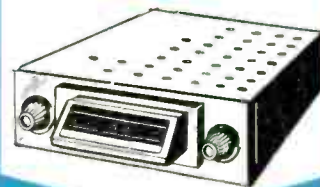


SAMS PHOTOFACT[®]



AUTO RADIO SERIES

AR-80
80
JULY 1970



CONTENTS

REMOVAL INFORMATION PAGE 4

ALLIS CHALMERS

AC Tractor (70)
OBTAC

BUICK

Special (70)
04APB1

FORD/MERCURY

Ford/Meteor (70)
1FD5001
(C9AA-19A127C)

LINCOLN

Mark III (69)
9FBX (C9LA-19A241B)

OLDSMOBILE

F-85 (70)
03AFM1
Olds (70)
03BFM1
Toronado (70)
03EFM1

PHILCO-FORD

Ford (70)
DOAA-19A243

PONTIAC

Firebird
Grand Prix
Pontiac
Tempest (70)
02BT411

VOLKSWAGEN

Fastback, Squareback,
Karmann Ghia, Sedan
Transporter (70)
1VW10 (Sapphire XI)
2VW1003 (Canadian)

UNIVERSAL

Gibbs
CR-616

\$3.25
\$4.10 IN CANADA
Cat. No. AR-80



SAMS PHOTOFACT[®] AUTO RADIO SERIES

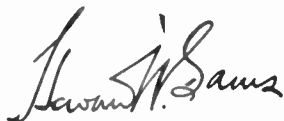


VOLUME

80



by the



ENGINEERING STAFF



HOWARD W. SAMS & CO., INC.

INDIANAPOLIS, INDIANA

**FIRST EDITION
FIRST PRINTING—JULY 1970**

**PHOTOFACT®
AUTO RADIO SERIES
VOLUME 80**

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Library of Congress Catalog Card Number: 49-11493



TABLE OF CONTENTS

TRADE NAME AND MODEL	PAGE
Allis Chalmers Model OBTAC	5
Buick Model 04APB1	13
Ford/Mercury Model 1FD5001 (C9AA-19A127C)	21
Gibbs Model CR-616	31
Lincoln Model 9FBX (C9LA-19A241B)	45
Oldsmobile Models 03AFM1 03BFM1 03EFM1	67
Philco-Ford Model DOAA-19A243	91
Pontiac Model 02BT411	101
Volkswagen Models 1VW10 (Sapphire XI) 2VW1003 (Canadian)	113

Cumulative Index to Prior Volumes	120
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REMOVAL INSTRUCTIONS

GENERAL REMOVAL INFORMATION

Most radios and speakers can be removed for service by following the steps shown in this block of information. Check the Make, Model, and Year of car listed below. If more specific instructions are required, they are shown.

- Step 1. Disconnect power, speaker and antenna leads.
- Step 2. Remove knobs.
- Step 3. Remove nuts from control bushings and cabinet braces.

Step 4. Remove radio from under dash.

Step 5. Remove nuts holding speaker and remove speaker from under dash.

BUICK - 1970 SPECIAL

- Step 1. Remove ashtray and bracket.
- Step 2. Remove screws from center air-condition duct and remove duct.
- Step 3. Remove knobs, control bushing nuts, and disconnect antenna lead and speaker connector. Remove screws from bottom brace.
- Step 4. Remove screws from radio trim plate and remove trim plate.
- Step 5. Remove nuts from front mounting studs and remove radio from under dash.

SPEAKER REMOVAL

- Step 1. Remove radio.
- Step 2. Remove Glove Box.
- Step 3. Remove screws from under rear instrument panel cover.
- Step 4. Remove nuts from under rear instrument panel cover.
- Step 5. Pull instrument panel cover up and remove.
- Step 6. Remove screws from air plenum and pull out.
- Step 7. Remove screw from speaker mounting bracket and remove speaker.

FORD - 1969

- Step 1. Remove knobs from radio, windshield-wiper control, windshield washer control, heater controls, and remove lighter element.
- Step 2. Remove screws from instrument panel cluster cover and remove cover.
- Step 3. Remove screw from bottom rear brace.
- Step 4. Remove nuts from front radio mounting.
- Step 5. Pull radio out of instrument panel and disconnect antenna lead, "A" lead, and Speaker leads.

SPEAKER REMOVAL

- Step 1. Remove instrument panel cover.
- Step 2. Remove nuts from speaker mounting and remove speaker.

LINCOLN - 1969 MARK III

- Step 1. Remove 8 screws from lower instrument panel cover and drop cover down.
- Step 2. Follow steps 1 thru 4 of General Removal Information.

SPEAKER REMOVAL

- Step 1. Remove 6 screws from air-conditioner grille.
- Step 2. Remove 2 screws holding word Lincoln on left side of cluster.
- Step 3. Remove 3 screws between cluster hood and crash pad.
- Step 4. Remove 4 screws from windshield molding and remove molding.
- Step 5. Remove 2 screws and 2 nuts from forward edge of crash pad.
- Step 6. Disconnect speaker leads and remove crash pad.
- Step 7. Remove 4 wing nuts holding speaker to crash pad and remove speaker.

OLDSMOBILE - 1970 F-85

- Step 1. Remove screws from lower air-conditioning duct, and remove duct.
- Step 2. Disconnect antenna lead and speaker connector.
- Step 3. Remove knobs and nuts from control bushings.
- Step 4. Remove nuts from lower mounting bracket.
- Step 5. Lower radio and remove.

SPEAKER REMOVAL

- Step 1. Remove radio.
- Step 2. Remove screws from mounting bracket and remove speaker.

OLDSMOBILE - 1970 OLDS

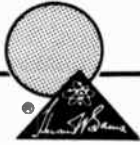
- Step 1. Remove screws from air-conditioning duct and lower duct.
- Step 2. See General Removal Information.

OLDSMOBILE - 1970 TORONADO

Oldsmobile Dealer should remove radio because of critical torques involved in steering-column replacement.

VOLKSWAGEN - 1970

See General Removal Information.

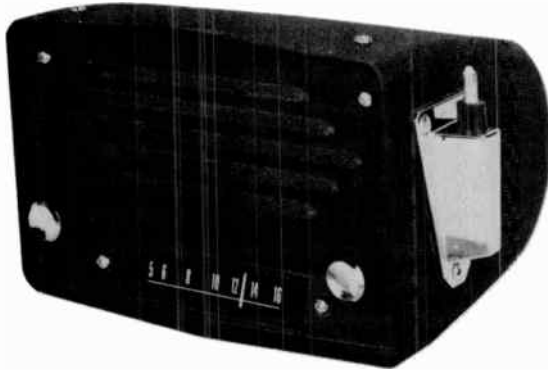


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CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are BENDIX



ALLIS CHALMERS MODEL OBTAC
(70 Tractor)

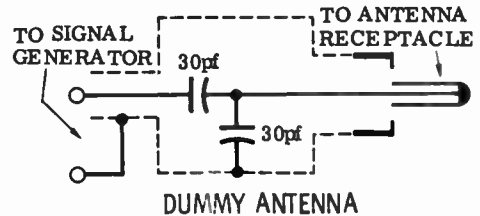
ALIGNMENT INSTRUCTIONS

Check for specified source voltage.
Use only enough generator output
to provide a usable indication.

Suggested Alignment Tools: GENERAL CEMENT # WALSCO #
A1 thru A49296, 9297, 9300.....2510, 2546, 2547
A5, A6, A78290, 8868, 9007.....2525, 2528, 2587

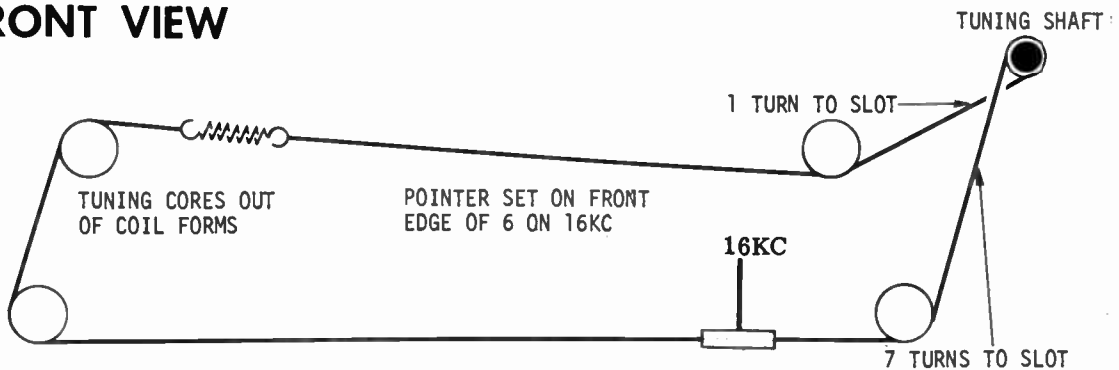
	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point Δ , low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
2.	Thru dummy antenna to antenna input.	1615KC	"	"	A5,A6, A7	"

With radio installed in car and antenna extended to desired height, tune in a weak station near 1400KC and adjust A7 for maximum output.



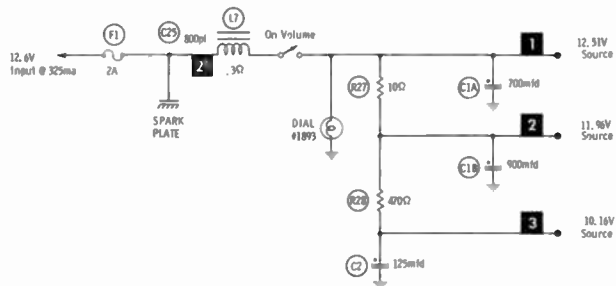
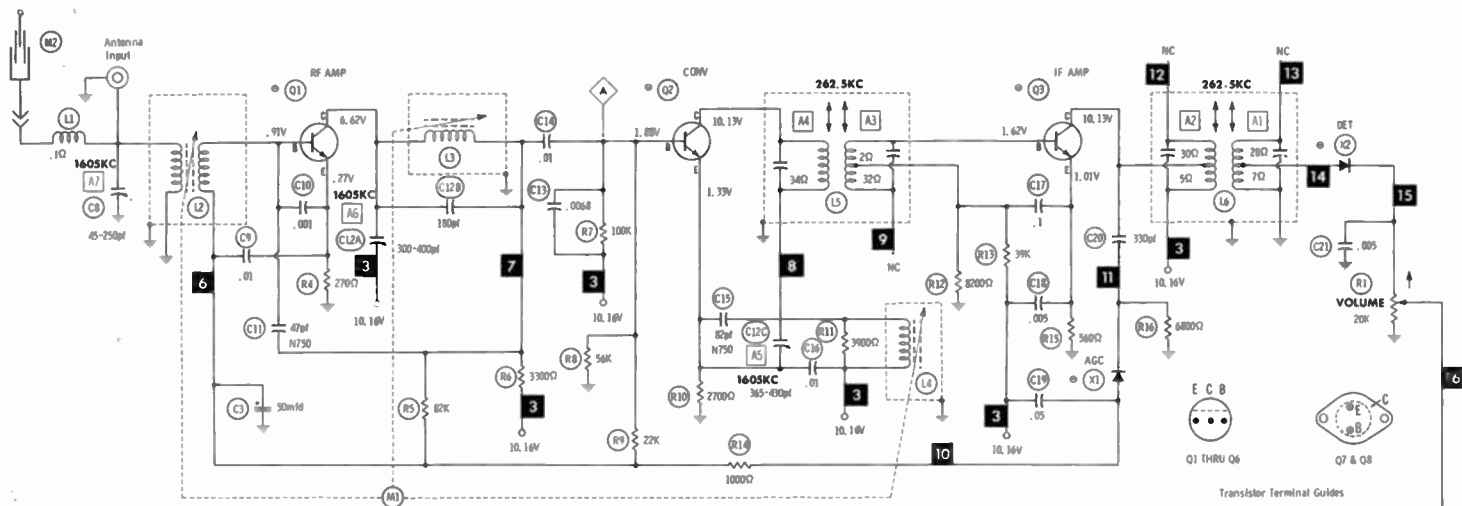
ALLIS CHALMERS MODEL OBTAC

DIAL CORD STRINGING FRONT VIEW



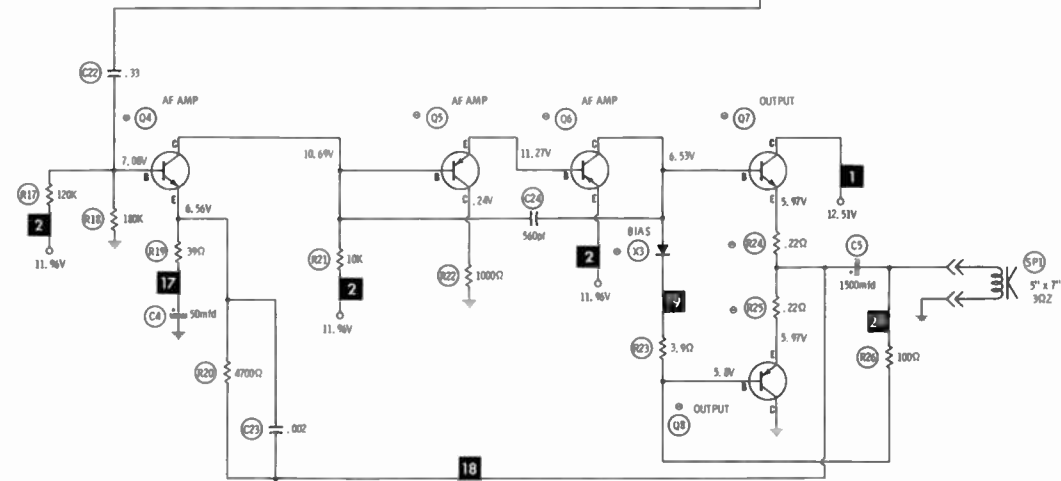
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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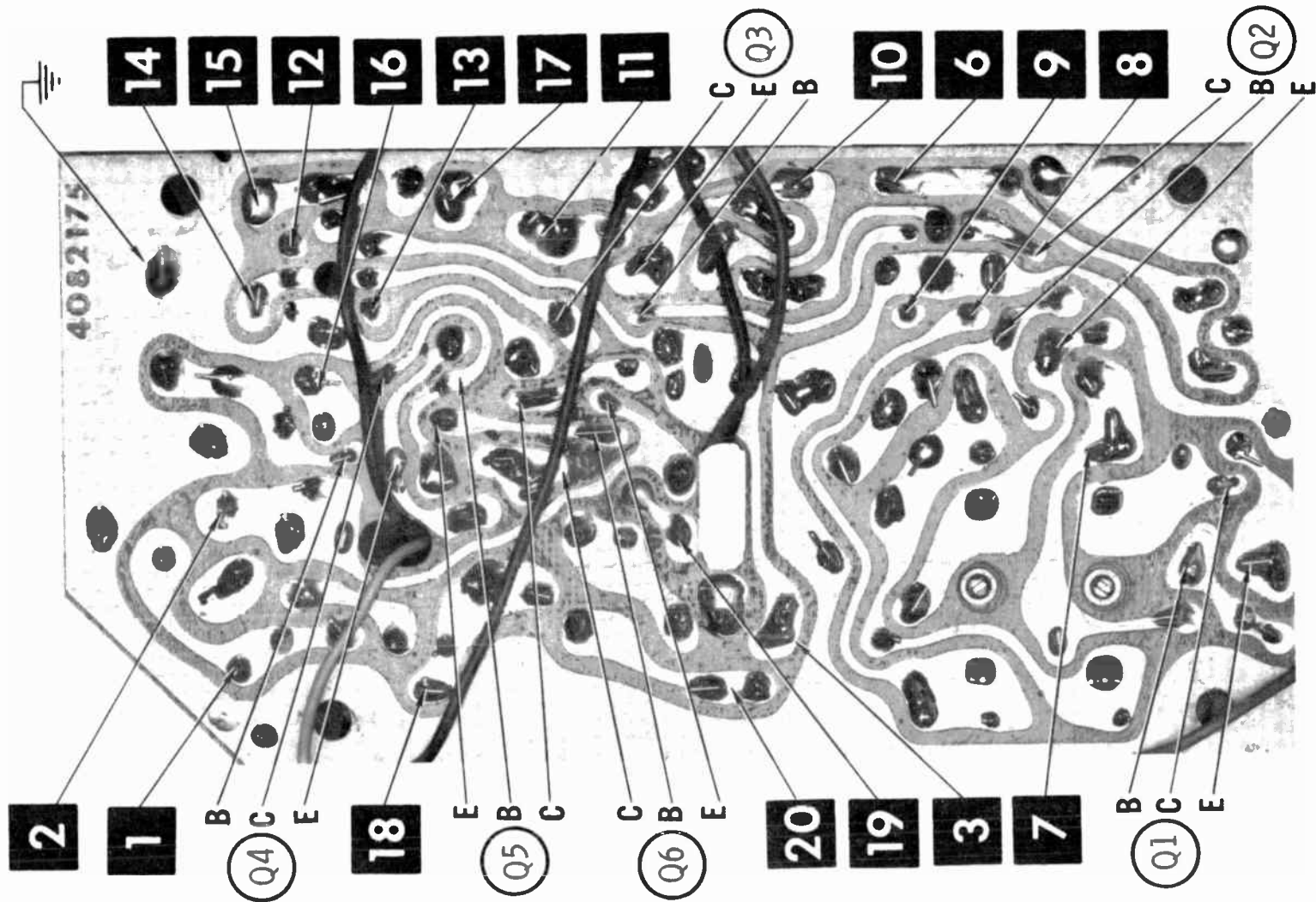
• See parts list.
Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
Supply voltage maintained at rated value for measurements.
Voltage and resistance measured with VTVM or equivalent meter,
no signal applied and controls adjusted for normal operation.
Controls viewed from actuator end. Arrow indicates clockwise rotation.
Numbers assigned to terminals may not be found on the unit.
Transistor resistances vary widely. No resistance measurements taken.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**
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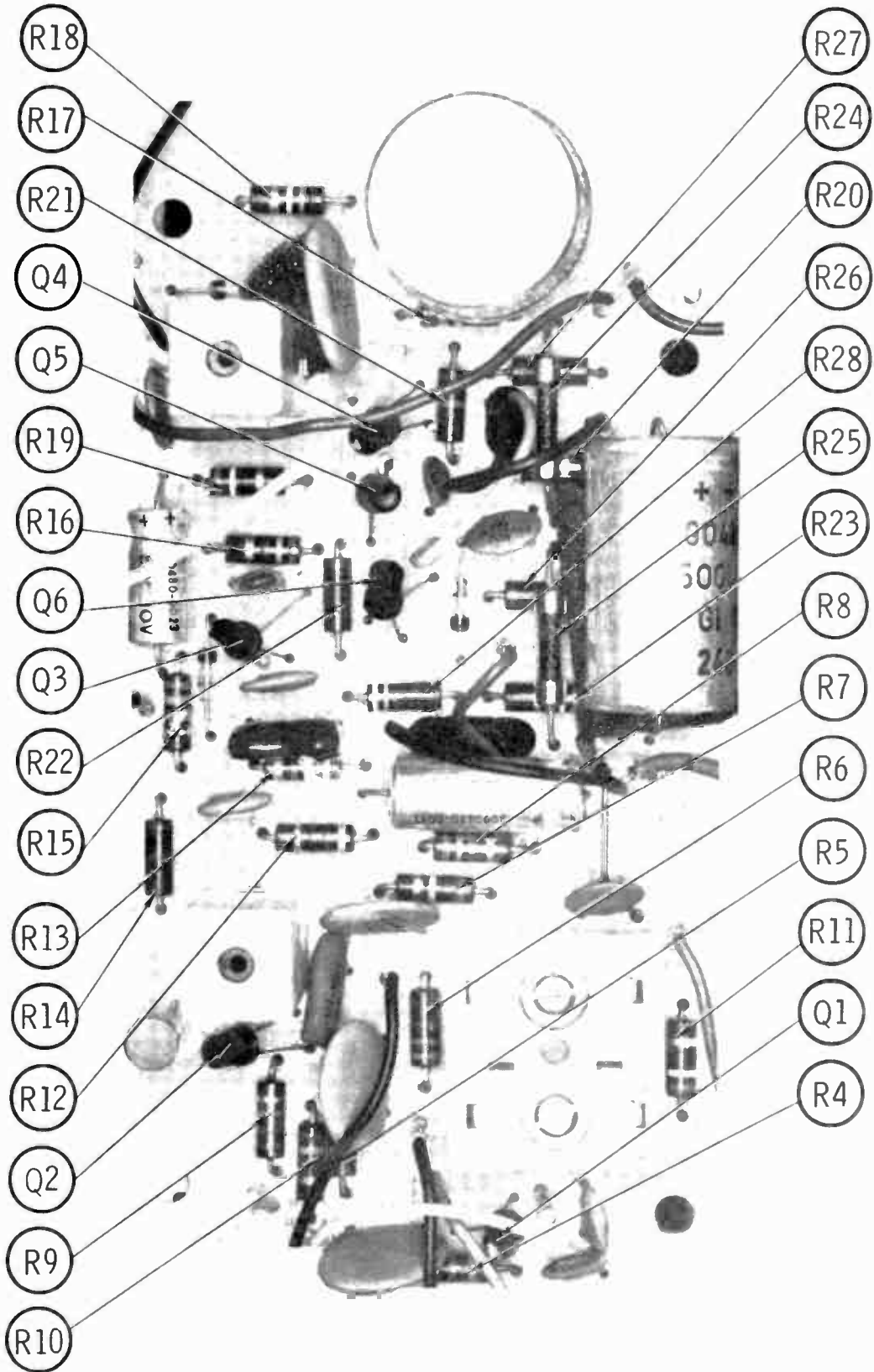


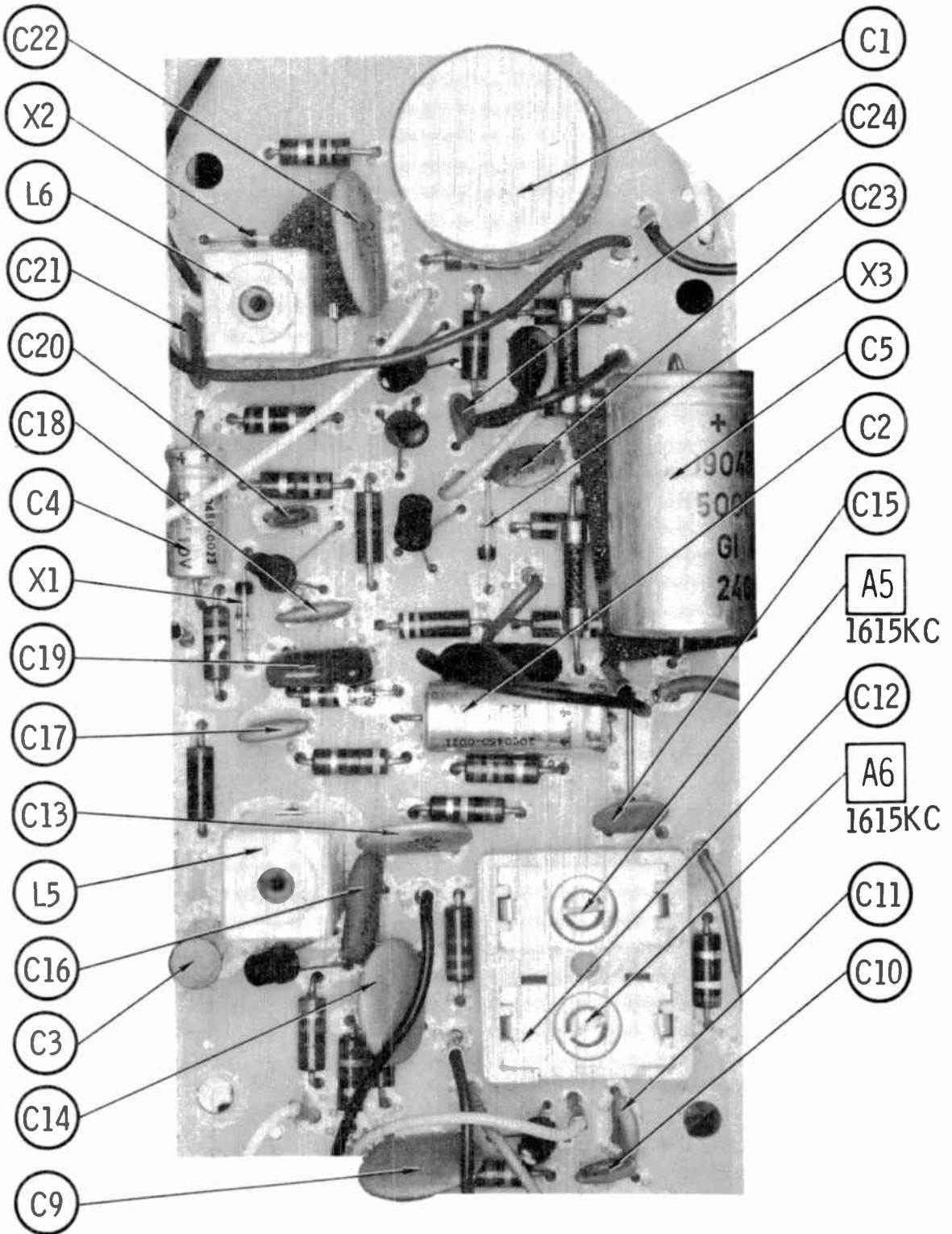
ALLIS CHALMERS MODEL OB2AC

ALLIS CHALMERS MODEL OBTAC



A Howard W. Sams CIRCUITRACE Photo





PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Port Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1		RF Amp	2093308-0704	GE-20	TR-21	HEP54	SK3018	ECG 107
Q2		Converter	2093308-0705	GE-20	TR-21	HEP54	SK3018	ECG 107
Q3		IF Amp	2093308-0706	GE-20	TR-21	HEP54	SK3018	ECG 107
Q4		AF Amp	2092609-0718	GE-10	TR-21	HEP54	SK3020	ECG 123
Q5		AF Amp	2057013-0702	GE-21	TR-19	HEP51	SK3025	ECG 129
Q6		AF Amp	2057013-0702	GE-21	TR-19	HEP51	SK3025	ECG 129
Q7		Output (1)	4080838-0002	GE-21	TR-23	HEP703	SK3026	ECG 124
Q8		Output (1)	2091859-0025	GE-3	TR-01	HEP232	SK3009	ECG 104

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	2092055-0001	1N34AS	1N34A	ECG 109		
X2	2092055-0001	1N34AS	1N34A	ECG 109		
X3	2092055-0001	1N34AS	1N34A	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	700 16V	2092983-0014	PMH2-02-65		880040A			PCL-2185.1
8	900 16V							
C2	125 16V	2090480-0021	CRE478A	EA15-150	WBR150-35	MT1-21.5	MTA125E6	TL-1163
C3	50 3V	2090480-0022	8C06050	EP6-50	PC50-16	MT1-15	MTV50C815	TE-1058
C4	50 10V	2090480-0023	CRE467A	EA15-50	AL50-16	MT1-19	MTA50E15	TL-1133
C5	1500 10V	2090480-0024	PRS1147	EA15-2000	WBR2000-16	QT1-33	TC1215	TL-1167

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	45-250	#2091504-0707						
C9	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C10	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C11	47 N750		N750-01 47	DTZ-47	N47	CCTN-470	CN7447	10TCU-Q47
C12A	300-400	#219092-0031						
8	180							
C	365-430							
C13	.0068		GPD X5R682K	DO-682	GP6800	CCO-682	GP268	5GA-D68
C14	.01		TTP-01	CK-103	MGP01	CCO-103	TA110	TG-S10
C15	82 N750			OTZ-82	N82	CCTN-820	CN7482	10TCU-Q82
C16	.01 25V		V1612S1	CPR-10000J	DPMS6S1	10P-1-103	PVC211	225P10391WD3
C17	.1		TTP-1	CK-104			TA010	TG-P10
C18	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-050
C19	.05 50V		08E655		OPMS6S5	6DP-3-503	PVC615	6PS-S50
C20	330		GPD X5F331K	00-331	GP330	CCO-331	GP333	10TS-T33
C21	.005		TTP-005	CK-502	MGP005	CCO-502	TA250	TG-D50
C22	.33			UK16-304				HY-327
C23	.002		GPD X5F202K	DM-202	GP2000	CCO-202	GP220	2SS-020
C24	560		GPD X5F561K	00-561	GP560	CCO-561	GP356	10TS-T56
C25	800	#2093050-0707						

#Bendix Part Number

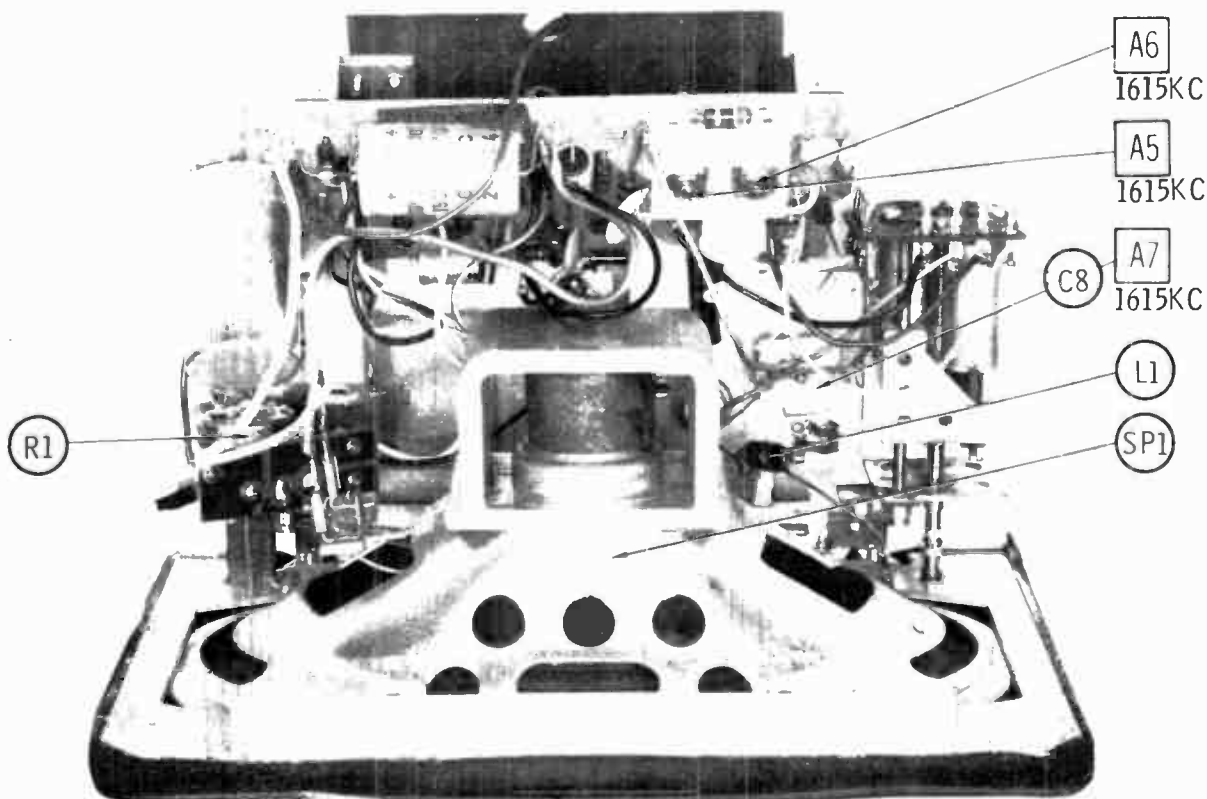
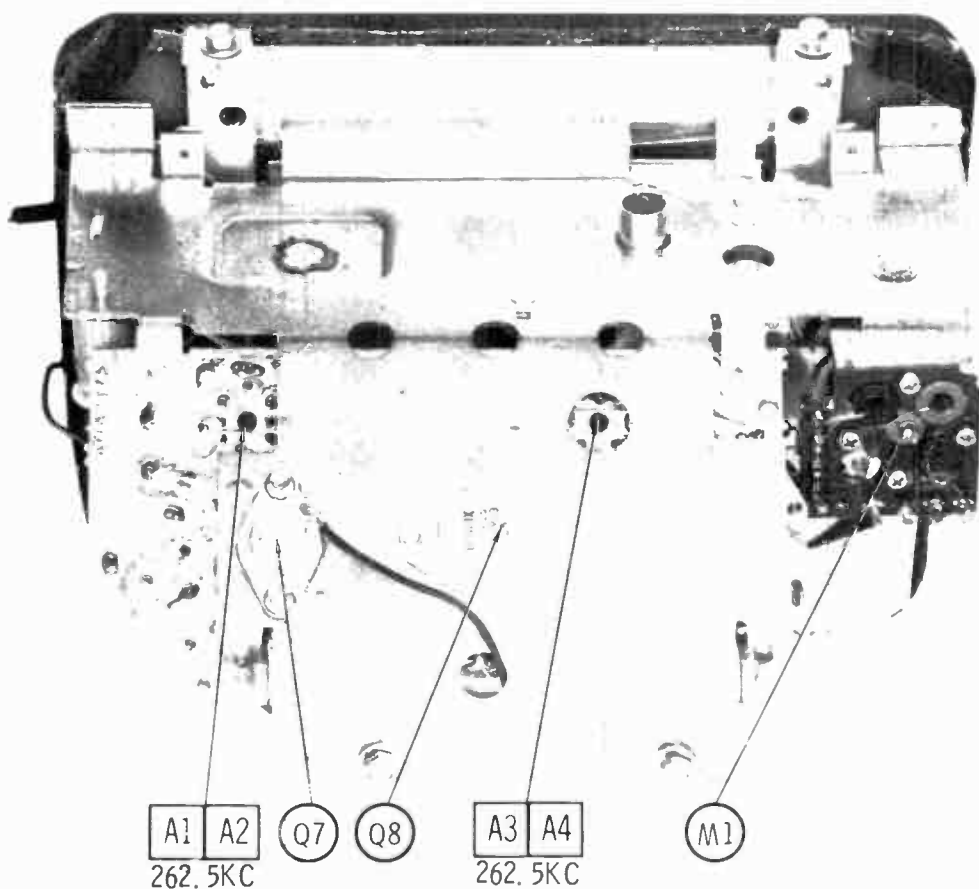
CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	20K	4082187-0001			QCB4, 813-120, TMB (1), QCN, 76-1 or [BU14, CF90, SS4, QCN, GC]*	

* "SNAPTROL"

(1) Use QCB4 bushing instead of tab mount in TMB Kit.

(CONTINUED ON PAGE 12)



PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R24	.22 ohm PTC		2090948-0007

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R25	.22 ohm PTC		2090948-0007

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (1uh)	4082503-0501	19-1000	4602	T855
L2	Antenna	(1)			
L3	RF	(1)			
L4	Oscillator	(1)			
L5	Input IF	2094080-0711		8006 (2)	
L6	Output IF	2094080-0712		8006	

(1) Part of M1.

(2) Cut off Pin #5.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L7	325ma	.2	1.5mh	4082190-0501					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	5" X 7" PM 3 ohms	4082188-0001	57A21	

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA							
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	
F1	2 Amp	2091811-007	2094348-0520	AGA5	HAF	301002	150145		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	4082186-0001	
M2	Antenna Base	4082189-0001	
	Antenna Mast Telescopic	2057882-0002	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Case (White)	4082180-002	Dial Scale	4082184-0001
Dial Pointer	4082185-0001	Knob, Tuning or Volume	2091420-0502

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELOEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELOEN No. 8885
Rear Seat Speaker Extension Cable	Use BELOEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELOEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

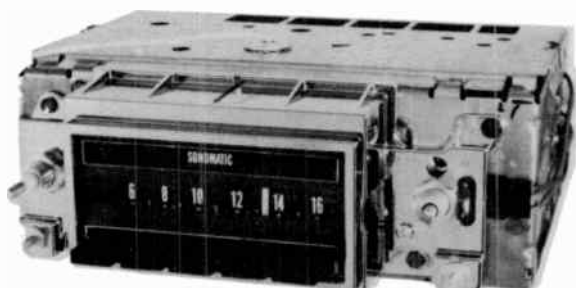


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CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO



BUICK MODEL 04APB1
(70 Special)

BUICK MODEL 04APB1

ALIGNMENT INSTRUCTIONS

Check for specified source voltage.

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 thru A4...GENERAL CEMENT #5009,8728A,8987

WALSCO #2531X, 2536

A5 thru A8...GENERAL CEMENT #8290,8868,9087

WALSCO #2525,2528,2587

PUSH-BUTTON ADJUSTMENT

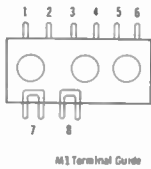
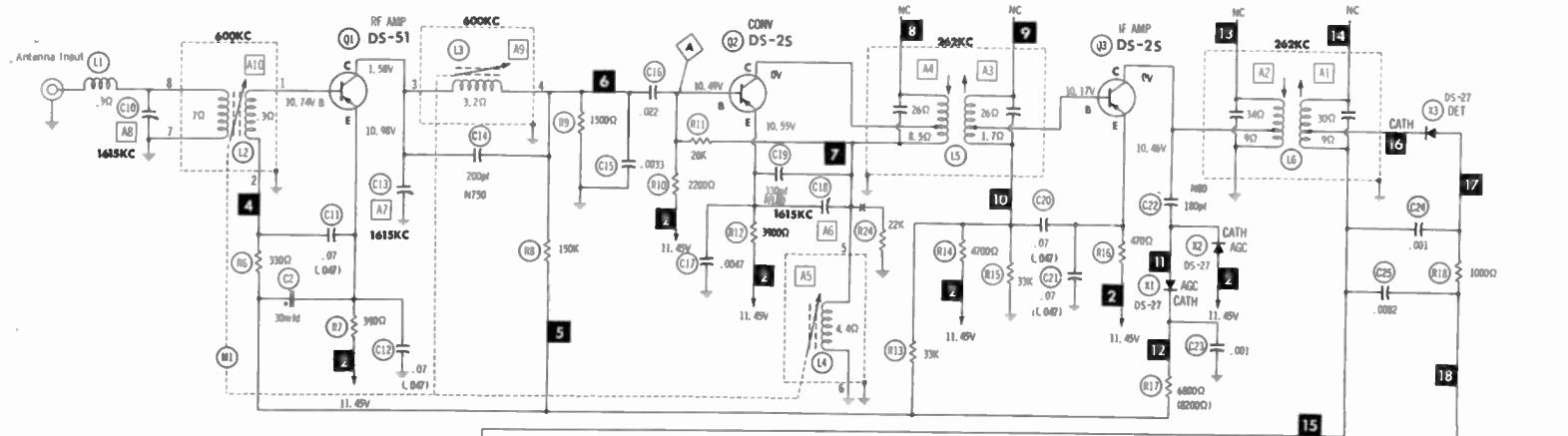
1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point Δ , low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
Check setting of oscillator coil core (A5). Rear of core should be 1 3/8" from mounting end of coil form.						
2.	High side thru 82pf to antenna input, low side to ground.	1615KC	High freq. end stop.	Output meter across voice coil.	A6,A7, A8	Adjust for maximum.
3.	"	600KC	600KC signal	"	A9,A10	Adjust for maximum. Repeat Step 2.
With radio installed in car and antenna extended to desired height, tune in a weak station near 1400KC and adjust A8 for maximum output. Antenna adjustment (A8) is located behind tuning and dummy knobs.						

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TD790R

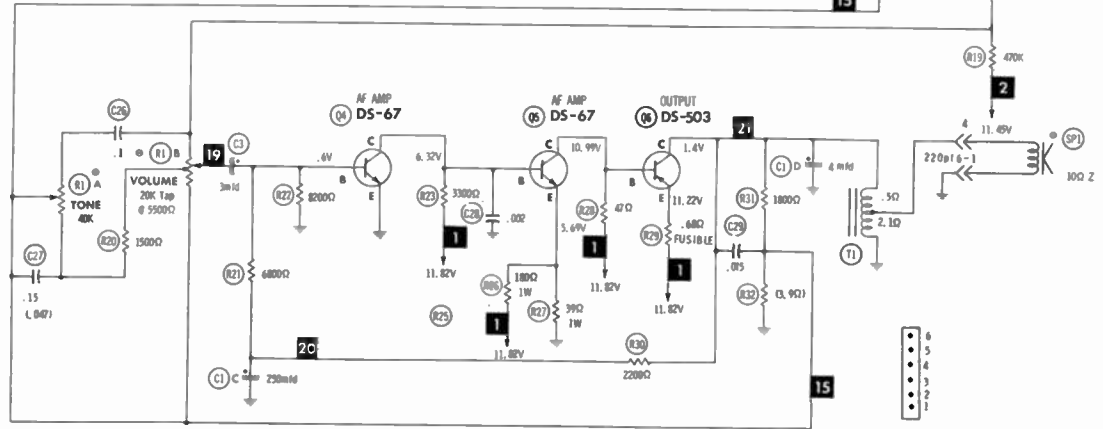


Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

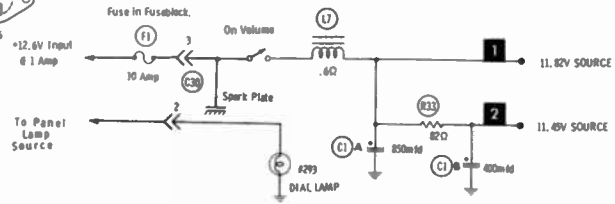
Transistor Terminal Guide



- © See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise designated.
- 5. Numbers assigned to terminals may not be found on the unit.
- 6. Supply voltage maintained at rated value for voltage readings.
- 7. Resistance measurements not given because of the wide variation in internal resistance of transistor.
- 7. Waveforms taken with controls set to produce 50 μ s peak-to-peak signal at picture tube.



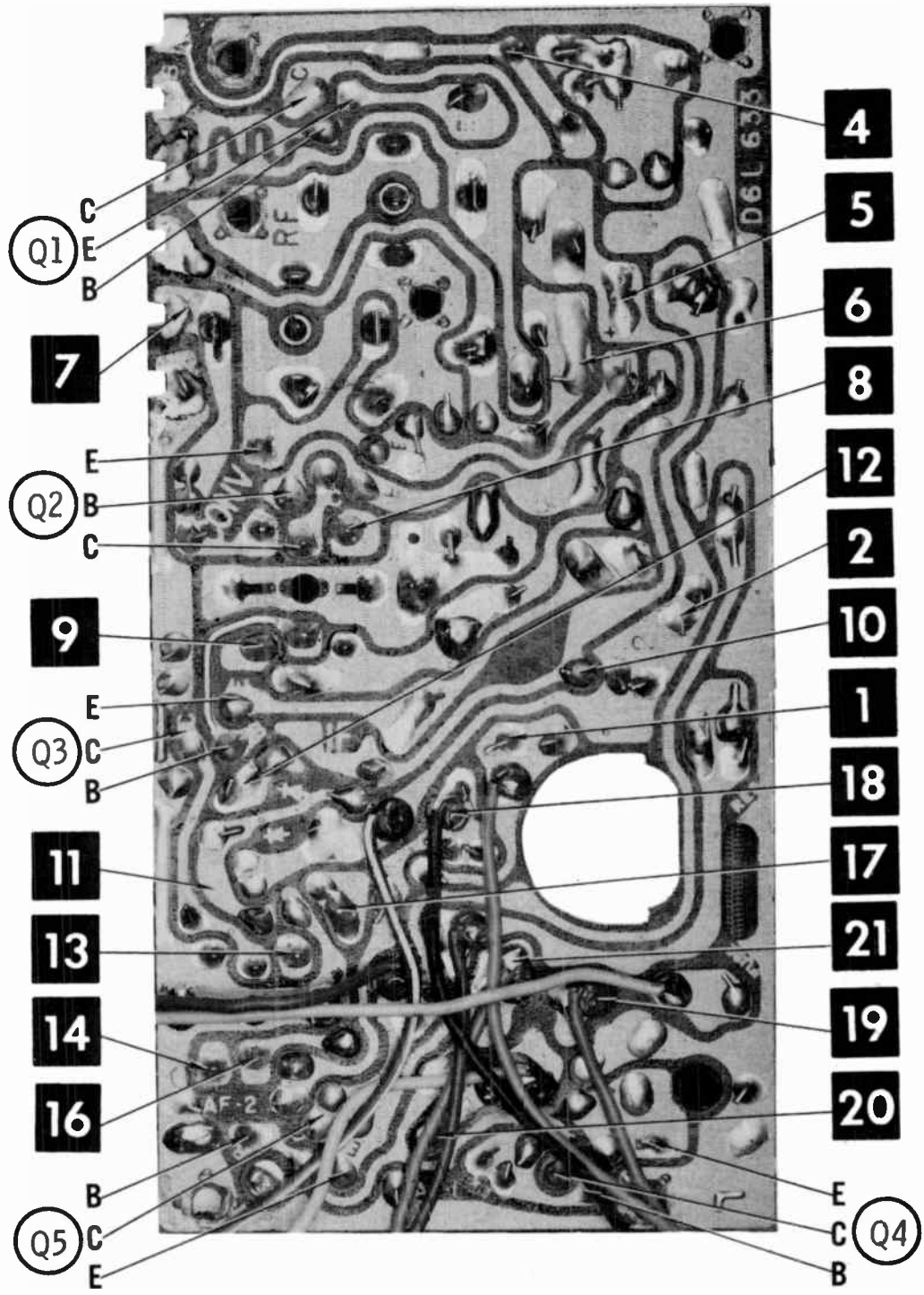
Speaker - Power Plug Terminal Guide



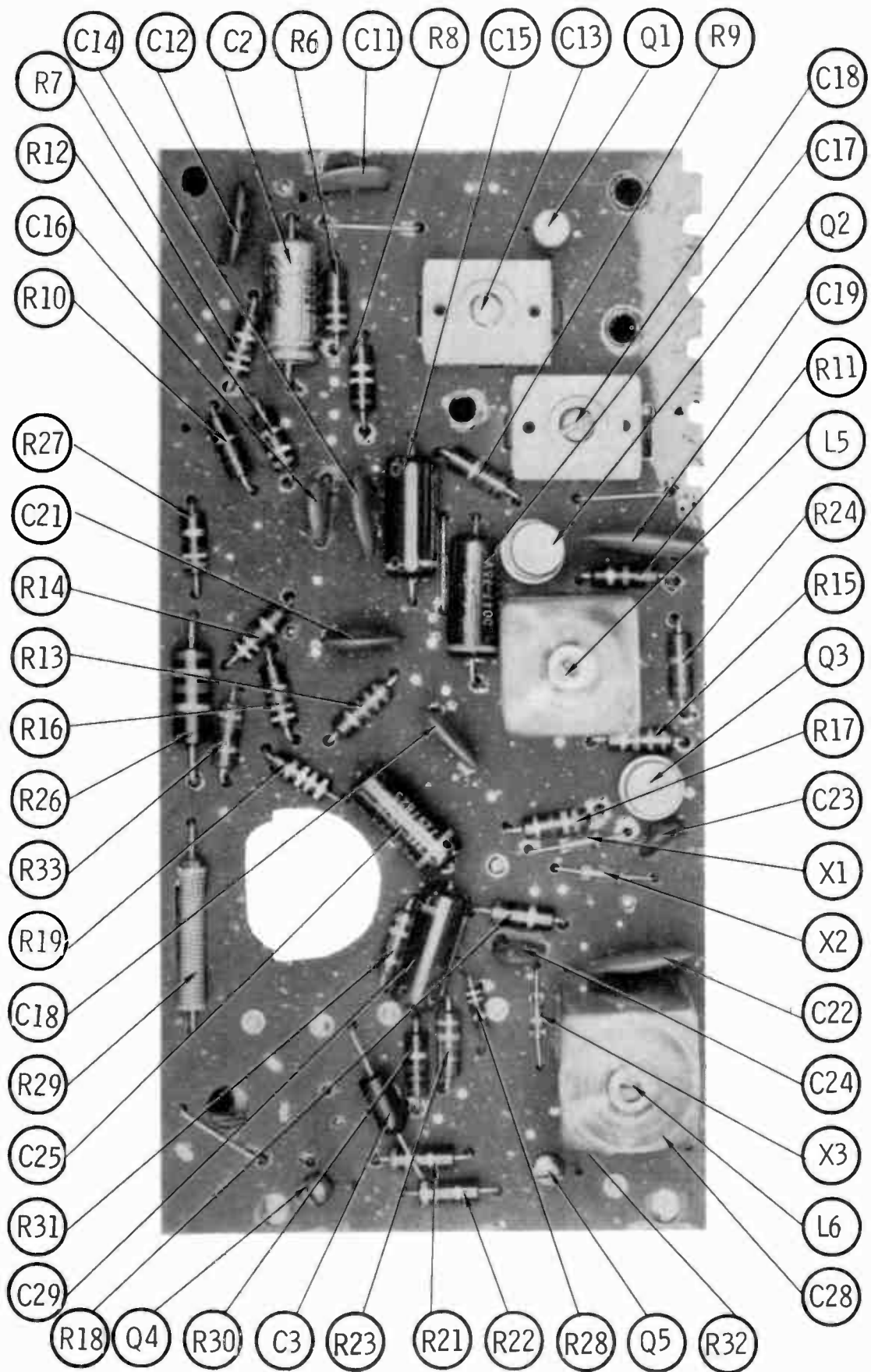
A PHOTOFAC STANDARD NOTATION SCHEMATIC with CIRCULAR

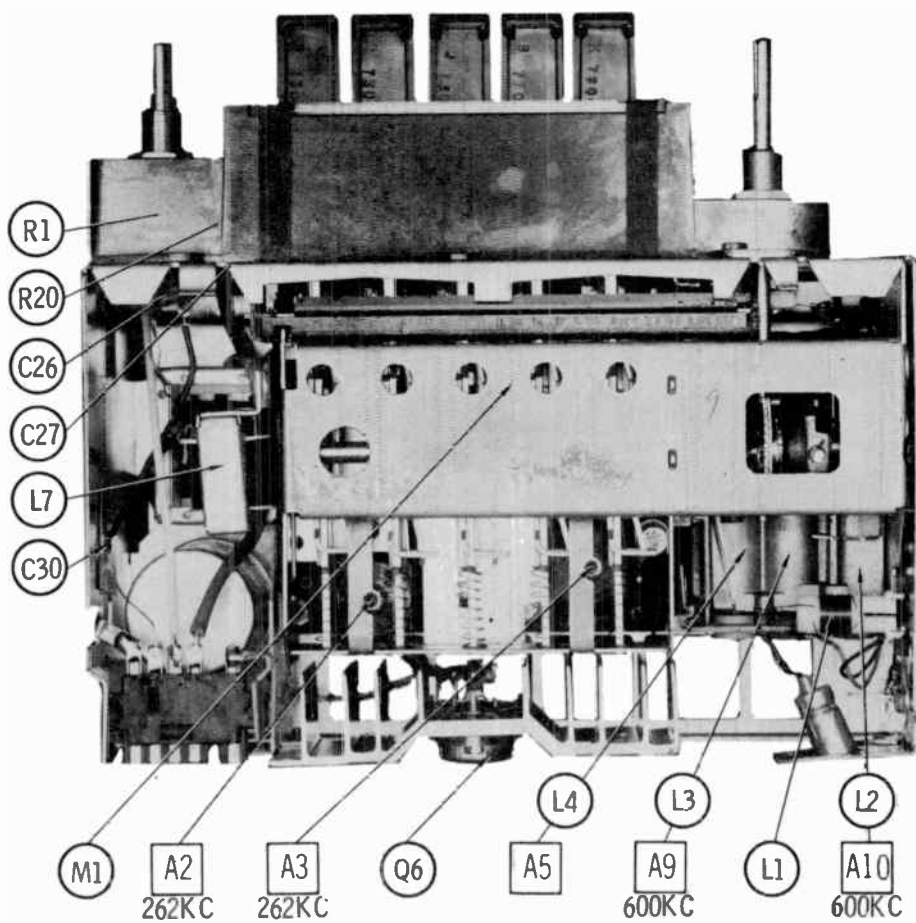
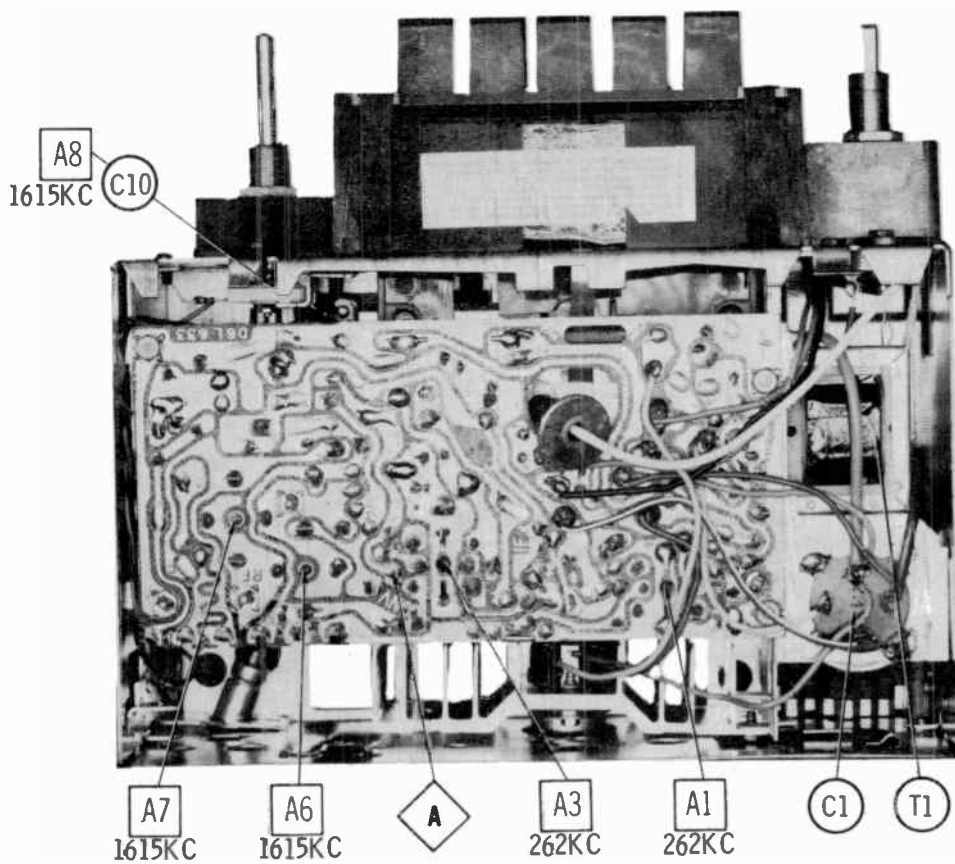
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BUCK MODEL 04APB1



A Howard W. Sams **CIRCUITRACE** Photo





PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA						
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.	
Q1	DS-51	RF Amp Converter	DS-25	GE-9	TR-06	HEP639	SK3008	ECG 126	
Q2	DS-25		DS-25	GE-9	TR-06	HEP639	SK3008	ECG 126	
Q3	DS-25		IF Amp	DS-25	GE-9	TR-06	HEP639	SK3008	ECG 126
Q4	DS-67		AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q5	DS-67		AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q6	DS-503		Output (1)	DS-503	GE-3	TR-01	HEP232	SK3009	ECG 104

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	DS-27	1N34AS	1N34A	ECG 109		
X2	DS-27	1N34AS	1N34A	ECG 109		
X3	DS-27	1N34AS	1N34A	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	850 16V	7310185			DD0D09A			
C1B	400 16V							
C1C	250 2V							
C1D	4 11.5 rms							
C2	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C3	3 12V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA30D50	TE-1122

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10		#7281971						
C11	.07	#7287935	TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C12	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C13		#7282165						
C14	200 N750		N750-DI 200	DTN-200	CV601WJ201K	CCTN-201	CN7301	10TCU-T20
C15	.0033 75V		DBE6D33	CPR-3300J	WMF1D33	6DP-1-332	PVC6233	6PS-D33
C16	.022		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C17	.0047 75V	DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50	
C18		#7271564						
C19	330 N180					*	*	
C20	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C21	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C22	180 N80					*	*	10TCN-T18
C23	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C24	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C25	.0082 75V		DBE6082	CPR-8200J	WMF1S82	6DP-2-822	PVC6282	6PS-082
C26	.1		TTP-1	CK-104			TA010	TG-P10
C27	.15 75V		DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15
C28	.002	GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20	
C29	.015 75V	V1612S15	DD-153	DPMS6S15	1DP-1-153	PVC2115	225P15391WD3	
C30								

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

Delco Part Number.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	100K	7303217	F2-100K, R14-25K, FFS109, RFS201, BB102, SB004, KR-4		+ QJ-2542A	P15A, 4114, SH4250, RU24T14, OX1625, IS2062, US41
B	Volume/Switch	20K Tap @ 6000					

+ "CONCENTRIKIT" Equivalent K-8 Kit with base elements & shafts; B13-128, P22-115 (Panel)
B19-119X, R1-130 (Rear)
N4 (Nut)
S7 (Bushing)
76-1 (Switch)

"SNAPTROL" Equivalent BU8 (1), CF52, CR50T, SF11, SR12, N4, GC.

(1) Alter bushing and adjust spacer nut (N4) to meet requirements.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R29	.68 (Fusible)		7287480

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (6.2uh)	7281946	19-1004	4610	T859
L2	Antenna	(1)			
L3	RF	(1)			
L4	Osc	(1)			
L5	Input IF	1221856	16-6704	6542	TA653
L6	Output IF	1221857	16-6705	6543	TA653

(1) Part of M1.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
L7	1 Amp	.6	8mh	1221623	C-4095	TC-2		

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	12 Tap	@ 10	7304511					

BUICK MODEL 04APB1

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	4" x 10" PM 10 ohms	1222661		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	3AG 10 Amp		In Fuse Block	AGC10		311010		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner Coil Assembly	7287957	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Escutcheon		Knob, Tuning or Volume	1231081
Dial Glass		Knob, Tone	1383647
Dial Pointer		Knob, Dummy	1383646
Push Button			

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

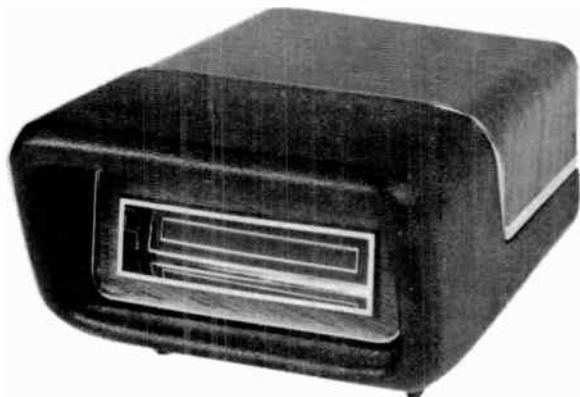


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NOTE: Manufacturer Part Numbers Shown Are MOTOROLA



FORD/MERCURY MODEL 1FD5001
(C9AA-19A127C)
(70 Ford/Meteor)
(8-Track Stereo Player)

OPERATING INSTRUCTIONS

Connect unit to an external amp. Insert cartridge until it locks and turns unit on.

Set operating controls as desired.

Press program selector to play desired tracks, or allow unit to select tracks automatically.

Remove cartridge to turn unit off.

CLEANING

Clean all tape contact surfaces with a soft, lint-free material and head cleaner or methyl alcohol. Use alcohol to remove oil and grease from all driving surfaces.

