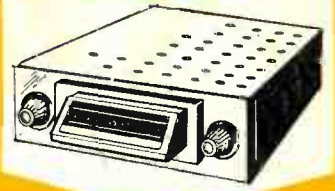


# SAMS PHOTOFACT<sup>®</sup>

## AUTO RADIO SERIES



AR-75  
**75**  
APRIL 1970



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#### BUICK

Special (70) 04AFP1  
Buick (70) 04BFP1  
Riveria (70) 04EFP1

#### CHEVROLET

Acadian, Camaro,  
Chevelle, Chevrolet,  
Chevy II, Monte Carlo  
(70) 01BFMT1/2

#### FORD

Maverick (70) 0FBD  
(DODA-19A241)

#### LINCOLN

Lincoln (70) 0FBL  
(DOVA-19A241)

#### PONTIAC

Pontiac (70)  
02BPB1/BPBK1  
Grand Prix (70)  
02GPB1/GPBK1

#### UNIVERSAL

Motorola  
TM105M  
TM529A

Nivico  
1310

Ranger  
R-100-C  
R-100-C2  
R-100-C4



\$3.25

\$4.10 IN CANADA

Cat. No. AR-75



# SAMS PHOTOFACT<sup>®</sup>

## AUTO RADIO SERIES



VOLUME

**75**



by the



ENGINEERING STAFF



**HOWARD W. SAMS & CO., INC.**

INDIANAPOLIS, INDIANA

**FIRST EDITION**  
**FIRST PRINTING—APRIL 1970**  
**SECOND PRINTING—MAY, 1973**

**PHOTOFACT®**  
**AUTO RADIO SERIES**  
**VOLUME 75**

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Library of Congress Catalog Card Number: 49-11493



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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 3. 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.

## BUICK - 1970 BUICK

- Step 1. Remove screws from steering column trim panel and remove trim panel.
- Step 2. Disconnect left cooler hose.
- Step 3. Remove screws from air-conditioning duct and remove.
- Step 4. Remove knobs and nuts from control bushing. Disconnect speaker connector and antenna lead
- Step 5. Remove screw from bottom brace, and remove radio from under instrument panel.

## SPEAKER REMOVAL

- Step 1. Remove radio.
- Step 2. Remove screw from speaker mounting.
- Step 3. Remove speaker from under instrument panel.

## BUICK - 1970 RIVIERA

- Step 1. Remove ashtray and ashtray housing.
- Step 2. Remove knobs and nuts from control bushing.
- Step 3. Disconnect speaker connector and antenna lead.
- Step 4. Remove screws from bottom brace.
- Step 5. Remove radio thru ashtray opening.

## SPEAKER REMOVAL

- Step 1. Remove radio.
- Step 2. Remove nuts from speaker mounting.
- Step 3. Remove speaker thru ashtray opening.

## CHEVROLET - 1970 ACADIAN, CAMARO, CHEVELLE, CHEVROLET, CHEVY II, MONTE CARLO

- Step 1. Remove ashtray and ashtray housing.
- Step 2. Remove screw from heater duct, and remove duct.
- Step 3. See General Removal Information.

## SPEAKER REMOVAL - CENTER SPEAKER

- Step 1. Remove radio.
- Step 2. Remove left A/C duct.
- Step 3. Remove screw from speaker mounting and remove speaker.

## SPEAKER REMOVAL - RIGHT-HAND STEREO SPEAKER

- Step 1. Remove glove box.
  - Step 2. Disconnect speaker.
  - Step 3. Remove nuts from speaker mounting and remove speaker thru glove box opening.
- Chevrolet Dealer should remove left-hand stereo speaker because of critical torques involved in steering column replacement.

## FORD - 70 MAVERICK

See General Removal Information.

## LINCOLN - 1970 LINCOLN

- Step 1. Remove knobs.
- Step 2. Remove trim panel.
- Step 3. Remove screws from front bottom mounting brace.
- Step 4. Remove screw and nut from front top mounting brace.
- Step 5. Slide radio out front of instrument panel.
- Step 6. Disconnect speaker, antenna, and "A" leads.

## SPEAKER REMOVAL

- Step 1. Remove door panel.
- Step 2. Remove speaker mounting screws.
- Step 3. Disconnect speaker lead from wiring harness and remove speaker.

## PONTIAC - 1970 BEAUMONT, BONNEVILLE, CATALINA

- Step 1. Remove screws from lower steering column cover and remove cover.
- Step 2. Remove screws from air-conditioning duct and pull down.
- Step 3. See General Removal Information.

## PONTIAC - 1970 EXECUTIVE, GRAND PRIX

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

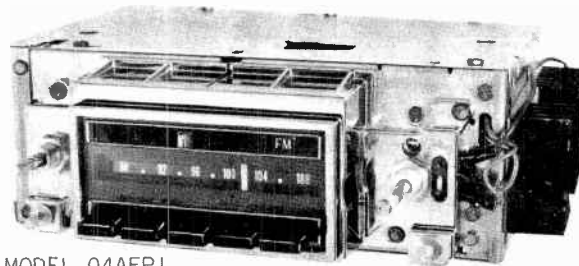


# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

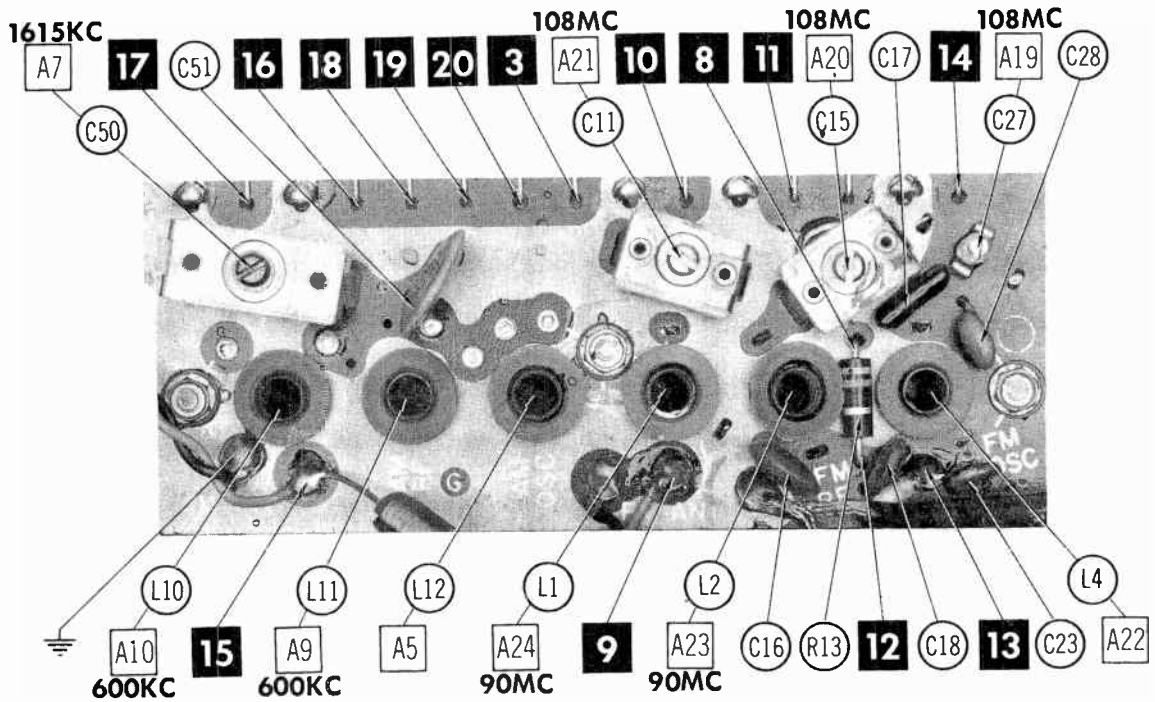
For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO



MODEL 04AFP1

BUICK MODELS 04AFP1  
(70-Special)  
04BFP1  
(70-Buick)  
04EFP1  
(70-Riviera)



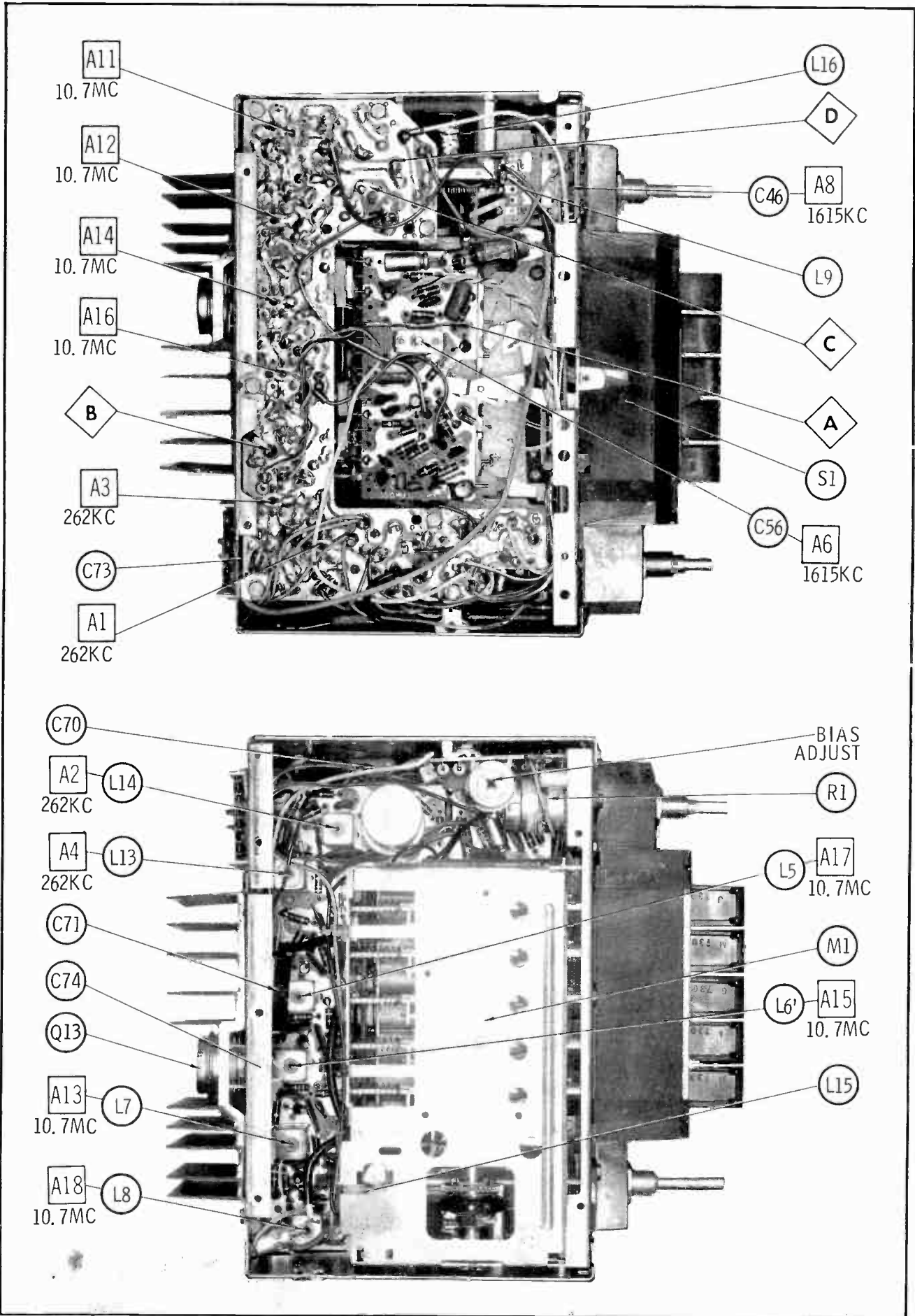
A Howard W. Sams CIRCUITRACE<sup>®</sup> Photo

BUICK MODELS 04AFP1/BFP1/EFP1

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

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TD636R





## ALIGNMENT INSTRUCTIONS

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

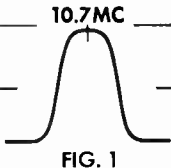
A1 thru A4, A11 thru A18...GENERAL CEMENT #9296,9297,9300  
WALSCO #2510,2546,2547  
A6,A7,A8,A20,A21,A22....GENERAL CEMENT #8290,8868,9087  
WALSCO #2525, 2528, 2587

### PUSH-BUTTON ADJUSTMENT

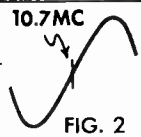
1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly
4. Repeat for remaining buttons.

	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point $\diamond A$ , 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 31", tune in a weak station near 1400KC and adjust A8 for maximum output. Antenna adjustment (A8) is located behind Tuning & Dummy Knob.						

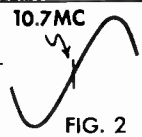
### FM IF ALIGNMENT USING AM SIGNAL GENERATOR—SELECTOR IN FM POSITION

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.	All 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.	

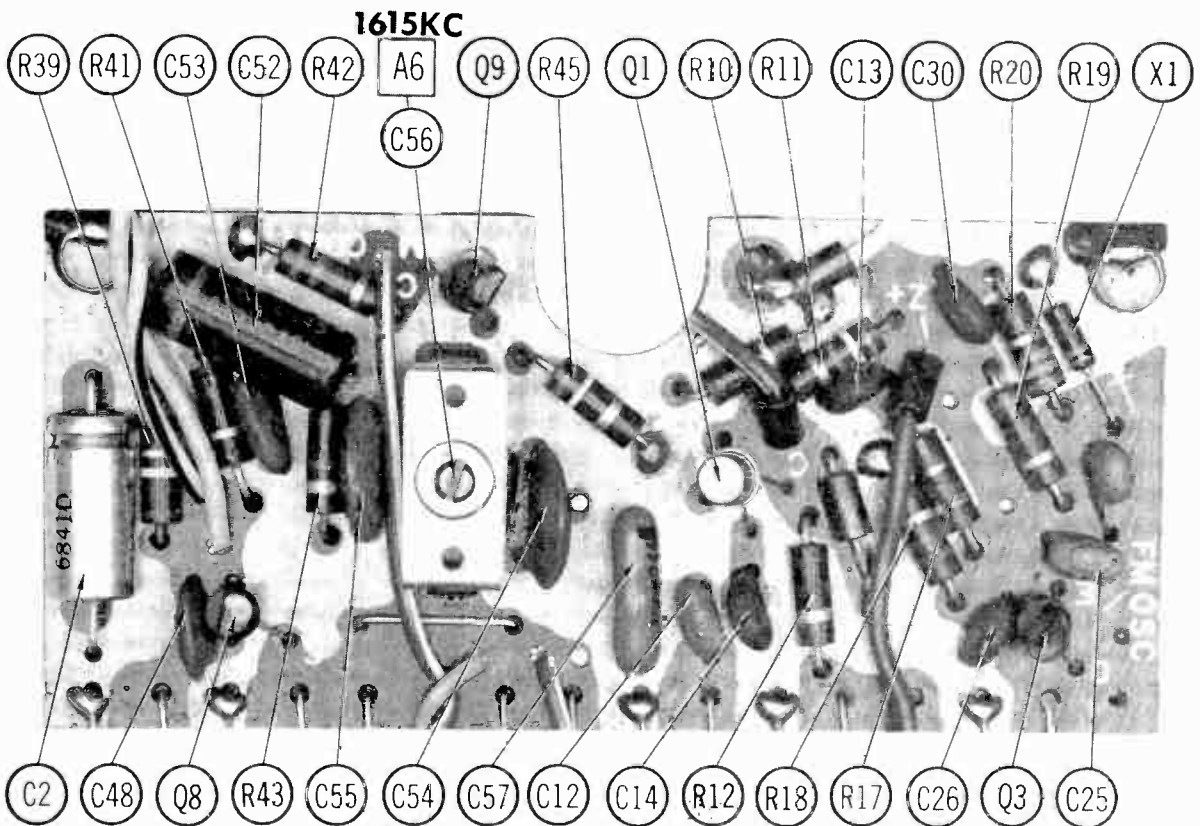
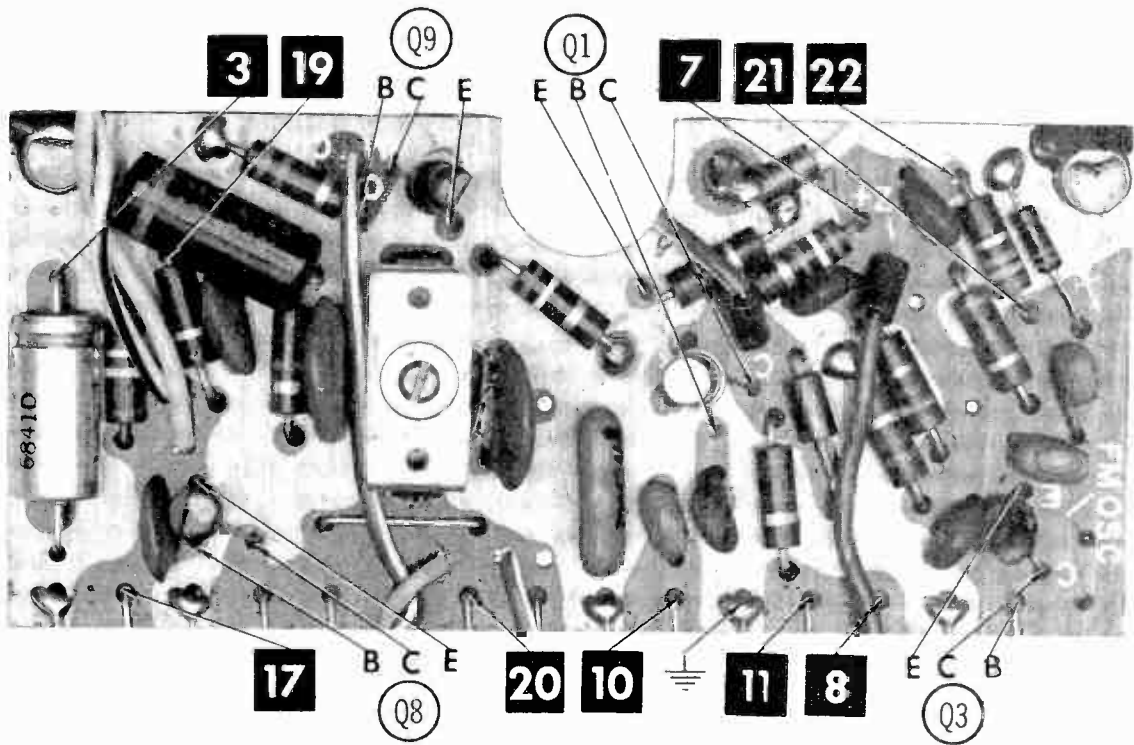
### FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

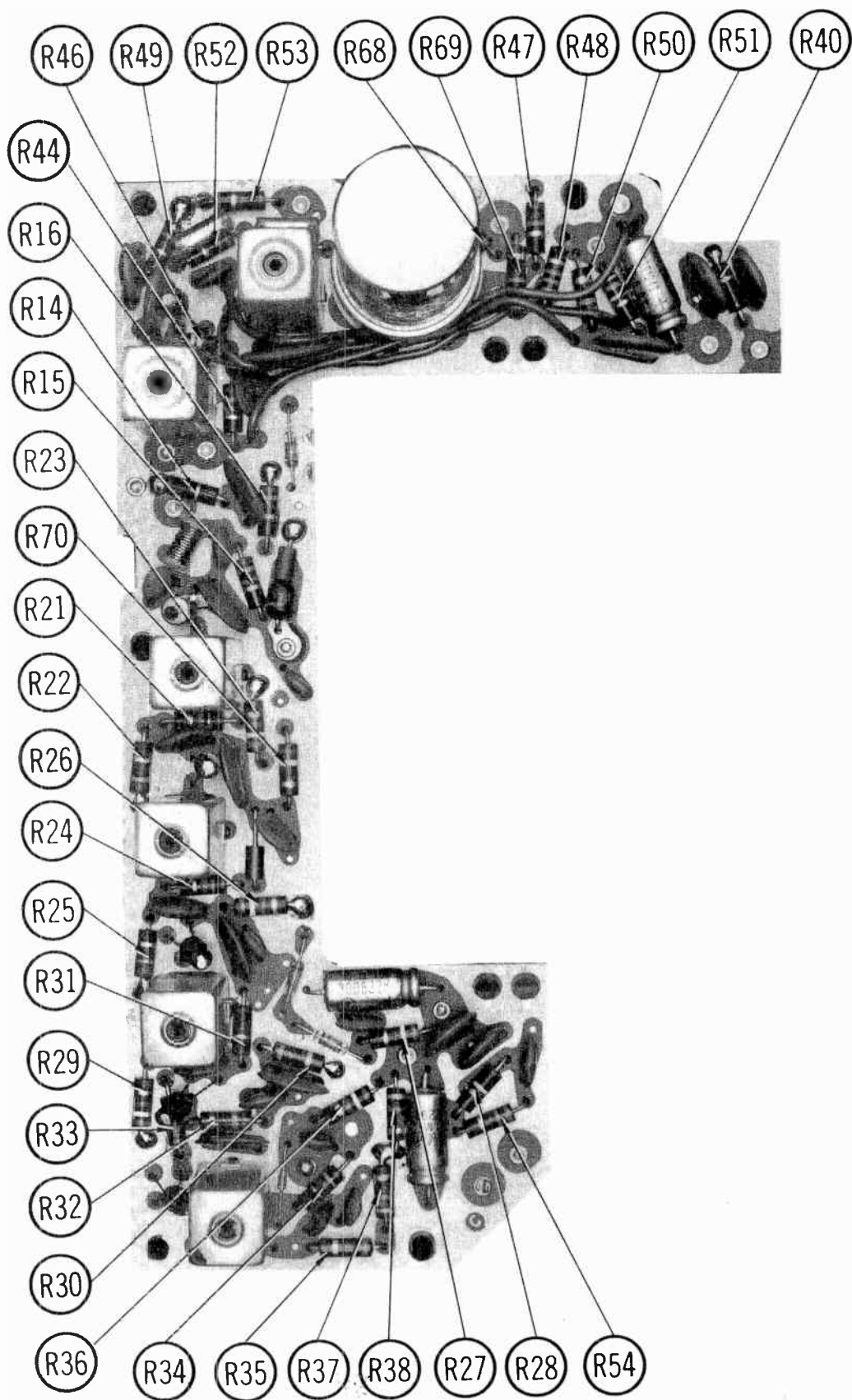
High side of generator thru .001mfd to point $\diamond B$ , low side to ground. Use only enough marker signal for indication. Use 60 cycle frequency modulated signal with 450KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.						
	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
4.	10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\diamond C$ , low side to ground.	All 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 11 (primary) for maximum amplitude and straightness of line.	

### FM RF ALIGNMENT—SELECTOR IN FM POSITION

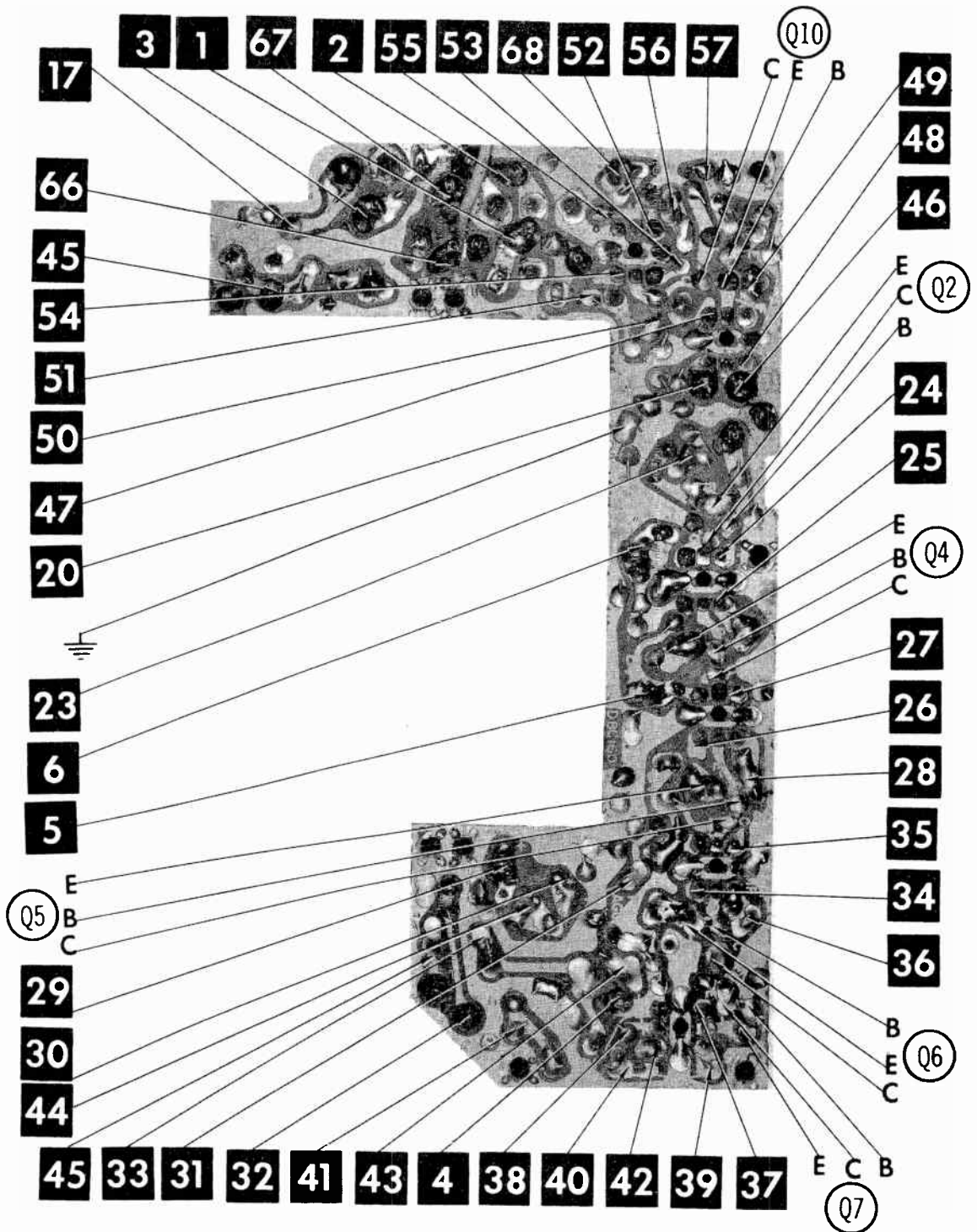
Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. NOTE: Rear of Osc. core (A22) should be 1 3/8" from mounting end of Coil form.						
	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
6.	108MC	High freq. end	DC probe of VTVM to point $\diamond C$ , 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.	

BUICK MODELS 04AF1/BF1/EP1

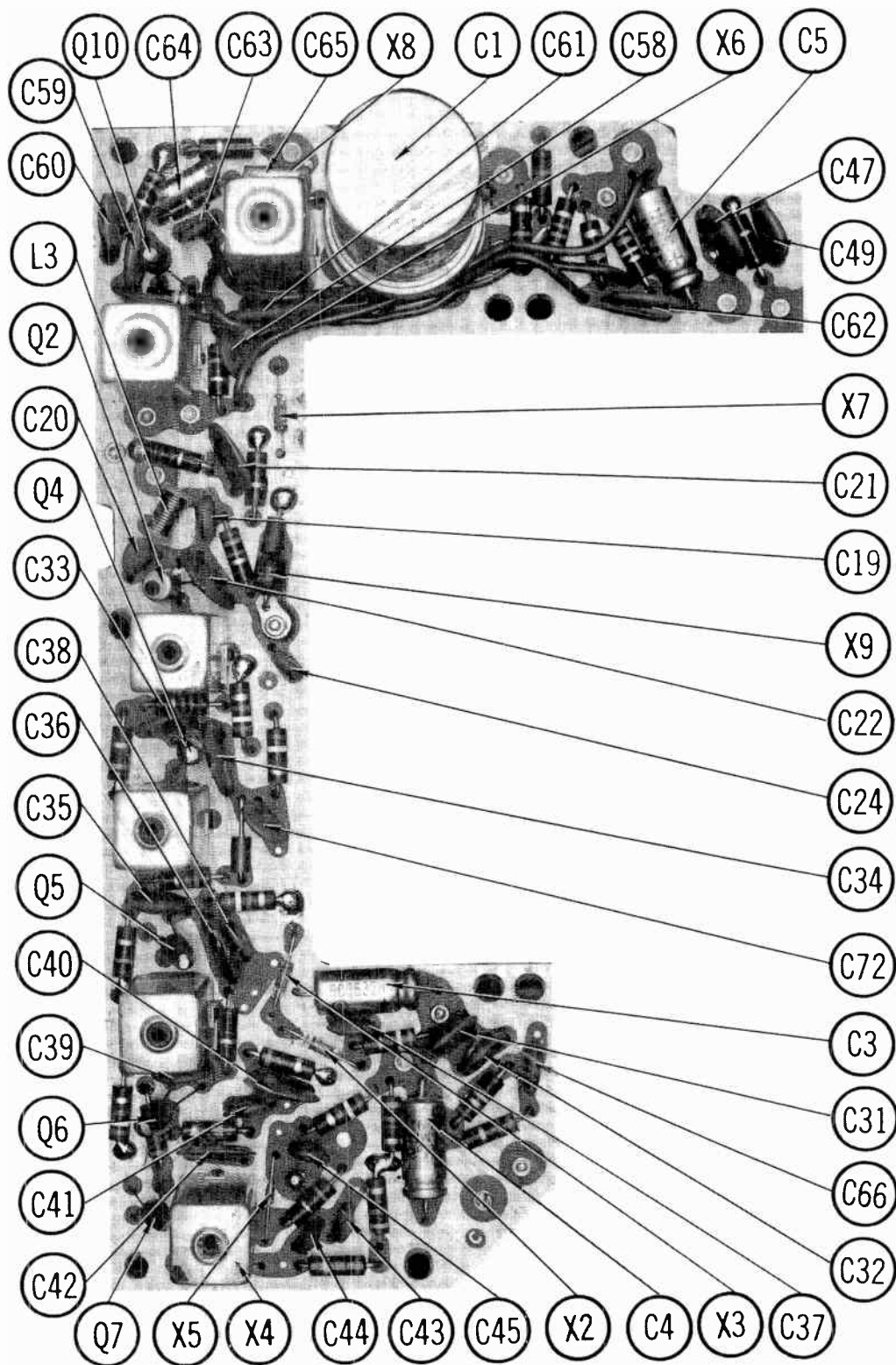




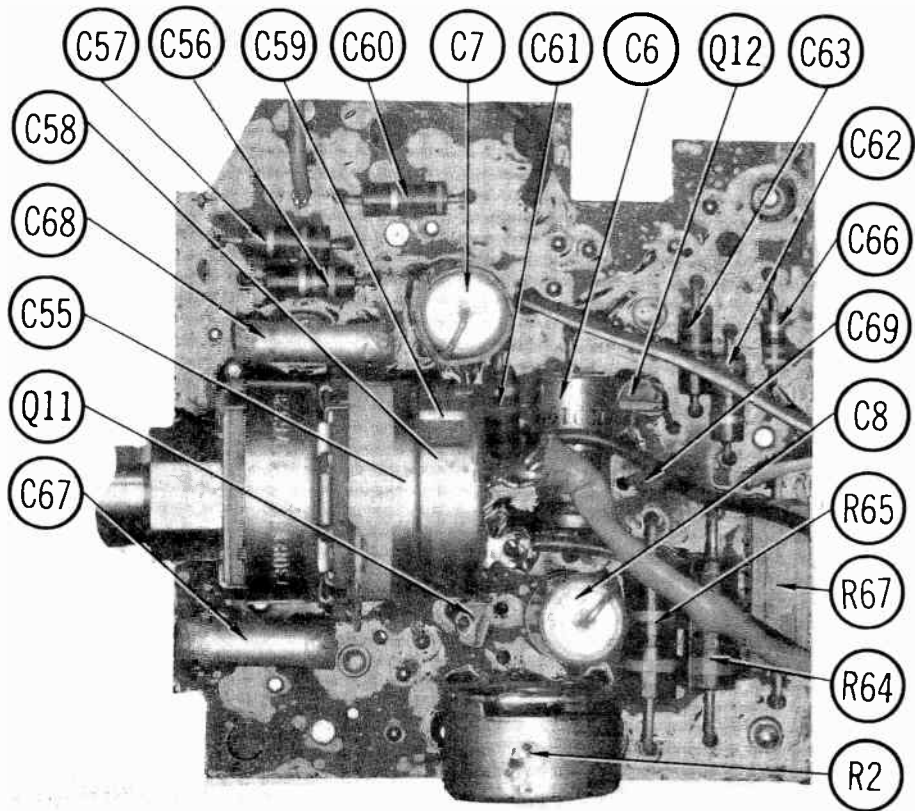
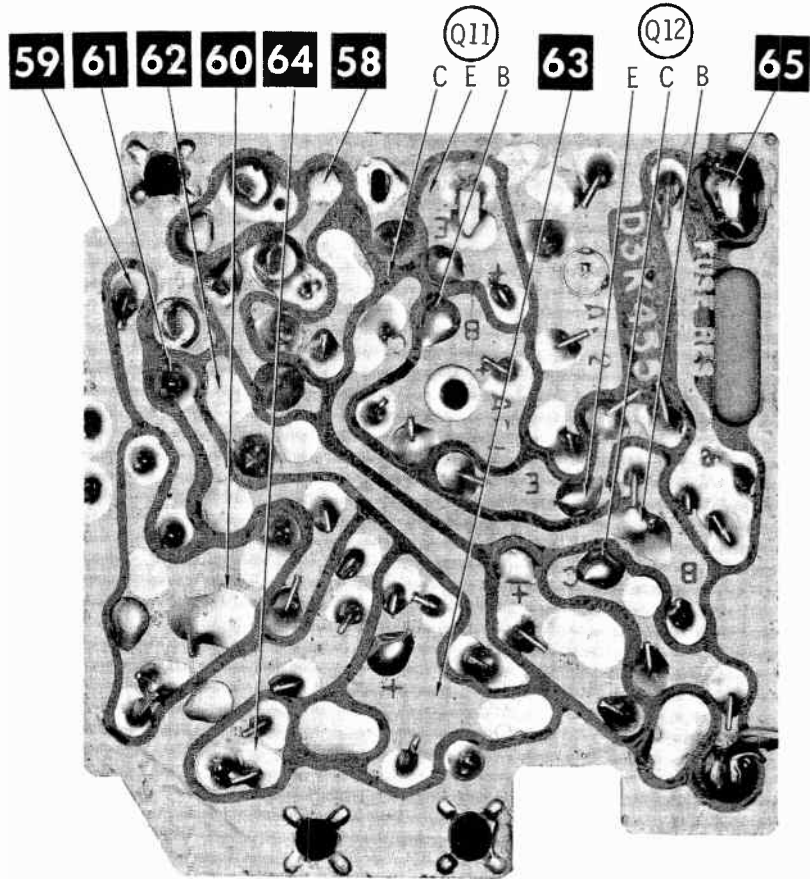
BUICK MODELS 04AF1/BFP1/EFP1



A Howard W. Sams CIRCUITRACE Photo



BUICK MODELS 04AF1/BFP1/FFP1



# 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-67	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q12	DS-66	AF Amp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q13	DS-501	Output *	DS-501	GE-4	TR-03	HEP233	SK3012	ECG 105

\* When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

## POWER RECTIFIERS & SIGNAL DIODES

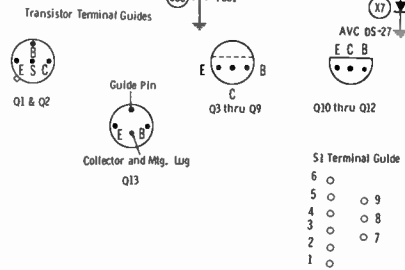
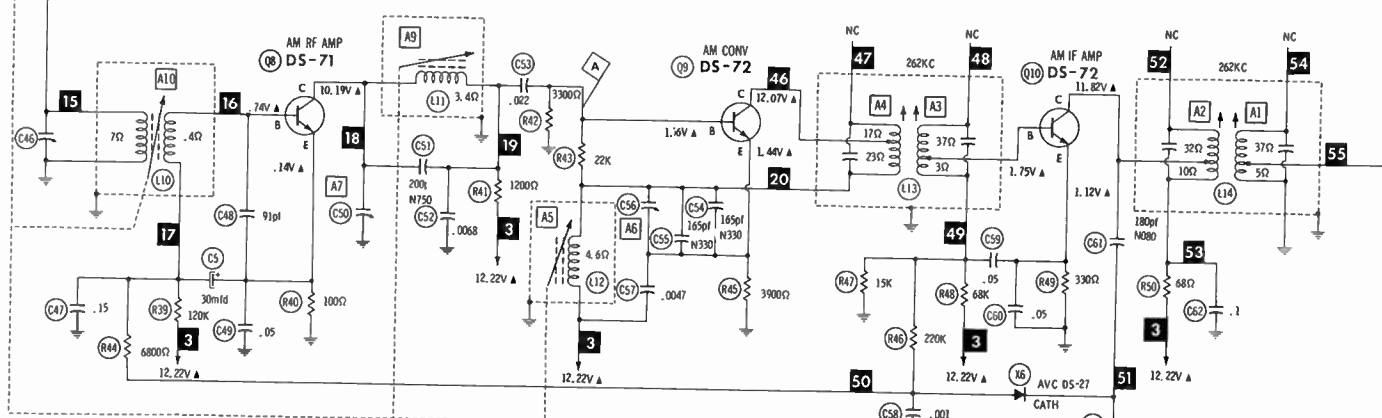
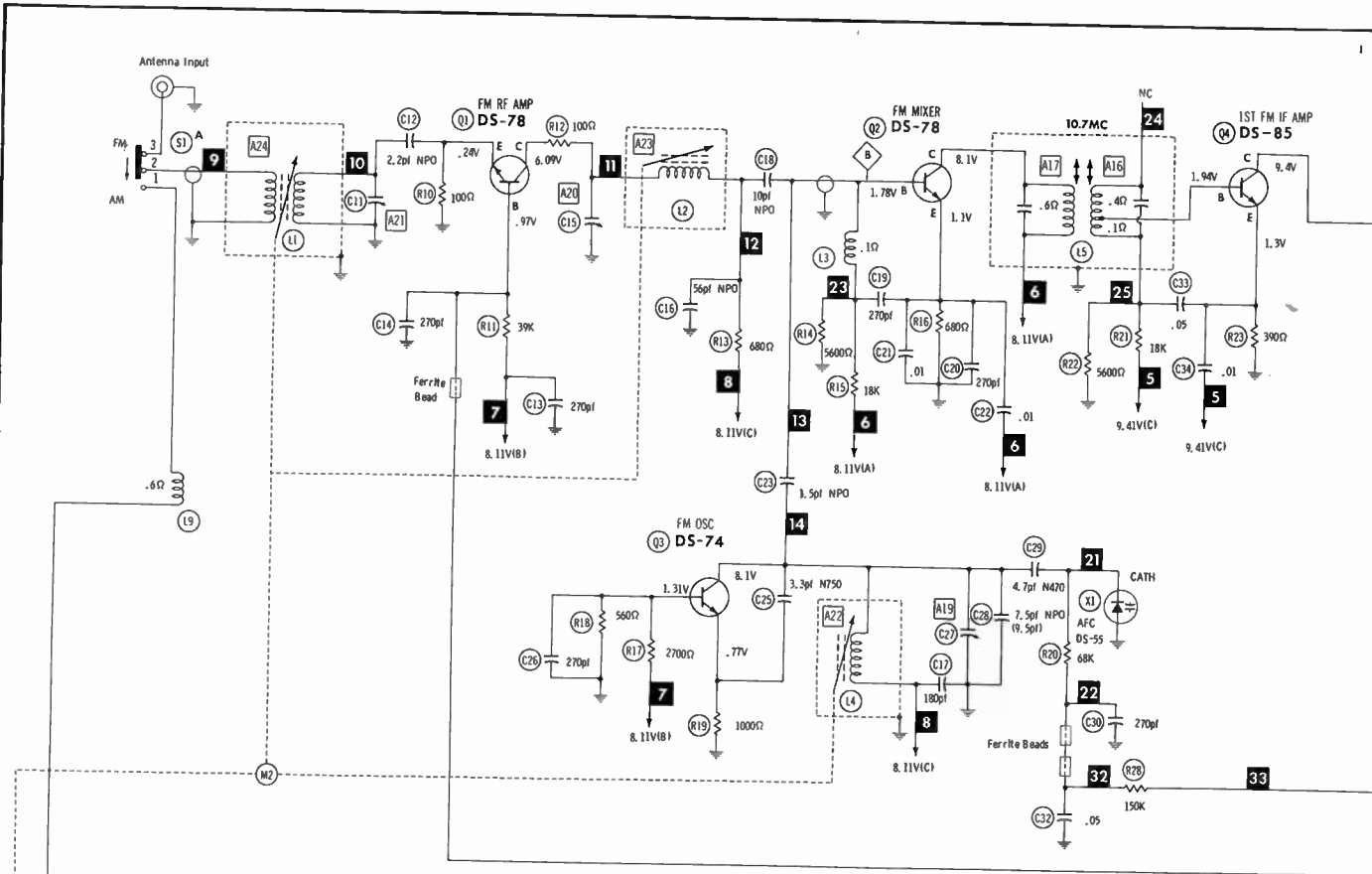
ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.		
X1	DS-55					
X2	DS-27	1N34AS	1N34A	ECG 109		
X3	DS-27	1N34AS	1N34A	ECG 109		
X4	DS-39 (1)	1N60	1N542 (1)	ECG 110 (1)		(1) Matched 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-49	GE-X11	1ZMB.2			Zener 8.2V

## 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	1000 16V	7283675	AFH3-54-41		CC0006		FPS300.91	PCL-3021.8
B	500 16V							
C	4 11.5Vrms							
C2	10 12V	7292738	PTT53	EA15-10	NLW10-15	MT1-5	MTA10D35	TL-1128
C3	10 12V	7292738	PTT53	EA15-10	NLW10-15	MT1-5	MTA10D35	TE-1128
C4	3 12V	7291860	PTT50	EA15-5	NLW3-15	MT1-3	MTA3D50	TE-1122
C5	30 6V	7296313	PTT27	EA6-25	NLW30-6	MT1-13	MTA30D15	TE-1132.1
C6	10 12V	7292738	PTT53	EA15-10	NLW10-15	MT1-5	MTA10D35	TL-1128
C7	100 4V	7291810	PTT30	EA6-100	NLW125-6	MT1-21	MTA125E6	TE-1102
C8	100 4V	7291810	PTT30	EA6-100	NLW125-6	MT1-21	MTA125E6	TE-1102

( CONTINUED ON PAGE 18 )

BUICK MODELS 04AFPI/BFPI/EFPI



See parts list

Measured with switching in "AM" position.

