximately 740-1,430 kc
One station between approximately 880-1,550 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6SQ7... 2nd Detector, A.V.C. 1st A.F.
- (4) RCA-6SF5..... Phase Inverter
- (5) RCA-6F6-G..... Power Output
- (6) RCA-6F6-G..... Power Output
- (7) RCA-5Y3-G..... Rectifier



POWER OUTPUT RATING
Undistorted..... 4.5 watts
Maximum..... 5.5 watts

LOUDSPEAKER (RL-79-A1)
Type..... 6-inch Electrodynamic
V.C. Impedance..... 3.4 ohms at 400 cycles

PHONOGRAPH
Type..... Manual; self-starting constant-speed motor; Edge-driven Turntable.
Pickup..... Crystal; 100,000 ohms at 1,000 cycles
Average Output..... 1½ volts at 1,000 cycles across ½ meg.

POWER SUPPLY RATINGS
105-125 volts, 60 cycles..... 110 watts
105-125 volts, 25 cycles..... 110 watts



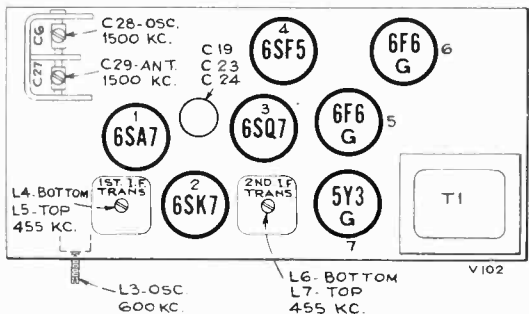
POWER-VOLUME CONTROL **PHONO-RADIO TONE CONTROL** **TUNING CONTROL**

Alignment Procedure

Using Calibration Scale.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
2. Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.
3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at bottom.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

1. Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
2. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.
4. After completion of alignment, replace the glass dial in cabinet, taking care that the fibre light shields are in correct position at ends of dial.

Phonograph Motor Service Data:—

The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. **Caution**—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.

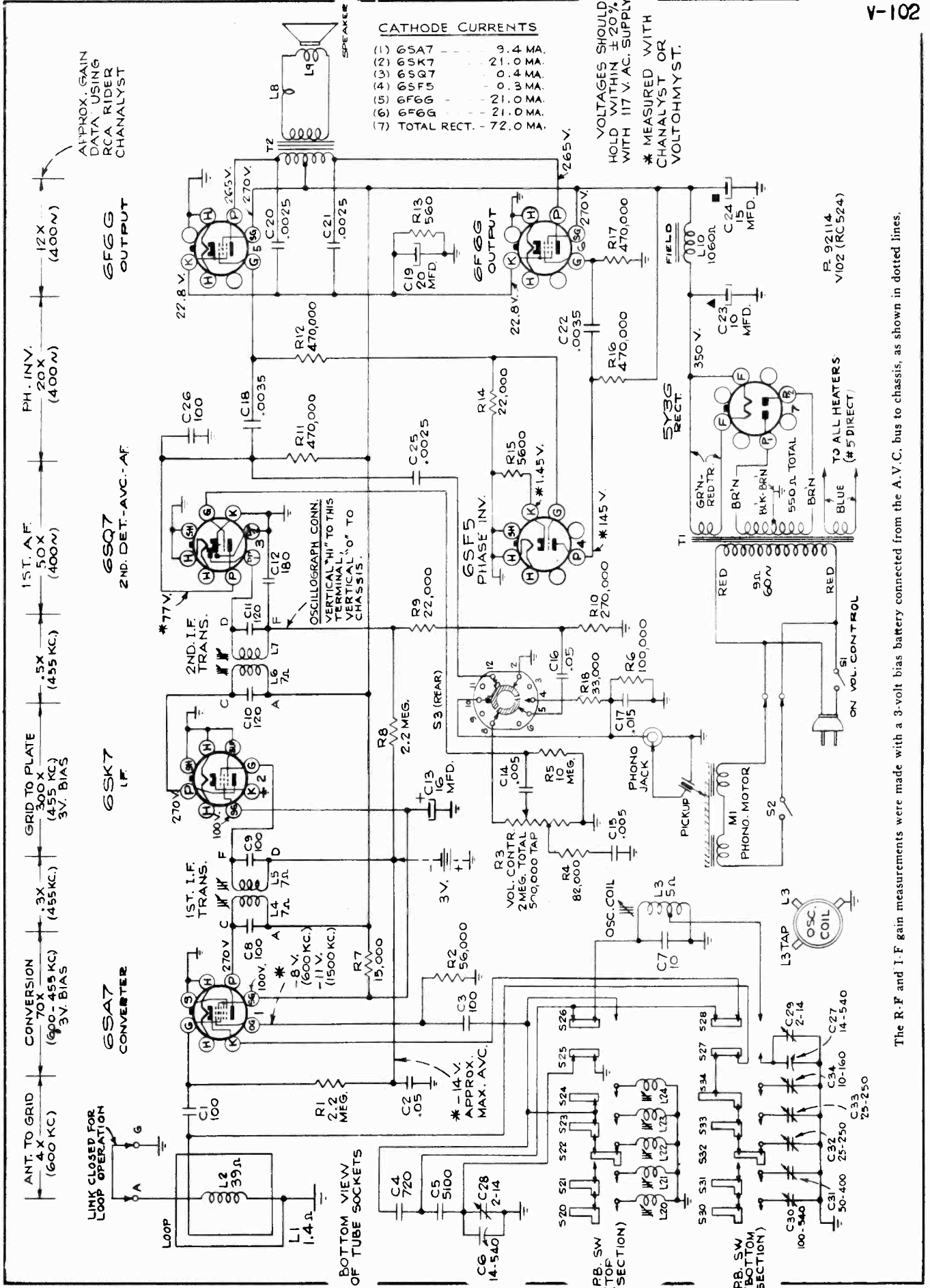
Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid, in series with .01 mfd.	455 kc	Quiet Point at H-F end of dial	L6 and L7 (2nd I.F. Trans.)
2	1st det. grid, in series with .01 mfd.			L4 and L5 (1st I.F. Trans.)
3	Antenna terminal, in series with 200 mmfd. (link open)	1,500 kc	1,500 kc "A" band	C28 (osc.) C29 (ant.)
4		600 kc	600 kc "A" band	L3 (osc.) Rock in
5	Repeat steps 3 and 4.			

PUSH BUTTONS



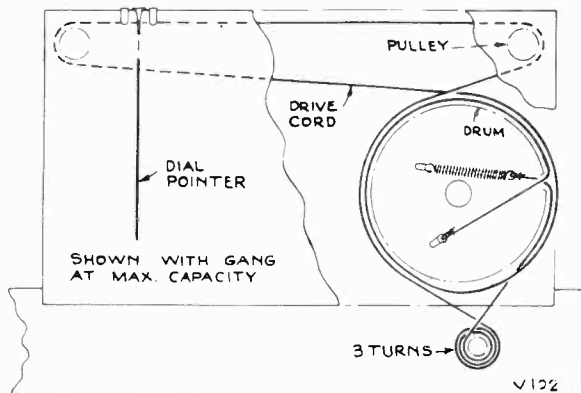
Precautionary Lead Dress.—

1. Dress power leads to AC switch away from terminals of volume control.
2. Dress heater leads to 6SQ7 away from 10 megohm leak.
3. Dress C-14 and C-16 away from all heater and power supply leads.
4. Green lead to loop away from I.F. can.
5. Green lead from C-1 to button assembly away from oscillator.
6. Green phono lead up from chassis and away from C-13.



The R.F. and I.F. gain measurements were made with a 3-volt bias battery connected from the A.V.C. bus to chassis, as shown in dotted lines.

Push Button Adjustments



The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the five desired stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button and manually tune in the first station on the list.
3. Press in the left-hand button.
4. Adjust L20 to receive the first station. To secure the best adjustment, rotate the set for least pickup, and adjust L20 for peak output.
5. Adjust C30 for peak output on the first station.
6. Proceed in the same manner to adjust for the remaining four stations.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L24 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

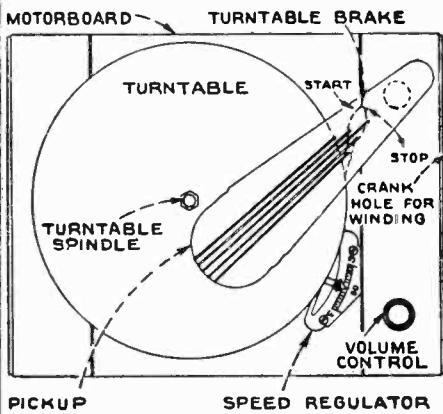
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-524)		PICKUP AND ARM ASSEMBLIES	
36239	Board—"Antenna-Ground" terminal board and receptacle	36768	Arm—Pickup arm only less crystal, cable and support
36678	Capacitor—Mica trimmer comprising 1 section of 10-180 mmf., 2 sections of 25-250 mmf., each, 1 section of 50-400 mmf., and 1 section of 100-540 mmf.	36805	Arm—Pickup arm support assembly
13200	Capacitor—10 mmf.	35894	Cable—Shielded pickup cable
34699	Capacitor—100 mmf., mica	33905	Crystal—Pickup unit crystal cartridge
12720	Capacitor—100 mmf., moulded mica	34550	Grommet—Pickup arm support rubber grommet
34700	Capacitor—120 mmf.	33974	Screw—Needle screw
13003	Capacitor—180 mmf.	36770	Base—Pickup arm mounting base
35877	Capacitor—720 mmf.	36529	Brake—Automatic brake less cam, base and shaft
36679	Capacitor—5,100 mmf.	36772	Cam—Automatic switch cam
34459	Capacitor—0025 mfd.	36771	Mounting—Pickup arm mounting
30303	Capacitor—0035 mfd.	36773	Plug—3-prong male plug
33584	Capacitor—005 mfd.	36769	Shaft—Pivot shaft
11315	Capacitor—015 mfd.	36521	Spring—Cam tension spring
32787	Capacitor—.05 mfd.	MOTOR ASSEMBLIES	
36675	Capacitor—Electrolytic comprising 1 section of 15 mfd. 450 volts, 1 section of 10 mfd. 450 volts, and 1 section of 20 mfd. 25 volts	36402	Arm—Idler arm and stud
32405	Capacitor—Electrolytic 16 mfd., 350 volts	20134	Ball—Steel ball
36676	Coil—Oscillator coil	36404	Motor—105-125 volt, 60 cycle motor
37133	Coil—Push button oscillator coil (540-1,030 kc)	36403	Mounting—One set of motor mounting grommets, spacers and washers
35803	Coil—Push button oscillator coil	36406	Plate—Idler arm guide plate
36673	Condenser—Variable tuning condenser	36401	Plate—Motor plate complete with bearing and ball
36487	Control—Tone control	30340	Retainer—Motor fan retainer
36486	Control—Volume control and power switch	30585	Spring—Idler arm tension spring
32634	Cord—Pointer cord	36399	Turntable—Turntable and bushing complete with spindle
36093	Core—Adjustable core and stud for oscillator coil	33726	Washer—"C" washer for idler wheel
35871	Core—Adjustable core and stud for push button oscillator coils	36405	Washer—Flat washer for idler wheel
35870	Indicator—Station selector indicator	36274	Wheel—Idler wheel and bearing
36674	Loop—Antenna loop complete	SPEAKER ASSEMBLIES (RL-79A1)	
35096	Loop—Loop primary coil	32907	Cap—Dust cap
36672	Plate—Dial plate complete with drive cord pulleys—less dial	33601	Coil—Field coil
30868	Plug—2-contact female plug for motor cable	32908	Coil—Neutralizing coil
5040	Plug—4-contact female plug for speaker cable	35441	Cone—Cone complete with voice coil, center suspension and rim gaskets
32289	Pulley—Drive cord pulleys	5039	Plug—4-prong male speaker plug
30735	Resistor—560 ohms, 1 watt	33599	Transformer—Output transformer
13714	Resistor—5,600 ohms, 1/2 watt	MISCELLANEOUS ASSEMBLIES	
35595	Resistor—15,000 ohms, 3/4 watt	13085	Hinge—Lid hinge
13998	Resistor—22,000 ohms, 1/2 watt	36027	Bezel—Push button bezel—less button
12454	Resistor—33,000 ohms, 1/2 watt	36721	Box—Used needle box
12286	Resistor—58,000 ohms, 1/2 watt	36299	Button—Push button
14023	Resistor—82,000 ohms, 1/2 watt	36462	Clamp—Dial clamp
14580	Resistor—100,000 ohms, 1/2 watt	36807	Decalomania—Control panel decal
12199	Resistor—270,000 ohms, 1/2 watt	35393	Decalomania—Television decal
12285	Resistor—470,000 ohms, 1/2 watt	36386	Decalomania—Trade mark decal
12679	Resistor—2.2 megohm, 1/2 watt	36806	Dial—Glass dial scale
13601	Resistor—10 megohm, 1/2 watt	36719	Escutcheon—Dial scale escutcheon—less dial
35862	Shaft—Tuning shaft	36260	Gauge—Needle gauge
35772	Shield—50-80 cycle power transformer bottom shield	36297	Knob—Range switch or tone switch knob
35709	Shield—50-80 cycle power transformer top shield	36298	Knob—Volume control or tuning knob
31364	Socket—Dial lamp socket	11765	Lamp—Dial lamp
31251	Socket—Tube socket	36149	Marker—Station selector marker
36680	Spacer—Antenna loop wooden spacer	30870	Plug—2-prong male plug for motor leads
31418	Spring—Pointer cord spring	31572	Plug—3-contact female plug for motor leads
31291	Spring—Retaining spring for core and stud	31048	Plug—Phono input plug
36677	Switch—P.B. selector switch	36246	Receptacle—Needle book receptacle
35636	Transformer—First I.F. transformer	36720	Rest—Pickup arm rest
35790	Transformer—Second I.F. transformer	14270	Spring—Retaining spring for knobs
35588	Transformer—Power transformer—105-120 volt, 25 cycle	34053	Spring—Retaining spring for push button
35959	Transformer—Power transformer—105-120 volt, 50-80 cycle—less end shields	31164	Support—Cabinet lid support
33726	Washer—"C" washer for tuning shaft		

Model R-103-S

Spring-Wound Record Player with Crystal Pickup



Electrical and Mechanical Specifications

- Motor.....Spring-wound, Governor Type
- Speed.....78 r.p.m. (adjustable)
- Record sizes.....10-inch and 12-inch
- CRYSTAL PICKUP
- Impedance...100,000 ohms at 1,000 cycles
- Average Output Voltage.....1½ Volts at 1,000 cycles across 250,000 ohms load
- Dimensions.....6-in high, 12½-in. wide, 10-in. deep



REFER TO MODEL O-2 FOR SERVICE DATA ON SPRING MOTOR

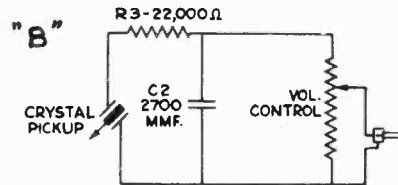
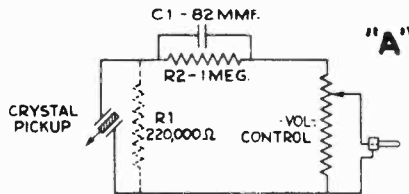
Tone Compensation

Because of the widely varying frequency characteristics of various types of audio amplifiers with which the Victrola Attachment may be used, it may be desirable in some cases to alter the pickup circuit of the Victrola Attachment to compensate for the characteristics of the amplifier. The following circuits show means of making such refinements.

In "A" R1 controls the low-frequency response; larger values of R1 give increased lows. For maximum low-frequency response, remove R1. R2 controls pickup output, smaller values of R2 giving increased output. C1 controls high-frequency response; to increase highs, increase C1.

Where a decrease in high-frequency response may be desired (for example, as an aid in reducing "needle scratch" on worn records), the circuit in "B" is applicable. In this circuit, C2 acts as loading on the pickup and is also a controlling factor on the high-frequency response. Smaller values of C2 give more pickup output and also more highs. R3 gives a sharper high-frequency reduction; increasing R3 decreases highs.

The suggested values shown in "A" and "B" should serve as a basis from which slight alterations may be made to suit individual cases



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

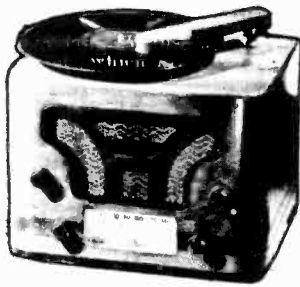
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MOTOR ASSEMBLIES			
33373	Bearing—One set governor bearings.....	35929	Pivot—Pivot arm and shaft.....
33366	Gear—Intermediate drive gear and shaft.....	34311	Ring—Retaining ring for pickup arm pivot shaft
13859	Gear—Winding gear—located on spring barrel.	33529	Screw—Pickup needle screw.....
13858	Gear—Worm gear—located on winding shaft.....	MISCELLANEOUS ASSEMBLIES	
13857	Governor complete.....	33682	Brake—Turntable brake.....
13854	Motor—Motor—less winding key.....	36076	Control—Volume control.....
13860	Shaft—Winding shaft and socket—less gear.....	33371	Cap—Turntable spindle cap.....
33367	Spindle—Turntable spindle shaft and gear.....	35467	Decalcomania—"RCA Victrola" decal.....
13835	Spring—Main spring and barrel.....	33681	Escutcheon—Speed regulator lever escutcheon..
13862	Weight—Governor weight and spring.....	33685	Key—Winding key.....
PICKUP ASSEMBLIES			
33591	Arm—Pickup arm—top shell only.....	3961	Knob—Volume control knob.....
34482	Base—Pickup mounting base.....	33679	Lever—Speed regulator lever.....
34758	Bushing—One rubber and one metal bushing for pickup arm.....	35609	Mounting—Rubber bushing, washers, and nut for pickup arm mounting.....
33122	Crystal—Pickup crystal cartridge.....	31048	Plug—Male plug for output cable.....
		33372	Sleeve—Rubber drive sleeve and drive plate....
		13851	Spring—Brake spring.....
		33369	Turntable—Turntable—less spindle cap.....

MODEL U-104

Chassis No. RC-345H

Five-Tube, Single-Band, AC, Victrola

REFER TO MODEL 95X FOR ALIGNMENT PROCEDURE



Power Supply.—Although this model employs an ac-dc chassis, it is not suitable for use on dc, as this would damage the motor.

Antenna.—The set is equipped with a 25-foot antenna. Do not connect the antenna to ground. If an outdoor antenna is used, it should not be longer than 100 feet, including lead-in. If it is longer, connect a 100- to 200-mmfd. capacitor in series with the lead-in.

Electrical Specifications

Frequency Range..... 540-1,720 kc
Alignment Frequency..... 1,760 kc (ant., det.)

POWER OUTPUT (125-volt, 60-cycle supply)
Undistorted 1.0 watt
Maximum 1.5 watts

TUBE COMPLEMENT

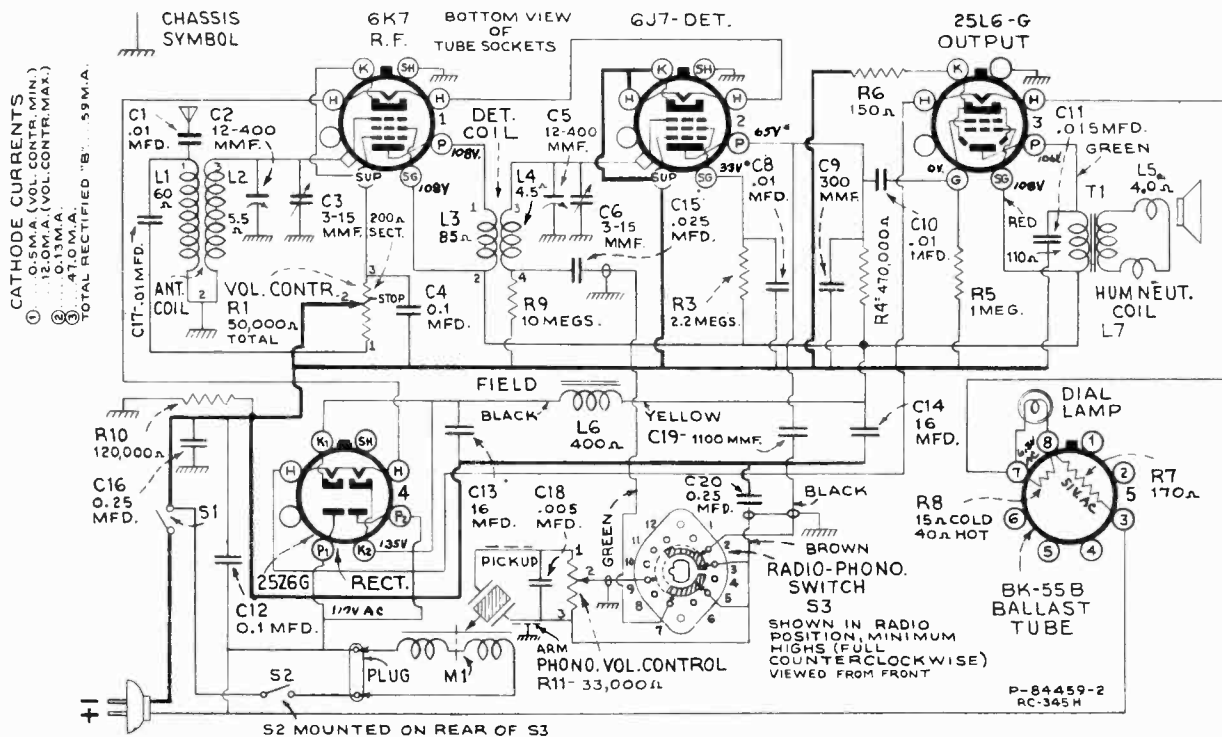
- (1) RCA-6K7..... R-F Amp.
- (2) RCA-6J7..... Detector
- (3) RCA-25L6-G..... Output
- (4) RCA-25Z6-G..... Rectifier
- (5) RCA-BK55B..... Ballast Tube
- Dial Lamp..... Mazda No. 40, 6.3 volts, .15 amp.

LOUDSPEAKER
Type..... 5-inch Electrodynamic
Voice-Coil Impedance..... 5 ohms at 400 cycles

POWER SUPPLY RATINGS

- A-5..... 105-125 volts, 50 cycles, 60 watts
- A-6..... 105-125 volts, 60 cycles, 60 watts

PHONOGRAPH..... Synchronous (manual starting)
Records..... 10-inch and 12-inch, 78 r.p.m.
Pickup..... Crystal, 100,000 ohms at 1,000 c.p.s.
Average Output of Pickup..... 1½ volts at 1,000 c.p.s.
across ¼-meg. load



* Note: Values with star (*) are operating voltages.
Values not starred are actual measured voltages.

Measurements made with set tuned to quiet point, volume control at minimum, using 1,000-ohm-per-volt meter,

Precautionary Lead Dress

1. Dress power cord and line bypass C12 away from detector coil.
2. Plate lead from 6K7 to detector coil must be dressed close to chassis and run through center of chassis.
3. Green lead from detector coil to gang must be dressed clear of other leads.

Values should hold within approximately ± 20% for 117 volt 60 cycle supply.

Measurements made to common negative line, unless otherwise specified

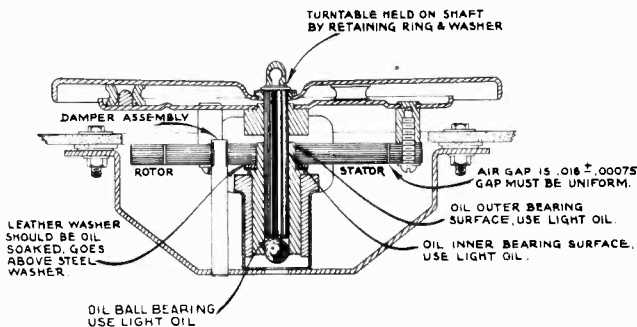
4. Green lead from antenna coil to C17 must be dressed against front apron.
5. Dress all heater leads close to base.
6. Yellow lead from cathode 6K7 to volume control must be dressed against chassis, under gang condenser and against front apron.

PHONOGRAPH SERVICE DATA

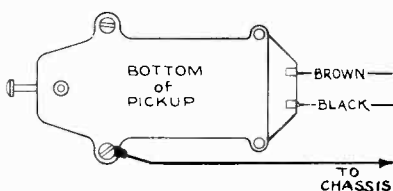
The motor is started by turning the phono-radio tone control to either 3rd or 4th position clockwise and giving the turntable a clockwise spin with the hand. Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

1. Insufficient lubrication, or any failure that will cause binding.
2. Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)

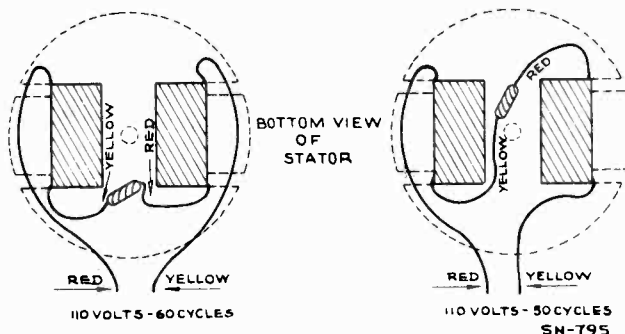
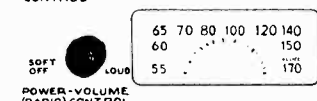


Cross Section of Motor Assembly



Pickup Connections

Controls



Motor Coil Assembly and Connections
D-C resistance of each coil (for 110 volts, 50 and 60 cycles) is approximately 82 ohms

Additional Replacement Parts:

Stock No.
33041 Ring—Retaining ring and metal washer to mount turntable plate
Speaker No. RL-78-3 is used as a substitute for speaker No. 84202-3. For complete speaker replacement, use Stock No. 31201 (84202-3).

REPLACEMENT PARTS FOR SPEAKER RL-78-3

Stock No.
32907 Cap—Cone center dust cap
33555 Coil—Speaker field coil
32906 Coil—Speaker hum neutralizing coil
32904 Cone—Speaker cone and voice coil
33556 Transformer—Output transformer

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-345H)		PICKUP AND ARM ASSEMBLIES	
31198	Ballast—Ballast resistor tube (R7, R8)	32226	Base—Pickup arm pivot shaft and base assembly
4287	Body—Connector body for dial lamp connector	4286	Bushing—Bushing and ferrule insert for connector cap
30883	Capacitor—300 mmfd. (C9)	4288	Cap—Pickup cable connector cap
12635	Capacitor—1,100 mmfd. (C19)	31050	Crystal—Pickup crystal and needle screw
4838	Capacitor—.005 mfd., 1,000 V. (C18)	32227	Pickup arm and crystal complete—less mounting, Stock No. 31054
4858	Capacitor—.01 mfd., 500 V. (C17)	12539	Screw—Pickup needle screw
14393	Capacitor—.01 mfd., 300 V. (C1, C8, C10)		
11315	Capacitor—.015 mfd., 400 V. (C11)		
30938	Capacitor—.025 mfd. (C15)		
30899	Capacitor—.01 mfd., 200 V. (C4)		
4839	Capacitor—.01 mfd., 400 V. (C12)		
12484	Capacitor—.025 mfd., 350 V. (C20, C16)		
31323	Capacitor—16 mfd., 150 V. (C13, C14)		
30875	Coil—Antenna coil (L1, L2)		
30876	Coil—R.F. coil (L3, L4)		
31195	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6)		
14086	Cord—Power cord		
32634	Cord—Variable condenser drive cord		
31200	Dial—Station selector dial scale and plate assembly		
4286	Ferrule—Ferrule for dial lamp connector		
4340	Lamp—Pilot lamp		
31193	Lead—Antenna lead		
30868	Plug—2-contact female motor cable plug		
31196	Pointer—Station selector indicator pointer		
31198	Resistor—Ballast resistor tube (R7, R8)		
30880	Resistor—150 ohms, 1/4 watt (R6)		
13734	Resistor—120,000 ohms, 1/4 watt (R10)		
12285	Resistor—470,000 ohms, 1/4 watt (R4)		
13730	Resistor—1 megohm, 1/4 watt (R5)		
12679	Resistor—2.2 megohms, 1/4 watt (R3)		
13601	Resistor—10 megohms, 1/4 watt (R9)		
31197	Shaft—Indicator pointer shaft and pulley		
31251	Socket—8-contact tube socket		
14171	Socket—Lamp socket assembly		
4284	Spring—Spring for dial lamp connector		
31096	Switch—Phono. switch (S2)		
31198	Tube—Ballast resistor tube (R7, R8)		
32209	Volume Control—(Phono.) (R11)		
31966	Volume Control—Volume control power switch (R1, S1)		
4285	Washer—Insulating washer for dial lamp connector		
			MOTOR ASSEMBLIES
		9841	Motor—110-volt, 60-cycle—complete with mounting (M1)
		31034	Motor—110-volt, 50-cycle—less mounting (M1)
		31037	Rotor—Turntable and rotor lamination assembly—complete for 50-cycle operation
		31036	Rotor—Turntable and rotor lamination assembly—complete for 60-cycle operation
		31043	Stator—Stator assembly—complete with coils and laminations for 50-cycle operation
		31042	Stator—Stator assembly—comprising coils and laminations for 60-cycle operation
			SPEAKER ASSEMBLIES (84202-3)
		31202	Cone—Speaker cone (L5)
		31201	Speaker—Speaker complete
		31203	Transformer—Output transformer (T1)
			MISCELLANEOUS ASSEMBLIES
		31205	Crystal—Station selector dial crystal
		30863	Knob—Station selector or power switch knob
		31054	Mounting—Pickup arm rubber mounting, washer, and nut
		30870	Plug—2-contact male plug for motor leads
		14267	Screw—Chassis mounting screw
		31053	Screw—Motor mounting screw assembly complete

MODEL K-105

Chassis No. RC-476

Ten-Tube, Three-Band, AC, Superheterodyne Receiver

Electrical Specifications

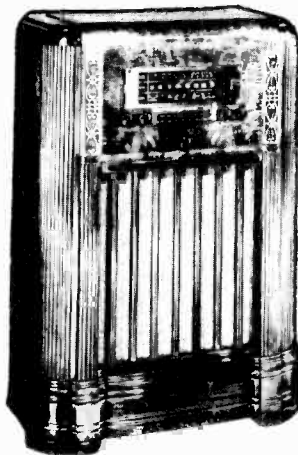
FREQUENCY RANGES

Standard Broadcast	540-1,550 kc
Medium Wave	1.55-4.0 mc
Short Wave	5.8-18.0 mc
INTERMEDIATE FREQUENCY	455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Det., Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6H6..... 2nd Det., A.V.C.
- (5) RCA-6SF5..... A-F Amplifier
- (6) RCA-6SF5..... Phase Inverter
- (7) RCA-6F6-G..... Power Output
- (8) RCA-6F6-G..... Power Output
- (9) RCA-5U4-G..... Rectifier
- (10) RCA-6U5/6G5... Tuning Indicator

PILOT LAMPS (2) Mazda No. 44, 6.3 volts, 0.25 amp.



POWER OUTPUT RATING

Undistorted	10 watts
Maximum	12 watts

LOUDSPEAKER (RL-70K-2)

Type..... 12-inch electrodynamic
V.C. Impedance.... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A..... 105-125 volts, 50-60 cycles,	150 watts
Rating B..... 105-125 volts, 25-60 cycles,	150 watts
Rating C..... 100-130, 140-160, 195-250 volts, 40-60 cycles,	150 watts

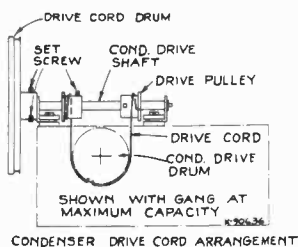
Push Button Adjustment

The push-buttons should be adjusted for eight favorite stations after the receiver is operating, and has had a brief warm-up period.

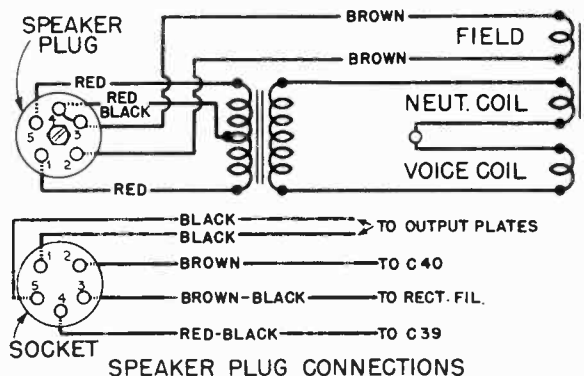
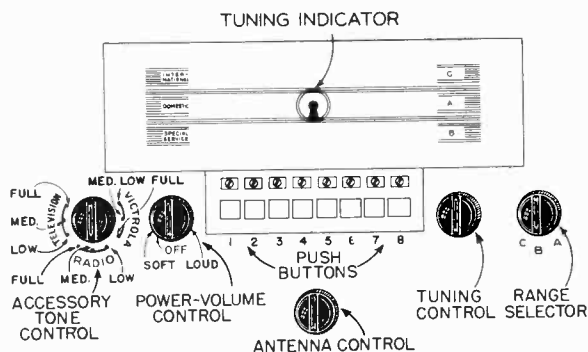
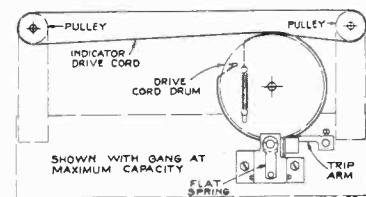
Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

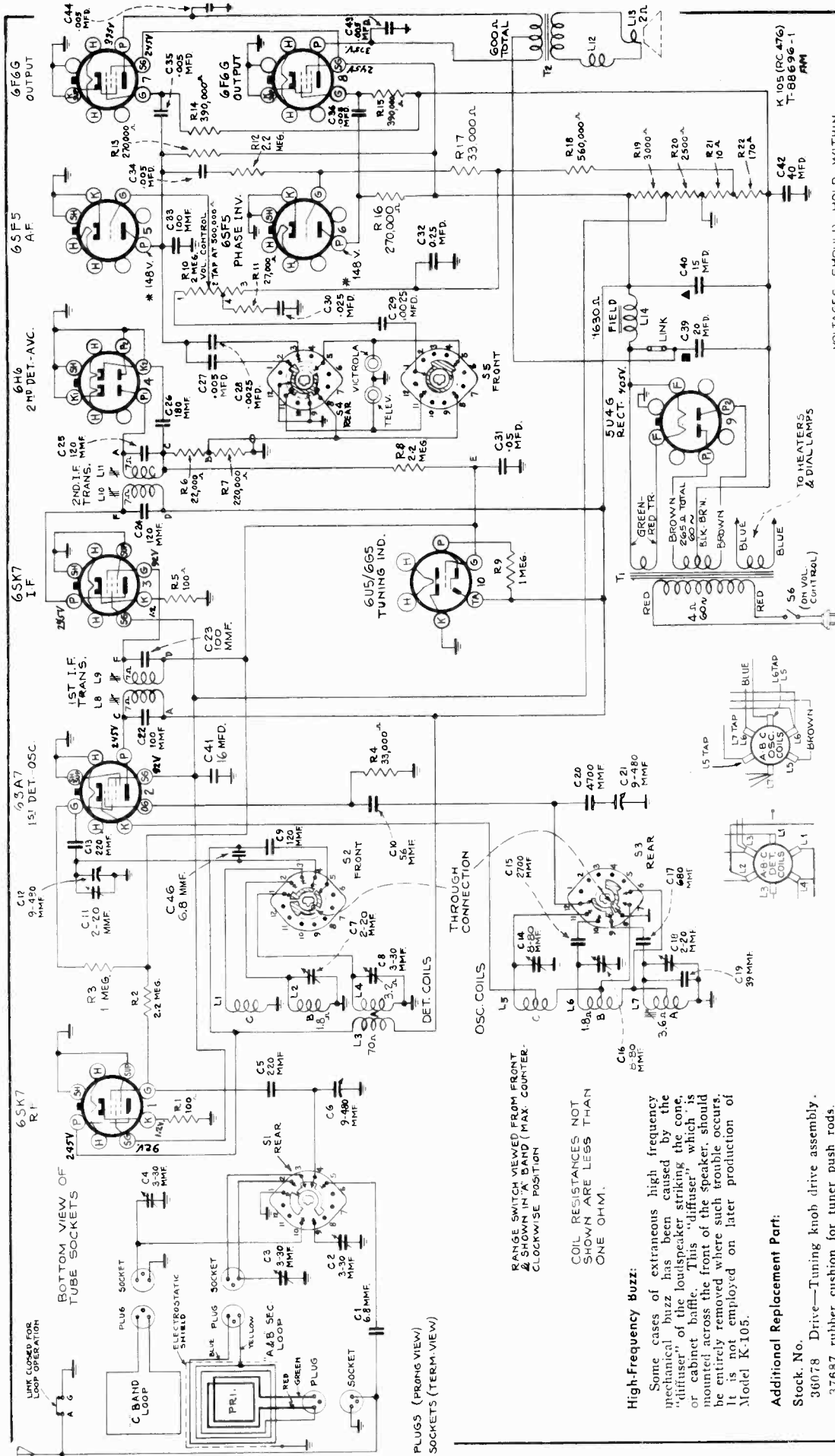
1. Loosen the push-button screws in back of the station-marker recesses.

2. Set Accessory-Tone Knob to "Radio" and turn the range selector to "A."
3. Press in the tuning knob and accurately tune in the first station.
4. With station accurately tuned in, press in the first push-button and tighten the screw.
5. Place the station marker tab in the recess.
6. Proceed in a similar manner to adjust the remainder of the push-buttons.



Note: In the Dial Indicator Drive Cord Assembly drawing the mechanism is shown with the range switch in the "A" band position. In this position the trip arm on the range shaft must be adjusted so that when the push-buttons are operated, the drive cord drum will turn freely without rubbing or binding against the drive roller.





VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. A.C. SUPPLY. STARRED (*) VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

CATHODE CURRENTS

(1) 6SA7	12.2 MA.
(2) 6SA7	9.0 MA.
(3) 6SK7	12.7 MA.
(4) 6SF5	0.36 MA.
(5) 6SF5	0.35 MA.
(6) 6F6-G	25.0 MA.
(7) 6F6-G	25.0 MA.
(8) 6F6-G	25.0 MA.
TOTAL RECTIFIED	123.0 MA.

4. Dress red AC leads to power switch away from 6H6 and away from volume control terminals.
5. Leads from power transformer must be dressed close to base away from trimmer bank and oscillator coil.
6. All leads from trimmers should be dressed away from chassis base and range switch.
7. Green, blue, and brown leads from loop terminal boards should be dressed away from chassis base and range switch.

1. Dress 4,000-mmf. roll capacitor from the range switch to the gang condenser (C21) away from the chassis.
2. Dress 2,700-mmf. capacitor connected from the oscillator coil (L6) to the range switch away from the bus wire directly beneath it.
3. Dress leads from phono and television plugs to tone control switch away from the speaker leads, terminal No. 3 (plate) of the output leads and away from the 6H6.

Additional Replacement Part:

- Stock No. 36078 Drive—Tuning knob drive assembly.
37687 rubber cushion for tuner push rods.

High-Frequency Buzz:

Some cases of extraneous high frequency mechanical buzz has been caused by the "diffuser" of the loudspeaker striking the cone, or cabinet baffle. This "diffuser" which is mounted across the front of the speaker, should be entirely removed where such trouble occurs. It is not employed on later production of Model K-105.

RANGE SWITCH VIEWED FROM FRONT & SHOWN IN "A" BAND (MAX. COUNTER) CLOCKWISE POSITION

COIL RESISTANCES NOT SHOWN ARE LESS THAN ONE OHM.

PLUGS (FRONT VIEW) SOCKETS (TERM. VIEW)

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

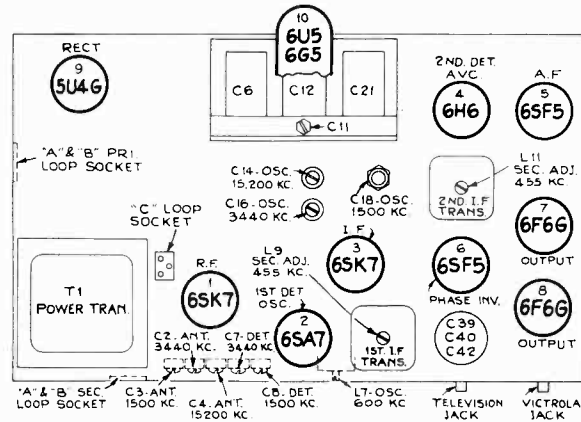
Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action. For the first six steps in alignment the low side of the test-oscillator should be connected to the receiver chassis. Following step 6, the signal must be radiated (see note under alignment table).

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during the first six steps of alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop

limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0° mark on the calibration scale when the plates are fully meshed.



Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"B" band Quiet point between 1.5-2.0 mc	L10 and L11 (2nd I-F trans.)
2	6SA7 det. grid in series with .01 mfd.			L8 and L9 (1st I-F trans.)
3	6SK7 R-F grid in series with 0.1 mfd.	15.2 mc	15.2 mc (192°) "C" band	C14 (osc.)* C11 (det.) Rock Gang
4		3.44 mc	3.44 mc (183°) "B" band	C16 (osc.)* C7 (det.)
5		600 kc	600 kc (38.5°) "A" band	L7 (osc.) Rock gang
6		1,500 kc	1,500 kc (216°) "A" band	C18 (osc.) C8 (det.)
7		15.2 mc	15.2 mc "C" band	C4 (ant.)
8		6.1 mc	6.1 mc "C" band	Inductance of "C" band loop†
9	Repeat step 7			
10	Radiate signal (See note)	3.44 mc	3.44 mc "B" band	C2 (ant.)
11		1,500 kc	1,500 kc "A" band	C3 (ant.)
12		600 kc	600 kc "A" band	L7 (osc.) Rock Gang
13		1,500 kc	1,500 kc "A" band	C18 (osc.) C8 (det.)

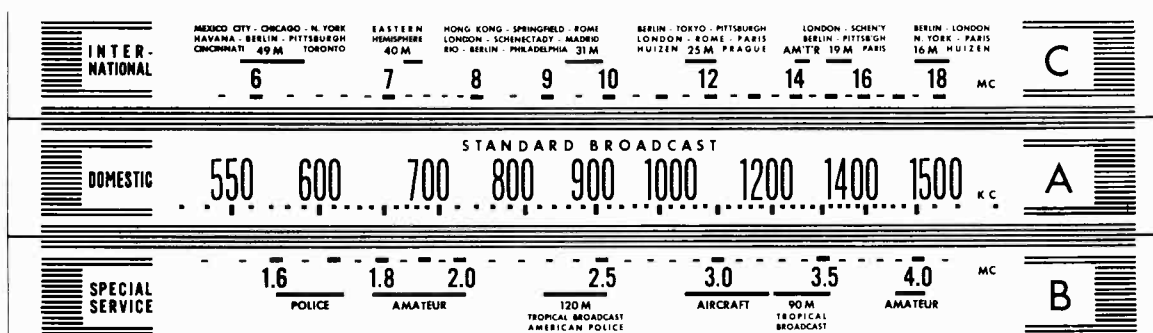
Note.—Following step 6, a radiated signal must be used for the remainder of the alignment. One or two turns of wire forming a loop approximately 18 inches in diameter connected across the output of a test-oscillator such as RCA Model 153, or Stock No. 9595 (TMV-97C), etc., will be suitable. For the adjustments using the radiated signal, the chassis must be placed in the cabinet and the receiver loops connected. The radiating loop should be placed near enough to the receiver loop to provide ample signal strength for alignment.

* Use **minimum** capacity peak if two can be obtained. Check to determine that C14 has been adjusted to the correct peak by tuning the receiver to approximately 14.29 mc where a weaker signal should be received.

** Use **minimum** capacity peak if two can be obtained. Check to determine that C16 has been adjusted to the correct peak by tuning the receiver to approximately 2.53 mc where a weaker signal should be received.

† Adjust the inductance of "C" band loop by varying the spacing between the leads of the loop. Moving the leads closer together decreases the inductance and tunes the loop to a higher frequency; moving the leads farther apart increases the inductance and tunes the loop to a lower frequency.

Important.—The oscillator tracks **above** the signal on all bands.



Receiver Dial Scales, and Corresponding 0-240° Calibration Scales

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-476)			
33620	Arm—Push arm and cam assembly on tuning unit—less lock screw.	33419	Roller—Friction roller for tuning knob shaft.
34574	Board—"Antenna-Ground" board.	31613	Screw—No. 8-32 milled head set screw for drum, Stock No. 33174.
30766	Cap—Rubber cap for Tuning Indicator.	14350	Screw—No. 8-32 square head set screw for gear, Stock No. 34532.
12884	Capacitor—Air trimmer—2-20 mmfd. (C18).	33621	Screw—Push arm lock screw.
34701	Capacitor—Trimmer comprising 4 sections of 3-30 mmfd. and 1 section of 2-20 mmfd. (C2, C3, C4, C7, C8).	34703	Shaft—Range switch shaft.
34702	Capacitor—Trimmer comprising 2 sections of 8-80 mmfd. (C14, C18).	33422	Shaft—Tuning shaft less friction roller.
14079	Capacitor—8.8 mmfd. (C1, C46).	31364	Socket—Dial lamp socket.
13545	Capacitor—39 mmfd. (C19).	13871	Socket—Tuning Indicator socket.
12723	Capacitor—56 mmfd. (C10).	14278	Socket—Phonograph input socket.
12720	Capacitor—100 mmfd. (C33).	34575	Socket—2-terminal loop socket.
34699	Capacitor—100 mmfd. (C22, C23).	31319	Socket—Tube socket.
12724	Capacitor—120 mmfd. (C9).	33175	Spring—Drive cord spring.
34700	Capacitor—120 mmfd. (C24, C25).	33622	Spring—Push arm return spring.
13003	Capacitor—180 mmfd. (C26).	34694	Spring—Tuning shaft cam spiral spring.
12694	Capacitor—220 mmfd. (C5, C13).	33421	Spring—Tuning shaft flat spring.
31552	Capacitor—680 mmfd. (C17).	34696	Switch—Range switch.
30057	Capacitor—2,700 mmfd. (C15).	34698	Transformer—First i-f transformer.
31399	Capacitor—4,700 mmfd. (C20).	34524	Transformer—Second i-f transformer.
34459	Capacitor—.0025 mfd. (C28, C29).	34693	Transformer—Power transformer—110 volts, 25 cycles.
33584	Capacitor—.005 mfd. (C27, C34, C35, C36, C43, C44).	34539	Transformer—Power transformer—105-125 volts, 50-60 cycles.
4870	Capacitor—.025 mfd. (C30).	SPEAKER ASSEMBLIES (RL-70K-5)	
32787	Capacitor—.05 mfd. (C31).	31825	Cap—Dust cap.
12484	Capacitor—.025 mfd. (C32).	35170	Coil—Field coil.
31323	Capacitor—18 mfd. (C41).	11469	Coil—Neutralizing coil.
34533	Capacitor—Electrolytic comprising 1 section of 20 mfd., 1 section of 15 mfd. and 1 section of 40 mfd.	34773	Cone—Cone complete with voice coil.
34579	Coil—Oscillator coil.	34728	Diffuser.
34697	Coil—R.F. coil.	31539	Plug—5-prong male plug for speaker.
32634	Cord—Tuning condenser drum drive cord.	14534	Transformer—Output transformer.
32713	Core—Core and stud for oscillator coil.	MISCELLANEOUS ASSEMBLIES	
34578	Control—Tone control.	35046	Bearing—Antenna loop bearing comprising spindle and pivot.
34695	Control—Volume control and power switch.	33474	Button—Push button.
33627	Drum—Condenser drive drum.	34285	Clip—Tuning Indicator clip.
33174	Drum—Tuning condenser drive drum.	35046	Dowel—1 set of dowel pins for loop antenna.
34532	Gear—Gear sector for range switch.	33439	Escutcheon—Station selector escutcheon less push buttons.
11891	Lamp—Dial lamp.	34706	Frame—Dial frame complete with brackets less dial, pointer, pointer guide rods and Tuning Indicator clip.
33427	Pulley—Drive cord pulley and mounting bracket.	34583	Frame—Frame only for "C" band loop.
35005	Pulley—Drive pulley less bronze drive cord.	34383	Indicator—Station selector indicator.
34537	Resistor—Voltage divider comprising 1 section of 3,000 ohms, 1 section of 2,500 ohms, 1 section of 10 ohms, and 1 section of 170 ohms (R19, R20, R21, R22).	33434	Knob—Tuning, tone control, range switch or power switch and volume control knob.
14439	Resistor—100 ohms, 1/2 watt (R1, R5).	35132	Loop—"A" and "B" band antenna loop.
13998	Resistor—22,000 ohms, 1/2 watt (R6).	33842	Marker—Push button station markers.
12738	Resistor—27,000 ohms, 1/2 watt (R11).	34990	Plug—2-prong male plug for "C" band loop.
12454	Resistor—33,000 ohms, 1/2 watt (R4, R17).	32641	Plug—3-prong male plug for "A" and "B" band loop.
12264	Resistor—220,000 ohms, 1/2 watt (R7).	34708	Scale—Glass dial scale.
12199	Resistor—270,000 ohms, 1/2 watt (R13, R16).	35049	Shaft—Flexible shaft assembly to turn loop.
13479	Resistor—390,000 ohms, 1/2 watt (R14, R15).	34491	Shaft—Pointer carriage guide shaft.
12486	Resistor—560,000 ohms, 1/2 watt (R18).	14270	Spring—Retaining spring for knob, Stock No. 33434.
12013	Resistor—1 megohm, 1/10 watt (R9).		
13730	Resistor—1 megohm, 1/2 watt (R3).		
12679	Resistor—2.2 megohm, 1/2 watt (R2, R3, R12).		
30340	Retainer—Retainer for shaft of tuning shaft cam and arm.		

MODEL V-105 AND RADIOLA 560P

Chassis No. RC-517C

RC517F

Five-Tube, Single-Band, A-C, Superheterodyne Radio & Phonograph

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,650 kc
 INTERMEDIATE FREQUENCY..... 455 kc
 TUBE COMPLEMENT
 (1) RCA-12SA7..... 1st Det.—Osc.
 (2) RCA-12SK7..... I-F Amplifier
 (3) RCA-12SQ7..... 2nd Det., A.V.C., and A-F Amplifier
 (4) RCA-50L6-GT..... Power Output
 (5) RCA-35Z5-GT..... Rectifier
 POWER OUTPUT
 Undistorted..... 0.9 watts
 Maximum..... 1.2 watts

PILOT LAMP..... 1—Mazda No. 51, 6-8 volts, 0.2 amps.
 POWER SUPPLY RATING
 105-125 volts, 50 cycles..... 55 watts
 105-125 volts, 60 cycles..... 55 watts
 LOUSPEAKER (RL-81B-4)
 Type..... 5-inch electrodynamic
 V.C. Impedance..... 4 ohms at 400 cycles
 Height Width Depth
 Cabinet Dimensions (inches)..... 10 15/16 16 9/16 13 11/32
 Weight (net)..... 19 lbs.
 Shipping..... 23 lbs.
 Tuning Drive Ratio..... 9:1

RADIOLA R-560P

Same as V-105

EXCEPT

- 38818 Dial - Dial scale.
- 30492 Resistor - 22,000 ohms 1/4 watt.
- 30849 Resistor - 2.2 meg 1/4 watt

Speaker No. 92322-2:

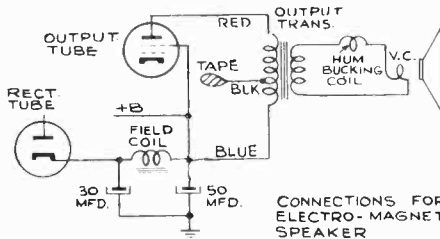
In some production of V-105, the speaker is stamped 92322-2. The cone and voice coil for this speaker is Stock No. 39536.

Phono Compensation Change:

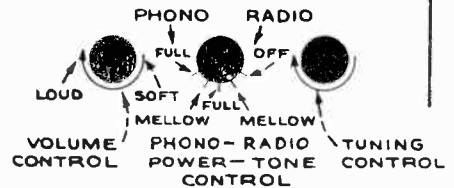
C17 and R16, shunted across the pickup are changed from .015 to .01 mfd. (Stock No. 4937), and from 47,000 to 68,000 ohms (Stock No. 13715).

Using EM Speaker Replacement:

RL-86A-3 "EM" speaker can be used as a replacement for RL-81B-4 PM speaker in Model V-105 by wiring in the field coil and output transformer as shown in accompanying diagram. The original output transformer can be used by taping up the black (tap) lead.



In this particular model, it is necessary to solder a jumper across contacts 8 and 9 on the front section of the radio-phonograph switch. This keeps the 1st-detector and IF tubes in operation when the switch is in "phono" position, and thus maintains sufficient current through the field coil for adequate excitation. The customer should be instructed to tune the set to a quiet point on the dial to prevent radio break-through on phono.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-517C)		PICKUP AND ARM ASSEMBLIES	
34699	Capacitor—100 mmfd.	33591	Arm—Pickup arm only—less cartridge, base and cable
34700	Capacitor—120 mmfd.	34481	Arm—Pickup pivot arm and shaft
12694	Capacitor—220 mmfd.	34482	Base—Pickup mounting base
34459	Capacitor—.0025 mfd.	34758	Bushing—Rubber bushing and metal bushing for pickup pivot arm shaft
37102	Capacitor—.001 mfd.	33122	Crystal—Pickup crystal cartridge and needle screw
33584	Capacitor—.005 mfd.	34311	Ring—Retaining ring for pivot shaft
4937	Capacitor—.01 mfd.	33529	Screw—Needle screw
11315	Capacitor—.015 mfd.	MOTOR ASSEMBLIES	
4870	Capacitor—.025 mfd.	36402	Arm—Idler arm and stud
32787	Capacitor—.05 mfd.	20134	Ball—Steel ball
4839	Capacitor—.1 mfd.	36404	Motor—105-125 volts, 60 cycle motor
12484	Capacitor—.25 mfd.	36403	Mounting—One set of motor mounting grommets, spacers and washers
36301	Capacitor—Electrolytic, comprising one section of 30 mfd., 150 volts, and one section of 50 mfd., 150 volts	36406	Plate—Idler arm guide plate
38338	Coil—Oscillator coil	36401	Plate—Motor plate complete with bearing and ball
36285	Condenser—Variable tuning condenser	30340	Retainer—Motor fan retainer
37977	Control—Volume control	30585	Spring—Idler arm tension spring
32634	Cord—Drive cord (approx. 9 1/4 inches long)	36399	Turntable and bushing complete with spindle
38337	Dial—Dial scale	33726	Washer—"C" washer for idler wheel
37914	Indicator—Station selector indicator	36405	Washer—Flat washer for idler wheel
36289	Loop—Antenna loop complete	36274	Wheel—Idler wheel and bearing
36286	Plate—Dial back plate complete—less dial	SPEAKER ASSEMBLIES (RL-81B-4)	
30868	Plug—2-contact female plug for motor cable	35849	Cap—Dust cap
14671	Resistor—33 ohms, 1/4 watt	38340	Cone—Cone complete with voice coil
30189	Resistor—120 ohms, 1/4 watt	MISCELLANEOUS ASSEMBLIES	
3153	Resistor—1500 ohms, 1 watt	38341	Crystal—Dial scale crystal—less dial
13998	Resistor—22,000 ohms, 1/4 watt	37933	Cup—Used needle cup
12412	Resistor—47,000 ohms, 1/4 watt	38342	Decalcomania—Control panel decal—pkg. 5
14583	Resistor—220,000 ohms, 1/4 watt	36386	Decalcomania—Trade mark decal
30648	Resistor—470,000 ohms, 1/4 watt	35814	Knob—Control knob
12679	Resistor—2.2 meg., 1/4 watt	11765	Lamp—Dial lamp
11668	Resistor—5.6 meg., 1/4 watt	36305	Mounting—Mounting hardware for motor
36290	Shaft—Tuning knob shaft	36303	Mounting—Mounting hardware for pickup arm
36292	Socket—Dial lamp socket	30870	Plug—2-prong male plug for motor leads
31251	Socket—Tube socket	36246	Receptacle—Packaged needle receptacle
30585	Spring—Drive cord spring	32610	Rest—Rubber pickup rest
36288	Switch—Phono switch	30900	Spring—Retaining spring for knob
35666	Transformer—Output transformer		
35636	Transformer—First I.F. transformer		
35790	Transformer—Second I.F. transformer		
33726	Washer—Spring washer for tuning shaft		

Alignment Procedure

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,650 kc	Gang at minimum	C25 (osc.) C31 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C23 (ant.)
5	Repeat steps 3 and 4.			



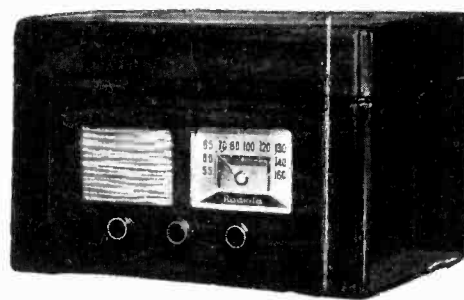
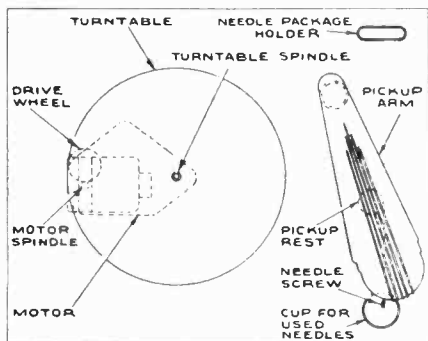
MODEL V105

Phonograph Motor Service Data:—

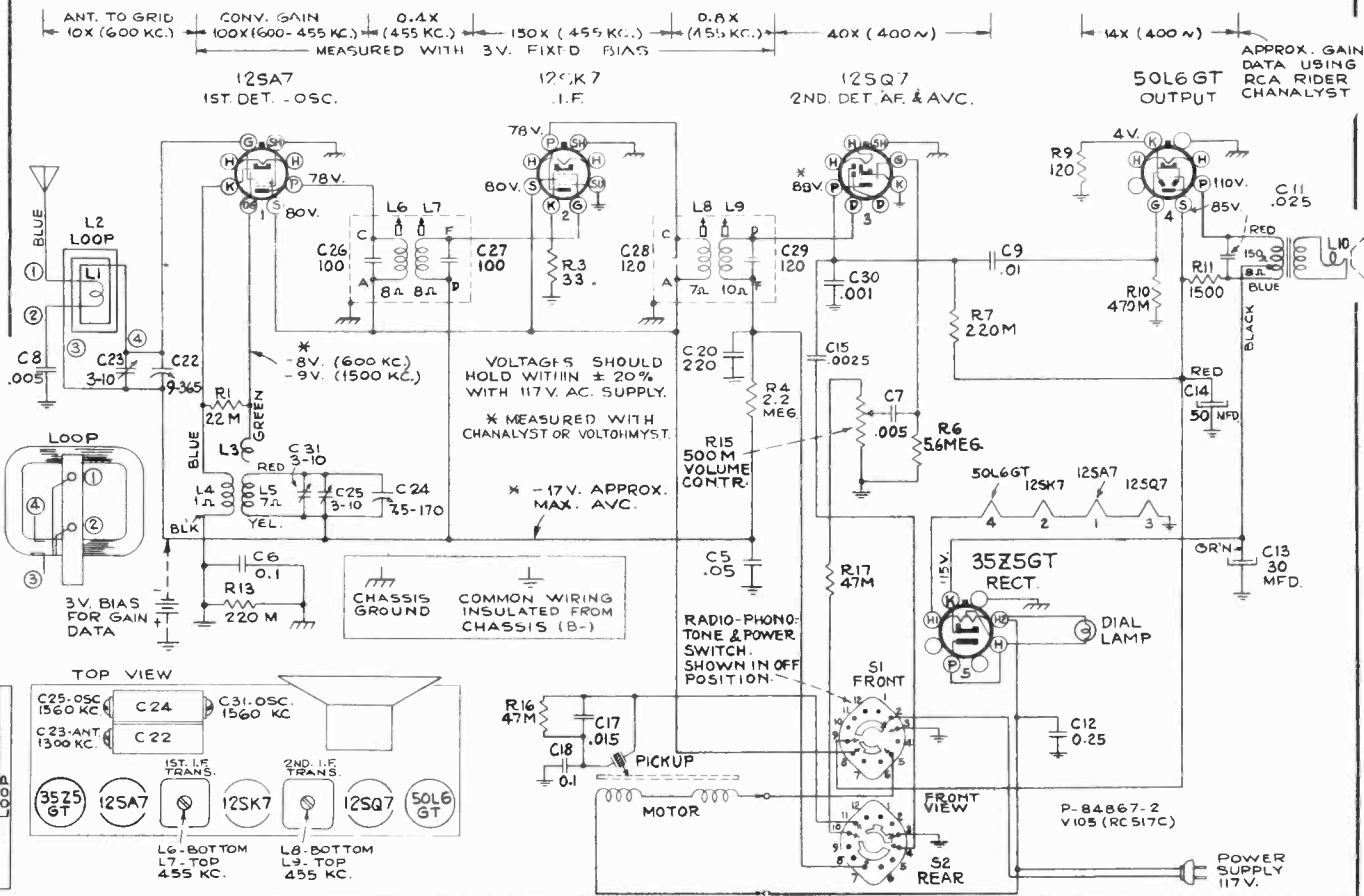
The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. Caution—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.

Power Supply.—Although this model employs an a-c dc chassis, it is not suitable for use on d.c., as this would damage the motor.



RADIOLA R560P



MODELS 110-K and 110-K-2

Chassis No. RC-513

Ten-Tube, Four-Band, AC, Superheterodyne Receiver

Electrical Specifications



MODEL 110K



Model 110K-2

FREQUENCY RANGES

Broadcast "A"..... 540-1,600 kc
 Medium Wave "B"..... 1.4-4.0 mc
 Short Wave "C"..... 5.8-18.0 mc
 SPREAD BAND..... 9.35-9.85 mc

INTERMEDIATE FREQUENCY..... 455 kc

PUSH-BUTTON RANGES

One station between approximately 540-1,030 kc
 Two stations between approximately 610-1,250 kc
 Two stations between approximately 740-1,430 kc
 One station between approximately 880-1,550 kc

TUBE COMPLEMENT

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Detector-Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Detector, A.V.C.,
and A-F Amplifier
- (5) RCA-6SF5..... Phase Inverter
- RCA-6K6GT (Four)..... Power Output
- (10) RCA-5U4-G..... Rectifier

PILOT LAMPS

(4)... Mazda No. 51, 6.3 volts,
0.20 amp.

POWER OUTPUT RATING

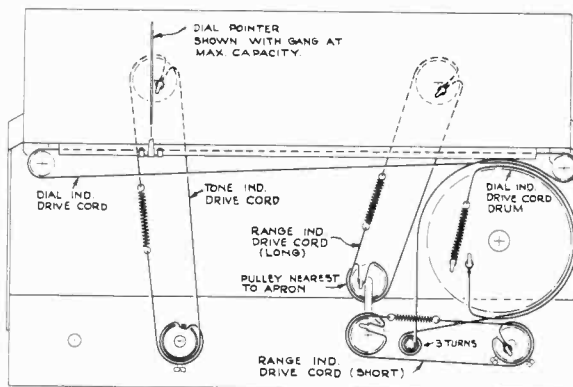
Undistorted..... 10 watts
 Maximum..... 12 watts

LOUDSPEAKER (RL-70L-4)

Type..... 12-inch Electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles, 135 watts
 105-125 volts, 25-60 cycles, 135 watts



880 TO 1550 KC	740 TO 1430 KC	610 TO 1250 KC	540 TO 1030 KC	
6	5	4	3	1 TRIMMER SCREWS
0	0	0	0	0 CORE RODS
6	5	4	3	2

Failure to Oscillate on Push-Button Tuning:

Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 35,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133, is used for the 540-1,030 kc push-button oscillator ranges.

Push Button Adjustment

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

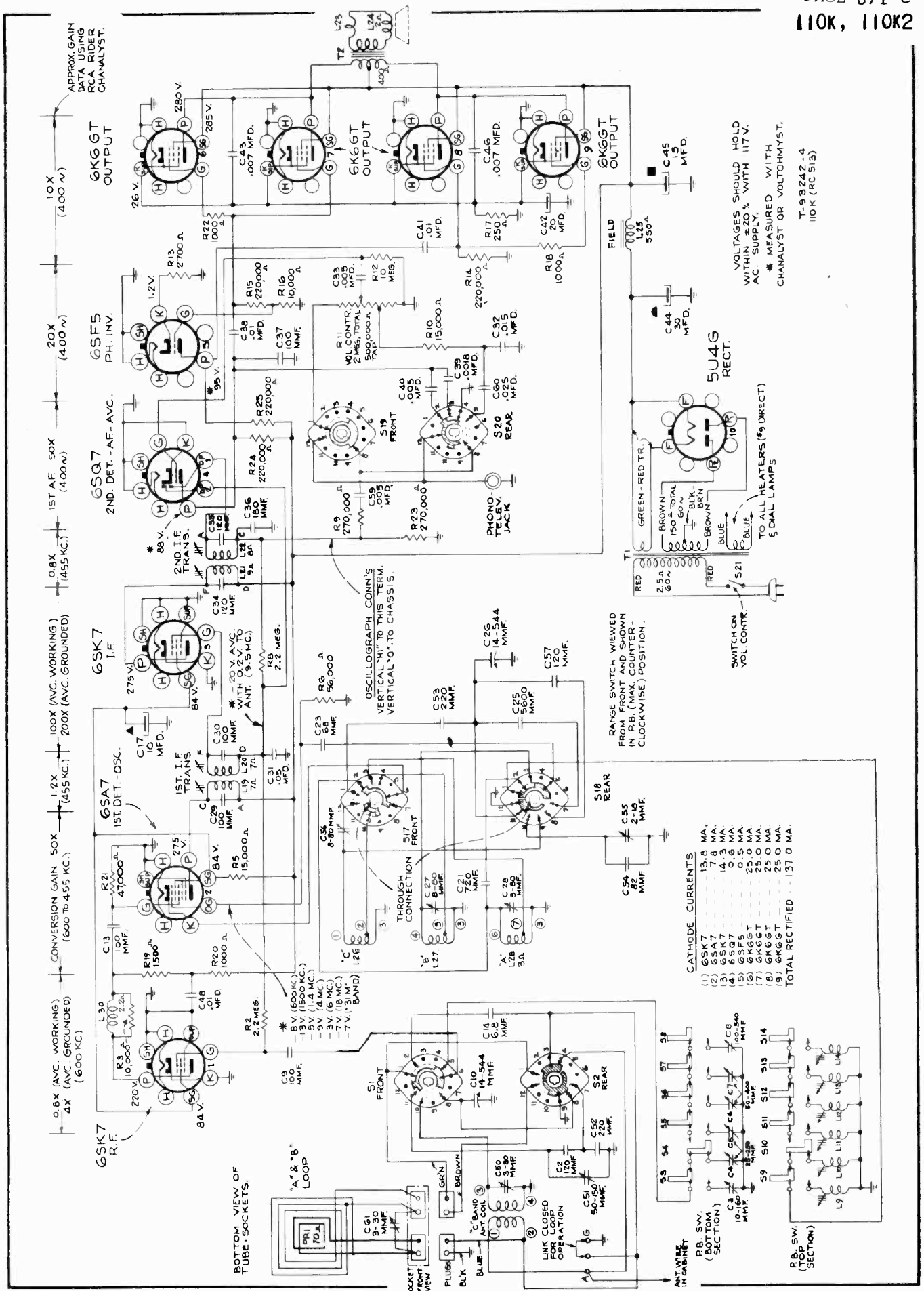
In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. Turn range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L-14) to receive the station.

4. After oscillator core is set correctly, adjust C-8 for maximum output.
 Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Owing to the relatively high r-f gain, it may be found that a given station can be tuned in at several different settings of the magnetite-core oscillator push-button coils. In such cases, it is advisable to unscrew the loop push-button trimmers to minimum capacity before adjusting the magnetite cores.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L-9 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.



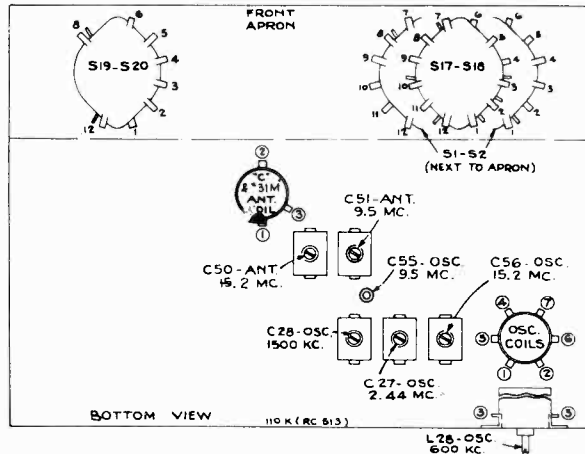
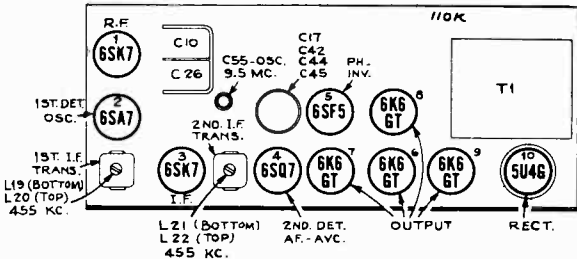
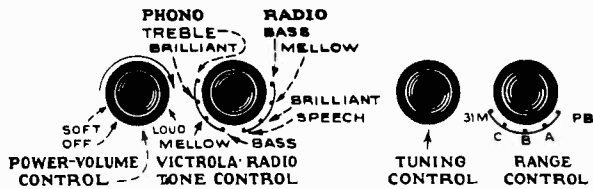
CATHODE CURRENTS

(1) 6SK7	13.8 MA.
(2) 6SK7	17.8 MA.
(3) 6SK7	14.3 MA.
(4) 6SQ7	0.6 MA.
(5) 6SF5	0.5 MA.
(6) 6KGT	23.0 MA.
(7) 6KGT	23.0 MA.
(8) 6KGT	23.0 MA.
(9) 6KGT	23.0 MA.
TOTAL RECTIFIED	137.0 MA.

VOLTAGES SHOULD HOLD WITH SUPPLY WITH 117V.
* MEASURED WITH CHANNELYST OR VOLTOHMYST.

T-93242-4
110K (RC513)

REFER TO MODEL 111K
FOR ALIGNMENT PROCEDURE



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-513)			
35966	Board—Antenna-Ground terminal board	35988	Resistor—15,000 ohms, 3 watts
36060	Bracket—Bracket and stud to hold shutter	12412	Resistor—47,000 ohms, 1/2 watt
35974	Bracket—Dial support assembly	12286	Resistor—58,000 ohms, 1/2 watt
35795	Calibrator—Drive drum calibrator	12264	Resistor—220,000 ohms, 1/2 watt
36051	Capacitor—Air trimmer—2.18 mmfd.	12199	Resistor—270,000 ohms, 1/2 watt
35804	Capacitor—Trimmer bank, one 10-160 mmfd., two 25-250 mmfd., two 50-400 mmfd., and one 100-540 mmfd. sections	12679	Resistor—2.2 meg., 1/2 watt
36053	Capacitor—Trimmer, 1 section 3-30 mmfd., and 1 section 50-150 mmfd.	13601	Resistor—10 meg., 1/2 watt
14079	Capacitor—8-8 mmfd.	31482	Screw—No. 8-32 sq. hd. set screw for pulley, Stock No. 36055
36052	Capacitor—Trimmer, 3 sections 8-80 mmfd.	14350	Screw—No. 8-32 sq. hd. set screw for pulley, Stock No. 36057, and drive drum, Stock No. 35795
13057	Capacitor—88 mmfd.	35988	Shaft—Tuning knob shaft and pulley
36097	Capacitor—82 mmfd.—Ceramic	36059	Shield—Bottom shield for 60 cycle transformer
12720	Capacitor—100 mmfd.	36058	Shield—Top shield for 60 cycle transformer
31706	Capacitor—120 mmfd.	36050	Shutter—Range shutter
13003	Capacitor—180 mmfd.	36049	Shutter—Tone shutter
12694	Capacitor—220 mmfd.	31364	Socket—Dial lamp socket
35877	Capacitor—720 mmfd.	35787	Socket—Phono. input socket
13895	Capacitor—5,600 mmfd.	31251	Socket—Tube socket
34506	Capacitor—.0018 mfd.	31418	Spring—Indicator drive cord tension spring
33584	Capacitor—.005 mfd.	35967	Switch—Push button switch—less coils and trimmers
5148	Capacitor—.007 mfd.	36054	Switch—Range switch
4937	Capacitor—.01 mfd.	35963	Switch—Tone switch
11315	Capacitor—.015 mfd.	35790	Transformer—Second I-F transformer
4870	Capacitor—.025 mfd.	35636	Transformer—First I-F transformer
32787	Capacitor—.05 mfd.	36164	Transformer—Power transformer—105-120 volts, 25-60 cycle
36045	Capacitor—Electrolytic, one 30 mfd. 450 volts, one 15 mfd. 450 volts, one 10 mfd. 450 volts, and one 20 mfd. 25 volts sections	36014	Transformer—Power transformer—105-120 volts, 50-60 cycle—less end shields
31382	Clip—Push button coil clip	33726	Washer—"C" washer for pulley, Stock No. 36056, and shutters, Stock Nos. 36049 and 36050
35965	Coil—"C" and 31 meter band antenna coil	35969	Washer—"C" washer for tuning shaft
35789	Coil—Oscillator coil	SPEAKER ASSEMBLIES (RL-70L4)	
35803	Coil—Push button coil (oscillator), less core	13867	Cap—Dust cap
35960	Condenser—2-gang variable tuning	36143	Coil—Field coil—550 ohms
35962	Control—Volume control and switch	11469	Coil—Neutralizing coil
32634	Cord—Band shutter cord (length required approx. 24 inches)	36145	Cone—Cone complete with voice coil
34662	Cord—Pointer drive cord (length required approx. 65 inches)	5039	Plug—4-prong male speaker plug
32634	Cord—Range switch cord (length required approx. 27 inches)	36146	Suspension—Metal cone suspension
32634	Cord—Tone shutter cord (length required approx. 22 inches)	36144	Transformer—Output transformer
35788	Core—Adjustable core and stud for oscillator coil	MISCELLANEOUS ASSEMBLIES	
35871	Core—Push button coil core and stud	36006	Bezel—Dial bezel
35794	Drum—Variable condenser drum—less calibrator	36005	Button—Push button—dark brown
35970	Indicator—Dial scale pointer	36411	Button—Push button—light brown
36048	Indicator—Range indicator	35998	Capacitor—Trimmer for loop
36047	Indicator—Tone indicator	36002	Coil—Loading coil for loop
14028	Nut—Clamping nut for air trimmer	36148	Decalcomania—Control panel decal
36046	Plate—Dial back plate and pulleys assembly—less tone and range shutters	36147	Dial—Glass dial scale
36009	Plug—2-prong male plug for loop cable	36004	Knob—Control knobs—dark brown
5040	Plug—4-contact female plug for speaker cable	36410	Knob—Control knobs—light brown
36055	Pulley—For tone control shaft	11765	Lamp—Dial lamp
36057	Pulley—Pulley and hub	11891	Lamp—Pilot lamp for tone and range indicators
36056	Pulley—Pulley and spacer	35997	Loop—"A" and "B" loop
36096	Resistor—250 ohms, 2 watts, flexible	36149	Marker—Station selector push button markers
14720	Resistor—1,000 ohms, 1/2 watt	35029	Mounting—Speaker mounting
30854	Resistor—1,500 ohms, 1/2 watt	33545	Shield—Lamp shield for indicator lamps
14024	Resistor—2,700 ohms, 1/2 watt	35999	Socket—Connecting socket for loop
14559	Resistor—10,000 ohms, 1/2 watt	36802	Spring—Conical spring for loop
35876	Resistor—10,000 ohms	14270	Spring—Retaining spring for control knobs
12695	Resistor—15,000 ohms, 1/2 watt	34053	Spring—Retaining spring for push button

MODEL 111-K

Chassis No. RC-513A

Eleven-Tube, Plus Magic Eye, Four-Band, AC, Superheterodyne

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast "A" 540-1,600 kc
 Medium Wave "B" 1.6-4.0 mc
 Short Wave "C" 5.8-18.0 mc
 SPREAD BAND 9.85-9.85 mc

INTERMEDIATE FREQUENCY 455 kc

PUSH-BUTTON RANGES

Two stations between approximately 540-1,030 kc
 Two stations between approximately 610-1,250 kc
 Two stations between approximately 740-1,430 kc
 Two stations between approximately 880-1,550 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Detector-Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6H6 2nd Detector, A.V.C.
- (5) RCA-6SF5 Audio
- (6) RCA-6SF5 Phase Inverter
- RCA-6K6GT (Four) Power Output
- (11) RCA-5U4-G Rectifier
- (12) RCA-6U5 Magic Eye

LOUDSPEAKER (RL-70L-4)

Type 12-inch Electrodynamic
 V.C. Impedance 2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles, 140 watts
 105-125 volts, 25-60 cycles, 140 watts

POWER OUTPUT RATING

Undistorted 10 watts
 Maximum 12 watts

Cabinet Dimensions (inches) 43½ 32½ 15
 Tuning Drive Ratio 15-1



880 TO 1650 KC	740 TO 1430 KC	610 TO 1250 KC	540 TO 1030 KC	
8	7	6	5	4
7	6	5	4	3
6	5	4	3	2
5	4	3	2	1
4	3	2	1	
3	2	1		
2	1			
1				

TRIMMER SCREWS
CORE RODS

Push Button Adjustment

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

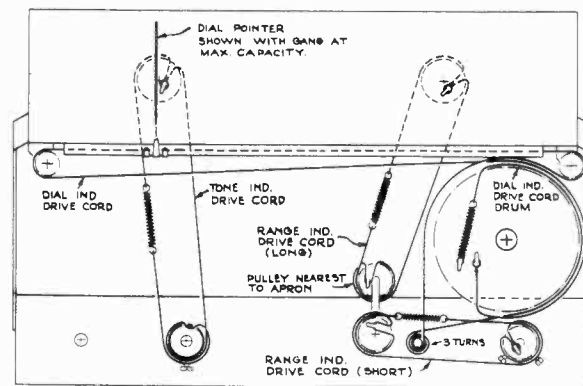
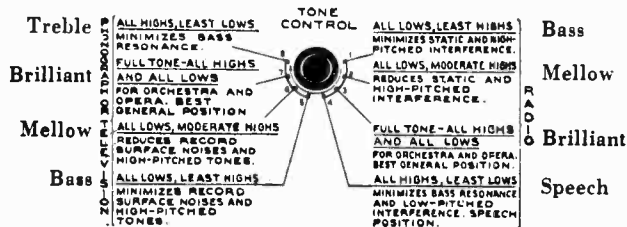
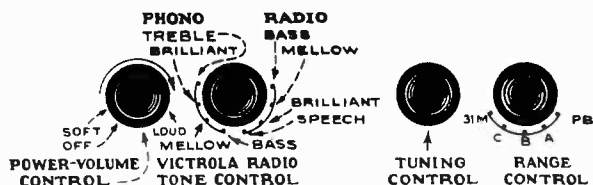
In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

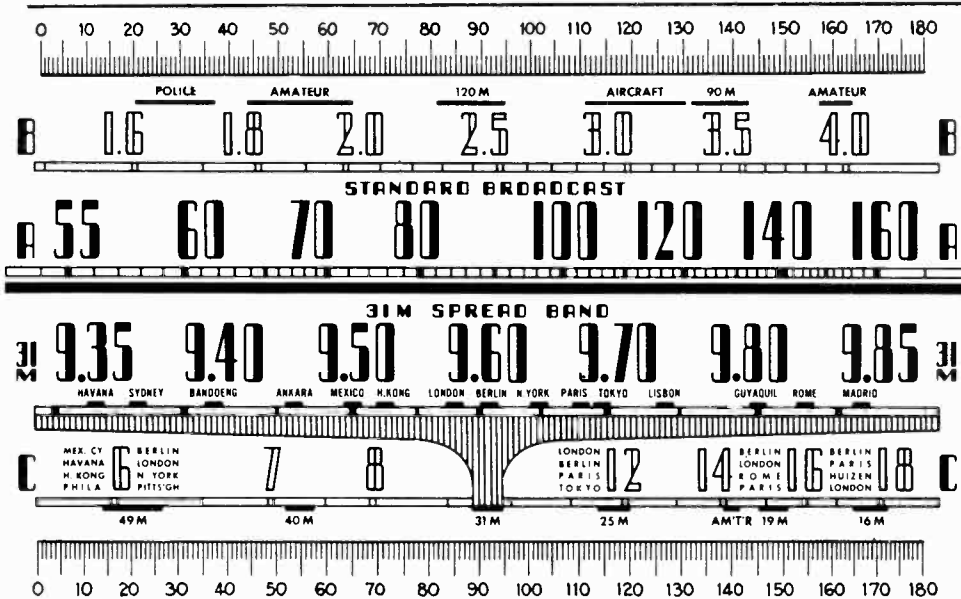
1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. Turn range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L-32) to receive the station.

4. After oscillator core is set correctly, adjust C63 for maximum output. Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Owing to the relatively high r-f gain, it may be found that a given station can be tuned in at several different settings of the magnetite-core oscillator push-button coils. In such cases, it is advisable to unscrew the loop push-button trimmers to minimum capacity before adjusting the magnetite-cores.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L9 or L10 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.





Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or Volt Ohmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration for Alignment.—The dial calibration for alignment purposes can be set up in two ways:

- The dial may be removed from the cabinet by sliding out the two spring pieces which clamp it in its mounting position. The condenser plates should then be turned into full mesh, the pointer adjusted to the scratch at the left end of the dial backing plate, and the dial placed on the frame so that its extreme left calibration mark coincides with the pointer. The dial may be held in place with scotch tape. In this manner the actual receiver dial is used for alignment. When alignment is finished, the scale should be replaced including the fibre light shields which are folded under the ends of the glass scale.
- A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 0 degree scale mark is horizontal with the gang in full mesh.

Pointer for Calibration Scale.—If method (2) is used, improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0 degree mark on the calibration scale when the plates are fully meshed.

Spread-Band Alignment.—Make final adjustment of "31-meter" trimmers during actual reception of a station of known frequency near 9.5 megacycles:

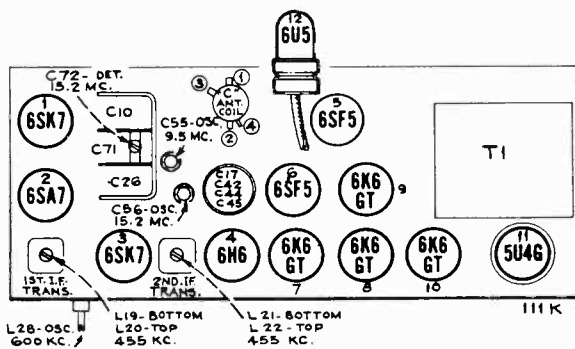
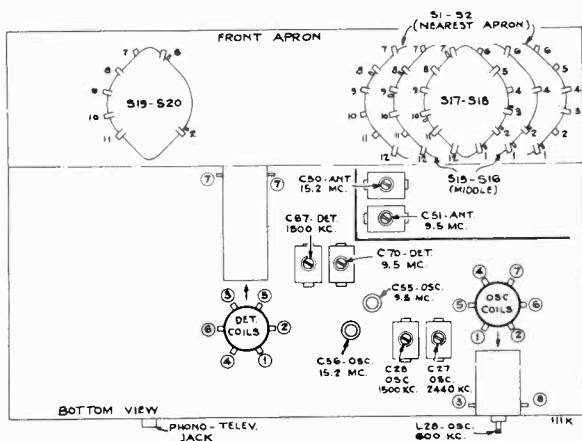
* Use minimum capacity peak if two peaks can be obtained.

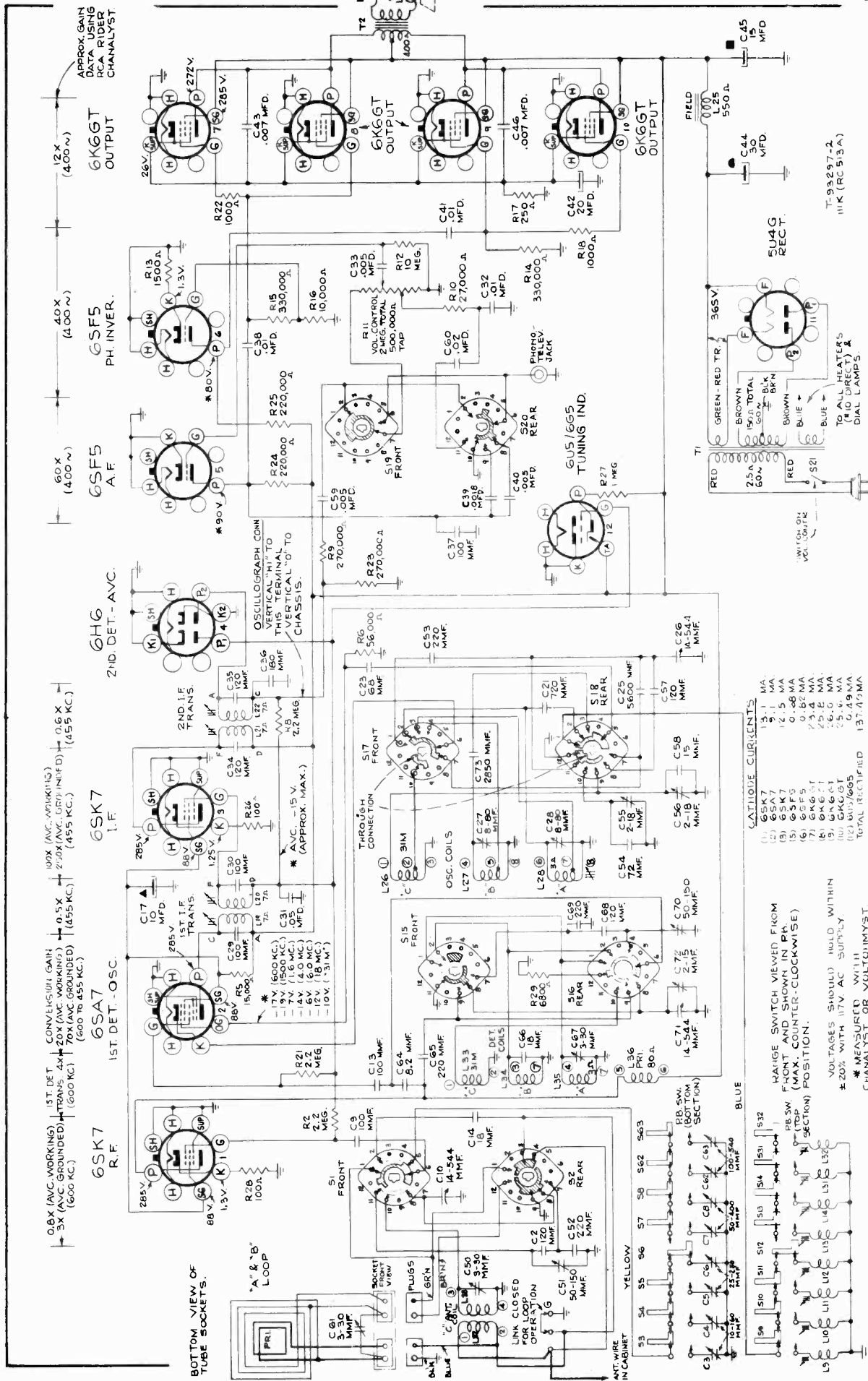
** Use maximum capacity peak if two peaks can be obtained.

NOTE: Oscillator tracks 455 kc above signal on all bands.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"C" band quiet point at 18 mc end of dial	L21 and L22 (2nd I-F trans.)
2	1st det. grid in series with .01 mfd.			L19 and L20 (1st I-F trans.)
3	Antenna terminal (A) in series with 47 mmfd. (link closed)	15.2 mc	15.2 mc (150°) "C" band	C56 (osc.)* C72 (det.)** C50 (ant.)* Rock in C72, C50
4		9.5 mc	9.5 mc (64°) "31M" band	C55 (osc.)* C70 (det.)** C51 (ant.)* Rock in C70, C51
5	Green lead on loop plug, in series with 300 ohms	2.44 mc	2.44 mc (90.5°) "B" band	C27 (osc.)
6		600 kc	600 kc (30.5°) "A" band	L28 (osc.)
7		1,500 kc	1,500 kc (160°) "A" band	C28 (osc.) C67 (det.)
8	Repeat steps 6 and 7.			
9	Fasten chassis in cabinet, close ant. link, adjust indicator to left-hand end of dial scales with gang closed.			
10	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	1,500 kc	1,500 kc signal "A" band	C61 (ant.) (on loop)
11		600 kc	600 kc "A" band	L28 (osc.) Rock in
12	Repeat steps 10 and 11.			

NOTE: C72, C70, C67 used on Model 111K only.





Failure to Oscillate on Push-Button Tuning:

Should a case of non-oscillation on any push-button range be experienced, check the oscillator grid leak to assure that it is 56,000 ohms. Some sets employed a 33,000 ohm leak which was occasionally found troublesome with low line voltage.

Low-Frequency Oscillator Push-Button Coil:

To ensure low-frequency coverage on the push-button oscillator coils in these models, a high-inductance coil, Stock No. 37133 is used for the 540-1,030 kc push-button-oscillator ranges.

CATHODE CURRENTS

(1) 6SK7	13.1 MA
(2) 6SA7	9.1 MA
(3) 6K6GT	6.28 MA
(4) 6SF5	0.80 MA
(5) 6K6GT	23.4 MA
(6) 6K6GT	26.0 MA
(7) 6K6GT	26.0 MA
(8) 6K6GT	26.0 MA
(9) 6K6GT	26.0 MA
(10) 6K6GT	26.0 MA
(11) 6K6GT	26.0 MA
(12) 6K6GT	26.0 MA
(13) 6K6GT	26.0 MA
(14) 6K6GT	26.0 MA
(15) 6K6GT	26.0 MA
(16) 6K6GT	26.0 MA
(17) 6K6GT	26.0 MA
(18) 6K6GT	26.0 MA
(19) 6K6GT	26.0 MA
(20) 6K6GT	26.0 MA
(21) 6K6GT	26.0 MA
(22) 6K6GT	26.0 MA
(23) 6K6GT	26.0 MA
(24) 6K6GT	26.0 MA
(25) 6K6GT	26.0 MA
(26) 6K6GT	26.0 MA
(27) 6K6GT	26.0 MA
(28) 6K6GT	26.0 MA
(29) 6K6GT	26.0 MA
(30) 6K6GT	26.0 MA
(31) 6K6GT	26.0 MA
(32) 6K6GT	26.0 MA
(33) 6K6GT	26.0 MA
(34) 6K6GT	26.0 MA
(35) 6K6GT	26.0 MA
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(61) 6K6GT	26.0 MA
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(63) 6K6GT	26.0 MA
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(75) 6K6GT	26.0 MA
(76) 6K6GT	26.0 MA
(77) 6K6GT	26.0 MA
(78) 6K6GT	26.0 MA
(79) 6K6GT	26.0 MA
(80) 6K6GT	26.0 MA
(81) 6K6GT	26.0 MA
(82) 6K6GT	26.0 MA
(83) 6K6GT	26.0 MA
(84) 6K6GT	26.0 MA
(85) 6K6GT	26.0 MA
(86) 6K6GT	26.0 MA
(87) 6K6GT	26.0 MA
(88) 6K6GT	26.0 MA
(89) 6K6GT	26.0 MA
(90) 6K6GT	26.0 MA
(91) 6K6GT	26.0 MA
(92) 6K6GT	26.0 MA
(93) 6K6GT	26.0 MA
(94) 6K6GT	26.0 MA
(95) 6K6GT	26.0 MA
(96) 6K6GT	26.0 MA
(97) 6K6GT	26.0 MA
(98) 6K6GT	26.0 MA
(99) 6K6GT	26.0 MA
(100) 6K6GT	26.0 MA

VOLTAGES SHOULD BE MEASURED WITH CHANNELYST OR VOLTCHEMIST

± 20% WITH 117V AC SUPPLY

LINK CLOSED FOR LOOP OPERATION

ART. WIRE IN CABINET

YELLOW S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35 S36 S37 S38 S39 S40 S41 S42 S43 S44 S45 S46 S47 S48 S49 S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60 S61 S62 S63 S64 S65 S66 S67 S68 S69 S70 S71 S72 S73 S74 S75 S76 S77 S78 S79 S80 S81 S82 S83 S84 S85 S86 S87 S88 S89 S90 S91 S92 S93 S94 S95 S96 S97 S98 S99 S100

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-513-A)			
35988	Board—Antenna-Ground terminal board	12265	Resistor—8,800 ohms, 1/2 watt
36060	Bracket—Bracket and stud to hold shutter	14559	Resistor—10,000 ohms, 1/2 watt
35974	Bracket—Dial support assembly	35595	Resistor—15,000 ohms, 3/4 watt
35795	Calibrator—Drive drum calibrator	12412	Resistor—47,000 ohms, 1/2 watt
36051	Capacitor—Air trimmer—2-18 mmfd.	12286	Resistor—56,000 ohms, 1/2 watt
13001	Capacitor—8-2 mmfd.	12264	Resistor—220,000 ohms, 1/2 watt
36169	Capacitor—Trimmer capacitor—2 sections of 8-80 mmfd. each	12199	Resistor—270,000 ohms, 1/2 watt
36165	Capacitor—Trimmer capacitor comprising 2 sections of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 2 sections of 100-540 mmfd.	14983	Resistor—330,000 ohms, 1/2 watt
12896	Capacitor—15 mmfd.	12013	Resistor—1 meg., 1/10 watt
12722	Capacitor—18 mmfd.	12679	Resistor—2.2 meg., 1/2 watt
36168	Capacitor—Trimmer capacitor—1 section 50-150 mmfd., and 1 section 3-30 mmfd.	13601	Resistor—10 meg., 1/2 watt
36803	Capacitor—65 mmfd., ceramic	31482	Screw—No. 8-32 square head set screw for pulley Stock No. 36055
13057	Capacitor—68 mmfd.	14350	Screw—No. 8-32 square head set screw for pulley Stock No. 36057 and drive drum Stock No. 35795
12720	Capacitor—100 mmfd.	35988	Shaft—Tuning knob shaft and pulley
31706	Capacitor—120 mmfd.	36059	Shield—Bottom shield for 60 cycle transformer
13003	Capacitor—180 mmfd.	36058	Shield—Top shield for 60 cycle transformer
12694	Capacitor—220 mmfd.	36050	Shutter—Range shutter
35877	Capacitor—720 mmfd.	36049	Shutter—Tone shutter
34787	Capacitor—2,850 mmfd.	31364	Socket—Dial lamp socket
13895	Capacitor—5,600 mmfd.	35787	Socket—Phono input socket
34508	Capacitor—.0018 mfd.	31251	Socket—Tube socket
33584	Capacitor—.005 mfd.	13871	Socket—Tuning indicator socket
5148	Capacitor—.007 mfd.	31418	Spring—Indicator drive cord tension spring
4937	Capacitor—.01 mfd.	36159	Switch—Push button switch—less coils and trimmers
36248	Capacitor—.02 mfd.	36167	Switch—Range switch
32787	Capacitor—.05 mfd.	35963	Switch—Tone switch
36045	Capacitor—Electrolytic—one 30 mfd. 450 volts, one 15 mfd. 450 volts, one 10 mfd. 450 volts, and one 20 mfd. 25 volts sections	35636	Transformer—First I-F transformer
31382	Clip—Push button coil clip	35790	Transformer—Second I-F transformer
34285	Clip—Tuning indicator clip and screw	36164	Transformer—Power transformer—105-120 volts, 25-60 cycles
35965	Coil—"C" and 31-meter band antenna coil	36044	Transformer—Power transformer—105-120 volts, 50-60 cycles—less end shields
35789	Coil—Oscillator coil	33726	Washer—"C" washer for pulley Stock No. 36056 and shutters Stock Nos. 36049 and 36060
35803	Coil—Push button coil (oscillator), less core	35969	Washer—"C" washer for tuning shaft
36170	Coil—R.F. coil	SPEAKER ASSEMBLIES (RL-70L-4)	
36158	Condenser—3-gang variable tuning	13867	Cap—Dust cap
35962	Control—Volume control and switch	36143	Coil—Field coil—550 ohms
32634	Cord—Band shutter cord (Length required approximately 24 inches)	11469	Coil—Neutralizing coil
34662	Cord—Pointer drive cord (Length required approximately 65 inches)	36145	Cone—Cone complete with voice coil
32634	Cord—Range switch cord (Length required approximately 27 inches)	5039	Plug—4-prong male speaker plug
32634	Cord—Tone shutter cord (Length required approximately 22 inches)	36146	Suspension—Metal cone suspension
35788	Core—Adjustable core and stud for oscillator coil	36144	Transformer—Output transformer
35871	Core—Push button coil core and stud	MISCELLANEOUS ASSEMBLIES	
35794	Drum—Variable condenser drum—less calibrator	36005	Button—Push button—dark brown
35970	Indicator—Dial scale pointer	36411	Button—Push button—light brown
36048	Indicator—Range indicator	35998	Capacitor—Trimmer for loop
36047	Indicator—Tone indicator	36002	Coil—Loading coil for loop
14028	Nut—Clamping nut for air trimmer	36148	Decalcomania—Control panel decal
36166	Plate—Dial back plate and pulleys—less tone and range shutters	36172	Dial—Glass dial scale
36009	Plug—2-prong male plug for loop cable	36604	Escutcheon—Dial scale escutcheon
5040	Plug—4-contact female plug for speaker cable	36004	Knob—Control knobs—dark brown
36055	Pulley—Pulley for tone control shaft	36410	Knob—Control knobs—light brown
36057	Pulley—Pulley and hub	11765	Lamp—Dial lamp
36056	Pulley—Pulley and spacer	11891	Lamp—Pilot lamp for tone and range indicators
14439	Resistor—100 ohms, 1/2 watt	36171	Loop—"A" and "B" loop
36098	Resistor—250 ohms, 2 watts—flexible	36149	Marker—Station selector push button markers
14720	Resistor—1,000 ohms, 1/2 watt	35029	Mounting—Speaker mounting
14499	Resistor—1,500 ohms, 1/2 watt	33545	Shield—Lamp shield for indicator lamps
14024	Resistor—2,700 ohms, 1/2 watt	35999	Socket—Connecting socket for loop
		36802	Spring—Conical spring for loop
		14270	Spring—Retaining spring for control knobs
		34053	Spring—Retaining spring for push button

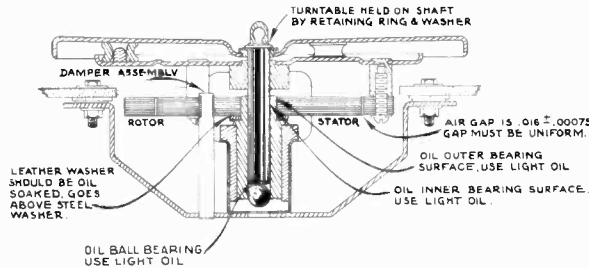
MODELS U-111, and U-112

Chassis No. RC-341 RC-341C
RC-341M RC-341CM

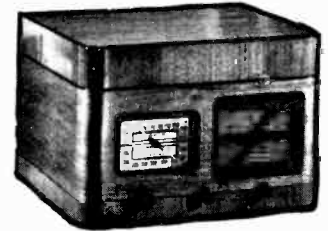
Five-Tube, Single-Band, A-C, Victrolas



Model U-111



Motor Details



Model U-112

Electrical Specifications RC-341

Frequency Range..... 540-1,720 kc
R-F Alignment Frequency..... 1,500 kc (osc., ant.)
Intermediate Frequency..... 455 kc

RADIOTRON COMPLEMENT

(1) RCA-6A8..... First Det., and Osc.
(2) RCA-6K7..... Intermediate Amp.
(3) RCA-6Q7-G..... Second Det., A-F, and A.V.C.
(4) RCA-6K6-G..... Power Output
(5) RCA-5Y3-G..... Rectifier

Dial Lamp..... Mazda No. 44, 6.3 volts, 0.25 amps.

POWER OUTPUT (125-volt, a-c supply)

Undistorted..... 2.0 watts
Maximum..... 3.5 watts

LOUDSPEAKER

Type..... 5-inch electrodynamic
V-C impedance..... 5 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A-6..... 105-125 volts, 60 cycles, 80 watts
Rating A-5..... 105-125 volts, 50 cycles, 80 watts

PHONOGRAPH..... Synchronous (manual starting)

Records..... 10-inch and 12-inch, 78 r.p.m.
Pickup..... Crystal, 80,000 ohms at 1,000 c.p.s.
Average Output of Pickup..... 1½-volts, at 1,000 c.p.s.
across ¼ meg. load

MODELS U-112 AND LATE U-111

Model U-112 is a five-tube superheterodyne table-type Victrola similar to Model U-111, except that the cabinet is enlarged to permit playing 12-inch records with the lid closed. The cabinet dimensions are—Height 11¼ inches, Width 15¼ inches, Depth 13¼ inches. The shipping weight is approximately 21 pounds.

The service data for Model U-111 applies to Model U-112, with the following exceptions:

- The rectifier tube is RCA-5W4 in U-112
- A 12,000 ohm resistor (R13) is added in series with C22 across the pickup in Model U-112.
- Model U-112 is made in three power supply ratings:
Rating A-6..... 105-125 volts, 60 cycles, 80 watts
Rating A-5..... 105-125 volts, 50 cycles, 80 watts
Rating B-2..... 105-125 volts, 25 cycles, 80 watts
- The 25 cycle power transformer for U-112 has the following d-c resistance:
Primary..... 13.7 ohms
High-voltage secondary..... 1,190 ohms

- The speaker in Model U-112 is marked 84265-4 and has the following d-c resistances:
Field coil..... 1,300 ohms
Primary of output transformer..... 420 ohms
Voice coil..... 2 ohms

Later production of both the U-111 (RC-341M) and U-112 (RC-341CM) incorporate the following changes:

- The antenna coil is changed from Stock No. 30894 (1 ohm primary) to No. 32338 (35 ohm primary). No. 32338 may be used to replace No. 30894.
- A 270 mmf. capacitor (C23) is connected from the triode plate of the 6Q7-G to chassis.

The alignment procedure for Model U-112 is the same as for U-111. The following additional alignment data applies to both models:

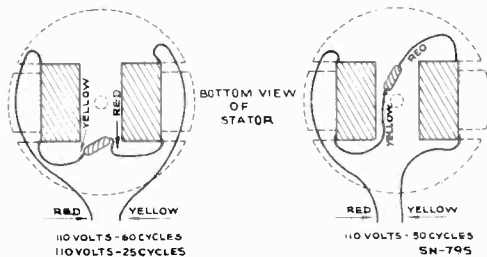
On r-f alignment, turn the gang condenser to minimum (all the way out of mesh), and with the test-oscillator tuned to 1,720 kc, align the oscillator trimmer C18. Adjust the test-oscillator to 1,500 kc, tune the receiver to the 1,500 kc signal, and align the antenna trimmer C3 for maximum output.

Hum and Vibration.—A small amount of hum when starting, decreasing to a negligible amount when running, is normal. If excessive vibration occurs it may be due to:

- Insufficient lubrication, or any failure that will cause binding.
- Leather washer not oiled. (Check to make certain that the leather washer is above the steel washer.)

Precautionary Lead Dress

- Dress power leads to phono motor switch away from the audio wiring.
- Dress power cord and motor cable to end of chassis (free from volume control wiring).
- Dress pilot lamp lead away from 6Q7G grid.
- Capacitors C13 and C15 (located at volume control) must be dressed at right angles to each other and as far apart as possible.



D-C Resistance of each coil is as follows:
110 volts, 50 cycles, and 60 cycles..... 82 ohms
110 volts, 25 cycles..... 250 ohms

Alignment Procedure

Cathode-ray Alignment is the preferable method.

Output meter alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

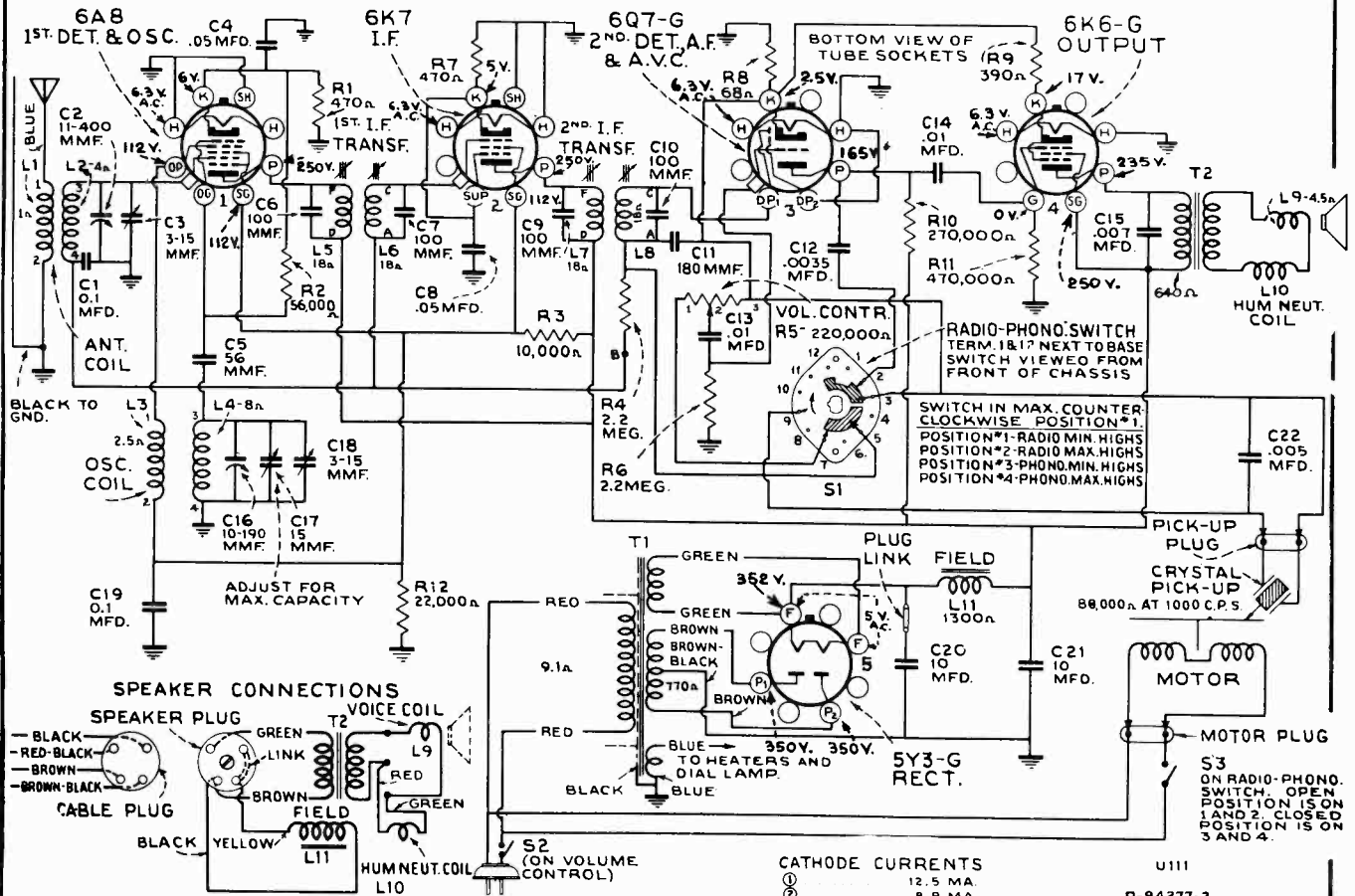
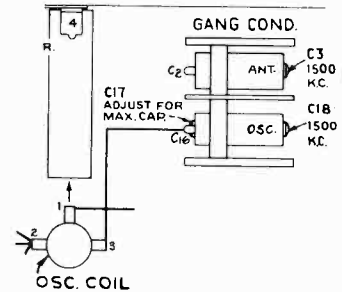
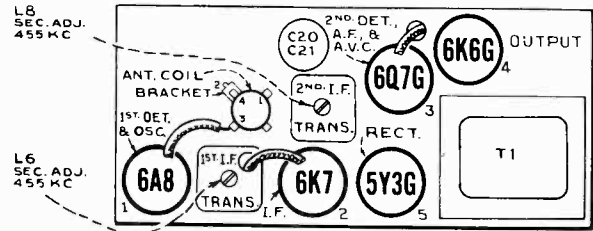
Test-oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Pre-setting dial.—With gang condenser in full mesh, move dial pointer to coincide with horizontal lines. This is a friction adjustment.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F Transformer)
No. 2	6A8 1st-det. grid cap, in series with .01 mfd.	455 kc		L5 and L6 (1st I-F Transformer)
No. 3	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C18* (osc.) C3 (antenna)

* Trimmer C17 on gang condenser should be screwed clockwise for maximum capacity before adjusting C18.



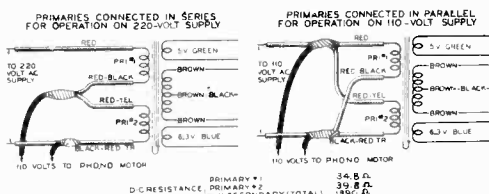
* Note: Values with star (*) are operating voltages.
Values not starred are actual measured voltages.
Measurements made to chassis unless otherwise indicated.

Values should hold within approximately $\pm 20\%$ for 117-volt 60-cycle supply.