CAUTION: Avoid getting head cleaner on any plastic surface.

LUBRICATING

Lubricate bearings and bushings lightly with #20 machine oil. Use a light film of non-hardening grease on cam surfaces.

HEAD DEMAGNETIZING

Demagnetize head when unit is serviced. Avoid using magnetic materials near head.

FORD-MERCURY MODEL 1FD5001

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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TQ829

TROUBLE CHART

SYMPTOM	REMARKS
Capstan does not rotate.	Belt (1) dirty, worn, or broken. Assembly (10) binding. Motor defective or not supplied with power.
Track-shift mechanism inoperative.	Switch (S2) dirty. Cam (3) binding or worn. Pawls (4) and (5) worn. Arms (7) and (8) binding. Solenoid (M3) defective or not supplied with power. Cartridge defective. Spring (6) weak or missing.
Wow or Flutter.	Belt (1) dirty or worn. Capstan dirty or binding. Cartridge defective. Motor defective. Speed regulator circuit defective. Spring (30) weak or missing. Lever (28) binding.
Sound weak or distorted.	Head dirty, misaligned, or defective. Cartridge defective. Amplifiers defective.
Tape is pulled from cartridge.	Cartridge defective. Capstan dirty or scored.

ADJUSTMENTS

ADJUST	REMARKS
Head Height	Play a test cartridge, follow instructions with cartridge, and adjust B1 for proper response.
Head Azimuth	Connect an AC VTVM across right output. Play a test cartridge and adjust B2 for maximum.
Indexing Solenoid	Press program selector to continuously cycle indexing mechanism, turn Screw B4 clockwise until cycling stops, and then turn screw counter-clockwise 1/4 turn past restart of cycling.
Output Level Balance	Connect a 1000-cycle tone across the left and right sections of Head (M1). Adjust R1 and R2 for equal output on both channels.

MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	42-42683A01 (42-43871A01)	Drive Belt	15	4-40409B01	Thrust Washer (2 used)
2	49-43701B01	Flywheel and Shaft	16	43-40411B02	Thrust Bearing
3	45-40428B07	Ratchet Cam	17	4-40409B05	Thrust Washer (2 used)
4	55-40606B01	Pull Ratchet Pawl (Stamped "B")	18	43-40411B03	Thrust Bearing
5	55-40605B01	Push Ratchet Pawl (Stamped "A")	19	41-40444B01	Azimuth Adjust Spring
6	41-40681B01	Pawl Tension Spring	20	3-41697B01	Azimuth Screw
7	45-41231B02 (1)	Left Radius Arm (2 used)	21	46-40299B01	Solenoid Stop
8	45-41230B01 (1)	Right Radius Arm (2 used)	22	49-41580B01	Roller (2 used)
9	42-41229B01 (1)	Spring Clip (4 used)	23	7-43576A01	Motor Support (2 used)
10	15-40059A78 (2)	Capstan Housing Assembly	24	46-42104B01 (4)	Tape Stop (Nylon on Tape Guide)
11	1-42902B83 (1)	Head Retainer	25	45-41364B01	Switch Actuator Arm
12	41-40540B03 (1)	Head Tension Spring	26	41-40805B01	Tape Drive Assist Spring
13	41-40445B02	Plunger Spring	27	(3)	Ejector Arm
14	47-40298B01	Solenoid Plunger	28	(3)	Ejector Lever
			29	49-41549B01 (3)	Cartridge Roller
			30	41-42279B01	Ejector Lever Spring
			31	45-40480B01	Micro Switch Arm
			32	41-41251B02	(Not used in some versions) Cam Tension Spring

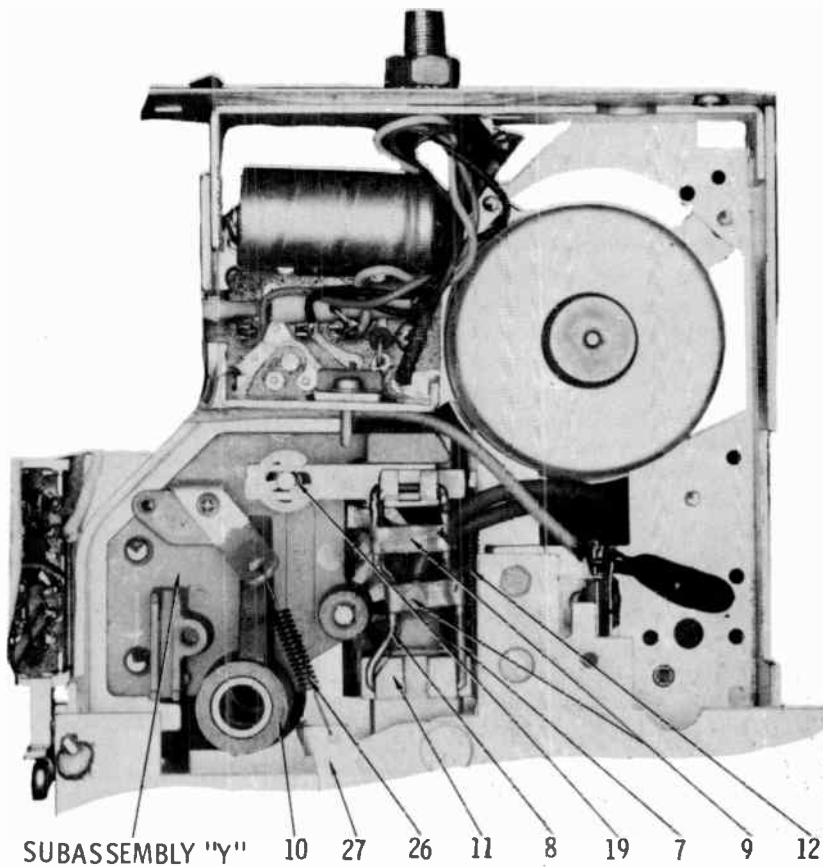
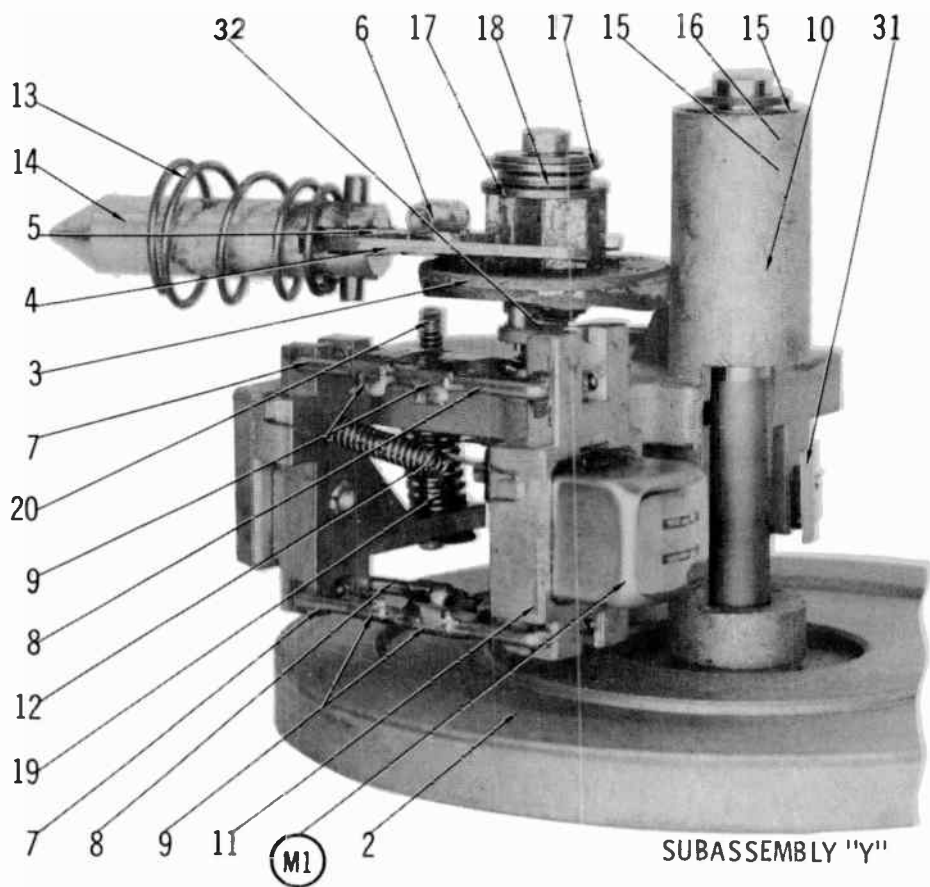
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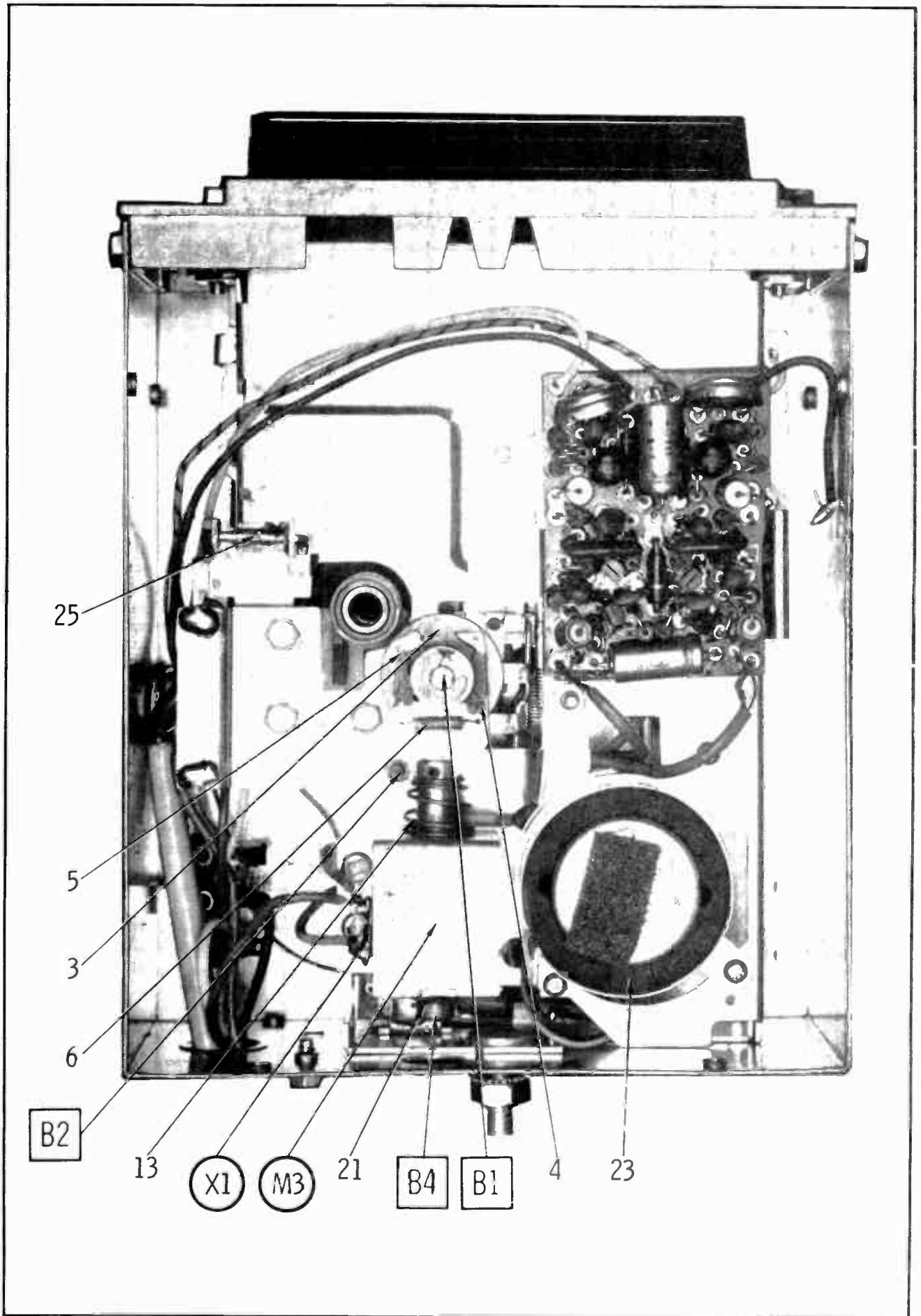
(2) Includes Ref. Nos. (7), (8), (9), (11), and (12)

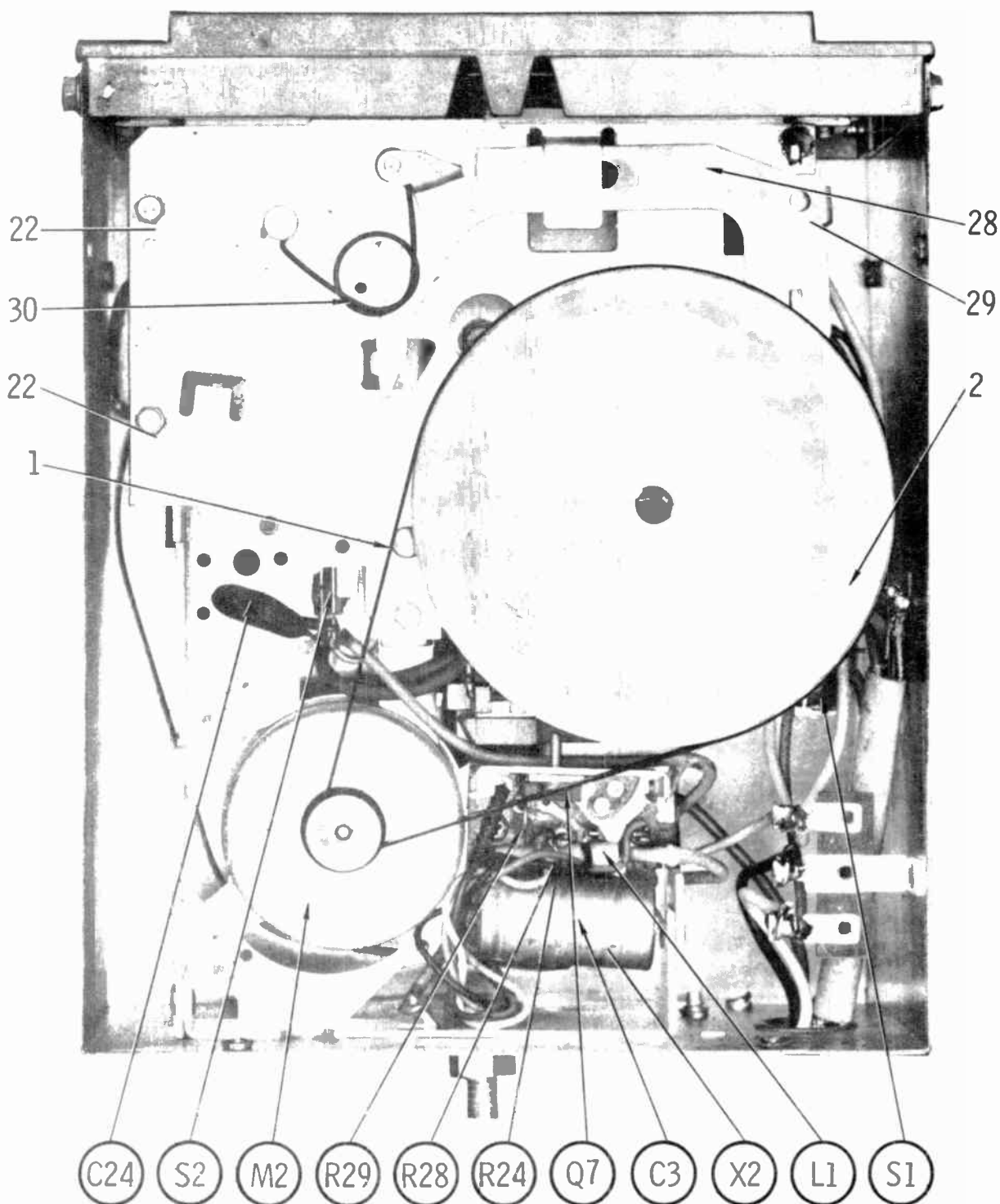
(3) Part of Ejector Bracket Assembly Number

(4) Not shown on photos.

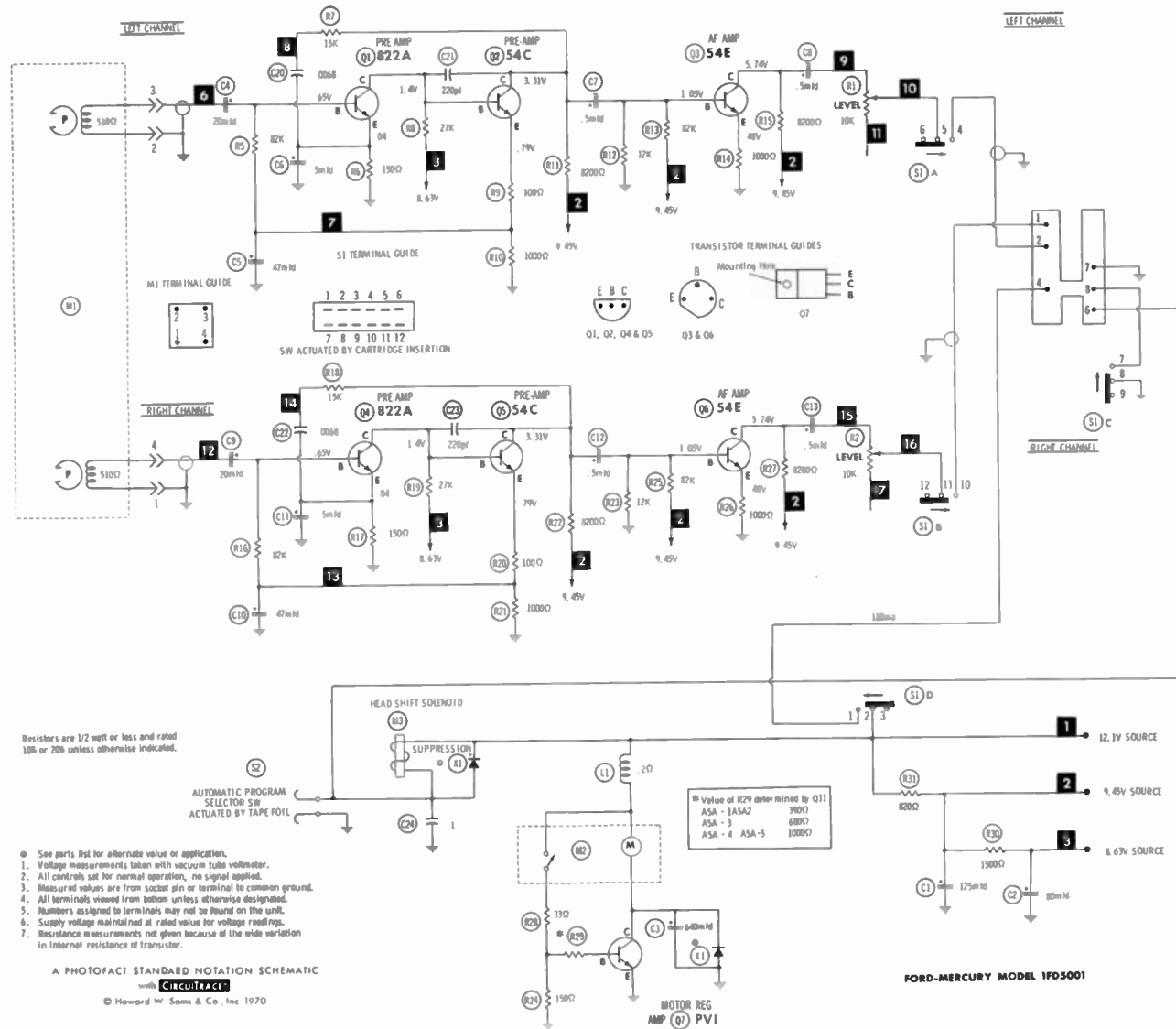
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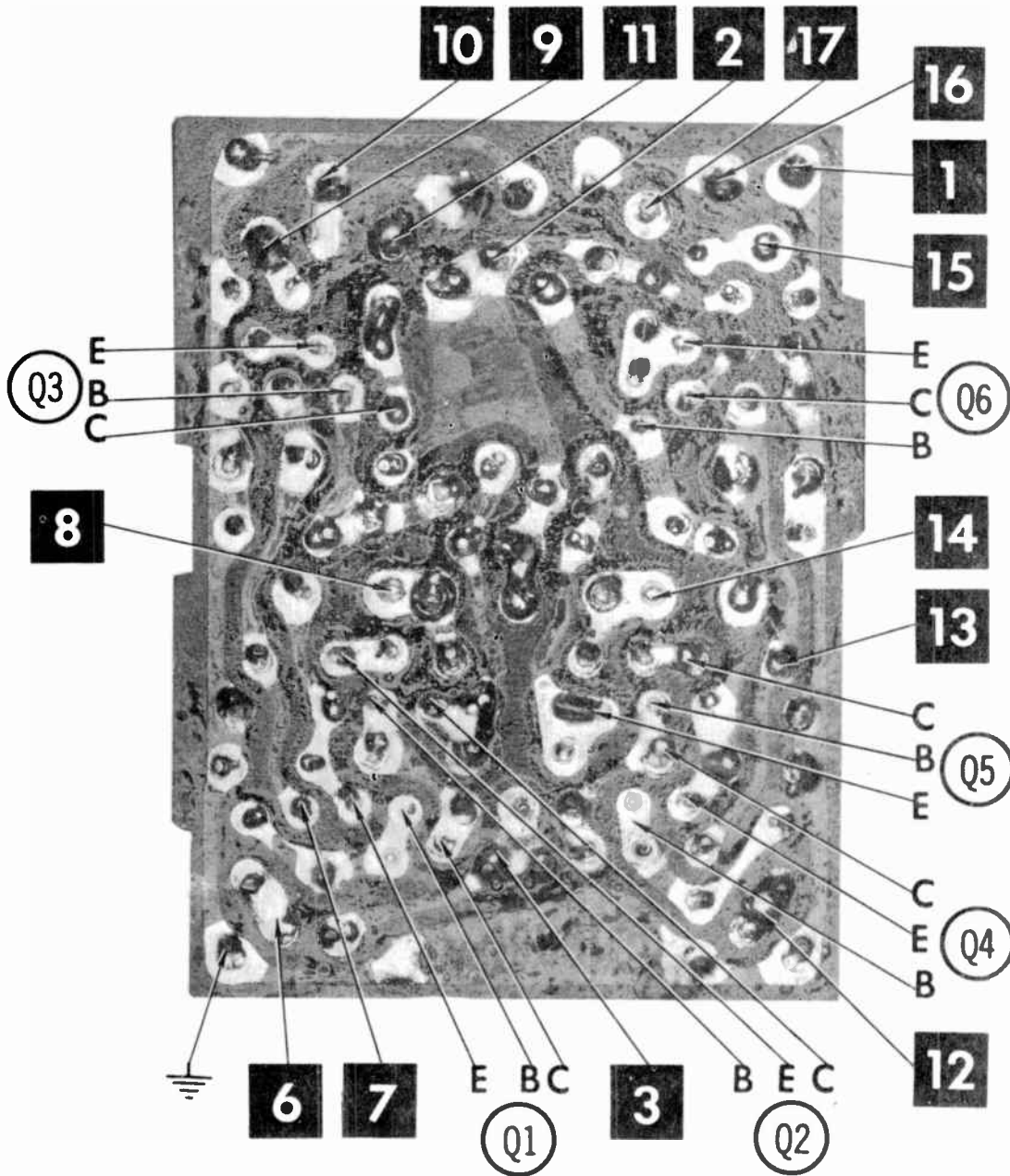




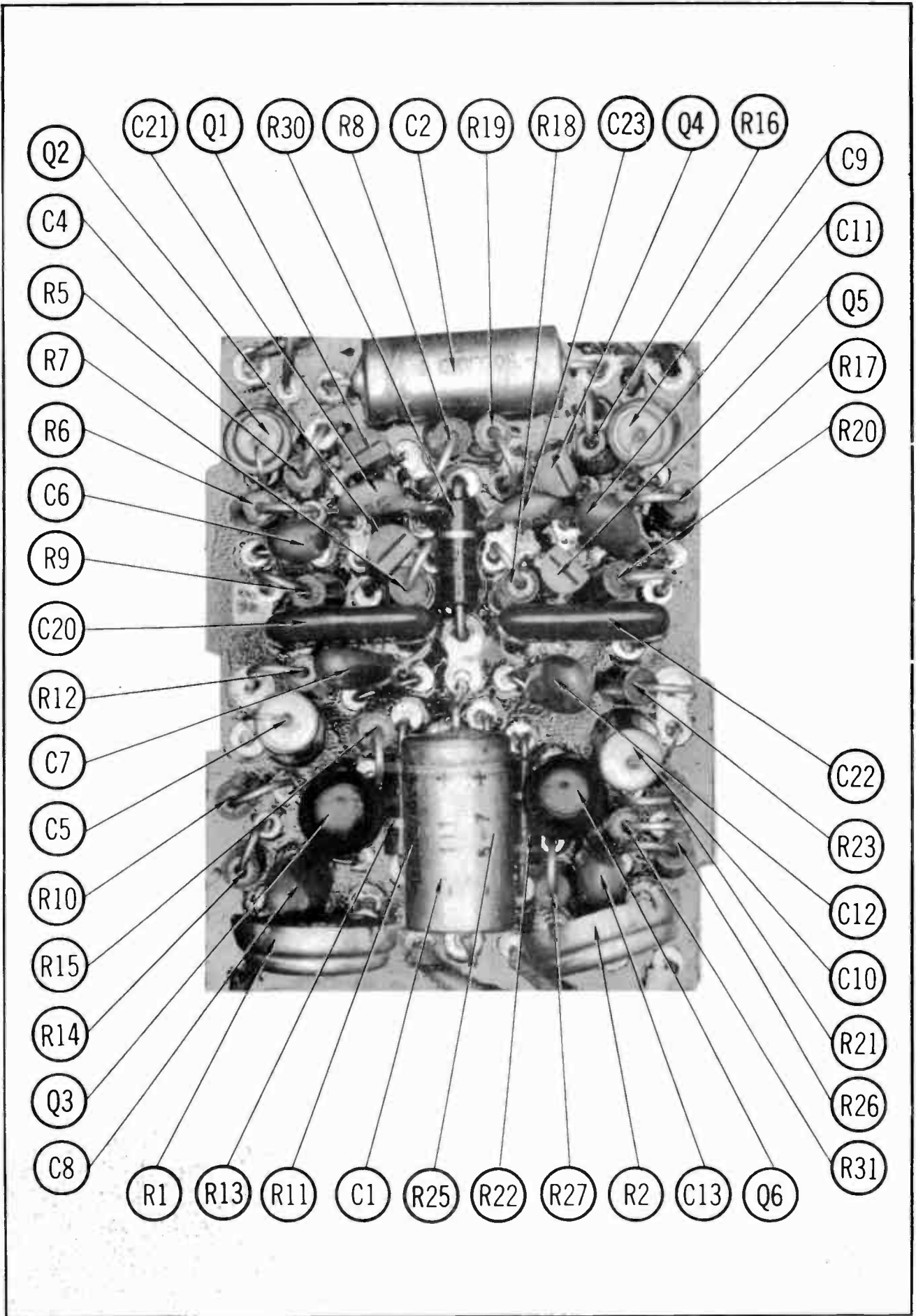


NOTE: DEMAGNETIZE HEADS AFTER SERVICING





A Howard W. Sams **CIRCUITRACE** Photo



PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	M822	Preamp	48-134823	GE-20	TR-21	HEP730	SK3020	ECG 123
Q2	54C	Preamp	48-134810	GE-20	TR-21	HEP725	SK3020	ECG 123
Q3	54E	AF Amp	48-134846	GE-20	TR-21	HEP724	SK3020	ECG 123
Q4	M822	Preamp	48-134823	GE-20	TR-21	HEP730	SK3020	ECG 123
Q5	54C	Preamp	48-134810	GE-20	TR-21	HEP725	SK3020	ECG 123
Q6	54E	AF Amp	48-134846	GE-20	TR-21	HEP724	SK3020	ECG 123
Q7	A5A-3	Motor Regulator	48-137080	GE-28		HEP700	SK3041	ECG 152

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	SR-1668	GE-504A	5A4D	ECG 116	SK3016	
X2	SR-390	GE-504A	5A4D	ECG 116	SK3016	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALLAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	125 16V	23C41928A38	CRE478A	EA15-150	NLW125-15	MT1-23	MTA125F35	TE-1162.5
C2	80 16V	23C41928A23	CRE470A	EA15-100	AL100-16	MT1-19	MTA80E15	TE-1161
C3	640 16V	23C41928A27	PRS1220	EA15-500	WBR500-35	QT1-30A	TC1505A	TL-1166
C4	20 16V	23C41928A24	CRE461A	EA15-25	AL20-16	MT1-10	MTA20D30	TL-1157
C5	47 10V	23C42674805	CRE467A	EA15-50	NLW50-10	MT1-16	TPG45T15	TE-1133
C6	.5 15V	23C43280A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B
C7	.5 15V	23C43280A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B
C8	.5 15V	23C43280A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B
C9	20 16V	23C41928A24	CRE461A	EA15-25	AL20-16	MT1-10	MTA20D30	TL-1157
C10	47 10V	23C42674805	CRE467A	EA15-25	NLW50-10	MT1-16	TPG45T15	TE-1133
C11	.5 15V	23C43280A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B
C12	.5 15V	23C43280A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B
C13	.5 15V	23C43279A25		UK10-474	TYR138D474K		TAS474K015POA	196D474X00350B

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALLAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C20	.0068 100V		D8E6D68	CPR-6800J	DMF6D68	6DP-1-682	PVC6268	6PS-D68
C21	220 100V		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C22	.0068 100V		D8E6D68	CPR-6800J	DMF6D68	6DP-1-682	PVC6268	6PS-D68
C23	220 100V		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C24	.1 100V		DBE2PT		DPMS2P1	1DP-2-104	PVC101	225P10491WD3

FORD-MERCURY MODEL 1FD5001

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Level, Left	10K	18D44947A07	TSV-10K or T-10K TSV-10K or T-10K		X201R103B	MTC14L1
R2	Level, Right	10K	18D44947A07			X201R103B	MTC14L1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (1.5uh)	24C40788A04	19-1001	4604	T856

TAPE HEADS

ITEM No.	MEASURED			PART No.	NORTRONICS PART No.	DESCRIPTION
	INDUCTANCE	BIAS/ERASE VOLTS (RMS)	BIAS FREQ.			
M1	380mh			59-43542A01	5800 (1)	8-Track Stereo Play

(1) Use original mounting.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Motor	59-43663B02	
M3	Solenoid	24-42064B01	
S1	Switch, Tape-Radio	40-41363B01	
S2	Switch, Automatic Program Selector	40-40296B01	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Escutcheon	13-42564B01	Door	15-40278B03

WIRING DATA

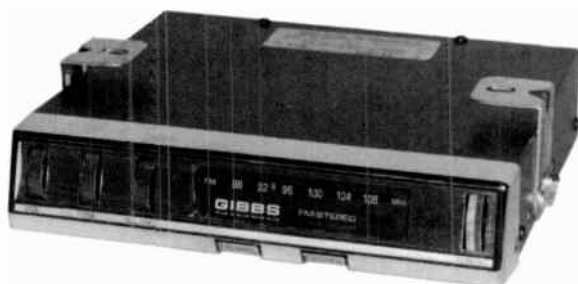
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELOEN No. 8885
Rear Seat Speaker Extension Cable	Use BELOEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)



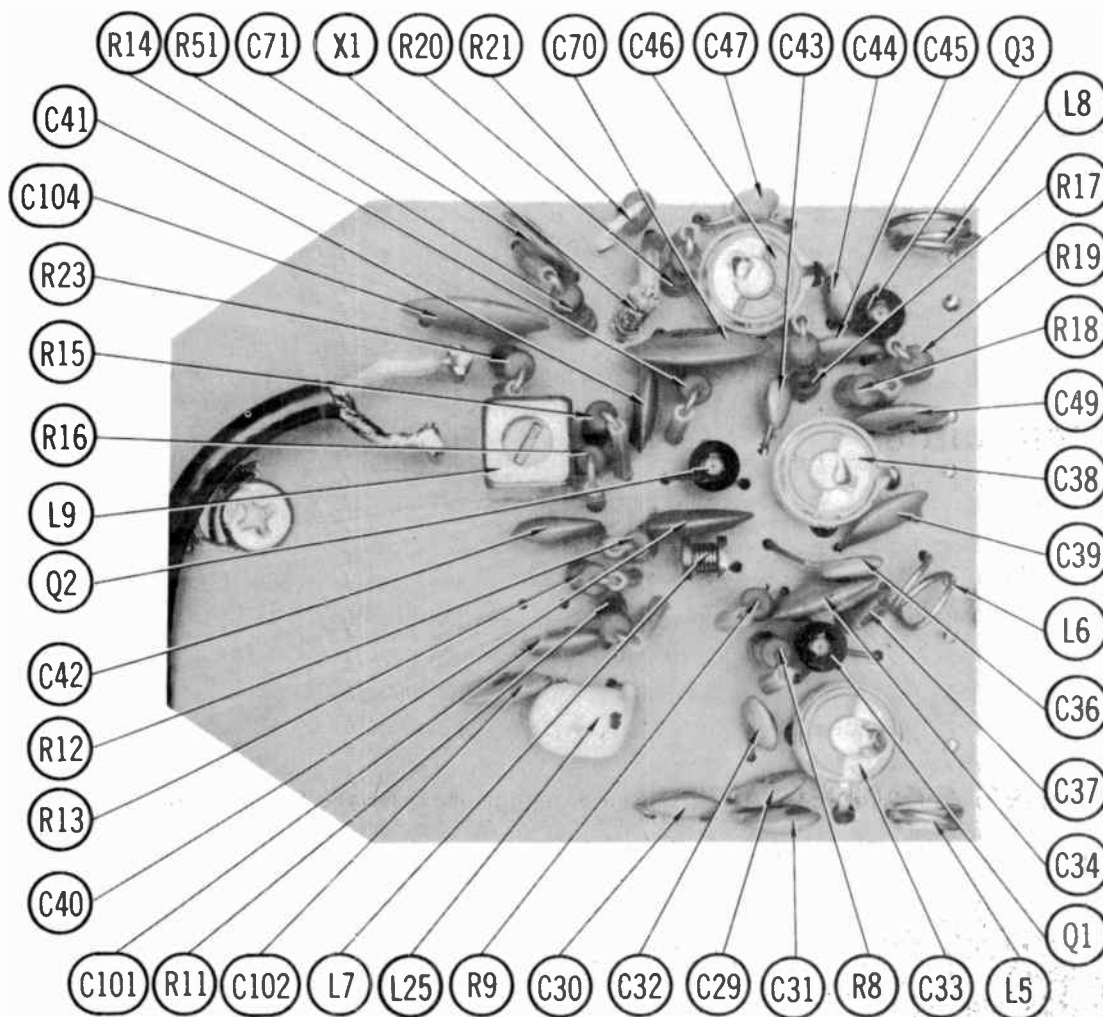
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GIBBS MODEL CR-616



GIBBS MODEL CR-616

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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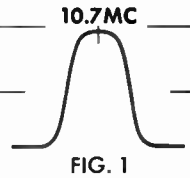
ALIGNMENT INSTRUCTIONS

Check for specified source voltage.
 Use only enough generator output
 to provide a usable indication.
 Suggested Alignment Tools:
 A1 Thru A16.....GENERAL CEMENT #9440
 WALSCO #2501

FM IF ALIGNMENT USING AM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point $\diamond B$, low side to ground.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. 10.7MC Unmodulated	Point of non-interference	DC probe of VTVM to point $\diamond C$, common to ground.	A1, A2, A3, A4, A5, A6, A7	Adjust for maximum.
2. "	"	DC probe of VTVM to point $\diamond D$, common to ground.	A8	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.



FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

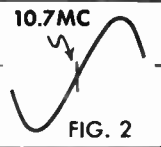
High side of generator thru .001mfd to point $\diamond B$, low side to ground. Use only enough marker signal for indication. Use 60 cycle frequency modulated signal with 450KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. 10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\diamond C$, low side to ground.	A1, A2, A3, A4, A5, A6, A7	Disconnect stabilizing capacitor C 10. Adjust for maximum gain and symmetry of response similar to Fig.1 with marker as shown. Reconnect C 10.
2. "	"	Vert. amp of scope to point $\diamond D$, low side to ground.	A8	Adjust A 8 (secondary) to place marker at center of "S" curve similar to Fig. 2. Readjust A 1 (primary) for maximum amplitude and straightness of line.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead.

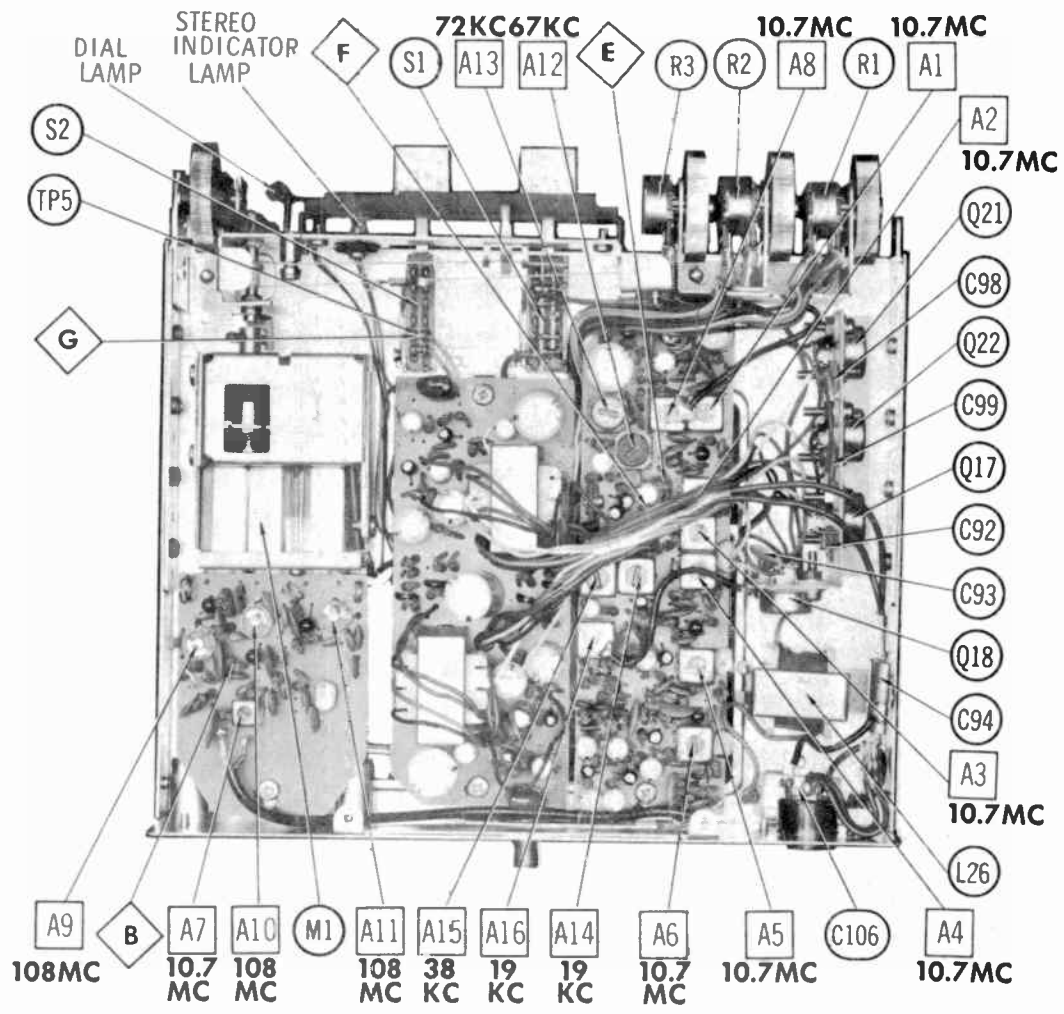
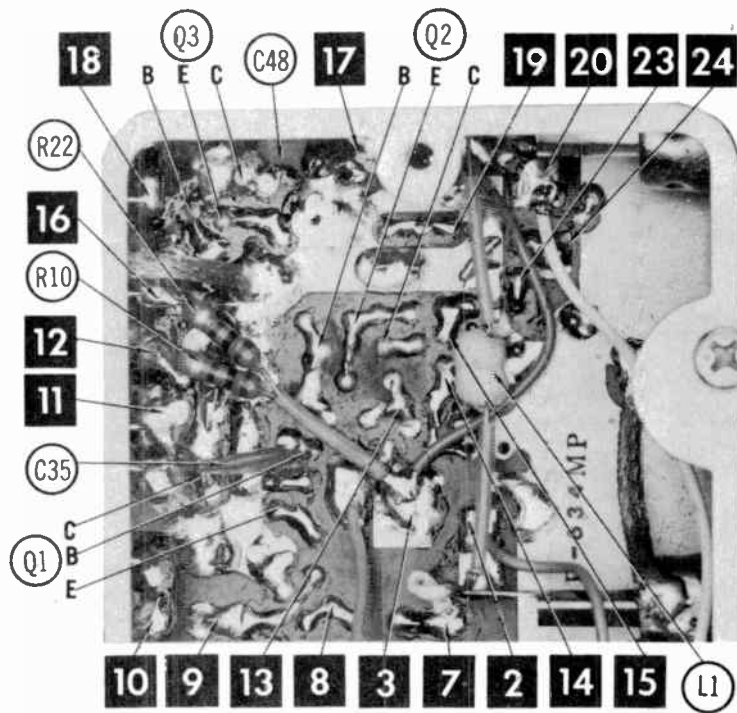
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
3. 108MC	High freq. end	DC probe of VTVM to point $\diamond C$, common to ground.	A9, A10, A11	Adjust for maximum.



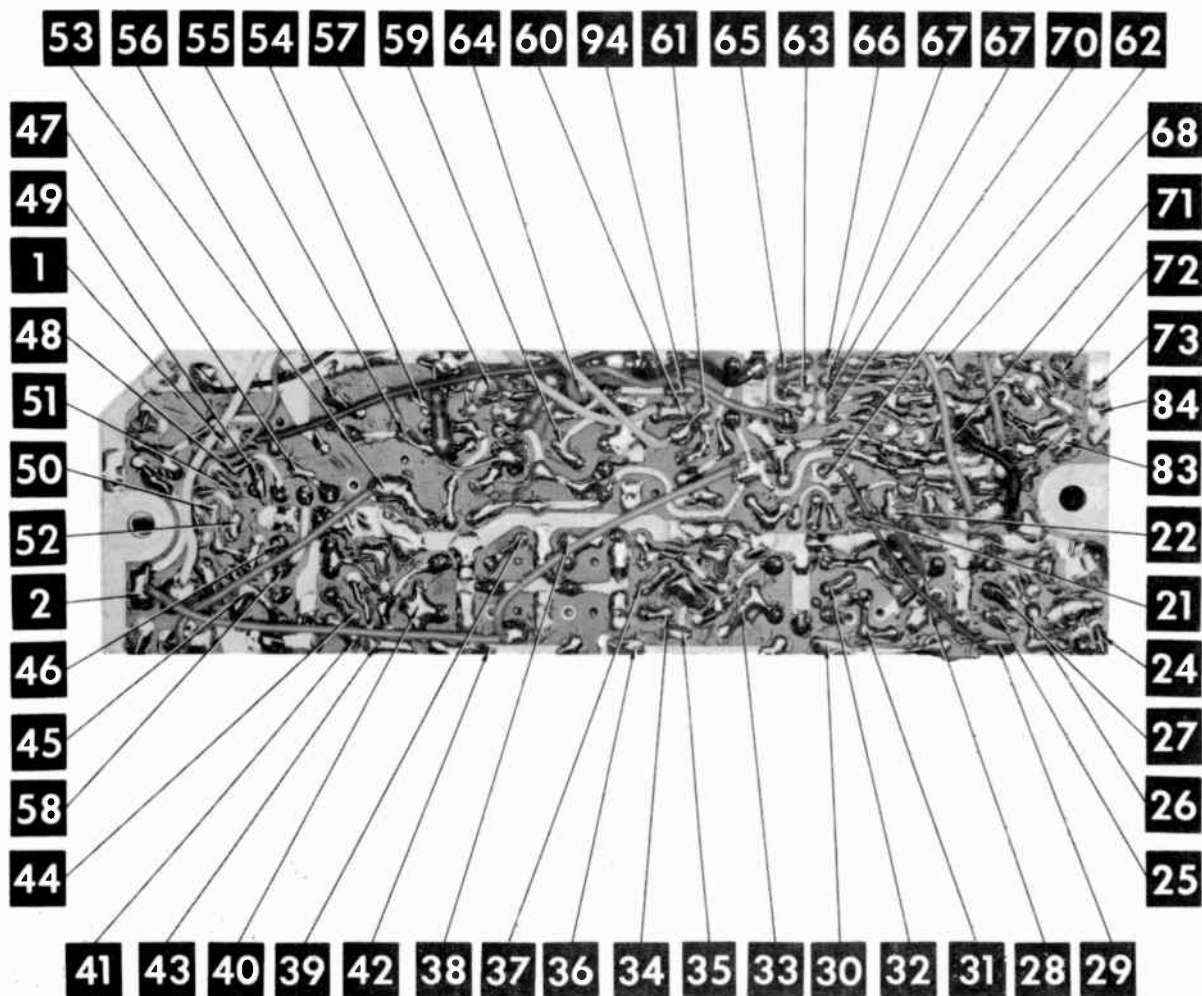
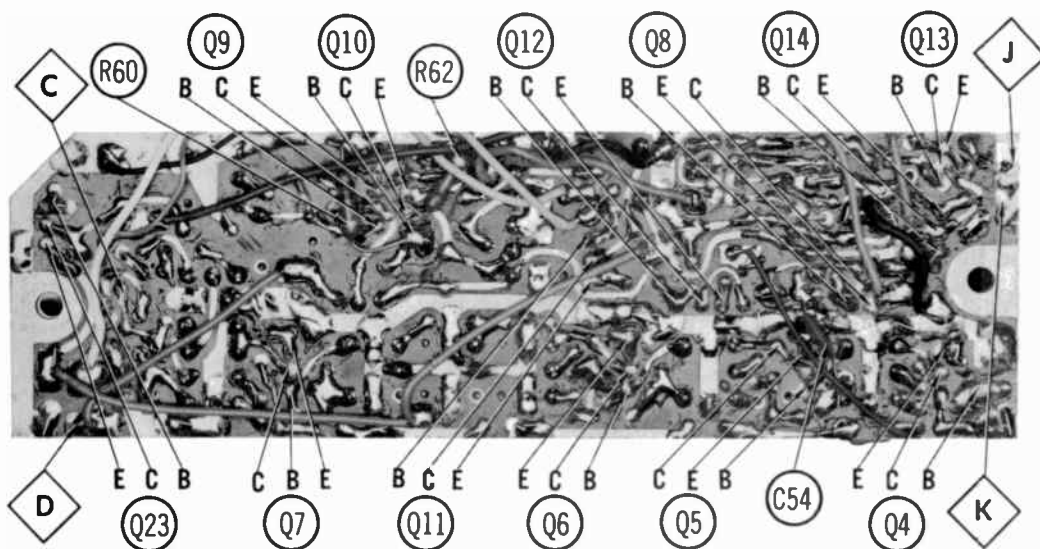
FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ($\pm .0001\%$ ACCURACY)

High side of generator thru 47K to point $\diamond E$, low side to ground.

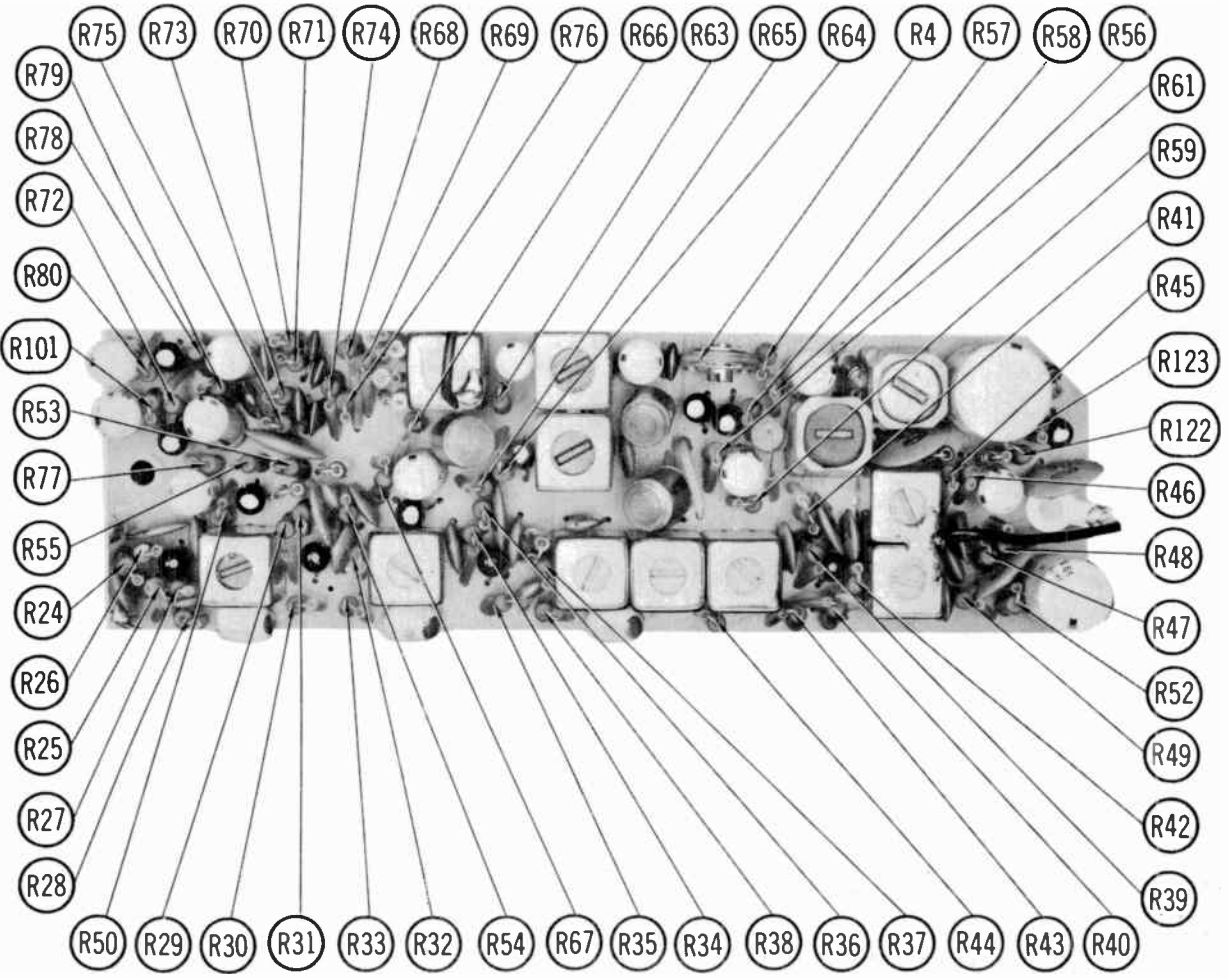
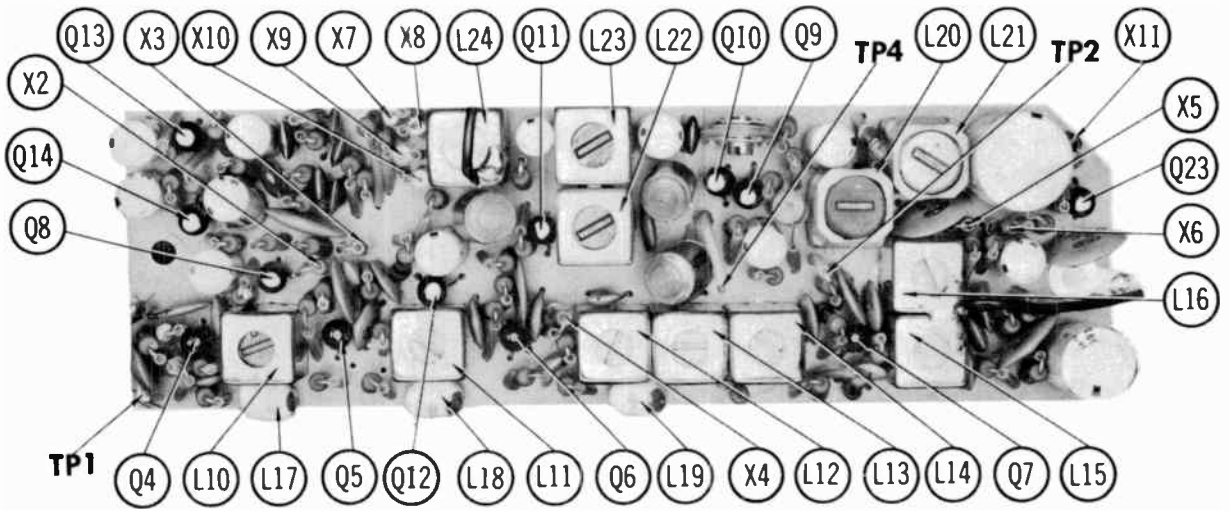
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
4. 67KC	Vert. amp of scope thru 47K to point $\diamond F$, low side to ground.	A12	Adjust for MINIMUM
5. 72KC		A13	
6. 19KC	Vert. amp of scope thru 47K to point $\diamond G$, low side to ground.	A14, A15	Adjust for maximum.
7. "	Vert. amp of scope thru 47K to point $\diamond H$, low side to ground.	A16	Adjust for maximum 38KC response.
8. Modulated Left Channel	Vert. amp of scope to point $\diamond J$, low side to ground.	A14, A15, A16, R4	Adjust for MINIMUM. This step should require only slight adjustment.
9. Modulated Right Channel	Vert. amp of scope to point $\diamond K$, low side to ground		Check for MINIMUM. If necessary make compromise adjustment of A14, A15, A16, R4

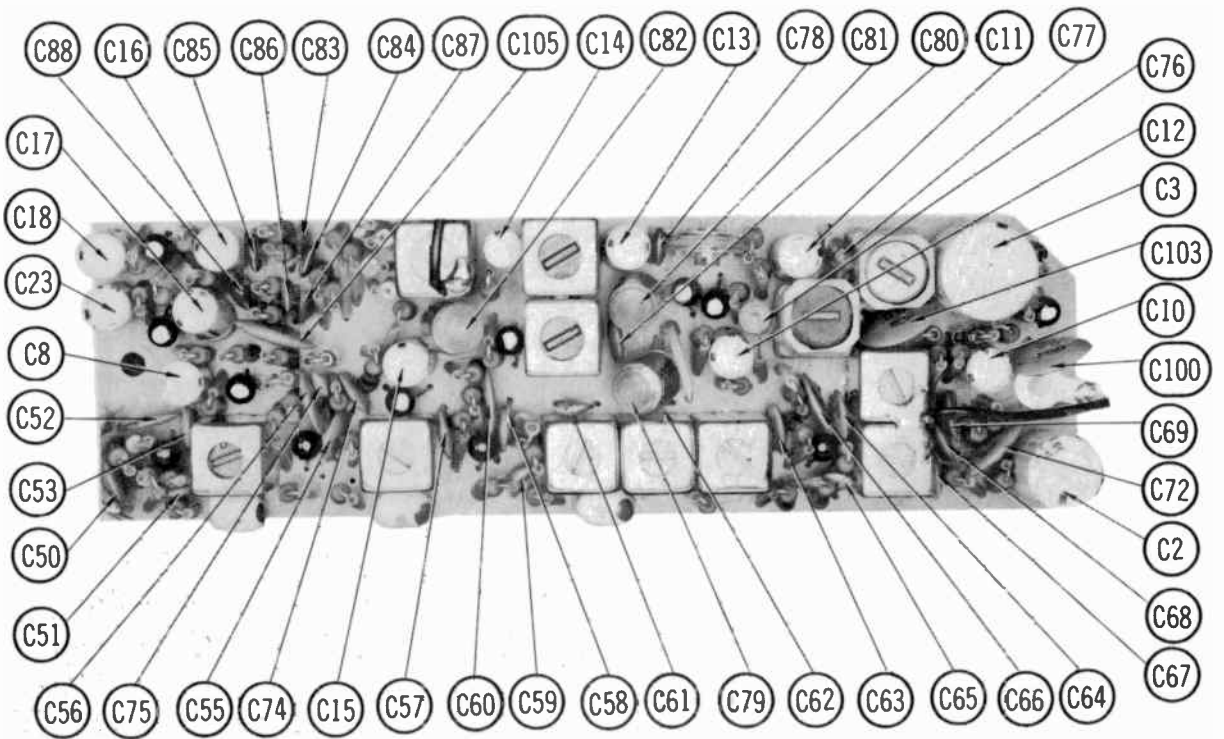
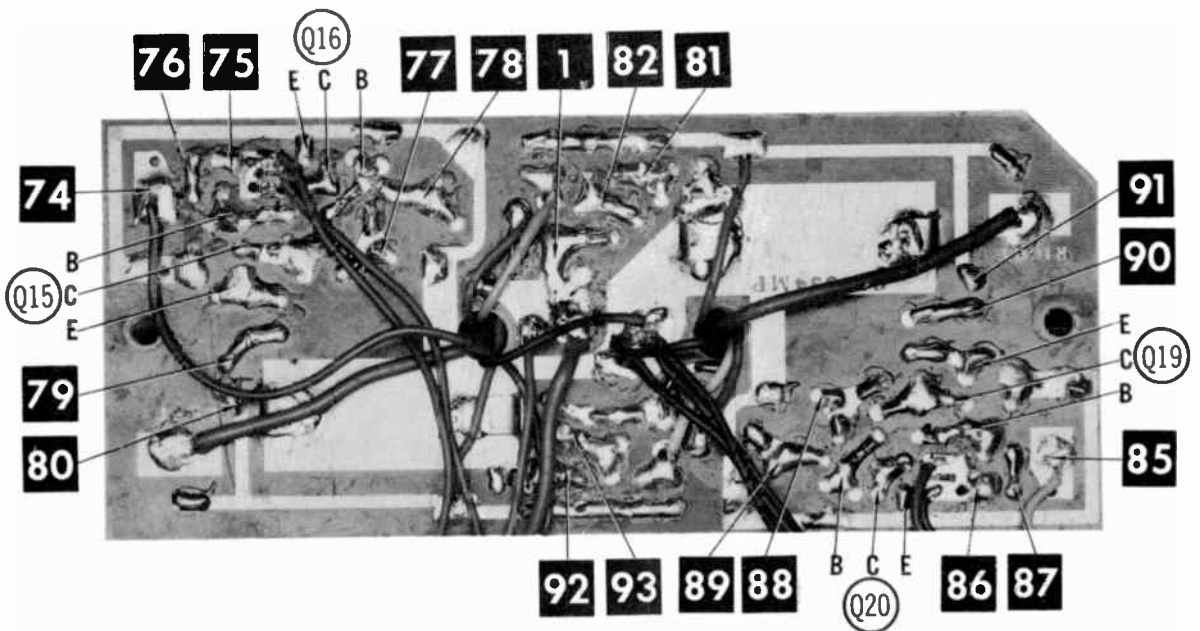