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 VTM or equivalent meter, no signal applied and controls adjusted for normal operation.

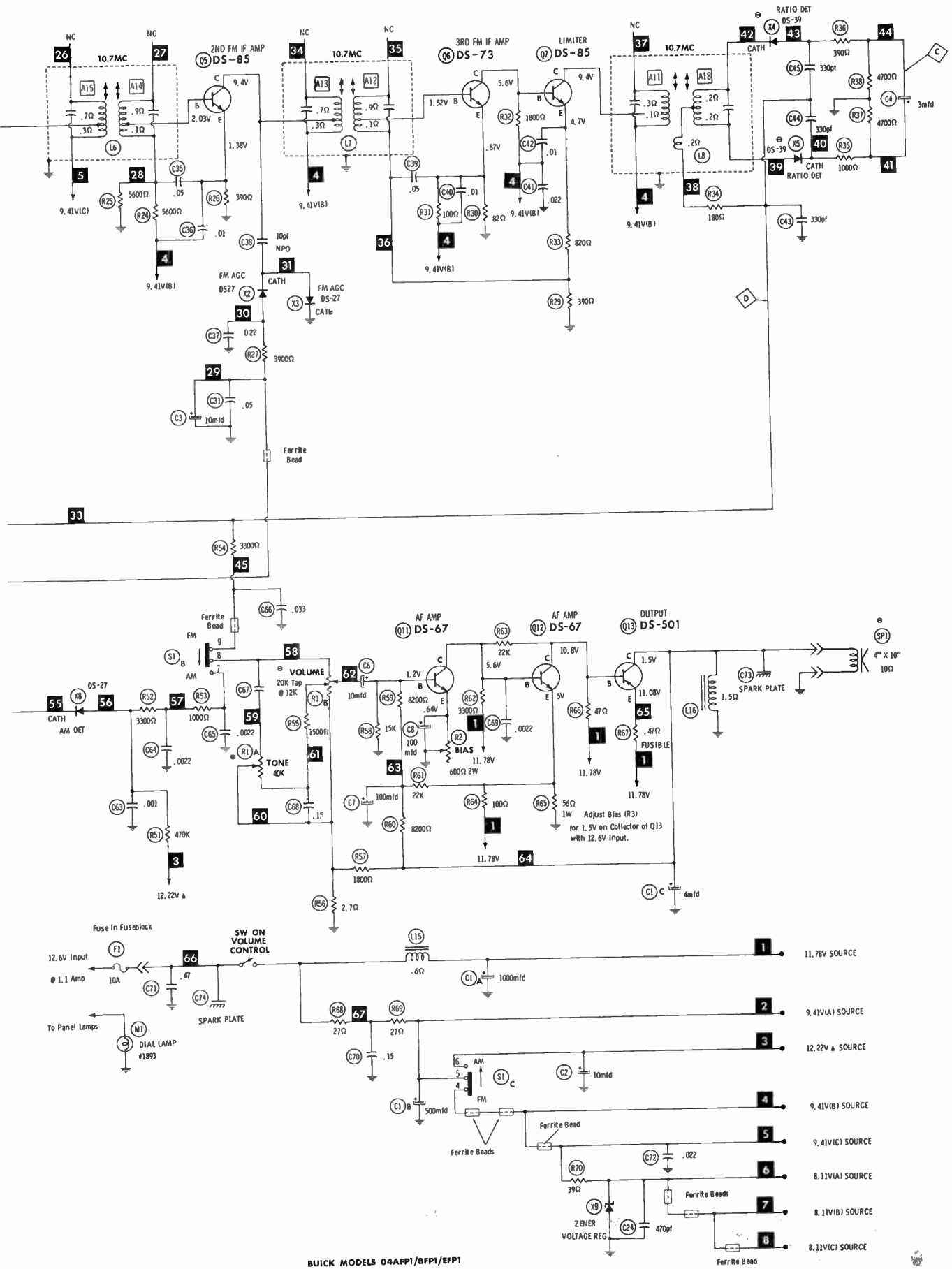
Numbers assigned to terminals may not be found on the unit.

Transistor resistances vary widely. No resistance measurements taken.

A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CircuitTrace**

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BUICK MODELS 04AP1/BFP1/EFP1

## 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.	
C11		#7293221							
C12	2.2 NPO		NPO-DI 2.2	DTZ-2R2	CZ601CJ2R2D			CN0522	10TCC-V22
C13	270		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C14	270		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C15		#7291003							
C16	56 NPO			TCZ-56			CCTO-560	CN0456	10TCC-Q56
C17	180		GPD X5F181K	DD-181	JBZ601YP181K		CCD-181	GP318	10TS-T18
C18	10 NPO		NPO-DI 10	DTZ-10	CZ601CG100J		CCTO-100	CN0410	10TCC-Q10
C19	270		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C20	270		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C21	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C22	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C23	1.5 NPO		NPO-DI 1.5	DTZ-1R5				CN0515	10TCC-V15
C24	470		GPD X5F471K	DD-471	JBZ601YP471K		CCD-471	GP347	10TS-T47
C25	3.3		NPO-DI 3.3	DTZ-3R3				CN0533	10TCC-V33
C26	270		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C27		#7292611							
C28	7.5 NPO	#7300236							
C29	4.7 N470						*	*	10TCT-V47
C30	270								
C31	.05		GPD X5F271K	DD-271	GP270		CCD-271	GP327	5GA-T27
C32	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C33	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C34	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C35	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C36	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C37	.0022		GPD X5F222K	DD-222	JBX601YP222K		CCD-222	GP222	10TS-D22
C38	10 NPO		NPO-DI 10	DTZ-10	CZ601CG100J		CCTO-100	CN0410	10TCC-Q10
C39	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C40	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C41	.022		TTP-02	CK-203	HOR101ZV203P		CCD-203	TA120	TG-S20
C42	.01		TTP-01	CK-103	HOV101ZV103P		CCD-103	TA110	TG-S10
C43	330		GPD X5F331K	DD-331	JBZ601YP331K		CCD-331	GP333	10TS-T33
C44	330		GPD X5F331K	DD-331	JBZ601YP331K		CCD-331	GP333	10TS-T33
C45	330		GPD X5F331K	DD-331	JBZ601YP331K		CCD-331	GP333	10TS-T33
C46		#7283618							
C47	.15		TTP-1	CK-104	HOV101ZV104Z			TA010	TG-P10
C48	91			TCN-91					
C49	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C50		#7295193							
C51	200 N750		N750-DI 200	DTN-200			CCTN-201	CN7320	10TCU-T20
C52	.0068 75V		DBE6D68	CPR-6800J	WMF1068		1DP-1-682	PVC4268	6PS-D68
C53	.022		TTP-02	CK-203	HOR101ZV203P		CCD-203	TA120	TG-S20
C54	165 N330						*	*	
C55	165 N330						*	*	
C56		#7295192							
C57	.0047 75V		DBE6D5	CPR-5000J	WMF105		1DP-1-502	PVC625	6PS-D50
C58	.001		GPD X5F102K	DM-102	JBZ601YP102K		CCD-102	SM210	2SS-D10
C59	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C60	.05		TTP-05	CK-503	HOV101ZV503Z		CCD-503	TA150	TGL-S50
C61	180 N080						*	*	10TCN-T18
C62	.1		TTP-1	CK-104	HOV101ZV104Z			TA010	TG-P10
C63	.001		GPD X5F102K	DM-102	JBZ601YP102K		CCD-102	SM210	2SS-D10
C64	.0022		GPD X5F222K	DD-222	GP2200		CCD-222	GP222	10TS-D22
C65	.0022		GPD X5F222K	DD-222	GP2200		CCD-222	GP222	10TS-D22
C66	.033		TTP-03	CK-303			CCD-303	GP130	TG-S30
C67	.1 100V		DBE2P1		DPMS2P1		1DP-2-104	PVC101	225P10491WD3
C68	.15 75V		DBE6P15		DMF4P15		4DP-4-154	PVC6015	4PS-P15
C69	.0022		GPD X5F222K	DD-222	GP2200		CCD-222	GP222	10TS-D22
C70	.15 75V		DBE6P15		DMF4P15		4DP-4-154	PVC6015	4PS-P15
C71	.47 75V		DBE2P47		DPMS2P47		1DP-4-504	PVC105	2PS-P50
C72	.022		TTP-02	CK-203	HOR101ZV203P		CCD-203	TA120	TG-S20
C73		#7271564							
C74		#7271564							

\* 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				
			MFRG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	100K	7303393 (2)	F2-100K, R14-25K, FFS108, RFS201, BB104, SB004, KR-4		* QJ-2522A	P15A, 4114, SH4375, RU24T14, OX1562A, IS2187, US41
B	Volume/Switch	20K Tap @ 11K					
A	Tone	100K	7303993 (3)	F2-100K, R14-25K, FFS104, RFS112, BB100, SB004, KR-4		**QJ-2523A	P15A, 4100, SH4375, RU24T14, OX1250A, IS1750, US41
B	Volume/Switch	20K Tap @ 11K					
R2	Bias	600 2 Watt	7294878	V-600	U39-600	110-600	MR850T

\* "Concentrikit" Equivalent K-8 Kit with base elements and shafts; B13-128, P17-118 (Panel)  
B19-119X, R9-202 (Rear)  
S51 (Bushing)  
N4 (Nut)  
76-1 (Switch)

"Snaptrol" Equivalent BUB, (1) CF52, CR50T, SF12, SR13, N4, GC

\*\* "Concentrikit" Equivalent K-8 Kit with base elements and shafts; B13-128, P22-109 (Panel)  
B19-119X, R26-121 (Rear)  
S6 (1) (Bushing)  
N4 (Nut)  
76-1 (Switch)

"Snaptrol" Equivalent BUB, (1) CF52, CR50T, SF9, SR9, N4, GC

- (1) Alter bushing and adjust spacer nut (N4) to meet requirements.  
(2) Used in Model 04AFP1.  
(3) Used in Models 04BFP1 and 04EFP1.

BUICK MODELS 04AFP1/BFP1/EFP1

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFRG. PART No.
R67	.47 (Fusible)			7281890

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

(1) Part of M2.

### 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	1.1 Amp	.6	2mh	1221623	C-4095	TC-2	TR-154	TY17XT	

## 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.	
L16	30mh	1222297					

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	4" x 10" PM 4" x 10" PM	10 ohms 10 ohms	1222661 7307254	410A2Z10 Models: 04AFP1, 04BFP1 Model: 04EFP1

### 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	AGC 10		311010		

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Dial Lamp		#216
M2	Tuner Coil Assy.	1222504	
S1	Switch, Selector	7284009	

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

ITEM	MODEL	PART No.	ITEM	MODEL	PART No.
Escutcheon	04AFP1	7314198	Dial Pointer	04AFP1	7303405
Escutcheon	04BFP1	7307468	Dial Pointer	04BFP1	7307488
Escutcheon	04EFP1	7309172	Dial Pointer	04EFP1	7303987
Dial Glass	04AFP1	7313815	Push Button	04AFP1	7313613
Dial Glass	04BFP1	7307476	Push Button	04BFP1/	7313753
Dial Glass	04EFP1	7304014		04EFP1	
Dial Drum	04AFP1	7311410	Knob, Tuning or Volume		1231081
Dial Drum	04BFP1	7304002	Knob, Tone		1383647
Dial Drum	04EFP1	7304002	Knob, Dummy		1383646

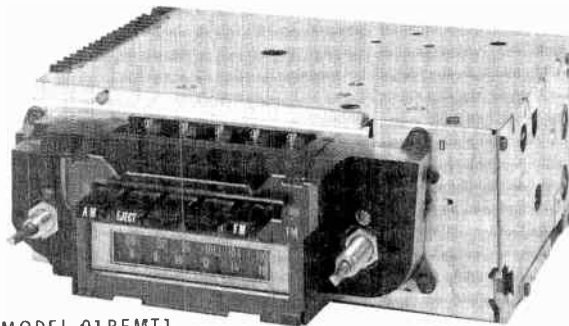


# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO



MODEL 01BFMT1

CHEVROLET MODELS 01BFMT1  
01BFMT2  
(70 Acadian, Camaro,  
Chevelle, Chevrolet,  
Chevy II, Monte Carlo)

## 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.

Removing the cartridge changes unit to Radio mode.

## 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.

CHEVROLET MODELS 01BFMT1/2

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

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TD764

## 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 on Assembly (14) broken. Spring (19) broken or missing. Spring (20) broken or missing. Solenoid (M4) defective or not supplied with power. Cartridge defective.
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

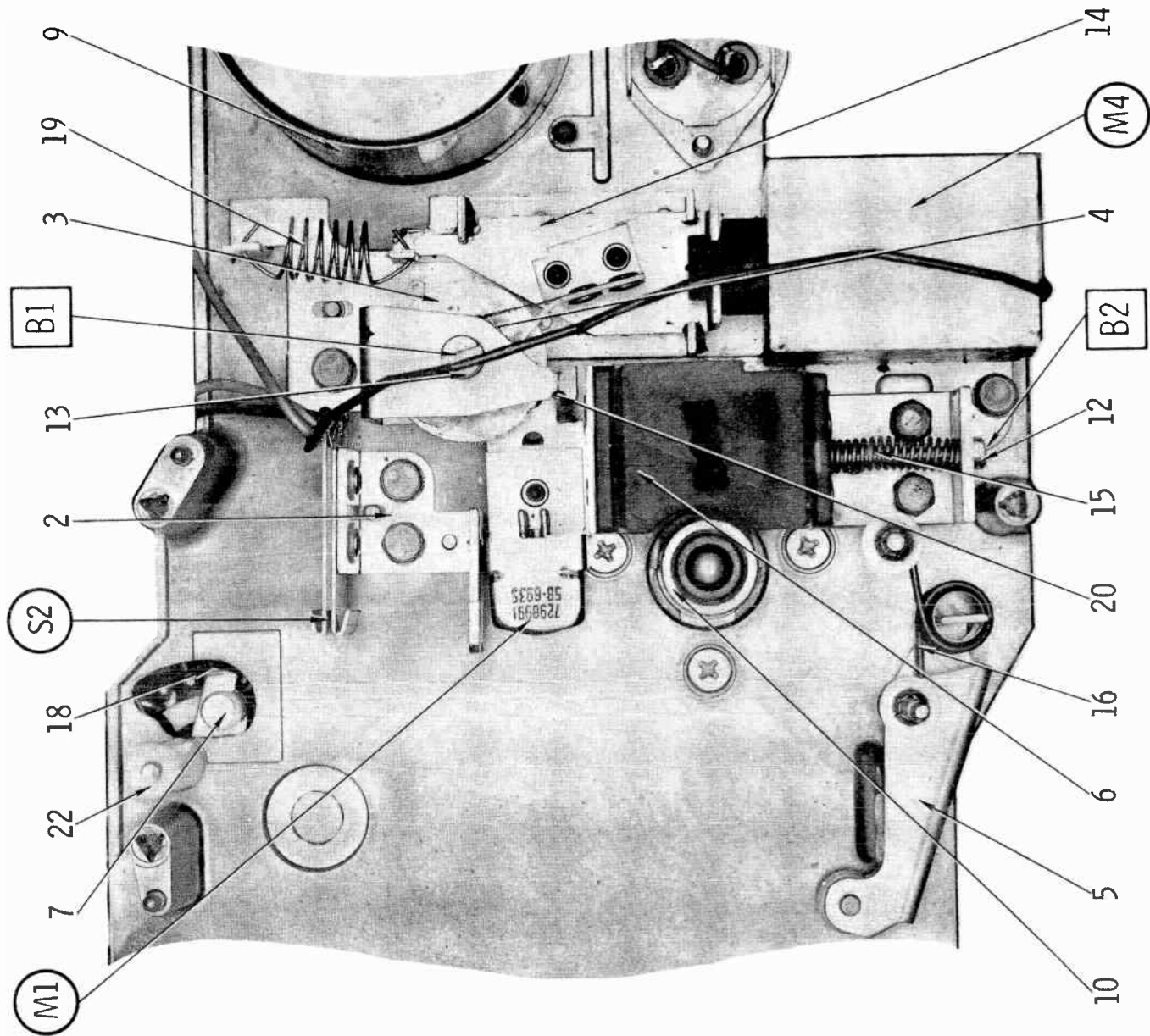
ADJUST	REMARKS
Head Height	Play a test cartridge, follow instructions with cartridge, and adjust B1 for proper response.
Head Azimuth	Connect an AC VTVM across right output. Play a test cartridge and adjust B2 for maximum.
Motor Speed	Play a test cartridge with a timed-interval track, follow instructions 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.

## MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1*	7312439*	Belt (2 used)*	12	1222945	Azimuth Adjustment Screw
2	7313343	Tape Guide Assembly	13	7312607	Head Height Adjustment Screw
3	7312595	Cam Assembly	14	7313331	Track Change Slide Assembly
4	7312608	Cam Spring	15	7304444	Parallelogram Spring
5	7305877	Cartridge Lock Arm	16	7304222	Cartridge Arm Lock Spring
6	7313329	Head and Parallelogram Assembly	17	7311014	Door Spring
7	7313367	Switch Arm Assembly	18	7310163	Switch Return Spring
8	7310196	Thrust Bearing	19	7312611	Slide Return Spring
9	7310401	Motor Shield	20	7312609	Limiter Cam Spring
10	7313344	Capstan, Flywheel, and Bearing Assembly	21	7930360	Cartridge Eject Lever Assembly (1)
11	7310195	Thrust Bearing Plate	22	7312836	Cartridge Roller (2 used)
			23	7930363	Eject Lever Return Spring (1)

(1) Part not shown on photos.

\* Belt - WALSCO Replacement Number 1425-14.



## 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 A17  
A24, A25, A26..... #9300, 9296, 9297..... #2510, 2546, 2547  
A6, A7, A8, A19, A20, A21..... #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 31", tune in a weak station near 1400KC and adjust A8 for maximum output. Antenna adjustment (A8) is located

### BALANCE ADJUSTMENT

4.	High side of audio generator to point $\diamond D$ , low side to ground.	400 cycle	any	AC Volt-meter from collector of Q12 to collector of Q15.	R3 (Balance)	Adjust for minimum.
----	--	-----------	-----	--	--------------	---------------------

### FM IF ALIGNMENT USING AM SIGNAL GENERATOR - SELECTOR IN FM

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

	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
5.	10.7MC Unmodulated	Point of non-interference	Output Meter across voice coil	A11	Adjust for MINIMUM between two noise peaks.
6.	10.7MC (400 cycles Mod.)	"	DC probe of VTVM to point $\diamond C$ , common to ground.	A12 thru A17	Adjust for maximum.

### FM RF ALIGNMENT - SELECTOR IN FM

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. Osc. Coil Core (A21) should be 1 3/8" from mtg. end with Dial Point set @ 108MC.

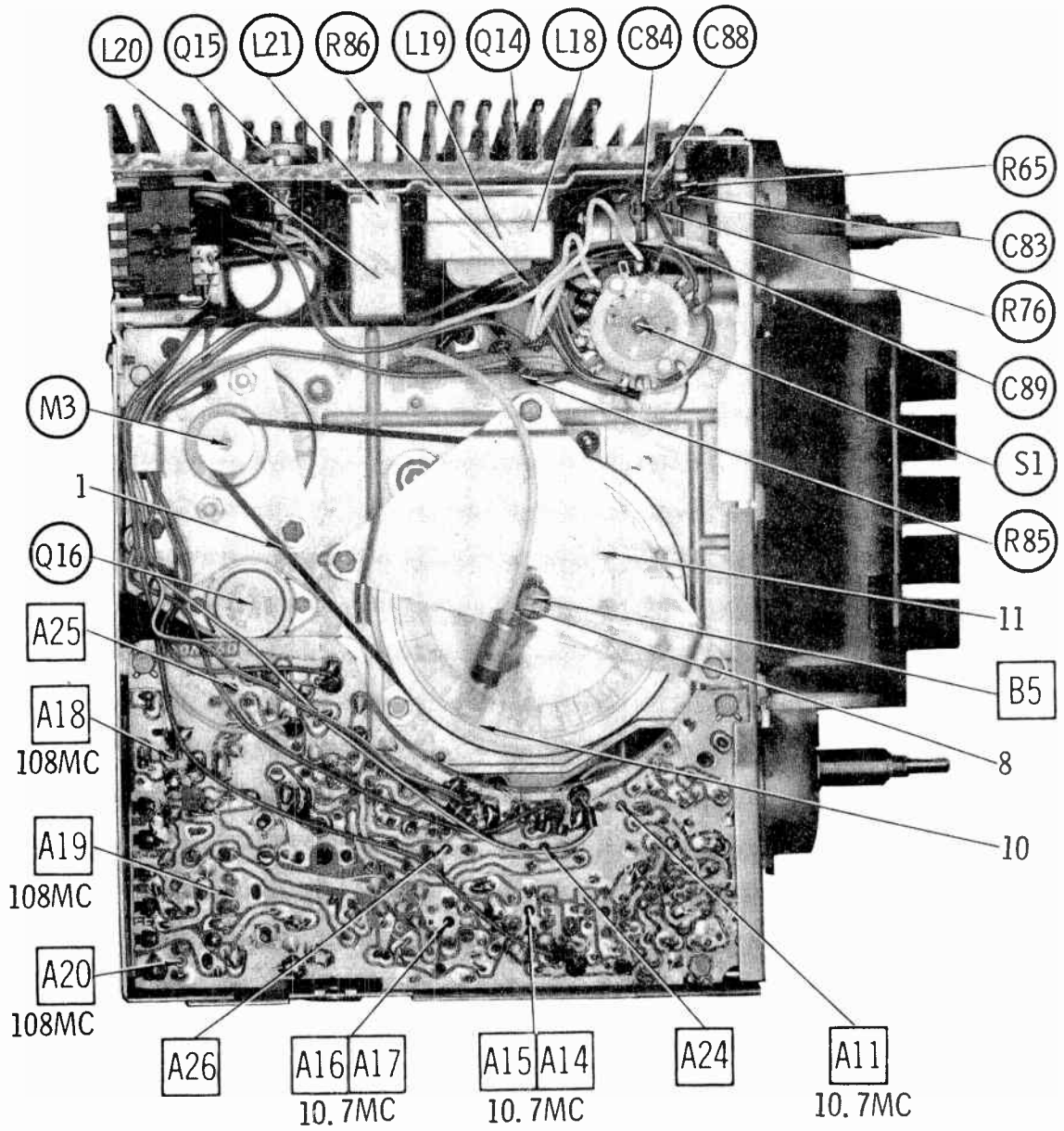
	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
7.	108MC	High freq. end	DC probe of VTVM to point $\diamond C$ , common to ground.	A18, A19, A20	Adjust for maximum.
8.	99MC Unmodulated	Tune to signal.	"	A22 A23	Rock tuning and adjust for maximum. Repeat steps 6 and 7 until no further improvement can be made.

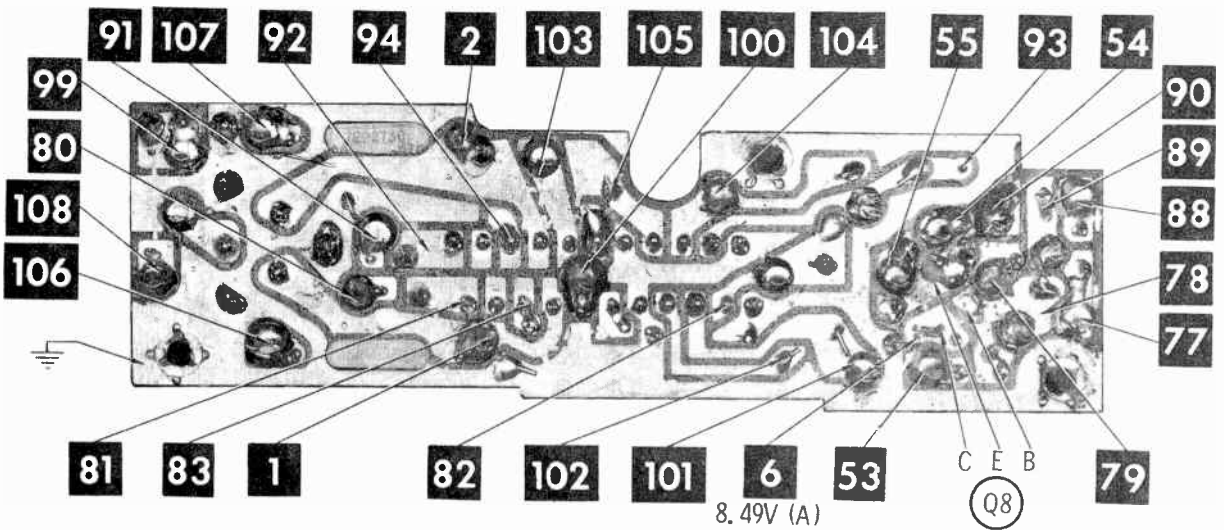
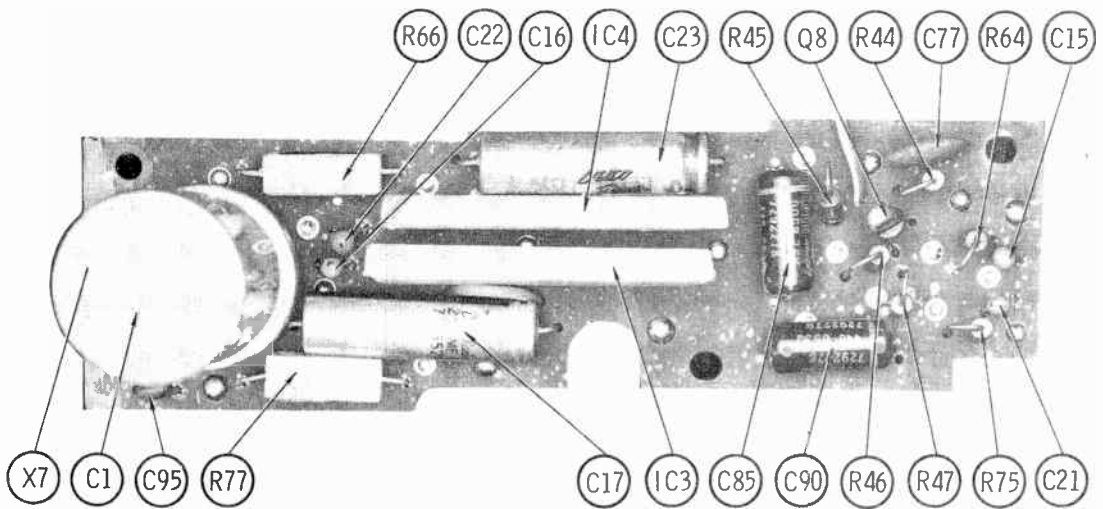
### FM STEREO MPX ALIGNMENT - STEREO SIGNAL GENERATOR( $\pm$ .0001% ACCURACY

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. Set Separation Control (R5) at mid range.

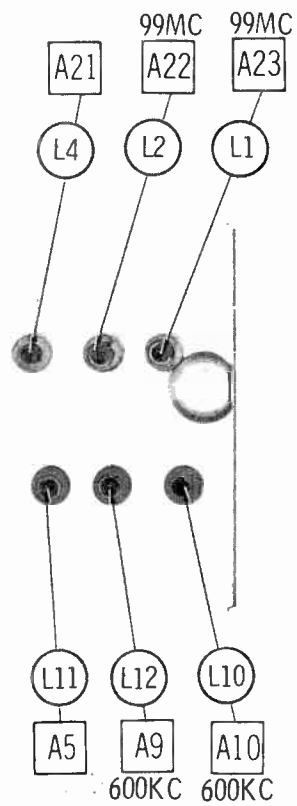
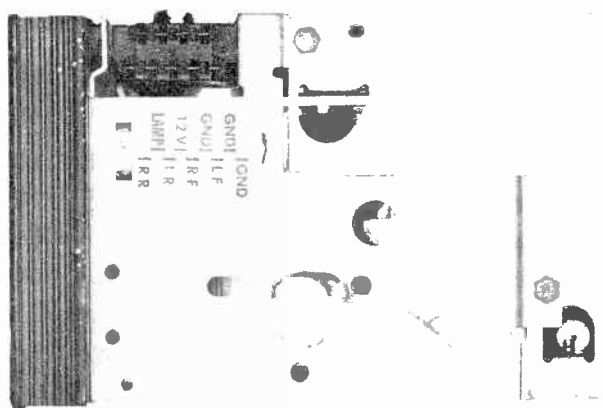
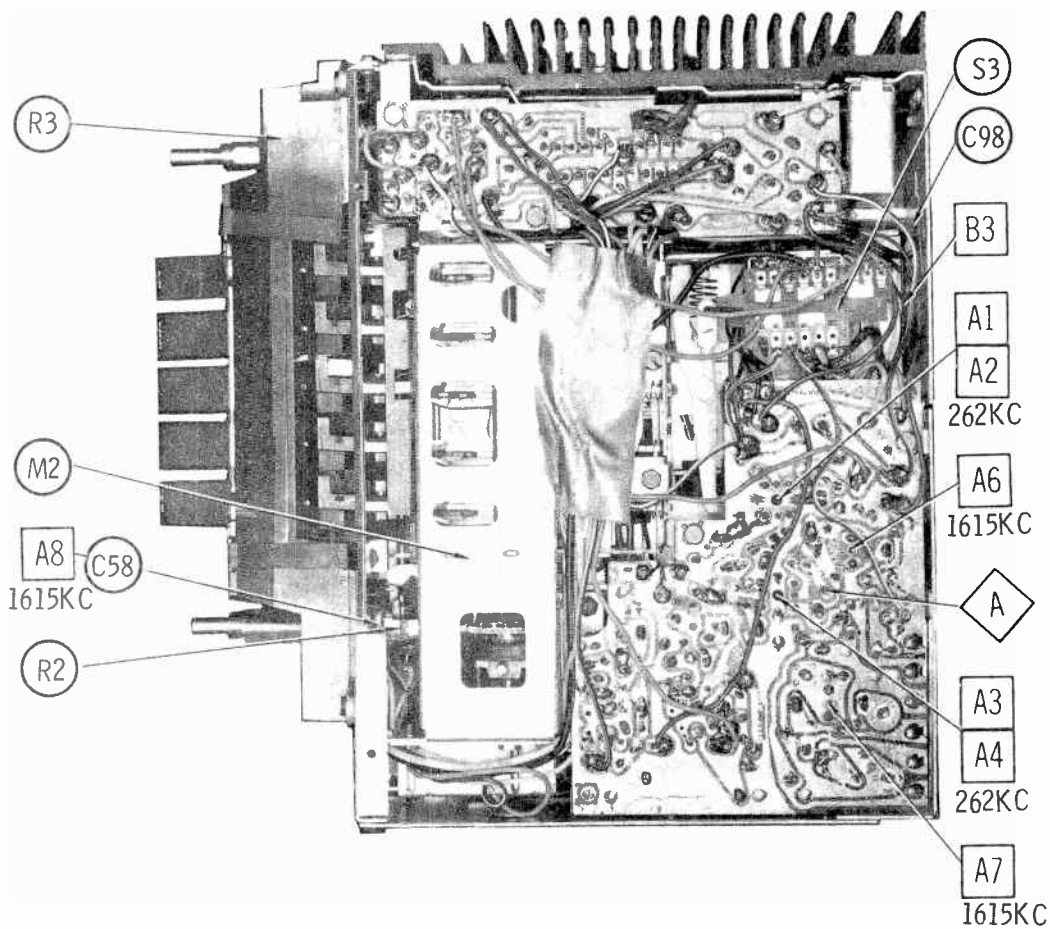
	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
9.	100MC Modulated Left Channel	100MC	Output meter across voice coil of right speaker.	A24, A25 A26	Adjust for MINIMUM
10.	"	"	"	R4 (Separation)	Adjust for MINIMUM.