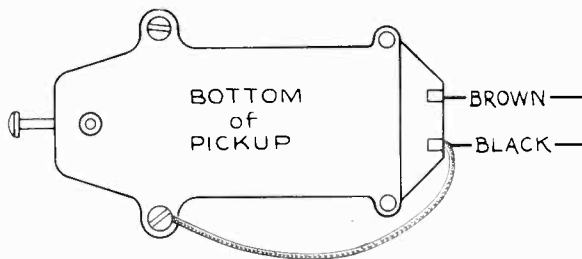
CATHODE CURRENTS

①	12.5 MA.
②	8.9 MA.
③	.34 MA.
④	37.5 MA.
TOTAL RECTIFIED + B CURRENT 65 MA.	

U111
P-84277-2



Connections for No. 30888 Replacement Transformer



REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MODEL U-111		PICKUP AND ARM ASSEMBLIES	
RECEIVER ASSEMBLIES		31049	Base—Pickup arm pivot shaft and base assembly
4287	Body—Pickup cable connector body	4286	Bushing—Bushing and ferrule insert for connector cap
31077	Bracket—Dial bracket, and indicator shaft and bearing assembly	4288	Cap—Pickup cable connector cap
4286	Bushing—Pickup cable connector bushing and ferrule insert	31050	Crystal—Pickup crystal and needle screw
11350	Cap—Grid connector cap	9842	Pickup Crystal and arm complete with mounting—less connector
12723	Capacitor—56 mmfd. (C5)	12539	Screw—Pickup needle screw
30904	Capacitor—100 mmfd. (C6, C7, C9, C10)	REPRODUCER ASSEMBLIES	
13003	Capacitor—180 mmfd. (C11)	(Speaker 84265-1)	
30303	Capacitor—.0035 mfd. (C12)	31110	Cone—Reproducer cone and voice coil (L9)
4838	Capacitor—.005 mfd. (C22)	5039	Plug—4-prong male plug for reproducer
5148	Capacitor—.007 mfd. (C15)	31109	Reproducer complete
14393	Capacitor—.01 mfd. (C13, C14)	31109	Transformer—Output transformer (T2)
30882	Capacitor—.05 mfd. (C4, C8)	MISCELLANEOUS ASSEMBLIES	
30899	Capacitor—.01 mfd. (C1, C19)	30901	Crystal—Station selector dial crystal
31099	Capacitor—Comprising 2 sections each 10 mfd. (C20, C21)	6113	Foot—Felt foot for cabinet
30894	Coil—Antenna coil (L1, L2)	13085	Hinge—Cabinet lid hinge
31098	Coil—Oscillator coil (L3, L4)	30863	Knob—Station selector, volume control or radio-record switch knob
31097	Condenser—2-gang variable tuning condenser (C2, C3, C16, C17, C18)	31053	Mounting—Motor mounting screw assembly complete
30877	Cord—Indicator drive cord	31054	Mounting—Pickup arm mounting nuts, washer and rubber spacer
30905	Core—Adjustable core for i-f transformers	30870	Plug—2-contact male plug for motor leads
31078	Dial—Station selector dial scale and holder	31079	Screw—Chassis mounting screw and washer
30896	Indicator—Station selector indicator pointer	30900	Spring—Retaining spring for knob Stock No. 30863
11891	Lamp—Dial lamp	31164	Support—Cabinet lid support
14281	Resistor—68 ohms, 1/4 watt (R8)	MODEL U-112 LATE U-111	
30539	Resistor—390 ohms, 1 watt (R9)	CHASSIS ASSEMBLIES	
30546	Resistor—470 ohms, 1/4 watt (R1, R7)	12488	Capacitor—270 mmfd. (C23) (Late U-111 and late U-112)
31106	Resistor—10,000 ohms, wire wound, 3 watt (R3)	32338	Coil—Antenna coil (L1 and L2) (Late U-111 and late U-112)
30736	Resistor—22,000 ohms, 1 watt (R12)	30128	Resistor—12,000 ohms, 1/4 watt (R13) (U-112 only)
12286	Resistor—56,000 ohms, 1/4 watt (R2)	30888	Transformer—Power transformer, 105-125, 200-250 volts, 50-60 cycles
12199	Resistor—270,000 ohms, 1/4 watt (R10)	31445	Transformer—Power transformer, 105-125 volts, 25-60 cycles (U-112)
12285	Resistor—470,000 ohms, 1/4 watt (R11)	25-CYCLE MOTOR ASSEMBLIES (U-112)	
12679	Resistor—2.2 meg., 1/4 watt (R4, R6)	32077	Motor—110 volts, 25 cycles, less mounting
30868	Socket—2-contact female socket for motor power cable	32073	Rotor—Turntable and rotor laminations, complete for 25-cycle motor
5040	Socket—4-contact female socket for speaker cable	32072	Stator—Stator, stator coils, laminations, and weights for 110-volt, 25-cycle motor
31364	Socket—Dial lamp socket assembly	32076	Turntable—Finished turntable top plate for 25-cycle rotor
11196	Socket—Radiotron socket	32074	Weights—One upper and one lower weight for 25-cycle stator (2 of each required)
30631	Spring—Indicator drive cord tension spring	32075	Weight—Lead ring for 25-cycle rotor
4284	Spring—Pickup cable connector spring	SPEAKER ASSEMBLIES (U-112)	
31096	Switch—Radio-record switch (S1, S3)	(Speaker 84265-4)	
30902	Transformer—First i-f transformer (L5, L6, C6, C7)	32503	Cone—Cone for speaker marked 84265-4
30903	Transformer—Second i-f transformer (L7, L8, C9, C10)	32504	Transformer—Output transformer for speaker marked 84265-4
30891	Volume Control and power switch (R5, S2)	5039	Plug—4-prong male plug for reproducer
4285	Washer—Pickup cable connector insulating washer	For complete speaker, order Stock No. 31109 (84265-1), Replacement Parts for Stock No. 31109 are listed in Service Data for U-111.	
MOTOR ASSEMBLIES		See U-111 Service Data for all Replacement Parts not listed here.	
31045	Base—Motor support, damper, and bearing cup assembly		
31046	Bearing—Bearing assembly		
31041	Cap—Rubber spindle cap		
31047	Cushion—Rubber cushion for bearing		
31034	Motor—110 volt, 50 cycle—less mounting (M1)		
9841	Motor—110 volt, 60 cycle—complete with mounting (M1)		
31040	Mountings—Turntable top rubber mountings sufficient for one turntable		
31037	Rotor—Turntable and rotor lamination assembly complete for 50 cycle operation		
31036	Rotor—Turntable and rotor lamination assembly complete for 60 cycle operation		
31043	Stator—Stator assembly complete with coils and laminations for 50 cycle operation		
31042	Stator—Stator assembly comprising coils and laminations for 60 cycle operation		
31039	Turntable—Finished turntable top plate only—less rubber mountings (50-60 cycle only)		
4083	Washer—Leather washer		
14231	Washer—Metal spacing washer		

MODEL U-115

CHASSIS No. RC-348E

Six-Tube, Electric-Tuning, Single-Band, A-C, Superheterodyne Victrola

Electrical and Mechanical Specifications

Frequency Range.....			540-1,720 kc
PUSH BUTTON RANGES:	RC-348E	RC-348E "MOD"	RC-348E "M"
Button No. 1 (left).....	550-980 kc	550-980 kc	550-980 kc
Button No. 2.....	650-1,080 kc	550-980 kc	550-980 kc
Button No. 3.....	650-1,080 kc	650-1,080 kc	690-1,225 kc
Button No. 4.....	850-1,500 kc	850-1,500 kc	850-1,500 kc
Button No. 5.....	850-1,500 kc	850-1,500 kc	850-1,500 kc
Intermediate Frequency.....			455 kc

TUBE COMPLEMENT

- (1) RCA-6A8-G..... First-Det., Oscillator
- (2) RCA-6K7..... I.F. Amplifier
- (3) RCA-6H6..... 2nd-Det. and A.V.C.
- (4) RCA-6F5..... Audio Voltage Amplifier
- (5) RCA-6K6-G..... Power Output
- (6) RCA-5Y3-G..... Full-Wave Rectifier
- Pilot Lamp (1)..... Mazda 44, 6.3 volts, .25 amp.

- C-6..... 105-125, 200-250 volts, 60 cycles, 100 watts
- C-5..... 105-125, 200-250 volts, 50 cycles, 100 watts

LOUDSPEAKER (84327-1)

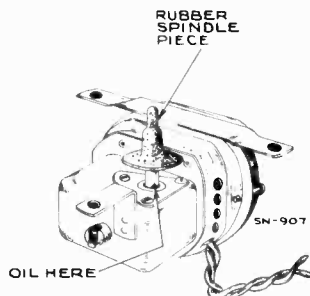
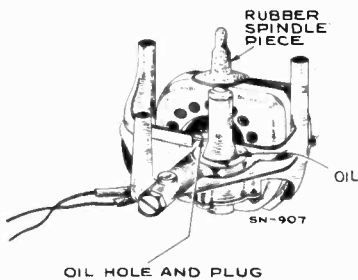
- Type..... 6-inch electrodynamic
- Voice-coil Impedance at 400 cycles..... 2.6 ohms

POWER SUPPLY RATINGS

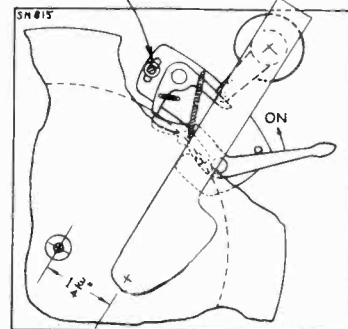
- A-6..... 105-125 volts, 60 cycles, 100 watts
- A-5..... 105-125 volts, 50 cycles, 100 watts
- B-2..... 105-125 volts, 25 cycles, 100 watts

- | | Height | Width | Depth |
|---------------------------------------|---------------|------------------------|--------------|
| Cabinet Dimensions (inches)..... | 14-3/16 | 16-13/16 | 13 1/4 |
| Chassis Base Dimensions (inches)..... | 3 | 11 1/4 | 5 |
| Over-all Chassis Height..... | | | 9 1/4 inches |
| Weight..... | 27 lbs. (net) | 34 1/2 lbs. (shipping) | |
| Tuning Drive Ratio..... | 6 to 1 | | |

Victrola Mechanism



ADJUST SWITCH TO TRIP WHEN NEEDLE IS ON 1-3/4" RADIUS FROM C. OF MOTOR SPINDLE



Motors Used in Model U-115

At left, cast-frame type, Drawing No. 84430
At right, drawn-metal type, Drawing No. 84484

The crystal pickup is sealed in a metal case as protection against extreme changes of climate. If failure occurs, do not attempt to repair the unit, but install a new crystal unit.

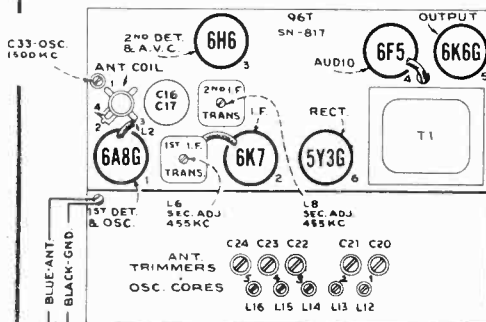
The phonograph motor is a self-starting constant-speed induction type. Two styles of motor are employed: One style (drawing No. 84430) has a cast frame and mounts from below the motorboard. The other style (drawing No. 84484) has a drawn metal case, and mounts from top of motorboard through a cutout. The two types are shown in the accompanying illustrations.

Motor Lubrication.—Apply a few drops of light machine oil to the spindle bearing and oil hole every six months.

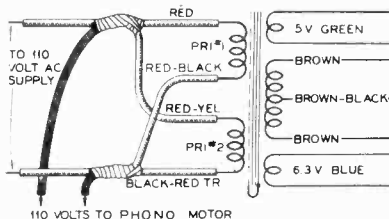
The motor spindle is tapered, and a conical rubber piece fits snugly on the spindle. The hole in the turntable bushing is tapered to fit the rubber. This provides an excellent self-centering floating mounting.

A metal washer is placed on the spindle under the rubber piece. The washer has ears on the under side which fit over a pin that projects through the spindle.

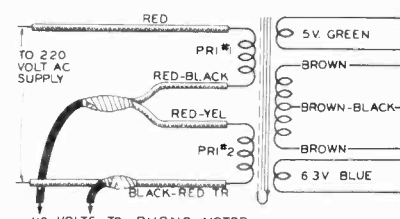
The automatic stop should be adjusted so that the lever will snap to the "off" position when the pickup needle is 1 3/4 inches from the center line of the spindle.



PRIMARIES CONNECTED IN PARALLEL FOR OPERATION ON 110-VOLT SUPPLY

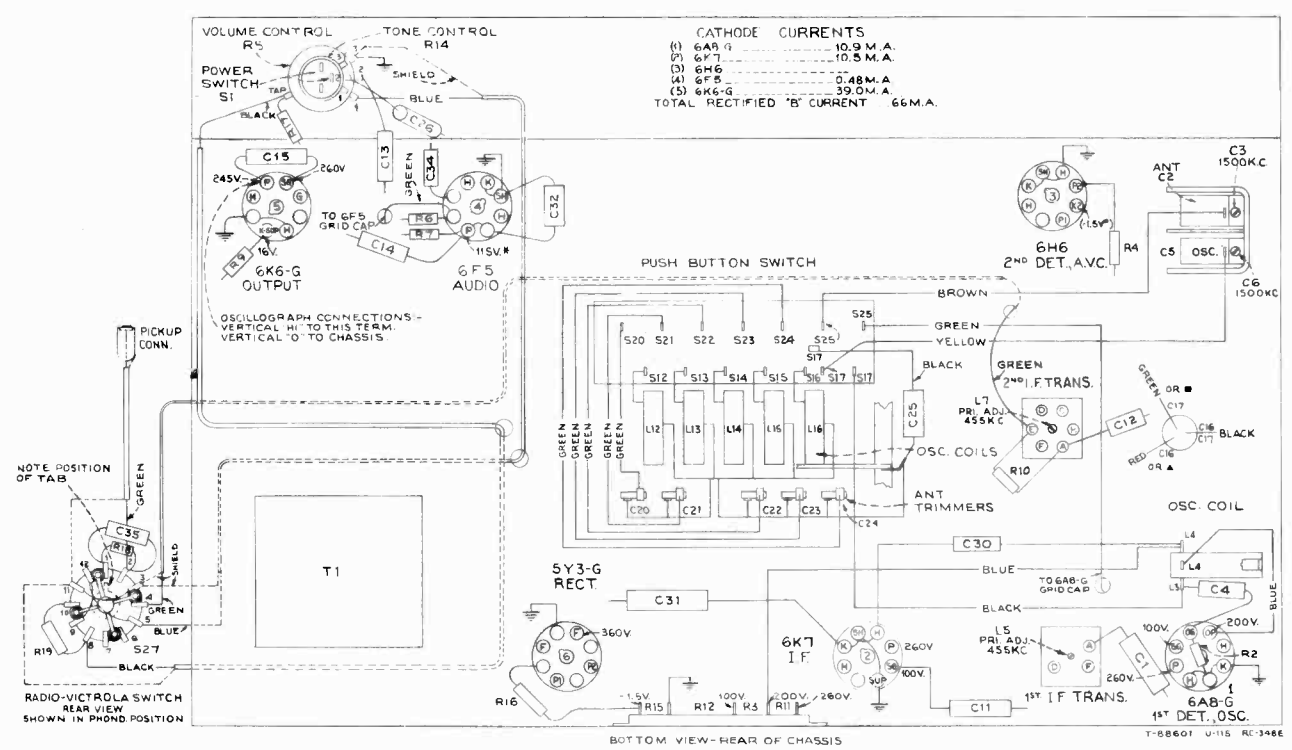
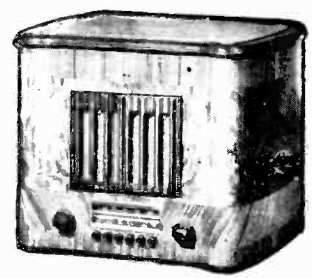
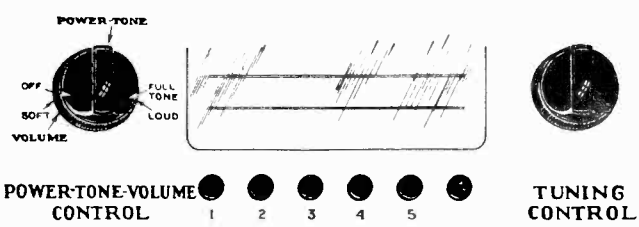


PRIMARIES CONNECTED IN SERIES FOR OPERATION ON 220-VOLT SUPPLY



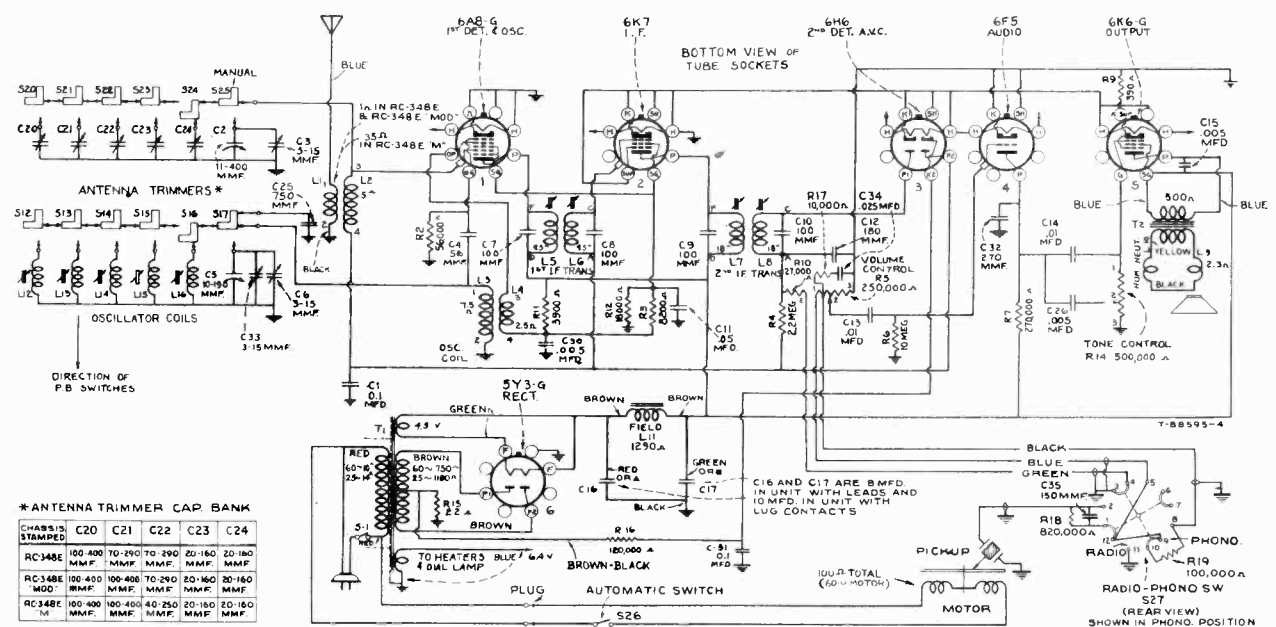
D-C RESISTANCE: PRIMARY #1 13 Ω, PRIMARY #2 16 Ω, H.V. SECONDARY (TOTAL) 550 Ω

REFER TO MODEL 95T5 FOR ALIGNMENT PROCEDURE



Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



Precautionary Lead Dress.—(1) Dress green lead from antenna coil to switch away from the chassis and gang. (2) Dress lead from 2nd I.F. transformer to volume control away from other leads. (3) Ground bus from 6H6 socket must be close to chassis. (4) Dress leads away from oscillator coil adjustment screws. (5) Dress power transformer primary leads toward left-hand end of chassis. (6) Dress plate lead to output transformer close to chassis.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-348E)			
32136	Cable—Shielded cable and female plug for phono-graph input	32135	Motor—105-125 volts, 60 cycle
12723	Capacitor—56 mmfd. (C4)	32177	Shaft—Turntable spindle shaft and fibre gear (Motor No. 84484-2, 3, or 4)
30904	Capacitor—100 mmfd. (C7, C8, C9, C10)	32336	Field—Motor field coils and laminations, 110 volts, 60 cycle (For Motor 84484-2)
12725	Capacitor—150 mmfd. (C35)	32650	Field—Motor field coils and laminations, 110 volts, 50 cycle (For Motor 844.4-3)
13003	Capacitor—180 mmfd. (C12)	32652	Field—Motor field coils and laminations, 110 volts, 25 cycle (For Motor 84484-4)
12488	Capacitor—270 mmfd. (C32)	32558	Motor—105-125 volts, 60 cycle (84484-2)
31435	Capacitor—750 mmfd. (C25)	32637	Motor—105-125 volts, 50 cycle (84484-3)
4838	Capacitor—.005 mfd. (C15, C26, C30)	32838	Motor—105-125 volts, 25 cycle (84484-4)
14393	Capacitor—.01 mfd. (C13, C14)	32337	Shaft—Turntable spindle shaft and fibre gear—60 cycle (For Motor 84484-2)
4870	Capacitor—.025 mfd. (C34)	32851	Shaft—Turntable spindle shaft and fibre gear—50 cycle
4886	Capacitor—.05 mfd. (C11)	32853	Shaft—Turntable spindle shaft and fibre gear—25 cycle
30899	Capacitor—0.1 mfd. (C1, C31)	PICKUP AND ARM ASSEMBLIES	
31424	Capacitor—Comprising 2 sections 8 mfd. each (C16, C17) (This type has leads)	31212	Base—Pickup arm pivot shaft, trip lever, and mounting base assembly
32342	Capacitor—Comprising 2 sections 10 mfd. each (C16, C17) (This type has terminals)	32138	Cable—Shielded cable and male plug for pickup arm
31382	Clip—Oscillator coil and core mounting clip	31050	Crystal—Pickup crystal and needle screw
32338	Coil—Antenna coil (L1, L2)	32137	Pickup and arm complete
31098	Coil—Oscillator coil (L3, L4)	12539	Screw—Pickup needle screw
31422	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C33)	SPEAKER ASSEMBLIES	
32355	Control—Volume control, tone control and power switch	31443	Cone—Speaker cone and voice coil (L9)—for Speaker No. 84327-1
30877	Cord—Indicator drive cord	31683	Speaker complete (No. 84327-1)
30905	Core—Adjustable core for i-f transformers	31477	Transformer—Output transformer (T2) (For Speaker No. 84327-1)
31386	Core—Adjustable core and stud for oscillator coils	32586	Cone—Speaker cone and voice coil for Speaker No. 84327-3
31421	Drum—Variable condenser drive cord drum	32587	Coil—Speaker field coil for Speaker No. 84327-3
31420	Indicator—Station selector indicator pointer	32588	Transformer—Output transformer for Speaker No. 84327-3
11891	Lamp—Dial lamp	MISCELLANEOUS ASSEMBLIES	
31419	Plate—Dial color plate	14803	Brake—Automatic brake complete
30868	Plug—2-contact female plug for motor power leads	31428	Button—Station selector switch push button
31373	Pulley—Indicator drive cord pulley	31487	Clip—Spring clip to hold dial
31425	Resistor—Voltage divider—comprising one 22-ohm, one 18,000-ohm, one 8,200-ohm and one 3,900-ohm sections (R3, R11, R12, R15)	31464	Damper—One rubber cap for motor spindle, and one metal damper plate
31388	Resistor—390 ohms, 1 watt (R9)	31429	Dial—Station selector glass dial
14559	Resistor—10,000 ohms, 1/2 watt (R17)	31095	Disc—10 protective discs for call letter markers
12738	Resistor—27,000 ohms, 1/2 watt (R10)	31687	Escutcheon—Tuning dial escutcheon
12286	Resistor—56,000 ohms, 1/2 watt (R2)	32140	Hinge—Cabinet lid hinge
3252	Resistor—100,000 ohms, 1/2 watt (R19)	31355	Knob—Station selector or radio-record switch knob (small)
13734	Resistor—120,000 ohms, 1/2 watt (R16)	31391	Knob—Tone control and power switch knob (small)
12199	Resistor—270,000 ohms, 1/2 watt (R7)	30773	Knob—Volume control or station selector knob (large)
30963	Resistor—820,000 ohms, 1/2 watt (R18)	30991	Markers—Push button call letter markers
12679	Resistor—2.2 meg., 1/2 watt (R4)	31054	Mounting—Pickup arm rubber mounting, washers, and nut
13601	Resistor—10 meg., 1/2 watt (R6)	32139	Mounting—Motor mounting spacers, washers, and screw—sufficient for one motor
14887	Retainer—Pulley retainer	30870	Plug—2-contact male plug for motor leads
14350	Screw—No. 8-32 square-head set screw for drum, Stock No. 31421	14270	Spring—Retaining spring for knob, Stock Nos. 30773 and 31355
31364	Socket—Dial lamp socket	30330	Spring—Retaining spring for knob, Stock No. 31391
31251	Socket—Tube socket	30100	Springs—Tension springs for automatic brake—one long and one short
31418	Spring—Indicator drive cord tension spring	32141	Support—Cabinet lid support
31414	Switch—Push button station selector switch (S12, S13, S14, S15, S16, S17, S20, S21, S22, S23, S24, S25)	14804	Switch—Automatic brake switch (S26)
30902	Transformer—First i-f transformer (L5, L6, C7, C8)	12847	Switch—Radio-Record switch (S27)
30903	Transformer—Second i-f transformer (L7, L8, C9, C10)	31483	Turntable
31574	Transformer—Power transformer, 100-120 volts, 25-60 cycle (T1)	MOTOR ASSEMBLIES *	
31380	Transformer—Power transformer, 100-120 volts, 50-60 cycle (T1)	(Motor No. 84430)	
31575	Transformer—Power transformer, 100-120 and 200-240 volts, 50-60 cycle (T1)	32176	Bearing—Rotor thrust bearing screw and nut
		32175	Field—Motor field coils and laminations

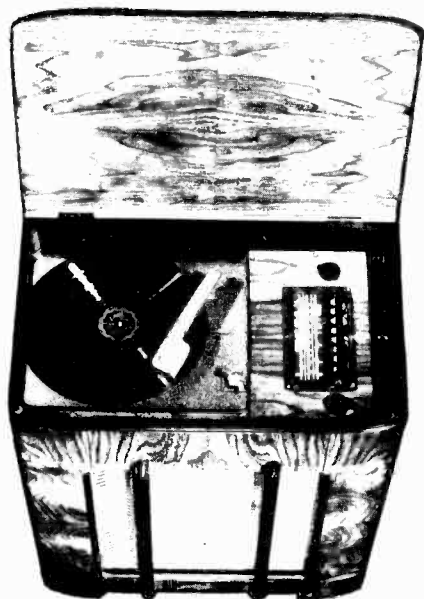
* Motor No. 84430 is type that mounts from below motorboard. Motor No. 84484 is type that mounts from top of motorboard through a cutout.

TRIMMER CAPACITOR BANK AND ELECTRIC-TUNING OSCILLATOR COILS (Refer to Electrical Specifications for frequency ranges)

DESCRIPTION	Chassis Stamped RC-348E		Chassis Stamped RC-348E "MOD"		Chassis Stamped RC-348E "M"	
	Stock No.		Stock No.		Stock No.	
Capacitor—Trimmer capacitor bank (C20, 21, 22, 23, and 24)	31416		32066		32339	
Coil—Oscillator coil (L12)	31415		31415		31415	
Coil—Oscillator coil (L13)	31384		31415		31415	
Coil—Oscillator coil (L14)	31384		31384		32340	
Coil—Oscillator coil (L15)	31383		31383		31383	
Coil—Oscillator coil (L16)	31383		31383		31383	

MODELS U-119, U-122E, and U-124

Six-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Victrolas

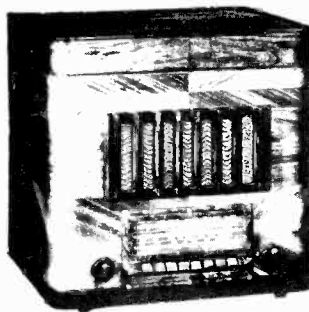


Model U-124

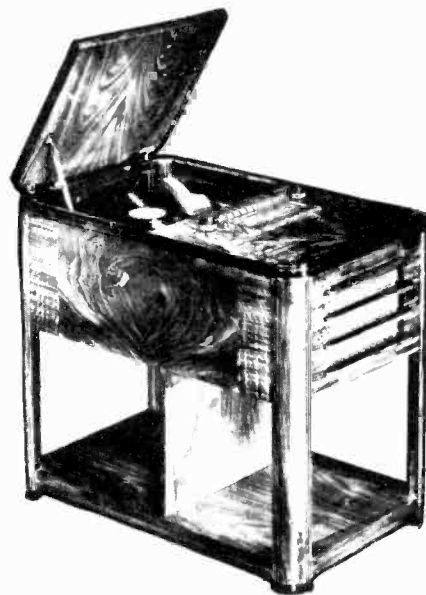
Model U-119 is a six-tube table model, with six-inch speaker.

Model U-122E is a six-tube end-table model, with eight-inch speaker.

Model U-124 is a six-tube console model, with twelve-inch speaker.



Model U-119



Model U-122E

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)..... 540-1,720 kc
 "Medium Wave" (B)..... 2.3-7 mc
 "Short Wave" (C)..... 7-22 mc

R-F ALIGNMENT FREQUENCIES

"Short Wave" (C)..... 20 mc (osc., ant.)
 "Medium Wave" (B)..... 6.1 mc (osc.)
 "Standard Broadcast" (A)..... 1,500 kc (osc.)

Six Electric Tuning Positions..... 550-1,500 kc
 2 stations between approximately 550- 950 kc (Buttons 1 and 2)
 2 stations between approximately 680-1,180 kc (Buttons 3 and 4)
 2 stations between approximately 890-1,500 kc (Buttons 5 and 6)

RCA TUBE COMPLEMENT

(1) RCA-6K8..... First-Detector—Oscillator
 (2) RCA-6K7..... Intermediate-Frequency Amplifier
 (3) RCA-6H6..... Second-Detector and A.V.C.

(4) RCA-6F5..... Audio Voltage Amplifier
 (5) RCA-6F6..... Audio Power Amplifier
 (6) RCA-5W4..... Full-Wave Rectifier

Pilot Lamps (2)..... Mazda 47, 6.3 volts, .15 amp.

POWER SUPPLY RATING

		Radio Only	Total
A-6.....	105-125 volts, 60 cycles, 80 watts	105 watts	105 watts
A.....	105-125 volts, 50-60 cycles, 80 watts	105 watts	105 watts
B-2.....	105-125 volts, 2.5 cycles, 80 watts	105 watts	105 watts
C-6.....	105-130/140-160/195-250 volts, 60 cycles, 80 watts	105 watts	105 watts
C.....	105-130/140-160/195-250 volts, 50-60 cycles, 80 watts	105 watts	105 watts

POWER OUTPUT

	U-119	U-122E, U-124
Undistorted.....	2.0 watts	2.5 watts
Maximum.....	4.0 watts	4.5 watts

LOUDSPEAKER

Type..... Electrodynamic

Voice-coil Impedance..... { 84308-2 3 ohms }
 { RL-63H-5 2.25 ohms }
 { RL-70H-1 2.25 ohms } at 400 cycles

MOTOR

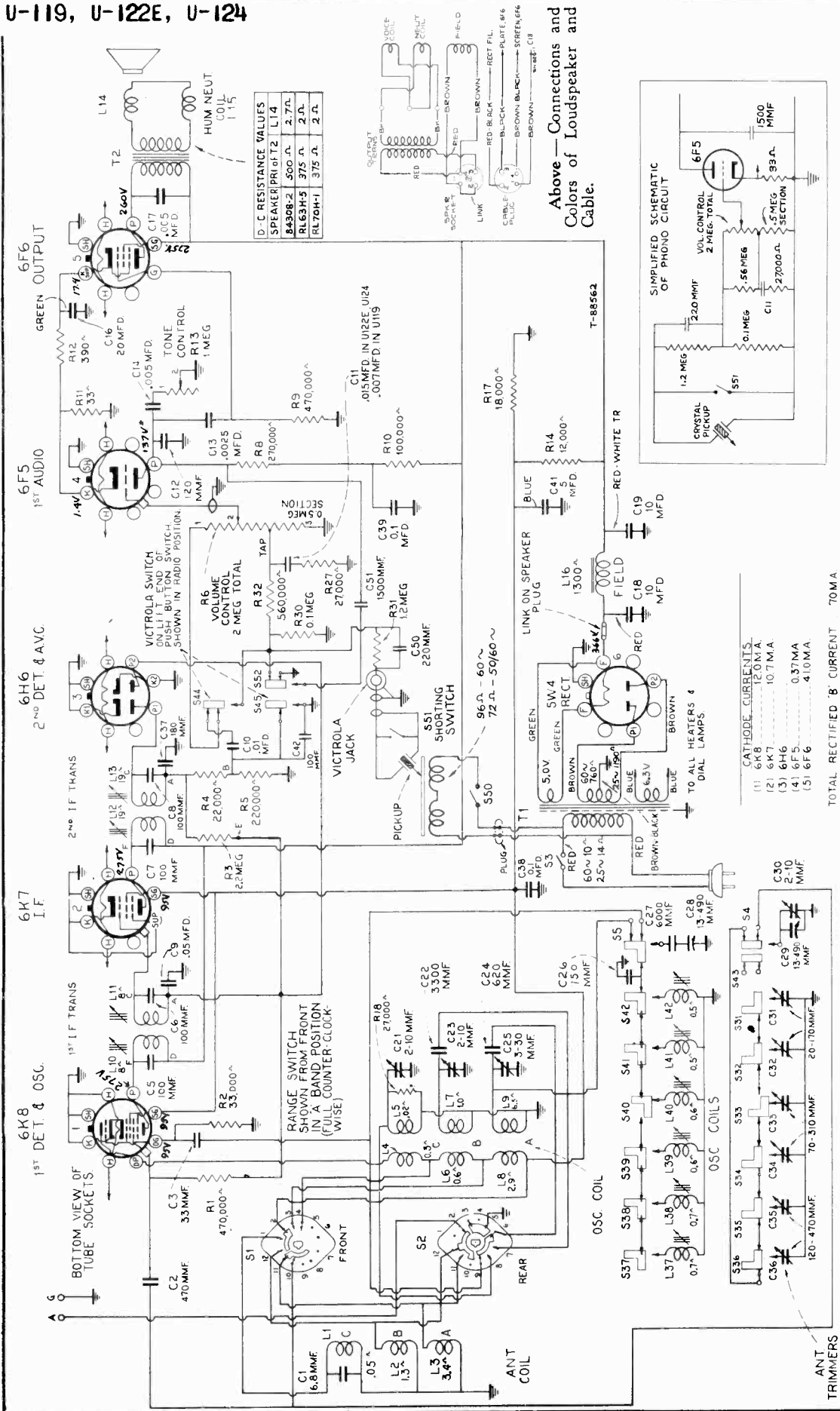
Type..... Self-starting induction
 Turntable Speed..... 78 r.p.m. (adjustable)
 Record Diameter..... 10-inch or 12-inch

PICKUP

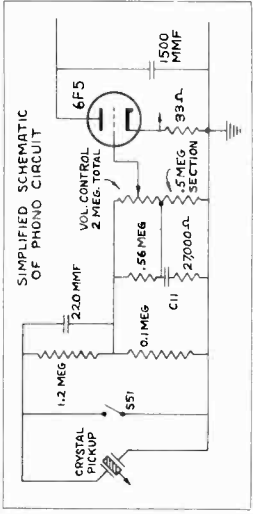
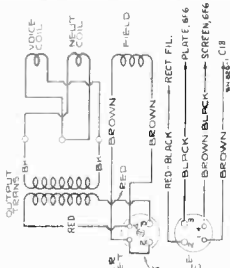
Type..... Crystal
 Impedance..... 80,000 ohms at 1,000 cycles
 Average Output..... 1½ volts at 1,000 cycles
 across 250,000 ohm load

REFER TO MODEL 96K2 FOR ALIGNMENT PROCEDURE AND CHANGES

IN CHASSIS MARKED "M" OR "R"

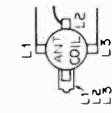
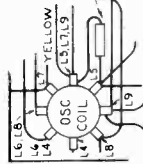


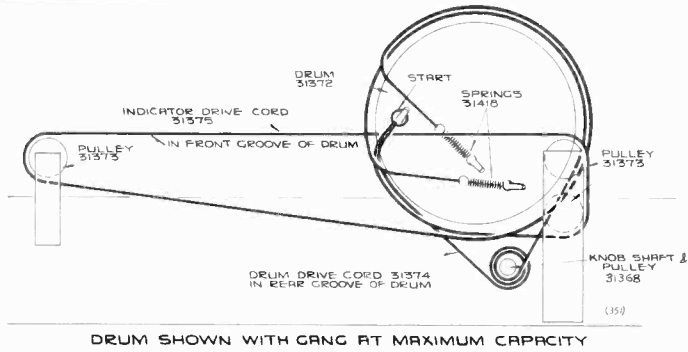
Above—Connections and Colors of Loudspeaker and Cable.



4. Dress lead from L5 to range switch away from antenna coil.
5. Dress leads away from antenna coil.
6. Dress other parts and leads away from R14, as it becomes heated.

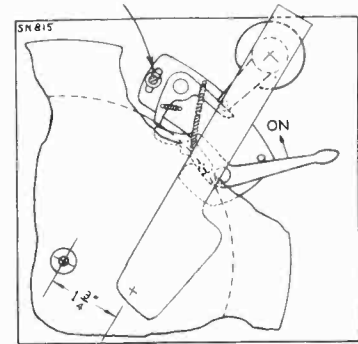
- Precautionary Lead Dress.—**
1. Dress power-switch leads against left apron to prevent hum pickup.
 2. Dress R1 away from front of chassis.
 3. Leads across back of chassis should be dressed under electrolytic to prevent approaching Victrola jack.



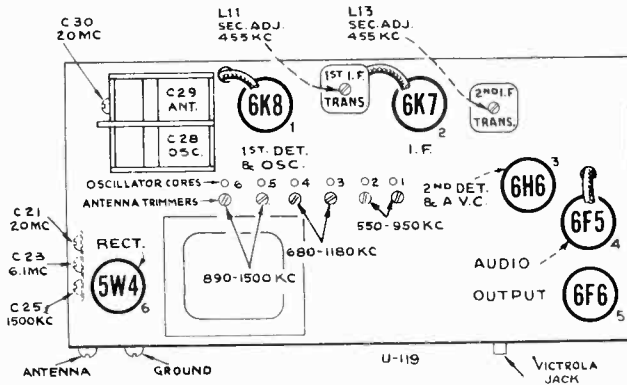


Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

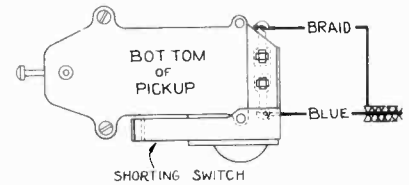
ADJUST SWITCH TO TRIP WHEN NEEDLE IS ON 1.34" RADIUS FROM C OF MOTOR SPINDLE



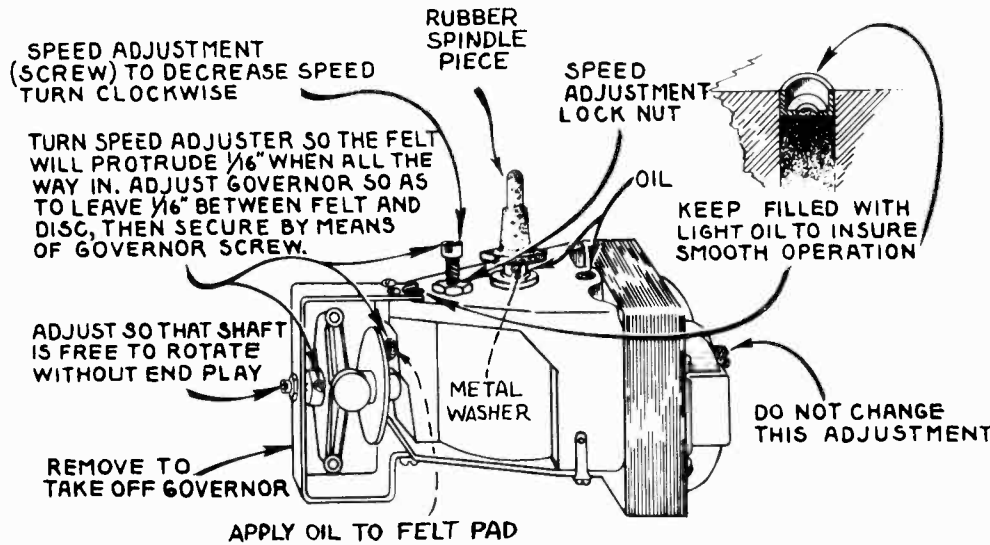
Adjustment of Automatic Switch



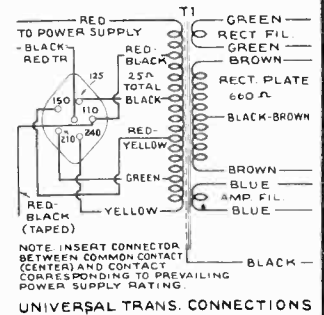
Tube and Trimmer Locations



Pickup Connections



Motor Lubrication and Adjustments



Above — Universal Power Transformer Connections. (110-volt supply for the Victrola motor is obtained by connecting the motor to the red and the red-black leads.)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
14517	Board—Antenna ground terminal board.....	30433	Capacitor—470 mmfd. (C2).....
31400	Capacitor—Triple adjustable trimmer two sections 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25).....	31381	Capacitor—620 mmfd. (C24).....
14079	Capacitor—6.8 mmfd. (C1).....	31435	Capacitor—750 mmfd. (C26).....
31387	Capacitor—Antenna coil trimmer capacitor bank 20-470 mmfd. (C31, C32, C33, C34, C35, C36).....	13762	Capacitor—1,500 mmfd. (C51).....
12948	Capacitor—33 mmfd. (C3).....	31403	Capacitor—3,300 mmfd. (C22).....
12720	Capacitor—100 mmfd. (C42).....	31405	Capacitor—6,000 mmfd. (C27).....
30904	Capacitor—100 mmfd. (C5, C6, C7, C8).....	5107	Capacitor—.0025 mfd. (C13).....
12724	Capacitor—120 mmfd. (C12).....	4838	Capacitor—.005 mfd. (C14, C17).....
13003	Capacitor—180 mmfd. (C37).....	5148	Capacitor—.007 mfd. (C11) (Model U-119 only).....
12694	Capacitor—220 mmfd. (C50).....	14393	Capacitor—.01 mfd. (C10).....
		11315	Capacitor—.015 mfd. (C11) (Models U-122E and U-124 only).....
		4886	Capacitor—.05 mfd. (C9).....
		4839	Capacitor—.01 mfd. (C38, C39).....
		31371	Capacitor—Comprising two 10 mfd., one 20 mfd., and one 5 mfd. sections (C16, C18, C19, C41).....
		31382	Clip—Oscillator coil and core mounting clip.....

REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31402	Coil—Antenna coil—A, B, and C bands (L1, L2, L3)	30100	Spring—Auto. switch springs—one long spring and one short spring
31401	Coil—Oscillator coil—A, B, and C bands (L4, L5, L6, L7, L8, L9)	31466	Switch—Automatic motor switch and switch lever
31383	Coil—Oscillator coil—A band (L41, L42)	31467	Switch—Switch only—for auto. switch (S50)
31384	Coil—Oscillator coil—A band (L39, L40)	31463	Turntable
31385	Coil—Oscillator coil—A band (L37, L38)		PICKUP AND ARM ASSEMBLIES
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31156	Crystal—Pickup crystal cartridge and needle screw and shorting switch (S51)
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	31468	Pickup and Arm complete
31375	Cord—Indicator pointer drive cord	31160	Screw—Needle screw
31374	Cord—Variable condenser drum drive cord	31469	Shaft—Pickup pivot arm and shaft assembly complete with base
30905	Core—Adjustable core for i-f transformer		SPEAKER ASSEMBLIES
31386	Core—Adjustable core and stud for oscillator coil Stock Nos. 31383, 31384, and 31385	31762	Cone—Speaker cone and voice coil (L14)
31372	Drum—Variable condenser drive cord drum and calibrator dial	31761	Speaker Complete
11891	Lamp—Dial lamp	31444	Transformer—Output transformer (T2)
30868	Plug—2-contact female plug for motor cable		SPEAKER ASSEMBLIES
5040	Plug—4-contact female plug for speaker cable	14356	Board—3-contact speaker terminal board
31373	Pulley—Drive cord pulley	13866	Cap—Cone center dust cap
14671	Resistor—33 ohms, 1/2 watt (R11)	12012	Coil—Field coil (L16)
31388	Resistor—390 ohms, 1 watt (R12)	11469	Coil—Hum neutralizing coil (L15)
31389	Resistor—12,000 ohms, wire wound, 5 watts (R14)	31310	Cone—Speaker cone and voice coil (L14)
30151	Resistor—18,000 ohms, 1 watt (R17)	31302	Plug—4-contact male plug for speaker
14284	Resistor—22,000 ohms, 1/10 watt (R4)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
12738	Resistor—27,000 ohms, 1/2 watt (R7, R18)	31453	Speaker Complete
12454	Resistor—33,000 ohms, 1/2 watt (R2)	14355	Transformer—Output transformer (T2)
14560	Resistor—100,000 ohms, 1/2 watt (R10, R30)	14357	Washer—Spring washer to hold field coil
12264	Resistor—220,000 ohms, 1/2 watt (R5)		SPEAKER ASSEMBLIES
12199	Resistor—270,000 ohms, 1/2 watt (R8)	13866	Cap—Dust cap for cone center
12285	Resistor—470,000 ohms, 1/2 watt (R1, R9)	12012	Coil—Field coil (L16)
12486	Resistor—560,000 ohms, 1/2 watt (R32)	11469	Coil—Hum neutralizing coil (L15)
30208	Resistor—1.2 meg., 1/2 watt (R31)	31275	Cone—Speaker cone and voice coil (L14)
12679	Resistor—2.2 meg., 1/2 watt (R3)	31302	Plug—4-contact male plug
14343	Retainer—Retaining spring for station selector knob shaft	31592	Speaker—Speaker complete
14887	Retainer—Drive cord pulley retainer	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
4669	Screw—No. 8-32 square head set screw for drum Stock No. 31372	14355	Transformer—Output transformer (T2)
31368	Shaft—Station selector knob shaft and pulley	14357	Washer—Spring washer to hold field coil
31418	Spring—Indicator, or drum drive cord tension spring		MISCELLANEOUS ASSEMBLIES
31364	Socket—Dial lamp socket	31397	Button—Station selector push-button
14278	Socket—Pickup input socket	31456	Cover—8 protective covers for push-button markers
31251	Socket—Tube socket	31591	Dial—Station selector dial scale—Model U-124 only
31398	Switch—Range switch (S1, S2)	31406	Dial—Station selector dial scale—Models U-119 and U-122E only
31370	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S44, S45, S52)	31395	Escutcheon—Tuning dial escutcheon only less push-buttons and dial scale
30957	Transformer—First i-f transformer (L10, L11, C5, C6)	13085	Hinge—Cabinet lid hinge—Model U-119 only
30903	Transformer—Second i-f transformer (L12, L13, C7, C8)	30698	Hinge—Cabinet lid hinge—Model U-124 only
31445	Transformer—Power transformer 100-120 volts, 25-60 cycle (T1)	31103	Hinge—Cabinet lid hinge—Model U-122E only
31380	Transformer—Power transformer 100-120 volts, 50-60 cycle (T1)	31392	Indicator—Indicator pointer, carriage, and clip
31446	Transformer—Power transformer 100-130/140-160/195-250 volts, 50-60 cycle (T1)	31355	Knob—Range switch knob
	MOTOR ASSEMBLIES	14359	Knob—Station selector knob
31617	Bracket—Motor governor end bearing bracket—less bearing screw, and nut	31391	Knob—Tone control knob
31618	Field—Motor field coils and laminations—105-125 volts, 60 cycle	30773	Knob—Volume control knob
31619	Field—Motor field coils and laminations—105-125 volts, 50-60 cycle	31458	Marker—"Dial Tuning" marker for push-button—Models U-119 and U-122E only
31626	Field—Motor field coils and laminations—105-125 volts, 25 cycle	31460	Marker—"Dial Tuning" marker for push-button—Model U-124 only
31623	Governor—Motor governor complete—60 cycle	31457	Marker—"Record Player" marker for push-button—Models U-119 and U-122E only
11703	Governor—Motor governor complete—50-60 cycle	31459	Marker—"Record Player" marker for push-button—Model U-124 only
31624	Governor—Motor governor complete—25 cycle	31589	Marker—Station call letter markers—Models U-119 and U-122E
31724	Motor—105-125 volts, 25 cycle (M1)	31590	Marker—Station call letter markers—Model U-124
31462	Motor—105-125 volts, 50-60 cycle (M1)	31393	Screen—Dial color screen
31461	Motor—105-125 volts, 60 cycle (M1)	11210	Screw—Chassis mounting screws, washers, and lockwashers—Model U-124 only
31616	Screw—Motor rotor bearing screw and nut	31390	Screw—Chassis mounting screws, washers, and lockwashers—Model U-119 only
31620	Screw—Motor speed regulator screw and nut	31471	Screw—Chassis mounting screws, washers, and lockwashers—Model U-122E only
31621	Shaft—Motor turntable spindle shaft and gear—60 cycle or 50-60 cycle	31470	Springs—Motorboard suspension top spring, bottom spring, screw, and lockwasher (4 reqd.)
31773	Shaft—Motor turntable spindle shaft and gear—25 cycle	4982	Spring—Retaining spring for knob Stock No. 14359
31622	Washer—Motor spindle shaft thrust bearing washers (1 metal, 1 felt)	14270	Spring—Retaining spring for knob Stock Nos. 30773 and 31355
	MOTOR BOARD ASSEMBLIES	30330	Spring—Retaining spring for knob Stock No. 31391
9848	Cup—Used needle cup and lid complete	31464	Support—Cabinet lid support—Model U-119 only
31464	Damper—One rubber spindle cap and one metal damper plate	30946	Support—Cabinet lid support—Model U-122E only
31465	Mounting—Pickup arm base mounting—one rubber washer, one lockwasher, one nut	11831	Support—Cabinet lid support—Model U-124 only
30870	Plug—2-contact male plug for motor and switch leads		
31158	Screw—Motor mounting screws, washers, and spacers, (sufficient for one motor)		
31155	Spring—Used needle cup lid spring		

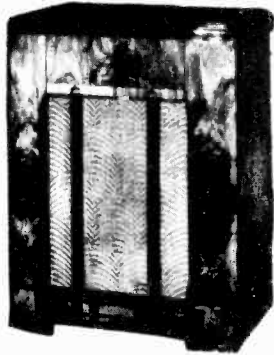
MODELS U-121, U-123, and U-127E

CHASSIS No. RC-348J RC-348H (Single-Band) RC-348L
RC-421 (Two-Band)

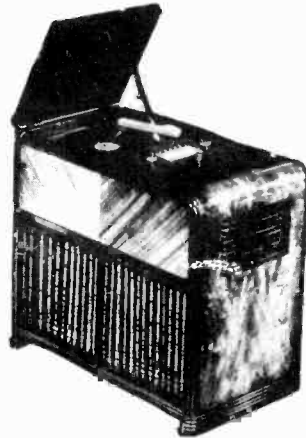
Models U-121 and U-127E have a non-automatic Victrola mechanism, with crystal pickup, automatic stop, and self-starting constant-speed motor.

Model U-123 has an automatic Victrola mechanism which permits playing seven 12-inch or eight 10-inch records in succession. It has a crystal pickup and constant-speed self-starting motor.

Six-Tube, Electric-Tuning, A-C, Victrolas



Model U-121 (Manual)



Model U-127E (Manual)



Model U-123 (Automatic)

Electrical and Mechanical Specifications

Frequency Range..... 540-1,720 kc
RC-421 also has a short-wave band of..... 5.8-18.0 mc
PUSH BUTTON RANGES (RC-348J, 348H, and 348L)
Two stations between approximately 550- 980 kc
One station between approximately 690-1,225 kc
Two stations between approximately 850-1,500 kc
PUSH BUTTON RANGES (RC-421)
One station between approximately 550- 980 kc
One station between approximately 590-1,020 kc
One station between approximately 690-1,225 kc
Two stations between approximately 890-1,500 kc
TUBE COMPLEMENT
(1) RCA-6A8-G (6SA7 in RC-421)..... First-Detector, Oscillator
(2) RCA-6K7..... Intermediate-Frequency Amp.
(3) RCA-6H6..... Second-Detector, A.V.C.
(4) RCA-6F5 (6SF5 in RC-421)..... Audio Voltage Amplifier
(5) RCA-6K6-G (6F6-G in RC-421)..... Power Output
(6) RCA-5Y3-G..... Full-Wave Rectifier

POWER OUTPUT (RC-348J, 348H, and 348L)
Undistorted..... 2 watts, Maximum..... 4 watts

POWER OUTPUT (RC-421)
Undistorted..... 2.5 watts, Maximum..... 4.5 watts

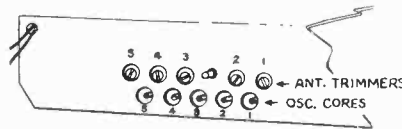
POWER SUPPLY RATINGS
A-6..... 105-125 volts, 60 cycles, 100 watts total
A-5..... 105-125 volts, 50 cycles, 100 watts total
B-2..... 105-125 volts, 25 cycles, 100 watts total
C-6..... 105-125/210-250 volts, 60 cycles, 100 watts total
C-5..... 105-125/210-250 volts, 50 cycles, 100 watts total

Loudspeaker (electrodynamic).....	RL-70F-3	U-123 (RC-348H) RL-70F-3	U-123 (RC-421) RL-70H-6	U-127E RL-63H-5
Diameter.....	12-inch	12-inch	12-inch	8-inch
Voice-Coil Impedance at 400 cycles.....	2.2 ohms	2.2 ohms	2.2 ohms	2.2 ohms

Adjustments for Electric Tuning

Push-Button Ranges in RC-348J, 348H, and 348L (Single-Band Receivers)

No. 1 and 2... Approximately 550- 980 kc
No. 3... Approximately 690-1,225 kc
No. 4 and 5... Approximately 850-1,500 kc



Push-Button Ranges in RC-421 (Two-Band Model U-123)

No. 1..... Approximately 550- 980 kc
No. 2..... Approximately 590-1,020 kc
No. 3..... Approximately 690-1,225 kc
Nos. 4, 5..... Approximately 890-1,500 kc

These models have six push buttons. The right-hand button connects the gang condenser for dial tuning. The other five buttons are for electric tuning of five different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments. Use a regular antenna for the preliminary adjustments.

The procedure is as follows:

1. Make a list of the five desired stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button, and manually tune in the first station on the list.

3. Push in station-button No. 1 and adjust No. 1 oscillator core to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until the station is received.
4. Adjust No. 1 antenna trimmer for maximum output on this station.
5. Adjust for each of the remaining four stations in the same manner. (Clockwise adjustment of oscillator cores and antenna trimmers tunes the circuits to lower frequencies.)
6. Make a final careful adjustment of the oscillator cores using one or two feet of wire as an antenna.

The phonograph motor is a self-starting constant-speed induction type.

Motor Lubrication (Models U-121 and U-127E).—Apply a few drops of light machine oil to the spindle bearing and oil hole every six months. The oil hole is located in the motor casting, adjacent to the spindle bearing, and has a screw plug.

The automatic stop (Models U-121 and U-127E) should be adjusted so that the lever will snap to the "off" position when the pickup needle is 1 3/4 inches from the center line of the spindle.

REFER TO INDEX FOR DATA ON AUTOMATIC RECORD CHANGER

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing. Turn the receiver volume control to maximum.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc and 1,500 kc have been stamped in the plate on the front of the chassis, as shown in the accompanying drawing. These marks are used for reference during alignment.

RC-348J, RC-348H, and RC-348L

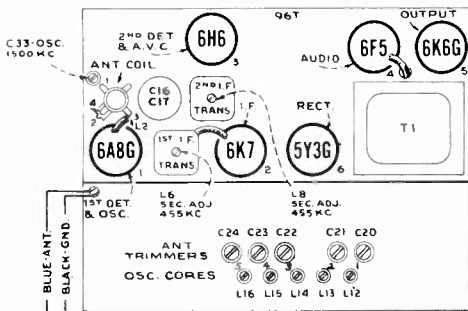
Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F Trans.)
2	6A8-G grid cap, in series with .01 mfd.	455 kc		L5 and L6 (1st I-F Trans.)
3	Antenna lead (blue) in series with 200 mmf.	1,500 kc	1,500 kc calibration mark	C6 (osc.)* C3 (ant.)
4	Follow "Adjustments for Electric Tuning."			

* The oscillator section of the gang condenser has two trimmers, one on top, accessible through a hole in the chassis, and the other on bottom. It may be necessary to adjust both of these trimmers to secure a peak on 1,500 kc.

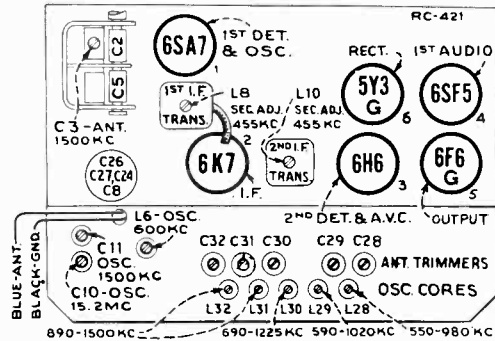
RC-421 (Two-band Model U-123)

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	Quiet point between 550-750 kc	L9 and L10 (2nd I-F trans.)
2	Stator of ant. section of gang	455 kc		L7 and L8 (1st I-F trans.)
3	Antenna lead, in series with 200 mmf.	600 kc	600 kc calibration mark	L6 (osc.)
4		1,500 kc	1,500 kc calibration mark	C11 (osc.) C3 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna lead, in series with 400 ohms	15.2 mc	15.2 mc calibration mark	C10 (osc.)*
7	Follow "Adjustments for Electric Tuning."			

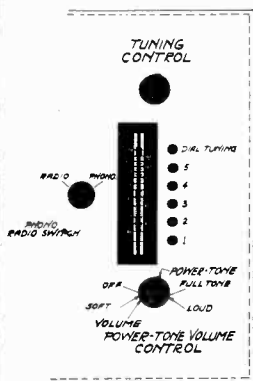
* Rock gang for maximum output while adjusting C10. Note.—The oscillator tracks above the signal on both bands.



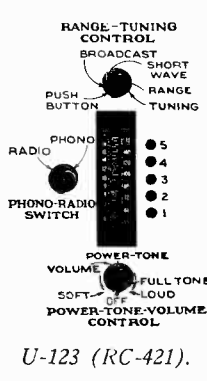
At left—Tube and trimmer location for single-band chassis, RC-348J, RC-348H, and RC-348L.



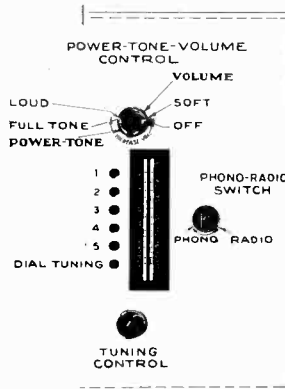
At right—Tube and trimmer location for double-band chassis RC-421.



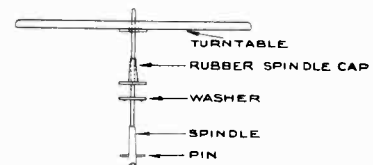
Model U-121 U-123 (RC-348H).



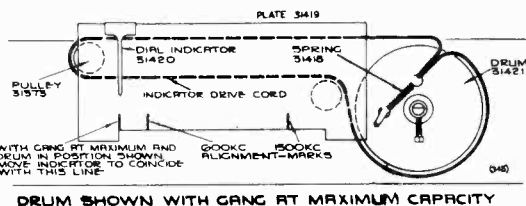
U-123 (RC-421).



Model U-127E



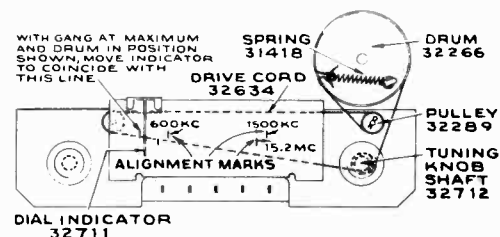
Turntable Assembly (All Models)



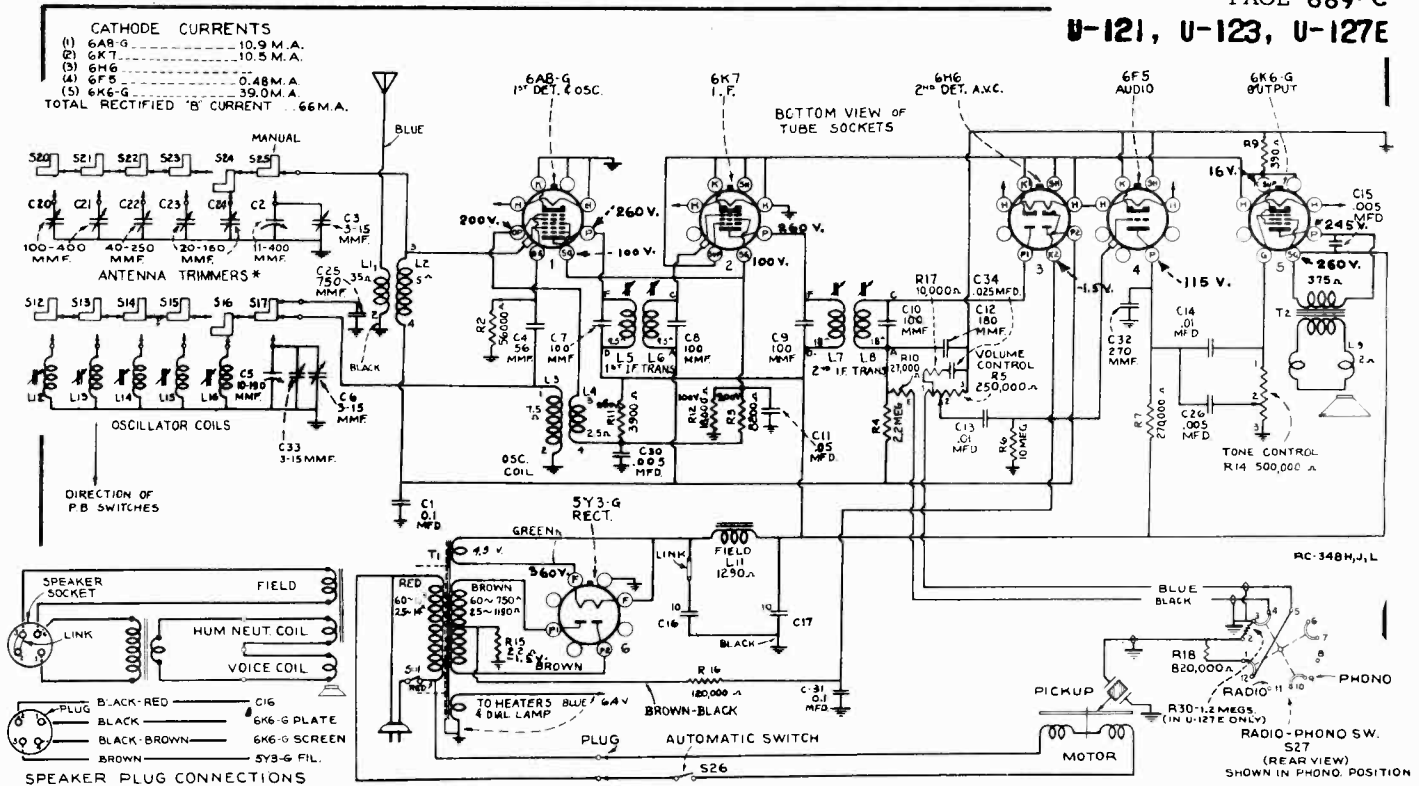
Dial Mechanism

RC-348J, 348H, and 348L

RC-421



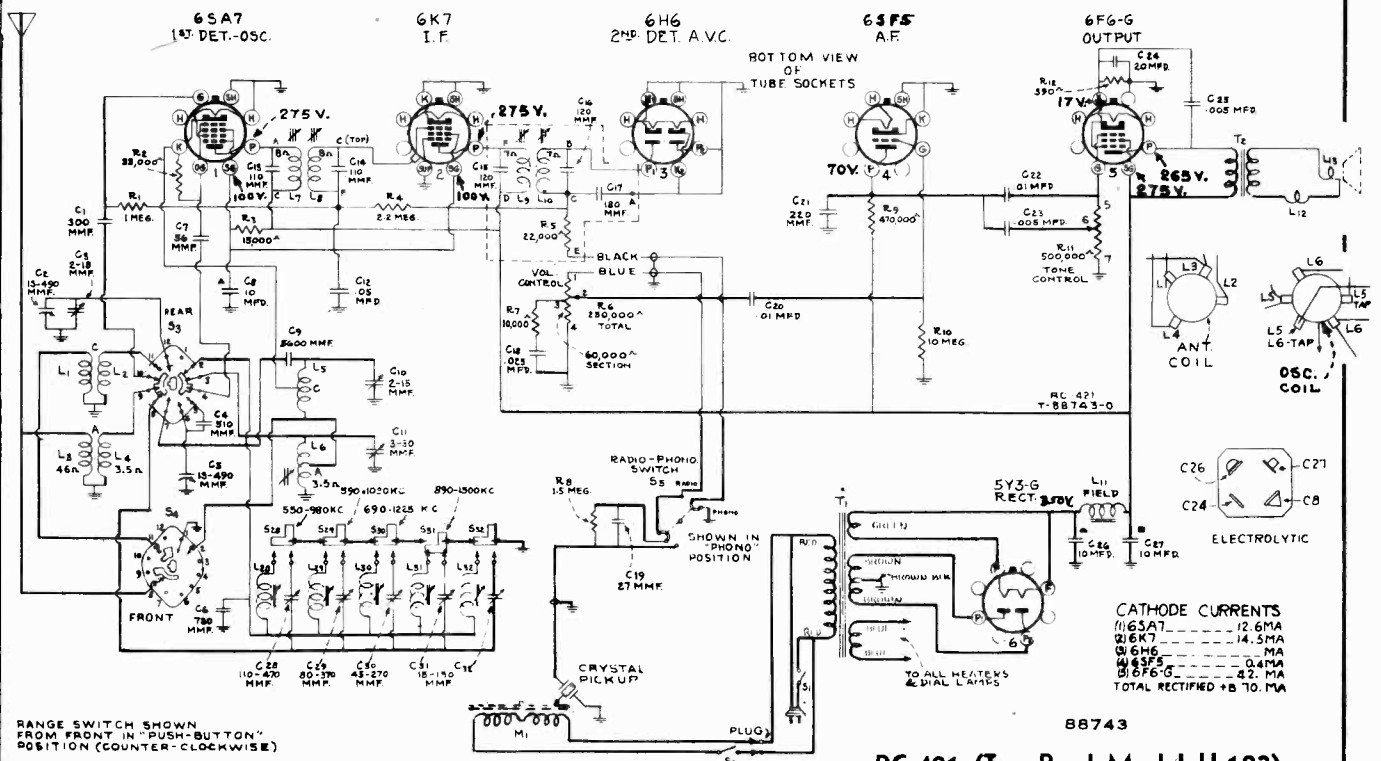
DIAL INDICATOR 32711



U-121, U-123 (Single-Band), and U-127E

Precautionary Lead Dress.—(1) Dress green lead from antenna coil to switch away from the chassis and gang. (2) Ground bus from 6H6 socket must be close to chassis. (3) Dress leads away from

oscillator coil adjustment screws. (4) Dress power transformer primary leads toward left-hand end of chassis. (5) Dress plate lead from output tube close to chassis.



88743

RC-421 (Two-Band Model U-123)

Note the following additional d-c resistances. Voice-coil, 2 ohms; primary of output transformer 375 ohms; 60-cycle power transformer, primary 9 ohms, secondary 735 ohms.

Precautionary Lead Dress.—Dress the oscillator grid condenser (C7) away from chassis. Leads along back of chassis must be dressed in corner of chassis and away from contact "E" of 2nd i-f

transformer. Keep a-c leads against end of chassis. Dial drum must be 5/32-inch from front apron.

Replacement Parts Models U-121, U-123 (Single-Band), and U-127E

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (U121-RC348J) (U123-RC348H, Single-Band) (U127E-RC348L)			
32339	Capacitor—Capacitor bank for push button switch assembly (C20, C21, C22, C23, C24)	32610	Rest—Rubber rest for pickup arm
12723	Capacitor—56 mmfd. (C4)	30100	Springs—One set of springs for automatic brake
30904	Capacitor—100 mmfd. (C7, C8, C9, C10)	32743	Switch—Radio-Record switch (S27)
13003	Capacitor—180 mmfd. (C12)	14804	Switch—Switch only for automatic brake (S26)
12488	Capacitor—270 mmfd. (C32)	31463	Turntable—Record turntable
31435	Capacitor—750 mmfd. (C25)	11865	Cup—Used needle cup
4838	Capacitor—.005 mfd., 1,000 volts (C15, C26, C30)	MOTOR ASSEMBLIES Model U-121 and U-127E	
14393	Capacitor—.01 mfd. (C13, C14)	31464	Damper—Comprising 1 rubber spindle sleeve and 1 metal damper plate
4870	Capacitor—.025 mfd., 400 volts (C34)	32652	Field—Motor coils and laminations, 105-120 volts, 25-cycle
30882	Capacitor—.05 mfd., 200 volts (C11)	32650	Field—Motor coils and laminations, 105-120 volts, 50-cycle
30899	Capacitor—.1 mfd., 200 volts (C1, C31)	32336	Field—Motor coils and laminations, 105-120 volts, 60-cycle
32342	Capacitor—10-10 mfd. electrolytic capacitor (C16, C17)	32638	Motor—105-120 volts, 25-cycle
31382	Clip—Coil and core clip for push button oscillator coils	32637	Motor—105-120 volts, 50-cycle
32338	Coil—Antenna coil (L1, L2)	32558	Motor—105-120 volts, 60-cycle
31098	Coil—Oscillator coil (L3, L4)	30870	Plug—2-contact male for motor leads
31415	Coil—Push button oscillator coil, 550 to 980 KC. (L12, L13)	32653	Shaft—Turntable shaft and gear for 25-cycle motor
32340	Coil—Push button oscillator coil, 690 to 1,225 KC. (L14)	32651	Shaft—Turntable shaft and gear for 50-cycle motor
31383	Coil—Push button oscillator coil, 850 to 1,500 KC. (L15, L16)	32337	Shaft—Turntable shaft and gear for 60-cycle motor
31422	Condenser—2-gang variable tuning condenser (C2, C3, C5, C6, C33)	SPEAKER ASSEMBLIES (RL-70F3) Models U-121 and U-123 (Single-Band)	
32355	Control—Volume and tone control and power switch (R5, R14, S1)	13866	Cap—Dust cap for cone center
32634	Cord—Drive cord	12012	Coil—Field coil (L16)
31386	Core—Core and stud assembly for push button oscillator coils	11489	Coil—Hum neutralizing coil (L15)
31421	Drum—Tuning drive drum and hub	31275	Cone—Speaker cone and voice coil (L14)
11891	Lamp—Dial lamp	31302	Plug—4-contact male plug
32136	Lead—Phonograph input shielded lead and connector (U-121 and U-123)	31300	Speaker—Speaker complete
32908	Lead—Phonograph input shielded lead and socket (U-127E only)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
31419	Plate—Dial color plate	31301	Transformer—Output transformer (T2)
30868	Plug—2-contact female for motor leads	14357	Washer—Spring washer to hold field coil
31420	Pointer—Dial indicator pointer	SPEAKER ASSEMBLIES (RL-63H5) Model U-127E	
31373	Pulley—Tuning indicator drive pulley	14358	Board—3-contact speaker terminal board
31388	Resistor—390 ohms, 1 watt (R9)	13866	Cap—Cone center dust cap
14559	Resistor—10,000 ohms, 1/2 watt (R17)	12012	Coil—Field coil
12738	Resistor—27,000 ohms, 1/2 watt (R10)	11489	Coil—Hum neutralizing coil
12286	Resistor—56,000 ohms, 1/2 watt (R2)	31310	Cone—Speaker cone and voice coil
13734	Resistor—120,000 ohms, 1/2 watt (R16)	31302	Plug—4-contact male plug for speaker
12199	Resistor—270,000 ohms, 1/2 watt (R7)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
30963	Resistor—820,000 ohms, 1/2 watt (R18)	31453	Speaker complete
30208	Resistor—1.2 meg., 1/2 watt (R30) (U127E only)	14355	Transformer—Output transformer
12679	Resistor—2.2 meg., 1/2 watt (R4)	14357	Washer—Spring washer to hold field coil
13601	Resistor—10 meg., 1/2 watt (R6)	MISCELLANEOUS ASSEMBLIES	
31425	Resistor—Voltage divider resistor tapped at 22 ohms, 18,000 ohms, 8,200 ohms, and 3,900 ohms (R15, R12, R3, R11)	32798	Button—Push button
14887	Retainer—Indicator drive pulley retainer	13103	Cap—Pilot lamp cap (bullseye) (For Model U-123 only)
31482	Screw—No. 8 square head set screw for drive drum	31487	Clip—Spring clip to mount dial scale
5040	Socket—4-contact socket for speaker cable	31095	Cover—One set protective discs for call letter markers
31384	Socket—Dial lamp socket	32742	Dial—Glass dial scale (For Models U-121 and U-123)
31251	Socket—Octal base tube socket	31429	Dial—Glass dial scale (For Model U-127E only)
31418	Spring—Drive cord tension spring	31687	Escutcheon—Dial scale escutcheon
31414	Switch—Selector switch for push button switch assembly (S20, S21, S22, S23, S24, S25, S12, S13, S14, S15, S16, S17)	32799	Escutcheon—Push button escutcheon
30902	Transformer—First i.f. transformer (L5, L6, C7, C8)	30698	Hinge—Cabinet lid hinge (For Models U-121 and U-123)
30903	Transformer—Second i.f. transformer (L7, L8, C9, C10)	31103	Hinge—Cabinet lid hinge (For Model U-127E only)
31445	Transformer—Power transformer, 110 volts, 25-60 cycle (T1)	32562	Holder—Needle card holder (For Model U-121 only)
31380	Transformer—Power transformer, 110 volts, 50-60 cycle (T1)	31391	Knob—Tone control knob
31575	Transformer—Power transformer, 110-220 volts, 50-60 cycle (T1)	31355	Knob—Dummy or radio-record switch knob
PICKUP AND ARM ASSEMBLIES Model U-121 and U-127E			
31212	Base—Pickup arm pivot shaft, trip lever, and mounting base assembly	30773	Knob—Volume control or tuning knob
32138	Cable—Shielded cable and male plug for pickup arm	30991	Marker—One set station call letter markers
31050	Crystal—Pickup crystal and needle screw	31054	Mounting—Pickup arm rubber mounting, washers, and nuts (For Model U-121 and U-127E only)
32137	Pickup and arm complete	32870	Screen—Phonograph compartment lamp screen (For Model U-123 only)
12539	Screw—Pickup needle screw	31470	Spring—Motorboard mounting springs, bolts, and washers (For Model U-123 only) (4 required)
MOTORBOARD ASSEMBLIES Model U-121 and U-127E			
14803	Brake—Automatic brake and switch	32721	Spring—Retaining spring for push button
31464	Damper—Comprising one rubber spindle sleeve, and one metal damper plate	30330	Spring—Retaining spring for tone control knob
30870	Plug—2-contact male for motor leads	14270	Spring—Retaining spring for tuning, volume control, or switch knob
		11831	Support—Cabinet lid support (For Model U-121 only)
		31478	Support—Cabinet lid support (For Model U-123 only)
		30948	Support—Cabinet lid support (For Model U-127E only)
		32743	Switch—Radio-Record switch (For Model U-123 only)

Replacement Parts Model U-123 (Two-Band)

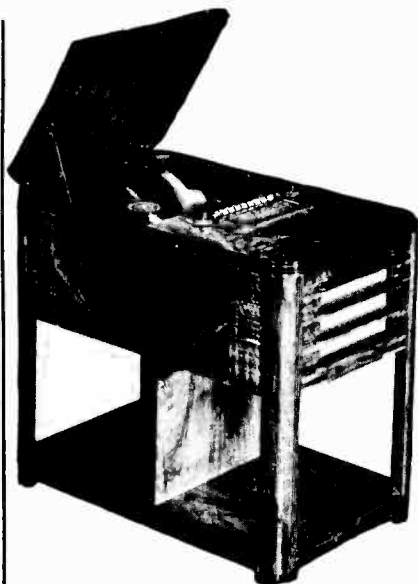
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-421) Model U-123 (Two Band)	32703	Switch—Push button switch (S28, S29, S30, S31, S32)
32136	Cable—Phono. input cable and socket	33113	Switch—Radio record switch (S5)
31379	Capacitor—Dual trimmer—comprising one 3-30 mmfd. and one 2-10 mmfd. sections (C10, C11)	32702	Switch—Range switch (S3, S4)
13605	Capacitor—27 mmfd. (C19)	14376	Transformer—First i.f. transformer (L7, L8, C13, C14)
12723	Capacitor—56 mmfd. (C7)	14308	Transformer—Second i.f. transformer (L9, L10, C15, C16, C17, R5)
14262	Capacitor—109 mmfd. (C13, C14)	33112	Transformer—Power transformer—105-125 volts, 50-60 cycle (T1)
12404	Capacitor—120 mmfd. (C15, C16)	33619	Transformer—Power transformer, 25 cycles, 105-125 volts
14712	Capacitor—180 mmfd. (C17)		SPEAKER ASSEMBLIES (RL-70H6) Model U-123 (Two Band)
30232	Capacitor—220 mmfd. (C21)	31825	Cap—Dust cap for cone center
12952	Capacitor—300 mmfd. (C1)	11469	Coil—Hum neutralizing coil (L12)
30608	Capacitor—510 mmfd. (C4)	33116	Coil—Speaker field coil (L11)
32714	Capacitor—730 mmfd. (C6)	31275	Cone—Speaker cone and voice coil (L13)
13895	Capacitor—5,600 mmfd. (C9)	5118	Plug—3-prong male for speaker
4838	Capacitor—.005 mfd. (C23, C25)	33115	Speaker—Speaker complete
4937	Capacitor—.01 mfd. (C20, C22)	14358	Screw—Screw, washer, and lockwasher to hold core in yoke
4870	Capacitor—.025 mfd. (C18)	31301	Transformer—Output transformer (T2)
32787	Capacitor—.05 mfd. (C12)	14357	Washer—Spring washer to hold field coil
33014	Capacitor—Electrolytic—comprising three 10 mfd. and one 20 mfd. sections (C8, C24, C26, C27)		MISCELLANEOUS ASSEMBLIES Model U-123 (Two Band)
32705	Capacitor—Push button trimmer capacitor bank (C28, C29, C30, C31, C32)	32798	Button—Push button
31382	Clip—Push button coil mounting clip	13103	Cap—Pilot lamp cap (bullseye)
32706	Coil—Antenna coil (L1, L2, L3, L4)	31487	Clip—Spring clip to mount dial scale
32707	Coil—Oscillator coil (L5, L6)	31095	Cover—One set protective discs for call letter markers
31385	Coil—Push button oscillator coil—less core, 550-950 kc (L28)	33117	Dial—Glass dial scale
32704	Coil—Push button oscillator coil—less core, 590-1,020 kc (L29)	31667	Escutcheon—Dial scale escutcheon
32340	Coil—Push button oscillator coil—less core, 690-1,225 kc (L30)	33118	Escutcheon—Push button escutcheon
31383	Coil—Push button oscillator coil—less core, 890-1,500 kc (L31, L32)	30698	Hinge—Cabinet lid hinge
32249	Condenser—2-gang variable (C2, C3, C5)	31391	Knob—Tone control knob
32355	Control—Volume control, tone control, and power switch (R6, R11, S1)	14359	Knob—Tuning or radio-record switch knob
32634	Cord—Drive cord	31355	Knob—Radio-record switch knob
31386	Core—Core and stud for coil, Stock Nos. 31383, 31385, and 32704	30773	Knob—Volume control knob
30846	Core—Core and stud for coil, Stock No. 32340	30991	Marker—One set station call letter markers
32713	Core—Core and stud for oscillator coil, Stock No. 32707	32870	Screen—Phonograph compartment lamp screen
32266	Drum—Condenser drive cord drum	31470	Spring—Motorboard mounting springs, bolts, and washers (4 required)
32711	Indicator—Dial indicator pointer	32721	Spring—Retaining spring for push button
31480	Lamp—Dial lamp socket	30330	Spring—Retaining spring for tone control knob
32710	Plate—Dial color plate and pointer track	14270	Spring—Retaining spring for tuning, volume control, or switch knob
5119	Plug—3-contact female for speaker cable	4982	Spring—Retaining spring for radio-record switch knob
30868	Plug—Motor cable plug	31478	Support—Cabinet lid support
32289	Pulley—Indicator drive cord pulley		
12261	Resistor—390 ohms, 1 watt (R12)		
14559	Resistor—10,000 ohms, 1/2 watt (R7)		
33489	Resistor—15,000 ohms, 2.5 watt (R3)		
14284	Resistor—22,000 ohms, 1/10 watt (R5)		
12454	Resistor—33,000 ohms, 1/2 watt (R2)		
12285	Resistor—470,000 ohms, 1/2 watt (R9)		
13730	Resistor—1 meg., 1/2 watt (R1)		
12201	Resistor—1.5 meg., 1/2 watt (R8)		
12679	Resistor—2.2 meg., 1/2 watt (R4)		
13601	Resistor—10 meg., 1/2 watt (R10)		
30340	Retainer—Pulley retaining clip		
14343	Retainer—Tuning knob shaft retaining ring		
4669	Screw—No. 8-32 x 1/4 square head set screw for drum		
32712	Shaft—Tuning knob shaft and pulley		
31319	Socket—Octal base tube socket		
31418	Spring—Drive cord tension spring		

REPLACEMENT PARTS
AUTOMATIC RECORD CHANGER
MODEL U-123
REFER TO RP-139
PAGE 698C

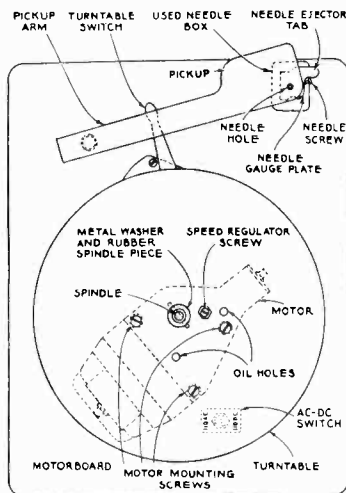
MODELS UY-122E and UY-124

Chassis No. RC-352B and RC-352C

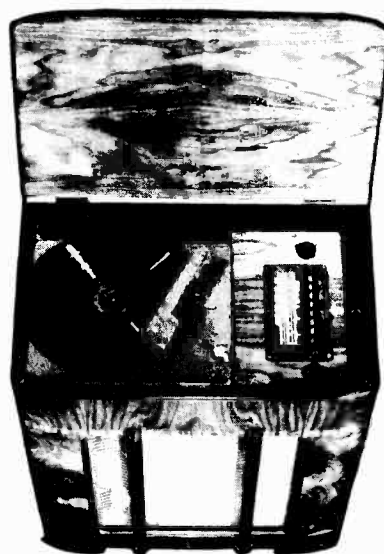
Seven-Tube, Three-Band, Electric-Tuning, AC-DC Superheterodyne Victrolas



Model UY-122E.



Motorboard Details.



Model UY-124.

General Description

The circuit of Models UY-122E and UY-124 is the same as Model 97Y, except for the phonograph circuit which is shown at right. For other circuit details, refer to Service Data for Model 97Y.

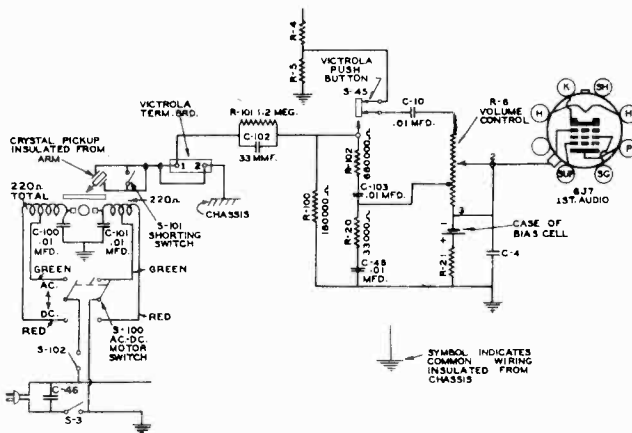
Alignment procedure, adjustments for electric tuning, voltages, and general service data, are the same as for Model 97Y.

Replacement parts for Models UY-122E and UY-124 are listed on the following page.

The phonograph motor has a switch to permit operation on 105-125 volts d.c., or 105-125 volts, 50-60 cycles a.c. The speed regulator screw should be adjusted for 78 r.p.m.

Lubrication should be maintained every six months, applying a few drops of light oil in each oil hole and at the spindle bearing.

The turntable switch should trip to the "off" position when the needle is 1 1/4 inches from the centerline of the turntable spindle.



Phonograph Circuit. Models UY-122E, UY-124.

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
30284	Ballast—Ballast resistor tube (R22, R23).....	31381	Capacitor—620 mmfd. (C24).....
31767	Board—Antenna-ground terminal board.....	31435	Capacitor—750 mmfd. (C26).....
31579	Board—Phonograph terminal board.....	4881	Capacitor—3,300 mmfd. (C22).....
14338	Bushing—Variable condenser mounting bushing and screws.....	12887	Capacitor—4,700 mmfd. (C47).....
31400	Capacitor—Adjustable trimmer capacitor, two sections 2-10 mmfd. and one section 3-30 mmfd. (C21, C23, C25).....	31405	Capacitor—6,000 mmfd. (C27).....
14079	Capacitor—6.8 mmfd. (C1).....	4838	Capacitor—.005 mfd. (C14, C43).....
31387	Capacitor—Antenna coil trimmer capacitor bank—20-470 mmfd. (C31, C32, C33, C34, C35, C38).....	14393	Capacitor—.01 mfd. (C10, C48, C103).....
12948	Capacitor—33 mmfd. (C3, C102).....	11315	Capacitor—.015 mfd. (C12, C17).....
12725	Capacitor—150 mmfd. (C49).....	4886	Capacitor—.05 mfd. (C13, C20, C44).....
13003	Capacitor—180 mmfd. (C37).....	4839	Capacitor—0.1 mfd. (C38, C46).....
30433	Capacitor—470 mmfd. (C2).....	12484	Capacitor—0.25 mfd. (C4, C45).....
		31576	Capacitor—Comprising one 32 mfd., one 20 mfd., and one 16 mfd. section (C15, C18, C19).....
		31584	Capacitor—40 mfd. (C16).....
		30904	Capacitor—100 mfd. (C6, C8, C7, C8).....
		31581	Cell—Bias cell.....
		31382	Clip—Mounting clip for coils and cores on oscillator bank.....
		31402	Coil—Antenna coil (L1, L2, L3).....

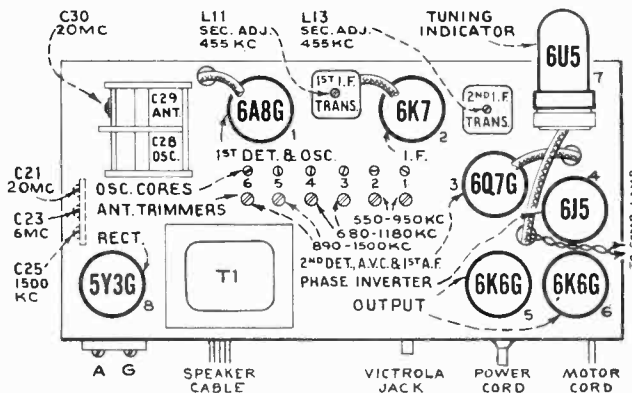
MODEL U-125

Chassis No. RC-386

Eight-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Victrola



Model U-125



Tube and Trimmer Locations

Electrical Specifications

FREQUENCY RANGES

- "Standard Broadcast" (A)..... 540-1,720 kc
- "Medium Wave" (B)..... 2.3-7 mc
- "Short Wave" (C)..... 7-22 mc

R-F ALIGNMENT FREQUENCIES

- "Short Wave" (C)..... 20 mc (osc., ant.)
- "Medium Wave" (B)..... 6 mc (osc.)
- "Standard Broadcast" (A)..... 1,500 kc (osc.)

- Six Electric Tuning Positions..... 550-1,500 kc
- 2 stations between approximately 550- 950 kc (Buttons 1 and 2)
- 2 stations between approximately 680-1,180 kc (Buttons 3 and 4)
- 2 stations between approximately 890-1,500 kc (Buttons 5 and 6)

Intermediate Frequency.....455 kc

RCA TUBE COMPLEMENT

- | | |
|--|---|
| (1) RCA-6A8-G..... First Detector—Oscillator | (5) RCA-6K6-G..... Power Output |
| (2) RCA-6K7..... Intermediate-Frequency Amplifier | (6) RCA-6K6-G..... Power Output |
| (3) RCA-6Q7-G.... Second Detector, 1st A-F, and A.V.C. | (7) RCA-6U5..... "Magic Eye" Tuning Indicator |
| (4) RCA-6J5..... Phase Inverter | (8) RCA-5Y3-G..... Rectifier |

Pilot Lamps (4).....1 Mazda 44, 6.3 volts, 0.25 amp.; 3 Mazda 47, 6.3 volts, 0.15 amp.

POWER SUPPLY RATINGS

- | | | |
|-----------|--------------------------------|-------------------------|
| A-6 | 105-125 volts, | 60 cycles, 115 watts |
| A | 105-125 volts, | 50-60 cycles, 115 watts |
| B-2 | 105-125 volts, | 25 cycles, 115 watts |
| C-6 | 100-130/140-160/200-250 volts, | 60 cycles, 115 watts |
| C | 100-130/140-160/200-250 volts, | 50-60 cycles, 115 watts |

POWER OUTPUT

- Undistorted..... 5 watts
- Maximum..... 5.5 watts

LOUDSPEAKER

- Type..... 12-inch Electrodynamic
- Voice Coil Impedance..... 2.2 ohms at 400 cycles

PICKUP

- Type..... Crystal
- Impedance..... 100,000 ohms at 1,000 cycles
- Average Output..... 1.5 volts at 1,000 cycles across 500,000 ohm load

PHONOGRAPH

RP-132

- Type..... Automatic
- Record Capacity..... Eight 10-inch or seven 12-inch
- Turntable Speed..... 78 r.p.m., adjustable

REFER TO INDEX FOR DATA ON AUTOMATIC RECORD CHANGER

REFER TO MODEL 96K2 FOR ALIGNMENT PROCEDURE AND CHANGES

IN CHASSIS MARKED "M" QR "R"

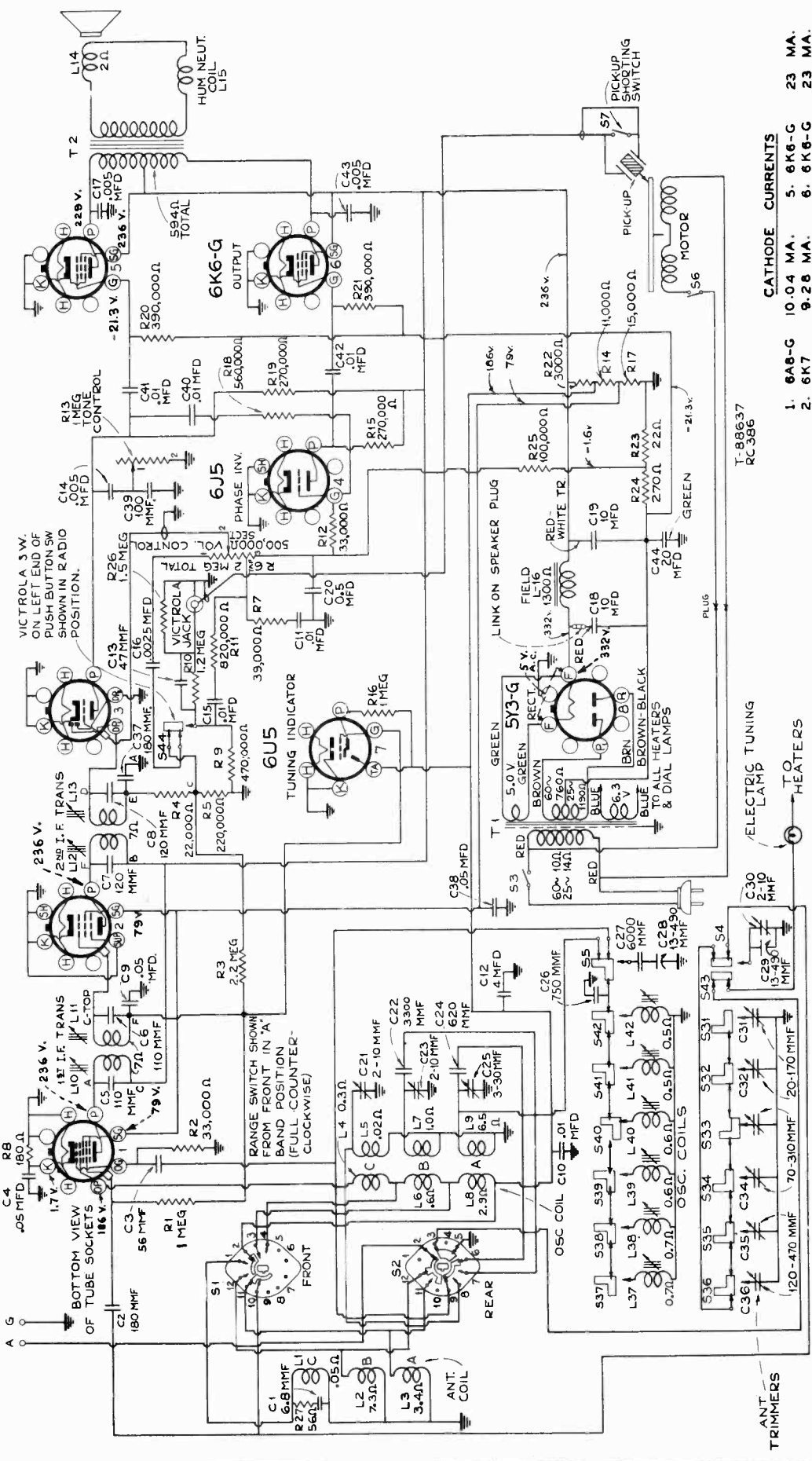
6K6-G
OUTPUT

6Q7-G
2ND DET., AVC & 1ST AF

6K7
I.F.

6A8-G
1ST DET. & OSC.

6K6-G
OUTPUT



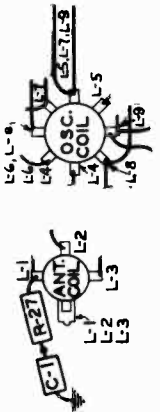
CATHODE CURRENTS

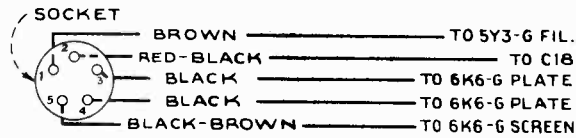
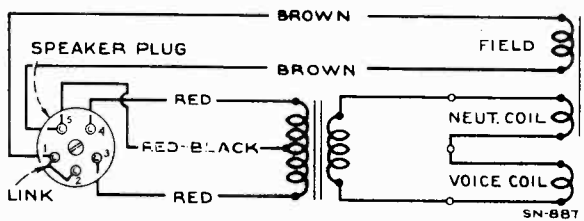
1. 6A8-G	10.04 MA.	5. 6K6-G	23 MA.
2. 6K7	9.28 MA.	6. 6K6-G	23 MA.
3. 6Q7-G	0.43 MA.	7. 6U5	1.9 MA.
4. 6J5	0.74 MA.	TOTAL RECTIFIED "B"	CURRENT - 74.0 MA.

On some models R-26 is 3 megs. For replacement, use 1.5 meg. resistor Stock No. 12.201.

* NOTE.—Values with star (*) are operating voltages in circuits with high series-resistance, and when measured will read lower, depending on the voltmeter loading.

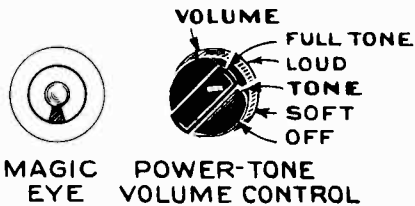
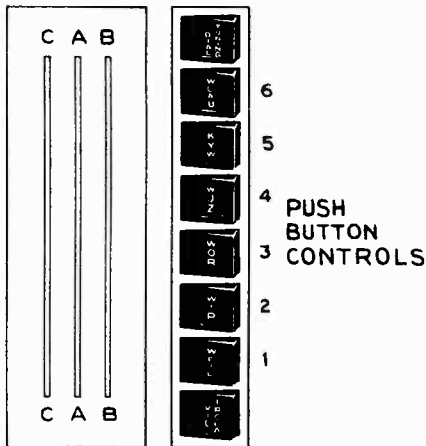
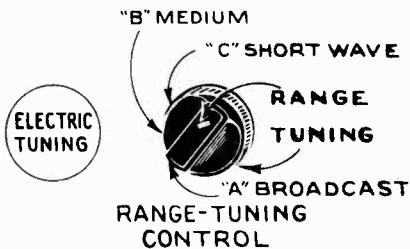
Measurements made to chassis unless otherwise indicated, with set tuned to quiet point, volume control at minimum. Values should hold within approximately ±30% with 117-volt a-c supply.





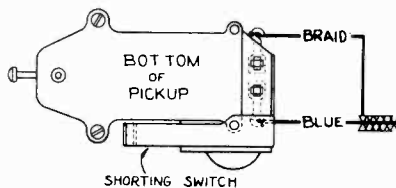
SPEAKER PLUG CONNECTIONS

Connections and Colors of Loudspeaker and Cable



The rear push-button is for dial tuning
The front push-button is the Victrola switch

Location of Controls



Pickup Connections

Precautionary Lead Dress.—

1. Dress red leads from power transformer to power switch (S3), in corner of chassis and away from volume control terminals.
2. Dress brown lead from push-button switch to gang over end of switch, and away from C27 and bus between S5 and range switch.
3. Leads to C27 must be as short as possible.
4. Blue lead from range switch to oscillator coil must be as short as possible and dressed away from other leads. All leads should be dressed away from antenna coil.
5. Leads across back of chassis must be dressed under electrolytic away from Victrola jack.
6. Parts and leads should be dressed away from R22-R14 as it becomes heated.
7. Leads from oscillator coil to trimmers must be dressed away from coil.
8. Green lead from S4 to range switch must be clear of other leads and away from front edge of chassis.

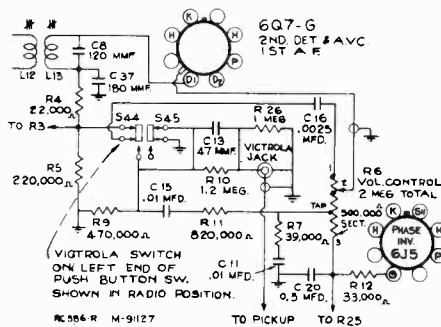
REDUCTION OF LOW FREQUENCY RESPONSE

The phono. low frequency response may be lessened by installing a 50,000 ohm 1/4 watt resistor across the terminals of the crystal pickup.

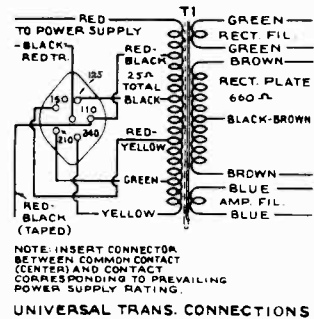
PHONO PLAY-THRU ON RADIO

On early models phono reproduction can be had when push-buttons are in "dial tuning" or "push button" position. This may be eliminated at a slight loss of high frequency response by removing C15 and R11.

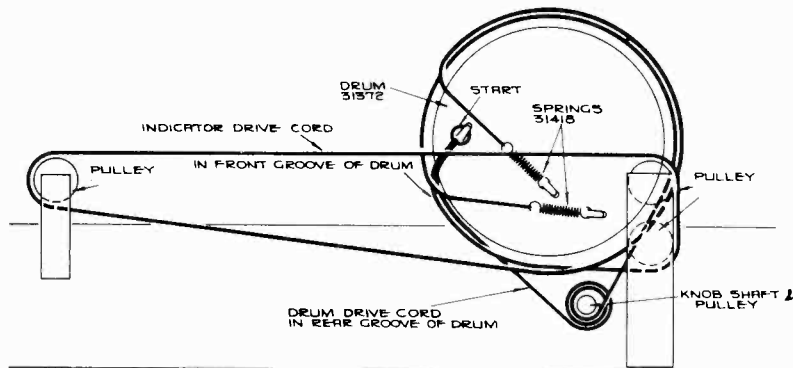
The phono switching circuit in late U-125 is changed as shown below to eliminate cross-talk.



Model U-125 Victrola Switch Circuit
Used in 3rd Production
(Using Stock No. 32498 Push-Button Switch)



Above—Universal Power Transformer Connections. (110-volt supply for a Victrola Attachment may be obtained by connecting the motor to the red and the red-black leads.)



DRUM SHOWN WITH GANG AT MAXIMUM CAPACITY
Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES		4689	Screw—No. 8-32 square head set screw for drum, Stock No. 31372
14517	Board—Antenna ground terminal board	31388	Shaft—Station selector knob shaft and pulley
30752	Bracket—Magic Eye mounting bracket	3682	Shield—Tube shield
31400	Capacitor—Triple adjustable trimmer two sections 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25)	30868	Socket—2-contact female socket for motor power cable
14079	Capacitor—6.8 mmfd. (C1)	12493	Socket—5-contact female socket for speaker cable
31387	Capacitor—Antenna coil trimmer capacitor bank 20-470 mmfd. (C31, C32, C33, C34, C35, C36)	13871	Socket—Magic Eye socket
13141	Capacitor—47 mmfd. (C13)	14278	Socket—Pickup input socket
12723	Capacitor—56 mmfd. (C3)	31251	Socket—Tube socket
12720	Capacitor—100 mmfd. (C39)	31418	Spring—Indicator or drum drive cord tension spring
14282	Capacitor—110 mmfd. (C5, C6)	31398	Switch—Range switch (S1, S2)
12404	Capacitor—120 mmfd. (C7, C8)	31370	Switch—Station selector push-button switch (S4, S5, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44)
13003	Capacitor—180 mmfd. (C2)	14376	Transformer—First i-f transformer (L10, L11, C5, C6)
14712	Capacitor—180 mmfd. (C37)	14283	Transformer—Second i-f transformer (L12, L13, C7, C8, C37, R4, R5)
31381	Capacitor—620 mmfd. (C24)	31445	Transformer—Power transformer 105-125 volts, 25-60 cycles (T1)
31435	Capacitor—750 mmfd. (C26)	31446	Transformer—Power transformer 100-130/140-160/200-250 volts, 50-60 cycles (T1)
4881	Capacitor—3,300 mmfd. (C22)	32144	Transformer—Power transformer 105-125 volts, 50-60 cycles (T1)
31405	Capacitor—8,000 mmfd. (C27)	SPEAKER ASSEMBLIES (RL-70H-5)	
5107	Capacitor—.0025 mfd. (C18)	13866	Cap—Dust cap for conp center
4838	Capacitor—.005 mfd. (C14, C17, C43)	12012	Coil—Field coil (L16)
4858	Capacitor—.01 mfd. (C10, C40, C41, C42)	11469	Coil—Neutralizing coil (L15)
14393	Capacitor—.01 mfd. (C11, C15)	31275	Cone—Speaker cone and voice coil (L14)
30882	Capacitor—.05 mfd. (C4, C9, C38)	31539	Plug—5-contact male plug for speaker
30867	Capacitor—0.5 mfd. (C20)	32146	Speaker complete
32145	Capacitor—4 mfd. (C12)	14534	Transformer—Output transformer (T2)
32142	Capacitor—Comprising two 10 mfd., one 20 mfd. sections (C18, C19, C44)	14357	Washer—Spring washer to hold field coil securely
31382	Clip—Oscillator coil and core mounting clip	MISCELLANEOUS ASSEMBLIES	
31402	Coil—Antenna coil—A, B, and C bands (L1, L2, L3)	12038	Band—Rubber band for Magic Eye
31401	Coil—Oscillator coil—A, B, and C bands (L4, L5, L6, L7, L8, L9)	31397	Button—Station selector push-button
31383	Coil—Oscillator coil—A band (L41, L42)	13103	Cap—Pilot light jewel
31384	Coil—Oscillator coil—A band (L39, L40)	31456	Cover—8-protective covers for push-button markers
31385	Coil—Oscillator coil—A band (L37, L38)	31541	Cushion—Motor plate mounting cushions and clamps sufficient for one instrument
31369	Condenser—2-gang variable tuning condenser (C28, C29, C30)	31591	Dial—Station selector dial scale
31366	Control—Volume control, tone control, and on-off switch (R6, R13, S3)	31407	Escutcheon—Magic Eye or Electric Tuning indicator escutcheon
31375	Cord—Indicator pointer drive cord	31395	Escutcheon—Tuning dial escutcheon only, less push-buttons and dial scale
31374	Cord—Variable condenser drum drive cord	30898	Hinge—Cabinet lid hinge
30905	Core—Adjustable core for i-f transformer	31543	Indicator—Electric Tuning indicator disc
31386	Core—Adjustable core and stud for oscillator coil, Stock Nos. 31383, 31384, and 31385	31392	Indicator—Indicator pointer, carriage, and clip
31372	Drum—Variable condenser drive cord drum and calibration dial	31355	Knob—Range switch knob
11891	Lamp—Phono. compartment lamp	14359	Knob—Station selector knob
31480	Lamp—Dial and "Electric Tuning" lamp	31391	Knob—Tone control knob
30868	Plug—2-contact female plug for motor cable	30773	Knob—Volume control knob
5040	Plug—4-contact female plug for speaker cable	31460	Marker—"Dial Tuning" marker for push-button
31373	Pulley—Drive cord pulley	31459	Marker—"Victrola" marker for push-button
32143	Resistor—Voltage divider comprising one 11,000-ohm, one 3,000-ohm, one 22-ohm, and one 270-ohm sections (R14, R22, R23, R24)	31590	Markers—Station call letter markers
13220	Resistor—56 ohms, 1/2-watt (R27)	31393	Screen—Dial color screen
30545	Resistor—180 ohms, 1/2-watt (R8)	31760	Screen—Phono. compartment lamp screen
5114	Resistor—15,000 ohms, 1-watt (R17)	11210	Screw—Chassis mounting screws, washers, and lockwashers
14284	Resistor—22,000 ohms, 1/10-watt (R4)	31470	Springs—Motorboard suspension top spring, bottom spring, screw, and lockwasher (4 reqd.)
12454	Resistor—33,000 ohms, 1/2-watt (R2, R12)	4982	Spring—Retaining spring for knob Stock No. 14359
12266	Resistor—39,000 ohms, 1/2-watt (R7)	14270	Spring—Retaining spring for knob Stock Nos. 30773 and 31355
14560	Resistor—100,000 ohms, 1/2-watt (R25)	30330	Spring—Retaining spring for knob Stock No. 31391
11398	Resistor—220,000 ohms, 1/10-watt (R5)	31478	Support—Cabinet lid support
12199	Resistor—270,000 ohms, 1/2-watt (R15, R19)		
13479	Resistor—390,000 ohms, 1/2-watt (R20, R21)		
12285	Resistor—470,000 ohms, 1/2-watt (R9)		
12486	Resistor—560,000 ohms, 1/2-watt (R18)		
30963	Resistor—820,000 ohms, 1/2-watt (R11)		
12013	Resistor—1 meg., 1/10-watt (R16)		
13730	Resistor—1 meg., 1/2-watt (R1)		
30208	Resistor—1.2 meg., 1/2-watt (R10)		
12201	Resistor—1.5 meg., 1/2-watt (R26)		
12679	Resistor—2.2 meg., 1/2-watt (R3)		
14343	Retainer—Retaining spring for station selector knob shaft		
14887	Retainer—Drive cord pulley retainer		

Motor Bracket Flexible Mount:

Mechanical hum resulting from motor vibration is generally governed by cabinet resonance, amount of torque in the particular motor, and the various mountings involved. Tolerances are maintained on each of these items so they balance out and no hum interference develops. An occasional instrument, however, may have accentuated resonance or vibration which are additive in effect. In order to remedy this condition, a more flexible cushion should be used for

supporting the motor bracket to the cabinet. Replacement Stock No. 31541 will include two sets of rubber cushions, one gray colored and the other black. The gray is quite flexible, whereas the black is relatively stiff. The black is for use on the Model U-125 particularly where mechanical hum is present, and the gray is for use on other phonograph combinations where No. 31541 is specified.

REPLACEMENT PARTS
AUTOMATIC RECORD CHANGER
REFER TO RP-132

PAGE 698C

AUTOMATIC RECORD CHANGERS

TYPE NO. RP-132, RP-139, RP-140 and RP-145

Type RP-132 or Stock No. 9844.

Uses a governor type motor. Models 11QU and 12QU have a lever type speed control. Type RP-132 does not have pickup muting switch.

Type RP-139

Uses an induction motor (not governor type). The turntable is driven thru a worm gear in the motor housing.

Type RP-140

Uses a governor type motor, has flat type pickup locating lever spring "9M" like RP-139.

Type RP-145

Uses a capacitor induction motor. The turntable is driven thru a friction drive disc mounted on the turntable spindle.

Variations of each type denoted by a suffix letter such as RP-139A, RP-145E, etc. indicate variations in tone arm style, motor switch, etc.