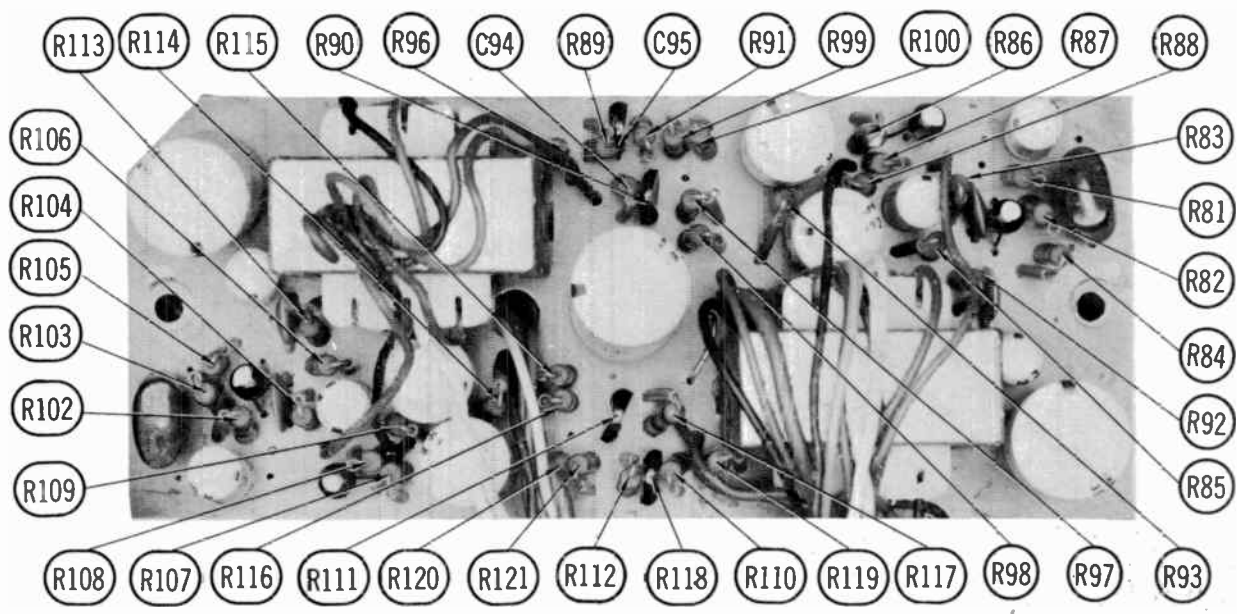
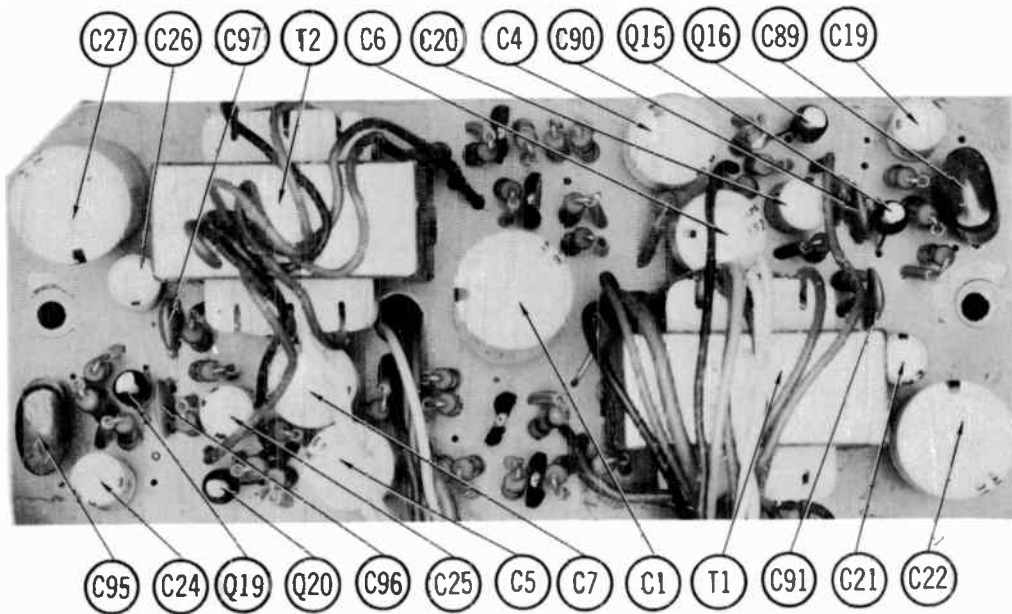
GIBBS MODEL CR-616

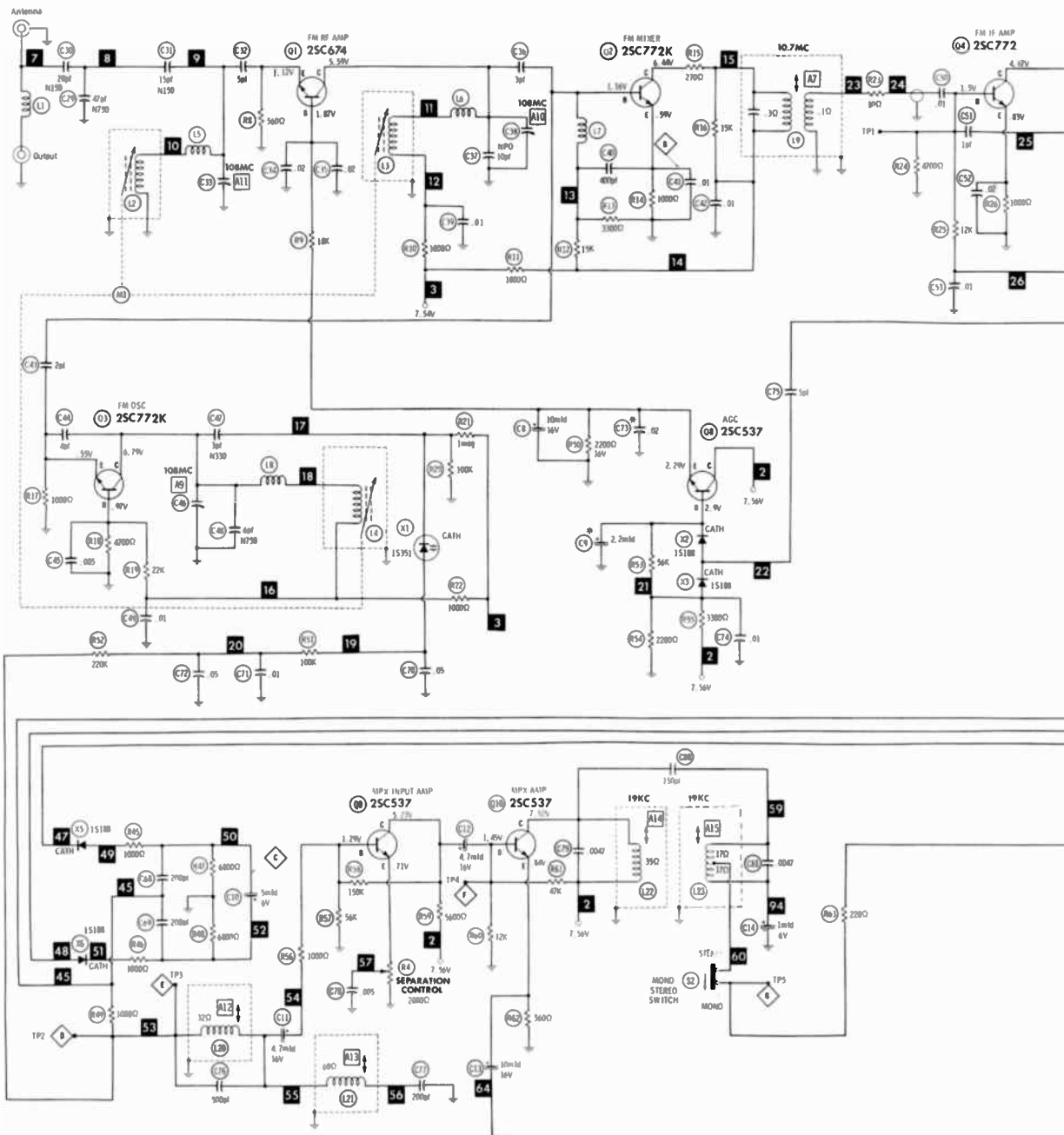


A Howard W. Sams **CIRCUITRACE** Photo



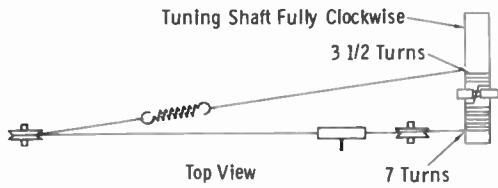
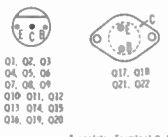
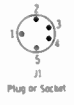
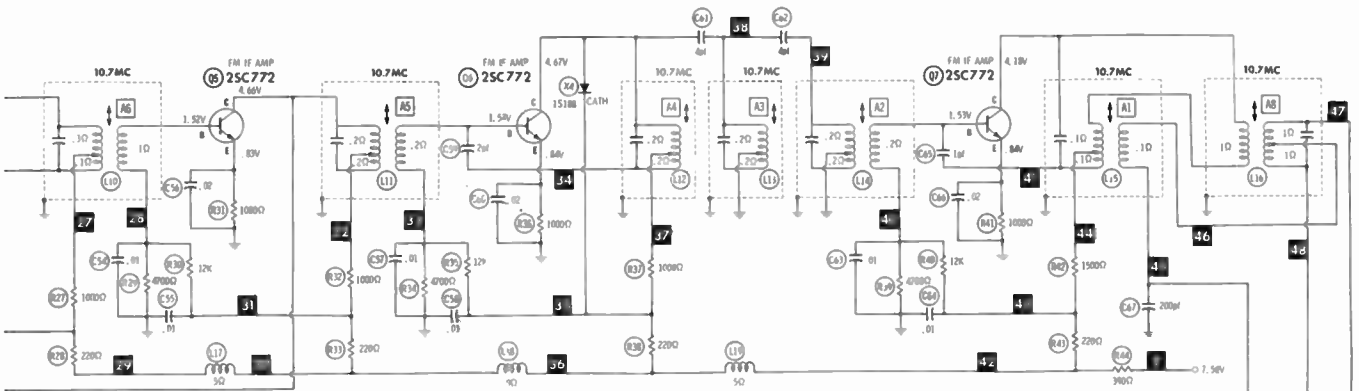




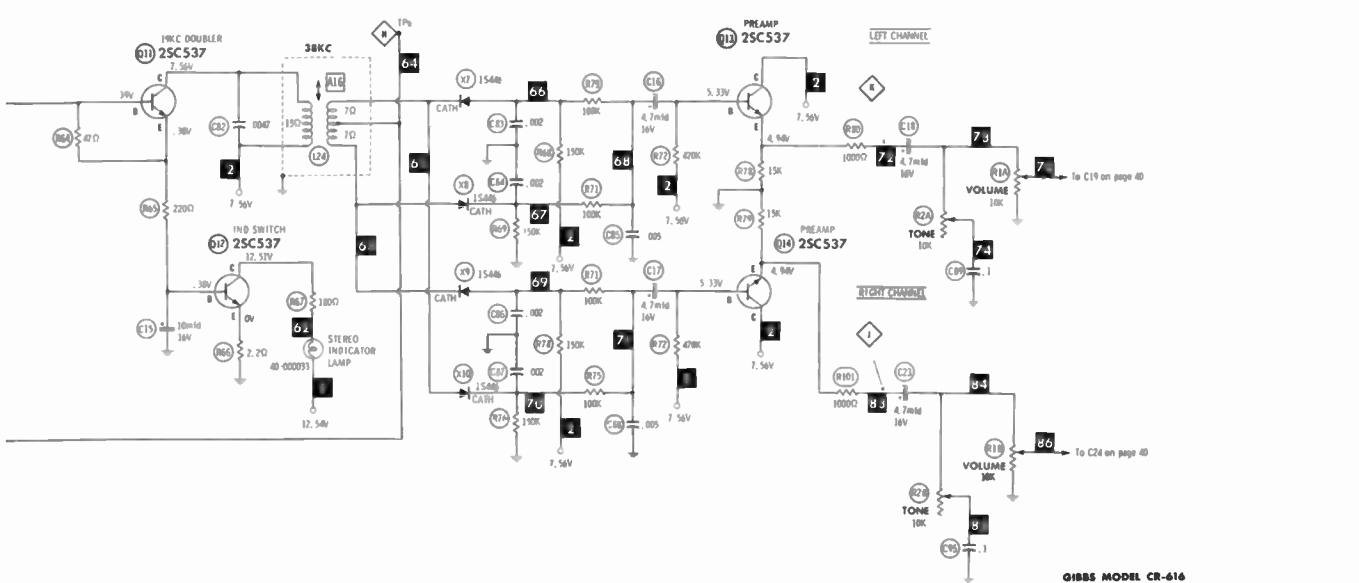


* Omitted in some versions.
 † See parts list.
 Resistors are 1/2W or 1/4W, 10% or 20%, unless other as so indicated.
 Supply voltage maintained at rated value for measurements.
 Voltage and resistance measured with VTVM or equivalent meter.
 No signal applied and controls adjusted for normal operation.
 Controls viewed from actuator end. Arrows indicate clockwise rotation.
 Numbers assigned to terminals may not be found on the unit.
 Transistor resistances vary widely. No resistance measurements taken.

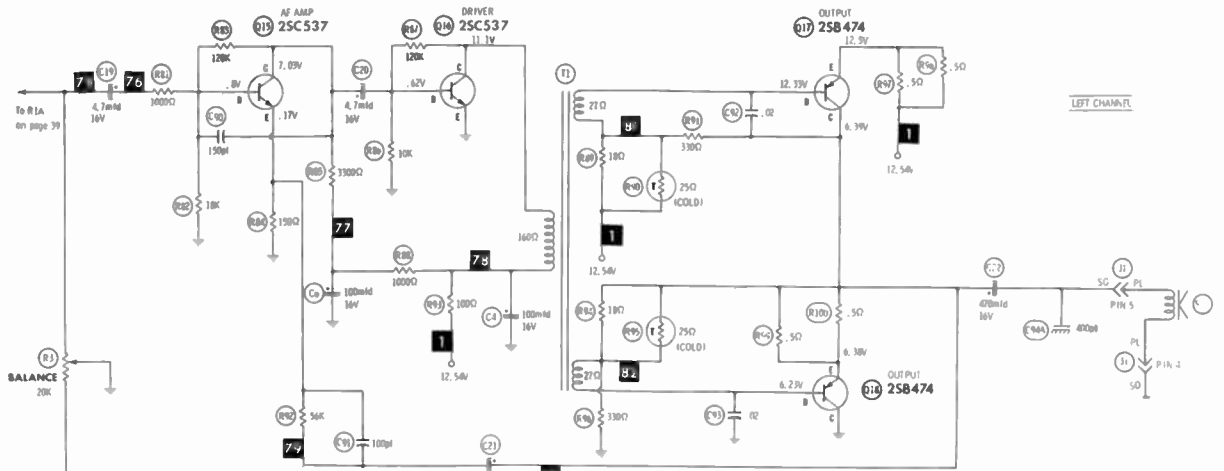
A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with **CIRCUTRACE**
 © Howard W. Sams & Co., Inc 1970



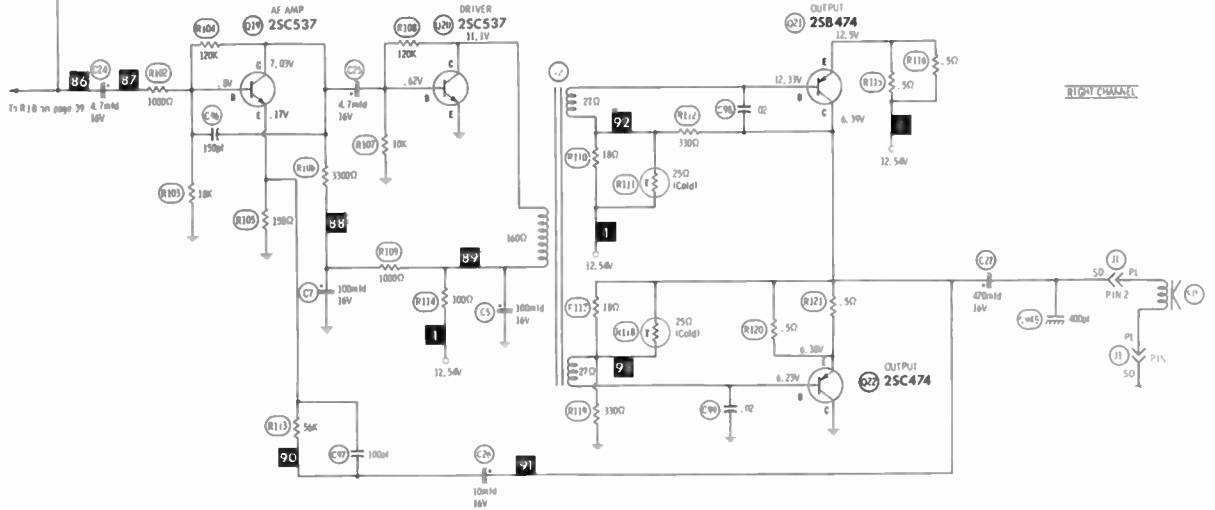
Dial Cord Stringing Guide.



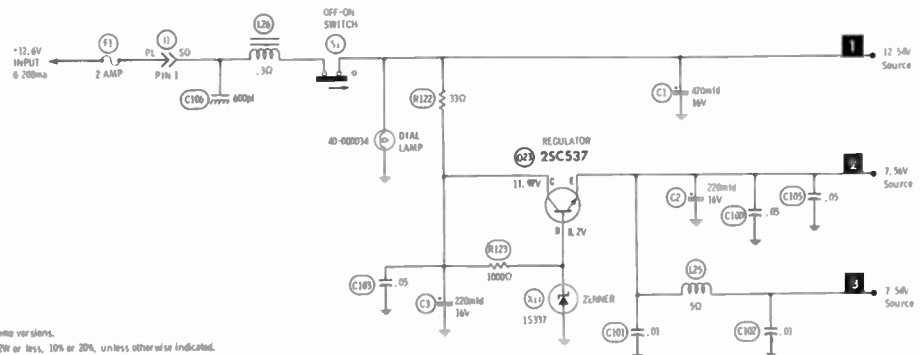
SEE PAGE 40 FOR OUTPUT & POWER SUPPLY



LEFT CHANNEL



RIGHT CHANNEL



* Omitted in some versions.
 Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
 Supply voltage maintained at rated value for measurements.
 Voltage and resistance measured with VFM or equivalent meter.
 No signal applied and controls adjusted for normal operation.
 Transistor resistances vary widely. No resistance measurements taken.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
 with **CIRCUITRACE**
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GIBBS MODEL CR-616

SEE PAGES 38 & 39 FOR AM-FM

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	2SC674	RF Amp	22-001003	GE-17	TR-22	HEP56	SK301B	ECG 108
Q2	2SC772K	Mixer	22-001004	GE-17	TR-22	HEP54	SK301B	ECG 108
Q3	2SC772K	Oscillator	22-001004	GE-17	TR-22	HEP54	SK301B	ECG 108
Q4	2SC772	1st IF Amp	22-001005	GE-20	TR-21	HEP56	SK301B	ECG 108
Q5	2SC772	2nd IF Amp	22-001005	GE-20	TR-21	HEP56	SK301B	ECG 108
Q6	2SC772	3rd IF Amp	22-001005	GE-20	TR-21	HEP56	SK301B	ECG 108
Q7	2SC772	4th IF Amp	22-001005	GE-20	TR-21	HEP56	SK301B	ECG 108
Q8	2SC537	AGC Amp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q9	2SC537	MPX Input Amp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q10	2SC537	19KC Amp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q11	2SC537	19KC Doubler	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q12	2SC537	Lamp Switch	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q13	2SC537	Preamp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q14	2SC537	Preamp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q15	2SC537	AF Amp	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q16	2SC537	Driver	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q17	2SB474	Output (1)	22-002001			HEP643		
Q18	2SB474	Output (1)	22-002001			HEP643		ECG 131MP*
Q19	2SC537	AF Amp.	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q20	2SC537	Driver	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123
Q21	2SB474	Output (1)	22-002001			HEP643		ECG 131MP*
Q22	2SB474	Output (1)	22-002001			HEP643		ECG 131MP*
Q23	2SC537	Voltage Regulator	22-001002	GE-17	TR-24	HEP723	SK3020	ECG 123

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

* Matched Pair

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	1S351					Varactor
X2	1S188	1N34AS	1N34A	ECG 109		
X3	1S188	1N34AS	1N34A	ECG 109		
X4	1S188	1N34AS	1N34A	ECG 109		
X5	1S188	1N34AS	1N34A	ECG 110 (1)		(1) Matched Pair
X6	1S188	1N34AS	1N34A			
X7	1S446	1N82A	1N82A	ECG 112		
X8	1S446	1N82A	1N82A	ECG 112		
X9	1S446	1N82A	1N82A	ECG 112		
X10	1S446	1N82A	1N82A	ECG 112		
X11	1S333	GE-X11	1ZMB.2			Zener

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	470 16V	26-001305-471	BCD15500	EA15-500	PC500-16	QTI-30A	MTV500DN15	TL-1166
C2	220 16V	26-001205-201	BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C3	220 10V	26-001305-201	BCD10190	EA15-250	PC200-16	MT1-23	MTV200CK10	TL-1137
C4	100 16V	26-001305-101	BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C5	100 16V	26-001305-101	BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C6	100 16V	26-001305-101	BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C7	100 16V	26-001305-101	BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C8	10 10V	26-001105-100	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1128
C9	2.2 16V	26-001105-020	BCD50002	EP15-2	PC2-100	MT1-1	MTV2CB50	TE-1149
C10	4.7 16V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C11	4.7 16V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C12	4.7 16V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C13	10 10V	26-001105-100	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1128
C14	1 25V	26-001105-010	BCD50001	EP15-100	PC1-100	MT1-1	MTV1CB50	TE-1200
C15	10 10V	26-001105-100	BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1128
C16	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C17	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C18	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C19	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C20	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C21	10 25V	26-001305-100	BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C22	470 16V	26-001305-471	BCD15500	EA15-500	PC500-16	QTI-30A	MTV500DN15	TL-1166
C23	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C24	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C25	4.7 25V	26-001105-050	BCD25005	EP15-5	PC5-100	MT1-3	MTV5CB50	TE-1152
C26	10 25V	26-001305-100	BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C27	470 16V	26-001305-471	BCD15500	EA15-500	PC500-16	QTI-30A	MTV500DN15	TL-1166

GIBBS MODEL CR-616

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C29	47 N750		N750-D147	DTN-47	N47	CCTN-470	CN7447	10TCU-Q47
C30	20 N150					*	*	10TCP-Q20
C31	15 N150					*	*	10TCP-Q15
C32	5		NPO-DI 5.0		NPO5			10TCC-V50
C33	2 (1)	#25-004000-020						
C34	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C35	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C36	3		NPO-DI 3.0					10TCC-V30
C37	10 NPO		NPO-DI 10	DTZ-10	NPO10	CCT0-100	CN0410	10TCC-Q10
C38	2 (1)	#25-004000-020						
C39	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C40	400			DD-401		CCD401	GP340	
C41	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C42	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C43	2		NPO-DI 2.2	DTZ-2R2	NPO2P2		CN0522	10TCC-V22
C44	4				NPO3P9			10TCC-V39
C45	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C46	2 (1)	#25-004000-020						
C47	5 N330					*	*	10TCS-Q10
C48	3 N750			TCN3R3			CN7533	
C49	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C50	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C51	10f		NPO-DI 1.0	TCZ-1			TA110	TG-S10
C52	.02		TTP-02	CK-203	MGP02	CCD-203	CN0510	10TCC-V10
C53	.01		TTP-01	CK-103	MGP01	CCD-103	TA120	TG-S20
C54	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C55	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C56	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C57	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C58	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C59	2		NPO-DI 2.2	DTZ-2R2	NPO2P2		TA110	TG-S10
C60	.02		TTP-02	CK-203	MGP02	CCD-203	CN0522	10TCC-V22
C61	4				NPO3P9		TA120	TG-S20
C62	4				NPO3P9			10TCC-V39
C63	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C64	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C65	1		NPO-DI 1.0	TCZ-1			TA110	TG-S10
C66	.02		TTP-02	CK-203	MGP02	CCD-203	CN0510	10TCC-V10
C67	200		GPD X5F201K	DM-201	GP200	CCD-201	TA120	TG-S20
C68	200		GPD X5F201K	DM-201	GP200	CCD-201	GP320	10TS-T20
C69	200		GPD X5F201K	DM-201	GP200	CCD-201	GP320	10TS-T20
C70	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	10TS-T20
C71	.01		TTP-01	CK-103	MGP01	CCD-103	TA150	TGL-S50
C72	.05		TTP-05	CK-503	MGP05	CCD-503	TA110	TG-S10
C73	.02		TTP-02	CK-203	MGP02	CCD-203	TA150	TGL-S50
C74	.01		TTP-01	CK-103	MGP01	CCD-103	TA120	TG-S20
C75	5		NPO-DI 5.0		NPO5	CCD-103	TA110	TG-S10
C76	500					DM-16-501		10TCC-V50
C77	200			CPR-200J	CD15F201J500	DM-15-201	SX320	MS-35
C78	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	MS-32
C79	.0047			CPR-4700J	CD19F472J500	DM-19-472	TA250	TG-D50
C80	150		GPD X5F151K	DD-151	GP150	DM-19-472	SX247	MS-247
C81	.0047			CPR-4700J	CD19F472J500	CCD-151	GP315	10TS-T15
C82	.0047			CPR-4700J	CD19F472J500	DM-19-472	SX247	MS-247
C83	.002		GPD X5F202K	DM-202	GP2000	DM-19-472	SX247	MS-247
C84	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	25S-D20
C85	.005		TTP-005	CK-502	MGP005	CCD-202	GP220	25S-D20
C86	.002		GPD X5F202K	DM-202	GP2000	CCD-502	TA250	TG-D50
C87	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	25S-D20
C88	.005		TTP-005	CK-502	MGP005	CCD-202	GP220	25S-D20
C89	1		TTP-1	CK-104		CCD-502	TA250	TG-D50
C90	150		GPD X5F151K	DD-151	GP150		TA010	TG-P10
C91	100		GPD X5F101K	DD-101	GP100	CCD-151	GP315	10TS-T15
C92	.02		TTP-02	CK-203	MGP02	CCD-101	GP310	10TS-T10
C93	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C94A	400	#25-002202-401				CCD-203	TA120	TG-S20
B	400							
C95	.1		TTP-1	CK-104			TA010	TG-P10
C96	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C97	100		GPD X5F101K	DD-101	GP100	CCD-101	GP310	10TS-T10
C98	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	10TS-T10
C99	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C100	.05		TTP-05	CK-503	MGP05	CCD-503	TA120	TG-S20
C101	.01		TTP-01	CK-103	MGP01	CCD-503	TA150	TGL-S50
C102	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C103	.05		TTP-05	CK-503	MGP05	CCD-103	TA110	TG-S10
C104	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C105	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
E106	600	#25-002202-601	TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50

(1) Nominal Value

GIBBS Part Number

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume	10K	20-005009-000				
B		10K					
R2A	Tone	10K	20-005009-000				
B		10K					
R3	Balance	20K	20-005011-123				
R4	Separation	2000	20-003003-100				

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R90	25 (Cold)		22-007001
R95	25 (Cold)		22-007001

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R11	25 (Cold)		22-007001
R118	25 (Cold)		22-007001

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (5.6uh)	31-000011	19-1008	4609	T959
L2	Antenna Tuning	(1)			
L3	RF Tuning	(1)			
L4	Oscillator Tuning	(1)			
L5	Antenna	(1)			
L6	RF	(1)			
L7	10.7MC Trap	31-000003			
L8	Oscillator	(1)			
L9	Input IF	31-000012			
L10	Interstage IF	31-000013			
L11	Interstage IF	31-000014			
L12	Interstage IF	31-000014			
L13	Interstage IF	31-000014			
L14	Interstage IF	31-000014			
L15	Ratio Detector (Pri.)	31-000015			
L16	Ratio Detector (Sec.)	31-000016			
L17	RF Choke (470uh)	31-000004			
L18	RF Choke (470uh)	31-000004			
L19	RF Choke (470uh)	31-000004			
L20	67KC Trap	31-000017			
L21	72KC Trap	31-000018			
L22	19KC	31-000019			
L23	19KC	31-000019			
L24	38KC	31-000020			
L25	RF Choke (470uh)	31-000004			

(1) Part of M1

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L26	200ma	.3	1.5mh	30-000004					

GIBBS MODEL CR-616

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T1 T2	4 4	1 1	1 1	30-000005 30-000005					

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	2 Amp	40-000001		AGC 2	HDJ	312002	150145	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	FM Tuner	36-000005	
S1	Switch, Off-On	40-000029	
S2	Switch, Stereo-Mono	40-000030	
	Stereo Indicator Lamp	40-000033	
	Pilot Lamp	40-000034	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Tuning Wheel	50-000063	Stereo Indicator Lens	50-000068
Knob, Volume	50-000064	Push Button	50-000065
Knob, Tone	50-000064	Push Button	50-000065
Knob, Balance	50-000064	Push Button Escutcheon (Stereo)	50-000074
Dial Pointer	50-000089	Push Button Escutcheon (Power)	50-000073
Dial Scale	50-000069	Front Panel Escutcheon	50-000072

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

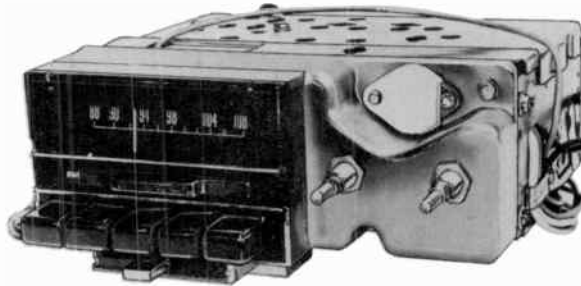


PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are BENDIX



LINCOLN MODEL 9FBX
(C9LA-19A241B)
(69 Mark III)

ALIGNMENT INSTRUCTIONS

Check for specified source voltage.
Use only enough generator output
to provide a usable indication.

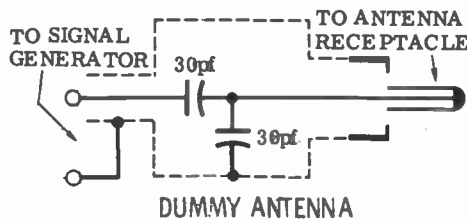
Suggested Alignment Tools: GENERAL CEMENT # WALSCO #
A1 thru A4, A11 thru A22 .. 9300,9296,9297.. 2510,2546,2547
A5, A6, A7, A23,A24, A25 .. 8290,8868,9087.. 2525,2528,2587

PUSH-BUTTON ADJUSTMENT

1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point \diamond A, low side to ground.	262.5KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
2.	Thru dummy antenna to antenna input.	1605KC	"	"	A5,A6, A7	"
Step 3 is not necessary unless tuner or associated components have been disturbed. If necessary, back tuning cores (A8,A9,A10) out of coils but not out of forms. Repeat Step 2.						
3.	Thru dummy antenna to antenna input.	1000KC	Tune to signal	Output meter across voice coil	A8,A9, A10	Adjust for maximum. Repeat Steps 2 and 3 until no further improvement is noted

With radio installed in car and antenna extended 33", tune in a weak station near 1400KC and adjust A7 for maximum output. Antenna adjustment (A7) is located lower Front Right Corner.



HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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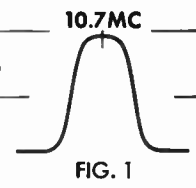
TD766R

LINCOLN MODEL 9FBX

ALIGNMENT INSTRUCTIONS (Continued)

FM IF ALIGNMENT USING AM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point $\diamond B$, low side to ground.					
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
4.	10.7MC Unmodulated	Point of non-interference	DC probe of VTVM to point $\diamond C$, common to ground.	A11 Thru A20	Adjust for maximum.
5.	"	"	DC probe of VTVM to point $\diamond D$, common to ground.	A21	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.

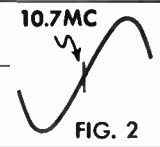


FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point $\diamond B$, low side to ground. Use only enough marker signal for indication. Use 60 cycle frequency modulated signal with 450KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.					
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
4.	10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\diamond C$, low side to ground.	A11 Thru A20	Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown.
5.	"	"	Vert. amp of scope to point $\diamond D$, low side to ground.	A21	Adjust A21 (secondary) to place marker at center of "S" curve similar to Fig. 2. Readjust A11 (primary) for maximum amplitude and straightness of line.

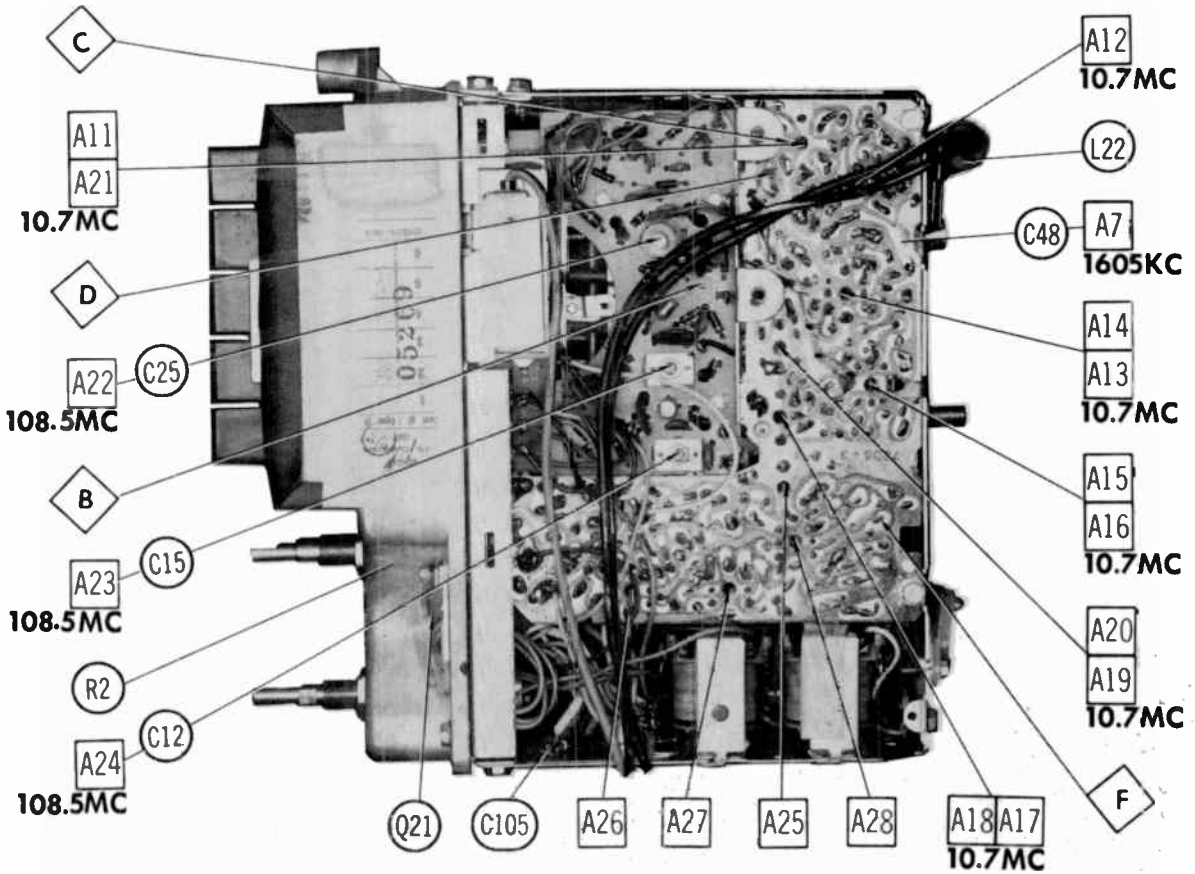
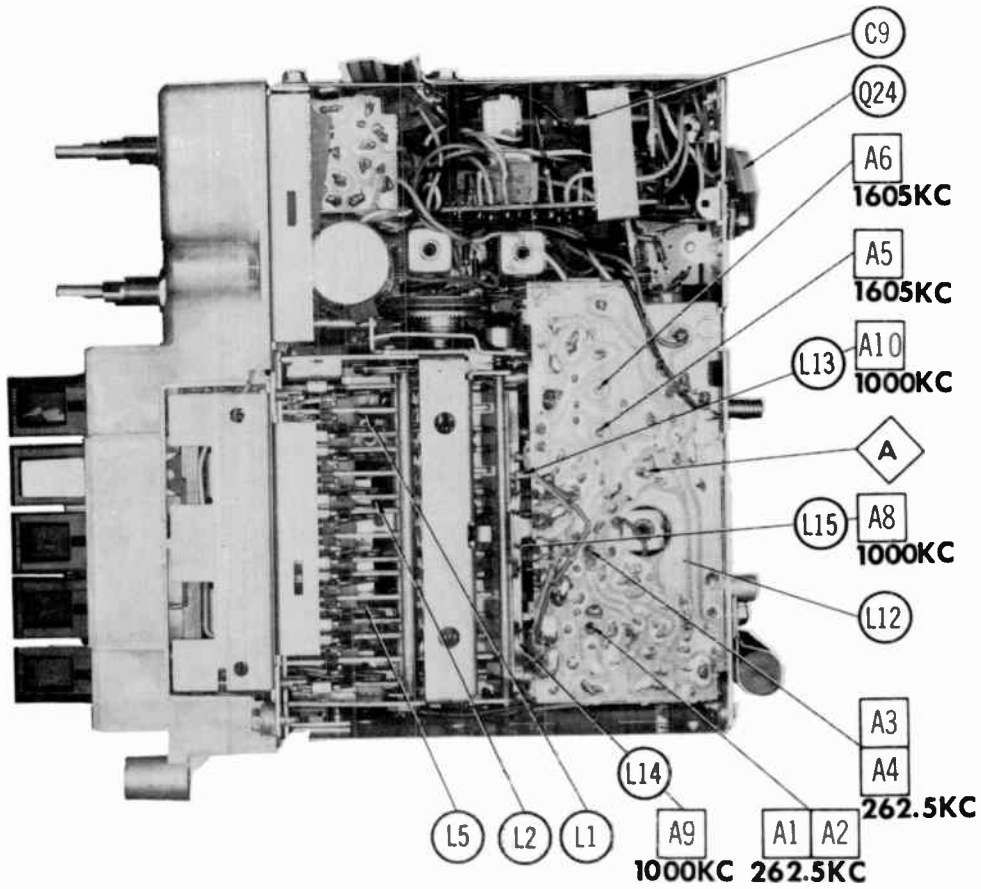
FM RF ALIGNMENT—SELECTOR IN FM POSITION

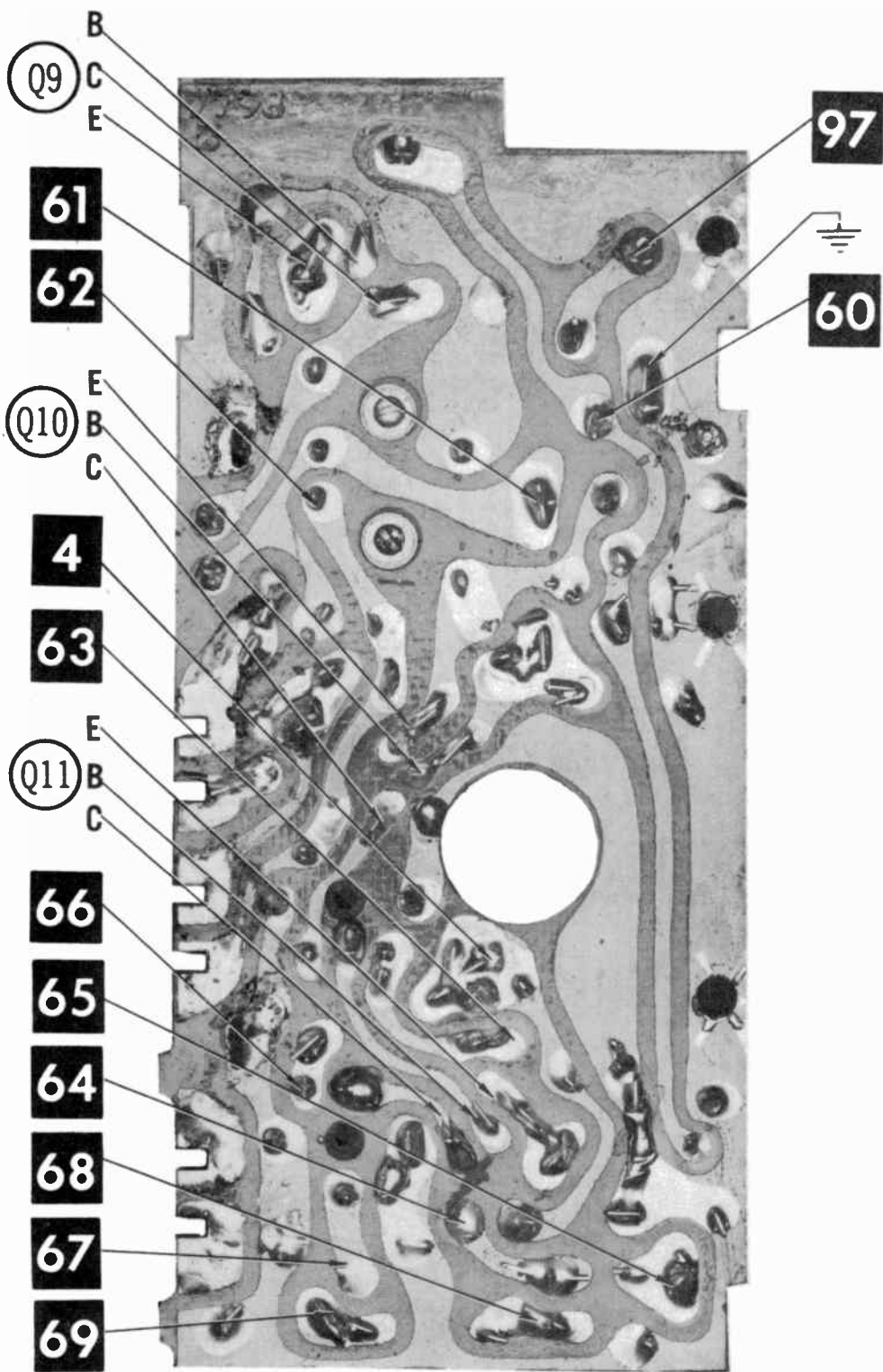
Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead.					
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
6.	108.5MC	High freq. end	DC probe of VTVM to point $\diamond C$, common to ground.	A22 A23 A24	Adjust for maximum.



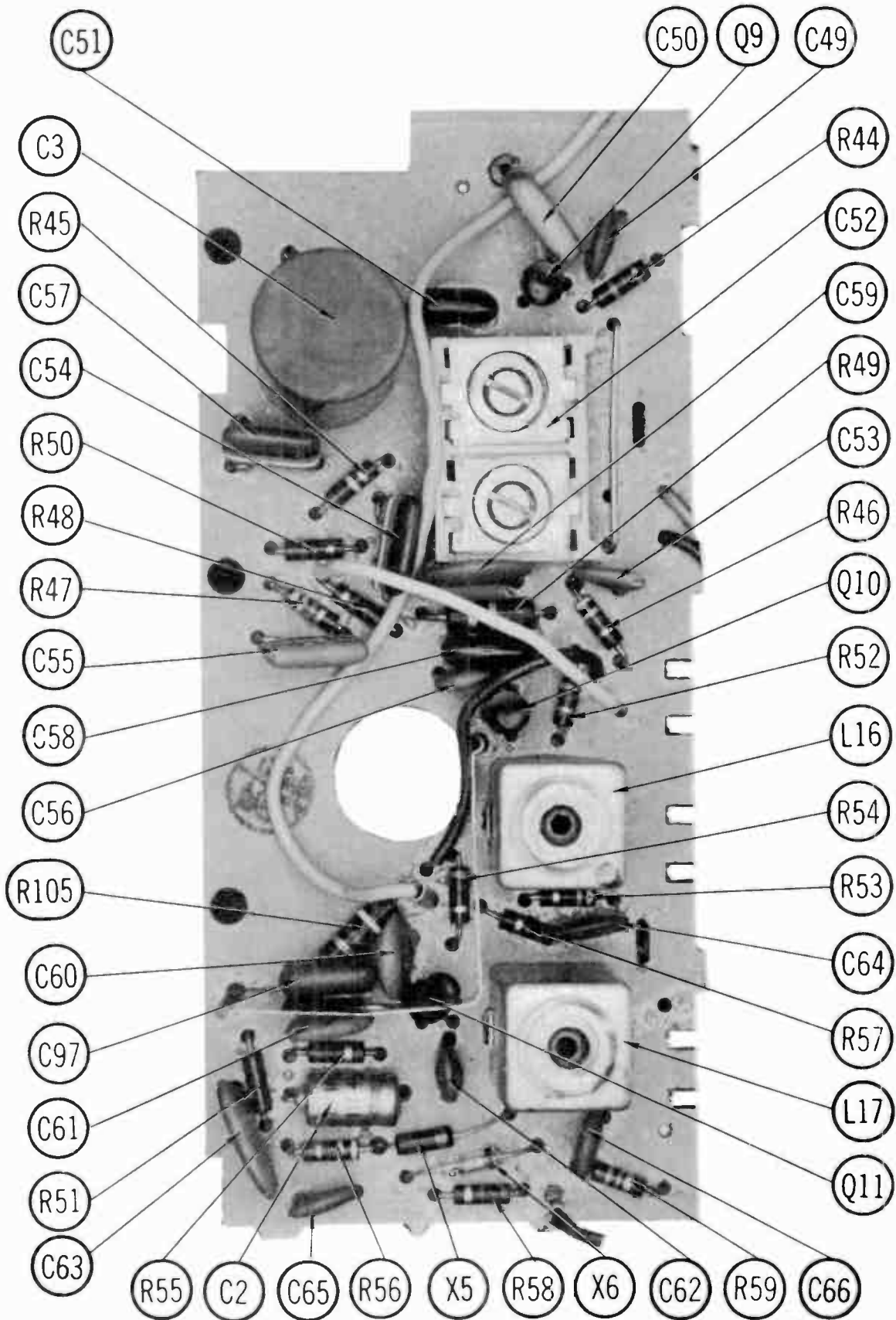
FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ($\pm .0001\%$ ACCURACY)

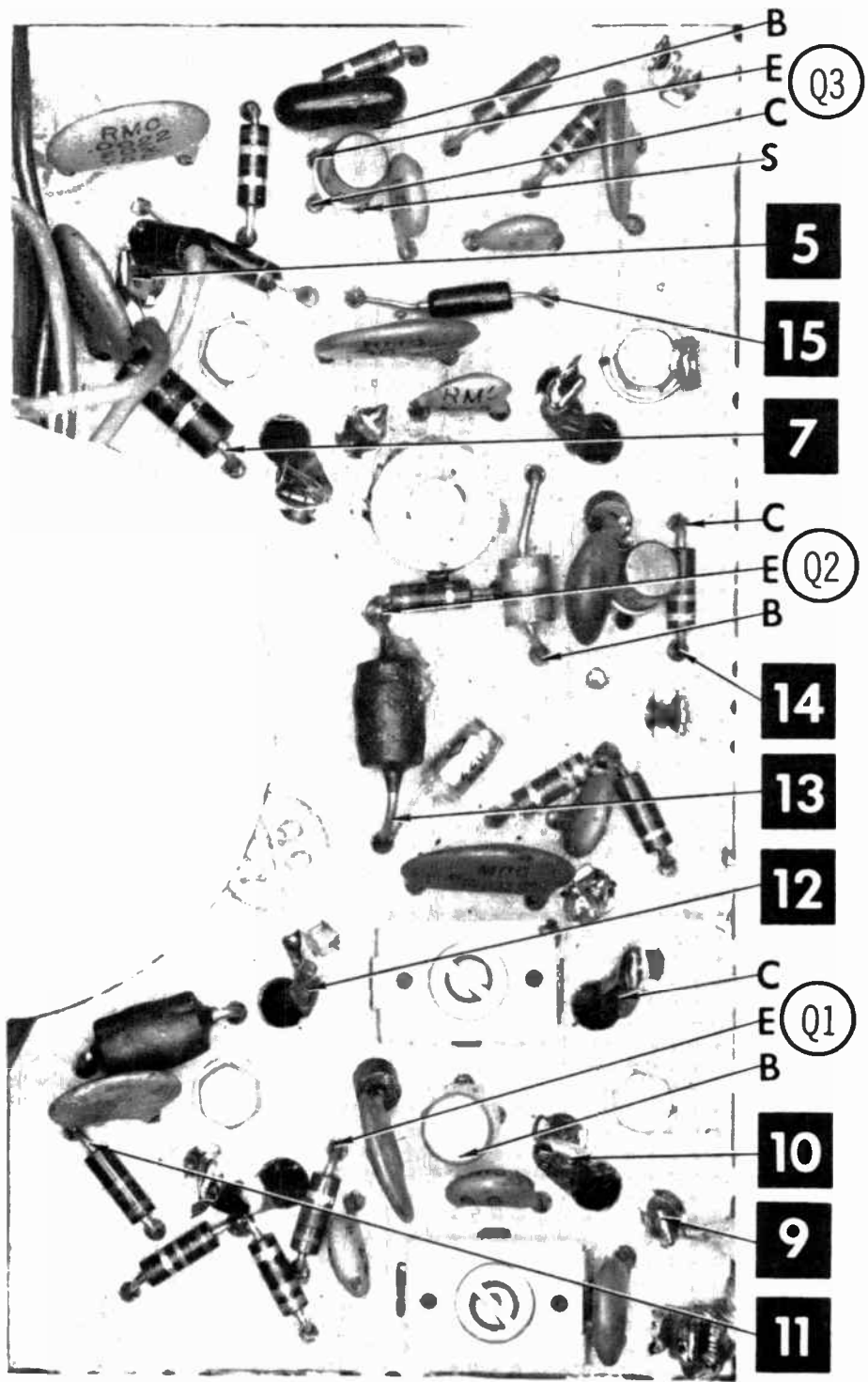
High side of generator thru 47K to point $\diamond E$, low side to ground.				
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS	
7.	72KC	Vert. amp of scope thru 47K to point $\diamond F$, low side to ground.	A25	Adjust for MINIMUM
8.	19KC	Vert. amp of scope thru 47K to point $\diamond G$, low side to ground.	A26, A27,A28	Adjust for maximum.
9.	Modulated Left Channel	Vert. amp of scope to point $\diamond H$, low side to ground.	A26,A27 A28,R3	Adjust for MINIMUM. This step should require only slight adjustment.
10.	Modulated Right Channel	Vert. amp of scope to point $\diamond J$, low side to ground		Check for MINIMUM. If necessary make compromise adjustment of A26,A27,A28,R3.