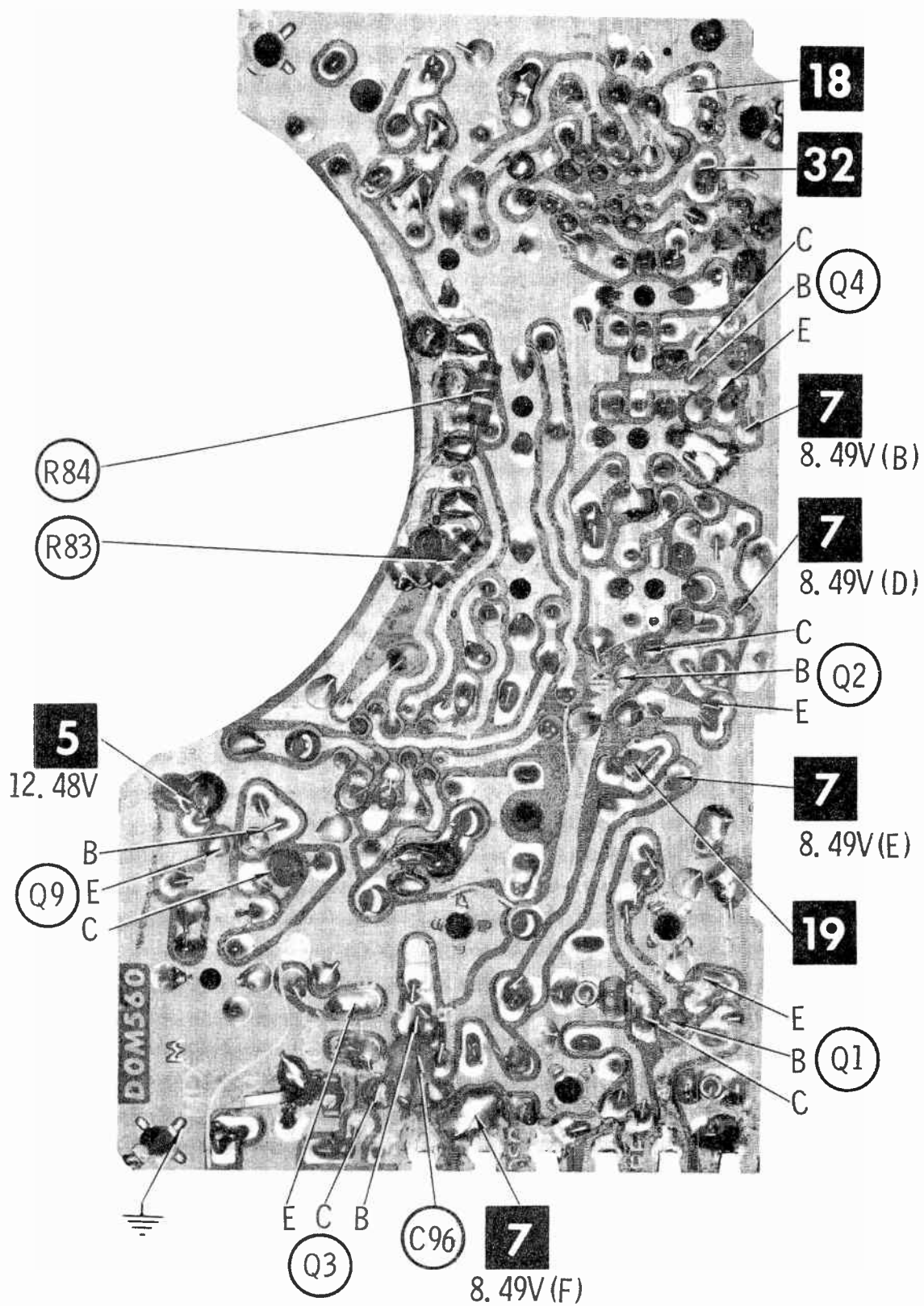




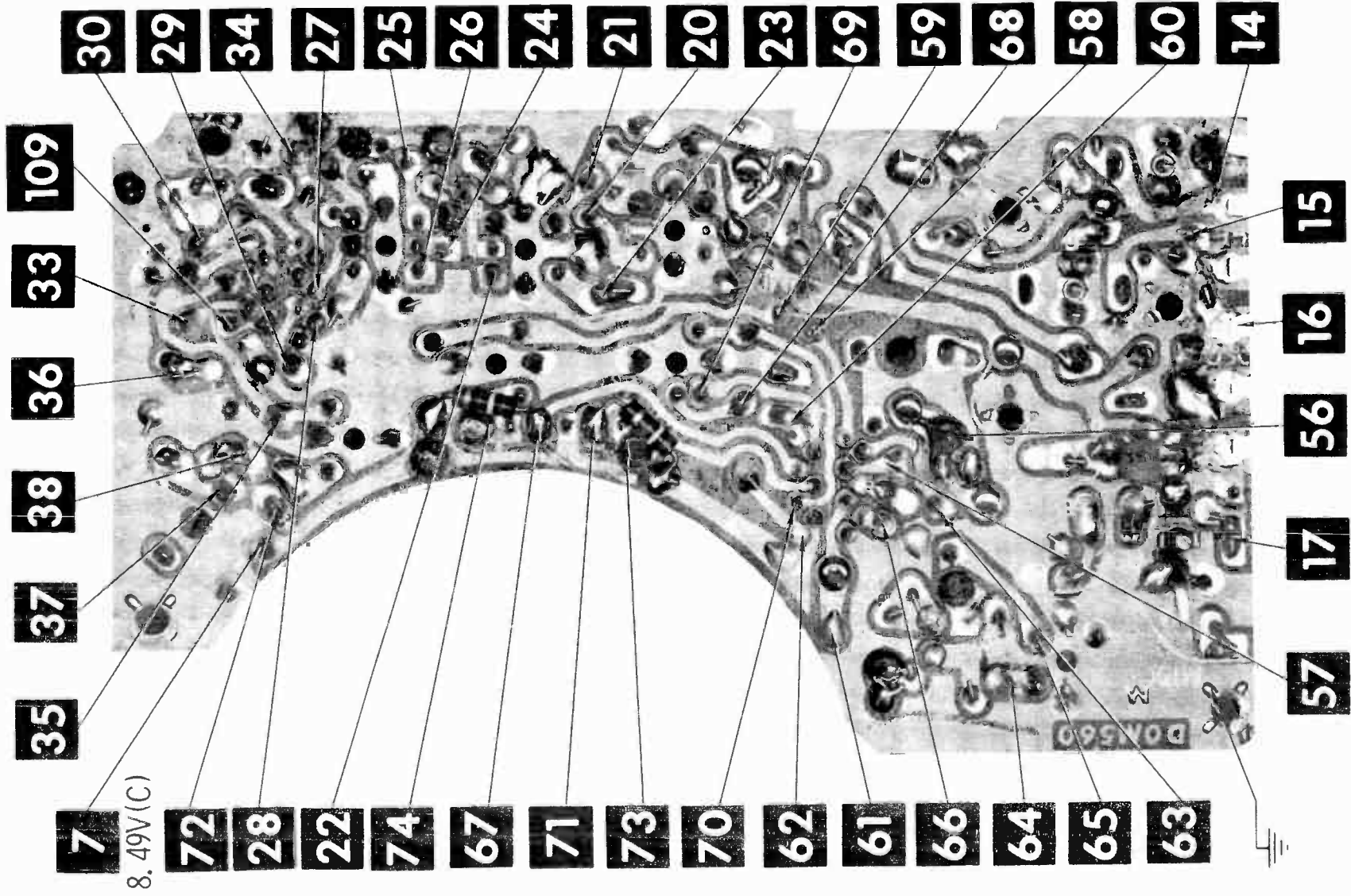


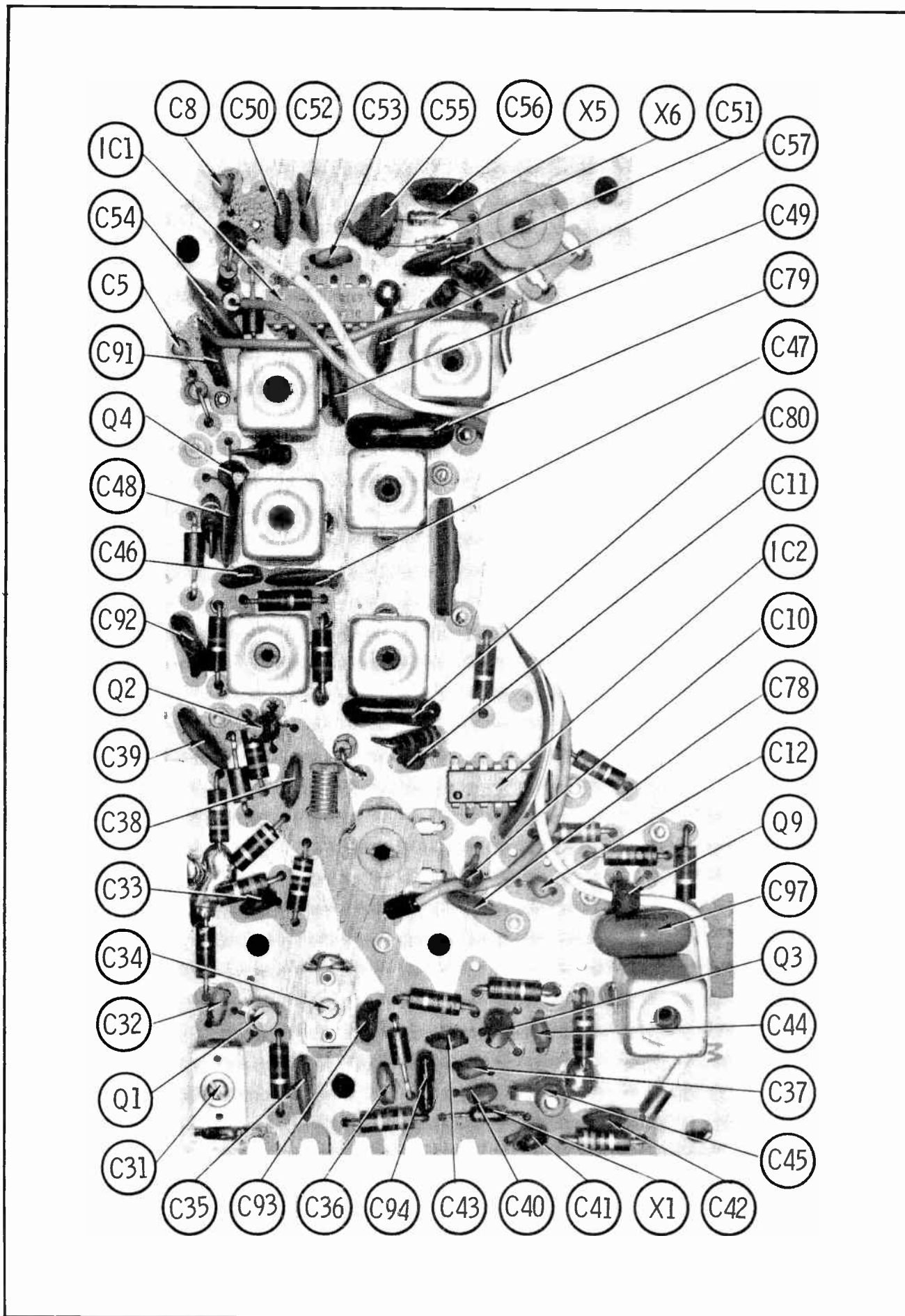
A Howard W. Sams **CIRCUITRACE** Photo

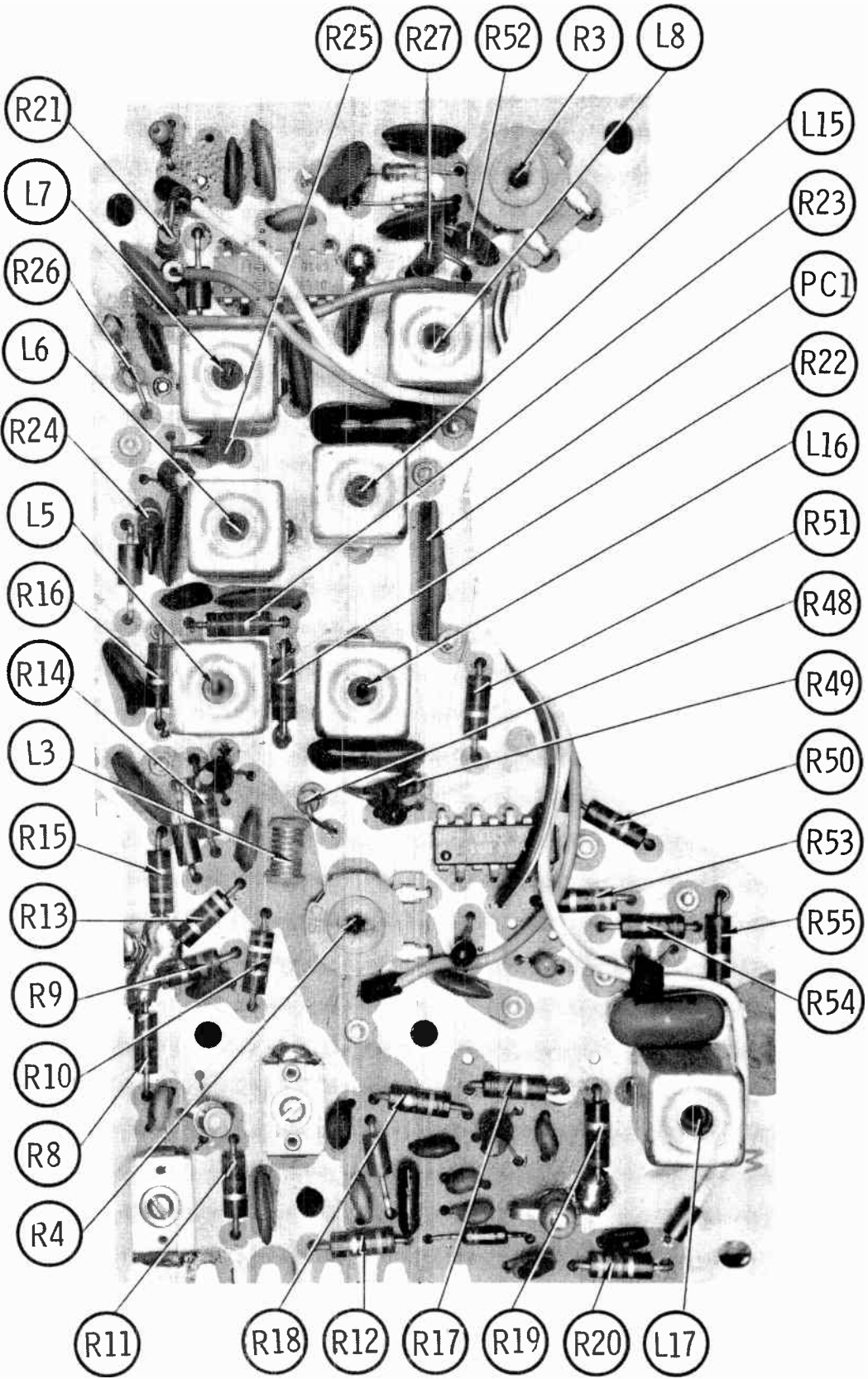


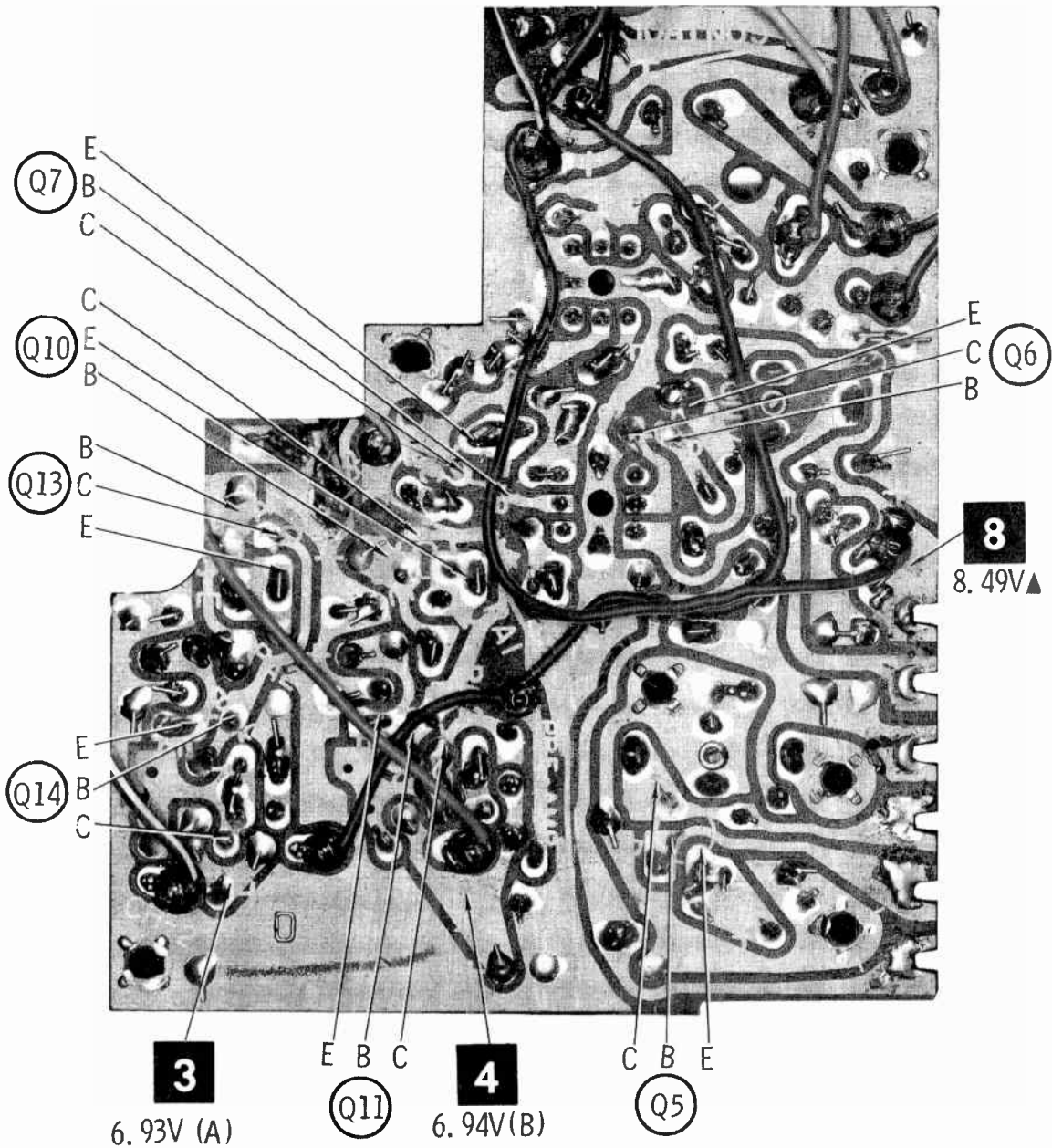


A Howard W. Sams **CIRCUITRACE** Photo



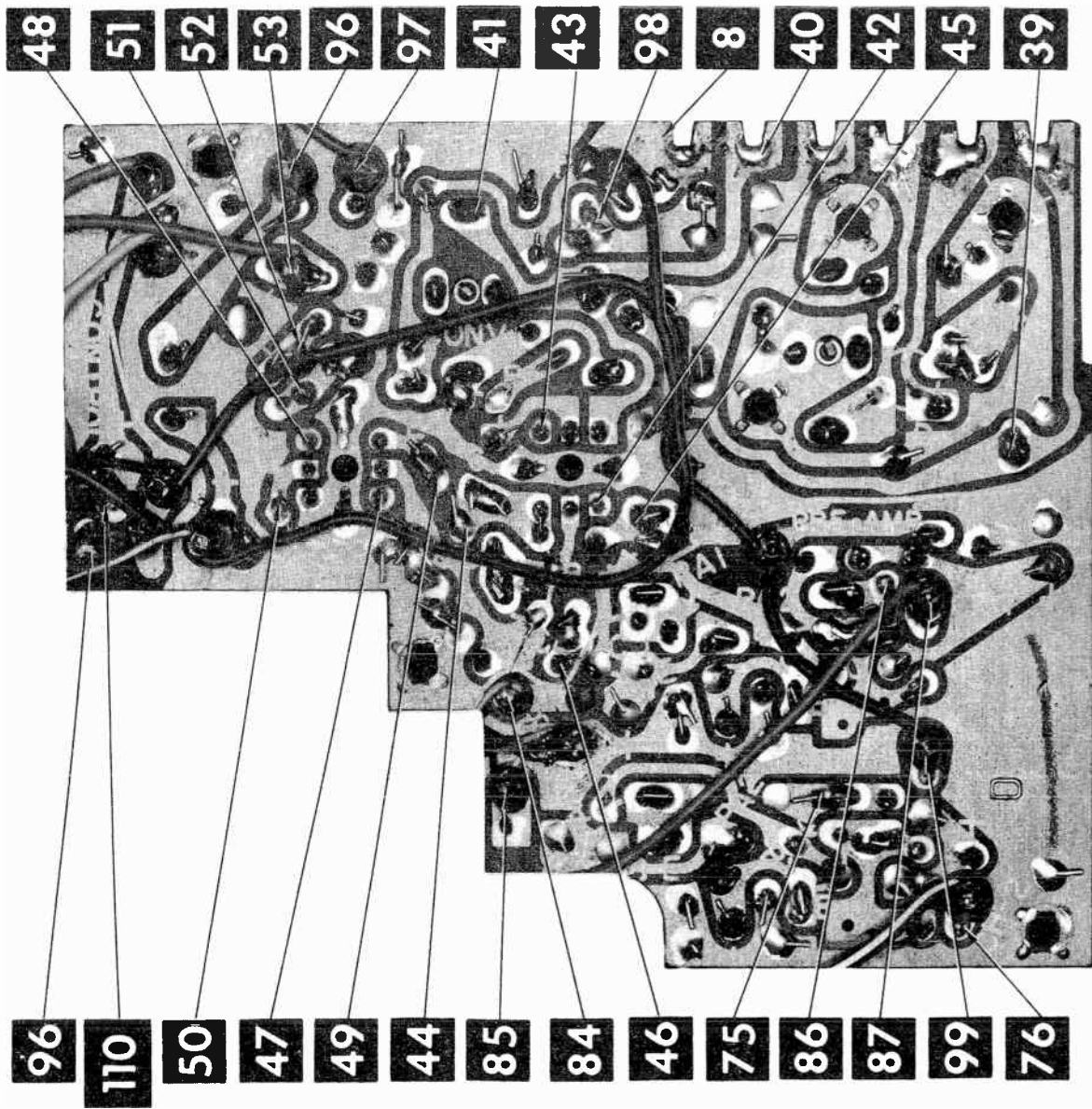


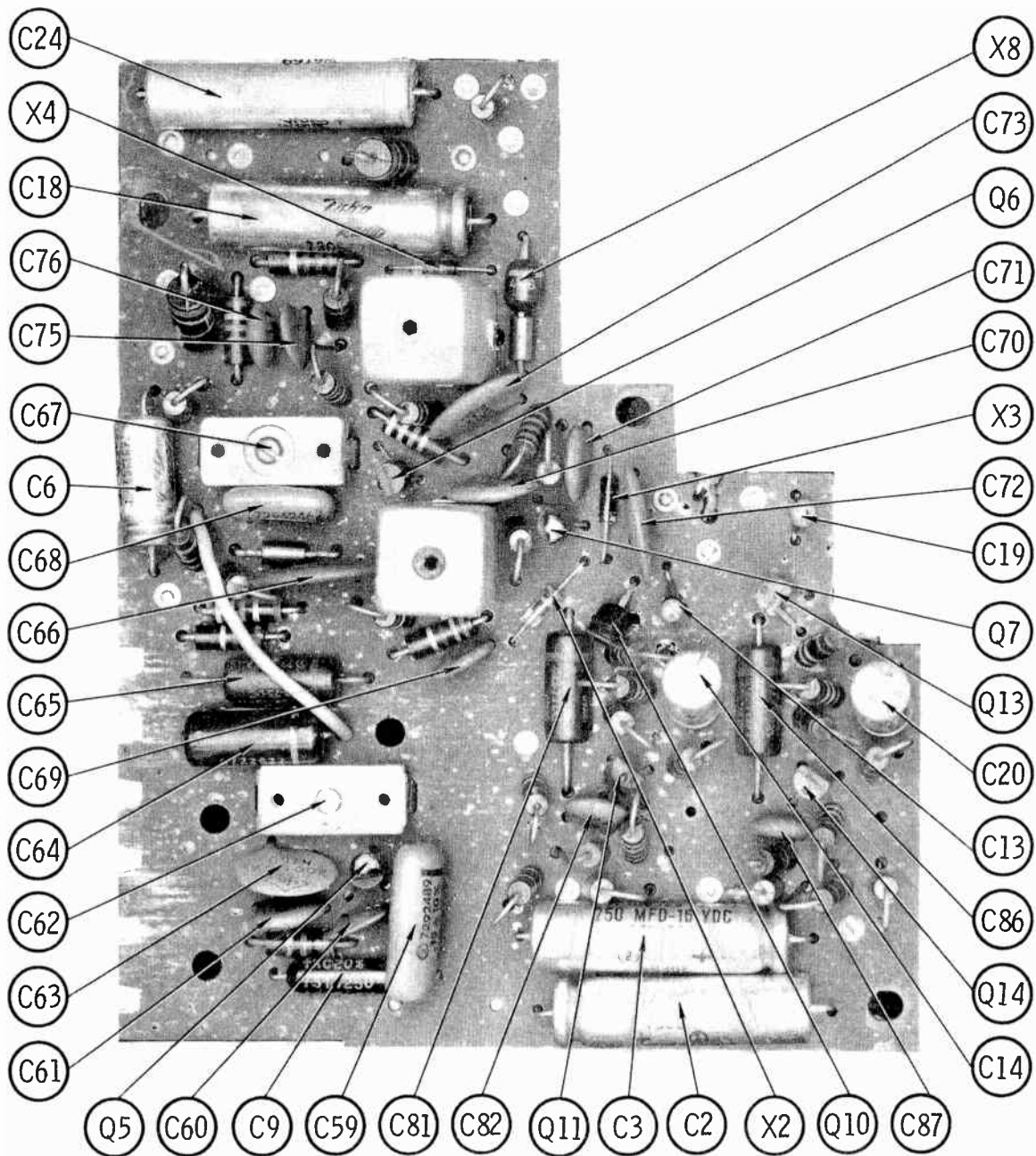


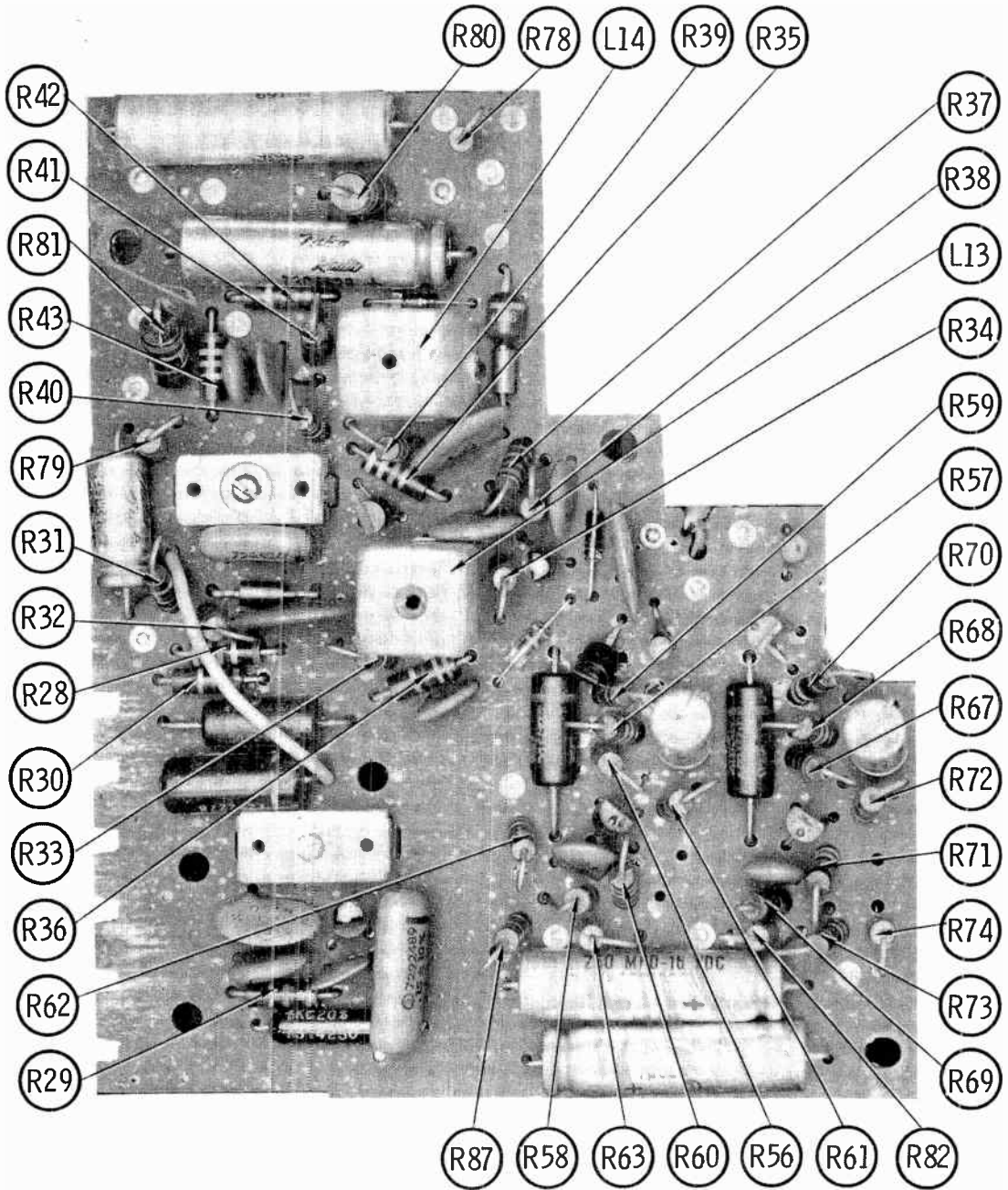


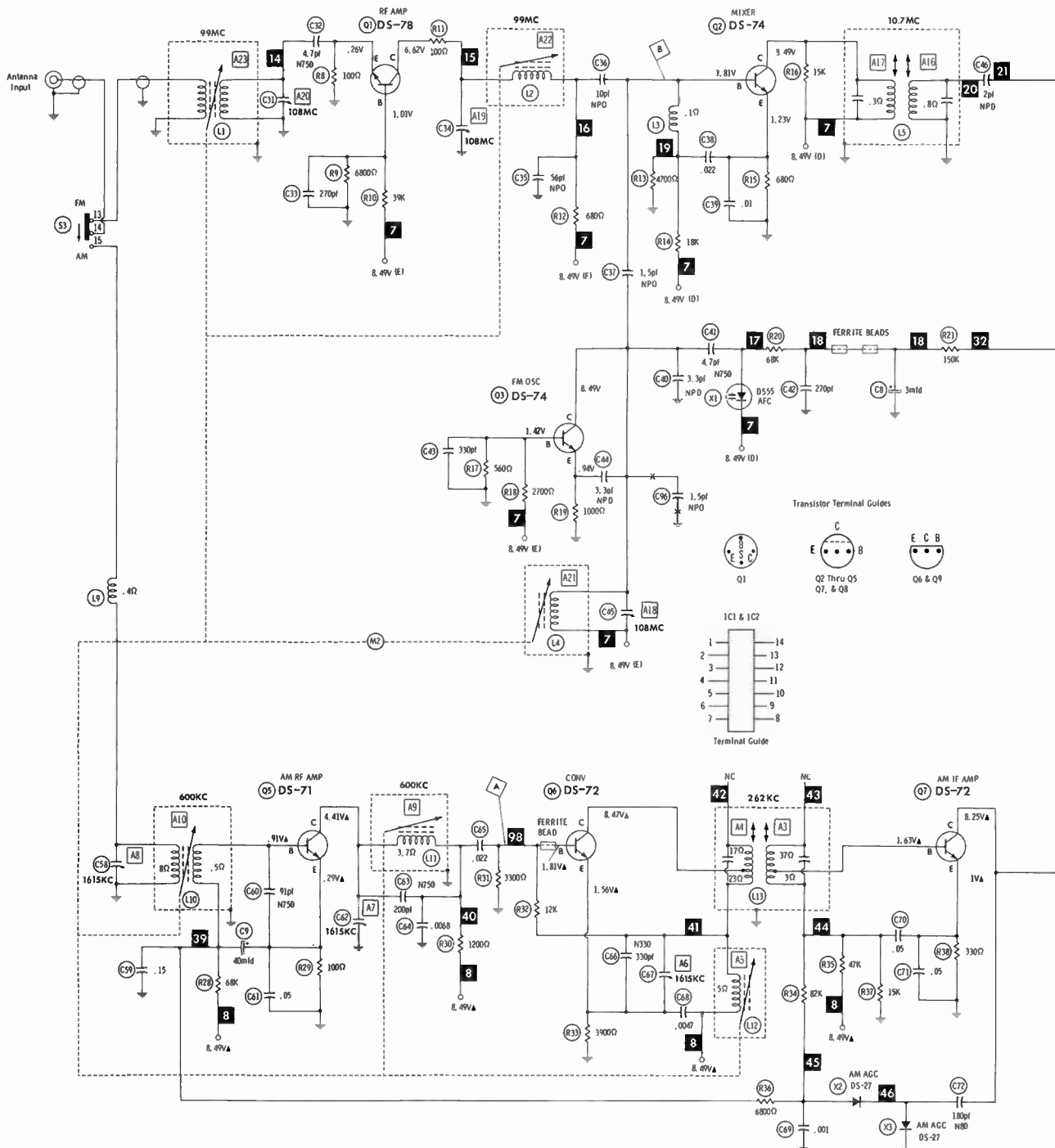
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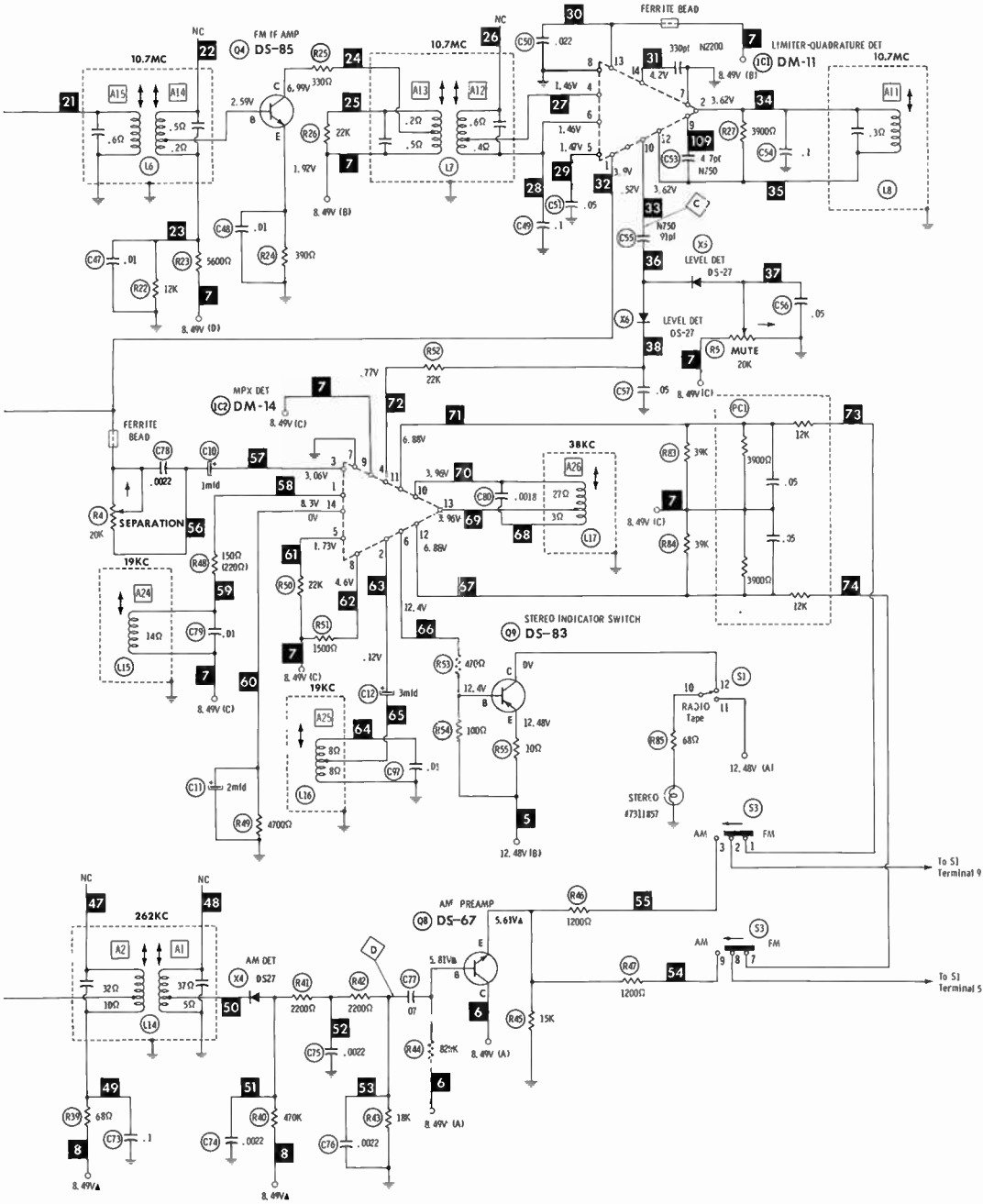






▲ Measured with switching in "AM" position.  
 Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.  
 Supply voltage maintained at rated value for measurements.  
 Voltage and resistance measured with VTVM or equivalent meter,  
 no signal applied and controls adjusted for normal operation.  
 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.