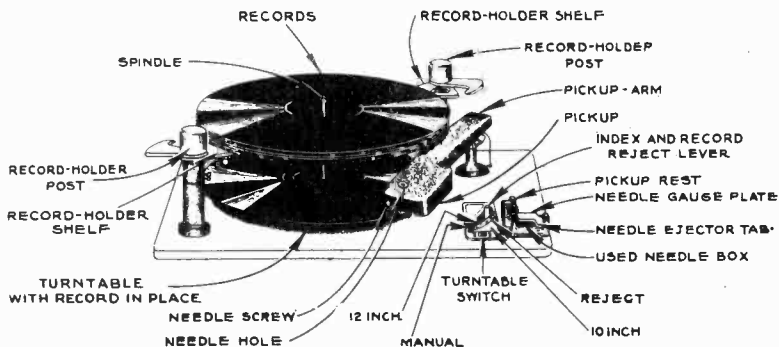
Models QU-5, U-46 and QU-51 use a mercury switch to shut off the motor when the pickup is on its rest.

"RP" vs. "MODEL" NUMBERS

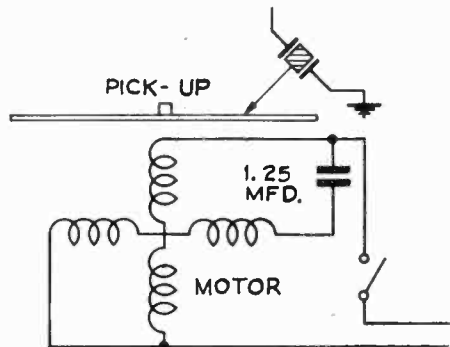
QU-5	RP-145E
11QU	RP-132A
12QU	RP-132A
VA-22	RP-139D
VA-22	RP-145C
U-25	RP-132M
U-26	RP-132M

U-30	RP-132M
U-40	RP-139A
U-42	RP-145
U-43	RP-145
U-44	RP-145
U-45	RP-139A
U-46	RP-140
QU-51C	RP-145E

U-123	RP-139B
U-125	RP-132C
U-128	RP-132
U-129	RP-132C
U-129	RP-132F
U-130	RP-132C
U-132	RP-132B
U-134	RP-132B



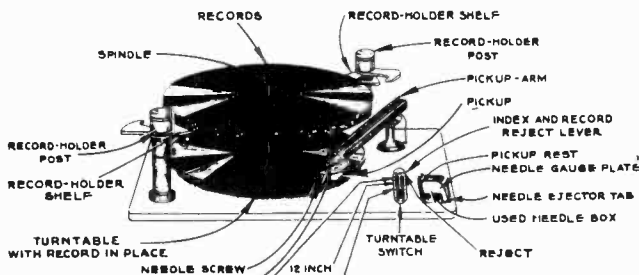
RP-132



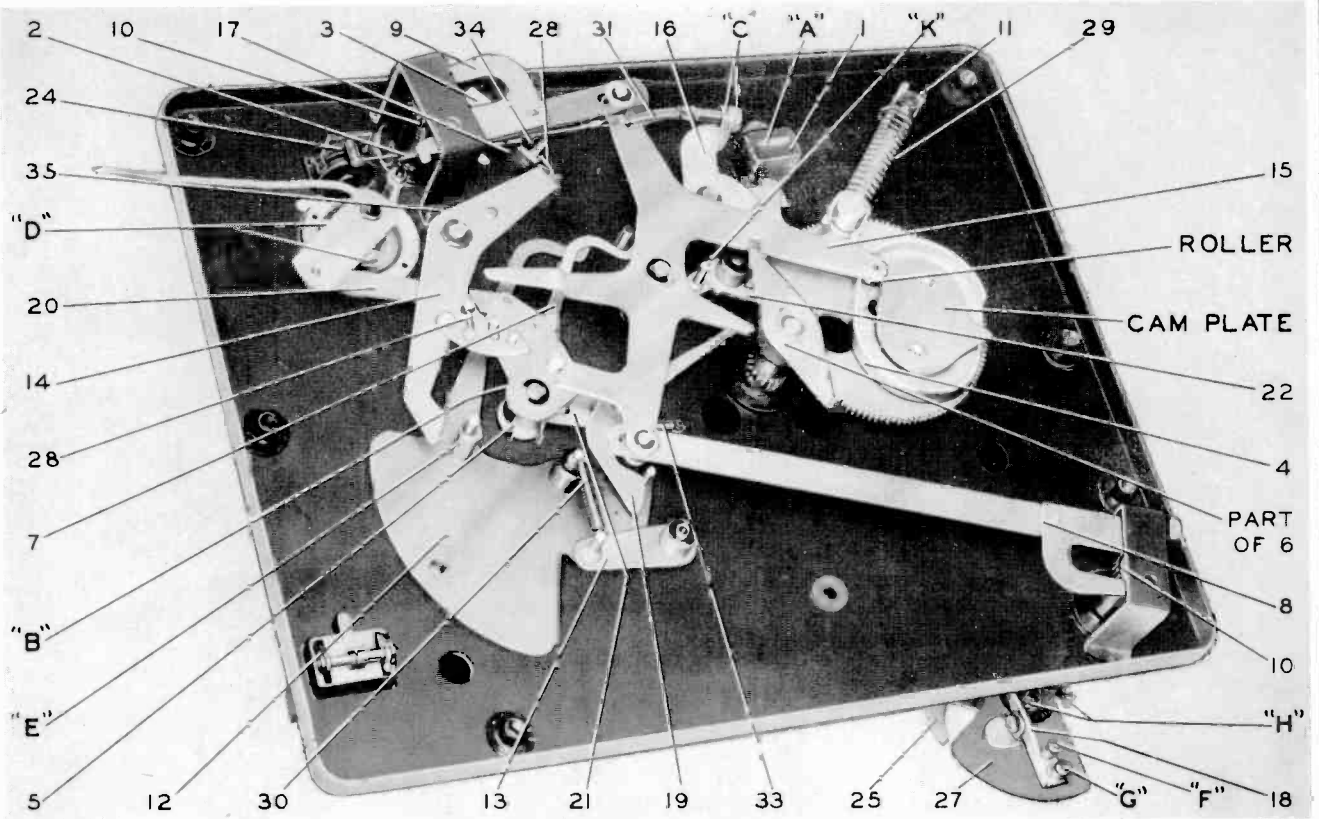
Motor Schematic RP-145

These record changers are available for operation on voltages and frequencies as follows:

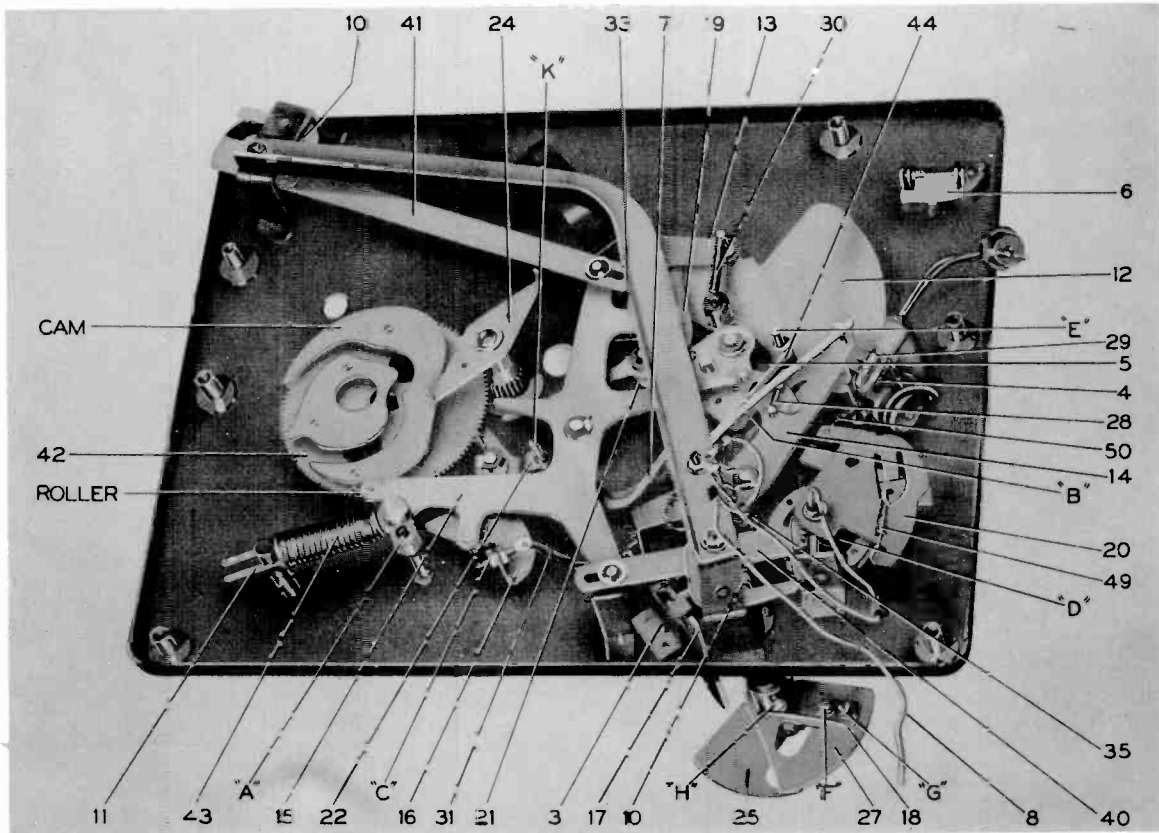
RP-139-A.....	105-125 volts, 60 cycles, 21 watts
RP-139-A.....	105-125 volts, 50 cycles, 21 watts
RP-139-A.....	105-125 volts, 25 cycles, 22 watts
RP-145.....	105-125 volts, 60 cycles, 15 watts
RP-145.....	105-125 volts, 50 cycles, 15 watts



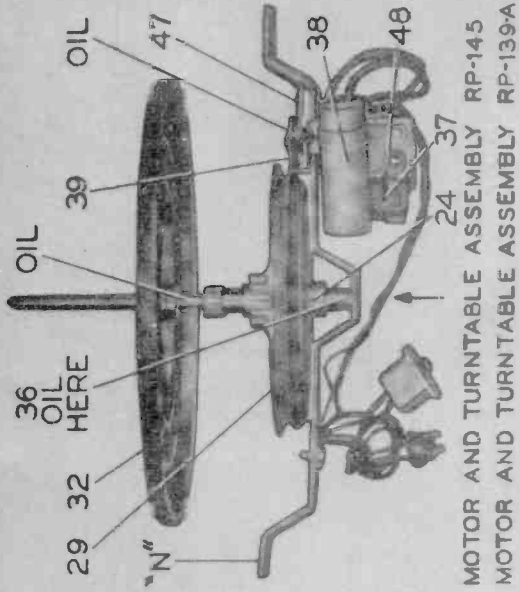
RP-139-A, RP-145



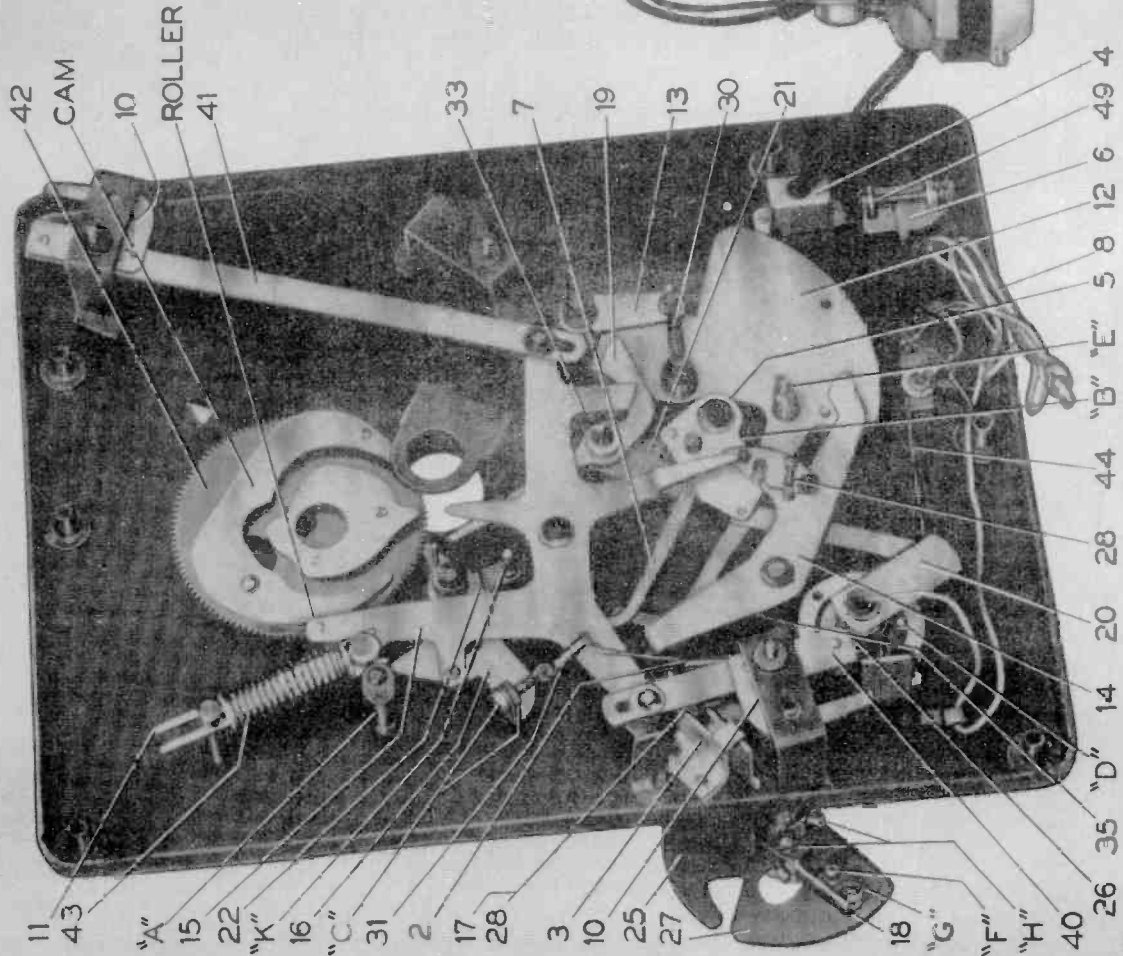
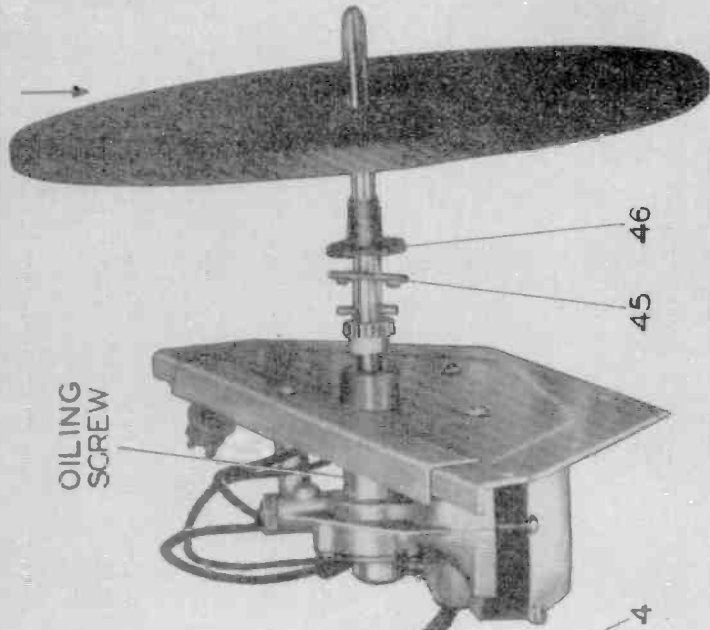
Bottom View of Automatic Record Changer **RP-132**
 NOTE: Numbers refer to parts—letters refer to adjustments.



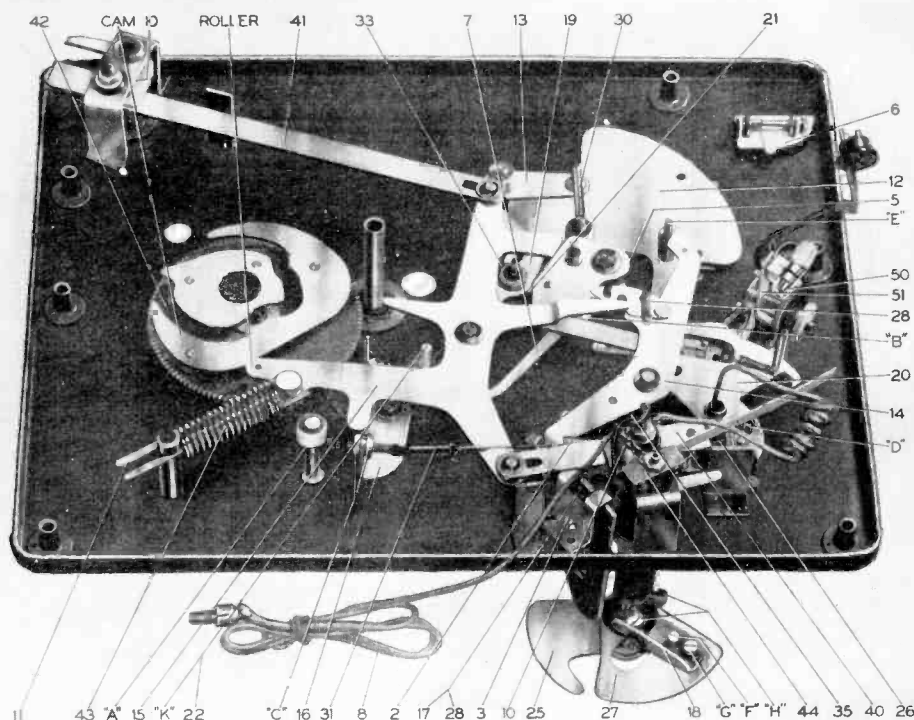
Bottom View of Automatic Record Changer **RP-140 (U-46)**
 NOTE: Numbers refer to parts—letters refer to adjustments.



MOTOR AND TURNTABLE ASSEMBLY RP-145
 MOTOR AND TURNTABLE ASSEMBLY RP-139A



RP-139-A, RP-145



RP-145E (QU-5, QU-51C)

Before servicing the automatic record changer, inspect the assembly to see that all levers, parts, gears, springs, etc., are in good order and are correctly assembled.

A bind or jam in the mechanism can usually be relieved by rotating the turntable in the reverse direction.

The changer can be conveniently rotated through its change cycle by pushing the index lever to "Reject" and revolving the turntable by hand. Six turntable revolutions are required for one change cycle.

If the record changer or cabinet is not perfectly level, normal operation is likely to be affected.

The 10 and 12 inch records must be absolutely flat for smooth operation.

ADJUSTMENTS

A. Main Lever.—This lever is basically important in that it interlinks the various individual mechanisms which control needle landing, tripping, record separation, etc. Rotate the turntable until the changer is out-of-cycle, and check rubber bumper bracket (A). The roller should clear the nose of the cam plate by approximately 1/16 inch.

B. Friction Clutch.—The motion of the tone arm toward the center of the record is transmitted to the trip pawl "22" by the trip lever "7" through a friction clutch "5". If the motion of the pickup is abruptly accelerated or becomes irregular due to swinging in the eccentric groove, the trip finger "7" moves the trip pawl "22" into engagement with the pawl on the main gear, and the change cycle is started. Proper adjustment of the friction clutch "5" occurs when movement of the tone arm causes positive movement of the trip pawl "22" without tendency of the clutch to slip. The friction should be just enough to prevent slippage, and is adjustable by means of screw "B". If adjustment is too tight, the needle will repeat grooves; if too loose, tripping will not occur at the end of the record.

C. Pickup Lift Cable Screw.—During the record change cycle, lever "16" is actuated by the main lever "15" so as to raise the tone arm clear of the record by means of the pickup lift cable. To adjust pickup for proper elevation, stop the changer "in-cycle" at the point where pickup is raised to the maximum height above turntable plate, and has not moved outward; at this point adjust locknuts "C" to obtain 1 inch spacing between needle point and turntable top surface.

D. & E. Needle Landing on Record.—The relation of coupling between the tone arm vertical shaft and lever "20" determines the landing position of the needle on a 10 inch record. Position of eccentric stud "E" governs the landing of the needle on a 12 inch record; this, however, is dependent on the proper 10 inch adjustment.

To adjust for needle landing, place 10 inch record on turntable; push index lever to reject position and return to the

10 inch position; see that pickup locating lever "17" is tilted fully toward turntable; rotate mechanism through cycle until needle is just ready to land on the record; then see that pin "V" on lever "14" is in contact with "Step T" on lever "17". The correct point of landing is 4/8 inches from the nearest side of the turntable spindle; loosen the two screws "D" and adjust horizontal position of tone arm to proper dimension, being careful not to disturb levers "14" and "17". Leave approximately 1/32 inch end play between hub of lever "20" and pickup base bearing, and tighten the blunt nose screw "D"; run mechanism through several cycles as a check, then tighten cone pointed screw "D".

After adjusting for needle landing on a 10 inch record, place 12 inch record on turntable, push index lever to reject and return to 12 inch position; rotate mechanism through cycle until needle is just ready to land on the record; the correct point of landing is 5/8 inches from nearest side of spindle. If the landing is incorrect, turn stud "E" until the eccentric end adjusts lever "14" to give correct needle landing. The eccentric end of the stud must always be toward the rear of the motorboard, otherwise incorrect landing may occur with 10 inch records.

F. & G. Record Separating Knife.—The upper plate (knife) "25" on each of the record posts serves to separate the lower record from the stack and to support the remaining records during the change cycle. It is essential that the spacing between the knife and the rotating record shelf "27" be accurately maintained. The spacing for the 10 inch record is nominally .055 inch, and for the 12 inch record is .075 inch.

To adjust, rotate the knife to the point of minimum vertical separation from the record shelf and turn screw and locknut "F" to give .052—.058 inch separation. Screw "G" must not be depressed during this adjustment. After setting screw "F," adjust screw "G" so that when its tip is depressed flush with top of record shelf, the vertical spacing between the knife, in its lowest rotational position, and the shelf, is .072—.078 inch.

H. Record Support Shelf.—The record shelf revolves during the change cycle to allow the lower record to drop onto the turntable. Both posts are rotated simultaneously by a gear and rack coupled to the main lever "15," and it is necessary that adjustment be such that the record is released from both shelves at the same instant. To adjust, place a 12 inch record on the turntable, rotate mechanism into cycle to the point where both separating knives have turned clockwise as far as the mechanism will turn them; lift record upward until it is in contact with both separating knives. Then loosen screws "H" and shift record shelves "27" so that the curved inner edges of the shelves are uniformly spaced approximately 1/16 inch from the record edge. Some backlash will be present in the rotation of these shelves. They should be adjusted so that the backlash permits them to move away from the record but not closer than the approximate 1/16 inch specified above. Tighten the blunt nose screw "H," run mechanism through cycle several times to check action, then tighten cone pointed screw "H".

If record shelves or knives are bent, or not perfectly horizontal, improper operation and jamming of mechanism will occur.

J. Tone Arm Rest Support (not shown).—When the changer is out-of-cycle, the front lower edge of the pickup head should be 5/16 inch above surface of motorboard. This may be adjusted by bending the tone arm support bracket, which is associated with the tone arm mounting base, in the required direction.

K. Trip Pawl Stop Pin.—The position of the trip pawl stop pin "K" in relation to the main lever "15" governs the point at which the roller enters the cam. By bending the pin support either toward or away from trip pawl bearing stud,

the roller can be made to enter the cam later or earlier, respectively. This adjustment should be made so that the roller definitely clears the cam outer guide as well as the nose of the cam plate.

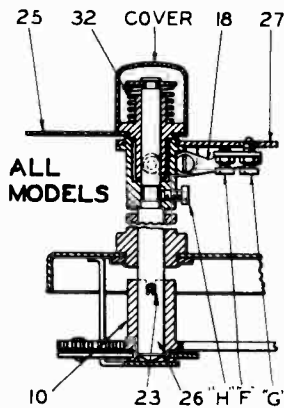
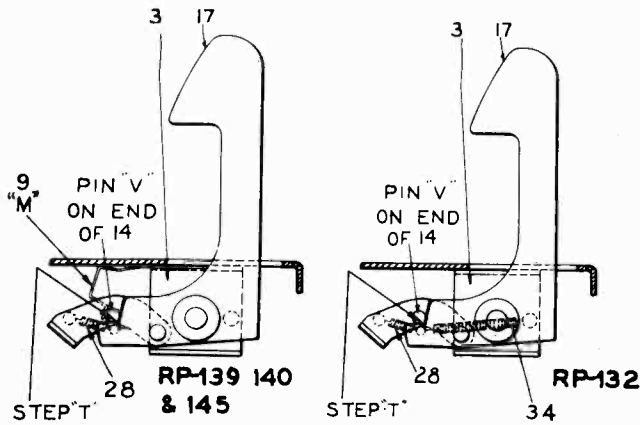
MISCELLANEOUS SERVICE HINTS

Incorrect adjustment of a particular mechanism of the changer is generally exhibited in a specific mode of improper operation. The following relations between effects on operation and the usual misadjustments will enable ready adjustment in most cases.

1. For any irregularity of operation, the adjustment of the main lever "15" should be checked first as in "A."
2. Needle does not land properly on both 10 and 12 inch records—Make complete adjustments "D" and "E."
3. Needle does not land properly on 12 inch record but correct on 10 inch—Effect adjustment "E."
4. Failure to trip at end of record—Increase clutch "5" friction by means of screw "B." Also, see that levers "7" and "12" are free to move without touching each other.
5. Pickup strikes lower record of stack or drags across top record on turntable—Adjust lift cable per adjustment "C."
6. Needle does not track after landing—Friction clutch "5" adjustment "B" may be too tight; bind in tone arm vertical bearing; levers "7" and "12" fouled; or pickup output cable twisted.
7. Cycle commences before record is complete—Record is defective, or adjustment "B" of friction clutch "5" is too tight.
8. Wow in record reproduction—Record is defective; or instrument is not being operated at normal room temperature; oil, grease, dirt, or other foreign matter on motor spindle, main driving disc or idler pulley rubber tire. Clean with any quick drying naphtha. Also, the motor support bracket "N" should be moved in its mounting holes until the motor spindle is parallel to the turntable spindle and exactly at right angles to the main driving disc "29". The bracket mounting nuts should then be securely tightened.
9. Record knives strike edge of records—Records warped; record edges are rough; or knife adjustments "F" and "G" are incorrect.
10. Record not released properly—Adjust record shelf assemblies in respect to shaft by means of adjustment "H."
11. When playing both types of records mixed and needle either lands in 10 inch position on 12 inch record or misses record entirely—Increase tension of mixed record discriminating lever spring "M."

ON RP-139, 140 & 145. SPRING
ON RP-132 (PAGE 702)

RP-132, RP-139, RP-140, RP-145



Details of Record Shelf Posts, and Locating Lever Assemblies

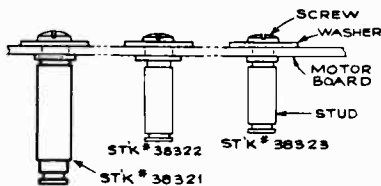
REPLACEMENT STUDS

For Main Lever, Cam-and-Gear, or Trip Pawl :

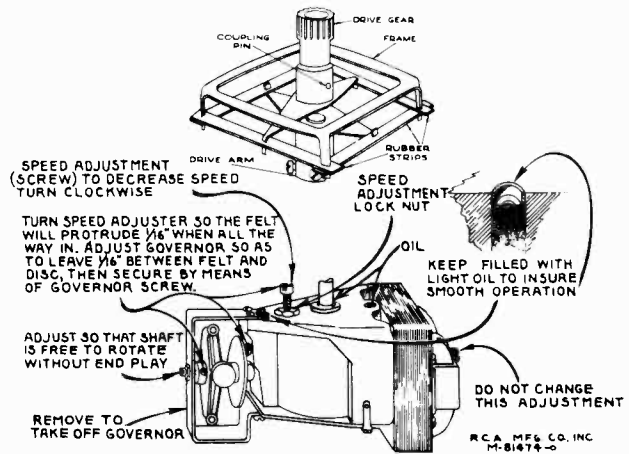
In automatic record changers of the RP-139A, 145, 152, 153, 155, and similar types, loosening of the mounting studs on which the main lever, cam-and-gear, or trip pawl are pivoted may be caused by jamming of the main lever against the pawl pin at the end of the change cycle due to one or more of the following reasons:

- (a) The long arm of the main lever slides over the thin pawl pin instead of pushing against it during first half of cycle. Check for bent arm on main lever.
- (b) After being cleared out of the way, the trip pawl bounces back due to vibration (dancing near mechanism, etc.) Check the trip-pawl phosphor-bronze spring for sufficient "drag" or pressure against the pawl.
- (c) The index lever is put into "REJECT" position while the mechanism is still in its change cycle. Caution customer against this.

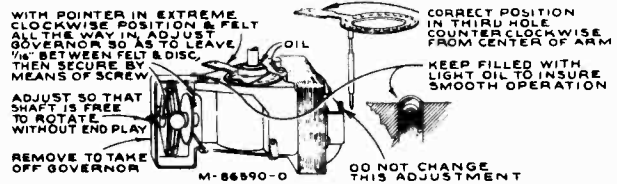
Loose studs may be quickly and easily replaced by using special replacement studs that are fastened to the motorboard by means of a screw and washer. Three different studs are available:



Stock No.	
38321	Main Lever replacement stud, with screw and washer...
38322	Cam-and-Gear replacement stud, with screw and washer.
38323	Trip Pawl replacement stud, with screw and washer...



Motor Data and Coupling RP-132, RP-140



Models 11QU and 12QU, lever-type speed control

Lubrication.— Petrolatum or petroleum jelly should be applied to cam and gears of record posts. Apply heavy gear grease, such as "Texaco Crater No. 2" or equivalent to main gear and spindle pinion gear.

Light machine oil should be used in the tone arm vertical bearing, record post bearings, and all other bearings of various levers on underside of motor board.

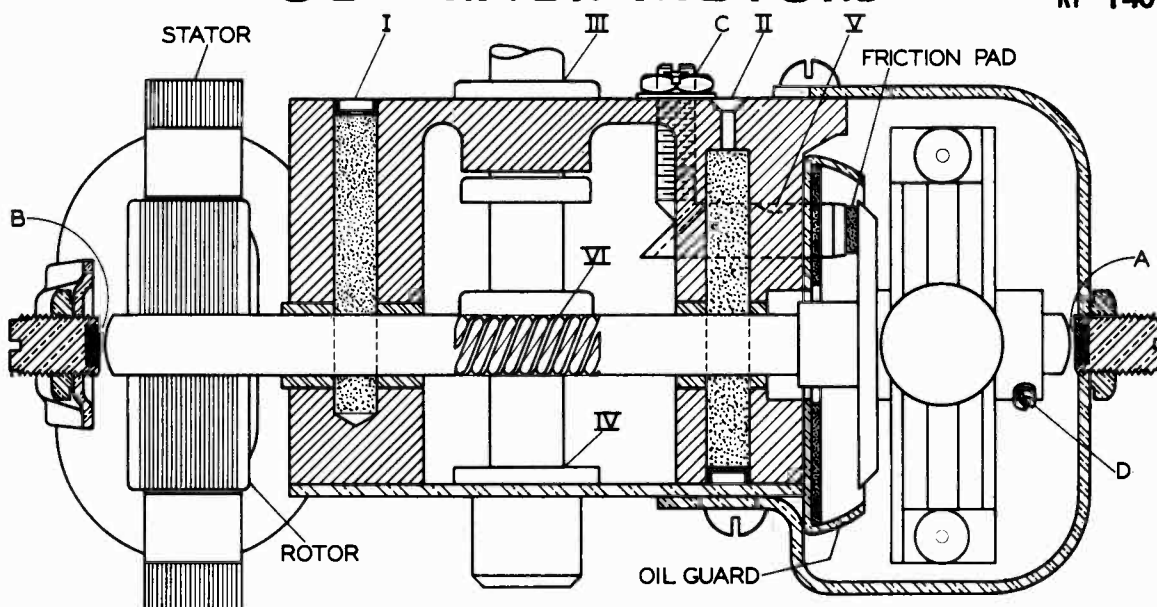
The felt washer between the turntable and spindle bearing should be soaked in light engine oil whenever the turntable is removed, or as required for proper operation. The turntable spindle bearing of RP-145 must be lubricated from the top of the motorboard. Using an oil can with a long spout, reach in between the turntable and motorboard and apply oil directly to the spindle.

On Model RP-139-A apply a few drops of light machine oil (S.A.E.-10) to the motor oil hole adjacent to the spindle bearing after each 1,000 hours of operation. The oil hole has a screw plug.

Do not allow oil or grease to come in contact with rubber mounting of tone arm base, rubber bumper, rubber spindle cap, or rubber parts of friction drive mechanism of Model RP-145.

The RP-145 turntable is not removable from the spindle. However, the rubber tired driving disc is fastened to the spindle by means of a tapered pin "24." If necessary to remove these parts the tapered pin should first be removed. The driving disc can then be removed from the spindle and the turntable and spindle assembly lifted upward from the motorboard. If this is done, great care should be taken not to bend the spindle. At the same time the spindle bearing should be oiled and the cup and ball thrust bearing oiled and checked for proper position. The RP-145 drive motor, bearing is lubricated from an oil well filled and sealed at the factory. It should not require lubrication in the field.

GOVERNOR MOTORS



Lubrication and Adjustment

- (1) Remove motor end brackets, bottom cover containing lower spindle bearing, and governor. Slide vertical spindle downward, remove C-washer; then push upward to disengage worm gear. Slide rotor and shaft from motor.
- (2) Clean rotor bearings and rotor shaft thoroughly with "Carbona" or "benzine." Flush oil reservoirs I and II with the same solvent, preferably after removing oil wicks.
- (3) Remove governor felt friction pad V. Replace this pad with revised type Stock No. 34058, being certain to saturate thoroughly with oil.
- (4) Put slight amount of oil in each rotor bearing, and reinsert rotor shaft. See that shaft revolves freely when in position.
- (5) Oil bearing IV, grease gear VI, and re-install bottom cover; checking to assure that vertical spindle revolves freely and worm is properly meshed after cover is in place and screws tightened. Do not misplace small disc of bottom thrust bearing.
- (6) Inspect governor to see that springs move freely under retaining washers, and that governor is otherwise in good condition. Install on rotor shaft, checking for possible bind of sleeve on the shaft.
- (7) Replace end brackets containing thrust screws "A" and "B"
- (8) Adjust thrust screw "A" so that one steel lamination of rotor shows beyond the stator laminations as illustrated. This positions rotor at the electrical center of the stator, for maximum torque.
- (9) Adjust thrust screw "B" to provide 1/16 inch clearance from end of rotor shaft.
- (10) Fill both wells I and II with oil. At least 30-50 drops are required. Also oil bearing III.
- (11) Position governor so that when it is fully contracted (closed), the friction disc is aligned with outer edge of oil guard. Tighten set screw "D".
- (12) Connect motor to source of power, and adjust screw "C" to give 78 R.P.M. After allowing motor to run a short time, to compress felt pad. It may be necessary to recheck position of governor to give sufficient range of speed adjustment.
- (13) Test motor, after allowing it to reach operating temperature, by grasping spindle and noting relative amount of force required to cause governor to contract. Also stall motor, and release, to see that governor has "snappy" response.

Governor Waver—Causes

Drifting of motor speed at a slow rate, or erratic shift to other than normal speed, is generally caused by (1) binding of rotor or spindle bearings due to lack of lubrication, (2) scored shafts or bearings, (3) binding due to tight adjustment of thrust bearing "B", (4) binding of turntable spindle bearing on motor board (where used), (5) improper centering of motor with respect to turntable spindle.

Special Notes

- (1) Do not interchange parts of different motors, especially bearings, shafts, or gears.
- (2) Where a new rotor or turntable spindle is installed, allow motor to run-in for eight hours; preferably under load.
- (3) The motor should not be tested or used at temperatures below 65 degrees Fahrenheit.
- (4) Where thrust bearing screw "A" is badly worn or does not have a fibre insert, replace with RCA Stock No. 31616.
- (5) Governor motors should be thoroughly lubricated after approximately 300-500 hours of operation. This is equivalent to 1-2 years usage in the average home.

Governor Chatter—Causes

When the governor rattles or flutters rapidly, accompanied by excessive mechanical noise, the likely source of trouble is

- (1) glazed felt friction pad due to lack of lubrication, (2) rotor not centrally positioned in stator, (3) thrust bearing "A" worn, (4) mis-aligned or rough governor disc.

Lubricant Specifications

Only mineral base oils and greases should be used.

- (1) For points requiring oil, use a type having a high viscosity index (with a viscosity rating of SAE 20-30), such as "Esso Motor Oil, Uniflo No. 3."
- (2) For points requiring grease, a light gear grease having good clinging properties, such as "Cities Service No. 7035-A1" or "Koolmotor Universal Trojan No. 1", should be used.

VICTROLA MECHANISM NOTES

IDENTIFICATION OF GOVERNORS

In Phono Motors:

The following governors are similar with exception of the weight and spring assemblies. The rings mentioned are two grooves cut in the flyball for identification purposes

Stock No.	Identification
11703	Weight has two rings and uses spring .156 in. wide X .0076 in. thick. Balls measure 9/32 in. X 5/8 in. D.
31623	Weight has two rings and uses spring .156 in. wide X .0066 in. thick. Balls measure 9/32 in. X 5/8 in. D.
31624	Weight is plain and uses spring .156 in. wide X .0066 in. thick. Balls measure 5/16 in. X 5/8 in. D.
32034	Weight is plain and uses spring .187 in. wide X .0082 in. thick. Balls measure 5/16 in. X 5/8 in. D.

PHONOGRAPH MOTORS

Identifying Colors:

In order to facilitate identification in respect to frequency, Phonograph motors are marked either on the bottom or side with a large spot of paint as follows:

60 cycles..... no mark
 50 cycles..... green
 25 cycles..... white

REPLACEMENT PHONO MOTOR NO. 38567

Installation Instructions:

No. 38567 motor is 60-cycle replacement for Stock No. 31157 and No. 31163 used in Models U-125, U-126, U-128, U-130, U-132, U-134, etc.

Parts Required

- 1—RCA No. 38567 Constant Speed Motor 105-125 V.—60 cycles
- 1—RCA No. 38568 Thrust Bearing Assembly
- 1—RCA No. 38569 Motor Support Plate

INSTALLATION

- (a) Remove original motor and support plate assembly from instrument.
- (b) Drive out TAPERED COUPLING PIN and lift turntable and spindle assembly from mechanism.
- (c) Install Stock No. 38568 Thrust Bearing assembly; consisting of two ground steel washers, one felt washer and ball bearing, as illustrated. Apply slight amount clean oil to this assembly.
- (d) Attach coupling to spindle with TAPERED PIN.
- (e) Mount motor and support plate, being certain to precisely align turntable spindle and motor shaft. Improper alignment will produce "Wow."
- (f) Mesh the flexible coupling as illustrated—same as original arrangement. If rubber strips are worn or deteriorated, replace them using RCA Stock No. 31147.
- (g) Connect leads same as for original motor.

GENERAL

- (a) Motor No. 38567 is a shaded pole-induction type similar to that used on RP-139 record changers. Speed is non-adjustable. Speed tolerance for extreme voltage and load conditions: 77-81 RPM. Replacements: —FIELD COIL.—No. 32954; Spindle and gear—No. 38597.
- (b) Remove lower steel washer from thrust bearing assembly if turntable tends to be too high, or DRIVE GEAR does not mesh properly.
- (c) If mechanical hum is experienced, check flexible mounting of support plate; loosen if necessary. Cushion-mount motor if adjustment of the plate is ineffective.

Gear Noise in Automatic Record Changers, Models U-40, U-42, U-46, etc.:

A small amount of heavy fibrous gear grease, such as "Texaco Crater Compound No. 2," applied to the spindle pinion and main gear teeth, will satisfactorily reduce mechanical gear noise produced at this point. Care should be exercised to avoid getting this grease near or into the spindle bearing. It is best to apply grease while gear is in motion.

A recently developed fibre main gear is being used on later production mechanisms. This type of gear serves to prevent noise. It will be supplied on all future replacement orders for Stock No. 33987.

Turntable Spindle Bearing:

Replacement spindle bearings for automatic record changer motor-boards are available as follows:

Stock No.	Description
35846	Bearing—Spindle bearing for Models U-125, U-25, U-126, U-26, U-128, U-129, U-130, U-30, U-132, U-134, 11QU, 12QU, and U-46.
35847	Bearing—Spindle bearing for record changer RP-145 used in Models U-40, U-42, U-43 and VA-22.

These bearings may be readily substituted for an original faulty bearing:

- (a) Remove motor and turntable assembly from motor-board.
- (b) Invert motor-board on a vise, supporting it solidly as close to the bearing as possible.
- (c) Strike the end (bottom) of the bearing a smart heavy blow with a hammer to drive it from the board.
- (d) Insert new bearing, resting its top flat surface against a rigid metal plate, and stake over its mounting collar with a screwdriver or chisel. Be sure bearing is exactly perpendicular to surface of board.

Leather Lid Seal:

The leather lid welt or beading used around the top edges of Victrola playing compartments can be obtained by ordering Stock No. 35578. This covers a 6-foot length.

Revised Friction Pad:

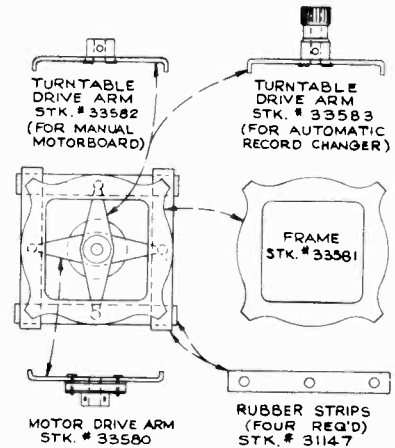
Use of the revised felt friction pad Stock No. 34058, referred to in the Service Data on governor motors is vital in effectively servicing these motors. The two types of pads are illustrated below:

As may be readily seen, the oil capacity has been materially increased, and capillary "feed" improved.

Flexible Couplings:

Stock No. 31146 coupling for automatic record changer and Stock No. 31536 coupling for manual motorboards, have been superseded by following component parts:

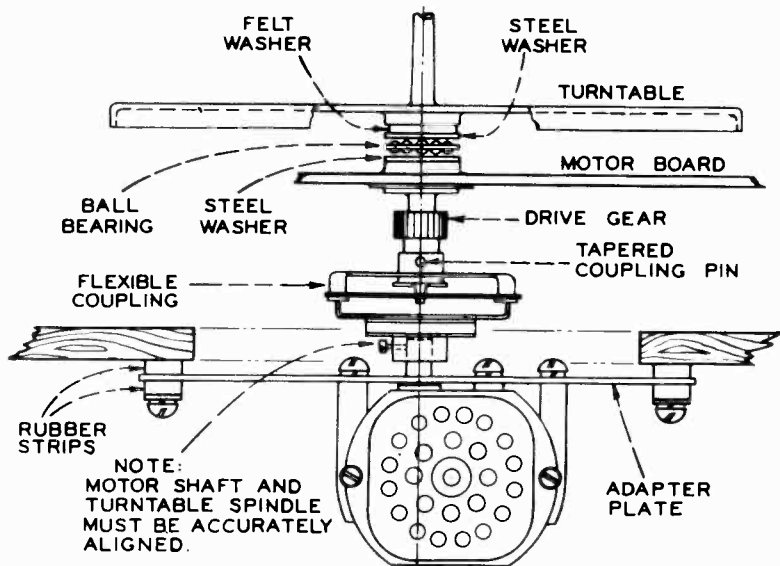
Stock No.	Description
14188	Set screw
31147	4 Rubber strips
33580	Drive arm, rubber disc, and hub for motor shaft—less set screws
33581	Flexible coupling metal frame and support
33582	Drive arm and hub for turntable shaft—for manual motorboards only
33583	Drive arm, hub, and drive gear for turntable shaft—for automatic record changers only



Flexible Coupling Parts.



Revised Felt Friction Pad Stock No. 34058 for Governor Motors.



Method of Installing Replacement Phono Motor No. 38567

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
MOTOR ASSEM, RP-132 SERIES			
31617	Bracket—Governor end bearing bracket	31121	Gear—Record post gear (10)
31626	Coil—Field coil and laminations for 25 cycle motor	31123	Guide—Main lever spring guide (11)
31619	Coil—Field coil and laminations for 50-60 cycle motor	31114	Lever—Index lever assembly (12)
31618	Coil—Field coil and laminations for 60 cycle motor	31137	Lever—Index lever tension spring lever (13)
31624	Governor—Motor governor for 25-cycle motor	31138	Lever—Locating lever and pawl assembly (14)
11703	Governor—Motor governor for 50-60 cycle motor	31113	Lever—Main lever assembly (15)
31623	Governor—Motor governor for 60-cycle motor	31140	Lever—Pickup lift cable lever and spring assembly (16)
31448	Motor—105-125 volts, 25 cycle (M1)	31135	Lever—Pickup locating lever assembly (17)
31163	Motor—105-125 volts, 50-60 cycles (M1)	31130	Lever—Record separator elevating lever complete with adjustment screws (18)
31157	Motor—105-125 volts, 60 cycles (M1)	31132	Lever—Trip detaining lever (19)
30870	Plug—2-contact male plug for motor power cable	31115	Lever—Trip lever assembly (20)
31447	Screw—Complete set of motor mounting screws, washers, and spacers—for 25 cycle models only	31131	Lever—Trip regulator lever (21)
31158	Screw—Complete set of motor mounting screws, washers, and spacers—for 50-60 cycle models only	31133	Pawl—Trip pawl assembly (22)
31616	Screw—Rotor bearing thrust screw	31124	Pin—Record post drive pin (23)
31620	Screw—Speed regulator screw with nut	14207	Roller—Pickup lift cable roller and bracket assembly (24)
31636	Spindle—Spindle and gear for 25 cycle motor	31118	Screw—Cone pointed set screw for trip lever hub or record post shelf
31634	Spindle—Spindle and gear for 50-60 cycle and 60 cycle motors	4563	Screw—Pickup lift cable screw and nuts
32913	Spring—Governor spring and ball for 25 cycle motor	14195	Screw—Set screw for flexible coupling
32914	Spring—Governor spring and ball for 50-60 cycle motor	31117	Screw—Special screw to adjust friction clutch tension
32912	Spring—Governor spring and ball for 60 cycle motor	31126	Separator—Record separator knife (25)
14206	Switch—Motor toggle switch (S7)	31122	Shaft—Record separator post shaft (26)
31622	Washer—Metal and felt washers for lower spindle bearing	31125	Shelf—Record post shelf assembly (27)
MOTOR ASSEMBLIES			
Model 11QU 12QU Only			
11703	Governor—Motor speed governor	31141	Spindle—Turntable spindle shaft
31876	Motor—105-125 volts, 50-60 cycles (M100)	3676	Spring—Cam pawl tension spring on main gear (12 turns, .190-in. O.D., 43/64-in. lg.)
30870	Plug—2-contact male plug for motor power cable	14190	Spring—Pickup locating lever short spring or locating lever pawl tension spring (28) (16 turns, .180-in. O.D., 19/32-in. lg.)
31877	Pointer—Motor speed regulator pointer and arm	* 31145	Spring—Main lever tension spring (29) (18 turns, 9/16-in. O.D., 3-in. lg.)
31158	Screw—Complete set of motor mounting screws, washers, and spacers	31136	Spring—Index lever tension spring (30) (25 turns, .190-in. O.D., 15/18-in. lg.)
14206	Switch—Motor toggle switch (S100)	3686	Spring—Pickup lift cable tension spring (31) (20 turns, .195-in. O.D., 1-in. lg.)
MOTORBOARD ASSEMBLIES			
31149	Base—Tone arm mounting base	31127	Spring—Record separator pressure spring (32) (8 turns, 1/2-in. O.D., 1/2-in. lg.)
32927	Board—Record changer base complete with all welded and riveted posts and bearings—less all operating parts	14191	Spring—Trip detaining lever tension spring (33) (15 turns, .190-in. O.D., 1/2-in. lg.)
Model U-25 U-26 U-30			
31152	Board—Record changer base complete with all welded and riveted posts and bearings—less all operating parts	31875	Spring—Pickup locating lever tension spring (34) (14 turns, .220-in. O.D., 27/32-in. lg.)
Model U-125 U-128 U-129 U-130			
U-132 U-134			
14209	Bumper—Main lever rubber bumper (1)	32436	Spring—Locating lever tension spring (35) (16 turns, .182-in. O.D., 21/32-in. lg.)
9848	Cup—Used needle cup, rest, and lid complete	31142	Spring—Turntable spindle spring
32877	Escutcheon—Index escutcheon	31147	Strip—Complete set of rubber strips for flexible coupling
Model 11QU 12QU U-25 U-26 U-30			
31148	Escutcheon—Index escutcheon	* 31139	Turntable Assembly—less spindle
Model U-125 U-128 U-129 U-130			
U-132 U-134			
31873	Escutcheon—Speed regulator escutcheon	31128	Washers—"C" washer for top of record post
Model 11QU 12QU Only			
31151	Guide—Pickup lift cable guide (coil spring, 80T 2-in. large) (2)	31143	Washers—Turntable thrust washers (1 steel, 1 bronze 1 felt)
31150	Mounting—Pickup arm base rubber mounting complete	U-25, U-26, U-30	
31155	Spring—Needle cup lid tension spring	32878	Cam—Cam and gear assembly (4)
OPERATING MECHANISM			
31134	Bracket—Pickup locating lever mounting bracket (3)	U-25, U-26, U-30, U-129	
* 31144	Cam—Cam and gear assembly (4)	32882	Spring—Main lever tension spring (29) (18 turns, .6-in. O.D., 3-in. lg.)
6808	Clutch—Trip lever friction clutch assembly (5)	11QU and 12QU	
31146	Coupling—Motor coupling complete with turntable drive gear, rubber strips, motor coupling, and drive arm (6)	31874	Turntable Assembly—less spindle
31129	Cover—Cap for top of record post	PICKUP AND ARM ASSEMBLIES	
31116	Finger—Trip lever friction on finger assembly (7)	* 31159	Arm—Pickup arm complete—less crystal cartridge, needle screw, and cable
31119	Gear—Long arm and rack gear for front left-hand record post (8)	32635	Cable—Pickup arm lift cable and clips
31120	Gear—Short arm and rack gear for rear right-hand record post (9)	32556	Cable—Output cable and plug
		* 31156	Crystal—Pickup crystal cartridge and needle screw
		33114	Damper—Viscoloid damper for crystal armature
		31160	Screw—Pickup needle screw
		31161	Shaft—Pickup pivot arm and shaft assembly
		33096	Arm—Pickup arm, less crystal and cable
		U-25, U-26, U-30, U-129 2nd Prod.	
		32632	Crystal—Pickup crystal cartridge and needle screw
		Models U-132 and U-134 Only	
		* NOT USED ON ALL TYPES	
		SEE SEPARATE LISTING	
		NOTE: RP-140	
		REPLACEMENT PARTS	
		REFER TO MODEL U-46	
		PAGE 498C	

Replacement Parts RP-139, RP-145 SERIES

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
<p>MOTOR ASSEMBLIES (Model RP-139A)</p>		<p>MODEL VA-22 2nd Production: The 2nd production of Model VA-22 uses mechanism similar to RP-139A and RP-145. For replacement parts, refer to the Service Data on RP-139A and RP-145 as specified below: Stock No. PICKUP AND ARM ASSEMBLIES Same as RP-145, except add: 33905 Crystal—Pickup crystal cartridge and needle screw for 25-cycle only. OPERATING MECHANISM, MOTOR ASSEMBLIES, MOTORBOARD ASSEMBLIES For 110-volt, 60-cycles, same as RP-145. For 110-volt, 25-cycles, same as RP-139A. QU-5 and QU-51c OPERATING MECHANISM</p>	
32956	Coil—Field coil and laminations for 25 cycle motor	10129	Ball—Steel ball for turntable bearing
32955	Coil—Field coil and laminations for 50 cycle motor	33984	Bracket—Record discriminating lever mounting bracket (3)
32954	Coil—Field coil and laminations for 60 cycle motor	32556	Cable—Pickup arm shielded cable (8)
32960	Gear—Motor spindle gear and pin	33987	Cam—Cam and drive gear (42)
32873	Motor—Motor complete, 25 cycle, 110 volt AC	6808	Clutch—Trip lever clutch (5)
32872	Motor—Motor complete, 50 cycle, 110 volt AC	34369	Cup—Turntable bearing cup (36)
32871	Motor—Motor complete, 60 cycle, 110 volt AC	34367	Disc—Turntable drive disc and tire (39)
30870	Plug—2-prong male plug—used on motor leads	31116	Finger—Trip lever friction finger (7)
32959	Spindle—Turntable spindle complete with metal pinion and fibre gear for 25 cycle motor	32879	Gear—Long arm and rack gear (41)
32958	Spindle—Turntable spindle complete with metal pinion and fibre gear for 50 cycle motor	32880	Gear—Short arm and rack gear (40)
32957	Spindle—Turntable spindle complete with metal pinion and fibre gear for 60 cycle motor	31121	Gear—Record separator shaft gear (10)
32875	Switch—Motor control switch (4)	34368	Grommet—Rubber grommet for motor mounting (48)
<p>MOTOR ASSEMBLIES (Model RP-145)</p>		31151	Guide—Lift cable guide spring (2)
36607	Armature—Complete motor armature and shaft for 50 cycle motor	33982	Guide—Main spring guide (11)
34513	Armature—Complete armature and shaft for 60 cycle motor	34370	Idler—Turntable idler wheel and arm (39)
34512	Cap—Bakelite cap for motor	34000	Lever—Index lever (12)
34365	Capacitor—1.25 mfd., for 60 cycle and 50 cycle motor (38)	31138	Lever—Locating lever and pawl (14)
36114	Motor—105-125 volts, 50 cycle motor complete with capacitor (37)	33985	Lever—Main lever (15)
34364	Motor—105-125 volts, 60 cycle complete with capacitor (37)	34007	Lever—Mercury switch actuating lever (51)
<p>MOTORBOARD ASSEMBLIES QU-5 and QU-51c</p>		34002	Lever—10 inch and 12 inch record discriminating lever (17)
33998	Base—Pickup arm mounting base	31140	Lever—Pickup lift cable lever and spring (16)
35847	Bearing—Turntable bearing (36)	31130	Lever—Record separator elevating lever with adjustment screws (18)
36112	Board—Motorboard complete with bearings and post—less operating mechanism	31132	Lever—Trip detaining lever (19)
33999	Cup—Used needle cup, lid, and pickup arm rest (6)	36115	Lever—Trip lever and cam complete (20)
33997	Escutcheon—Index escutcheon	31131	Lever—Trip regulator lever (21)
31150	Mounting—Pickup arm base rubber mounting complete	34086	Link—Index lever setting link and button
31155	Spring—Used needle cup lid spring	34004	Link—Roller index link
<p>MOTORBOARD ASSEMBLIES VA-22 (1st Prod.) and U-123</p>		31137	Pawl—Index lever pawl (13)
31149	Base—Tone arm mounting base	31133	Pawl—Trip pawl assembly (22)
32876	Board—Motorboard complete with all riveted and welded posts and brackets—less operating mechanisms	31535	Pin—Drive pin for turntable drive disc (24)
14209	Bumper—Main lever rubber bumper (1)	31124	Pin—Pin to fasten gear on record separator shaft (23)
9848	Cup—Used needle cup, rest, and lid complete	31118	Screw—Cone pointed set screw for record separator shelf ("H" and "D")
32877	Escutcheon—Index escutcheon	33983	Screw—Record separator elevating lever pivot screw
31151	Guide—Pickup lift cable guide (coil spring, 80T 2-in. large) (2)	31117	Screw—Special to adjust friction clutch ("B")
31150	Mounting—Pickup arm base rubber mounting complete	34001	Screw—Record separator elevating lever ball point screw (G)
31155	Spring—Needle cup lid tension spring	33990	Separator—Record separator knife (25)
<p>MOTORBOARD ASSEMBLIES (Model RP-139A)</p>		33988	Shaft—Record separator shaft (34)
33981	Base—Pickup arm mounting base	33989	Shelf—Record separator shelf (27)
33978	Board—Motorboard complete with bearings and posts less operating mechanism	3676	Spring—Cam gear pawl spring
33909	Cup—Used needle cup, lid, and pickup arm rest (6)	31136	Spring—Index lever pawl spring (30)
33979	Escutcheon—Index escutcheon	3666	Spring—Lift cable spring (31)
31150	Mounting—Pickup arm base rubber mounting complete	32436	Spring—Locating lever spring (35)
31155	Spring—Used needle cup lid spring (49)	32882	Spring—Main lever tension spring (43)
<p>MOTORBOARD ASSEMBLIES (Model RP-145)</p>		34876	Spring—Pickup arm starting spring (26)
33981	Base—Pickup arm mounting base	14190	Spring—Record discriminating lever pawl spring or locating lever pawl spring (28)
34363	Board—Motorboard complete with bearings and posts—less operating mechanisms	33994	Spring—Record discriminating lever spring (flat) (9)
33909	Cup—Used cup, lid, and pickup arm rest (6)	14191	Spring—Trip detaining lever spring (33)
33979	Escutcheon—Index escutcheon	34372	Spring—Turntable idler wheel spring (47)
31150	Mounting—Pickup arm base rubber mounting complete	34371	Support—Turntable drive and motor support ("N")
31155	Spring—Used needle cup lid spring (49)	32866	Switch—Mercury tube with leads (50) (S7)
32875	Switch—Motor switch (4)	34875	Switch—Pickup shorting switch (44)
		36113	Turntable—Turntable and spindle shaft (32)
		34373	Washer—"C" washer for mounting idler wheel and arm
		<p>VA-22 and U-123 OPERATING MECHANISM</p>	
		31134	Bracket—Pickup locating lever mounting bracket (3)
		32878	Cam—Cam and drive gear (42)
		6808	Clutch—Trip lever friction clutch assembly (5)
		31129	Cover—Cap for top of record post

Replacement Parts (Continued) RP-139, RP-145

STOCK No	DESCRIPTION	STOCK No.	DESCRIPTION
32883	Damper—Motor spindle rubber drive sleeve and metal damper plate.	14195	Screw—No. 10-32 cone pointed set screw for trip lever hub ("D")
31116	Finger—Trip lever friction finger assembly (7).	33983	Screw—Record separator elevating lever pivot screw
32879	Gear—Rack gear for front left-hand record post (41)	31117	Screw—Special to adjust friction clutch
32880	Gear—Rack gear for rear right-hand record post (40)	33990	Separator—Record separator knife (25)
31121	Gear—Record post gear (10)	33988	Shaft—Record separator shaft (34)
31123	Guide—Main lever spring guide (11)	33989	Shelf—Record separator shelf (27)
31114	Lever—Index lever assembly (12)	3676	Spring—Cam gear pawl spring
31137	Lever—Index lever tension spring lever (13)	31136	Spring—Index lever pawl spring (30)
31138	Lever—Locating lever and pawl assembly (14)	3666	Spring—Lift cable spring (31)
31113	Lever—Main lever assembly (15)	32436	Spring—Locating lever spring (35)
31140	Lever—Pickup lift cable lever and spring assembly (16)	32882	Spring—Main lever tension spring (43)
31135	Lever—Pickup locating lever assembly (17)	34876	Spring—Pickup arm starting spring (26)
31130	Lever—Record separator elevating lever complete with adjustment screws (18)	14190	Spring—Record discriminating lever pawl spring or locating lever pawl spring (28)
31132	Lever—Trip detaining lever (19)	33994	Spring—Record discriminating lever spring (flat) (9)
31115	Lever—Trip lever assembly (20)	14191	Spring—Trip detaining lever spring (33)
31131	Lever—Trip regulator lever (21)	34372	Spring—Turntable idler wheel spring (Model RP-145) (47)
31133	Pawl—Trip pawl assembly (22)	34371	Support—Turntable drive and motor support (Model RP-145)
31124	Pin—Record post drive pin (23)	34875	Switch—Pickup shorting switch (44)
14207	Roller—Pickup lift cable roller and bracket assembly (24)	33991	Turntable—(Model RP-139A)
31118	Screw—Cone pointed set screw for trip lever hub or record post shelf.	34366	Turntable and Spindle Shaft—(Model RP-145) (32)
4563	Screw—Pickup lift cable screw and nuts	34373	Washer—"C" washer for mounting idler wheel and arm (Model RP-145)
31117	Screw—Special screw to adjust friction clutch tension (B)	34001	Screw—Ball point screw for record elevating lever
31126	Separator—Record separator knife (25)	QU-5 and QU-51c	
31122	Shaft—Record separator post shaft (26)	PICKUP AND ARM ASSEMBLIES	
31125	Shelf—Record post shelf assembly (27)	34011	Arm—Pickup arm shell only
3676	Spring—Cam pawl tension spring on main gear (12 turns, 190-in. O.D., 4-3/64-in. lg.)	33905	Crystal—Pickup unit crystal cartridge
32882	Spring—Main lever tension spring (43) (18 turns, 6-in. O.D., 3-in. lg.)	35171	Crystal—Pickup unit crystal cartridge
14190	Spring—Pickup locating lever short spring or locating lever pawl tension spring (28) (16 turns, 180-in. O.D., 19/32-in. lg.)	33529	Screw—Needle screw
31136	Spring—Index lever tension spring (30) (25 turns, 190-in. O.D., 15/16-in. lg.)	34012	Shaft—Pickup pivot arm and shaft
3666	Spring—Pickup lift cable tension spring (31) (20 turns, 195-in. O.D., 1-in. lg.)	VA-22 (1st Prod.)	
31127	Spring—Record separator pressure spring (32) (8 turns, 5/8-in. O.D., 3/4-in. lg.)	PICKUP AND ARM ASSEMBLIES	
14191	Spring—Trip detaining lever tension spring (33) (15 turns, 190-in. O.D., 3/4-in. lg.)	33096	Arm—Pickup arm complete—less crystal cartridge, needle screw, and cable
31875	Spring—Pickup locating lever tension spring (34) (14 turns, 220-in. O.D., 27/32-in. lg.)	32635	Cable—Pickup arm lift cable and clips
32436	Spring—Locating lever tension spring (35) (16 turns, 182-in. O.D., 21/32-in. lg.)	32885	Cable—Output cable and plug
32881	Turntable complete	31156	Crystal—Pickup crystal cartridge and needle screw
31128	Washer—"C" washer for top of record post	33114	Damper—Viscoloid damper for crystal armature
RP-139A and RP-145		31160	Screw—Pickup needle screw
OPERATING MECHANISM		31161	Shaft—Pickup pivot arm and shaft assembly
10129	Ball—Steel ball for turntable bearing (Model RP-145)	PICKUP AND ARM ASSEMBLIES	
33984	Bracket—Record discriminating lever mounting bracket (3)	Model U-123 (Single-Band)	
33987	Cam—Cam and drive gear (42)	31162	Cable—Pickup arm lift cable and clips
6808	Clutch—Trip lever clutch (5)	32885	Cable—Pickup arm output cable
34369	Cup—Turntable bearing cup (Model RP-145) (36)	31156	Crystal—Pickup crystal cartridge and needle screw
32883	Damper—Rubber drive sleeve and damper plate for motor spindle (Model RP-139A) (45, 46)	32884	Pickup and arm complete
34367	Disc—Turntable drive disc and tire (Model RP-145) (29)	31160	Screw—Pickup needle screw
31116	Finger—Trip lever friction finger (7)	31161	Shaft—Pickup pivot arm and shaft assembly
32879	Gear—Long arm and rack gear (41)	U-123 (2 Band)	
31121	Gear—Record separator shaft gear (10)	PICKUP AND ARM ASSEMBLIES	
32880	Gear—Short arm and rack gear (40)	33096	Arm—Pickup arm complete—less crystal cartridge, needle screw, and cable
34368	Grommet—Rubber grommet for motor mounting (Model RP-145) (48)	31162	Cable—Pickup arm lift cable and clips
31151	Guide—Lift cable guide spring (2)	32885	Cable—Output cable and plug
33982	Guide—Main spring guide (11)	31156	Crystal—Pickup crystal cartridge and needle screw
34370	Idler—Turntable idler wheel and arm (Model RP-145) (39)	33114	Damper—Viscoloid damper for crystal armature
33986	Lever—Index lever (12)	31160	Screw—Pickup needle screw
31138	Lever—Locating lever and pawl (14)	31161	Shaft—Pickup pivot arm and shaft assembly
33985	Lever—Main lever (15)	RP-139A and RP-145	
33993	Lever—10-inch and 12-inch record discriminating lever (17)	PICKUP ARM ASSEMBLIES	
31140	Lever—Pickup lift cable lever and spring (16)	33906	Arm—Pickup arm shell
31130	Lever—Record separator elevating lever with adjustment screws (18)	33977	Cable—Pickup shielded cable (8)
31132	Lever—Trip detaining lever (19)	35171	Crystal—Pickup cartridge and needle screw
34874	Lever—Trip lever assembly (20)	33976	Pin—Used to fasten pivot arm in pickup arm shell
31131	Lever—Trip regulator lever (21)	33974	Screw—Needle screw
33992	Link—Index lever setting link and button	33975	Shaft—Pickup pivot shaft and pivot arm
31137	Pawl—Index lever pawl (13)		
31133	Pawl—Trip pawl assembly (22)		
35820	Pin—Drive pin for turntable drive disc (Model RP-145) (24)		
31124	Pin—Pin to fasten gear on record separator shaft (23)		
31118	Screw—Cone pointed set screw for record separator shelf ("H")		

MODEL V-135 & RADIOLA R-566P

Chassis No. RC-517H

RC-517J

Five-Tube, Single-Band, A-C, Phonograph-Radio



RADIOLA R-566P

SAME AS MODEL V-135

EXCEPT

- 38818 Dial - Dial Scale
 - 39531 Mounting - Spring mounting hardware to mount record changer (2 required).
- Cabinet Dimensions (inches)
- | | | |
|--------|--------|---------|
| Height | Width | Depth |
| 10 7/8 | 16 1/2 | 13 5/16 |

Electrical and Mechanical Specification

Frequency Range..... 540-1,600 kc
 Intermediate Frequency..... 455 kc

TUBE COMPLEMENT

- (1) RCA-12SA7..... 1st Det.—Oscillator
- (2) RCA-12SK7..... I.F. Amplifier
- (3) RCA-12SQ7..... 2nd Det., A.V.C., and A-F Amplifier
- (4) RCA-35L6GT..... Power Output
- (5) RCA-50Y6GT..... Rectifier

POWER OUTPUT

Undistorted..... 1.6 watts
 Maximum..... 3 watts
 Pilot Lamp..... (1) Mazda No. 51, 6.3 volts, 0.20 amps.

POWER SUPPLY RATING

105-125 Volts, 60 Cycles..... 65 watts

LOUDSPEAKER (RL86B6)

Type..... 5-inch Electrodynamic
 V.C. Impedance..... 4 ohms at 400 cycles

Cabinet Dimensions (inches)..... 12 1/2 16 1/2 17 1/2



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-517-H)			
39500	Capacitor—Electrolytic—16 mfd., 150 volts	30648	Resistor—470,000 ohms, 1/2 watt
39501	Capacitor—Electrolytic comprising 1 section of 16 mfd., 150 volts, and 1 section of 50 mfd., 250 volts	30649	Resistor—2.2 meg., 1/2 watt
39327	Capacitor—Mica trimmer—2-20 mmfd.	30931	Resistor—4.7 meg., 1/2 watt
34699	Capacitor—100 mmfd.	36290	Shaft—Tuning knob shaft
34700	Capacitor—120 mmfd.	36292	Socket—Dial lamp socket
12694	Capacitor—220 mmfd.	33742	Socket—Phono input socket
12537	Capacitor—560 mmfd.	31251	Socket—Tube socket
12536	Capacitor—820 mmfd.	30585	Spring—Drive cord spring
37705	Capacitor—.0015 mfd.	39466	Switch—Phono. tone, and power switch
34459	Capacitor—.0025 mfd.	35636	Transformer—First I.F. transformer
33584	Capacitor—.005 mfd.	35790	Transformer—Second I.F. transformer
4937	Capacitor—.01 mfd.	35056	Transformer—Output transformer
5196	Capacitor—.035 mfd.	33726	Washer—Spring washer to retain tuning shaft
32787	Capacitor—.05 mfd.	AUTOMATIC RECORD CHANGER	
32786	Capacitor—0.1 mfd., 300 volts	See separate Service Bulletin RP-162 Record Changer.	
4839	Capacitor—0.1 mfd., 400 volts	SPEAKER ASSEMBLIES (RL-86-B6)	
38338	Coil—Oscillator coil	32907	Cap—Dust cap
36285	Condenser—Variable tuning condenser	39520	Coil—Field coil—750 ohms
38409	Control—Volume control	39539	Cone—Cone complete with voice coil
32634	Cord—Drive cord (approx. 8 1/2-in. overall lgth.)	MISCELLANEOUS ASSEMBLIES	
38337	Dial—Dial scale	38341	Crystal—Dial scale crystal
37914	Indicator—Station selector indicator	38342	Decalcomania—Control panel decal.
37982	Insulator—Phono input socket insulator	36386	Decalcomania—Trade mark decal.
39326	Loop—Antenna loop complete	13085	Hinge—Lid hinge
36286	Plate—Dial back plate—less dial	35814	Knob—Control knob
30868	Plug—2-contact female plug for motor cable	11765	Lamp—Dial lamp
39499	Resistor—15 ohms, 2 watt—wire wound	39351	Mounting—Motorboard spring mounting hardware for record changer (2 required)
14671	Resistor—33 ohms, 1/2 watt	38873	Spring—Conical spring to mount motorboard
30785	Resistor—150 ohms, 1 watt	30900	Spring—Retaining spring for knobs
39398	Resistor—330 ohms, 3 watt	39384	Support—Lid support
6134	Resistor—1,200 ohms, 1 watt		
30492	Resistor—22,000 ohms, 1/2 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
14023	Resistor—82,000 ohms, 1/2 watt		
14583	Resistor—220,000 ohms, 1/2 watt		

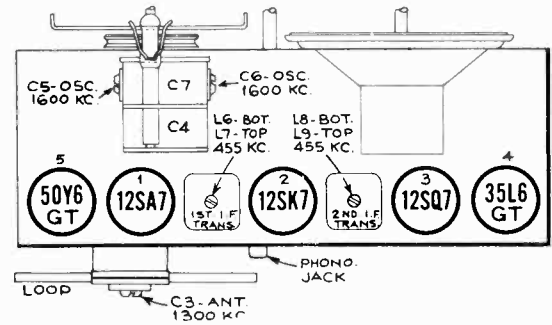
Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

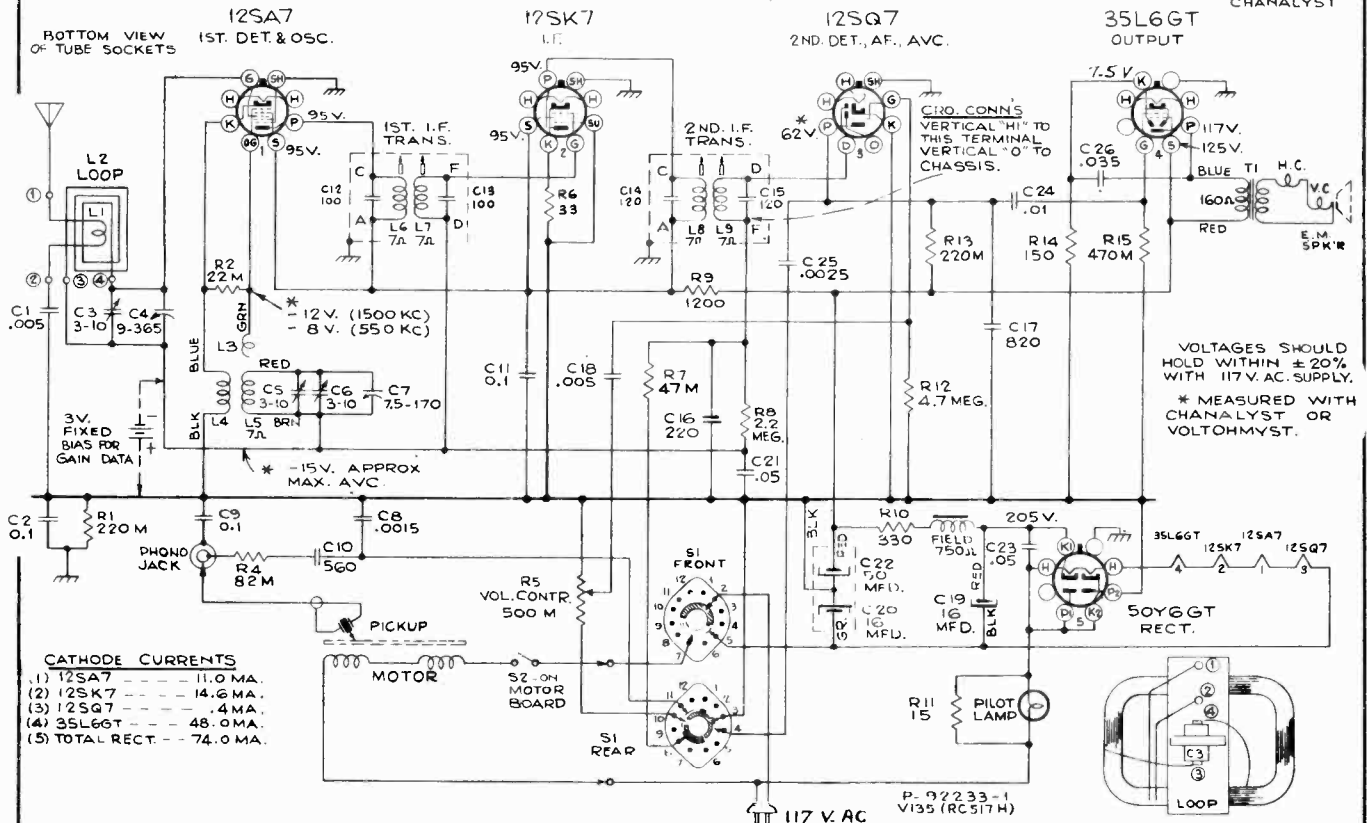
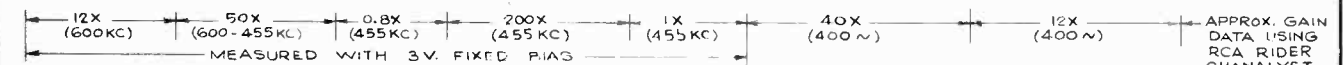
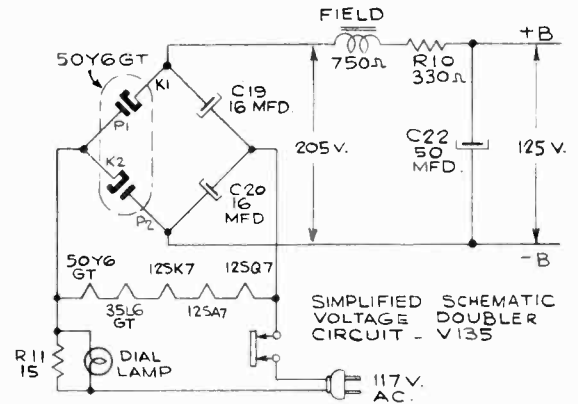
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the common negative, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.



Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,600 kc	Gang at minimum	C5 (osc.) C6 (osc.)
4	Radiated signal 1,300 kc		Signal Frequency	C3 (ant.)
5	Repeat steps 3 and 4.			



Refer to RP-162 Service Note for Data on Automatic Mechanism

MODEL V-140

Chassis No. RC-572A

Six-Tube, Single-Band, A-C, Superheterodyne Radio & Phonograph

(Refer to RP-162 Service Note for Data on Automatic Mechanism)

Electrical and Mechanical Specifications

Frequency Range 540-1,720 kc
Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Det.—Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6SQ7 2nd Det., A.V.C., and A-F Amplifier
- (5) RCA-25L6GT Power Output
- (6) RCA-25Z6GT Rectifier

POWER OUTPUT

Undistorted 3.2 watts
Maximum 5.2 watts

POWER SUPPLY RATING

105-125 volts, 60 cycles85 watts total

LOUDSPEAKER (RL79B-6)

Type 6-inch electrodynamic
V.C. Impedance 3.4 ohms at 400 cycles

	Height	Width	Depth
Cabinet Dimensions (inches).....	11 $\frac{1}{4}$	23 $\frac{1}{2}$	17 $\frac{1}{4}$
Pilot Lamp (1) Mazda type, No. 47, 6-8 volts, 0.15 amps.			
Tuning Drive Ratio.....			5-1

AUTOMATIC PHONOGRAPH (RP-162)

Type Pickup Crystal
Record Capacity Twelve 10-in. or Ten 12-in. Records



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

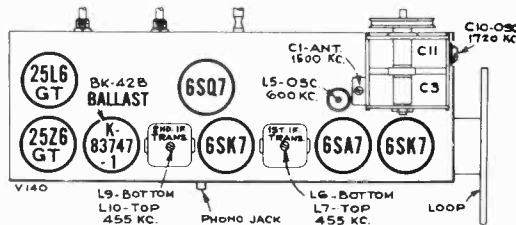
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the common negative, and keep the output as low as possible to avoid a-v-c action.

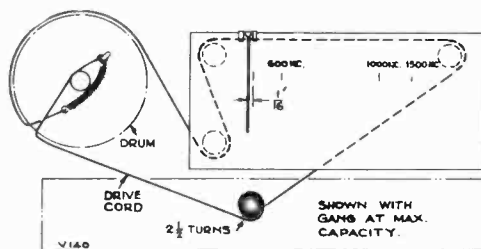
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the scale printed in this service note can be used as an accurate and convenient substitute for the regular dial. With gang in full mesh, move the dial pointer to a point 1/16 inch to left of reference mark at left hand end of the dial backing plate. Place the dial under the pointer so that the extreme left scale graduation coincides with the pointer. Use scotch tape to hold the dial in place.

2. 22,000 ohm R-10 i-f to audio isolating resistor to have end connecting to last i-f transformer as short as possible. Prevents i-f beats.
3. First audio grid coupling capacitor C-23 and C-24 to be dressed close to chassis and away from heater wiring. Prevents hum.
4. Dress phono power leads away from phono socket.

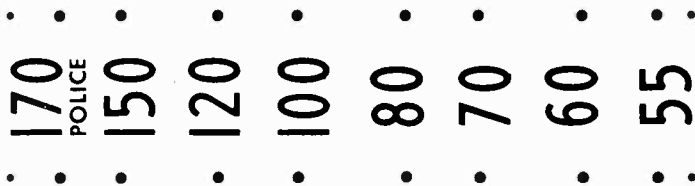
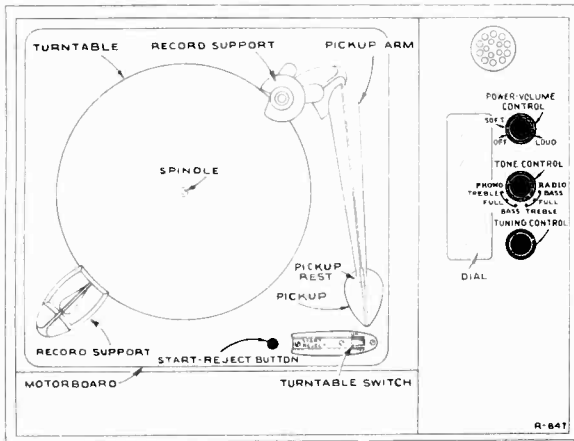


Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L9 and L10 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,720 kc	Gang at minimum	C10 (osc.)
4	Radiated signal 1,500 kc		Signal Frequency	C1 (ant.)
5	Radiated signal near 600 kc		Signal Frequency	L5 (osc.) (Rock gang)
6	Repeat steps 3, 4 and 5.			



Critical Lead Dress:

1. Lead from 6SK7 i-f plate to last i-f transformer to be dressed close to chassis and under all other leads. Prevents i-f beats.

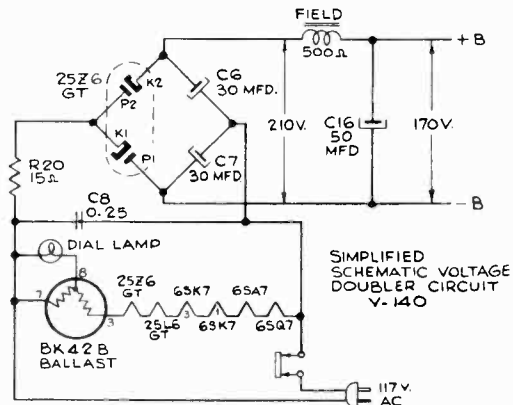


The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in alignment procedure.

The Phono-Radio Tone Control.—

The six positions of the knob are:

1. Fully counterclockwise—radio—mellow tone—with emphasis on lows and reduction of static and high pitched interference.
2. Radio—full tone—with all sound effects.
3. Radio—high tone—with reduction of bass resonance and low tones.
4. Phonograph—mellow tone—with reduction of high pitched surface noise and emphasis on lows.
5. Phonograph—full tone—all sound effects from the record.
6. Phonograph—high tone—with reduction of bass resonance and low tones.

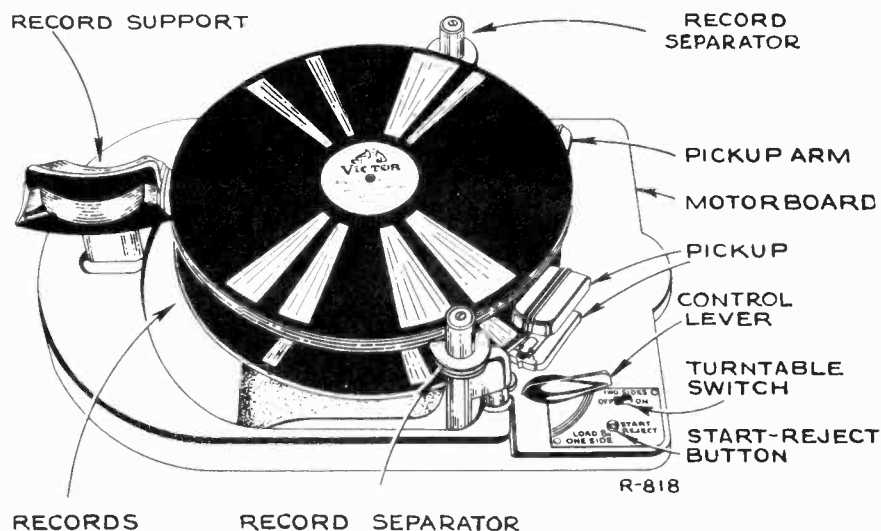


Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-572-A)			
14649	Ballast—Ballast tube resistor.	14560	Resistor—100,000 ohms, 1/2 watt.
37846	Capacitor—Electrolytic—30 mfd., 150 volts.	14583	Resistor—220,000 ohms, 1/2 watt.
37845	Capacitor—Electrolytic comprising 1 section of 50 mfd., 250 volts, 1 section of 10 mfd., 250 volts, and 1 section of 30 mfd., 150 volts.	30651	Resistor—270,000 ohms, 1/2 watt.
12720	Capacitor—100 mmfd., moulded.	30648	Resistor—470,000 ohms, 1/2 watt.
34699	Capacitor—100 mmfd., unmoulded.	30649	Resistor—2.2 meg., 1/2 watt.
31813	Capacitor—120 mmfd.	30931	Resistor—4.7 meg., 1/2 watt.
36616	Capacitor—220 mmfd.	35862	Shaft—Tuning knob shaft.
12537	Capacitor—560 mmfd.	31365	Socket—Dial lamp socket.
33806	Capacitor—.0015 mfd.	33742	Socket—Phono input socket.
34459	Capacitor—.0025 mfd.	31251	Socket—Tube socket.
4838	Capacitor—.005 mfd., 1,000 volts.	31418	Spring—Drive cord spring.
33584	Capacitor—.005 mfd., 1,200 volts.	31261	Spring—Retaining spring for oscillator coil core and stud.
14393	Capacitor—.01 mfd.	39492	Switch—Tone switch.
36248	Capacitor—.02 mfd.	35636	Transformer—First I.F. transformer.
32787	Capacitor—.05 mfd.	36615	Transformer—Second I.F. transformer.
32786	Capacitor—.01 mfd., 300 volts.	14649	Tube—Ballast tube resistor.
4839	Capacitor—.01 mfd., 400 volts.	33726	Washer—"C" washer for tuning knob shaft.
30965	Capacitor—0.25 mfd.	AUTOMATIC RECORD CHANGER	
39491	Coil—Loop primary coil.	See separate Service Bulletin RP-162 Record Changer.	
39487	Coil—Oscillator coil.	SPEAKER ASSEMBLIES (RL-79B-6)	
39489	Condenser—Variable tuning condenser.	31825	Cap—Dust cap.
38408	Control—Volume control and power switch.	37850	Coil—Field coil—500 ohms.
32634	Cord—Drive cord (approx. 33-in. overall lgth.)	39495	Cone—Cone complete with voice coil.
36093	Core—Adjustable core and stud for oscillator coil.	5118	Plug—3-prong male plug for speaker.
39493	Indicator—Station selector indicator.	37844	Transformer—Output transformer.
37982	Insulator—Phono socket insulator.	MISCELLANEOUS ASSEMBLIES	
39490	Loop—Antenna loop complete.	38354	Clamp—Dial clamp.
30868	Plug—2-contact female plug for motor cable.	39497	Deca comania—Control panel decal.
5119	Plug—3-contact female plug for speaker cable.	36386	Decalcomania—Trade mark decal (His Master's Voice).
36230	Pulley—Drive cord pulley.	35467	Decalcomania—Trade mark decal (RCA Victrola).
14649	Resistor—Ballast tube resistor.	39496	Dial—Glass dial scale.
38859	Resistor—15 ohms, 1 watt.	13085	Hinge—Cabinet lid hinge.
30785	Resistor—150 ohms, 1 watt.	35814	Knob—Control knobs.
36743	Resistor—1,800 ohms, 2 watt.	31480	Lamp—Dial lamp.
30694	Resistor—3,900 ohms, 1/2 watt.	39351	Mounting—Spring mounting hardware for motorboard (2 required).
30734	Resistor—5,600 ohms, 1/2 watt.	38873	Spring—Conical mounting spring for motorboard.
22993	Resistor—6,800 ohms, 1 watt.	30900	Spring—Retaining spring for knobs.
30492	Resistor—22,000 ohms, 1/2 watt.	39545	Support—Lid support.
30409	Resistor—27,000 ohms, 1/2 watt.		
12454	Resistor—33,000 ohms, 1/2 watt.		
12412	Resistor—47,000 ohms, 1/2 watt.		
14023	Resistor—82,000 ohms, 1/2 watt.		

Automatic Record Changer



Introduction

The RP-151 is an automatic record changer of revolutionary design. It will play a series of fifteen 10-inch or twelve 12-inch records on both sides, or one side, at will. The pickup arm has two light-pressure, sapphire permanent-point, crystal pickups mounted on one arm. One pickup plays the top side of each record; the other pickup plays the bottom side. The turntable rotates in reverse while the bottom side of a record is being played.

The mechanism has two motors. One motor is used solely to rotate the turntable; the cycling motor drives the mechanism during the automatic record-changing cycle.

There are three simple controls.

1. A **Record Support**—Turn it one way to load a stack of 10-inch records, the reverse way to load 12-inch records.
2. A **Control Lever**—Push the lever to load position, then back to the "two-side" position to play both sides of each record; pull it forward to play only the top side of each record.
3. A **"Start-Reject" Button**—Push the button to start the mechanism or to reject a record when the mechanism is operating.

The mechanism uses a **low-noise** crystal pickup. Objectionable "needle chatter" has been removed by utilizing a low mass wire, suitably damped, to hold the sapphire point.

Service Procedure

To remove the bottom plate assembly from the motorboard:

1. Disconnect pickup leads from terminal board.
2. Remove the motor lead plugs from their sockets.
3. Loosen the set screws "C" and lift the tone arm out. Be careful not to lose the two ball bearings at the top and bottom of the tone arm pivot shaft.
4. Remove the four bottom plate mounting screws.

To remove the tone arm, turn out the slotted-head bearing through the side of the arm. Then simply lift the arm off. When replacing the arm, do not tighten the bearing enough to cause a bind in vertical motion.

Lubrication

1. Apply Houghton Stayput at all bearing surfaces.
2. Apply graphite grease at cam and gear surfaces on the main cam and gear, pinion gear (1), and segment gear, pivot and cam surfaces on the slide, and the spring pin on the counterweight.
3. Apply Lubriplate No. 110 at all other points.

Cautions

1. Do not oil the tone arm pivot shaft.
 2. Never use force to start or stop the motor or any part of the record-changing mechanism or pickup arm.
 3. Warped or damaged records may cause the mechanism to jam.
 4. Do not leave records on the record-holder posts as they may warp, particularly in warm climates. Warped records may be flattened by placing them on a flat surface with a flat heavy article placed on top of them for a few days.
 5. If for any reason the phonograph stalls, turn off the turntable switch and remove the records from the record holder shelves. Start the turntable and allow the pickup arm to complete its cycle.
 6. **Packing material and special shipping brackets should be given to the customer at the time of installation. Advice as to their use may save service calls should the customer later move the instrument any considerable distance.**
 7. Do not interfere with the motion of the tone arm at any time.
4. The rubber tires must be kept clean and free from oil, grease, dirt, etc., at all times. Any quick-drying naphtha is satisfactory for cleaning the rubber.

Two-Side Operation Slide Cycle

Turn Record Support to 10" or 12" position as desired.

Place Records on Posts.

Turn Control to "Load" position and return to "Two-Side" position.

Push "Start-Reject" button.

1. Record Separator posts position themselves in unison by means of belt drive.

1. Star wheel stud is rotated away from slide throw-out lever, thus insuring a "Slide" cycle. Motion is transferred from control to the index lever and the star wheel lever. Star wheel lever stud rides in the index lever slot.

1. Through button lever the reject lever is made to push on ratchet lever stud.

RP-151

2. The ratchet lever moves out of the way of the cycling switch trip lever.
3. Switch trip lever moves the cycling switch pivot lever, thus tilting the switch and closing the circuit to the cycle motor.
4. Cycle motor starts.
5. Main cam is driven by cycle motor through a chain of gears.

Tone Arm Rises.

1. The elevating control lever is rotated because its stud rides on the outer guide on the bottom side of the main cam.
2. Elevating control lever closes shorting switch.
3. Elevating control lever pushes reversing lever.
4. Reversing lever rotates.
5. Elevating control lever pushes elevating lever roller.
6. Elevating lever roller moves in allowing elevating lever to rise, thus pushing up on elevating rod and tone arm.

Tone Arm Swings Out.

1. Reversing lever throws reversing switch. Then it latches and holds the switch button in position.
2. Turntable rotates counter-clockwise.
3. Tone arm lever swings outward from motion of its stud against outer guide on top of main cam.
4. It pushes against stud on trip lever.
5. Trip lever moves out and latches to return lever carrying it along.
6. Feed-in spring is depressed.
7. Cycling switch trip lever is reset by protrusion on main cam, and thus moves out of way of ratchet lever stud.
8. Ratchet lever returns to its original position.

Turntable Discards Played Record.

1. Eccentric track on top of main cam moves slide roller lever.
2. Slide roller lever pushes slide throw-out lever.
3. Slide throwout lever moves slide control lever.
4. Slide control lever moves slide.

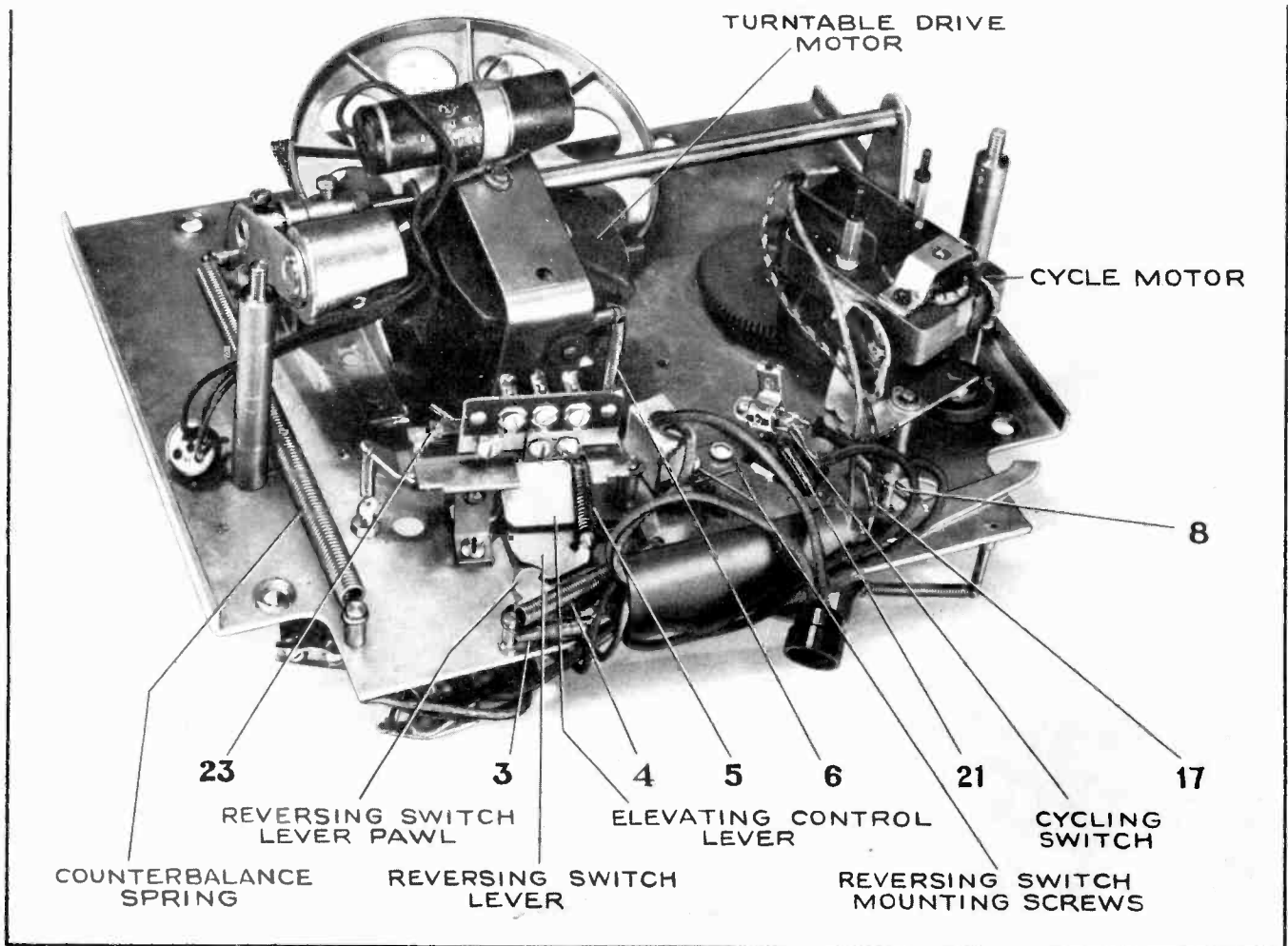
5. Underneath stud on slide moves along edge of turntable locating lever and finally rotates it.
6. Locating lever releases turntable assembly to control of counterbalance and spring, leaving sector gear free to move.
7. Slide strikes sector gear finger and rotates sector gear.
8. Sector gear rotates segment gear.
9. Segment gear, being fastened to turntable pivot shaft, turns this shaft and tilts the turntable.
10. Reversing lever is unlatched by slide at end of its travel. Turntable motor returns to clockwise rotation.

Record Drops from Stack to Motor-board.

1. Stud on top of slide moves into claw cam of the separator lever.
2. Lever rotates, thus moving link and crank.
3. Crank rotates separator assembly.
4. Record knife separates bottom record from stack.
5. Shelf rotates out from under bottom record and allows it to drop to motorboard.

Turntable picks up next record.

1. Slide reverses direction of travel.
2. Shelf and knife return to original position as top stud on slide releases separator lever.
3. Spring and counterbalance return turntable past its original position as slide recedes from sector gear finger.
4. Turntable spindle finds hole in record and picks record up.
5. Underneath stud on slide finally rotates locating lever
6. Locating lever takes control and returns turntable to exact original position.
7. Turntable drive wheel again contacts drive disc and rotates it.
8. Off-center stud on the main cam and gear pushes star wheel stud.
9. Star wheel rotates 90°.
10. Stud on star wheel unlatches slide throw-out lever.



Tone Arm Returns. 1. Main cam allows tone arm lever to recede.
2. This allows return lever to follow carrying trip lever along.
3. Return lever stops when its index finger reaches rear separator shaft.
4. Thus the trip lever and tone arm are stopped at the correct landing position.

Tone Arm Lowers. 1. Lower outside face on main cam recedes.
2. Elevating control lever returns to original position.
3. Reversing lever reaches original position.
4. Elevating lever is lowered, elevating rod follows and tone arm lowers.
5. Elevating control lever releases shorting switch.
6. Release stud on the tone arm lever pushes back the latch on the return lever.
7. Release of the latch frees the return lever from the trip lever and the tone arm.
8. Cycling switch pivot lever drops off the end of the main cam face.
9. Cycling switch returns to original position.
10. Cycle motor stops.

Sapphire is pushed into music grooves. 1. Feed-in spring returns to original position pushing stud on trip lever.
2. Trip lever carries tone arm slightly in.

Top side of Record Plays.

Non-Slide Cycle

Sapphire Reaches Eccentric Groove. Mechanism Trips.

1. Trip lever receives backward motion from tone arm.
2. Trip pawl pushes ratchet lever.

3. Ratchet lever stud moves away from cycling switch trip lever.
4. Cycling switch trip lever moves cycling switch pivot lever. Switch tilts, closing circuit.
5. Cycle motor starts.

Tone Arm Rises and Swings Out. Same as previous cycle.

Turntable Remains in Playing Position and Turntable Rotation Reverses.

1. Eccentric track on top of main cam moves the slide roller lever.
2. Slide throw-out lever is not picked up by star wheel since this lever was unlatched during previous cycle.
3. Thus the slide does not move, the reversing lever remains latched and the turntable motor continues to revolve counterclockwise.
4. Off-center stud on main cam pushes stud on star wheel.
5. Star wheel rotates 90°.
6. Star wheel latches slide throw-out lever.

Tone Arm Returns. Same as previous cycle.

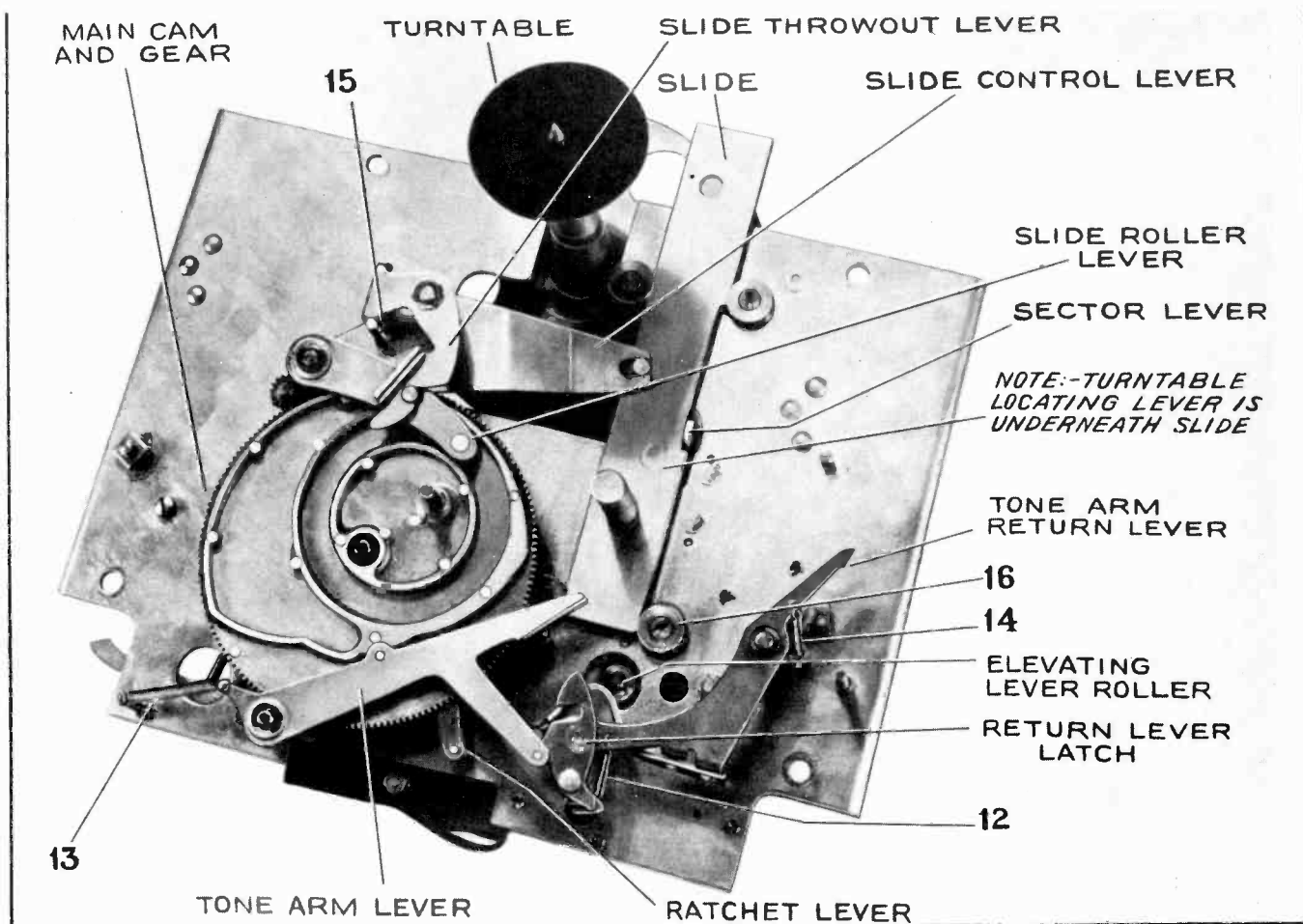
Tone Arm Lowers. Same as previous cycle except: 1. Reversing lever remains latched and does not return.

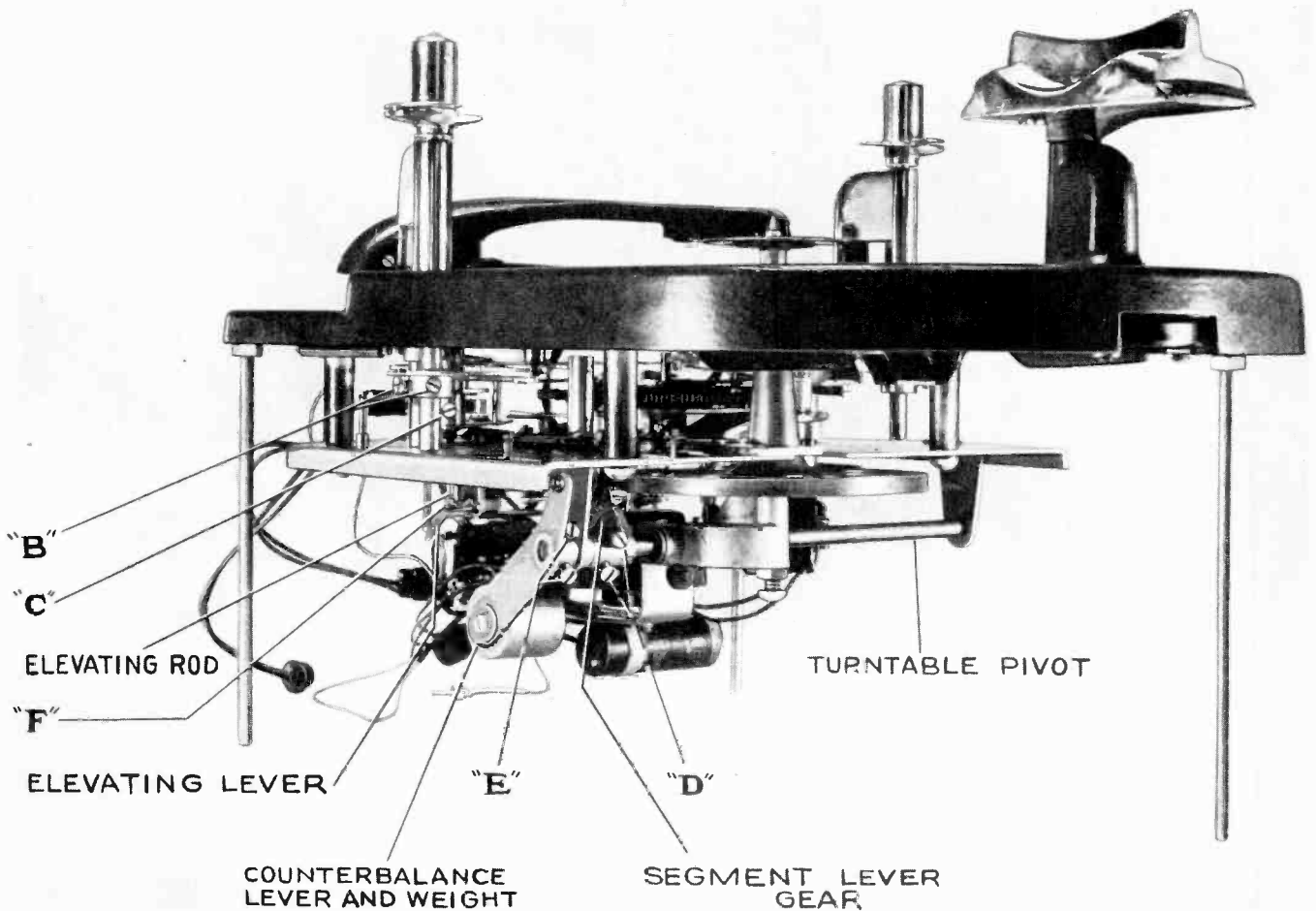
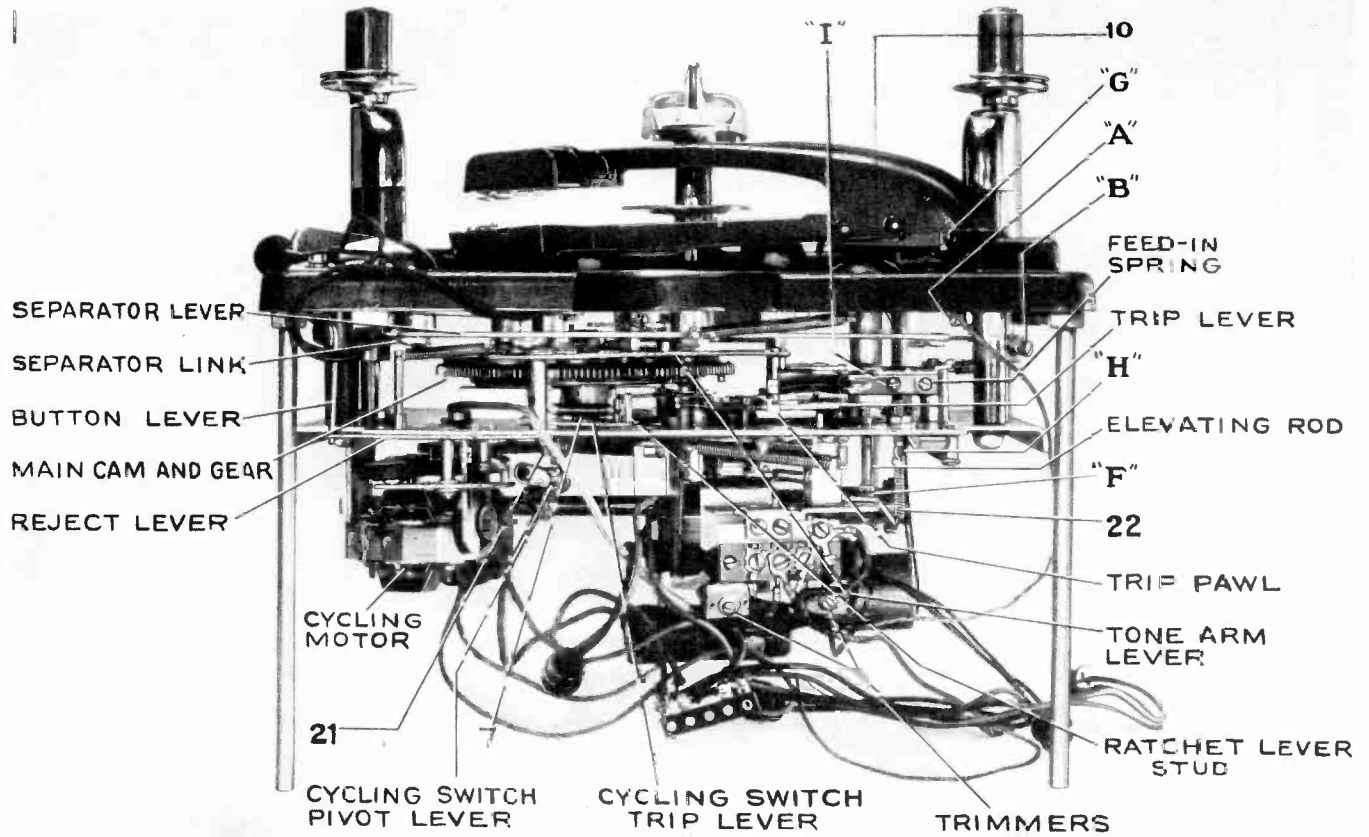
Bottom Side of Record Plays.