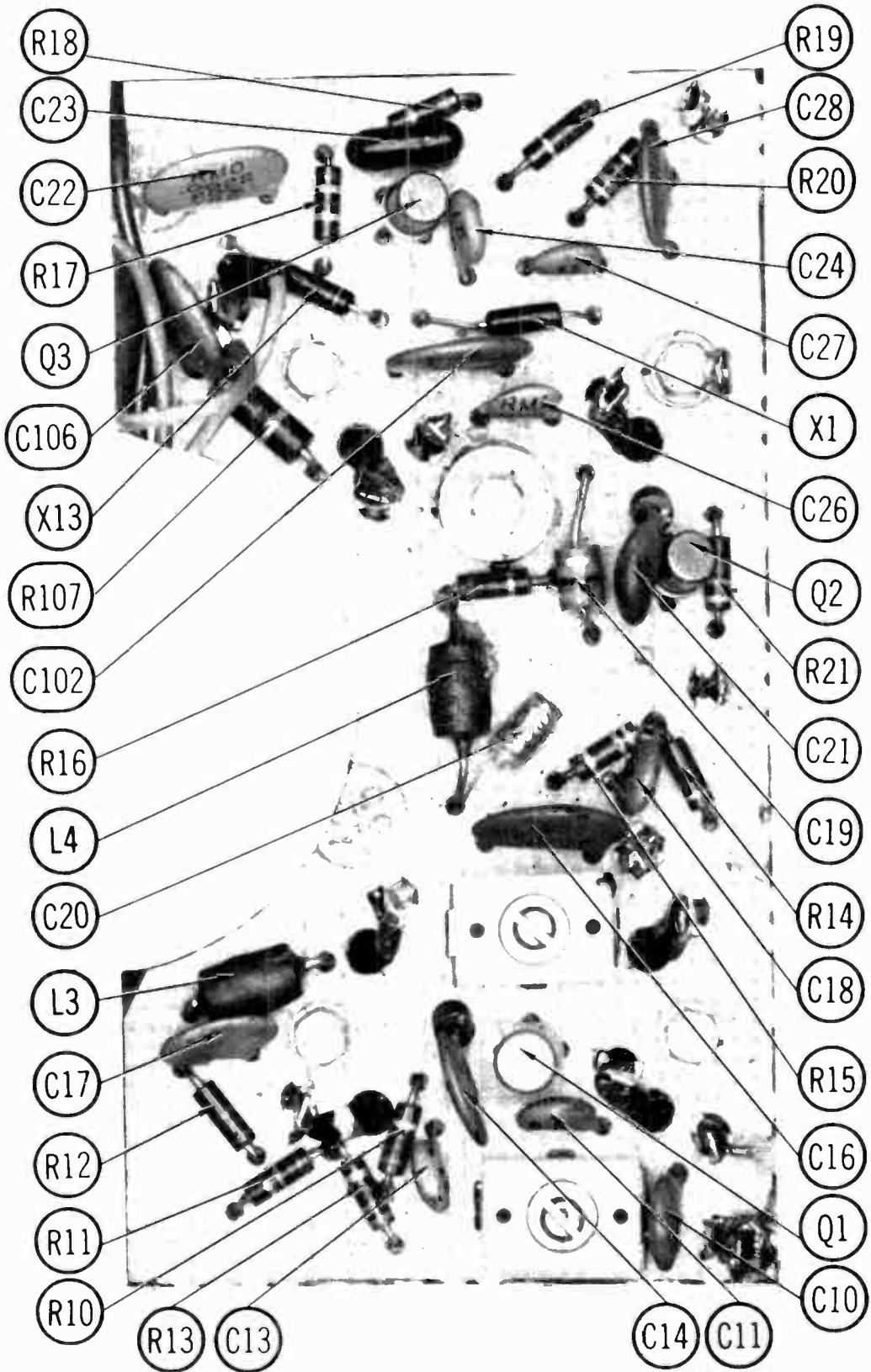


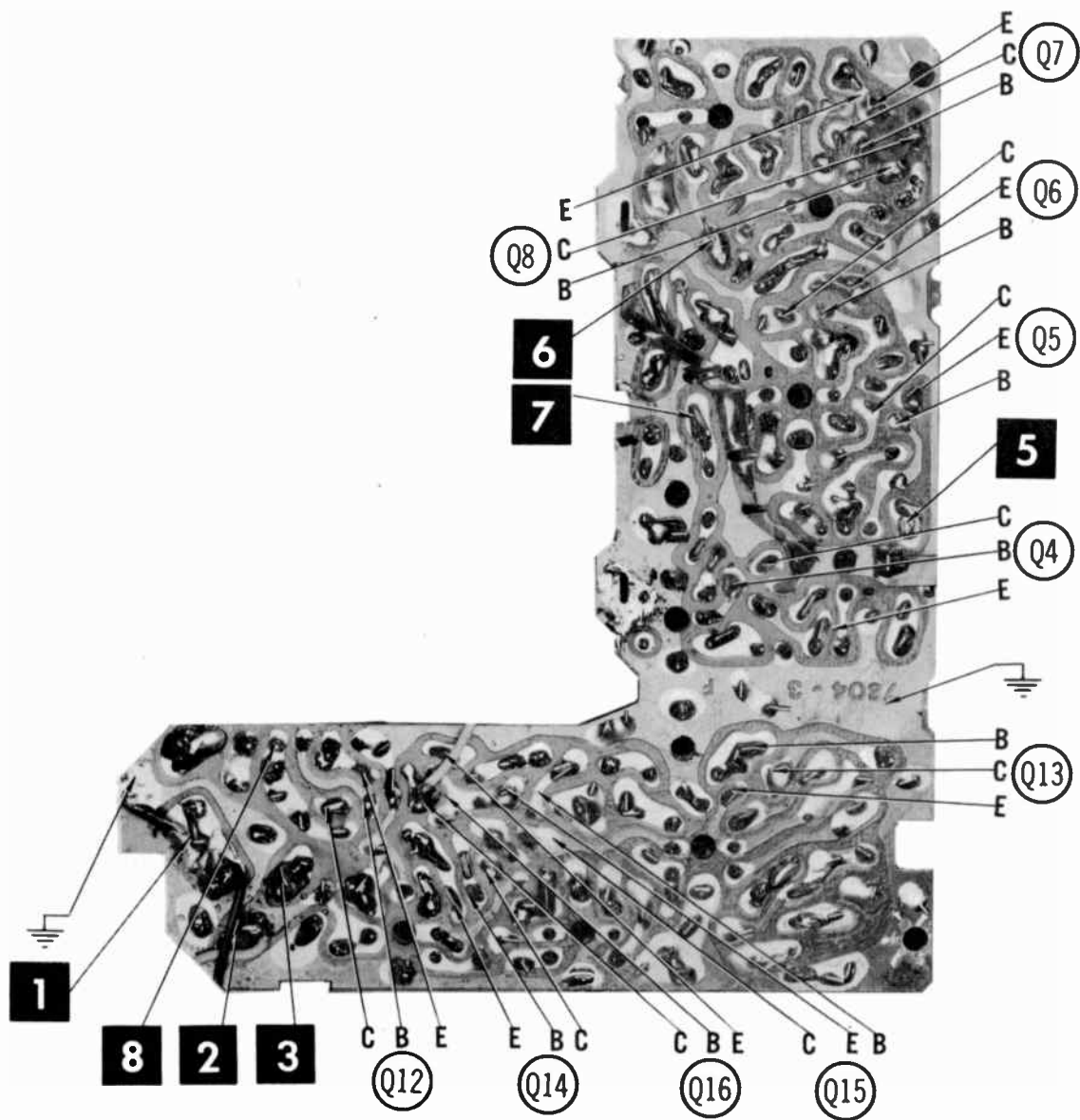
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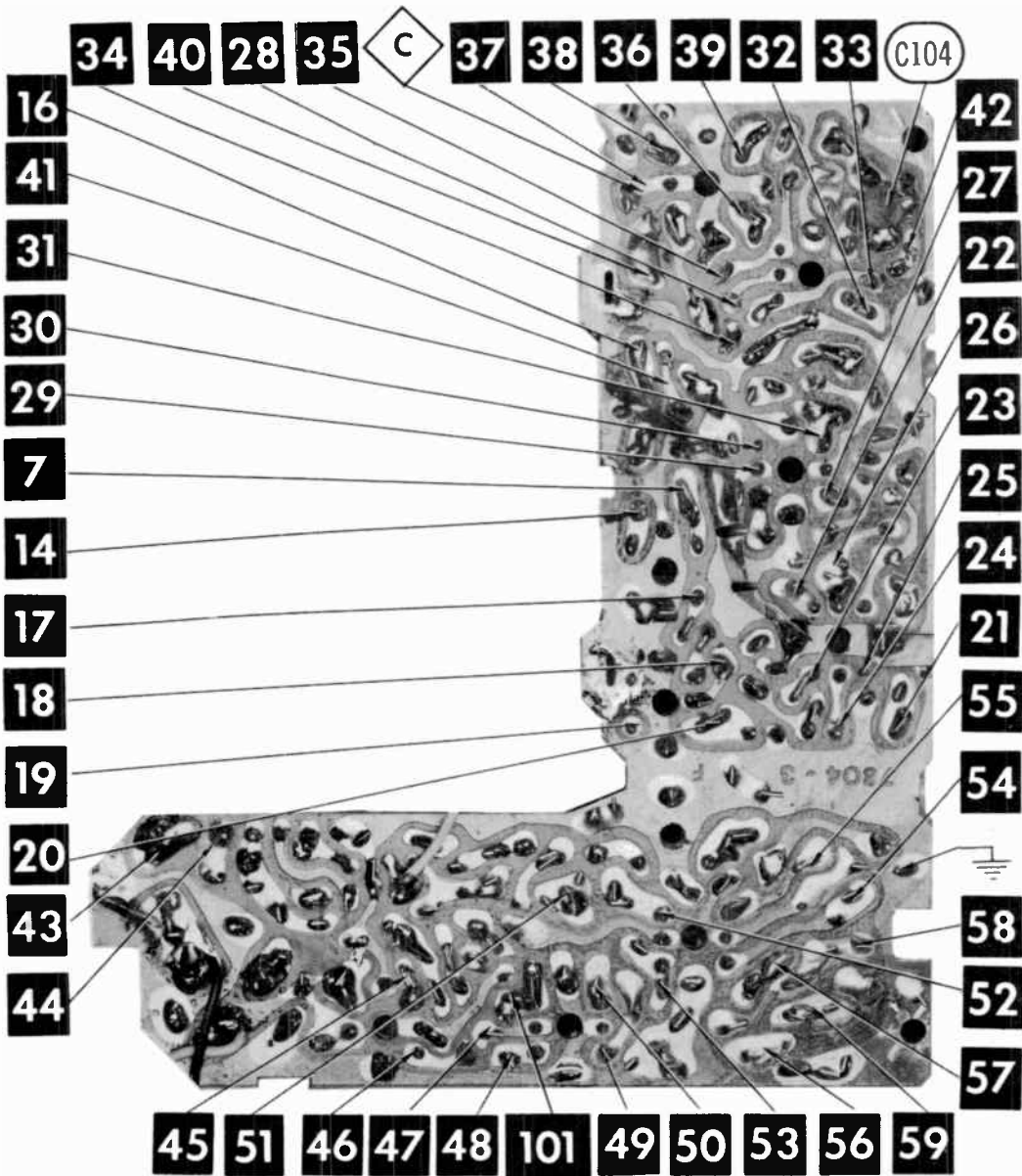


A Howard W. Soms **CIRCUITRACE** Photo

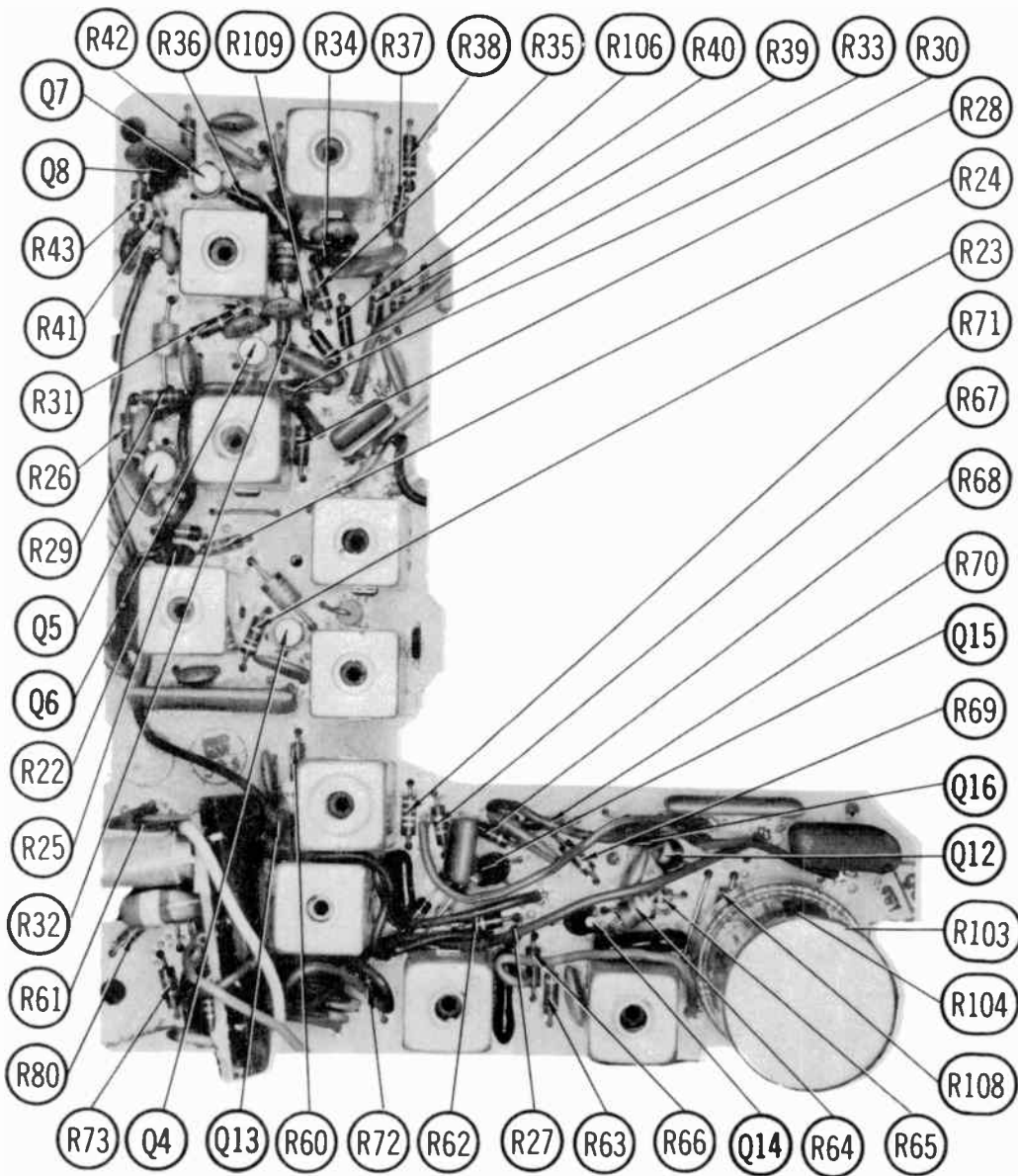


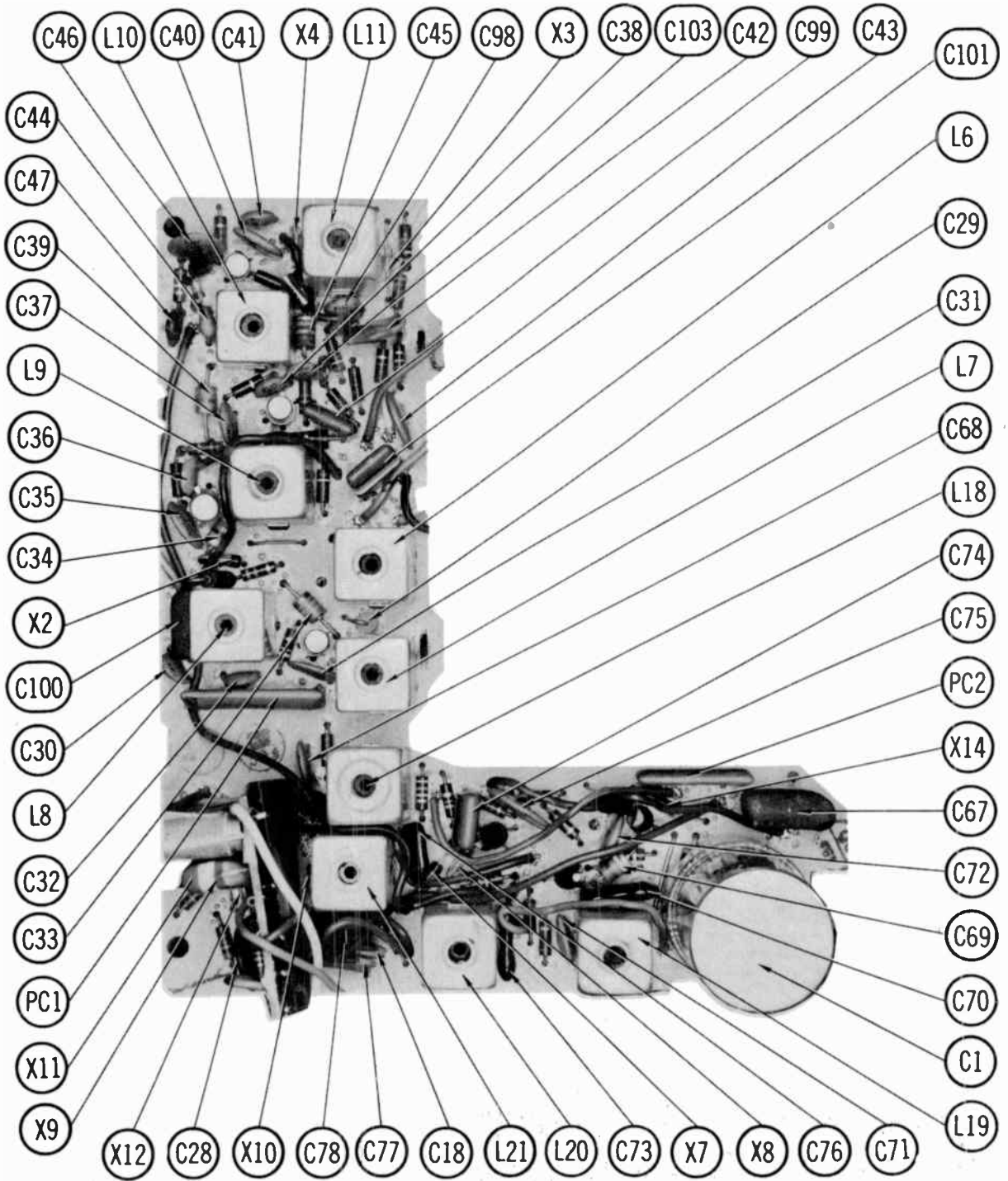


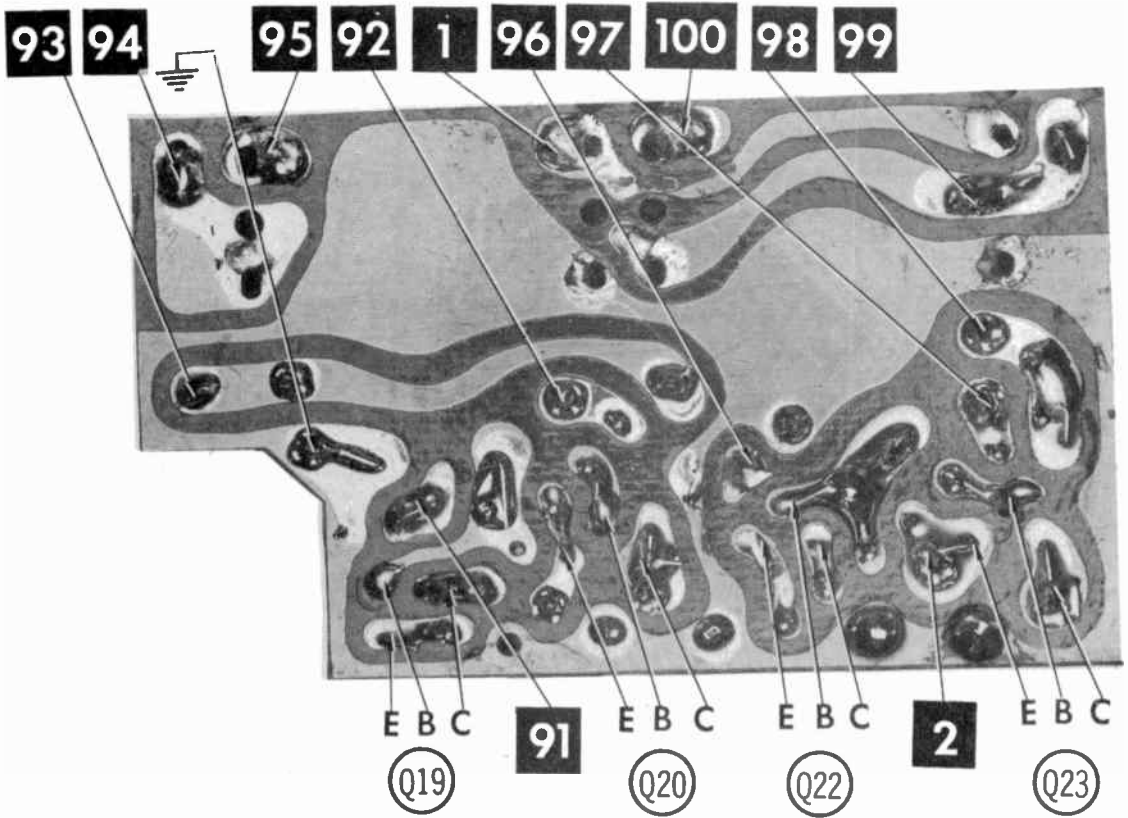
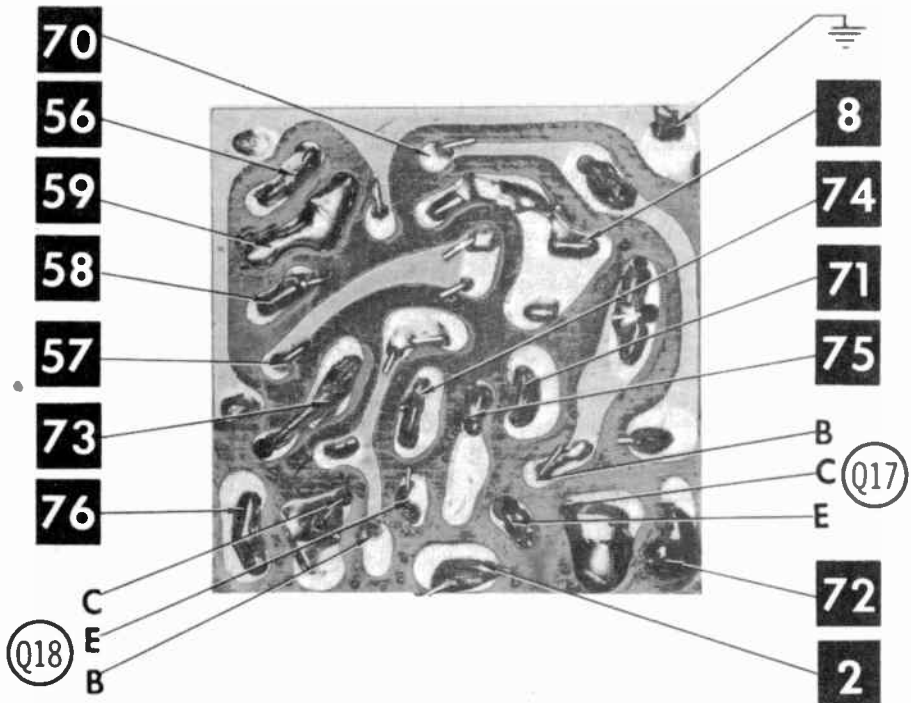
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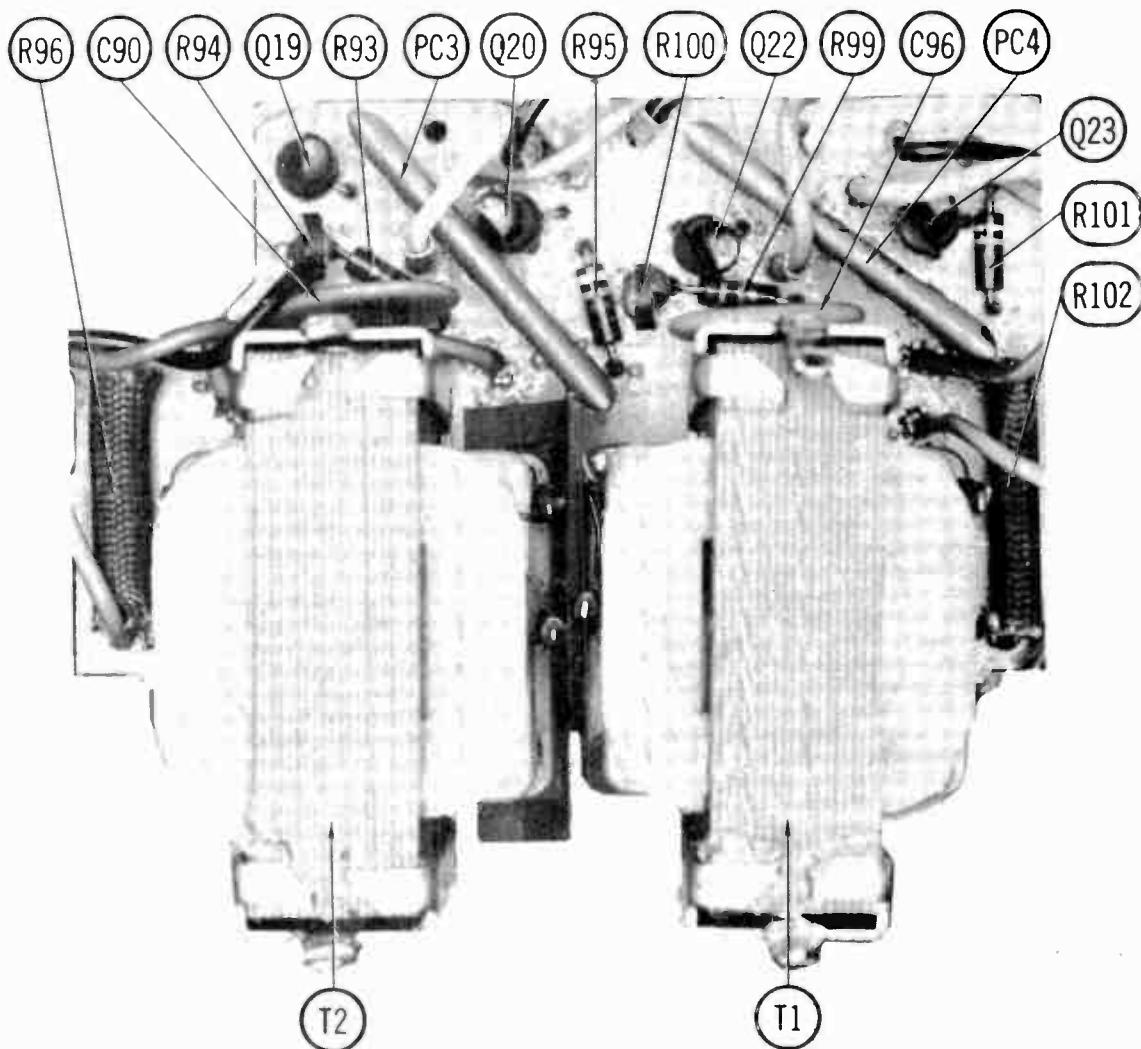
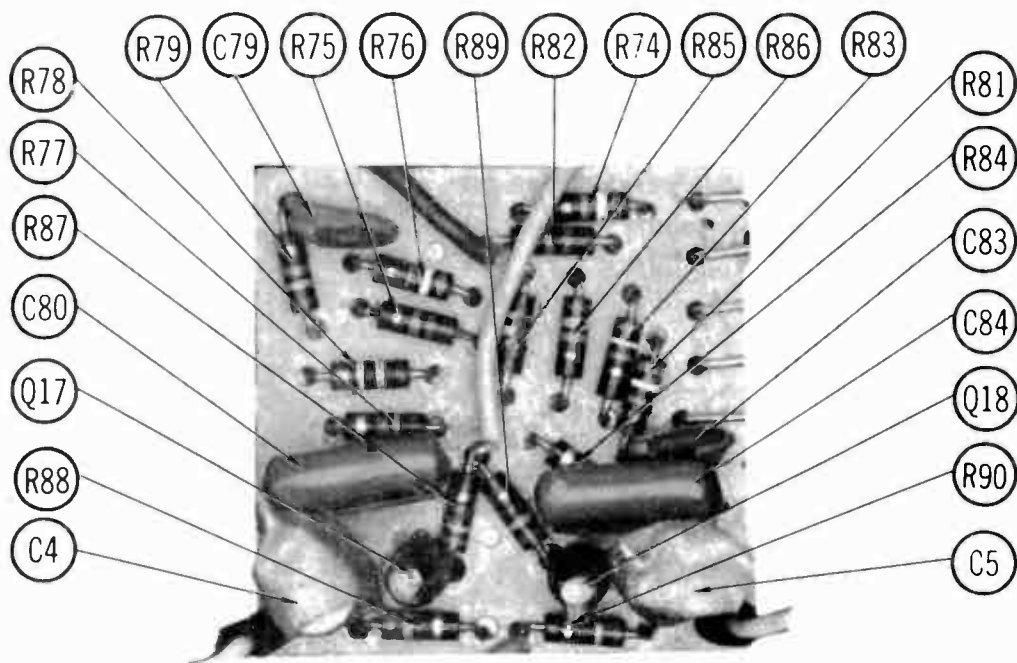
A Howard W. Sams CIRCUITRACE[®] Photo

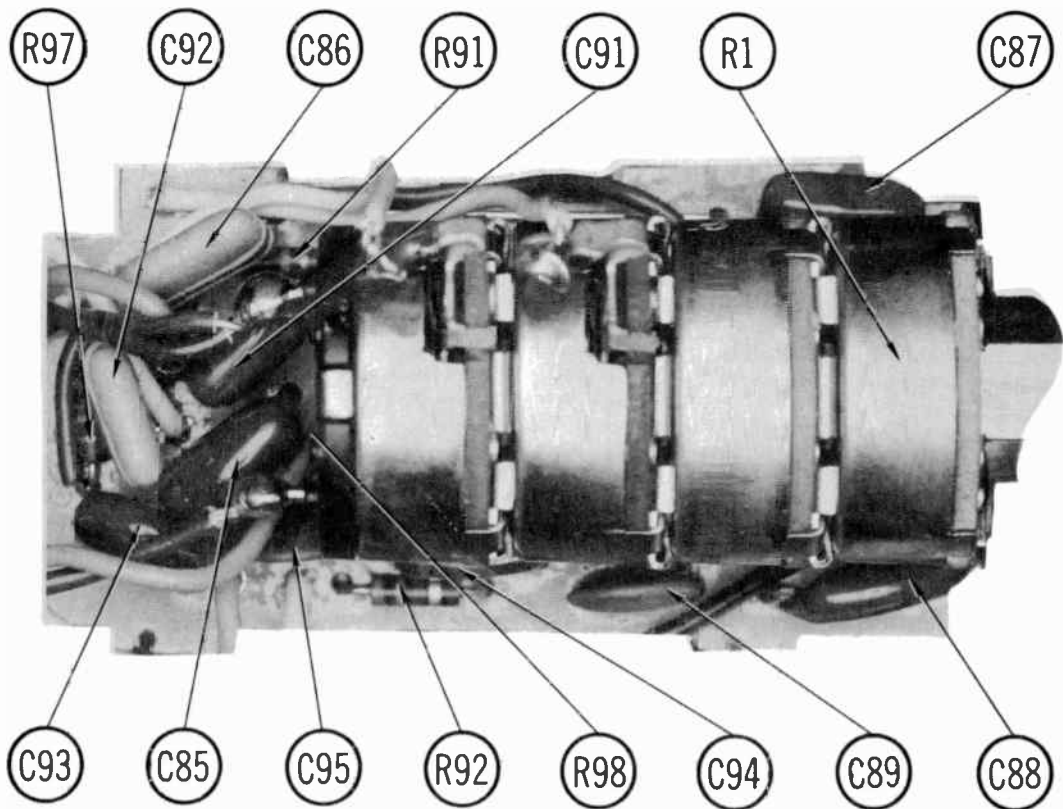




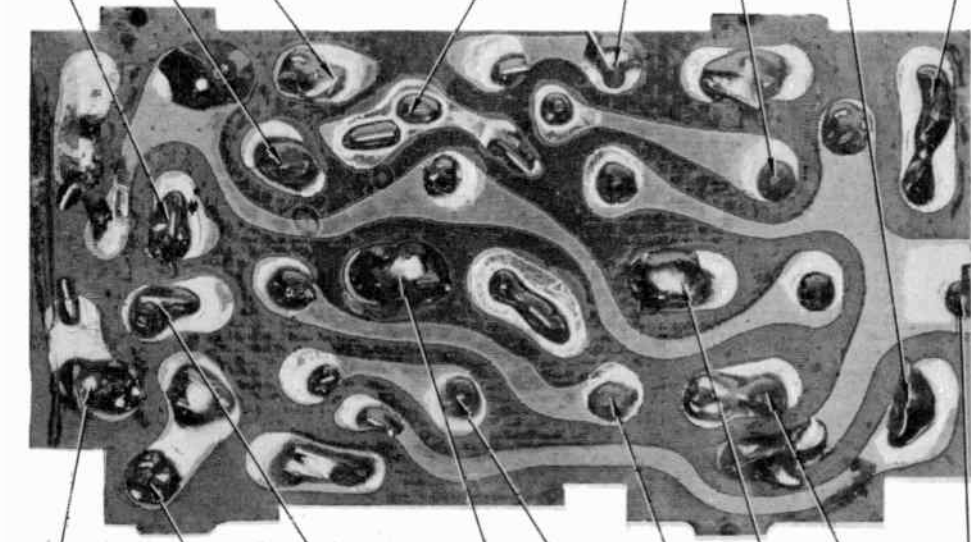


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72 89 83 88 82 87 79 80



85 78 76 90 84 77 81 86



A Howard W. Sams **CIRCUITRACE** Photo

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELOEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELOEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1		FM RF Amp	2092417-0711	GE-17	TR-22	HEP55	SK3018	ECG 108
Q2		FM Mixer	2092417-0712	GE-17	TR-22	HEP55	SK3018	ECG 108
Q3		FM Oscillator	2092417-0713	GE-17	TR-22	HEP55	SK3018	ECG 108
Q4		1st FM IF Amp	2092418-0717	GC-17	TR-22	HEP55	SK3018	ECG 108
Q5		2nd FM IF Amp	2092418-0716	GE-17	TR-22	HEP55	SK3018	ECG 108
Q6		3rd FM IF Amp	2092418-0717	GE-17	TR-22	HEP55	SK3018	ECG 108
Q7		Limiter	2092418-0716	GE-17	TR-22	HEP55	SK3018	ECG 108
Q8		MPX Switch	2092418-0718	GE-20	TR-22	HEP55	SK3018	ECG 108
Q9		AM RF Amp	2093308-0704	GE-20	TR-22	HEP54	SK3018	ECG 107
Q10		AM Converter	2093308-0725	GE-20	TR-22	HEP54	SK3018	ECG 107
Q11		AM IF Amp	2093308-0706	GE-20	TR-22	HEP54	SK3018	ECG 107
Q12		MPX Input Amp	2092609-0705	GE-10	TR-21	HEP54	SK3020	ECG 123
Q13		Bandpass Amp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q14		19KC Amp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q15		38KC Amp	2057013-0004	GE-21	TR-19	HEP51	SK3025	ECG 106
Q16		Stereo Indicator Switch	2057013-0701	GE-21	TR-19	HEP51	SK3025	ECG 106
Q17		Preamp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q18		Preamp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q19		AF Amp	2092609-0705	GE-10	TR-21	HEP54	SK3020	ECG 123
Q20		AF Amp	2057013-0004	GE-21	TR-19	HEP51	SK3025	ECG 106
Q21		Output	4080879-0001	GE-28		HEP700	SK3041	ECG 152
Q22		AF Amp	2092609-0705	GE-10	TR-21	HEP54	SK3020	ECG 123
Q23		AF Amp	2057013-0004	GE-21	TR-19	HEP51	SK3025	ECG 106
Q24		Output	4080879-0001	GE-28		HEP700	SK3041	ECG 152

LINCOLN MODEL 9FBX

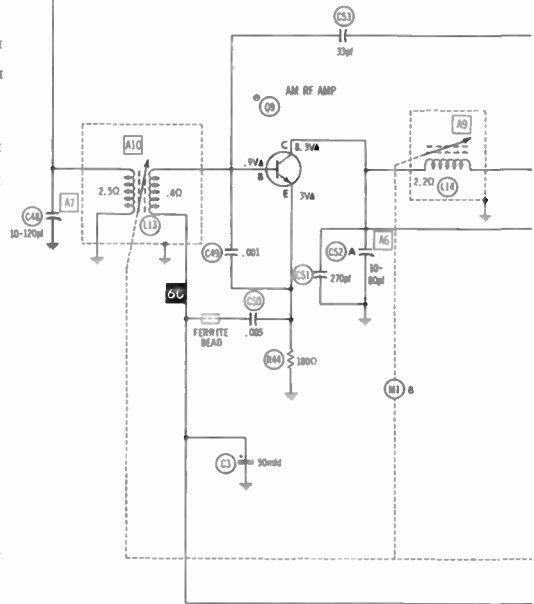
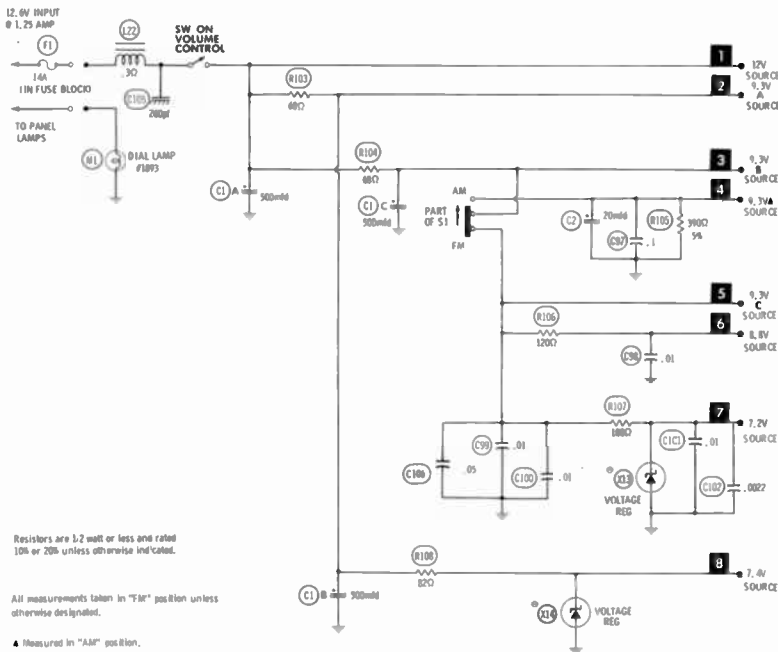
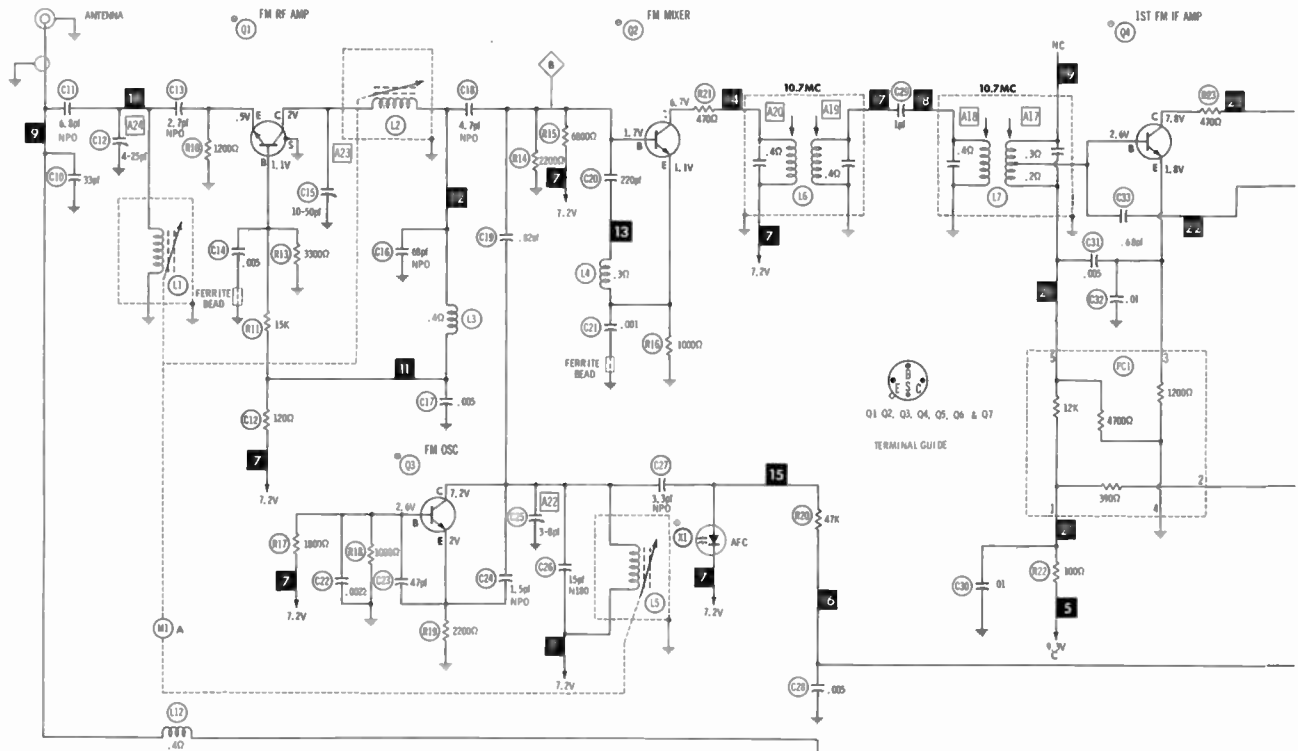
POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.		
X1	2092055-0003					Varactor
X2	2092055-0001	1N34AS	1N34A	ECG 109		
X3	2092055-0007	1N34AS	1N34A	ECG 109		
X4	2092055-0007	1N34AS	1N34A	ECG 109		
X5	2092055-0708	1N82A	1N82A	ECG 112		
X6	2092055-0001	1N34AS	1N34A	ECG 109		
X7	2092055-0001	1N34AS	1N34A	ECG 109		
X8	2092055-0001	1N34AS	1N34A	ECG 109		
X9	2092055-0001	1N34AS	1N34A	ECG 109		
X10	2092055-0001	1N34AS	1N34A	ECG 109		
X11	2092055-0001	1N34AS	1N34A	ECG 109		
X12	2092055-0001	1N34AS	1N34A	ECG 109		
X13	2092055-0710		1ZM7.5	ECG 138	Zener	
X14	2092055-0710		1ZM7.5	ECG 138		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALLAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	500 16V	2092983-0709	PWH300-95.1		CC0018A			
B	500 16V							
C	500 16V							
C2	20 16V	2090480-0718	CRE461A	EA15-25	AL25-16	MT1-10	MTA25020	TE-1157
C3A	50 8V	2092246-0710						
B	1000 6V							
C4	2 16V	2093667-0713	CRE751A	EA15-2	AL2-50	MT1-1	MTA2050	TE-1149
C5	2 16V	2093667-0713	CRE551A	EA15-2	AL2-50	MT1-1	MTA2050	TE-1149
C6	1000 6V	2090480-0719	PRS1230		WBR1000-16		TC601A	T1-1111

(CONTINUED ON PAGE 64)



Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

All measurements taken in "FM" position unless otherwise designated.

▲ Measured in "AM" position.

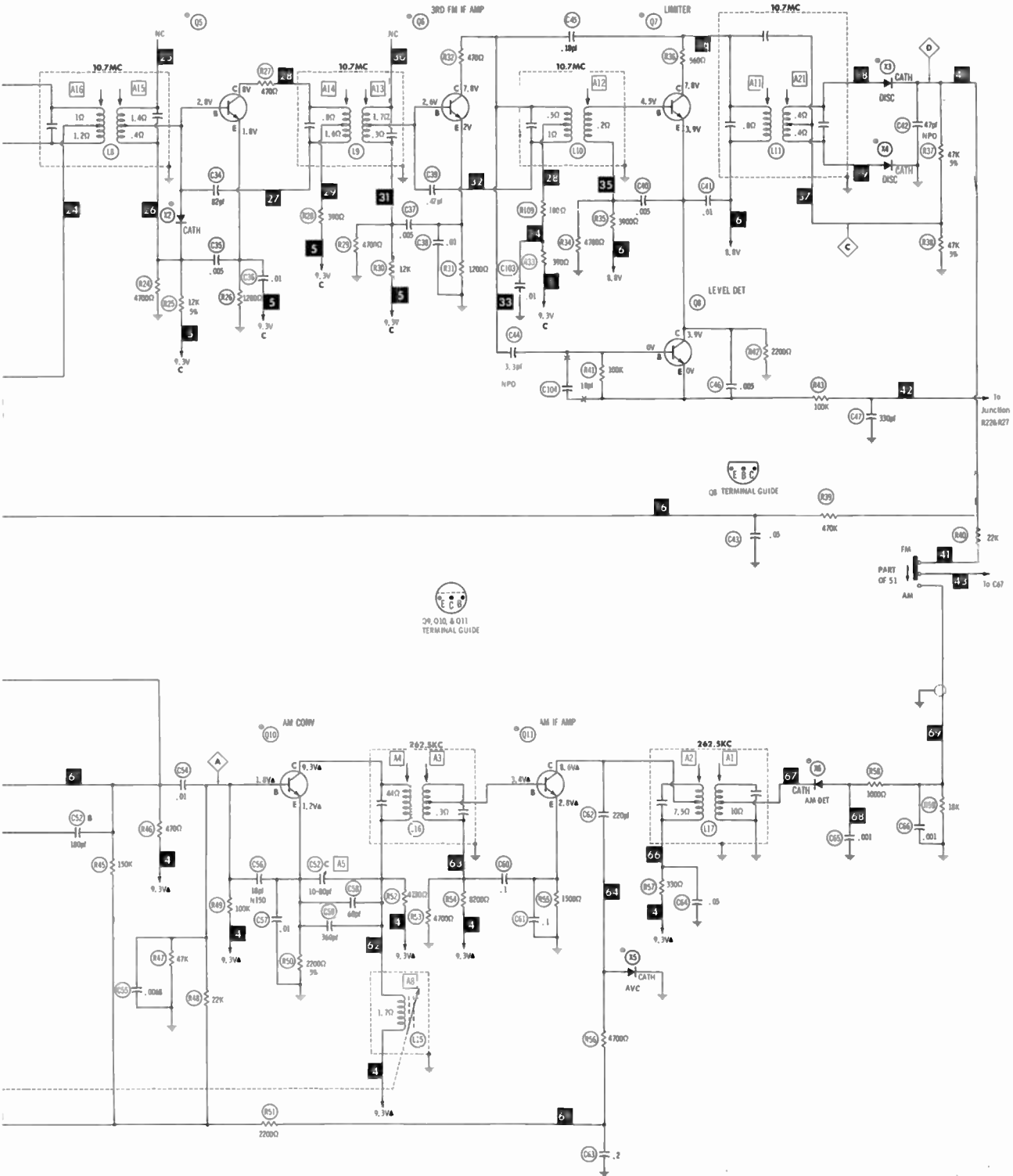
NC No Connection

⊙ See parts list

1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found on the unit.
6. Supply voltage maintained at rated value for voltage readings.
7. Resistance measurements r/f given because of the wide variation in internal resistance of transistor.

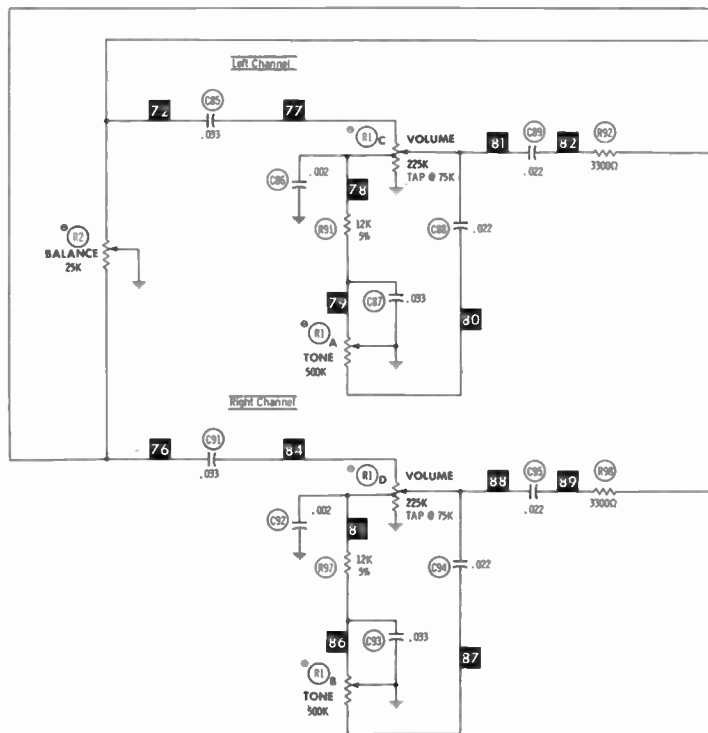
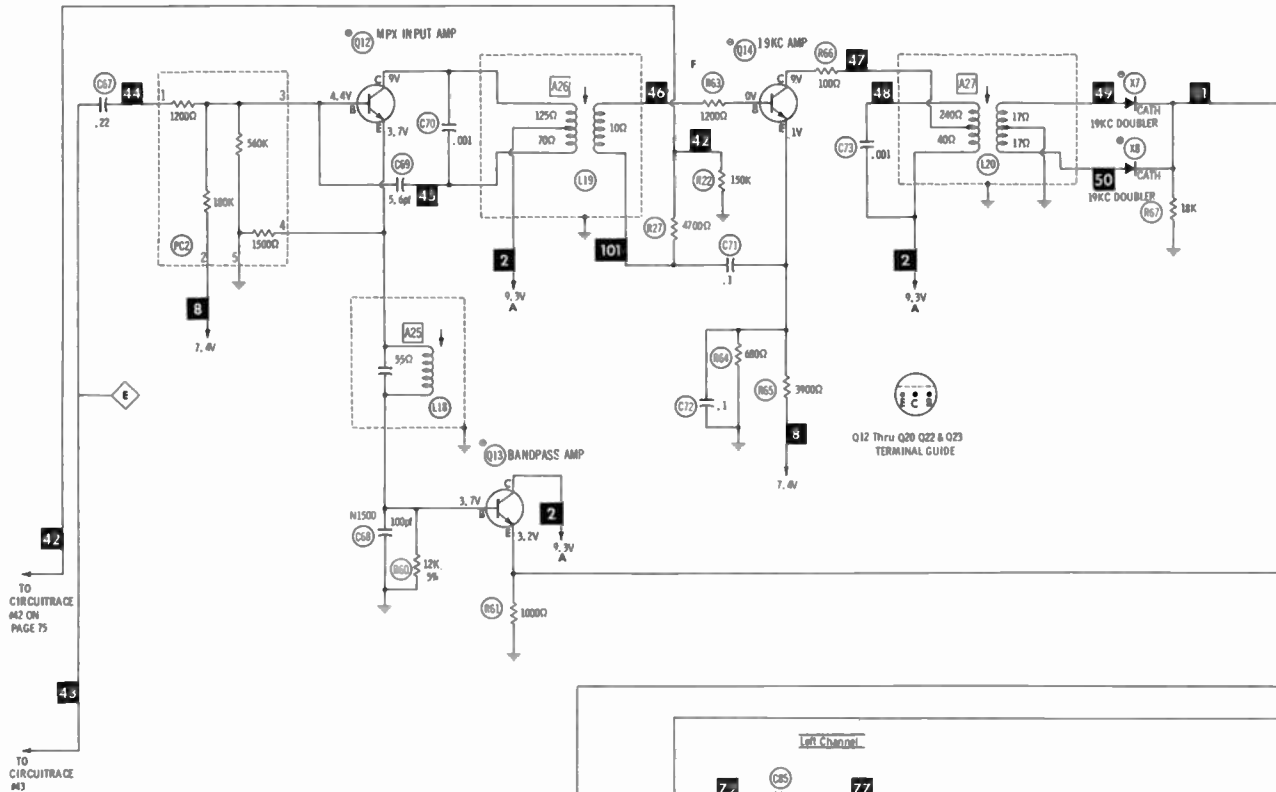
A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **Circuitrace**

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LINCOLN MODEL 9FBX

SEE PAGES 62 & 63 FOR MPX

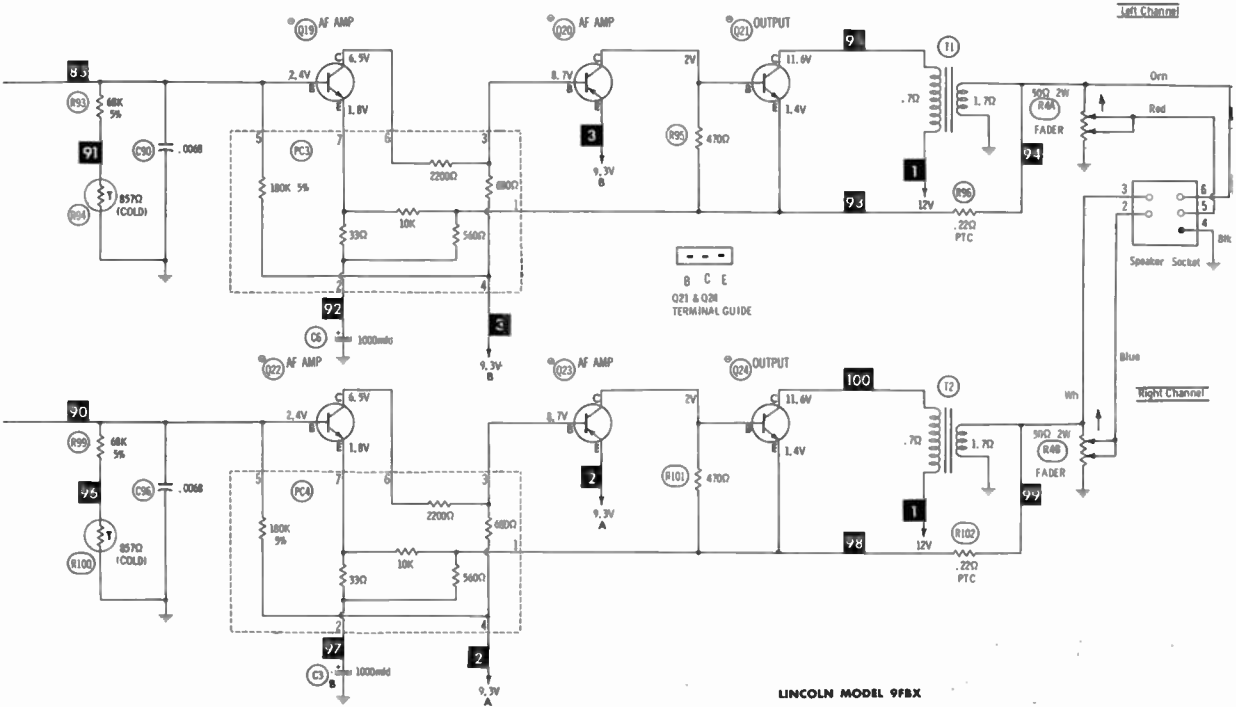
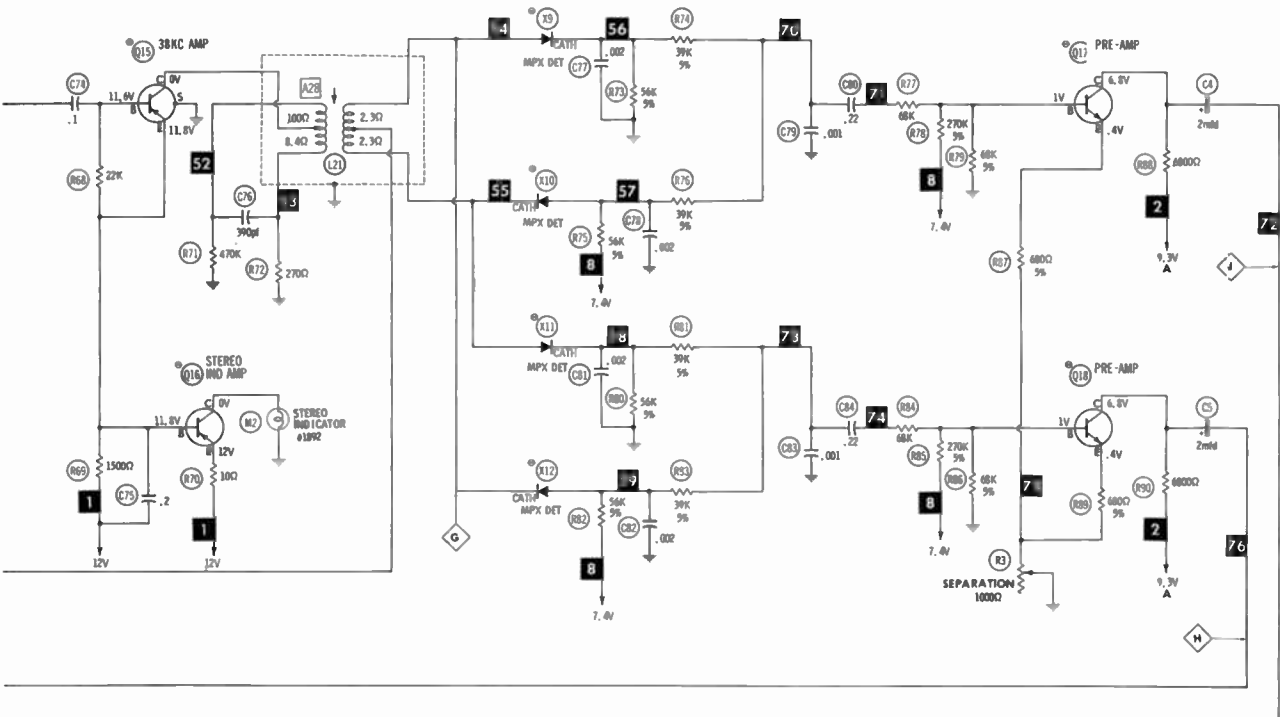


Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

- ① See parts list
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise designated.
- 5. Numbers assigned to terminals may not be found on the unit.
- 6. Supply voltage maintained at rated value for voltage readings.
- 7. Resistance measurements not given because of the wide variation in internal resistance of transistor.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **Circuitrace**
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SEE PAGES 60 & 61 FOR AM - FM



LINCOLN MODEL 9FBX

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	33		NPO-DI 33	DTZ-33	NPO33	CCT0-330	CN0433	10TCC-Q33
C11	6.8	NPO	NPO-DI 6.8	DTZ-6R8	NPO6P8		CN0568	10TCC-V68
C12	4-25		#2093115-0707					
C13	2.7	NPO	NPO-DI 3.0					10TCC-V30
C14	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C15	10-50		#2093115-0706					
C16	68	NPO	NPO-DI 68	DTZ-68	NPO68	CCT0-680	CN0468	10TCC-Q68
C17	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C18	4.7	NPO	NPO-DI 4.7	DTZ-4R7	NPO4P7		CN0547	10TCC-V47
C19	.82pf			TCZ-1			CN0510	10TCC-V10
C20	220			CPR-220J	CD15F221J500	DM-15-221	SX322	MS-322
C21	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C22	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C23	47		ADM-15-470	CPR-47J	CD15E470J500	DM-15-470	SX447	MS-447
C24	1.5	NPO	NPO-DI 1.5	DTZ-1R5	NPO1P5		CN0515	10TCC-V15
C25	3-8		#2094703-0701					
C26	15	N750	N750-DI 15	DTN-15	N15	CCTN-150	CN7415	10TCU-Q15
C27	3.3	NPO	NPO-DI 3.3	DTZ-3R3	NPO3P3		CN0533	10TCC-V33
C28	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C29	1		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C30	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C31	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C32	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C33	.68pf		#6093231-1688					
C34	.82pf			TCZ-1			CN0510	10TCC-V10
C35	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C36	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C37	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C38	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C39	.47pf		#2093231-2478					
C40	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C41	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C42	47	NPO	NPO-DI 47	DTZ-47	NPO47	CCT0-470	CN0447	10TCC-Q47
C43	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C44	3.3	NPO	NPO-DI 3.3	DTZ-3R3	NPO3P3		CN0533	10TCC-V33
C45	.18pf		#2093231-2188					
C46	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C47	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33
C48	10-120		#2093466-0709					
C49	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C50	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C51	270			CPR-270J	CD15F271J500	DM-15-271	SX327	MS-327
C52A	10-80		#2092422-0717					
B	180							
C	10-80							
C53	33		NPO-DI 33	DTZ-33	NPO33	CCT0-330	CN0433	10TCC-Q33
C54	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C55	.0068	75V	V1612D68	CPR-6800J	DPMS6D68	1DP-1-682	PVC6268	6PS-D68
C56	18	N150				*	*	10TCP-Q18
C57	.01	100V	V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C58	68	N470				*	*	10TCT-Q68
C59	330			CPR-330J	CD15F331J500	DM-15-331	SX333	MS-333
C60	.1		TTP-1	CK-104			TA010	TG-P10
C61	.1		TTP-1	CK-104			TA010	TG-P10
C62	220		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C63	.2			UK10-204			MAG12022	HV-370
C64	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C65	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C66	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C67	.22	75V	D8E6P22		OPMS4P22	4DP-5-224	PVC4022	4PS-P22
C68	100	N1500		TCL-100	HV3-100	*	CN15310	10TCW-T10
C69	5.6							10TCC-V56
C70	.001		ADM-30-102	CPR-1000J	CD19F102J500	DM-19-102	SX210	MS-21
C71	.1		TTP-1	CK-104			TA010	TG-P10
C72	.1		TTP-1	CK-104			TA010	TG-P10
C73	.001		ADM-20-120	CPR-1000J	CD19F102J500	DM-19-102	SX210	MS-21
C74	.1	75V	D8E2P1		OPMS2P1	1DP-2-104	PVC101	225P10491WD3
C75	.2			UK10-204			MAG12022	HY-370
C76	390		ADM-15-391	CPR-390J	CD15J391J500	DM-15-391	SX339	MS-339
C77	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C78	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C79	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C80	.22	75V	D8E6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C81	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C82	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C83	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C84	.22	75V	D8E6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C85	.033	75V	D8E6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C86	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C87	.033	75V	D8E6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C88	.022	75V	V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C89	.1		TTP-1	CK-104			TA010	TG-P10
C90	.0068		GPD X5R682K	DD-682		CCD-682	JF268	10TS-D68
C91	.033	75V	D8E6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C92	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	2SS-D20
C93	.033	75V	D8E6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

CAPACITORS(cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C94	.022 75V		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C95	.1		TTP-1	CK-104			TA010	TG-P10
C96	.0068		GPD X5R682K	DD-682		CCD-682	JF268	10TS-968
C97	.1 75V		DBE2P1		DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C98	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C99	.01 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C100	.01 100V		V1612S1	CPR-10000J	OPMS6S1	1DP-1-103	PVC211	225P10391WD3
C101	.01 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C102	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C103	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C104	18 N150					*	*	10TCP-Q18
C105	260	#2093050-0710						
C106	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Bendix Part Number

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	500K	2057638-0701				
B	Tone	500K					
C	Volume	225K Tap @ 75K					
D	Volume	225K Tap @ 75K					
R2	Balance	25K	2057495-0701				
R3A	Fader	50	2057448-0701				
B	Fader	2 Watt 50					
R4	Separation	2 Watt 1000	219555-0015 (0C219555-15)	WF-1K or V-1000	U39-1000	112-1000 or 117R102A	MR1000F

LINCOLN MODEL 9FBX

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.
R94	857 (Cold)		220629-0021
R96	.22 (PTC)		2090948-0020

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.
R100	857 (Cold)		220629-0021
R101	.22 (PTC)		2090948-0020

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	FM Antenna	(1)			
L2	FM RF	(1)			
L3	RF Choke (2uh)	2092210-0007	19-1002	74F226AP	TA812
L4	10.7MC Trap (1uh)	2092210-0005	19-1000	4602	T855
L5	FM Oscillator	(1)			
L6	FM Input IF	2057713-0701			
L7	FM Interstage IF	2057713-0702			
L8	FM Interstage IF	2057713-0703			
L9	FM Interstage IF	2057713-0704			
L10	FM Interstage IF	2057713-0705			
L11	Discriminator	2057714-0701			
L12	RF Choke (2uh)	2092210-0007	19-1002	74F226AP	TA812
L13	AM Antenna	(1)			
L14	AM RF	(1)			
L15	AM Oscillator	(1)			
L16	AM Input IF	2057715-0701			
L17	AM Output IF	2057715-0702			
L18	75KC Trap	2057742-0701			
L19	19KC	2057742-0702			
L20	19KC	2057742-0703			
L21	38KC	2057742-0704			

(1) Part of M1.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
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FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L22	1.25 Amp	.3	1.5mh	4080072-0505					

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	17	8	2092823-0704					
T2	17	8	2092823-0704					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
				Obtain from Ford Dealer

FUSE DEVICES

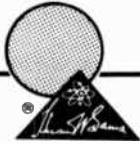
ITEM No.	DESCRIPTION	REPLACEMENT DATA						WORKMAN PART No.
		PART No.		BUSS PART No.		LITTELFUSE PART No.		
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	
F1	SFE 14		In Fuse Block	SFE14		307014		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	2094851-0510	GIC
	Coil Assembly	2090131-0107	
	Tuner	2094851-0529	TRW
	Coil Assembly	2090131-0111	
PC1	FM IF Network	2057721-0702	
PC2	MPX Input Network	2057719-0701	
PC3	AF Amp Network	2057720-0701	
PC4	AF Amp Network	2057720-0701	
S1	Switch, Selector	2092719-0710	GIC
		2092719-0711	TRW

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Escutcheon	4080200-0508	Dial Pointer (TRW)	2090129-0115
Stereo Indicator Lens	2093760-0004	Knob, Tuning or Volume	4080899-0001
Push Button Indicator Lens		Knob, Tone or Fader	4080051-0701
Dial Pointer (GIC)	2090129-0111	Knob, Balance	4080317-0501



PHOTOFACT[®] with CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

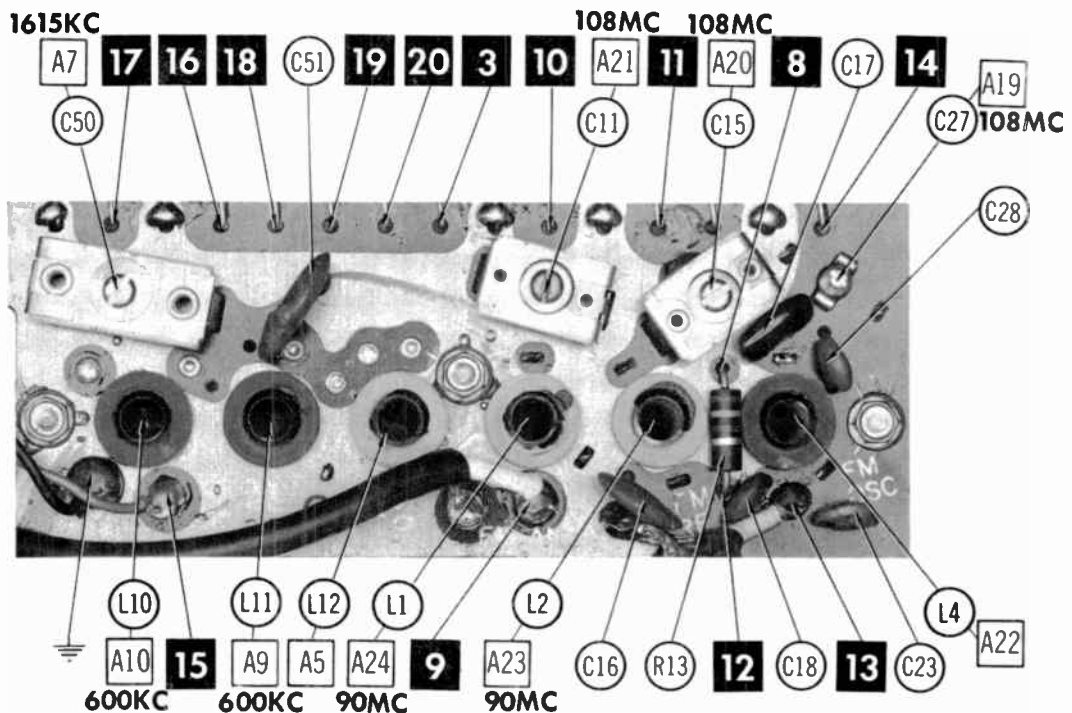
NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO.