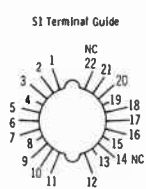
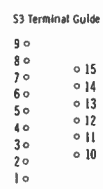
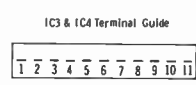
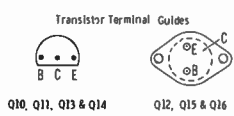
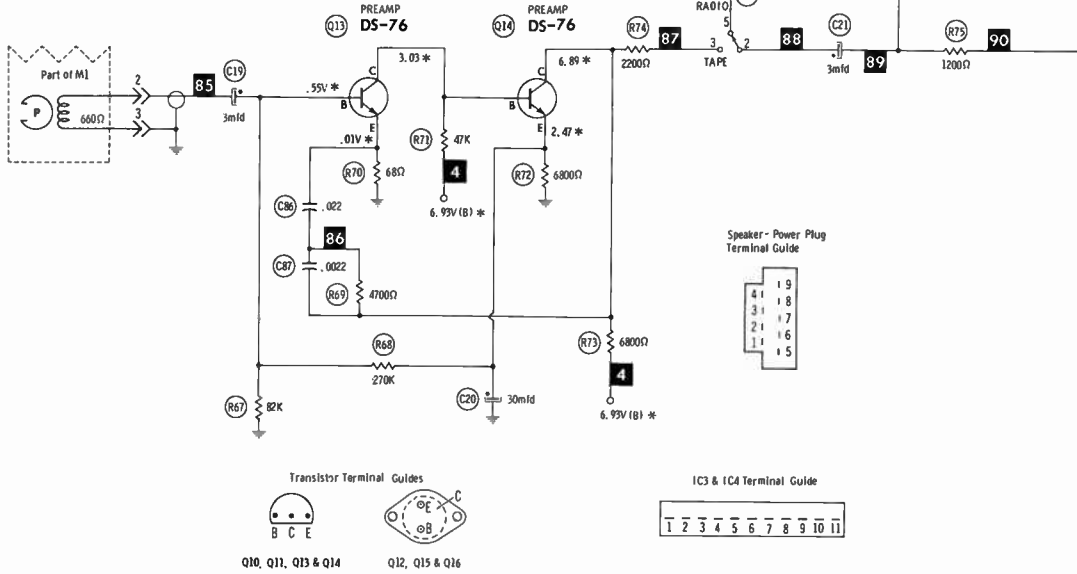
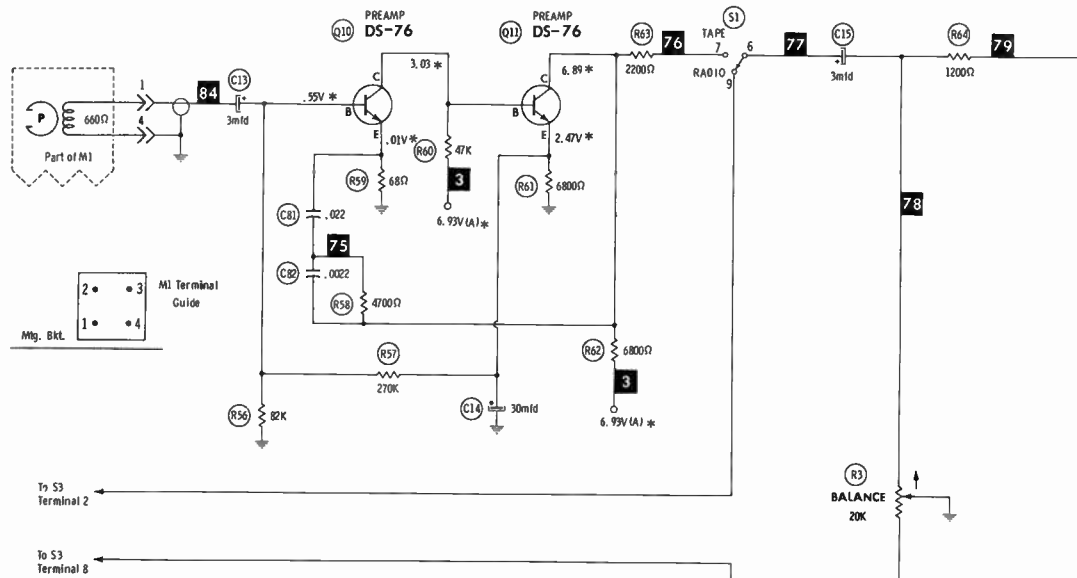
A PHOTOFAC STANDARD NOTATION SCHEMATIC  
 with **CIRCUITACE**  
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CHEVROLET MODELS 01BFMT1/2

REFER TO PAGES 36 & 37 FOR STEREO TAPE PORTION

**NOTE: DEMAGNETIZE HEADS AFTER SERVICING**

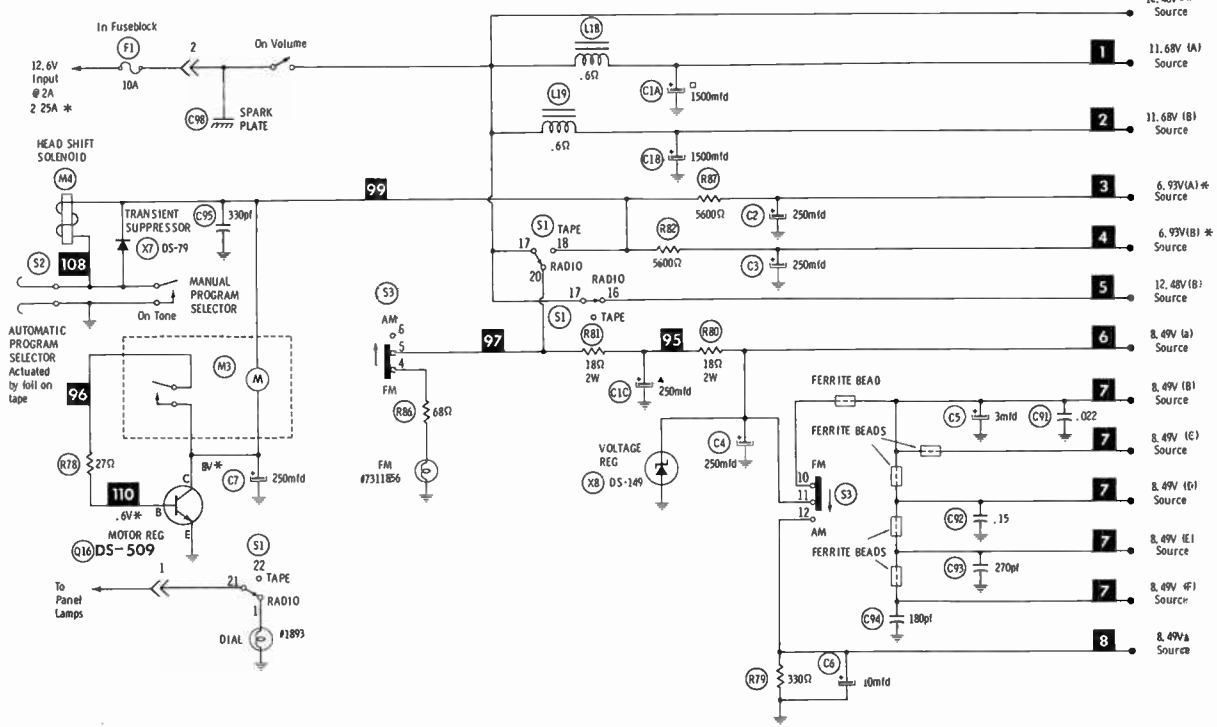
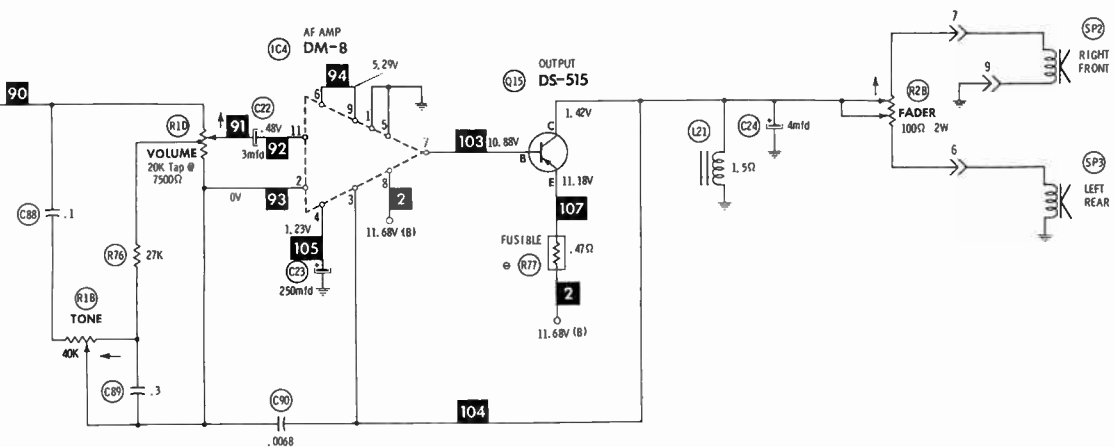
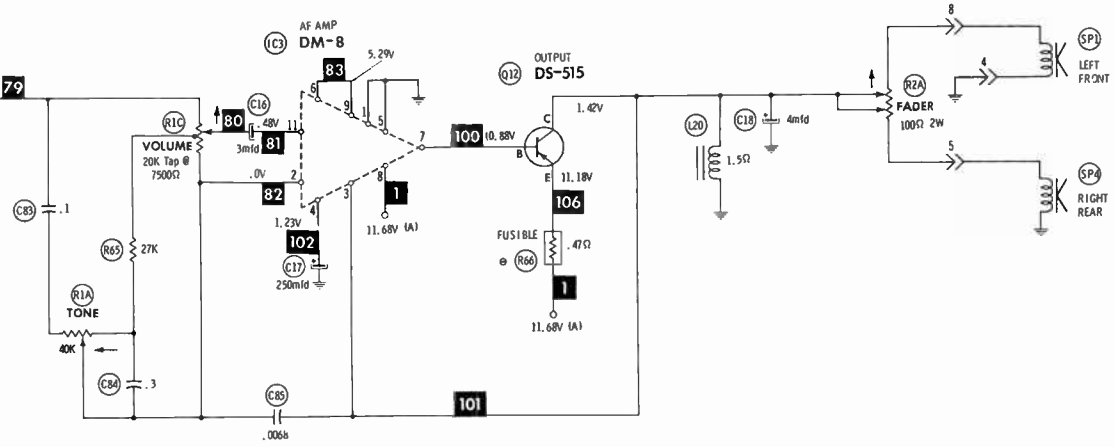


▲ Measured in AM position. Measurements taken with switching in position shown unless otherwise indicated.

\* Measured in TAPE Position. 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 PHOTOFACIT STANDARD NOTATION SCHEMATIC  
with **CIRCUITRACE**  
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**REFER TO PAGES 34 & 35 FOR AM-FM-MPX PORTION**



CHEVROLET MODELS 01BFMT1/2

## 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<sup>®</sup> 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-78	FM RF Amp	DS-81	GE-17	TR-22	HEP50	SK3018	ECG 108
Q2	DS-74	FM Mixer	DS-74	GE-17	TR-22	HEP56	SK3018	ECG 108
Q3	DS-74	FM Oscillator	DS-74	GE-11	TR-21	HEP56	SK3018	ECG 108
Q4	DS-85	FM IF Amp	DS-74	GE-17	TR-21	HEP53	SK3018	ECG 108
Q5	DS-71	AM RF Amp	DS-71	GE-20	TR-21	HEP53	SK3018	ECG 108
Q6	DS-72	AM Converter	DS-72	GE-20	TR-21	HEP53	SK3018	ECG 108
Q7	DS-72	AM IF Amp	DS-72	GE-20	TR-21	HEP53	SK3018	ECG 108
Q8	DS-67	AM Preamp	DS-66	GE-10	TR-21	HEP54	SK3020	ECG 123
Q9	DS-83	Stereo Indicator Switch	DS-83	GE-22	TR-19	HEP51	SK3025	ECG 129
Q10	DS-16	Preamp	DS-76	GE-10	TR-21	HEP54	SK3020	ECG 123
Q11	DS-76	Preamp	DS-76	GE-10	TR-21	HEP54	SK3020	ECG 123
Q12	DS-515	Output (1)	DS-515	GE-3	TR-01	HEP232	SK3009	ECG 104
Q13	DS-76	Preamp	DS-76	GE-10	TR-21	HEP54]	SK3020	ECG 123
Q14	DS-76	Preamp	DS-76	GE-10	TR-21	HEP54	SK3020	ECG 123
Q15	DS-515	Output (1)	DS-515	GE-3	TR-01	HEP54	SK3009	ECG 104
Q16	DS-509	Motor Regulator	DS-509	GT-14	TR-26	HEP704	SK3036	ECG 130

(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	FM Limiter and Quadrature Detector	DM-11	
IC2	MPX Detector	DM-14	
IC3	AF Amp	DM-8	
IC4	AF Amp	DM-8	

### 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	DS-55					Varactor
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-79	1N34AS	1N34A	ECG 109		
X8	DS-149	GE-X11	1ZMB.2			Zener



## 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.

### 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	7930580						
b	1500 16V							
c	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	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1122
C5	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C6	10 12V	7292738	PTT114	EA15-10	AL10-15	MT1-5	MTA10D35	TL-1128
C7	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C8	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C9	40 6V	7298555	CRE315A	EA6-50	AL50-15	MT1-15	TAC396K006POA	TE-1095
C10	1 10V	7312297	BCD50001		PC1-100	MT1-1	MTV1CB50	TE-1120
C11	2 10V	7313127	BCD50002	EP15-2	PC2-100	MT1-1	MTV2CB50	TE-1121
C12	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C13	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C14	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C15	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C16	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C17	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C18	4 11.5Vrms	7313126	CRE753A	EA15-5	AL5-150	MT1-3	MTA4D50	TE-1151
C19	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C20	30 6V	7296313	CRE413A	EA6-25	AL30-6	MT1-13	MTA30D15	TL-1093
C21	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C22	3 10V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3D50	TE-1122
C23	250 16V	7307357	PRS1210	EA15-250	WBR250-50	QT1-28	MTA250F15	TE-1165
C24	4 11.5Vrms	7313126	CRE753A	EA15-5	AL5-150	MT1-3	MTA4D50	TE-1151

CHEVROLET MODELS 01BFMT/2

### 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.
C31		#7312524		DTN-5	N5	CCTN-050	CN7547	10TCU-V47
C32	4.7	N750		DD-271	GP270	CCD-271	GP327	56A-T27
C33	270		GPD X5F271K					
C34		#7312525						
C35	56	NPO		TCZ-56	NP010	CCTO-560	CN0456	10TCC-Q56
C36	10	NPO	NPO-DI 10	DTZ-10	NP01P5	CCTO-100	CN0410	10TCC-Q10
C37	1.5	NPO	NPO-DI 1.5	DTZ-1R5	MGPO2		CN0515	10TCC-V15
C38	.022		TTP-02	CK-203	MGPO1	CCD-203	TA120	TG-S20
C39	.01		TTP-01	CK-103	NPO3P3	CCD-103	TA110	TG-S10
C40	3.3	NPO	NPO-DI 3.3	DTZ-3R3			CN0533	10TCC-V33
C41	4.7	N750		DTN-5	N5	CCTN-050	CN754	10TCU-V47
C42	270		GPD X5F271K	DD-271	GP270	CCD-271	HP327	56A-T27
C43	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33
C44	3.3	NPO	NPO-DI 3.3	DTZ-3R3	NPO3P3		CN0533	10TCC-V33
C45		#7312611						
C46	2	NPO	NPO-DI 2.2	DTZ-2R2	NPO2P2		CN0522	10TCC-V22
C47	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C48	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C49	.1		TTP-1	CK-104			TA010	TG-P10
C50	.022		TTP-02	CK-203	MGPO2	CCD-203	TA120	TG-S20
C51	.05		TTP-05	CK-503	MGPO5	CCD-503	TA150	TGL-S50
C52	330	N2200				*	*	10TCY-T33
C53	4.7	N750		DTN-5	N5	CCTN-050	CN747	10TCU-V47
C54	.1		TTP-1	CK-104			TA010	TG-P10
C55	91	N750		TEN-91				
C56	.05		TTP-05	CK-503	MGPO5	CCD-503	TA150	TGL-S50
C57	.05		TTP-05	CK-503	MGPO5	CCD-503	TA150	TGL-S50
C58		#7311855						
C59	.15	75V	D8E6P15		DPMS4P15	40P-4-154	PVC6015	4PS-P15
C60	91	N750		TCN-91				
C61	.05		TTP-05	CK-503	MGPO5	CCD-503	TA150	TGL-S50
C62		#7311369						
C63	200	N750	N750-DI 200	DTN-200	N220	CCTN-201	CN7201	10TCU-T20

## 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.
C64	.0068 75V	#731368	DBE6D68	CPR-6800J	WMF1D68	1DP-1-682	PVC4268	6PS-D68
C65	.022 75V		V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C66	330 N330					*	*	10TCS-T33
C67								
C68	.0047 75V		DBE6D5	CPR-5000J	DPMS6D5	1DP-1-502	PVC625	6PS-D50
C69	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-D10
C70	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C71	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C72	180 N80					*	*	10TCN-T18
C73	.1		TTP-1	CK-104			TA010	TG-P10
C74	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C75	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C76	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C77	.07		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C78	.0022	GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22	
C79	.01	ADM-30-103	CPR-10000J		DM-20-103	SX110	MS-11	
C80	.0018	ADM-19-182	CPR-1800J		DM-19-182	SX218	MS-218	
C81	.022 75V	V1612S22		CD19FD182J03	1DP-1-223	PVC1122	225P22391WD3	
C82	.0022	GPD X5F222K	DD-222	DPMS6S22	CCD-222	GP222	10TS-D22	
C83	.1	TTP-1	CK-104	GP2200		TA010	TG-P10	
C84	.3		UK16-304				HY-327	
C85	.0068 75V	DBE6D68	CPR-6800J	WMF1D68	1DP-1-682	PVC4268	6PS-D68	
C86	.022 75V	V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3	
C87	.0022	GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22	
C88	.1	TTP-1	CK-104			TA010	TG-P10	
C89	.3		UK16-304				HY-327	
C90	.0068 75V	DBE6D68	CPR-6800J	WMF1D68	LDP-1-682	PVC4268	6PS-D68	
C91	.022	TTP-02	CK-203	MGP02	CCD-203	TA120	TG-S20	
C92	.15	TTP-1	CK-104			TA010	TG-P10	
C93	270	GPD X5F271K	DD-271	GP270	CCD-271	GP327	5GA-T27	
C94	180	ADM-10-181	CPR-180J	CD15FD181J03	DM-10-181	SX318	MS-318	
C95	330	GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33	
C96	1.5	NPO-DI 1.5	DTZ-1R5	NPO1P5		CN0515	10TCC-V15	
C97	.01 75V	V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3	
C98		#7271564						

# Delco Part Number.

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

### 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	40K	7312673				
B	Tone/Track Selector Switch	40K	[7313113(1)]				
C	Volume	20K Tap @ 7500					
D	Volume/Switch	20K Tap @ 7500					
R2A	Fader	100	7310358				
B	Fader	2 Watt 100					
R3	Balance	20K	7930069			U201R253B	MTC24L4
R4	Separation	20K	7930320	T-20K(2) or [TSV-25k(2)]		U201R253B	MTC24L4
R5	Mute	20K	7930320	T-20K(2) or [TSV-25k(2)]		U201R253B	MTC24L4

(1) Assembly Part Number

(2) For horizontal mount, bend the two outside terminals to fit "PC" board. Use jumper to connect center terminal to "PC" board.

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R66	.47 ohms (Fusible)		7281890

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R77	.47 ohms (Fusible)		7281890

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

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### 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	10.7MC Trap				
L4	FM Oscillator	(1)			
L5	FM Input IF	7305472			
L6	FM Interstage IF	7305473			
L7	FM Interstage IF	7305474			
L8	Quadrature Detector	7311554			
L9	RF Choke	7314180			
L10	AM Antenna	(1)			
L11	AM RF	(1)			
L12	AM Oscillator	(1)			
L13	AM Input IF	7295169			
L14	AM Output IF	7295170			
L15	19KC	7312289			
L16	19KC	7312849			
L17	38KC	7312288			

(1) Part of M2.

### 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.	
L18	1 Amp.	.6	8MH	1221623	C-4095	TC-2	TR-154	TY17XT	
L19	1 Amp.	.6	8MH	1221623	C-4095	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.	
L20	30MH	1222297					
L21	30MH	1222297					

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		MFGR. PART No.	QUAM PART No.		
SP1	4" X 6" PM	10 ohms	7313131	46A1Z10	Left Front: Used in Monte Carlo Left Front: Used in Chevelle Left Front: Used in Chevrolet Left Front: Used in Chevrolet, Camaro, Chevy II and Acadian
	4" X 6" PM	10 ohms	7313141	46A1Z10	
	4" X 6" PM	10 ohms	7314071	46A1Z10	
	4" X 6" PM	10 ohms	1222940	46A1Z10	
SP2	4" X 6" PM	10 ohms	7313151	46A1Z10	Right front: Used in Chevelle, Monte Carlo Right Front: Used in Chevrolet Right Front: Used in Chevrolet, Camaro, Chevy II and Acadian
	4" X 6" PM	10 ohms	7314071	46A1Z10	
	4" X 6" PM	10 ohms	1222940	46A1Z10	
SP3	6" X 9" PM	10 ohms	7313011	69A2MT	Left Rear: Used in Sedans, Chevrolet, Chevelle, Monte Carlo, Camaro, Chevy II and Acadian
SP4	4" X 10" PM	10 ohms	7313121	410A2Z10	Left Rear: Used in Chevrolet Station Wagon Left Rear: Used in Chevelle Station Wagon Left Rear: Used in Caprice Right Rear: Used in Sedans, Chevrolet, Chevelle, Monte Carlo, Camaro, Chevy II, Acadian Right Rear: Used in Chevrolet Station Wagon Right Rear: Used in Chevelle Station Wagon Right Rear: Used in Caprice
	4" X 10" PM	10 ohms	7313161	410A2Z10	
	6" X 9" PM	10 ohms	7313101	69A2MT	
	6" X 9" PM	10 ohms	7313011	69A2MT	
	4" X 10" PM	10 ohms	7313121	410A2Z10	
	4" X 10" PM	10 ohms	7313161	410A2Z10	
	6" X 9" PM	10 ohms	7313101	69A2MT	

CHEVROLET MODELS 01BFMT1/2

## 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<sup>®</sup> for the most up-to-date replacement.

### 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 10AMP		In Fuse Block	AGC10		311010			

### TAPE HEADS

ITEM No.	MEASURED			PART No.	NORTRONICS PART No.	DESCRIPTION
	INDUCTANCE	BIAS/ERASE VOLTS (RMS)	BIAS FREQ.			
M1	410mh			7313329	5800 (1)	8-Track Stereo Play

(1) Use original mounting.

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Tuner		
	FM Coil Assembly	7312516	
	AM Coil Assembly	7287957	
M3	Motor	7312438	
M4	Solenoid	1222985	
PC1	MPX Detector	7312291	
S1	Switch, Tape-Radio	7309849	
S2	Switch, Automatic Program Selector	7313343	
S3	Switch, Selector	7930699	5 Section (Late Production)
	Switch, Selector	7313354	4 Section (Early Production)

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

ITEM	PART No.	ITEM	PART No.
Dial Face	7313060	Push Button "AM"	7313349
Tape Door and Dial Glass Assembly	7313341	Push Button "FM"	7313348
Escutcheon	7313066	Push Button "EJECT"	7930447
Dial Pointer	1223048	Push Button	7309843

### 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.)

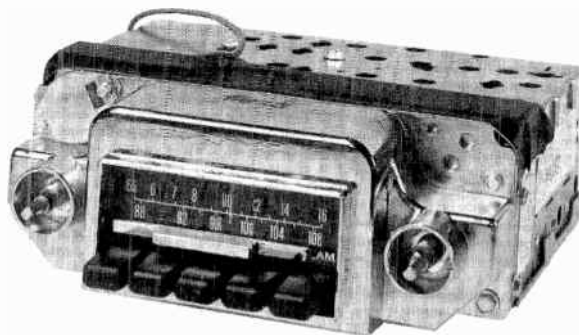


# PHOTOFACT<sup>®</sup> with

**CIRCUITRACE<sup>®</sup>**

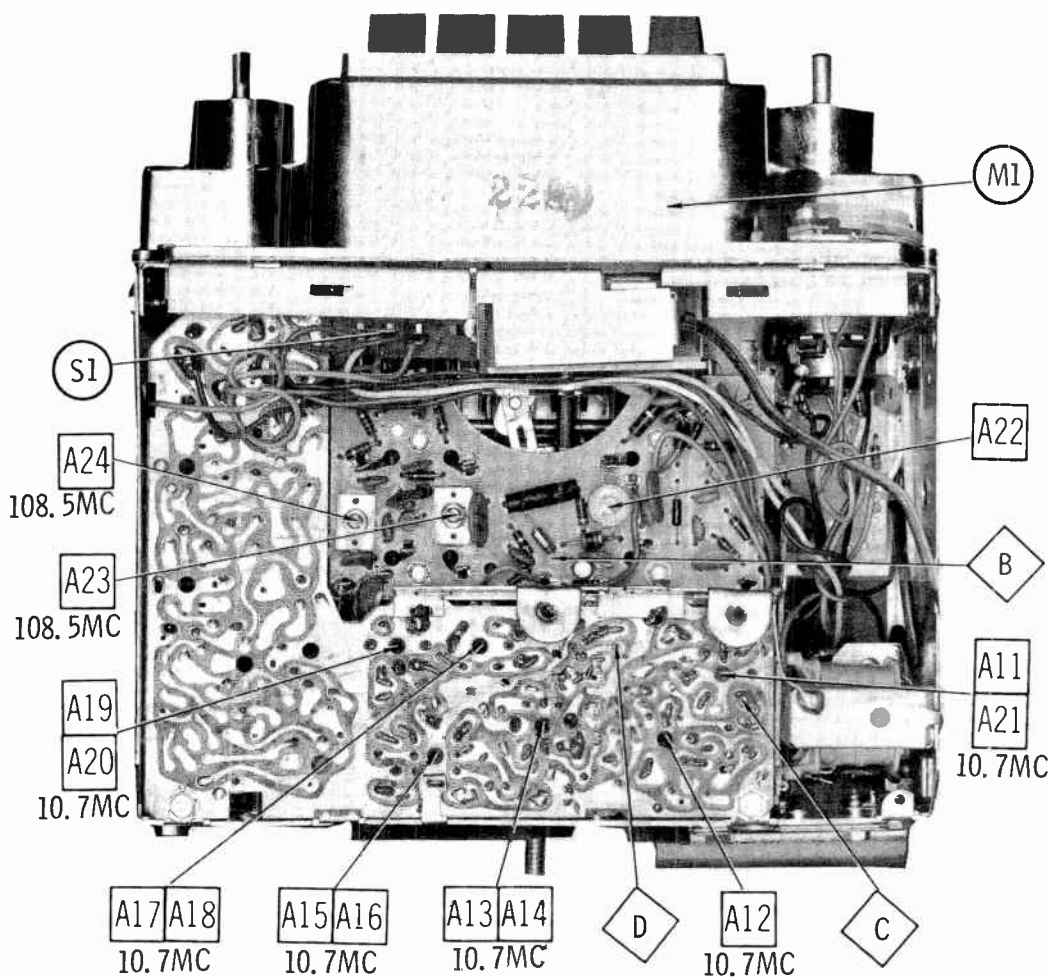
For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are BENDIX



FORD MODEL OFBD  
(Doda-19A241)  
(70-Maverick)

FORD MODEL OFBD



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

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TD738

## ALIGNMENT INSTRUCTIONS

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

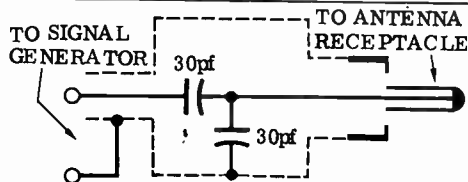
A1 thru A4,                      GENERAL CEMENT: 9300,9296,9297  
A11 thru A22.                  WALSCO: 2510,2546,2547  
A5,A6,A7,A23,                GENERAL CEMENT: 8290,8868,9087  
A24,A25.                        WALSCO: 2525,2528,2587

### 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 $\Delta$ , 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.	16.05KC	"	"	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 31", tune in a weak station near 1400KC and adjust A7 for maximum output. Antenna adjustment (A7) is located Bottom Right Rear Panel.



DUMMY ANTENNA

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

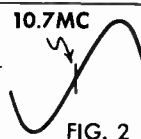
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	
High side of generator thru .001mfd to point $\Delta$ , low side to ground.					
4. 10.7MC Unmodulated	Point of non-interference	DC probe of VTVM to point $\Delta$ , common to ground.	A11 Thru A20	Adjust for maximum.	
5. " "	"	DC probe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

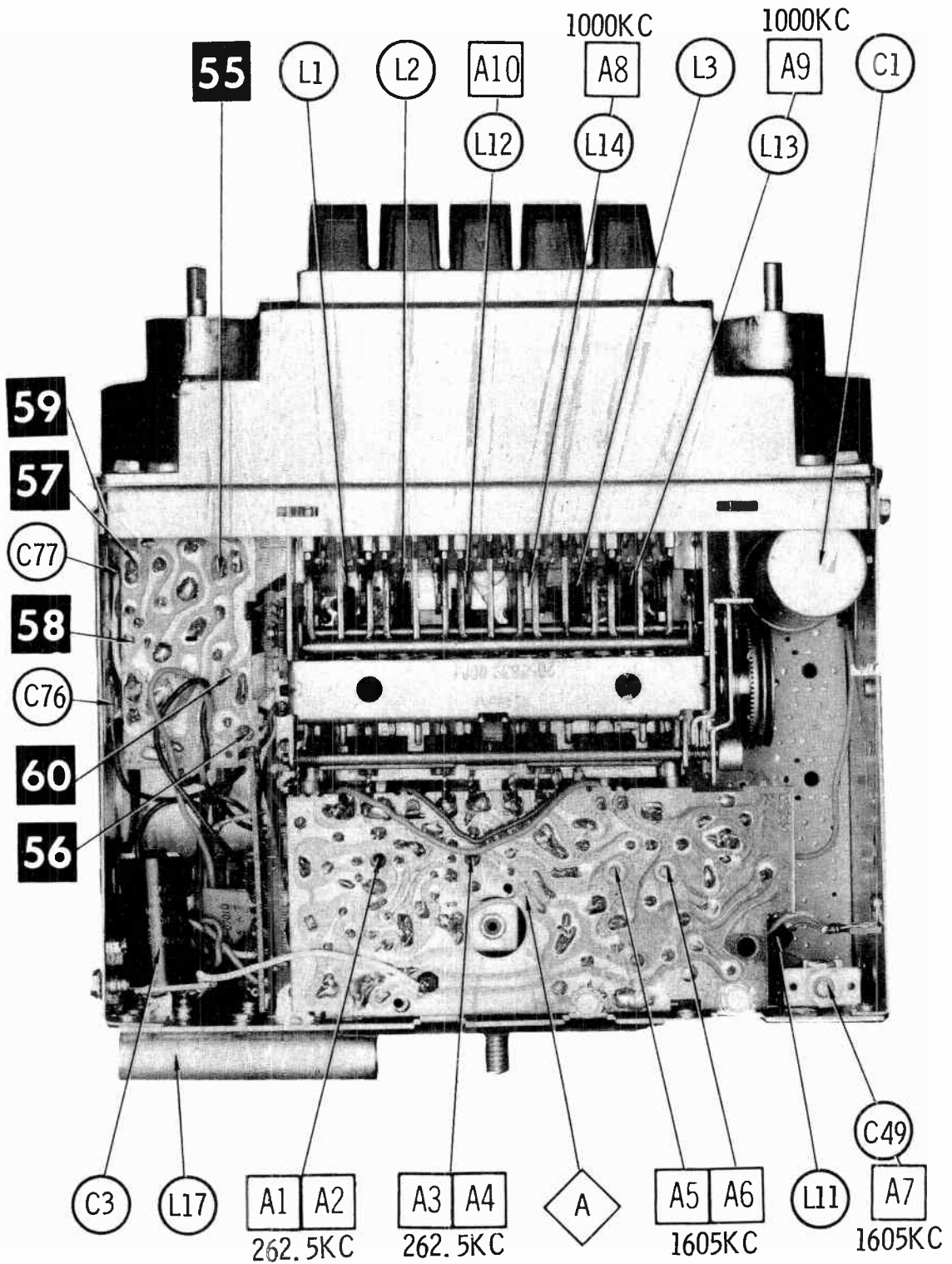
### FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
High side of generator thru .001mfd to point $\Delta$ , 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.				
4. 10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\Delta$ , 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 $\Delta$ , 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.