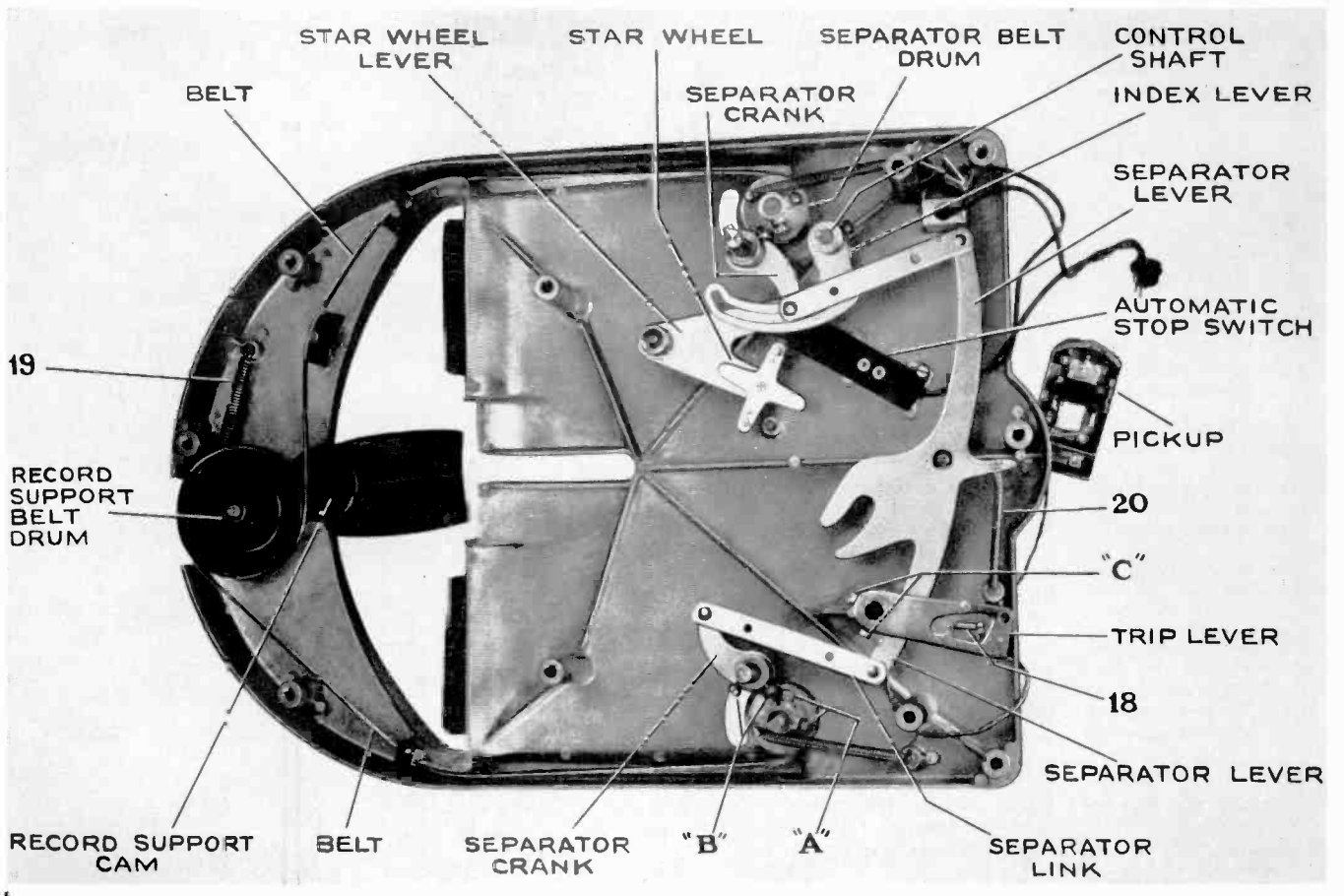
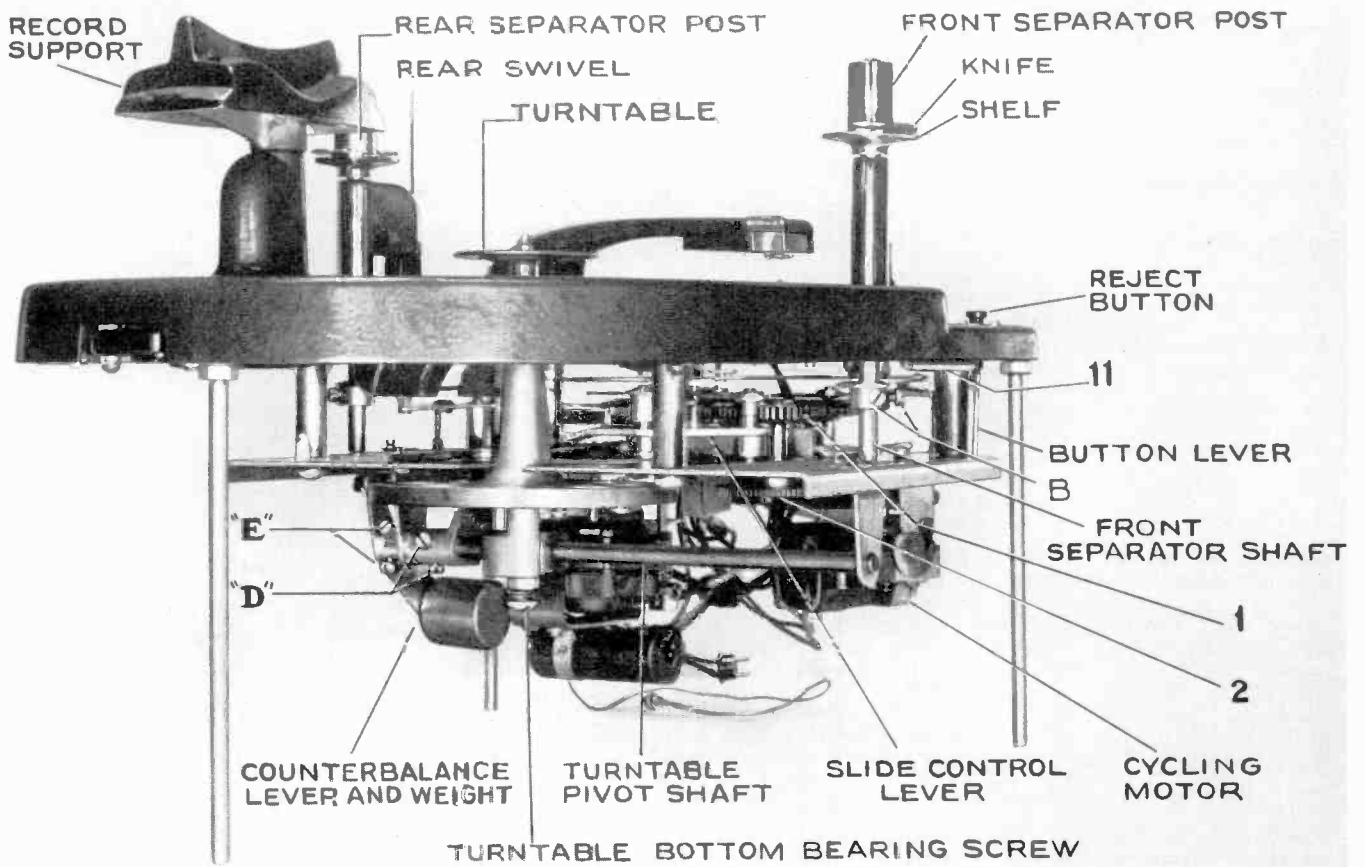
Slide and non-slide cycles continue alternately until entire stack of records has been played.

After last record is played, mechanism trips, goes through cycle, and tone arm comes to rest on "Stop" button, thus opening the a.c. circuit.

In the "One-Side" position, the star wheel is pushed out of the path of the main cam stud and all cycles are slide cycles.







Quick Reference Chart of RP-151 Adjustments

Records will not fit properly on the three record posts.

(Record Post Spacing)

Records fail to drop at proper time.

(Record Shelf Timing)

Sapphire fails to land at proper point.

(Tone Arm Position with Respect to Trip Lever)

Spindle fails to pick up the record or turntable fails to drop the record.

Turntable does not return to proper position.

(Turntable Vertical Position)

Sapphire fails to clear record on turntable.

(Tone Arm Height While in Cycle)

Top sapphire jumps grooves or pushes too hard against record.

(Top Sapphire Pressure)

Bottom sapphire jumps grooves or pushes too hard against record.

(Bottom Sapphire Pressure)

Sapphire lands properly but fails to feed into music grooves or feeds in too fast and jumps several grooves.

(Feed-in Spring)

Turntable too high or too low.

(Turntable Height)

Turn the record support to the 10-inch position. Loosen the set screws "A." Move the front record separator post until its shaft is $1/64$ from the end of the motorboard slot. Turn the belt drum to take up the slack in the belt and tighten the zinc-plated screw being certain to maintain the $1/64$ -inch spacing. Repeat the adjustment on the rear separator post. Check by placing a 10-inch record on the shelves posts and then tighten the copper-plated screws. Care should be taken to leave a small vertical clearance between the belt drum and the motorboard. The 12-inch position is automatically maintained.

Place a 10-inch record on the shelves so that it contacts the front and rear record separator posts. With the changer out-of-cycle loosen the set screws (B) and turn the record separator shaft until the record separating knife is $3/32$ -inch away from the record edge. Position set screw collar bottom edge $1-3/32$ above the bottom plate. Tighten the zinc-plated screw, run through cycle several times as a check, then tighten the copper-plated screw. Repeat the adjustment on the rear separating knife.

Place a 10-inch record on the turntable and rotate the changer through cycle until the sapphire is just ready to land. Place a .005 feeler between the shoulder on the tone arm pivot shaft and its ball bearing as shown. Loosen the set screws (C). Make certain that the tone arm return lever is against the record separator shaft and the pin on the trip lever is against the tone arm return lever. Move the tone arm to the point of proper landing, be sure the set screw collar is up against the tone arm pivot shaft bushing, then tighten the zinc-plated screw. Run through cycle several times as a check, then tighten the copper-plated screw. Remove feeler. The 12-inch landing is then automatically correct.

Remove the counterbalance spring. Loosen set screws (D). (See photograph for screw location.) Centrally locate the turntable with respect to the front and rear edges of the motorboard slot by sliding the turntable pivot shaft in its bearings. Mesh the sector and segment gears as shown. Holding them in this position, move the turntable assembly until the turntable is level. Tighten screws (D).

Loosen set screws (E). (See photograph for screw location.) Set the counterweight as shown. Check to see that there is clearance between the two set screw collars (D-E) and the turntable pivot shaft bearing. Tighten the zinc-plated screw (E), run through cycle several times as a check, then tighten the copper-plated screw (E). Replace the counterbalance spring.

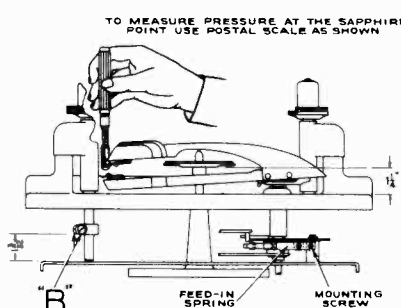
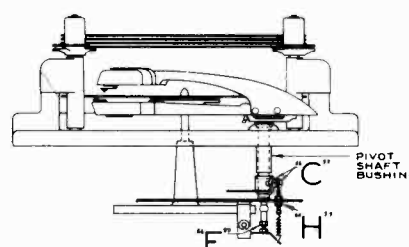
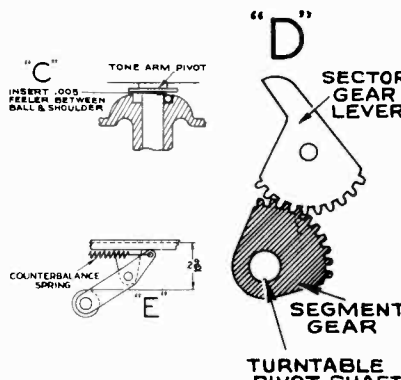
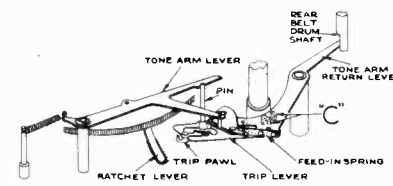
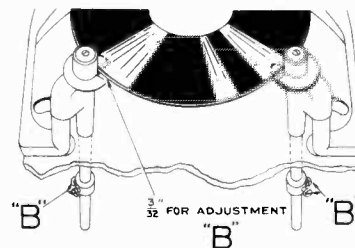
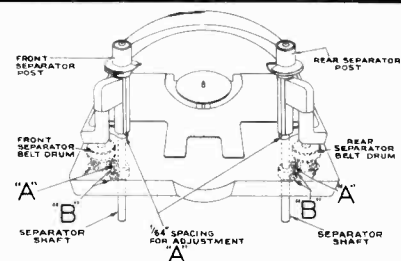
Rotate the changer through cycle until the tone arm has moved into its cycle position. Adjust the screw (F) until the sapphires are equidistant from the two sides of the record and tighten the locknut.

Adjust the screw (G) in the rear of the tone arm until the pressure measured at the point of the top sapphire is approximately one ounce. A suggested means of making this check is shown in the accompanying sketch.

Adjust the eye screw and locknut (H) as shown until the pressure measured at the point of the bottom sapphire is approximately one ounce. With no-load setting of scale adjusted to read two ounces, bottom pickup should be pushed away from record by pressing down on it with the scale. Sapphire pressure should be adjusted to a scale reading of one ounce.

Adjust the feed-in spring by means of the screw (I) until the sapphire feeds in smoothly without jumping grooves. Check to see that the spring clears the trip lever pawl and that the mounting screw is tight. Be sure to keep the viscoloid free from grease.

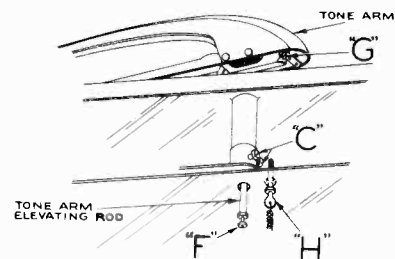
Loosen locknut and adjust the turntable bottom bearing screw until the bottom of the turntable is above the motorboard. Tighten the locknut.



Motor fails to reverse at proper time.

(Reversing Switch Position)

Loosen the reversing switch mounting screws. Rotate the changer through cycle until the main cam has forced the trip lever to its outermost position. Move the switch until the reversing cam has fully compressed the switch against the spring. Lock in position with the mounting screws.



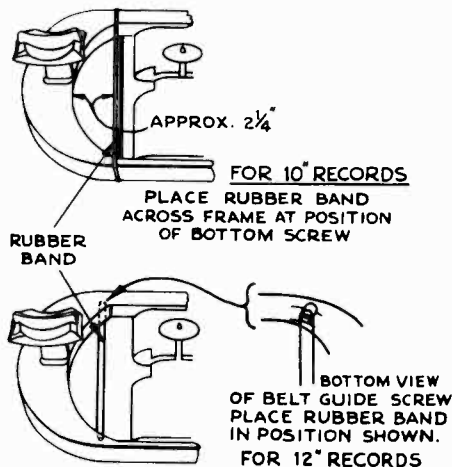
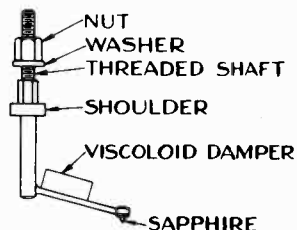
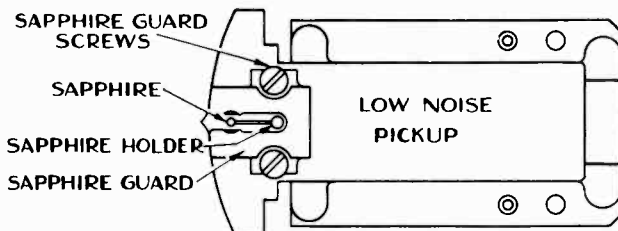
The Low Noise Pickup

Specifications . . . Output at 400 cycles 0.50 volts
 Impedance at 1,000 cycles . . . 75,000 ohms

Replacement of Complete Unit . . . Simply slide the unit out of the tone arm and insert a new one.

Replacement of Sapphire Caution: Never bend the sapphire support wire. Slide the pickup forward out of the arm.

The nut on the sapphire holder assembly is locked by a light cement (such as Glyptal). Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal.



A rubber band stretched across the motorboard as shown permits continuous playing of one record on RP-151 record changer during service checking of the mechanism.

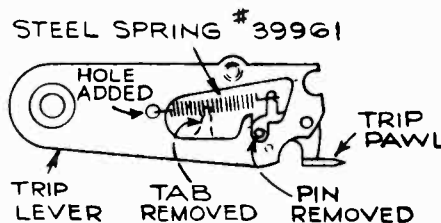
Trip Lever and Trip Pawl Spring:

The original bronze trip-pawl spring, Stock No. 38562, is no longer available. When this spring requires replacement, due to loss or irreparable damage, it is necessary to install either a new steel spring, Stock No. 39961, in accordance with instructions given below, or else install a complete new trip lever assembly which employs the steel spring.

In RP-151, the new trip lever, trip pawl, and steel spring assembly is Stock No. 38561. The new lever and spring assemblies will be supplied on orders for the original assemblies.

Installing Steel Spring No. 39961 on Trip Lever:

1. Drill a 3/32-inch hole in lever as shown.
2. Cut off the tab that was used to anchor the original bronze spring.
3. Install steel spring as shown.



Trip lever with new steel spring. This steel spring can be installed on original lever in place of bronze spring by drilling a 3/32 inch hole and cutting off the tab on original lever.

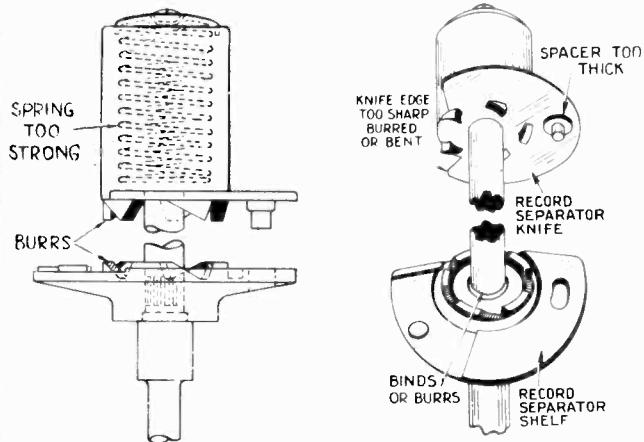
Unequal Output From The Two Pickups

The two small trimmer capacitors used to equalize the output of the two pickups are mounted on the back of the terminal boards shown in the center. These trimmer capacitors are placed in series with the respective pickups. The one adjacent to the terminal marked red controls the output voltage from the top pickup while the one adjacent to the terminal marked black controls the voltage delivered by the bottom pickup. To equalize the pickups, first adjust both trimmers to maximum capacity and then measure the output voltage

delivered across the voice coil when playing the pickups on a constant frequency record. Reduce the capacity of the trimmer connected in series with the pickup delivering the greater voltage until both voltages are equal. This adjustment may have to be repeated several times in order to obtain an exact balance. The pressure on the bottom pickup may be changed slightly if the trimmer capacitor range is insufficient to obtain equal outputs.

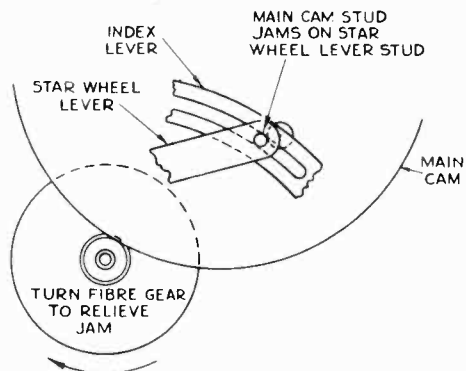
Record Jams

Record too thick, too thin, or warped. Separator knife shaft binds in its bushing.

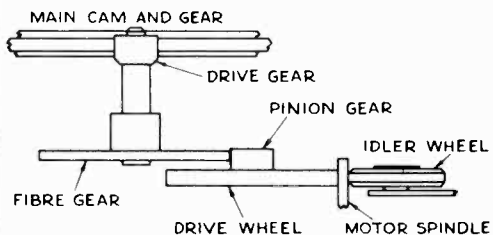


Mechanism Jams

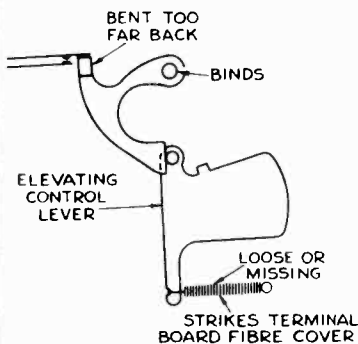
JAM CAUSED BY OPERATOR LEAVING CONTROL LEVER IN MID-POSITION



Cycling Drive System

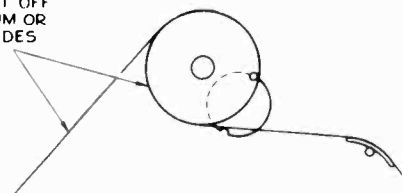


Reproduced Noise During Cycle



Record Posts Fail to Move

BELT OFF DRUM OR GUIDES



Turntable Stops While Playing Record or Fails to Reverse Rotation

First make certain that sapphires are equi-distant from the record on the turntable when the tone arm has been raised or lowered to its "in-cycle" position. Check Adjustment "F" if necessary.

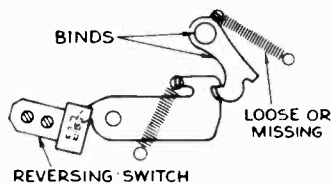
See that turntable is level making Adjustments "D" and "E" if necessary.

Check reversing switch adjustment.

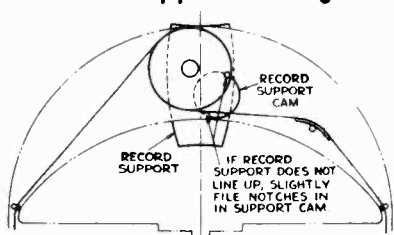
Check turntable height adjustment.

Warped record strikes automatic stop switch.

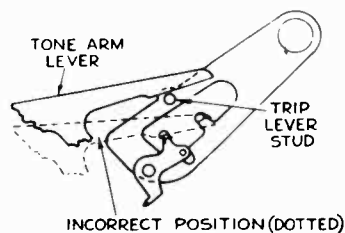
Automatic stop switch button binds on motorboard and fails to rise.



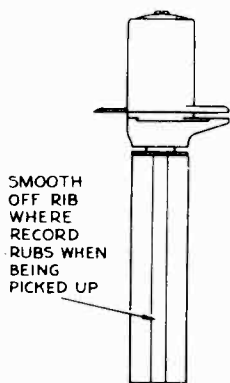
Record Support Misaligned



Tone Arm Action Erratic



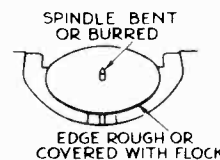
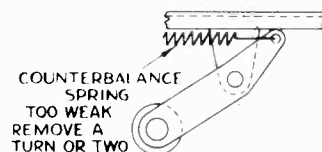
Caution: Do Not Handle The Tone Arm While The Mechanism Is Operating



Fails To Pick Up Record or 12-Inch Record Rubs Tone Arm

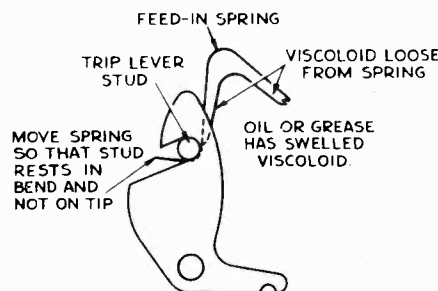
Check to see that turntable returns to level position. If necessary make Adjustments "D" and "E." Check turntable height.

Edge of hole in record is raised.



Incorrect Feed-In

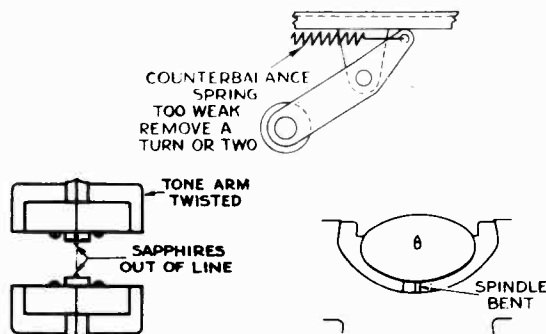
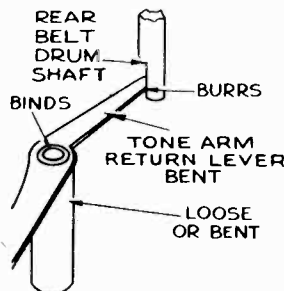
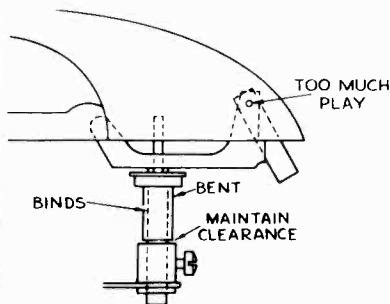
The feed-in spring has no effect until just after the pickup has landed. It then springs back to its original position, pushing on the trip lever stud and moving the pickup toward the music grooves. When feeding in on the top side of a record the feed-in spring is assisted by the rotational force of the record; on bottom side feed-in this force opposes the feed-in spring's action. Adjustment "I" should be made so that the sapphire does not jump grooves on top side feed-in and still accomplishes bottom side feed-in in less than ten seconds. Instrument is not level. Pickup cable binds.



Lands Incorrectly

First check Adjustment "C." Make certain that turntable returns to level position making Adjustment "D" and "E"

if necessary. Be sure that sapphire clears record on turntable making Adjustment "F" if necessary. Pickup cable binds.



Pickup Arm Springs:

In the Replacement Parts List, Pickup and Arm Assemblies, in the RP-151 Automatic Record Changer service note, the following change and addition should be made:

Stock No.	Description
38455	Spring—Coil spring (10) for upper pickup pressure adjustment (2 required)....
39 695	Spring—Flat spring for pickup arm pivot tension....

Idler Wheel Fiber Washers:

In order to reduce idler wheel noise, the two metal washers have been replaced by two fiber washers in the Idler Wheel Assembly, Stock No. 36274, for the above record changers. The new fiber washers are Stock No. 39996.

Crystals and Sapphires:

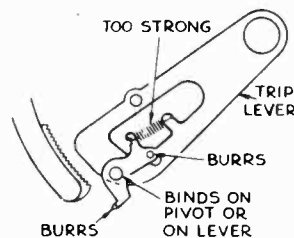
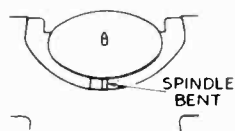
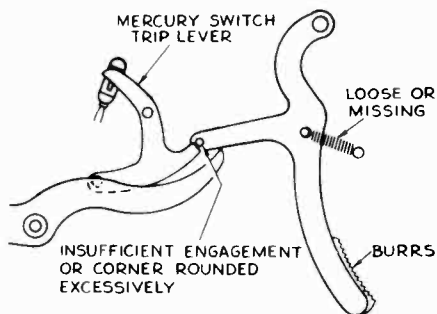
The following Stock Numbers for crystal-and-sapphire assemblies supersede all previous listings:

Do not replace complete pickup where sapphire only requires replacement.

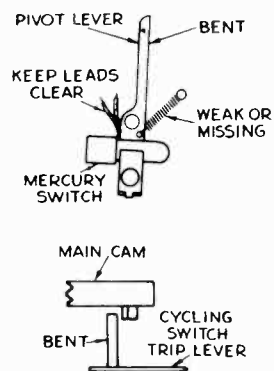
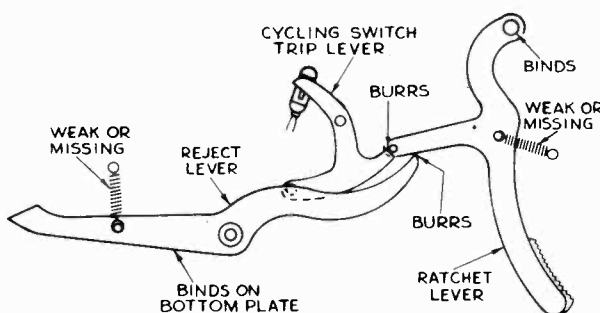
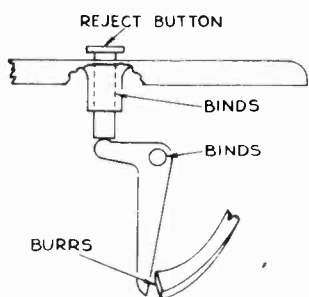
Stock No. of Sapphire and Holder, less nut—	Stock No. of Crystal and Sapphire Assembly—
38449	Top, 39919 (Alum. case) Bottom, 38598 (Alum. case)

Trips Early

Off-center record.
Trip pawl not aligned with ratchet lever teeth.

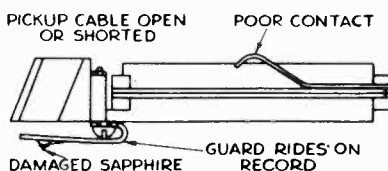
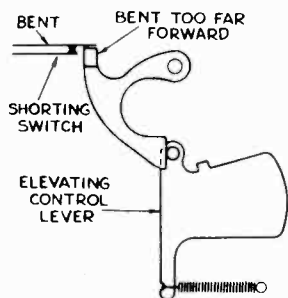


Trips Continuously

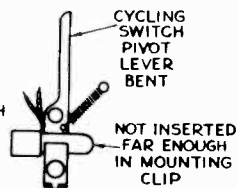


No—Low—Distorted Output

Defective crystal. Shield over terminal board is shorting to cable lugs. Sapphire strikes guard. Nut on sapphire holder shaft is loose.

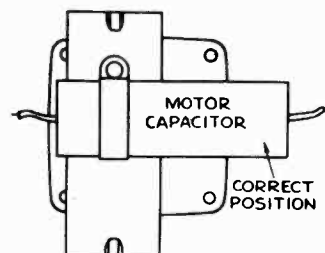
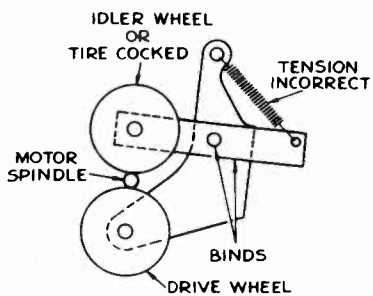
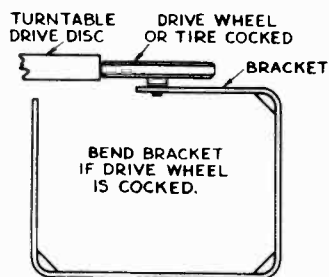


CYCLING MOTOR STOPS TOO LATE OR TOO SOON CLOSING PICKUP SHORTING SWITCH



Slow or Varying Speed

Motor support spring tension is incorrect.



Repeats Grooves

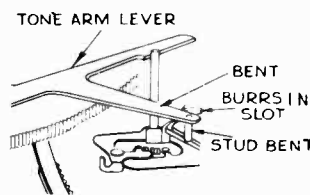
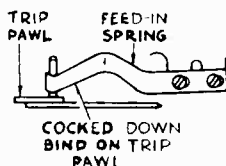
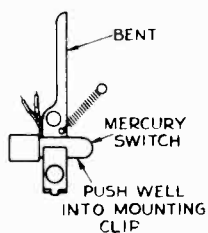
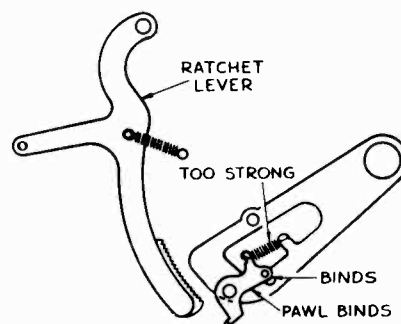
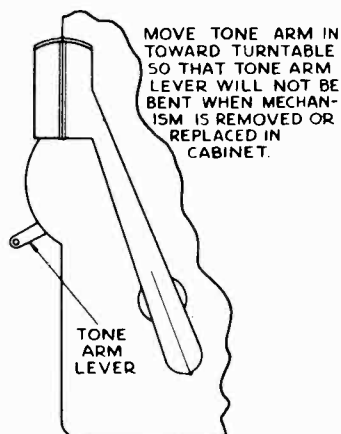
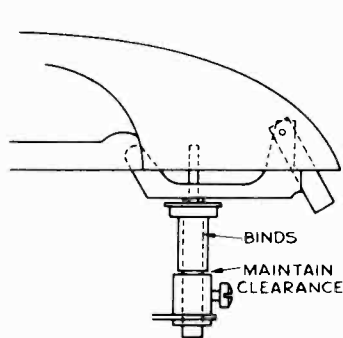
The mercury switch is operated to break the a.c. supply to the cycling motor a few moments before all the cycling operations are completed. The "coast" of the mechanism should then bring the tone arm lever stud against the return lever latch and disconnect the return lever from the trip lever. If excessive friction anywhere in the cycling motor or its gear train reduces this "coast" the pickup will land and repeat

grooves near the beginning of the record. Other causes for the repeating of grooves are shown below.

Check pickup pressure Adjustments "G" and "H."

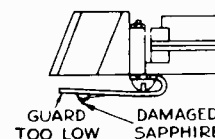
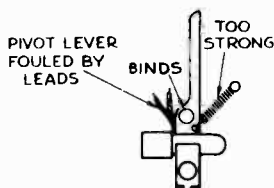
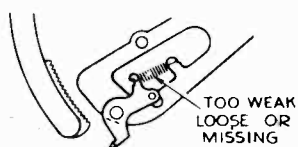
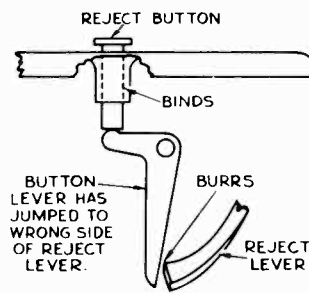
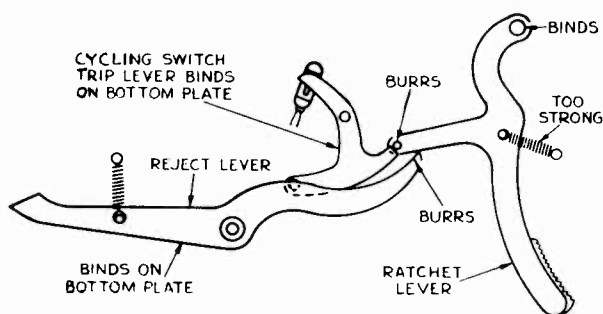
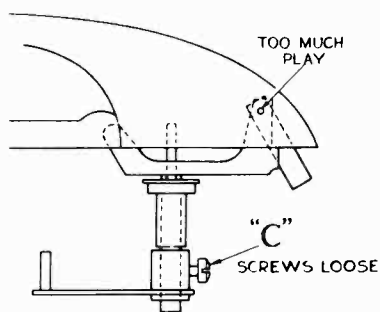
Groove wall in record is broken.

Pickup cable binds.



Fails To Trip (or Fails to Cycle)

Eccentric groove on record is too shallow or discontinuous. Defective mercury switch, circuit, or motor.



Record Drops Too Soon

Check Adjustments "B" and "A" setting the knife spacing greater than 3/32 inches if necessary.

Adjustment Screws Slip

Two cone-pointed set screws Stock No. 31118 may be used if Adjustment "D" fails to hold. Similarly on Adjustment "E" two cone-pointed screws Stock No. 38527 may be used.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

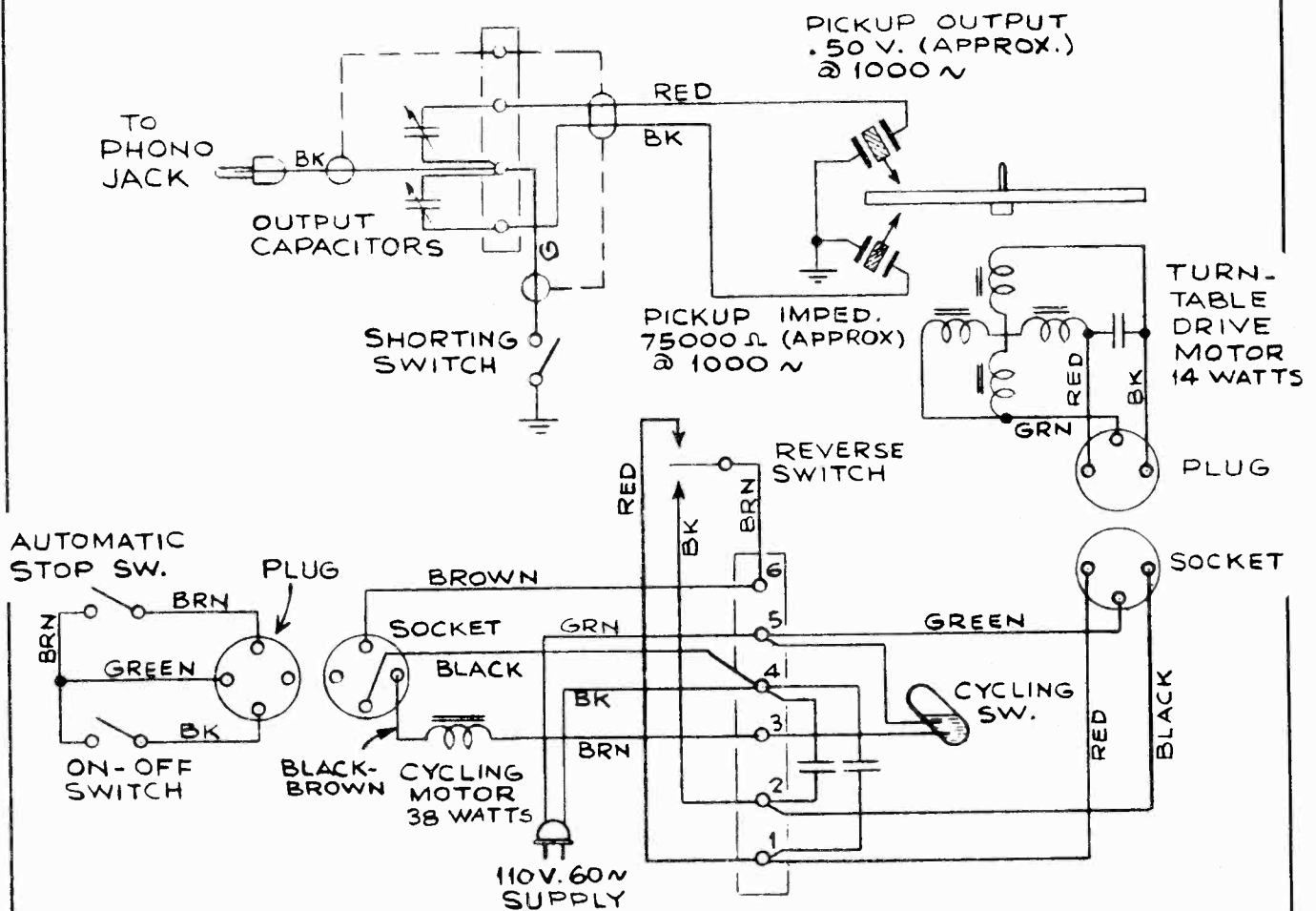
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES			
38456	Arm—Upper and lower pickup arms only	38533	Disc—Turntable bottom bearing discs (1 felt and 1 laminated)
38459	Bracket—Pivot arm spring tension bracket and screw	38496	Gear—Fibre drive gear and set screw—engages pinion on rubber-tired motor drive wheel (2)
38457	Cable—Shielded pickup cable—connects pickup crystals to shorting switch Note: Before ordering a replacement crystal pickup, inspect the used pickup. Order the stock number stamped on its case.	38495	Gear—Pinion gear and shaft—engages cam gear (1)
38598	Crystal—Pickup crystal and holder with sapphire and holder (bottom unit)	38505	Gear—Sector gear and lever mounted on bottom plate—engages segment on turntable—motor pivot shaft
38453	Crystal—Pickup crystal and holder with sapphire and holder (top unit)	38526	Gear—Turntable pivot shaft segment
38451	Damper—Viscoloid damper for sapphire holder	38538	Grommet—Rubber grommet for mounting cycling motor
38452	Guard—Sapphire guard	34368	Grommet—Rubber grommet for turntable motor mounting (2 required)
38450	Nut—Special nut and washer for sapphire holder	38493	Lever—Cycling switch pivot lever or follower arm
38458	Nut—Speed nut to hold cable in pickup arm	38494	Lever—Cycling switch trip lever
38454	Pivot—Pivot arm and shaft assembly—less spring and adjusting screw	38512	Lever—Reject lever
38449	Sapphire—Sapphire and holder—less nut	38497	Lever—Slide roller lever—engages cam
37763	Screw—No. 2-56 x 1/8 screw to mount sapphire guard (2 required)	38499	Lever—Slide control lever—engages slide
38455	Spring—Pivot arm spring (10)	38504	Lever—Turntable locating lever—engages sector gear and lever on bottom plate
TOP PLATE ASSEMBLY			
38461	Belt—Record separator belt (steel) (2 used)	38544	Lever—Reversing lever, operates motor reversing switch
38484	Button—Pickup stop switch button (rubber)	38543	Lever—Elevating control lever, operates tone arm elevating lever and pickup shorting switch
38485	Button—Reject button	38549	Lever—Tone arm elevating lever—less roller
38473	Cam—Record support cam—less pin	38509	Lever—Tone arm lever
38470	Cap—Record separator cap (24)	38516	Lever—Tone arm ratchet lever
38491	Crank—Record separator crank with set screws—less connecting lever (2 used)	38506	Lever—Tone arm return lever—less feed-in spring and damper
38489	Cushion—Rubber cushion for records (round) (under felt)	38500	Lever—Slide throw-out lever
38441	Decalomania—"RCA Victrola—His Master's Voice"	38474	Pin—Drive pin to fasten turntable bracket to spindle shaft
38462	Drum—Record support belt drum (1 required)	38552	Pin—Pivot pin for tone arm elevating lever
38463	Drum—Record separator belt drum—less screws (2 required)	38492	Plate—Bottom plate complete with all riveted and welded brackets and studs, cycling switch trip lever, and cycling switch pivot lever and bracket
38476	Escutcheon—Index escutcheon	38498	Roller—Cam roller for slide roller lever
38486	Felt—Top plate felt	38502	Roller—Slide roller, stud and nut (16)
38467	Knife—Record separator knife	38550	Roller—Tone arm elevating lever roller
38477	Lever—Control or selection lever and shaft	38527	Screw—No. 10-24 x 7/16 cone point set screw for turntable pivot shaft segment
38481	Lever—Index lever	38528	Screw—No. 10-24 x 7/16 set screw for turntable pivot shaft segment
38490	Lever—Record separator lever—less links	31118	Screw—No. 10-32 x 5/16 fillister head, cone point set screw for fibre drive gear and counter weight
38483	Lever—Button lever and bracket	32869	Screw—No. 10-32 x 5/16 set screw for counterweight (E)
38478	Lever—Star wheel lever and bushing—less star wheel and spring	38532	Screw—5/16—18 x 3/4 screw and nut for turntable spindle bottom bearing
38474	Pin—Drive pin for record support cam	38553	Screw—Special screw to hold tone arm elevating lever spring
38460	Plate—Finished top plate (cast) only, with pins and studs—less operating parts	38520	Shaft—Motor and turntable pivot shaft
38460	Screw—No. 6-32 oval head screw for record separator cap	38503	Slide—Slide plate and studs assembly
31118	Screw—No. 10-32 x 5/16 fillister head cone point set screw for record separator belt drum, record separator crank, or index lever	38537	Spring—Cycling motor idler arm spring—1-in. long (18 turns) (17)
32869	Screw—No. 10-32 x 5/16 fillister head set screw for record separator belt drum and record separator crank	38540	Spring—Cycling switch pivot lever spring—13/16-in. long (34 turns) (21)
38466	Shelf—Record separator shelf and shaft—less top knife, cap, and spring	38507	Spring—Tone arm feed-in spring and damper
38471	Spacer—Spacer washer for record separator knife	38513	Spring—Reject lever spring (8)
38468	Spring—Record separator spiral spring (25)	38501	Spring—Slide throw-out lever spring (15)
38488	Spring—Spiral spring for record separator belt drum (11)	38546	Spring—Spiral spring for motor reversing switch lever (5)
38475	Spring—Spiral spring for record separator lever (20)	38519	Spring—Spiral spring for cycling switch trip lever (7)
38487	Spring—Spiral spring for record support belt drum (19)	38545	Spring—Spiral spring for elevating control lever (4)
38480	Spring—Spiral spring for star wheel	38514	Spring—Spiral spring for motor reversing switch lever pawl (3)
38472	Support—Record support and shaft (1 required)	38508	Spring—Spiral spring for pickup return lever (14)
33900	Switch—"Off-On" main switch	38518	Spring—Spiral spring for ratchet lever
38482	Switch—Stop switch—operated by pickup	38554	Spring—Spiral spring for tone arm elevating lever (22)
38464	Swivel—Support and swivel for front record separator	38515	Spring—Spiral spring for tone arm return lever pawl (12)
38465	Swivel—Support and swivel for rear record separator	38510	Spring—Tone arm lever spring (13)
2917	Washer—"C" washer for star wheel, record separator link and lever, record support belt drum, star wheel lever, and reject button	38524	Spring—Turntable drive motor idler arm spring (23)
8078	Washer—Spring washer for star wheel lever	38531	Spring—Turntable drive motor tension spring (6)
38479	Wheel—Star wheel	38530	Spring—Turntable pivot shaft counterbalance spring
BOTTOM PLATE ASSEMBLY			
38536	Arm—Cycling motor idler arm—less wheel	38521	Support—Turntable support bracket and spindle bearing—less bearing screw and nut
38525	Arm—Turntable drive motor arm—less wheel	38541	Switch—Mercury tube with leads (cycling)
38547	Board—Pickup shorting switch terminal board—less mounting bracket, pickup elevating lever, and trimmer condensers	38844	Switch—Pickup shorting switch
38539	Bracket—Cycling motor mounting bracket	38542	Switch—Turntable motor reversing switch and bracket
38551	Bracket—Tone arm elevating lever and bracket—less lever	38534	Turntable—Turntable, spindle shaft, and drive disc assembled
38523	Bracket—Turntable drive motor mounting bracket	2917	Washer—"C" washer for slide control levers, tone arm lever, tone arm return lever, main cam, or slide throw-out lever
38845	Cable—Shielded output cable—connects to shorting switch	20165	Washer—"C" washer for tone arm elevating lever roller, elevating lever pin, cycling motor idler wheel, cycling motor drive wheel, and tone arm ratchet lever
38511	Cam—Cam, gear, and bearing assembly		
38548	Condenser—Trimmer condenser (2 required)		

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
33726	Washer—"C" washer for turntable drive wheel or idler wheel	10941	MISCELLANEOUS ASSEMBLIES Ball—1/8 diameter steel ball for pickup arm, or trip lever bearing Cable—Output cable and plug—connects shorting switch to amplifier Capacitor—1,500 mmfd. Lever—Pickup arm trip lever—less spring Plug—2-prong male for power supply cable Plug—3-contact female for motor cable Plug—3-prong male for turntable motor leads Plug—4-contact female for motor cable Plug—4-prong male for power switch cable Rod—Pickup arm elevating rod—less adjusting screw Screw—No. 4-40 x 5/16 hex. head screw and nut for pickup arm elevating rod Screw—No. 10-32 x 5/16 cone point set screw for trip lever Screw—No. 10-32 x 5/16 set screw for trip lever Screw—5/16—18 x 1/2 screw to mount lower unit to top plate. Spring—Spiral spring for trip lever latch (18) Washer—Felt washer for pickup arm pivot shaft bearing
34373	Washer—"C" washer for turntable idler wheel arm	38565	
38529	Weight—Turntable pivot shaft counterweight and arm	13762	
38535	Wheel—Cycling motor rubber-tired drive wheel and pinion gear	38561	
36274	Wheel—Rubber-tired turntable drive wheel or idler wheel	30870	
	CYCLING MOTOR	31572	
38556	Motor—105-125 volts, 60 cycles	31567	
	TURNTABLE DRIVE MOTOR	35352	
36952	Cap—Bakelite top cover for motor	35384	
36955	Capacitor—1.1 mfd., 200 volts for 60 or 50 cycle motors	38563	
38557	Motor—Motor and capacitor, 105-125 volts, 60 cycles	38564	
38558	Rotor—Rotor and shaft for 60 cycle motor	31118	
38848	Sleeve—Motor spindle sleeve for 50 cycle conversion	32869	
		38569	
		38562	
		38560	

ALL PRICES ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE.



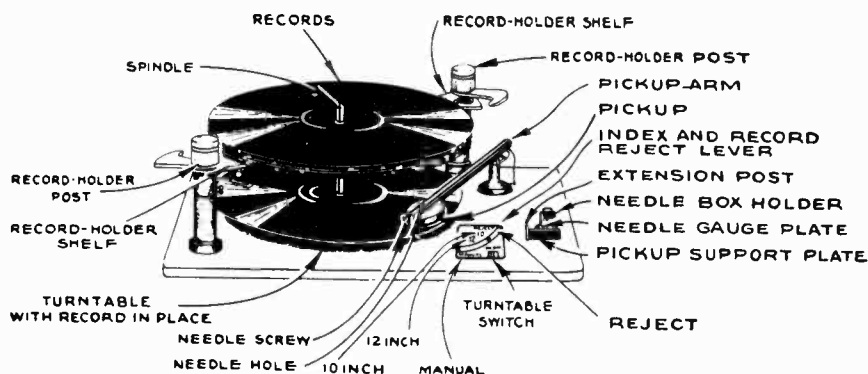
RP-152, RP-153 RP-155 and RP-157

Automatic Record Changers

"RP" vs. "MODEL" NUMBERS

MODEL NO.	RP NO.	MODEL NO.	RP NO.	MODEL NO.	RP NO.
QU-7	RP-157	V-200	RP-152A	V-300	RP-152J
VA-15	RP-152	V-201	RP-152A	V-301	RP-153
QU-51M & QU-55	RP-152R	VHR-202	RP-155	V-302	RP-153
QU-52C	RP-152S	V-205	RP-152B	VHR-307	RP-155
QU-52M	RP-152R	V-205A	RP-153	V-405	RP-152J
V-170	RP-152	VHR-207	RP-155	VHR-407	RP-155

RP-155 AND RP-157 ARE EQUIPPED FOR HOME RECORDING, OTHERWISE SIMILAR TO RP-153



The RP-152 and RP-153 automatic record changers are very similar in design and construction. Most of the parts and adjustments are identical on both. The RP-153 turntable is driven through a worm gear in the motor housing while the RP-152 turntables are driven through a friction drive disc mounted under the turntable.

On Models RP-152 it is important that the drive motor spindle, and rubber tires on main driving disc and idler pulley be kept clean and free from oil, grease, dirt, or any foreign matter at all times. Any quick-drying naphtha is satisfactory for cleaning these parts. The drive motor bearing is lubricated from an oil well filled and sealed at the factory. It should not require lubrication in the field.

The rubber-tired drive disc on Models RP-152 is not removable from the spindle. The turntable is fastened to the driving disc by three bolts. If necessary to remove these parts the spindle drive gear set screw should first be removed. The driving disc, turntable and spindle assembly can now be lifted upward from the motorboard. If this is done, great care should be taken not to bend the spindle.

To remove the turntable and spindle on the RP-153 type it is necessary to first remove the tapered pin in the turntable drive arm assembly. The turntable and spindle can then be drawn up through the motorboard bearing.

Before servicing the automatic record changer, inspect the assembly to see that all levers, parts, gears, springs, etc., are in good order and are correctly assembled.

A bind or jam in the mechanism can usually be relieved by rotating the turntable in the reverse direction.

The changer can be conveniently rotated through its change cycle by pushing the index lever to "Reject" and revolving the turntable by hand. Six turntable revolutions are required for one change cycle.

A pickup shorting switch, located under the motorboard, operates when the pickup is moved outward to the pickup rest.

The 10- and 12-inch records must be absolutely flat for smooth operation.

When a record has been played the pickup moves out, another record is dropped down, and the needle is fed automatically into the starting groove of this record. If the needle fails to enter the starting groove, raise the right-hand side of the cabinet by inserting thin spacers under the feet on that side. If the needle slides over a few grooves, raise the left-hand side of the cabinet in a similar manner.

Cycle of Operation

In automatic operation (index lever set to "10" or "12"), when the pickup needle enters the eccentric or spiral groove at the inside of the record, the pickup arm swings in the groove, and this motion acts through a friction clutch to "trip" or start the cycle of the automatic record changer mechanism which:

1. Lifts up the pickup arm and swings it out clear of the records.
2. Turns the two record-holder posts, each of which has a "knife" and a "shelf": The knives enter between the bottom record and the rest of the stack. Continuing to turn, the shelves move from under the bottom record and it drops on the turntable, while the rest of the stack of records are supported by the "knives."
3. The pickup arm is then moved to correct position and lowered on the record, while—
4. The record-holder posts are turning back to their original positions, so that the records rest on the shelves, and the knives are in correct position to separate the next record from the stack.

The cycle is completed when the pickup comes down on the record. The pickup arm should not be moved while "in cycle."

Cautions

RP-152, RP-153, RP-155, RP-157

1. This instrument is not recommended for playing 10-inch and 12-inch records in mixed sequence.
2. Never use force to start or stop the motor or any part of the record-changing mechanism or pickup arm.
3. Warped or damaged records may cause the mechanism to jam.
4. Warped records may slide on one another when playing, resulting in unsatisfactory reproduction.
5. Do not leave records on the record-holder posts as they may warp, particularly in warm climates. Warped records

may be flattened by placing them on a flat surface with a flat heavy article placed on top of them for a few days.

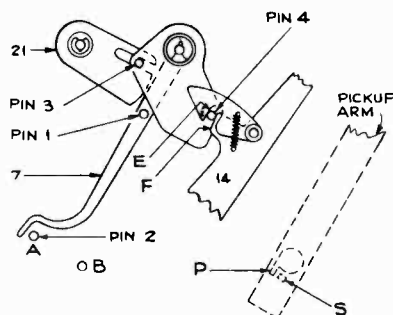
6. Do not leave pickup needle resting on a record or on the turntable. Always place it on the pickup rest.
7. Do not insert a used needle in the pickup, and avoid turning a needle after it has been used.
8. If for any reason the phonograph stalls, turn off the turntable switch and remove the records from the record holder shelves. Start the turntable and allow the pickup arm to complete its cycle.

RCA VICTROLA MECHANISM DATA

RP-152, RP-153, RP-155:

The following changes have been made in these Record Changers:

- (a) Removal of Trip Regulator Lever (Part 21).
- (b) Removal of Pin 1 on Trip Lever Friction Finger (Part 7).
- (c) Repositioning of Stop Pin 2 from position "A" to position "B."
- (d) Removal of Pin 3. Since this pin does not interfere with the operation, it has been left in some mechanisms.



Trip Regulator Lever (21) is Removed in Some Production.

The Trip Regulator Lever was formerly used to prevent premature tripping due to a too early return of the Trip Lever Friction Finger at the end of each changing cycle. The same result is obtained by removing the Trip Regulator Lever and repositioning the Trip Finger Stop Pin as shown in the diagram.

Binding or Hesitation of Tone Arm:

This may be due to the following causes:

- (1) Small burr on edge "E." Correction: Carefully remove burr with a fine file until edge is entirely smooth.
- (2) Binding of Pin 4 between edges "E" and "F." Correction: File off edge "F" with a fine file to give just enough clearance for smooth operation.
- (3) Too far an outward swing of the Pickup Arm. This causes Pin 4 to be caught in the upper curved portion of edge "F." Correction: On some models the Pick-up Arm Shaft can be rotated by loosening the nut under the motor board. Rotate sufficiently to prevent Pin 4 from riding into curved portion mentioned, when Pick-up Arm is in the outermost position.

On models where the Pick-up Arm Shaft is positioned by a locating key, it is necessary to bend Stop Guide "S" on Pick-up Arm towards Stop Ear "P" on Pick-up Arm Shaft so that the condition mentioned in the above paragraph is obtained.

RP-152 SERIES

No. 38304 Spindle Bearing and Washer:

The turntable spindle bearing and washer for the RP-152 Series automatic record changer mechanism, used in Models VA-15, V-170, V-200, V-201, V-205, V-300, and V-405, are now stocked as No. 38304.

FLOCK FOR RP-152 TURNTABLE

Dark taupe colored flock is available as Stock No. 37952 (½ lb. package) for turntable repair on RP-152 series record changers used in Models V-170, V-200, V-201, V-205, etc. The method of applying the flock is described on page 12 of the 1938 Bound Volume.

RP-152 RECORD CHANGER
REPLACEMENT OF RUBBER
TIRES

Stock No. 37873 Rubber Drive Tire

On Turntable Drive Discs:

1. Remove old tire by stretching and pulling over drive disc edge.
2. Thoroughly clean drive disc to remove burrs or foreign particles.
3. Place new tire over the drive disc. Avoid any twisting or excessive stretching of the tire.
4. Roll disc and tire on a flat clean surface while simultaneously applying a slight downward pressure on the disc shaft. This will allow the tire to seat itself properly in the "V" shaped groove on the drive disc and take up for any uneven stretching of the rubber tire.
5. Clean rubber tire with carbon tetrachloride (Carbona),

Centering Motor:

Should centering of the rotor be necessary, it may be accomplished quickly in the following steps:

- (a) Remove the two long machine screws, and lift off plastic end cover.
- (b) Loosen the two remaining screws sufficiently to permit adjustment of stator laminations.
- (c) Insert a .010-inch speaker shim between the rotor and each of the four stator field poles. Rotor should now be equidistant from each pole, and accurately centered.
- (d) Tighten screws and replace plastic cover.

Stalling Going into Cycle:

The mechanism should be loaded with one record on the turntable. If stalling going into cycle takes place, it is probably due to insufficient tension in the main lever spring or booster spring (43). An additional metal washer should be inserted between the spring and its guide.

Stalling Coming Out of Cycle:

If the mechanism stalls just as it is coming out of cycle, that is, when the pickup is at its farthest distance laterally from the turntable, it is probable that there is too much tension in the booster spring. Any metal washers in this assembly should be removed.

CAUTION: The mechanism is designed to handle a total of 8—10-inch records or 7—12-inch records.

Intermittent Start, Slow Speed, or Stalling:

These conditions may be caused by binding of idler wheel on its mounting stud. Smooth and clean the idler wheel bearing so that it can rotate freely.

QU7, QU-51, -52, -55, -56

Tone Arm Pressure Spring:

When replacing the tone arm, or the magnetic pickup head, check the needle pressure which should be approximately 3½ ounces. Alter the counter-balance spring in arm to obtain the correct pressure, or install a new spring. Two springs (65 turns and 75 turns) are supplied under Stock No. 38213. Use the spring that most nearly gives the correct pressure and then remove turns, or stretch the spring, as required, for final adjustment.

RP-153 RECORD CHANGER

Motor Data:

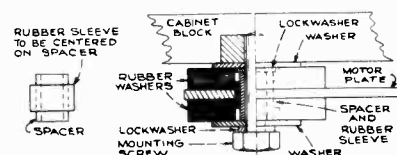
Should it be necessary to rebuild or service any of these motors in the field by replacing end heads or using new rotors and shafts, it must be noted that the rebuilt motors should be operated continuously for at least 48 hours before installation. The use of bronze bearings, diamond-bored for accuracy, together with the burnished steel shaft at the rotor provides a very close fit. As a result, the motor must be run in approximately 48 hours, after which the oil has had a chance to fairly cover all contact surfaces of shaft and bearings, and a very smooth-operating long life bearing results.

Mechanical Motor Noise:

Mechanical motor noise due to armature end play sometimes develops with wear in the above instruments which use type RP-153 record changers. This can be eliminated by tightening the armature thrust bearings. Care should be taken to avoid making them too tight which will cause binding.

Motor Hum:

Excessive hum may be caused by incorrect assembly of the rubber grommets on the two bolts that fasten the motor-mounting plate to the cabinet. The correct assembly is shown in the sketch. The rubber sleeve must be centered on the metal spacer so that the motor plate can not come in metallic contact with the spacer.



RP-153 MOTOR MOUNTING ARRANGEMENT

Excessive Motor Hum will Result in RP-153 if the Rubber Sleeves are not Centered on the Metal Spacers.

V-170, V-200, V-201

Rumble:

Rumble is related to motor vibration, combined with high-gain amplifier, and prominent bass response.

The vibration of the motor in these instruments is as low as it can be made: Do not replace it to correct rumble. Rather, reduce the low-frequency response by shunting a 50,000-ohm ¼-watt resistor across the crystal pickup terminals.

RUBBER BUMPER STUD

Stock No. 38351:

The stud for the rubber bumper (adjustment "A") on RP-152, 153, 155, and similar automatic record changers, is available as Stock No. 38351.

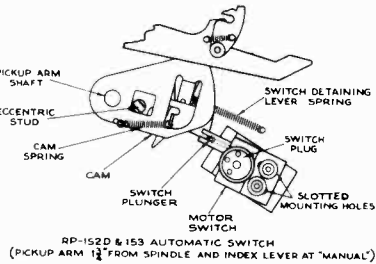
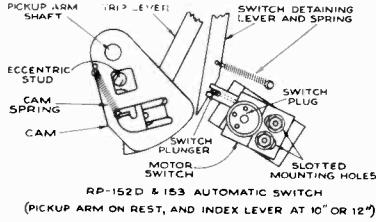
Idler Wheel Fiber Washers:

In order to reduce idler wheel noise, the two metal washers have been replaced by two fiber washers in the Idler Wheel Assembly, Stock No. 36274, for the above record changers. The new fiber washers are Stock No. 39996.

RP-152D, -153, QU7

Automatic Switch Adjustment:

In RP-152D and RP-153, an automatic motor switch is mounted under the motorboard, near the pickup arm shaft.



When the index lever is set at its "10-inch" or "12-inch" position, a detaining lever holds the switch plunger in and keeps the motor running.

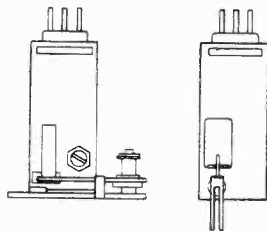
When the index lever is set at its "manual" position, the detaining lever moves aside and the switch plunger is then actuated by a cam on the pickup arm shaft. In "manual" position, when the pickup is on its rest, the switch plunger is out and the motor circuit is open. When the pickup is moved from its rest to the edge of a 12-inch record, the cam pushes the switch plunger in and the motor starts. When the pickup needle reaches a point 1 1/4 inches from the centerline of the turntable spindle, the switch plunger is released by the sharp corner of the cam, thus shutting off the motor.

When the pickup is lifted off the record and moved to its rest, the motor starts momentarily.

ADJUSTMENTS:
The slotted switch mounting holes permit positioning of the switch so that the plunger will be pushed in by the cam.

The eccentric stud on the cam should be turned so that the switch plunger is released by the sharp corner of the cam when the pickup needle is 1 1/4 inches from the centerline of the turntable spindle.

The original switch, Stock No. 36529, is superseded by an improved switch, Stock No. 38995. When installing the new switch, remove the angle bracket that is used between the motor board and the original switch.



NEW SW. STOCK NO. 38995
ORIGINAL SW. STOCK NO. 36529

Original and new motor switch for automatic shut-off in manual operation on RP-152D and RP-153.

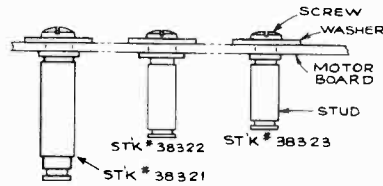
REPLACEMENT STUDS

For Main Lever, Cam-and-Gear, or Trip Pawl:

In automatic record changers of the RP-139A, 145, 152, 153, 155, and similar types, loosening of the mounting studs on which the main lever, cam-and-gear, or trip pawl are pivoted may be caused by jamming of the main lever against the pawl pin at the end of the change cycle due to one or more of the following reasons:

- (a) The long arm of the main lever slides over the thin pawl pin instead of pushing against it during first half of cycle. Check for bent arm on main lever.
- (b) After being cleared out of the way, the trip pawl bounces back due to vibration (dancing near mechanism, etc.) Check the trip-pawl phosphor-bronze spring for sufficient "drag" or pressure against the pawl.
- (c) The index lever is put into "REJECT" position while the mechanism is still in its change cycle. Caution customer against this.

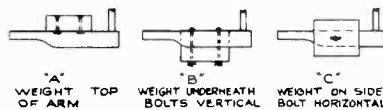
Loose studs may be quickly and easily replaced by using special replacement studs that are fastened to the motorboard by means of a screw and washer. Three different studs are available:



- Stock No. 38321 Main Lever replacement stud, with screw and washer...
- 38322 Cam-and-Gear replacement stud, with screw and washer.
- 38323 Trip Pawl replacement stud, with screw and washer...

VHR-202, 207, 407

Follower-Arm Weight:



Three Mounting Arrangements of Follower-Arm Weight on Home Recording Models

The weight is packed separately for methods "A" and "B" and must be mounted as shown when the instrument is installed in the consumer's home. Excessive "rumble" occurs when the weight is not in place.

RP-152, -152A

Tendency to Stall:

Some RP-152 and -152A automatic record changer mechanisms in Model VA-15, V-170, V-200, and V-201 use a motor identified by stamping number 91706-1. Slow speed and tendency to stall in this motor may be due to the motor bearings becoming misaligned with respect to the motor spindle.

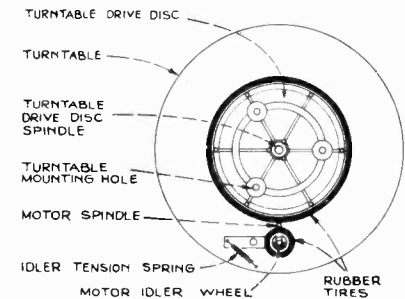
In most cases, the motor spindle may be freed by tapping the stator laminations while the motor is in operation.

For a permanent remedy it is advisable to install an idler wheel assembly to reduce side thrust on the motor bearings. The following parts are required:

Stock No.	Description	Unit List Price
1-36274	Idler wheel.....	.55
1-36275	Idler wheel arm.....	.25
2-33726	"C" washer for idler wheel.....	.02
1-30585	Spring for idler.....	.06

Installation Instructions:

1. Remove one of the two motor support springs.



Arrangement of Idler Wheel Assembly to Improve RP-152, -152A Using Motor 91706-1

2. Remove the turntable by removing the screw in the turntable spindle drive gear below the motorboard.
3. Mount the idler wheel by means of a "C" washer on the single end stud of the idler arm.
4. Install the idler assembly in place on the motor board as shown in accompanying sketch and fasten by means of the second "C" washer.
5. Connect the tension spring between the end of the idler arm and the motorboard pin (below motorboard).

PHONOGRAPH MOTORS

Identifying Colors:

In order to facilitate identification in respect to frequency, Phonograph motors are marked either on the bottom or side with a large spot of paint as follows:

60 cycles.....	no mark
50 cycles.....	green
25 cycles.....	white

Record-Separating Knives. 12-inch records are thicker than 10-inch records: To accommodate this difference, the "knife" or record-separating lever on each record post is raised slightly when a 12-inch record presses down against the ball-point screw that projects through a hole in the record-holder shelf on each post. (10-inch records do not rest on these screws, and the knife clearance is then correct for a 10-inch record.)

Lubrication.—Petrolatum or petroleum jelly should be applied to cam, main gear, spindle pinion gear, lead screw and gears of record posts.

Light machine oil should be used in the tone arm vertical bearing, motor bearing, record post bearings, and all other bearings of various levers and pulleys on underside of motorboard and underneath turntable.

RP-155 and RP-157

The turntable can be removed by tapping smartly on the top of the spindle while pulling upward on opposite sides of the turntable.

VHR-202, -207, -307, -407 Recorder Mechanism Adjustments

"N" Recorder Arm Stop.—An extension on the cross-bracket under the motorboard limits the inward movement of the follower arm. In this stop position, the stylus screw should be 1½ inches from the spindle.

The correct distance can be obtained by loosening set screws "N," moving the recorder arm in the required direction, and tightening the set screws.

"O" Follower-Arm Guide Adjustment.—When the recorder arm is lifted, the follower-arm rises up so that the follower-guide will clear the lead screw and permit the recording arm to be moved inward or outward.

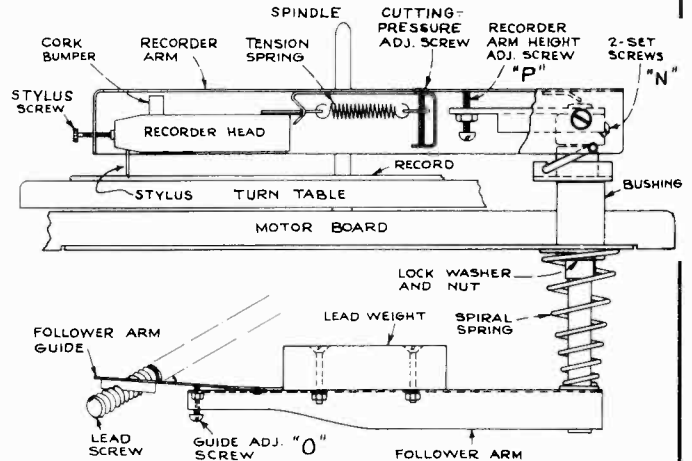
Adjust the set screw and locknut "O" so that the guide clears the lead screw when the bottom-front edge of recorder arm is 3 inches above record.

"P" Recorder-Arm Height Adjustment.—With the recording stylus resting on a metal-base recording disc, and adjusted for correct cutting pressure, the stylus screw should be approximately in the center of the hole in the recorder arm, and the cutter head should be free to move up and down. Adjust the recorder-arm height adjustment screw and locknut "P" to obtain these conditions.

If the arm is too low, the cork bumper on top of the cutter head will hit the inner top of recorder arm.

If the arm is too high, the stylus screw will hit the lower edge of the screw hole.

Also check to see that the stylus screw does not scrape against the side of the screw hole.



"Rumble":

Any instrument with the sensitivity and tone response of these home recorders is capable of picking up the mechanical vibrations of the motor. However, due to many preventives incorporated in the design of these instruments, rumble will not be recorded if the following precautions are observed:

LEVELING—See that the instrument is perfectly level.

FREENESS—Be certain that the motorboard and mechanism is "floating" free from the cabinet. All four mounting springs should be at approximately equal tension.

FOLLOWER ARM DAMPING WEIGHT—See that the lead weight is in place attached to the follower arm underneath the motorboard.

STYLUS—Make sure that a perfect stylus is tightly inserted in the cutter-head. Because both stylus and retaining screw are of hard steel there is a tendency towards loosening during cutting. Tightness should be checked before each cut.

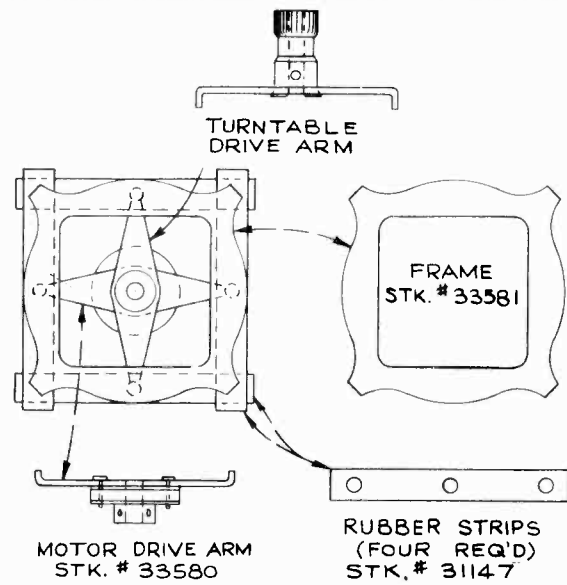
INPUT LEVEL—Set for sufficient input level so that the "Magic Eye" just closes on modulation peaks.

tone Control Settings—During recording, the power-bass control should be set for maximum lows, just beyond the click of power switch. The treble tone control setting will depend on the degree of potential rumble present. For extreme cases, it should be set for minimum highs during recording only, in order that the low frequencies in the selection or voice may have a full chance to mask any possible rumble.

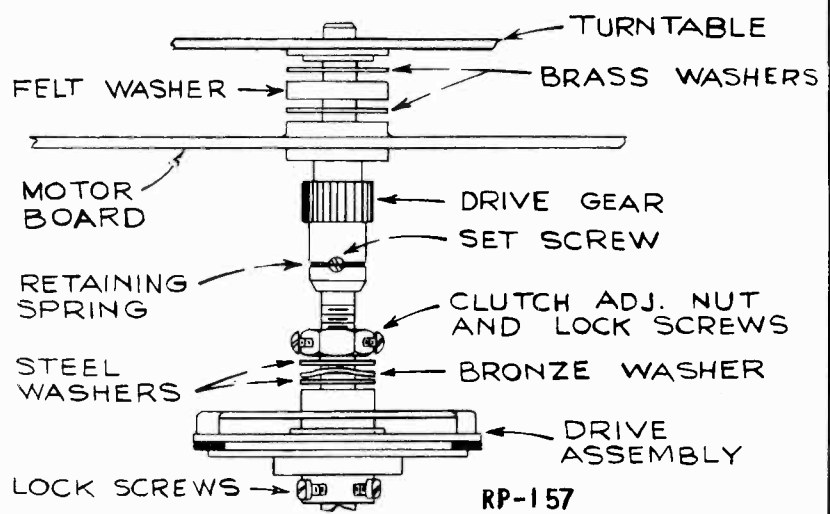
DEPTH OF CUT—During recording, the shavings should be directed towards the spindle and prevented from obstructing the cutter path. The thickness of these shavings should be about that of human hair, or approximately .003 inches. An additional check on depth of cut is to inspect the recording under a magnifying glass. The groove width should approach but not exceed the distance between grooves. Depth of cut may be varied by means of the cutting-pressure adjusting screw at the top of cutter arm.

TURNTABLE DRIVE—If rumble persists, inspect the idler wheel (between motor spindle and turntable) for possible runout, flat spots, and scraping against bottom of turntable.

RECORDING DISCS—Due to variations in material composition and hardness among different types of discs, the same cutting-pressure adjustment will not give an equal depth of cut on all types. Thus, it may be necessary to change the adjustment previously set for one type of disc, when recording on a different type.



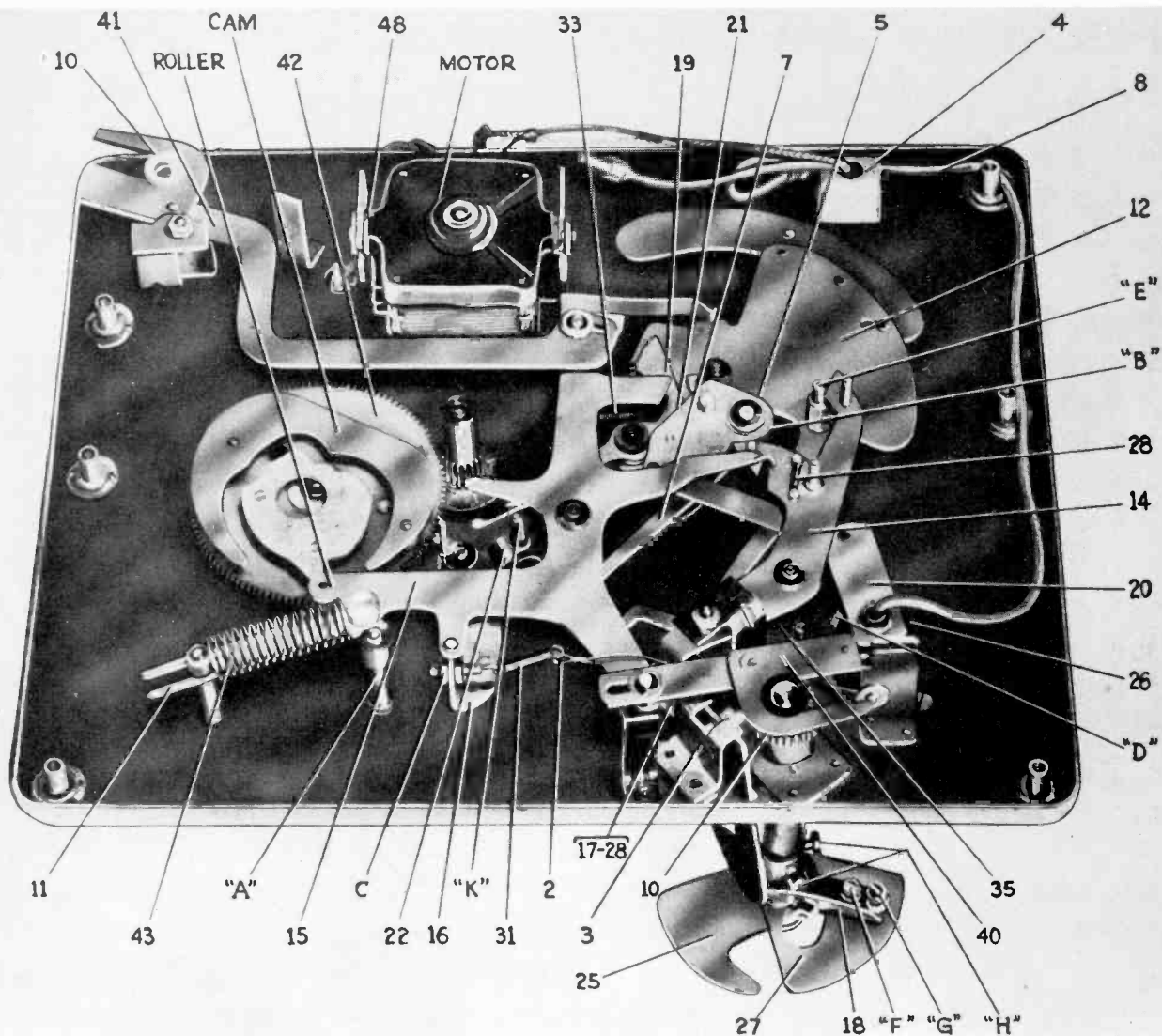
Motor Coupling Details on RP-153



RP-157

Turntable drive assembly showing friction clutch and flexible coupling.

RP-152, RP-153, RP-155, RP-157



Bottom View of RP-152, -A, -B, -C, -J Automatic Record Changer

RP-153 mechanisms are similar to above but have flexible coupling turntable drive, and automatic switch.

RP-152-D mechanisms are similar to above but include automatic switch.

Note: Numbers refer to parts—letters refer to adjustments.

Names of Mechanism Adjustments

"A" Rubber Bumper.—Maintains $\frac{1}{16}$ -inch clearance between roller (on end of main lever) and cam plate.

"B" Friction Clutch Adjustment.—Regulates tripping of record-changing cycle when pickup swings in eccentric groove.

"C" Pickup Lift-Cable Adjustment.—Regulates height that pickup arm is lifted during record-changing cycle.

"D" Needle Landing Position for 10-inch Records.—The relation between pickup shaft and trip lever "20," which are fastened by set screws "D," determines needle landing position for 10-inch records.

"E" Needle Landing Position for 12-inch Records.—Eccentric stud "E" adjusts position of lever "14" which determines landing position for 12-inch records.

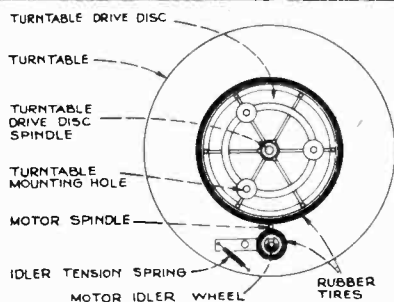
"F" Record separator knife adjustment for 10-inch records, adjusts spacing of knife with relation to record shelf so knife will accurately slice in between the bottom 10-inch record and the rest of the stack.

"G" Record separator knife adjustment for 12-inch records, adjusts movement of elevating lever which raises knife to compensate for greater thickness of 12-inch records.

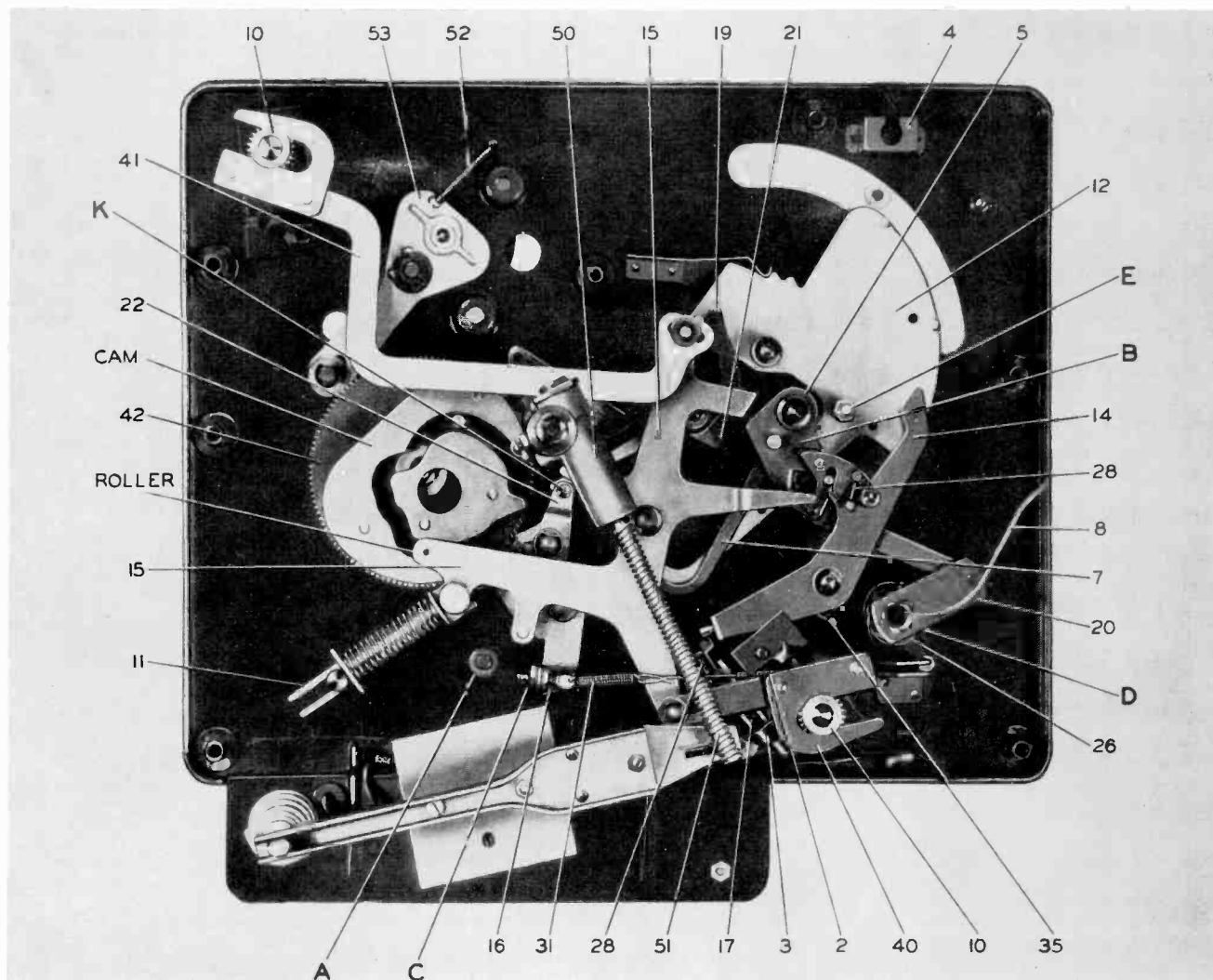
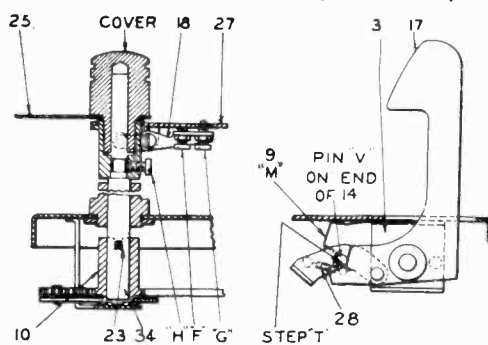
"H" Record support shelf set screws, to adjust record support self on each record post, so the shelves move out from under the bottom record at the same instant, permitting record to drop properly.

"K" Trip-pawl stop pin, regulates point at which the roller on main lever enters the cam.

"Record Discriminating Lever." In playing a mixed group of 10-inch and 12-inch records, the index lever is set at "10." When the pickup arm moves out during the cycle of operation, the record discriminating lever (at left of the rear record-holder post) is moved to its forward position, toward the spindle, and sets the correct landing position of the pickup needle for a 10-inch record. If a 12-inch record drops down, it pushes the record discriminating lever back, and sets the correct landing position for the 12-inch record.



Motor Drive Details on RP-152

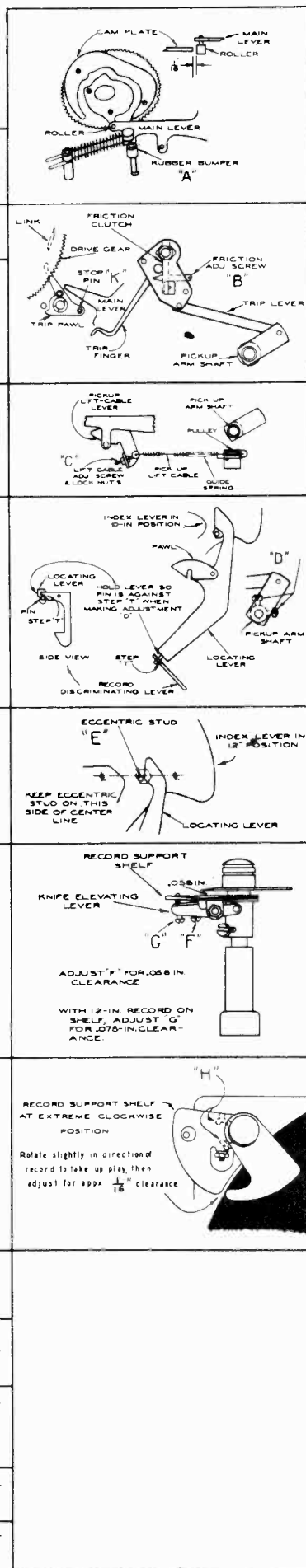


RP-155 Names of Mechanism Parts

- | | | | | | |
|----|----------------|---|----|------------------|--|
| 2 | Guide | —Pickup-lift-cable guide. | 21 | Lever | —Trip-regulator lever. |
| 3 | Bracket | —Record-discriminating-lever bracket. | 22 | Pawl | —Trip pawl. |
| 4 | Switch | —Turntable motor switch. | 23 | Pin | —Separator-shaft pin (engages gear). |
| 5 | Clutch | —Trip-lever friction clutch. | 25 | Separator | —Record-separator knife. |
| 7 | Finger | —Trip-lever friction finger. | 26 | Spring | —Pickup-arm starting spring. |
| 8 | Cable | —Pickup shielded cable. | 27 | Shelf | —Record-support shelf. |
| 9 | Spring | —Record-discriminating-lever spring (flat). | 28 | Spring | —Record-discriminating-lever pawl spring, or locating-lever pawl spring. |
| 10 | Gear | —Record-separator-shaft gear. | 31 | Spring | —Pickup lift-cable spring. |
| 11 | Guide | —Main-lever-spring guide. | 34 | Shaft | —Record separator shaft. |
| 12 | Lever | —Index lever. | 35 | Spring | —Locating-lever spring. |
| 14 | Lever | —Locating lever and pawl. | 40 | Gear | —Short arm and rack gear. |
| 15 | Lever | —Main lever. | 41 | Gear | —Long arm and rack gear. |
| 16 | Lever | —Pickup lift-cable lever. | 42 | Cam | —Cam and drive gear assembly. |
| 17 | Lever | —Record-discriminating lever and pawl. | 43 | Spring | —Main-lever spring. |
| 18 | Lever | —Record-separator elevating lever. | 50 | Casting | —Casting and bearing for spindle and lead screw. |
| 19 | Lever | —Trip-detaining lever. | 51 | Screw | —Lead screw and pinion gear for recorder drive. |
| 20 | Lever | —Trip lever. | 52 | Spring | —Tension spring for motor idler pulley arm. |
| | | | 53 | Arm | —Motor drive disc arm. |

Quick-Reference Chart for Automatic Record Changer Adjustments

<p>General irregularity of operation.</p>	<p>With changer "out-of-cycle," the roller on main lever should clear the cam plate by 1/16-inch. Bend the rubber bumper stud, if necessary, to obtain this clearance.</p>
<p>Fails to trip at end of record.</p>	<p>Increase clutch friction by turning clutch screw clockwise.</p>
<p>Needle repeats grooves (does not follow the groove). Change cycle starts before record is finished.</p>	<p>Decrease clutch friction by turning clutch screw counter-clockwise. These troubles may also be caused by a defective record, binding of the pickup-arm bearing, twisted pickup output cable, or rubbing between the friction finger and the index-lever finger.</p>
<p>Pickup arm strikes lower record in stack. Pickup needle drags across top record on turntable.</p>	<p>Rotate the changer "in-cycle" to the point where the pickup arm is raised to its maximum height above turntable plate, and has not started to move outward. Adjust the lift-cable screw and locknuts so needle point is 1-inch above top surface of turntable.</p>
<p>Needle doesn't land at correct point on 10-inch record. (The correct landing point is 4-5/8 inches from the nearest side of the turntable spindle).</p>	<p>Place 10-inch record on turntable, push record-discriminating lever to forward position, push index lever to "reject" and return it to "10." Rotate mechanism through cycle until needle is just ready to land on record. Hold pin on locating lever against step "T" as shown, loosen the two set screws at pickup arm shaft, and move pickup so needle is about 1/32-inch beyond the outer groove of record. See that there is 1/32-inch play between the pickup-arm bearing and set-screw collar, then tighten one (the blunt nose) set-screw. Run mechanism through cycle as a check, and then tighten the cone-pointed set screw.</p>
<p>Needle doesn't land at correct point on 12-inch record. (The correct landing point is 5-5/8 inches from nearest side of spindle).</p>	<p>Adjust for correct 10-inch landing, as described above, then place 12-inch record on turntable, push index lever to "reject" and return it to "12." Rotate mechanism through cycle until needle is ready to land on the record. Turn eccentric stud to bring pickup needle about 1/32-inch beyond the outer groove in record. (Keep eccentric on stud toward rear of motorboard as indicated.)</p>
<p>Record knives strike edge of records. (This is generally due to warped records, and records with rough edges).</p>	<p>It is essential that the spacing between the knife and the record shelf "27" be accurately maintained. The spacing for the 10-inch record is nominally .058 inch, and for the 12-inch record is .075 inch. To adjust, rotate the knife to the point of minimum vertical separation from the record shelf and turn screw and locknut "F" to give .055—.061 inch separation. Screw "G" must not be depressed during this adjustment. After setting screw "F," adjust screw "G" so that when its tip is depressed flush with top of record shelf, the vertical spacing between the knife, in its lowest rotational position, and the shelf, is .072—.078 inch.</p>
<p>Records are not released properly, or do not fall flat. (If record shelves are bent, or not perfectly horizontal, improper operation and jamming of mechanism will result).</p>	<p>Place a 12-inch record on the turntable, rotate mechanism to point in cycle where the shelves have turned clockwise as far as the mechanism will turn them. Lift record up so it is in contact with both knives and check clearance between record and edges of shelves. It should be 1/16-inch as shown. If the clearance at either or both shelves is not correct, loosen set screws "H" and shift the shelves to obtain this clearance, with the backlash taken up by pressing the shelves toward the record. Tighten one set screw (the blunt-nose one), run mechanism through cycle several times to check action, then tighten the other (cone-pointed) set screw.</p>
<p>Pickup arm support bent too low, or too high.</p>	<p>Bend the support (which is associated with the pickup arm bearing, so that with the mechanism out of cycle, the lower front edge of the pickup arm is 5/16-inch above surface of motorboard.</p>
<p>Roller on main-lever won't enter cam.</p>	<p>Bend the trip pawl stop pin so that the roller on end of main lever, when entering the cam, will definitely clear the cam outer guide plate as well as the nose of the cam plate. (Adjustment "K.")</p>
<p>Needle lands in 10-inch position on 12-inch record, or misses record when playing both types mixed.</p>	<p>Increase pressure of flat spring "M" at bottom of record discriminating lever.</p>
<p>Needle fails to enter starting groove.</p>	<p>Raise the right-hand side of cabinet by placing thin spacers under legs.</p>
<p>Needle slides over a few grooves in landing.</p>	<p>Raise the left-hand side of cabinet by placing thin spacers under the legs.</p>



Replacement Parts Model RP-152

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES (RP-152)			
33906	Arm—Pickup arm only—less crystal, cable, and pivot arm	36725	Motor—105-125 volts, 50 cycle, complete with capacitor
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36254	Motor—105-125 volts, 60 cycle, complete with capacitor
34550	Bushing—Rubber bushing for pickup pivot arm	MOTORBOARD ASSEMBLIES	
32635	Cable—Pickup lift cable	36259	Base—Pickup arm mounting base—RP-152 only
35694	Cable—Pickup shielded cable (8)	36378	Base—Pickup arm mounting base—RP-152-A, RP-152-B, and RP-152-J only
35171	Crystal—Pickup crystal cartridge and needle screw	36542	Base—Pickup arm mounting base—RP-152-C only
33529	Screw—Pickup needle screw	36811	Base—Pickup arm mounting base—RP-152-D only
(RP-152-A)			
36321	Arm—Pickup arm only—less crystal, cable, and pivot arm	36257	Board—Motorboard complete with bearings and posts—less operating parts—RP-152 only
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36375	Board—Motorboard complete with bearings and posts—less operating parts—RP-152-A, RP-152-B, and RP-152-J
34550	Bushing—Rubber bushing for pickup pivot arm	36256	Board—Motorboard complete with bearings and posts—less operating mechanisms—RP-152-C only
32635	Cable—Pickup lift cable	36813	Board—Motorboard with welded and riveted studs and bearing—less operating parts—RP-152-D only
35694	Cable—Shielded pickup cable (8)	32556	Cable—Shielded pickup cable and plug, connects to shorting switch
35171	Crystal—Pickup crystal cartridge and needle screw	36262	Cup—Used needle (insert only for pickup rest)—RP-152, RP-152-A, RP-152-B, RP-152-C and RP-152-J
33974	Screw—Pickup needle screw	36518	Cup—Used needle cup (insert for pickup rest)—RP-152-D only
(RP-152-B)			
36322	Arm—Pickup arm only—less crystal, cable, and pivot arm and shaft	36258	Escutcheon—Index escutcheon—RP-152, RP-152-A, RP-152-B, RP-152-C and RP-152-J
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36377	Escutcheon—Index escutcheon—RP-152-D only
34550	Bushing—Rubber bushing for pickup pivot arm	36260	Gauge—Pickup needle gauge
32635	Cable—Pickup lift cable	34368	Grommet—Rubber grommet for motor mounting
35694	Cable—Pickup shielded cable	36263	Plate—Turntable shaft support and spring plate
37158	Crystal—Pickup crystal cartridge and needle screw	30870	Plug—2-contact male for motor leads
33529	Screw—Pickup needle screw	31048	Plug—Plug for pickup leads—RP-152-D only
(RP-152-C)			
36591	Arm—Pickup arm shell only	36261	Rest—Pickup arm rest—RP-152 only
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36379	Rest—Pickup arm rest—RP-152-A, RP-152-B and RP-152-J
34550	Bushing—Rubber bushing for pickup pivot arm	36812	Rest—Pickup arm rest—RP-152-D only
32635	Cable—Pickup lift cable	36543	Rest—Pickup arm rest—RP-152-C only
32556	Cable—Shielded pickup cable	36798	Spring—Index lever spring (riveted to motor-board)
35171	Crystal—Pickup unit crystal cartridge	32875	Switch—Motor switch (4)
33974	Screw—Needle screw	OPERATING MECHANISMS	
(RP-152-D)			
37181	Arm—Pickup arm (shell only)	36275	Arm—Motor idler wheel arm and studs—less wheel—for use with motor marked No. 91655
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	10129	Ball—Steel ball for spindle shaft
34550	Bushing—Rubber bushing for pivot arm	33984	Bracket—Bracket and pin for locating post and lever (3)
32635	Cable—Pickup lift cable	36277	Bumper—Main lever rubber bumper
33905	Crystal—Pickup crystal cartridge	33987	Cam—Cam and drive gear complete (42)
33976	Pin—Support pin used to fasten arm shell to pivot arm	36531	Cam—Trip lever cam and link—RP-152-D only
33529	Screw—Needle screw	36286	Clutch—Trip lever clutch—less adjusting stud (5)
(RP-152-J)			
36322	Arm—Pickup arm (shell only)	36282	Disc—Turntable drive disc, rubber tire, and spindle shaft assembled—less turntable finished plate
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36265	Finger—Trip lever friction finger (7)
34550	Bushing—Rubber bushing for pivot arm	31121	Gear—Record separator shaft gear (10)
32635	Cable—Pickup lift cable	36280	Gear—Turntable shaft drive gear
35694	Cable—Shielded pickup cable to shorting switch	33982	Guide—Main lever spring guide (11)
37158	Crystal—Pickup crystal cartridge	31151	Guide—Pickup lift cable guide (spring) (2)
33976	Pin—Used to attach pickup arm to pivot arm	36264	Lever—Index lever—RP-152 only (12)
33529	Screw—Needle screw	36380	Lever—Index lever—RP-152-A, RP-152-B, and RP-152-J
MOTOR ASSEMBLIES			
(110 volts, 60 cycles) (Motor No. 91706-1) (RP-152—RP-152-A)			
NOTE: For complete 110 volts, 60 cycle motor replacement order:			
1—Stock No. 36254 Motor—with capacitor			
1—Stock No. 36274 Idler wheel			
1—Stock No. 36275 Idler wheel arm			
2—Stock No. 33726 "C" washer for idler wheel			
1—Stock No. 30585 Spring for idler			
37108	Bearing—Bottom bearing and bracket	36545	Lever—Index lever—RP-152-C only
37107	Bearing—Top bearing and bracket	36816	Lever—Index lever—RP-152-D only
37109	Bracket—Motor mounting bracket	36273	Lever—Locating lever and pawl—RP-152, RP-152-A, RP-152-B and RP-152-J
37111	Coil—Motor field coil assembly	31138	Lever—Locating lever and pawl—RP-152-C and RP-152-D (14)
37110	Rotor—Motor rotor complete with fan	33985	Lever—Main lever (15)
37106	Pad—Rotor thrust pad	31140	Lever—Pickup lift cable lever and spring (16)
MOTOR ASSEMBLIES			
(Motor, No. 91655-1, 2, and 3)			
36954	Armature—Motor armature and shaft for 25 cycle motor	36814	Lever—Pickup discriminating lever and pawl—RP-152-D only
36953	Armature—Motor armature and shaft for 50 cycle motor	36272	Lever—Record discriminating lever and pawl—RP-152 only (17)
36255	Armature—Motor armature and shaft for 60 cycle motor	36381	Lever—Record discriminating lever and pawl—RP-152-A, RP-152-B, and RP-152-J
36952	Cap—Bakelite cap for motor	36544	Lever—Record discriminating lever and pawl—RP-152-C only
36955	Capacitor—1.1 mfd. for 60 cycle motor	36476	Lever—Record separator elevating lever with adjustment screws (18)
36951	Capacitor—1.25 mfd. for motors (1 required for 50 cycles) (2 required for 25 cycles)	31132	Lever—Trip detaining lever (19)
36726	Motor—105-125 volts, 25 cycle, complete with capacitor	36530	Lever—Trip lever—less cam and link—RP-152-D only
		36284	Lever—Trip lever—less friction finger and clutch—RP-152, RP-152-A, RP-152-B, RP-152-C, and RP-152-J (20)
		36525	Link—Index link assembly—RP-152-D only
		31133	Pawl—Trip pawl (22)
		36268	Pin—Pin to fasten gear to separator shaft (23)
		36267	Rack—Long arm and gear (41)
		32880	Rack—Short arm and gear (40)
		36281	Ring—Retaining ring for set screw in turntable drive gear
		36477	Screw—No. 6-32 ball point screw for record separator elevating lever

Replacement Parts Model RP-152 (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
36276	Screw—No. 8-32 x 1/4 cup point set screw for turntable drive gear	14190	Spring—Record discriminating lever pawl spring (28)
31118	Screw—No. 10-32 x 5/16 cone pointed set screw for record separator shelf ("H")	3678	Spring—Tension spring for cam pawl
32069	Screw—No. 10-32 x 5/16 machine screw for record separator shelf	30585	Spring—Tension spring for idler assembly, for use with motor marked No. 91655
4563	Screw—Pickup lift cable adjusting screw	32436	Spring—Tension spring for locating lever and pawl (35)
33983	Screw—Record separator elevating lever point screw	31136	Spring—Tension spring for roller index link—RP-152-D only
36270	Separator—Record separator knife—RP-152 and RP-152-A only	36921	Spring—Tension spring for trip detaining lever
33990	Separator—Record separator knife—RP-152-B, RP-152-J and RP-152-D (25)	36279	Spring—Tension spring for trip pawl
34775	Separator—Record separator knife—RP-152-C only	36271	Stud—No. 4-40 hex stud for trip lever clutch adjustment
33988	Shaft—Record separator shaft (34)	36529	Switch—Automatic switch—RP-152-D only
36269	Shelf—Record separator rotating shelf—less set screw—RP-152, RP-152-A, and RP-152-C	34875	Switch—Pickup shorting switch—RP-152, RP-152-A, RP-152-B, RP-152-C, and RP-152-J
33989	Shelf—Record separator rotating shelf—less set screws—RP-152-B, RP-152-D, and RP-152-J (27)	36283	Turntable—Finished top plate only—RP-152, RP-152-A, RP-152-B, RP-152-C, and RP-152-J
36269	Shelf—Record separator rotating shelf—less set screws—RP-152-C only	36815	Turntable—Finished top plate only—RP-152-D only
33994	Spring—Flat spring for record discriminator lever	31608	Washer—"C" washer for roller index link—RP-152-D only
32482	Spring—Main lever spring (43)	33726	Washer—"C" washer for motor idler—for use with motor marked No. 91655
36580	Spring—Motor tension spring, for use with motor No. 91708-1—RP-152, RP-152-A, RP-152-B, RP-152-C, and RP-152-J	8078	Washer—Spring washer for mounting record discriminator lever
36278	Spring—Pickup arm feed spring	2917	Washer—Spring washer for mounting levers
3666	Spring—Pickup lift cable spring (31)	36274	Wheel—Motor idler wheel and bearing—less arm—for use with motor marked No. 91655

Replacement Parts Model RP-153

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES			
36513	Arm—Pickup arm shell only	14188	Screw—No. 10-32x7/16 set screw for motor coupling
36320	Arm—Pickup support and pivot arm	4563	Screw—Pickup lift cable adjusting screw
34550	Bushing—Rubber bushing for pickup pivot arm	36528	Separator—Record separator knife (25)
32635	Cable—Pickup lift cable	33988	Shaft—Record separator shaft (34)
33905	Crystal—Pickup crystal cartridge and needle screw	36527	Shelf—Record separator rotating shelf (27)
33976	Pin—Pickup arm shell mounting pin	36524	Spindle—Turntable spindle
MOTOR ASSEMBLIES			
37300	Armature—Motor armature and worm gear for 50 cycle motor	33994	Spring—Flat spring for record discriminator lever
37298	Armature—Motor armature and worm gear for 60 cycle motor	32882	Spring—Main lever spring (43)
37303	Bearing—Fibre insert for motor spindle bottom bearing	36278	Spring—Pickup arm feed spring
37296	Motor—105-120 volts, 50 cycles	3666	Spring—Pickup lift cable spring (31)
37295	Motor—105-120 volts, 60 cycles	14190	Spring—Record discriminating lever pawl spring (28)
37299	Spindle—Motor spindle and fibre gear for 50 cycle motor	31136	Spring—Tension spring for automatic switch plunger
37297	Spindle—Motor spindle and fibre gear for 60 cycle motor	3676	Spring—Tension spring for cam pawl
37304	Support—Motor mounting support plate	32436	Spring—Tension spring for locating lever and pawl (35)
37301	Washer—"C" washer for motor armature shaft (thrust bearing)	36521	Spring—Tension spring for trip lever cam
37302	Washer—Felt washer for motor armature shaft (thrust bearing)	36921	Spring—Tension spring for trip detaining lever
MOTORBOARD ASSEMBLIES		36279	Spring—Tension spring for trip pawl
36516	Base—Pickup arm mounting base	31147	Strip—Complete set of rubber strips for motor coupling
36514	Board—Motorboard complete with bearings and posts—less operating parts	36271	Stud—No. 4-40 hex stud for trip lever clutch adjustment
36517	Brace—Motorboard strain brace	36529	Switch—Automatic switch
32566	Cable—Shielded pickup cable and plug, connects to shorting switch	34875	Switch—Pickup shorting switch
36518	Cup—Used needle cup	36523	Turntable—Turntable less spindle shaft
36377	Escutcheon—Index escutcheon	8078	Washer—Spring washer for mounting record discriminating lever
36280	Gauge—Pickup needle gauge	2917	Washer—Spring washer for mounting levers
30870	Plug—2-contact male for motor leads	31608	Washer—Spring washer to hold index link
31572	Plug—Female, for switch leads	31143	Washer—Washers for turntable bearing (1 steel, 1 bronze and 1 felt)
36515	Rest—Tone arm rest and needle cup holder	36520	Lever—Index lever (12)
36798	Spring—Index lever spring (riveted to motorboard)	36273	Lever—Locating lever and pawl
OPERATING MECHANISM		33985	Lever—Main lever (15)
34009	Arm—Motor coupling arm and gear—turntable end	31140	Lever—Pickup lift cable and spring (16)
33580	Arm—Motor coupling arm and hub—motor end	36522	Lever—Record discriminating lever
33984	Bracket—Bracket and pin for locating post and lever (3)	36478	Lever—Record separator elevating lever with adjustment screws (18)
36277	Bumper—Main lever rubber bumper	31132	Lever—Trip detaining lever (19)
33987	Cam—Cam and drive gear complete (42)	36530	Lever—Trip lever less cam and link
36531	Cam—Trip lever cam and link—less trip lever	36525	Link—Roller index link
36266	Clutch—Trip lever clutch—less adjusting stud (5)	31133	Pawl—Trip pawl (22)
36265	Finger—Trip lever friction finger (7)	31535	Pin—Drive pin for turntable spindle shaft
33581	Frame—Motor coupling frame only	36268	Pin—Pin to fasten gear to separator shaft (23)
31121	Gear—Record separator shaft gear (10)	36287	Rack—Long arm and gear (41)
33982	Guide—Main lever spring guide (11)	32880	Rack—Short arm and gear (40)
31151	Guide—Pickup lift cable guide (spring) (2)	33983	Screw—Elevating lever pivot screw
		36519	Screw—No. 6-32 ball point screw for elevating lever
		36477	Screw—No. 6-32 ball point screw for record separator elevating lever
		36526	Screw—No. 10-32x5/16 cup point set screw for record separator
		32869	Screw—No. 10-32x5/16 screw for record separator
		31118	Screw—No. 10-32x5/16 set screw for trip lever cam

Replacement Parts RP-152 R and RP-152 S

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES Magnetic Type (RP-152-R)		OPERATING MECHANISMS	
38420	Arm—Pickup arm shell only—less mechanism support arm, pins, and shielded cable	36275	Arm—Motor idler wheel arm and studs—less wheel
38194	Arm—Pickup support arm complete—less bushings and drive pins	10129	Ball—Steel ball for spindle shaft
14291	Armature—Pickup armature assembly	33984	Bracket—Bracket and pin for locating post and lever (3)
34550	Bushing—Rubber bushing for support arm	36277	Bumper—Main lever rubber bumper
32635	Cable—Pickup lift cable	33987	Cam—Cam and drive gear complete
38215	Cable—Shielded pickup cable	36531	Cam—Trip lever cam and link (for magnetic type only)
38216	Catch—Pickup head catch	36266	Clutch—Trip lever clutch—less adjusting stud
14672	Coil—Pickup coil	37875	Disc—Turntable drive disc and spindle shaft (for crystal type only)
38197	Cover—Insulating cover	38426	Disc—Turntable drive disc and spindle shaft assembled—less turntable finished plate and rubber tire (for magnetic type only)
38421	Head—Pickup head shell only	36265	Finger—Trip lever friction finger
37291	Mechanism—Pickup mechanism complete	31121	Gear—Record separator shaft gear
38198	Pin—Pin to attach head to arm (1/4 in. dia.)—Pkg. 2	36280	Gear—Turntable shaft drive gear
38199	Pin—Pin to attach support arm to shell (3/32 in. dia.)	33982	Guide—Main lever spring guide
38196	Screw—Needle screw	31151	Guide—Pickup left cable guide (spring)
38217	Screw—Pickup mechanism support screw—Pkg. 2	38423	Lever—Index lever
38213	Spring—Needle point weight adjustment spring	37974	Lever—Locating lever and pawl
38214	Stud—Shoulder stud to hold tension spring and head catch	33985	Lever—Main lever
PICKUP AND ARM ASSEMBLIES Crystal Type (RP-152-S)		31140	Lever—Pickup lift cable lever and spring
39470	Arm—Pickup arm—less crystal, cable and pivot arm	38424	Lever—Pickup discriminating lever and pawl
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings	36476	Lever—Record separator elevating lever with adjustment screws
34550	Bushing—Rubber bushing for pivot arm	31132	Lever—Trip detaining lever
32635	Cable—Pickup arm lift cable	36530	Lever—Trip lever—less cam and link (for magnetic type only)
35175	Crystal—Pickup crystal cartridge	36284	Lever—Trip lever—less friction finger and clutch (for crystal type only)
33976	Pin—Pivot pin to fasten pickup arm to pivot arm	36525	Link—Index link assembly (for magnetic type only)
MOTOR ASSEMBLIES (25 Cycle) (Motor No. 91655-8)		31133	Pawl—Trip pawl
36952	Cap—Bakelite cap for motor	36268	Pin—Pin to fasten gear to separator shaft
36951	Capacitor—1.25 mfd. for motors (2 required for 25 cycles)	36267	Rack—Long arm and gear
36726	Motor—105-125 volts, 25 cycle, complete with capacitor	32880	Rack—Short arm and gear
36954	Rotor—Rotor and shaft for 25 cycle motor	36281	Ring—Retaining ring for set screw in turntable drive gear
MOTOR ASSEMBLIES (50-60 Cycle) (Motor No. 91706-1)		36477	Screw—No. 6-32 ball point screw for record separator elevating lever
37108	Bearing—Bottom bearing and bracket	36276	Screw—No. 6-32 x 1/4 cup point set screw for turntable drive gear
37107	Bearing—Top bearing and bracket	31118	Screw—No. 10-32 x 5/16 cone pointed set screw for record separator shelf ("H")
37109	Bracket—Motor mounting bracket	32869	Screw—No. 10-32 x 5/16 machine screw for record separator shelf
37111	Coil—Motor field coil assembly	4563	Screw—Pickup lift cable adjusting screw
38612	Motor—105-125 volts, 60 cycle (91706-1)	33983	Screw—Record separator elevating lever pivot screw
37106	Pad—Rotor thrust pad	33990	Separator—Record separator knife
37110	Rotor—Motor rotor complete with fan	33988	Shaft—Record separator shaft (for crystal type only)
38847	Sleeve—Motor spindle sleeve for 50 cycle conversion	37657	Shaft—Record separator shaft (for magnetic type only)
MOTORBOARD ASSEMBLIES		33989	Shelf—Record separator rotating shelf—less set screws
38422	Base—Pickup arm mounting base	33994	Spring—Flat spring for record discriminator lever
38304	Bearing—Turntable spindle bearing and washer	32882	Spring—Main lever spring
39469	Board—Motorboard with all riveted and welded studs, posts, and bearings—less mechanism (for crystal type only)	36278	Spring—Pickup arm feed spring
38428	Board—Motorboard complete with bearings and posts—less operating parts (for magnetic type only)	3666	Spring—Pickup lift cable spring
36518	Box—Used needle box (for crystal type only)	14190	Spring—Record discriminating lever pawl spring
14630	Cable—Shielded pickup cable and plug, connects to shorting switch (for magnetic type only)	3678	Spring—Tension spring for cam pawl
4288	Connector—Male connector—less bushing and ferrule, for pickup cable (for crystal type only)	30585	Spring—Tension spring for idler assembly
36258	Escutcheon—Index escutcheon (for crystal type only)	32436	Spring—Tension spring for locating lever and pawl
38425	Escutcheon—Index escutcheon (for magnetic type only)	31136	Spring—Tension spring for roller index link (for magnetic type only)
4286	Ferrule—Bushing and ferrule for pickup cable connector (for crystal type only)	36921	Spring—Tension spring for trip detaining pawl
36260	Gauge—Needle gauge (for crystal type only)	36279	Spring—Tension spring for trip pawl
34368	Grommet—Rubber grommet for motor mounting	36271	Stud—No. 4-40 hex. stud for trip lever clutch adjustment (for magnetic type only)
36263	Plate—Turntable shaft support and spring plate	38995	Switch—Automatic switch—less cam, base, and shaft (for magnetic type only)
30870	Plug—2-contact male for motor leads	34875	Switch—Pickup shorting switch
38430	Rest—Pickup arm rest post (2 required)	37873	Tire—Rubber tire for drive disc
36261	Rest—Tone arm rest (for crystal type only)	38427	Turntable—Finished top plate only
36798	Spring—Index lever spring (riveted to motorboard)	31608	Washer—"C" washer for roller index link
38322	Stud—Cam and gear replacement stud	33726	Washer—"C" washer for motor idler
38351	Stud—Main lever bumper mounting stud	8078	Washer—Spring washer for mounting record discriminating lever
38321	Stud—Main lever replacement stud	2917	Washer—Spring washer for mounting levers
38323	Stud—Trip pawl replacement stud	36274	Wheel—Motor idler wheel and bearing—less arm

Replacement Parts RP-155 Recorder and Automatic Record-Changer Phonograph Mechanism

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES			
36322	Arm—Pickup arm only—less crystal, cable and pivot arm and shaft.	36838	Casting—Casting and bearing for turntable spindle and lead screw (50).
36320	Arm—Pickup pivot arm and shaft—less lift cable and rubber bushings.	30340	Clip—Motor drive disc retaining clip.
34550	Bushing—Rubber bushing for pickup pivot arm	36266	Clutch—Trip lever clutch (5).
32635	Cable—Pickup lift cable.	36831	Disc—Motor drive disc and rubber tire.
35694	Cable—Pickup shielded cable (8).	36265	Finger—Trip lever friction finger (7).
37158	Crystal—Pickup crystal cartridge and needle screw	36267	Gear—Long arm and rack gear (41).
33529	Screw—Pickup needle screw.	36839	Gear—Pinion gear for turntable spindle.
36278	Spring—Pickup arm starting spring.	31121	Gear—Record separator shaft gear (10).
MOTOR ASSEMBLIES			
37039	Bearing—Bottom bearing and bracket assembled	32880	Gear—Short arm and rack gear (40).
37038	Field—Motor field complete.	33982	Guide—Main lever spring guide (11).
36820	Motor—105-120 volts, 60 cycle.	36830	Guide—Pickup lift cable guide (2).
37037	Pulley—Motor shaft pulley.	36380	Lever—Index lever (12).
37040	Ring—Motor pulley support ring.	36273	Lever—Locating lever and pawl (14).
37036	Rotor—Motor armature complete.	33985	Lever—Main lever (15).
MOTORBOARD ASSEMBLIES			
36824	Base—Pickup arm mounting base.	31133	Pawl—Trip pawl assembly (22).
36821	Board—Motorboard with riveted and welded bearings and studs less operating mechanism.	36268	Pin—Drive pin to engage gear to record separator shaft (23).
36822	Brace—Motorboard brace.	36834	Pin—Pin for turntable to hold disc while recording.
32556	Cable—Shielded pickup cable and plug.	36477	Screw—Ball point screw for record elevating lever "G".
36262	Cup—Used needle cup—insert only for pickup arm rest.	31118	Screw—Cone pointed set screw for record separator shelf "H".
36258	Escutcheon—Index escutcheon.	36837	Screw—Lead screw and pinion gear for recorder drive (51).
36260	Gauge—Pickup needle gauge.	33983	Screw—Record elevating lever pivot screw.
36823	Mounting—Motor mounting screw, spacer, rubber cushion and washer (3 required).	33990	Separator—Record separator knife (25).
30870	Plug—2-contact male plug for motor leads.	33988	Shaft—Record separator rotating shaft (34).
36379	Rest—Pickup arm rest—less needle cup.	33989	Shelf—Record separator shelf (27).
36798	Spring—Index lever spring (riveted to motorboard).	36836	Spindle—Turntable spindle.
37348	Weight—Lead weight for motor.	3676	Spring—Cam pawl spring.
37878	Spring—Motorboard mounting.	14190	Spring—Discriminating lever pawl spring (28).
HOME RECORDING ASSEMBLIES			
36829	Arm—Follower arm and post assembly.	37347	Spring—Tension spring for motor idler pulley arm (52).
37041	Arm—Recorder arm less Recorder head.	36835	Spring—Flat spring for turntable recording disc pin.
36827	Bushing—Recorder arm pivot post bushing.	32436	Spring—Locating lever spring (35).
37044	Nut—Special hex nut for recorder arm pivot bushing.	32882	Spring—Main lever spring (43).
36826	Plate—Straddle plate for recorder arm pivot post	3666	Spring—Pickup lift cable spring (31).
33166	Plug—2-contact male for recorder head leads.	33994	Spring—Record discriminating lever spring (flat) (9).
37042	Recorder—Recorder head only—less arm.	36921	Spring—Trip detaining lever spring (33).
36825	Rest—Recorder arm rest.	36279	Spring—Trip pawl spring.
37045	Screw—Recorder head needle screw.	36271	Stud—Trip lever clutch adjustment stud "E".
36828	Spring—Recorder arm pivot post compressing spring (spiral).	32875	Switch—Motor switch (4).
37043	Spring—Recorder head tension spring.	34875	Switch—Pickup shorting switch.
37349	Weight—Lead weight for recorder head.	36833	Turntable—Turntable assembly complete.
37969	Spring—"U" shaped spring for recorder-arm fulcrum.	2917	Washer—"C" washer used to mount all levers except trip detaining lever.
37970	Screw—Slotted, hex-head, cup-point, set screw to fasten recorder arm to pivot shaft.	8078	Washer—"C" washer for mounting record discriminating lever.
OPERATING MECHANISM			
36832	Arm—Motor drive disc arm (53).	37046	Washer—Rubber washer for turntable drive wheel arm.
36277	Bumper—Rubber bumper "A".	20165	Washer—Spring washer to mount rack gears and trip detaining lever.
33987	Cam—Cam and drive gear assembly (42).	50-CYCLE MOTOR	
		37943	Bearing—Bottom bearing and bracket (50 cycle)
		37945	Field—Motor field—110 volts, 50 cycles.
		37941	Motor—105-120 volts, 59 cycles.
		37944	Pulley—Motor shaft pulley (50 cycle).
		37942	Rotor—Motor armature (50 cycle).
		Parts originally listed above are applicable to 110 volts, 60 cycle motor only, except Stock No. 37040 Ring, which is used on both 60 and 50 cycle motors.	