MODEL 03BFM1

OLDSMOBILE MODELS 03AFM1
 (70 F-85)
 03BFM1
 (70 Olds)
 03EFM1
 (70 Toronado)

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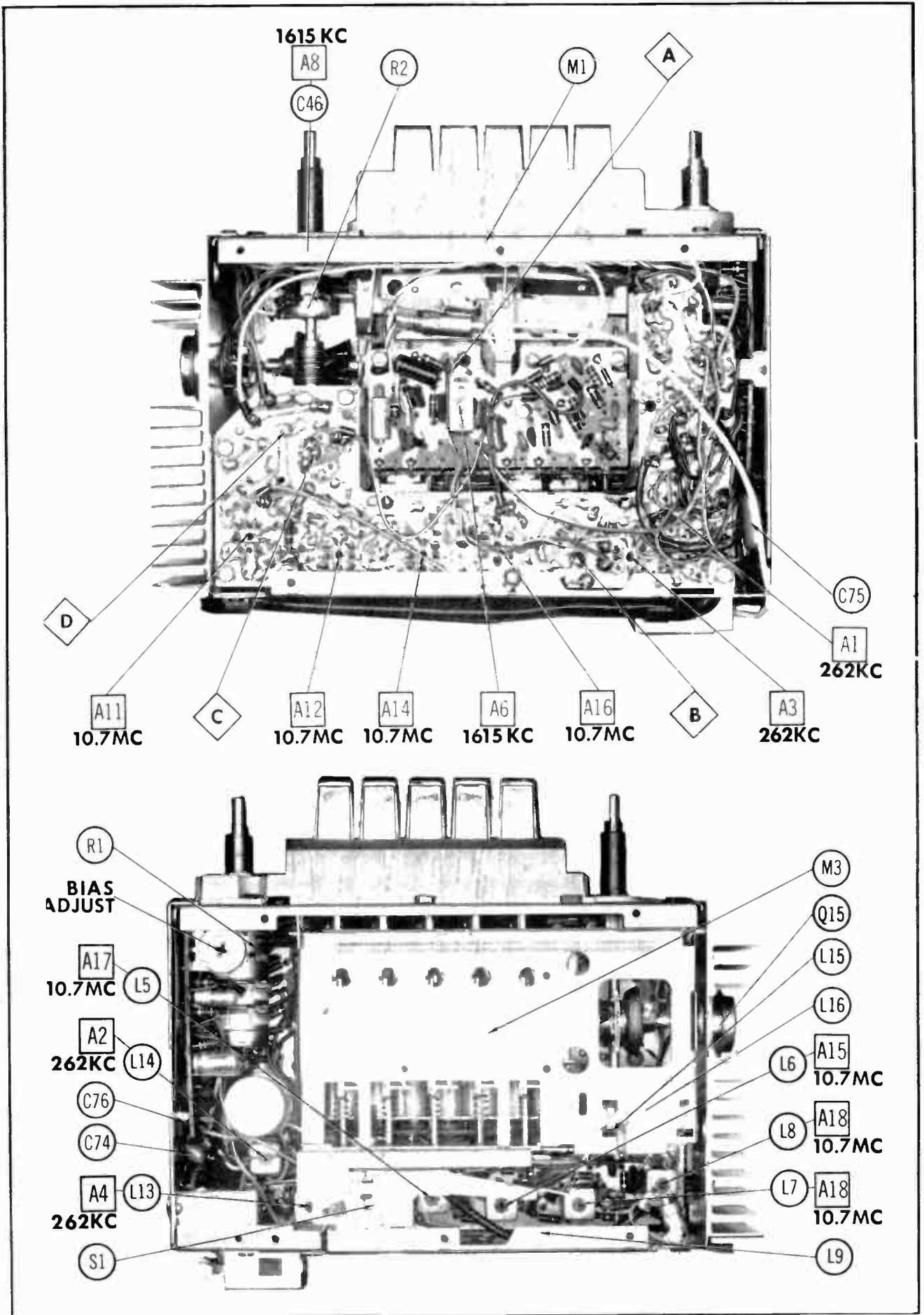


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TD771R



ALIGNMENT INSTRUCTIONS

Check for specified source voltage.
Use only enough generator output
to provide a usable indication.
Suggested Alignment Tools:

GENERAL CEMENT WALSCO

A1 thru A4, A11 thru A18...#9296,9297,9300...#2510,2546,2547
A6,A7,A8,A20,A21,A22#8290,8868,9087...#2525,2528,2587

PUSH-BUTTON ADJUSTMENT

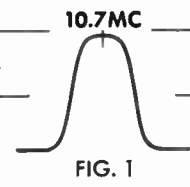
1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. High side thru .1mfd to point $\diamond A$, low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
Check setting of oscillator coil core (A5). Rear of core should be 1 3/8" from mounting end of coil form.					
2. High side thru 82pf to antenna input, low side to ground.	1615KC	High freq. end stop.	Output meter across voice coil.	A6,A7, A8	Adjust for maximum.
3. " "	600KC	600KC signal	"	A9,A10	Adjust for maximum. Repeat Step 2.
With radio installed in car and antenna extended to 31", tune in a weak station near 1400KC and adjust A8 for maximum output. Antenna adjustment (A8) is located behind Tuning & Dummy Knob.					

FM IF ALIGNMENT USING AM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point $\diamond B$, low side to ground.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
4. 10.7MC Unmodulated	Point of non-interference	DC probe of VTVM to point $\diamond C$, common to ground.	A11 thru A17	Adjust for maximum.
5. " "	" "	DC probe of VTVM to point $\diamond D$, common to ground.	A18	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.



FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

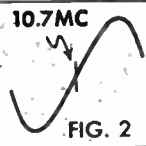
High side of generator thru .001mfd to point $\diamond B$, low side to ground. Use only enough marker signal for indication. Use 60 cycle frequency modulated signal with 450KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
4. 10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\diamond C$, low side to ground.	A11 thru A17	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C4.
5. " "	" "	Vert. amp of scope to point $\diamond D$, low side to ground.	A18	Adjust A 18 (secondary) to place marker at center of "S" curve similar to Fig. 2. Readjust A (primary) for maximum amplitude and straightness of line.

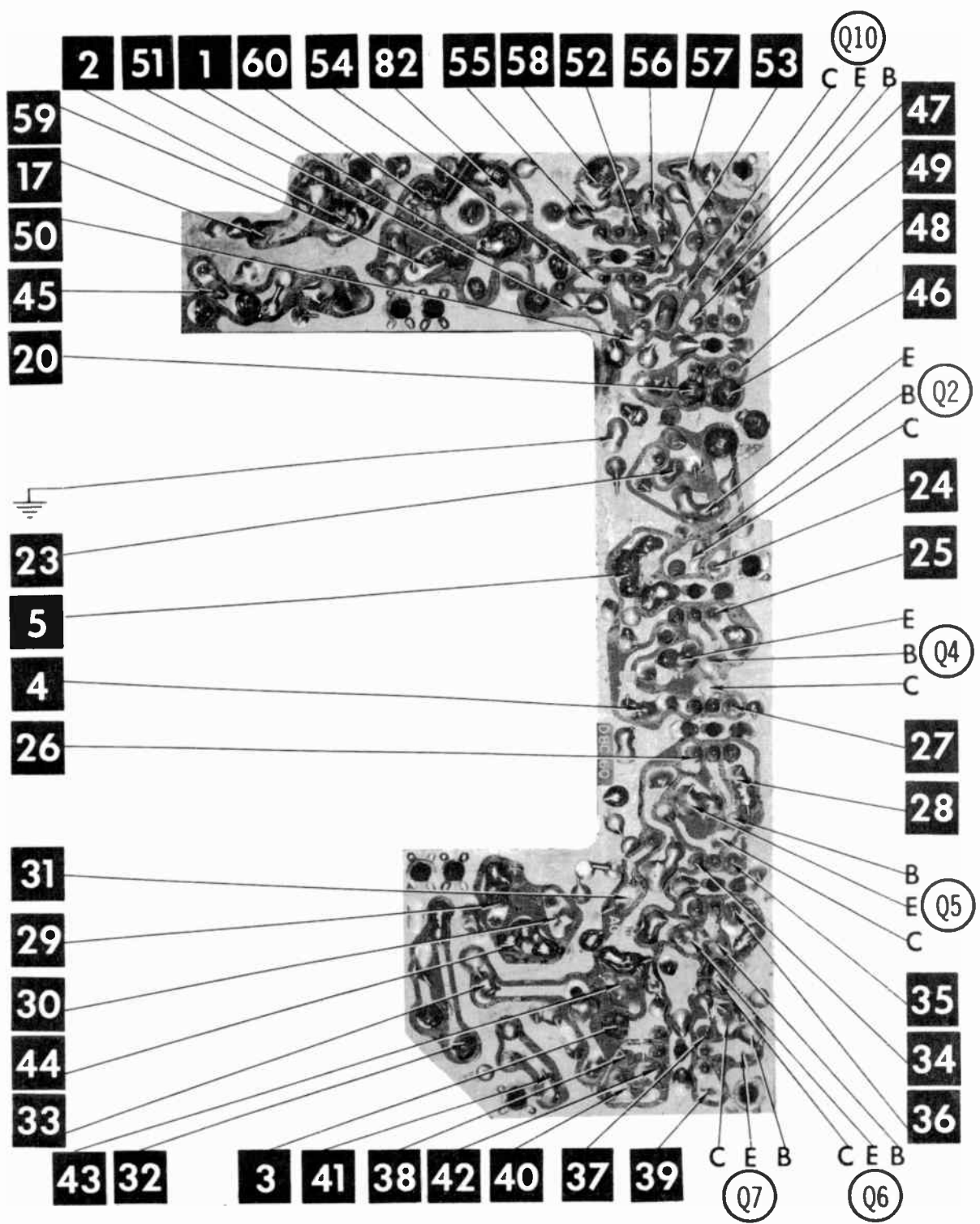
FM RF ALIGNMENT—SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. NOTE:Rear of Osc.Core(A22) should be 1 3/8". from mounting end of Coil form.

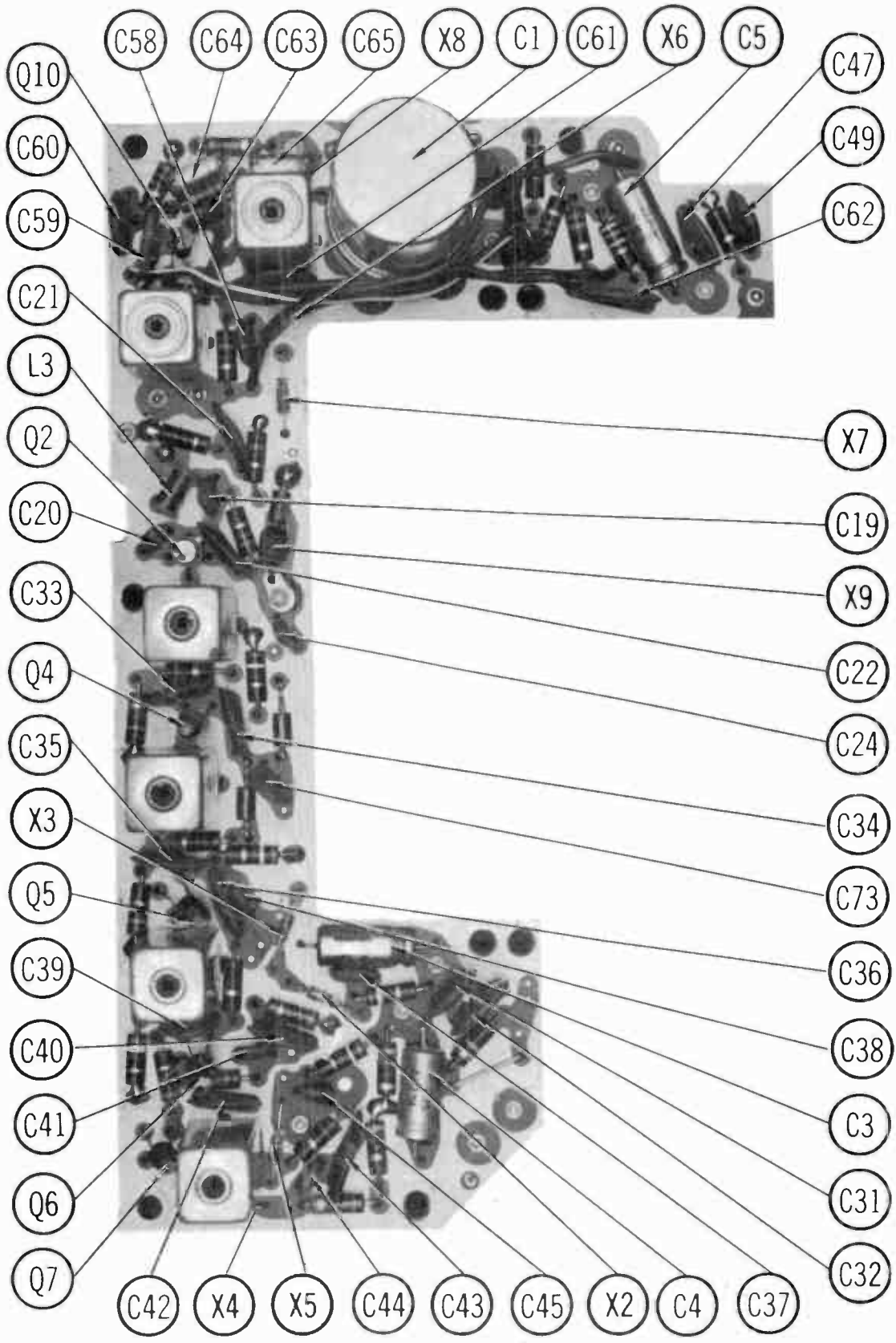
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
6. 108MC	High freq. end	DC probe of VTVM to point $\diamond C$, common to ground.	A19,A20, A21	Adjust for maximum.
7. 90MC Unmodulated	Tune to signal.	"	A23,A24	Rock tuning and adjust for maximum. Repeat steps 6 and 7 until no further improvement can be made.



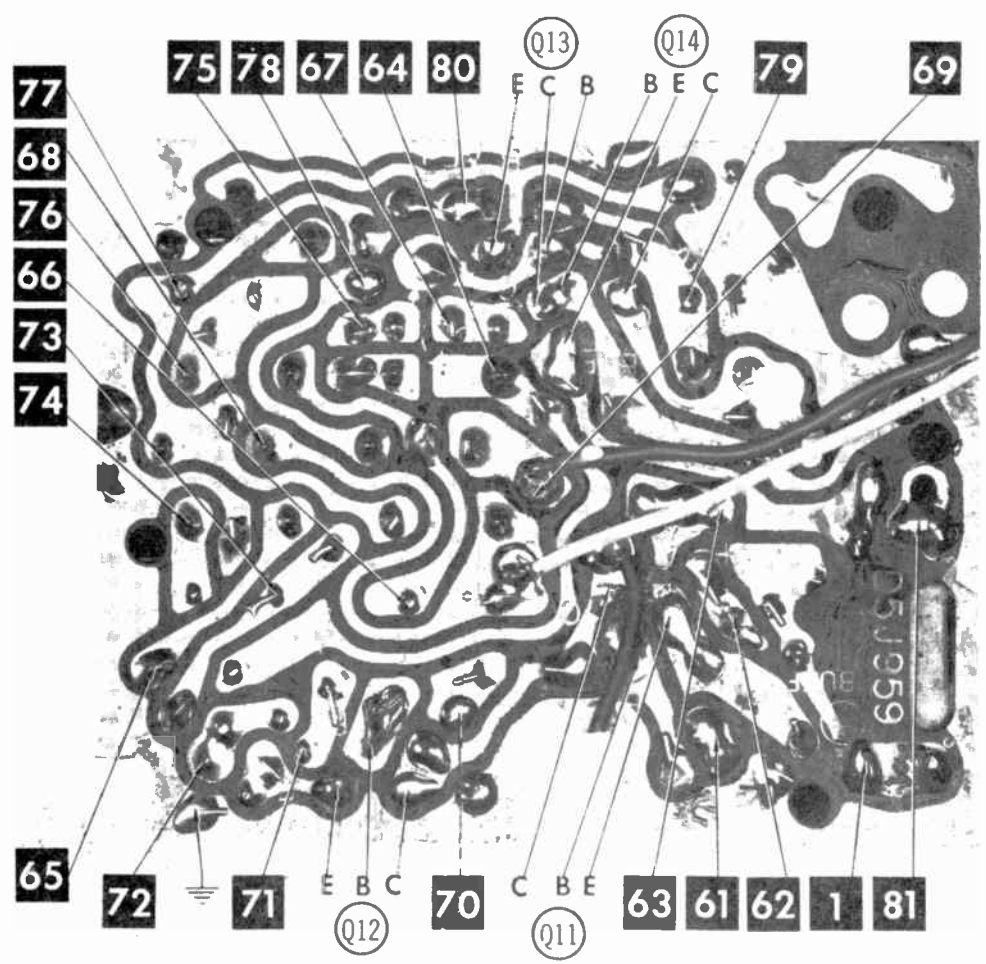
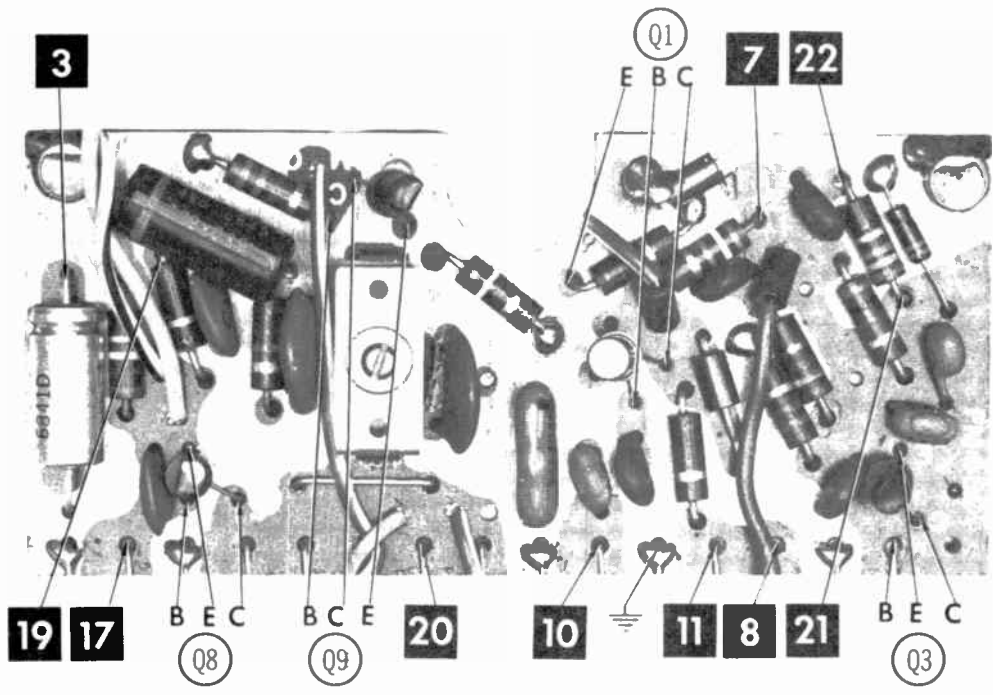
OLDSMOBILE MODELS 03AFM1/BFM1/EFM1



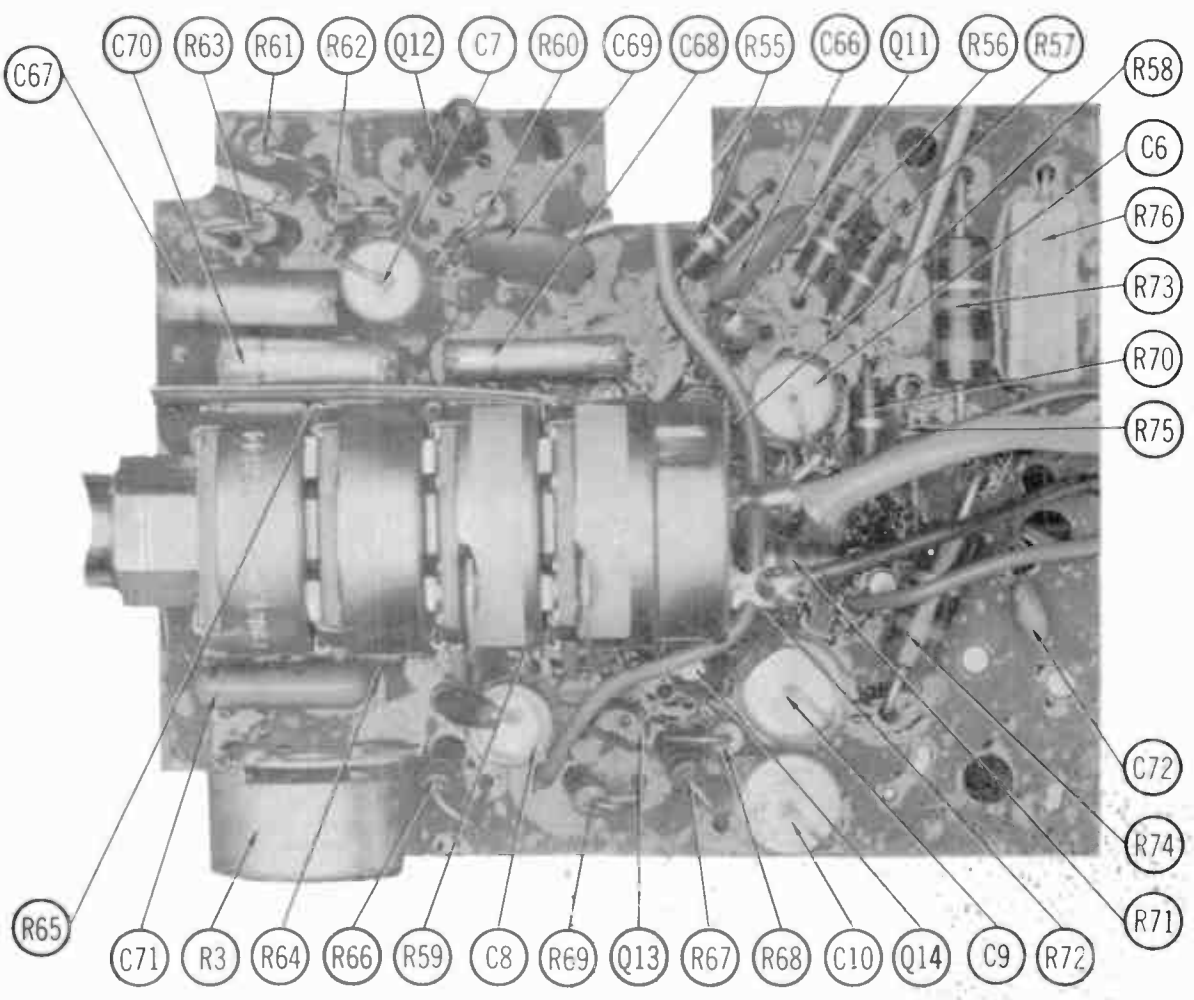
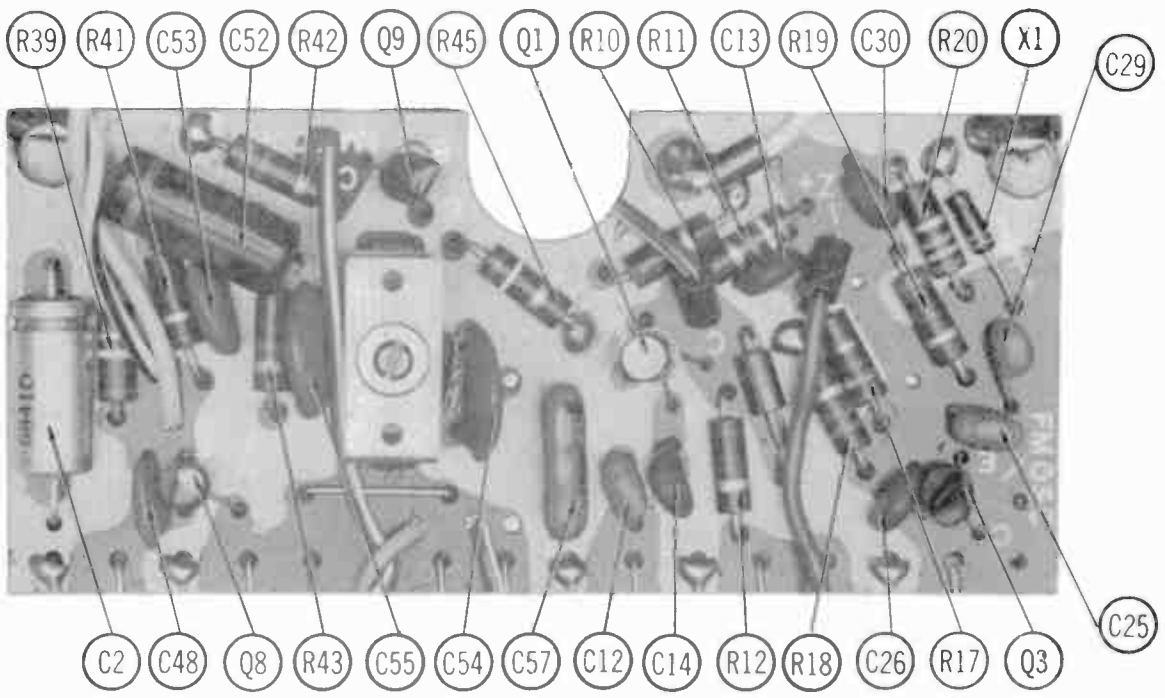
A Howard W. Sams **CIRCUITRACE** Photo

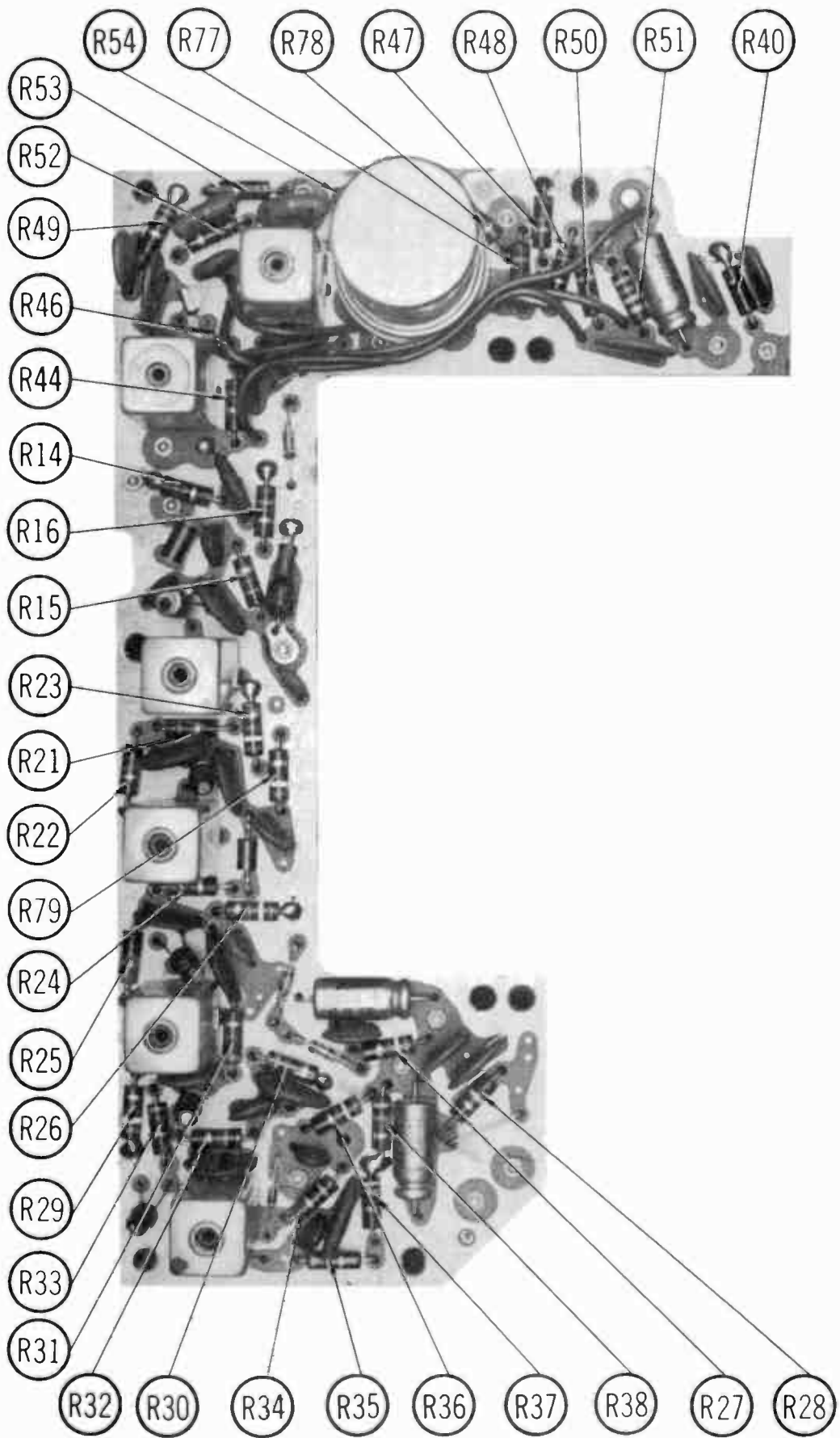


OLDSMOBILE MODELS 03AFM1 /BFM1 /EFM1



A Howard W. Sams **CIRCUITRACE** Photo





PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	DS-78	FM RF Amp	DS-81	GE-17	TR-22	HEP50	SK3018	ECG 108
Q2	DS-78	FM Mixer	DS-81	GE-17	TR-22	HEP50	SK3018	ECG 108
Q3	DS-74	FM Oscillator	DS-74	GE-11	TR-21	HEP56	SK3018	ECG 108
Q4	DS-85	1st FM IF Amp	DS-74	GE-17	TR-21	HEP53	SK3018	ECG 108
Q5	DS-85	2nd FM IF Amp	DS-74	GE-17	TR-21	HEP53	SK3018	ECG 108
Q6	DS-73	3rd FM IF Amp	DS-74	GE-17	TR-21	HEP53	SK3018	ECG 108
Q7	DS-85	Limiter	DS-74	GE-17	TR-21	HEP53	SK3018	ECG 108
Q8	DS-71	AM RF Amp	DS-71	GE-20	TR-21	HEP53	SK3018	ECG 108
Q9	DS-72	AM Converter	DS-72	GE-20	TR-21	HEP53	SK3018	ECG 108
Q10	DS-72	AM IF Amp	DS-72	GE-20	TR-21	HEP53	SK3018	ECG 108
Q11	DS-76	Preamp	DS-66	GE-10	TR-21	HEP53	SK3020	ECG 123
Q12	DS-76	Preamp	DS-66	GE-10	TR-21	HEP53	SK3020	ECG 123
Q13	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q14	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q15	DS-501	Outout (1)	DS-501	GE-4	TR-03	HEP233	SK3012	ECG '05

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

POWER RECTIFIERS & SIGNAL DIODES

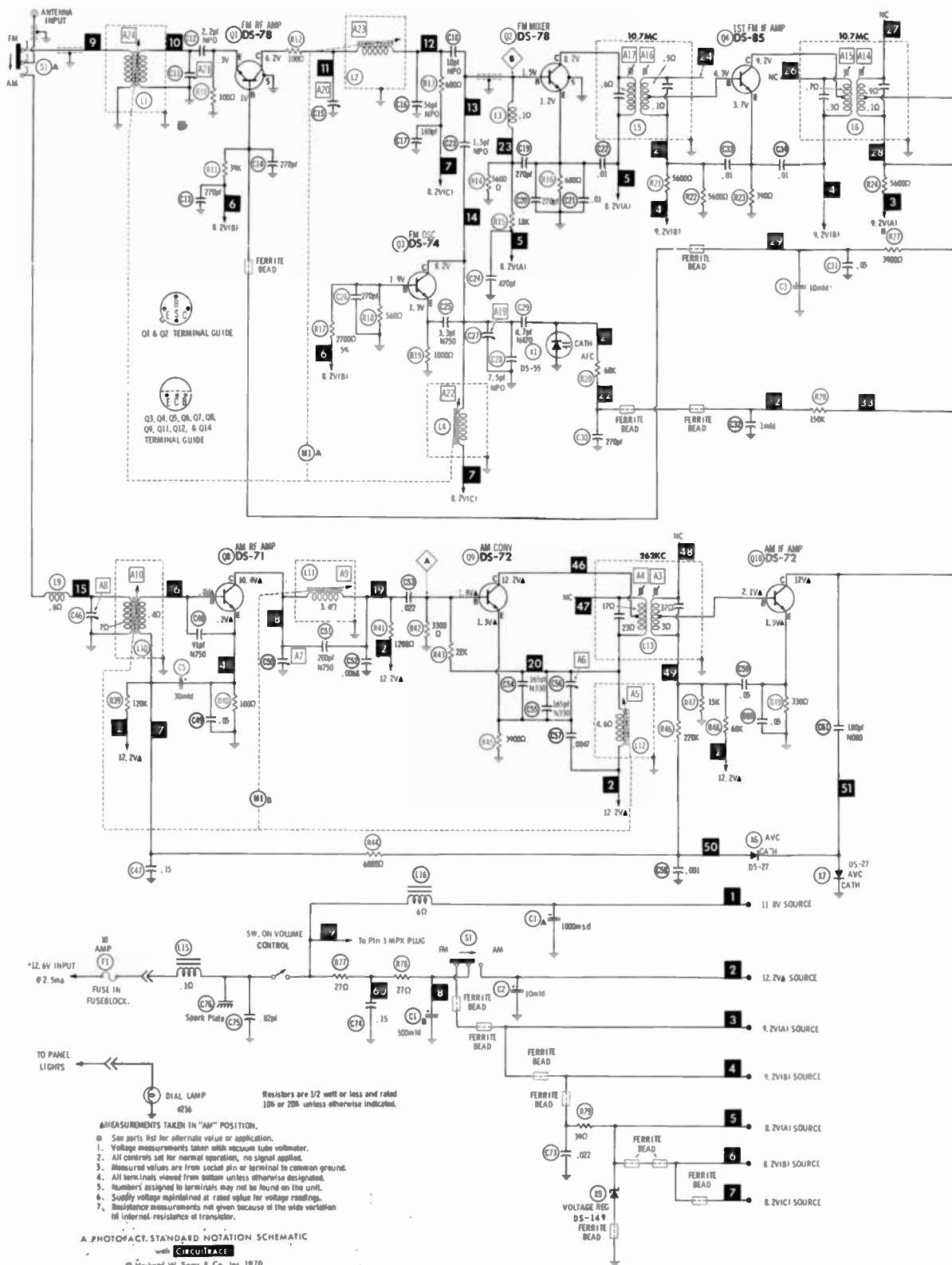
ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	DS-55					Varactor
X2	DS-27	1N34AS	1N34A	ECG 109		
X3	DS-27	1N34AS	1N34A	ECG 109		
X4	DS-39	1N60				
	*		1N542*	ECG 110*		* Matched Pair.
X5	DS-39	1N60				
X6	DS-27	1N34AS	1N34A	ECG 109		
X7	DS-27	1N34AS	1N34A	ECG 109		
X8	DS-27	1N34AS	1N34A	ECG 109		
X9	DS-149	GE-X11	1ZM 8.2			Zener

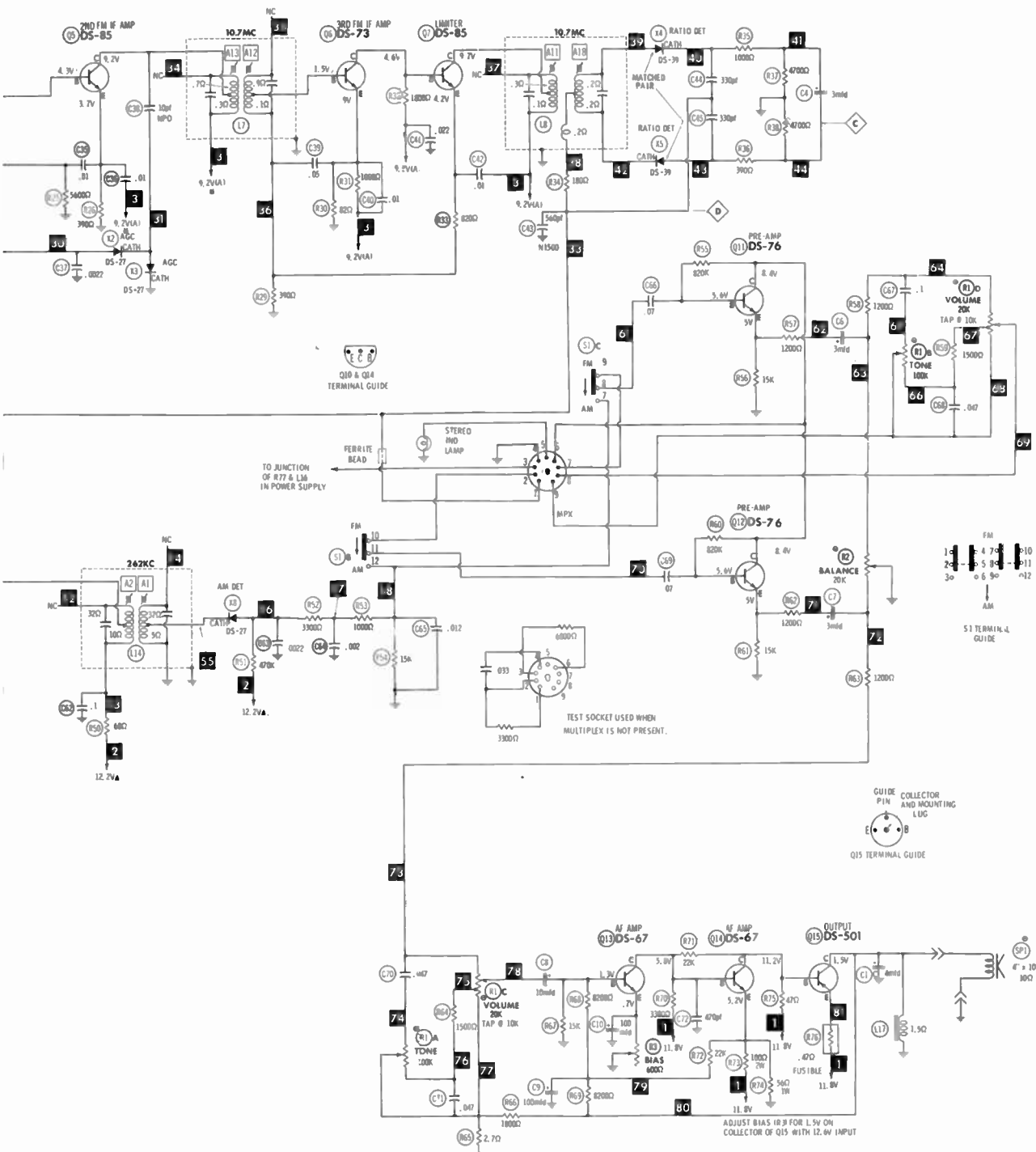
ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1a	1000 16V	7283675	AFH3-54-41		CC0006			PCL-3021.8
b	500 16V							
c	4 11.5Vrms							
C2	10 12V	7292738	PTT114	EA15-10	AL10-25	MT1-5	MTA10D35	TL-1128
C3	10 12V	7292738	PTT114	EA15-10	AL10-25	MT1-5	MTA10D25	TL-1128
C4	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C5	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C6	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C7	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C8	10 12	7292738	PTT114	EA15-10	AL10-25	MT1-5	MTA10D35	TL-1128
C9	100 4V	7291810	PTT30	EA6-100	AL100-16	MT1-21	MTA100E10	TE-1102
C10	100 4V	7291810	PTT30	EA6-100	AL100-16	MT1-21	MTA100E10	TE-1102

(CONTINUED ON PAGE 78)

OLDSMOBILE MODELS 03AFM1/BFM1/EFM1





OLDSMOBILE MODELS 03AFM1/BFM1/EFM1

SEE PAGES 86 & 87 FOR MPX

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

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Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C11		#7293221							
C12	2.2 NPO		NPO-DI 2.2	DTZ-2R2	NP02P2		CN0522	10TCC-V22	
C13	270		GPD X5F271K	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27	
C14	270		GPD X5F271K	DD-271	RR05CW271C	CCD-271	GP327	5GA-T27	
C15		#7291003							
C16	56 NPO			TCZ-56		CCTO-560	CN0456	10TCC-Q56	
C17	180		ADM-10-181	CPR-180J	CD15FD181J03	DM-10-181	SX318	MS-318	
C18	10 NPO		NPO-DI 10	DTZ-10	NP010	CCTO-100	CN0410	10TCC-Q10	
C19	270		GPD X5F271K	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27	
C20	270		GPD X5F271K	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27	
C21	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C22	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C23	1.5 NPO		NPO-DI 1.5	DTZ-1R5	NP01P5		CN0515	10TCC-V15	
C24	470		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47	
C25	3.3 N750			TCN-3R3			CN7533	10TCU-V33	
C26	270		GPD X5F271K	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27	
C27		#7292611							
C28	7.5 NPO	#7300236				*	*	10TCT-V47	
C29	4.7 N470								
b30	270		GPD X5F271K	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27	
C31	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TG-S50	
C32	1mfd			UK-105	HXC3R0XR105P		MAG31	HY-135	
C33	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C34	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C35	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C36	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C37	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22	
C38	10 NPO		NPO-DI 10	DTZ-10	NP010	CCTO-100	CN0410	10TCC-Q10	
C39	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C40	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C41	.022		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20	
C42	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10	
C43	560 N1500					*	*	10TCW-T56	
C44	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33	
C45	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33	
C46		#7283618							
C47	.15		TTP-1	CK-104			TA010	TG-P10	
C48	91 N750			TCN-91					
C49	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C50		#7312933							
C51	200 N750		N750-D1 200	DTN-200		CCTN-201	CN7320	10TCU-T20	
C52	.0068 75V		DBE6D68	CPR-6800J	WMF1D68	1DP-1-682	PVC4268	6PS-D68	
C53	.022		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20	
C54	165 N330					*	*		
C55	165 N330					*	*		
C56		#7295192							
C57	.0047 75V		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50	
C58	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10	
C59	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C60	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C61	180 N80					*	*	10TCN-T18	
C62	.1		TTP-1	CK-104			TA010	TG-P10	
C63	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10	
C64	.012 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3	
C65	.012 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3	
C66	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C67	.047 75V		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3	
C68	.15 75V	(1)	DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15	
C69	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50	
C70	.047 75V		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391WD3	
C71	.15 75V	(1)	DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15	
C72	470		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47	
C73	.022		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20	
C74	.15 75V		DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15	
C75	.15 75V	(2)	DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15	
C76		#7271564							

DELCO Part Number.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

(1) .3mfd used in Models O2AFM1, O2FFM1.

(2) .47mfd used in Models O2AFM1, O2FFM1.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFRG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone, Left	100K	7303170 (1)				
B	Tone, Right	100K					
C	Volume, Left	20K Tap @ 12K					
D	Volume/, Right Switch	20K Tap @ 12K					
A	Tone	100K	7310846 (2)				

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed) (cont)

ITEM No.	FUNCTION	RESIST- ANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
8 C	Tone Volume	100K 20K Tap @ 12K	7303832 (3)				
D	Volume/Switch	100K Tap @ 12K					
A 8 C	Tone Tone Volume	100K 100K 20K Tap @ 12K					
D	Volume/Switch	20K Tap @ 12K					
R2	Balance	20K	7303161 (1)	WP-600 or V-600	U39-600	110-600	MR600P
	Balance	20K	7310804 (2)				
	Balance	20K	7313834 (3)				
R3	Bias	600 2 Watt	7294878				

- (1) Used in Model 038FM1.
(2) Used in Model 03AFM1.
(3) Used in Model 03EFM1.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.
R76	.47 (Fusible)		7281890

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	FM Antenna	(1)	19-1000	4602	T855
L2	FM RF	(1)			
L3	10.7MC Trap (1hh)	7296856			
L4	FM Oscillator				
L5	FM Input IF	7296100	19-1009	4611	T822
L6	FM Interstage IF	7296101			
L7	FM Interstage IF	7296102			
L8	Ratio Detector	7299984			
L9	RF Choke (8uh)	7255738		8006	
L10	AM Antenna	(1)			
L11	AM RF	(1)			
L12	AM Oscillator	(1)			
L13	AM Input IF	7295169			
L14	AM Output IF	7295170			

- (1) Part of M1.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L15	2.5 Amp	.1	300	7302543	C-4095	TC-2	TR-154	TY17XT	
L16	2 Amp	.6		1221623					

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

CHOKE (Audio Output)

ITEM No.	INDUCTANCE	REPLACEMENT DATA					NOTES
		PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L17	30mh	1222297					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP1	4" x 10" PM 10 ohms	7311413		Front, Olds., F-85 Front, Toronado Rear, Olds., F-85, Toronado Rear, F-85 Station Wagon
	4" x 10" PM 10 ohms	7289969	410A2Z10	
SP2	6" x 9" PM 10 ohms	7301803	69A1Z10	
	4" x 10" PM 10 ohms	7303361	410A2Z10	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1 S1	Tuner Coil Assembly Switch, Selector Lamp, Dial Indicator, Stereo	1222504 7292199 7296866	#216

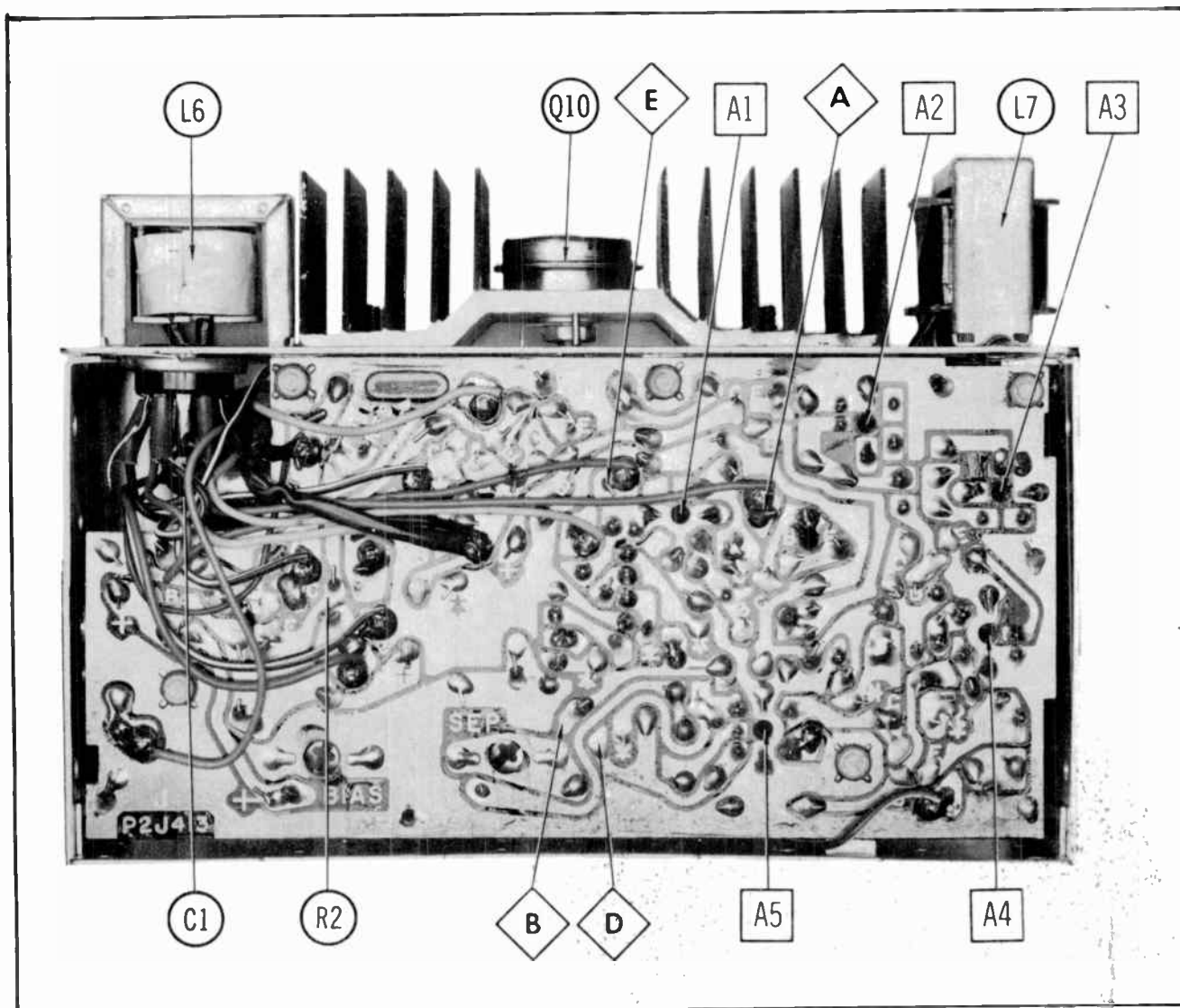
CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	MODEL	PART No.	ITEM	MODEL	PART No.
Escutcheon	03AFM1	7311635	Dial Pointer	03EFM1	7293355
Escutcheon	03BFM1	7304546	Push Button	03AFM1/03BFM1	7310421
Escutcheon	03EFM1	7303837	Push Button	03EFM1	7304492
Dial Glass	03AFM1	7310893	Knob, Tuning or Volume	03AFM1	405113
Dial Glass	03BFM1	7299262	Knob, Tuning or Volume	03BFM1/03EFM1	402071
Dial Glass	03EFM1	7300685	Knob, Tone	03AFM1	404889
Dial Drum	03AFM1	7312580	Knob, Tone	03BFM1/03EFM1	402072
Dial Pointer	03AFM1	7311633	Knob, Balance	03AFM1	404890
Dial Pointer	03BFM1	7299317	Knob, Balance	03BFM1/03EFM1	402073

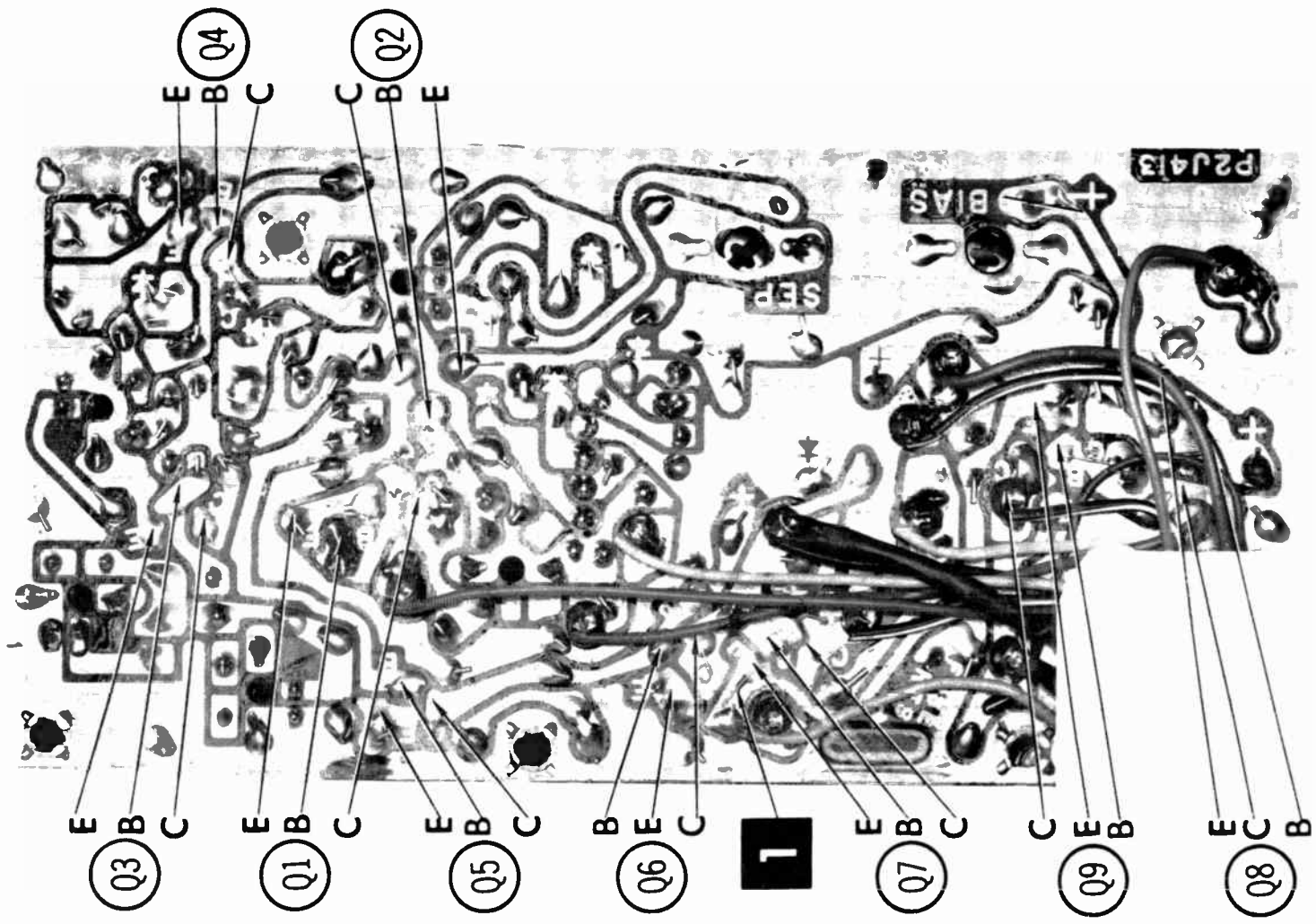
ALIGNMENT INSTRUCTIONS

FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ($\pm .0001\%$ ACCURACY)

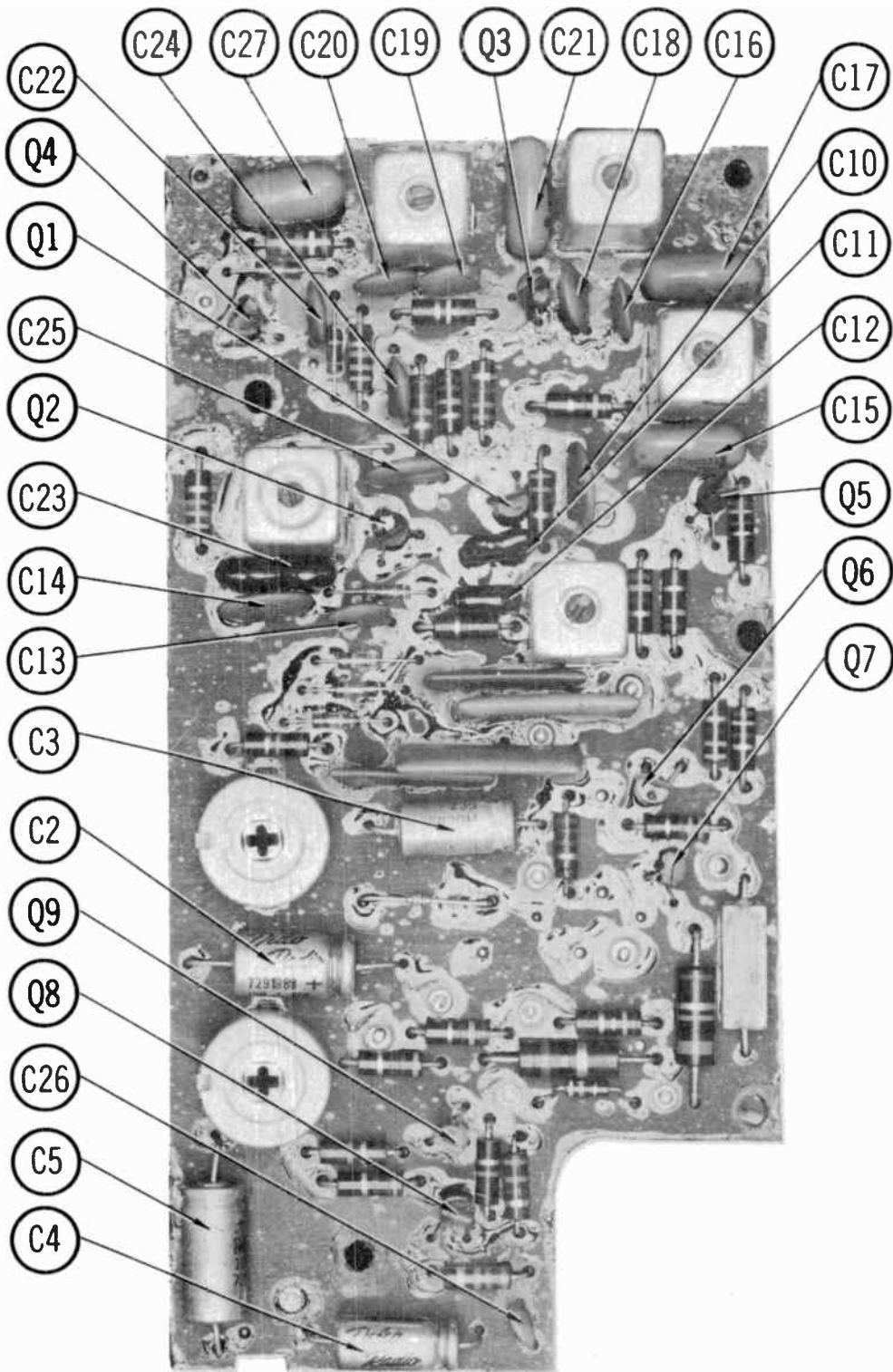
High side of generator thru 47K to point $\diamond A$, low side to ground.			
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
1. 67KC	Vert. amp of scope thru 47K to point $\diamond B$, low side to ground.	A1	Adjust for MINIMUM
2. 19KC	Vert. amp of scope thru 47K to point $\diamond C$, low side to ground.	A2, A3 A4	Adjust for maximum.
3. "	Vert. amp of scope thru 47K to point $\diamond D$, low side to ground.	A5	Adjust for maximum 38KC response.
4. Modulated Left Channel	Vert. amp of scope to point $\diamond E$, low side to ground.	A2, A3, A4, A5, & R3	Adjust for MINIMUM. This step should require only slight adjustment.
5. Modulated Right Channel	Vert. amp of scope to point $\diamond F$, low side to ground		Check for MINIMUM. If necessary make compromise adjustment of A2, A3, A4, A5 & R3.