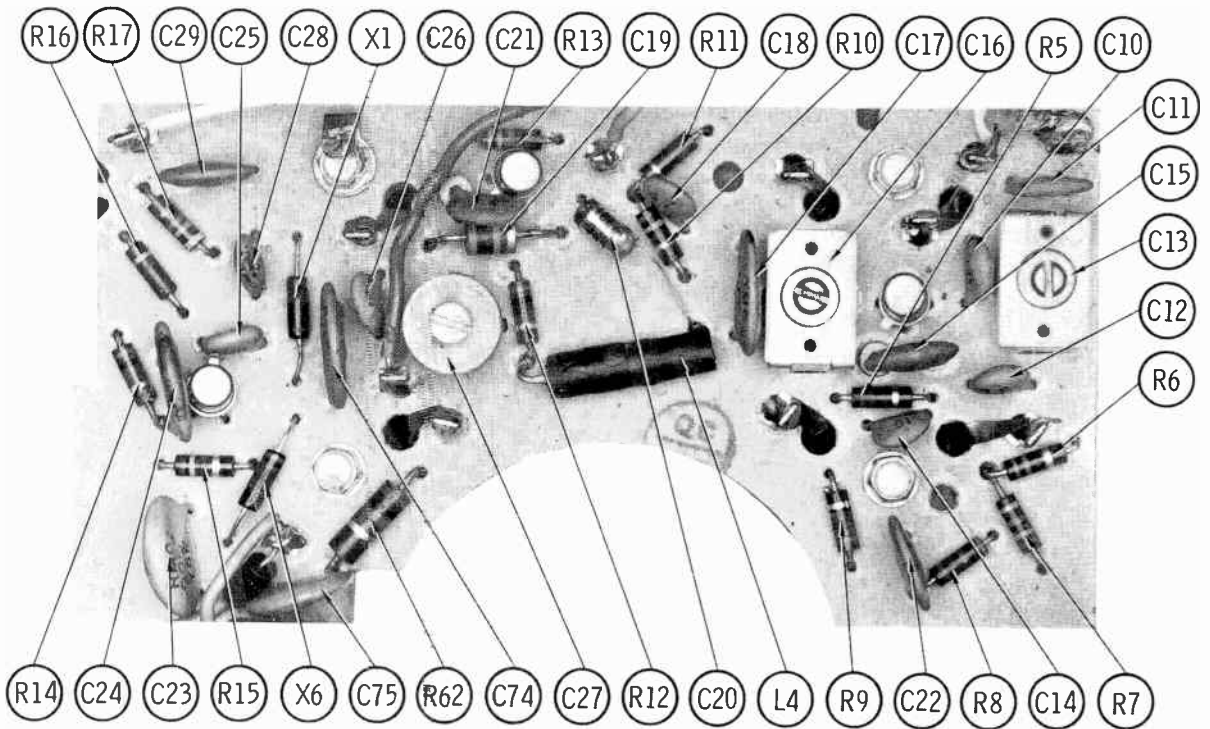
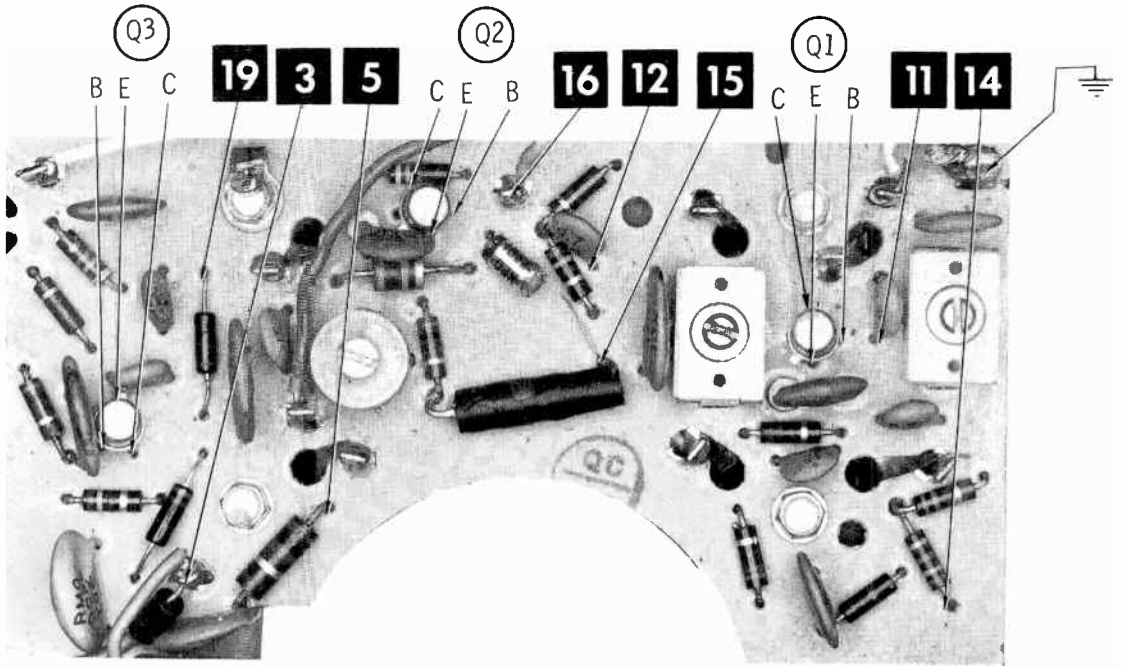
### FM RF ALIGNMENT—SELECTOR IN FM POSITION

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

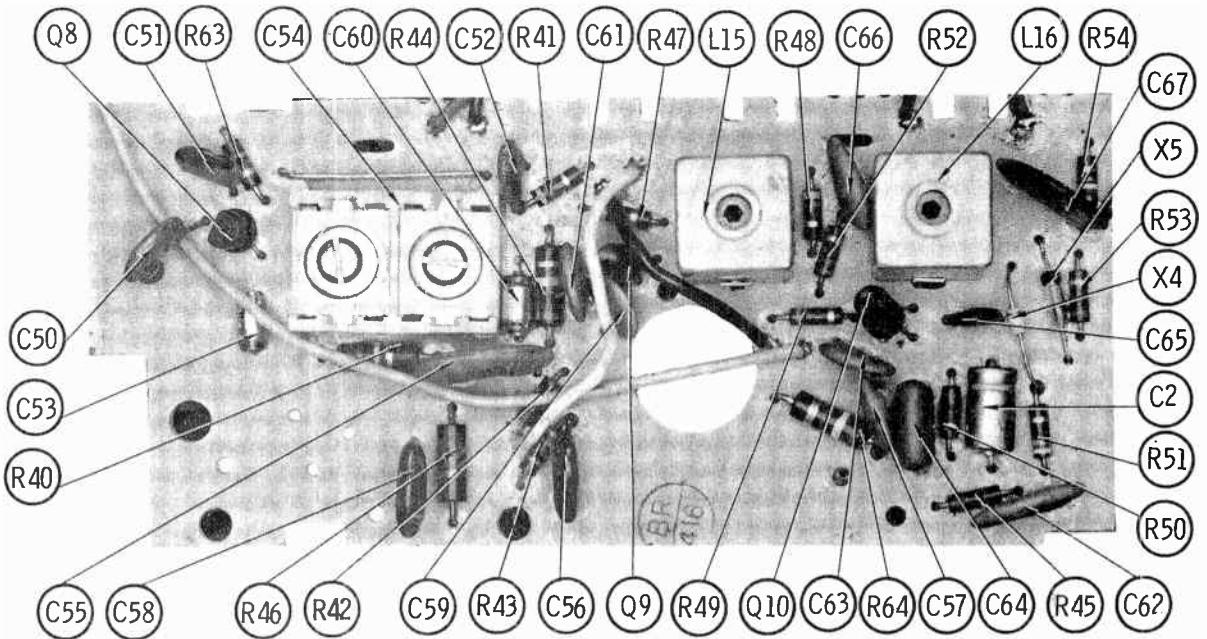
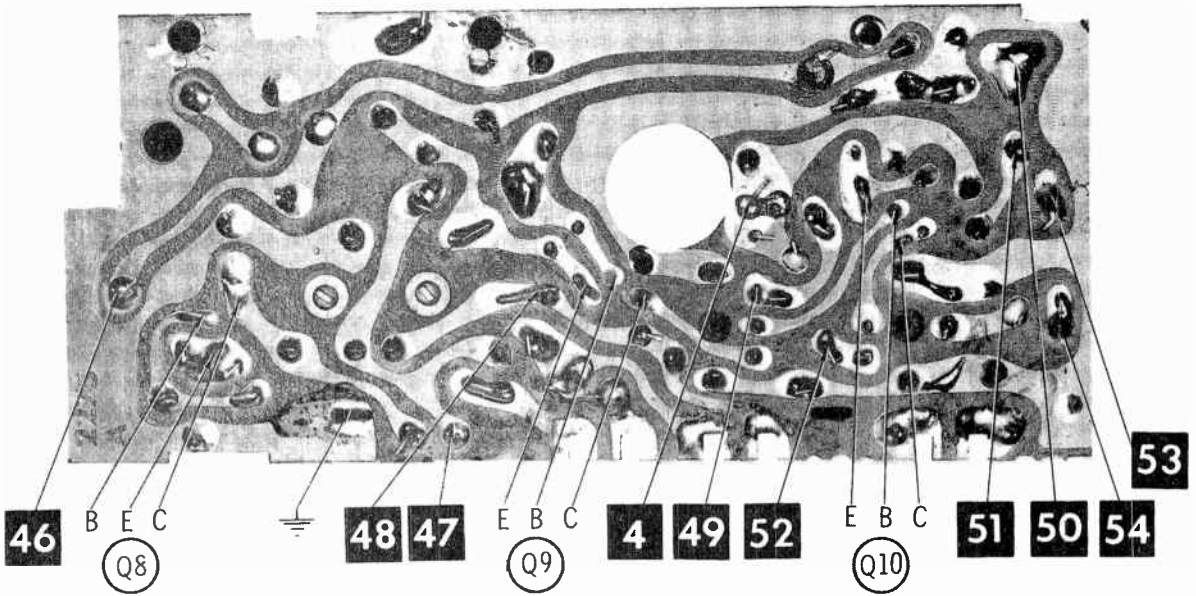


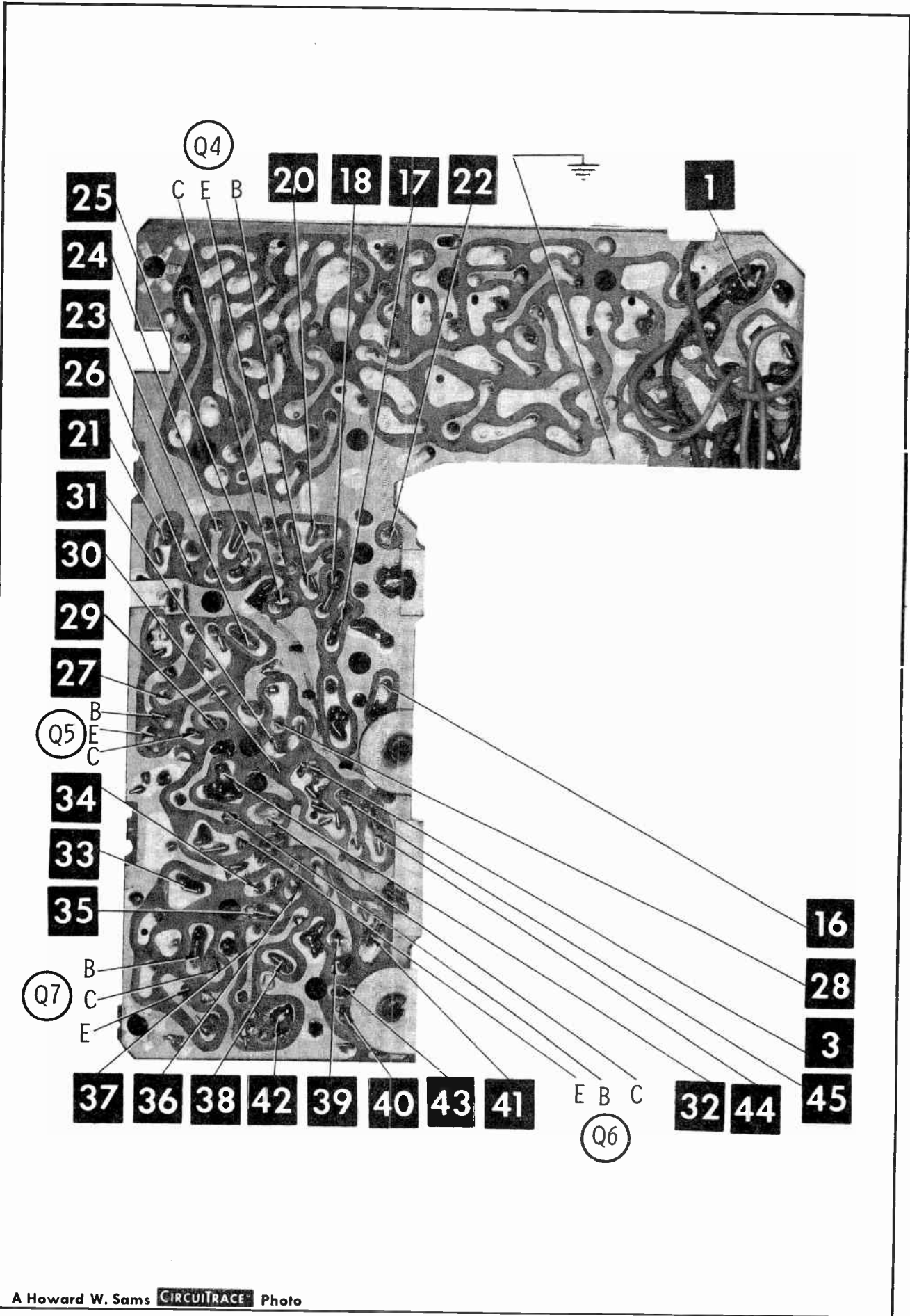


A Howard W. Sams **CIRCUITRACE** Photo

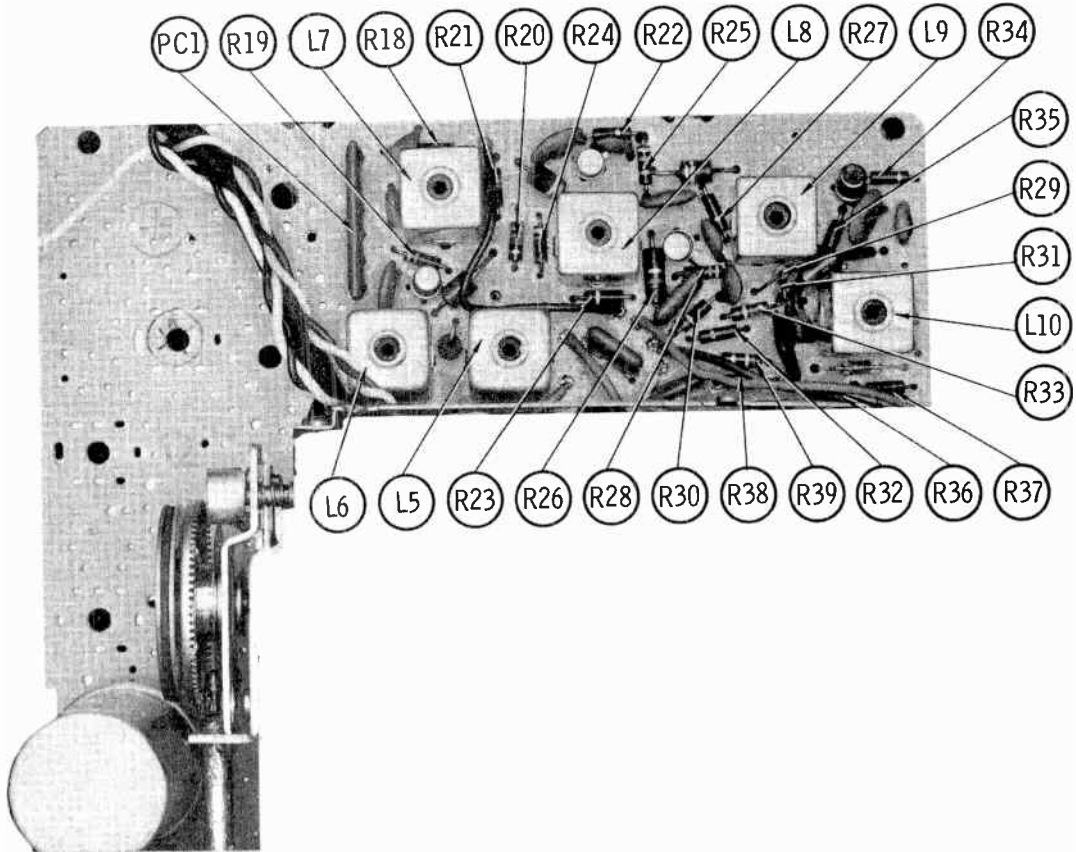
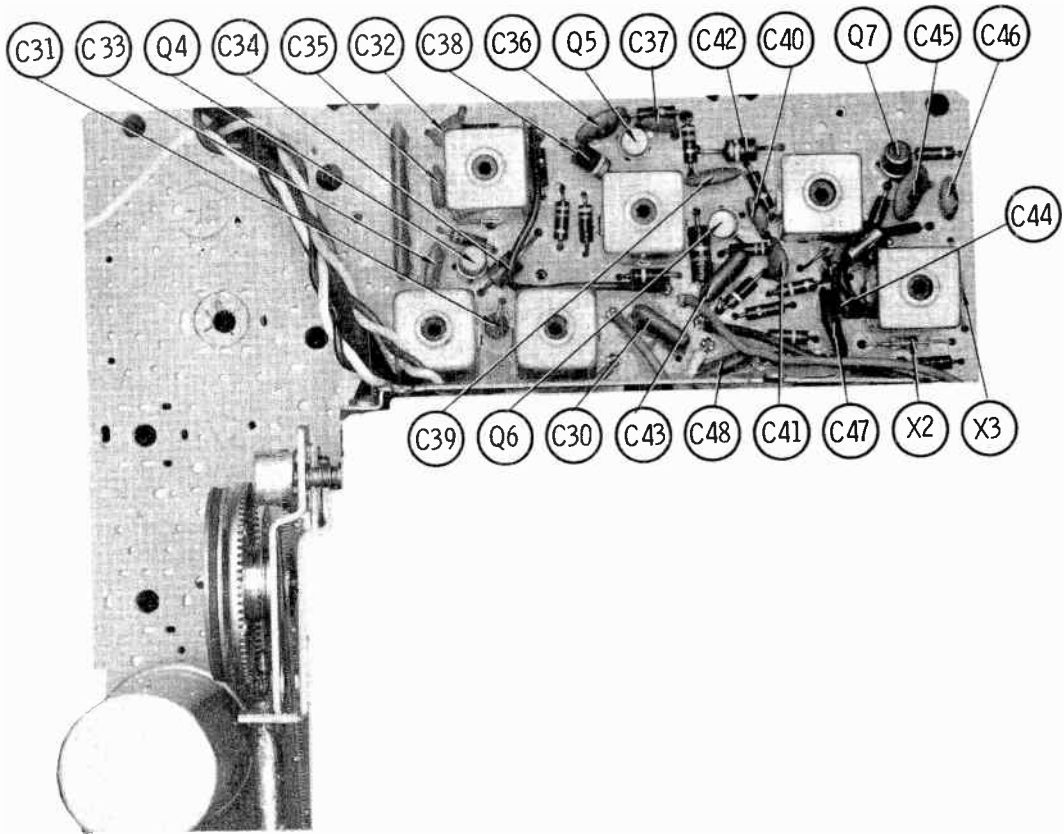


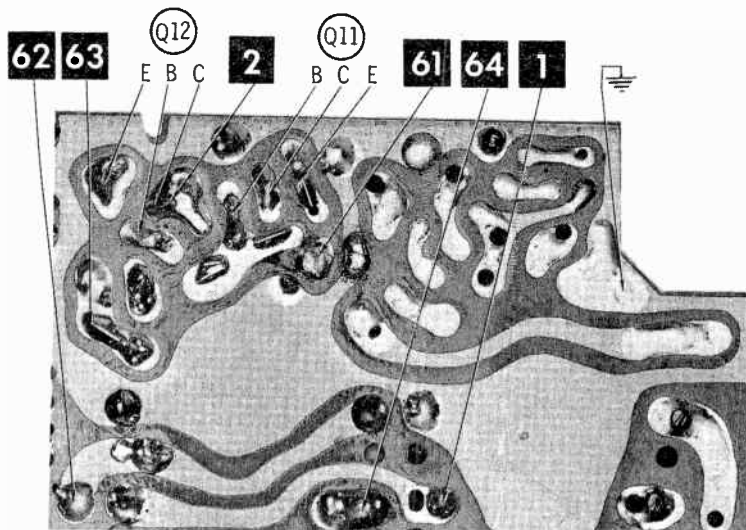
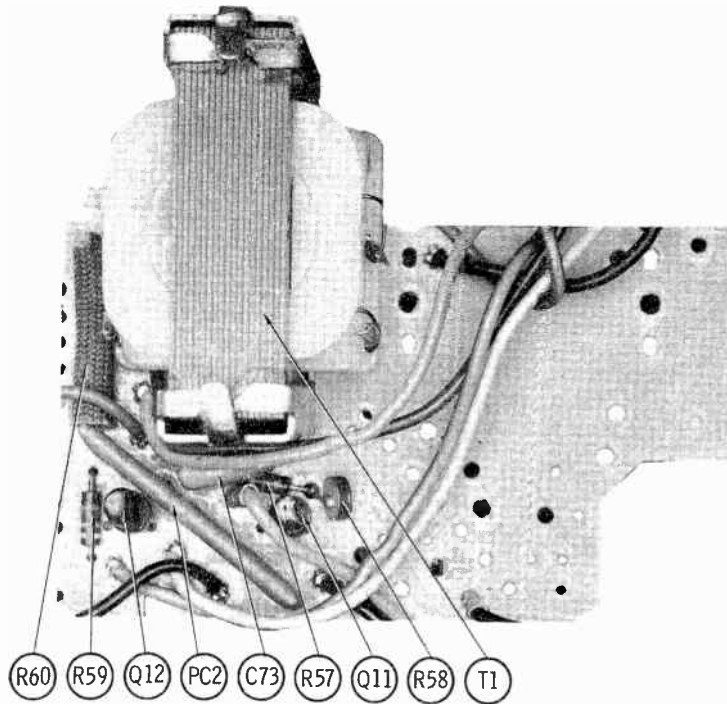
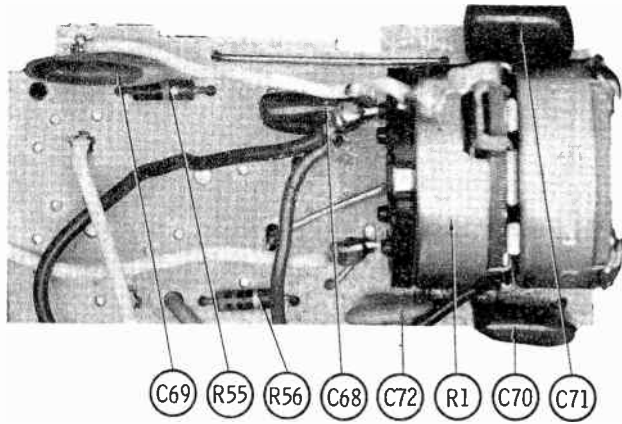






A Howard W. Sams **CIRCUITRACE** Photo





# 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 BELOEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap .....	Use BELOEN 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	2092418-0022	GE-17	TR-22	HEP55	SK3018	ECG-108
Q5		2nd FM IF Amp	2092418-0023	GE-17	TR-22	HEP55	SK3018	ECG-108
Q6		3rd FM IF Amp	2092418-0022	GE-17	TR-22	HEP55	SK3018	ECG-108
Q7		FM Limiter	2092418-0023	GE-17	TR-22	HEP55	SK3018	ECG-107
Q8		AM RF Amp	2093308-0704	GE-20	TR-22	HEP55	SK3018	ECG-107
Q9		AM RF Amp	2093308-0705	GE-20	TR-22	HEP55	SK3018	ECG-107
Q10		AM Converter	2093308-0706	GE-20	TR-22	HEP55	SK3020	ECG-123
Q11		AF Amp	2092609-0705	GE-10	TR-21	HEP54	SK3025	ECG-106
Q12		AF Amp	2057013-0004	GE-21	TR-19	HEP51	SK3041	ECG-152
Q13		Output	4080879-0001	GE-28		HEP700		

FORD MODEL OFBD

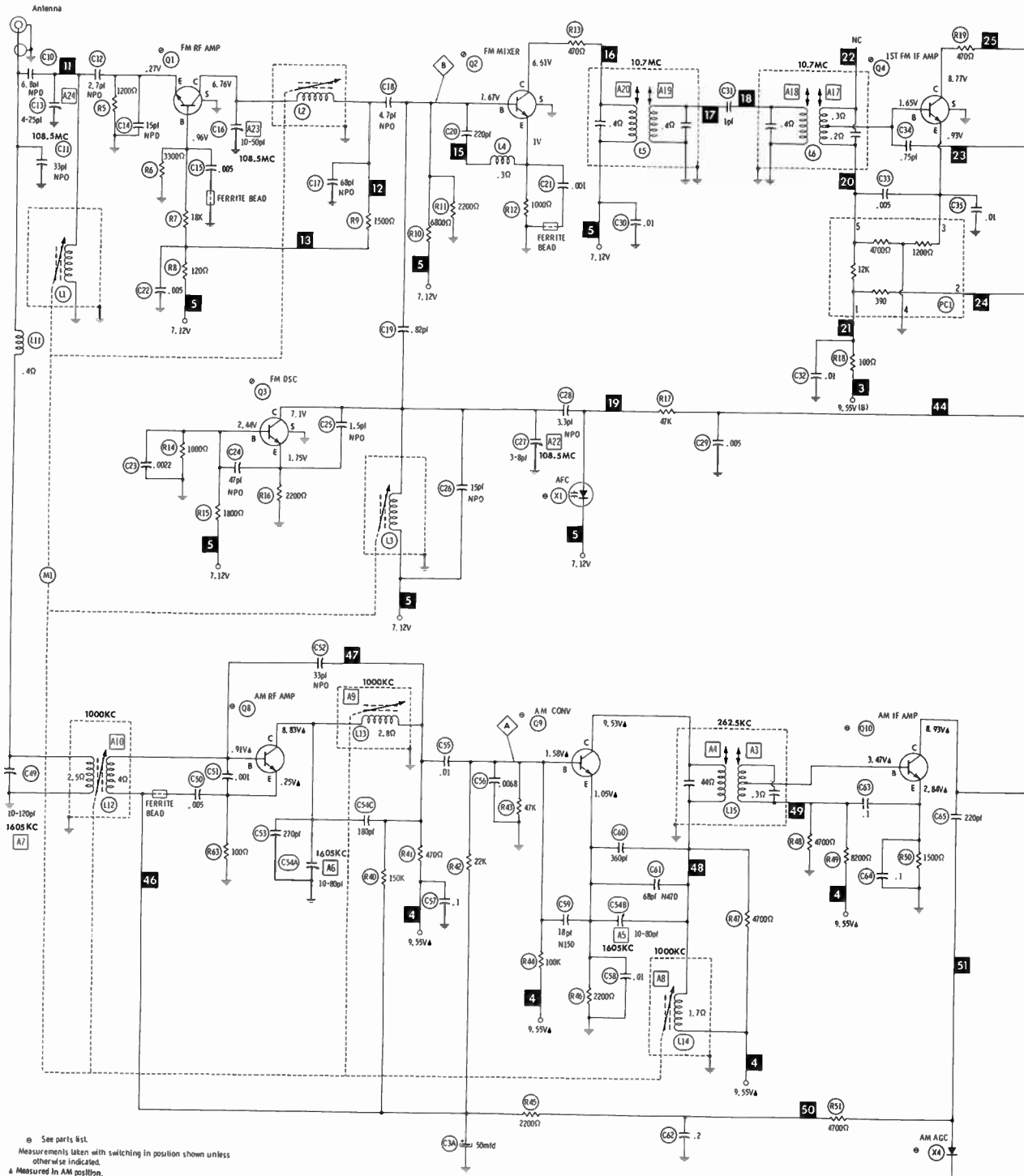
## POWER RECTIFIERS & SIGNAL DIODES

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	2092055-0003					Varactor
X2	2092055-0007	1N34AS	1N34A	ECG-109		
X3	2092055-0007	1N34AS	1N34A	ECG-109		
X4	2092055-0708	1N82A	1N82A	ECG-112		
X5	2092055-0001	1N34AS	1N34A	ECG-109		
X6	2092055-0710		1ZM7.5	ECG-138		

## ELECTROLYTIC CAPACITORS

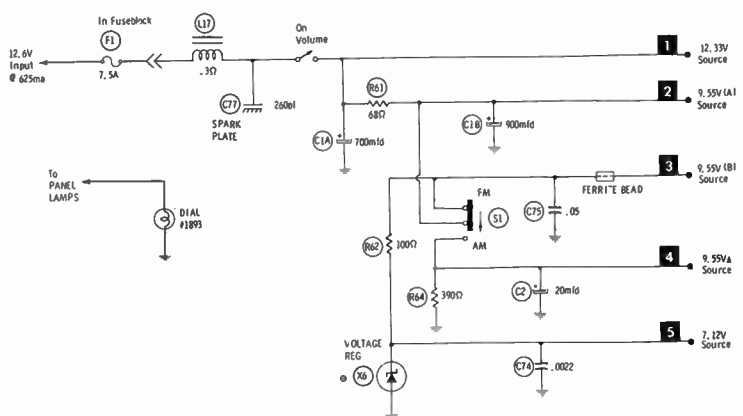
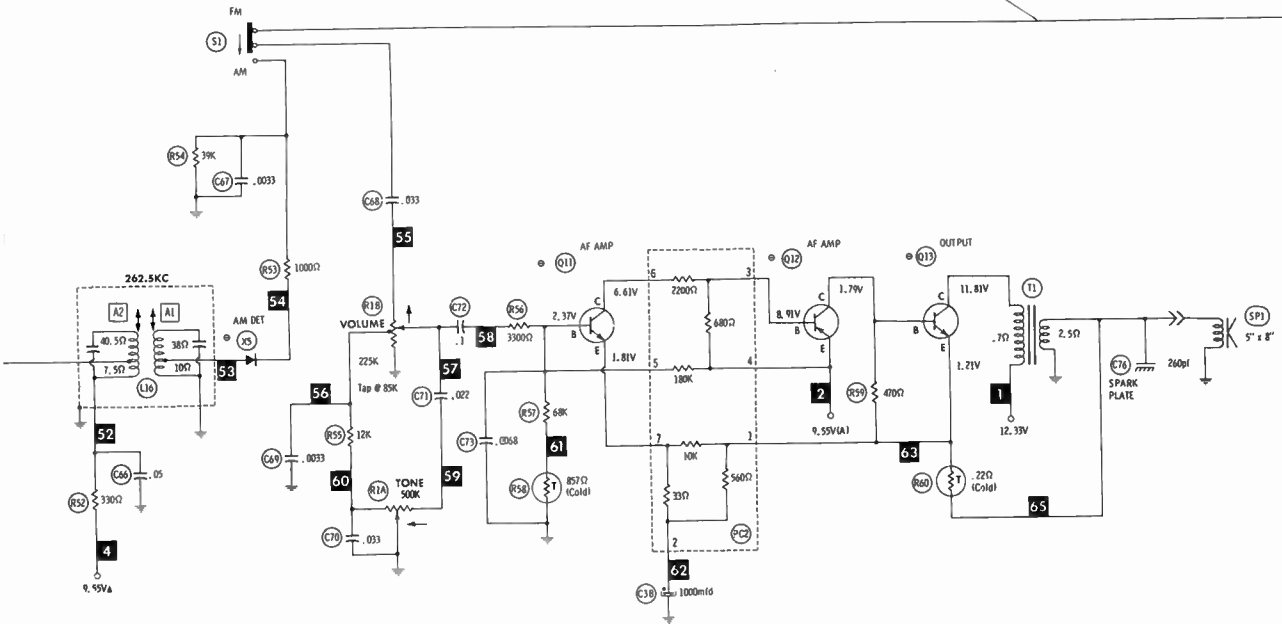
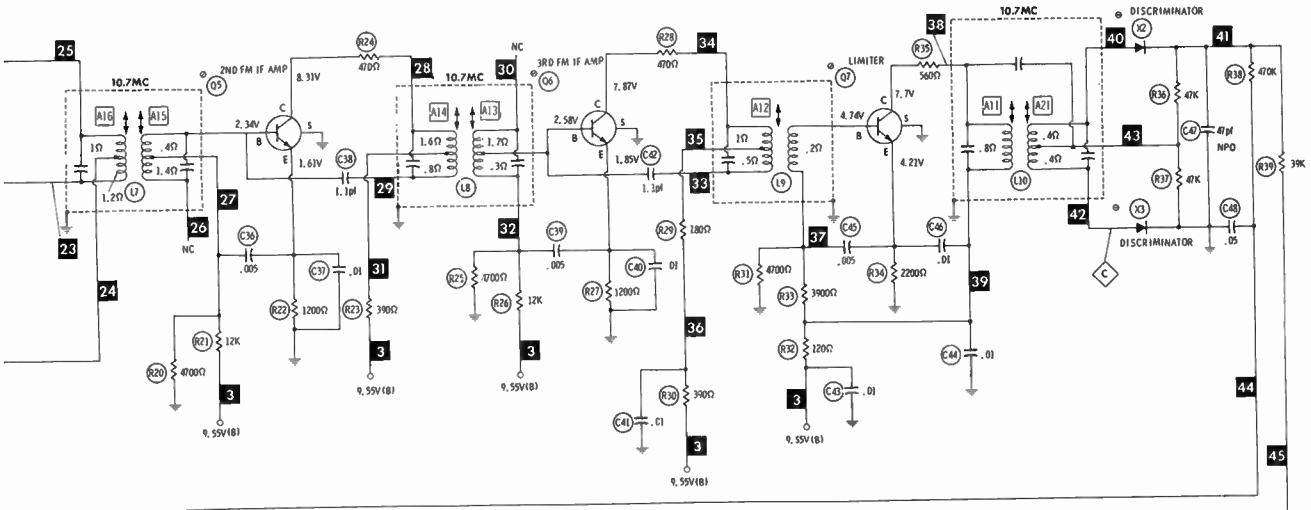
ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	700 16V	2092983-0014	PWH2-02-65		BB0040A			PCL-2185.1
B	900 16V							
C2	20 16V	2090480-0718	CRE461A	EA15-25	AL25-16	MT1-10	MTA25D20	TE-1133
C3A	50 4V	2092246-0710						
B	1000 4V							

( CONTINUED ON PAGE 54 )



See parts list.  
 Measurements taken with switching in position shown unless otherwise indicated.  
 Measured in AM position.  
 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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FORD MODEL OFBD

# 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	BENDIX REMARKS PART No.	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C10	6.8 NPO		NPO-DI 6.8	DTZ-6R8	NPO6P8				
C11	33 NPO		NTP-DI 33	DTZ-33	NPO33		CCTO-330	CN0568	10TCC-V68
C12	2.7 NPO		NPO-DI 3.0					CN0433	10TCC-Q33
C13	4-25	#2093115-0707							10TCC-V30
C14	15 NPO		NPO-DI 15	DTZ-15	NPO15				
C15	.005		TTP-005	CK-502	MGP005		CCTO-150 CCD-502	CN0415 TA250	10TCC-Q15 TG-D50
C16	10-50	#2093115-0706							
C17	68 NPO		NPO-DI68	DTZ-68	CX601CG680K				
C18	4.7 NPO		NPO-DI 4.7	DTZ-4R7	NPO4P7		CCTO-680	CN0468 CN0547	10TCC-Q68 10TCC-V47
C19	.82pf	#2093231-2828							
C20	220			DD-221	GP220		CCD-221	GP322	10TS-T22
C21	.001		GPD X5F102K	DM-102	GP1000		CCD-102	SM210	2SS-D10
C22	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C23	.0022		GPD X5F222K	DD-222	GP2200		CCD-222	GP222	10TS-D22
C24	47 NPO		NPO-DI47	DTZ-47	CX601CG470K		CCTO-470	CN0447	10TCC-Q47
C25	1.5 NPO		NPO-DI 1.5	DTZ-1R5	NPO1P5			CN0515	10TCC-V15
C26	15 NPO		NPO-DI 15	DTZ-15	NPO15		CCTO-150	CN0415	10TCC-Q15
C27	3-8	#2094703-0701							
C28	3.3 NPO		NPO-DI 3.3	DTZ-3R3	NPO3P3			CN0533	10TCC-V33
C29	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C30	.01		V1612S1	CPR-10000J	DPMS6S1		1DP-1-103	PVC211	225P10391W03
C31	1.0			TCZ-1				CN0510	10TCC-V10
C32	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C33	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C34	.75pf	#2093231-1758							
C35	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C36	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C37	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C38	1.1			TCZ-1				CN0510	10TCC-V10
C39	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C40	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C41	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C42	1.1			TCZ-1				CN0510	10TCC-V10
C43	.01		V1612S1	CPR-10000J	DPMS6S1		1DP-1-103	PVC211	225P10391W03
C44	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C45	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C46	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C47	47 NPO		NPO-DI47	DTZ-47	CX601CG470K		CCTO-470	CN0447	10TCC-Q47
C48	.05		TTP-05	CK-503	MGP05		CCD-503	TA150	TGL-S50
C49	10-120	#2093466-0704							
C50	.005		TTP-005	CK-502	MGP005		CCD-502	TA250	TG-D50
C51	.001		GPD X5F102K	DM-102	GP1000		CCD-102	SM210	2SS-D10
C52	33 NPO		NPO-DI 33	DTZ-33	NPO33		CCTO-330	CN0433	10TCC-Q33
C53	270			CPR-270J	CD15F271K500		DM-10-271J	SX327	MS-327
C54A	10-80	#2092422-0717							
B	10-80								
C	180								
C55	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C56	.0068		DBE6D68	CPR-6800J	DMF6D68		CCD-221 1DP-1-682	PVC6268	225P68291
C57	.1		TTP-1	CK-104				TA010	TG-P10
C58	.01		TTP-01	CK-103	MGP01		CCD-103	TA110	TG-S10
C59	18	N150					*	*	10TCP-Q18
C60	360			CPR-360J	CD15FD361J03		DM-10-361	SX336	MS-336
C61	68	N470					*	*	10TCT-Q68
C62	.2			UK20-204	HZ3R0XR224P			MAG12022	HY-470
C63	.1		TTP-1	CK-104				TA010	TG-P10
C64	.1	100V	DBE2P1					PVC101	225P10491W03
C65	220		GPD X5F221K	DD-221	DPMS2P1		1DP-2-104	GP322	10TS-T22
C66	.05		TTP-05	CK-503	MGP05		CCD-503	TA150	TGL-S50
C67	.0033		GPD X5R332K	DD-332	GP3300		CCD-332	JF233	2SS-D33
C68	.033		TTP-03	CK-303			CCD-303	GP130	TG-S30
C69	.0033		GPD X5R332K	DD-332	GP3300		CCD-332	JF233	2SS-D33
C70	.033		TTP-03	CK-303			CCD-303	GP130	TG-S30
C71	.022		TTP-02	CK-203	MGP02		CCD-203	TA120	TG-S20
C72	.1		TTP-1	CK-104				TA010	TG-P10
C73	.0068	75V	DBE6D68	CPR-6800J	DMF6D68		1DP-1-682	PVC6268	225P68291
C74	.0022		GPD X5F222K	DD-222	GP2200		CCD-222	GP222	10TS-D22
C75	.05		TTP-05	CK-503	MGP05		CCD-503	TA150	TGL-S50
C76	260	#2093050-0710							
C77	260	#2093050-0710							

# Bendix Part Number  
\* Note



## 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	Tone	500K	2056738			*QJ-2656A	P55L, 3134, SH3500, SH3250, RU254T753, OX1937, IS2437, US41
B	Volume/Switch	225K Tap @ 85K	-0009				

\* "Concentrikrit" Equivalent K-8 Kit With Base Elements & Shafts; B11-133, P17-129 (Panel)  
B18-130X, R9-211 (Rear)  
QCB5A (1) (Bushing)  
QCN (Nut)  
76-1 (Switch)

"Snaptron" Equivalent BU15A, (1) CF16, CR29T, SF16, SR17, QCN, GC

(1) Alter Bushing And Adjust Spacer Nut (QCN) To Meet Requirements.

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
R58	857 (Cold)		220629-0021
R60	.22 (PTC)		2090948-0020

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	FM Antenna	(1)			
L2	FM RF	(1)			
L3	FM Oscillator	(1)			
L4	10.7mc Trap (1uh)	2092210-0005	19-1000	4602	T855
L5	FM Input IF	2057713-0701			
L6	FM Interstage IF	2057713-0702			
L7	FM Interstage IF	2057713-0703			
L8	FM Interstage IF	2057713-0704			
L9	FM Interstage IF	2057713-0705			
L10	Discriminator	2057714-0701			
L11	RF Choke (2uh)	2092210-0007	19-1002	74F226AP	TAB12
L12	AM Antenna	(1)			
L13	AM RF	(1)			
L14	AM Oscillator	(1)			
L15	AM Input IF	2057715-0701			
L16	AM Output IF	2057715-0702			

(1) Part of MI

### 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.	
L17	625ma	.3	1.5MH	4080072-0501	C-4124 (1)	TC-1 (1)	TR-159 (1)	TY16XT (1)	(1) Fabricate Mounting

## 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<sup>®</sup> for the most up-to-date replacement.

### 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	17	8	2092823-0704					

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	5" x 8" PM 8 ohms	D0DA-19A054-B (1)	58A15Z8	(1) Obtain From Ford Dealer

### FUSE DEVICES

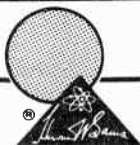
ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	SFE 7-1/2 Amp.		In Fuse Block	SFE 7-1/2		30707.5		

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	2094851-0544	(GIC)
PC1	Coil Assembly	2090131-0114	
PC2	FM IF Network	207721-0702	
S1	Audio Network	2057720-0701	
	Switch, AM-FM	2092719-0710	

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

ITEM	PART No.	ITEM	PART No.
Escutcheon	4080200-0517	Dial Pointer	2090129-0109
Dial Glass	2057391-0003	Knob, Tuning or Volume	4082388-0001
Pushbutton #1 or #5	2057383-0003	Knob, Tone or Dummy	4080067-0701
Pushbutton #2 or #3 or #4	2057383-0004		

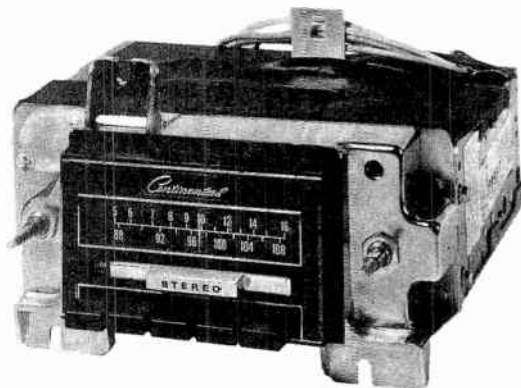


# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are BENDIX



LINCOLN MODEL OFBL  
(Dova-19A241)  
(70-Lincoln)

## 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

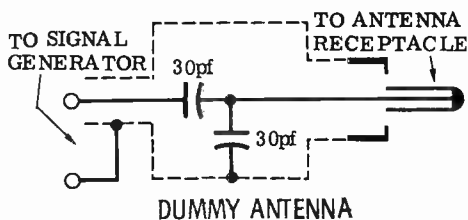
A5, A6, A7, A23, A24, A25 .. 8290,8868,9087.. 2525,2528,2587

### 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 $\Delta$ , 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.