**REPLACEMENT PARTS RP-157
LISTED WITH MODEL QU-7**

RP-158 RP-160, RP-161 and RP-162

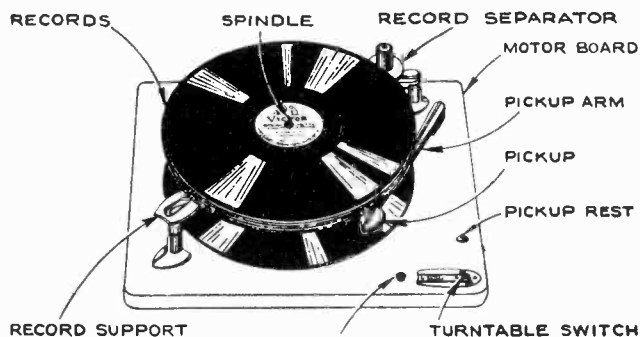
Automatic Record Changers

IDENTIFICATION

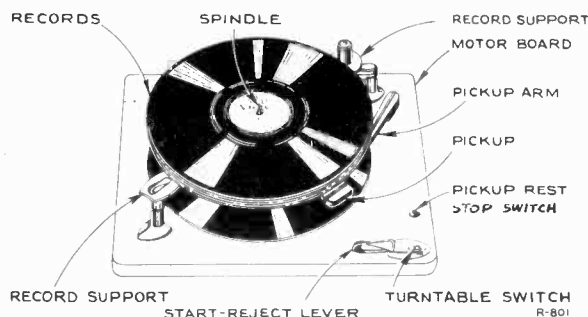
- RP-158 - Tone arm lands on rest after playing last record but motor does not shut off. Uses Stock No. 38610 crystal pickup. Button type reject.
- RP-160 - Tone arm lands on rest after playing last record. Automatic switch shuts off motor. Uses low-noise crystal pickup Stock No. 38453 or 39950. Lever type reject.
- RP-161 - Adapted to home recording. Uses Stock No. 38610 crystal pickup. Tone arm lands on rest after playing last record but motor does not shut off. Lever type reject.
- RP-162 - Repeats playing of last record. Uses Stock No. 38610 crystal pickup. Button type reject.

MODEL vs "RP" NUMBERS

<u>RP-158</u>	<u>RP-160</u>	<u>RP-161</u>	<u>RP-162</u>
V-175	V-215	VHR-212	V-135
V-209	V-219		V-140
V-210	V-221		R-566P

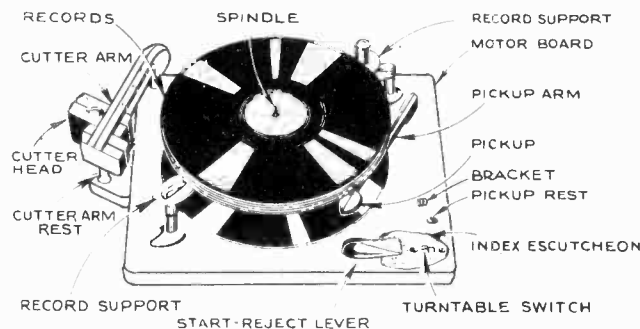


RP-158, RP-162



RP-160

This mechanism is designed to play a series up to twelve 10-inch, or ten 12-inch records of the 78 r.p.m. type. It will also play single records of any diameter up to 12 inches.



RP-161

Lubrication

The drive motor bearing is lubricated from felt washers at the bottom and top. A light machine oil should be used at these points.

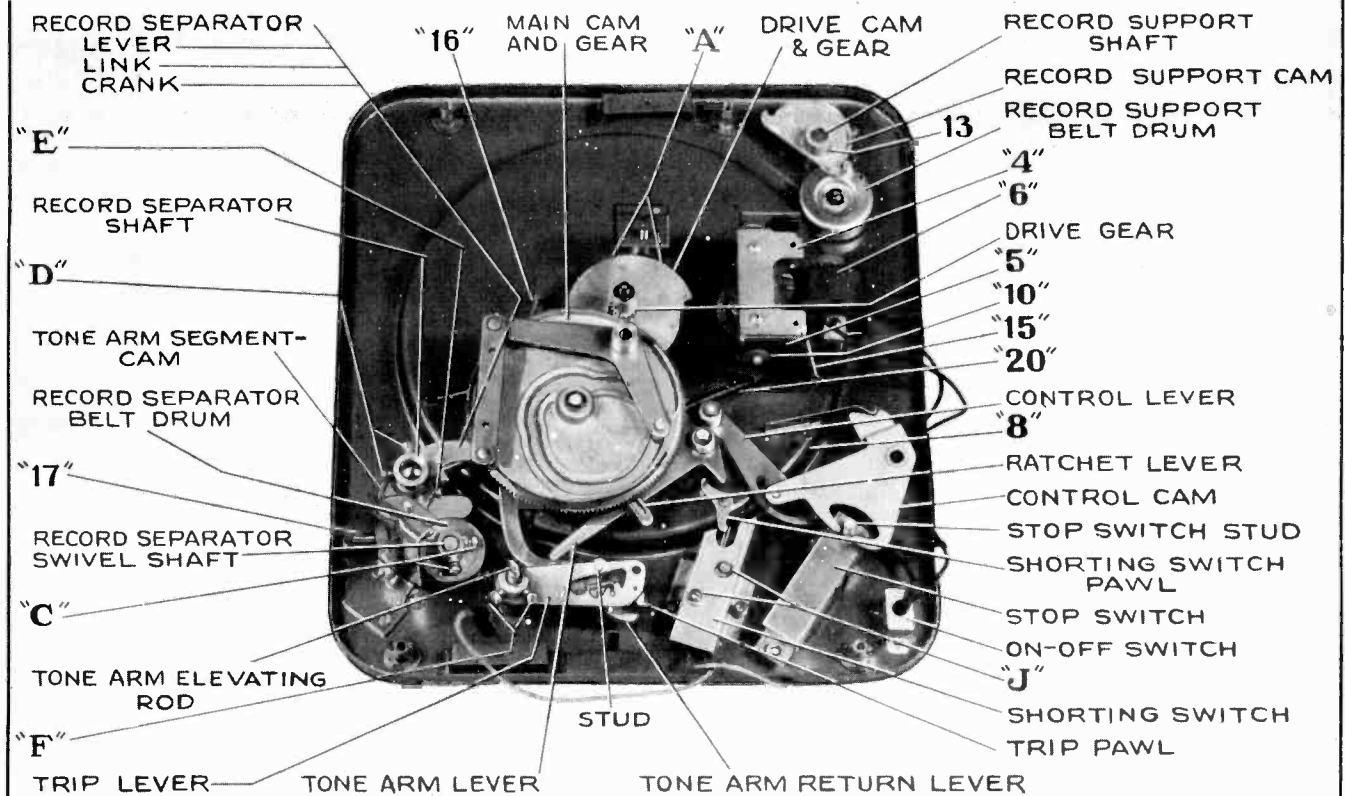
On all bearing surfaces except the motor bearings Houghton Stayput No. 320 should be used. On all other surfaces Lubriplate No. 110 is recommended.

It is important that the drive motor spindle and the rubber tire on the idler wheel be kept clean and free from oil, grease, dirt, or any foreign material at all times. Any quick drying naphtha is satisfactory for cleaning these parts.

Cautions

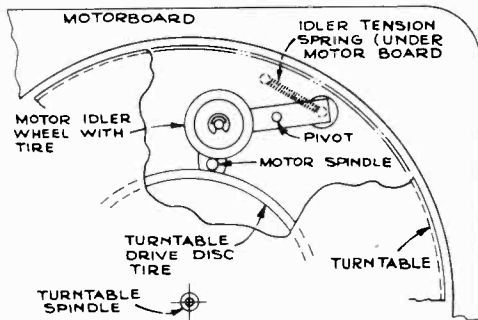
Before servicing the automatic changer, inspect the assembly to see that all gears, cams, springs, levers, etc., are correctly assembled and in good working order.

1. Never use force to start or stop the motor or any part of the record changing mechanism.
2. Warped or damaged records may cause the mechanism to jam. When jamming occurs, the safety clutch slips, causing a clicking sound.
3. A cracked or chipped record may damage the sapphire.
4. Warped records may slide on one another while playing and result in unsatisfactory reproduction.
5. Do not leave the records on the record posts or on the turntable as they may warp, particularly in warm climates. Warped records may be flattened by placing them on a flat surface with a heavy flat article placed on top of them for a few days.
6. If, for any reason, the mechanism stalls, turn off the turntable switch and remove the records from the posts. Start the turntable by turning the switch on and allow the pickup arm to complete its cycle.
7. Do not tighten copper-plated, cone-pointed screws until final adjustment has been made.

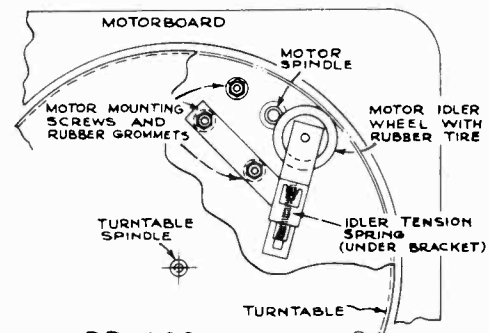


BOTTOM VIEW RP-160

Automatic stop switch and pickup shorting switch used only with RP-160. Record separator and record support belt drums not used with RP-162.



RP-158, RP-160



RP-162

Turntable drive of RP-161 is similar to RP-162

Tone Arm Feed-in Spring.—

When the sapphire comes down on the record, the feed-in spring (shown in adjustment sketch "E," acts to push the tone arm toward the music grooves. The spring should be adjusted to do this without causing the sapphire to skip grooves. This action is also related to—

Cabinet Leveling.—

If the sapphire fails to enter the starting groove, raise the right-hand side of the cabinet by inserting thin spacers under the legs. If the pickup slides over a few grooves, raise the left-hand side of the cabinet.

This changer is designed to operate when the changer and cabinet are level. Always make landing adjustments under these conditions.

To Repeat One Record.—

When checking for landing and tripping action, it is possible to play one record repeatedly by simply placing a weight on the rear record post. A small pipe nipple that fits over the top of the post is satisfactory.

Sapphire Pressure.— RP-158, -161, -162

In these mechanisms, the correct pressure is approximately 2 ounces, measured at the sapphire. Adjust the spring (3) in the tone-arm base if necessary (see sketch "G").

Sapphire Pressure.— RP-160

In these mechanisms, the correct pressure is from 1 to 1 1/4 ounces, measured at the sapphire. Adjust the spring (3) in the tone-arm base if necessary.

Cycle of Operation

The changer can be conveniently rotated through the change cycle by pushing the reject button and revolving the turntable by hand. Eight turntable revolutions are required

for one change cycle. Hold idler arm back so idler wheel is away from turntable to permit easier manual rotation of the turntable.

Function	Explanation
Press "Start-Reject Button"	<ol style="list-style-type: none"> 1. Reject lever moves in and pushes ratchet lever, thus releasing drive cam pawl. 2. Drive cam pawl engages cam sprocket and it revolves carrying drive gear with it.
Tone Arm Rises	<ol style="list-style-type: none"> 1. Main cam and gear revolves with drive gear. 2. Stud on tone arm lever rides in top track on main cam and directs movement of the lever. 3. Tone arm elevating lift rides up on ridge on main cam and pushes tone arm up by means of lift rod.
Tone Arm Moves Out	<ol style="list-style-type: none"> 1. Tone arm lever pushes on trip lever stud. 2. Trip lever moves out, carrying the tone arm out. 3. Tone arm return lever is carried along by trip lever stud, and by stud on main cam top track.
Record Knife Separates Bottom Record from Stack after Gauging Thickness of Record	<ol style="list-style-type: none"> 1. Stud on separator lever follows main cam bottom track and directs the motion of the lever. 2. Through the separator link and crank, the separator lever turns the separator shaft. 3. Knife turns with shaft and strikes edge of bottom record. 4. Separator shaft continues to revolve and teeth on inner circumference of knife ride up on shelf teeth until knife is carried high enough against the action of spring 19 to move in over top of bottom record.
Record Drops to Turntable	<ol style="list-style-type: none"> 1. Separator shaft continues to turn until knife supports stack of records and shelf moves out from under bottom record, which drops to turntable.
Tone Arm Moves In	<ol style="list-style-type: none"> 1. Separator shaft reverses rotation. 2. Tone arm return lever pushes on trip lever stud. 3. Trip lever moves in, carrying the tone arm in.
Tone Arm Lowers Sapphire on to Record	<ol style="list-style-type: none"> 1. Index finger on tone arm return lever moves against separator shaft to insure proper landing position. 2. Tone arm elevating lever rides down on main cam ridge thus lowering the elevating rod and the tone arm. 3. Separator shaft returns knife to original position and allows stack of records to rest on shelf.
Sapphire Moves In to Record Groove Record Begins to Play	<ol style="list-style-type: none"> 1. Ratchet lever rides down into eccentric step on main gear shaft and blocks drive cam pawl, disengaging the pawl from drive cam socket. 2. Drive gear and main gear stop. 3. Tone arm lever moves into cam to maintain disengagement.

Miscellaneous Service Hints

Mechanism trips continuously.

Check to see that the ratchet lever engages drive cam pawl at end of change cycle. Bend lever if necessary. Check adjustment "H." Bend the control cam flat spring for greater pressure.

Turntable does not stop automatically.

RP-160

Check for bind in stop button bushing. Bend the flat bracket that limits outward movement of the trip lever, so that pickup lands on the stop button.

Turntable fails to start.

RP-180

Check spacing of stop switch contacts to be certain that weight of stop button does not open them.

Loud clicking noise resulting from drive cam pawl slipping out of teeth in cam sprocket.

Mechanism jams.

Check mechanism timing adjustment. Make certain that pickup arm lever is not binding on its stud. Any jam will cause the clutch to slip and produce clicking sound.

Irregular landing on 10 and 12 inch records.

Check adjustment "C." Insufficient tension on belt.

Tone arm continues to repeat playing top record of the stack.

Check adjustment "E." Record separator shaft, or the spring on which it rests, is binding on the shaft bushing. Pin on record separator shaft is binding in its slot. Shaft spring is too weak. Do not tighten set screws "D" enough to distort the housing of the separator shaft spring. Do not oil the record separator shaft.

Tone arm continues to come down in rest position.

Check adjustment "E." Record separator shaft or the spring on which it rests is binding on the shaft bushing. Pin on record separator shaft is binding in its slot. Shaft spring is too strong.

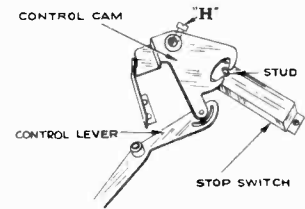
Automatic Record Changer Adjustments

<p>Mechanism jams. General irregularity of operation.</p> <p>(Mechanism Timing)</p> <p>"A"</p>	<p>With the ratchet lever and the pawl on the drive shaft cam in playing position as shown, remove the bottom support bracket. Remove the "C" washer on the main cam shaft and slip the cam down far enough that it can be rotated with respect to the drive gear. Then rotate it until the timing notch is positioned as shown. Put the main gear back in mesh with the drive gear, replace the "C" washer, place the elevating lever on the cam ridge. Make certain the separator lever train is in its correct position and replace the bottom support bracket.</p>	
<p>Turntable does not turn freely. "B"</p> <p>(Turntable Bottom Bearing Position)</p>	<p>Loosen the bottom bearing screws "B" and position the bottom bearing plate until the turntable revolves freely. Tighten the screws and check by applying a.c. to the turntable motor then shutting it off and noting that the turntable continues to make at least twelve revolutions.</p>	
<p>Records strike separator post or fail to stay on record shelf.</p> <p>(Spacing Between Record Posts)</p> <p>"C"</p>	<p>Turn the record support post to the ten-inch position. Loosen set screws "C," hold the separator post against the end of its slot in the motorboard and turn the belt drum to take up any slack in the belt. Tighten the zinc-plated, blunt-nosed screw and check to see that a ten-inch record fits the posts as shown. Then tighten the copper-plated, cone-pointed screw.</p> <p>The twelve-inch position is adjusted after that of the ten-inch, by changing the support post to take the twelve-inch record, and turning the eccentric stop until the edge of the record is halfway up on the record support level while the other edge is against the record separator post.</p>	
<p>Records do not drop at proper time.</p> <p>(Record Shelf Timing)</p> <p>"D"</p>	<p>Place a ten-inch record on the posts. Loosen the set screws "D" and turn the record separator shaft until the edge of the record-separating knife is one-sixteenth inch away from the edge of the record. The teeth on the inner circumference of the knife should be resting in the bottom of their slots at the time the adjustment is made. Tighten the zinc-plated screw first, run through cycle several times as a check, then tighten the copper-plated screw. Do not tighten set screws "D" enough to distort the housing of the separator shaft spring.</p>	
<p>Tone arm continues to repeat playing of top record or jams when part way in on record.</p> <p>(Segment height or radial position)</p> <p>"E"</p>	<p>Take all records off the posts. Loosen the set screw "E." Set the record separator segment so that the index finger of the pickup arm return lever rides on the middle of the segment, as shown. Rotate the cam until it is in such a position that the index finger will never ride off either end. Check to see that the index finger rides in over top of the cam when the record shelf is depressed by the weight of one record. Tighten the set screw.</p>	
<p>Sapphire does not land at correct point on 10-inch record. "F"</p> <p>(Tone Arm Position With Respect To Trip Lever)</p> <p>Correct dimension from outside edge of spindle to sapphire $4\frac{11}{16}$ inches.</p>	<p>Place a ten-inch record on the turntable and rotate the changer through cycle until the sapphire is just ready to land. Make sure that the index finger of the pickup arm return lever is against the record separator shaft and that the tone arm trip lever stud is held firmly against the return lever. Loosen the set screws "F" and move the pickup arm to the correct landing position. See that there is a 1/32 inch clearance between the pickup arm bearing and the set screw collar. Tighten the zinc-plated screw, run the changer through cycle several times as a check, then tighten the copper-plated screw.</p> <p>The twelve-inch landing position is automatically maintained.</p>	
<p>Top of pickup arm strikes stack of records or sapphire fails to clear the records on the turntable. "G"</p> <p>(Pickup Arm Height While In Cycle)</p>	<p>Rotate the changer through cycle until the pickup arm has risen to its maximum height above the turntable but has not begun to move out. At this point adjust the screw "G" until the distance between the turntable and the sapphire is one and three-sixteenths inch. Tighten the locknut.</p>	

Mechanism fails to start, or automatic stop switch is inoperative in "automatic" position. "H"

(Control Cam Position)
RP-160

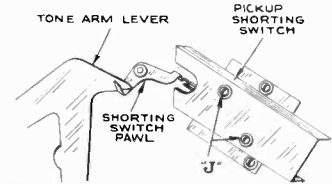
Set the control lever to "automatic." Loosen set screw "H" and move the control cam until the stud on stop switch is centrally located as shown. Tighten set screw "H."



No output, or noise during cycle. "J"

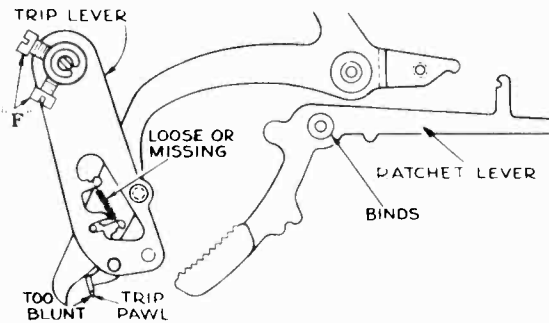
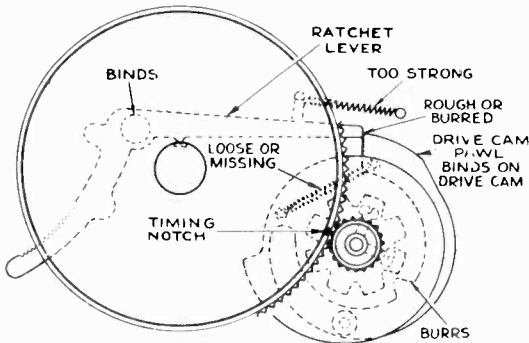
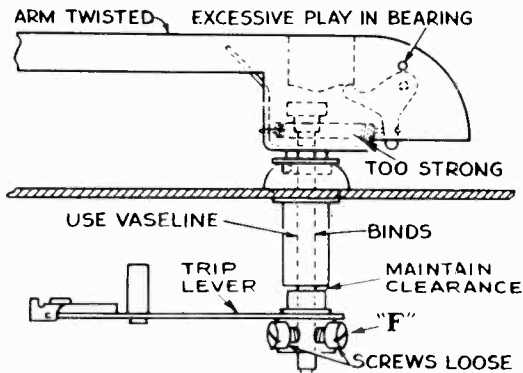
(Position of Pickup Shorting Switch)
RP-160

Loosen screws "J." Position the switch to obtain 1/32-inch clearance between the switch blades when the tone arm is in playing position. Tighten screws "J." Make certain that the pawl is on the correct side of the long leaf spring in the shorting switch.



Fails to Trip:

First check adjustment "F". Do not tighten screws "F" too tightly or the hollow pivot shaft will be distorted.

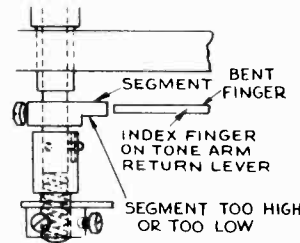
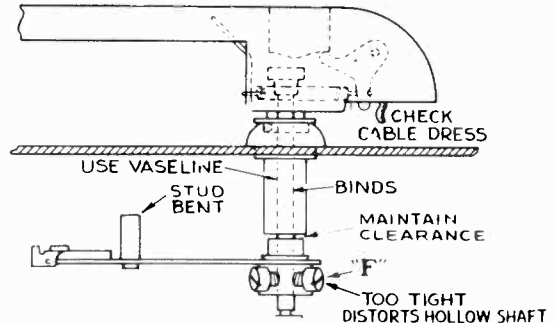
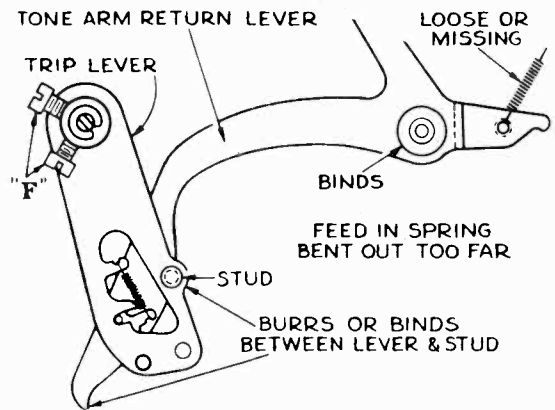


To Remove Pickup Arm.—

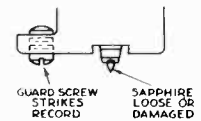
One of the tone arm bearings has a slotted head and can be turned out to facilitate removal of the tone arm. Raise the tone arm and loosen the bearing set screw. Turn the bearing partly out through the hole in the side of the tone arm and lift the arm off.

Lands Incorrectly:

First check adjustments "F", "C", "M", "E".



Fails to Track or Distorts:



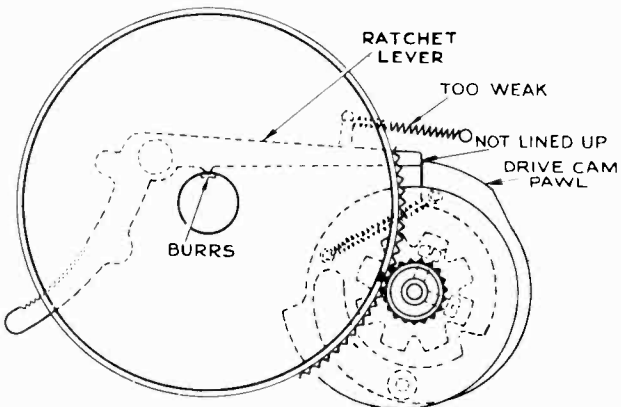
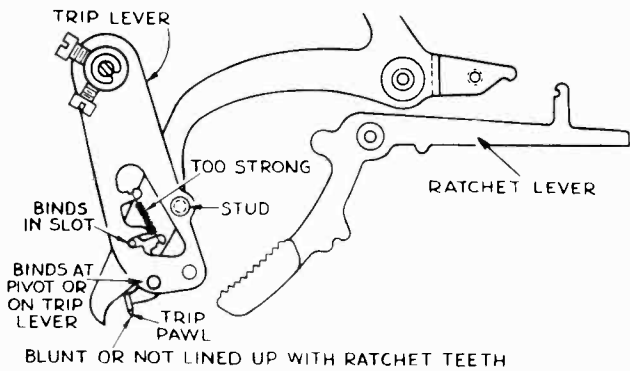
To Remove the Turntable.— RP-158, -160, -162

To remove the turntable, loosen set screws "A" and lift the turntable up.

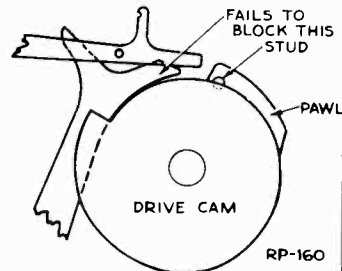
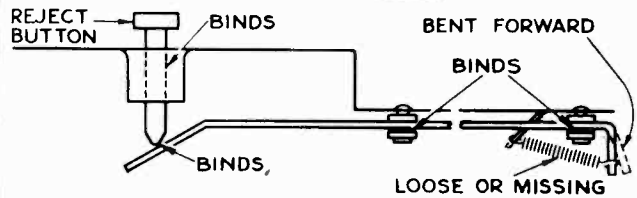
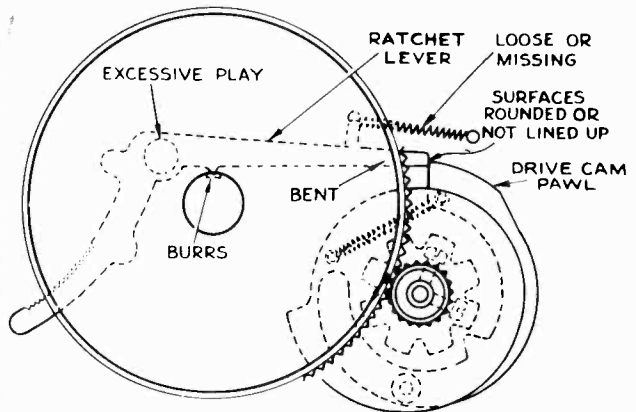
To Remove the Turntable.— RP-161

Insert 10-32 screws in the holes on either side of the spindle. Tap lightly on top of the spindle while pulling upward on the screws and turntable.

Trips Early:

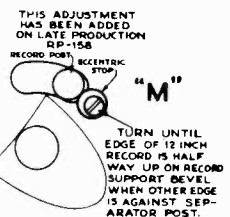


Trips Continuously:



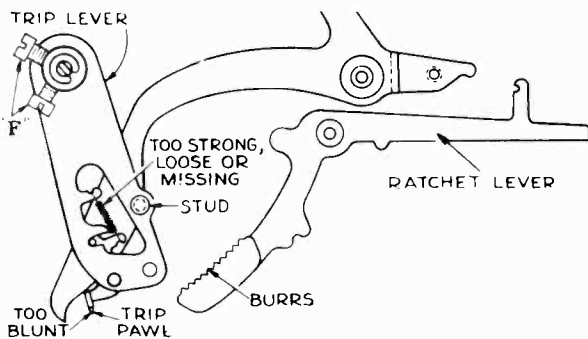
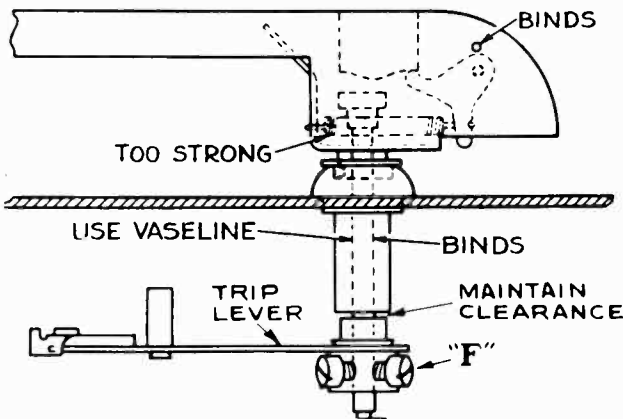
CONTINUOUS TRIP IN MANUAL POSITION

12-Inch Record Post Spacing:

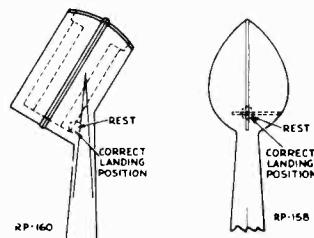


Repeats Grooves:

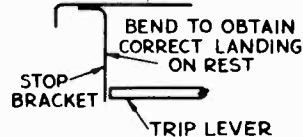
First check adjustment "G".



Incorrect Landing on Rest:

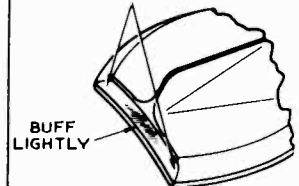


KEEP PICKUP CABLE & SHORTING SWITCH LEADS CLEAR

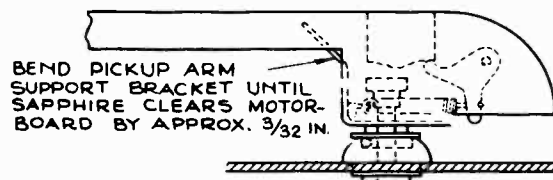


Record Stack Unsteady:

RECORD NOT SUPPORTED AT TWO POINTS

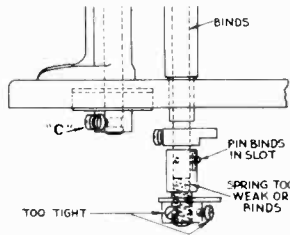


Sapphire Strikes Motorboard



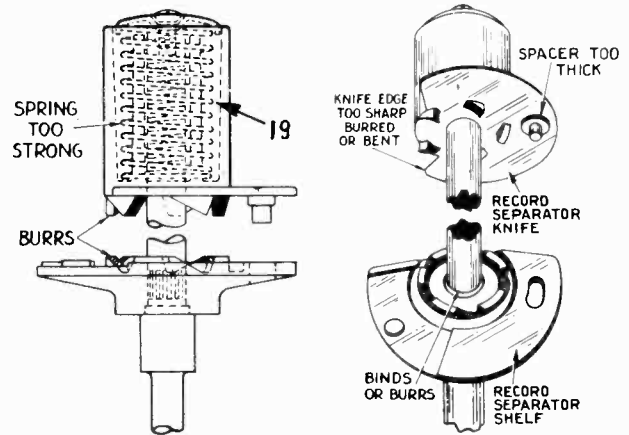
Repeats Playing of Last Record:

First check adjustment "E"



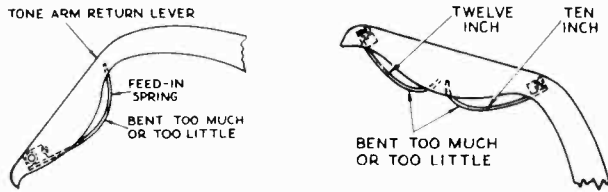
Jams Records:

Record too thick, too thin, warped, or has rough edge.

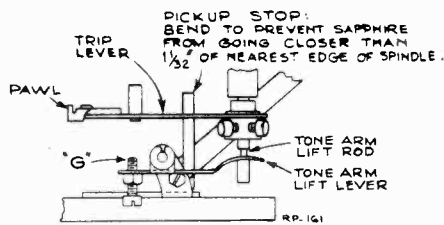


Incorrect Feed-in:

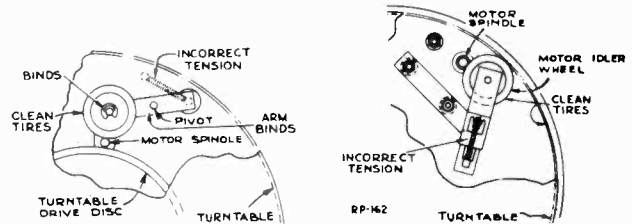
The feed-in spring does not have any effect until just after the pickup has landed on the record. It then springs back to its original shape pushing against the trip lever stud and moving the pickup toward the music grooves.



Sapphire Strikes Spring Stud on Turntable RP-161

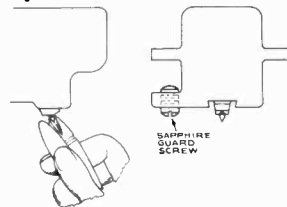


Slow Speed: Turntable spindle binds on bottom bearing. Incorrect tension on motor support spring.

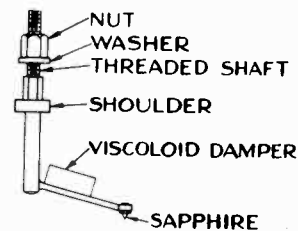
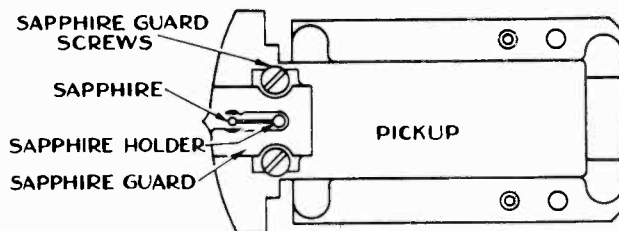


Replacement of Sapphire

As an additional precaution against rough handling, the top of the sapphire is dipped in a rubber cement (such as Goodrich "Plasticon") before being inserted in the pickup. To remove the sapphire, grasp it firmly with a pair of tweezers, give it a few turns to loosen the cement and then pull it out. Much easier handling of the sapphire will result if the tweezers are



notched with a file as shown. Naphtha may be used as a thinner should difficulty with the rubber cement be experienced. Before inserting the new sapphire it should be dipped in the rubber cement previously thinned with naphtha. After insertion clean the point with naphtha if there is any doubt as to the presence of cement.



Specifications... Output at 400 cycles..... 0.50 volts
Impedance at 1,000 cycles... 75,000 ohms

Replacement of Complete Unit... Simply slide the unit out of the tone arm and insert a new one.

Replacement of Sapphire..... Caution: Never bend the sapphire support wire. Slide the pickup forward out of the arm.

The nut on the sapphire holder assembly is locked by a light cement (such as Glyptal). Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal.

Remove the two screws holding the sapphire guard in place and take the guard off. Remove the small nut and washer on the threaded shaft of the sapphire holder and push the shaft

through the hole in the viscoloid until the sapphire holder assembly comes free.

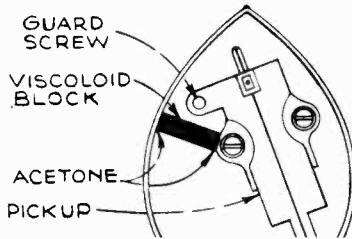
Insert threaded shaft of replacement sapphire holder through viscoloid and replace the washer and nut. Make sure that the flat sides of the shaft are firmly in place in the clamp and then tighten the nut very carefully so as not to strip the threads nor break the crystal. Replace the sapphire guard, positioning it by means of the oversize screw slots. Make certain that the sapphire and its supporting wire are centered in the guard. Tighten the guard screws. Before using, check to see that the sapphire projects far enough beyond the guard so that the guard will not strike the record. If necessary, bend the guard a little. Apply a drop of light cement (such as Glyptal) to the sapphire nut holder.

Bend the spring contacts to make good contact with the slides in the tone arm.

RP-158, RP-160, RP-161, RP-162

Tone-Arm Resonance:

Chatter at frequencies near 2,500 cycles on some 1st production RP-158 or RP-162 mechanisms is caused by tone-arm resonance which can be eliminated by inserting a block of viscoloid (1/2 in. x 1/2 in. x 3/16 in.) in the arm as shown. The viscoloid block is No. 39949.



Viscoloid damper (No. 39949) minimizes tone arm resonance in RP-158, -162.

IMPROVED TONE ARM RETURN LEVER

Stock No. 39751

The tone arm return lever in RP-158, -160, -162, has been revised to incorporate two important improvements:

- (1) A cam to adjust landing position on 12-inch records.
- (2) A positive-acting feed-in lever and spring. (This pushes the tone arm in toward the music grooves after the sapphire has landed on the record.)

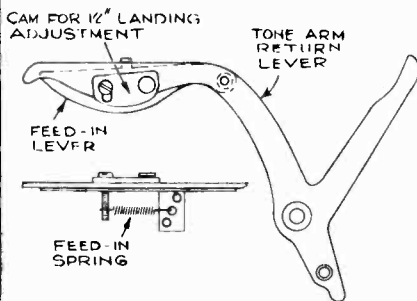
This revised lever, Stock No. 39751, supersedes the original lever, Stock No. 38618.

12-inch Landing Adjustment:

When adjusting a mechanism that has this revised lever, make the 10-inch landing adjustment in the usual manner as specified in the service notes. Then check landing on a 12-inch record and adjust the cam if necessary. The correct landing position for 12-inch records is 5 3/8 inches from the sapphire to the nearest side of the spindle.

Feed-in Spring Adjustment:

The feed-in spring (Stock No. 39752) is hooked in one hole on a bracket that has three spaced holes to permit coarse adjustment of feed-in tension. Fine adjustment can be obtained by bending the bracket.



Stock No. 39751 tone arm return lever has a cam to adjust 12-inch landing position, and a positive acting feed-in mechanism. The feed-in tension can be adjusted by hooking the spring in a different hole on the bracket, and by bending the bracket.

Bakelite Alternate Replacement Parts:

The following shows a comparison of replacement part stock numbers for the above record changers when bakelite parts are used as alternates for regular die-castings:

Description	Stock No. Die-Cast	Stock No. Bakelite
Record Separator Assembly:		
Separator cap	38470	38470
Separator knife	38467	39768
Separator spring (upper)	38468	39769
Separator spring (bottom) (RP-158, -160, -161)	38621	39968
Separator shelf and shaft (RP-158, -160, -161)	38652	39767
Separator shelf and shaft (RP-162)	39035	39770
Main Cam	38641	39760
Record Support and Shaft (Left hand front post) (RP-158, -160, -161)	38645	39762
Record Support Cam (RP-158, -160, -161)	38646*	39763†
Tone Arm Segment Cam (RP-158, -160, -161)	38619*	39764†

*The die-cast cams 38646 and 38619 require a 10-32 set screw, stock number 32869, to fasten cam to shaft.

†The bakelite cams 39763 and 39764 require a drive pin, stock number 39765, to fasten cam to shaft. (A drive pin is included with 39763 and 39764).

RP-158, RP-160

Eccentric Stop, No. 39569:

In Replacement Parts, add Stock No. 39569 eccentric stop for record separator support.

Slow Speed:

In cases of slow speed, adjust the bottom bearing of turntable spindle to remove binding and to obtain free rotation. Refer to adjustment "B" in Service Data. Check by applying power to the turntable motor, allowing turntable to reach full speed, then pull motor away from turntable drive disc. The turntable should coast for at least twelve revolutions. (In RP-162, disengage motor from turntable by pulling idler away from turntable to observe coast.)

RP-160

Spring for use with Zinc Crystal:

On RP-160 with aluminum pickup arm, and aluminum-cased crystal, the spring that governs pickup pressure is No. 30585; with zinc pickup arm and aluminum-cased crystal, the spring is No. 39673. When installing a zinc-cased crystal in a zinc arm, cut 1 1/2 turns off the spring, or install a No. 39754 spring.

RP-160

Sapphire Pressure:

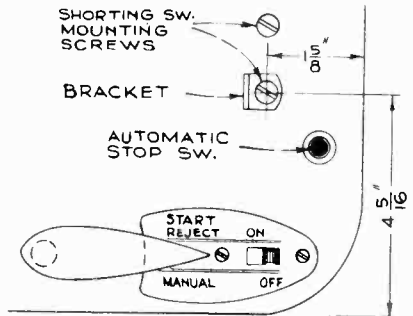
The correct sapphire pressure in RP-160 is approximately 1 1/4 ounces. The pressure is governed by a spring inside the end of the pickup arm. Owing to the fact that both aluminum and zinc castings (with difference in weight) have been used for the arm and the crystal, and also that only the zinc crystal (Stock No. 39550) is supplied for replacement,

Idler Wheel Fiber Washers:

In order to reduce idler wheel noise, the two metal washers have been replaced by two fiber washers in the Idler Wheel Assembly, Stock No. 36274, for the above record changers. The new fiber washers are Stock No. 39996.

Tone Arm Stop Bracket:

On 2nd production RP-158 and RP-160, a stop bracket has been added to the top of the motorboard to restrain the tone arm. It is mounted by means of the same screw, lock-washer, and nut used to mount the pickup shorting switch. Where difficulty is experienced with excessive movement of the tone arm on 1st production mechanisms, this bracket may be added as shown. The bracket is Stock No. 39832.

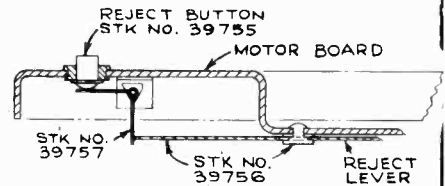


Tone-arm stop bracket (No. 39832) position on RP-158, -160.

Change in Reject Lever and Button:

2nd production of RP-158 and RP-162 automatic record changers have a reject lever arrangement as shown in accompanying sketch.

Stock No.	Description
39755	Button—Reject button
39756	Lever—Reject lever and stud
39757	Lever—Reject button right angle lever



Revised reject button and lever in RP-158, -162.

it is necessary to check the sapphire pressure whenever either the crystal or the arm is replaced.

The zinc arm is identified by the letters "ZN" after the drawing number inside the arm.

The zinc crystal is identified by the letters "ZN" moulded at the rear end of the cartridge.

The various combinations are tabulated below, along with the Stock Numbers of pivot arms and springs involved.

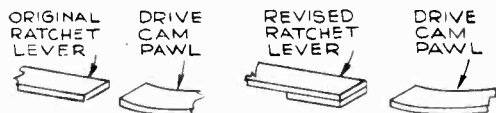
ARM AND CRYSTAL COMBINATIONS	CORRECT ARM AND SPRING
Aluminum arm Stock 38650 Aluminum crystal Stock 38453	} Pivot arm Stock 38603 Pivot arm spring Stock 30585
Aluminum arm Stock 38650 Zinc crystal Stock 39550	} Pivot arm Stock 38603 Pivot arm spring Stock 30585
Zinc arm Stock 39671 Zinc crystal Stock 39550	} Pivot arm Stock 39672 Rivet for arm and spring Stock 39674 Pivot arm spring Stock 39754
Zinc arm Stock 39671 Aluminum crystal Stock 38453	} Pivot arm Stock 39672 Rivet for arm and spring Stock 39674 Pivot arm spring Stock 39673

REVISED RATCHET LEVER

RP-158, RP-160, RP-161, RP-162

In RP-158, -160, and -162, continuous tripping can be caused by failure of the ratchet lever to block the drive cam pawl at completion of a change cycle.

This has been corrected by doubling the thickness of the end of the ratchet lever so that it presents a broader face to the edge of the drive cam pawl. The lever with double thickness is carried under the same Stock Number (38656) as the original lever, which it supersedes.



Continuous tripping in RP-158, -160, and -162 can be caused by failure of the ratchet lever to block the drive cam pawl. The replacement lever has double thickness at end to present a broader face to the drive cam pawl.

Trip Lever and Trip Pawl Spring:

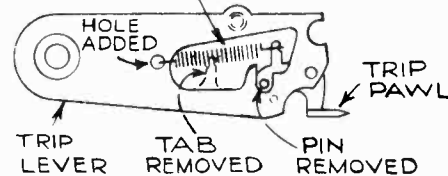
The original bronze trip-pawl spring, Stock No. 38562, is no longer available. When this spring requires replacement, due to loss or irreparable damage, it is necessary to install either a new steel spring, Stock No. 39961, in accordance with instructions given below, or else install a complete new trip lever assembly which employs the steel spring.

In RP-151, the new trip lever, trip pawl, and steel spring assembly is Stock No. 38561.

In RP-158, -160, and -162, the new trip lever, trip pawl, and steel spring assembly is Stock No. 38632.

The new lever and spring assemblies will be supplied on orders for the original assemblies.

STEEL SPRING # 39961



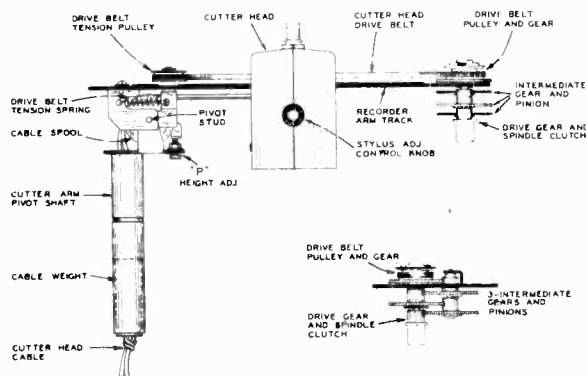
Trip lever with new steel spring. This steel spring can be installed on original lever in place of bronze spring by drilling a 3/32 inch hole and cutting off the tab on original lever.

Installing Steel Spring No. 39961 on Trip Lever:

1. Drill a 3/32-inch hole in lever as shown.
2. Cut off the tab that was used to anchor the original bronze spring.
3. Install steel spring as shown.

Recorder Mechanism Data (RP-161)

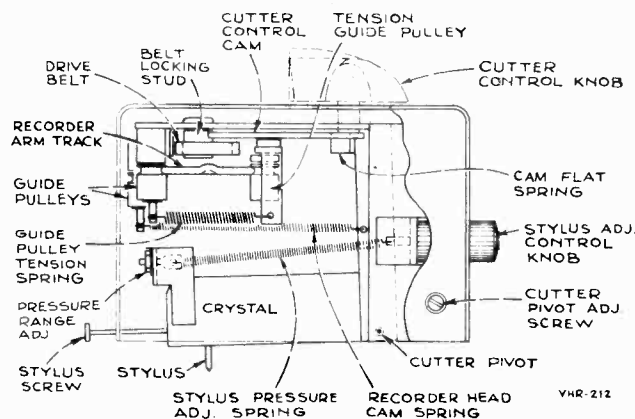
Recorder No.
RMP-110



Cutter Arm

Drive: The cutter head is belt driven from the turntable spindle through the train of gears at the spindle end of the cutter arm. Tension on the drive belt is maintained by a tension pulley at the pivot end of the cutter arm. Two fixed pulleys and one tension pulley guide the cutter head on the recorder arm track.

The cutter arm pivot shaft bearing should be so positioned



Cutter Head

Lubrication: Lubriplate No. 110 should be used on all gear and pulley studs, pivots, sliding and bearing surfaces of the recorder arm and cutter head. However, do not lubricate: the gear teeth, the wooden pulley bearing, the clamping surface of the belt locking stud, or the recorder arm track.

with reference to the spindle that the spindle clutch fits easily on the spindle and does not bind as the turntable revolves.

Leads from the cutter crystal pass over a wooden pulley and down through the cutter arm pivot shaft, slack being taken up by a cable weight within the pivot shaft. The knot in the leads below the weight should be enclosed by the cavity in the weight so it will not rub or bind against the sides of the pivot shaft. This knot should be so positioned as to allow full movement of the cutter head without allowing the weight to come entirely out of the pivot shaft. Within the cutter head, the leads in the vicinity of the cutter crystal should be free and floating to prevent reaction on the crystal suspension.

Cutter Control: When the cutter control knob is in the "off" position, the cutter control cam, through a lever fastened to the cutter crystal, holds the cutter stylus clear of the recording blank. In the "on" position of the cutter control, the cam allows the cutter crystal and stylus to lower into position for recording and locks the drive belt between the belt locking stud and a lip on the cutter head frame so the cutter head travels with the belt. Correct clamping occurs when the flat cam spring almost touches the bottom of the cam detent. Adjustment of clamping may be accomplished by carefully bending the clamping lip on the cutter frame.

Replace the belt if it shows roughness, wear, or stretching. Keep the belt free of oil, grease, dirt, or other foreign matter.

Stylus Adjustment Control: The stylus adjustment control knob increases or decreases the tension of the stylus pressure adjustment spring, thereby opposing to a greater or lesser degree the tension of the recorder head cam spring and the pressure due to the weight of the crystal.

The range of the stylus adjustment control may be adjusted, if necessary, by turning the pressure range adjustment nut. Counter-clockwise increases, clockwise decreases stylus pressure for a given setting of the stylus adjustment control knob.

Correct adjustment of the stylus adjustment control knob for recording is outlined under "Recorder Cutting Adjustments."

Cutter Pivot Adjustment: The cutter crystal is supported on cone pivots. Pressure against these pivots is adjusted by the cutter pivot adjustment spreader screw. Correct adjustment is for no play or bind. Adjustment is best accomplished by starting with some play and relaxing the adjusting screw until the play just disappears.

Recorder Arm Height Adjustment: Adjust the recorder arm height adjustment screw "P" so that the cutter stylus cannot touch the turntable or the motorboard when the cutter control is on "off" and the recorder arm is suspended freely between the spindle and the cutter arm rest. The screw should not, however, prevent the cutter arm from seating firmly on the spindle. Tighten the locknut after adjustment is made.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
<p>RP-158, -161, -162</p> <p>PICKUP AND ARM ASSEMBLIES</p>		39112	Frame—Recorder head frame
38802	Arm—Pickup arm shell only	39135	Gear—Drive gear and spindle clutch—less ball
38803	Arm—Pivot arm and shaft—less spring	39133	Gear—Intermediate gear and pinion (3 used)
38810	Crystal—Pickup crystal cartridge, sapphire and shielded cable	39122	Knob—Recorder head "On-Off" knob—less screw
38607	Cushion—Pusher rod cushion (rubber) (1)	39132	Knob—Stylus adjusting knob
38458	Nut—Speed nut to hold cable in arm	39138	Nut—Nut, washer, and lockwasher to hold recorder head cover
39387	Plate—Bottom plate for pickup arm—less screws	39125	Pivot—Recorder arm pivot shaft and bracket
38606	Rod—Pusher rod—less cushion	39123	Plate—Recorder arm bottom plate and drive gear bearing
39584	Sapphire—Sapphire only	39128	Pulley—Drive belt pulley—located at pivot end of arm
38609	Screw—No. 4-40 x 1/4-in. headless set screw for pickup arm—Pkg. of 5	39134	Pulley—Drive belt pulley and gear
38605	Screw—No. 4-40 x 1/4-in. screw to mount crystal—Pkg. of 5	39129	Pulley—Recorder head guide pulley (small—3 used)
38611	Screw—No. 4-40 x 3/16-in. headless set screw for pickup crystal (oval point)—Pkg. of 5	39138	Screw—Recorder arm height adjustment screw and nut
39388	Screw—No. 4-40 x 3/16-in. screw for pickup arm bottom plate—Pkg. of 5	14427	Screw—Set screw for "On-Off" knob
38608	Screw—No. 6-32 x 9/32-in. headless set screw for pickup arm—Pkg. of 5	39111	Screw—Stylus screw
30585	Spring—Pivot arm spring (3)	39128	Screw—1/32 special screw for stylus adjustment
38604	Stud—Pivot arm spring stud and nut	39115	Screw—No. 6-32 x 1 1/4-in. round head screw to adjust cutter pivot friction or play
<p>RP-160</p> <p>PICKUP AND ARM (Aluminum Arm) (Aluminum Case Crystal)</p>		39130	Spool—Recorder cable spool—(wood)
38650	Arm—Pickup arm shell (aluminum casting) less crystal, cable, and pivot arm	39120	Spring—Recorder head cam spring
38603	Arm—Pivot arm and shaft for pickup arm—less spring	39675	Spring—Stylus pressure adjusting spring
35694	Cable—Shielded pickup cable—connects pickup to shorting switch	39677	Spring—Tension spring for drive belt pulley
38453	Crystal—Pickup crystal cartridge with sapphire and holder	39676	Spring—Tension spring for guide pulley
38607	Cushion—Rubber cushion (1) for pickup arm push rod	39121	Stud—Belt locking stud for recorder head—actuated by cam
38451	Damper—Viscoloid damper for sapphire holder	39118	Stud—Recorder arm pivot stud and cable pulley shaft
38452	Guard—Needle guard	39137	Washer—"C" washer to hold drive belt drive pulley
38450	Nut—Special nut and washer for sapphire holder	34373	Washer—"C" washer to hold intermediate drive gears, and drive belt pulley
38458	Nut—Speed nut to hold cable in pickup arm	31608	Washer—"C" washer to hold large guide pulley bracket, small guide pulleys, and large guide pulley
38606	Rod—Pickup arm push rod—less cushion	2917	Washer—"C" washer to hold recorder head cam shaft
38449	Sapphire—Sapphire and holder—less nut	39139	Washer—1 set flat washers for drive gear mountings
37763	Screw—No. 2-56 x 1/8 screw to mount needle guard (2 required)	39127	Weight—Recorder head cable weight
38609	Screw—No. 4-40 x 1/4 headless set screw for pickup arm	<p>RP-158</p> <p>MOTOR ASSEMBLIES (50-60 Cycle) (Motor No. 91706-1)</p>	
38608	Screw—No. 6-32 x 9/32 headless set screw for pickup arm	37108	Bearing—Bottom bearing and bracket (4)
30585	Spring—Pivot arm spring (31 turns) (3)	37107	Bearing—Top bearing and bracket
38604	Stud—Pivot arm spring stud, and nut	37109	Bracket—Motor mounting bracket (5)
<p>PICKUP AND ARM (Zinc Arm) (Aluminum Case Crystal)</p> <p>Same as Pickup and Arm (Aluminum Arm) except:</p>		37111	Coil—Motor field coil assembly (6)
39671	Arm—Pickup arm shell (zinc casting)—less crystal, cable, and pivot arm	38612	Motor—105-125 volts, 60 cycle
39672	Arm—Pivot arm and shaft for pickup arm—less spring	37108	Pad—Rotor thrust pad
39674	Rivet—Rivet to hold pivot arm spring—Pkg. of 5	37110	Rotor—Motor rotor complete with fan
39673	Spring—Pivot arm spring (19-1/2 turns)	38847	Sleeve—Motor spindle sleeve for 50 cycle conversion
<p>NOTE: The zinc arm may be identified by the fact that it has a 1/8-in. hole in the back end, for the rivet which holds the pivot arm spring. This hole is not present in the aluminum arm. When replacing an aluminum arm with a zinc arm (Stock No. 39671) it will also be necessary to replace the pivot arm and spring; use Stock No. 39672, Pivot Arm, and Stock No. 39673, Spring.</p>		<p>MOTOR ASSEMBLIES (25 Cycle) (Motor No. 91655-3 or 8)</p>	
<p>RP-161</p> <p>RECORDER ASSEMBLY</p>		36954	Armature—Motor armature and shaft for 25 cycle motor
10129	Ball—3/16-in. dia. steel ball for spindle clutch	36952	Cap—Bakelite cap for motor
39131	Belt—Recorder head drive belt	36951	Capacitor—1.25 mfd. for motor (2 required)
39116	Bracket—Bracket and stud for recorder head guide pulley	36726	Motor—105-125 volts, 25 cycle
39114	Bracket—Drive belt pulley bracket (tension pulley)	<p>RP-160</p> <p>MOTOR ASSEMBLIES</p>	
39117	Bracket—Recorder arm frame bracket	36954	Armature—Motor armature and shaft for 25 cycle motor
39119	Cam—Recorder head cam and knob shaft	36255	Armature—Motor armature and shaft for 60 cycle motor
39108	Cover—Recorder arm cover	37108	Bearing—Bottom bearing and bracket (4)
39109	Cover—Recorder head cover	37107	Bearing—Top bearing and bracket
39110	Cutter—Recorder head cutter with stylus screw	37109	Bracket—Motor mounting bracket (5)
39113	Frame—Recorder arm frame	36952	Cap—Bakelite cap for motor
		36955	Capacitor—1.1 mfd. for 60 cycle motor
		36951	Capacitor—1.25 mfd. for motors (2 required for 25 cycles)
		37111	Coil—Motor field coil assembly (6)
		36726	Motor—105-125 volts, 25 cycle, complete with capacitor (91655-3 or 8)
		36254	Motor—105-125 volts, 60 cycle, complete with capacitor (91655-1 or 6)
		38612	Motor—105-125 volts, 60 cycle (91706-1)
		37108	Pad—Rotor thrust pad
		37110	Rotor—Motor rotor complete with fan
		38847	Sleeve—Motor spindle sleeve for 50 cycle conversion of motor No. 91706-1, Stock No. 38612
		38848	Sleeve—Motor spindle sleeve for 50 cycle conversion of motor No. 91655-1 or 6, Stock No. 36254

Replacement Parts (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RP-161		38623	Turntable—Turntable finished plate only
MOTOR ASSEMBLY		33726	Washer—"C" washer for motor idler arm or idler wheel
39510	Bearing—Bottom bearing and bracket (4)	20165	Washer—"C" washer for ratchet lever, tone arm lift lever, or tone arm lift rod (23)
39509	Field—Motor field coils and laminations—105-125 volts, 50/60 cycle (6)	2917	Washer—"C" washer for tone arm lever, tone arm return lever, record support belt drum, link, or cam (24)
39088	Motor—105-125 volts, 50/60 cycle	38560	Washer—Felt washer for tone arm bearing
39508	Pulley—Motor rotor shaft pulley for 50 cycle operation	38629	Washer—Felt washer for turntable spindle bottom bearing
39507	Pulley—Motor rotor shaft pulley for 60 cycle operation	36274	Wheel—Motor idler wheel
39506	Rotor—Motor rotor and shaft—less pulley	RP-160	
RP-162		MOTORBOARD ASSEMBLIES	
MOTOR ASSEMBLY		38640	Arm—Motor idler arm—less wheel
(No. 91647-5)		3658	Ball—3/32 steel ball for tone arm bearing (7)
39031	Motor—105-125 volts, 60 cycle	10129	Ball—Bearing ball for spindle
38850	Sleeve—Motor spindle sleeve for 50 cycle conversion	38647	Bearing—Turntable spindle bearing
RP-158		38616	Belt—Record support to separator belt (8)
MOTORBOARD ASSEMBLIES		38653	Board—Motorboard with all welded or riveted studs, posts, or bearings—less operating mechanism
38640	Arm—Motor idler arm—less wheel	38630	Brace—Angle brace, or bottom support bracket and bearing plate
3658	Ball—3/32-in. steel ball for tone arm bearing (7)	38620	Bushing—Record separator shaft end bushing
10129	Ball—Bearing ball for spindle	38638	Button—Reject button
38647	Bearing—Turntable spindle bearing	38627	Cam—Drive shaft cam and pawl—less spring
38616	Belt—Record support to separator belt (8)	38641	Cam—Main cam
38644	Board—Motorboard complete with all riveted and welded posts, studs, bearings, and support	38646	Cam—Record support shaft cam
38630	Brace—Angle brace, or bottom support bracket and spindle bearing plate	38470	Cap—Record separator cap (9)
38620	Bushing—Record separator shaft end bushing	38665	Cover—Stop switch cover and stud
38638	Button—Reject button	38657	Disc—Turntable drive disc and spindle
38627	Cam—Drive shaft cam and pawl—less spring	38463	Drum—Record separator belt drum
38641	Cam—Main cam	38617	Drum—Record support belt drum
38646	Cam—Record support shaft cam	38660	Escutcheon—Index escutcheon ("Manual," "Automatic," "Start-Reject")
38470	Cap—Record separator cap (9)	34368	Grommet—Rubber grommet for motor mounting (10)
38657	Disc—Turntable drive disc and spindle—less rubber tire and turntable	38467	Knife—Record separator knife
38463	Drum—Record separator belt drum	39106	Lever—Index control lever and shaft
38617	Drum—Record support belt drum	38622	Lever—Link and lever assembly—fastens on record separator shaft
38639	Escutcheon—Index escutcheon	38661	Lever—Manual lever
34368	Grommet—Rubber grommet for motor mounting (10)	38656	Lever—Ratchet lever
38467	Knife—Record separator knife	38633	Lever—Tone arm lever
38622	Lever—Link and lever assembly—fastens on record separator shaft	38631	Lever—Tone arm lift lever
38656	Lever—Ratchet lever	38618	Lever—Tone arm return lever
38637	Lever—Reject lever	38619	Lever—Tone arm segment—fastens on record separator shaft—less screws
38633	Lever—Tone arm lever	38632	Lever—Trip lever—less pawl spring
38631	Lever—Tone arm lift lever	32943	Nut—Speed nut for stop switch button
38618	Lever—Tone arm return lever	38740	Pin—Drive pin for record separator shaft and bushing
38619	Lever—Tone arm segment—fastens on record separator shaft—less screw	38474	Pin—Record support shaft cam pin (13)
38632	Lever—Trip lever—less pawl spring	38663	Plate—Index control lever plate and screw
33225	Nut—Speed nut for reject button (11)	30868	Plug—Female plug for motor extension cable
38740	Pin—Drive pin for record separator shaft (12) end bushing	30870	Plug—Male plug for motor and switch leads and extension cable
38474	Pin—Record support shaft cam pin (13)	38624	Ratchet—Ratchet wheel (drive cam sprocket) for turntable spindle (14)
30870	Plug—2-prong male for motor and switch leads	38469	Screw—Oval head screw for record separator cap (2)
38624	Ratchet—Ratchet wheel for turntable spindle (14)	38626	Screw—No. 8-32 x 1/4 in. cone point set screw for ratchet wheel (drive cam sprocket)
38469	Screw—Oval head screw for record separator cap (2)	38625	Screw—No. 8-32 x 1/4 in. set screw for ratchet wheel (drive cam sprocket)
38626	Screw—No. 8-32 x 1/4 in. cone point set screw for ratchet wheel	31118	Screw—No. 10-32 x 5/16 in. cone point set screw for index lever plate
38625	Screw—No. 8-32 x 1/4 in. set screw for ratchet wheel	32869	Screw—No. 10-32 x 5/16 in. set screw for drum, tone arm segment, record separator crank, and trip lever
31118	Screw—No. 10-32 x 5/16 in. cone point set screw for record separator crank trip lever, and drum	38652	Shelf—Record separator shelf and shaft
32869	Screw—No. 10-32 x 5/16 in. set screw for drum, tone arm segment, record separator crank, and trip lever	38471	Spacer—Record separator spacer (washer)
38652	Shelf—Record separator shelf and shaft	38628	Spring—Cam pawl and ratchet lever spring
38471	Spacer—Record separator spacer (washer)	38669	Spring—Index lever plate spring
38628	Spring—Cam pawl and ratchet lever spring	30585	Spring—Motor idler arm spring
30585	Spring—Motor idler arm spring	38643	Spring—Motor tension spring (15)
38643	Spring—Motor tension spring (15)	39879	Spring—Ratchet lever spring (16)
38635	Spring—Ratchet lever spring (16)	38642	Spring—Record separator belt drum spring (17)
38642	Spring—Record separator belt drum spring (17)	38621	Spring—Record separator shaft bottom spring (18)
38621	Spring—Record separator shaft bottom spring (18)	38468	Spring—Record separator spring (19)
38468	Spring—Record separator spring (19)	39554	Spring—Reject button spring
39554	Spring—Reject button spring	38634	Spring—Tone arm lever spring (20)
38636	Spring—Reject lever spring	39038	Spring—Tone arm return lever spring
38634	Spring—Tone arm lever spring (20)	38667	Spring—Tone arm switch spring
39038	Spring—Tone arm return lever spring	38562	Spring—Trip level pawl spring
38562	Spring—Trip lever pawl spring (21)	38666	Stud—Tone arm switch pivot stud
38645	Support—Record support and shaft (left hand front post)	38645	Support—Record support and shaft
38648	Support—Separator support (2 used) (22)	39085	Support—Separator support (2 used) (22)
32875	Switch—"On-Off" switch	32875	Switch—"On-Off" switch
38615	Swivel—Record separator swivel and shaft	38844	Switch—Pickup shorting switch
37873	Tire—Rubber tire only for drive disc	38664	Switch—Stop switch—less leads
		38615	Swivel—Record separator swivel and shaft
		37873	Tire—Rubber tire only for drive disc

Replacement Parts (concluded)

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
38623	Turntable—Finished turntable plate	20165	Washer—"C" washer for ratchet lever, tone arm lift lever, or tone arm push rod (23)
33726	Washer—"C" washer for motor idler arm or idler wheel	2917	Washer—"C" washer tone arm lever, tone arm return lever, record support belt drum, link lever, or cam (24)
20165	Washer—"C" washer for ratchet lever, tone arm lift lever, or tone arm lift rod (23)	38560	Washer—Felt washer for tone arm bearing
2917	Washer—"C" washer for tone arm lever, tone arm return lever, record support belt drum, link, or cam (24)	38629	Washer—Felt washer for turntable bottom bearing
38560	Washer—Felt washer for tone arm bearing	38631	Wheel—Idler wheel
38629	Washer—Felt washer for turntable spindle bottom bearing		
38274	Wheel—Motor idler wheel		
	RP-161		RP-162
	MOTORBOARD ASSEMBLY		MOTORBOARD ASSEMBLY
10129	Ball—3/16-in. dia. steel ball for bottom spindle	38402	Arm—Idler wheel arm and stud
3658	Ball—3/32-in. steel ball for tone arm bearing (7)	10129	Ball—3/16-in. dia. steel ball for turntable spindle
39101	Base—Recorder arm base	3658	Ball—3/32-in. dia. steel ball for pickup arm bearing (7)
39092	Bearing—Turntable spindle bearing	38648	Bearing—Record separator support and bearing
38616	Belt—Record support to separator belt (8)	38647	Bearing—Turntable spindle bearing
39091	Board—Motorboard with all riveted and welded posts, studs, and bearings—less all operating parts	39032	Board—Motorboard with all riveted and welded posts, studs, and bearings—less all operating parts
39098	Brace—Angle brace, or bottom support bracket and bearing plate	38630	Brace—Motorboard bottom brace and bracket
36832	Bracket—Idler wheel bracket and stud	38638	Button—Reject button
39105	Bushing—Collar to hold idler wheel bracket—less screws	38627	Cam—Cam and pawl
38620	Bushing—Separator shaft end bushing	38641	Cam—Main cam and gear
39097	Cam—Drive shaft cam and pawl—less spring	38470	Cap—Record separator cap (9)
38641	Cam—Main cam	4288	Connector—Pickup lead connector—less insert
38646	Cam—Record support cam	38639	Escutcheon—Index escutcheon
39470	Cap—Record separator cap (9)	4286	Ferrule—Pickup connector ferrule (insert)
30340	Clip—Retaining clip for idler wheel	39039	Grommet—Rubber grommet for motor mounting (1 set)
39104	Clip—Retaining clip for record arm pivot shaft	38656	Lever—Ratchet lever
38463	Drum—Record separator belt drum	38637	Lever—Reject lever
38617	Drum—Record support belt drum	38633	Lever—Tone arm lever
38660	Escutcheon—Index lever escutcheon	38631	Lever—Tone arm lift lever
38467	Knife—Record separator knife	38618	Lever—Tone arm return lever
38663	Lever—Index lever and bushing and screw	38632	Lever—Trip lever
39106	Lever—Index control lever and shaft	39038	Link—Record separator link
38622	Lever—Link and lever assembly—fastens on separator shaft	33225	Nut—Speed nut for reject button
38661	Lever—Manual lever	38740	Pin—Drive pin for record separator shaft
38656	Lever—Ratchet lever	30870	Plug—Male plug for motor leads
38633	Lever—Tone arm lever	38624	Ratchet—Ratchet wheel (clutch sprocket) (14) less screws
38631	Lever—Tone arm lift lever	38469	Screw—Record separator cap screw (2)
39751	Lever—Tone arm return lever and spring	38626	Screw—No. 8-32 x 1/4-in. cone point screw for ratchet wheel
38619	Lever—Tone arm segment—fastens on separator shaft—less screw	38625	Screw—No. 8-32 x 1/4-in. screw for ratchet wheel
38632	Lever—Trip lever—less pawl spring	31118	Screw—No. 10-32 x 5/16-in. cone point screw for link and trip lever
39103	Mounting—Motor mounting hardware (3 req'd)	32869	Screw—No. 10-32 x 5/16-in. screw for link and trip lever
38474	Pin—Drive pin for record support cam (13)	38467	Separator—Record separator knife only
38740	Pin—Drive pin for separator shaft end bushings	39035	Shelf—Record separator shelf and shaft
39094	Pin—Recording pin for turntable	38471	Spacer—Record separator shelf to knife spacer
30870	Plug—2 prong male for motor cable	38628	Spring—Cam pawl spring
39511	Plug—2 prong male for recorder cable	30585	Spring—Idler wheel arm spring
39096	Ratchet—Ratchet wheel for turntable spindle (14)	38635	Spring—Ratchet lever spring (16)
39102	Rest—Recorder head rest	38468	Spring—Record separator spring (19)
38469	Screw—Oval head screw for separator cap (2)	38636	Spring—Reject lever spring
38626	Screw—No. 8-32 x 1/4-in. cone point set screw for ratchet wheel	39680	Spring—Spring for under reject button
38625	Screw—No. 8-32 x 1/4-in. set screw for ratchet wheel	38634	Spring—Tone arm lever spring (20)
31118	Screw—No. 10-32 x 5/16-in. cone point set screw for drum, separator link, trip lever, and index lever	39038	Spring—Tone arm return lever spring
32869	Screw—No. 10-32 x 5/16-in. set screw for drum, separator link, trip lever, and tone arm segment	38562	Spring—Trip pawl spring (21)
38652	Shelf—Record separator shelf and shaft	39033	Support—Record support
38471	Spacer—Record separator spacer (washer)	32875	Switch—"On-Off" switch
39099	Spindle—Turntable spindle and ball—lower section only	39034	Swivel—Record separator swivel
39100	Spindle—Turntable spindle—top section only	39037	Turntable—Record separator turntable and spindle
39678	Spring—Idler arm tension spring	33726	Washer—"C" washer for idler wheel
38669	Spring—Index lever spring (riveted to motorboard) (26)	20165	Washer—"C" washer for ratchet lever, tone arm lever, or pickup pivot shaft (23)
38628	Spring—Main cam pawl spring	2917	Washer—"C" washer for tone arm return lever, tone arm lever, link, or cam (24)
38635	Spring—Ratchet lever spring (16)	38560	Washer—Felt washer for pickup arm bearing
38468	Spring—Record separator spring (19)	38629	Washer—Felt washer for turntable spindle bottom bearing
39095	Spring—Recording pin spring for turntable	36274	Wheel—Idler wheel
38642	Spring—Separator belt drum spring (17)		
38621	Spring—Separator shaft bottom spring (18)		
38634	Spring—Tone arm lever spring (20)		
39038	Spring—Tone arm return lever spring (25)		
39961	Spring—Trip lever pawl spring (21)		
38648	Support—Record separator support (2 used) (22)		
38645	Support—Record support and shaft		
32875	Switch—Motor "On-Off" switch		
38615	Swivel—Record separator swivel and bearing		
39093	Turntable—Record turntable complete with recording pin		

MODEL V-170

Chassis No. RC-523

Six-Tube, Two-Band, A-C, Radio Phonograph Combination

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast "A"..... 540-1,600 kc
Short Wave "C"..... 6-18.0 mc

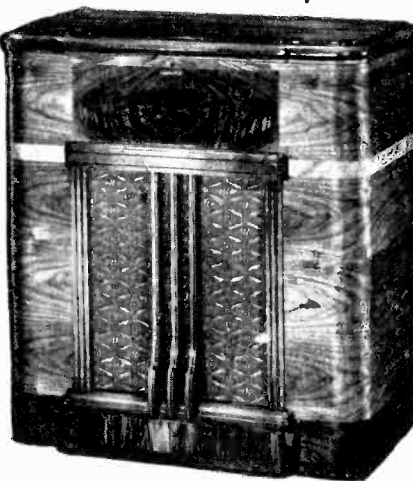
INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Detector-Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6H6..... 2nd Detector, A.V.C.
- (4) RCA-6SF5..... A-F Amplifier
- (5) RCA-6K6GT..... Power Output
- (6) RCA-5Y3-G..... Rectifier

POWER OUTPUT RATING

Undistorted..... 2.5 watts
Maximum..... 4.5 watts



LOUDSPEAKER (RL-70L-5)

Type..... 12-inch Electrodynamic
V.C. Impedance..... 2.2 ohms at 400 cycles

PHONOGRAPH

Type..... Automatic
Record Capacity..... Eight 10-inch or Seven 12-inch
Turntable Speed..... 78 r.p.m.
Type Pickup..... Crystal
Pickup Impedance..... 100,000 ohms at 1,000 cycles
Average Output..... 1½ volts at 1,000 cycles
across ½ meg.

POWER SUPPLY RATINGS

105-125 volts, 60 cycles, 110 watts
105-125 volts, 25 cycles, 110 watts

Height Width Depth

Cabinet Dimensions
(inches)..... 33-3/16 .. 29 1/8 .. 17 1/2
Weight..... 72 lbs. (net)
Tuning Drive Ratio..... 12-1

Push Button Adjustments

The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.
3. Turn range switch to push-button position and press in the left-hand button.
4. Adjust L10 to receive the first station. To secure the best adjustment, rotate the set for least pickup, and adjust L10 for peak output.
5. Adjust C45 for peak output on the first station.

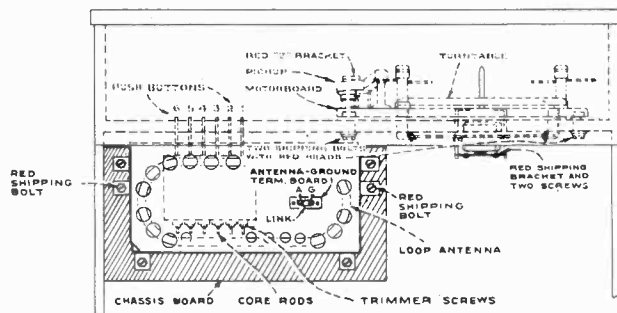
6. Proceed in the same manner to adjust for the remaining stations.

On the 880 to 1,560 kc push-button, the higher frequency stations may be received with L5 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

880 TO 1550 KC	740 TO 1430 KC	610 TO 1250 KC	540 TO 1030 KC	
6	5	4	3	2
Ø	Ø	Ø	Ø	Ø
Ø	Ø	Ø	Ø	Ø
6	5	4	3	2

Ø TRIMMER SCREWS
Ø CORE RODS



STANDARD BROADCAST

A DOMESTIC 55 60 70 80 100 120 140 160 BAND A

RCA Victrola

C FOREIGN

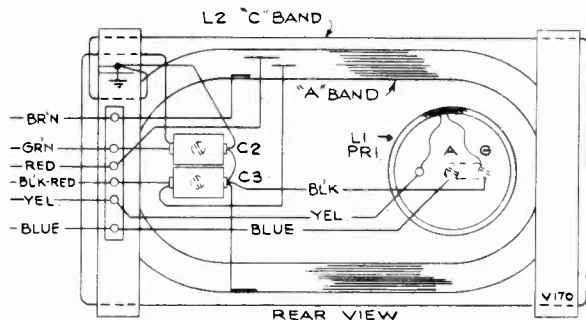
MEX. CT HAYANA LONDON BOSTON PHIL. TOKYO	6 BERLIN LONDON N. YORK PITTSBG WASHDC	7 EASTERN MEMPH. SPRNG	8 LONDON SCHEM BERLIN ROME H. KONG	10 LONDON BERLIN ROME PARIS TOKYO	12 BERLIN PARIS LONDON BOISG ROME	16 BERLIN HUIZEN PARIS LONDON TOKYO	18
	49 M	40 M	31 M	25 M	AMTS 19 M	16 M	

INTERNATIONAL



Refer to RP-152
Service Data
for information
on Record-
Changer
Mechanism.

Alignment Procedure



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

1. Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.

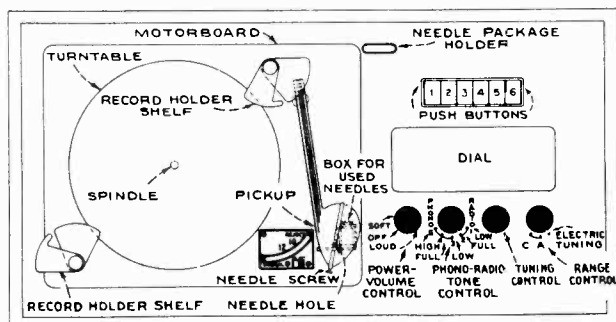
2. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

Using Calibration Scale.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

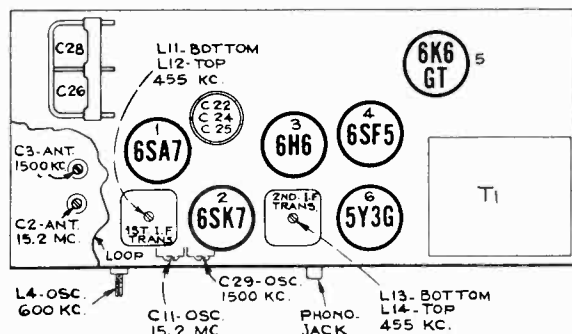
2. Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.



Rumble:

Rumble is related to motor vibration, combined with high-gain amplifier, and prominent bass response.

The vibration of the motor in these instruments is as low as it can be made: Do not replace it to correct rumble. Rather, reduce the low-frequency response by shunting a 50,000-ohm 1/4-watt resistor across the crystal pickup terminals.



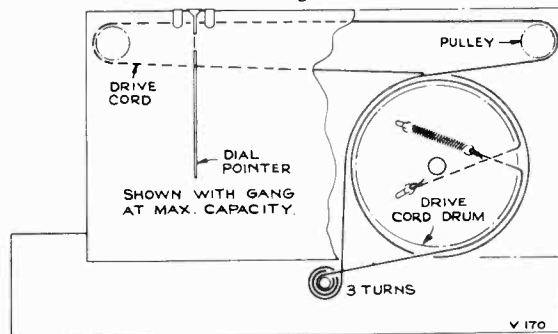
3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid, in series with .01 mfd.	455 kc	"C" band, Quiet Point at H-F end of dial	L13 and L14 (2nd I.F. Trans.)
2	1st. det. grid, in series with .01 mfd.			L11 and L12 (1st I.F. Trans.)
3	Antenna terminal, in series with 300 ohms (link open)	15.2 mc	15.2 mc "C" band	C11 (osc.)* C2 (ant.) Rock in C2
4	Antenna terminal, in series with 200 mmfd. (link open)	1,500 kc	1,500 kc "A" band	C29 (osc.) C3 (ant.)
5		600 kc	600 kc "A" band	L4 (osc.) Rock in
6	Repeat steps 4 and 5.			

* Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used, by tuning receiver to 14.29 mc, where a weaker signal should be received.

Note: Oscillator tracks above signal on both bands.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-523)			
34785	Board—"Antenna-Ground" board	35709	Shield—Power transformer top shield
36485	Capacitor—Mica trimmer—2 sections of 5-50 mmf.	31364	Socket—Dial lamp socket
35867	Capacitor—Mica trimmer—2 sections of 8-80 mmf. each	35787	Socket—Phono input socket
36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmf., 2 sections of 25-250 mmf., 2 sections of 50-400 mmf., and 1 section of 100-540 mmf.	31251	Socket—Tube socket
34699	Capacitor—100 mmf., mica	31418	Spring—Drive cord spring
12720	Capacitor—100 mmf., moulded mica	36489	Switch—Push button selector switch
34700	Capacitor—120 mmf.	36488	Switch—Range switch
13003	Capacitor—180 mmf.	35636	Transformer—First I.F. transformer
12952	Capacitor—330 mmf.	35790	Transformer—Second I.F. transformer
35877	Capacitor—720 mmf.	35588	Transformer—Power transformer, 110 volt, 25 cycle
13895	Capacitor—5,600 mmf.	35959	Transformer—Power transformer, 110 volt, 50-60 cycle, less end shields
34459	Capacitor—.0025 mfd.	33726	Washer—"C" washer for tuning shaft
33584	Capacitor—.005 mfd.	FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON RP-152.	
5148	Capacitor—.007 mfd.	SPEAKER ASSEMBLIES (RL-70-L5)	
11315	Capacitor—.015 mfd.	13867	Cap—Dust cap
32787	Capacitor—.05 mfd.	12079	Coil—Field coil, 1,060 ohms
4839	Capacitor—0.1 mfd.	11469	Coil—Neutralizing coil
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts, and 1 section of 20 mfd., 25 volts	36145	Cone—Cone complete with voice coil
35785	Coil—Loop primary coil	5039	Plug—4-prong male speaker plug
35854	Coil—Oscillator coil	36146	Suspension—Metal cone suspension
35803	Coil—P.B. oscillator coil	31301	Output—Transformer
37133	Coil—P.B. oscillator coil, 540-1,030 kc.	MISCELLANEOUS ASSEMBLIES	
35874	Condenser—Variable tuning condenser	36461	Button—Plug button
36487	Control—Tone control	36299	Button—Push button
36486	Control—Volume control and power switch	13103	Cap—Pilot lamp cap
32634	Cord—Drive cord	36328	Cover—Compartment lamp leads cover
35788	Core—Adjustable core and stud for oscillator coils	36711	Decalcomania—Control panel decal
35871	Core—Adjustable core and stud for P.B. oscillator coils	35393	Decalcomania—Television decal
35870	Indicator—Station selector indicator	36386	Decalcomania—Trade mark decal
36484	Loop—Antenna loop complete	35467	Decalcomania—Trade mark decal
36482	Plate—Dial plate complete with drive cord pulleys less dial	36710	Dial—Glass dial scale
30868	Plug—2-contact female plug for motor cable	35937	Escutcheon—Dial scale escutcheon, less dial
5119	Plug—3-contact female plug for speaker cable	36027	Escutcheon—Push button escutcheon, less buttons
32289	Pulley—Drive cord pulley	30698	Hinge—Cabinet lid hinge
30681	Resistor—470 ohms, 1 watt	36246	Holder—Needle book holder
35595	Resistor—15,000 ohms, 3 watt	36297	Knob—Range switch or tone control knob
13998	Resistor—22,000 ohms, 1/2 watt	36298	Knob—Volume control or tuning knob
12412	Resistor—47,000 ohms, 1/2 watt	11765	Lamp—Dial lamp
12286	Resistor—56,000 ohms, 1/2 watt	5117	Lamp—Compartment lamp
13715	Resistor—68,000 ohms, 1/2 watt	36149	Marker—Station selector marker
12199	Resistor—270,000 ohms, 1/2 watt	31470	Mounting—Complete set of mounting hardware for 1 motorboard
12285	Resistor—470,000 ohms, 1/2 watt	35740	Shade—Compartment lamp shade
12879	Resistor—2.2 megohm, 1/2 watt	35575	Spring—Lid support spring
13601	Resistor—10 megohm, 1/2 watt	30900	Spring—Retaining spring for knobs
35862	Shaft—Tuning shaft	34053	Spring—Retaining spring for push button
35772	Shield—Power transformer bottom shield	36693	Support—Cabinet lid support

MODEL V-175

Chassis No. RC-582

Six-Tube, Two-Band, AC, Superheterodyne Receiver and Phonograph

Electrical and Mechanical Specifications

FREQUENCY RANGE

Standard Broadcast (A)..... 540-1,600 kc
 Short Wave (C)..... 9.4-15.4 mc
 Intermediate Frequency..... 455 kc

- (1) RCA-6SK7..... R-F Amplifier
- (2) RCA-6SA7..... 1st Det. Oscillator
- (3) RCA-6SK7..... I-F Amplifier
- (4) RCA-6SQ7..... 2nd Det., A.V.C.,
A-F Amplifier
- (5) RCA-25L6-GT..... Power Output
- (6) RCA-25Z6-GT..... Rectifier

Pilot Lamp..... (1)—Mazda No. 47,
6.8 volts, 0.15 amps.

POWER OUTPUT RATING

Undistorted..... 3 watts
 Maximum..... 5 watts

LOUDSPEAKER (RL-70-N2)

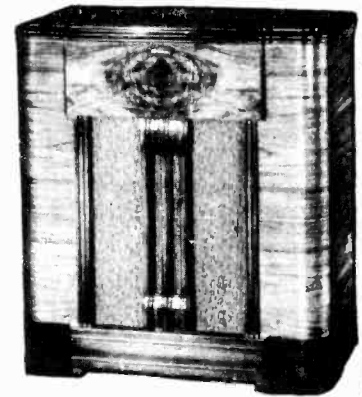
Type..... 12 inch electrodynamic
 V.C. Impedance..... 2.2 ohms at 400 cycles

POWER SUPPLY RATING

105-125 volts, 60 cycles..... 80 watts total

AUTOMATIC PHONOGRAPH (RP-158)

Type Pickup..... Crystal
 Record capacity..... Twelve 10-inch or
 ten 12-inch records
 Constant speed motor..... 17 watts



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagrams.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the common negative wiring, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed full size in this service note can be used as an accurate and convenient substitute for the regular dial.

Each method is described below.

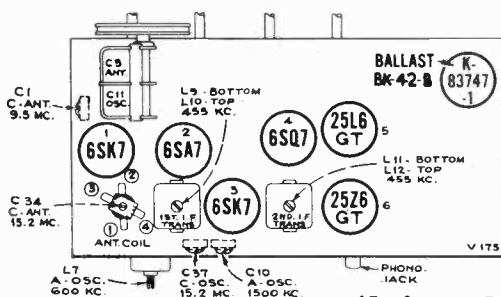
Using Tuning Dial.—

1. Remove the glass dial from the cabinet.
2. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.
4. After completion of alignment, replace the glass dial in cabinet.

Using Calibration Scale.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
2. Temporarily fasten the dial scale drawing in this service note, to the dial backing plate with scotch tape, so that the extreme left scale graduation coincides with the pointer.

Dial Pointer Adjustment.—After the chassis is replaced in cabinet move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F Grid in series with .01 mfd.	455 kc	"A" Band 540 kc	L11, L12 (2nd I-F Trans.)
2	1st-Det. Grid in series with .01 mfd.			L9, L10 (1st I-F Trans.)
3	"A" terminal on ant. terminal board	15.2 mc	"C" Band 15.2 mc	C37 (osc.)* C34 (ant.)
4	in series with 47 mmf. (link open)	9.5 mc	"C" Band 9.5 mc	C1 (ant.) (Rock Gang)
5		Repeat steps 3 and 4.		
6	Middle terminal on ant. terminal board	1,500 kc	"A" Band 1,500 kc	C10 (osc.) C33 (ant.) (on loop)
7	in series with 200 mmf. (link open)	600 kc	"A" Band 600 kc	L7 (Rock Gang)
8		Repeat steps 6 and 7.		

* Use minimum capacity peak. Oscillator tracks 455 kc above signal on both bands.

Critical Lead Dress

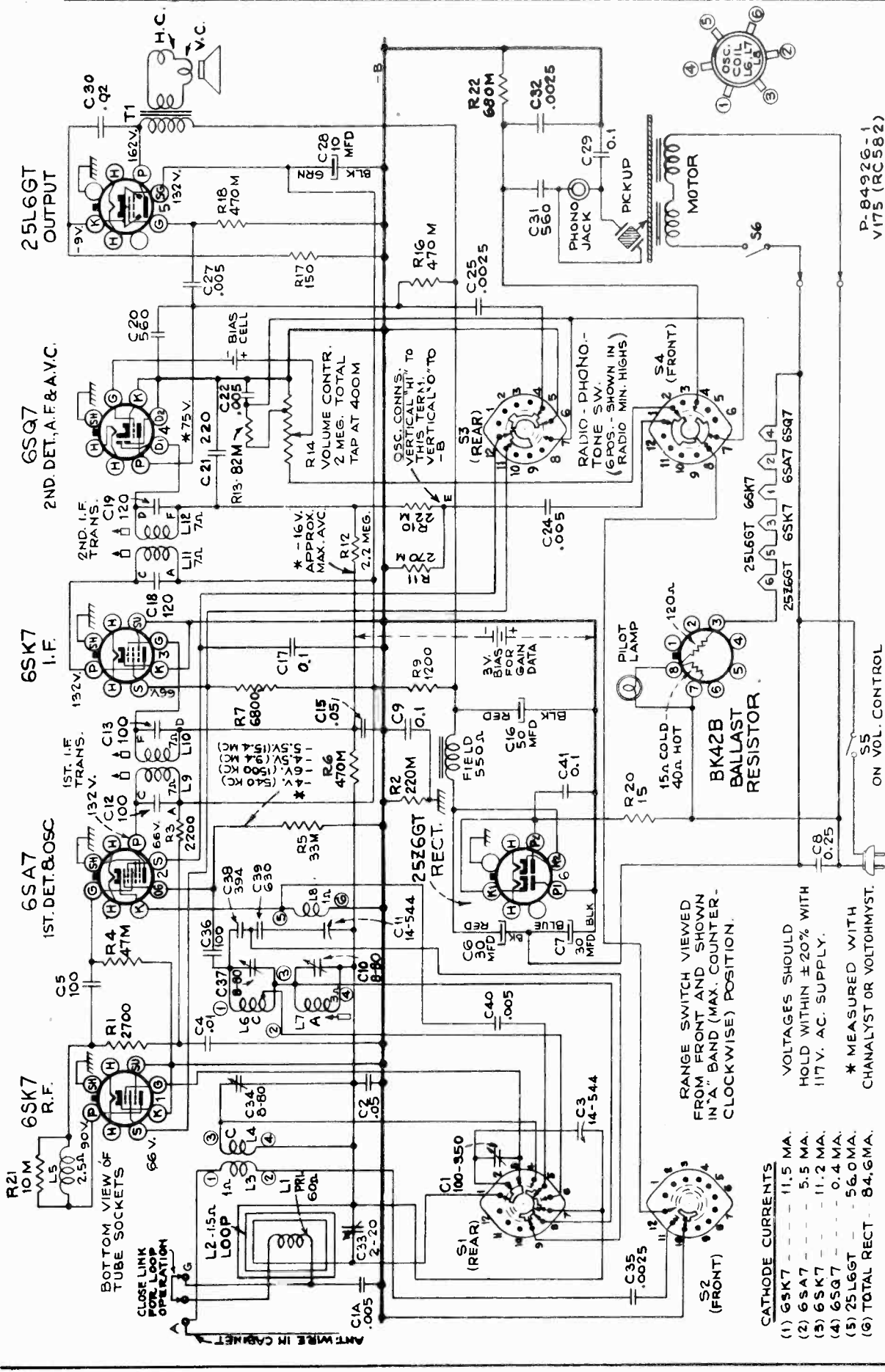
- (1) Dress bias cell up from chassis and away from A.C. switch.
- (2) Dress R13 (volume control compensation circuit) close to front apron.
- (3) Dress C9 between osc. coil and side apron.
- (4) Black lead from AC switch should be kept away from tone control leads and switch.
- (5) Dress R22, C32 (pickup compensation circuit) close to front apron.
- (6) Keep R4 and C5 bus (1st det. grid circuit) (socket end) as short as possible.
- (7) Blue lead to antenna terminal board should be dressed in back of I-F'S.
- (8) Dress brown lead from volume control to tone switch close to front apron.
- (9) Dress R18 (output grid circuit) away from A.C. switch and A.C. leads.
- (10) Dress lead to phono. socket up from chassis.

(Refer to RP-158 Service Note for Data on Automatic Mechanism)

V-175

APPROX. GAIN DATA USING RCA RIDER CHANNELYST MEASURED WITH 3V. FIXED BIAS

7X (600 KC) 1X (600 KC) 70X (600-455 KC) .8X (455 KC) 200X (455 KC) 35X (400 ~) 20X (400 ~)



RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN "A" BAND (MAX. COUNTER-CLOCKWISE) POSITION.

- CATHODE CURRENTS**
- (1) 6SK7 - 11.5 MA.
 - (2) 6SA7 - 5.5 MA.
 - (3) 6SK7 - 11.2 MA.
 - (4) 6SQ7 - 0.4 MA.
 - (5) 25L6GT - 56.0 MA.
 - (6) TOTAL RECT. - 84.6 MA.
- VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V. AC. SUPPLY.
- * MEASURED WITH CHANNELYST OR VOLTOHMYST.

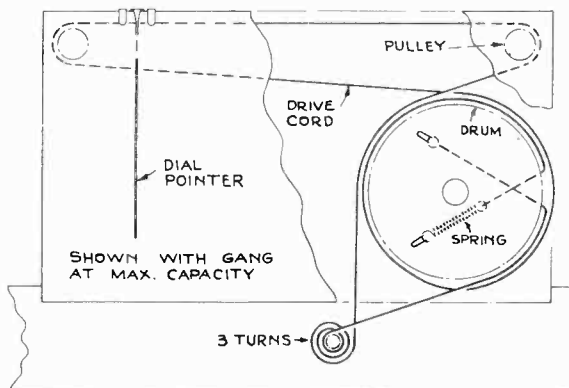
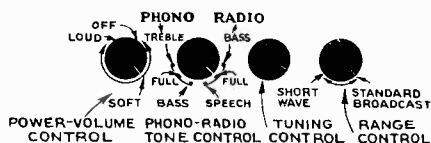
P-84926-1
V175 (RC582)

55 60 70 80 100 130 160



9.3 [31m] 10 11 [25m] 13 14 [19m]

The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in alignment procedure.



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (R.C. 582)			
14649	Ballast—Ballast tube resistor	12454	Resistor—33,000 ohms, 1/4 watt
36342	Board—"Antenna-Ground" board	12412	Resistor—47,000 ohms, 1/4 watt
37846	Capacitor—Electrolytic—30 mfd., 150 volts	14023	Resistor—82,000 ohms, 1/4 watt
37845	Capacitor—Electrolytic comprising 1 section of 50 mfd., 250 volts, 1 section of 10 mfd., 250 volts, and 1 section of 30 mfd., 150 volts	14583	Resistor—220,000 ohms, 1/4 watt
38357	Capacitor—Mica trimmer—2-20 mmfd.	30651	Resistor—270,000 ohms, 1/4 watt
38756	Capacitor—Mica trimmer comprising 2 sections of 8-80 mmfd. each	30648	Resistor—470,000 ohms, 1/4 watt
38758	Capacitor—Mica trimmer—8-80 mmfd. for "C" band antenna coil	30562	Resistor—680,000 ohms, 1/4 watt
38757	Capacitor—Mica trimmer—100-350 mmfd.	30649	Resistor—2.2 meg., 1/4 watt
12720	Capacitor—100 mmfd., moulded	35862	Shaft—Tuning knob shaft
34899	Capacitor—100 mmfd., unmoulded	31365	Socket—Dial lamp socket
34700	Capacitor—120 mmfd.	33742	Socket—Phono input socket
12694	Capacitor—220 mmfd.	31251	Socket—Tube socket
38860	Capacitor—394 mmfd.	31418	Spring—Drive cord spring
12537	Capacitor—560 mmfd.	12007	Spring—Retaining spring for oscillator coil core and stud
38831	Capacitor—630 mmfd.	38753	Switch—Range switch
34459	Capacitor—.0025 mfd.	38752	Switch—Tone control switch
33584	Capacitor—.005 mfd.	35636	Transformer—First I.F. transformer
4937	Capacitor—.01 mfd.	35790	Transformer—Second I.F. transformer
36248	Capacitor—.02 mfd.	14649	Tube—Ballast tube resistor
32787	Capacitor—.05 mfd.	33728	Washer—"C" washer for tuning shaft
4839	Capacitor—0.1 mfd.	AUTOMATIC RECORD CHANGER ASSEMBLIES	
12484	Capacitor—0.25 mfd.	See Parts List for RP 158	
31581	Cell—Bias cell	SPEAKER ASSEMBLIES (RL70N2)	
38754	Coil—Antenna coil—"C" band	13867	Cap—Dust cap
38829	Coil—Coil and resistor assembly	36143	Coil—Field coil—550 ohms
36031	Coil—Loop primary coil	11469	Coil—Neutralizing coil
38359	Coil—Mounting cup for oscillator coil	36145	Cone—Cone complete with voice coil
38755	Coil—Oscillator coil	5118	Plug—3-prong male plug for speaker
35874	Condenser—Variable tuning condenser	36146	Suspension—Metal cone suspension
38404	Control—Volume control and power switch	38759	Transformer—Output transformer
32654	Cord—Drive cord (approx. 28-in. overall length)	MISCELLANEOUS ASSEMBLIES	
35788	Core—Adjustable core and stud for oscillator core	38760	Clamp—Dial clamp
31580	Holder—Bias cell holder	38862	Decalcomania—Control panel decal
35870	Indicator—Station selector indicator	36386	Decalcomania—Trade mark decal (His Master's Voice)
37982	Insulator—Insulator for phono socket	35467	Decalcomania—Trade mark decal (RCA Victrola)
38751	Loop—Antenna loop complete	38861	Dial—Glass dial scale
38750	Plate—Dial back plate complete with pulleys—less dial	35937	Escutcheon—Dial scale escutcheon—less dial
30868	Plug—2-contact female plug for motor cable	30698	Hinge—Cabinet lid hinge
5119	Plug—3-contact female plug for speaker cable	35814	Knob—Control knob
32289	Pulley—Drive cord pulley	31480	Lamp—Dial lamp
14649	Resistor—Ballast tube resistor	39563	Mounting—Motorboard spring mounting hardware
38859	Resistor—15 ohms, 1 watt	33774	Mounting—Speaker mounting hardware
30785	Resistor—150 ohms, 1 watt	14270	Spring—Retaining spring for knob
28740	Resistor—1200 ohms, 2 watt	38863	Support—Cabinet lid support—R.H.
34767	Resistor—2200 ohms, 1/4 watt		
30730	Resistor—2700 ohms, 1/4 watt		
22993	Resistor—4800 ohms, 1 watt		
30492	Resistor—22,000 ohms, 1/4 watt		

MODELS V-200 and V-201

Chassis No. RC-519 and RC-522

Seven-Tube, Two-Band, A-C, Radio-Phonograph Combinations

Electrical Specifications

FREQUENCY RANGES

Broadcast..... 540-1,600 kc
Short Wave..... 5.8-18 mc

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

- (1) RCA-6SA7..... 1st Det., Oscillator
- (2) RCA-6SK7..... I-F Amplifier
- (3) RCA-6SQ7..... 2nd Det., A.V.C., and A-F Amplifier
- (4) RCA-6SF5..... Phase Inverter
- (5) RCA-6K6GT..... Power Output
- (6) RCA-6K6GT..... Power Output
- (7) RCA-5Y3-G..... Rectifier

POWER OUTPUT RATING

Undistorted..... 5 watts
Maximum..... 5½ watts

LOUDSPEAKER

Size..... 12-inch
V. C. impedance at 400 cycles..... 2.2 ohms
Identification Number..... RL-70LG

PHONOGRAPH

Type..... Automatic
Record Capacity..... Eight 10-inch or Seven 12-inch
Turntable Speed..... 78 r.p.m.
Type Pickup..... Crystal
Pickup Impedance..... 100,000 ohms at 1,000 cycles
Average Output..... 1½ volts at 1,000 cycles across ½ meg.

POWER SUPPLY RATINGS

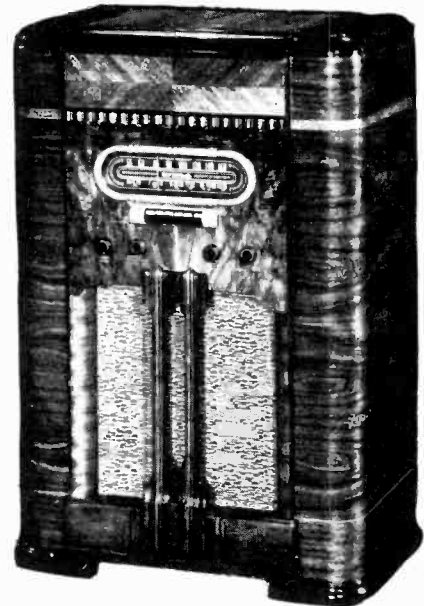
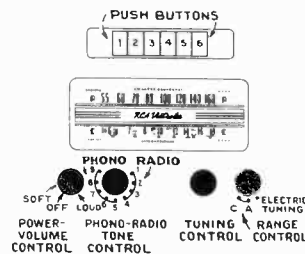
105-125 volts, 60 cycles..... 110 watts
105-125 volts, 50 cycles..... 110 watts
105-125 volts, 25 cycles..... 110 watts



H 34", W 31½", D 17"

←← Model V-200

Model V-201 →→



H 42", W 28¼", D 16½"

Push Button Adjustments

The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

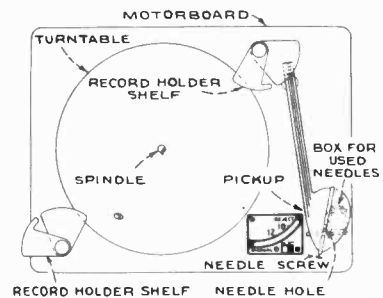
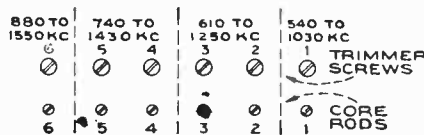
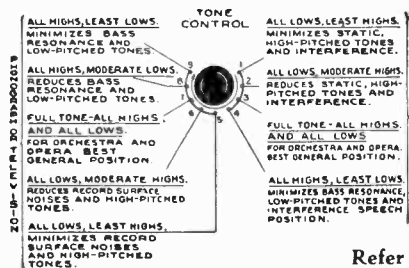
The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.
3. Turn range switch to push-button position and press in the left-hand button.