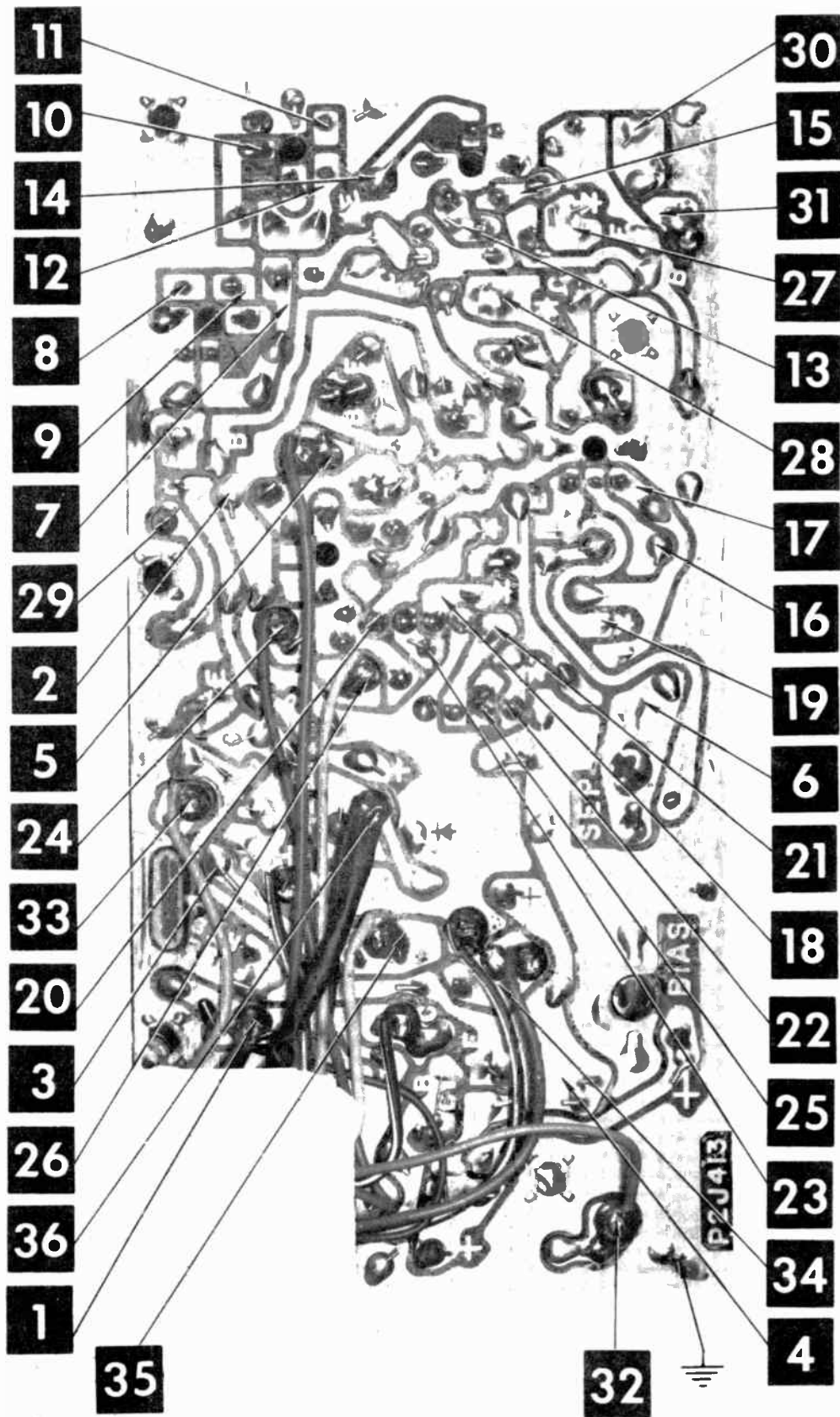
OLDSMOBILE MODELS 03AFM1/BFM1/EFM1



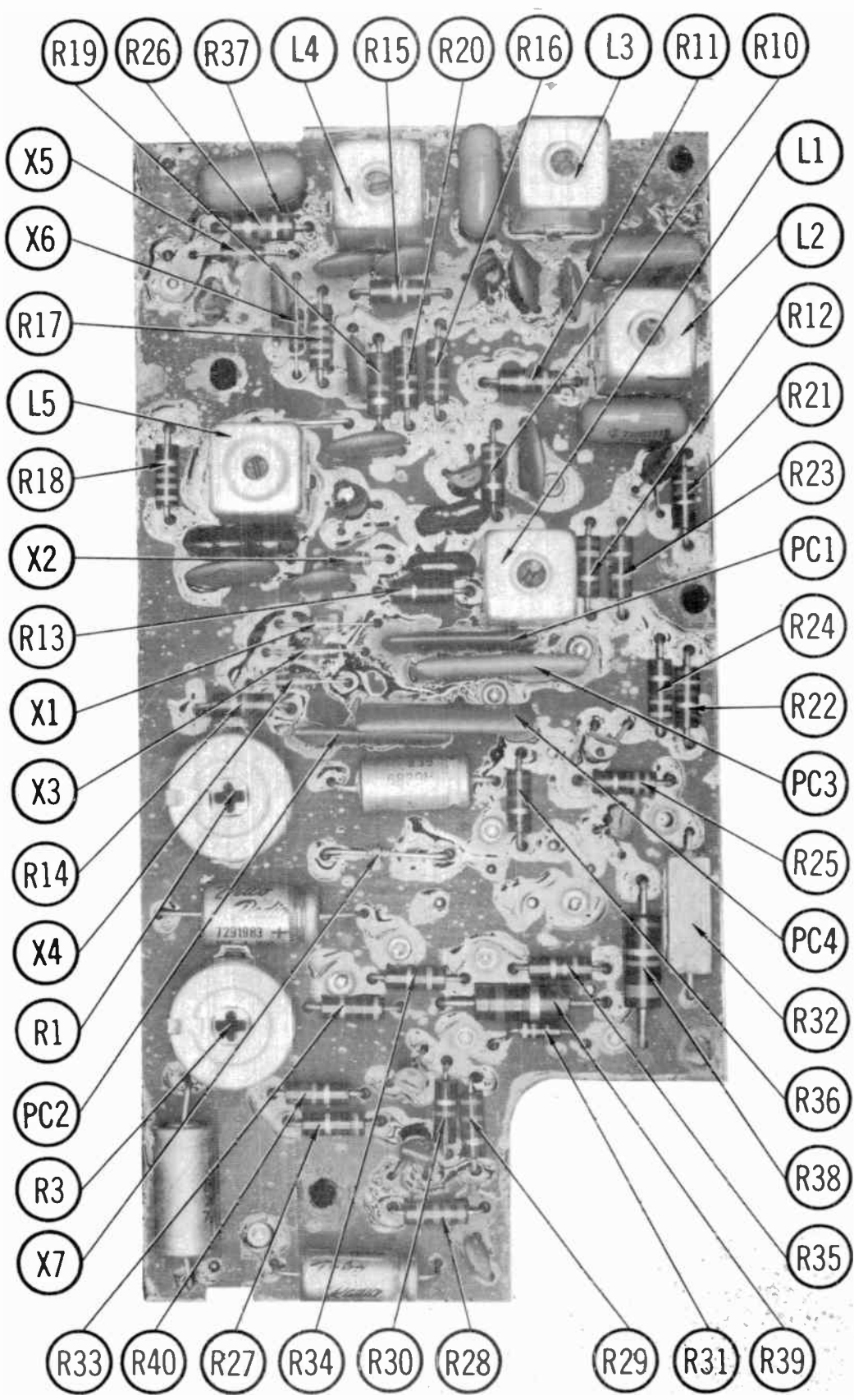
A Howard W. Sams **CIRCUITRACE** Photo



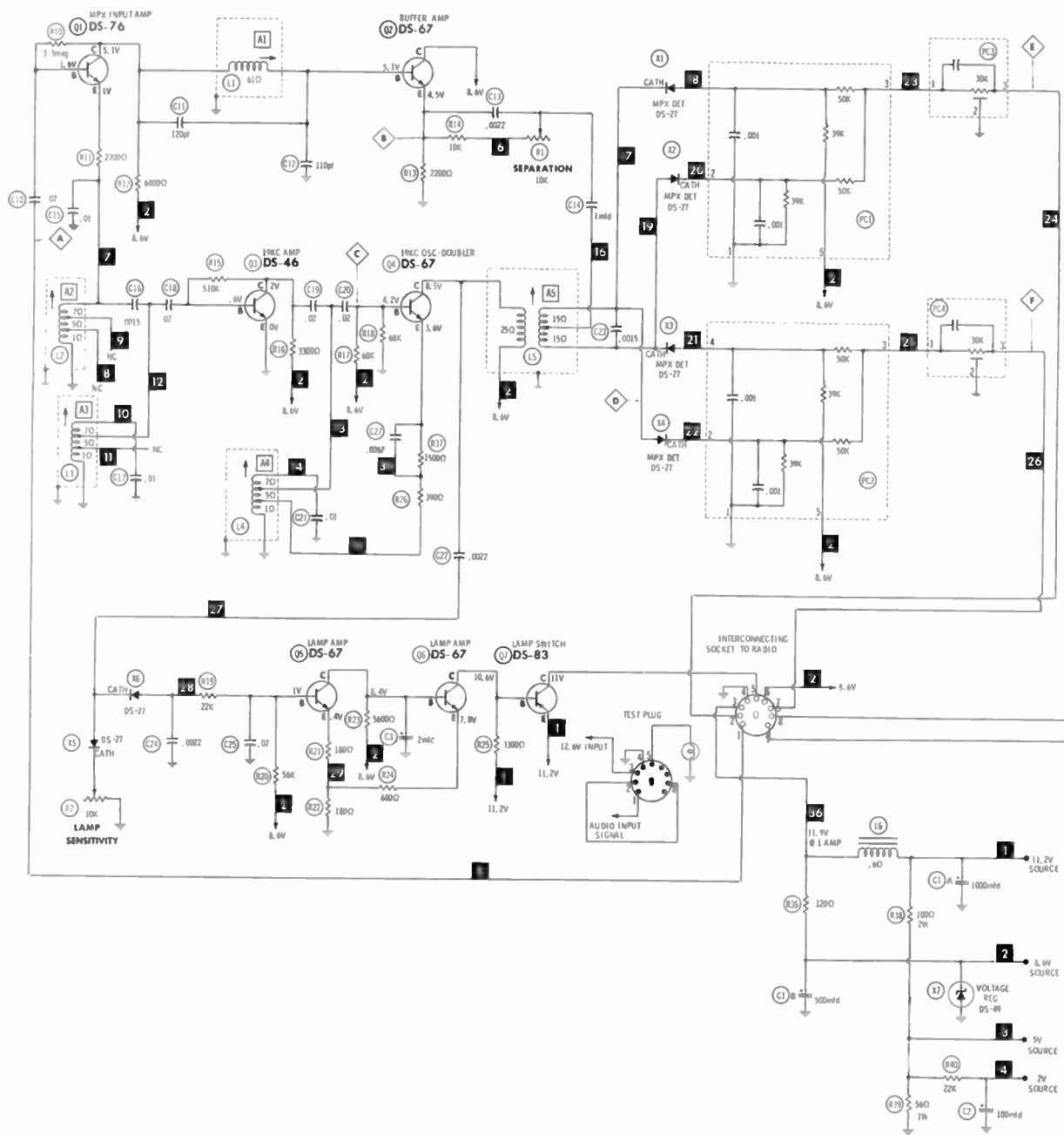
OLDSMOBILE MODELS 03AFM1 /BFM1 /EFM1



A Howard W. Sams **CIRCUITRACE** Photo



OLDSMOBILE MODELS 03AFM1 / BFM1 / EFM1



NC: No Connection

↓ Denotes ground. (Measurement reference unless otherwise indicated)

Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.

Supply voltage maintained at rated value for measurements.

Voltage and resistance measured with VTVM or equivalent meter.

No signal applied and controls adjusted for normal operation.

Number 1 assigned to terminals may not be found on the unit.

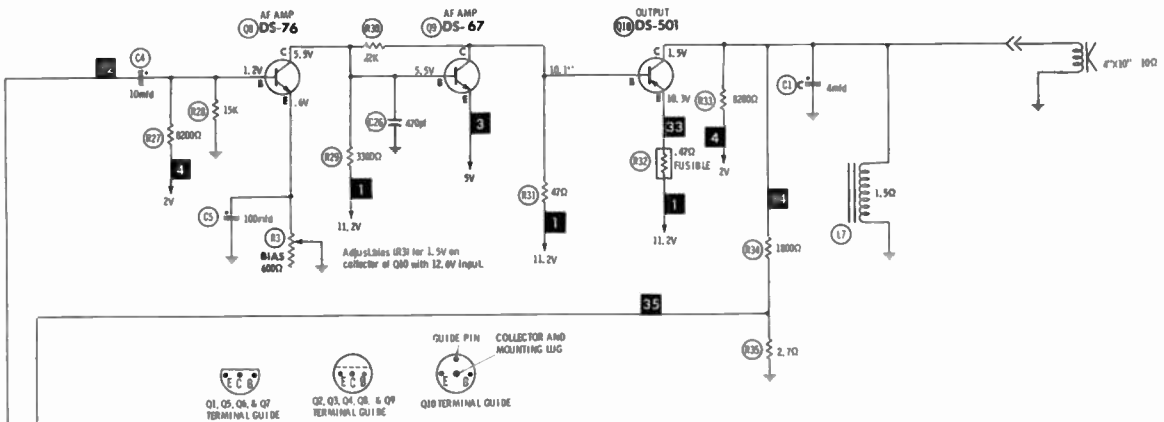
Transistor resistances vary widely. No resistance measurements taken.

A PHOTOFAC STANDARD NOTATION SCHEMATIC

with **CircuitTrace**

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SEE PAGES 76 & 77 FOR AM-FM



OLDSMOBILE MODELS 03AFM1/BFM1/EFM1

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

MULTIPLEX

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	DS-76	MPX Input Amp	DS-76	GE-10	TR-21	HEP53	SK3020	ECG 123
Q2	DS-67	Buffer	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q3	DS-46	19KC Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q4	DS-67	19KC Oscillator Doubler	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q5	DS-67	Lamp Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q6	DS-67	Lamp Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q7	DS-83	Lamp Switch	DS-83	GE-22	TR-19	HEP51	SK3025	ECG 129
Q8	DS-76	AF Amp	DS-66	GE-10	TR-21	HEP53	SK3020	ECG 123
Q9	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q10	DS-501	Output (1)	DS-501	GE-4	TR-03	HEP233	SK3012	ECG 105

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	DS-27	1N34AS	1N34A	ECG 109		Zener
X2	DS-27	1N34AS	1N34A	ECG 109		
X3	DS-27	1N34AS	1N34A	ECG 109		
X4	DS-27	1N34AS	1N34A	ECG 109		
X5	DS-27	1N34AS	1N34A	ECG 109		
X6	DS-27	1N34AS	1N34A	ECG 109		
X7	DS-149	GE-X11	1ZMB.2			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1 A	1000 - 16V	7292083	AFH3-54-41		CC0006			PCL-3021.8
B	500 - 16V							
C	4 - 11.5Vrms							
C2	100 - 4V	7309746	PTT30	EAE-100	AL100-16	MT1-21	MTA100E10	TE-1102
C3	2 - 10V	7313127	BCD50002	EP15-2	PC2-100	MT1-1	MTV2CB50	TE-1121
C4	10 - 12V	7292738	PTT114	EAE15-10	AL10-25	MT1-5	MTA10D35	TL-1128
C5	100 - 4V	7309746	PTT30	EAE-100	AL100-16	MT1-21	MTA100E10	TE-1102

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C11	120		ADM-15-121	CPR-120J	CD10E121J500	DMS-121J	SX312	MS-312
C12	110		ADM-15-111	CPR-110J	CD10E111J500	DMS-111J	SX311	MS-311
C13	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C14	1mf			UK-105	HXC3R0XR105P		MAG31	HY-135
C15	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C16	.0015		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C17	.01	75V	V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C18	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C19	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C20	.02		TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20
C21	.01	75V	V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391W03
C22	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C23	.0015		ADM-19-152	CPR-1500J	CD19FD152J03	DM-19-152	SX215	MS-215
C24	.0022		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C25	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C26	470		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C27	.0068	75V						

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Separation	10K	7297389	WT-10K		P115R103A or [BU11,WF9,SS6]*	MR10KT
R2	Lamp Sensitivity	2 Watt 10K	7297389	WT-10K		P115R103A or [BU11,WF9,SS6]*	MR10KT
R3	Bias Adjust	2 Watt 600 2 Watt	7286601	WP-600 or V-600	U39-600	110-600	MR600P

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.
R32	.47 (Fusible)		7281890

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.

OLDSMOBILE MODELS 03AFM1/BFM1/EFM1

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	67KC Trap	7291023			
L2	19KC	7291019			
L3	19KC	7291019			
L4	19KC Oscillator	7291019			
L5	38KC	7291020			

FILTER CHOKE

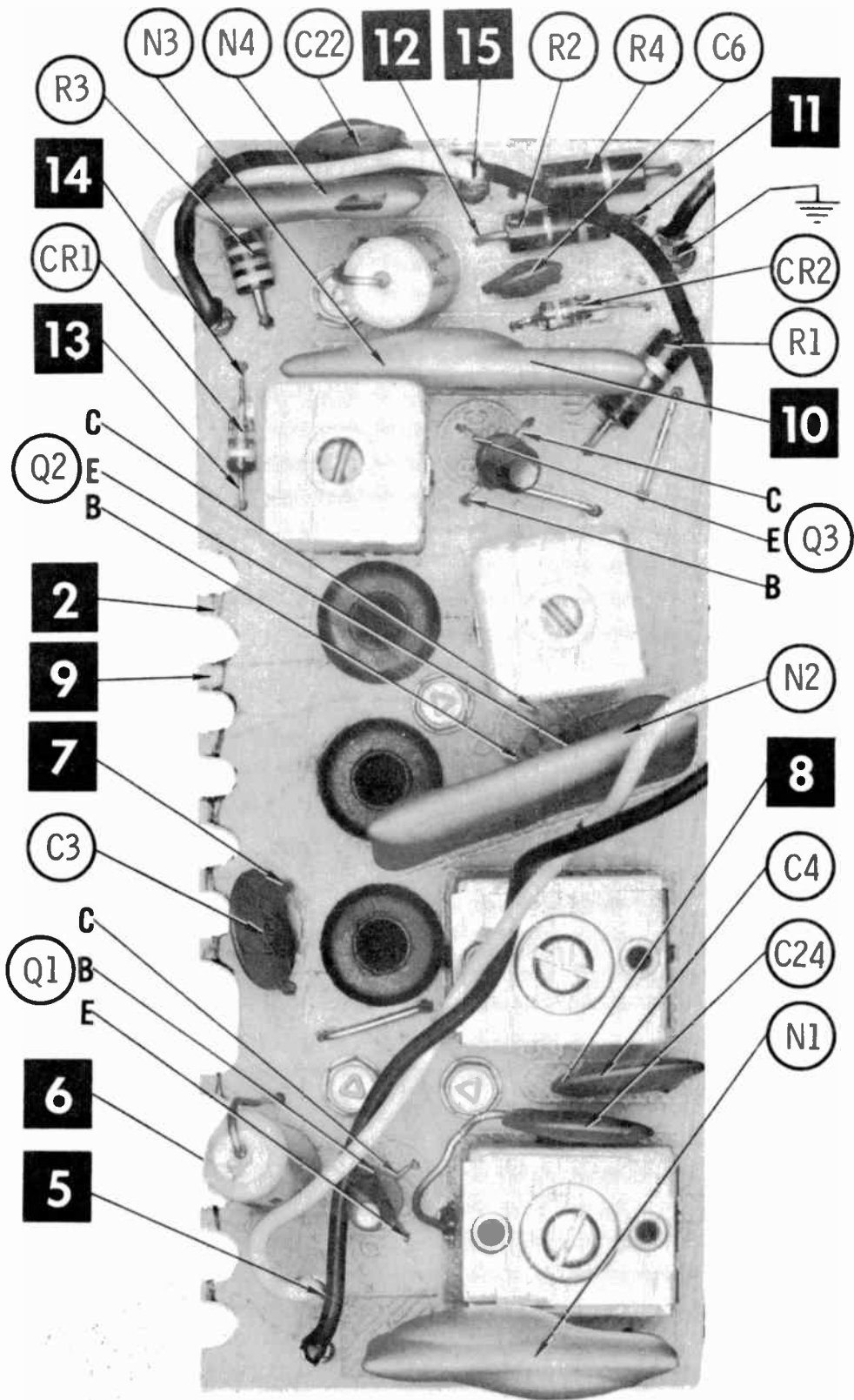
ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L1	1 Amp	.6	8mh	1221623	C4095	TC-2	TR-154	TY17XT	

CHOKE (Audio Output)

ITEM No.	INDUCTANCE	REPLACEMENT DATA					NOTES
		PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L2	30mh	1222297					

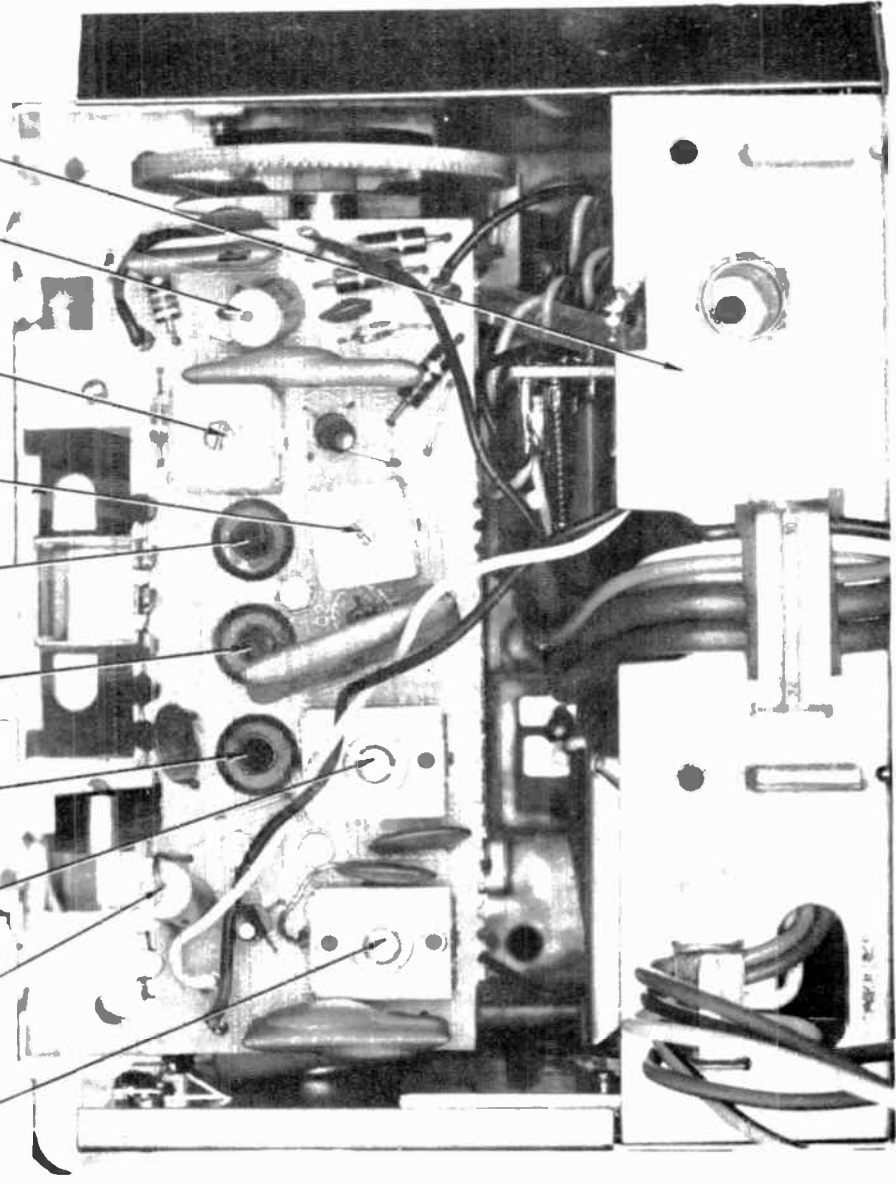
MISCELLANEOUS

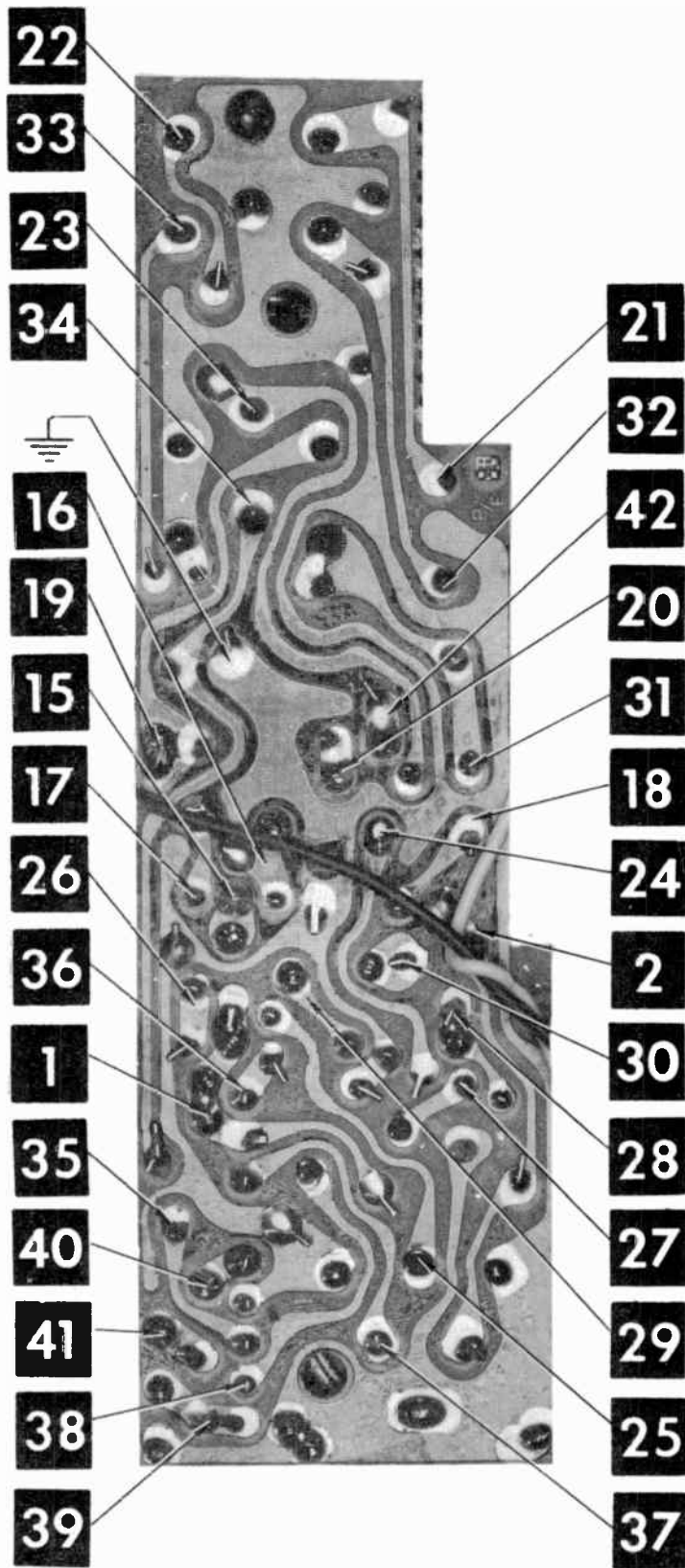
ITEM No.	PART NAME	PART No.	NOTES
PC1	Stereo Detector	7291090	AEROVOX Replacement PA-772, CENTRALAB Replacement PC-410 AEROVOX Replacement PA-772, CENTRALAB Replacement PC-410
PC2	Stereo Detector	7291090	
PC3	38KC Notch Filter	7291089	
PC4	38KC Notch Filter	7291089	

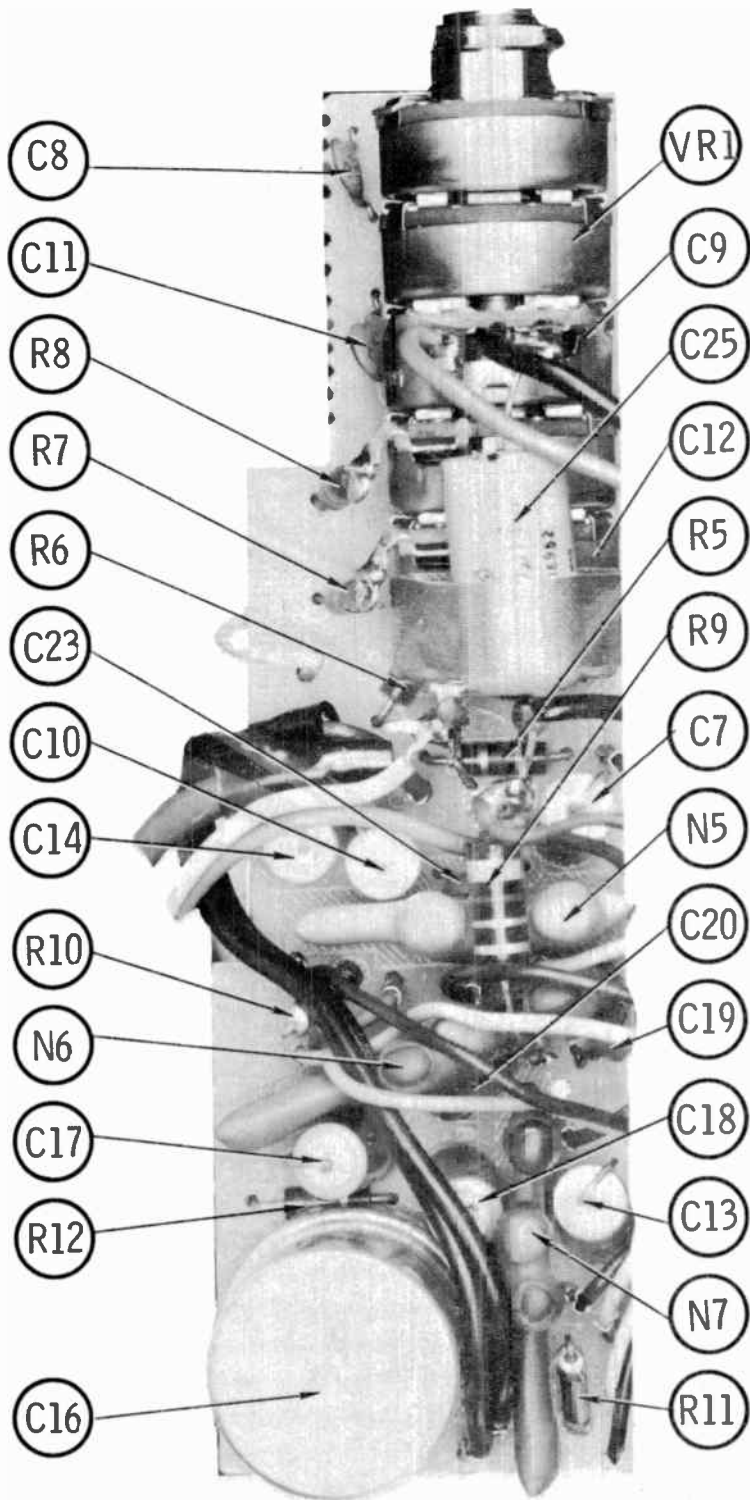


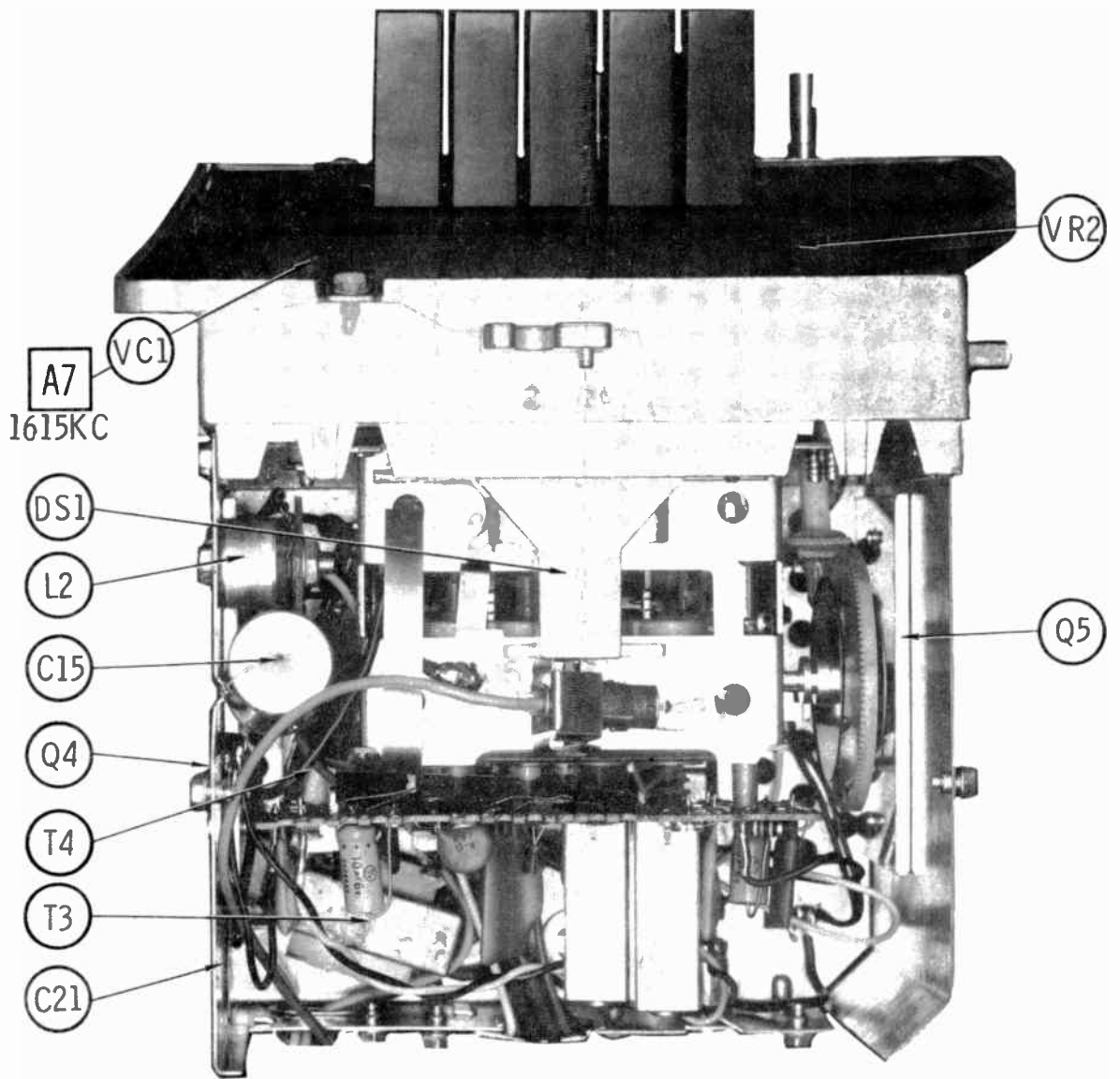
A Howard W. Sams **CIRCUITRACE** Photo

- (L3)
- (C5)
- [A1]
- [A2] (T2)
- 262KC [A3] (T1)
- [A4]
- 262KC [A8] (L1B)
- 1000KC [A9] (L1C)
- 1000KC [A10] (L1A)
- 1000KC [A5] (VC3)
- 1615KC (C1)
- [A6] (VC2)
- 1615KC









PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Soms COUNTER FACTS[®] for the most up-to-date replacement.

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	AR-200	RF Amp Converter IF Amp Output Output	3L4-6007-1	GE-20	TR-21	HEP54	SK301B	ECG 107
Q2	AR-201		3L4-6007-2	GE-20	TR-21	HEP54	SK301B	ECG 107
Q3	AR-202		3L4-6007-3	GE-20	TR-21	HEP54	SK301B	ECG 107
Q4	AR-17		3L4-6005-3	GE-28		HEP245	SK3041	ECG 152
Q5	AR-17		3L4-6005-3	GE-28		HEP245	SK3041	ECG 152

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
CR1	1N60C	1N60	1N60	ECG 109		
CR2	1N60C	1N60	1N60	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	10 6V	3L0-0009-7	CRE457A	EA6-10	AL10-25	MT1-5	MTA10D35	TL-1087
C5	10 6V	3L0-0009-7	CRE457A	EA6-10	AL10-25	MT1-5	MTA10D35	TL-1087
C7	1 16V	3L0-0009-10	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1148
C10	1 16V	3L0-0009-10	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1148
C13	1 16V	3L0-0009-10	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1148
C14	1 16V	3L0-0009-10	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1148
C15	1000 16V	3L0-0009-5	PRS1230	EA15-1000	WBR1000-16	QT1-32	TC1501A	TL-1166.5
C16A	700 16V	3L0-0005-4			CC0025A			
B	400 16V							
C	400 16V							
C17	65 3V	3L0-0009-6	CRE218A	EA6-100	NLW75-3	MT1-18	TT6X60A	TE-1058.5
C18	65 3V	3L0-0009-6	CRE218A	EA6-100	NLW75-3	MT1-18	TT6X60A	TE-1058.5
C25	250 16V	3L0-0009-4	PRS1280	EA30-250	PC250-25	OT1-28	MTV250DN25	TL-1214

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	150	N750	GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15	
C4	220		N750-DI 220	DTN-220	N220	CCTN-221	CN7322	10TCU-T22	
C6	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33	
C8	.18			UK10-204			MAG12022	HY-470	
C9	.18			UK10-204			MAG12022	HY-470	
C11	.18			UK10-204			MAG12022	HY-470	
C12	.18			UK10-204			MAG12022	HY-470	
C19	.01			CK-103	MGP01	CCD-103	TA110	TG-510	
C20	.01			TTP-01	CK-103	MGP01	CCD-103	TA110	TG-510
C21			#30-1254-1						
C22	.02			TTP-02	CK-203	MGP02	CCD-203	TA120	TG-520
C23	.02			TTP-02	CK-203	MGP02	CCD-203	TA120	TG-520
C24	180		N750		TCN-180				10TCU-T18
VC1		#3L1-0001-10							
VC2		#3L1-0001-7							
VC3		#3L1-0001-5							

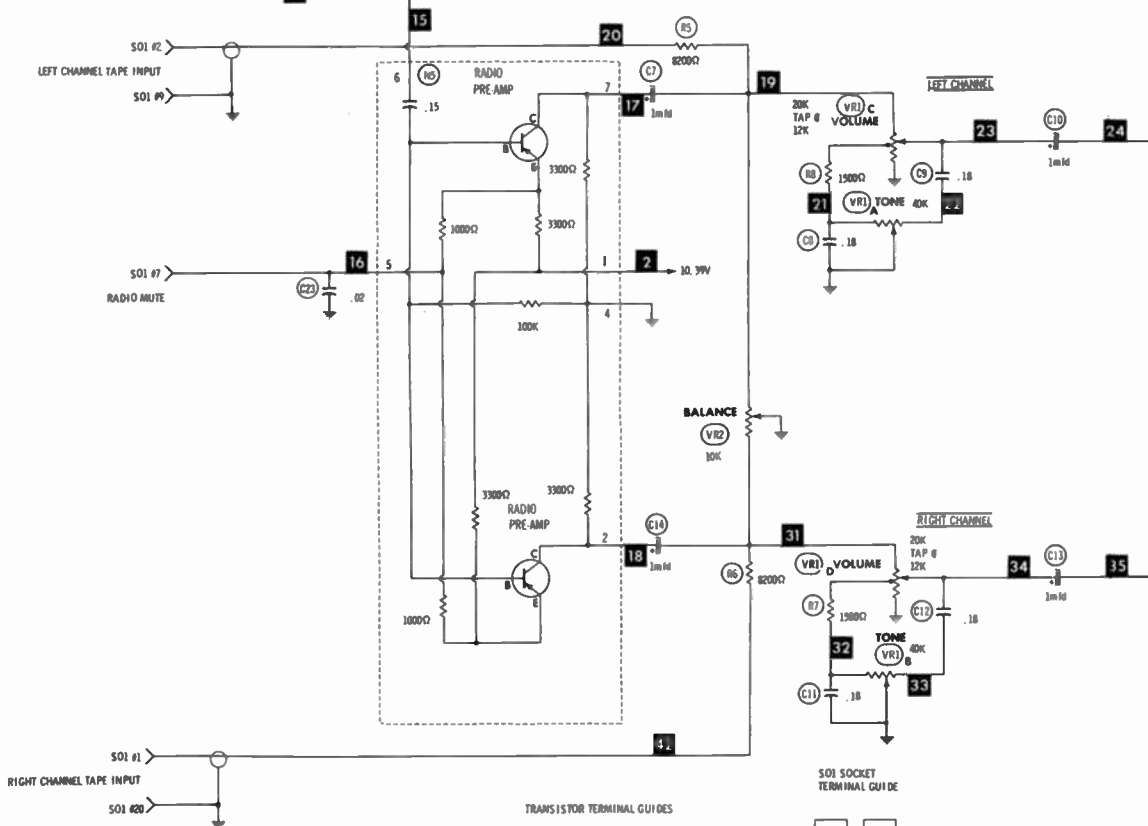
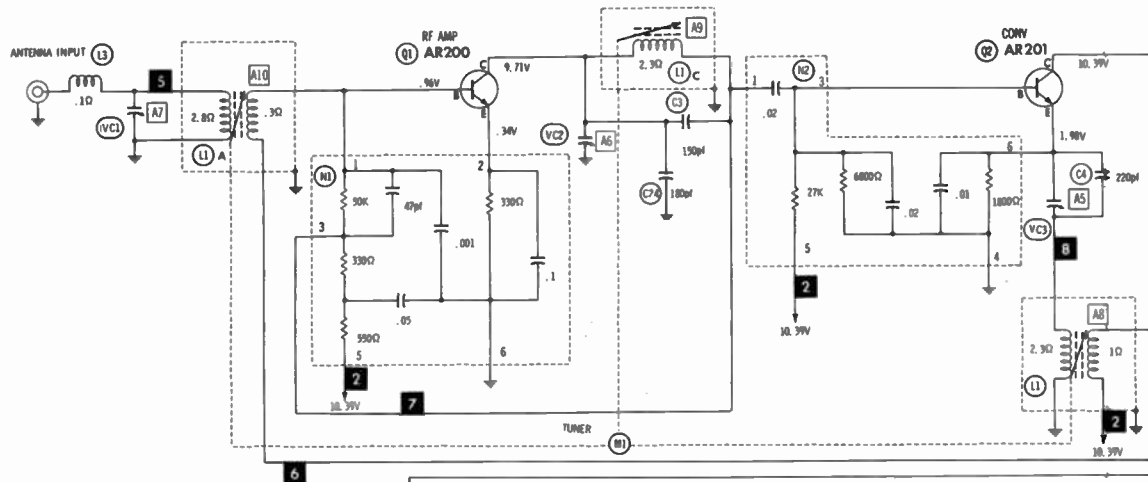
PHILCO-FORD PART NUMBER.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
VR1A	Tone	40K	3L3-007-01				
B	Tone	40K					
C	Track Selector						
D	Switch						
E	Volume	20K Tap @					
		12K					
		20K Tap @					
		12K					
VR2	Balance	10K	3L3-0006-01				

(CONTINUED ON PAGE 100)

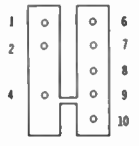
PHILCO-FORD MODEL DOAA-19A243



TRANSISTOR TERMINAL GUIDES

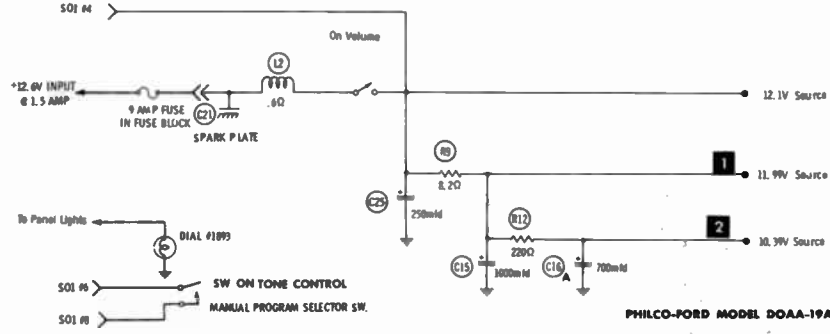
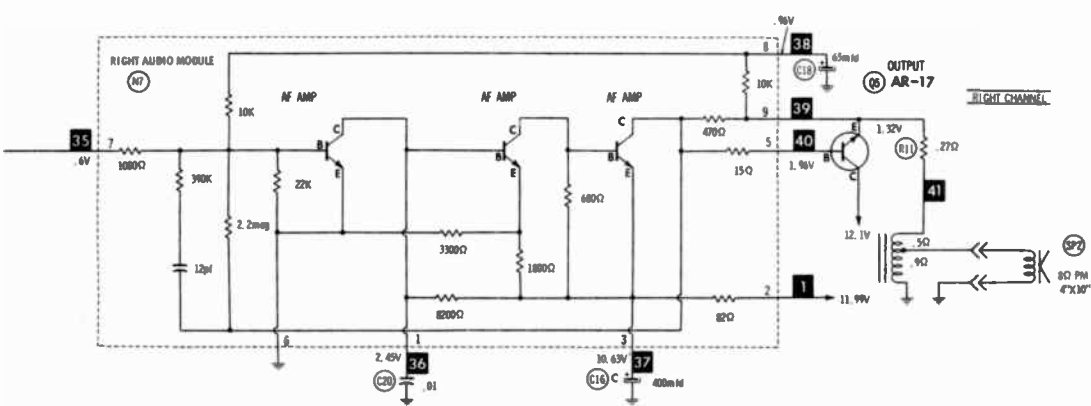
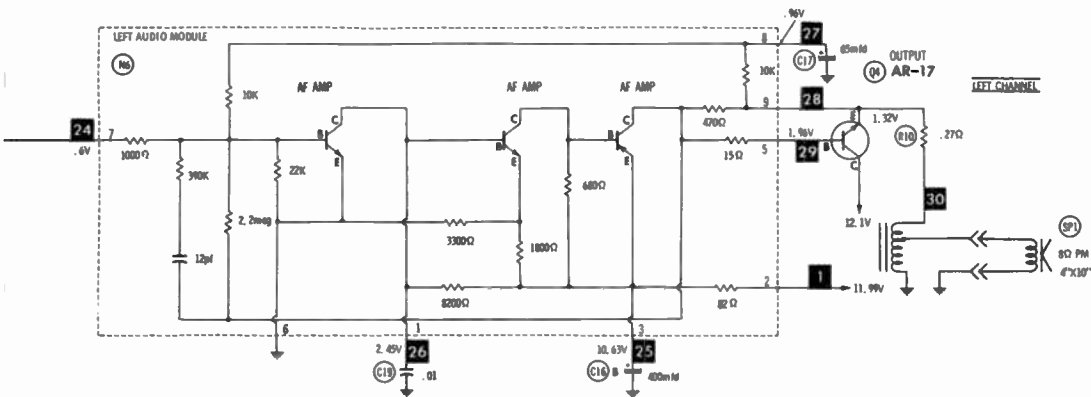
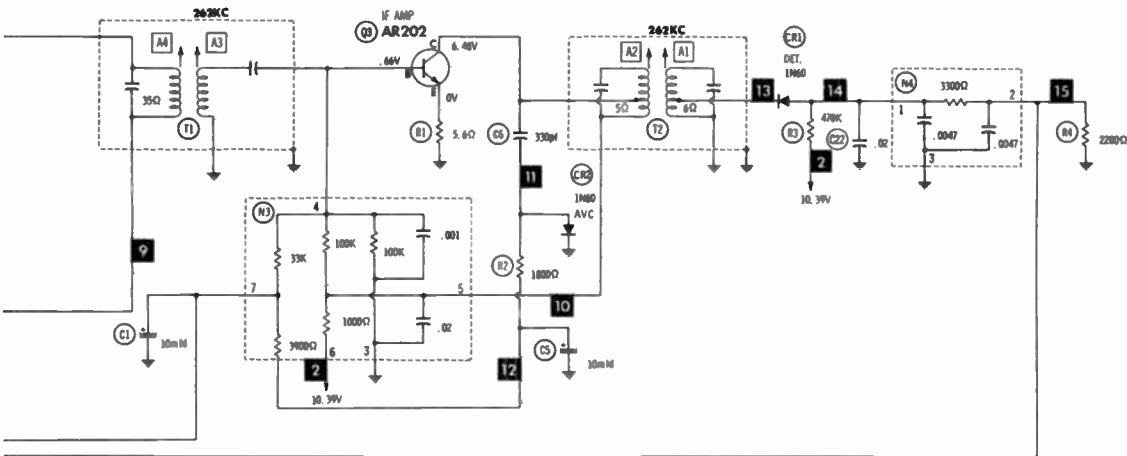


SO1 SOCKET TERMINAL GUIDE



- Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.
1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.
 5. Numbers assigned to terminals may not be found on the unit.
 6. Supply voltage maintained at rated value for voltage readings.
 7. Resistance measurements not given because of the wide variation in internal resistance of transistor.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRAC**
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PHILCO-FORD MODEL DOAA-19A243

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Port Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS' for the most up-to-date replacement.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
R10	.27 (PTC)		3L3-0004-5	R11	.27 (PTC)		3L3-0004-5

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1A	Antenna	3L2-0007-4 (1)			
L1B	RF	3L2-0002-5 (1)			
L1C	Oscillator	3L2-0007-6 (1)			
L3	RF Choke (5.5uh)	3L2-0010-1			
T1	Input IF	32-4882-1		8013	
T2	Output IF	32-4882-2		8014	

(1) Part of M1.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
L2	1.5A	.6	7.5mh	3L2-0003-7				

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	18 Tap @	8	3L2-0009-1					
T4	18 Tap @	8	3L2-0009-1					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
				Obtain Speaker from Ford Dealer.

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	
F1	SFE 9 Amp		In Fuse Block	SFE9		307009		

MISCELLANEOUS

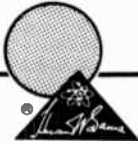
ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	7L6-0155-1	
N1	RF Network	3L5-1001-1	
N2	Converter Network	3L5-1001-2	
N3	IF Network	3L5-1001-7	
N4	AGC Network	3L5-1001-8	
N5	Preamp Network	3L5-0004-1	
N6	Audio Network	3L5-0005-1	
N7	Audio Network	3L5-0005-1	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Dial Pointer	7L6-0156-49	Escutcheon	2L8-0107-2
Push Button	2L7-0075-1	Dial Glass	2L7-0069-1

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. B885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO



PONTIAC MODEL 02BT411
(70 Firebird,
Grand Prix,
Tempest)
(8-track Stereo Player)

OPERATING INSTRUCTIONS

Insert cartridge until it locks and turns unit on.

Set operating controls as desired.

Press program selector to play desired tracks, or allow unit to select tracks automatically.

Remove cartridge to turn unit off.

CLEANING

Clean all tape contact surfaces with a soft, lint-free material and head cleaner or alcohol. Use alcohol to remove oil and grease from all driving surfaces.

LUBRICATING

Lubricate bearings and bushings lightly with #20 machine oil. Use a light film of non-hardening grease on cam surfaces.

HEAD DEMAGNETIZING

Demagnetize head when unit is serviced. Avoid using magnetic materials near head.

PONTIAC MODEL 02BT411

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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TQ791R

TROUBLE CHART

SYMPTOM	REMARKS
Capstan does not rotate.	Belt (1) dirty, worn, or broken. Assembly (10) binding. Motor defective or not supplied with power.
Track-shift mechanism inoperative.	Switch (S2) dirty Cam (3) binding or worn. Pawl (4) worn. Arm (6) binding. Solenoid (M3) defective or not supplied with power. Cartridge defective. Lower cam bearing installed too deeply in casting. Assembly (14) binding or worn.
Wow or Flutter.	Belt (1) dirty or worn. Capstan dirty or binding. Cartridge defective. Motor defective. Speed regulator circuit defective.
Sound weak or distorted.	Head dirty, misaligned, or defective. Cartridge defective. Amplifiers defective.
Tape is pulled from cartridge.	Cartridge defective. Capstan dirty or scored.

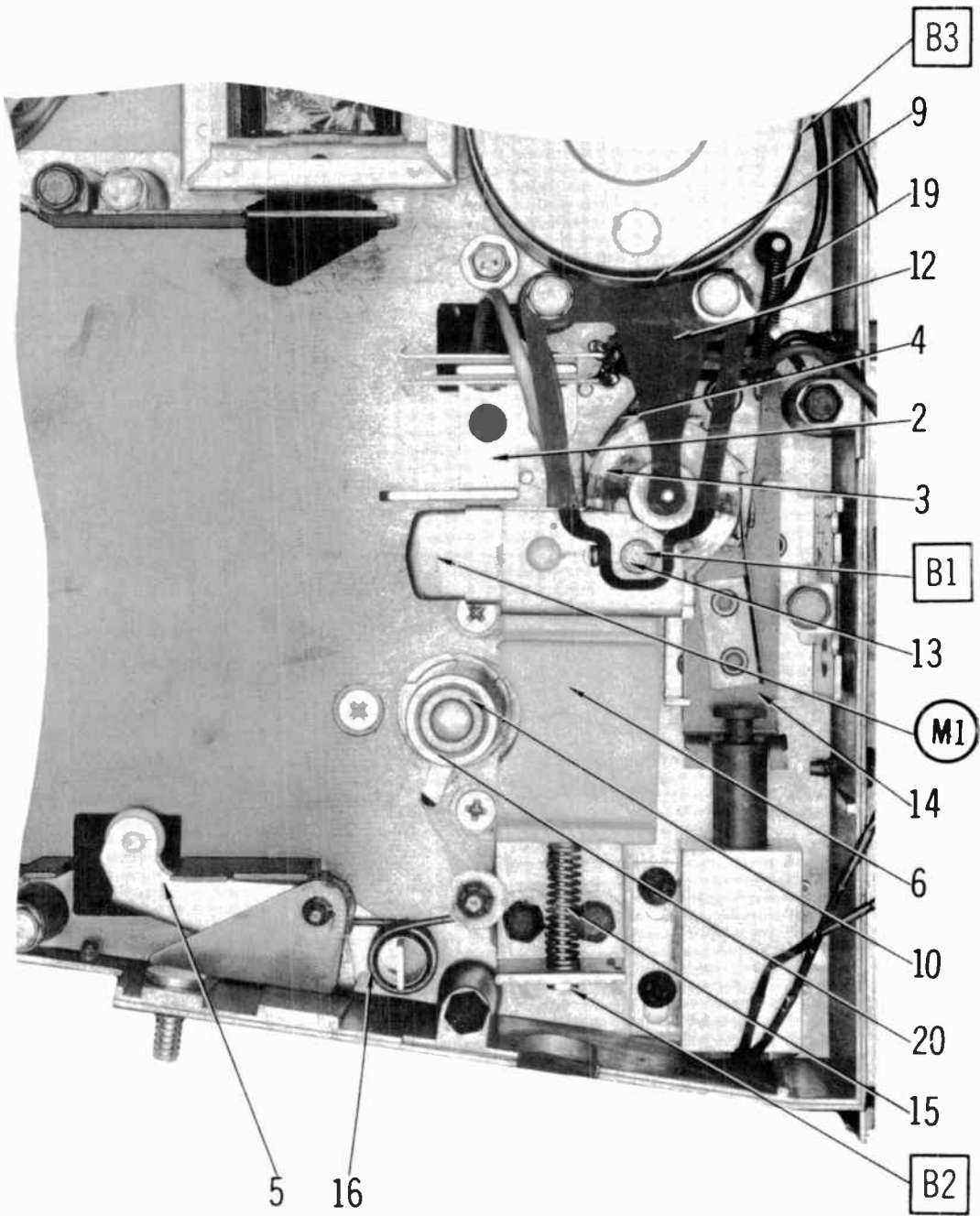
ADJUSTMENTS

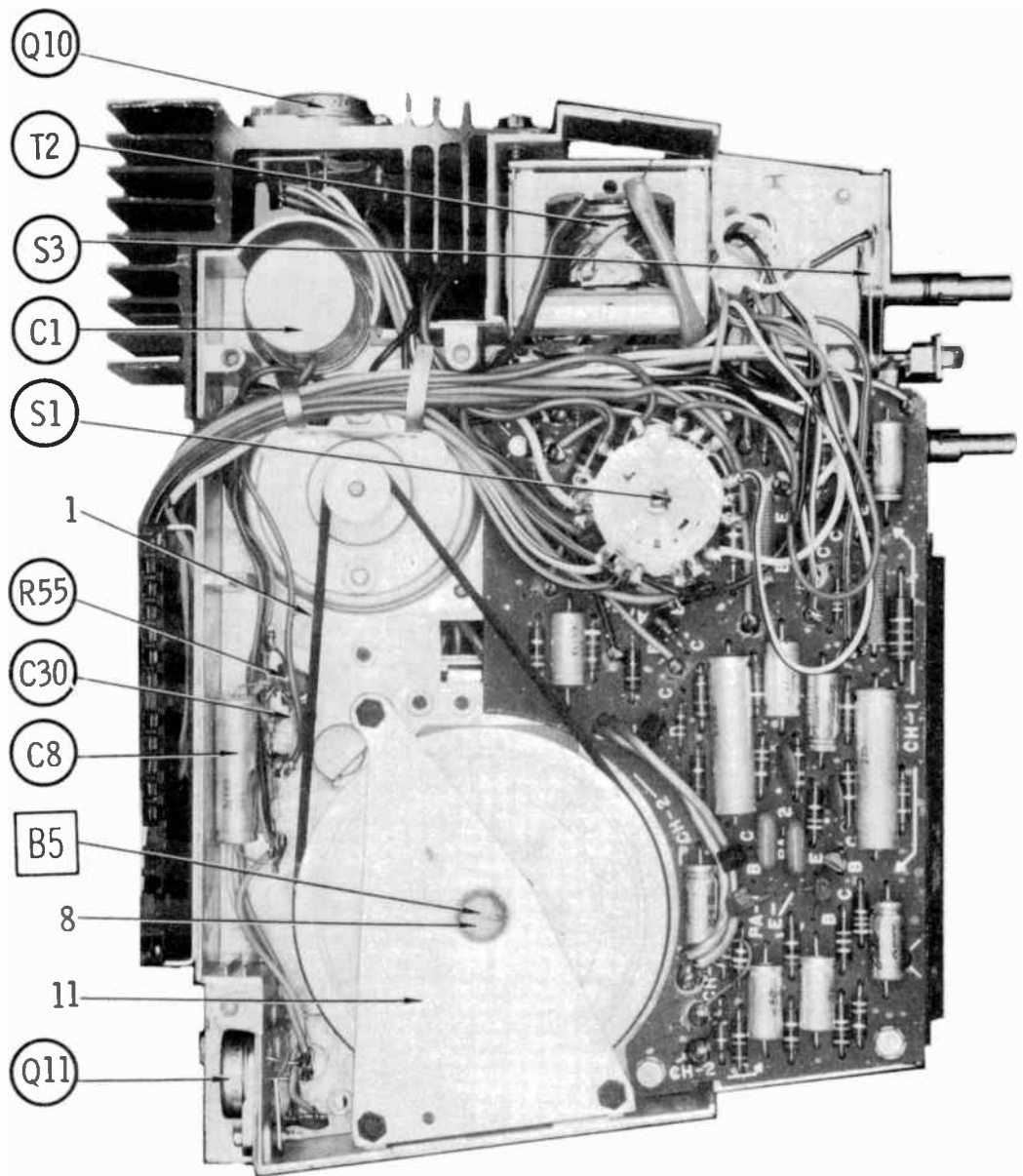
ADJUST	REMARKS
Head Height	Play a test cartridge, follow instructions with cartridge, and adjust B1 for proper response.
Head Azimuth	Connect an AC VTVM across right output. Play a test cartridge and adjust B2 for maximum.
Motor Speed	Play a test cartridge with a timed-interval track, follow instructions with cartridge, and adjust B3 for correct interval between tones. (Make only a slight adjustment before rechecking speed.)
Flywheel Play	Adjust B5 for a slight vertical play of flywheel.
Hum Reduction	Rotate motor for MINIMUM hum and position Shield (9) for MINIMUM hum.
Solenoid Position	Loosen the solenoid mounting screws and position the solenoid until the finger on Slide (14) clears the tooth on Cam (3) by 1/32 inch when the solenoid plunger is fully retracted.