LINCOLN MODEL OFBL

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

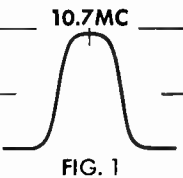
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ID739

## 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.

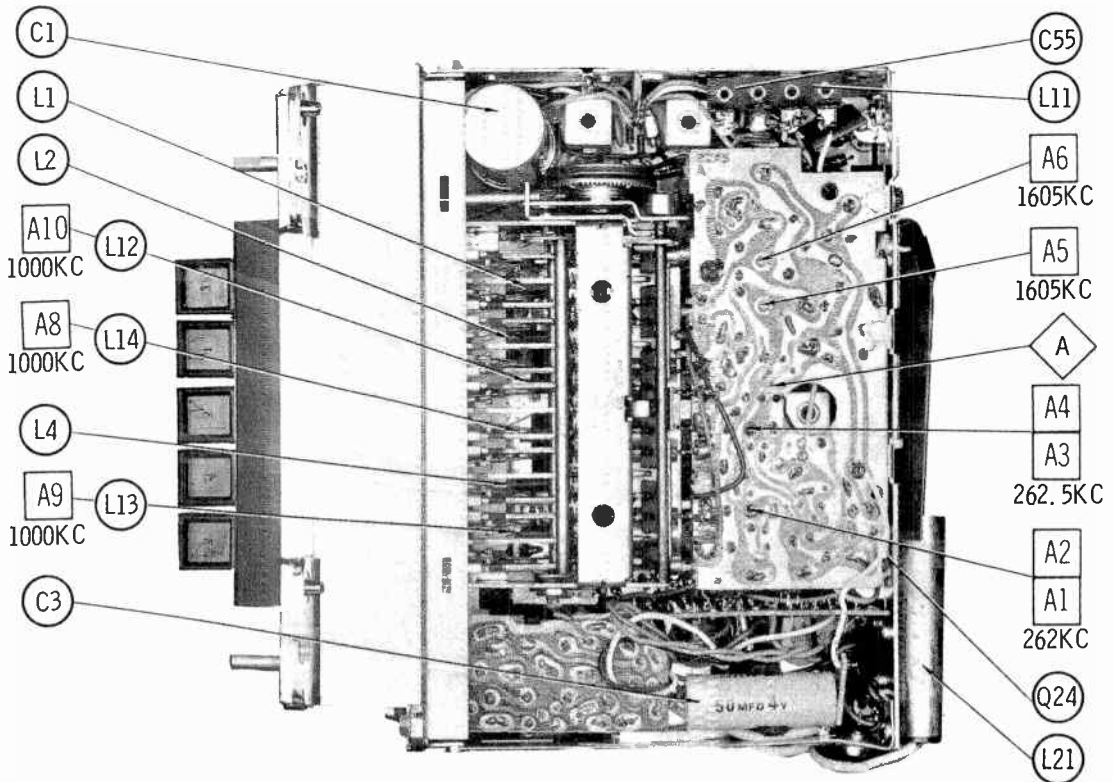
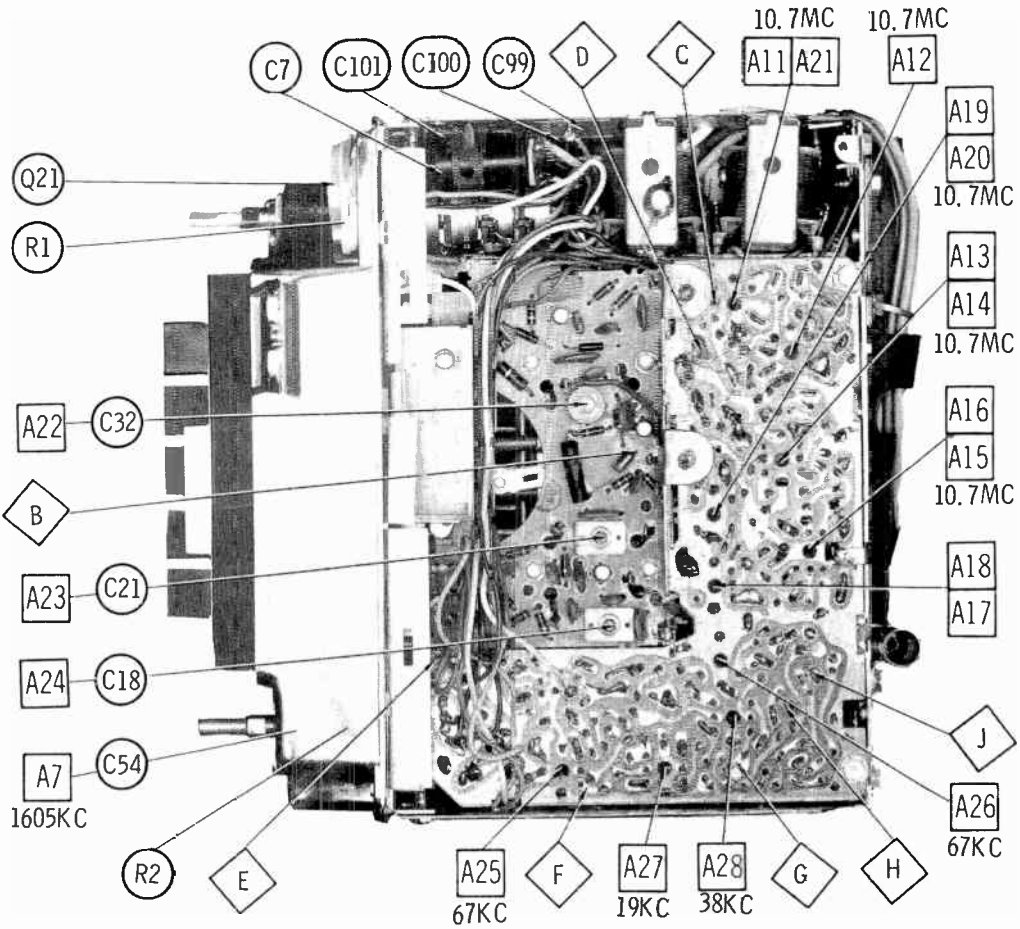
### FM RF ALIGNMENT—SELECTOR IN FM POSITION

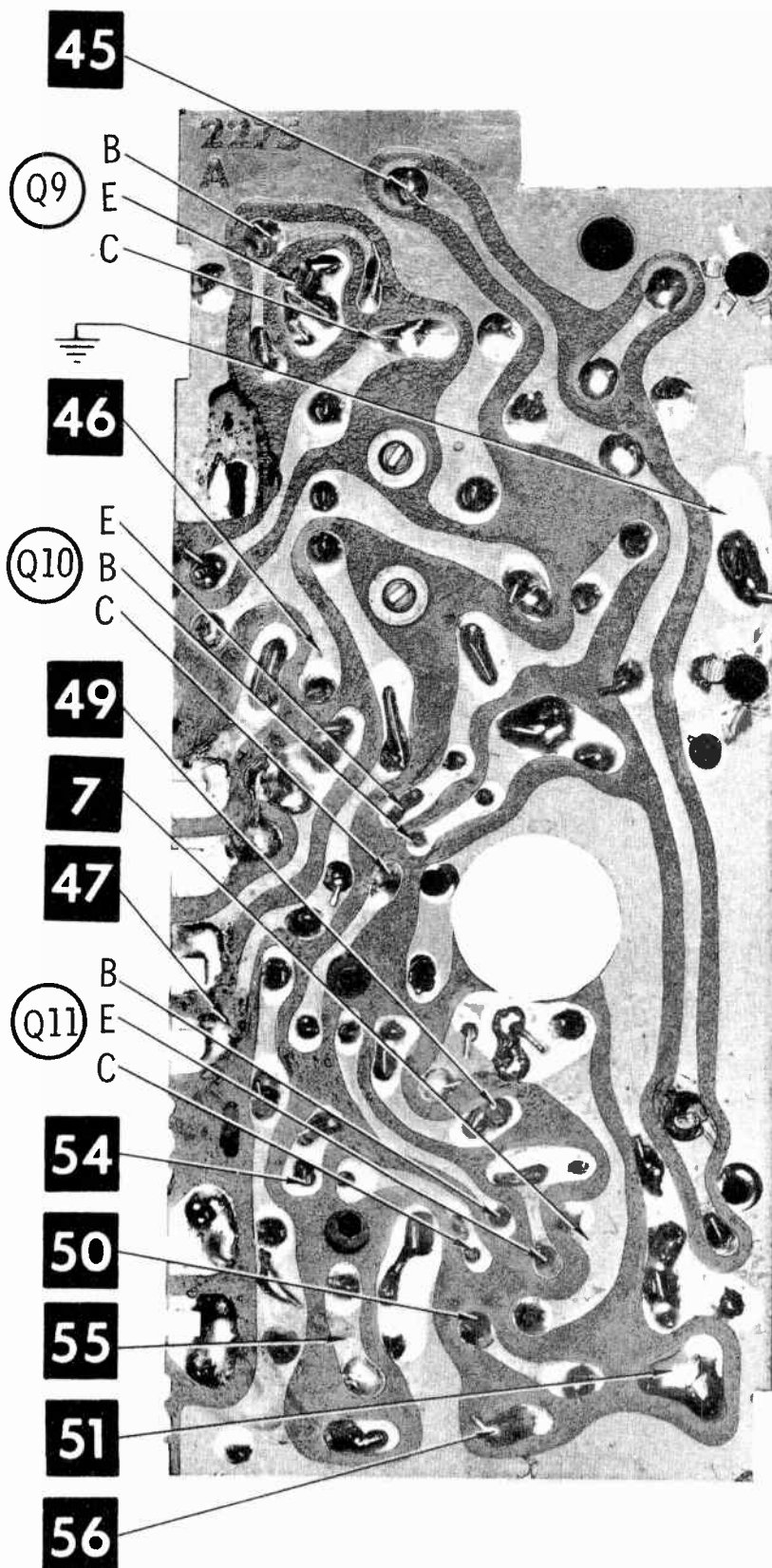
Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead.					
	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
6.	108.5MC	High freq. end	DC probe of VTVM to point $\diamond C$ , common to ground.	A22 A23 A24	Adjust for maximum.



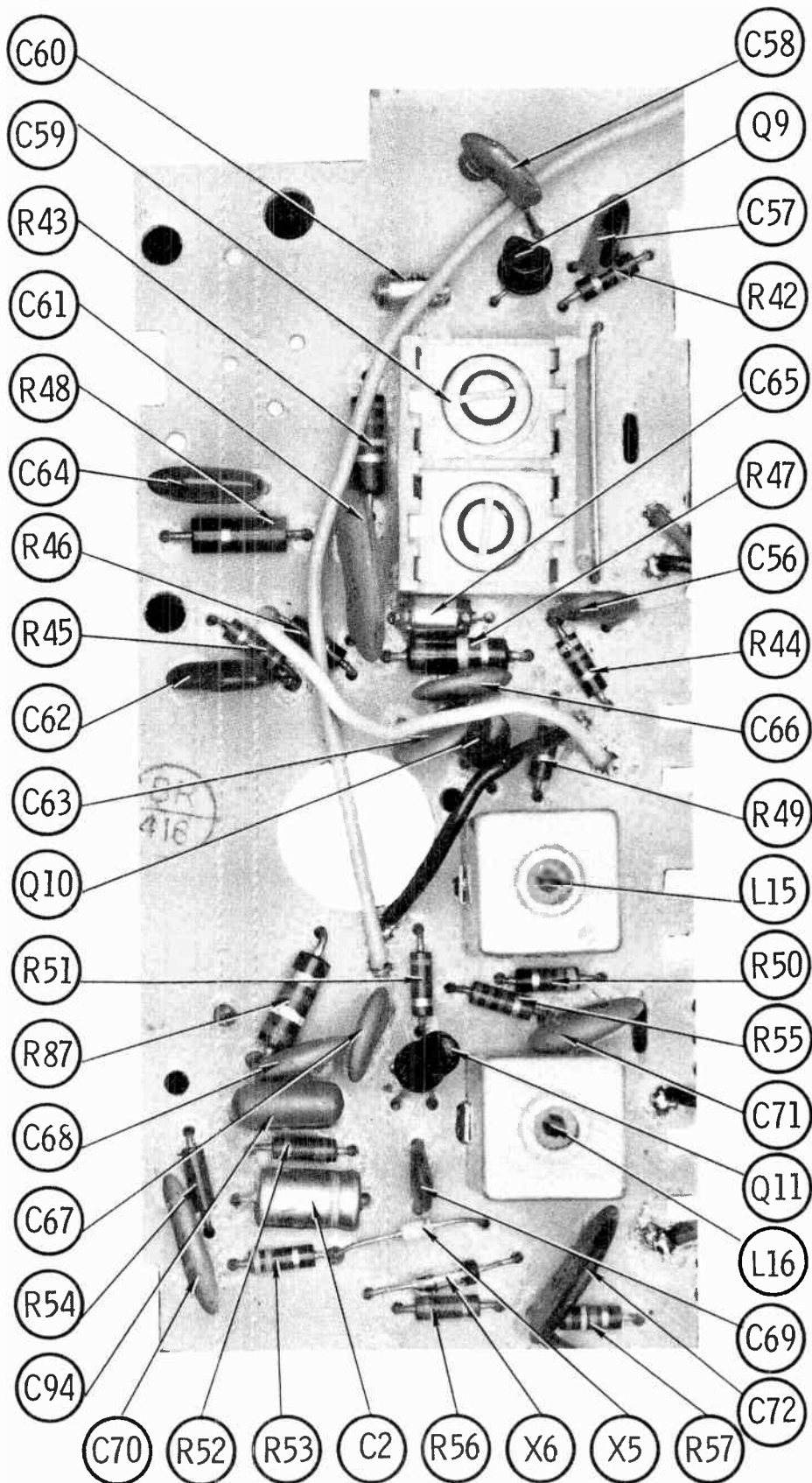
### FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ( $\pm .0001\%$ ACCURACY)

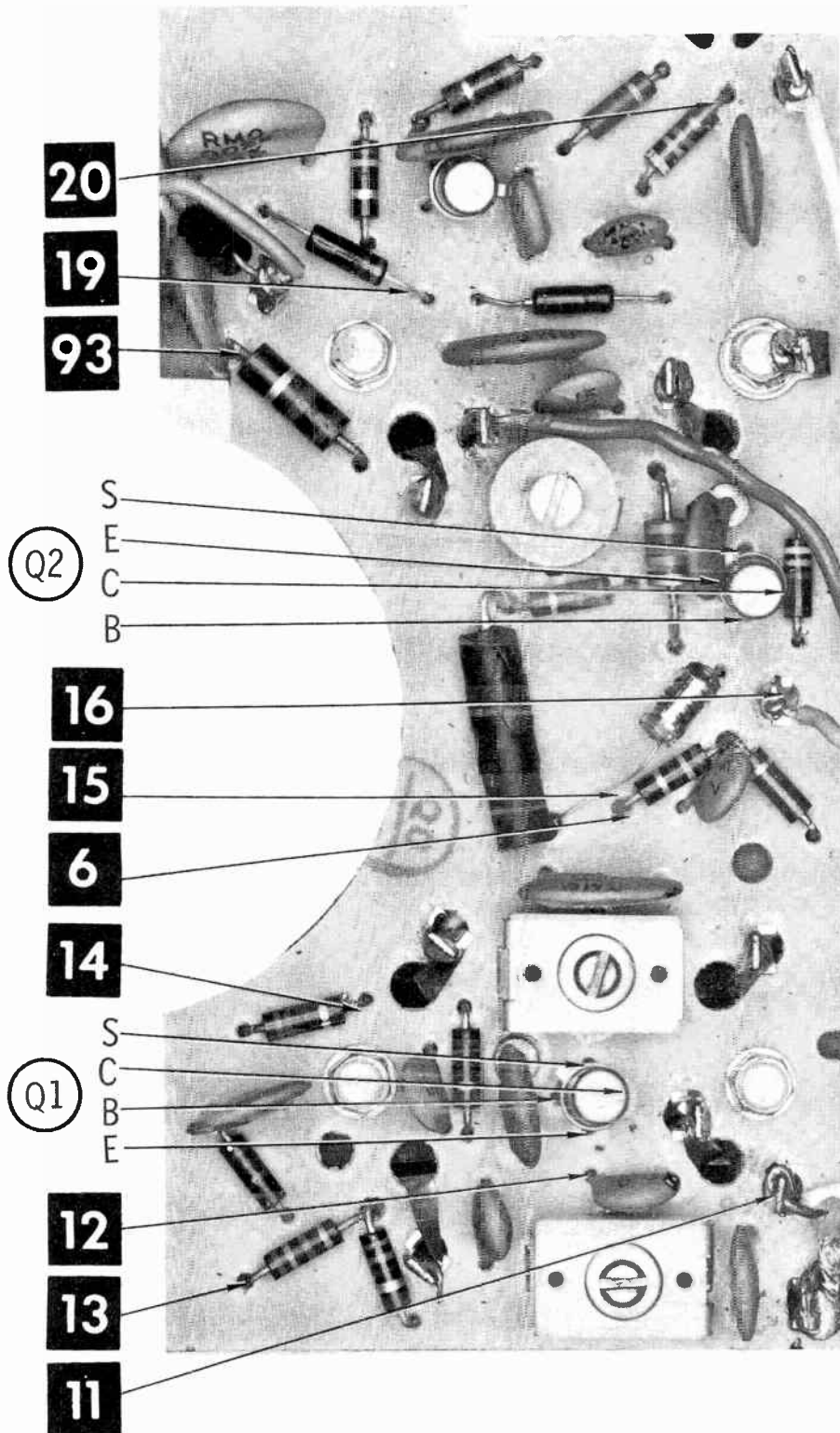
High side of generator thru 47K to point $\diamond E$ , low side to ground.				
	GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
7.	72KC	Vert. amp of scope thru 47K to point $\diamond F$ , low side to ground.	A25	Adjust for MINIMUM
8.	19KC	Vert. amp of scope thru 47K to point $\diamond G$ , low side to 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.