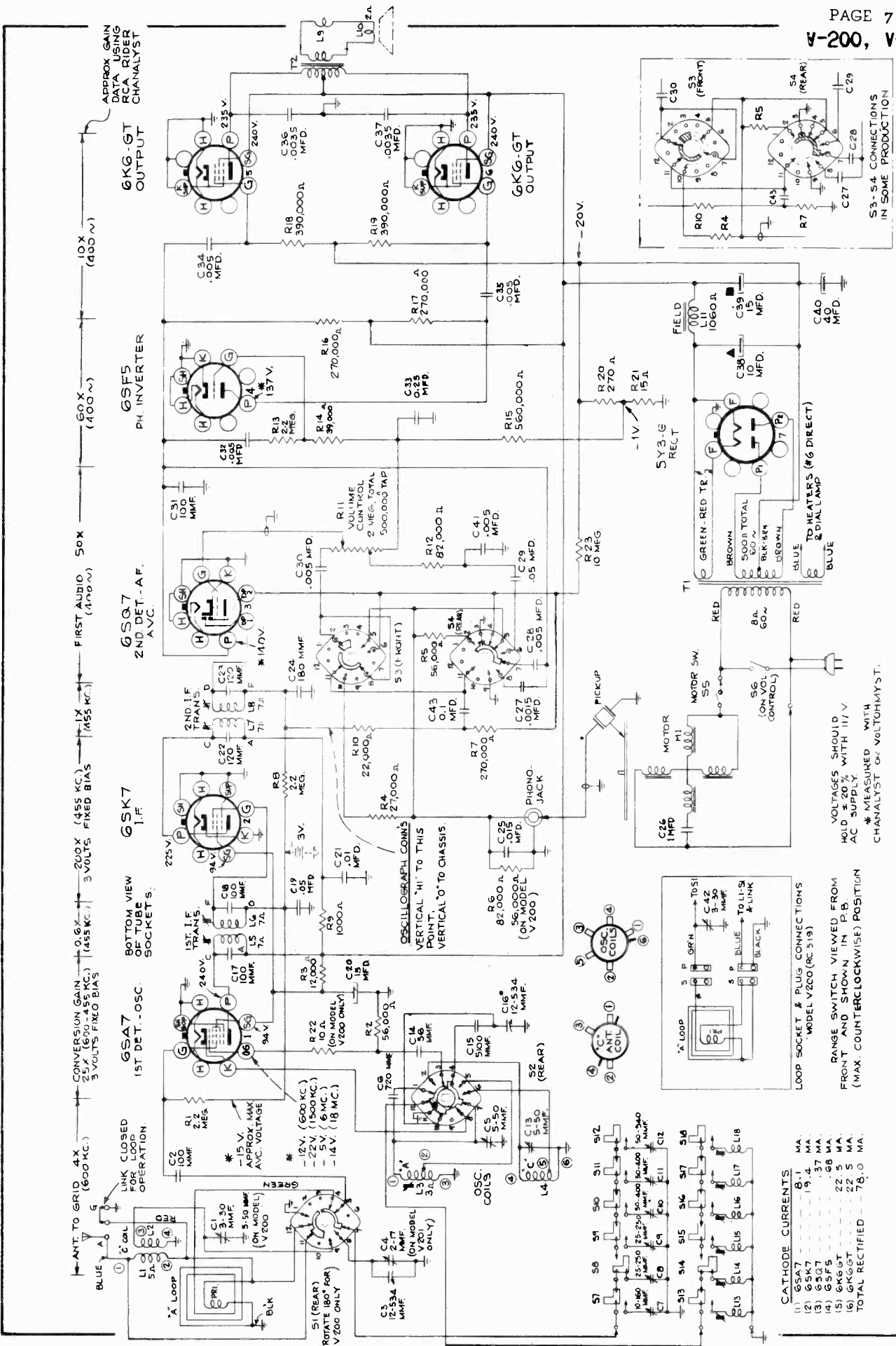
4. Adjust L18 to receive the first station. To secure the best adjustment, rotate the set for least pickup, and adjust L18 for peak output.
5. Adjust C12 for peak output on the first station.
6. Proceed in the same manner to adjust for the remaining stations.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L13 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.



Refer to RP-152A Service Data for information on Record Changer Mechanism



ANT. TO GRID 4X (600 KC.) 0.6X (455 KC.) 200X (455 KC.) 3 VOLTS FIXED BIAS 1X (455 KC.) 50X (400~) 60X (400~) 10X (400~)

CONVERSION GAIN DATA USING RCA RIDER CHANNELYST

APPROX GAIN DATA USING RCA RIDER CHANNELYST

6SA7 1ST DET.-OSC. 240V. 100 MF. C2 100 MF. C17 100 MF. C18 100 MF. C19 100 MF. C20 100 MF. C21 100 MF. C22 100 MF. C23 100 MF. C24 100 MF. C25 100 MF. C26 100 MF. C27 100 MF. C28 100 MF. C29 100 MF. C30 100 MF. C31 100 MF. C32 100 MF. C33 100 MF. C34 100 MF. C35 100 MF. C36 100 MF. C37 100 MF. C38 100 MF. C39 100 MF.

6SK7 I.F. 225V. 100 MF. C1 100 MF. C2 100 MF. C3 100 MF. C4 100 MF. C5 100 MF. C6 100 MF. C7 100 MF. C8 100 MF. C9 100 MF. C10 100 MF. C11 100 MF. C12 100 MF. C13 100 MF. C14 100 MF. C15 100 MF. C16 100 MF. C17 100 MF. C18 100 MF. C19 100 MF. C20 100 MF. C21 100 MF. C22 100 MF. C23 100 MF. C24 100 MF. C25 100 MF. C26 100 MF. C27 100 MF. C28 100 MF. C29 100 MF. C30 100 MF. C31 100 MF. C32 100 MF. C33 100 MF. C34 100 MF. C35 100 MF. C36 100 MF. C37 100 MF. C38 100 MF. C39 100 MF.

6SQ7 2ND DET.-AF. 140V. 100 MF. C1 100 MF. C2 100 MF. C3 100 MF. C4 100 MF. C5 100 MF. C6 100 MF. C7 100 MF. C8 100 MF. C9 100 MF. C10 100 MF. C11 100 MF. C12 100 MF. C13 100 MF. C14 100 MF. C15 100 MF. C16 100 MF. C17 100 MF. C18 100 MF. C19 100 MF. C20 100 MF. C21 100 MF. C22 100 MF. C23 100 MF. C24 100 MF. C25 100 MF. C26 100 MF. C27 100 MF. C28 100 MF. C29 100 MF. C30 100 MF. C31 100 MF. C32 100 MF. C33 100 MF. C34 100 MF. C35 100 MF. C36 100 MF. C37 100 MF. C38 100 MF. C39 100 MF.

6SF5 PH. INVERTER 135V. 100 MF. C1 100 MF. C2 100 MF. C3 100 MF. C4 100 MF. C5 100 MF. C6 100 MF. C7 100 MF. C8 100 MF. C9 100 MF. C10 100 MF. C11 100 MF. C12 100 MF. C13 100 MF. C14 100 MF. C15 100 MF. C16 100 MF. C17 100 MF. C18 100 MF. C19 100 MF. C20 100 MF. C21 100 MF. C22 100 MF. C23 100 MF. C24 100 MF. C25 100 MF. C26 100 MF. C27 100 MF. C28 100 MF. C29 100 MF. C30 100 MF. C31 100 MF. C32 100 MF. C33 100 MF. C34 100 MF. C35 100 MF. C36 100 MF. C37 100 MF. C38 100 MF. C39 100 MF.

6KG-GT OUTPUT 240V. 100 MF. C1 100 MF. C2 100 MF. C3 100 MF. C4 100 MF. C5 100 MF. C6 100 MF. C7 100 MF. C8 100 MF. C9 100 MF. C10 100 MF. C11 100 MF. C12 100 MF. C13 100 MF. C14 100 MF. C15 100 MF. C16 100 MF. C17 100 MF. C18 100 MF. C19 100 MF. C20 100 MF. C21 100 MF. C22 100 MF. C23 100 MF. C24 100 MF. C25 100 MF. C26 100 MF. C27 100 MF. C28 100 MF. C29 100 MF. C30 100 MF. C31 100 MF. C32 100 MF. C33 100 MF. C34 100 MF. C35 100 MF. C36 100 MF. C37 100 MF. C38 100 MF. C39 100 MF.

OSCILLOGRAPH CONNS VERTICAL "HI" TO THIS POINT. VERTICAL "O" TO CHASSIS

PICKUP MOTOR M1 5Y3-G RECT. 500A TOTAL 60~ BLK-GRN BLUE TO HEATERS (#6 DIRECT) 60 WATT LAMP

OSC. COILS L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12 L13 L14 L15 L16 L17 L18

ANT. COIL OSC. COIL

LOOP SOCKET & PLUG CONNECTIONS MODEL V200 (RC 519)

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTERCLOCKWISE) POSITION

CATHODE CURRENTS

(1) 6SA7	8.1 MA
(2) 6SK7	19.47 MA
(3) 6SQ7	14.7 MA
(4) 6SF5	28 MA
(5) 6K6GT	22.5 MA
(6) 6KG-GT	78.0 MA
TOTAL RECTIFIED	172.67 MA

VOLTAGES SHOULD HOLD ± 20% WITH 117 V AC SUPPLY

* MEASURED WITH CHANNELYST OK VOLTCOHMYST.

R.F. and I.F. gain measurements are made using a 3-volt battery connected from the A.V.C. bus to chassis, as shown in dotted lines.

S3-S4 CONNECTIONS IN SOME PRODUCTIONS

T-93322-3 V 201 (RC 522)

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or Volt Ohmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scales printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

1. Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.

2. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate. (1/16-inch to left of this mark in V-201.)

3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

Using Calibration Scale, Model V-200.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

2. Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.

3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

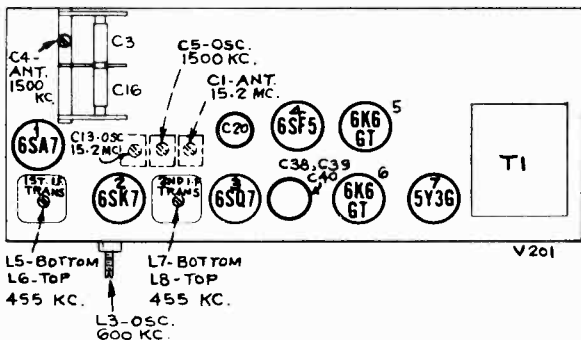
Using Calibration Scale, Model V-201.—

A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 0 degree scale mark is horizontal with the gang in full mesh. Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 0 degree mark on the calibration scale when the plates are fully meshed.

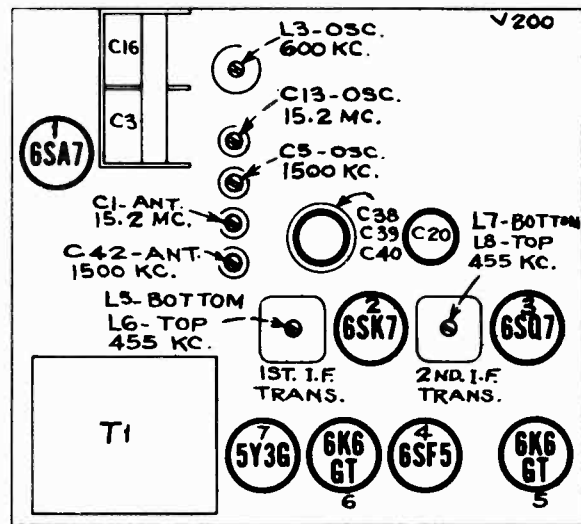
Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid, in series with .01 mfd.	455 kc	"C" band, Quiet Point at HP end of dial	L7 and L8 (2nd I.F. Trans.)
2	1st det. grid, in series with .01 mfd.			L5 and L6 (1st I.F. Trans.)
3	Antenna terminal, in series with 200 mmfd. (link open)	1,500 kc	1,500 kc "A" band 180°	C5 (osc.) C4 (ant. V-201) C42 (ant. V-200)
4		600 kc	600 kc "A" band 30.5°	L3 (osc.) Rock in
5	Repeat steps 3 and 4.			
6	Antenna terminal, in series with 47 mmfd. (link open)	15.2 mc	15.2 mc "C" band 148°	C13 (osc.)* C1 (ant.) Rock in C1

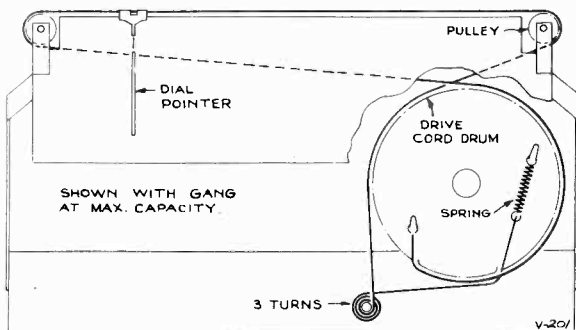
* Use minimum capacity peak if two peaks can be obtained. Check to determine that the correct peak has been used, by tuning receiver to 14.29 mc, where a weaker signal should be received.
Note: Oscillator tracks above signal on both bands.



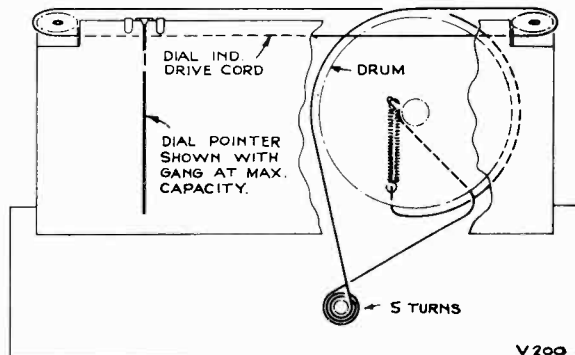
Model V-201



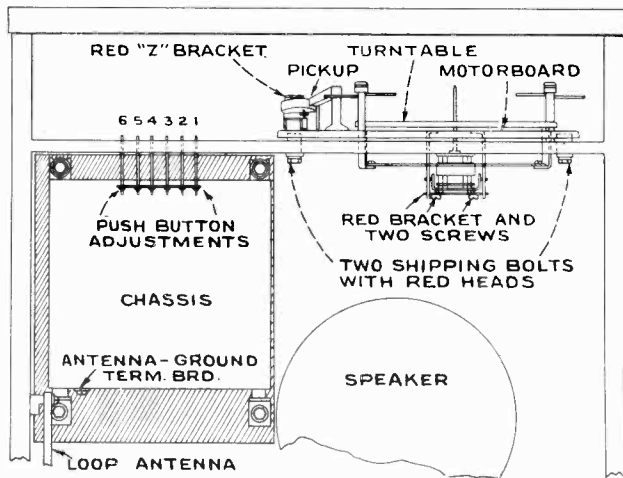
Model V-200



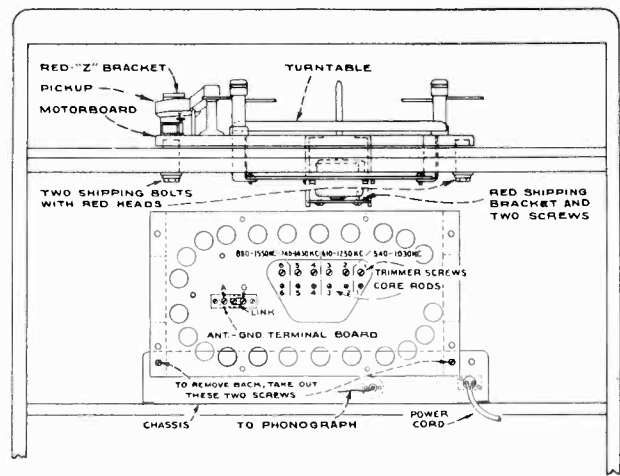
Model V-201



Model V-200



Model V-200

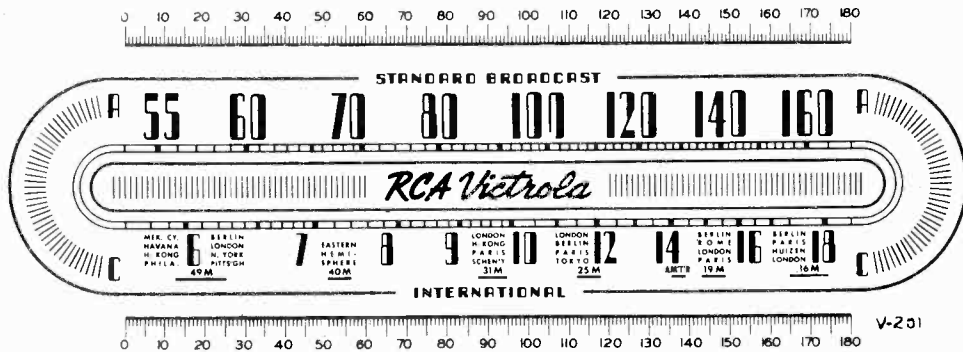


Model V-201

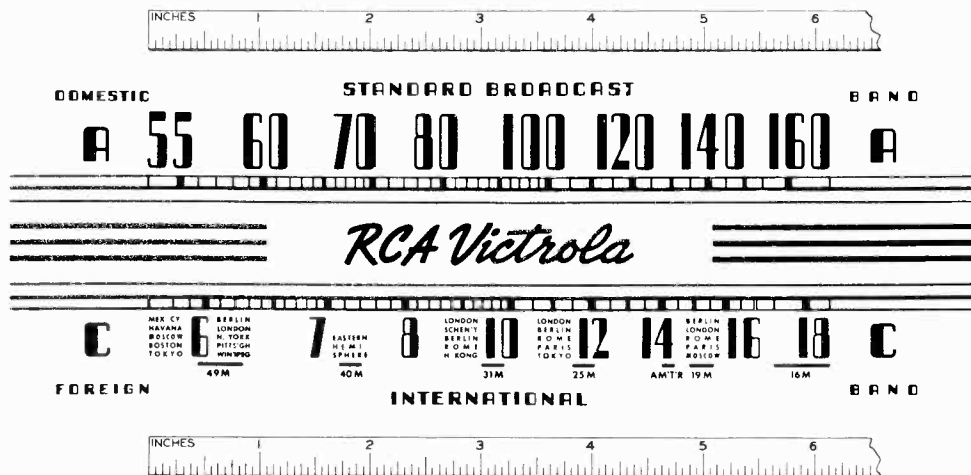
Rumble:

Rumble is related to motor vibration, combined with high-gain amplifier, and prominent bass response.

The vibration of the motor in these instruments is as low as it can be made: Do not replace it to correct rumble. Rather, reduce the low-frequency response by shunting a 50,000-ohm 1/2-watt resistor across the crystal pickup terminals.



Model V-201 Calibration Scale



Model V-200 Calibration Scale

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES Model V-200 (RC-519) Model V-201 (RC-522)		
36342	Board—"Antenna-Ground" board—Model V-200	36656	Shield—Top shield for transformer, Stock No. 35959—Model V-201
34025	Board—"Antenna-Ground" board—Model V-201	31364	Socket—Dial lamp socket
35795	Calibrator—Drive drum calibrator scale—Model V-201	35787	Socket—Phono input socket
36533	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd., and 2 sections of 5-50 mmfd.—Model V-201	31251	Socket—Tube socket
36336	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd., and 1 section of 3-30 mmfd.—Model V-200	31418	Spring—Drive cord spring
36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.—Model V-201	12007	Spring—Retaining spring for core and stud—Model V-200
12723	Capacitor—56 mmfd.	36467	Switch—High-low-phonograph switch
34699	Capacitor—100 mmfd., mica	36025	Switch—Push button selector switch—Model V-201
12720	Capacitor—100 mmfd., moulded mica	36468	Switch—Range switch—Model V-200
34700	Capacitor—120 mmfd.	36535	Switch—Range switch—Model V-201
13003	Capacitor—180 mmfd.	35636	Transformer—First I.F. transformer
35877	Capacitor—720 mmfd.	35790	Transformer—Second I.F. transformer
36679	Capacitor—5,100 mmfd.	35588	Transformer—Power transformer—110 volts, 25 cycles
33806	Capacitor—0015 mfd.	35959	Transformer—Power transformer, 105-120 volts, 50-60 cycles—less end shields
30303	Capacitor—0035 mfd.	35969	Washer—"C" washer for tuning shaft
33581	Capacitor—005 mfd.		FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON RP-152A.
4937	Capacitor—01 mfd.		SPEAKER ASSEMBLIES (RL-70L-6)
11315	Capacitor—015 mfd.	13867	Cap—Dust cap
32787	Capacitor—05 mfd.	12079	Coil—Field coil—1,060 ohms
12484	Capacitor—0.25 mfd.	11469	Coil—Neutralizing coil
4839	Capacitor—0.1 mfd.	36145	Cone—Cone complete with voice coil
36589	Capacitor—Electrolytic—1 section of 15 mfd., 400 volts	5039	Plug—4-prong male speaker plug
36569	Capacitor—Electrolytic—1 section of 15 mfd., 400 volts, 1 section of 10 mfd., 400 volts, and 1 section of 40 mfd., 25 volts	36116	Suspension—Metal cone suspension
35965	Coil—Antenna coil—"C" band	36671	Transformer—Output transformer
36031	Coil—Loop primary—Model V-201		MISCELLANEOUS ASSEMBLIES
36557	Coil—Oscillator coil—Model V-200	36027	Bezel—Push button bezel—less buttons
35854	Coil—Oscillator coil—Model V-201	36461	Button—Plug button
37133	Coil—P.B. oscillator coil, 540-1,030 kc.	36299	Button—Push button—Model V-200
35803	Coil—P.B. oscillator coil—Model V-201	36300	Button—Push button—Model V-201
36420	Condenser—Variable tuning condenser—Model V-200	31303	Cap—Pilot lamp cap—Model V-200
36532	Condenser—Variable tuning condenser—Model V-201	36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.—Model V-200
36534	Control—Volume control and power switch	36462	Clamp—Dial clamp—Model V-200
34662	Cord—Drive cord—Model V-201	36002	Coil—Loop primary—Model V-200
32634	Cord—Pointer cord (approx. 45-in. overall length)—Model V-200	37133	Coil—P.B. oscillator coil—540-1,030 kc—Model V-200
35788	Core—Adjustable core and stud for oscillator coil	35803	Coil—P.B. oscillator—Model V-200
35871	Core—Adjustable core and stud for P.B. oscillator coils—Model V-201	35871	Core—Adjustable core and stud for P.B. oscillator coils—Model V-200
36332	Drum—Drive drum—Model V-200	36328	Cover—Compartment lamp leads cover
36537	Drum—Drive drum—less calibrator—Model V-201	36713	Decalcomania—Control panel decal—Model V-200
35799	Frame—Dial frame complete with drive cord pulleys—less dial—Model V-201	36597	Decalcomania—Control panel decal—Model V-201
35870	Indicator—Station selector indicator—Model V-200	36386	Decalcomania—Trade mark decal (His Master's Voice)
35798	Indicator—Station selector indicator—Model V-201	35467	Decalcomania—Trade mark decal (RCA Victorla)—Model V-200
36536	Loop—Antenna loop complete—Model V-201	36712	Dial—Glass dial scale—Model V-200
36333	Plate—Dial back plate complete with drive cord pulleys—less dial—Model V-200	36596	Dial—Glass dial scale—Model V-201
30868	Plug—2-contact female plug for motor cable	36327	Escutcheon—Dial scale escutcheon—less dial—Model V-200
36009	Plug—2-prong male plug for loop cable—Model V-200	36026	Escutcheon—Dial scale escutcheon—less dial—Model V-201
32641	Plug—3-prong male plug for selector cable—Model V-200	30698	Hinge—Cabinet lid hinge
5040	Plug—4-contact female plug for speaker cable	36246	Holder—Needle book holder
32289	Pulley—Drive cord pulley	36694	Knob—Cabinet drawer knob—Model V-200
13988	Resistor—10 ohms, 1/2 watt—Model V-200	36297	Knob—Tone or range switch knob
11565	Resistor—15 ohms, 1/2 watt	36298	Knob—Tuning or volume control knob
36692	Resistor—270 ohms, 3 watts	5117	Lamp—Compartment lamp
30152	Resistor—1,000 ohms, 1 watt	11765	Lamp—Dial lamp
35875	Resistor—12,000 ohms, 3 watts	36590	Loop—Antenna loop—Model V-200
13998	Resistor—22,000 ohms, 1/2 watt	36149	Marker—Station marker
12738	Resistor—27,000 ohms, 1/2 watt	31470	Mounting—Complete spring mounting hardware for 1 motorboard
12266	Resistor—39,000 ohms, 1/2 watt	30870	Plug—2-prong male plug for motorleads—Model V-200
12286	Resistor—56,000 ohms, 1/2 watt	35740	Shade—Compartment lamp shade
14023	Resistor—82,000 ohms, 1/2 watt	36422	Socket—3-contact female for selector switch assembly—Model V-200
12199	Resistor—270,000 ohms, 1/2 watt	35999	Socket—Antenna loop cable socket—Model V-200
13479	Resistor—390,000 ohms, 1/2 watt	14270	Spring—Retaining spring for knobs
12486	Resistor—560,000 ohms, 1/2 watt	34053	Spring—Retaining spring for push button
12679	Resistor—2.2 meg., 1/2 watt	35575	Spring—Lid support spring—Model V-200
13601	Resistor—10 meg., 1/2 watt	36693	Support—Cabinet lid support—Model V-200
14350	Screw—No. 8-32 square head set screw for drum	32875	Switch—Motor switch—Model V-200
36340	Shaft—Tuning shaft—Model V-200	36423	Switch—P.B. selector switch—Models V-200
35797	Shaft—Tuning shaft—Model V-201	36941	Support—Cabinet lid support—Model V-201
35772	Shield—Bottom shield for transformer, Stock No. 35959		
35709	Shield—Power transformer top shield—Model V-200		

MODELS VHR-202, VHR-207, VHR-407

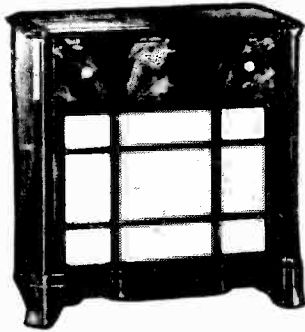
Chassis No. RC-548

RC-547

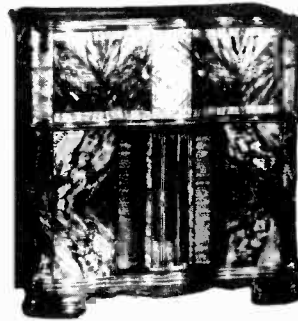
RC-547A

RC-547A

Home-Recording Radio-Phonograph Combinations



Model VHR-202



Model VHR-207



Model VHR-407

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast, "A" Band..... 540-1,600 kc
 Short Wave, "B" Band (VHR-207, 407)..... 1,550-4,000 kc
 Short Wave, "C" Band..... 5,800-18,000 kc

INTERMEDIATE FREQUENCY..... 455 kc
 TUBE COMPLEMENT

	VHR-202	VHR-207, 407
R-F Amplifier.....	RCA-6SA7	RCA-6SK7
1st-Det., Oscillator.....	RCA-6SA7	RCA-6SA7
I-F Amplifier.....	RCA-6SK7	RCA-6SK7
2nd-Det., A.V.C., Phase Inverter.....	RCA-6Q7	RCA-6Q7
1st—A-F Amplifier.....	RCA-6SJ7	RCA-6SJ7
Power Output.....	RCA-6K6GT (2)	RCA-6F6G (2)
Microphone Pre-Amplifier.....	RCA-6Q7	RCA-12K7GT
"Contractor" Rectifier.....	RCA-6U5	RCA-6H6
"Magic Eye" Indicator.....	RCA-6U5	RCA-6U5
Rectifier.....	RCA-5Y3G	RCA-5U4G

PHONOGRAPH (RP-155)

Type..... Automatic
 Record Capacity..... Eight 10-inch or Seven 12-inch
 Turntable Speed..... 78 r.p.m.
 Drive... Motor drive through idler on inside rim of turntable
 Type Pickup..... Crystal
 Pickup Impedance..... 100,000 ohms at 1,000 cycles
 Average Output... 1½ volts at 1,000 cycles across ½ meg.

RECORDER

Recording Head (cutter)..... Crystal

	VHR-202	VHR-207, 407
POWER OUTPUT		
Undistorted watts.....	5	10
Maximum watts.....	5.5	12

LOUDSPEAKER

	VHR-202	VHR-207, 407
(Electrodynamic).....	RL-70M-6	RL-70M-5
Diameter.....	12-inch	12-inch
Voice-coil impedance at 400 cycles.....	2.2 ohms	2.2 ohms

POWER SUPPLY RATING

105-125 volts, 60 cycles.....	140 watts	200 watts
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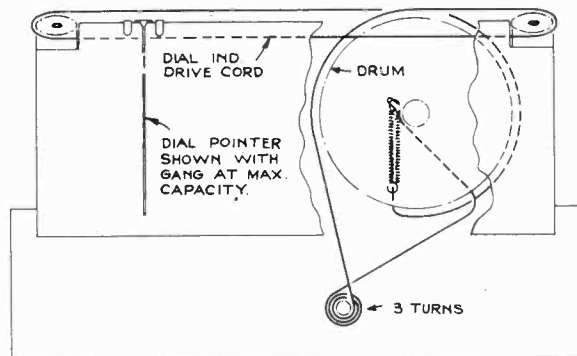
CABINET DIMENSIONS

	VHR-202	VHR-207	VHR-407
Height (inches).....	34	36	34
Width (inches).....	32	35	34¾
Depth (inches).....	17	17½	19

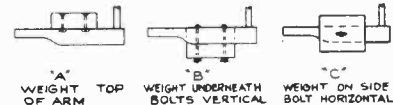
TUNING DRIVE RATIO..... 15 to 1

Impedance of Cutter at 1,000 cycles..... Approx. 60,000
 Turntable Speed..... 78 r.p.m.
 Grooves Cut per Inch..... Approx. 115
 Inches Cut per Minute..... Approx. .713 inch
 Recording Blank Discs..... Coated metal-base or coated paper-base
 Recording Disc Diameter..... Up to 10 inches
 Drive..... Motor drive through idler on inside rim of turntable; the turntable spindle drives a lead screw which guides the recorder arm from outside of recording blank to inside

REFER TO INDEX FOR DATA ON AUTOMATIC RECORD CHANGER



Dial Drive Cord Arrangement



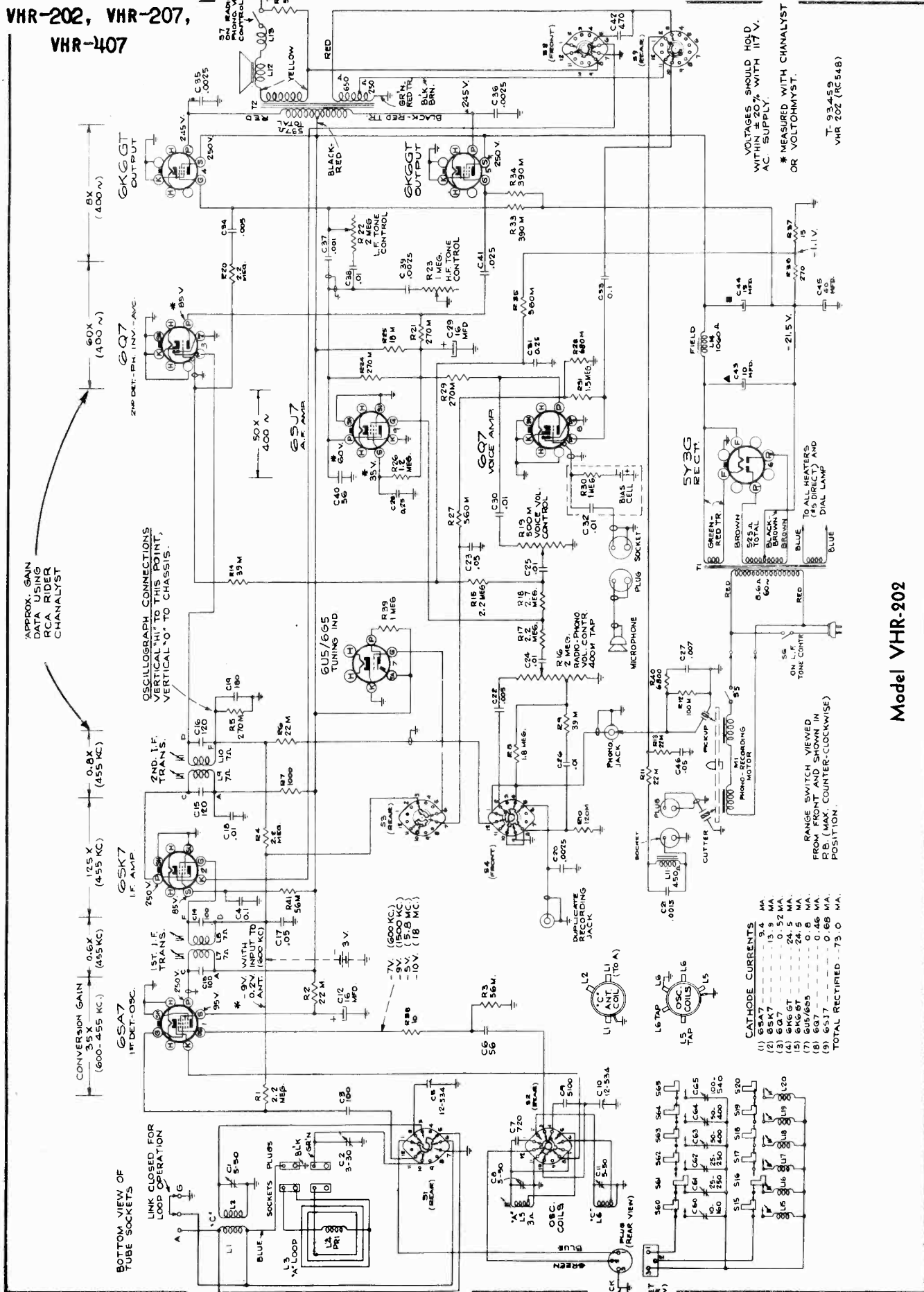
Three Mounting Arrangements of Follower-Arm Weight on Home Recording Models

VHR-207, 407

12K7-GT Burnouts:

When shooting trouble or when testing Models VHR 207, and VHR 407 do not under any circumstances short the +B to ground with screwdriver or any other tool as a test for plate voltage.

A +B short will burn out the filament of the 12K7-GT microphone pre-amplifier tube. Always test for +B voltage on the chasses with a voltmeter and not with a screwdriver.



VOLTAGES SHOULD HOLD WITHIN $\pm 20\%$ WITH 117 V. AC SUPPLY.
 * MEASURED WITH CHANNELYST OR VOLTOMMYST.

T-93-459
 VHR 202 (RC 548)

APPROX. GAIN DATA USING RCA RIDER CHANNELYST

CONVERSION GAIN
 35X (455 KC.)
 0.6X (485 KC.)
 125X (455 KC.)
 0.8X (455 KC.)
 60X (400 N)
 8X (400 N)

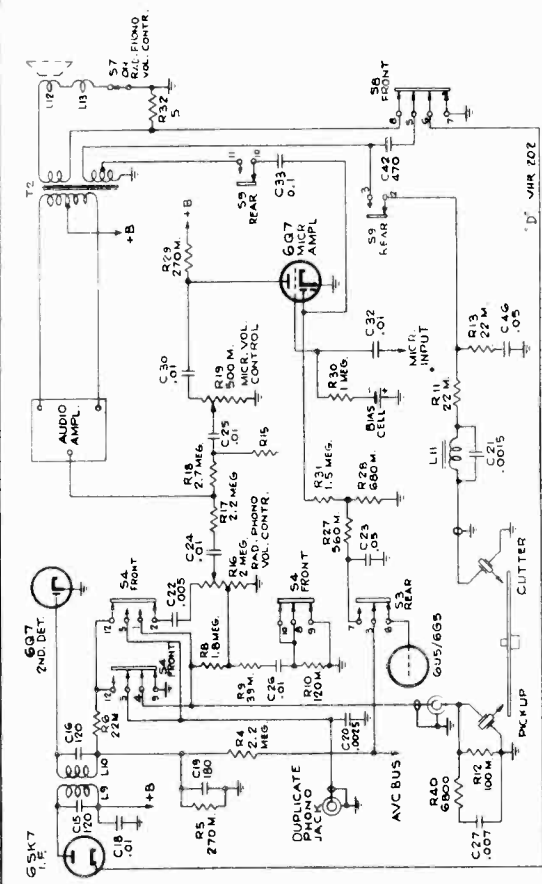
OSCILLOGRAPH CONNECTIONS VERTICAL "H" TO THIS POINT, VERTICAL "O" TO CHASSIS.

CATHODE CURRENTS

(1) 6SA7	3.4 MA.
(2) 6SK7	0.52 MA.
(3) 6G7	24.5 MA.
(4) 6G6	24.5 MA.
(5) 6G5/65	0.8 MA.
(6) 6G7	0.68 MA.
(7) 6G5/65	0.68 MA.
(8) 6G7	0.68 MA.
(9) 6G7	0.68 MA.
(10) 6G7	0.68 MA.
TOTAL RECTIFIED . . . 75.0 MA.	

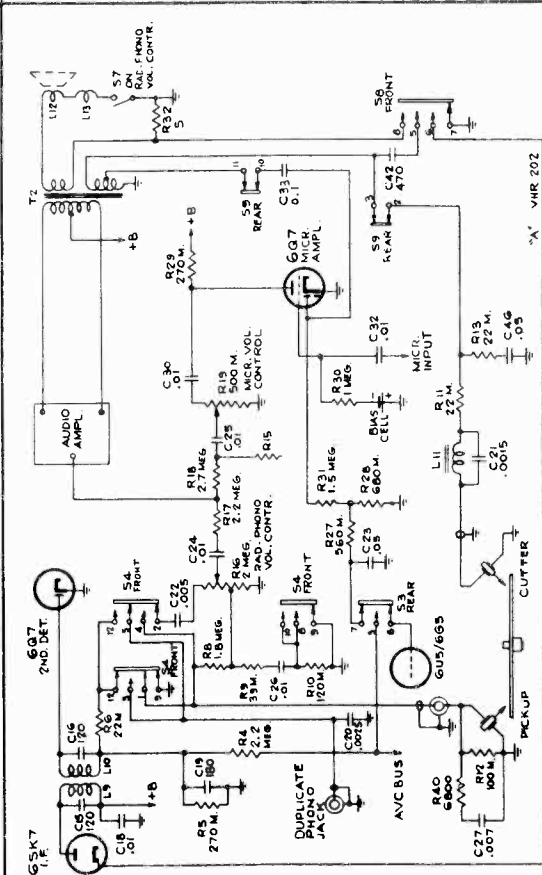
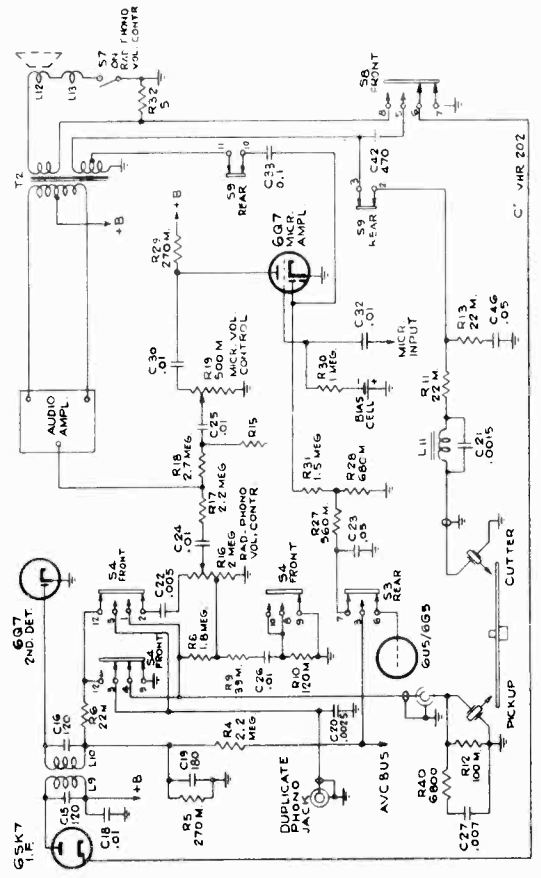
RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN POSITION. (CLOCKWISE)

Model VHR-202



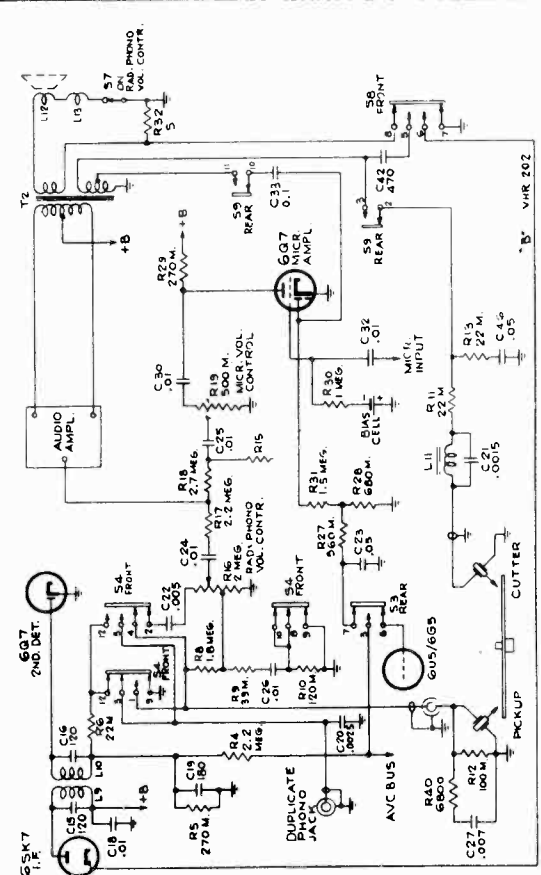
4—"Radio"

3—"Radio Recording"



1—"Recording"

2—"Victrola"



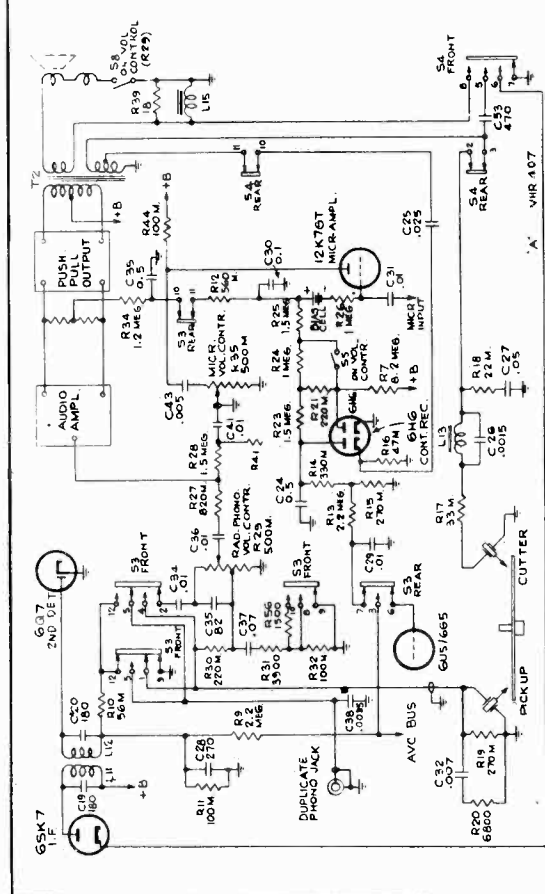
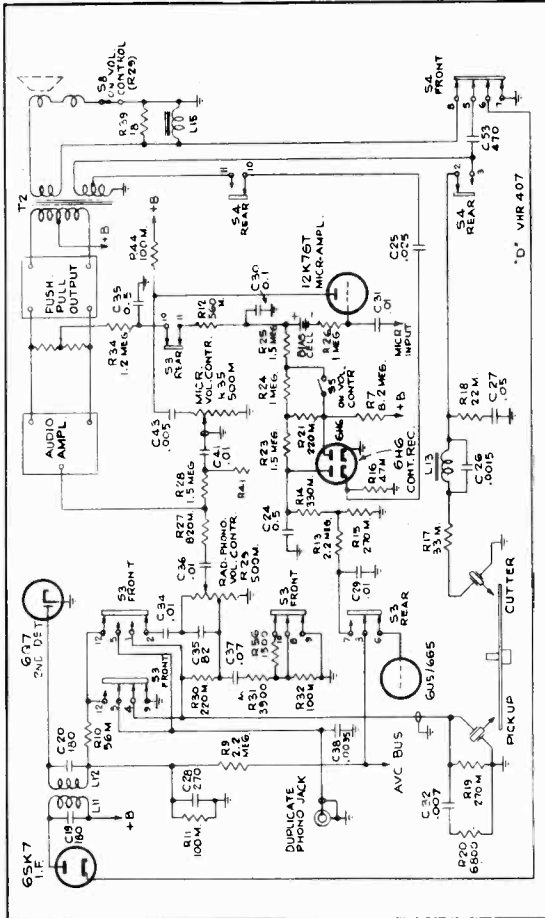
RECORDING:
 1. CUTTING RECORDS OF VOICE OR MUSIC THROUGH MICROPHONE.
 2. CUTTING RECORDS OF PHONOGRAPH SELECTIONS USING AUXILIARY TURNABLE.
 3. CUTTING RECORDS OF PHONOGRAPH SELECTIONS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

VICTROLA:
 1. PHONOGRAPH RECORD SELECTIONS.
 2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC BY MICROPHONE ONLY (RA).
 3. MICROPHONE ONLY (RA).

RADIO:
 1. RADIO PROGRAMS.
 2. RADIO PROGRAMS MIXED WITH VOICE OR MUSIC BY MICROPHONE.

RADIO RECORDING:
 1. CUTTING RECORDS OF RADIO PROGRAMS.
 2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC "MIXED IN" THROUGH MICROPHONE.

Model VHR-202 Service Selector Circuits



SERVICE SELECTOR

4—"Radio"

3—"Recording"

2—"Victrola"

1—"Re-Recording"

In some production, the wording on the Service Selector plate is like that shown for Model VHR-202.

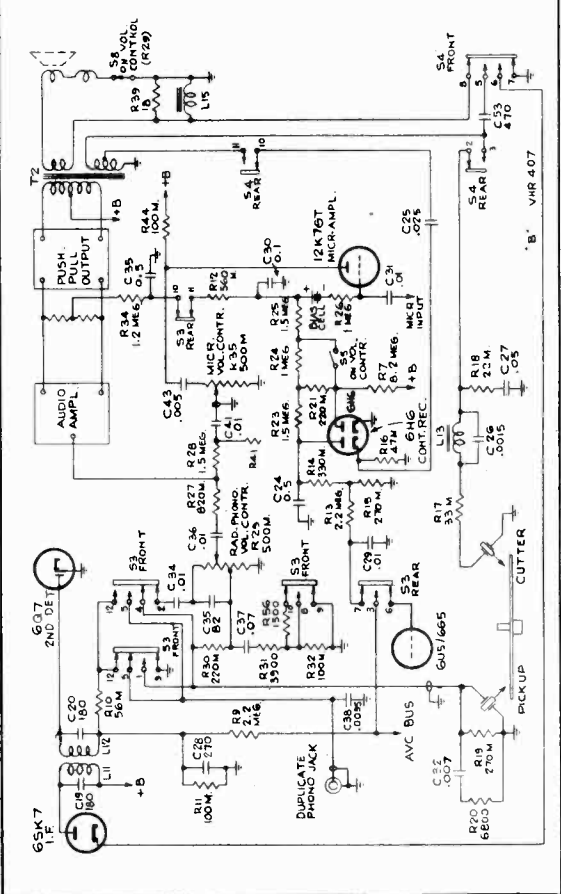
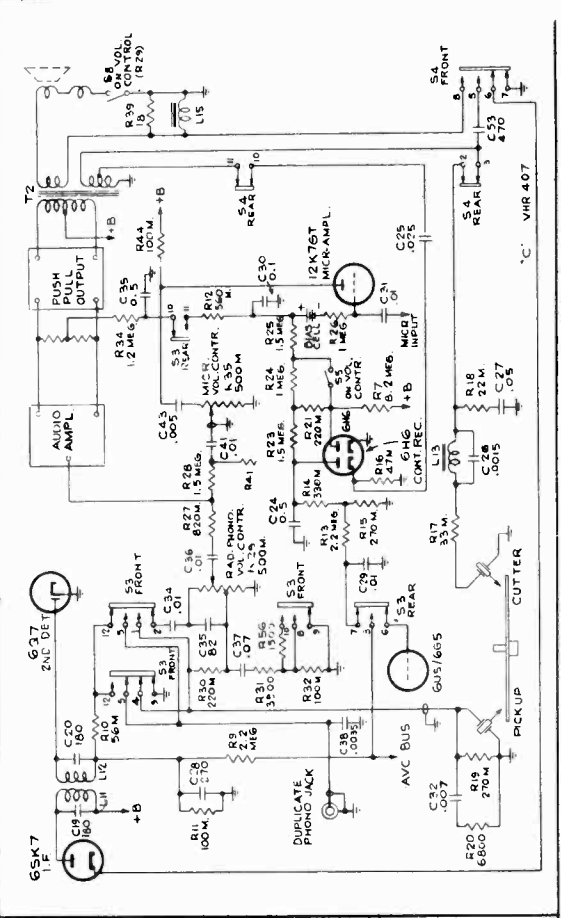
RE-RECORDING:
1. CUTTING RECORDS OF VOICE OR MUSIC THROUGH MICROPHONE.
2. PHONOGRAM SELECTIONS THROUGH AUXILIARY TURNTABLE.
3. CUTTING RECORDS OF PHONOGRAM SELECTIONS THROUGH MICROPHONE.
*MIXED IN THROUGH MICROPHONE.

VICTROLA:
1. PHONOGRAM RECORD SELECTIONS.
2. PHONOGRAM SELECTIONS BY MICROPHONE OR MUSIC.
3. MICROPHONE ONLY (P.A.).

RADIO:
1. RADIO PROGRAMS MIXED WITH RECORDS OF MUSIC BY MICROPHONE.

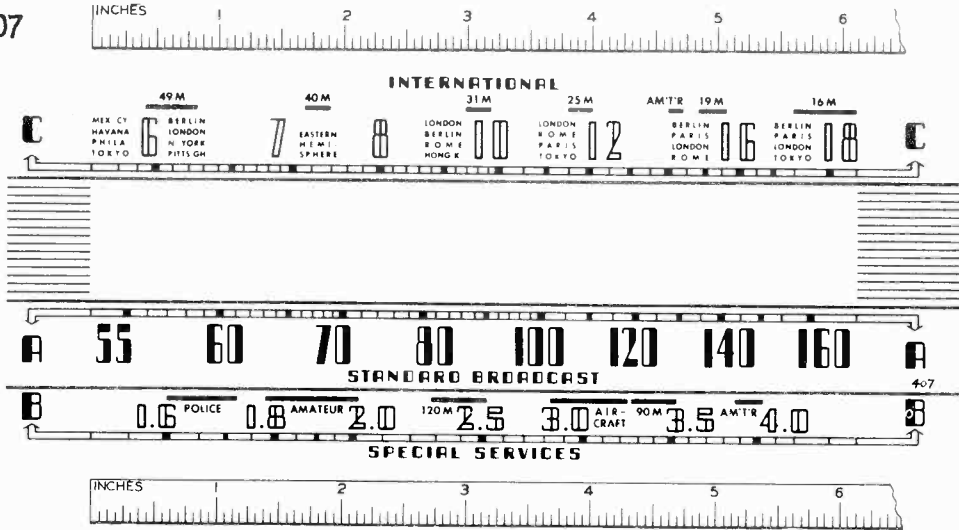
RECORDING:
1. CUTTING RECORDS OF RADIO PROGRAMS.
2. RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC "MIXED IN" THROUGH MICROPHONE.

Models VHR-207, VHR-407
Service Selector Circuits



Alignment Procedure

At Right—Calibration Scale for VHR-207 and VHR-407. This also applies to Model VHR-202, except "B" Band is omitted.



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

- Slide out the flat spring clamp at each end of the dial,

and remove the glass dial from the cabinet.

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

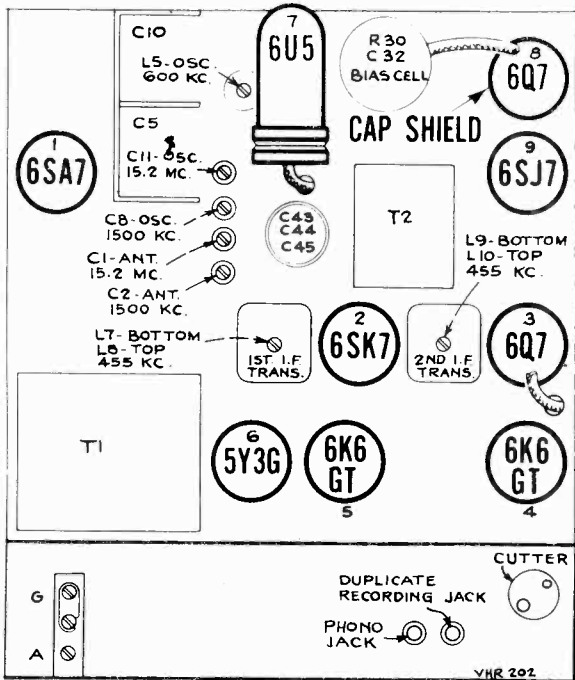
Using Calibration Scale.—

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.

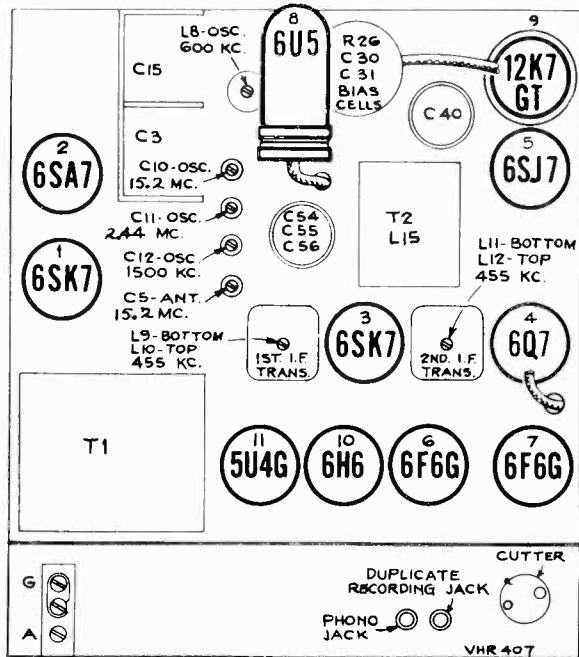
- Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.

- Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.



Model VHR-202



Models VHR-207, 407

Model VHR-202

VHR-202, VHR-207, VHR-407

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet Point at High-Freq. end of "C" Band	L9 and L10 (2nd I.F. Trans.)
2	1st-detector grid, in series with .01 mfd.			L7 and L8 (1st I.F. Trans.)
3	1st-detector grid, in series with .01 mfd.	600 kc	600 kc "A" Band	L5 (osc.)
4		1,500 kc	1,500 kc "A" Band	C6 (osc.)
5	Repeat steps 3 and 4.			
6	Antenna Terminal, in series with 47 mmfd.	15.2 mc	15.2 mc "C" Band	C11 (osc.)* C1 (ant.)**
7	Install and connect chassis in cabinet. Close link on antenna terminal board. Tune in a radiated signal at 1,500 kc and peak "A" band loop trimmer C2. Rock in L5 at 600 kc. Repeat these adjustments.			

* Use minimum capacity peak if two peaks can be obtained.

** Rock in C1 and use maximum capacity peak if two peaks can be obtained.

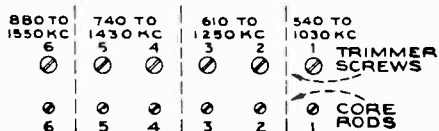
Models VHR-207, VHR-407

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I.F. Grid in series with .01 mfd.	455 kc	"C" Band Quiet Point at High Freq. end	L11 and L12 (2nd I.F. Trans.)
2	1st Det. Grid in series with .01 mfd.			L9 and L10 (1st I.F. Trans.)
3	R.F. Grid in series with .01 mfd.	600 kc	"A" Band 600 kc	L8 (osc.)
4		1,500 kc	"A" Band 1,500 kc	C12 (osc.)
5	Repeat steps 3 and 4.			
6	R.F. Grid in series with .01 mfd.	2.44 mc	"B" Band 2.44 mc	C11 (osc.)
7	Antenna Terminal in series with 47 mmfd.	15.2 mc	"C" Band 15.2 mc	C10 (osc.)* C5 (ant.)**
8	Install and connect chassis in cabinet. Close link on antenna terminal board. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band trimmer C1 (on loop). Rock in L8 at 600 kc. Repeat these adjustments.			

* Use minimum capacity peak if two peaks can be obtained.

** Rock in C5 and use maximum capacity peak if two peaks can be obtained.

Push Button Adjustments



The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.

3. Turn range switch to push-button position and press in the left-hand button.

4. Adjust core rod No. 1 to receive the first station. To secure the best adjustment, rotate the loop for least pickup, and adjust core rod No. 1 for peak output.

5. Adjust trimmer screw No. 1 for peak output on the first station.

6. Proceed in the same manner to adjust for the remaining stations.

7. Repeat adjustments for best results.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with core rod No. 6 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

VHR-202, VHR-207, VHR-407 Recorder Operating Instructions

Preliminary.—

1. See that cutter is functioning correctly.
2. Place recording disc on turntable with stud engaged in one hole.
3. Turn on power-bass control, just past the click of the power switch. Turn treble tone control full clockwise. Set radio-phonograph volume control to soft, and microphone volume control fully counter-clockwise.

Radio Recording.—

1. Tune in the desired radio program.
2. Turn service selector to position "3."
3. Turn radio-phonograph volume control so the "Magic Eye" just closes during loudest passages.
4. Push turntable switch "on."
5. Lift the recording arm, move it over so the stylus is about 1/4-inch inside the recording disc, and lower gently on the disc.
6. During the recording, listen to the loudspeaker, watch the "Magic Eye," and increase or decrease the radio-phonograph volume control if the broadcast level becomes too low or too high.
7. Use a fine hair brush occasionally to keep the area immediately ahead of the stylus free from chips and threads.
8. Before the cutter reaches its inner limit, lift the cutter head and place on rest. Turn off the turntable switch and remove the cuttings from the disc.
9. The recording may be "played-back" immediately: Turn the service selector to "Victrola," push the turntable switch "on," turn power-bass control fully clockwise, place pickup needle in outer groove of the disc, and adjust the radio-phonograph volume control. Use a new needle for play-back.

Microphone Recording.—

1. Turn service selector to position "1."
2. Turn radio-phonograph volume control to its "off" position to prevent feed-back and "howl."
3. Turn power-bass control just past the click of the power switch. Turn treble-tone control full clockwise.
4. To obtain an approximate setting of the microphone volume control before making a recording, talk into the microphone (which should be left plugged into its receptacle at all times) and adjust the microphone volume control so the "Magic Eye" just closes. By talking in a fairly level tone, and by maintaining the same distance between the microphone and lips, the microphone volume control will not require continual readjustment.
5. Start the turntable and place cutter on the disc.
6. Talk into the microphone to make the desired recording, and re-adjust the microphone volume control if required, as indicated by the "Magic Eye."
7. Stop the recorder before it reaches its inner limit, turn the microphone volume control counter-clockwise and play back the recording as described in "9" above.

Re-Recording.—

A record may be re-recorded, or duplicated (that is, a "copy" may be made from an "original") by connecting an RCA Victrola Attachment (record player) to the "re-recording jack" on the rear of the radio chassis. The "original" record is played on the RCA Victrola Attachment, and the "copy" is cut or recorded on the Home Recorder.

SERVICE SELECTOR

RE-RECORDING:

1. CUTTING RECORDS OF VOICE OR MUSIC THROUGH MICROPHONE.
2. CUTTING RECORDS OF PHONOGRAPH SELECTIONS USING AUXILIARY TURNTABLE.
3. CUTTING RECORDS OF PHONOGRAPH SELECTIONS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

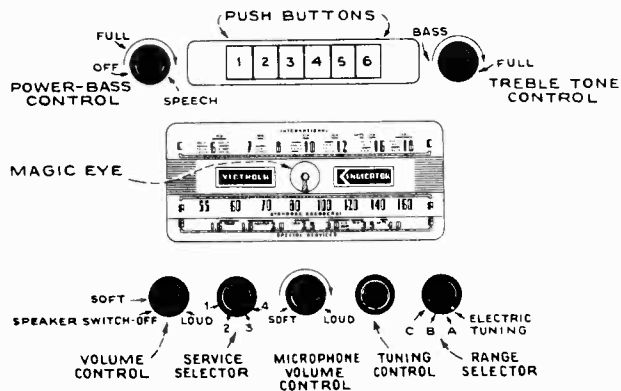
RADIO:

1. RADIO PROGRAMS.
2. RADIO PROGRAMS MIXED WITH VOICE OR MUSIC BY MICROPHONE.

RECORDING:

1. CUTTING RECORDS OF RADIO PROGRAMS.
2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

- #### VICTROLA:
1. PHONOGRAPH RECORD SELECTIONS.
 2. PHONOGRAPH SELECTIONS MIXED WITH VOICE OR MUSIC BY MICROPHONE.
 3. MICROPHONE ONLY (PA).



Controls on VHR-207 and VHR-407. Model VHR-202 Controls are identical, except "B" Band is omitted.

The procedure is as follows:

1. Turn the service selector to position "1."
2. Connect the RCA Victrola Attachment pickup cable to the jack on rear of the Home Recorder radio chassis.
3. Place the "original" record on the RCA Victrola Attachment, turn its volume control fully clockwise, and place its pickup on the "original" record.
4. Adjust the radio-phonograph volume control so the "Magic Eye" just closes on loudest passages, then lift pickup off the RCA Victrola Attachment.
5. Start the recorder by pushing turntable switch "on," and placing the recorder arm on the recording disc.
6. Put the RCA Victrola Attachment pickup arm on the "original" record. The recorder will cut a duplicate of this record, which may be played-back as described previously.

Mixed Recording.—

The RCA Home Recorders have complete flexibility for mixed recordings of radio, microphone, and phonograph. The various possible combinations are clearly shown in the illustration of the service selector control.

In mixed recordings, the radio-phonograph volume control regulates the recording level for radio, and for the RCA Victrola Attachment.

The microphone volume control regulates the recording level of the microphone only. In using the microphone on mixed recordings, or mixed PA, it should be placed as far as possible from the loudspeaker and faced away from the loudspeaker to avoid feed-back howl. (An extension cord may be added if necessary.)

"Rumble".—

1. Excessive cutting pressure will cause rumble. The width of the groove should almost equal, but not exceed, the distance between grooves.

Check the groove width each time a new stylus is used, and each time a new disc is used.

2. When recording, use the maximum bass response, by turning the power-bass control to "full" (just past the click of the power switch).

3. On play-back, use the least bass response, by turning the power-bass control to "speech" (full clockwise).

4. Be certain that the motor board and mechanism is "floating" free from the cabinet.

RECORDING:

1. CUTTING RECORDS OF VOICE OR MUSIC THROUGH MICROPHONE.
2. CUTTING RECORDS OF PHONOGRAPH SELECTIONS USING AUXILIARY TURNTABLE.
3. CUTTING RECORDS OF PHONOGRAPH SELECTIONS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

RADIO:

1. RADIO PROGRAMS.
2. RADIO PROGRAMS MIXED WITH VOICE OR MUSIC BY MICROPHONE.

- #### VICTROLA:
1. PHONOGRAPH RECORD SELECTIONS.
 2. PHONOGRAPH SELECTIONS MIXED WITH VOICE OR MUSIC BY MICROPHONE.
 3. MICROPHONE ONLY (PA).

- #### RADIO RECORDING:
1. CUTTING RECORDS OF RADIO PROGRAMS.
 2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

Replacement Parts—Model VHR-202

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-548)			
34133	Arm—Actuating arm for service selector switch . . .	33514	Socket—F.M. and television adapter socket . . .
36342	Board—"Antenna-Ground" board	33165	Socket—Recorder head socket
30766	Cap—Rubber cap for tuning tube	31251	Socket—Tube socket
36336	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd. each, and 1 section of 3-30 mmfd.	13871	Socket—Tuning tube socket
12723	Capacitor—56 mmfd.	31418	Spring—Indicator cord spring
34699	Capacitor—100 mmfd., mica	12007	Spring—Retaining spring for oscillator coil, core and stud
12720	Capacitor—100 mmfd., moulded mica	37024	Switch—H.F. tone switch
34700	Capacitor—120 mmfd.	37023	Switch—L.F. tone and power switch
13003	Capacitor—180 mmfd.	36468	Switch—Range switch
30433	Capacitor—470 mmfd.	37020	Switch—Service selector switch
35877	Capacitor—720 mmfd.	35636	Transformer—First I.F. transformer
36679	Capacitor—5,100 mmfd.	35790	Transformer—Second I.F. transformer
36163	Capacitor—.001 mfd.	37175	Transformer—Output transformer
33806	Capacitor—.0015 mfd.	35588	Transformer—Power transformer 105-120 volts, 25 cycles
34459	Capacitor—.0025 mfd.	35959	Transformer—Power transformer 105-120 volts, 50-60 cycles—less end shields
33584	Capacitor—.005 mfd.	35969	Washer—"C" washer for tuning shaft
5148	Capacitor—.007 mfd.	MICROPHONE ASSEMBLIES	
4937	Capacitor—.01 mfd.	37028	Base—Microphone base only
4870	Capacitor—.025 mfd.	37033	Cable—Microphone cable (12 ft. long) complete —less spring, shield, and plug
32787	Capacitor—.05 mfd.	37029	Cover—Front cover and screen
4839	Capacitor—.1 mfd.	37030	Crystal—Microphone crystal and holder
12484	Capacitor—.25 mfd.	37031	Gasket—Moulded rubber ring
36569	Capacitor—Electrolytic comprising 1 section of 15 mfd. 400 volts, 1 section of 10 mfd. 400 volts, and 1 section of 40 mfd., 25 volts	37034	Housing—Crystal housing and handle
32405	Capacitor—Electrolytic 16 mfd., 350 volts	14793	Plug—2-prong male plug for microphone cable
31581	Cell—Bias cell	SPEAKER ASSEMBLIES (RL-70M6)	
34285	Clip—Tuning indicator tube clip	13867	Cap—Dust cap
35965	Coil—Antenna coil—"C" band	12079	Coil—Field coil, 1,060 ohms
37064	Coil—Choke coil	11469	Coil—Neutralizing coil
36557	Coil—Oscillator coil	36145	Cone—Cone complete with voice coil
37021	Control—Microphone volume control	5039	Plug—4-prong male plug for speaker
37604	Control—Volume control and speaker shut-off switch	36146	Suspension—Metal cone suspension
32634	Cord—Indicator drive cord (approx. 44 in. overall lg.)	MISCELLANEOUS ASSEMBLIES	
35788	Core—Adjustable core and stud for oscillator coil	16541	Button—Plug button
36420	Condenser—Variable tuning condenser	36299	Button—Push button
36332	Drum—Drive drum	13103	Cap—Pilot lamp cap
31580	Holder—Bias cell holder	36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.
35870	Indicator—Station selector indicator	36462	Clamp—Dial clamp
37017	Plate—Dial plate complete with drive cord pulleys —less tuning indicator tube clip, screen and dial	36002	Coil—Loop primary coil
11824	Plug—2 contact female plug for microphone cable —less shell	35803	Coil—P.B. oscillator coil
30888	Plug—2 contact female plug for motor cable	37133	Coil—P.B. oscillator coil—low frequency side
36009	Plug—2 prong male plug for antenna loop cable	35871	Core—Adjustable core and stud for P.B. oscillator coils
32641	Plug—3 prong male plug for selector switch cable	36328	Cover—Compartment lamp lead cover
5040	Plug—4 contact female plug for speaker cable	37279	Decalcomania—Control panel decal
32289	Pulley—Drive cord pulley	36386	Decalcomania—"His Master's Voice" decal
33322	Resistor—5 ohms	37148	Decalcomania—Power tone decal
13988	Resistor—10 ohms, ½ watt	35467	Decalcomania—"RCA Victrola" decal
11565	Resistor—15 ohms, ½ watt	35393	Decalcomania—Television decal
36892	Resistor—270 ohms, 3 watts	37147	Decalcomania—Tone switch decal
14720	Resistor—1,000 ohms, ½ watt	37280	Dial—Glass dial scale
12265	Resistor—6,800 ohms, ½ watt	36327	Escutcheon—Dial scale escutcheon—less dial
3219	Resistor—18,000 ohms, ½ watt	36027	Escutcheon—Push button escutcheon—less but- tons
13998	Resistor—22,000 ohms, ½ watt	30698	Hinge—Cabinet lid hinge
13689	Resistor—22,000 ohms, 2 watts	36298	Knob—Radio volume control, microphone volume control, range switch, tuning, L.F. tone and power switch or H.F. tone control knob
12266	Resistor—39,000 ohms, ½ watt	36297	Knob—Service selector switch knob
12286	Resistor—56,000 ohms, ½ watt	5117	Lamp—Compartment lamp
30650	Resistor—56,000 ohms, ½ watt	11765	Lamp—Dial lamp
14560	Resistor—100,000 ohms, ½ watt	11891	Lamp—Indicator lamp
13734	Resistor—120,000 ohms, ½ watt	36590	Loop—Antenna loop complete
12199	Resistor—270,000 ohms, ½ watt	36149	Marker—Station selector markers
13479	Resistor—390,000 ohms, ½ watt	36694	Pull—Door pull
12486	Resistor—560,000 ohms, ½ watt	36246	Receptacle—Needle package receptacle
12413	Resistor—680,000 ohms, ½ watt	35740	Shade—Compartment lamp shade
12013	Resistor—1.0 meg., 1/10 watt	35999	Socket—2-contact female socket for antenna loop cable
13730	Resistor—1 meg., ½ watt	36422	Socket—3-contact female socket for selector switch cable
30208	Resistor—1.2 meg., ½ watt	35575	Spring—Lid support spring
12201	Resistor—1.5 meg., ½ watt	30900	Spring—Retaining spring for knobs
5028	Resistor—1.8 meg., ½ watt	34053	Spring—Retaining spring for push button
12679	Resistor—2.2 meg., ½ watt	36693	Support—Cabinet lid support
14752	Resistor—2.7 meg., ½ watt	36423	Switch—Selector switch
37026	Screen—Service selector indicator screen		
37018	Screen—Screen marked "Indicator"		
14350	Screw—No. 8-32 sq. hd. set screw for drive drum		
36340	Shaft—Tuning shaft		
35772	Shield—50-80 cycle power transformer bottom shield		
35709	Shield—50-80 cycle power transformer top shield		
37025	Slider—Indicator slider complete—less screen		
31364	Socket—Dial lamp socket		

Replacement Parts—Models VHR-207 and VHR-407

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES	14350	Screw—No. 8-32 square head set screw for drive drum
	Model VHR-207 (RC-547)	36340	Shaft—Tuning shaft
	Model VHR-407 (RC-547A)	36058	Shield—50-60 cycle power transformer top end shield for Model VHR 207
34133	Arm—Indicator actuating arm	37062	Shield—50-60 cycle power transformer top end shield for Model VHR 407
36342	Board—"Antenna Ground" board	36059	Shield—50-60 cycle power transformer bottom end shield
30766	Cap—Rubber cap for tuning tube	37025	Slider—Sliding indicator assembly less screen
36336	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd. each, and 1 section of 3-30 mmfd.	31364	Socket—Dial lamp socket
31868	Capacitor—22 mmfd.	11824	Socket—Microphone input socket
12723	Capacitor—56 mmfd.	33514	Socket—Phono input socket
12813	Capacitor—82 mmfd.	33165	Socket—Recording head socket
34699	Capacitor—100 mmfd., mica	31251	Socket—Tube socket
12720	Capacitor—100 mmfd., moulded mica	13871	Socket—Tuning tube socket
12724	Capacitor—120 mmfd.	12007	Spring—Adjustable core and stud retaining spring
14712	Capacitor—180 mmfd., mica	31418	Spring—Drive cord spring
12488	Capacitor—270 mmfd.	37020	Switch—Phono-radio recording selector switch
30433	Capacitor—470 mmfd.	36341	Switch—Range switch
36421	Capacitor—700 mmfd.	35636	Transformer—First I.F. transformer
35643	Capacitor—3,000 mmfd.	37065	Transformer—Second I.F. transformer
36679	Capacitor—5,100 mmfd.	37022	Transformer—Output transformer
37102	Capacitor—.001 mfd.	37048	Transformer—Power transformer—105-125 volt, 50-60 cycle, less end shields
33806	Capacitor—.0015 mfd.	35969	Washer—"C" washer for tuning shaft
34459	Capacitor—.0025 mfd.		SPEAKER ASSEMBLIES
30303	Capacitor—.0035 mfd.		RL-70-M-5
33584	Capacitor—.005 mfd.	13867	Cap—Dust cap
5148	Capacitor—.007 mfd.	37104	Coil—Field coil—1,250 ohms
4937	Capacitor—.01 mfd.	11469	Coil—Neutralizing coil
36248	Capacitor—.02 mfd.	36145	Cone—Cone complete with voice coil
4870	Capacitor—.025 mfd.	31539	Plug—5 prong male plug for speaker
4886	Capacitor—.05 mfd., 400 volts (C27)	36146	Suspension—Metal cone suspension
32787	Capacitor—.05 mfd., 400 volts (C22)		MISCELLANEOUS ASSEMBLIES
14626	Capacitor—.07 mfd.	36461	Button—Plug button
4839	Capacitor—.1 mfd.	36299	Button—Push button
12484	Capacitor—.25 mfd.	13103	Cap—Pilot lamp cap
12741	Capacitor—.5 mfd.	35998	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd.
36589	Capacitor—Electrolytic—15 mfd., 400 volts	36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.
32405	Capacitor—Electrolytic—16 mfd., 350 volts	36463	Capacitor—18 mmfd., ceramic
24889	Capacitor—Electrolytic—20-20 mfd., 450 volts	36462	Clamp—Dial clamp
31584	Capacitor—Electrolytic 40 mfd., 150 volts	36002	Coil—Loop primary coil
31581	Cell—Bias cell	37133	Coil—P.B. oscillator coil—low frequency end
30716	Clip—Tuning tube clip	35803	Coil—P.B. oscillator coil
35965	Coil—Antenna coil—"C" band	35871	Core—Adjustable core and stud for P.B. oscillator coil
37064	Coil—Choke coil	36328	Cover—Stainless steel cover for compartment lamp leads
36334	Coil—Oscillator coil	37146	Decalcomania—Control panel decalcomania
35876	Coil—Peaking coil—10,000 ohms, 1/2 watt	37148	Decalcomania—"Power-Tone" decalcomania
36420	Condenser—Variable tuning condenser	35393	Decalcomania—Television decalcomania
37024	Control—H. F. tone control	37147	Decalcomania—Tone switch decalcomania
37023	Control—L. F. tone control and power switch	35467	Decalcomania—"RCA Victrola" decal
37021	Control—Microphone volume control	36386	Decalcomania—"His Master's Voice" decal
37019	Control—Radio-phonograph volume control and speaker switch	37145	Dial—Glass dial scale
32634	Cord—Indicator drive cord (approximately 44 in. overall length)	36327	Escutcheon—Dial scale escutcheon less dial
35788	Core—Adjustable core and stud for oscillator coil	36027	Escutcheon—Push button escutcheon
36332	Drum—Drive drum	36608	Hinge—Cabinet lid hinge, L. H. for VHR 407
34499	Holder—Bias cell holder	36609	Hinge—Cabinet lid hinge R. H. for VHR 407
35870	Indicator—Station selector indicator	34870	Hinge—Top and bottom hinges for L.H. door for VHR 207
37017	Plate—Dial plate complete less tube clip, thumb screw and indicator	34871	Hinge—Top and bottom hinges for R. H. door for VHR 207
30868	Plug—2 contact female plug for motor cable	30698	Hinge—Cabinet lid hinge for VHR 207
36009	Plug—2 prong male plug for loop cable	36610	Hinge—Top and bottom door hinges for VHR 407
32641	Plug—3 prong male plug for selector switch cable	36298	Knob—Radio-phonograph volume control, selector switch, microphone volume control, tuning, L. F. tone or H. F. tone control knob
12493	Plug—5 contact female plug for speaker cable	36297	Knob—Range switch knob
32289	Pulley—Drive cord pulley	11765	Lamp—Dial lamp
37143	Resistor—9 ohms, 1 watt	11891	Lamp—Indicator lamp
14660	Resistor—18 ohms, 1/2 watt	5117	Lamp—Record player lamp
37144	Resistor—72 ohms, 2 watt	36323	Loop—Antenna loop complete
14720	Resistor—1,000 ohms, 1/2 watt	36149	Marker—Station selector markers
14499	Resistor—1,500 ohms, 1/2 watt	31470	Mounting—Spring mounting for motorboard
34473	Resistor—2,000 ohms, 10 watt	36422	Plug—3 contact female socket for selector cable
12955	Resistor—3,900 ohms, 1/2 watt	36329	Pull—Cabinet door pull
30788	Resistor—4,700 ohms, 1 watt	36413	Pull—Door pull for VHR 407
12265	Resistor—6,800 ohms, 1/2 watt	36246	Receptacle—Needle book receptacle
13045	Resistor—18,000 ohms, 1/2 watt	35740	Shade—Compartment lamp shade
13669	Resistor—22,000 ohms, 2 watt	35999	Socket—Antenna loop cable socket
12454	Resistor—33,000 ohms, 1/2 watt	31364	Socket—Compartment lamp socket
12266	Resistor—39,000 ohms, 1/2 watt	30536	Spring—Cabinet lid support spring for support No. 34793
12412	Resistor—47,000 ohms, 1/2 watt	33083	Spring—Cabinet lid support spring for support No. 35830
12286	Resistor—56,000 ohms, 1/2 watt	36802	Spring—Conical spring for loop support bracket
14138	Resistor—68,000 ohms, 1/2 watt	14270	Spring—Knob retaining spring
14560	Resistor—100,000 ohms, 1/2 watt	34053	Spring—Push button retaining spring
12264	Resistor—220,000 ohms, 1/2 watt	34793	Support—Cabinet lid support—L. H.
12199	Resistor—270,000 ohms, 1/2 watt	35830	Support—Cabinet lid support—R. H. for VHR 407
14983	Resistor—330,000 ohms, 1/2 watt	36423	Switch—Selector switch
13479	Resistor—390,000 ohms, 1/2 watt		
12486	Resistor—560,000 ohms, 1/2 watt		
30963	Resistor—820,000 ohms, 1/2 watt		
12013	Resistor—1 megohm, 1/10 watt		
13730	Resistor—1 megohm, 1/2 watt		
30208	Resistor—1.2 megohm, 1/2 watt		
12201	Resistor—1.5 megohm, 1/2 watt		
12679	Resistor—2.2 megohm, 1/2 watt		
30962	Resistor—8.2 megohm, 1/2 watt		
37063	Resistor—Voltage divider comprising 1 section of 2,400 ohms, 12 watt, 1 section of 1,700 ohms, 7.2 watt		
37018	Screen—Screen marked "Indicator"		
37026	Screen—Service selector indicator screen marked "Re-recording, Victrola, Recording and Radio"		

MODELS V-205 and V-405

Chassis Nos. RC-521 and RC-521-B

Nine-Tube, Three-Band, AC, Superheterodyne Receivers and Phonographs

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast (A)	540-1,600 kc
Medium Wave (B)	1,550-4,000 kc
Short Wave (C)	5,800-18,000 kc

INTERMEDIATE FREQUENCY..... 455 kc

ELECTRIC TUNING

No. of Stations	Appr. Range
1	540-1,030 kc
2	610-1,250 kc
2	740-1,430 kc
1	880-1,550 kc

TUBE COMPLEMENT

(1) RCA-6SK7	R-F Amplifier
(2) RCA-6SA7	1st Detector—Oscillator
(3) RCA-6SK7	I-F Amplifier
(4) RCA-6H6	2nd Detector, A.V.C.
(5) RCA-6SF5	A-F Amplifier
(6) RCA-6SF5	Phase Inverter
(7) RCA-6F6-G	Power Output
(8) RCA-6F6-G	Power Output
(9) RCA-5U4-G	Rectifier

POWER OUTPUT RATING

Undistorted	10 watts
Maximum	12 watts

PILOT LAMPS 4 Mazda Type 51—6.8 volts, 0.2 amps.
1 Mazda Type 55—6.8 volts, 0.4 amps.

LOUDSPEAKER
Type..... 12-inch electrodynamic
Voice Coil Impedance..... 2.2 ohms at 400 cycles
Identification Number..... RL-70M-2

POWER SUPPLY RATINGS
105-125 volts, 25, 50 or 60 cycles..... 155 watts
105-125, 205-250 volts, 50 or 60 cycles..... 155 watts

AUTOMATIC PHONOGRAPH
Type Pickup..... Crystal
Impedance..... 100,000 ohms at 1,000 c.p.s.
Average Output Voltage..... 1.5 volts across 0.5 megohm at 1,000 c.p.s.
Record Capacity..... Eight 10-inch or seven 12-inch records

Cabinet Dimensions (inches)	Height	Width	Depth
V-205	35-15/16	35	17 1/4
V-405	33-15/16	34 1/2	18-15/16
Chassis Base Dimensions (inches)	2 1/4	11 1/4	10 1/2
Over-all Chassis Height			7 1/2 inches

Weight (lbs.)	Net	Shipping
V-205	102	145
V-405	118	147
Tuning Drive Ratio		13-1



← V-205

V-405 →



880 TO 1550 KC	740 TO 1430 KC	610 TO 1250 KC	540 TO 1030 KC	
6	5 4	3 2	1	TRIMMER SCREWS
0	0 0	0 0	0	CORE RODS
6	5 4	3 2	1	

Push Button Adjustment

Six station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across the center and "G" terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. After turning range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L22) to receive the station. It may be necessary to

maintain approximate tracking between antenna and oscillator to receive weak stations. Approximate tracking will be indicated by noise, when tuned off a station, which will disappear when the station is correctly tuned.

4. After oscillator core is adjusted properly, adjust C14 for maximum output.
Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the five remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

Owing to the relatively high RF gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases, it is advisable to unscrew the push-button loop trimmers to minimum capacity before adjusting the push-button magnetite cores.

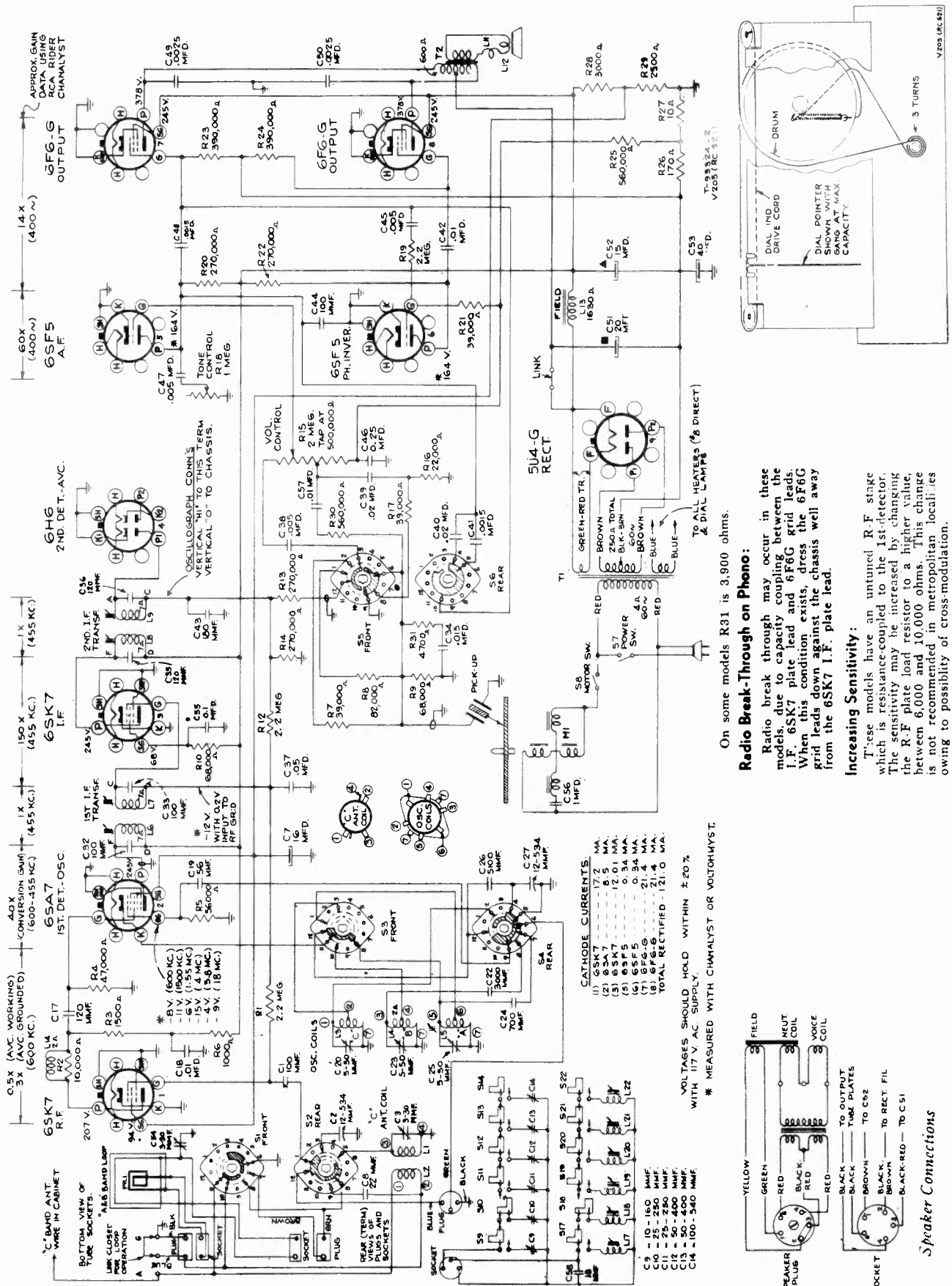
V-205-A

Using RP-153 Automatic Mechanism:

A limited number of V-205 instruments contain the RP-153 record changer. These are labeled V-205-A. Refer to Service Note on RP-153 for service data and replacement parts.

Phonograph Information

For information regarding the automatic record changer refer to service note covering RP-152 record changers.



On some models R31 is 3,900 ohms.

Radio Break-Through on Phono:

Radio break through may occur in these models, due to capacity coupling between the I.F. 6SK7 plate lead and 6F6G grid leads. When this condition exists, dress the 6F6G grid leads down against the chassis well away from the 6SK7 I.F. plate lead.

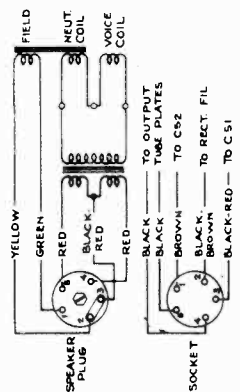
Increasing Sensitivity:

These models have an untuned R.F. stage which is resistance-coupled to the 1st-detector. The sensitivity may be increased by changing the R.F. plate load resistor to a higher value, between 6,000 and 10,000 ohms. This change is not recommended in metropolitan localities owing to possibility of cross-modulation.

CATHODE CURRENTS:

(1) GSK7	6.2 MA.
(2) GSK7	6.5 MA.
(3) GSK7	12.0 MA.
(4) GSF5	0.34 MA.
(5) GSF5	0.34 MA.
(6) GFG-G	21.4 MA.
(7) GFG-G	21.4 MA.
TOTAL RECTIFIED	121.0 MA.

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V AC SUPPLY.
* MEASURED WITH CHAMALYST OR VOTCHWYST.



Speaker Connections

V-205 (RC 821)

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagrams.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

- Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass-dial in this position.
- After completion of alignment, replace the glass dial in cabinet, taking care that the fibre light shields are in correct position at ends of dial.

Using Calibration Scale.—

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.
- Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale. For example, 1,100 kc is approximately 4 inches from the reference mark.

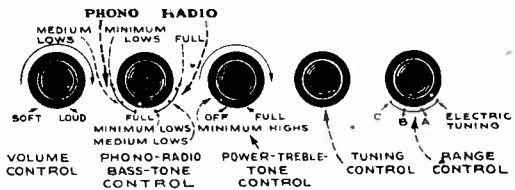
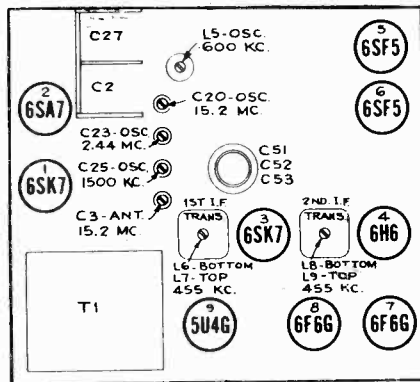
Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550 and 750 kc	L9, L8 (2nd I-F Trans.)
2	6SA7 grid in series with 0.01 mfd.			L7, L8 (1st I-F Trans.)
3		1,500 kc	C25 (osc.)	
4		600 kc	L5 (osc.)	
5	Repeat steps 3 and 4.			
6	6SA7 grid in series with 0.01 mfd.	2.44 mc	"B" Band 2.44 mc	C23 (osc.)
7	Ant. terminal in series with 47 mmf.	15.2 mc	"C" Band 15.2 mc	C20* (osc.) C3 (ant.)
Assemble chassis in cabinet.				
8	Radiation Loop	1,500 kc	Signal	C54 (ant.) (on loop assembly)
9	Radiation Loop	600 kc	600 kc	L5 (osc.) (Rock in)
10	Repeat steps 9 and 10.			

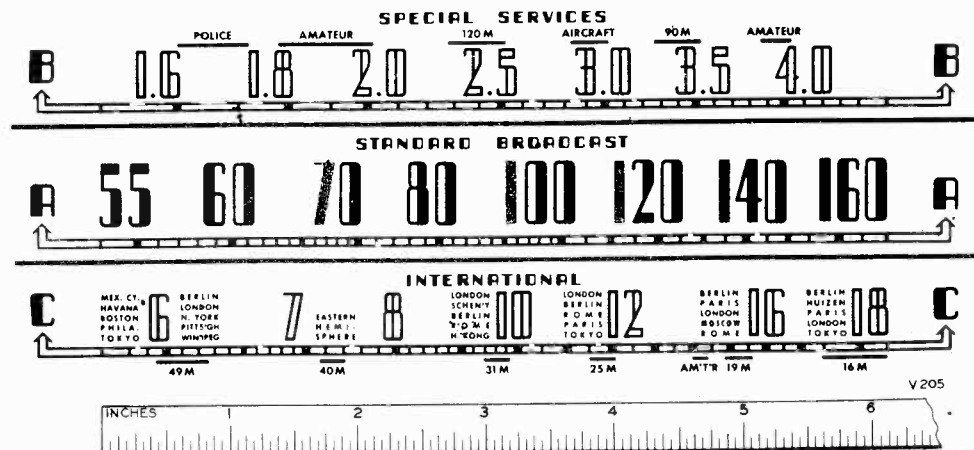
* Use minimum capacity peak.

Precautionary Lead Dress:

- "C" Band lead from antenna coil high side to No. 5 terminal on range switch must be held to correct length.
- Lead from No. 3 terminal on rear switch to the variable condenser must be held to correct length and dressed away from side apron.
- Lead from No. 4 terminal on front section of range switch must be held to correct length and dressed to rear of wafer.
- Lead from No. 2 terminal on front section of range switch to oscillator must be held to length and dressed to the rear of the wafer.
- Dress the leads to the power switch as free as possible.
- Dress lead from pickup plug to terminal board on side apron down and towards the side apron.
- Dress plate leads on output tubes toward the chassis.



Calibration Scale



Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-521 and 521-B)		
36342	Board—"Antenna-Ground" board	36860	Transformer—Power transformer—105-120 volts, 50-60 cycles—less end shields (V-405)
36336	Capacitor—Mica trimmer comprising 3 sections of 5-50 mmfd., and 1 section of 3-30 mmfd.	35969	Washer—"C" washer for tuning shaft
31868	Capacitor—22 mmfd.		SPEAKER ASSEMBLIES (RL-70-M-2)
12723	Capacitor—56 mmfd.	13867	Cap—Dust cap
12720	Capacitor—100 mmfd., moulded	36331	Coil—Field coil—1,630 ohms
34699	Capacitor—100 mmfd, mica	11469	Coil—Neutralizing coil
34700	Capacitor—120 mmfd, mica	36145	Cone—Cone complete with voice coil
12724	Capacitor—120 mmfd., moulded	31539	Plug—5 prong male speaker plug
13003	Capacitor—180 mmfd.	36146	Suspension—Metal cone suspension
36421	Capacitor—700 mmfd.	33444	Transformer—Output transformer
35643	Capacitor—3,000 mmfd.		MISCELLANEOUS ASSEMBLIES
14722	Capacitor—5,100 mmfd.	36027	Bezel—Push button bezel (V-405)
33806	Capacitor—.0015 mfd.	36324	Bracket—Support bracket for record changer sealing pan
34459	Capacitor—.0025 mfd.	36461	Button—Plug button for motor board panel (V-405)
33584	Capacitor—.005 mfd.	36299	Button—Push button and spring
4937	Capacitor—.01 mfd.	13103	Cap—Pilot lamp cap
11315	Capacitor—.015 mfd.	35998	Capacitor—Mica trimmer—1 section of 3-30 mmfd.
36248	Capacitor—.02 mfd.	36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.—for P. B. switch
32787	Capacitor—.05 mfd.	36463	Capacitor—18 mmfd., ceramic for—P. B. switch
4839	Capacitor—.1 mfd.	36462	Clamp—Clamp to hold glass dial (V-405)
12484	Capacitor—.25 mfd.	31382	Clip—P. B. coil mounting clip (V-405)
32405	Capacitor—Electrolytic 16 mfd., 350 volts	36002	Coil—Loop loading coil
34533	Capacitor—Electrolytic comprising 1 section of 20 mfd., 450 volts, 1 section of 15 mfd., 350 volts, and 1 section of 40 mfd., 25 volts	35803	Coil—Push button oscillator coil
35965	Coil—Antenna coil—"C" band	35871	Core—Adjustable core and stud for push button oscillator coils
36334	Coil—Oscillator coil	36460	Cover—Metal channel for pilot lamp leads (V-405)
35876	Coil—Peaking coil—10,000 ohms	36328	Cover—Compartment lamp leads cover
37133	Coil—Push button oscillator coil—low frequency end	36554	Decalcomania—Control panel decal.
36420	Condenser—Variable tuning condenser	36386	Decalcomania—Trade mark decal. (His Master's Voice)
35788	Core—Adjusting core and stud for oscillator coil	35467	Decalcomania—Trade mark decal. (RCA Victrola)
36339	Control—High tone and power control	35393	Decalcomania—Television decal
36338	Control—Low tone and phono. radio control	36555	Dial—Glass dial scale
36337	Control—Volume control	36327	Escutcheon—Dial scale escutcheon—less dial
36332	Drum—Drive drum	36027	Escutcheon—Push button escutcheon—less buttons
35870	Indicator—Station selector indicator	36610	Hinge—Door hinge—1 upper and 1 lower—for 1 door (V-405)
36333	Plate—Dial plate complete with pulleys—less dial	30698	Hinge—Cabinet lid hinge (V-205)
30868	Plug—2 contact female plug for phono. motor cable	36608	Hinge—Lid hinge for L. H. section of lid (V-405)
36009	Plug—2 prong male plug for loop cable	36609	Hinge—Lid hinge for R. H. section of lid (V-405)
32641	Plug—3 prong male plug for selector cable	34871	Hinge—Door hinges—1 set for 1 door (V-205)
12493	Plug—5 contact female plug for speaker cable	36297	Knob—Range switch or phono. radio switch knob
32289	Pulley—Drive cord pulley	36298	Knob—Volume control, tuning or power switch knob
34537	Resistor—Voltage divider comprising 1 section of 3,000 ohms, 6 watts, 1 section of 2,500 ohms, 4.2 watts, 1 section of 10 ohms, .18 watt and 1 section of 170 ohms, 3.2 watt	5117	Lamp—Compartment lamp
14720	Resistor—1,000 ohms, 1/2 watt	11765	Lamp—Dial lamp
30654	Resistor—1,500 ohms, 1/2 watt	36323	Loop—Antenna loop complete
30146	Resistor—4,700 ohms, 1/2 watt	36149	Marker—Push button marker
13998	Resistor—22,000 ohms, 1/2 watt	36683	Mounting—Mounting hardware complete for 1 motorboard
12266	Resistor—39,000 ohms, 1/2 watt	36325	Nut—Wing nut for support bracket
12412	Resistor—47,000 ohms, 1/2 watt	36326	Pan—Fibre pan to seal record changer
12286	Resistor—58,000 ohms, 1/2 watt	36422	Plug—3 contact female plug for selector switch assembly
13715	Resistor—68,000 ohms, 1/2 watt	36329	Pull—Door pull
14023	Resistor—82,000 ohms, 1/2 watt	36413	Pull—Door pull (V-405)
12199	Resistor—270,000 ohms, 1/2 watt	36246	Receptacle—Needle book receptacle
13479	Resistor—390,000 ohms, 1/2 watt	36740	Shade—Compartment lamp shade
12486	Resistor—560,000 ohms, 1/2 watt	35909	Socket—2 contact female socket located on loop
12679	Resistor—2.2 meg., 1/2 watt	30536	Spring—Cabinet lid support spring L. H.
14350	Screw—No. 8-32 square head set screw for drum	33083	Spring—Cabinet lid support spring R. H.
36340	Shaft—Tuning shaft	36802	Spring—Conical spring for loop bearing
36059	Shield—Power transformer bottom shield (V-405)	34053	Spring—Retaining spring for push button
36661	Shield—Power transformer top shield (V-405)	30900	Spring—Retaining spring for knobs
31364	Socket—Dial lamp socket	34793	Support—Cabinet lid support L. H.
35787	Socket—Phono. input socket	35830	Support—Cabinet lid support R. H.
31251	Socket—Tube socket	36423	Switch—Selector switch
31418	Spring—Drive cord spring		
36341	Switch—Range switch		
35636	Transformer—First I-F transformer		
35790	Transformer—Second I-F transformer		
34693	Transformer—Power transformer—110 volts, 25 cycles (V-205)		
34539	Transformer—Power transformer—110 volts, 50-60 cycles (V-205)		

FOR RECORD CHANGER REPLACEMENT PARTS ON V-205 SEE SERVICE NOTES ON RP-152B, AND FOR V-405 SEE NOTES ON RP-152J

V-205-A

Using RP-153 Automatic Mechanism:

A limited number of V-205 instruments contain the RP-153 record changer. These are labeled V-205-A. Refer to Service Note on RP-153 for service data and replacement parts.

MODELS V-209 and V-210

Chassis No. RC-573 and RC-573A

Eight-Tube, Two-Band, A-C, Radio-Phonograph Combinations (Refer to RP-158 Service Note for Data on Automatic Mechanism)

Electrical and Mechanical Specifications

FREQUENCY RANGES
 Standard Broadcast "A" 540-1,600 kc
 Short Wave "C" 9.4-15.4 mc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT
 (1) RCA-6SG7 R-F Amplifier
 (2) RCA-6SA7 1st Det., Oscillator
 (3) RCA-6SK7 I-F Amplifier
 (4) RCA-6SQ7 2nd Det., A.V.C. and A-F Amplifier
 (5) RCA-6SQ7 Phase Inverter
 (6) RCA-6K6GT Power Output
 (7) RCA-6K6GT Power Output
 (8) RCA-5Y3G Rectifier

POWER SUPPLY RATING
 105-125 volts, 60 cycles 115 watts total
 105-125 volts, 50 cycles 115 watts total
 105-125 volts, 25 cycles 115 watts total

	Model V-209	Model V-210
Height (inches)	34	42
Width (inches)	31½	33
Depth (inches)	16½	16
Weight lbs. (net)	82	88

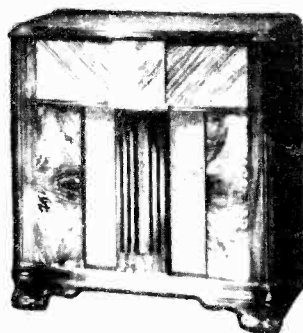
PILOT LAMPS (2) Mazda No. 51, 6-8 volts, 0.2 amps.
COMPARTMENT LAMPS (2) Mazda No. 55, 6-8 volts, 0.4 amps.

LOUDSPEAKER
 Electrodynamical (RL-70L6)
 Size 12-inch
 V.C. impedance at 400 cycles 2.2 ohms

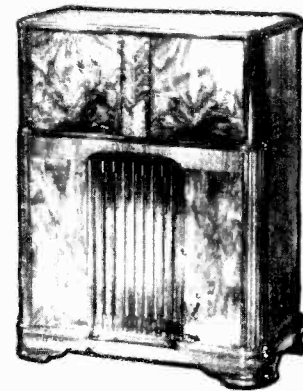
POWER OUTPUT RATING
 Undistorted 5 watts
 Maximum 5.5 watts

PHONOGRAPH
 Type Automatic (RP-158)
 Record Capacity Twelve 10-in., Ten 12-in.
 Turntable Speed 78 r.p.m.
 Type Pickup Crystal
 Motor Power Consumption 17 watts

Chassis Length (inches) 10½
 Chassis Width (inches) 11½
 Chassis Height (inches) 3
 Overall Chassis Height (inches) 7
 Tuning Drive Ratio 15-1



Model V-209



Push-Button Model V-210

Push Button Adjustments

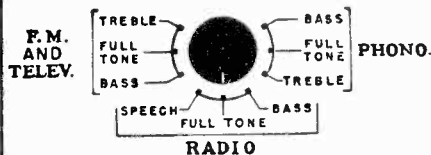
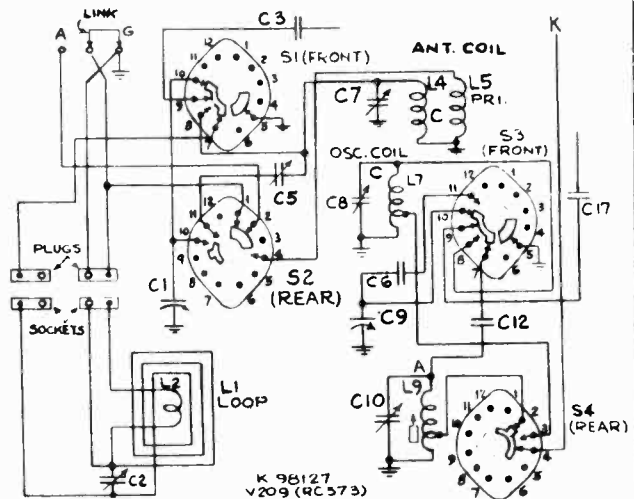
The push buttons connect to separate magnetite-core oscillator coils and separate ant. circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.
3. Turn range switch to push-button position and press in the left-hand button.
4. Adjust No. 1 oscillator core to receive the first station. To secure the best adjustment, rotate the set for least pickup, and adjust core for peak output.
5. Adjust No. 1 antenna trimmer capacitor for peak output on the first station.
6. Proceed in the same manner to adjust for the remaining stations.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with osc. core either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.



Control for both Models

Controls for Model V-209

Schematic diagram of antenna and oscillator switch connections for Model V-209. This model does not include push-button tuning. Otherwise the same as schematic of V-210.

Alignment Procedure

55 60 70 80 100 120 140 160

RCA Victrola

93 31 m 10 11 25 m 13 14 19 m

The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in alignment procedure.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

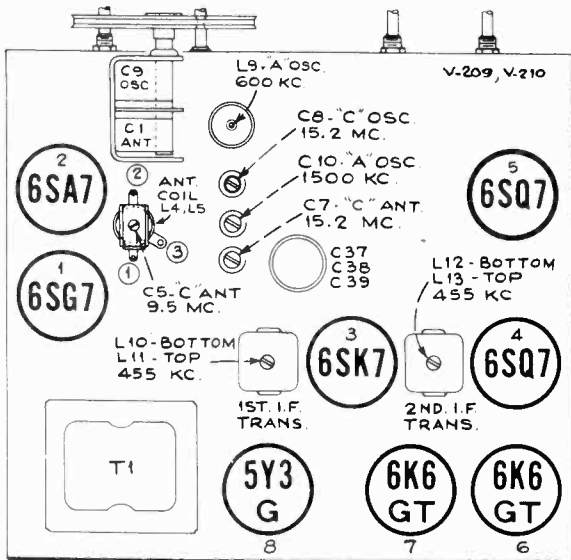
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the scale printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

1. Remove glass dial from the cabinet.
2. With gang in full mesh, move the dial pointer to a point 1/16 inch to left of reference mark at left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduation coincides with the pointer. Use scotch tape to hold the glass dial in place.

"C" Band Reception.—For best reception on "C" band with an outside antenna, adjust the trimmer screw on the RF coil on the chassis. Turn screw carefully with a special screwdriver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band, and make setting for best reception. If returning to internal antenna at any time, close the link on the center terminal and adjust "C" band antenna trimmer for best reception on 31-meter band.

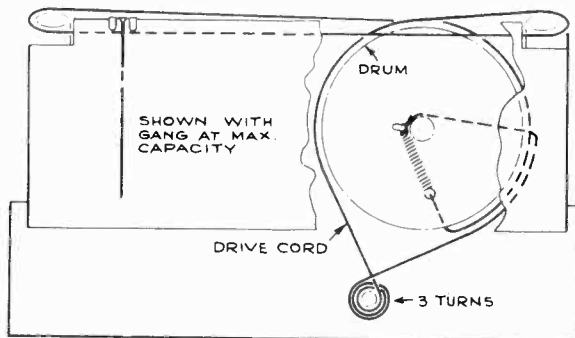


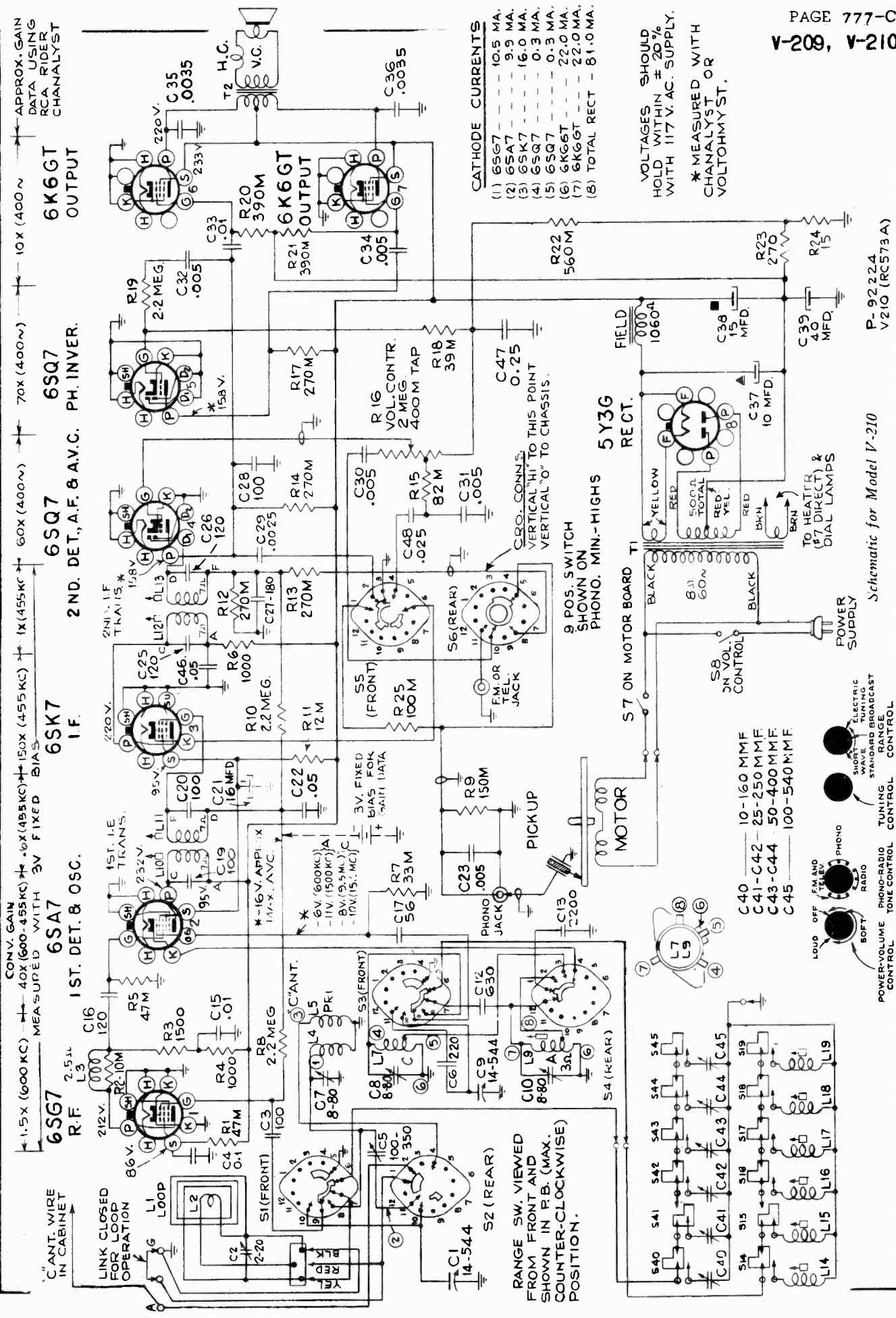
Steps	Connect test-osc. output to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" band 540 kc	L12 and L13 (2nd I-F trans.)
2	1st Det. grid in series with .01 mfd.			L10 and L11 (1st I-F trans.)
3	A-Terminal in series with 47 mmfd. (link closed)	15.2 mc	"C" band 15.2 mc	C8 (osc.)* C7 (ant.)
4		9.5 mc	"C" band 9.5 mc	C5 (ant.) (Rock gang)
5		Repeat steps 3 and 4		
6	Yellow loop lead in series with 200 mmfd. (link closed)	1,500 kc	"A" band 1,500 kc	C10 (osc.)
7		600 kc	"C" band 600 kc	L9 (osc.)
8		Repeat steps 6 and 7		
9	Install and connect chassis in cabinet with antenna link closed. Tune in a radiated oscillator signal at 1,500 kc. and peak the "A" band trimmer C2 (on loop). Rock in L9 for peak output at 600 kc.			

*Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc. above signal on all bands.

Critical Lead Dress:

1. Bus from "C" oscillator coil to range switch must be held to length and dressed close to coil.
2. C30 (audio coupling capacitor to volume control) should be dressed close to front apron.
3. A.C. cord and motor leads must be dressed away from phono and F.M. jack.
4. Excess trans. leads to be dressed between trans. and rectifier socket.
5. Keep R5, C16 bus (in grid circuit of 6SA7 tube) as short as possible.
6. Dress C28 (in plate circuit of 1st A.F.) close to socket.
7. Keep R15 (grid resistor) C34 (coupling capacitor of output tube) close to socket.
8. Keep C23 (tone compensating capacitor) close to back apron.
9. Keep R15, C48 (in tone compensating circuit) close to front apron.
10. Dress green lead from osc. coil to trimmer close to oscillator coil.
11. Dress cable from phono. socket to phono. switch up away from base.
12. Dress red A.C. leads away from I.F. trans. and 6SQ7 socket.
13. RF choke in plate of 6SG7 must be dressed toward back apron.





APPROX. GAIN DATA USING RCA RIDER CHANNELYST

10X (400N) 6K6GT OUTPUT

70X (400N) 6SQ7 PH. INVER.

60X (400N) 6SQ7 2ND. DET., A.F. & A.V.C.

1X (455KC) 6SK7 I.F.

CONV. GAIN MEASURED WITH 3V FIXED BIAS

40X (600-455KC) 6SA7 1ST. DET. & OSC.

1.5X (600KC) 6SG7 R.F.

CATHODE CURRENTS

(1) 6SG7	10.5 MA.
(2) 6SA7	9.9 MA.
(3) 6SK7	16.0 MA.
(4) 6SQ7	0.3 MA.
(5) 6SQ7	0.3 MA.
(6) 6K6GT	22.0 MA.
(7) 6K6GT	22.0 MA.
(8) TOTAL RECT	81.0 MA.

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC. SUPPLY.

* MEASURED WITH CHANNELYST OR VOLTOHMYST.

P-92224
V210 (RC573A)

Schematic for Model V-210

- LOUD OFF
- SOFT
- POWER-VOLUME CONTROL
- PHONO
- PHONO-RADIO TUNING CONTROL
- TUNING RANGE
- STANDARD BROADCAST
- SHORT WAVE
- ELECTRIC
- TUNING CONTROL

- C40 10-160 MMF
- C41-C42 25-250 MMF
- C43-C44 50-400 MMF
- C45 100-540 MMF

9 POS. SWITCH SHOWN ON PHONO. MIN.-HIGHS

5Y3G RECT.

R16 VOL. CONTR. 2 MEG. 400M TAP

C47 0.25

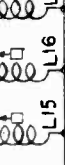
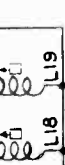
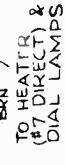
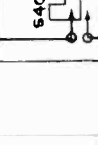
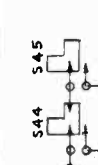
CRO. CONNS. VERTICAL 'H' TO THIS POINT VERTICAL 'O' TO CHASSIS.

PICKUP

MOTOR

S7 ON MOTOR BOARD

RANGE SW. VIEWED FROM FRONT AND SHOWN IN R.B. (MAX. COUNTER-CLOCKWISE) POSITION.



Use of GT (Glass) Tubes:

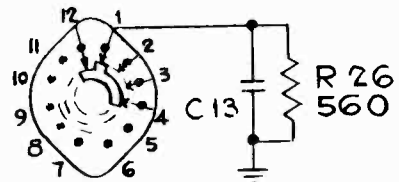
When using the glass equivalent for metal tubes in the above models, the following changes must be made to prevent oscillation with the push-buttons in the "out" position:

6SA7GT glass tube in place of metal tube 6SA7:

V-209—No changes required.
 V-210—Add resistor R26, 560 ohms, 1/2 watt (RCA Stock No. 12414) in parallel with C13 capacitor, 2200 mmf., as shown in the accompanying sketch.

6SK7GT glass tube in place of metal tube 6SK7:

A shield (RCA Stock No. 39074) and a grounding clip (RCA Stock No. 39073) are required for shielding purposes



S4 (REAR) (V210)

When Using 6SA7GT Glass Tube in Model V-210, add Resistor R26

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	Model V-209 RC-573 Model V-210 RC-573A		AUTOMATIC RECORD CHANGER
36342	Board—"Antenna-Ground" board		See separate Service Bulletin on RP158 Record Changer
37877	Capacitor—Electrolytic—16 mfd., 450 volts		SPEAKER ASSEMBLIES (RL, 70L-6)
37888	Capacitor—Electrolytic—comprising 1 section of 15 mfd., 400 volts, 1 section of 10 mfd., 400 volts, and 1 section of 40 mfd., 25 volts		
38368	Capacitor—Mica trimmer—50-350 mmfd. for "C" band antenna coil	13867	Cap—Dust cap
38801	Capacitor—Mica trimmer—comprising 3 sections of 8-80 mmfd. each	12079	Coil—Field coil—1,080 ohms
12723	Capacitor—56 mmfd.	11489	Coil—Neutralizing coil
12720	Capacitor—100 mmfd., moulded	36145	Cone—Cone complete with voice coil
34699	Capacitor—100 mmfd., unmoulded	5039	Plug—4 prong male speaker plug
12724	Capacitor—120 mmfd., moulded	36146	Suspension—Metal cone suspension
34700	Capacitor—120 mmfd., unmoulded	36671	Transformer—Output transformer
13003	Capacitor—180 mmfd.		MISCELLANEOUS ASSEMBLIES
38858	Capacitor—220 mmfd.	38376	Bezel—Push button bezel—less buttons (V-210)
38831	Capacitor—630 mmfd.	36639	Bracket—Lamp bracket for Model V-210
44388	Capacitor—2,200 mmfd. (for V-210)	36461	Button—Plug button for Model V-209
34459	Capacitor—0.025 mfd.	38375	Button—Push button for Model V-210
30303	Capacitor—0.035 mfd.	38684	Capacitor—Mica trimmer—2-20 mmfd. for Model V-209
33584	Capacitor—0.05 mfd.		
4937	Capacitor—0.1 mfd.	36424	Capacitor—Mica trimmer—comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd. for Model V-210
37706	Capacitor—0.25 mfd.	36462	Clamp—Dial clamp
4886	Capacitor—0.5 mfd.	36002	Coil—Loop primary coil for Model V-209
4839	Capacitor—0.1 mfd.	38579	Coil—Loop primary coil for Model V-210
12484	Capacitor—0.25 mfd.	38316	Coil—P.B. oscillator coil—high frequency—for Model V-210
38783	Coil—Antenna coil—"C" band	37638	Coil—P.B. oscillator coil—low frequency—for Model V-210
38829	Coil—Coil and resistor assembly—10,000 ohms	35871	Core—Adjustable core and stud for P.B. oscillator coil for Model V-210
38787	Coil—Oscillator coil	36328	Cover—Compartment lamp lead cover for Model V-209
38800	Condenser—Variable tuning condenser	39012	Decalcomania—Control panel decal for Model V-209
38404	Control—Volume control and power switch	39013	Decalcomania—Control panel decal for Model V-210
32634	Cord—Pointer cord (approx. 43-in. overall length)	36386	Decalcomania—Trade mark decal (His Master's Voice)
35788	Core—Adjustable core and stud for oscillator coil	35467	Decalcomania—Trade mark decal (RCA Victor)
38359	Cup—Oscillator coil mounting cup	39011	Dial—Glass dial scale
38790	Drum—Drive drum	38327	Escutcheon—Dial scale escutcheon—less dial
35870	Indicator—Station selector indicator	30698	Hinge—Cabinet lid hinge for Model V-209
36333	Plate—Dial back plate complete with pulleys—less dial	38303	Hinge—Door hinge for Model V-210
38832	Plug—Pin plug for antenna loop leads	13103	Jewel—Compartment lamp jewel
30868	Plug—2 contact female plug for motor cable	35814	Knob—Control knob
36009	Plug—2 prong male plug for loop cable (V-209)	5117	Lamp—Compartment lamp
32641	Plug—3 prong male plug for selector switch cable (V-210)	11765	Lamp—Dial lamp
5040	Plug—4 contact female plug for speaker cable	38806	Loop—Antenna loop complete for Model V-209
32289	Pulley—Drive cord pulley	38578	Loop—Antenna loop complete for Model V-210
11565	Resistor—15 ohms, 1/2 watt	34317	Marker—Station selector marker
39344	Resistor—270 ohms, 3 watt	39563	Mounting—Motorboard spring mounting (2 req.)
14720	Resistor—1,000 ohms, 1/2 watt	38580	Pivot—Loop support and pivot—on top of loop frame for Model V-209
30654	Resistor—1,500 ohms, 1/2 watt	37800	Shade—Compartment lamp shade
35875	Resistor—12,000 ohms, 3 watt	35999	Socket—Antenna loop cable socket for Model V-209
12454	Resistor—33,000 ohms, 1/2 watt	36422	Socket—Antenna loop and switch cable socket for Model V-210
12268	Resistor—39,000 ohms, 1/2 watt	38873	Spring—Conical spring for Model V-210
12412	Resistor—47,000 ohms, 1/2 watt	35675	Spring—Spring for lid support No. 36414—Model V-209
30787	Resistor—47,000 ohms, 1/2 watt	33083	Spring—Spring for lid support No. 35381—Model V-209
14023	Resistor—82,000 ohms, 1/2 watt	37114	Spring—Spring for lid support No. 37113—Model V-209
14560	Resistor—100,000 ohms, 1/2 watt	30900	Spring—Retaining spring for knob
14020	Resistor—150,000 ohms, 1/2 watt	34053	Spring—Retaining spring for push buttons for Model V-210
30651	Resistor—270,000 ohms, 1/2 watt	36414	Support—Lid support for V-209 using one section lid
12486	Resistor—560,000 ohms, 1/2 watt	35831	Support—L.H. lid support for V-209 using two section lid
30649	Resistor—2.2 meg., 1/2 watt	37113	Support—R.H. lid support for V-209 using two section lid
38803	Shaft—Tuning knob shaft	38581	Support—Loop bracket and support—on bottom of loop frame for Model V-209
35772	Shield—Bottom shield for transformer No. 35959	38575	Switch—Selector switch for Model V-210
36656	Shield—Top shield and core shield for transformer No. 35959 (Model V-209)		
35709	Shield—Top shield for transformer No. 35959 (Model V-210)		
31364	Socket—Dial lamp and compartment lamp socket		
33514	Socket—Phono input socket		
31251	Socket—Tube socket		
31418	Spring—Drive cord spring		
12007	Spring—Retaining spring for oscillator coil core and stud		
38804	Switch—Range switch for Model V-209		
38805	Switch—Range switch for Model V-210		
38802	Switch—Tone control switch		
35636	Transformer—First I.F. transformer		
35790	Transformer—Second I.F. transformer		
35588	Transformer—Power transformer—105-120 volts—25 cycle		
35959	Transformer—Power transformer—105-120 volts—50/60 cycle—less end shields		
35969	Washer—"C" washer for tuning shaft		

MODEL 211K

Chassis No. RC-571

Eleven-Tube, Four-Band, AC, Superheterodyne

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast "A" 540-1,600 kc
 Medium Wave "B" 2.3-6.3 mc
 SPREAD BAND 9.35-9.75 mc
 Short Wave "C" 11.7-15.4 mc

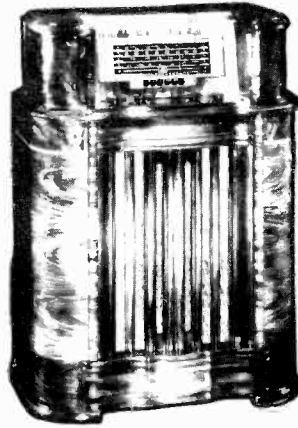
INTERMEDIATE FREQUENCY 455 kc

PUSH-BUTTON RANGES

One station between approximately 540-1,030 kc
 Two stations between approximately 610-1,250 kc
 Two stations between approximately 740-1,430 kc
 One station between approximately 880-1,600 kc

TUBE COMPLEMENT

- (1) RCA-6SK7 R-F Amplifier
- (2) RCA-6SA7 1st Detector-Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6SQ7 2nd Detector, A.V.C
- (5) RCA-6SQ7 Audic
- (6) RCA-6SQ7 Phase Inverter
- RCA-6K6GT (Four) Power Output
- (11) RCA-5U4-G Rectifier



POWER OUTPUT RATING

Undistorted 10 watts
 Maximum 12 watts

LOUDSPEAKER (RL-70L-4)

Type 12-inch Electrodynamic
 V.C. Impedance 2.2 ohms at 400 cycles

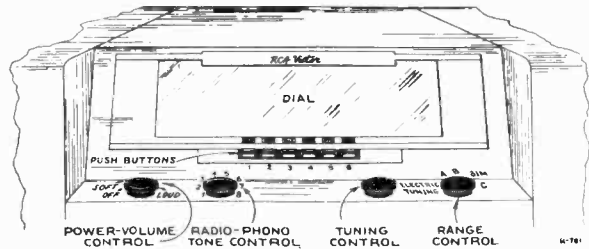
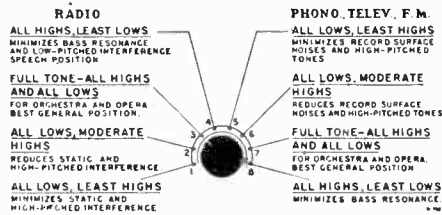
LOUDSPEAKER (RL-81B-6)

Type 5-inch Permanent Magnet
 V.C. Impedance 3 ohms at 400 cycles

POWER SUPPLY RATINGS

105-125 volts, 50-60 cycles 140 watts
 105-125 volts, 25-60 cycles 140 watts

	Height	Width	Depth
Cabinet Dimensions	40 in.	28 in.	15 in.
Weight	(Net, 64 lbs.), (Shipping, 83 lbs.)		
Tuning Drive Ratio	15 to 1		



Phasing Speakers

For correct tone, it is ESSENTIAL that the two speakers operate "in phase," so that the two cones move in and out together.

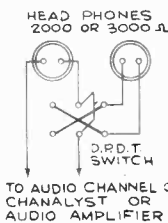
It is necessary to check the phasing whenever a new speaker, coil, field coil, or output transformer is installed, or whenever the speaker connections are altered in any way.

The recommended procedure is as follows:

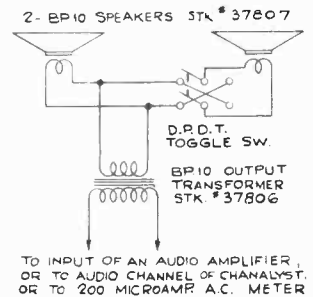
1. Hook up a "phase checker," using headphones or PM speaker units as shown. Connect the checker to an audio amplifier that has an output meter. (The audio channel in the Chanalyst is excellent for this purpose.)

2. Feed a 400-cycle modulated signal into the receiver. Turn volume up to medium. Hold both units of the checker in front of the large speaker in set. Throw the toggle switch to each position and note which position gives maximum output on meter. Mark this position of the switch "in phase." Mark the other position "out of phase."

3. Place one unit of the phase checker in front of each speaker in the set. Throw the toggle switch to each position and leave it at the position that gives greatest output on the meter. Note the switch marking for this position. If it says "in phase," the set speakers are correctly phased. If it says "out of phase," reverse the leads to the voice-coil terminals of the small speaker in the receiver.

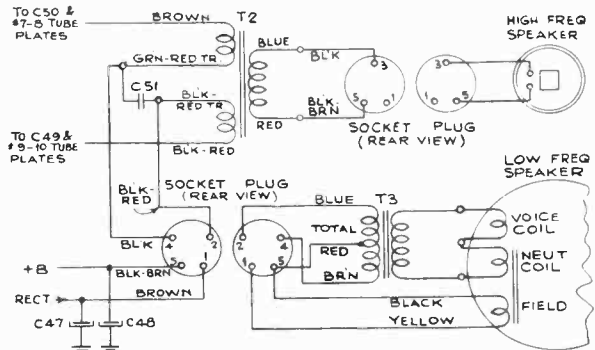


"Phase Checker," using Headphones.



"Phase Checker," using small "PM" speakers.

Speaker Wiring Diagram.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

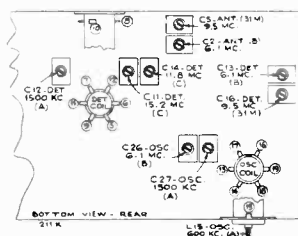
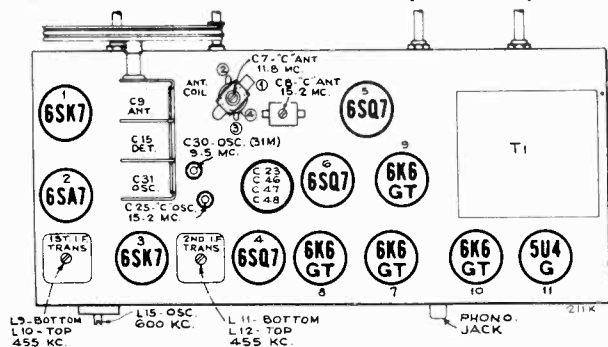
Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration for Alignment.—

A calibration scale is attached to the tuning drum. The correct setting of the gang, in degrees, for each alignment frequency is given in the alignment table. Check the position of the drum, making sure that the 140 degree scale mark is directly above condenser shaft when the gang is at minimum setting.

Pointer for Calibration Scale.—

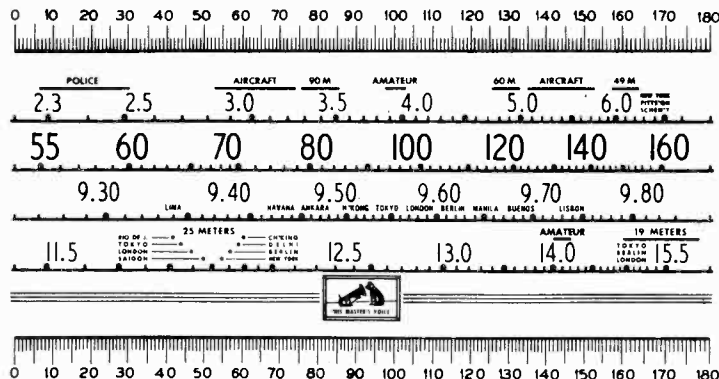
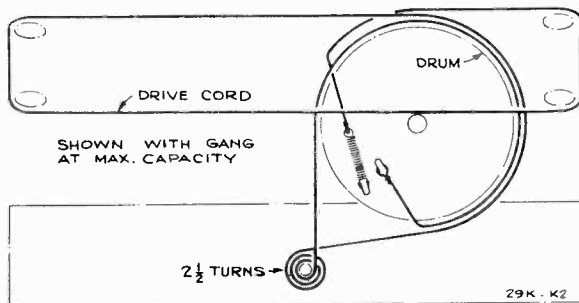
Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to 0 degree mark on the calibration scale when the plates are fully meshed.

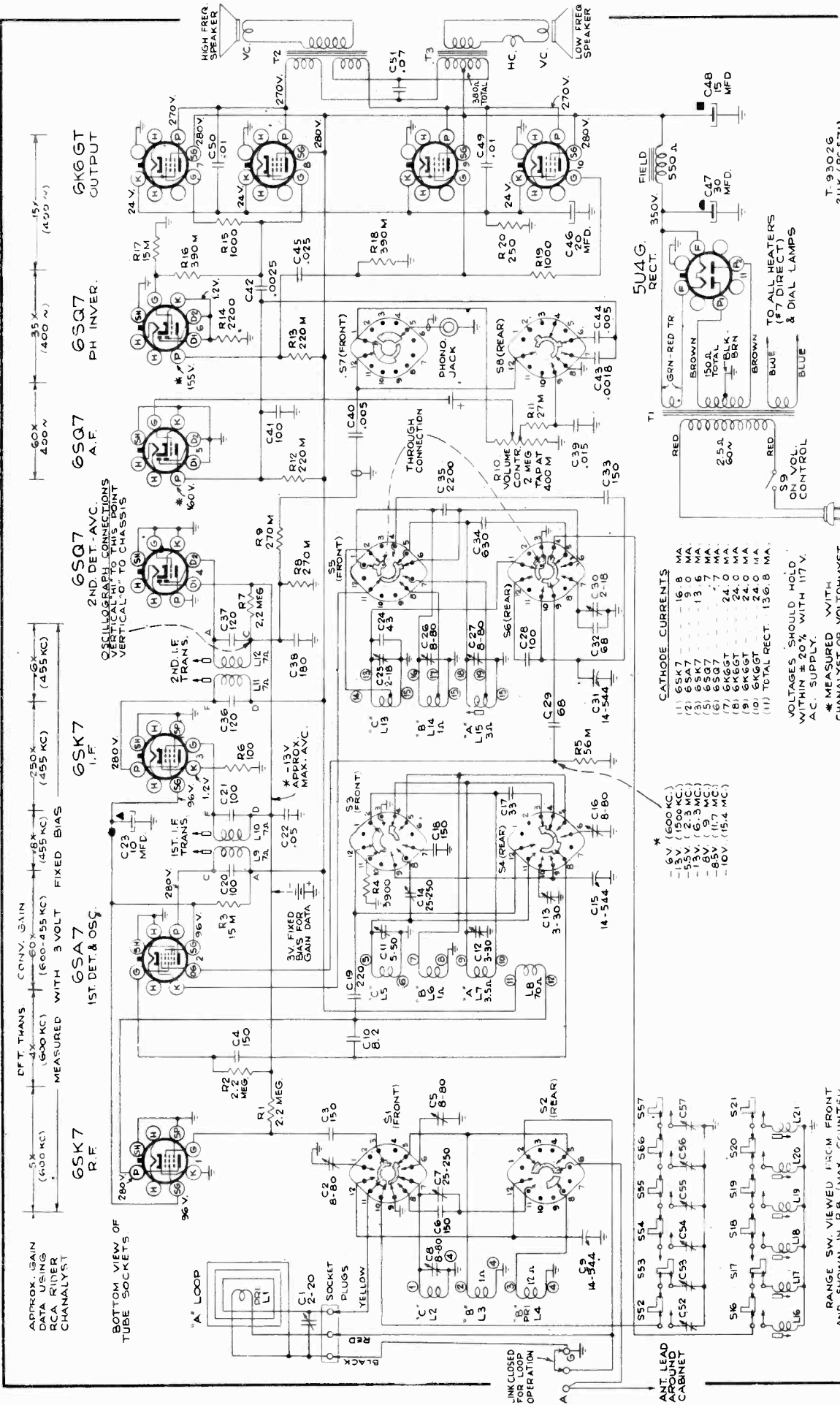


Steps	Connect the high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	Quiet Point on "A" Band	L-11 and L-12 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			L-9 and L-10 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf.	1,500 kc	1,500 kc (160°) "A" Band	C-27 (osc.) C-12 (det.)
4		600 kc	600 kc (30.5°)	L-15 (osc.) Rock
5		Repeat steps 3 and 4.		
6	Antenna terminal (A) in series with 47 mmfd. (link open)	6,100 kc	6,100 kc (161°) "B" Band	C-26 (osc.)* C-13 (det.) Rock C-2 (ant.) Gang
7		15.2 mc	15.2 mc (165°) "C" Band	C-25 (osc.)* C-11 (det.) Rock C-8 (ant.) Gang
8		11.8 mc	11.8 mc (52°) "C" Band	C-7 (ant.) Rock C-14 (det.) Gang
9		Repeat steps 7 and 8.		
10		9.5 mc	9.5 mc (87.5°) 31M-Band	C-30 (osc.)* C-5 (ant.) Rock C-16 (det.) Gang
11		Fasten chassis in cabinet, close ant. link, adjust indicator to left-hand end of dial scales with gang closed.		
12	Radiation loop consisting of two turns of wire 18 inches in diameter located 4 to 6 feet from receiver	1,500 kc	1,500 kc signal "A" Band	C-1 (ant.) on loop
13		600 kc	600 kc signal "A" Band	L-15 (osc.) Rock Gang
14	Repeat steps 12 and 13.			

* Use minimum capacity peak if two peaks can be obtained.
Note: Oscillator tracks 455 kc above signal on all bands.

External Antenna.—When using an External Antenna, Peak C7 for max. output on a station in the 31-meter band.





- 4.** Dress all excess power transformer leads between chassis and transformer down close to the chassis.
- 5.** Dress pilot light leads under A.C. cord.
- 6.** Dress audio grid lead from tone switch to No. 2 pin of 6SQ7 and bias cell away from diode lead.

- 1.** Dress all filament wiring away from output grids.
- 2.** Leads from electrolytic to rectifier should be dressed so that all excess wire is at the socket side.
- 3.** Speaker leads should be dressed down close to the chassis base and away from the phono plug.

ANT. LEAD AROUND CABINET

52 553 554 555 566 557

C52 /C55 /C54 /C55 /C56 /C57

516 517 518 519 520 521

L16 L17 L18 L19 L20 L21

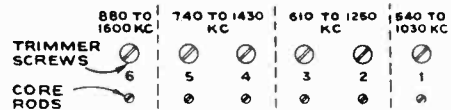
T-93026
211K (RC 571)

Push Button Adjustment

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.
3. Turn range selector to "PB" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core to receive the station.
4. After oscillator core is set correctly, adjust No. 1 antenna trimmer for maximum output.



Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with No. 1 oscillator core either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

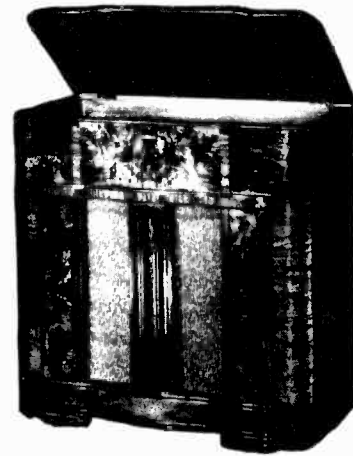
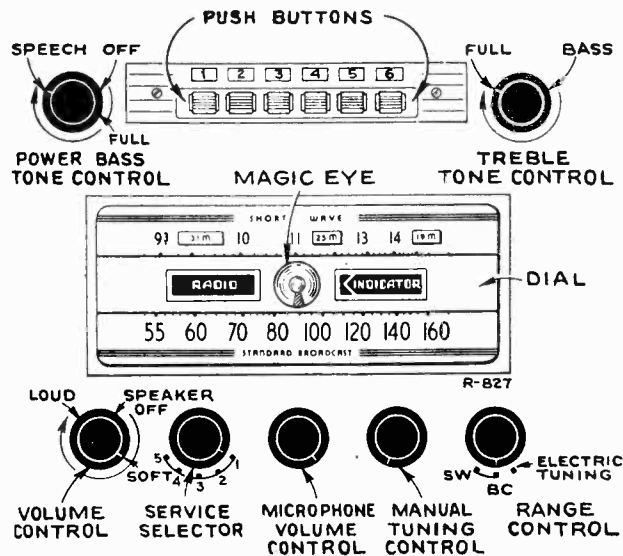
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-571)			
35966	Board—"Antenna-Ground" board	35595	Resistor—15,000 ohms, 3 watt
36045	Capacitor—Electrolytic comprising 1 section of 30 mfd., 450 volts, 1 section of 15 mfd., 450 volts, 1 section of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts	30409	Resistor—27,000 ohms, 1/2 watt
38588	Capacitor—Adjustable—25-200 mmfd. for "C" band antenna coil	30650	Resistor—56,000 ohms, 1/2 watt
36051	Capacitor—Air trimmer	14583	Resistor—220,000 ohms, 1/2 watt
38591	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd. and 1 section of 8-80 mmfd.	30651	Resistor—270,000 ohms, 1/2 watt
38586	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd., 1 section of 8-80 mmfd., and 1 section of 25-250 mmfd.	13479	Resistor—390,000 ohms, 1/2 watt
38587	Capacitor—Mica trimmer—8-80 mmfd.	30649	Resistor—2.2 meg., 1/2 watt
36169	Capacitor—Mica trimmer comprising 2 sections of 8-80 mmfd.	38589	Shaft—Tuning knob shaft
36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.	31364	Socket—Dial lamp socket
13001	Capacitor—8.2 mmfd.	35787	Socket—Phono input socket
38868	Capacitor—33 mmfd.	31251	Socket—Tube socket
38867	Capacitor—43 mmfd.	31418	Spring—Drive cord spring
13057	Capacitor—68 mmfd., moulded	12007	Spring—Retaining spring for oscillator coil core and stud
38866	Capacitor—68 mmfd., silvered mica	38574	Support—L.H. pulley support complete with pulleys
12720	Capacitor—100 mmfd., moulded	39148	Support—R.H. pulley support complete with pulleys
34699	Capacitor—100 mmfd., un-moulded	38575	Switch—P.B. selector switch
38865	Capacitor—100 mmfd., silvered mica	38590	Switch—Range switch
34700	Capacitor—120 mmfd.	38576	Switch—Tone switch
12725	Capacitor—150 mmfd., moulded	35636	Transformer—First I.F. transformer
38864	Capacitor—150 mmfd., silvered mica	35790	Transformer—Second I.F. transformer
13003	Capacitor—180 mmfd.	38585	Transformer—Output transformer
12694	Capacitor—220 mmfd.	36164	Transformer—Power transformer—105-120 volts, 25 cycle
38831	Capacitor—630 mmfd.	36044	Transformer—Power transformer—105-120 volts, 50/60 cycle
30882	Capacitor—2200 mmfd.	35969	Washer—"C" washer for tuning knob shaft
34506	Capacitor—.0018 mfd.	SPEAKER ASSEMBLIES (E.M.) (RL-70-L4)	
34459	Capacitor—.0025 mfd.	13867	Cap—Dust cap
33584	Capacitor—.005 mfd.	36143	Coil—Field coil—550 ohms
4937	Capacitor—.01 mfd.	11469	Coil—Neutralizing coil
11315	Capacitor—.015 mfd.	36145	Cone—Cone complete with voice coil
37706	Capacitor—.025 mfd.	11953	Plug—4-prong male plug for speaker
32787	Capacitor—.05 mfd.	36146	Suspension—Metal cone suspension
14626	Capacitor—.07 mfd.	36144	Transformer—Output transformer
31581	Cell—Bias cell	SPEAKER ASSEMBLIES (P.M.) (RL-81-B6)	
38367	Coil—Antenna coil—"C" band	35849	Cap—Dust cap
38358	Coil—Oscillator coil	38683	Cone—Cone complete with voice coil
38315	Coil—P.B. oscillator coil—high frequency	5118	Plug—3-prong male plug for speaker
37638	Coil—P.B. oscillator coil—low frequency	MISCELLANEOUS ASSEMBLIES	
38366	Coil—R.F. coil	38375	Button—Push button
38364	Condenser—Variable tuning condenser	38684	Capacitor—Mica trimmer—2-20 mmfd.
38404	Control—Volume control and power switch	38584	Channel—Rubber channel to hold dial
34662	Cord—Drive cord (approx. 76-in. overall length)	38579	Coil—Loop primary coil
35788	Core—Adjustable core and stud for oscillator coil	38749	Decalomania—Control panel decal
35871	Core—Adjustable core and stud for P.B. oscillator coils	38592	Dial—Glass dial scale
38359	Cup—Mounting cup and bushing for oscillator coil	38582	Escutcheon—Dial scale escutcheon
38361	Drum—Condenser drive drum	38709	Indicator—Station selector indicator
31580	Holder—Bias cell holder	35814	Knob—Control knob
5119	Plug—3-contact female plug for speaker cable	11891	Lamp—Dial lamp
5040	Plug—4-contact female plug for speaker cable	38578	Loop—Antenna loop complete
38832	Plug—Pin plug for antenna loop leads	34317	Marker—Station marker
31373	Pulley—Drive cord pulley	33774	Mounting—Speaker mounting hardware for 12-in. speaker
34765	Resistor—100 ohms, 1/2 watt	38580	Pivot—Loop pivot located on top of loop frame
36096	Resistor—250 ohms, 2 watt	38707	Plate—Dial plate complete—less indicator pointer
14720	Resistor—1000 ohms, 1/2 watt	36422	Socket—Loop cable socket located on loop
34767	Resistor—2200 ohms, 1/2 watt	34053	Spring—Push button retaining spring
30694	Resistor—3900 ohms, 1/2 watt	30900	Spring—Retaining spring for knob
36714	Resistor—15,000 ohms, 1/2 watt	38581	Swivel—Loop support and swivel located on bottom of loop frame

MODEL VHR-212

Chassis No. RC-574

Home-Recording Radio-Phonograph Combination

(Refer to RP-161 Service Note for Data on Automatic Mechanism)



Electrical and Mechanical Specifications

FREQUENCY RANGE

Broadcast "A" 540-1600 kc
 Short Wave "C"..... 9,400-15,400 kc

Intermediate Frequency 455 kc

TUBE COMPLEMENT

- (1) RCA-6SG7 R-F Amplifier
- (2) RCA-6SA7 1st Det.—Oscillator
- (3) RCA-6SK7 I-F Amplifier
- (4) RCA-6SJ7 A-F Amplifier
- (5) RCA-6Q7 2nd Det.—Phase Inverter
- (6) RCA-6K6GT Power Output
- (7) RCA-6K6GT Power Output
- (8) RCA-6Q7 Microphone Amplifier
- (9) RCA-6U5-6G5 Tuning and Recording Indicator
- (10) RCA-5Y3G Rectifier

PILOT LAMPS

Dial (2) Mazda No. 51, 6-8 V., 0.2 amps.
 Indicator Mazda No. 44, 6-8 V., 0.25 amps.
 Compartment Mazda No. 55, 6-8 V., 0.4 amps.

POWER OUTPUT

Undistorted 5 watts
 Maximum 5.5 watts

RECORD CHANGER (RP-161)

Record Capacity Twelve 10-in., Ten 12-in.
 Turntable Speed 78 r.p.m.
 Type Pickup Crystal

RECORDER (RMP-110)

Recording Head (Cutter) Crystal
 Turntable Speed 78 r.p.m.
 Recording Disc Diameter Up to 10 inches

LOUDSPEAKER (RL-70M-6)

Type 12-inch electrodynamic
 Voice Coil Impedance 2.2 ohms at 400 cycles

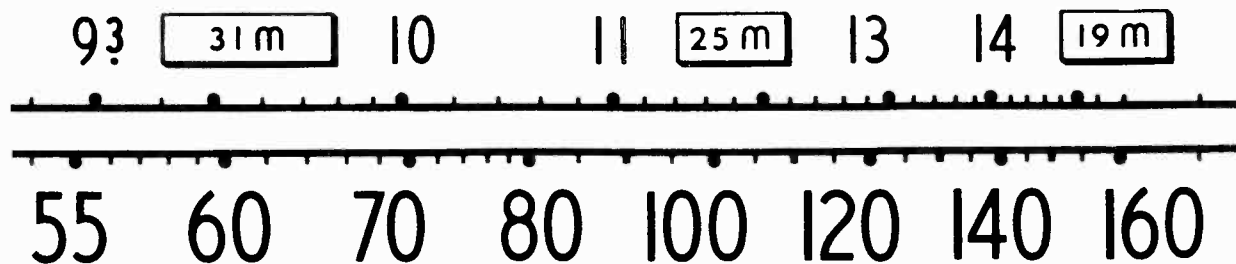
POWER SUPPLY RATING

105-125 volts, 60 cycles 140 watts

Tuning Drive Ratio 18-1

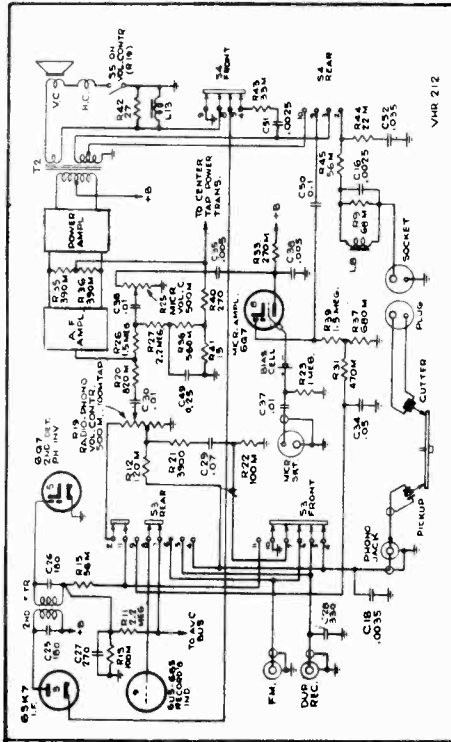
CABINET DIMENSIONS

Height (inches) 34
 Width (inches) 33⁷/₈
 Depth (inches) 17³/₈

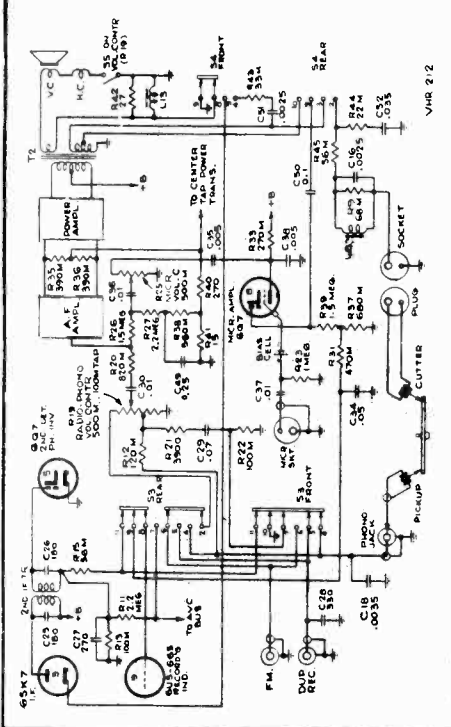


The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in alignment procedure.

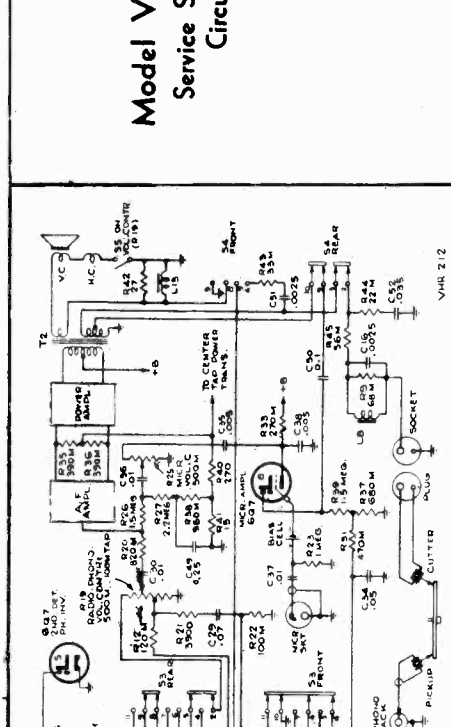
1. Radio



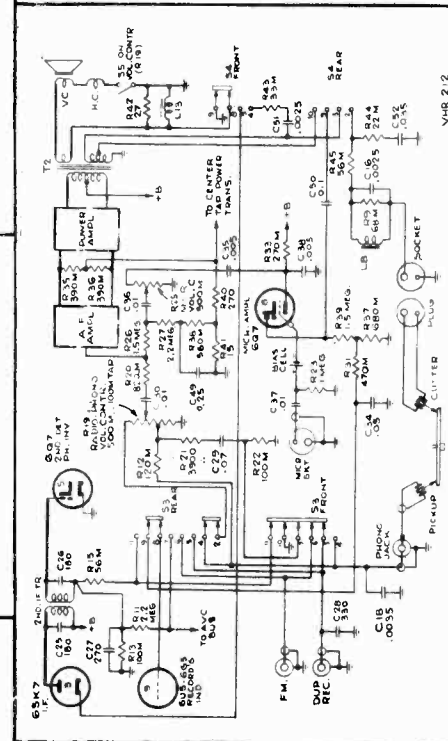
5. FM or Television



Model VHR-212 Service Selector Circuits



4. Recording

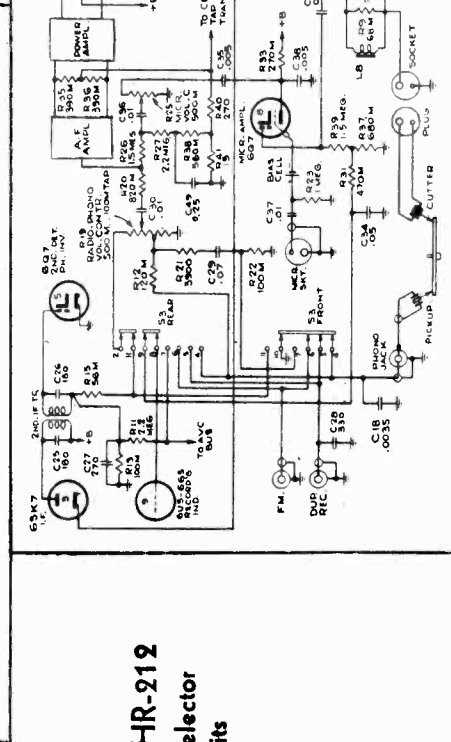


F.M. OR TELEVISION RECORDING
 1. RADIO PROGRAMS MIXED WITH F.M. OR TELEVISION PROGRAMS MIXED WITH MICROPHONE.

RADIO RECORDING
 1. CUTTING RECORDS OF VOICE OR MUSIC USING AUX. TURNABLE.
 2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

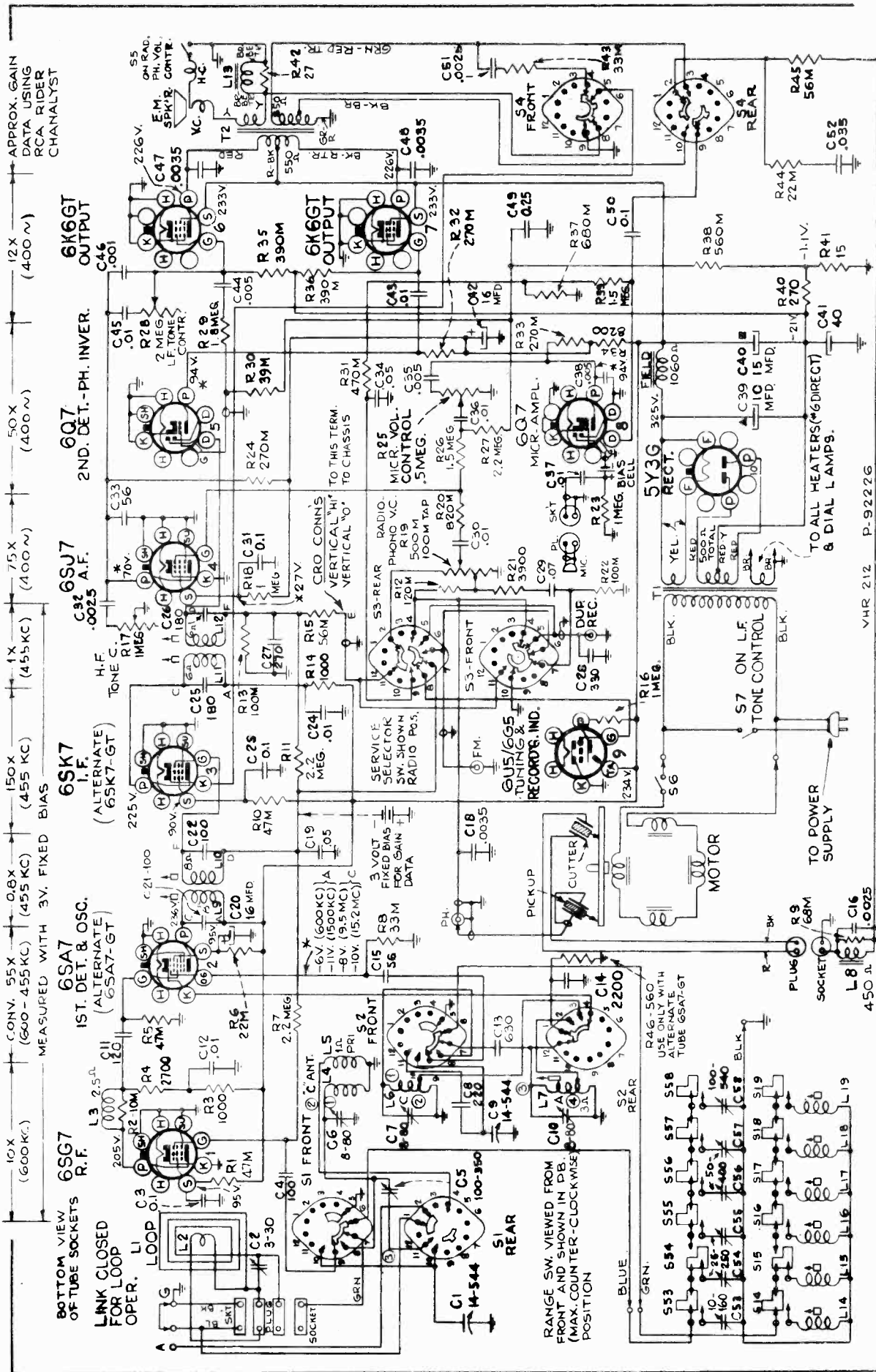
PHONOGRAPH RECORD SELECTIONS
 1. PHONOGRAPH RECORD SELECTIONS MIXED WITH VOICE OR MUSIC BY MICROPHONE.
 2. MICROPHONE ONLY (P.A.).

2. Radio Recording



3. Phonograph

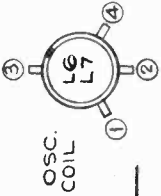




VHR 212 P-92226

CATHODE CURRENTS

- (1) 6SG7 --- 10.9 MA.
- (2) 6SA7 --- 10.9 MA.
- (3) 6SK7 --- 13.4 MA.
- (4) 6SJ7 --- 0.7 MA.
- (5) 6G7 --- 0.5 MA.
- (6) 6K6GT --- 19.5 MA.
- (7) 6K6GT --- 19.5 MA.
- (8) 6G7 --- 0.4 MA.
- (9) 6U5/6G5 --- 0.8 MA.
- (10) TOTAL RECT --- 77.6 MA.



VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117V. AC. SUPPLY.
 * MEASURED WITH CHANALYST OR VOLTOHMYST.

APPROX. GAIN DATA USING RCA RIDER CHANALYST

12X (400 ~)

50X (400 ~)

75X (100 ~)

1X (455 KC)

150X (455 KC)

0.6X (455 KC)

MEASURED WITH 3V. FIXED BIAS

CONV. 55X (600-455 KC)

10X (600 KC)

LINK CLOSED FOR LOOP OPER.

1ST. DET. & OSC. (ALTERNATE 6SA7-GT)

6SK7 I.F. (ALTERNATE 6SK7-GT)

6SJ7 2ND. DET. - PH. INVER.

6K6GT OUTPUT

RANGE SW. VIEWED FROM FRONT AND SHOWN IN DB. (MAX. COUNTER-CLOCKWISE POSITION)

R46, 560 ALTERNATE WITH TUBE 6SA7-GT

TO POWER SUPPLY

TO ALL HEATERS (6 DIRECT) & DIAL LAMPS.

TO THIS TERM. TO CHASSIS

OSC. COIL

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

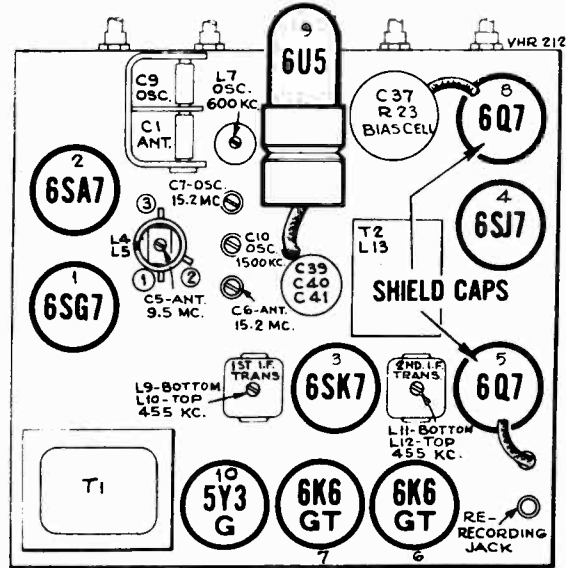
Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the scale printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

1. Remove glass dial from the cabinet.
2. With gang in full mesh, move the dial pointer to a point 1/16 inch to left of reference mark at left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduation coincides with the pointer. Use scotch tape to hold the glass dial in place.

"C" Band Reception.—For best reception on "C" band with an outside antenna, adjust the trimmer screw on the RF coil on the chassis. Turn screw carefully with a special screw-

driver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band, and make setting for best reception. If returning to internal antenna, close the link on the center terminal and adjust "C" band antenna trimmer for best reception on 31-meter band.



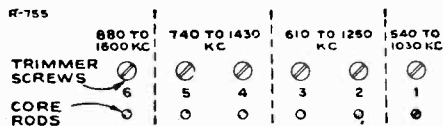
Critical Lead Dress:

1. Bus from "C" band oscillator trimmer C7 to coil should be dressed away from coil and other leads.
2. Yellow lead from oscillator coil to range switch should be dressed over coil terminals and away from other leads.
3. Red, green, and black oscillator coil leads should be dressed clear of each other and all other leads and parts.
4. "A" band tracking capacitor C13 should be dressed up and away from the coil and tuning shaft.
5. The green and blue push-button leads should be dressed clear of all other leads.
6. The grid leads to gang should be dressed away from all other leads and parts.
7. A.C. cord and motor lead should be dressed up and away from phono. and F.M. jack.
8. All excess power transformer leads should be dressed down towards chassis and back towards transformer.
9. Phono. cable should be dressed up away from tube sockets and service switch.
10. Dress cable from re-recording jack up and against end chassis apron.
11. Yellow lead at terminal No. 5 of 6Q7 amplifier should be dressed up and back towards pin No. 8.
12. Red lead to pin No. 6 of 6Q7 amplifier should be dressed against chassis.
13. Coupling capacitor C11 (120 mmfd.) should be dressed toward end apron.
14. R.F. coupling capacitor C4 (100 mmfd.) should be dressed away from terminal board on end apron.
15. R.F. plate choke should be dressed back and close to end shield away from C11 (120 mmfd.) capacitor.
16. All excess speaker leads should be dressed against chassis under phono. shield plate.
17. All leads and parts to cutter choke should be dressed away from phono. cable.
18. The .01 mfd. C43 capacitor from the plate of the 6Q7 to grid of 6K6GT should be dressed down against chassis.
19. The .0035 mfd. C47, C48 plate by-pass capacitors at 6K6GT sockets should be dressed against chassis.

Steps	Connect test-osc. output to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" band 540 kc	L11 and L12 (2nd I-F trans.)
2	1st Det. grid in series with .01 mfd.			L9 and L10 (1st I-F trans.)
3	A-Terminal in series with 47 mmfd. (link closed)	15.2 mc	"C" band 15.2 mc	C7 (osc.)* C6 (ant.)
4		9.5 mc	"C" band 9.5 mc	C5 (ant.) (Rock gang)
5		Repeat steps 3 and 4		
6	Green loop lead in series with 200 mmfd. (link closed)	1,500 kc	"A" band 1,500 kc	C10 (osc.)
7		600 kc	"A" band 600 kc	L7 (osc.)
8		Repeat steps 6 and 7		
9	Install and connect chassis in cabinet with antenna link closed. Tune in a radiated oscillator signal at 1,500 kc. and peak the "A" band trimmer C2 (on loop). Rock in L7 for peak output at 600 kc.			

*Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc. above signal on all bands.

Push Button Adjustments

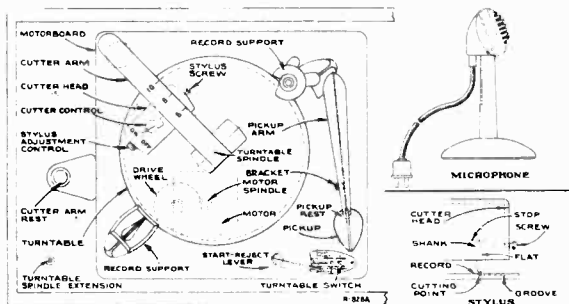


The push buttons connect to separate magnetite-core oscillator coils and separate ant. circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.
3. Turn range switch to push-button position and press in the left-hand button.
4. Adjust No. 1 oscillator core to receive the first station. To secure the best adjustment, rotate the Loop Antenna for least pickup, and adjust core for peak output.
5. Adjust No. 1 antenna trimmer capacitor for peak output on the first station.
6. Proceed in the same manner to adjust for the remaining stations.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.



**REPLACEMENT PARTS
AUTOMATIC RECORD CHANGER
REFER TO RP-161
PAGE 737C**

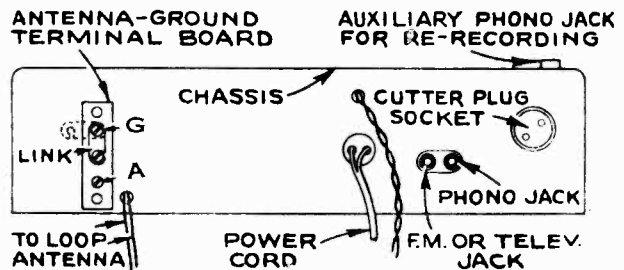
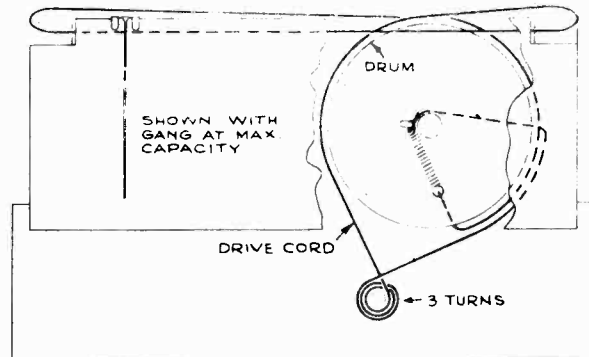
Television

In areas where Television Broadcasts are available, a Television Attachment will reproduce the picture while the receiver reproduces the sound. The pin plug on the Attachment cord plugs into the jack on the apron of the receiver chassis. For Television operation, turn the Service Selector to "F.M Tel." A proper Television Antenna is essential.

Frequency Modulation

In areas where Frequency Modulation (F-M) Broadcasts are available, a Frequency Modulation Attachment will permit reception on this newly developed short wave system. The pin plug on the Attachment cord plugs into the jack on the apron of the receiver chassis. For F-M operation, turn the Service Selector to "F.M Tel." A proper antenna is essential.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with osc. core either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.



Alternate Glass Tubes

When using a 6SK7-GT glass tube in place of the metal tube 6SK7, a shield (Stock No. 39074) and a clip (Stock No. 39073) are required for shielding purposes. When using a 6SA7-GT glass tube in place of the metal tube 6SA7, a 560 ohm, 1/4 watt resistor (Stock No. 12414) must be added in parallel with C-14 capacitor 2200 mmf. to prevent oscillation with push buttons in out position.

RECORDER OPERATING INSTRUCTIONS

Refer to Record Operating Instructions in Model VHR-202 Service note, taking note of these exceptions:

The position numbering is reversed

	MODEL VHR-212	VHR-202
RADIO	Pos. 1	Pos. 4
RADIO RECORDING	" 2	" 3
PHONOGRAPH	" 3	" 2
RECORDING	" 4	" 1
FM or TELEVISION	" 5	Omitted

The spindle extension of VHR-212 is removed and the free end of the cutter arm is seated on the turntable spindle.

Recording is controlled by the "cutter control" which raises or lowers the cutting stylus to the cutting position.

Turn cutter control to "ON" to begin recording. Turn cutter control to "OFF" to stop recording. The recording may be "played-back" immediately without moving the cutter arm.

Replacement Parts—Model VHR-212

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-574)			
39172	Arm—Adjusting arm for service selector switch	35787	Socket—Phono input socket
36342	Board—"Antenna-Ground" board	33165	Socket—Recorder head socket
30766	Cap—Rubber cap for tuning tube	31251	Socket—Tube socket
37877	Capacitor—Electrolytic—16 mfd., 450 volts	34864	Socket—Tuning tube socket
37888	Capacitor—Electrolytic comprising 1 section of 15 mfd., 400 volts, 1 section of 10 mfd., 400 volts, and 1 section of 40 mfd., 25 volts	31418	Spring—Drive cord spring
38368	Capacitor—Adjustable—50-350 mmfd.	38805	Switch—Range switch
38801	Capacitor—Mica trimmer comprising 3 sections of 8-80 mmfd. each	39174	Switch—Service selector switch
12723	Capacitor—56 mmfd.	35636	Transformer—First I.F. transformer
12720	Capacitor—100 mmfd., moulded	37065	Transformer—Second I.F. transformer
34699	Capacitor—100 mmfd., unmoulded	39328	Transformer—Output transformer
12724	Capacitor—120 mmfd.	35959	Transformer—Power transformer—105-120 volts, 50/60 cycle—less end shields
14712	Capacitor—180 mmfd.	35969	Washer—"C" washer for tuning shaft
38858	Capacitor—220 mmfd.		
12488	Capacitor—270 mmfd.	MICROPHONE ASSEMBLIES	
12952	Capacitor—330 mmfd.	39330	Base—Microphone base only
38831	Capacitor—630 mmfd.	37033	Cable—Microphone cable (12 ft.) complete—less plug
44338	Capacitor—2,200 mmfd.	39331	Cover—Front cover and screw
37102	Capacitor—.001 mfd.	39332	Crystal—Microphone crystal and holder encased in sponge rubber ring
34459	Capacitor—.0025 mfd.	39334	Handle—Microphone handle (wood)—less base and housing
30303	Capacitor—.0035 mfd.	39333	Housing—Crystal housing
33584	Capacitor—.005 mfd.	14793	Plug—2 prong male plug for microphone cable
4937	Capacitor—.01 mfd.	5042	Screw—No. 8-32 x 1/4-in. cup point set screw
5196	Capacitor—.035 mfd.		
32787	Capacitor—.05 mfd.	SPEAKER ASSEMBLIES (RL-70M-6)	
14626	Capacitor—.07 mfd.	13867	Cap—Dust cap
4839	Capacitor—.1 mfd.	12079	Coil—Field coil—1,060 ohms
12484	Capacitor—.25 mfd.	11469	Coil—Neutralizing coil
31581	Cell—Bias cell	36145	Cone—Cone complete with voice coil
39073	Clip—Tube shield clip	5039	Plug—4 prong male plug for speaker
34285	Clip—Tuning tube clip	36146	Suspension—Metal cone suspension
38788	Coil—Antenna coil—"C" band		
37064	Coil—Choke coil	MISCELLANEOUS ASSEMBLIES	
38829	Coil—Coil and resistor—10,000 ohms	X1214	Baffle—Baffle board and grille cloth
38787	Coil—Oscillator coil	36461	Button—Plug button
35800	Condenser—Variable tuning condenser	38375	Button—Push button
38409	Control—Microphone volume control	38684	Capacitor—Mica trimmer—2-20 mmfd.
39171	Control—Radio volume control and switch	36424	Capacitor—Mica trimmer comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.
34682	Cord—Drive cord (approx. 43-in. overall lgth.)	36462	Clamp—Dial clamp
12006	Core—Adjustable core and stud for I.F. transformers	36002	Coil—Loop primary coil
35788	Core—Adjustable core and stud for oscillator coil	38315	Coil—P.B. oscillator coil—high frequencies
38359	Cup—Oscillator coil mounting cup	37638	Coil—P.B. oscillator coil—low frequencies
38790	Drum—Drive drum	38405	Control—H.F. tone control
31580	Holder—Bias cell holder	38402	Control—L.F. tone control and power switch
35870	Indicator—Station selector indicator	35871	Core—Adjustable core and stud for P.B. oscillator coils
37017	Plate—Dial back plate complete—less pulleys, tuning tube clip, and "Indicator" screen	36328	Cover—Compartment lamp lead cover
11824	Plug—2 contact female plug for microphone cable—less shell	39472	Decalcomania—Control panel decal
30868	Plug—2 contact female plug for motor cable	37148	Decalcomania—"Power-Base" decal
36009	Plug—2 prong male plug for loop cable	36386	Decalcomania—Trade mark decal (His Master's Voice)
31572	Plug—3 contact female plug for power switch cable	35467	Decalcomania—Trade mark decal (RCA Victrola)
32641	Plug—3 prong male plug for selector switch cable	37147	Decalcomania—"Treble" decal
5040	Plug—4 contact female plug for speaker cable	39471	Dial—Glass dial scale
39153	Plug—4 prong male plug for tone control cable	36327	Escutcheon—Dial scale escutcheon—less dial
32289	Pulley—Drive cord pulley	38376	Escutcheon—Push button escutcheon—less buttons
33514	Receptacle—Phonograph and television socket	39352	Hinge—Cabinet door hinge
11565	Resistor—.15 ohms, 1/2 watt	30698	Hinge—Cabinet lid hinge
39389	Resistor—.27 ohms, 1 watt	13103	Jewel—Pilot lamp cap
36692	Resistor—.270 ohms, 3 watt	35814	Knob—Control knob
12414	Resistor—.560 ohms, 1/2 watt	5117	Lamp—Compartment lamp
14720	Resistor—1.000 ohms, 1/2 watt	11765	Lamp—Dial lamp
14024	Resistor—2.700 ohms, 1/2 watt	11891	Lamp—Indicator lamp
30694	Resistor—3.900 ohms, 1/2 watt	38806	Loop—Antenna loop complete
14250	Resistor—8.200 ohms, 1/2 watt	34317	Marker—Station call letter markers
30736	Resistor—22.000 ohms, 1 watt	39563	Mounting—Spring mounting hardware for motor-board (2 required)
19081	Resistor—22.000 ohms, 2 watt	38580	Pivot—Pivot and support located on top of loop frame
12454	Resistor—33.000 ohms, 1/2 watt	31567	Plug—3 prong male plug for power switch cable
12266	Resistor—39.000 ohms, 1/2 watt	37800	Shade—Compartment lamp shade
12412	Resistor—47.000 ohms, 1/2 watt	35999	Socket—2 contact female socket for loop leads
30787	Resistor—47.000 ohms, 1/2 watt	36422	Socket—3 contact female socket for selector switch cable
30650	Resistor—56.000 ohms, 1/2 watt	38853	Socket—4 contact female socket for tone control cable
14138	Resistor—68.000 ohms, 1/2 watt	34053	Spring—Retaining spring for buttons
14560	Resistor—100.000 ohms, 1/2 watt	30900	Spring—Retaining spring for knobs
13734	Resistor—120.000 ohms, 1/2 watt	33083	Spring—Spring for lid support No. 35831
30651	Resistor—270.000 ohms, 1/2 watt	35575	Spring—Spring for lid support No. 36414
13479	Resistor—390.000 ohms, 1/2 watt	37114	Spring—Spring for lid support No. 37113
30648	Resistor—470.000 ohms, 1/2 watt	36414	Support—Cabinet lid support for production using 1 section lid
12486	Resistor—560.000 ohms, 1/2 watt	35831	Support—L.H. lid support for production using 2 section lid
30562	Resistor—680.000 ohms, 1/2 watt	37113	Support—R.H. lid support for production using 2 section lid
30963	Resistor—820.000 ohms, 1/2 watt	38581	Support—Support and bracket—located on bottom of loop frame
30652	Resistor—1 meg., 1/2 watt	38575	Switch—P.B. selector switch
12201	Resistor—1.5 meg., 1/2 watt		
11769	Resistor—1.8 meg., 1/2 watt		
30649	Resistor—2.2 meg., 1/2 watt		
37018	Screen—"Indicator" screen		
39175	Screen—Service indicator screen		
14350	Screw—Square head set screw for arm No. 39172		
38803	Shaft—Tuning knob shaft		
39074	Shield—Tube shield		
38324	Sleeve—Rubber sleeve for arm No. 39172		
39173	Slider—Indicator slider complete—less screen		
31364	Socket—Dial lamp or compartment lamp socket		

MODELS V-215, V-219, V-221, V-225

Chassis No. RC-564 RC-564A RC-564 RC-564B

Nine-Tube, Three-Band, AC, Superheterodyne Receivers and Phonographs

Electrical and Mechanical Specifications

FREQUENCY RANGES
 Standard Broadcast (A)..... 540-1,600 kc
 Medium Wave (B)..... 2,300-6,300 kc
 Short Wave (C)..... 9,400-15,400 kc
 Intermediate Frequency..... 455 kc

ELECTRIC TUNING
 No. of Stations
 1 540-1,030 kc
 2 610-1,250 kc
 2 740-1,430 kc
 1 880-1,600 kc

TUBE COMPLEMENT
 (1) RCA-6SG7..... R-F Amplifier
 (2) RCA-6SA7..... 1st Detector—Oscillator
 (3) RCA-6SK7..... I-F Amplifier
 (4) RCA-6SQ7..... 2nd Det., A-F, A.V.C.
 (5) RCA-6SQ7..... Phase Inverter
 (6) RCA-6F6G..... Power Output
 (7) RCA-6F6G..... Power Output
 (8) RCA-6R7..... Pre. Amplifier
 (9) RCA-5U4G..... Rectifier

POWER OUTPUT RATING
 Undistorted..... 10 watts
 Maximum..... 12 watts

LOUDSPEAKER
 Type..... 12-inch electrodynamic
 Voice Coil Impedance..... 2.2 ohms at 400 cycles
 Identification Number..... (RL-70-M2)

POWER SUPPLY RATINGS (V-219, V-225)
 105-125 volts, 50-60 cycles..... 145 watts total

POWER SUPPLY RATING (V-215, V-221)
 105-125 volts, 50-60 cycles..... 145 watts total
 105-125 volts, 25 cycles..... 145 watts total

AUTOMATIC PHONOGRAPH RP-160 for V-215, RP-160A for V-219, RP-160B for V-221

Type Pickup..... Crystal
 Record Capacity..... Twelve 10-in., Ten 12-in. records
 Power Consumption 160..... 17 watts
 Power Consumption 160A..... 14 watts

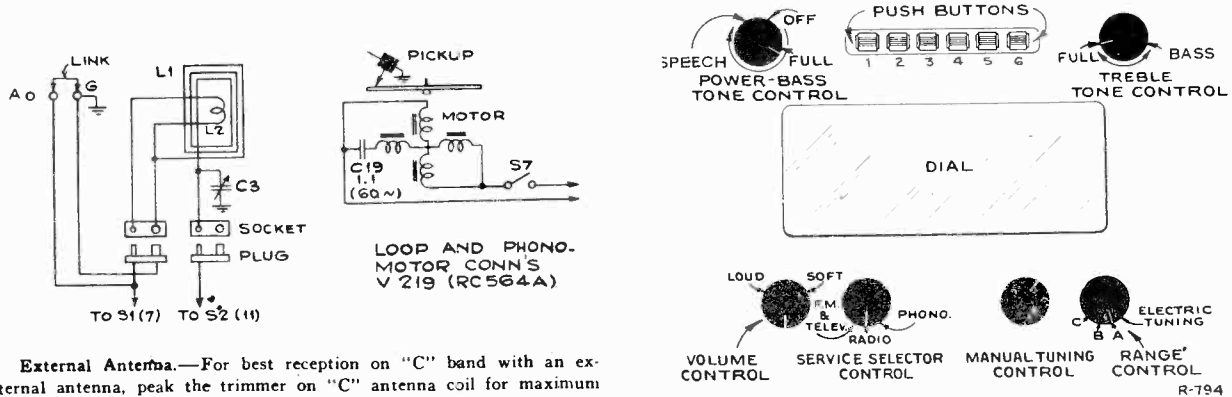
AUTOMATIC PHONOGRAPH RP-151 for V-225
 Type Pickups..... (2) Crystal
 Record Capacity..... Fifteen 10-in or Twelve 12-in.
 Power consumption turntable drive motor..... (14) watts
 Power consumption cycle motor..... (38) watts

CABINET DIMENSIONS (inches)	Height	Width	Depth
V-215	35½	35	16½
V-219	34	35	19
V-221	36	38	17½
V-225	41½	40½	19½

Chassis Base Dimensions (inches)..... 3 .. 11½ .. 10½
 Over-all Chassis Height (inches)..... 7

WEIGHT (lbs.)	Net	Shipping
V-215	100	120
V-219	102	125
V-221	112	133
V-225	156	198
Tuning Drive Ratio.....	18-1	

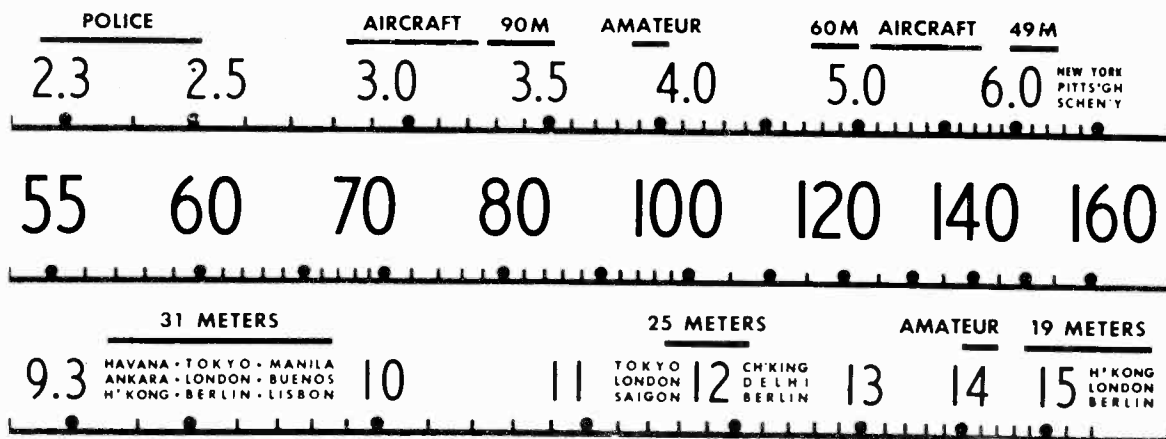
For Information on Automatic Mechanism, Refer to Service Notes on RP-160 for V-215, RP-160A for V-219, RP-160B for V-221, and RP-151 for V-225



External Antenna.—For best reception on "C" band with an external antenna, peak the trimmer on "C" antenna coil for maximum output on a station in the 31-meter band.

For all Models

Alignment Procedure



The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in alignment procedure.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts. of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the full size calibration scale printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

1. Remove the dial glass from the cabinet.
2. With gang at full mesh move the pointer to a point (1/16) inch to the left of the reference mark at the left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in place.

Using Dial Scale Printed In This Service Note.—

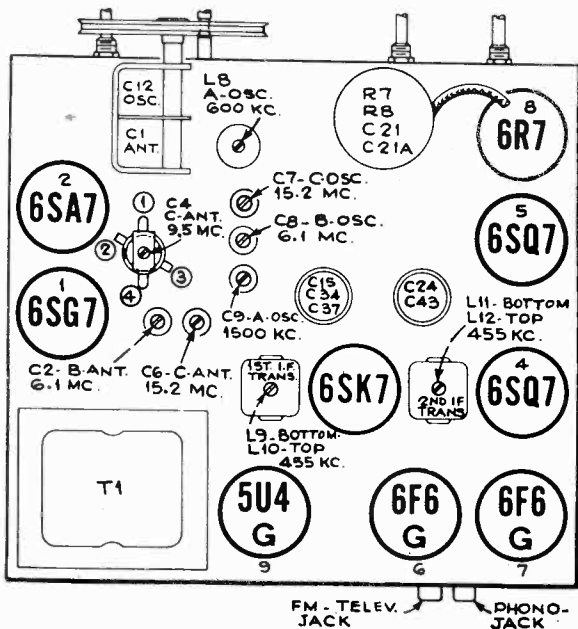
Follow the procedure above, substituting the dial scale printed in this service note for the glass dial in the cabinet.

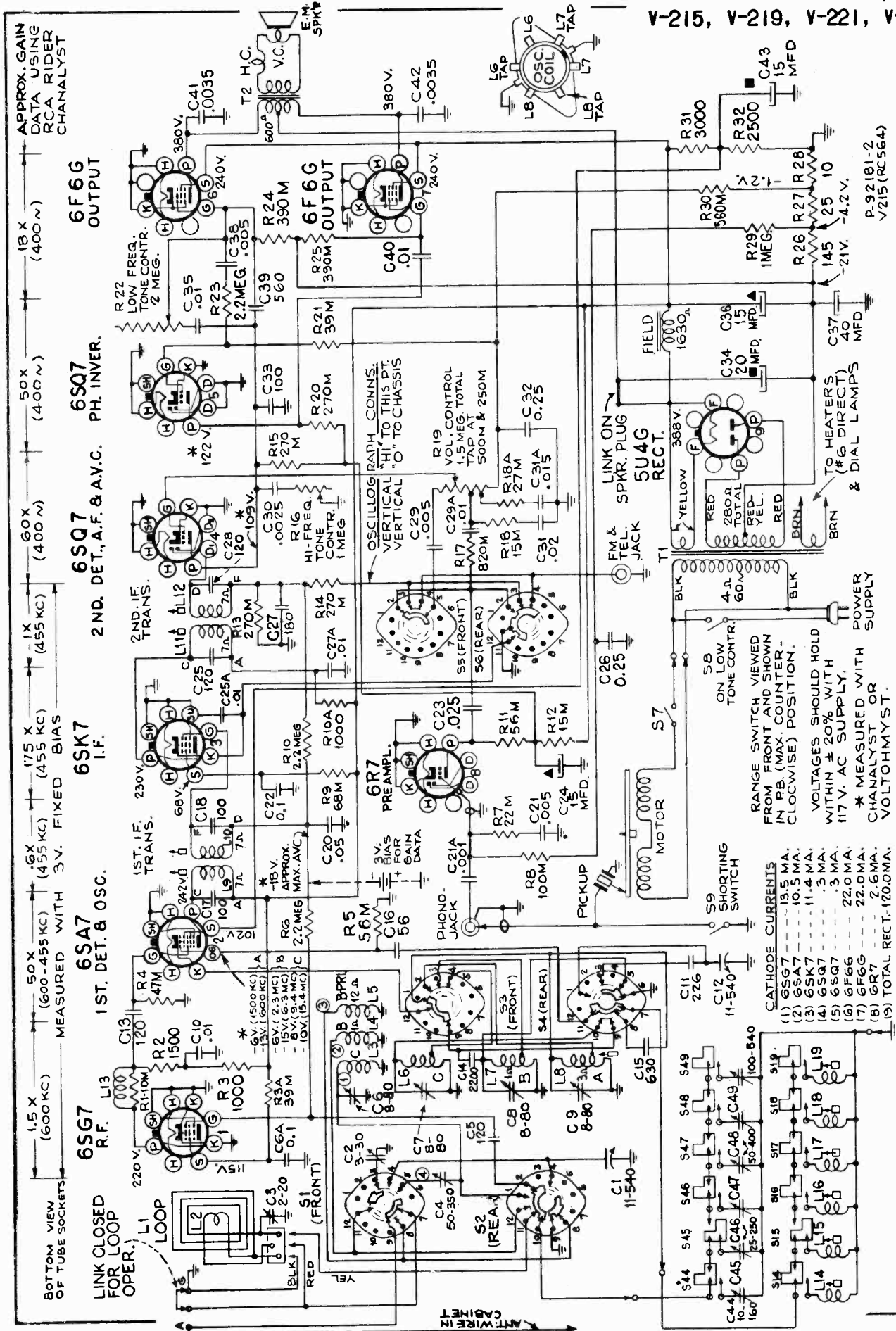
Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" Band 540 kc	L12, L11 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			L10, L9 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf. (link closed)	1,500 kc	"A" Band 1,500 kc	C9 (osc.)
4		600 kc	"A" Band 600 kc	L8 (osc.)
5	Repeat steps 3 and 4			
6	Ant. terminal in series with 47 mmf. (link closed)	6.1 mc	"B" Band 6.1 mc	C8 (osc.)* C2 (ant.)
7		15.2 mc	"C" Band 15.2 mc	C7 (osc.)* C8 (ant.)
8		9.5 mc	"C" Band 9.5 mc	C4 (ant.)
9	Repeat steps 7 and 8			
10	Install and connect chassis in cabinet, with link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band ant. trimmer C3 (on loop). Rock in L8 for peak output at 600 kc.			

* Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc above signal on all bands.

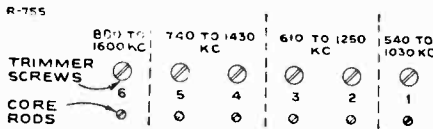
Critical Lead Dress

1. Push button, R.F. and oscillator leads should be separated as much as possible to reduce degeneration on push button reception.
2. R.F. choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer towards back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down towards green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmfd.) up and away from the screen and plate of 6SA7 socket.
14. A-C leads to "off-on" switch should be kept away from tone control cable to reduce hum.
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.





In Model V-219, the loop and phono motor connections are different, as shown in separate diagram on a following page. In Model V-225, R-8 is 220,000 ohms, R-17 is 1.8 Meg., and C-21 is .0035 mfd.



The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.

3. Turn range switch to push-button position and press in the left-hand button.

4. Adjust core rod No. 1 to receive the first station. To secure the best adjustment, rotate the loop for least pickup, and adjust core rod No. 1 for peak output.

5. Adjust trimmer screw No. 1 for peak output on the first station.

6. Proceed in the same manner to adjust for the remaining stations.

7. Repeat adjustments for best results.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with core rod No. 6 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

NOTE: Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES			
	(RC-564 V-215)	12486	Resistor—560,000 ohms, 1/2 watt
	(RC-564A V-219)	30161	Resistor—820,000 ohms, 1/2 watt (for V-215, V-219 and V-221)
	(RC-564B V-225)	30652	Resistor—1 meg., 1/2 watt
	(RC-564 V-221)	11769	Resistor—1.8 meg., 1/2 watt (for V-225)
36342	Board—"Antenna-Ground" board	30849	Resistor—2.2 meg., 1/2 watt
34889	Capacitor—Electrolytic comprising 2 sections of 15 mfd., 450 volts each	38803	Shaft—Tuning knob shaft
37888	Capacitor—Electrolytic comprising 1 section of 20 mfd., 450 volts, 1 section of 15 mfd., 350 volts, and 1 section of 40 mfd., 25 volts	36059	Shield—Bottom shield for transformer No. 34539
38852	Capacitor—Mica trimmer—2 sections of 8-80 mmfd.	36058	Shield—Top shield for power transformer No. 34539 for Models V-215, V-225 and V-221
38801	Capacitor—Mica trimmer—3 sections of 8-80 mmfd.	36861	Shield—Top shield for power transformer No. 34539 for Model V-219
38368	Capacitor—Mica trimmer—50-350 mmfd. for "C" band antenna coil	31364	Socket—Dial lamp socket for V-215, V-219, V-221 and V-225 or compartment lamp socket for V-219, or indicator lamp socket for V-215, V-221
12723	Capacitor—56 mmfd.	33514	Socket—Phono input socket
12720	Capacitor—100 mmfd., moulded	31251	Socket—Tube socket
34699	Capacitor—100 mmfd., un-moulded	31418	Spring—Drive cord spring
12724	Capacitor—120 mmfd., moulded	12907	Spring—Retaining spring for oscillator coil core and stud
54700	Capacitor—120 mmfd., un-moulded	38809	Switch—"Radio-Phono" control switch
13003	Capacitor—180 mmfd.	38807	Switch—Range switch
38830	Capacitor—226 mmfd.	35636	Transformer—First I.F. transformer
12537	Capacitor—560 mmfd. (for V-215 and V-221)	35790	Transformer—Second I.F. transformer
38831	Capacitor—630 mmfd.	39353	Transformer—Power transformer—105/120 volts, 25 cycle for Model V-215 and V-221
44338	Capacitor—2,200 mmfd.	34539	Transformer—Power transformer—105/120 volts, 50/60 cycle—less end shields
37102	Capacitor—.001 mfd. (for V-215, V-219 and V-221)	35939	Washer—"C" washer for tuning shaft
34459	Capacitor—.0025 mfd.	AUTOMATIC RECORD CHANGER	
30303	Capacitor—.0035 mfd.	MODEL V-215	
33584	Capacitor—.005 mfd.	See separate Service Bulletin RP-160 Record Changer	
4937	Capacitor—.01 mfd.	MODEL V-221	
11315	Capacitor—.015 mfd.	See Separate Service Bulletin RP-160-B Record Changer	
36248	Capacitor—.02 mfd.	MODEL V-219	
37706	Capacitor—.025 mfd.	See separate Service Bulletin RP-160-A Record Changer	
32787	Capacitor—.05 mfd.	MODEL V-225	
4839	Capacitor—.01 mfd.	See separate Service Bulletin RP-151 Record Changer	
12484	Capacitor—.25 mfd.	SPEAKER ASSEMBLIES	
38367	Coil—Antenna coil—"C" band	(RL-70M-2)	
38358	Coil—Oscillator coil	13867	Cap—Dust cap
35876	Coil—Peaking coil and resistor—10,000 ohms	36331	Coil—Field coil—1,630 ohms
38800	Condenser—Variable tuning condenser	11469	Coil—Neutralizing coil
36447	Control—Volume control	36145	Cone—Cone complete with voice coil
32634	Cord—Drive cord (approx. 43" overall length)	31539	Plug—5 prong male speaker plug
35788	Core—Adjustable core and stud for oscillator coil	36146	Suspension—Metal cone suspension
38359	Cup—Oscillator coil mounting cup	33444	Transformer—Output transformer
38790	Drum—Drive drum	MISCELLANEOUS ASSEMBLIES	
35870	Indicator—Station selector indicator	36639	Bracket—Lamp bracket for V-215, V-225, V-221
36333	Plate—Dial back plate complete with pulleys—less dial	39364	Bracket—Roller bracket—L.H.—less rollers for V-215, V-221
38832	Plug—Pin plug for antenna loop leads for Model V-215 and V-221	39363	Bracket—Roller bracket—R.H.—less rollers for V-215, V-221
30868	Plug—2 contact female plug for motor cable	36461	Button—Plug button for V-219
36009	Plug—2 prong male plug for antenna loop cables for Model V-219	38375	Button—Push button
31572	Plug—3 contact female plug for power switch cable	38684	Capacitor—Mica trimmer—2-20 mmfd.
32641	Plug—3 prong male plug for selector switch cable	36424	Capacitor—Mica trimmer—comprising 1 section of 10-160 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 1 section of 100-540 mmfd.
39153	Plug—4 prong male plug for tone control cable	36462	Clamp—Dial clamp
12493	Plug—5 contact female plug for speaker cable	38579	Coil—Loop primary coil for V-215, V-225, V-221
32289	Pulley—Drive cord pulley	36002	Coil—Loop primary coil for V-219
38808	Resistor—Voltage divider	38315	Coil—P.B. oscillator coil—high frequency
14720	Resistor—1,000 ohms, 1/2 watt	37638	Coil—P.B. oscillator coil—low frequency
14499	Resistor—1,500 ohms, 1/2 watt	38405	Control—H.F. tone control
36714	Resistor—15,000 ohms, 1/2 watt	38402	Control—L.F. tone control and power switch
30492	Resistor—22,000 ohms, 1/2 watt		
30409	Resistor—27,000 ohms, 1/2 watt		
12266	Resistor—39,000 ohms, 1/2 watt		
30434	Resistor—39,000 ohms, 1 watt		
12412	Resistor—47,000 ohms, 1/2 watt		
30650	Resistor—56,000 ohms, 1/2 watt		
14138	Resistor—88,000 ohms, 1/2 watt		
14560	Resistor—100,000 ohms, 1/2 watt (for V-215, V-219 and V-221)		
14583	Resistor—220,000 ohms, 1/2 watt (for V-225)		
30651	Resistor—270,000 ohms, 1/2 watt		
13479	Resistor—390,000 ohms, 1/2 watt		

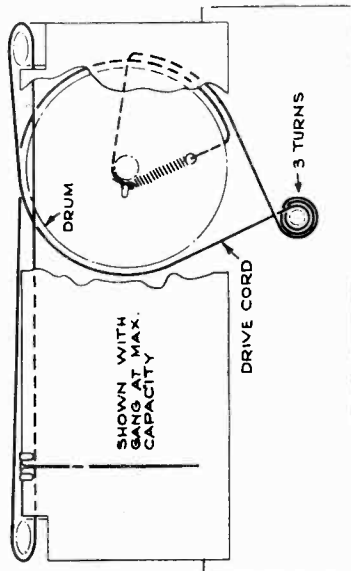
Replacement Parts (Continued)

V-215, V-219, V-221, V-225

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
35871	Core—Adjustable core and stud for P.B. oscillator coils	35850	Pivot—Antenna loop pivot—located on top of loop frame
36328	Cover—Compartment lamp lead cover for V-219	30870	Plug—2 prong male plug for compartment lamp cable assembly for V-225
39369	Cushion—Rubber shock-absorbing cushion for V-215, V-221	31567	Plug—3 prong male plug for switch and coil assembly cable
39015	Decalcomania—Control panel decal	39361	Pull—Door pull for V-215
37148	Decalcomania—"Power-Bass" decal	36413	Pull—Door pull for V-219
36386	Decalcomania—Trade mark decal (His Master's Voice) for V-219, V-225, V-221	36818	Pull—Door pull for V-221
35467	Decalcomania—Trade mark decal (RCA Victrola)	39486	Pull—Door pull for V-225
37147	Decalcomania—Treble tone decal	39365	Roller—Mechanism tray roller—less tire for V-215 and V-221
39014	Dial—Glass dial scale	37800	Shade—Compartment lamp shade for V-219
36327	Escutcheon—Dial escutcheon—less dial	37887	Shade—Lamp shade for V-225
38376	Escutcheon—Push button escutcheon—less buttons	36422	Socket—Antenna loop cable socket for V-215, V-221 and V-225, and 3 contact female socket located on selector switch and coil assembly
39373	Extension—Actuating hinge trip extension—less trip	35999	Socket—Antenna loop cable socket for V-219
39382	Glide—Adjustable glide for V-215, V-221	19026	Socket—Compartment lamp socket for V-225
39368	Guide—Roller guide—L.H.—for V-215, V-221	31364	Socket—Indicator lamp socket for V-225
39367	Guide—Roller guide—R.H.—for V-215, V-221	38853	Socket—4 contact female socket located on selector switch and coil assembly
39372	Hinge—Actuating hinge—less extension and trip for V-215 and V-221	30536	Spring—Cabinet lid support spring for Stk. No. 34793 and No. 39359
39357	Hinge—Cabinet door hinge (1 set) for V-219 (Fruitwood)	33083	Spring—Cabinet lid support spring for Stk. No. 35830 and No. 39358
4585	Hinge—L.H. bottom door hinges (1 set) for V-221	39375	Spring—Latch trip spring V-215 and V-221
39354	Hinge—Cabinet door hinge (1 set) for V-219 (Mahogany and Walnut) and V-225	30900	Spring—Retaining spring for knob
39355	Hinge—Cabinet lid hinge—L.H.—for V-219 (Fruitwood)	34053	Spring—Retaining spring for push button
39356	Hinge—Cabinet lid hinge—R.H.—for V-219 (Fruitwood)	39376	Stop—Mechanism tray stop V-215 and V-221
36608	Hinge—Cabinet lid hinge—L.H.—for V-219 (Mahogany and Walnut)	38581	Support—Antenna loop support—located on bottom of loop frame
36609	Hinge—Cabinet lid hinge—R.H.—for V-219 (Mahogany and Walnut)	39359	Support—Cabinet lid support—L.H.—for V-219 (Fruitwood)
37934	Hinge—Radio compartment door hinge for V-215 and V-221 (1 set)	39358	Support—Cabinet lid support—R.H.—for V-219 (Fruitwood)
38303	Hinge—Record changer compartment door hinge for V-215 and V-221	34793	Support—Cabinet lid support—L.H.—for V-219 (Mahogany and Walnut)
13103	Jewel—Pilot lamp cap	35830	Support—Cabinet lid support—R.H.—for V-219 (Mahogany and Walnut)
39371	Keeper—Mechanism tray latch keeper V-215 and V-221	39360	Support—Drop support for record changer compartment door for V-215 and V-221
35814	Knob—Control knob	35039	Switch—Compartment lamp switch for V-225
5117	Lamp—Compartment lamp for V-219	38575	Switch—P.B. selector switch
36728	Lamp—Compartment lamp for V-225	39366	Tire—Rubber tire for tray roller for V-215, V-221
11765	Lamp—Dial lamp	X1207	Tray—Record changer mechanism tray—mahogany—for V-215
39370	Latch—Mechanism tray latch V-215 and V-221	X1206	Tray—Record changer mechanism tray—walnut—for V-215
38578	Loop—Antenna loop complete for V-215, V-225 and V-221	X1229	Tray—Record changer mechanism tray—walnut—for V-221
38806	Loop—Antenna loop complete for V-219	X1230	Tray—Record changer mechanism tray—Mahogany—for V-221
34317	Marker—Station selector marker	39374	Trip—Mechanism tray latch trip, V-215 and V-221
39563	Mounting—Motorboard spring mounting for V-215, V-219, V-221 (2 required)	2917	Washer—"C" washer to hold roller to bracket for V-215 and V-221
39084	Mounting—Motorboard mounting hardware consisting of a top and a bottom spring bolt and lockwasher (4 required) for V-225		

RECORD CHANGER SLIDE MECHANISM (Models V-215, V-221)

An adjustment is located on each of the rear legs so that the angle of the cabinet may be adjusted to allow the record changer to slide out easily. Adjust so that the changer rolls out of the cabinet to a gradual stop at the front edge of the opened door.



V-215, V-221

Speaker RL-70N-6:

On 2nd Production of V-215 and V-221, the speaker is changed from RL-70M-2 to RL-70N-6. The replacement parts are identical.

Use of GT (Glass) Tubes:

When using the glass equivalent for metal tubes in the above models, the following changes must be made to prevent oscillation with the push-buttons in the "out" position:

6SA7GT glass tube in place of metal tube 6SA7:

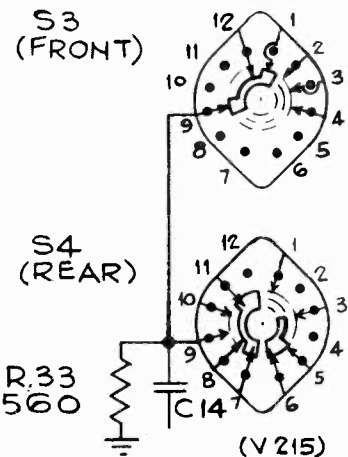
V-215, V-219, V-221, V-225—Add resistor R33, 560 ohms, 1/4 watt (RCA Stock No. 12414) from terminal 9 of switch S4 (Rear) to chassis ground as shown in the accompanying sketch.

6SK7GT glass tube in place of metal tube 6SK7:

A shield (RCA Stock No. 39074) and a grounding clip (RCA Stock No. 39073) are required for shielding purposes on all models above.

Removing Mechanism

- Unplug the power cord and pickup cord.
- Reach in behind the motor board and lift up the two metal tabs which act as stops and prevent the record changer from sliding out.
- Loosen the cable clamp holding the two cables in place.
- Pull the record changer out of the instrument.



When Using 6SA7GT Glass Tube in Models V-215, V-219, V-221, V-225, add Resistor R33

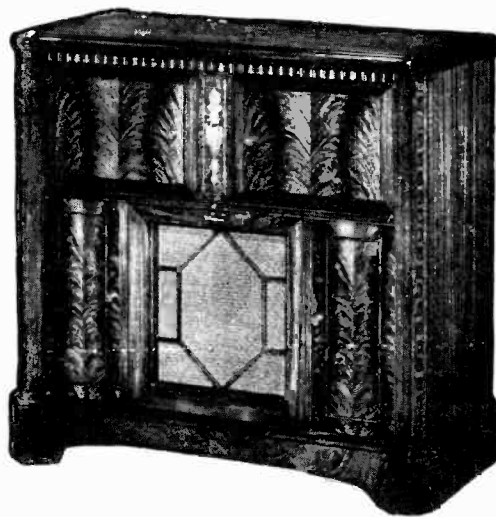
MODELS V-300, V-301, V-302

Chassis No. RC-518, RC-518A, R-518A

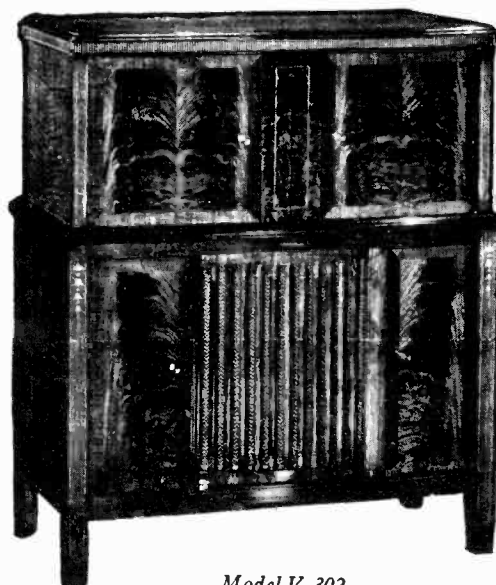
Ten-Tube, Plus Magic Eye, Three-Band, AC, Combinations



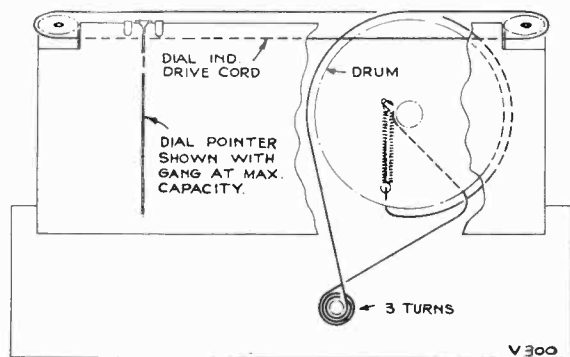
Model V-300



Model V-301



Model V-302



Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast "A"	540-1,600 kc
Medium Wave "B"	1.55-4.0 mc
Short Wave "C"	5.8-18.0 mc
SPREAD BAND	9.34-9.86 mc

INTERMEDIATE FREQUENCY

455 kc

TUBE COMPLEMENT

(1) RCA-6SK7	R-F Amplifier
(2) RCA-6SA7	1st Detector-Oscillator
(3) RCA-6SK7	1st I-F Amplifier
(4) RCA-6SK7	2nd I-F Amplifier
(5) RCA-6H6	2nd Detector, A.V.C.
(6) RCA-6J5	Audio Amplifier
(7) RCA-6F6-G	Driver
(8) RCA-6F6-G	Power Output
(9) RCA-6F6-G	Power Output
(10) RCA-6U5	Magic Eye
(11) RCA-5U4-G	Rectifier

POWER OUTPUT RATING

Undistorted	18 watts
Maximum	20 watts

LOUDSPEAKER (RL-94-1)

Type	15-inch Electrodynamic
V.C. Impedance	7.2 ohms at 400 cycles

PHONOGRAPH

Type	Automatic
Record Capacity	Eight 10-inch or Seven 12-inch
Turntable Speed	78 r.p.m.
Type Pickup	Crystal
Pickup Impedance	100,000 ohms at 1,000 cycles
Average Output	1½ volts at 1,000 cycles across ½ meg.

POWER SUPPLY RATINGS

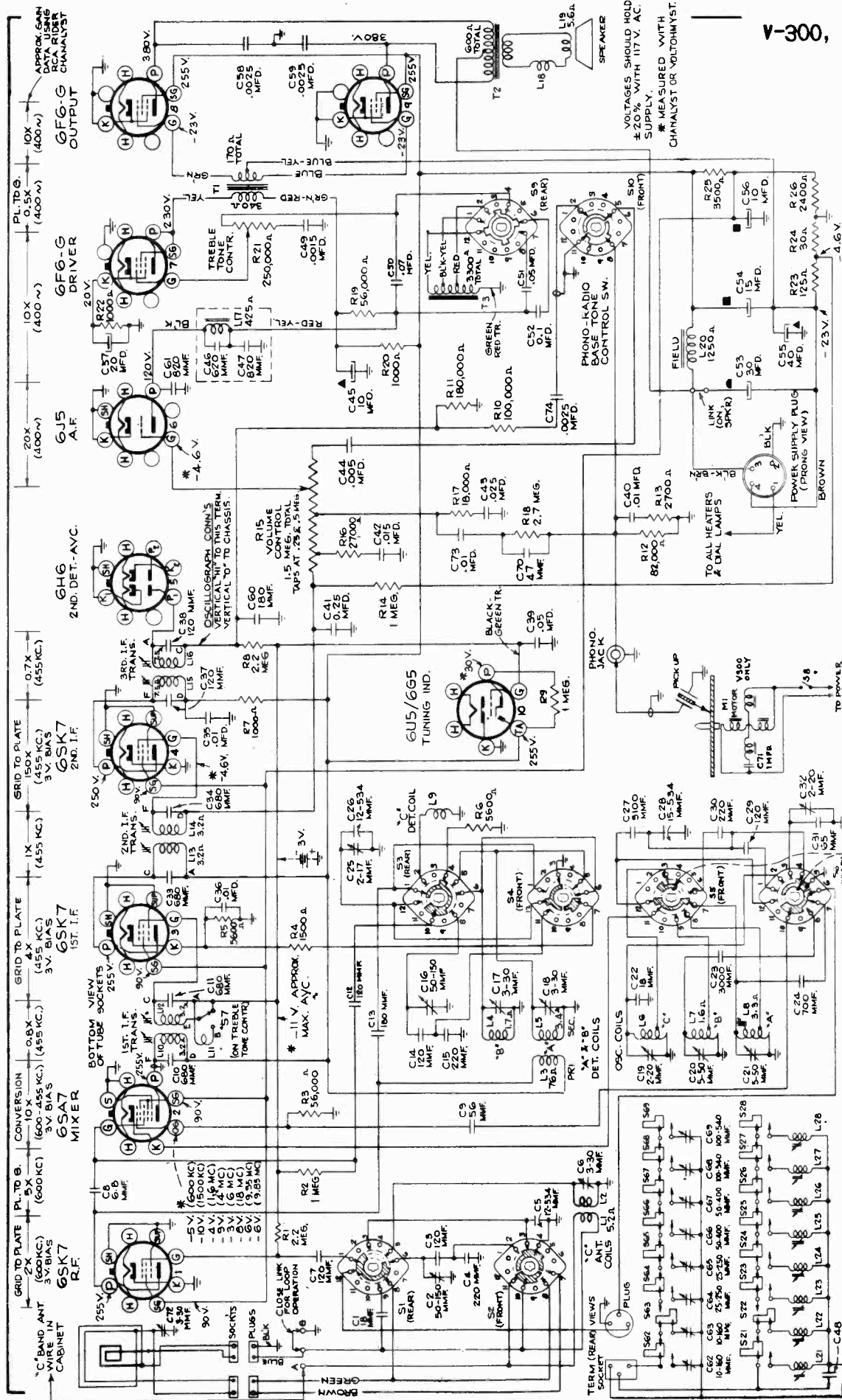
105-125 volts, 60 cycles	200 watts
105-125 volts, 25 cycles	200 watts

	Height	Width	Depth
Cabinet Dimensions (inches) { V-300 .. 35 .. 35½ .. 18-7/16			
{ V-301 .. 36 .. 38 .. 17½			
{ V-302 .. 42 .. 34½ .. 17½			

Tuning Drive Ratio

13:1

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN N. J., U. S. A

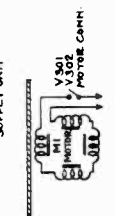


CATHODE CURRENTS

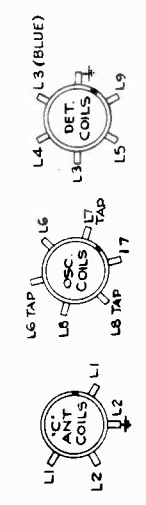
(1) 6SK7	15.9 MA
(2) 6SA7	7.9 MA
(3) 6SK7	1.9 MA
(4) 6J5	2.0 MA
(7) 6F6G	20.0 MA
(8) 6F6G	25.8 MA
(9) 6F6G	20.0 MA
(10) 6U5/6G5	0.8 MA
TOTAL RECT	142.5 MA

T-93328-1
V300 (RC-518)

RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN BLUE POSITION. (CLOCKWISE POSITION.)

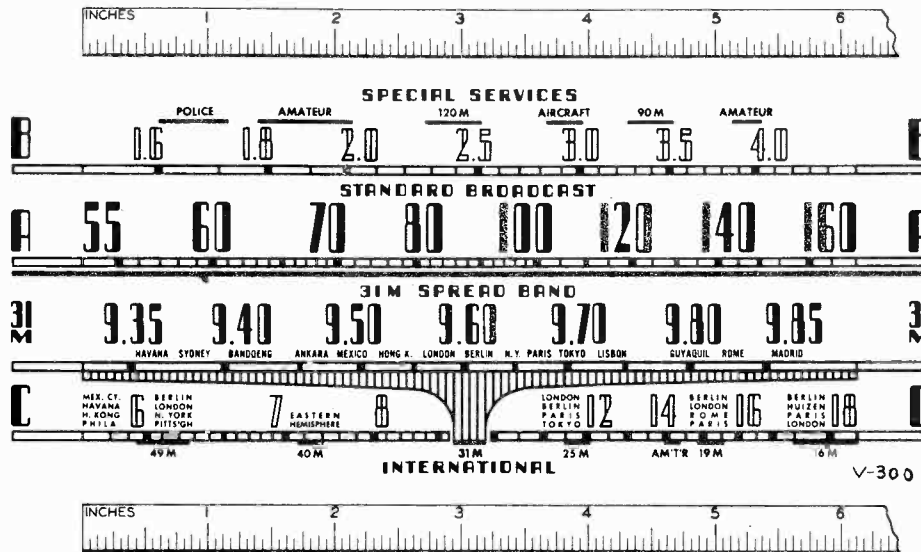


THROUGH CONNECTION (REAR)



When measuring R.F. and I.F. gain, a 3-volt bias was connected between the A.V.C. bus and chassis, as shown in dotted lines.

Alignment Procedure



Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

Using Tuning Dial.—

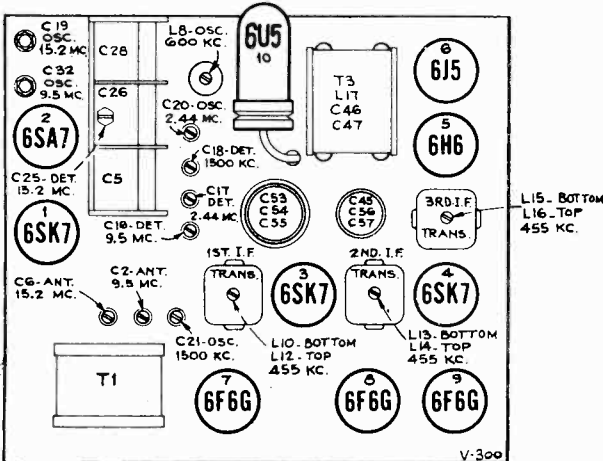
- Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

Using Calibration Scale.—

- With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
- Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.
- Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Turn "Treble Tone Control" (center knob) counter-clockwise so that I-F is in "Sharp" position.			
2	2nd I-F grid, in series with .01 mfd.	455 kc	"A" Band Quiet Point at HF end	L15 and L16* (3rd I-F Trans.)
3	1st I-F grid, in series with .01 mfd.			L13 and L14* (2nd I-F Trans.)
4	1st-Det. grid, in series with .01 mfd.			L10 and L12* (1st I-F Trans.)
5	Turn Treble Tone Control full clockwise to "Broad" position. Response on CRO should be the conventional double-humped type. If necessary, retouch 3rd I-F transformer slightly (so as not to disturb the "Sharp" curve appreciably). Leave control in sharp position for the following steps.			
6	Ant. terminal, in series with 47 mmfd. (link closed)	15.2 mc	"C" Band 15.2 mc	C19 (osc.)** C25 (det.) C8 (ant.)
7		9.5 mc	"31M" Band 9.5 mc	C32 (osc.)** C16 (det.) C2 (ant.)
8	Rear stator of gang, in series with .01 mfd.	2.44 mc	"B" Band 2.44 mc	C20 (osc.) C17 (det.)
9		600 kc	"A" Band 600 kc	L8 (osc.) Rock in
10		1,500 kc	"A" Band 1,500 kc	C21 (osc.) C18 (det.)
11	Repeat steps 9 and 10.			
12	Install and connect chassis in cabinet. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band trimmer C72 (on loop). Rock in L8 at 600 kc.			



* Adjust for coincidental curves and maximum gain.
** Use minimum capacity peak if two peaks can be obtained. (Check for correct peak on "C" band by tuning receiver to 14.29 mc, where a weaker signal should be received.)

Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES		POWER SUPPLY ASSEMBLIES
	Model V-300 (RC-518)		
	Model V-301 } (RC-518A)		
	Model V-302 }	18469	Socket for No. 36599 capacitor
36342	Board—"Antenna-Ground" board	30868	Plug—2 contact female plug for motor cable
36452	Capacitor—Mica trimmer	5040	Plug—4 contact female plug for power supply cable
12884	Capacitor—Air trimmer—long—2.20 mmfd.	31251	Socket—Tube socket
36453	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd., 1 section of 50-150 mmfd., and 1 section of 5-50 mmfd.	36567	Switch—Power switch
14079	Capacitor—8.8 mmfd.	36753	Transformer—Power transformer—110 volts, 25 cycles
36463	Capacitor—18 mmfd., ceramic	36613	Transformer—Power transformer—110 volts, 50-60 cycles
12722	Capacitor—18 mmfd.		
13141	Capacitor—47 mmfd.		Model V-300
12723	Capacitor—56 mmfd.		FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON RP-152J
36203	Capacitor—65 mmfd., ceramic		Models V-301—V-302
31352	Capacitor—120 mmfd., silvered mica		FOR RECORD CHANGER REPLACEMENT PARTS SEE SERVICE NOTES ON RP-153
34700	Capacitor—120 mmfd., mica		
13003	Capacitor—180 mmfd.		
12694	Capacitor—220 mmfd.		
36174	Capacitor—680 mmfd.		
36421	Capacitor—700 mmfd.		
12536	Capacitor—820 mmfd.		
35643	Capacitor—3,000 mmfd.		
36679	Capacitor—5,100 mmfd.		
33806	Capacitor—.0015 mfd.		
34459	Capacitor—.0025 mfd.		
33584	Capacitor—.005 mfd.		
4937	Capacitor—.01 mfd.		
11315	Capacitor—.015 mfd.		
4870	Capacitor—.025 mfd.		
32787	Capacitor—.05 mfd.		
4886	Capacitor—.05 mfd.		
14626	Capacitor—.07 mfd.		
4839	Capacitor—.01 mfd.		
12484	Capacitor—0.25 mfd.		
32240	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 350 volts, and 1 section of 20 mfd., 25 volts		
36599	Capacitor—Electrolytic comprising 1 section of 30 mfd., 450 volts, 1 section of 15 mfd., 360 volts, and 1 section of 40 mfd., 25 volts		
34285	Clip—Tuning tube clip and thumb screw		
36442	Coil—Antenna coil—"C" band		
36334	Coil—Oscillator coil		
36451	Coil—R. F. coil		
36441	Condenser—Variable tuning condenser		
36449	Control—High frequency and selectivity control		
36447	Control—Volume control		
32634	Cord—Indicator drive cord (45 in. approx. over-all)		
35788	Core—Adjustable core and stud for oscillator coil		
36332	Drum—Drive drum		
35870	Indicator—Station selector indicator		
36446	Pack—Audio filter pack		
36840	Plate—Dial back plate complete with drive cord pulleys—less tuning indicator clip and screw		
35787	Plug—Phono. input plug		
36009	Plug—2 prong male plug for loop cable		
32641	Plug—3 prong male plug for selector cable		
31830	Plug—4 prong male plug for power supply cable		
12493	Plug—5-prong male plug for speaker cable		
36454	Resistor—Voltage divider comprising 1 section of 125 ohms, 3.2 watts, 1 section of 30 ohms, .8 watt, 1 section of 2,400 ohms, 4.2 watts, and 1 section of 3,500 ohms, 10 watts		
14720	Resistor—1,000 ohms, ½ watt		
4687	Resistor—1,000 ohms, ¼ watt		
30152	Resistor—1,000 ohms, 1 watt		
14499	Resistor—1,500 ohms, ¼ watt		
14024	Resistor—2,700 ohms, ¼ watt		
13714	Resistor—5,600 ohms, ¼ watt		
13045	Resistor—18,000 ohms, ¼ watt		
12738	Resistor—27,000 ohms, ¼ watt		
12286	Resistor—56,000 ohms, ¼ watt		
14023	Resistor—82,000 ohms, ¼ watt		
14560	Resistor—100,000 ohms, ¼ watt		
13698	Resistor—180,000 ohms, ¼ watt		
12013	Resistor—1 meg., 1/10 watt		
13730	Resistor—1 meg., ½ watt		
12679	Resistor—2.2 meg., ¼ watt		
14752	Resistor—2.7 meg., ¼ watt		
14350	Screw—No. 8-32 sq. head set screw for drive drum		
36340	Shaft—Tuning shaft		
31364	Socket—Dial lamp socket		
31251	Socket—Tube socket		
13871	Socket—Tuning indicator tube socket		
31418	Spring—Drive cord spring		
12007	Spring—Retaining spring for core and stud		
36448	Switch—Low tone-radio-phon. switch		
36450	Switch—Range switch		
36443	Transformer—First I-F transformer		
36444	Transformer—Second I-F transformer		
35790	Transformer—Third I-F transformer		
36445	Transformer—Input transformer		
			SPEAKER ASSEMBLIES
			(RL-94-1)
		36654	Cap—Cone center dust cap
		36653	Clamp—Speaker cone center mounting clamp, screw, and washer (2 req'd)
		36651	Coil—Speaker field coil (1,250 ohms)
		36652	Coil—Speaker hum neutralizing coil
		36648	Cone—Speaker cone, voice coil, and center suspension
		36650	Cover—Speaker magnet cover
		36655	Gasket—Speaker rim gasket (felt back) mounts between cone and baffle (4 sections complete)
		31539	Plug—5 prong male for speaker leads
		36649	Transformer—Output transformer
			MISCELLANEOUS ASSEMBLIES
		11891	Lamp—Compartment jewel lamp
		36456	Bezel—Push button bezel—less buttons
		36324	Bracket—Support bracket for holding fibre pan—Model V-300
		36461	Button—Plug button (motorboard)—Models V-300 and V-301
		36299	Button—Push button
		35998	Capacitor—Mica trimmer—3-30 mmfd.
		36458	Capacitor—Mica trimmer comprising 2 sections of 10-180 mmfd., 2 sections of 25-250 mmfd., 2 sections of 50-400 mmfd., and 2 sections of 100-540 mmfd. each for push button switch
		36463	Capacitor—18 mmfd., ceramic
		35803	Coil—Push button oscillator coil
		37133	Coil—Push button oscillator coil for low-frequency range
		36002	Coil—Loop primary coil
		35871	Core—Adjustable core and stud for push button oscillator coils
		36480	Cover—Compartment lamp lead cover—stainless steel—Model V-300
		36328	Cover—Compartment lamp lead cover—stainless steel—Model V-301
		36601	Decalcomania—Control panel decal
		36603	Decalcomania—Power switch decal
		35393	Decalcomania—Television decal
		36386	Decalcomania—Trade mark decal. (His Master's Voice)
		35487	Decalcomania—Trade mark decal. (RCA Victor)
		36600	Dial—Glass dial scale
		36455	Escutcheon—Walnut dial escutcheon—less dial
		37805	Escutcheon—Mahogany dial escutcheon—less dial
		4585	Hinge—Bottom door hinges—upper and lower hinge for 1 door—Models V-301 and V-300
		30698	Hinge—Cabinet lid hinge—Model V-300
		36609	Hinge—Cabinet lid hinge—Model V-301
		36610	Hinge—One (1) set of cabinet door hinges—comprising upper and lower hinges—for upper L.H. door and bottom L.H. door—Model V-302
		36817	Hinge—One (1) set of cabinet door hinges—comprising upper and lower hinges for upper door—Model V-301 and upper R.H. door for Model V-302
		36246	Holder—needle book holder—Model V-300
		13103	Jewel—Compartment lamp cap
		36297	Knob—Range switch or low tone-radio-phon. switch knob
		36298	Knob—Tuning, volume control, or high tone control knob
		11765	Lamp—Dial lamp
		5117	Lamp—Record compartment lamp
		36323	Loop—Antenna loop
		36149	Marker—Station marker
		36683	Mounting—Mounting hardware complete for 1 motorboard—Model V-300
		36325	Nut—Wing nut for holding sealing pan

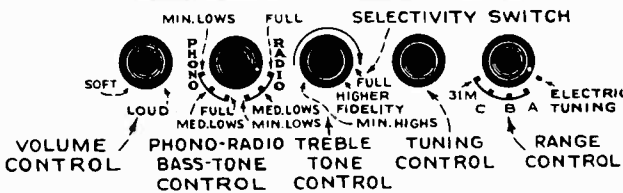
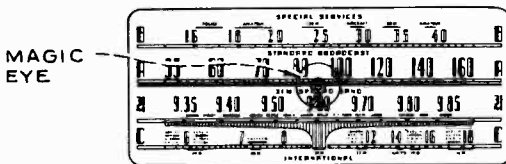
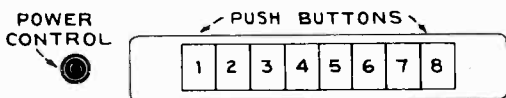
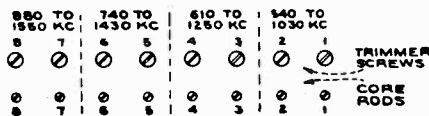
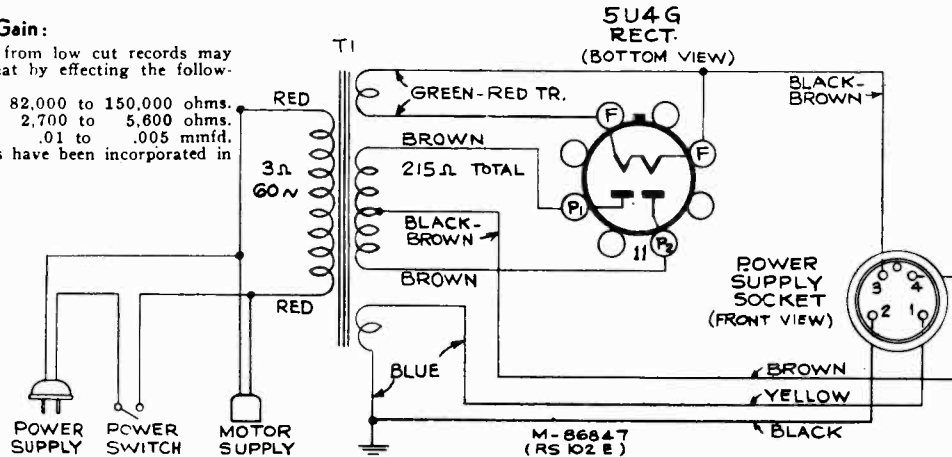
REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
36826	Pan—Fibre pan for sealing record changer—Model V-300	33083	Spring—Cabinet lid support spring for L.H. support—Model V-300
34794	Pull—Door pull—Model V-300	36802	Spring—Conical spring for loop bearing
36819	Pull—Door pull and screw—Model V-302	30800	Spring—Retaining spring for knobs, Stock Nos. 36297 and 36298
36818	Pull—Door pull and screw—Model V-301	34053	Spring—Retaining spring for push button
35740	Shade—Compartment lamp shade—Models V-300 and V-301	34423	Support—Cabinet lid support—R.H.—Model V-300
36407	Shade—Compartment lamp shade—Model V-302	35831	Support—Cabinet lid support—L.H.—Model V-300
35999	Socket—2-contact socket	34793	Support—Cabinet lid support—Model V-301
36422	Socket—3-contact female plug	36457	Switch—Selector switch
30536	Spring—Cabinet lid support spring for R.H. support—Models V-300 and V-301		

Increasing Phono Gain:

The audio output from low cut records may be increased somewhat by effecting the following changes:

- Change R12 from 82,000 to 150,000 ohms.
 - Change R13 from 2,700 to 5,600 ohms.
 - Change C40 from .01 to .005 mfd.
- The above changes have been incorporated in 2nd production.



For data on record changer mechanism, refer to Service Note on RP-152J for Model V-300, and to RP-153 for Models V-301 and V-302.

Push Button Adjustment

The station push buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" hand, and manually tune in the first station on the list.
3. Turn range selector to "Electric Tuning" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L28) to receive the station.
4. After oscillator core is set correctly, adjust C69 for maximum output.
5. Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
6. Adjust for each of the remaining stations in the same manner.
7. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L21 or L22 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

MODEL VHR-307

Chassis No. RC-555

Home-Recording Radio-Phonograph Combination

Electrical and Mechanical Specifications

FREQUENCY RANGES

Broadcast, "A" Band..... 540-1,600 kc
 Short Wave, "B" Band (VHR-207, 407).... 1,550-4,000 kc
 Short Wave, "C" Band..... 5,800-18,000 kc
 Spread Band..... 9,340-9,860 kc

INTERMEDIATE FREQUENCY..... 455 kc

TUBE COMPLEMENT

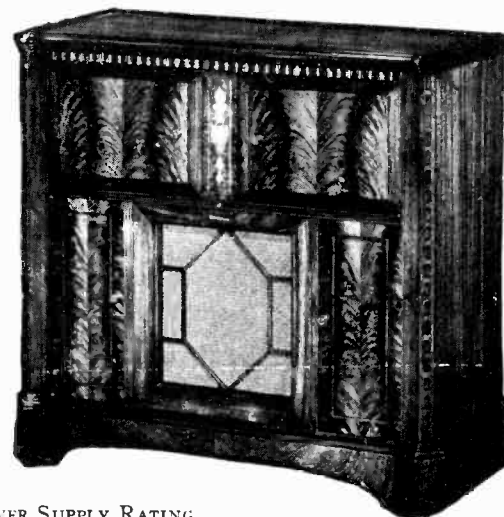
RCA-6SK7..... R-F Amplifier
 RCA-6SA7..... 1st-Det., Oscillator
 RCA-6SK7..... 1st-I-F Amplifier
 RCA-6SK7..... 2nd-I-F Amplifier
 RCA-6H6..... 2nd-Det., A.V.C.
 RCA-6SJ7..... 1st-A-F Amplifier
 RCA-6F6-G..... Driver
 RCA-6F6-G (2)..... Power Output
 RCA-12K7GT..... Microphone Pre-Amplifier
 RCA-6H6..... "Contractor" Rectifier
 RCA-6U5..... "Magic Eye" Indicator
 RCA-5U4-G..... Rectifier

POWER OUTPUT

Undistorted watts..... 18
 Maximum watts..... 20

LOUDSPEAKER

(Electrodynamic) RL-94-2
 Diameter..... 15 inches
 Voice-coil impedance at 400 cycles..... 7.2 ohms



POWER SUPPLY RATING

105-125 volts, 60 cycles..... 200 watts

CABINET DIMENSIONS

Height (inches)..... 36
 Width (inches)..... 38
 Depth (inches)..... 20 3/16

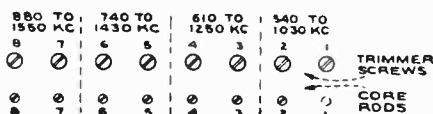
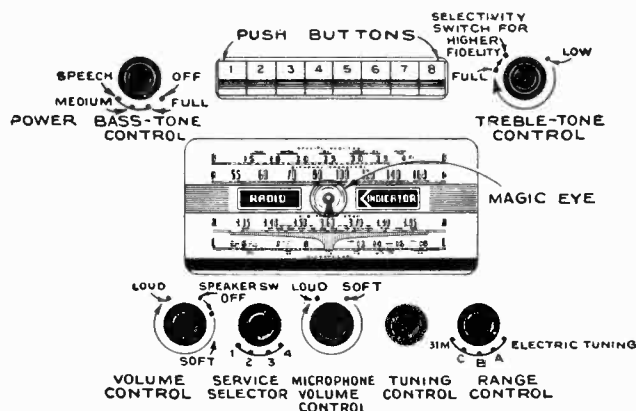
TUNING DRIVE RATIO..... 13 to 1

PHONOGRAPH (RP-155)

Type..... Automatic
 Record Capacity..... Eight 10-inch or Seven 12-inch
 Turntable Speed..... 78 r.p.m.
 Drive... Motor drive through idler on inside rim of turntable
 Type Pickup..... Crystal
 Average Output..... 100,000 ohms at 1,000 cycles
 Average Output..... 1 1/2 volts at 1,000 cycles across 1/2 meg.

RECORDER (RP-155)

Recording Head (cutter)..... Crystal
 Impedance of Cutter at 1,000 cycles... Approx. 60,000 ohms
 Turntable Speed..... 78 r.p.m.
 Grooves Cut per Inch..... Approx. 115
 Inches Cut per Minute..... Approx. .713 inch
 Recording Blank Discs..... Coated metal-base or coated paper-base
 Recording Disc Diameter..... Up to 10 inches
 Drive..... Motor drive through idler on inside rim of turntable; the turntable spindle drives a lead screw under motor board which guides the recorder arm from outside of recording blank to inside
 Motor Wattage..... 35 watts



Push Button Adjustment

The station push buttons connect to separate magnetic-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

In the event that the receiver is to be used with an external antenna use one or two feet of wire (as an antenna) to ensure sharp peaking during the final adjustment procedure. For loop operation, the link should be strapped across terminals on back of set. In either case the procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range selector to "A" band, and manually tune in the first station on the list.

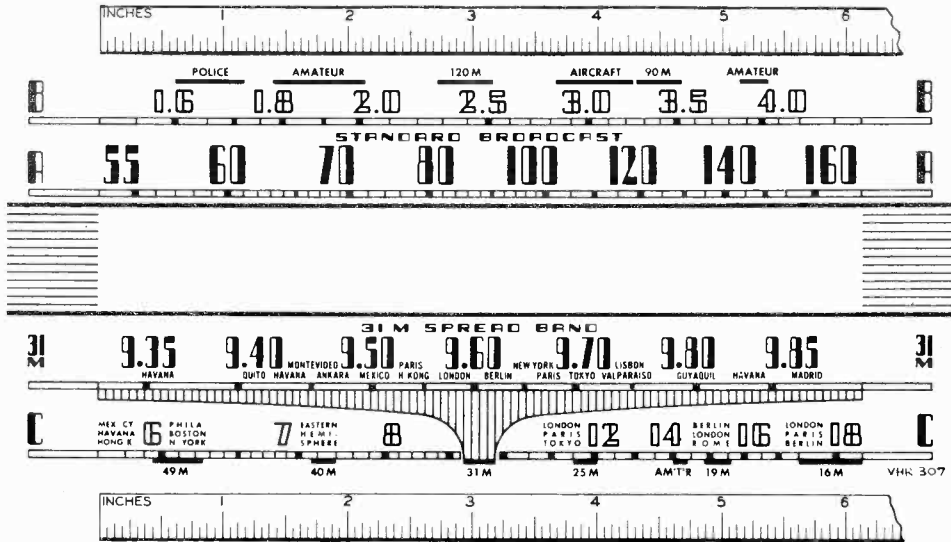
Refer to VHR-202 for Recording Instructions
 Data

Refer to RP-155 for Data on Automatic Mechanism

3. Turn range selector to "Electric Tuning" position, push in station button No. 1 (extreme left). Then adjust the No. 1 oscillator core (L28) to receive the station.
4. After oscillator core is set correctly, adjust C88 for maximum output.
 Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining stations in the same manner.
6. Make a final careful adjustment of the oscillator cores and antenna trimmers.

On the 880 to 1,550 kc push-button, the higher frequency stations may be received with L21 or L22 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one

Alignment Procedure



NOTE: For dial mechanism refer to VHR-202.

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the calibration scale printed in this service note can be used in conjunction with an ordinary 12-inch ruler as an accurate and convenient substitute for the regular dial.

Each method is described below.

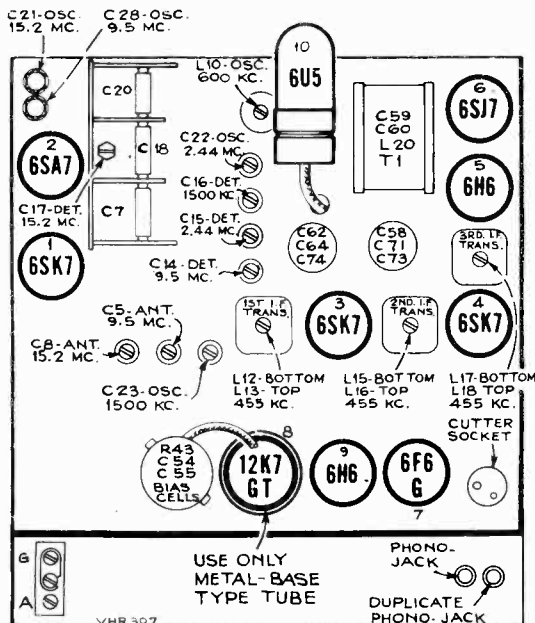
Using Tuning Dial.—

1. Slide out the flat spring clamp at each end of the dial, and remove the glass dial from the cabinet.
2. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in this position.

Using Calibration Scale.—

1. With gang in full mesh, move the dial pointer to the reference mark at the left-hand end of the dial backing plate.
2. Place a flat 12-inch ruler on the dial backing plate so the left-end of ruler is at the reference mark at left-end of backing plate. Temporarily fasten the ruler with scotch tape to the backing plate.
3. Refer to calibration scale printed in this service note. This is a reduced reproduction of the dial with an inch-scale drawn at top and bottom. To find the correct pointer position in inches for any desired frequency, draw a vertical line through this frequency on the calibration scale.

Dial-Pointer Adjustment.—After the chassis is replaced in cabinet, move the dial pointer (if necessary) so that it is at the left-hand graduation on the dial with the gang in full mesh.



Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Turn Radio dial to—	Adjust the following for maximum peak output
1	Turn "Treble Tone Control" counter-clockwise so that I-F is in "Sharp" position.			
2	2nd I-F grid, in series with .01 mfd.	455 kc	"A" Band Quiet Point at HF end	L17 and L18* (3rd I-F Trans.)
3	1st I-F grid, in series with .01 mfd.			L15 and L16* (2nd I-F Trans.)
4	1st-Det. grid, in series with .01 mfd.			L12 and L13* (1st I-F Trans.)
5	Turn Treble Tone Control full clockwise to "Broad" position. Response on CRO should be the conventional double-humped type. If necessary, retouch 3rd I-F transformer slightly (so as not to disturb the "Sharp" curve appreciably). Leave control in sharp position for the following steps.			
6	Ant. terminal, in series with 47 mfd. (link closed)	15.2 mc	"C" Band 15.2 mc	C21 (osc.)*** C17 (det.)*** C8 (ant.)***
7		9.5 mc	"31M" Band 9.5 mc	C28 (osc.)*** C14 (det.)*** C5 (ant.)***
8	Rear stator of gang, in series with .01 mfd.	2.44 mc	"B" Band 2.44 mc	C22 (osc.) C15 (det.)
9		600 kc	"A" Band 600 kc	L10 (osc.) Rock in
10		1,500 kc	"A" Band 1,500 kc	C23 (osc.) C16 (det.)
11	Repeat steps 9 and 10.			
12	Install and connect chassis in cabinet with antenna link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band trimmer C1 (on loop). Rock in L10 for peak output at 600 kc.			

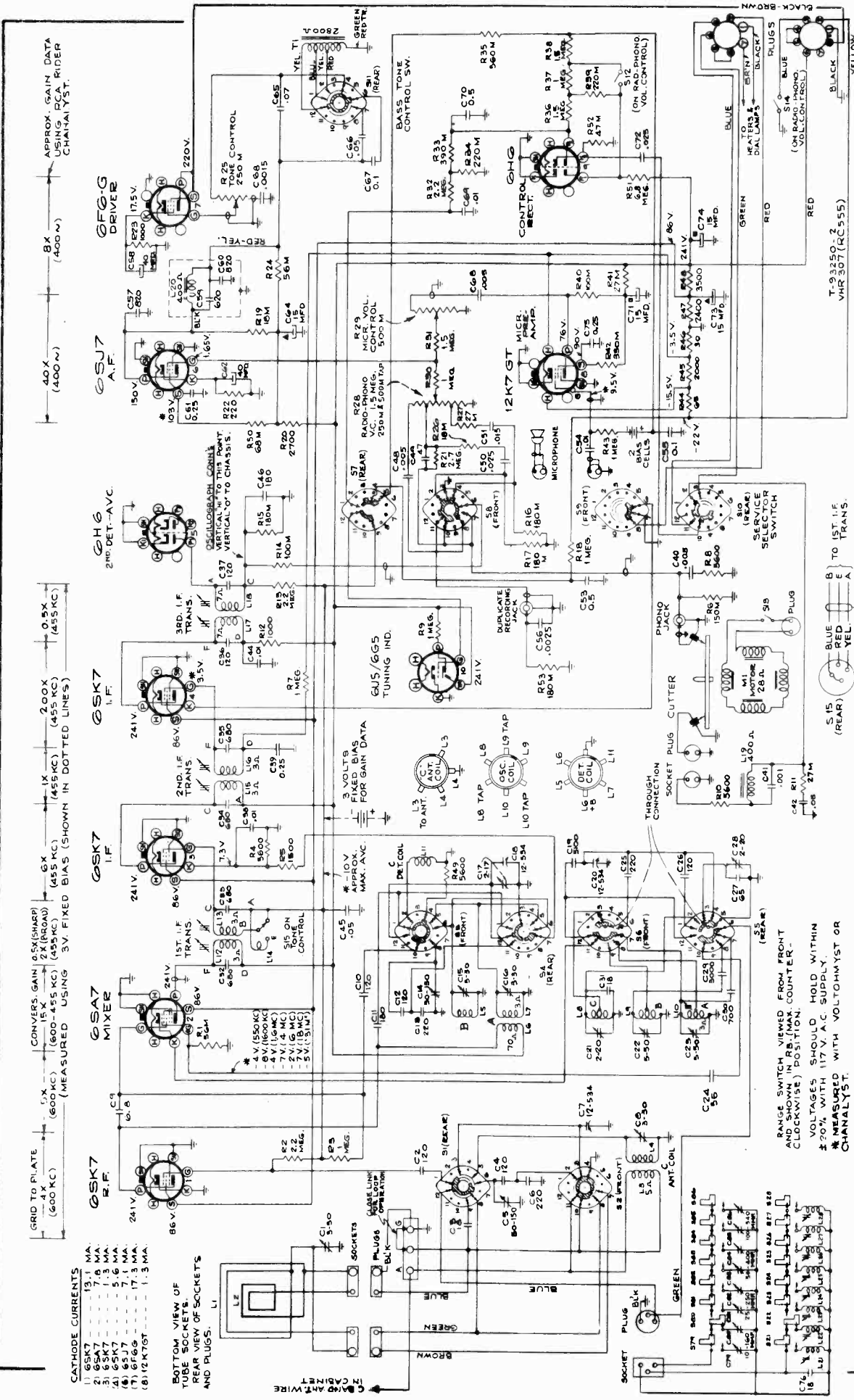
* Adjust for coincidental curves and maximum gain.
 ** Use minimum capacity peak if two peaks can be obtained. (Check for correct peak on "C" band by tuning receiver to 14.29 mc, where a weaker signal should be received.)
 *** Rock in.

GRID TO PLATE (600 KC) 4.1
 1X (600 KC) 15X (SHARP)
 2X (SHARP) 15X (SHARP)
 3X (SHARP) 15X (SHARP)
 4X (SHARP) 15X (SHARP)
 5X (SHARP) 15X (SHARP)
 6X (SHARP) 15X (SHARP)
 7X (SHARP) 15X (SHARP)
 8X (SHARP) 15X (SHARP)
 9X (SHARP) 15X (SHARP)
 10X (SHARP) 15X (SHARP)
 11X (SHARP) 15X (SHARP)
 12X (SHARP) 15X (SHARP)
 13X (SHARP) 15X (SHARP)
 14X (SHARP) 15X (SHARP)
 15X (SHARP) 15X (SHARP)
 16X (SHARP) 15X (SHARP)
 17X (SHARP) 15X (SHARP)
 18X (SHARP) 15X (SHARP)
 19X (SHARP) 15X (SHARP)
 20X (SHARP) 15X (SHARP)
 21X (SHARP) 15X (SHARP)
 22X (SHARP) 15X (SHARP)
 23X (SHARP) 15X (SHARP)
 24X (SHARP) 15X (SHARP)
 25X (SHARP) 15X (SHARP)
 26X (SHARP) 15X (SHARP)
 27X (SHARP) 15X (SHARP)
 28X (SHARP) 15X (SHARP)
 29X (SHARP) 15X (SHARP)
 30X (SHARP) 15X (SHARP)
 31X (SHARP) 15X (SHARP)
 32X (SHARP) 15X (SHARP)
 33X (SHARP) 15X (SHARP)
 34X (SHARP) 15X (SHARP)
 35X (SHARP) 15X (SHARP)
 36X (SHARP) 15X (SHARP)
 37X (SHARP) 15X (SHARP)
 38X (SHARP) 15X (SHARP)
 39X (SHARP) 15X (SHARP)
 40X (SHARP) 15X (SHARP)

CATHODE CURRENTS

1) 6SK7	13.1 MA.
2) 6SA7	7.6 MA.
3) 6SK7	1.3 MA.
4) 6SK7	1.3 MA.
5) 6SK7	1.3 MA.
6) 6SK7	1.3 MA.
7) 6SK7	1.3 MA.
8) 12K7GT	1.3 MA.

BOTTOM VIEW OF TUBE SOCKETS. REAR VIEW OF SOCKETS AND PLUGS.



RANGE SWITCH VIEWED FROM FRONT AND COUNTER-POSITION. VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. A.C. SUPPLY. * MEASURED WITH VOLTHWYST OR CHANALYST.



T-93250-2
VHR 307 (RC555)

SERVICE SELECTOR

RECORDING:

- 1. CUTTING RECORDS OF VOICE OR MUSIC THROUGH MICROPHONE.
- 2. CUTTING RECORDS OF PHONOGRAPH SELECTIONS USING AUXILIARY TURNTABLE.
- 3. CUTTING RECORDS OF PHONOGRAPH SELECTIONS WITH VOICE OR MUSIC MIXED IN THROUGH MICROPHONE.

RADIO:

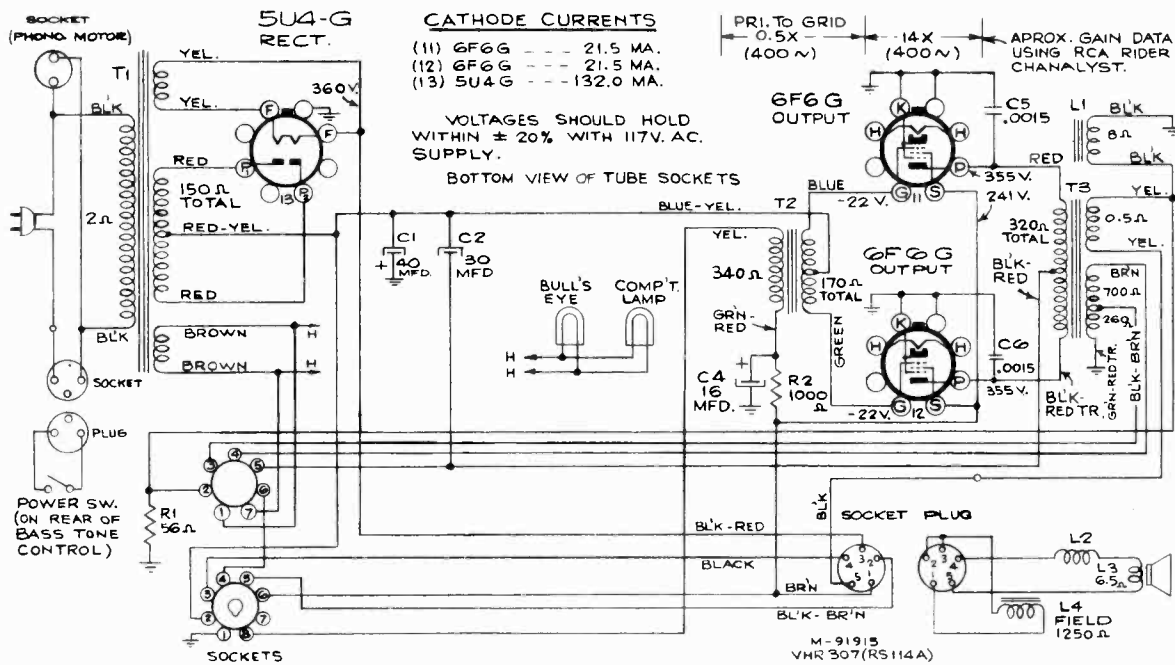
- 1. RADIO PROGRAMS.
- 2. RADIO PROGRAMS MIXED WITH VOICE OR MUSIC BY MICROPHONE.

PHONOGRAPH:

- 1. PHONOGRAPH RECORD SELECTIONS.
- 2. PHONOGRAPH SELECTIONS MIXED WITH VOICE OR MUSIC BY MICROPHONE.
- 3. MICROPHONE ONLY (PA).

RADIO RECORDING:

- 1. CUTTING RECORDS OF RADIO PROGRAMS.
- 2. CUTTING RECORDS OF RADIO PROGRAMS WITH VOICE OR MUSIC "MIXED IN" THROUGH MICROPHONE.



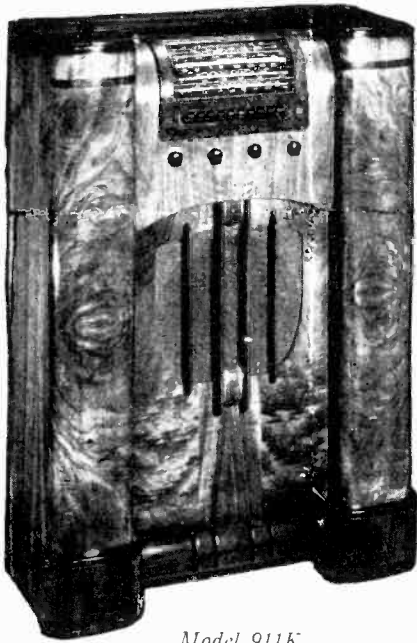
Replacement Parts

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES (RC-555)			
34133	Arm—Actuating arm for service selector switch	4886	Capacitor—.05 mfd. (C42, C66)
36342	Board—"Antenna-Ground" board	32787	Capacitor—.05 mfd. (C45)
30766	Cap—Rubber cap for tuning tube	14628	Capacitor—.07 mfd.
12884	Capacitor—Air trimmer, 2-20 mmfd.	4839	Capacitor—.01 mfd.
36453	Capacitor—Mica trimmer comprising 1 section of 3-30 mmfd., 1 section of 50-150 mmfd., and 1 section of 5-50 mmfd.	12484	Capacitor—.25 mfd.
36452	Capacitor—Mica trimmer comprising 1 section of 5-50 mmfd., 2 sections of 3-30 mmfd., and 1 section of 50-150 mmfd.	12741	Capacitor—.5 mfd.
14079	Capacitor—6.8 mmfd.	34150	Capacitor—Electrolytic comprising 2 sections of 15 mfd., 450 volts, and 1 section of 40 mfd., 25 volts
12722	Capacitor—18 mmfd. (C3)	31581	Cell—Bias cell
36463	Capacitor—18 mmfd. (C31)	34285	Clip—Tuning tube clip and thumb screw
13141	Capacitor—47 mmfd.	36442	Coil—Antenna coil—"C" band
12723	Capacitor—56 mmfd.	37064	Coil—Choke coil
36203	Capacitor—65 mmfd.	36334	Coil—Oscillator coil
34700	Capacitor—120 mmfd., mica	36451	Coil—R.F. coil
12724	Capacitor—120 mmfd., moulded mica	36441	Condenser—Variable tuning condenser
31352	Capacitor—120 mmfd. (C4)	36449	Control—H.F. tone control
31706	Capacitor—120 mmfd. (C26)	37021	Control—Microphone volume control
13003	Capacitor—180 mmfd.	37859	Control—Radio volume control and speaker shut-off switch
12694	Capacitor—220 mmfd.	32634	Cord—Indicator drive cord (approx. 45-in. overall length)
36174	Capacitor—680 mmfd.	35788	Core—Adjustable core and stud for oscillator coil
36421	Capacitor—700 mmfd.	36332	Drum—Drive drum
12536	Capacitor—820 mmfd.	34499	Holder—Bias cell holder
36643	Capacitor—3,000 mmfd.	37858	Indicator—Station selector indicator
36679	Capacitor—5,100 mmfd.	33514	Jack—Phono input jack
37102	Capacitor—.001 mfd.	36446	Pack—Filter pack
33806	Capacitor—.0015 mfd.	37017	Plate—Dial plate complete with pulleys—less tuning tube clip and screw and indicator screw
34459	Capacitor—.0025 mfd.	11824	Plug—2-contact female plug for microphone cable—less shell
33584	Capacitor—.005 mfd.	36009	Plug—2-prong male plug for loop cables
4937	Capacitor—.01 mfd.	31567	Plug—3-prong male plug for power switch
11315	Capacitor—.015 mfd.	32641	Plug—3-prong male plug for push button cable
4870	Capacitor—.025 mfd.	36395	Plug—7-prong male plug for power supply cable

MODEL 911K

Eleven-Tube, Five-Band, Electric-Tuning, A-C, Superheterodyne Receiver



Model 911K

Antenna Connections

RCA Victor Master Antenna Kit.—Connect the twisted-pair transmission line to terminals A1 and A2 on the terminal board at rear of chassis. Connect the counter-poise to A3. Terminal G may be connected to ground, but this connection is not necessary for correct operation.

Noise-Reducing Adjustment.—After the RCA Victor Master Antenna Kit is connected to the receiver, tune the receiver to a point near 900 kc where no station is heard. Turn volume control clockwise until noise is heard. If no noise of a regular character is audible, start any brush-type motor-driven appliance, such as a vacuum cleaner, electric razor, refrigerator, etc., but do not bring it too near the receiver. This will generate noise as a continuous crackling, or buzz. Adjust C1 to a point where this noise is reduced to a minimum.

Adjustment of the noise reducing trimmer C1 should be made in the customer's home, with the RCA Victor Master Antenna connected to the receiver.

This adjustment is effective only when the RCA Victor Master Antenna is used. For all other types of antenna, the noise-adjustment trimmer should be screwed all the way down.

Other Antennas.—Use terminals A1 and A3 on the receiver terminal board as antenna and ground connecting points respectively. Terminal A3 may be connected to terminal G, unless this causes interference, in which case this connection should be omitted.

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A).....	540-1,720 kc
"49 Meter Band".....	5,920-6,230 kc
"31 Meter Band".....	9,480-9,690 kc
"25 Meter Band".....	11,680-11,940 kc
"19 Meter Band".....	15,080-15,390 kc

Intermediate Frequency..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-6K7..... R-F Amplifier
- (2) RCA-6A8..... First Detector
- (3) RCA-6J7..... Heterodyne Oscillator
- (4) RCA-6K7..... I-F Amplifier
- (5) RCA-6H6..... Second Det., A.V.C., and Muting
- (6) RCA-6F5..... Audio Voltage Amplifier

Pilot Lamps..... One Mazda 47, 6-8 volts, .15 amp; Two Mazda 44, 6.3 volts, .25 amp.

POWER SUPPLY RATINGS

Rating A.....	105-125 volts, 50-60 cycles, 120 watts
Rating B.....	105-125 volts, 25-30 cycles, 120 watts
Rating C.....	105-125/140-160/195-250 volts, 50-60 cycles, 120 watts

POWER OUTPUT

Undistorted.....	10 watts
Maximum.....	12 watts

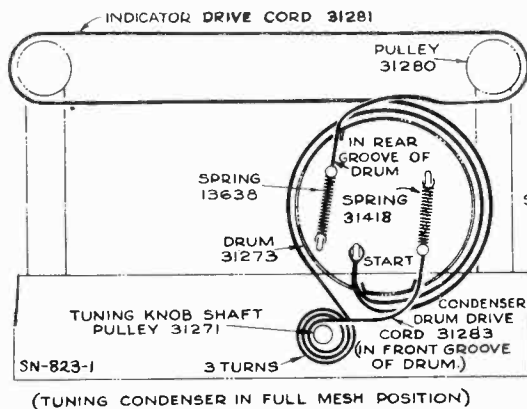
R-F ALIGNMENT FREQUENCIES

"Standard Broadcast" (A).....	1,500 kc (osc., det., ant.), 600 kc (osc.)
"49 Meter Band".....	6,100 kc (osc.)
"31 Meter Band".....	9,600 kc (osc., det., ant.)
"25 Meter Band".....	11,800 kc (osc.)
"19 Meter Band".....	15,200 kc (osc.)

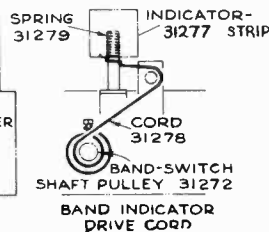
- (7) RCA-6F5..... A-F Amp. and Audio Phase Inverter
- (8) RCA-6F6..... Power Output
- (9) RCA-6F6..... Power Output
- (10) RCA-6U5..... "Magic Eye" Tuning Tube
- (11) RCA-5T4..... Full-Wave Rectifier

LOUDSPEAKER

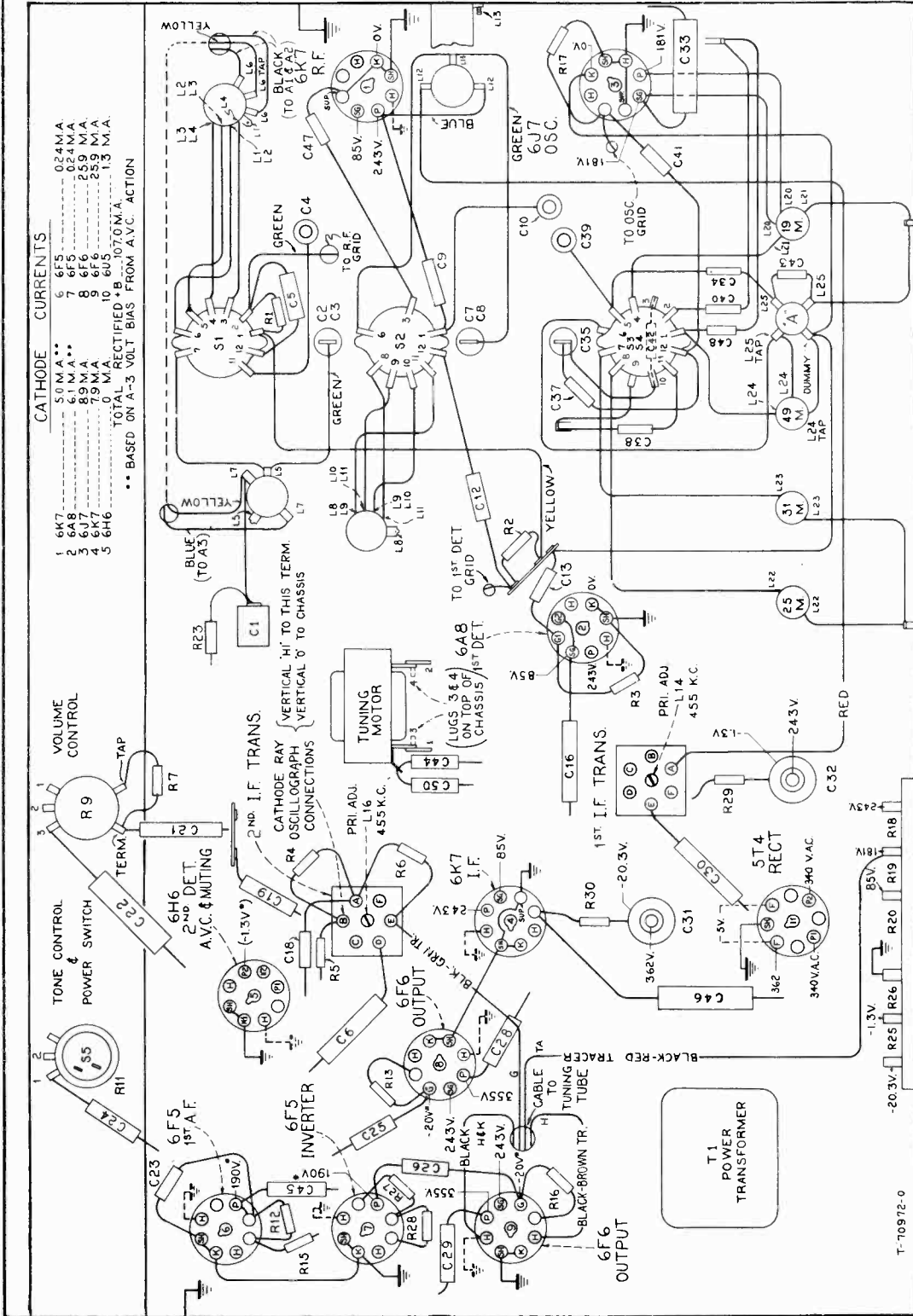
Type.....	12-inch Electrodynamic
Voice Coil Impedance.....	2.2 ohms at 400 cycles



REFER TO INDEX FOR DATA ON ELECTRIC TUNING



REFER TO PAGE 444c FOR DATA ON MODIFIED I.F. TRANS. USED ON SOME PRODUCTIONS.

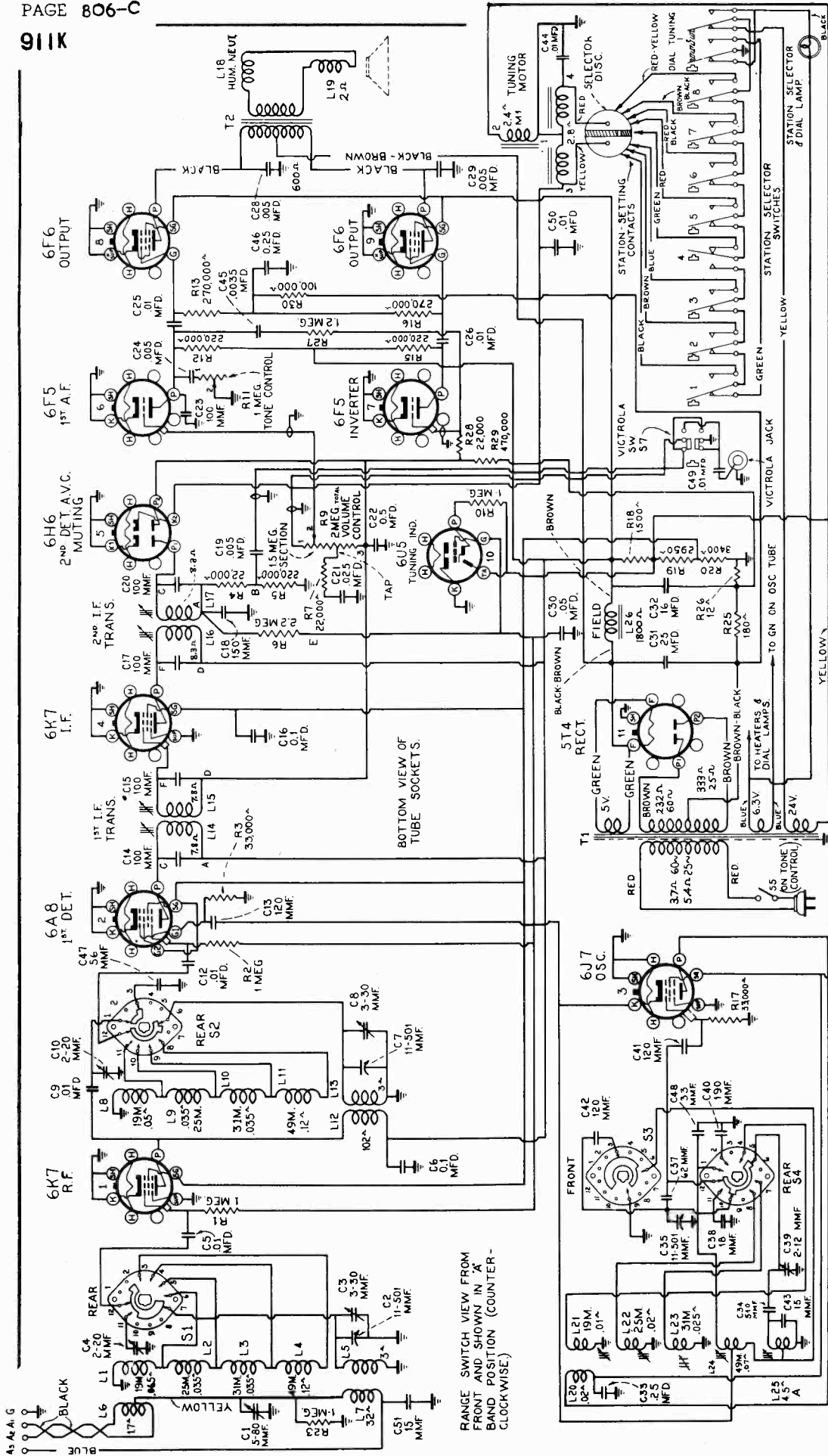


BOTTOM VIEW REAR OF CHASSIS

—R-F Wiring Diagram and Socket Voltages

* NOTE: Values with star (*) are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately ±20% with 117-volt a-c supply.



—Schematic Circuit Diagram

- Precautionary Lead Dress.—**
- (1) Keep tuning tube cable and the lead from the left pilot light away from the 6F5 grid cap.
 - (2) Leads on spread-band antenna and r.f. coils should be kept short as possible.
 - (3) Keep black lead from L25 away from C38 and L24.
 - (4) Keep black lead from L25 to cathode lug on 6J7 away from R17
 - (5) The power cord lead and the primary lead of the power transformer which connect to the power switch should be twisted together.
 - (6) Keep C13 away from the 6A8 control grid lead and from the chassis.
 - (7) Shielded leads to Victrola jack must be dressed away from switch terminals and jack.
 - (8) Blue and black leads from antenna board to coils must be twisted.
 - (9) Black lead and condenser which connect to 6F6 plate resistors which connect to it.

ALIGNMENT PROCEDURE

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the rear of the indicator-drive-cord drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

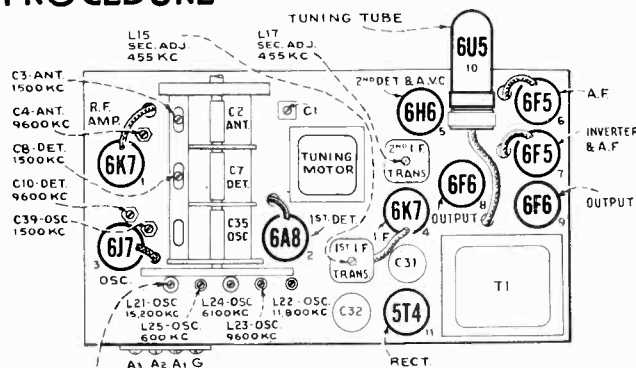
As the first step in r-f alignment, check the position of the drum. The "0" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

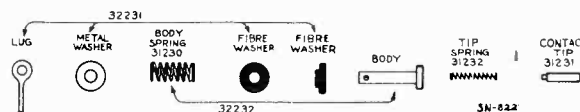


CAUTION: THIS ADJ. SCREW MUST PROJECT AT LEAST 3/4" FROM TOP OF CHASSIS TO PREVENT SHORTING +B.

—Tube and Trimmer Locations

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



—(Above) Component Parts of Station-Setting Contact

Steps	Connect the high side of test-oscillator to—	Tune Test-C scillator to—	Range Selector	Set Tuning Gang to—	Adjust the following for max. peak output
No. 1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A"	Quiet point between 550-750 kc	L16, L17 (2nd I-F transformer)
No. 2	6A8 1st-det. grid cap, in series with .01 mfd.	455 kc	"A"		L14, L15 (1st I-F transformer)
No. 3	A2, in series with 100 mmf. Connect A3 to chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C39 (osc.) C3 (ant.) C8 (det.)
No. 4	A2, in series with 100 mmf. Connect A3 to chassis.	600 kc	"A"	600 kc (30.0°)	L25 (osc.)
No. 5	A2, in series with 100 mmf. Connect A3 to chassis.	1,500 kc	"A"	1,500 kc (151.5°)	C39 (osc.)
No. 6	A2. Connect A1 to chassis.	6,100 kc	"49M"	6,100 kc (106°)	L24 (osc.)*
No. 7	A2. Connect A1 to chassis.	9,600 kc	"31M"	9,600 kc (102°)	L23 (osc.)** C4 (ant.) C10 (det.)
No. 8	A2. Connect A1 to chassis.	11,800 kc	"25M"	11,800 kc (90.0°)	L22 (osc.)**
No. 9	A2. Connect A1 to chassis.	15,200 kc	"19M"	15,200 kc (78.0°)	L21 (osc.)**

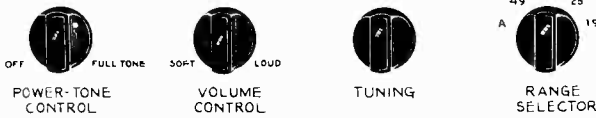
* Use maximum inductance peak (plunger in) if two peaks can be obtained.

** Use minimum inductance peak (plunger out) if two peaks can be obtained.

Note that the heterodyne oscillator tracks above the signal frequency on all bands except "49M," where it is lower than the signal frequency.

ADJUSTMENTS FOR ELECTRIC TUNING

1. Make a list of the desired eight stations, arranged in order from low to high frequencies.



—Location of Controls

The left-hand push-button is a Victrola-Attachment switch.
The right-hand push-button is for dial tuning.

2. Turn range selector to "A" band, turn power on, and allow a few minutes for warming up.

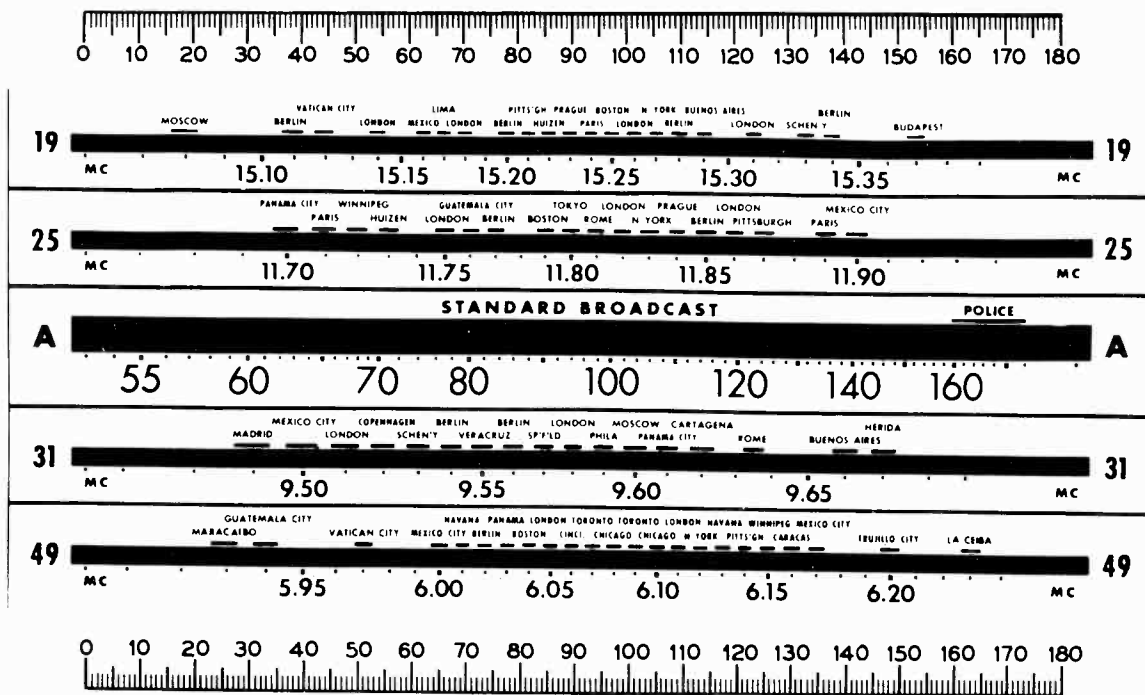
3. Press down the "dial-tuning" (right-hand) button.

4. Manually tune in the first station on the list, using the "Magic Eye" for accurate tuning.

5. Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons will stay down. Move station-setting contact No. 1 to the insulating line on the disc at rear of gang. When the contact is correctly centered on the insulating line, the central dial lamp will go out.

6. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.

7. Repeat this process for the remaining stations.



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

REPLACEMENT PARTS

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
RECEIVER ASSEMBLIES			
31253	Board—Antenna and ground terminal board...	31351	Capacitor—190 mmfd. (C40)
12714	Capacitor—Adjustable trimmer, 2-12 mmfd. (C39)	31348	Capacitor—510 mmfd. (C34)
12884	Capacitor—Adjustable trimmer, 2-20 mmfd. (C4, C10)	30303	Capacitor—.0035 mfd. (C45)
31252	Capacitor—Adjustable trimmer, 5-80 mmfd. (C1)	4838	Capacitor—.005 mfd. (C19, C24, C28, C29)
31353	Capacitor—15 mmfd. (C43)	14393	Capacitor—.01 mfd. (C5, C12, C25, C26, C44, C49, C50)
12896	Capacitor—15 mmfd. (C51)	4858	Capacitor—.01 mfd. (C9)
31350	Capacitor—18 mmfd. (C38)	4870	Capacitor—.025 mfd. (C21)
31354	Capacitor—33 mmfd. (C48)	4886	Capacitor—.05 mfd. (C30)
12723	Capacitor—56 mmfd. (C47)	4839	Capacitor—.1 mfd. (C6, C16)
31349	Capacitor—82 mmfd. (C37)	12484	Capacitor—.25 mfd. (C33, C46)
12720	Capacitor—100 mmfd. (C23)	30867	Capacitor—.5 mfd. (C22)
31270	Capacitor—100 mmfd. (C14, C15, C17, C20)	5212	Capacitor—16 mfd. (C32)
12724	Capacitor—120 mmfd. (C13, C41)	14531	Capacitor—25 mfd. (C31)
31352	Capacitor—120 mmfd. (C42)	31544	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft—25 cycle models only
12725	Capacitor—150 mmfd. (C18)	31237	Clutch—Variable condenser drive gear clutch and pinion gear—engages pin on motor shaft, 50/60 cycle models only
		31263	Coil—"A" band antenna coil (L5, L7)

Replacement Parts (Continued)

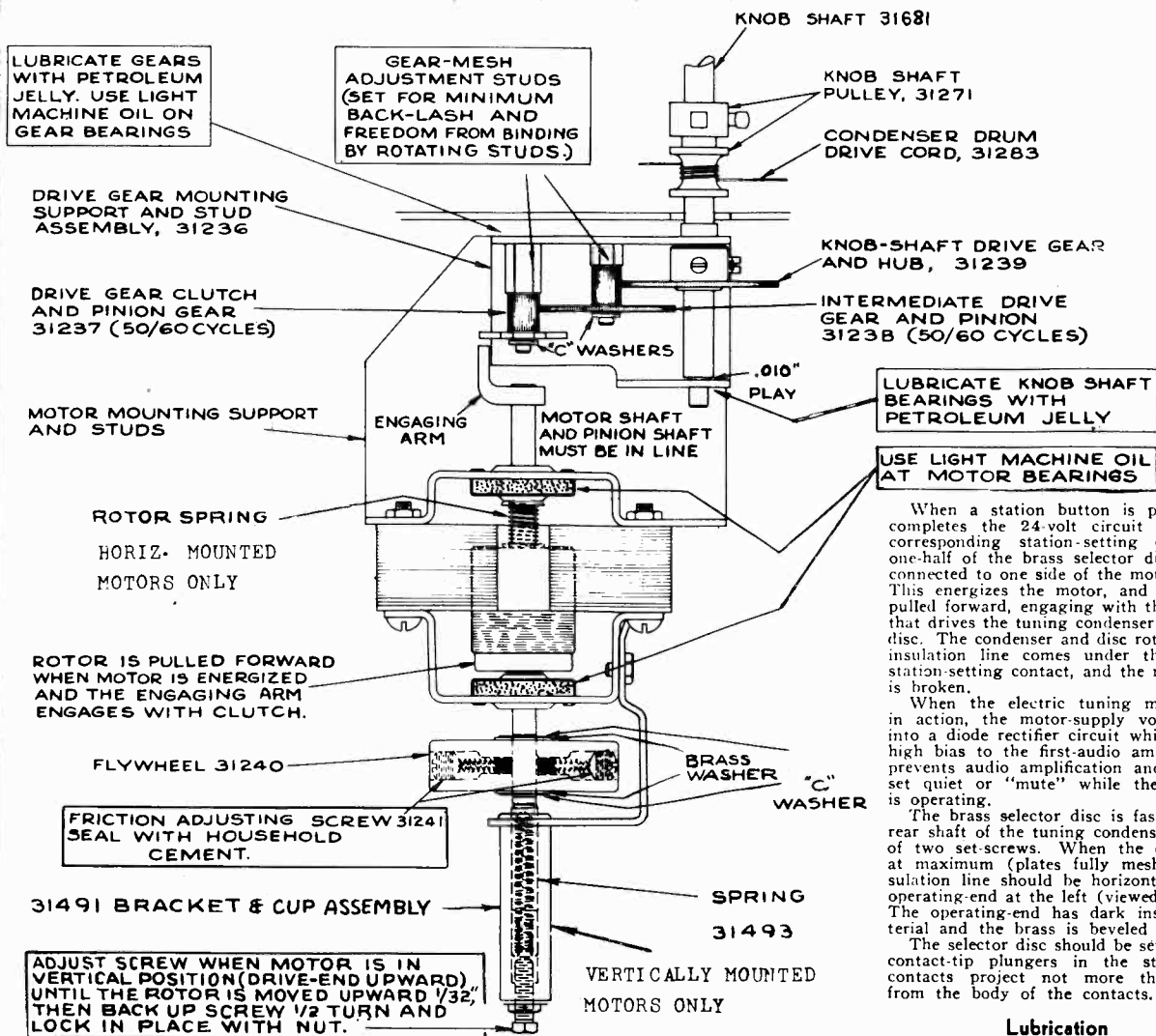
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
31257	Coil—"A" band oscillator coil (L20)		SPEAKER ASSEMBLIES
31265	Coil—"A" band detector coil (L12, L13)		
31264	Coil—19, 25, 31, and 49 meter bandspread antenna coil (L1, L2, L3, L4, L6)	13866	Cap—Dust cap for cone center
31266	Coil—19, 25, 31, and 49 meter bandspread detector coil (L8, L9, L10, L11)	11234	Coil—Field coil (L26)
31258	Coil—19 meter band oscillator coil (L20, L21)	11469	Coil—Neutralizing coil (L18)
31254	Coil—25 meter band oscillator coil (L22)	31275	Cone—Speaker cone and voice coil (L19)
31255	Coil—31 meter band oscillator coil (L23)	5039	Plug—4-contact male plug for speaker
31256	Coil—49 meter band oscillator coil (L24)	14534	Transformer—Output transformer (T2)
31234	Condenser—3-gang variable condenser (C2, C3, C7, C8, C35)	14357	Washer—Spring washer to hold field coil securely
31231	Contact—Contact tip for station-setting contact		MISCELLANEOUS ASSEMBLIES
31260	Core—Adjustable core and stud for "A" band oscillator coil	31276	Bracket—Band indicator mounting bracket complete except less band indicating strip, cord, and tension spring
31269	Core—Adjustable core and stud for i-f transformer	31282	Bracket—Magic Eye bracket and holder
31259	Core—Adjustable core and stud for 19, 25, 31 or 49 meter band oscillator coils	31358	Button—Station selector switch push button
31273	Drum—Indicator drive cord drum	31344	Contact—Push button switch contacts—comprising 13 contacts riveted on insulating strip
31240	Flywheel—Variable condenser drive motor flywheel	31345	Contact—Push button switch contacts—comprising 10 contacts riveted on insulating strip
31545	Gear—Variable condenser intermediate drive gear and pinion gear, 25 cycle models only	31278	Cord—Band indicator drive cord
31238	Gear—Variable condenser intermediate drive gear and pinion gear, 50/60 cycle models only	31281	Cord—Indicator pointer drive cord
31239	Gear—Variable condenser knob shaft drive gear and hub	31283	Cord—Variable condenser drum drive cord
11891	Lamp—Dial lamp	31456	Cover—8 protective covers for push button markers
31480	Lamp—Electric tuning adjustment indicator lamp	31359	Cushion—Station selector push button rubber cushion
31243	Leather—Friction leather for flywheel	31363	Dial—Station selector dial and crystal
31246	Motor—Variable condenser drive motor (M-1)—25 cycle models only	31362	Escutcheon—Station selector dial escutcheon—less dial scale and push buttons
31235	Motor—Variable condenser drive motor (M-1)—50/60 cycle models only	31277	Indicator—Band indicator strip
31228	Plate—Selector contact plate—less contacts	31284	Indicator—Station selector indicator pointer
31227	Plate—Selector mounting plate—mounts on rear of variable condenser	31355	Knob—Range switch, tone control, volume control, or station selector knob
5040	Plug—4-contact female for speaker cable	31346	Lock-Plate—Push button switch lock-plate—comprising 10 contact locks in one strip
31271	Pulley—Motor pulley	31589	Marker—Station call letter markers for push buttons
31272	Pulley—Range switch pulley	31457	Marker—"Victrola" marker for push button
31250	Resistor—Voltage divider comprising one 1,500 ohms, one 2,950 ohms, one 3,400 ohms, one 12 ohms, and one 180 ohms sections (R18, R19, R20, R25, R26)	31458	Marker—"Dial Tuning" marker for push button
14284	Resistor—22,000 ohms, 1/10 watt (R4, R7, R28)	31280	Pulley—Indicator pointer drive cord pulley
11300	Resistor—33,000 ohms, 1/10 watt (R3, R17)	14887	Retainer—Indicator pointer drive cord pulley retainer
11281	Resistor—100,000 ohms, 1/10 watt (R30)	31285	Screen—Station selector dial color screen and light diffuser
11398	Resistor—220,000 ohms, 1/10 watt (R12, R15)	11210	Screw—Chassis mounting screws, washers, and lockwashers for 1 chassis
12264	Resistor—220,000 ohms, 1/2 watt (R5)	3993	Screw—No. 6-32 square head set screw for pointer slide stop
11453	Resistor—270,000 ohms, 1/10 watt (R13, R16)	31287	Shaft—Indicator pointer slide shaft
11452	Resistor—470,000 ohms, 1/10 watt (R29)	31286	Slide—Indicator pointer carriage and clip
12013	Resistor—1 meg., 1/10 watt (R2, R10)	31347	Socket—Pickup socket and bracket
13730	Resistor—1 meg., 1/2 watt (R1, R23)	13638	Spring—Indicator pointer drive cord tension spring
31056	Resistor—1.2 meg., 1/10 watt (R27)	31418	Spring—Variable condenser drive cord tension spring
5131	Resistor—2.2 meg., 1/10 watt (R6)	31279	Spring—Tension spring for band indicator
31233	Rotor—Selector rotor disc—mounts on rear of variable condenser shaft	31970	Spring—Tension spring for station selector push button switch latch bar
31241	Screw—1/4 x 20 headless, cone point set screw for flywheel	14270	Spring—Retaining spring for knob, Stock No. 31355
14350	Screw—No. 8-32 square head set screw for selector rotor disc	31288	Stop—Indicator pointer slide stop
4119	Screw—No. 8-32 headless set screw for gear, Stock No. 31239	31360	Switch—Pickup switch for mounting on push-button switch assembly (S7)
4669	Screw—No. 8-32 square head set screw for pulley, Stock Nos. 31271 and 31272, and drum, Stock No. 31273	31312	Switch—Station selector push-button switch and bracket assembly, complete
31364	Socket—Dial lamp socket		ANTENNA ASSEMBLIES
13871	Socket—Magic Eye socket	31426	Counterpoise Line—Additional length 60 ft. long
31251	Socket—Radiotron socket	12426	Insulator—Strain and counterpoise insulator
31365	Socket—Tuning indicator lamp insulated socket	9816	Transmission Line—Additional length 60 ft. long
31232	Spring—Contact tip spring for station-setting contact		
12007	Spring—Retaining spring for core, Stock No. 31269		
31230	Spring—Station-setting contact body spring		
31261	Spring—Tension spring for core, Stock No. 31259		
31262	Spring—Tension spring for core, Stock No. 31260		
31242	Spring—Tension spring for flywheel		
31245	Support—Variable condenser motor mounting support and studs—for 25 cycle models only		
31244	Support—Variable condenser motor mounting support and studs—for 50-60 cycle models only		
31236	Support—Variable condenser drive gear mounting support and studs assembly		
31247	Switch—Range switch (S1, S2, S3, S4)		
31248	Tone Control—H-f tone control and power switch (R11, S5)		
31267	Transformer—First i-f transformer (L14, L15, C14, C15)		
31268	Transformer—Second i-f transformer (L16, L17, C17, C20)		
31226	Transformer—Power transformer, 110 volts, 25-60 cycle (T1)		
31225	Transformer—Power transformer, 110 volts, 50-60 cycle (T1)		
31249	Volume Control (R9)		

Loudspeakers:

The loudspeakers used in these instruments are stamped RL-70F.4 or RL-70H.2. The replacement parts for both speakers are the same and are listed in Service Data for 911K. For complete speaker, order Stock No. 31530 (RL-70H-2).

Electric Tuning Mechanism

MODELS HF-2, HF-4, HF-6, HF-8, 11Q4, 11QK, 11QU, U-30, U-46 98K, 99T, 99K, U-126, U-128, U-129, K-130 U-130, U-132, U-134, 910KG, 911K



Motor and Gear Mechanism

There must be 1/32-inch clearance between the end of the engaging arm and the face of the intermediate gear when the motor is in its full forward position.

Oscillation of Tuning Mechanism

The principal of operation necessitates that the mechanism go through several quick reversals on arriving at the desired station frequency and before reaching a dead stop. Three of four reversals are normal. The number of reversals and consistency of operation depends mainly on the flywheel friction adjustment, however, in some cases the selector disc and station setting contacts are involved. The following suggestions may be helpful where excessive pointer oscillation is experienced.

Oscillation on Certain Buttons Only

- (1) Check contact tip of selector assembly for loose fit in body. See that nose of contact is not burned nor distorted out of correct shape. Replace tip if necessary; do not attempt to file the tips.
- (2) Clean the insulating gap of selector disc, being sure to remove all metal particles and metallic fragments

from beveled edges of the brass. Each contact should be checked to assure that clearance exists (approx. .010-in) between it and the disc when stopped in position on the station.

- (3) Inspect the insulating gap to see that it has not changed shape due to bending or warping. Replace the disc if cleaning and adjustment fail to give correct operation.

Oscillation On All Buttons

- (1) Slow oscillation indicates friction adjustment of flywheel is too tight. Loosen set screw in flywheel slightly.
- (2) Rapid oscillation indicates friction adjustment is too loose. Tighten set screw in flywheel slightly.
- (3) If definite adjustment cannot be reached, remove

When a station button is pushed in, it completes the 24-volt circuit through the corresponding station-setting contact and one-half of the brass selector disc, which is connected to one side of the motor field coil. This energizes the motor, and the rotor is pulled forward, engaging with the gear train that drives the tuning condenser and selector disc. The condenser and disc rotate until the insulation line comes under the particular station-setting contact, and the motor circuit is broken.

When the electric tuning mechanism is in action, the motor-supply voltage is fed into a diode rectifier circuit which applies a high bias to the first-audio amplifier. This prevents audio amplification and makes the set quiet or "mute" while the mechanism is operating.

The brass selector disc is fastened to the rear shaft of the tuning condenser by means of two set-screws. When the condenser is at maximum (plates fully meshed) the insulation line should be horizontal, with the operating-end at the left (viewed from rear). The operating-end has dark insulating material and the brass is beveled at this end.

The selector disc should be set so that the contact-tip plungers in the station-setting contacts project not more than 1/16-in. from the body of the contacts.

Lubrication

Motor bearings and gear bearings; use light machine oil.
Gear faces; use "Pure Oil No. 611" or petroleum jelly.

Dial-indicator pulleys and rails; use "Castordag" or petroleum jelly.

Selector disc; apply *thin* film of petroleum jelly.

ELECTRIC TUNING

spring from behind flywheel set screw and increase its length by stretching; replace and make the necessary adjustments. Install a new spring if necessary.

- (4) See that leather friction pad is not binding in its hole, and that it is saturated with lubricant. "Neats-Foot" oil should be used for this purpose.
- (5) Incorrect balance of the flywheel sometimes prevents correct adjustment. The standard service replacement flywheel Stock No. 31240 may be used to definitely eliminate this cause.
- (6) The number of oscillations varies somewhat with line voltage.
- (7) Stability of adjustment is slightly better if made after a brief run-in period.

tuning condenser by means of two set-screws. When the condenser is at maximum (plates fully meshed) the insulation line should be horizontal, with the beveled operating-end at the left (viewed from rear).

The selector disc should be set so that the contact-tip plungers in the station-setting contacts project not more than 1/16-in. from the body of the contacts.

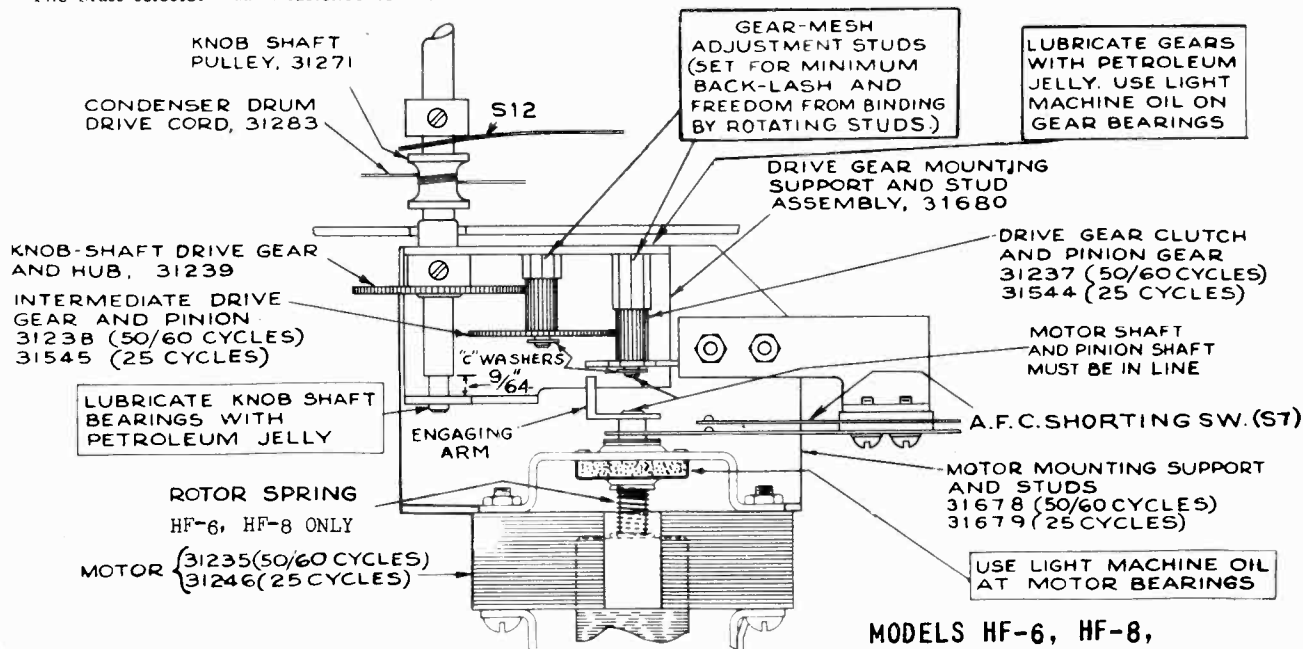
Adjustments

To adjust S12, loosen knob shaft pulley, and adjust it so that when shaft is pushed all the way in, the ends of the leaves of S12 will be deflected 1/32-inch from their original position. When tuning shaft is released, distance between contacts of S12 should be 1/32-inch.

S7 should be adjusted so that when motor is in its full forward or upward position, the ends of the leaves should be deflected 1/32-inch from their original position.

Adjustment of Selector Disc

The brass selector disc is fastened to the rear shaft of the



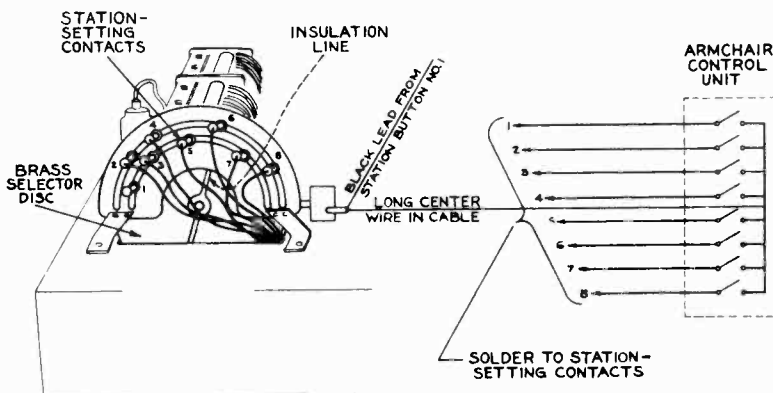
MODELS HF-6, HF-8,
U-132, U-134 ONLY.

Armchair Control Unit

Station-Setting Contacts and Selector Disc

This illustration shows connections for a G8A Armchair Control Unit. This unit is not supplied with the receiver but may be added as an accessory.

Station Button	Color of Lead To Station-Setting Contact
No. 1	Black
No. 2	Brown
No. 3	Blue
No. 4	Green
No. 5	Red
No. 6	Red-black
No. 7	Brown-black
No. 8	Red-yellow



When a Model G8A Armchair Control is connected to the receiver it duplicates the action of the push-buttons on the front panel when No. 1 button is pressed down. The black lead from push-button No. 1 is unsoldered from No. 1 station-setting contact and soldered to a terminal board which is to be mounted on the frame of selector mechanism. If desired one of the other seven station buttons on the set may be used in place of No. 1 button.

This arrangement allows the use of only seven of the eight buttons when tuning in stations at the set, but allows the use of the entire eight buttons on the Armchair Control. In operating the G8A Armchair Control the push-button must be held down until the station has been tuned in. Care must be taken not to hold two of the station-buttons down at one time as both windings of the motor may be engaged instantaneously causing the motor to be inoperative and overheated.

Modified Electric Tuning Motor—Friction Clutch Type:

Some 1938-39 electric tuning models incorporate a drive motor corresponding to the accompanying drawings. This motor employs a friction clutch, its flywheel requires no adjustment, and starting is accomplished by means of a capacitive phase shifting circuit. Replacement stock numbers and models involved are as follows:

	Models 98K, 99T, 99K, 910KG, 911K, 11Q4, 11QK	Models HF-2, HF-4, U-126, U-128, U-130, 11QU	Models HF-8, U-132, U-134
(a) Motor, 60 mfd. capacitor, roller and damper (50-60 cycle) ..	32095	32095	32095
(b) Motor, 180 mfd. capacitor, and roller (25 cycle)	32434	32434	32434
(c) Motor mounting bracket	32087	32090	32089
(d) Drive gear assembly (comprising disc and pinion, knob shaft, drive gear and bracket)	32091	32091	32092

The mechanical clutch type motor (Stock No. 31235 for 50-60 cycle and No. 31246 for 25 cycle) is replaceable for service purposes where desired by the friction clutch type motor (a) or (b) if the revised bracket (c) and drive gear assembly (d) are used as specified above. (The mechanical clutch type motors, Stock Nos. 31235 and 31246, will be continued as replacement parts.)

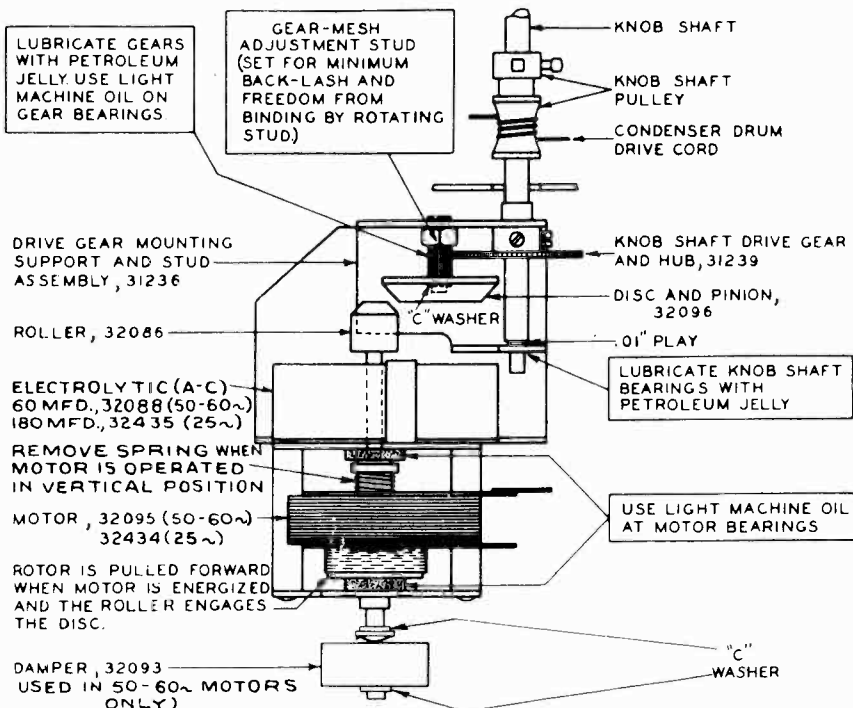
Note No. 1—When installing motor on all "Victrola" models remove thrust spring of motor shaft by pulling out with long-nose pliers.

Note No. 2—Rubber roller is attached to shaft with shellac.

Note No. 3—An 820 mmf. capacitor (Stock No. 12536) must be added across the selector disc circuit.

Replacement Parts for Friction Clutch Type Motor:

Stock No.	Description
32088	Capacitor—60 mfd. a-c electrolytic, 40 volts (50-60 cycle only)
32435	Capacitor—180 mfd. a-c electrolytic, 40 volts (25 cycle only)
32093	Damper—Flywheel damper for rear end of motor shaft (50-60 cycle motors only)
32096	Disc—Friction disc and pinion gear
31239	Gear—Knob shaft drive gear and hub
32086	Roller—Rubber friction roller for front end of motor shaft
31681	Shaft—Dial drive knob shaft
32094	Washers—Washers for mounting damper on 50-60 cycle motor



Friction Clutch Type Electric Tuning Motor.

USED ORIGINAL ON
U-30, U-48, U-129, K-130

important to have the leather friction pads thoroughly saturated with "Neatsfoot" oil; they should be soaked in this oil for at least 24 hours.

Increased Torque:

Some motors in the mechanical clutch type electric tuning mechanism have a 60 mfd., 40 volt, Stock No. 32088 capacitor connected to the circuit as shown. This capacitor increases the torque of the motor and is primarily intended to increase rotor thrust for positive engagement of the arm and clutch. Should a motor which fails to "pull into" running position or which chatters in and out of engagement, be encountered in the field, the capacitor may be added as a remedy. It should be connected between the two top lugs of the motor (No. 3-No. 4) as shown, and the lead from the winding to No. 4 must be cut and secured clear of the circuit.

Mechanical Motor Rumble:

Under certain conditions related to acoustics of room, placement of instrument, and general noise level, the mechanical noise of some mechanical clutch type electric tuning motors may be found objectionable. Should such a condition exist, it may be due to an unbalanced flywheel or noisy gear system. Check to see that intermediate gear Stock No. 31238 is the "micarta" type, and that the flywheel, Stock No. 31240, is correctly "balanced." The standard replacement units meet these requirements.

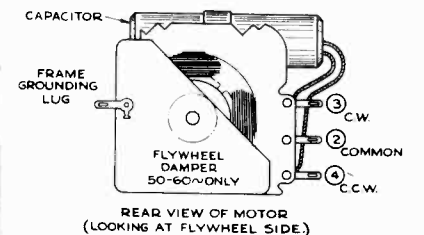
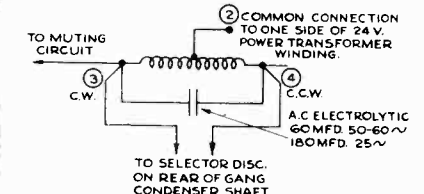
Push Buttons Not Latching:

The position of the chassis in the cabinet with respect to the push buttons, is important in obtaining positive latching action. It may be necessary in some cases to elevate the front of the chassis slightly (approximately 1/8-inch) by placing washers under its mounting feet, in order to obtain the best operation. The strength of the spring used at one end of the latch bar to retain the switch lever in the "on" position has been increased in order to obtain a more positive latching action. The present spring is available as Stock No. 31970. Parts lists in service notes on models concerned should be accordingly changed.

Mechanical Noise:

Noisy operation of the electric tuning mechanism, especially on larger instruments, may be reduced by application of the following suggestions:

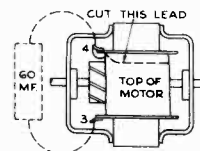
- Thoroughly lubricate slide rods which carry dial pointer. Use an oil that does not tend to harden with age and also clings well to the guides.
- Lubricate the fork of AFC switch (where used) with similar oil.
- See that the dial drum is not rubbing against pilot light shields.
- Check alignment between motor shaft and pinion gear shaft, to see that these are adjusted on the same axis. It may be necessary to "shim" the motor mounting to accomplish ideal alignment. (This applies to mechanical clutch type mechanism.)



Friction Clutch Type Electric Tuning Motor

Revised Flywheel:

A revised design of flywheel has been employed on the mechanical clutch type drive motor of electric tuning models. This flywheel is available for replacement use, and is stocked as Part No. 31240. (This type is illustrated in service data for 11Q4, 11QK, 11QU.) It has two leather friction pads with adjustment provided for each. The use of two pads reduces the pressure required for ideal adjustment and thereby lessens wear and glazing to a point where stable operation and normal stopping of dial pointer continues indefinitely. These flywheels are also balanced so that each one passes a very stringent factory test; this being an influence in obtaining good adjustment as well as in keeping mechanical vibration to a minimum. When installing a flywheel, it is very



Increased Torque for Mechanical Clutch Type Electric Tuning Motor.

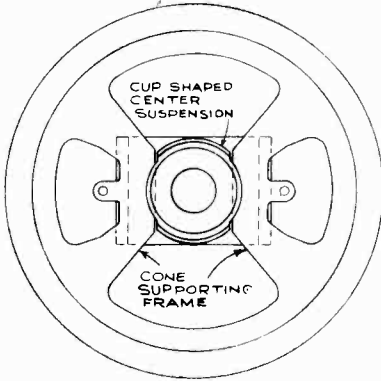
REPLACEMENT CONES

Installation Instructions:

Certain types of replacement loudspeaker cones are now being supplied with a cup-shaped center suspension fastened to the cone instead of the flat suspension and cup-shaped metal plate which were originally used.

These replacement cones can be used without modification on many types of speakers. However, on certain types, the speaker frame extends in so close to the center pole that it interferes with the cup-shaped center suspension; in such cases it is necessary to cut away two edge sections of the suspension, as follows:

1. Put cone in position in housing and mark



The Cup-Shaped Suspension Must be Cut Away to Accommodate the Cone Supporting Frame in Some Speakers.

places on suspension cup where edge of cup must be cut away.

2. Lift cone out of housing and cut away edge of cup where marked.
3. Cement cone into position in the usual way, being careful that the entire edge of the cup is securely cemented down, including the edge at the places that were cut away.
4. Leave the centering gauge in position until cement is thoroughly dry.

The accompanying sketch shows how the flat edge of the cup-shaped center suspension is cut away in two places to provide clearance for the cone supporting frame.

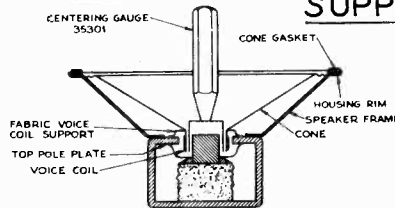
REPLACING CONES

In Speakers with Cemented Voice-Coil Support:

In some types of speakers, the fabric voice-coil support is cemented to the top-pole plate. This design provides more accurate and permanent centering, by eliminating possible strain and movement that may occur in tightening the screws on speakers that have adjustable-type voice-coil supports.

If the voice coil scrapes in the gap, it may be caused by:

- (1) A bent speaker frame. This condition can usually be corrected by bending the frame in the required direction.
- (2) A warped voice coil, or a warped voice coil support. This condition requires installation of a new cone, as follows:
 - (a) Remove old cone by cutting around the cone rim and the voice coil support.
 - (b) See that the air gap is uniform and clean. Cover the gap with a piece of "scotch tape" to prevent entry of dirt and metallic particles.
 - (c) Remove all paper and cement from rim of cone housing and from the top-pole plate.
 - (d) Apply a ring of cement ("Duco Household") on top-pole plate and around rim of speaker frame.
 - (e) Carefully insert centering gauge (RCA Stock No. 35301) into the voice coil of the replacement cone, handle first, from winding end. Remove scotch tape



In Speakers with Cemented Voice-Coil Support, the Voice-Coil must be centered while cementing the support.

from the air gap and insert the cone into the speaker, with the voice coil leads in correct position with respect to the terminals. Press cone rim onto the housing rim.

- (f) Apply cement on top outer edge of cone and lay the large cardboard cone gasket in place. Set the speaker in an inverted position on a smooth flat surface that has a $\frac{1}{8}$ inch hole for the gauge handle to clear, until the cement is dry (about 15 minutes). See that the voice coil support is pressing against the cement on the top-pole plate.
- (g) Work additional cement around the outer edge of the fabric voice-coil support, to insure positive grip all around between the support and the top-pole plate.
- (h) Remove gauge from voice coil, using a rotary motion. Solder the voice coil leads in place, allowing sufficient slack to permit free motion of the cone. Dress the leads in the plane of motion, taking care that the leads do not strike against the cone, or cone housing. Cement dust cap on cone center.

"KNOCKED-DOWN" VOICE COIL AND CONE

Installation Instructions:

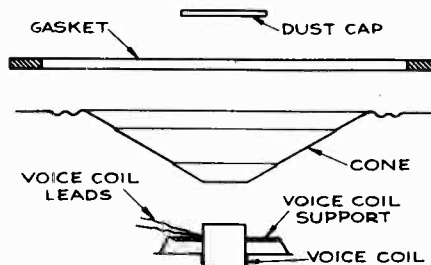
To simplify cone replacement in certain speakers, the cone and voice coil are supplied as two separate units: (1) The voice coil and support, (2) The cone diaphragm.

General Procedure

- (a) Cement voice-coil support to the speaker, using centering gauge or speaker shims.
- (b) Solder voice-coil leads.
- (c) Put cone in place, cementing around rim of speaker frame.
- (d) Cement junction of cone and voice coil.

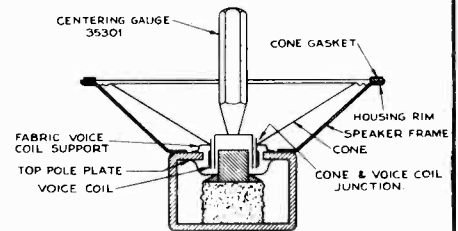
Detailed Instructions

- (a) Remove old cone and voice coil. Protect air gap with scotch tape. Clean off all paper and cement.
- (b) Apply a ring of cement (Duco Household) on top plate.
- (c) Insert centering gauge in new voice coil, handle first, from the winding end.
- (d) Remove scotch tape from gap. Insert voice coil and gauge in gap with leads in correct position for soldering. Press rim of voice coil support into the cement.



Certain replacement cones are supplied "knocked-down" in two pieces—(1) The voice coil and centering support. (2) The cone diaphragm.

- (e) Solder the voice coil leads to terminals, allowing sufficient slack to permit free motion of the cone. Dress leads in plane of motion, clear of cone and housing.
- (f) Apply a ring of cement around the rim of speaker frame. Place cone down over voice coil and press cone rim tight to speaker frame.
- (g) Allow cement to dry on cone rim and voice-coil support. Then run a ring of cement around the junction of the cone and voice coil, being careful the cement does not run inside voice coil.
- (h) After cement at junction has dried, remove gauge, using a rotary motion.
- (i) Cement large cardboard gasket in place. Set the speaker in inverted position on a flat surface until gasket is dry. Cement dust cap on cone center.



When installing "knocked-down" speaker cone, the junction of the cone and the voice coil is cemented last.

REPLACING FIELD COIL

In Speakers with Pressed Core:

Many RCA electrodynamic speakers have the field coil pressed into the yoke. To replace the field coil in these speakers proceed as follows, BEING VERY CAREFUL NOT TO DAMAGE THE VOICE COIL OR CONE:

- (a) Carefully remove the front dust cover by means of a razor blade or a sharp knife.
- (b) Drive the core completely out of the yoke using a suitable piece of round steel rod as shown in Fig. 1.
- (c) Replace the field coil. Be sure that all spacers, washers, horn coil, and other parts are replaced in their original positions.
- (d) Insert the core down through the cone and field coil, and drive it in position as shown in Fig. 2.
- (e) If core is not centered in voice coil it can be driven from side to side, as necessary, with a center punch.
- (f) Cement a new dust cover in position on speaker cone.
- (g) If desired a special tool for this purpose

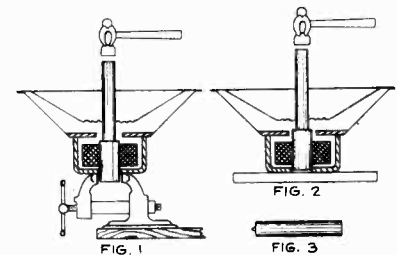


Fig. 1—Removing Field Core.

Fig. 2—Replacing Field Core.

Fig. 3—Tool to Facilitate Removal and Replacement of Core.

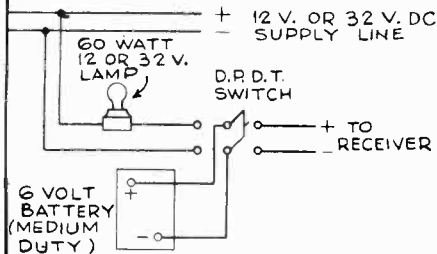
can be made locally with the end shaped as shown in Fig. 3. It should be made of drill rod or cold rolled steel and hardened.

- (h) An alternative method of removing the core is to use a gear puller and press it out from the back of the yoke.

RECHARGING 6V BATTERY

On 12V or 32V DC Supply:

A 12-volt or 32-volt DC farm-lighting supply can be used to recharge a 6-volt radio storage battery. The recommended circuit is shown herewith. The charging rate may be increased or decreased by using a higher or lower wattage lamp.



Radio storage battery can be charged on a DC farm-lighting outfit.

PUSH BUTTON SWITCHES

Tarnished Contacts:

Proximity of rubber-covered wires may produce tarnish on the silver-plated push-button switch contacts. This condition may be remedied by wiping the contacts clean, and moving any adjacent rubber-covered wires or other rubber material away from the switch.

ABSORPTION WAVE TRAP

For Loop Receivers:

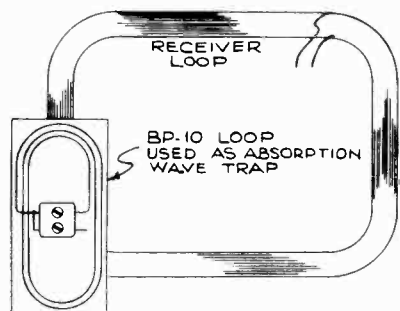
Interference and cross modulation due to the presence of a strong local broadcast station is seldom experienced on loop-type receivers because the signal pickup is much less on a loop than on an antenna.

However in rare cases where such interference is encountered, it can generally be eliminated by using an absorption-type wave trap, loosely coupled to the loop on the receiver, as shown in accompanying sketch, and tuned to the frequency of the interfering station.

A good absorption trap can be made with a small loop like that used in Model BP-10 "Personal" radio. Fasten a two-section mica trimmer (salvaged from a discarded IF transformer) on the small loop. Connect the trimmer across the terminals of the small loop. Use one trimmer, or both in parallel, depending on whether the interfering station is at the high or low end of the broadcast band.

Tune the receiver to the frequency of the interfering station, place the trap near the receiver loop, and adjust the trap trimmer(s) to resonance, indicated by a sharp dip in signal strength. Use smaller or larger capacity trimmers if required to reach resonance.

Check to see if the particular interference effects have been eliminated. Adjust the position of the trap to secure closer coupling if necessary to further increase signal absorption. Avoid over coupling. Fasten the trap in the desired position on the receiver loop.



On a loop receiver, interference from a strong local broadcast station can be reduced by using an absorption loop, tuned to the interfering station, and loosely coupled to the receiver loop.

RCA VICTOR RECEIVERS

Model Number Code:

The following abbreviations have been used by RCA for several years to classify models in general groups:

BT Battery Table	TT Television Table
BP Battery Portable	Attachment
CV Converter	TRK Television-Radio
K Console	Console
O Portable Victrola	U } Radio-
OSC Oscillator	V } Victrola
Q Export Table	VA Wireless Record
QK Export Console	Player
R Record Player	VHR Home-Recording
RK Record Kit	Radio Victrola
RR Record Cabinet	X AC-DC Table
T AC Table	

VOICE COIL IMPEDANCE

And DC Resistance:

In servicing RCA radio loudspeakers, it is helpful to know that the DC resistance of the voice coil is approximately 10 percent less than the impedance at 400 cycles.

For example, a speaker with a rated voice-coil impedance of 2.2 ohms at 400 cycles will measure about 2 ohms DC resistance.

RCA SCHEMATICS

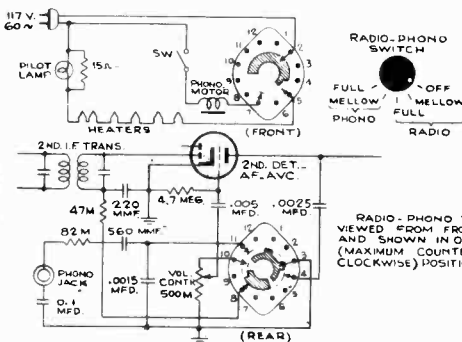
Switch Positions:

Practically all of the larger RCA receivers have decals on the cabinet (or other means) to indicate the function of each position on the more complicated switches. In cases where only the chassis is brought in for service, the corresponding information about controls is given in a knob drawing printed in the Service Note.

For example, the accompanying schematic shows the radio-phono-tone control switch circuit in Model V-135, drawn as usual in the extreme counter-clockwise position. The knob view shows the function of each position:

- (1) "Off" (counter-clockwise).
- (2) Radio—mellow tone.
- (3) Radio—full tone.
- (4) Phono—mellow tone.
- (5) Phono—full tone (clockwise).

As a general rule, on RCA receivers clockwise rotation of a control produces an increase. Thus on a range switch, the lowest-frequency band is counter-clockwise, and the highest-frequency band is clockwise. On tone controls, the narrowest audio range or deepest tone is counter-clockwise. The widest audio range or highest tone is clockwise.



In RCA Service Note schematics, wafer switches are shown in extreme counter-clockwise position, and the drawing of control knobs gives sequence and function of switch positions.

1941 RECEIVERS

Reduction in Sensitivity:

It may be found necessary in certain localities to reduce the sensitivity of these receivers in order to reduce the effect of noise pickup in between stations. This can be done by adding larger resistors in the i-f cathode connected between the existing 100 ohms and ground with a 1/10 mfd. in shunt with the added resistor. On the receivers which do not use a 100 ohm resistor in the i-f cathode, the resistor and capacity combination should be added between the cathode and ground. The value of the resistor could be anything between 500 and 3,000 ohms depending upon the reduction in sensitivity required.

ORDERING OF SERVICE PARTS

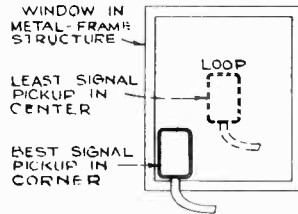
Proper Identification:

During the production of certain models, it is sometimes found expedient to make a few changes for the sake of ease of assembly, etc. Chassis carrying these changes are identified from preceding ones of the same model by a letter following the RC number. The changes are seldom of sufficient scope to warrant the publication of a separate Service Note. Consequently, when ordering, speed and accuracy in filling orders may be assured by checking the RC stamping on the chassis rear apron with the designation as shown on the title page of the Service Note. If these designations do not agree, parts should be ordered by specifying the RC Number, as stamped on the particular chassis.

BEST LOOP PICKUP

In Corner of Window:

In a metal-framed structure, such as a car, train, plane, or steel building, best signal pickup is usually obtained by placing the loop in one corner of the window instead of in the center. The center of the glass space is usually a null for signal. This fact should be kept in mind when using the extension loop on a portable radio, as there is a natural tendency to fasten the loop in the center of the window.

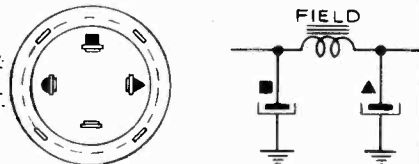


For best signal pickup, the extension loop on a portable set should be placed in corner of window.

ELECTROLYTIC CAPACITORS

Terminal Identification:

On certain types of multiple-section electrolytics, the terminals are identified by small markings (triangle, half-round, or square). The marks are either cut-outs or mouldings in the base. Corresponding marks are shown adjacent to the electrolytic symbols in the schematic diagrams.

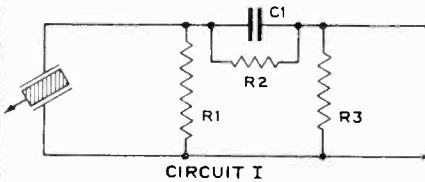


In some electrolytic capacitors, the terminals are identified by half-round, triangular, and square markings. Corresponding marks are shown adjacent to the symbols in the schematic.

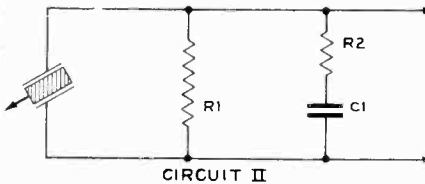
TONE COMPENSATION

For Pickup Circuits:

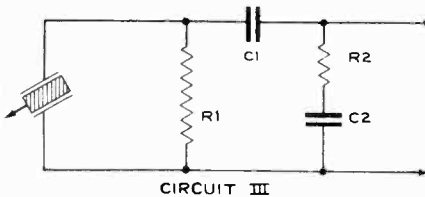
Because of the widely varying frequency characteristics of various types of audio amplifiers with which crystal pickups may be used it may be desirable in some cases to make refinements in the pickup circuit to compensate for the characteristics of the amplifier. The following circuits show examples of compensation adjustments:



Circuit I:
 Increasing R1 increases low frequency response.
 Increasing C1 increases high frequency response.
 Increasing value of R3 with respect to total value of R2 plus R3 increases the output.



Circuit II:
 Increasing R1 increases low frequency response.
 Increasing R2 increases high frequency response.
 Decreasing C1 increases output.



Circuit III:
 Increasing R1 increases low frequency response.
 Increasing R2 increases high frequency response.
 Increasing value of C1 with respect to total value of C1 plus C2 increases the output.

REPLACEMENT OF RUBBER TIRES

On Turntable Drive Discs:

Stock No. 37872 Rubber Drive Tire For RP-145, U-9, U-10, U-12—List Price, 75c.

Stock No. 37873 Rubber Drive Tire For RP-152 (V200, V205, etc.)—List Price, 75c.

1. Remove old tire by stretching and pulling over drive disc edge.
2. Thoroughly clean drive disc to remove burrs or foreign particles.
3. Place new tire over the drive disc. Avoid any twisting or excessive stretching of the tire.
4. Roll disc and tire on a flat clean surface while simultaneously applying a slight downward pressure on the disc shaft. This will allow the tire to seat itself properly in the "V" shaped groove on the drive disc and take up for any uneven stretching of the rubber tire.
5. Clean rubber tire with carbon tetrachloride (Carbona).

PHONOGRAPH MOTORS

Identifying Colors:

In order to facilitate identification in respect to frequency, Phonograph motors are marked either on the bottom or side with a large spot of paint as follows:

60 cycles	no mark
50 cycles	green
25 cycles	white

GAIN DATA

Using 3-volt Fixed Bias:

To provide more definite operating conditions, the R-F and I-F gain data for RCA Victor Service Notes is now obtained with a fixed 3-volt bias on the A.V.C. bus.

To duplicate this gain data, it is necessary to connect a 3-volt bias battery temporarily to the set as indicated in the service notes. The negative side of the 3-volt battery should be connected to the A.V.C. bus, and the positive side of the battery should be connected to the chassis. (In a.c.-d.c. receivers, the positive side of the battery should be connected to the common negative wiring.)

The battery may consist of two small flashlight cells connected in series.

Use of the fixed bias eliminates necessity for shorting out the A.V.C. circuit, and minimizes difficulty due to over-loading with resultant grid current.

STAGE-BY-STAGE ALIGNMENT

To Reduce I-F Regeneration:

RCA Service Notes generally specify "stage-by-stage" I-F alignment. This procedure must be followed (when using an output meter) in order to prevent I-F regeneration or oscillation. The procedure is as follows:

- (a) Connect the signal generator through .01 mfd. to the grid of the I-F tube. Adjust the primary and the secondary of the 2nd I-F transformer for maximum peak output.
- (b) Connect the signal generator through .01 mfd. to the grid of the 1st detector tube. Adjust the primary and secondary of the 1st I-F transformer for maximum peak output.
- (c) DO NOT re-adjust the 2nd I-F transformer.

When using a cathode-ray oscilloscope for alignment, the I-F trimmers should be adjusted for coincidence rather than peak output. Regeneration shows up as tapering peaks at the bottom of one side of the resonance curve.

ALIGNMENT AT 1,720 K.C.

On models that cover the frequency range of 540 to 1,720 k.c., the Service Data specifies a definite alignment procedure to obtain (1) Frequency coverage up to 1,720 k.c., (2) Maximum sensitivity at 1,500 k.c. This procedure is as follows:

- (a) Feed a 1,720 k.c. signal into the receiver. Turn the gang condenser to minimum capacity (rotor all out). Adjust the oscillator shunt trimmer in the receiver for peak output on the 1,720 k.c. signal.
- (b) Feed a 1,500 k.c. signal into the receiver, and tune the receiver to pick up the signal, even though it may not come in at exactly 1,500 k.c. on the dial. Then adjust the antenna circuit trimmer for maximum output.

"POPPING" INTERFERENCE

Reduction of Static Discharges, AC-DC Receivers:

Where AC/DC receivers are used with an external antenna which is exposed to steam, smoke, snow, or other influences of similar nature, a static accumulation may occur on the antenna and will produce objectionable interference by discharge to ground, chassis or other nearby objects. This condition can be obviated by connecting a 1 megohm resistor in parallel with the isolating capacitor which is normally used in series with the antenna input, thus maintaining the antenna at ground d-c potential at all times.

MOLDED MICA CAPACITORS

Tolerance and Identification:

All replacement molded mica toothpick capacitors are built to the minimum tolerance specification, so that only one unit of each particular value must be stocked; this unit being usable in all applications irrespective of the tolerance requirement. Some capacitors removed from instruments will therefore have numerical markings that do not correspond to those of the replacement supplied. Molded mica capacitors now being used have markings that correspond to their capacitance value in micromicrofarads. Example: 270 indicates 270 mmfd.

EXTERNAL ANTENNA COUPLER

For Loop Receivers:

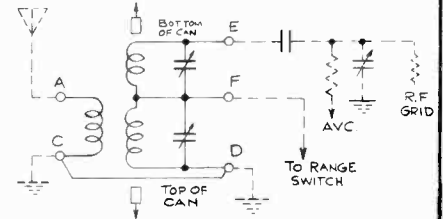
A specially designed antenna coupler, Stock No. 9912 is available for use in connecting an external antenna to a loop receiver. This coupler will prove valuable for installations where it is desirable to eliminate the loop in order to improve the signal noise ratio and increase sensitivity.

The antenna coupler may also be used as a fixed-tuned substitute for any standard loop antenna to aid in aligning loop receivers in a shop.

The coupler covers "A" and "B" bands, approximately 550 to 1,750 kc, and 1,750 to 5,000 kc. It has low-frequency and high-frequency adjustments on each band to ensure adaptability and good performance on practically any loop receiver.

The circuit is shown in the accompanying diagram. Installation and adjustment instructions are furnished with the unit.

List Price of No. 9912 is \$2.25.



*Circuit of External Antenna Coupler
Stock No. 9912*

HUM REDUCTION

On AC-DC Models with PM Speaker:

In RCA AC-DC receivers that use a PM (permanent-magnet) speaker, effective hum bucking is obtained through the use of an output transformer with tapped primary. The tap is established at a point where the "ampere turns" of ripple in the direction of the output plate balances the "ampere turns" of ripple in the direction of the screen and other plate circuits.

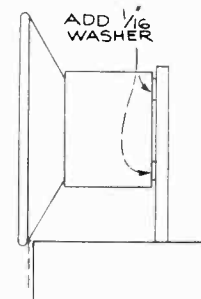
High residual hum (at zero volume setting) may be due to incorrect balance, and can usually be remedied by one of the following steps:

- (a) Output tube with off-standard characteristics.
- (b) Filter capacitor too low capacity, or too high internal resistance.
- (c) "B" filter resistor not correct value. Measure resistance and change if necessary.
- (d) Cathode bias resistor of output tube not correct value.
- (e) If hum persists change the output-tube-plate bypass to rectifier cathode instead of to output-tube cathode.
- (f) If none of preceding steps reduces the hum to a satisfactory level, replace the output transformer.

LITTLE NIPPER

Speaker Adjustment:

Certain cases of "off center" cones have been attributed to a binding between the speaker housing and chassis base as illustrated. This should be checked wherever rattle is experienced, and washers added as indicated, if required.



*If Speaker Frame
Binds Against Front
of Chassis, Install
Spacer Washers as
Shown*

COLOR CODING OF OUTPUT TRANSFORMERS

In some production, the color code of leads on the following transformers is changed. When installing, check the drawing number stamped on the transformer and refer below for color code.

ORIGINAL COLORS

Stock No.	35774	37350	35056	33444	37899	14534	36098
Dwg. No.	94106-1	89681-3	89681-2	83517-3	94193-1	83517-1	94117-1
Pri. Start	Red	Red	Red	Red	Red	Red	Red
Pri. Tap	Black	—	—	Red-Black	Red-Black	Red-Black	—
Pri. Finish	Blue	Blue	Blue	Red	Black-Red Tr.	Red	Red
Sec. Start	Bus	Green-Red Tr.	Black	Black	Yellow	Black	Bus
Sec. Finish	Bus	Brown	Black	Black	Black	Black	Bus

ALTERNATE COLORS

Stock No.	35774	38994*	35056	33444	37899**	36098
Dwg. No.	94106-2	97610-2	97610-1	97604-2	97604-1	97611-1
Pri. Start	Blue	Blue	Blue	Brown	Brown	Blue
Pri. Tap	Red	—	—	Red	Red	—
Pri. Finish	Red-Black	Red	Red	Blue	Blue	Red
Sec. Start	Bus	Black	Black	Bus	Black	Black
Sec. Finish	Bus	Green-Red Tr.	Green-Red Tr.	Bus	Green-Red Tr.	Black

* Stock No. 38994 supersedes No. 37350.

** Stock No. 37899 supersedes No. 14534.

COLOR CODE

For Power Transformers:

Changes have recently been made in the color code of RCA power transformer leads to conform to R.M.A. standards.

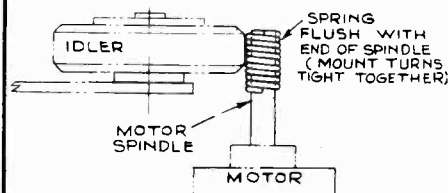
	Old Color Code	New Color Code
Rectifier filament . . .	yellow	yellow
Amplifier filament . . .	blue	brown
Hi-voltage secondary	brown	red
Hi-voltage center tap	brown & black	red & yellow

There are three different types of primaries as follows:

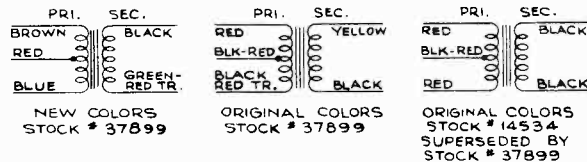
Single 110-volt primary	red	black
Double primary—110-220 volts:		
No. 1 Primary—Start	red	black
No. 1 Primary—Finish	red & black	black & yel.
No. 2 Primary—Start	red & yel.	black & green
No. 2 Primary—Finish	black & red tr.	black & red

Tapped primary—110-125-150-210-240 V.:		
Start	red	black
110 volt tap	red & black	black & yel.
Finish	black & red tr.	black & red

These transformers are interchangeable since no change has been made in their electrical characteristics. Transformers supplied for replacement purposes using the new color code leads are shipped less end shields (covers). The end shield from the original transformer should be used. If the lower shield is of the bent lug type, it need not be removed from the chassis.



Spring sleeve installed on 60-cycle motor spindle for operation on 50-cycle supply.



Original and Alternate Colors on Transformer Stock No. 37899, and Colors on No. 14534, which is Superseded by No. 37899.

60 TO 50 CYCLE CONVERSION

For Rim-Drive Phono Motors:

(These instructions supersede all past issues, covering the use of shrunk sleeves.)

A spring sleeve is used to increase the diameter of the motor drive spindle, to compensate for the slower speed of the motor when used on a 50 cycle line.

Spring sleeves are available for the following

models which comprise most of the motors using spindle drive manufactured to date.

To apply the spring-sleeve to the motor spindle, lock the rotor manually and press spring gently over end of spindle, twisting the free end of spring counter-clockwise (to unwind coil) until following end of spring is flush with end of spindle.

The ends of spring should not protrude, and all coils should be close together, allowing a flat even surface on the motor spindle to contact the rubber drive.

Model No.	MOTOR		RP No.	Spring-Sleeve
	Dwg. No.	Stock No.		Stock No.
V-100	91647-3	36404		39681
V-101	"	"		"
V-102	"	"		"
V-105	"	"		"
QU56-C	92127-1	36984		"
QU56-M	"	"		"
V-135	91647-5	39301	RP-162	39750
V-140	"	"	"	"
V-175	91706-1	38612	RP-158	39748
V-209	"	"	"	"
V-210	"	"	"	"
QU51-M	"	"	RP-152R	"
QU52-C	"	"	RP-152S	"
QU52-M	"	"	RP-152R	"
QU55	"	"	RP-152R	"
V-215	91655-1	36254	RP-160	39749
V-219	or 91655-6	36254	RP-160A	"
V-221	"	"	RP-160B	"
V-225	91845-1	38557	RP-151	"
QU-51C	91655-6	36254	RP-145E	"
QU5	91655-6	34364	RP-145E	"