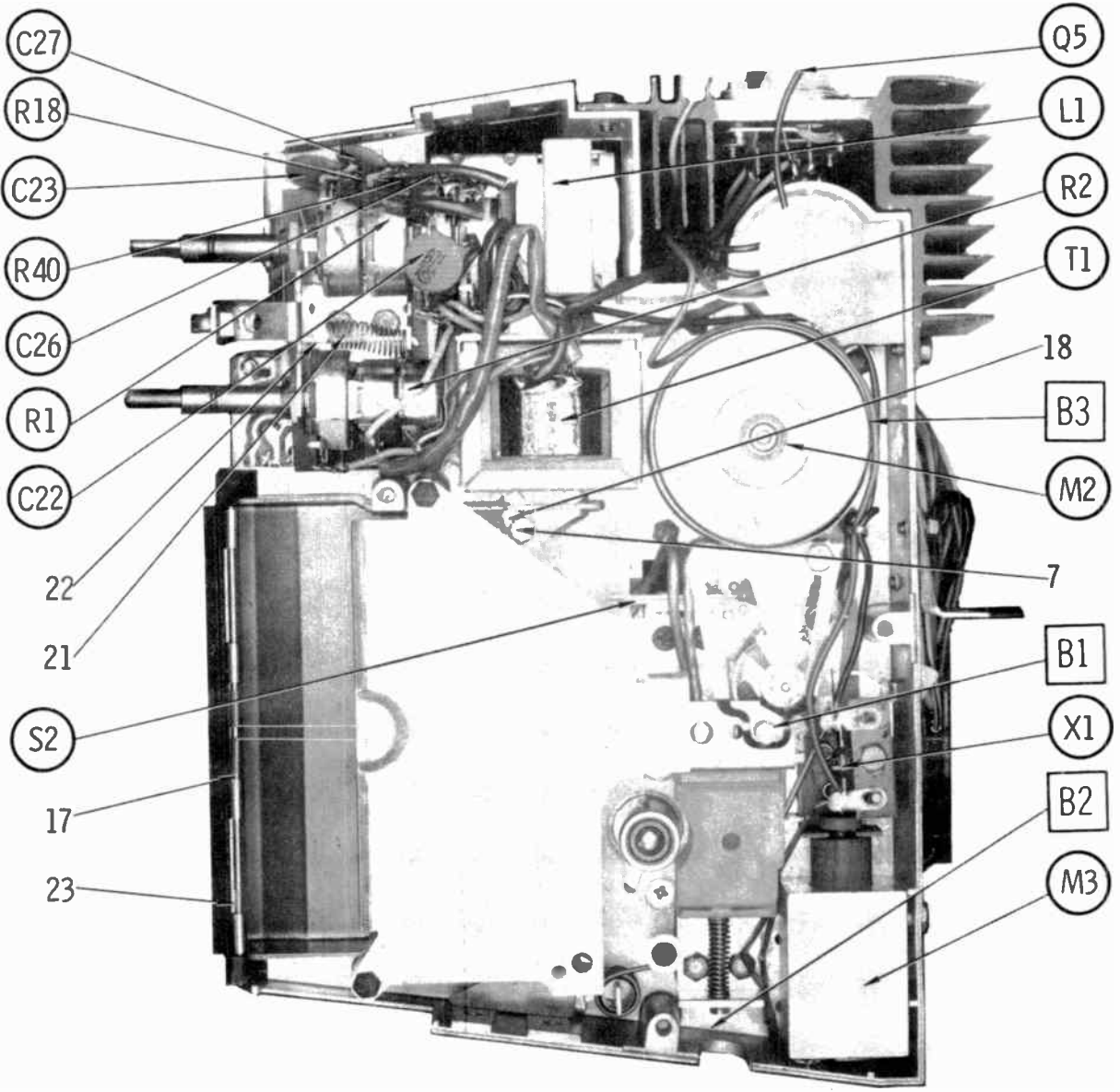
MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1*	7304589*	Belt* (2 used)	11	7304224	Thrust Bearing Plate
2	7313343	Tape Guide Assembly	12	7304249	Retainer Assembly
3	7310096	Cam Assembly	13	1222945	Head Height Adjustment Screw
4	7304226	Pawl	14	7313405	Slide Assembly
5	7305877	Cartridge Lock Arm Assembly	15	7304444	Azimuth Adjust Tension Spring
6	7305875	Head and Parallelogram Arm Assembly	16	7304222	Cartridge Arm Lock Spring
7	1222969	Switch Arm Assembly	17	7307337	Cartridge Door Spring
8	7304225	Nylon Capstan Thrust Bearing	18	7304234	Switch Return Spring
9	7306985	Motor Shield	19	7307309	Slide Return Spring
10	7304935	Capstan, Flywheel, and Bearing Assembly	20	7304796	Tape Stripper
			21	7305424	Program Selector Return Spring
			22	7306509	Program Pushbar Assembly
			23	7306021	Door Hinge Pin

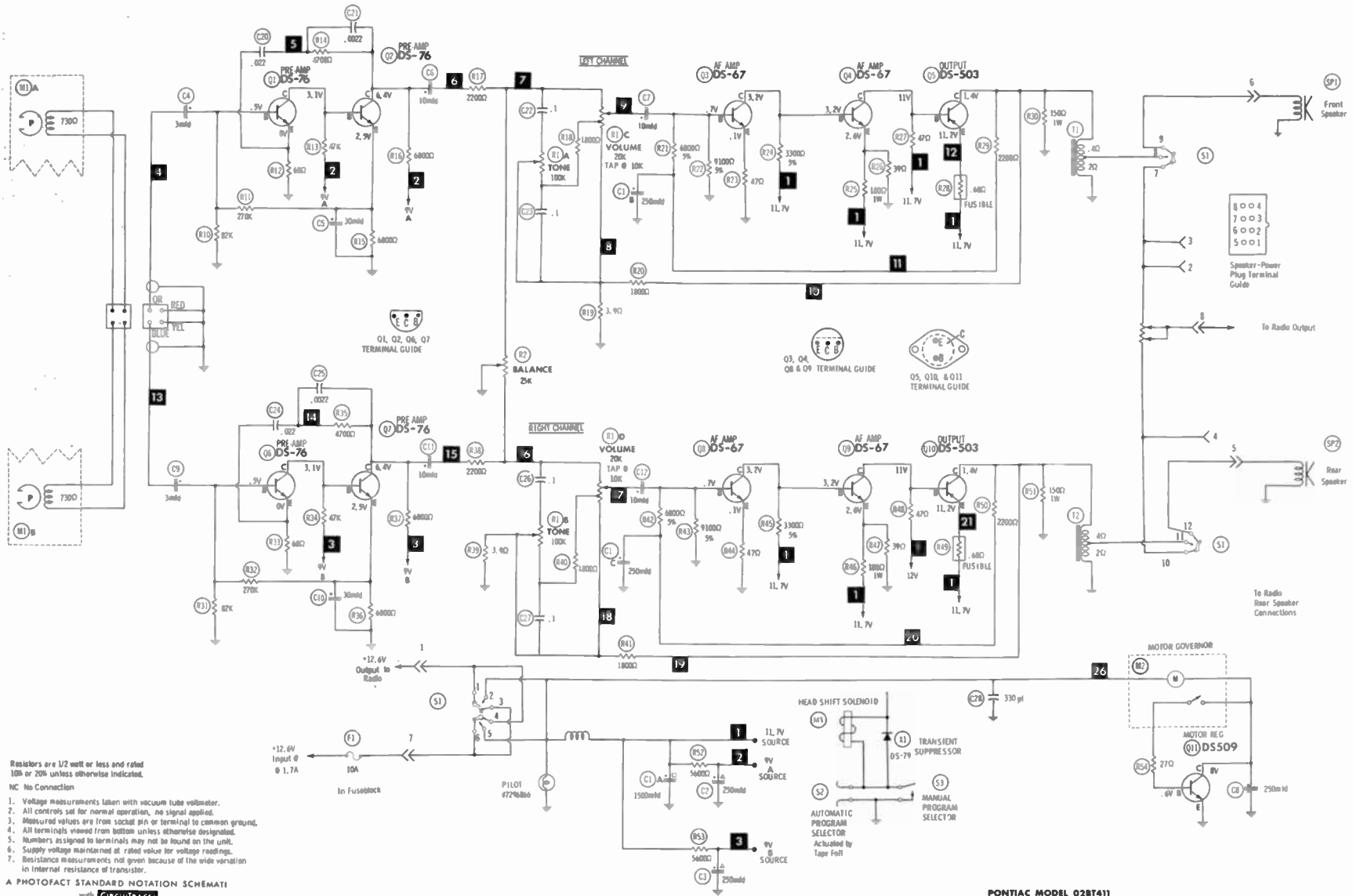
* Belt - WALSCO Part No. 1499-33 (Replace both belts).







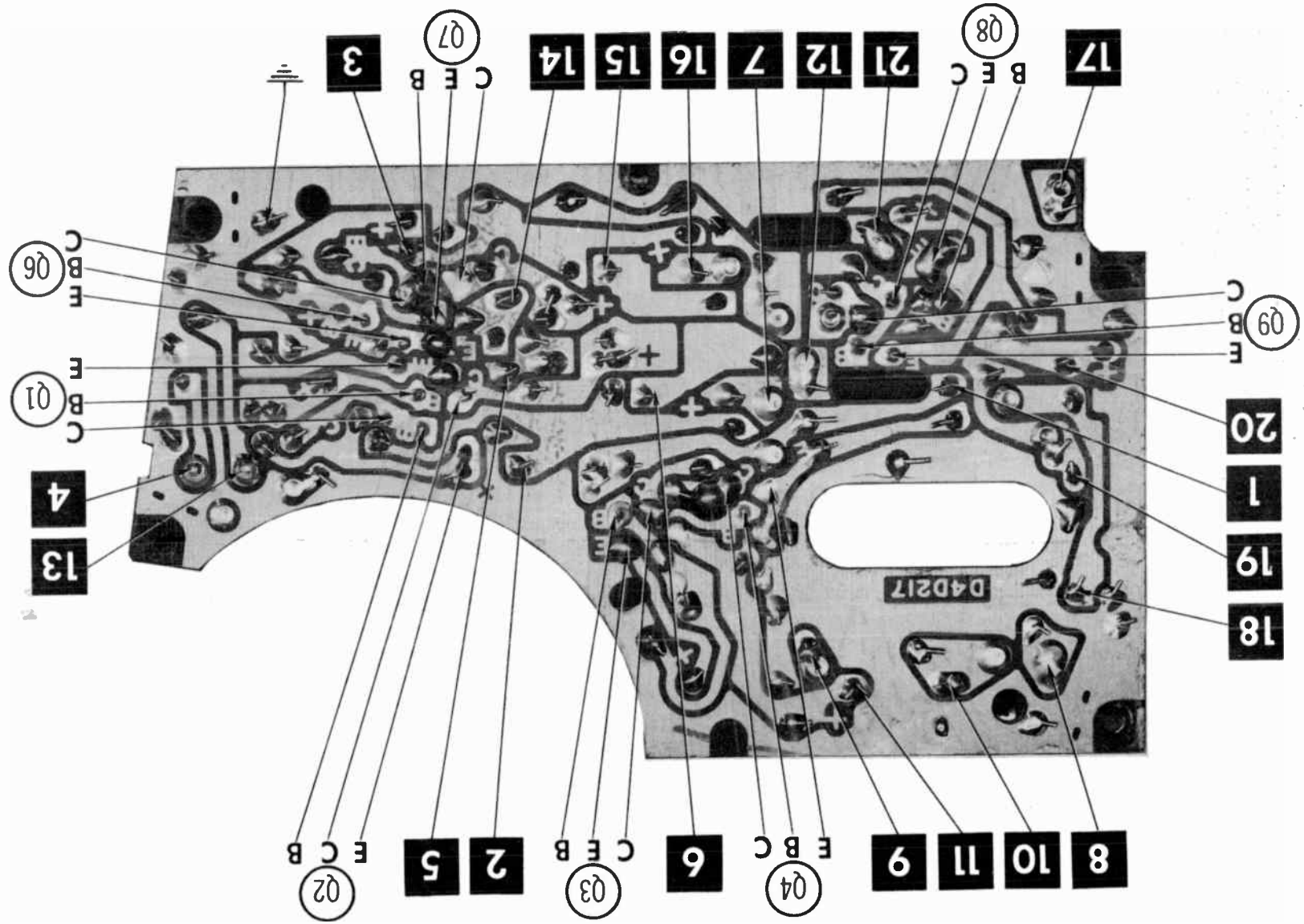
NOTE: DEMAGNETIZE HEADS AFTER SERVICING

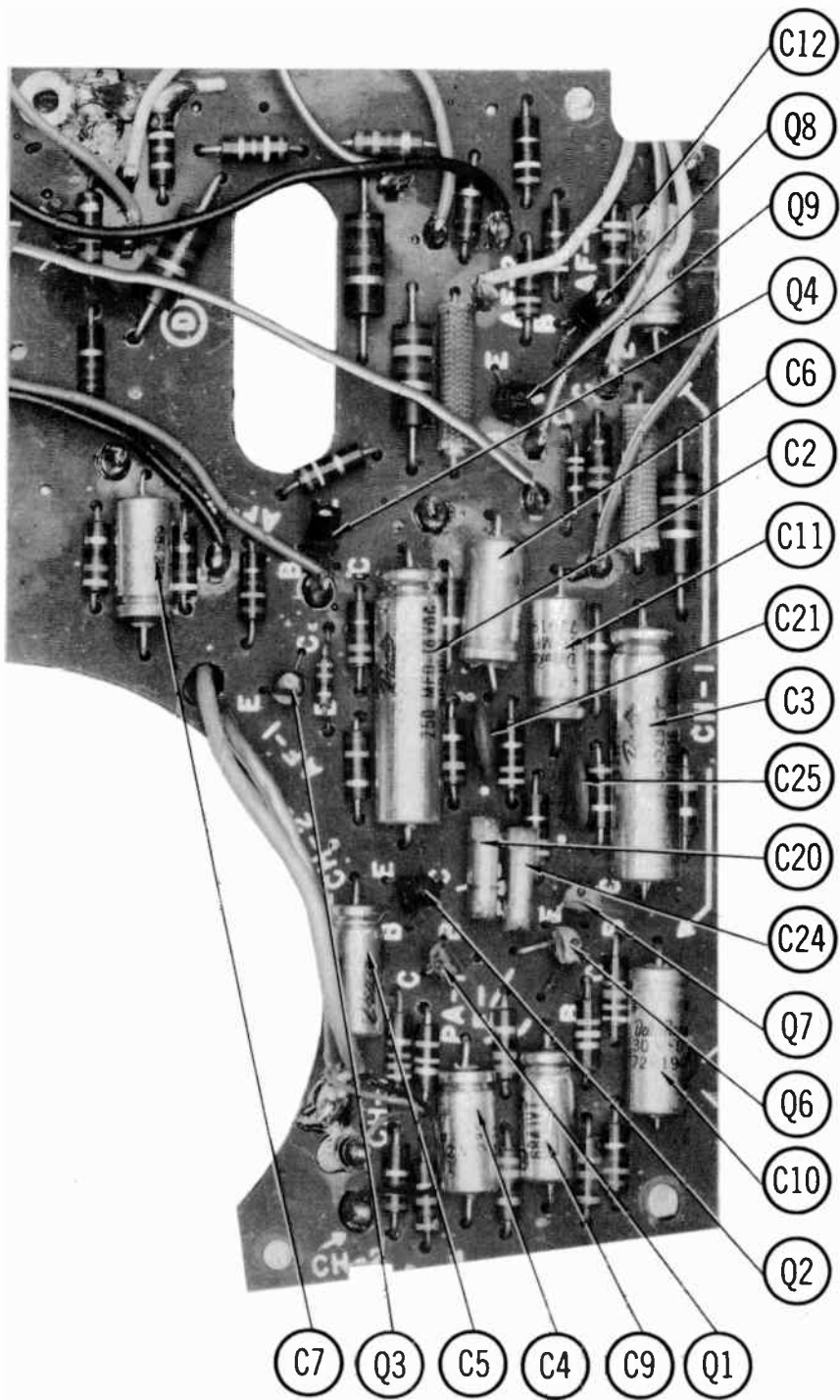


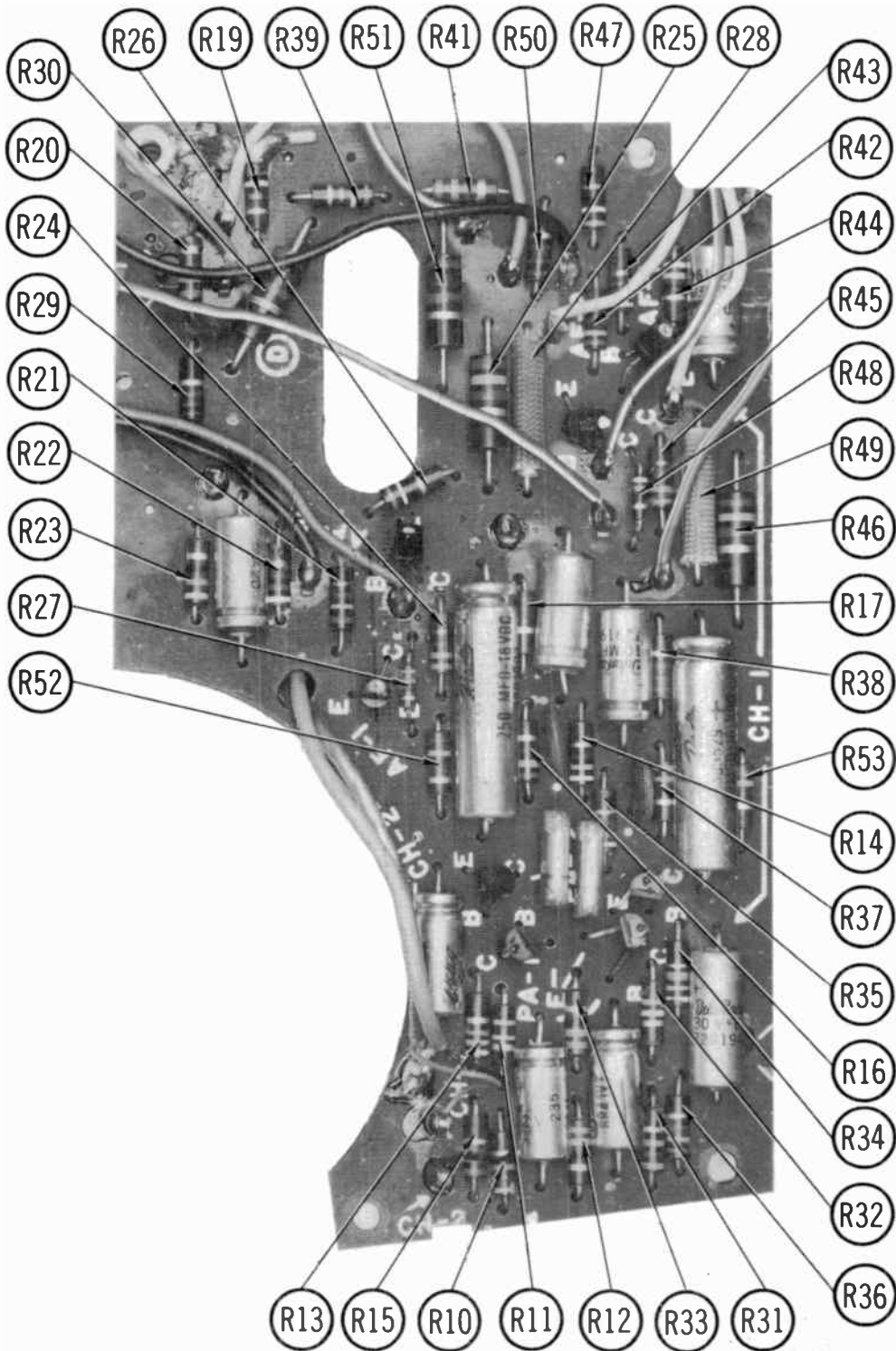
- Resistors are 1/2 watt or less and rated 10k or 20% unless otherwise indicated.
 NC: No Connection
 1. Voltage measurements taken with vacuum tube voltmeter.
 2. All controls set for normal operation, no signal applied.
 3. Measured values are from socket pin or terminal to common ground.
 4. All terminals viewed from bottom unless otherwise designated.
 5. Numbers assigned to terminals may not be found on the unit.
 6. Supply voltage maintained at rated value for voltage readings.
 7. Resistance measurements not given because of the wide variation in internal resistance of transistor.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**
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PONTIAC MODEL 02BT41







PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	DS-76	Preamp	DS-76	GE-10	TR-21	HEP53	SK3020	ECG 123
Q2	DS-76	Preamp	DS-76	GE-10	TR-21	HEP53	SK3020	ECG 123
Q3	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q4	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q5	DS-503	Output (1)	DS-503	GE-3	TR-01	HEP232	SK3009	ECG 104
Q6	DS-76	Preamp	DS-76	GE-10	TR-21	HEP53	SK3020	ECG 123
Q7	DS-76	Preamp	DS-76	GE-10	TR-21	HEP53	SK3020	ECG 123
Q8	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q9	DS-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q10	DS-503	Output (1)	DS-503	GE-3	TR-01	HEP232	SK3009	ECG 104
Q11	DS-509	Motor Regulator (1)	DS-509	GE-14	TR-26	HEP704	SK3036	ECG 130

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	DS-79					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	1500 16V	7310473						
B	250 16V							
C	250 16V							
C2	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C3	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C4	3 12V	7291860	PTT127	EA15-5	AL3-150	MT1-3	MTA3D50	TE-1122
C5	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C6	10 12V	7292738	PTT114	EA15-10	AL10-15	MT1-5	MTA10D35	TL-1128
C7	10 12V	7292738	PTT114	EA15-10	AL10-15	MT1-5	MTA10D35	TL-1128
C8	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C9	3 12V	7291860	PTT127	EA15-5	AL3-150	MT1-3	MTA3D50	TE-1122
C10	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C11	10 12V	7292738	PTT114	EA15-10	AL10-15	MT1-5	MTA10D35	TL-1128
C12	10 12V	7292738	PTT114	EA15-10	AL10-15	MT1-5	MTA10D35	TL-1128

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Port Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS[®] for the most up-to-date replacement.

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C20	.022	75V	V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C21	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C22	.1		TTP-1	CK-104			TA010	TG-P10
C23	.1		TTP-1	CK-104			TA010	TG-P10
C24	.022	75V	V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C25	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C26	.1		TTP-1	CK-104			TA010	TG-P10
C27	.1		TTP-1	CK-104			TA010	TG-P10
C28	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	100K	7309464				
B	Tone	100K					
C	Volume	20K Tap @ 12K					
D	Volume	20K Tap @ 12K	7311078				
R2A	Balance	25K					
B	Fader	100 2 Watt					

PONTIAC MODEL 02B1411

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R28	.68 Ohms (Fusible)		7287480

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R49	.68 ohms (Fusible)		7287480

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L1	1.7 Amp	.6 ohms	*8mh	1221623	C4095	TC-2	TR-154	TY17XT	

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	12 ohms	@ 10 ohms	7304511					
T2	12 ohms	@ 10 ohms	7304511					

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	4" X 10" PM	10 ohms	7313002	Front (Pontiac, Grand Prix)
	4" X 10" PM	10 ohms	7312982	
SP2	4" X 10" PM	10 ohms	7311432	Front (Tempest) Front (Firebird) Rear (Pontiac & Tempest Sedan, Grand Prix) Rear (Pontiac Station Wagon) Rear (Pontiac Convertible) Rear (Tempest Station Wagon) Rear (Firebird)
	6" X 9" PM	10 ohms	7294892	
	4" X 10" PM	10 ohms	7290391	
	4" X 10" PM	10 ohms	7309252	
	4" X 10" PM	10 ohms	7303361	
	6" X 9" PM	10 ohms	7301803	

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	3AG 10 Amp		In Fuse Block	AGC10		311010		

TAPE HEADS

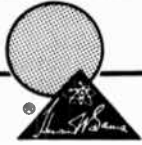
ITEM No.	MEASURED			PART No.	NORTRONICS PART No.	DESCRIPTION
	INDUCTANCE	BIAS/ERASE VOLTS (RMS)	BIAS FREQ.			
M1	380mh			7305875	5800 (1)	8-Track Stereo Play (1) Use original mounting.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Motor	7306712	
M3	Solenoid	1222985	
S1	Switch, Power	7309849	
S2	Switch, Automatic Program Selector	7313343	
S3	Switch, Manual Program Selector	1222972	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Tape Door Escutcheon Knob, Volume or Fader	1222938 7309717 9794856	Knob, Tone Knob, Balance	9796911 9796912



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are MOTOROLA



VOLKSWAGEN MODELS 1VW10
2VW1003
(Fastback, Squareback,
Karmann Ghia,
Sedan, Transporter)

ALIGNMENT INSTRUCTIONS

Check for specified source voltage.
Use only enough generator output
to provide a usable indication.
Suggested Alignment Tools:

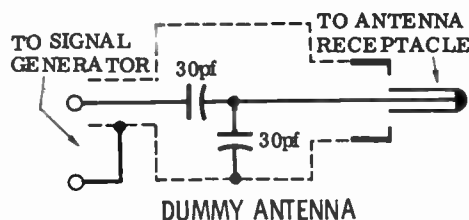
	GENERAL CEMENT	WALSCO
A1 thru A4	#9296,9297,9300	#2510,2546,2547
A5, A6, A7	#8290,8860,9087	#2525,2528,2587

PUSH-BUTTON ADJUSTMENT

1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point A , low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
2.	Thru dummy antenna to antenna input.	1615KC	"	"	A5,A6, A7	"
Step 3 is not necessary unless tuner or associated components have been disturbed. If necessary, back tuning cores (A8,A9,A10) out of coils but not out of forms. Repeat Step 2.						
3.	Thru dummy antenna to antenna input.	1000KC	Tune to signal	Output meter across voice coil	A8,A9, A10	Adjust for maximum. Repeat Steps 2 and 3 until no further improvement is noted

With radio installed in car and antenna extended to desired height, tune in a weak station near 1400KC and adjust A7 for maximum output. Antenna adjustment (A7) is located on right side.

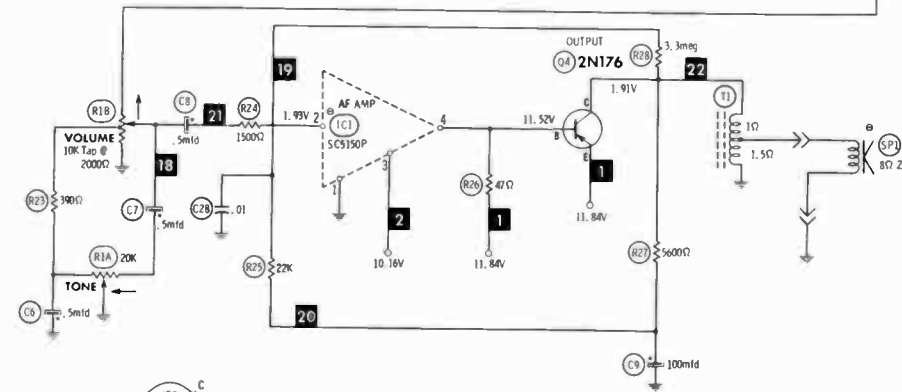
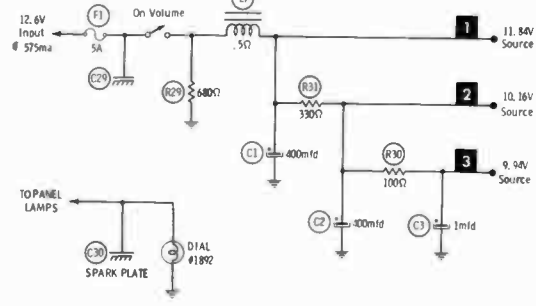
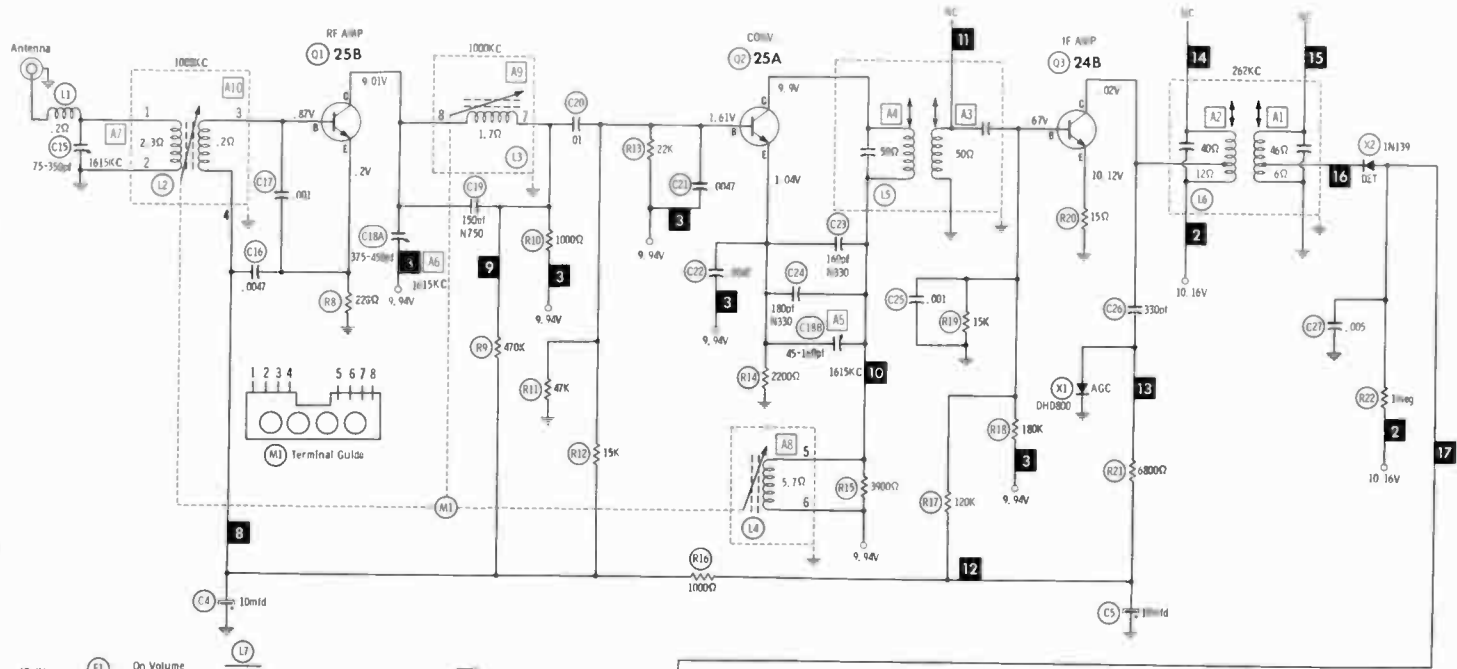


VOLKSWAGEN MODELS 1VW10, 2VW1003

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

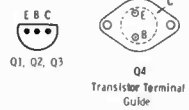
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TD831

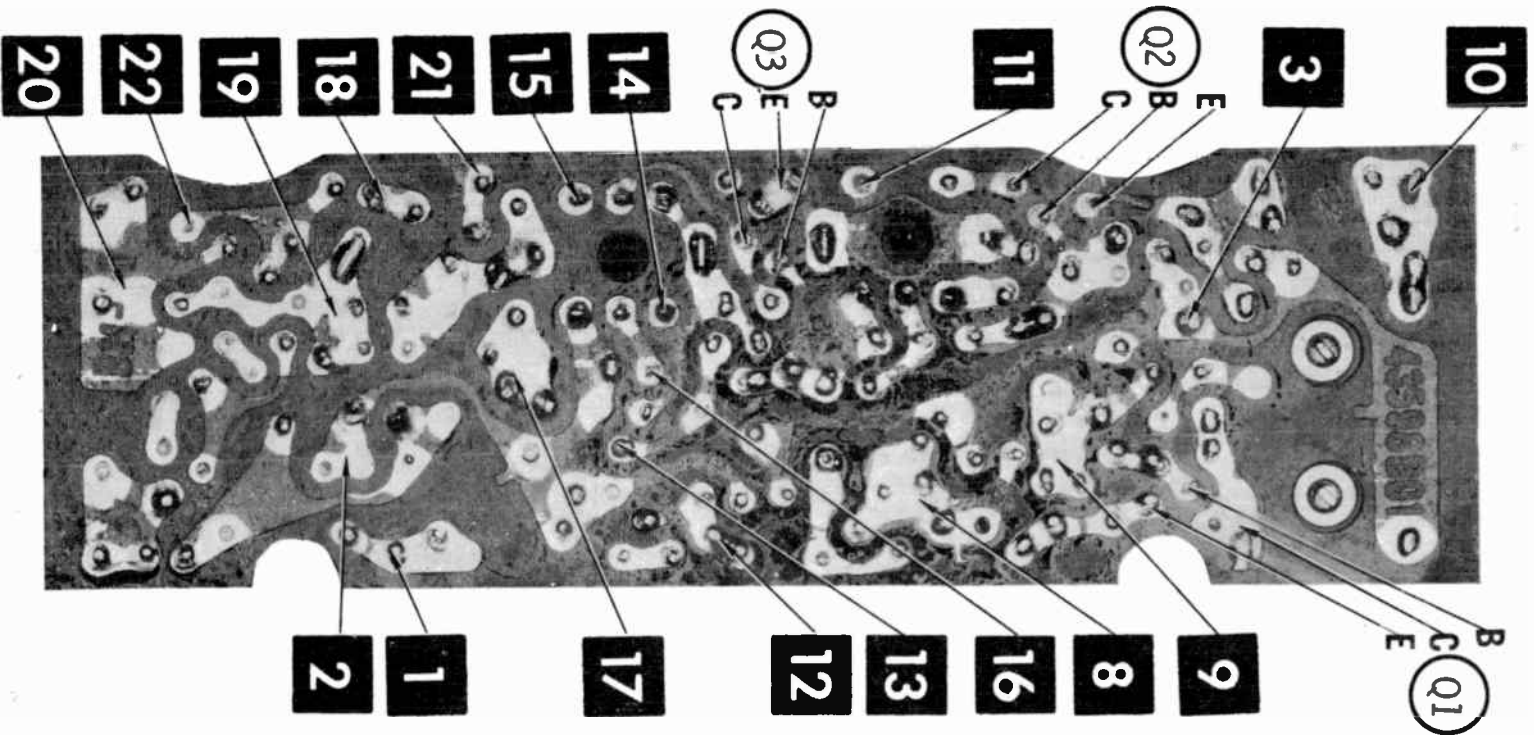


See parts list.
 Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.
 Supply voltage maintained at rated value for measurements.
 Voltage and resistance measured with VTVM or equivalent meter.
 No signal applied and controls adjusted for normal operation.
 Controls viewed from actuator end. Arrow indicates clockwise rotation.
 Numbers assigned to terminals may not be found on the unit.
 Transistor resistances vary widely. No resistance measurements taken.

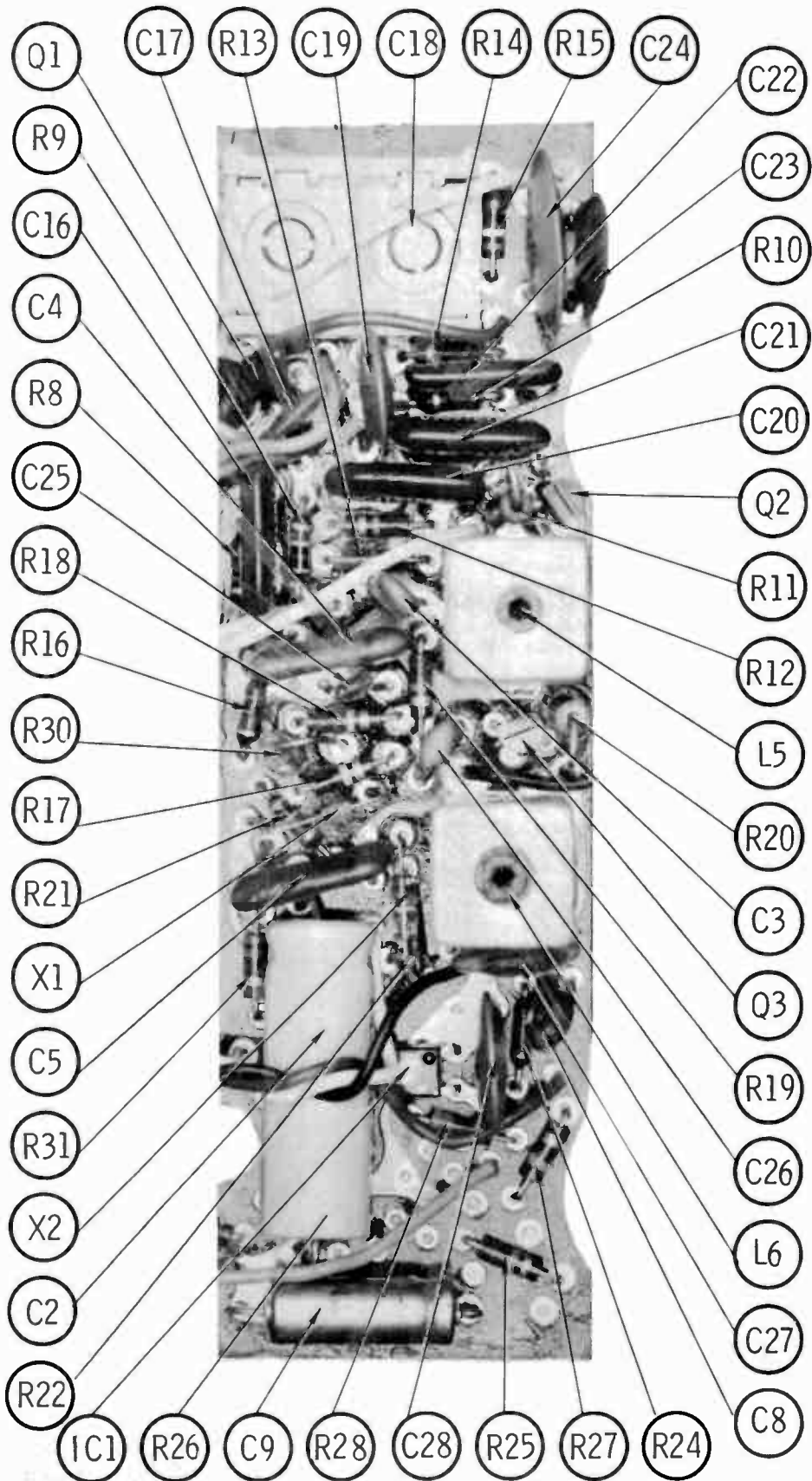
A PHOTOFACT STANDARD NOTATION SCHEMATIC
 with CIRCUITRACE
 © Howard W. Sams & Co., Inc. 1970

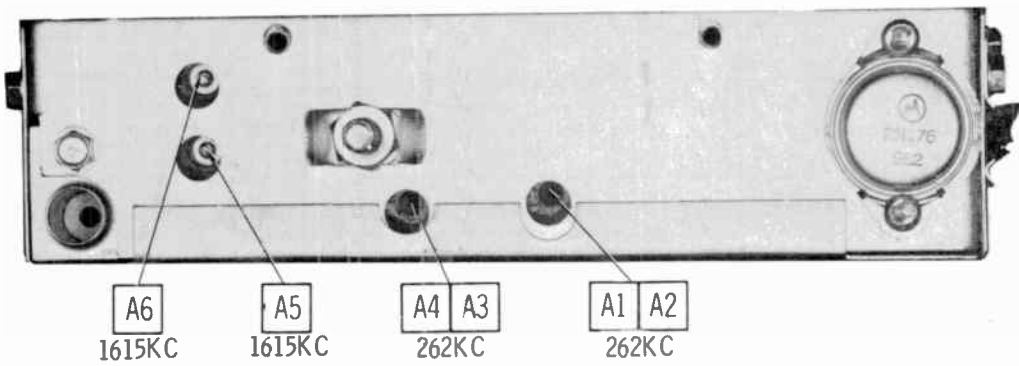
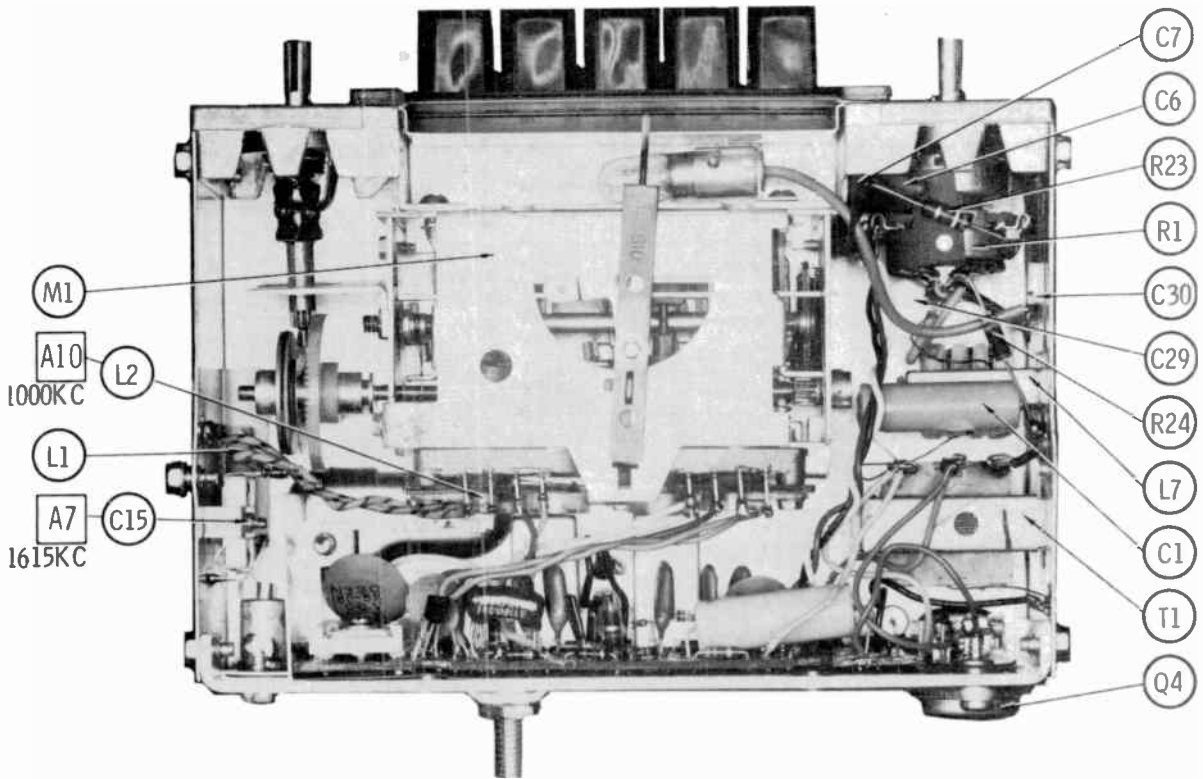


VOLKSWAGEN MODELS 1VW10, 2VW1003



A Howard W. Sams **CIRCUITFACE** Photo





PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661 (3/8 In.) or 8670 (3/4 In.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q1	25B	RF Amp	48-134805	GE-17	TR-21	HEP722	SK3018	ECG 108
Q2	25A	Converter	48-134804	GE-17	TR-21	HEP723	SK3018	ECG 108
Q3	24B	IF Amp	48-134807	GE-17	TR-21	HEP725	SK3018	ECG 108
Q4	2N176	Output (1)	48-134747	GE-3	TR-01	HEP623	SK3009	ECG 104

(1) When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFGR. PART No.	REMARKS
IC1	AF Amp	51-43684B02	SFC4050

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	DHD800	1N82A	1N82A	ECG 112		
X2	1N139	1N295	1N295	ECG 109		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	PART No.	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	400 16V	23C42674B10	PRS1220	EA15-500	WBR500-35	QT1-30A	TC1505A	TL-1166
C2	400 16V	23C42674B10	PRS1220	EA15-500	WBR500-35	QT1-30A	TC1505A	TL-1166
C3	1 15V	23C43280A17	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1148
C4	10 6V	23C43280A03	CRE457A	EA6-10	AL10-25	MT1-5	MTA10035	TL-1087
C5	10 6V	23C43280A03	CRE457A	EA6-10	AL10-25	MT1-5	MTA10035	TL-1087
C6	.5 6V	23C43280A23		UK10-474	TYR13BDR474K		TAS474M015P0A	196D474X0035DB
C7	.5 6V	23C43280A23		UK10-474	TYR13BDR474K		TAS474M015P0A	196D474X0035DB
C8	.5 15V	23C43280A25		UK10-474	TYR13BDR474K		TAS474M015P0A	196D474X0035DB
C9	100 10V	23C42674B11	CRE473A	EA15-100	AL100-16	MT1-19	MTA100E15	TE-1162

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C15	75-350	#20-40746A15						
C16	.0047 100V		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50
C17	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C18A	375-450	#20-42280B01						
C19	150 N750		N750-DI 150	DTN-150	N150	CCTN-151	CN7315	10TCU-T15
C20	.01 100V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C21	.0047 100V		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50
C22	.0047 100V		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50
C23	160 N330					*	*	
C24	180 N330					*	*	10TCS-T18
C25	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C26	330		GP0 X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33
C27	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C28	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C29		#64-41668A04						
C30		#64-41668A09						

* MOTOROLA PART NUMBER.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.

Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A 8	Tone Volume/Switch	20K 10K Tap @ 2000	18C42205801	F1-25K, R16-10K, FFS009, RFS100, KR-4		* QJ-2595A	P24L, 303B, RU14T53, OX562A, IS1000, US41

* "CONCENTRIKIT" Equivalent: K-6 Kit with base elements & shafts; 811-119, P14-019 (Panel)
819-116X, R1-100 (Rear)
76-1 (Switch)

"SNAPTROL" Equivalent: 8U5, CF62, CR49T, SF68, SR107, GC

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (1.5uh)	24C40788A04	19-1001	4604	T856
L2	Antenna	(1)			
L3	RF	(1)			
L4	Oscillator	(1)			
L5	Input IF	24D40310813			
L6	Output IF	24040310814			

(1) Part of M1

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L7	575ma	.5	10mh	25041894823	C-4095	TC-2	TR-152	TY17XT	

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	20 Tap @	8	25D42840B09					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				PART No.	QUAM PART No.	
SP1	5" PM 4" x 8" PM	8 ohms 8 ohms		50C43452801 50C41451801		Fastback & Squareback

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	AGA 5 Amp	65S122345	9-42401801	AGA5	HRF	301005	150145	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner Coil Assembly	77-42901801 1-42902813	ATS-708

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Knob, Tuning or Volume	36-42230B01	Dial Glass (Canadian)	61-43748B03
Knob, Tone	36-42182301	Dial Pointer	52-40248B26
Dial Glass	61-43748B04	Push Button	38-42185B01

VOLKSWAGEN MODELS 1VW10, 2VW1003

INDEX

This index lists all radios appearing in
"Auto Radio Manuals" and "PHOTOFACT Auto Radio Series"

KEY		(EP) Early Productions	(LP) Late Productions	(REV) Revised
AIRCATTLE	VOL.	ALLIED	VOL.	AMERICAN MOTORS
610.A67	4	1984191	60	(CONT.)
610.FE-153 52-53		1984192	62	P8MA 68 Ambassador,
Ford	4			Rebel
610.W-100	5			RV4R 64 Rambler
		ALLIS CHALMERS		65MR 66 Ambassador,
AIR CHIEF (See Firestone)		OBTAC 70	80	Classic,Marlin
AIRLINE (Also See Riverside)		7BT 249523	44	75MR 67 Ambassador,
		7BTX	50	Marlin,Rebel
				85MG (8992251)
FJB-6590A 55 Ford	6			68 Javelin
35BR-6796A	5	5018	22	85MR 68 Ambassador,
61-6787 52 Ford	5	5028 Ch.528.50280/		Marlin,Rebel
61-6788 52-53 Ford	5	50281	7	22BA R22BA 62 Rambler
61-6789 51-52 Chev.	5	5033 Ch.528.50330/		American
61-6792 53 Dodge	4	50331	7	22BAM R22BAM 62
61-6793 53 Chev.	5	5050	30	Rambler American
61-6794 53 Plym.	5	5066	26	22BAX R22BAX 62
61-6795 53 Merc.	5	5098 Ch.833.50980	9	Rambler American
61-12601 Tractor	5	5099 Ch.833.50990	9	8990377 GMR 56
		6225 Ch.528.55040/		Rambler
AIWA		55041	11	8990378 6MA 56 Hudson
TP-718	48	6231 Ch.528.62310	9	& Nash
		6232 Ch.528.62320	9	8990378 76MA 57
ALL AMERICAN		6240 Ch.528.62400	5	Hudson & Nash
CEP-764T 64		6256 Ch.528.55040/		8990455 7MR 57
Chevelle	31	55041	11	Rambler
CHP-164T 64 Chev.	31	6263 Ch.528.6263	5	8990494 84MA 58
CHP-165T 65 Chev.	33	6263-2 Ch.528.6263-2	5	Hudson,Nash &
CHP-564T 64		6264 Ch.528.6264	5	Rambler
Chevy II	31	6264-1 Ch.528.6264-1	5	8990543 83MR 58
CTP-264T 64 Comet	31	6266 Ch.528.6266	5	Rambler
CYP-465T 64 Chrysler	33	6268 Ch.528.6268	7	8990576 94MA 59
DAP-864T 64 Dart	31	6269 Ch.528.6269/91	7	Rambler
DAP-865T 64 Dart	33	6284 Ch.528.6284	4	8990582 93MA 59
DOP-864T 64 Dodge	31	6286-4 Ch.528.6286-4	4	Rambler
DOP-865T 65 Dodge	33	6287-4 Ch.528.6287-4	4	8990706 04MA 60
FAP-264T 64 Falcon	31	6295-6 Ch.528.6295-6	4	Rambler
FLP-264T 64 Fairlane	31	6330 Ch.528.63300	5	8990811 03AR 60
POP-264T 64 Ford	31	750.62380/81/90/91,		Rambler
FOP-265T 65 Ford	33	750.62890	25	8990831 13MAM 60
MEP-264T 63-64 Merc	31	833.5049	30	Rambler
MEP-265T 65 Merc	33	833.50180B	31	8990832 13MA 60
PLP-464T 64 Plym.	31	833.50181	27	Rambler
PLP-465T 65 Plym.	33	833.50202	27	8990833 14MR 61
PLPF-465T 65 Fury	33	833.50490	30	Rambler
RAAP-1065T 65		833.50930	28	8990981 21MR 62
Rambler American	33	833.50931 64 VW	28	Rambler
RAP-364T 64 Rambler	26	833.62741	28	
RAP-365T 65 Rambler	33	833.62743	32	ANGLIA
SM-130RPE	26	833.62800	30	6BEF 66
UP-220RPT	26	833.63070	28	A.R.C.
VAP-464T 64 Valiant	31	833.500510 65 Chev.	32	2500
VAP-465T 65 Valiant	33	833.501220	30	
VWP-19T 58-64 VW	26	833.501230 65 Dart	30	ARVIN
VWP-19T 65 Prod VW	34	833.501920 65 Comet	30	60Y53-19 Ch.1.45701
		833.503050 65 Fury	30	
		833.503060 65	30	ATR KARADIO
		Belvedere	30	BKS410 61-62 Buick
		833.623690	30	Special
		833.624211 64 VW	28	CT412 61-62 Chev.
		833.624630	30	CR414 60-62 Corvair
		833.625510 65 Chev.	30	COT416 60-62 Comet
		833.627420	28	DED418 62 Dart
		833.628000	30	FAL420 60-62 Falcon
		834.50480	32	FD422 60-62 Ford
		835.62460	29	LR424 62 Lancer
		856.62450	27	MY426 62 Merc.
		856.62470	52	OEF428 61-62 F-85
				PH430 62 Plym.
		AMERICAN MOTORS		PCT432 61-62 Tempest
		(See Hudson,Nash & Rambler)		TR720N
		A8MG (8992290)		TR1279-6V
		68 Javelin	65	TR1279-12V
		AF6TMR page 120 66		TT-727 Tractor Radio
		Ambassador,Classic,		VT434 62 Valiant
		Marlin	28	401
		AF75MR 67 Ambassador,		606
		Marlin,Rebel	44	612
		F85MG (8992252)		707
		68 Javelin	68	1279-6V
		F85MR 68 Ambassador,		1279-12V
		Rebel	63	
		P7MA 67 Ambassador,		
		Marlin,Rebel	47	
				AUDIO/STEREO
				A-12
				A-30
				A-40
				A-45
				A-50
				A-90
				A-100
				AUSTIN HEALEY
				HAC700 4TMB
				AUTOMATIC
				AC-4558 64 Comet
				ACP-3044 63 Comet
				ACP-4559 64 Comet
				ACS-6000
				ATC-60 59-60 Chev.
				BAP-9 59 Buick
				BAP-20 60 Buick
				BAP-4530 64 Buick
				BAR-8209 68 Barracuda,
				Plymouth
				BP-340 60 Buick
				BP-668 57-58 Buick
				BP-679 59 Buick
				BP-3081 63 Buick
				BP-4030 64 Buick
				BP-7160 66-67 Buick
				C-12
				C-300
				C-300 Rev. 40-50
				Chevy
				C-349 59 Chev.
				C-382AT
				C-382AT 62 Chev L.P.
				C-338-C 58 Chev.
				C-3001 63 Chev.
				C-4049 64 Chev.
				C-4049N 64 Chev.
				C-5003 65 Chev.
				C-5003N 65 Chev.
				C-6051 66 Chev.
				CA-109 59 Chev.
				CA-3041 63 Chev.
				CA-4549 64 Chev.
				CA-4549N 64 Chev.
				CA-5503N 65 Chev.
				CAE-3064 63 Olds.
				CAP-49 59 Chev.
				CAP-60 59-60 Chev.
				CAP-3042 63 Chev.
				CAP-4550 64 Chev.
				CAP-4550N 64 Chev.
				CAP-5504N 65 Chev.
				CAP-6552 66 Chev.
				CAV-4548 64 Chevelle.
				CEF-119 English Ford
				Consuls
				CET-6750
				CFE-6745
				CFM-3090
				CFM-6255 66 Chev.
				CM-333 53 Chev.
				CMP-7217 67 Cougar
				CMR-7151 67 Camaro
				CMR-8252 67-68 Camaro
				CP-478-C 58 Chev.
				CP-489-F 59 Chev.
				CP-500 59-60 Chev.
				CP-511AT 61 Chev.
				CP-522AT
				CP-522AT 62 Chev L.P.
				CP-3002 63 Chev.
				CP-4050 64 Chev.
				CP-4050N 64 Chev.
				CP-5004 65 Chev.
				CP-5004N 65 Chev.
				CP-6052 66 Chev.
				CP-8254T 68 Chev.
				CPA-3047 63 Corvair
				CPA-4533 64 Corvair
				CPV-4048 64 Chevelle.
				CPV-5007 65 Chevelle.
				CPV-7154 67-68
				Chevelle
				AUTOMATIC (CONT.)
				CPV-8256 68 Chevelle
				CR-3006 63 Corvair
				CR-4034 64 Corvair
				CRA-3046 63 Corvair
				CRA-4534 64 Corvair
				CRP-442A/AT 63
				Corvair
				CRP-3007 63 Corvair
				CRP-4033 64 Corvair
				CRP-5009 65 Corvair
				CRP-6056 65-66 Corvair
				CRP-7156 65-66 Corvair
				CT-356 55-56 Chev.
				CT-387 57 Chev.
				CT-4058 64 Comet
				CTP-792AT 62 Comet
				CTP-3004 63 Comet
				CTP4059 64 Comet
				CTP-5071 65 Comet
				CTP-7211A 67 Mercury
				Comet
				CTR-6A 55-56 Chev.
				CTR-6B 55-56 Chev.
				CTR-77A 57 Chev.
				CU-39
				CY-3010 63 Chevy II
				CY-4025 64 Chevy II
				CY-5006 65 Chevy II
				CYP-3009 63 Chevy II
				CYP-4032 64 Chevy II
				CYP-5005 65 Chevy II
				CYP-7158 66-67 Chevy
				II
				D-2 59 Renault
				Dauphine
				D-8 59 Renault
				Dauphine
				DAD-6508 66 Dart
				DAP-39 59 Dodge
				DD-5125 65 Dart
				DD-5125N 65 Dart 270.
				DD-6008 66 Dart
				DDF-7378 67 Dodge
				DE-3001 60 DeSoto
				DE-3077 63 Dart
				DE-3078 63 Dart
				DEP-4154
				DEP-4654
				DEP-6204
				DET-28 57-58 DeSoto
				DFM-3095
				DHP-7133 67 Dodge Dart
				DM-132 53 Dodge
				DMF-7372 67 Dodge
				DP-6 57-59 Renault
				Dauphine
				DP-11 57-59 Renault
				Dauphine
				DP-3082 64 Dodge 880.
				DP-4107 64 Dodge 880.
				DP-5127N 65 Dodge 880,
				Polara,Monaco
				DP-8214 67-68 Polara,
				Monaco
				DRX-7117 66-67 Dodge
				Charger
				DTX-67A 57-58 Dodge
				DTX-68 57-58 Dodge
				DUP-42
				DUP-4151
				DUP-4651
				DUP-6202
				DX-410 60 Dart,DeSoto,
				Dodge
				DX-619 59 Dodge
				DX-3013 63 Dodge
				DX-5121 65 Coronet
				DX-5121N 65 Coronet
				DX-7111 66-67 Dodge
				Coronet
				DX-8212 68 Coronet
				DXA-50 60 Dart,DeSoto,
				Dodge