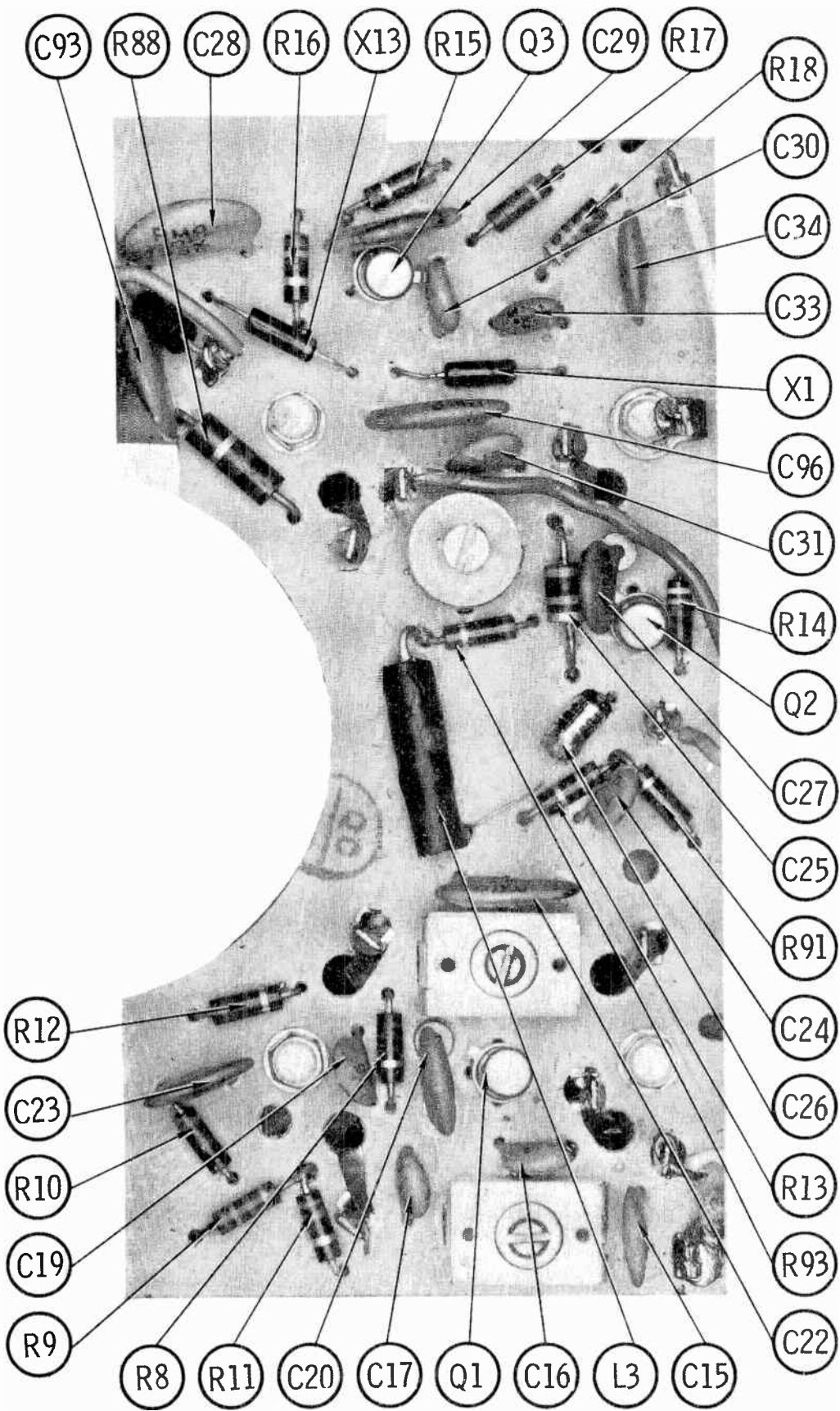
A Howard W. Sams **CIRCUITRACE** Photo

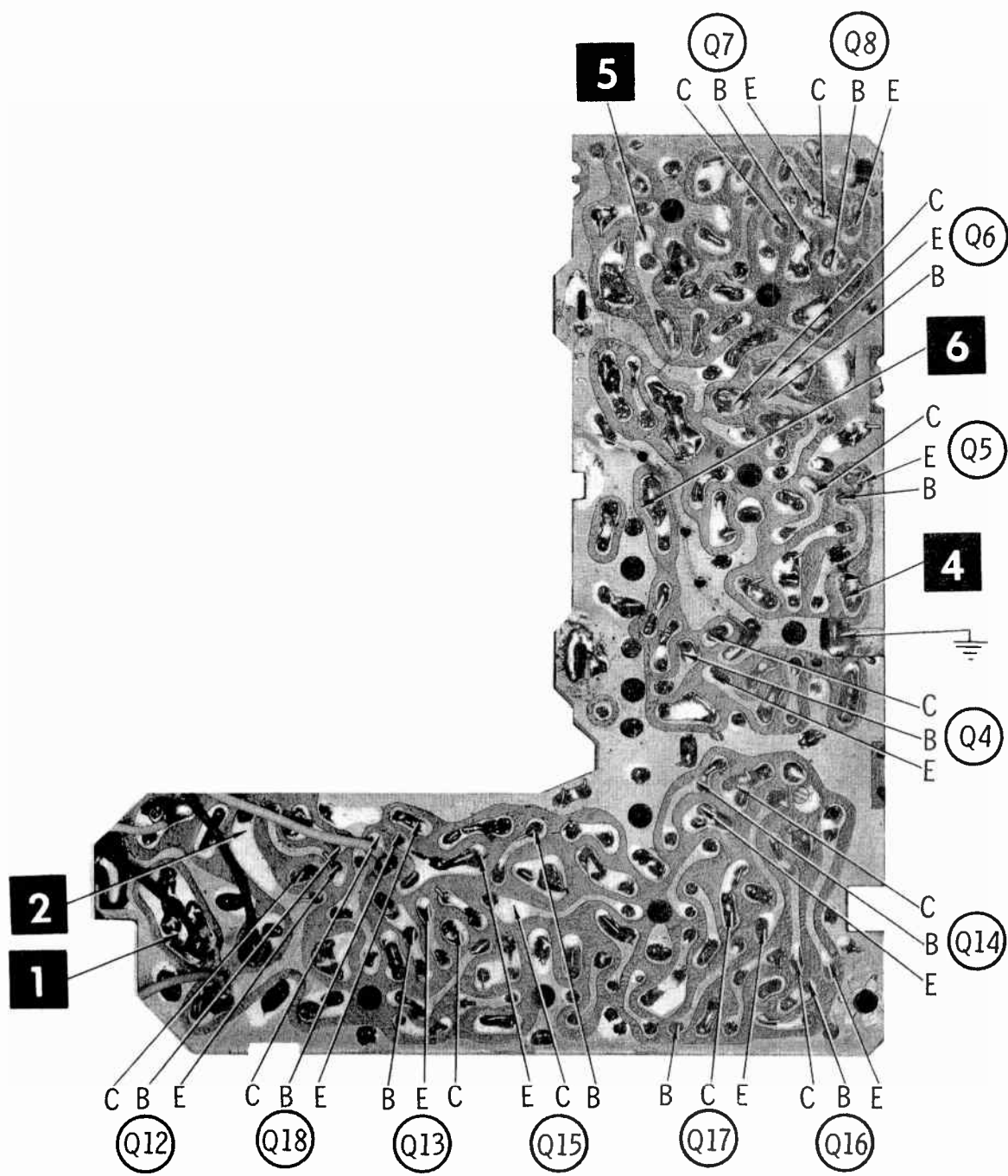




A Howard W. Sams **CIRCUITRACE** Photo

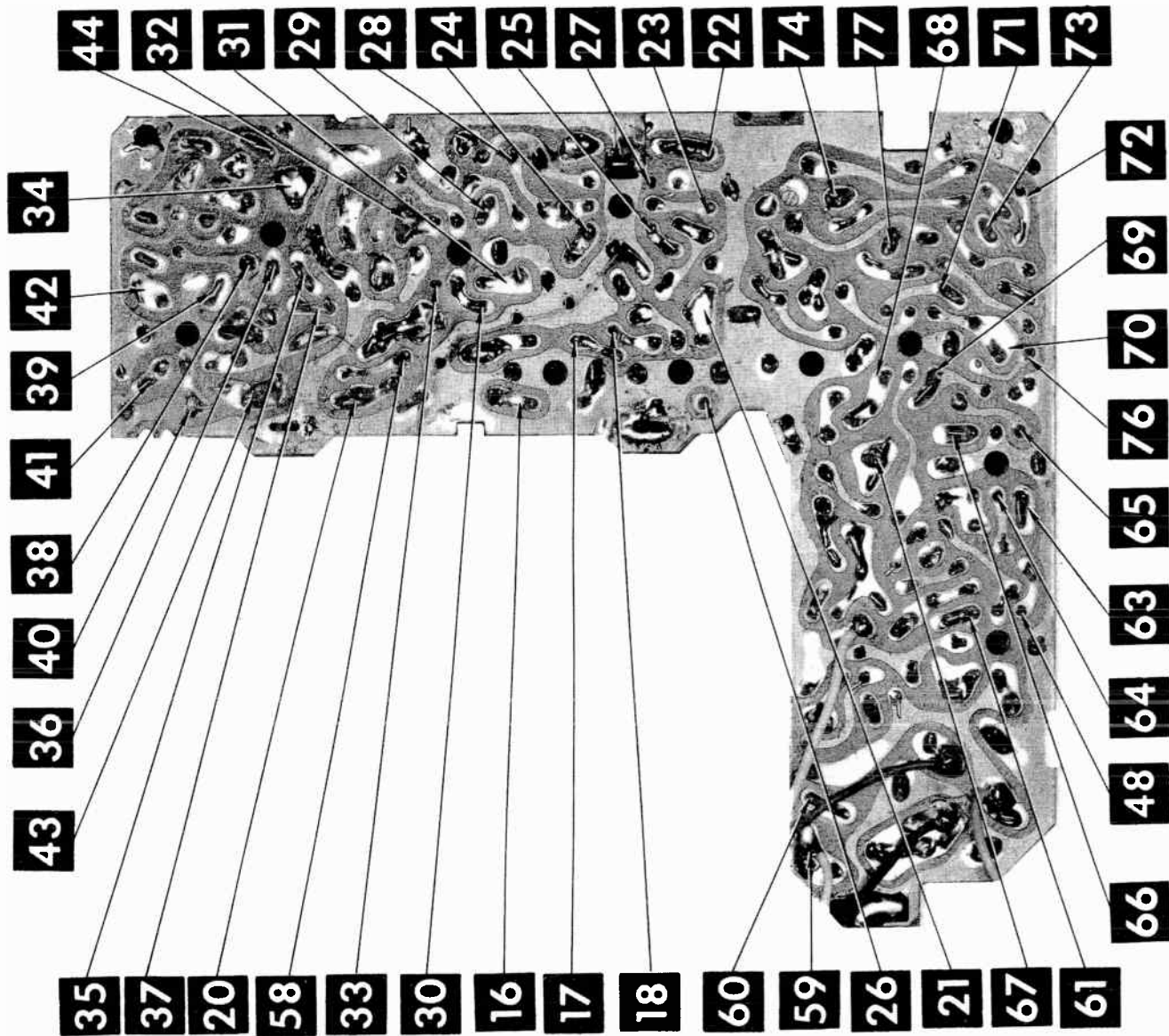


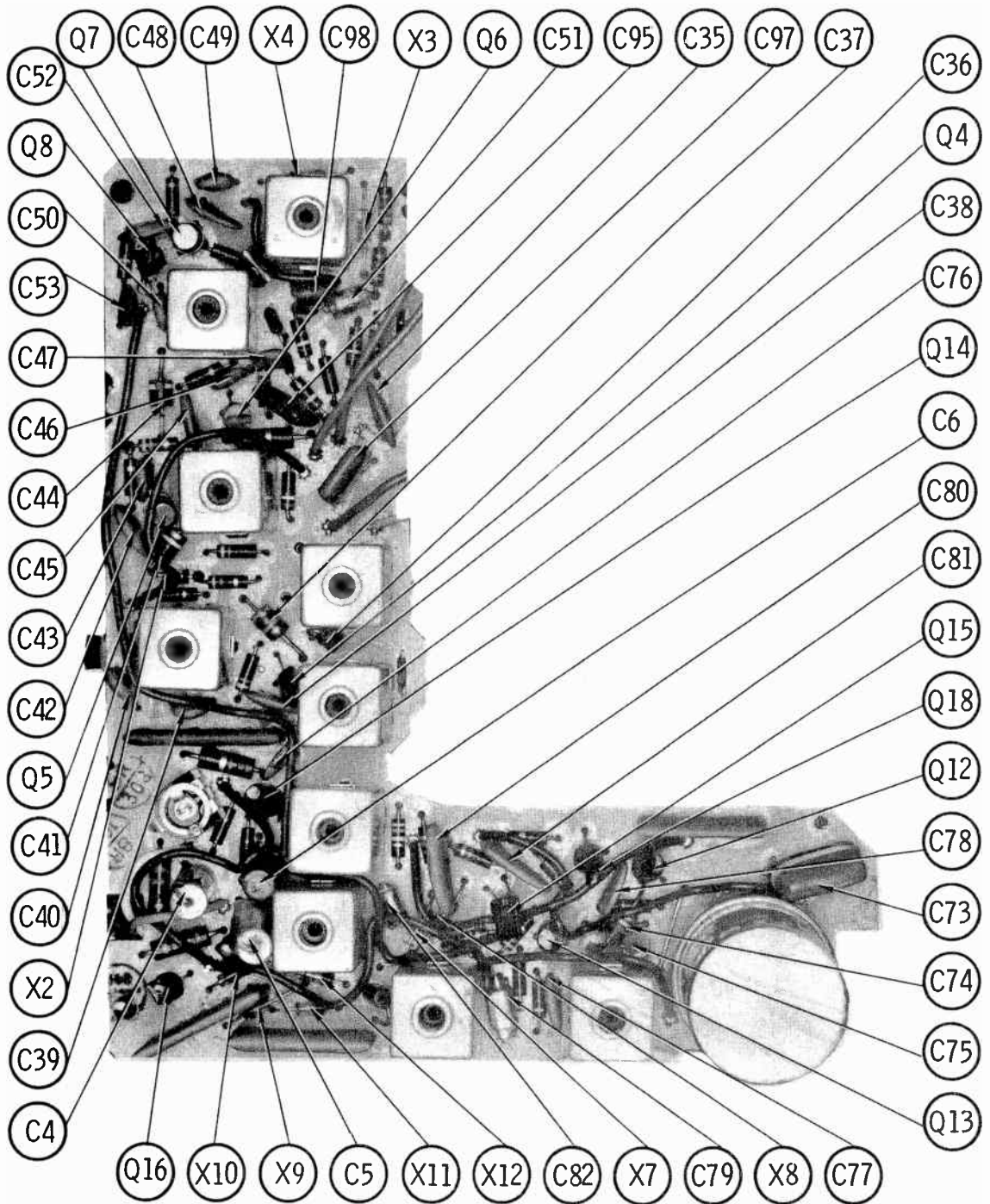


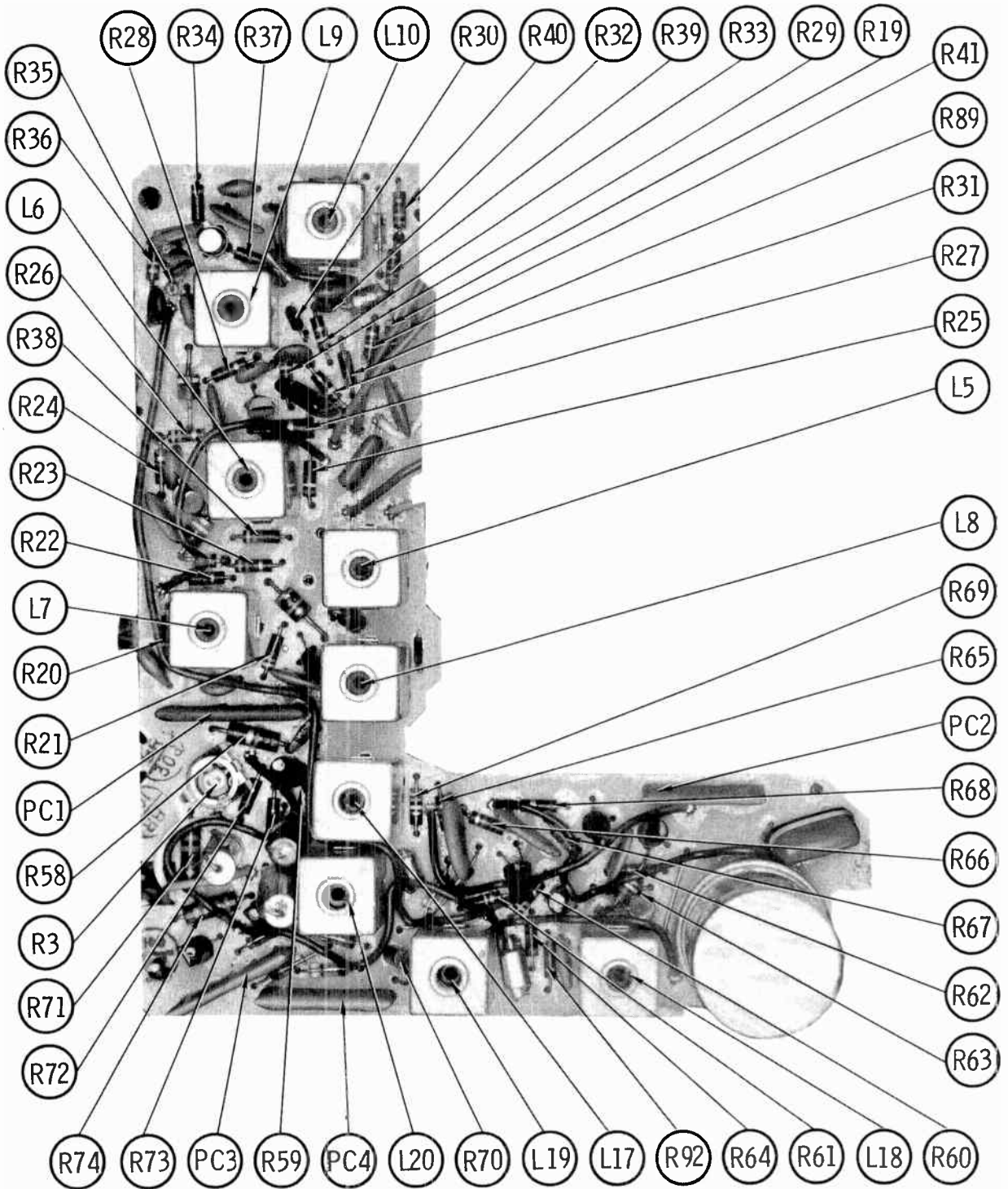


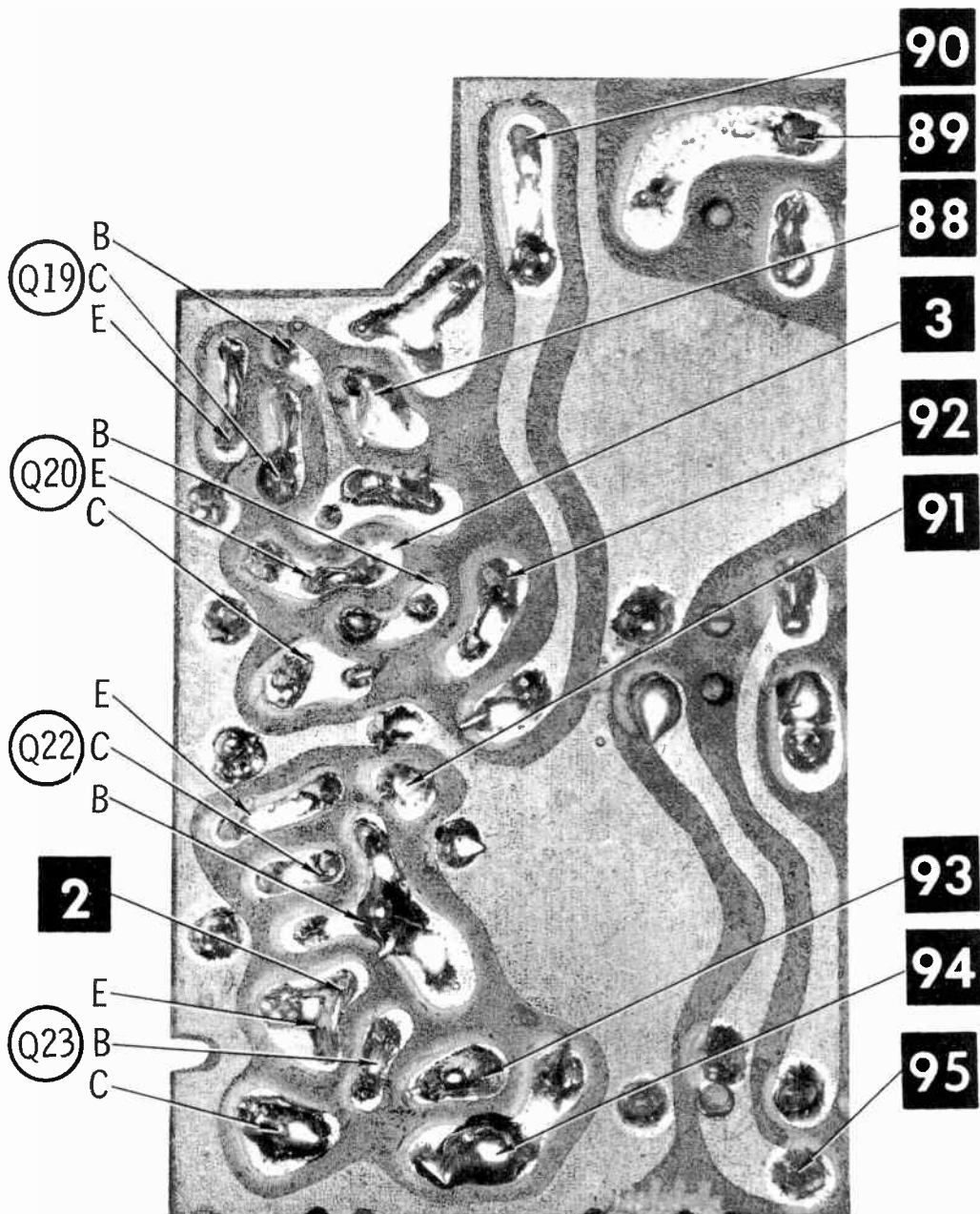
A Howard W. Sams **CIRCUITRACE** Photo

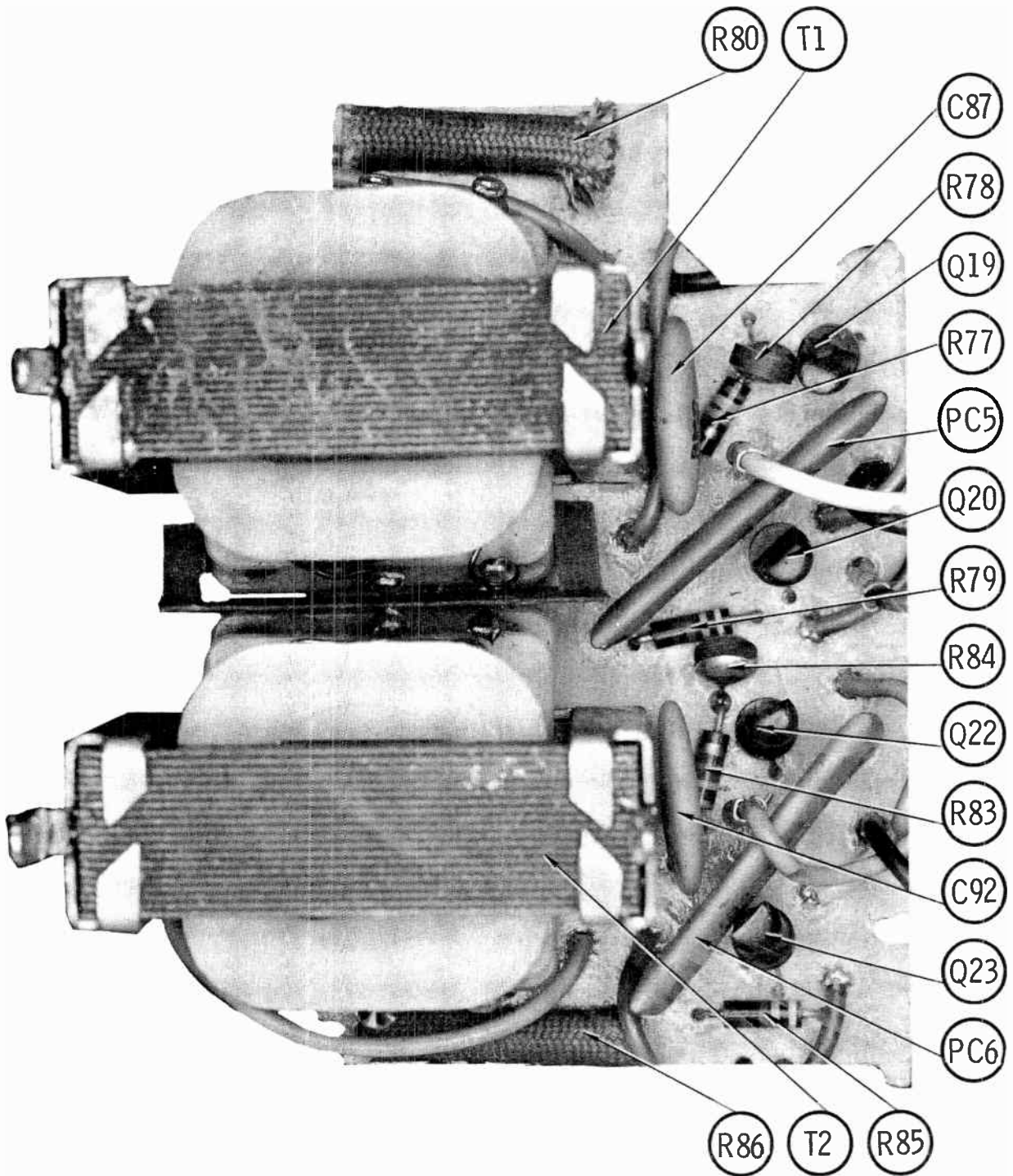
LINCOLN MODEL OFBL

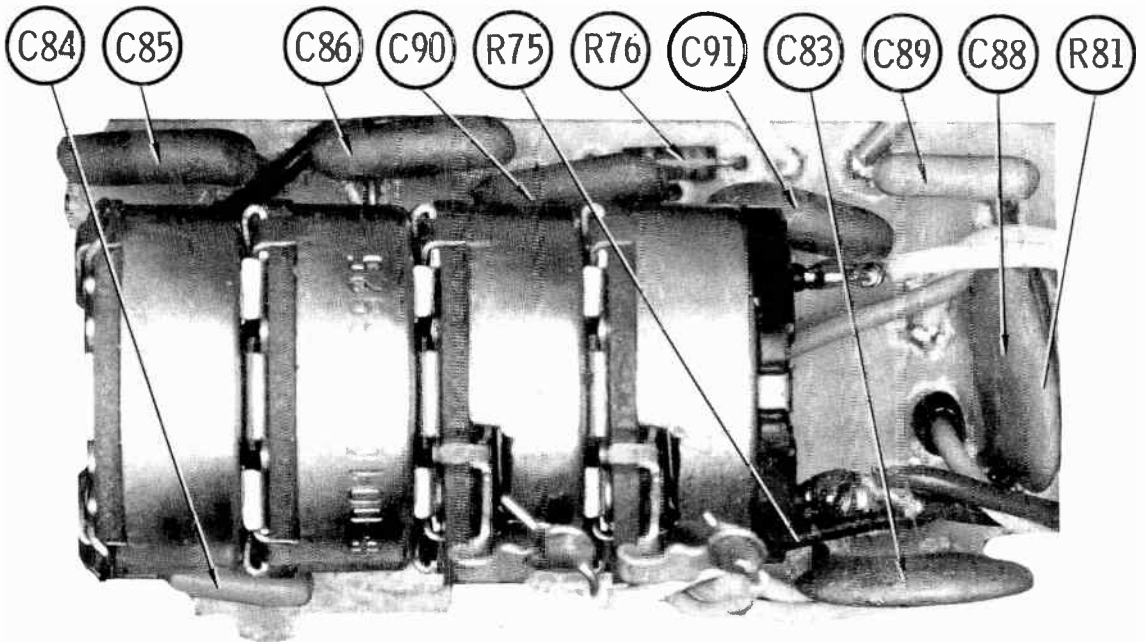
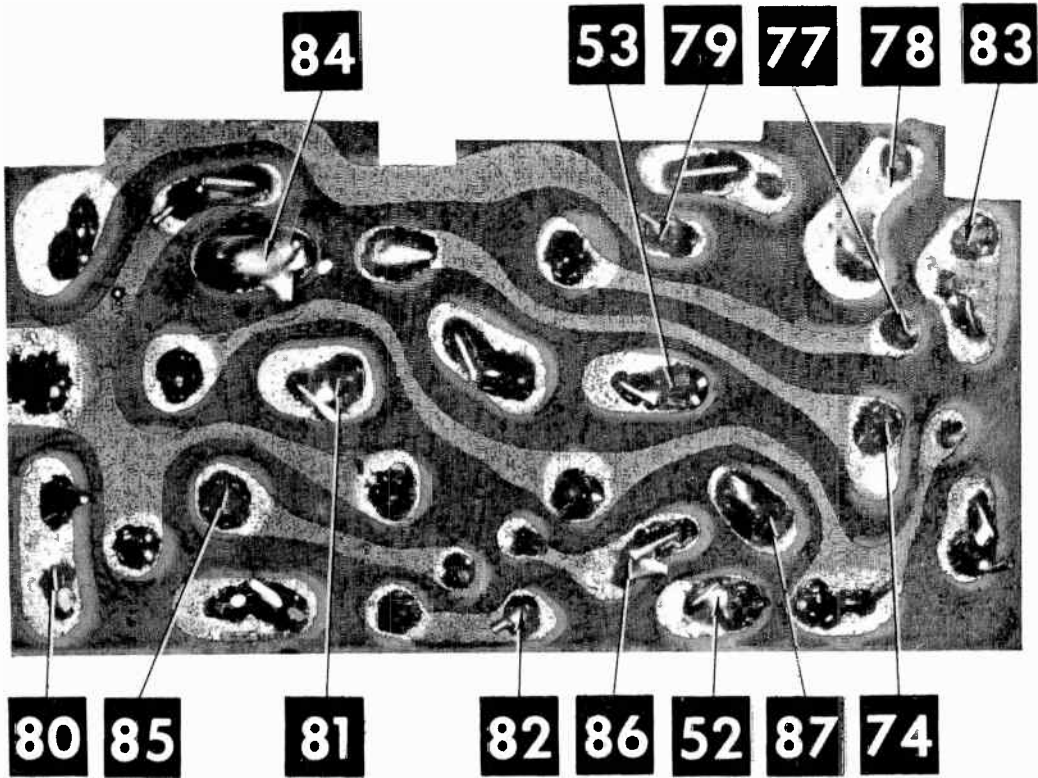














# PARTS LIST AND DESCRIPTION

(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					
			MFRG. 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	2092418-0022	GE-17	TR-22	HEP55	SK3018	ECG 108
Q5		2ND FM IF Amp	2092418-0023	GE-17	TR-22	HEP55	SK3018	ECG 108
Q6		3RD FM IF Amp	2092418-0022	GE-17	TR-22	HEP55	SK3018	ECG 108
Q7		Limiter	2092418-0023	GE-17	TR-22	HEP55	SK3018	ECG 108
Q8		MPX Switch	2092418-0024	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	2093308-0705	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		19KC Amp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q14		Composite 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		Preamp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q17		Preamp	2092609-0707	GE-10	TR-21	HEP54	SK3020	ECG 123
Q18		Stereo Lamp Switch	2057013-0701	GE-21	TR-19	HEP51	SK3025	ECG 106
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

## POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFRG. 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	2092055-0003					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		12M7.5		ECG 138	Zener

## ELECTROLYTIC CAPACITORS

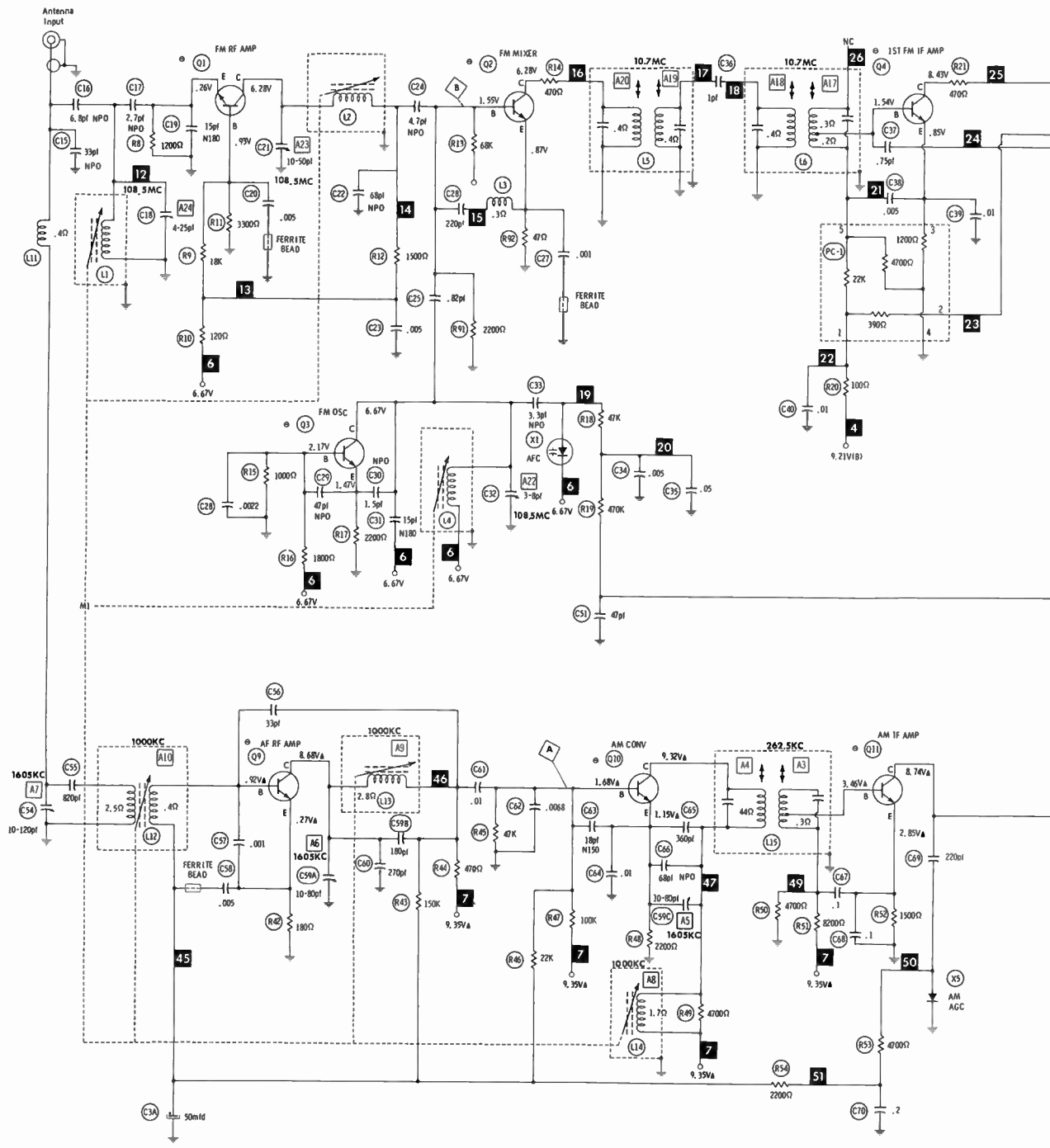
ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	500 16V	2092983-0709	PWH3-00-95.1		CC0018A			
B	500 16V							
C	500 16V							
C2	20 16V	2090480-0718	CRE461A	EA15-25	AL25-16	MT1-10	MTA25D20	TL-1157
C3A	50 4V	2092246-0710						
B	1000 4V							
C4	.47 63V	2093367-0021			TANH31CNOR5MP3		TAS474K075POA	
C5	.47 63V	2093367-0021			TANH31CNOR5MP3		TAS474K075POA	
C6	20 16V	2090480-0718	CRE461A	EA15-25	AL25-16	MT1-10	MTA25D20	TL-1157
C7	1000 6V	2090480-0720	PR51230	EA6-1000	WB81000-16		TC601A	TL-1111

## 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.
C15	33	NPO	NPO-DI 33	DTZ-33	NP033	CCT0-330	CN0433	10TCC-Q33
C16	6.8	NPO	NPO-DI 6.8	DTZ-6R8	NP06P8		CN0568	10TCC-V68
C17	2.7	NPO	NPO-DI 3.0					10TCC-V30
C18	4-25		#2093115-0707					
C19	15	N180				*	*	
C20	.005		TTP-005	CK-502	MGPO05	CCD-502	TA250	TG-D50

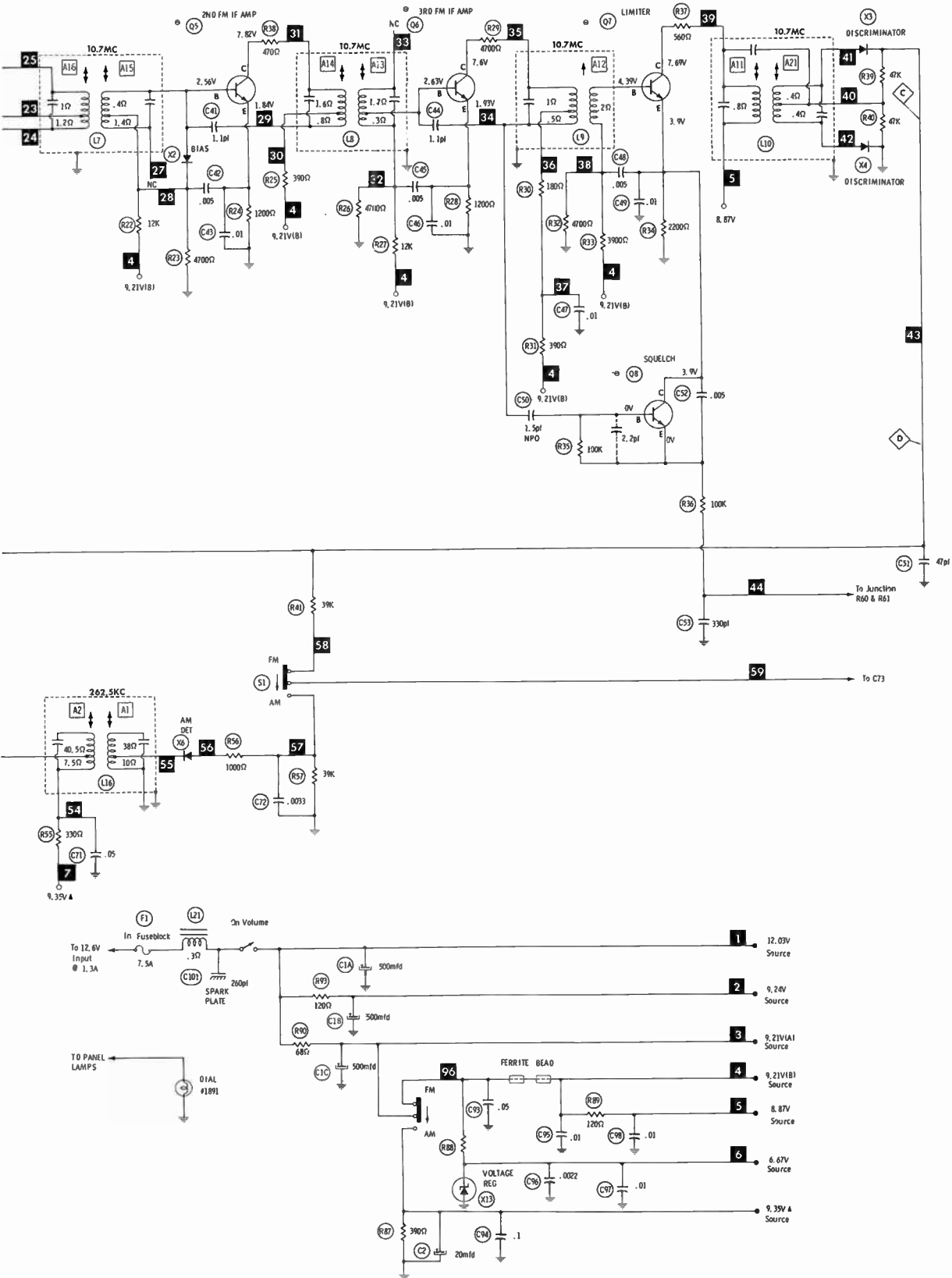
( CONTINUED ON PAGE 76 )

LINCOLN MODEL OFBL

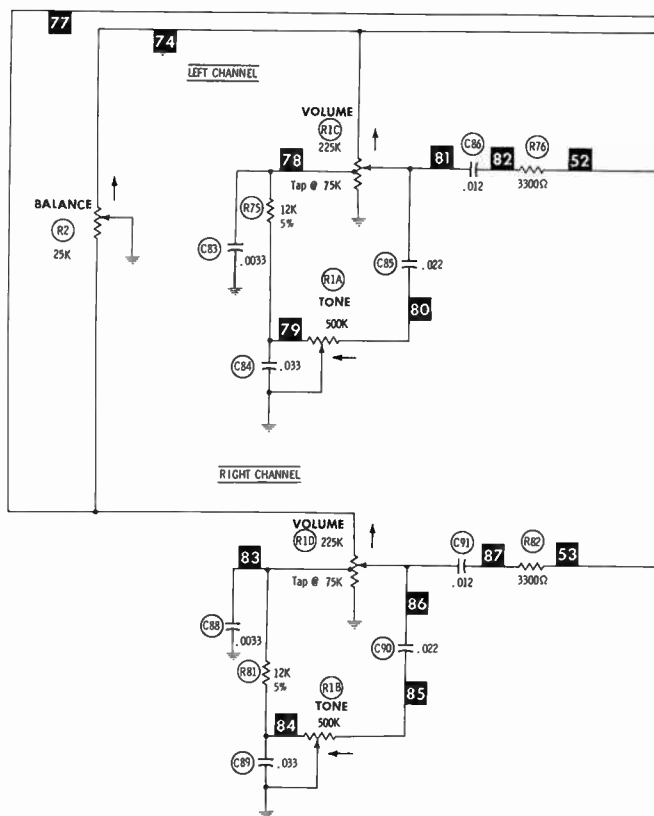
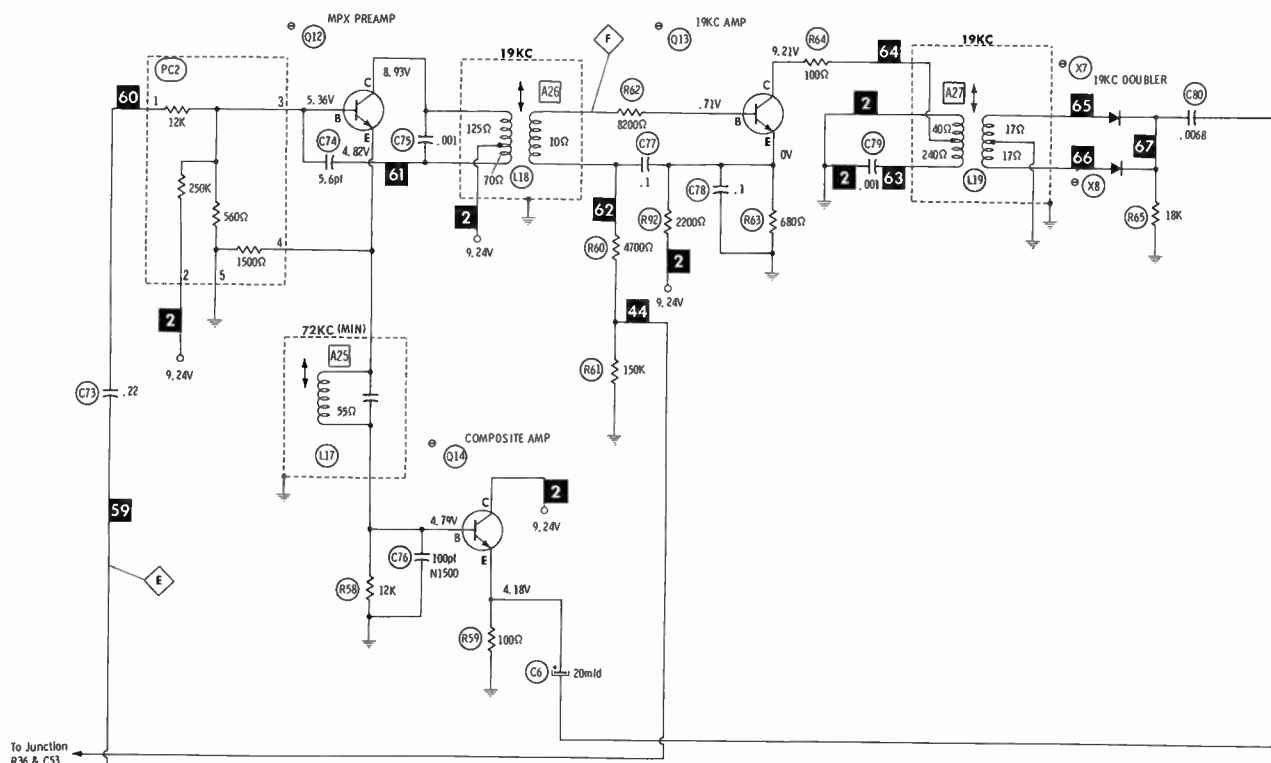


- See parts list. Measurements taken with switching in position shown unless otherwise indicated.
- ▲ Measured with switching in "AM" position. Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated. Supply voltage maintained at rated value for measurements. Voltage and resistance measured with VVM 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 **CircuitTrace**  
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REFER TO PAGES 74 & 75 FOR STEREO MPX PORTION



• See parts list.  
 Measurements taken with switching in position shown 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.  
 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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REFER TO PAGES 72 & 73 FOR AM-FM PORTION



# 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.
C21	10-50	#2093115-0700						
C22	68	NPO	NPO-DI68	DTZ-68	CX601CG680K	CCT0-680	CN0468	10TCC-Q68
C23	.005		TTP-D05	CK-502	MGP005	CCD-502	TA250	TG-D50
C24	4.7	NPO	NPO-DI 4.7	DTZ-4R7	NP04P7		CN0547	10TCC-V47
C25	.82pf			TCZ-1			CN0510	10TCC-V10
C26	220			CPR-220J	CD10E221K500	DM-10-221J	SX322	MS-322
C27	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	25S-D10
C28	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C29	47	NPO	NPO-DI47	DTZ-47	NP047	CCT0-470	CN0447	10TCC-Q47
C30	1.5	NPO	NPO-DI 1.5	DTZ-1R5	NP01P5		CN0515	10TCC-V15
C31	15	N180				*	*	
C32	3-8		#2094703-0701					
C33	3.3	NPO		DTZ-3R3	NPO3P3		CN0533	10TCC-V33
C34	.005			CK-502	MGP005	CCD-502	TA250	TG-D50
C35	.05			CK-503	MGP05	CCD-503	TA150	TGL-S50
C36	1			TCZ-1			CN0510	10TCC-V10
C37	.75pf			TCZ-1			CN0510	10TCC-V10
C38	.005			CK-502	MGP005	CCD-502	TA250	TG-D50
C39	.01		TTP-005	CK-103	MGP01	CCD-103	TA110	TG-S10
C40	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C41	1.1			TCZ-1			CN0510	10TCC-V10
C42	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C43	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C44	1.1			TCZ-1			CN0510	10TCC-V10
C45	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C46	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C47	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C48	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C49	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C50	1.5	NPO	NPO-DI 1.5	DTZ-1R5	NP01P5		CN0515	10TCC-V15
C51	47			CPR-47J	CD10E470K500	DM-10-470J	SX447	MS-447
C52	.005		TTP-005	CK-502	MGP005	CCD-502	TA250	TG-D50
C53	330		GPD X5F331K	DD-331	GP330	CCD-331	GP333	10TS-T33
C54	10-120		#4082079-0001					
C55	820			CPR-820J	CD19FD821J03	DM-15-821	SX382	MS-382
C56	33		ADM-19-821	DTZ-33	NP033	CCT0-330	CN0433	10TCC-Q33
C57	.001		NPO-DI 33	DM-102	GP1000	CCD-102	SM210	25S-D10
C58	.005		GPD X5F102K	CK-502	MGP005	CCD-502	TA250	TG-D50
C59a	10-80		#2092422-0717					
b	180							
c	10-80							
C60	270			CPR-270J	CD15FD271J03	DM-10-271J	SX327	MS-327
C61	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C62	.0068	100V	DBE6D68	CPR-6800J	DMF6D68	1DP-1-682	PVC6268	225P68291W03
C63	18	N150				*	*	
C64	.01	100V	V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C65	360			CPR-360J	CD15FD361J03	DM-10-361J	SX336	MS-336
C66	68	NPO	NPO-DI68	DTZ-68	CX601CG680K	CCT0-680	CN0468	10TCC-Q68
C67	.1		TTP-1	CK-104			TA010	TG-P10
C68	.1		TTP-1	CK-104			TA010	TG-P10
C69	220		GPD X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C70	.2			UK20-204	HCZ3R0XR224P		MAG12022	HY-470
C71	.05		TTP-05	CK-503	MGP05	CCD-503	TA150	TGL-S50
C72	.0033		GPD X5R332K	DD-332	GP3300	CCD-332	JF233	25S-D33
C73	.22	100V	DBE6P22		OPMS4P22	4DP-5-224	PVC4022	4PS-P22
C74	5.6							10TCC-V56
C75	.001			CPR-1000J	CD19F102J500	DM-19-102J	SX210	424ME1001J501
C76	100	N1500		TCL-100		*	CN15315	10TCC-T15
C77	.1		TTP-1	CK-104			TA010	TG-P10
C78	.1		TTP-1	CK-104			TA010	TG-P10
C79	.001			CPR-1000J	CD19F102J500	DM-19-102J	SX210	424ME1001J501
C80	.0068		GPDX5R682K	DD-682	GP6800	CCD-682	GP268	5GA-D68
C81	.2			UK20-204	HCZ3R0XR224P		MAG12022	HY-470
C82	390			CPR-390J	CD15FD391J03	DM-10-391J	SX339	MS-339
C83	.0033		GPD X5R332K	DD-332	GP3300	CCD-332	JF233	25S-D33
C84	.033	25V	DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C85	.022	25V	V1612S22		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C86	.012	25V	V1612S1		DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C87	.0068		GPD X5R682K	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C88	.0033		GPD X5R332K	DD-682	GP6800	CCD-682	GP268	5GA-D68
C89	.033	25V	DBE6S33	DD-332	GP3300	CCD-332	JF233	25S-D33
C90	.022	25V	V1612S22		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C91	.012	25V	V1612S1		DPMS6S22	1DP-1-223	PVC1122	225P22391WD3
C92	.0068		GPD X5R682K	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C93	.05		TTP-05	DD-682	GP8000	CCD-682	GP268	5GA-D68
C94	.1	75V	DBE2P1	CK-503	MGP05	CCD-503	TA150	TGL-S50
C95	.01	75V			DPMS2P1	1DP-2-104	PVC101	225P10491WD3
C96	.0022		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C97	.01	100V	GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C98	.01		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391WD3
C99	260		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C100	260	#2093050-0710						
C101	260	#2093050-0710						

# Bendix Part Number

\* Not normally in distributor's stock. Available thru distributor in 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<sup>®</sup> for the most up-to-date replacement.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone, Left	500K	2057638-0010				
B	Tone, Right	500K					
C	Volume, Left	225K					
D	Volume/Switch, Right	Tap @ 75K 225K					
R2	Balance	Tap @75K 25K	2057639-0006			* QJ-2657A	P25L, 3038, SH31, 0X875
R3	Separation	100K	4082435-0005	T-100K (1) or [TSV-100K (1)]		X201R104B (1)	MTC15L1 (1)

\* Concentrikrit Equivalent K-6 Kit with Base Elements and Shafts; B11-120, P17-024 (Panel)  
None, None (Rear)  
QCN, QCN (Nut)

"SNAPTROL" Equivalent BU15A (2), CF11, None, SF3, None, QCN.

- (1) For horizontal mount, bend the two outside terminals to fit "PC" board. Use jumper to connect center terminal to "PC" board.  
(2) Alter Bushing and adjust spacer nut (QCN) to meet requirements.