AUTOMATIC (CONT.)	VOL.	AUTOMATIC (CONT.)	VOL.	AUTOMATIC (CONT.)	VOL.	AUTOMATIC (CONT.)	VOL.	BENDIX	VOL.
F-100 Rev. 49-50		MAP-3063 63 Merc.	23	PP-3026 63 Plym.	22	TMA-1550	69	R2BG See Karmann Ghia	
Ford	6	MAP-4561 64 Merc.	27	PP-5105 65 Belvedere.	30	TPC-31 61 Buick Spl.,		2 BG	18
F-128/C 58 Ford	12	MB-72	30	PP-5105N 65		Olds., F-85, Pontiac		R2BT See VW ZBT	18
F-139 59 Ford	11	MEL-6740	69	Belvedere	35	Tempest	16	R2BV See VW ZBV	18
F-151 Rev. 51 Ford	6	MM-430 53 Merc.	4	PP-7103 66-67		TPC-31AT 63 F-85,		R12BP 61 Chev.	16
F-152 52 Ford	6	MNE-6725	68	Belvedere, Satellite	60	Tempest	23	R12BPC 61 Corvair	16
F-241 54 Ford	6	MP-69	6	PP-8202 68 Belvedere,		TPC-42AT 63 F-85,		R22BA See American	
F-322A	19	MP-126	6	Satellite	60	Tempest	23	Motors 22BA	18
F-3016 63 Ford	23	MT-47C 57 Merc.	12	PPM-7366 67 Plymouth	61	TPC-3036 63 F-85,		R22BAM See American	
F-4055 64 Ford	27	MT-419 E.P. 59 Merc.	11	PS-4153	27	Tempest	23	Motors 22BAM	18
F-5058N 65 Galaxie	36	MT-419 L.P. 59-60		PS-4653	27	TPC-4026 64 Tempest	28	R22BAX See American	
F-6105P 65/66		Merc.	14	PT-3025 63 Plym.	26	TPC-7170 66-67 Pontiac		Motors 22BAX	18
Galaxie	40	MT-530 59-60 Merc.	14	PUT-3108	23	Tempest	62	X2BB Shipmate III	19
FA-219 59 Ford	11	MT-3023 63 Merc.	23	PUT-3108A	28	TPP-87A 57 Plym.	13	2BC R2BC 62 Chev.	19
FA-3056 63 Ford	23	MT-4061 64 Merc.	27	R-54,B	11	TR-88 57-58 Plym.	13	2BCT R2BCT 62	
FA-4555 64 Ford	27	MT-5073 65 Merc.	29	R-61	10	TR-88C 57-58 Plym.	13	Corvair	19
FA-6605P 65/66		MTR-602AT 62 Meteor	24	RAP-89 59 Rambler	13	TR-12 Tractor	4	3BCH 63 Chev.	21
Galaxie	40	MU-34	6	RAP-100 60 Rambler	13	TR-13B	25	3BCH2 63 Chevy II	21
FAL-4554	27	MUS-4067 64 Mustang	27	RAP-3070 63 Rambler	26	TR-48AT	25	3BCT 63 Corvair	21
FAN-3058 63 Fairlane	23	MUS-5059 65 Mustang	29	RAV-5403A/AB	57	TR-0048	25	4TBC2 64 Chevy II	32
FAN-4551 64 Falcon	27	MUS-5059N 65 Mustang	36	RG-59	14	TR-7281 Tractor	59	4TBC3 64 Corvair	32
FAP-70 60 Ford	14	MUS-7209 67 Mustang	60	RG-59C	14	TR-7390 Tractor	59	4TBC4 64 Chev.	32
FAP-4556 64 Ford	27	N-638 58-59 Rambler		RMR-7280	63	TUN-5	15	4TBC4 64 Chevelle	32
FAP-6606P 65/66		American	13	RP-470 60 Rambler	13	TUN-5	15	4TBC4 64 Chev. Truck	32
Galaxie	40	N-639 58-59 Rambler		RP-481AT 60-61		UAF-6224	64	5BCC 65 Corvair	31
FAR-762AT 62		American	13	Rambler	16	UE-4155A	28	5BCC 65 Chev.	31
Fairlane	24	N-3028 63 Rambler		RP-519 59 Rambler	13	UE-4171A	28	5BCL 65 Chevelle	31
FAR-3018 63 Fairlane	23	American	23	RP-3030 63 Rambler	26	UE-4655A	28	5TBC2 65 Chev. Truck	32
FAR-4054 64 Fairlane	27	NA-749 58-59 Rambler		RP-3097 63 Rambler	23	UE-4671A	28	6BCC 66 Corvair	38
FAR-7205 67 Fairlane	60	American	13	RP-5151 65 Rambler	29	UFM-3089	22	6BCH 66 Chev.	38
FFM-3091A 63 Ford	22	NA-3068 63 Rambler		RP-8332M 67 Ambassador,		UFM-6305	59	6BCL 66 Chevelle	38
FFM-6251 65-66		American	23	Marlin, Rebel	55	UFP-3098	22	6BCT 66 Chev. Truck	38
Galaxie	66	NAP-3069 63 Rambler		RT-7B	13	UN-40	12	6BCT 66 Chevy II	38
FM-61	14	American	23	RT-7D	11	UP-6222	60	7BCC 67 Corvair	45
FM-731	6	NAY-3052 63 Chrysler	23	RUV-7284A	76	VP-12	12	7BCL 67 Chevelle	45
FM-3083	22	ND-8224 68 Chrysler		RUV-5406	58	VP-6228 58 thru 67		7BCT 67 Chev. Truck	45
FM-3083A	27	300	60	RVB-6782(Echomate II)	71	Volkswagen 1300	74	7BCT 67 Chevy II	45
FM-5099	32	NP-3029 63 Rambler		S-91 58-59 Simca		VPA-280 60 Valiant	15	7BCH 67 Chev.	45
FM-5099B	65	American	23	Aronde	11	VPA-3076 63 Valiant	22	7BCH 67 Camaro	45
FN-4051 64 Falcon	27	NP-5153 65 Rambler		S-500 50-51		VSC-6767 67 VW	70	7FBCX 67 Chev.	47
FNP-430 60 Falcon	14	American	29	Studebaker	6	VT-5108 65 Valiant	30	7FBCXX 67 Camaro	47
FNP-452AT 62 Falcon	23	NT-8222 68 Chrysler		S-551 Rev. 50-51		VTP-440 60 Valiant	15	8BDT 68 Dodge Truck	60
FNP-3015 63 Falcon	23	Newport	60	Studebaker	6	VTP-3038 65 Valiant	22	22B See MoPar 805	17
FNP-3015A 63 Falcon	23	NU-63-AT	23	SA-529 58-59 Simca		VTP-5107 65 Valiant	30	23BC See MoPar 327	17
FNP-4052 64 Falcon	27	NU-3107	23	Aronde	11	VTP-8208 68 Valiant	60	23BD, 23BP, 23BPX	
FNP-5051 65 Falcon	36	NU-3107A	28	SA8-3071 63 Special	23	W-76 Thru 57 VW	12	See MoPar 322	17
FNP-7203 67 Falcon	60	NVW-6238 65-67 VW 1600	54	SB-3032 63 Special	23	W-84 58-63 VW	23	24BC See MoPar 410	18
FOP-4528 64 F-85	28	NY-400 60 Chrysler	14	S8P-3033 63 Special	23	W-89 58-59 VW	12	24BI See MoPar 409	18
FP-238 58 Ford	12	NY-598A 58 Chrysler	10	S8P-4027 64 Buick		W-3040 58-63 VW	23		
FP-238C 58 Ford	12	NY-3012 63 Chrysler	23	Spl.	28	W-3040A 64 VW	28		
FP-260 60 Ford	14	NY-3100 63 Chrysler		SBP-7168A 66-67 Buick		W-5204 See Page 41			
FP-271AT 60-61 Ford	16	New Yorker	26	Special	62	65 VW	28	Bremen Above Serial	
FP-276TR 59 Ford	11	NY-5101N 65 Chrysler	35	SEA-6804	77	WFM-5387 58-67 VW	54	#G14001	9
FP-3017 63 Ford	23	NY-8220 68 Chrysler		SEA-6801	72	WP-4 58-59 VW	12	Derby 94770 Serial	
FP-4056 64 Ford	27	New Yorker	60	SEL-9606	74	WP-7 Thru 57 VW	12	#V710001, Etc.	32
FP-5057N 65 Galaxie	36	OAE-10 60 Olds.	14	SFB-8002	79	WP-7G Karmann-Ghia	12	Exportsuper 33070	
FP-6106P 65/66		OAE-4531 64 Olds.	28	SP-1 58-59 Simca		WP-19 58-59 VW	12	From Serial #U170001	33
Galaxie	40	OE-160 60 Olds.	14	Aronde	11	WP-21 58-63 VW	23	Exportsuper 33080 From	
FP-7207 67 Galaxie	60	OE-171AT 61 Olds.	16	SPA-209 58-59 Simca		WP-167	15	Serial #U50001	33
FPA-220 60 Falcon	14	OE-3024 63 Olds.	23	Aronde	11	WP-3039 58-63 VW	23	Exportsuper 34150	
FPA-3055 63 Falcon	23	OE-4031 64 Olds.	28	SPA-3072 63 Special	23	WP-3093A 64 VW	28	Serial #V450001	26
FPA-3057 63 Ford	23	OE-5031 65 Olds.	29	SPA-4527 64 Buick		WP-5203 See Page 41		Exportsuper 34750 From	
FPA-4552 64 Falcon	27	OE-7162 67 Oldsmobile	60	Spl.	28	65 VW	28	Serial #V765001	34
FPF-4557 64 Falcon	27	P-69	20	TA-3073 63 F-85,		WP-6237 (58-67 VW		Exportsuper 36350	
FPO-4028 64 F-85	28	P-651 Rev. 51 Plym.	6	Tempest	23	1300	57	Vienna Series X From	
FPO-5033 65 F-85	29	P-4152	27	TAC-3051 63 Chev.		WPC-8 Thru 57 VW	12	Serial #X870001	42
FT-227 57 Ford	12	P-4652	27	Truck	22	YAM-3050 63 Chevy II	23	Exportsuper 91220	
FTM-7218 64-67		P-5040 65 Pontiac	29	TAC-4541 64 Chev.		YAM-4525 64 Chevy II	28	Above Serial	
Econoline, Bronco	64	PA-74R	30	Truck	28	YP-3049 63 Chevy II	23	#E160001	18
FTP-37A 57 Ford	9	PA-85	23	TAC-5514N 65 Chev.		YP-4532 64 Chevy II	28	Frankfurt	8
FUP-3080 63 Falcon	23	PA-3065 63 Plym.	26	Truck	37			Frankfurt US From	
Futura	23	PA-3285	23	TAP-3074 63 F-85,		AUTO-SONIC		Serial #V510001	27
FUP-4057 64 Falcon	27	PAC-90 60 Pontiac	14	Tempest	23	KS-830	59	Frankfurt 3798 Above	
GES-6394-PAK/-T	71	PAC-3067 63 Pontiac	23	TAP-4526 64 Tempest	28	ST-300	55	Serial #Q553083	14
GES-8111-1-PAK	71	PAC-4529 64 Pontiac	28	TAX-4542 64 Chev.		ST-308	53	Frankfurt 9798 Above	
H-4 58 Hillman	12	PAF-4340	29	Truck	28	ST-400	60	Serial #890001	15
H-9 58 Hillman	12	PAP-69 59 Plym.	15	TAX-5513N 65 Chev.		ST-808	63	Frankfurt US 36650	
H-400 49-50-51		PAP-80 60 Plym.	15	Truck	37	603M/48	53	Series X	43
Hudson	6	PAP-3066 63 Plym.	22	TC-3035 63 F-85,				Hamburg	8
HP-10 58 Hillman	12	PC-350 60 Olds.	14	Tempest	23			Koln	8
HP-15 58 Hillman	12	PC-361AT 61 Pontiac	16	TCM-3011 63 Chev.		AUTOVOX		Koln 3898 Above Serial	
K-700 51 Henry J	6	PC-3027 63 Pontiac	23	Truck	22	OC-401	27	#Q310001	16
L-390 59-60		PC-4029 64 Pontiac	28	TAC-4041 64 Chev.		RA-107	17	KV810	17
Studebaker Lark	14	PC-5041 65 Pontiac	29	Truck	28	RA-115	17	Manhattan 35150	
L-559 E.P. 59		PC-7165 67 Pontiac	62	TAC-5014 65 Chev.		RA-164	27	Series W	43
Studebaker Lark	11	PFM-3092A 63 Pontiac	22	Truck	29	RA-441	27	Manhattan 34150	
L-559 L.P. 59-60		PFM-3094 63 Plym.	22	TAC-5014N 65 Chev.		RA-443	27	Serial #V450001	26
Studebaker Lark	14	PFM-6257 66 Pontiac	66	Truck	37	TR-222 Auto/Portable	16	Manhattan 90220	17
LA-449 59 Studebaker		PFX-5109 65 Fury	30	Truck	28	TR-231 Transmobile 3.	19	New Yorker 34750 From	
Lark	11	PFX-5109N 65 Fury	35	Truck	28	Europa MU	8	Serial #V765001	34
LAP-29 59 Studebaker		PFX-7105 67 Plymouth		Truck	29	Europa MUK	8	New Yorker-Series X	
Lark	11	Fury	62	Truck	29	Europa TG/MU	20	From Serial	
LAP-40 59-60 Studebaker		PFX-8206 68 Plymouth		Truck	37	Mexico TG	17	#X1485001	46
Lark	14	PM-236 53 Plym.	5	Truck	37	Monte Carlo	17	Vienna	26
LP-929 59 Studebaker		PP-330 60 Plym.	15	Truck	60	TDM-1257 64-69	18	Wolfsburg 9160 Above	
Lark	11	PP-341AT 61 Plym.	16	Dodge Truck	64	TLU-1590	74	Serial #G450001	9
MAP-99 E.P. 59 Merc.	11	PP-819 59 Plym.	15					3598	13
MAP-99 L.P. 60 Merc.	14							9280	13

BORG-WARNER	VOL.	BUICK (CONT.)	VOL.	CHEVROLET (CONT.)	VOL.	CHEVROLET (CONT.)	VOL.	CHEVROLET (CONT.)	VOL.
PGMW	53	7293644 66 Buick	38	01BFP1/2 70 Acadian,		985957 64 Chevy II	24	7301001 67 Camaro	44
3800 (P7MWD)	61	7293654 66 Riviera	36	Chevelle,Chevrolet,		985958 64 Chevy II	23	7301001 68 Camaro	48
4000 - Mark II (P7MM)	62	7293674 66 Riviera	37	Chevy II, Monte Carlo	74	986096 65 Chev.	29	7302451 68 Chevy II	49
4000 - Mark II (P7MM2)		7293684 66 Riviera	38	01BFP1/2 (7313091) 70	70	986099 65 Chev.	29	7302721 68 Corvette	
(LP)	63	7293914 66 Special	37	01BFP1/2 70 Acadian,		986101 65 Chev.	29	(68 Models)	52
BRITISH MOTORS CORP.		7297944 66 Buick	36	Chevelle,Chevrolet,		986113 65 Corvair	29	7302721 69 Corvette	
6SMB 66 Austin Healey		7298904 67 Special	44	Chevy II, Monte Carlo	74	986113 66 Corvair	38	(69 Models)	73
3000, Mark III, Sprite,		7298914 67 Special	43	01BT411 70 Acadian,		986116 65 Corvair	31	7303121 68 Chevelle	48
MGB, MG Midget and		7298924 67 Buick	44	Camaro, Chevelle,		986116 66 Corvair	36	7303131 68 Chevelle	49
MG-1100	53	7298934 67 Buick	43	Chevrolet, Chevy II,		986118 65 Corvair	29	7303201 68 Corvette	53
7SMB 67 Austin Healey		7298944 67 Buick	45	Monte Carlo	76	986118 66 Corvair	38	7303211 68 Corvette	53
3000, Mark III, Sprite,		7298954 67 Riviera	44	01FBT1 70 1/2		986202 65 Chevelle	29	7303231 68 Chev.	48
MGB, MG Midget and		7298964 67 Riviera	43	Camaro (Similar to		986202 65 Chevelle	31	7303241 68 Camaro	48
MG-1100	53	7298974 67 Riviera	45	page 57)	74	986203 65 Chevelle	29	7303311 68 Chev.	48
BUICK		7302504 68 Special	54	01FFM1 70 1/2 Camaro	77	986248 65 Chev. II	29	7304161 68 Camaro	48
04AFP1 70 Special	75	7302514 68 Special	50	01FFMT1 70 1/2		986250 65 Chevy II	31	7304611 68 Chev.	49
04APB1 70 Special	80	7302524 981314 68		Camaro (Similar to		986252 65 Chevy II	29	7304621 68 Chevelle	58
04BFP1 70 Buick	75	Buick, Riviera	51	page 19)	75	986281 65 Corvette	31	7305201 68 Camaro	49
04BPP2 70 Buick	73	7302524-B 68 Buick	58	01FPB1 70 1/2		986330 65 Chev.Truck.	29	7305211 68 Camaro	49
04BPP4 70 Buick	77	Riviera	50	Camaro	76	986338 65 Chev.Truck.	29	7305221 68 Camaro	49
04EPB1 70 Riviera	75	7302544 68 Buick,		01TPB1, 01TPB2		986339 65 Chev.Truck.	29	7305301/A 68 Chevelle,	
04EPB2 70 Riviera	73	Riviera	51	70 Chev. Truck	76	986374 65 Chev.	29	Chevy II	49
04EPB4 70 Riviera	77	7303994	48	01VFM1/M2		986376 65 Chevelle,		7305311 68 Chevelle	55
94AFP1 (7306914)	70	7304884, A 68 Buick,		70 Corvette	78	Chevy II, Corvair	29	7305311A 68 Chevelle	55
69 Special	70	Riviera, Special	51	01VFP1/2 70 Corvette	74	986521 66 Chevy II	38	7305441 67 Chev.	48
94APB1 67 Special	61	CADILLAC		01VMPA1		986522 66 Chevy II	36	7305451 68 Chev.	49
94BFM1/EFM1 69 Buick,	67	05CFP1 70	76	70 Corvette (A/C)	78	986527 66 Chevelle	38	7306121 68 Chev.	58
Riviera	67	05CFM1 70	79	01VMPH1		986528 66 Chevelle	36	7306361 68 Chevelle	55
94BPM2/EFM269 Buick,	67	70 Cadillac	78	70 Corvette (HTR)	78	986529 66 Chevelle	38	7307121 68 Chev.Truck.	51
Riviera	67	95CFM2 69	63	81AT412 68 Chevelle,		986544 66 Chev.	38	7307801 (Similar to	
94BFP1 (7306934)	70	95CFM3 69	63	Chevy II	49	986545 66 Chev.	35	page 51)	44
69 Buick	70	95CFP1 (7307615) 69	74	81AT422 68 Chevelle	55	986546 66 Chev.	37	7307811 (Similar to	
94BPP1 69 Buick	62	95CFP2 (7307615)	74	91AMP11 69 Chevelle	61	986668 53	4	page 41)	48
94BPP2 69 Buick	62	69 1/2	74	91APB1 69 Chevelle,		986669 53	4	7307821 (Similar to	
94BT411 69 Riviera,	68	95CMP11 69	63	Camaro, Chevy II,		986769 66 Chev.Truck.	36	page 41)	48
Special	68	95CT411 (7311205) 69	71	Acadian	59	986771 54 Truck	5	7307831 (Similar to	
94BT412 69 1/2		95CT412 (7311205)	71	91BFM2 69 Camaro,		986771 66 Chev.Truck.	36	page 22)	49
Riviera, Special	68	95CWB1/2		Chevelle, Chev. Chevy II,		986823 67 Camaro	41	7307841 (Similar to	
94EFP1 (7306964)	70	(7307205) 69	70	Acadian	61	986824 67 Camaro	42	page 22)	49
69 Riviera	70	7264165, 7264185 54	5	91BFP1 69 Camaro,		986835 67 Camaro	41	7307851 (Similar to	
94EPB1 69 Riviera	62	7265825, 7265845 55	6	Chevelle, Chev. Chevy		986845 67 Chev.	41	page 41)	48
94EPB2 69 Riviera	62	7266505, 7266535 56	6	II, Acadian	60	986846 67 Chev.	42	7307861 (Similar to	
980051 60	12	7268005 57	7	91BMP11 69 Chev.	61	986847/A 67 Chev.	42	page 22)	49
980052 60	13	7268035 57 Ambulance	7	91BMP21 69 Camaro,		986852 67 Chevelle	41	CHRYSLER (Also See Mopar)	
980132 61 Special	15	7268085 58 Brougham	8	Chevelle, Chev., Chevy		986853 67 Chevelle	41	382 68 Chrysler	55
980135 61	16	7270405 58	8	II, Acadian	60	986854 67 Chevelle	43	723 68 Chrysler	55
980139 61	14	7270555 58 Ambulance	8	91BPP1 69 Chev.	61	986863 67 Corvair	41	724 68 Chrysler,	
980296 62	17	7272505 59	10	91BMP11 69 Camaro,		986865 67 Corvair	43	68 Imperial	55
980297 62	18	7274905 60	12	Chevelle, Chev.,		986869 67 Chevy II	41	746 68 Imperial	55
980316 62 Special	19	7274925 60, 75 Series	12	Chevy II, Acadian	61	987086 55	5	786 68 Imperial	
980462 63	19	7276605 61	16	Chevy II, Acadian	61	987087 55	5	Similar to page 75	47
980463 63	21	7279615 62	18	91TPB1 69 GM & GMC	59	987088 55	6	2580786 68 Imperial	
980464 L.P. 63	20	7281225 62	18	91VFM2 (7303211)		987187 55 Truck	6	(Similar to page 75)	47
980464A L.P. 63	20	7282315 63	19	69 Corvette	70	987366 56 See Model		2820275 (419)	
980626 63	21	7282325 63	19	91VFP1 (7302721)		987088	5	67 Imperial	43
980635 63	21	7282395 63	20	69 Corvette	73	987368 56	6	2820635 (376)	
980649 64 Buick Spl	25	7286315 L.P. 63-64	25	91VMP11 (7303201)		987573 57	7	68 Chrysler	51
980655 63 Special	20	7290255 65	31	69 Corvette	70	987575 57	7	2864724 68	
980657 64	25	7290545 65	31	91ZPB1 69 Corvair	59	987693 57	7	Imperial	55
980659 64	25	7293015 66 Cadillac	38	985036 61 Truck	16	987724 58	8	2864746 (382)	
980869 65 Buick	29	7293025 66 Cadillac	38	985158 62 Corvair	17	987727 58	8	68 Imperial	55
981320 53, Series 40	4	7293905 990553 66	36	985159 62 Corvair	18	987730 58	9	68 Chrysler	53
981321 53, Series 50 &	4	7293915 990552 66	37	985203 62 Corvair	18	987888 59	10	2864966 (391)	
70	4	7298465 67 Cadillac	44	985203 62 Corvair	17	987891 59	10	68 Imperial	50
981323 53, Series 50 &	4	7298475 67 Cadillac	45	Trucks	17	987893 59	10	2884286 (328)	
70	4	7298485 67 Cadillac	45	985227 62 Truck	18	988062 60 Corvair	12	69 Chrysler	64
981550 54, Series 40,	4	7298485 68 Cadillac	56	985264 62	17	988080 60 Truck	13	2884287 (402)	
50 & 70	4	7298485 68 Cadillac	56	985315 62 Corvair	18	988275 60	12	69 Chrysler	73
981551 54, Series 40,	4	7303215 68 Cadillac	56	985332 62	18	988276 60	12	2884288 (403)	
50 & 70	5	7303225 68 Cadillac	56	985383 62 Corvette	17	988336 61 Truck Series	12	69 Imperial	69
981651 55 See Model		7307615 69 & 69 1/2	74	985396 63 Corvette	20	95	15	2884289 (404)	
981550	4	CHANNEL MASTER		985431 63	19	988413 61	15	69 Imperial	73
981652 55	5	6540	21	985432 63	19	988414 61	14	2884633 (B9MC)	
981707 56	6	6541	35	985443 63 Corvair	19	988460 61 Corvair	15	69 Coronet, Charger,	
981708 56	6	6542	35	Truck	19	988468 61 Corvair	14	Belvedere, Satellite	65
981813 57	7	6543	42	985447 63 Corvair	19	3711897 55 Corvette	6	2884847 69 1/2	
981814 57	7	CHEVELLE (See Chevrolet)		985449 63 Corvair	19	3725156 56-57		2884 874 70	
981902 58	8	CHEVROLET		985453 63 Chevy II	19	Corvette	7	Chrysler	77
981903 58	8	01APB1, 01APB2		985455 63 Chevy II	19	3748611 58 Corvette	9	2884 875 Imperial 70	79
981968 59	10	70 Acadian, Camaro,		985471 63 Truck	20	7296341 986731 66		2884 876 70	
981969 59	11	Chevelle, Chevy II,		985672 64 Chev.		Caprice	37	Imperial	77
981970 59	10	Monte Carlo	76	Truck	24	7296351 986644 FM		3420560 (1CH2901)	
7285424 65 Buick	30	01BFP1/M2 70 Acadian,		985686 63	21	Stereo	37	69 Chrysler	68
7285444 65 Riviera	31	Camaro, Chevelle,		985694 63	20	7297901 68 Camaro	49		
7288794 65 Special	30	Chevrolet, Chevy II,		985773 64 Chevelle	24	7298501 67 Chev.		CLETRON	
7289734 65 Riviera	30	Monte Carlo	77	985776 64 Chevelle	23	Truck	44	RU-101	27
7289754 65 Buick	31	01BFMT1, 01BFMT2 70		985815 64 Corvair	24	7299111 68 Corvair	49	RU-104	27
7289774 65 Buick	31	Acadian, Camaro,		Truck	24	7299561 66 Caprice	37		
7293604, 981059 66		Chevelle, Chevrolet,		985831 64 Corvair	24	7300471 67 Chev.	43	COMET (See Mercury)	
Buick Spl	35	Chevy II, Monte Carlo	75	985832 64 Corvair	23	7300481 67 Chev.,		CONTINENTAL	
7293614 66 Buick	36			985875 64 Chev.	24	Chevelle, Corvair	44	(See Lincoln)	
7293634 66 Buick	37			985876 64 Chev.	23	7300491 67 Chev.	43		
				985877 64 Chev.	24	7300941 67 Chev.,			
				985916 64 Chev. Van	24	Camaro, Chevelle,			
				985921 64 Corvette	24	Corvair	42		

CORONADO	VOL.	FIRESTONE (CONT.)	VOL.	FORD (CONT.)	VOL.	GIBBS (CONT.)	VOL.	INLAND (CONT.)	VOL.
35RA2-43-5101A	5	4-B-69 Tractor	5	4T8T 64 Truck	26	CR-335B/337B	71	V302	41
CORTINA		4-B-71 53 Plym.	4	4TBU 64 Econoline	26	CR-616	80	VWX101	41
6BEF 66	39	4-B-72 53 Chev.	4	4TBZ 64/65 Mustang	32	CR-627	70	WV502	42
7BEFX 67 Cortina	50	4-B-74 54 Ford	5	4TMF 64 Galaxie	23	CR-630	70	WVX101	41
CORVAIR (See Chevrolet)		4-B-76 55 Ford	6	4TMS	23	440	27	WVX-103	48
CORVETTE (See Chevrolet)		4-B-77 55 Chev.	5	4TMS F 64 T-Bird	23	441	27	WVX502	42
CRAIG		4-B-78 55 Plym.	6	5BF 55	5	442	27	X100	27
3104	54	FO-MO-CO (See Ford, Lincoln, Mercury)		5MF 55	5	445	28	X101	41
3110/A	55	FORD (Also See Philco-Ford)		5MFS,5MFS8 55 T-Bird.	5	446	28	X102	41
DART (See Mopar or Dodge)		D8MF 68 Falcon, Fairlane	53	5MF8 55	5	550	37	X-103	48
DELRAY		D9MF (C9AA-19A237-B)		5TBF 65 Galaxie	28	551	37	X302	41
SM-711	22	69 Galaxie, LTD	65	5TBO 65 Fairlane	28	551-6	37	XFM-400	41
SM-751	22	F3TBF 63 Galaxie	20	5TBT 65 Truck	33	552	37	INTERNATIONAL	
TRM-701	22	F4TBS 64 T-Bird	20	5TBU 65 Econoline	33	553	37	OBTIH 70 Tractor	76
UA-702	22	F4TBF 64 Galaxie	24	5TMF 65 Galaxie	28	GM (See GMC or Chevrolet)		ILSTCA/-12 55 "R"	
UM-701	22	F4TBS 64 T-Bird	24	5TMS,5TMSF 65 T-Bird.	28	GMC		Line Truck	6
VMA-702	22	F5TBF 65 Galaxie	32	5TDP 65 Falcon	28	01TPB1, 01TPB2		IL7TC/-12 57 "R"	
VNM-701	22	F6TBD 66 Fairlane	39	5TPO 65 Fairlane	28	70 GM Truck	76	Line Truck	6
DESOTO (See MoPar)		F6TBF 66 Galaxie	39	5TPZ 65 Mustang	28	06TTCPL 70 Tilt Cab	74	66MH 1000A,1500A,CO-4000,Fleetstar,Load-Star,Metro,R&V Line Scout	47
DODGE (Also See Mopar)		F6TBF 66 Mustang	39	6BF 56	6	86TT431 (7308166)		68 Truck	73
248 (8BDA) (9BDA)	57	F7TBF 67 Galaxie	46	6BFT 56 Truck	6	91TPB1 69 Truck	59	91TPB1 69 Truck	59
68/69 Dart	57	F7TBS 67 T-Bird	46	6TBB 66 Bronco	36	96TT411 (7308166)		96TT411 (7308166)	73
252 (8BCC) (9BCC)	57	F7TBF 67 Galaxie	46	6TBB 66 L.P.,67	36	96TT412 (7308166)		69 1/2 GM Truck	73
68/69 Coronet	57	F7TBS 67 T-Bird	46	6TBB 67 1/2 & 69	41	96TTCPL (7305516)		69 Truck	69
256 (8BDC) (9BCC)	57	F7TBF 67 Galaxie	46	6TBU 66 Econoline	36	2233398 12V Truck	9	2233398 12V Truck	9
68/69 Charger	57	F7TBS 67 T-Bird	46	6TBU 66 L.P.,67	41	2233850 60 GMC	13	2233944 61 GMC	16
388 (8FBCO) 68 Coronet, Charger	58	RV2F	19	6TBU 66 L.P.,67 "M" Series	41	2233984 62 GMC	18	2234003 63 Truck	20
397 (8FBDA) 68 Dart	58	RV4D 65 Ford	30	6TBM 67 1/2 & 69 W Series	59	2234040 64 Truck	24	2234086 64 Truck	24
706A 68 Dodge Truck	60	RV4D-NS 65 Ford	30	6TMF 66 Galaxie	36	2291556 65 Truck	29	2291576 65 Truck	29
8FBDD 68 Dodge	58	RV4F 64 Ford	24	6TPD 66 Falcon	36	7293806 66 GMC Truck	36	7293806 67 Truck	36
2864766 (394) 68 Monaco, Polara	54	RV6F 75 65/66 Ford	30	6TPF 66 Galaxie	36	7293816 66 Truck	36	7297526 66 Truck	36
2864796 (392) 68 Charger, Coronet	54	TOBSTBS 65 T-Bird	32	6TPO 66 Fairlane	36	7297526 67 GM Truck	44	7305516 69 Truck	69
2884064 (389) 68 Charger	51	TOB6TBS 66 T-Bird	39	6TPZ 66 Mustang	36	7305841 68 GM Truck	51	7306686 68 GM Truck	51
2884067 (253) 68 Monaco, Polara	52	T6SMF 66 Galaxie	35	7TBT 67 Truck	42	7306696 68 GM Truck	51	7308166 68,69,69 1/2 GM Truck	73
2884068 (395) 68 Monaco, Polara	51	T6SMS 66 T-Bird	35	7TMF 67 Galaxie	43	GONSET		ARC-60	15
2884128 (255) 69 Monaco, Polara	68	T6SMZ 66 Mustang	35	7TTP 67 Ford	41	HEATH		GR-41	22
2884285 (327) 69 Monaco, Polara	63	T7SMF 67 Galaxie	45	7TPO 67 Fairlane	41	GRW-41	22	HITACHI	
3420559 (1DP2902) 69 Polara	67	T7SMH/A 67 Fairlane, Falcon	45	7TBS 67 T-Bird	41	TM-816U	37	KM1001	38
DUO-VOX		T7SMH/F 67 Mustang	45	7TTPZ 67 Mustang	41	HOFFMAN		769	28
AM-8	37	T7SMH/N 67 Fairlane, Falcon	45	8TBT 68 Truck	56	769 Revised	31	HUDSON (Also See American Motors)	
AM10	33	T7SMZ 67 Mustang	45	8TBTLM 68 Truck	56	236476 SH759 53	4	236486,238060 SH758	4
AMF-16B	28	8TMS 68	53	8TBTU 68 Econoline	56	4389027 HNSAC-8 55	6	HUSKEE	
DYNATRONIC		8TMS 68 Mustang	51	8TBM 68 Galaxie	52	TM104M (60-299)	77	INLAND	
S-808	79	T9MS (69 Thunderbird) (C9SA-19A242-B)	62	9FBF 69 Galaxie	73	AFM-602	41	AFM-603	52
EDSEL		T9MZ 69 Mustang (C9ZZ-19A242-B)	66	9FBO 69 Fairlane, Falcon	64	PA-700	49	V102	41
04BE COKF-18805, COKF-18806	12	T9MZ 69 Mustang (C9ZZ-18805-B)	66	9FBS (C9SA-19A241) 70 Thunderbird	76				
85SE 58	8	OBTM/TP/TPL 70 Truck	77	9FBZ 69 Mustang	64				
87SE 58	8	OBTU 70 Econoline	77	12BD 61 Falcon	14				
94BE B9KF-18805-D/18806-C 59	10	OFBD (DODA-19A241) 70 Maverick	75	12BF 61	14				
ERIC		OFBF (EP) 70 Galaxie	73	12BT 61 Truck	14				
FM-100	18	See Page 59		12BU 61 Econoline	14				
F-85 (See Oldsmobile)		OFBO (DOOA-19A241) Fairlane 70	79	14BF 61 Ford	30				
FALCON (See Ford)		OFBZ (DOZA-19A241) Mustang 70	79	14BM 61 Merc.	30				
FIRESTONE		04BF 60 E.V.	12	22BD 62 Falcon	18				
3-D-5 Code 120-MJ-60B	19	04BF L.P. 60 Ford	30	22BO 62 Fairlane	18				
3-D-6 Code 120-1-R61	21	04BT 60 Truck	12	24MF 62	17				
3-D-6 Code 120-3-P69	21	04MD 60 Falcon	12	66MF 56	6				
3-D-6A	27	04MF 60	12	66MFP 56	6				
3-D-7 Code 120-3-DUP-42	21	04MFM 60	12	69MF 56	6				
3-D-8	23	1FD5001 (C9AA-19A127C) 70 Ford	80	69MS 56	6				
3-D-15	27	1TMC 61 Continental	15	74BF 57	8				
		1TMS 61 T-Bird	15	74BT 57 Truck	9				
		2TBO 62 Fairlane	19	74MF 57	9				
		2TMF 62	18	75BF 57	7				
		2TMX 62	18	75MF 57	7				
		3MF 53	4	76MF SR 57	8				
		3MFT 53 Truck	4	78MF 57	7				
		3SF755 53	4	79MS 57 T-Bird	7				
		3TBD 63 Falcon	19	84BF 58	8				
		3TBO 63 Fairlane	19	84BT 58 Truck	9				
		3TMF 63 Galaxie	23	84MF 58	8				
		4BF 54 See Model M4B	4	84MS 58 T-Bird	9				
		4MF 54	4	86MF 58	8				
		4SF765 54	5	94BF 59	10				
		4TBD 64 Falcon	23	94BT 59 Truck	11				
		4TBO 64 Fairlane	23	94MF 59	10				
				94MFM 59	10				
				94MS 59 T-Bird	11				
				95MF 59	10				
				GIBBS					
				CR-332A/B/C	71				

PENNEYS	VOL.	PHILLIPS	VOL.	PONTIAC (CONT.)	VOL.	RANGER (CONT.)	VOL.	RIVERSIDE (CONT.)	VOL.
3104 984-8227	29	PTC-400-MR	32	988822 58	8	R-500	31	FJB-6591	16
3108 58-63 VW	29			988823 58	8	RR-3M	35	FJB-6592	16
3114 63 Ford	29	PLYMOUTH (Also See MoPar)		988837 58	8	RR-4PB 5-045	36	FJB-6593	16
3118 982-0093	30			988976 59	10	RR-10R 5-004	40	FJB-6604B 60-62	
3120 58-63 VW	29			988977 59	11	RR-11R 5-014	40	Corvaair	19
3121 981-4021	30	244 (8BBA,9BBA)		988978 59	11	RR-12R 5-016	40	FJB-6608A 61 Lancer	18
3122 981-4031	30	68-69 Barracuda	61	989614 60	12	RR-13R 5-008	39	FJB-6609	19
3129 985-6816	30	245 (8BVA,9BVA)		989615 60	13	RR-14R 5-010	39	FJB-6609A	19
3138 984-8243	29	68-69 Valiant	61	989692 61	14	RR-15R 5-012	39	FJB-6611 60-61	
3143 985-8358	29	250 68 Fury	51	989693 61	15	RR-18-M	43	Rambler	22
3144 985-8374	30	251 (8BBE,9BBCC)		989792 61	15	RR-19-FM	42	FJB-6612 61-6612 62	
3146 985-8390	30	68-69 Belvedere	61	989831 61	15	RR-21-FC	44	Chevrolet	18
3151 985-8341	30	384 (8FBPD) 68 Ply	58	7284742	22	RR-22-2	78	FJB-6612A 61-62 Chev.	19
3160 64 Chevelle	29	388 (8FBCC) 68		7284742A 66 Pontiac	36	RR-23-MX-2	62	FJB-6613/A 60-61	
3161 63-64 Chevrolet	29	Belvedere	58	7289752 65 Pontiac	29	RR-30-MC	43	Falcon or Comet	18
3162 63-64 Chevy II	29	390 68 Fury	55	7289772 65 Pontiac	29	RR-35-MPX/-2/-4	72	FJB-6615A	27
3163 64 Comet	30	398 (8FBBA) 68		7291562 65 Tempest	30	RR-41-T	46	FJB-6618A 61 Rambler	17
3168 64 Ford	30	Barracuda	58	7291582 65 Tempest	29	RR-43-FMT	62	FJB-6619/A	21
3169 64 Falcon	30	399 (8FBVA) 68 Valiant	58	7292112 65 Tempest	29	RR-44-T/-2	57	FJB-6643A 60-62 Comet,	
3170 64 Falcon	30	2864963 (390) 68		7293472 66 Tempest	38	RR-45-T-0 Mini-8	51	Falcon	19
3171 985-8515 64 F-85	29	Belvedere, Fury	55	7293492 66 Pontiac	36	RR-45-T-2 Mini-8	51	FJB-6649A Tractor	20
3172 64 Fairlane	30	2884044 (400) 68		7293502 66 Tempest	38	RR-47-T0/-T2/-T4	79	FJB-6658	21
3173 64 Mercury	30	Belvedere, Fury	55	7293512 66 Pontiac	35	RR-59-FM	66	FJB-6679A	10
3174 64 Oldsmobile	29	2884065 (250) 68 Fury	51	7293632A 66 Pontiac	36	RR-60-FMT	69	FJB-6681A 58 Plym.	10
3176 63-64 Pontiac	29	2884103 (254) 69 Fury	67	7294322 65 Pontiac	35	RU-101-T	24	FJB-6682A,B	10
3179 64 Tempest	29	2884 755 (2PF1007)		7294332 66 Pontiac	37	TC-100M	23	FJB-6684 59 Ford	11
3180 64 Chevrolet	29	Fury 70	79	7294342 66 Pontiac	38	TC-100-M	32	FJB-6686A 59 Plym.	12
3181 60-64 Corvaair	29	3420558 (1PF2903)		7298802 67 Tempest	41	TC-100-MD	32	FJB-6687 59 Ford	11
3182 63-64 Chevy II	29	69 Fury	65	7298812 67 Tempest	42	TC-200PB	23	FJB-6688 59 Chev.	11
				7298822 67 Pontiac	43	TC-200-PB	32	FJB-6689A 59 Plym.	12
				7298822 68 Pontiac	49	TC-300M 64 VM	23	FJB-6690A 59 Buick	13
				7298832 67 Pontiac	42	TC-300M,MD 65 Prod.		FJB-6691B Renault	
				7298832-A 67 1/2		Similar to page 144	23	Dauphine	12
						TC-300M 5-041	36	FJB-6693B Renault	
						TC-400PB 64 VW	23	Dauphine	12
						TC-400PB 65 Prod.		FJB-16509C	33
						Similar to page 144	23	FJB-16512A 64 VW	28
						TP-803	24	FJB-16513A 64 VW	28
						TRM-64M	23	FJB-16520A 63	
						TRT	52	Chrysler	23
						VRW-64PB 64 VW	23	FJB-16521A 63 Chev.	23
								FJB-16522A 63 Dodge	23
								FJB-16523A 63 Ford	23
								FJB-16524A 63 Merc.	23
								FJB-16525A 63 Olds	23
								FJB-16526A 63 Plym.	23
								FJB-16527A 63	
								Pontiac	23
								FJB-16563A	32
								FJB-16566A	20
								FJB-16567A	21
								FJB-16569A	28
								FJB-16574A 63 Buick	23
								FJB-16576A 63	
								Corvaair	23
								FJB-16577A 63 Dart	22
								FJB-16578A 63 Ford	23
								FJB-16579A 63 Falcon	23
								FJB-16580A 63 F-85	23
								FJB-16581A 63 Merc.	23
								Dauphine	50
								FJB-16582A 62-63	
								Plymouth	23
								FJB-16583A 63Tempest	23
								FJB-16584A 63Rambler	26
								FJB-16585A 63 Chev.	23
								FJB-16586A 63Corvaair	23
								FJB-16587A 63 Falcon	23
								FJB-16588A 63 Ford	23
								FJB-16589A	23
								FJB-16607A	32
								FLH-16518A 64-65 Chev.	
								& GMC Truck	35
								FLH-16519A 60-64 Dodge	
								880	34
								FLH-16528A 63-64Chev.	34
								FLH-16529A 65 Chev.	35
								FLH-16530A 60-64	
								Corvaair	34
								FLH-16531A 65Corvaair	35
								FLH-16533A 62-65	
								Chevy II	35
								FLH-16534A 64	
								Chevelle	34
								FLH-16535A 65	
								Chevelle	35
								FLH-16536A 63-64	
								Galaxie	34
								FLH-16537A 65Galaxie	35
								FLH-16538A 64	
								Fairlane	34
								FLH-16539A 65	
								Fairlane 500	35
								FLH-16541A 64/65	
								Falcon, 64 Comet	35
								FLH-16543A 65 Comet	35
								FLH-16544A 63/64Merc.	34
								FLH-16545A 65 Merc.	35

RIVERSIDE (CONT.)	VOL.	SOUNDEX (CONT.)	VOL.	STUDEBAKER (CONT.)	VOL.	TENNA (CONT.)	VOL.	TENNA (CONT.)	VOL.
FLH-16546A 63/64		DOPP-465T 65 Polara ..	39	AC-2747 56	6	CH-65M 65 Chev.	34	OF-63PB 61/63 F-85 ..	26
Ambassador,Classic ...	34	DOPP-466T 65 Polara ..	39	AC-2748 56	6	CH-65PB 65 Chev.	34	OF-64PB 64 F-85	23
FLH-16547A 65		DPO-866T 66 Dodge ..	39	AC-2905 58	9	CH-66M/PB 66 Chev. ...	37	OF-65PB 65 Olds.	35
Ambassador,Classic ...	34	FAP-264T 64 Falcon ..	26	AC-2906 58	8	CH-67PB 67 Chev.	46	OF-66PB 66 F-85	37
FLH-16549A 64 Plym. ...	34	FAP-266T 66 Falcon ..	39	AC-2907 58	8	CHT-63M 63 ChevTruck..	26	OF-67PB 67 F-85	46
FLH-16550A 65		FLP-264T 64 Fairlane..	26	AC-2977 60	12	CHT-64M See page 136		OL-63PB 63 Olds.	26
Belvedere	39	FOP-264T 64 Ford	26	AC-2978 60	13	44 Chev. Truck	23	OL-64PB 63/64 Olds. ...	24
FLH-16551A 65 Fury ..	39	FOP-265T 65 Ford	32	AC-3084 61	17	CHT-65M 65 ChevTruck..	35	OL-65PB 65 Olds.	34
FLH-16552A 64Valiant..	34	FOP-266T 66 Ford	39	AC-3085 61	15	CHT-65PB 65 Chevrolet		OL-66PB 66 Olds.	37
FLH-16553A 65Valiant..	39	MEP-264T 63/64 Merc. ..	26	AC-3086 61	17	Truck	35	OL-67PB 67 Olds.	46
FLH-16554A 64 Polara..	34	MEP-265T 65 Merc.	32	AC-3087 61	15	CHT-66M/PB 66 Chevrolet		OP-67PB 67 Opel	44
FLH-16555A 65Coronet..	39	MEP-266T 66 Merc.	39	AC-3216 62	17	Truck	37	PD-65PB 65 Fury	34
FLH-16556A 64 Dart ..	34	MUP-266T 66 Mustang ..	39	AC-3217 62	18	CHT-67M,PB 67 Chev. ...		PD-66PB 66 Fury	36
FLH-16557A 65 Dart ..	39	PLP-464T 64 Plym.	26	AC-3246 62	18	Truck	46	PD-67PB 67 Fury	46
FLH-16558A 64 Dart ..	34	PLP-465T 65 Plym.	32	AC-3247 62	17	CL-64PB 64 Chevelle ..	23	PL-63PB 62/63 Plym. ...	26
FLH-16598A	31	PLP-466T 66 Plym.	39	AC-3255 62	17	CL-65PB 65 Chevelle ..	35	PL-64PB 64 Plymouth ..	23
FLH-16650A 65 Dodge		PLPF-465T 65 Fury	32	AC-3256 62	17	CL-66PB 66 Chevelle ..	37	PL-65PB 65 Plymouth ..	34
Deluxe,Polara,Monaco,		PLPF-466T 66 Fury	39	AC-3351 63	19	CL-67PB 66/67		PL-66PB 66 Plymouth ..	36
880	35	POP-666T 66 Pontiac ..	40	AC-3352 63	21	Chevelle	46	PL-67PB 66/67 Plym. ...	46
FLH-16651A 63/65		RAAP-1065T 65		AC-3353 63	19	CM-63PB 63 Comet	26	PO-63PB 63 Pontiac	26
Econoline	35	Rambler American	32	AC-3354 63	21	CM-64PB 64 Comet	23	PO-64PB 63/64Pontiac..	23
FLH-16652A 64 Buick		RAP-364T	27	AC-3377 63	21	CM-65PB 65 Comet	31	PO-65PB 65 Pontiac	35
Special	34	RAP-365T 65 Rambler ..	32	AC-3423 SR2T	22	CM-66PB 66 Comet	36	PO-65PB/A 65 Pontiac	
FLH-16653A 65 Olds. ...	35	RAP-366T	39	AC-3473 64Studebaker..	24	CM-67PB 67 Comet,202,		W/Air Conditioning	35
FLH-16654A 64 F-85 ...	34	SM-130RPE	27	AC-3474 64 Hawk	24	Capri	46	PO-67PB 67 Pontiac	46
FLH-16658A 64/65		STM-059 59 Lark	16	AC-3498 64Studebaker..	24	CO-63M/PB 60/63		RA-63PB 63 Rambler	26
Tempest	35	STP-059 59 Lark	16	AC-3499 64 Hawk	24	Corvair	26	RA-64PB 64 Rambler	23
FLH-16662A 65	34	UN-120RPT	39	AC-3500 64 Avanti	24	CO-64PB 60/64Corvair..	23	RA-65PB 65 Rambler	32
FLH-16663A 60/63 Chev		UP-220RPT	27	AC-3506 64 Avanti	24	CO-65PB 65 Corvair	34	RA-66PB 66 Rambler	
& GMC Trucks	34	VAP-464T 64 Valiant ..	26	AC-3556 66Studebaker..	36	CO-66PB 66 Corvair	37	Ambassador	37
FLH-16665A 64/65 Dodge		VAP-465T 65 Valiant ..	32	SUNBEAM		CO-67PB 66/67Corvair..	46	RA-67PB 67 Rambler	46
Truck	35	VAP-466T 66 Valiant ..	39	7BSU 67 Sunbeam	46	CR-63PB 63 Chrysler ..	26	RU-101T	24
61-16509C	33	VWP-19T	27	7BSUX 67 Sunbeam	58	CR-64PB 63/64		RU-11ITC 5-004	40
61-16584A 63 Rambler..	26	VWP-19T 65 Prod.	33	8BSU 68	65	Chrysler	23	RU-112TC 5-014	40
SAAB		VWP-19T 66 Prod.	41	TEMPEST (See Pontiac)		CR-65PB 65 Chrysler ..	34	RU-113TC 5-016	40
4BH 64	30	4TBTR V-350 64		TEN		CR-66PB 66 Chrysler ..	36	RU-114TC 5-008	39
5BH 65 Saab	34	Triumph	26	AT-96-1 AR-96EX	49	CR-67PB 67 Chrysler ..	46	RU-115TC 5-010	39
6BSA 66	38	SPECIAL (See Buick)		AT-96-2 AR-96EX-S	49	DA-63PB 63 Dart	26	RU-116TC 5-012	39
7BSAX	60	STERLING		AT-96-3 AR-96VH	49	DA-64PB 64 Dart	23	SA-65M 65 Simca	39
7BSAX	52	FM-200	60	AT-96-4 AR-96VH	49	DA-65PB 65 Dart	34	SA-65PB 65 Simca	39
8BSA 68	70	SM-704	50	AT-96-4 AR-96VH-S	49	DA-66PB 66 Dart	36	SP-63PB 63 Buick Spl. ..	26
SAMPSON		SM-751	42	AT-2010 AT-2110	52	DA-67PB 67 Dart	46	SP-66PB 66 Buick Spl. ..	37
55A	18	UA-702	41	FA-205/EX, FT-250-2,		DAX-67PB 67 Dart 270..	46	Special	46
SEARS		UDR-100	46	13, 12	57	DD-66PB 66 Dodge	34	TC-FMC-8	69
833. 6303 66-65		VWM751	48	618VW/6 Volt	49	DD-66PB 66 Polara, ..	36	TC-MXC-1	63
Galaxie	57	12-1319	61	618/12 Volt	49	Monaco	36	TC-MXC-8-0	69
833. 50000	57	STROMBERG-CARLSON		TENATRONICS		DO-67PB 67 Monaco, ..	46	TC-48-T	50
833. 50004 60 Pontiac ..	57	C.A.R.-7	11	SA-712	40	DE-66PB 66 Dodge	36	TC-48-T-FM	63
833. 62421	53	C.A.R.-9 59Ford&Edsel..	11	SA-822	36	DO-63PB 63 Dodge	26	TC-100M	23
833. 62820	36	CH-60-M 60 Chev.	14	SM-711	22	DO-64PB 64 Dodge	23	TC-110M	32
833. 62830	37	CH-60-PB 60 Chev.	14	SM-711 Revised	22	DO-65PB 65 Dodge	34	TC-110MD	32
833. 63050 55 Chev	57	CH-61-M 61 Chev.	17	SM-751	40	DO-66PB 66 Dodge	36	TC-200PB	23
833. 63070	58	CH-61-PB 61 Chev.	17	SM-751 Revised	40	DO-67PB 66/67 Dodge ..	46	TC-210PB	32
833. 622810 66Galaxie..	58	DA-60-PB 60 Dart	14	SM-821	36	DS-67M 67 Sportsman, ..	46	TC-300M 64 VW	23
833. 624220	33	DE-60-PB 60 DeSoto ..	14	TRM-701	22	A-100	46	TC-300M 5-041 65Prod..	36
836. 62126	49	DO-60-PB 60 Dodge	14	UA-702	22	DT-65M 65 DodgeTruck..	34	TC-300MD 5-072	36
836. 63060 58-65	52	DO-61-PB 61 Dodge &		UM-701	22	EC-67M 67 DodgeTruck..	46	TC-310M	35
837. 62220	38	Dodge Dart	17	UA-702 L.P.	37	EC-65M 65 Econoline ..	35	TC-400PB 64 VW	23
849. 63160	56	FA-60-M 60 Falcon	14	UM-701 L.P.	37	Truck	36	TC-400PB 5-045 65	
SIMCA		FA-60-PB 60 Falcon	14	VHM-751	40	EC-66M 66 Econoline ..	35	Prod.	36
4TBJ 1000 64	27	FO-60-M 60 Ford	14	VWA-702	22	EC-67M 67 Econoline ..	36	TC-410PB Similar to	
5BJ 1000 65	35	FO-60-PB 60 Ford	14	VWM-701	22	Truck	46	page 144	23
6BSI 66 Simca 1000	39	FO-61-M 61 Ford &		TENNA		FA-63M/PB 60/63		TC-410PB 5-045	36
7BSI Similar to page		Mercury	17	AF-66PB	59	Falcon	26	TE-63PB 63 Tempest	26
89	45	FO-61-PB 61 Ford &		AM-63M/PB 60-63		FA-64M/PB 64 Falcon ..	23	TE-64PB 64 Tempest	23
7BSIX 1969 Simca	59	Mercury	17	American	26	FA-65PB 65 Falcon	25	TE-65PB 65 Tempest	31
8BSI 69	66	IM-60-M	15	AM-64PB 63/64		FA-66PB 66 Falcon	36	TE-66PB 66 Pontiac	37
SOUNDEX		IM-60-MX	17	American	23	FA-67PB 67 Falcon	46	TE-67PB 66/67 Pontiac	
CEP-764T 64 Chevelle..	26	IM-61-PB	17	AM-66PB 66 American ..	36	FL-63M/PB 62/63		Tempest	46
CHP-164T 64 Chev.	26	LA-61-PB 61 Lark	17	AM-67PB 67 Rambler ..	35	Fairlane	26	TRM-64M	23
CHP-165T 65 Chev.	32	LR-61-PB 61 Lancer	18	American	23	FL-64PB 64 Fairlane ..	23	VA-63PB 61/63Valiant..	26
CHP-166T 66 Chev.	40	OF-61-PB 61 F-85	17	AM-66PB 66 American ..	36	FL-65PB 65 Fairlane ..	35	VA-64PB 64 Valiant	23
CHP-654T 64 ChevyII ..	26	OL-61-PB 61 Olds.	17	AM-67PB 67 Rambler ..	35	FL-66PB 66 Fairlane ..	36	VA-65PB 65 Valiant	34
COM-60 60 Corvair	16	PL-60-M 60 Plym.	14	American	44	FL-67PB 67 Fairlane ..	46	VA-66PB 66 Valiant	36
COP-60 60 Corvair	16	PL-61-M 61 Plym.	18	BU-63PB 63 Buick	26	FO-63M/PB 63 Ford	26	VA-67PB 67 Valiant	46
COP-006T 66 Corvair ..	40	PO-61-PB 61 Pontiac ..	47	BU-64PB 63/64 Buick ..	23	FO-64M See page 136		VW-64PB 64 VW	23
CTP-264T 64 Comet	26	RA-61-PB 61 Rambler ..	17	BU-66PB 66 Buick	37	63/64 Ford	23	VW-66PB 58-66 VW	36
CTP-266T 66 Comet	39	VA-60-M 60 Valiant	14	BU-67PB 66/67 Buick ..	46	FO-64PB 64 Ford	23	VW-67PB 67 VW	44
CTR-166T 66		VA-61-PB 61 Valiant	18	CII-63M/PB 62/63		FO-65PB 65 Ford	35	170-64PB See page 136	
Chevrolet Truck	40	STUDEBAKER		Chey II	26	FO-65PB/RS 65 Ford	35	64 Dart	23
CYP-465T 65 Chrysler ..	32	AC-2300 S-5327 53	4	Chey II	23	FO-66PB 66 Ford	36	880-63PB 62/63 Dodge	
CYP-466T 66 Chrysler ..	39	AC-2301 S-5323 53	4	CII-64PB 62/64		FO-66PB/RS 66 Ford ..	36	880	26
CYP-565T 65 Chrysler ..	39	AC-2686 S-5528 55 See		Chey II	35	FO-67PB 67 Ford	46	880-64PB 63/64 Dodge	
DAP-864T 64 Dart	26	Model AC-2300	4	CII-66PB 66 ChevyII ..	37	FT-65M 65 Ford	36	880	23
DAP-865T 65 Dart	32	AC-2687 S-5524 55 See		CII-67PB 66/67		FT-66M 66 Ford	36	TITAN	
DAP-866T 66 Dart	39	Model AC-2301	4	Chey II	46	FT-67M 67 Ford Truck..	46	ETB-1600	40
DOP-864T 64 Dodge	26	AC-2721 S-5529 55 See		CII-65M 65 Chevy II ..	35	IM-65M	32	FMC-4	27
DOP-865T 65 Dodge	32	Model AC-2300	4	CII-65PB 65 ChevyII ..	35	IM-65PB	32	RV-66	40
		AC-2745 56	6	CII-66PB 66 ChevyII ..	37	ME-63PB 63 Mercury	26	RV-66A	41
		AC-2746 56	6	CII-67PB 66/67		ME-64PB 63/64 Merc. ...	23	RV-67A	41
				Chey II	46	ME-65PB 65 Mercury	35	RV-68A	41
				CA-67PB 67 Camaro	46	ME-66PB 66 Mercury	36	SP-22	28
				CG-67PB 67 Cougar	46	MR-63PB 62/63 Meteor..	26	TMA-39	28
				CH-63M/PB 63 Chev.	26	MU-66PB 65/66Mustang..	36	TMA-40	28
				CH-64M See page 136		MU-67PB 67 Mustang	46		
				63/64 Chevrolet	23				
				CH-64PB/RS 63/64Chev..	23				

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