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.
R78	857 (Cold)		220629-0021
R80	.22 (PTC)		2090948-0020

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.
R84	857 (Cold)		220629-0021
R86	.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	10.7MC Trap (1uh)	2092210-0005	19-1000	4602	T855
L4	FM Oscillator	(1)			
L5	FM Input IF	2057713-0701			
L6	FM Interstage IF	2057713-0702			
L7	FM Interstage IF	2057713-0703			
L8	FM Interstage IF	2057713-0704			
L9	FM Interstage IF	2057713-0705			
L10	Discriminator	2057714-0701			
L11	RF Choke (2uh)	2092210-0007	19-1002	74F226AP	TA812
L12	AM Antenna	(1)			
L13	AM RF	(1)			
L14	AM Oscillator	(1)			
L15	AM Input IF	2057715-0701			
L16	AM Odput IF	2057715-0702			
L17	67KC Trap	2057742-0701			
L18	19KC	2057742-0702			
L19	19KC	2057742-0703			
L20	38KC	2057742-0704			

(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.	
L21	1.3 AMP	.3	1.5MH	4080072-0510	C-4124(1)	TC-1 (1)	TR-159 (1)	TY16X7(1)	(1) Fabricate mounting

LINCOLN MODEL OFBL

## 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 (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFRG. 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 Speakers from Lincoln 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	DEVICE
F1	SFE 7 1/2 AM		In Fuse block	SFE 7 1/2		30707.5		

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	2094851-0532	(61C)
	Coil Assembly	2090131-0114	
PC1	FM IF Network	2057721-0701	
PC2	MPX Input Network	2057719-0702	
PC3	MPX Det Network	4080681-0002	
PC4	MPX Det Network	4080681-0002	
PC5	AF Network	2057720-0701	
PC6	AF Network	2057720-0701	
S1	Switch, Selector	2092719-0710	

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

ITEM	PART No.	ITEM	PART No.
Escutcheon	4080200-0512	Push Button #2, #3 or #4	4082016-0002
Dial Glass	2094947-0511	Dial Pointer	2090129-0120
Stereo Indicator Lens	2093760-0005	Knob, Tuning or Volume	4082408-0001
Push Button #1 or #5	4082016-0001	Knob, Tone or balance	4082409-0001

### 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<sup>®</sup>

For Supplier Address See PHOTOFACT Index



MOTOROLA MODEL TM105M

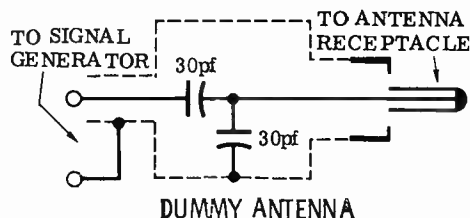
## ALIGNMENT INSTRUCTIONS

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 thru A8	.....#8290,8868,9087	.....#2525,2528,2587

	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point <b>A</b> , 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,A8	"
Step 3 is not necessary unless tuner or associated components have been disturbed. If necessary, back tuning cores(A9,A10,A11,A12)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	A9,A10 A11,A12	Adjust for maximum. Repeat Steps 2 and 3 until no further improvement is noted

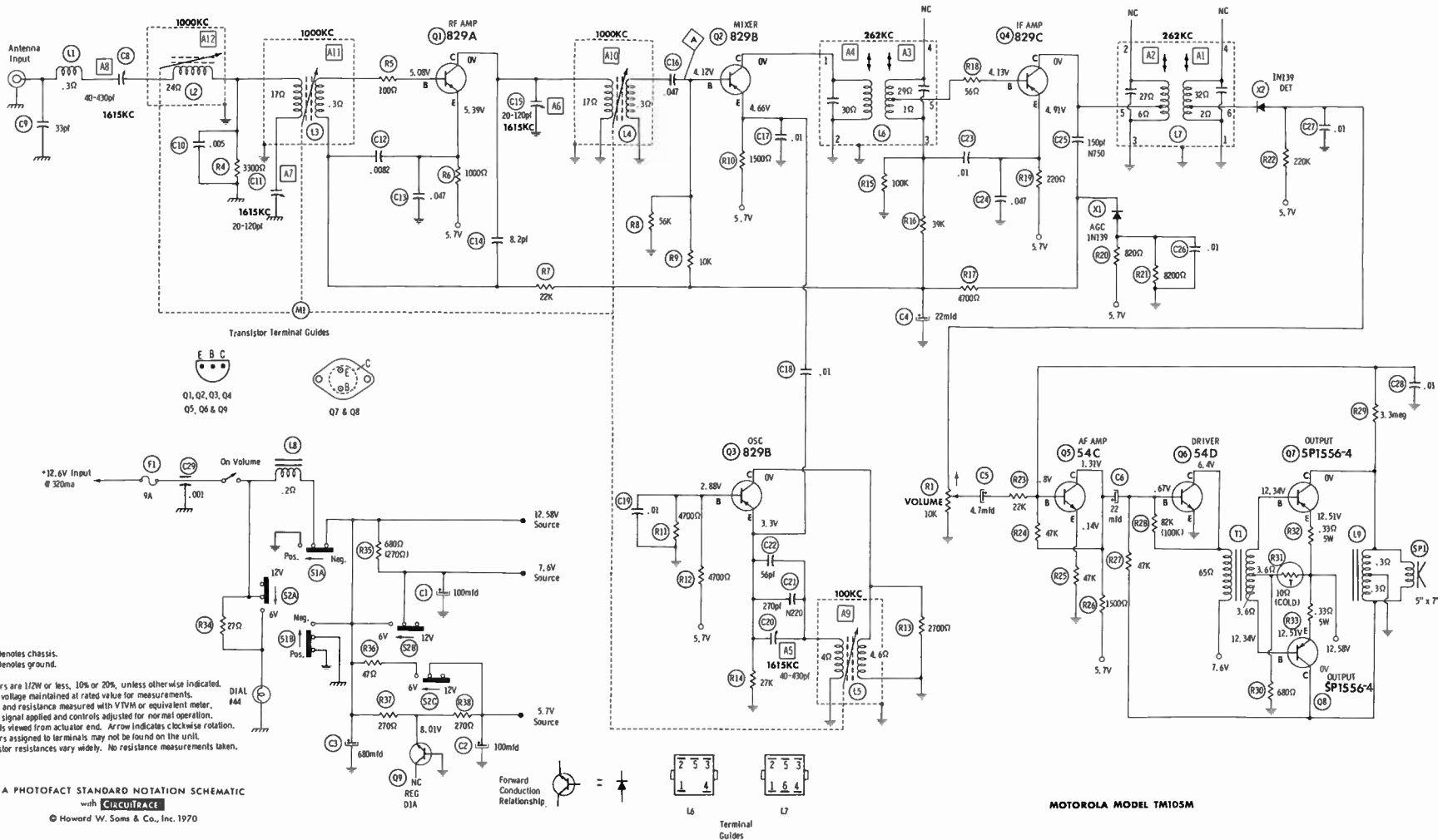
With radio installed in car and antenna extended to desired height, tune in a weak station near 1400KC and adjust A8 for maximum output.

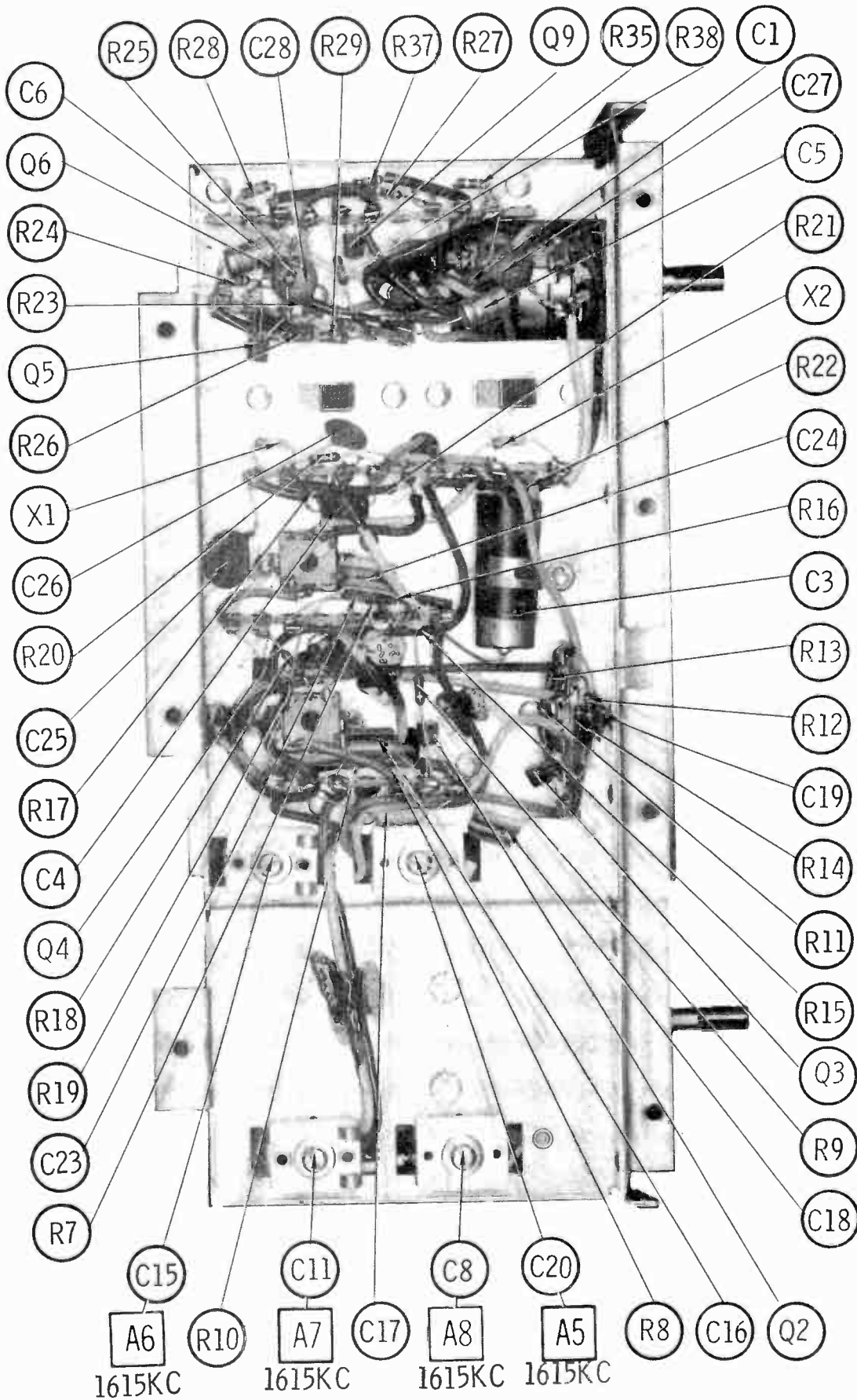


MOTOROLA MODEL TM105M

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

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# 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	829A	RF Amp	48S134830 (1)	GE-22	TR-19	HEP57		ECG 106
Q2	829B	Mixer	48S134831	GE-22	TR-19	HEP57		ECG 106
Q3	829B	Oscillator	48S134831	GE-22	TR-19	HEP57		ECG 106
Q4	829C	IF Amp	48S134832 (1)	GE-22	TR-19	HEP57		ECG 106
Q5	54C	AF Amp	48S134811	GE-20	TR-21	HEP725	SK3020	ECG 123
Q6	54D	Driver	48S134810	GE-20	TR-21	HEP726	SK3020	ECG 123
Q7	SP1556-4	Output (3)	48S134761 (2)	GE-13MP*	TR-01	HEP624	SK3013 *	ECG 104MP*
Q8	SP1556-4	Output (3)	48S134761 (2)	GE-13MP*	TR-01	HEP624	SK3013 *	ECG 104MP*
Q9	O1A	Regulator	48S134912	GE-20	TR-01	HEP54	SK3020	

(1) Manufacturer recommends Part #48S134831. (2) Manufacturer recommends Part #48S134759.  
(3) 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	1N139	1N295	1N295	ECG 109		
X2	1N139	1N295	1N295	ECG 109		

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	100 16V	23S187A16	CRE473A	EA15-100	AL100-16	MT1-19	MTA100E15	TE-1162
C2	1000 16V	23S187A19	PRS1230	EA15-1000	WBR1000-16	QTI-32	TC1501A	TL-1166.5
C3	680 16V	23S187A17	PRS1230	EA15-1000	WBR1000-16	QTI-32	TC1501A	TL-1166.5
C4	22 25V	23S187A21	PTT82	EA30-25	WBR25-50	MT1-11	MTA25E35	TE-1207
C5	4.7 63V	23S187A14	CRE903A	EA50-5	WBR5-150	MT1-4	MTA5D50	TE-1403
C6	22 25V	23S187A20	PTT82	EA30-25	WBR25-50	MT1-11	MTA25E35	TE-1207

## 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	40-430	#20B64343B03				465		
C9	33		ADM-10-333	CPR-33J	CD15E390J03	DM-10-330	SX433	MS-433
C10	.005 100V		D8E6D5	CPP-5000J	OPMS6D5	1DP-1-502	PVC625	6PS-D50
C11	20-120	#20K541014						
C12	.0082 75V		D8E6D82	CPR-8200J	DPMS6D82	60P-2-822	PVC6282	6PS-D82
C13	.047 75V		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391W03
C14	8.2				NPO8P2			10TCC-V82
C15	20-120	#20K541014						
C16	.047 75V		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391W03
C17	.01 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391W03
C18	.01 75V		V1612S1	CPR-10000J	DPMS6S1	1DP-1-103	PVC211	225P10391W03
C19	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C20	40-430	#20B64343803				465		
C21	270 N220	#21S180E14				*	*	10TCR-T22
C22	56		GPD X5F560K	DD-560		CCD-560	GP456	10TS-Q56
C23	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C24	.047 75V		V1612S47		DPMS6S47	1DP-2-473	PVC1147	225P47391W03
C25	150 N750		N750-D1 150	DTN-150	N150	CCCTN-150	CN7315	10TCU-T15
C26	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C27	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C28	.01		TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C29	.001		EF-6-1000	FT-1000	MGPO1	CCF-102		TG-S10

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

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

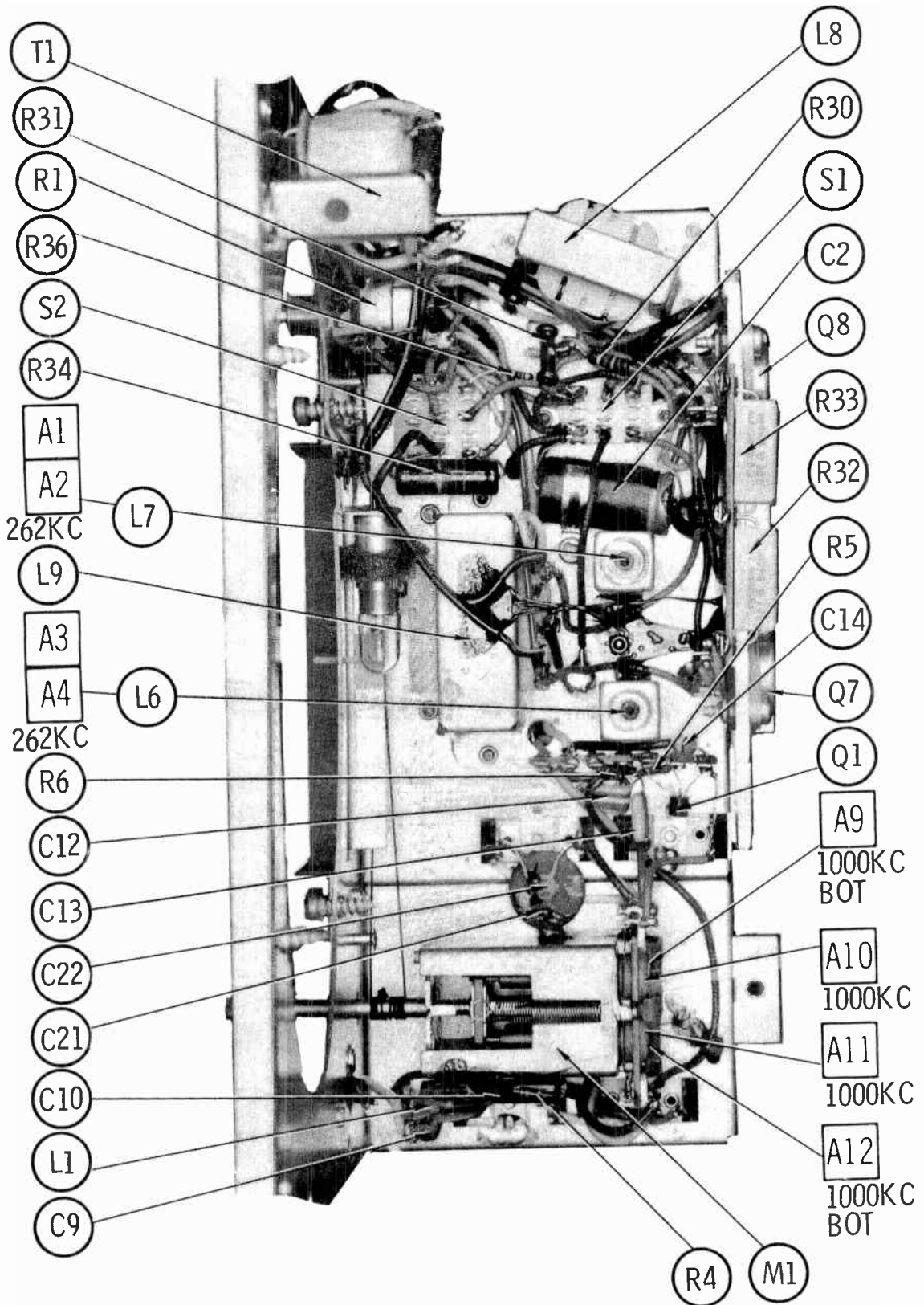
ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	10K	18864374B01	F2-10K, CA005, BA008, SFS212, KR-4		QCB2 (1), B13-116 TMB, 76-1 or [BU3, CF61, SS4, GC]*	RU14A, SL41(2), S03500, US41

\* "SNAPTROL"  
(1) Use QCB2 Bushing instead of "TM Plate in TMB Kit. (2) Alter Bushing to meet Requirements.

## RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R31	10 (Cold)		6K544646	R33	.33 5W	WT33	17S136616
R32	.33 5W	WT33	17S136616				

( CONTINUED ON PAGE 84 )



## 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	RF Choke (1.8uh)	24B64785A03	19-1001	74F186AP	T810
L2	Antenna	(1)			
L3	RF	(1)			
L4	Osc	(1)			
L5	Input IF	24C64105A01		8009	
L6	Output IF	24C64105A02		8010	

### 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.	
L8	320ma	.2	3mh	25064172A16	C-4095	TC-1	TR-157	TY16XT	

### CHOKE (Audio Output)

ITEM No.	INDUCTANCE	REPLACEMENT DATA					NOTES
		PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L9	35mh CT	25C64173A03					

### 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	3	1		25064174A09					

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PART No.	QUAM PART No.	
SP1	5" x 7" 8 ohms	50064397801	57A1Z8	

### FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		8USS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	SFE 9	65K16248	1V541705	SFE 9	H0H	307009	150145	

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner	77040898A08	MT723
S1	Coil Assembly	1V41800B46	
S2	Switch	40B64376801	0P0T (Pos - Neg)
	Switch	40B64375801	3P0T (6V-12V)

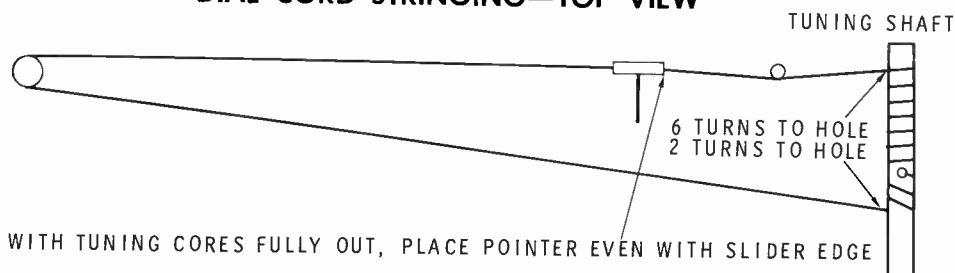
### CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Escutcheon	1V64997A06	Dial Pointer	52A64360A02
Front Cover	1V64997A05	Dial Glass	34864411802
Knob, Volume or Tuning	36C64414802		

### WIRING DATA

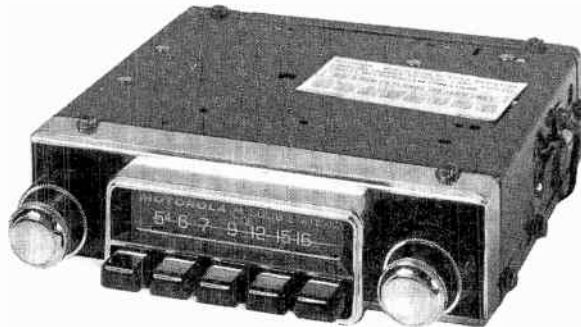
General-use Unshielded Hook-up Wire	Use BELOEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELOEN No. 8885
Rear Seat Speaker Extension Cable	Use BELOEN No. 8782 (Stranded) Coded Parallel Leads
Bonding Strap	Use BELOEN No. 8661 (3/8 In.) or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

### DIAL CORD STRINGING—TOP VIEW





For Supplier Address See PHOTOFACT Index



MOTOROLA MODEL TM529A

## 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,A8 .....#8290,8868,9087 ...#2525,2528,2587

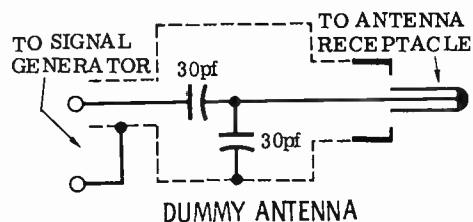
### PUSH-BUTTON ADJUSTMENT

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

MOTOROLA MODEL TM529A

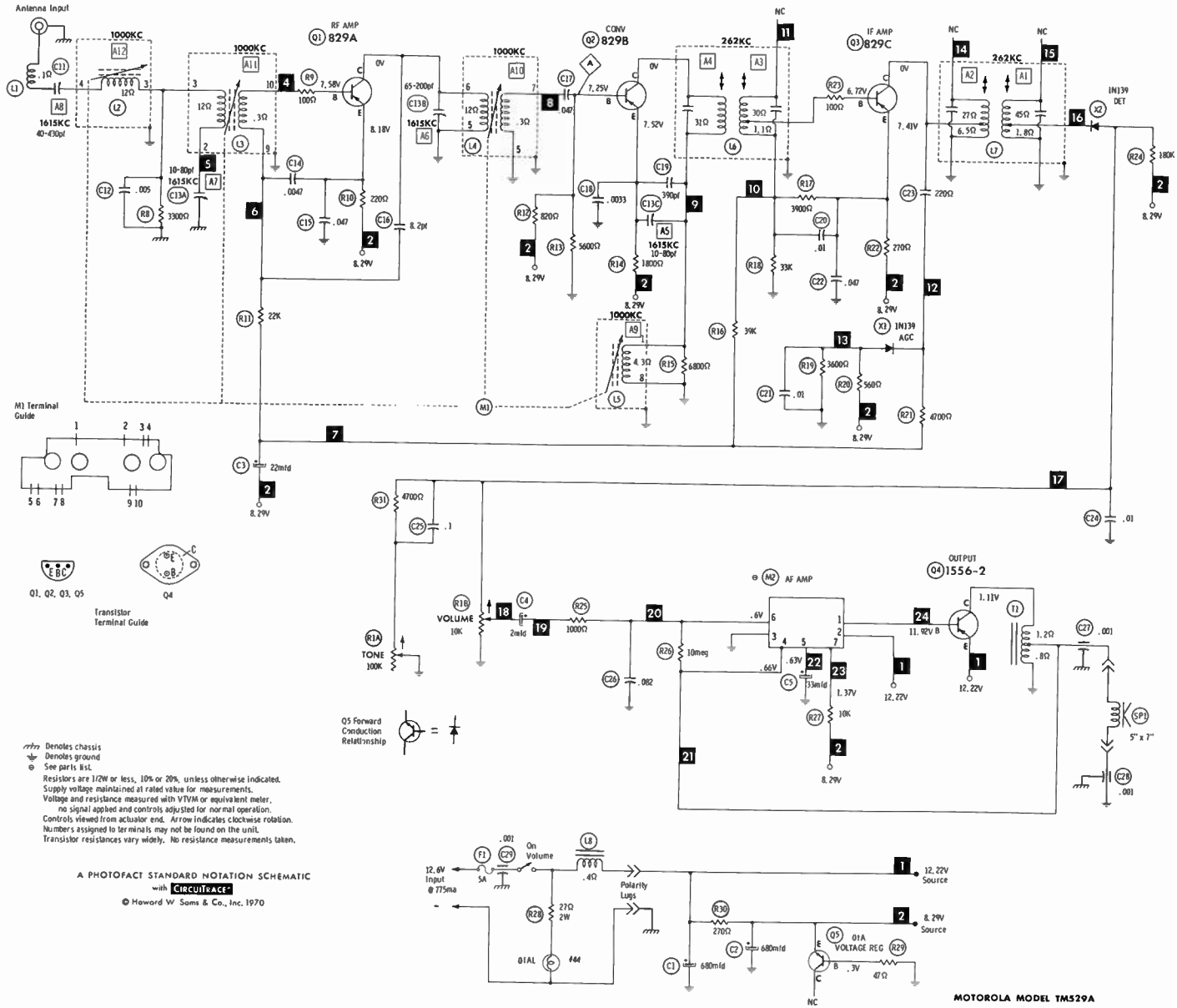
	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point <b>A</b> , low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
2.	Thru dummy antenna to antenna input.	1615KC	"	"	A5,A6, A7,A8	"
Step 3 is not necessary unless tuner or associated components have been disturbed. If necessary, back tuning cores (A8,A9,A10,A11)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	A9,A10 A11,A12	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 A8 for maximum output. Antenna adjustment (A8) is located Right Rear Cover above Antenna Input.



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

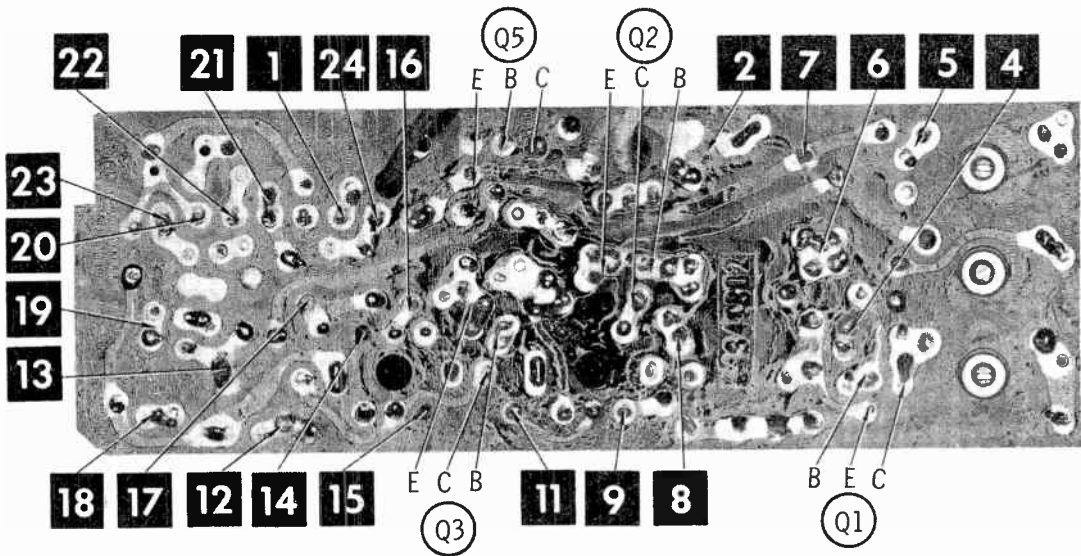
© 1970 Howard W. Sams & Co., Inc. Printed in U. S. of America TD741



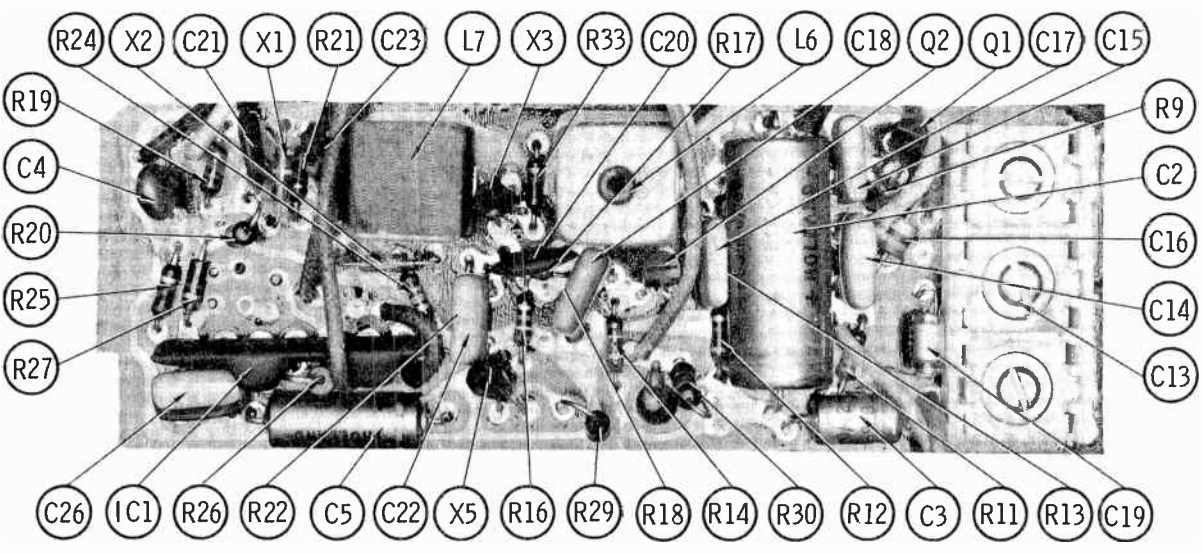
A PHOTOFAC STANDARD NOTATION SCHEMATIC  
with **CIRCUITFACE**  
© Howard W Sams & Co., Inc. 1970

Denotes chassis  
Denotes ground  
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 VTM 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.





MOTOROLA MODEL TMS29A



## 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	829A	RF Amp	48S134830 (2)	GE-22	TR-19	HEP57		ECG 106
Q2	829B	Converter	48S134831	GE-22	TR-19	HEP57		ECG 106
Q3	829C	IF Amp	48S134832 (2)	GE-22	TR-19	HEP57		ECG 106
Q4	SP1556-2	Output (1)	48S134759	GE-3	TR-01	HEP623	SK3009	ECG 104
Q5	01A	Voltage Regulator	48S134912	GE-20	TR-21		SK3020	ECG 123

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

(2) Manufacturer recommends Part No. 48S134831.

### INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFGR. PART No.	REMARKS
IC1	AF Amp	51S10353A01	

### 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	1N139	1N295	1N295	ECG 109		
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	680 16V	23S187A17	PRS1230	EA15-1000	WBR1000-16	QTI-32	TC1501A	TL-1166.5
C2	680 16V	23S187A17	PRS1230	EA15-1000	WBR1000-16	QTI-32	TC1501A	TL-1166.5
C3	22 25V	23S187A20	PTT82	EA30-25	WBR25-50	MT1-11	MTA25E35	TE-1207
C4	2 10V	23S10229A0	BCD50002	EP15-2	PC2-100	MT1-1	MTV2CB50	TE-1121
C5	33 40V	23S187A15	BCD15035	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1306

### 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.
C11	40-430	#20B64065B02						
C12	.005 100V		DBE6D5	CPR-5000J	DPMS605	10P-1-502	PVC625	6PS-050
C13a	10-80	#20D64352A07						
C13b	65-200							
C13c	10-80							
C14	.0047 100V		DBE6D5	CPR-5000J	OPMS6D5	10P-1-502	PVC625	6PS-050
C15	.047 100V		V1612S47		DPMS6S47	10P-2-473	PVC1147	225P47391W03
C16	8.2							
C17	.047 100V		V1612S47		DPMS6S47	10P-2-473	PVC1147	225P47391W03
C18	.0033 100V		08E6D33	CPR-3300J	6D33	CDP-1-332	PVC6233	225P33291W03
C19	390			CPR-390J	C015FD391J03	OM-10-391	SX339	MS-339
C20	.01		TTP-01	CK-103	MGP01	CCO-103	TA110	TG-S10
C21	.01		TTP-01	CK-103	MGP01	CCD-103	TA110	TG-S10
C22	.047 100V		V1612S47		DPMS6S47	10P-2-473	PVC1147	225P47391W03
C23	220		GPO X5F221K	DD-221	GP220	CCD-221	GP322	10TS-T22
C24	.01		TTP-01	CK-103	MGP01	CCO-103	TA110	TG-S10
C25	.1		TTP-1	CK-104			TA010	TG-P10
C26	.082 100V		DBE6S82		OPMS6S82	6DP-4-823	PVC1182	6PS-S82
C27	.001		EF-6-1000	FT-1000		CCF-102		
C28	.001		EF-6-1000	FT-1000		CCF-102		
C29	.001		EF-6-1000	FT-1000		CCF-102		

# Motorola Part Number.

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

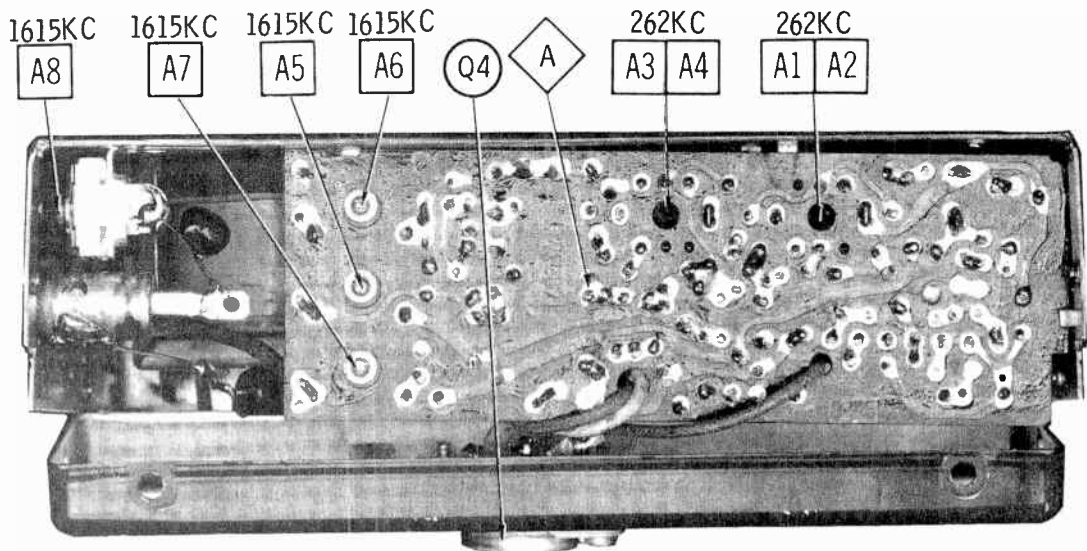
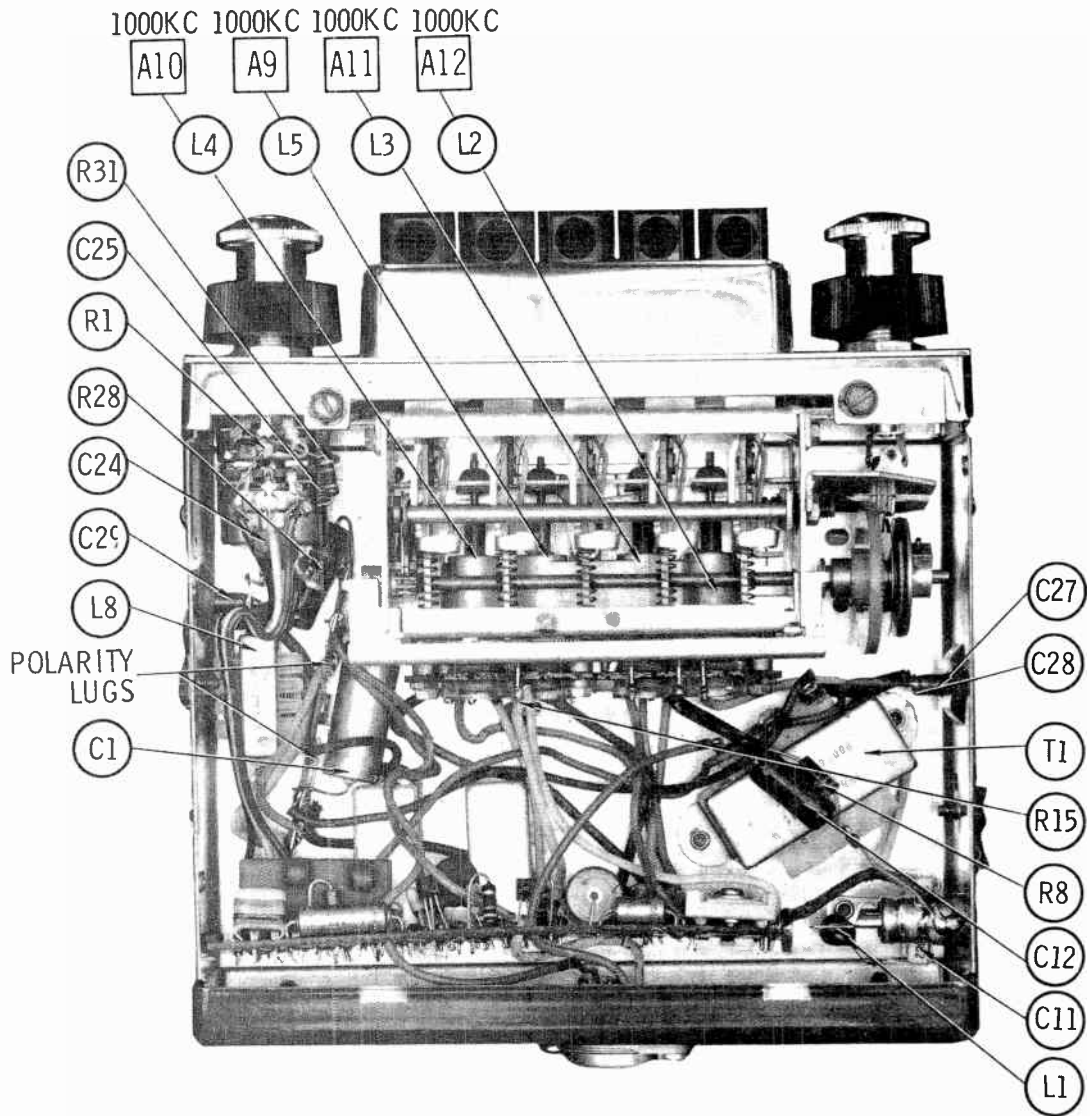
ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA					
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	Tone	100K	18C64334B01	F2-100K, (2)			* QJ-2655A	P15A, (2)
B	Volume/Switch	10K		R2-10K, FFS101, RFS109, KR-4				RUI14A, OX1062, IS1562, US41

\* "Concentrikit" Equivalent K-8 Kit with Base Elements and Shafts; B13-128, P22-103 (Panel)  
B13-116, R9-115 (Rear)  
R5(1) (Retainer)  
76-1 (Switch)

(1) Cut off tab ears (R5) and use original spring mounting clips.

(2) Use original spring mounting clips.

( CONTINUED ON PAGE 90 )



## 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	RF Choke (1.8uh)	24C64003B02	19-1001	74F186AP	T810
L2	1st Antenna	(1)			
L3	2nd Antenna	(1)			
L4	RF	(1)			
L5	Oscillator	(1)			
L6	Input IF	24C64282B01		8009	
L7	Output IF	24C64282B02		8010	

(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.	
L8	775ma	.4	5MH	25C64172A12	C4095	TC-2	TR-157	TY17XT	

### 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	18 Tap @	8	25D64129A01					

### SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				PART No.	QUAM PART No.	
SP1	5" x 7"	PM	8 ohms	50C64137A01	57A15Z8	

### 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	1V64964A32	RGAS	HAF	301005	150145	

### MISCELLANEOUS

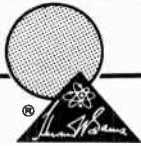
ITEM No.	PART NAME	PART No.	NOTES
M1	Tuner Coil Assembly	77U42901303 1V42200B67	ATS-707

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

ITEM	PART No.	ITEM	PART No.
Escutcheon	13D64323B01	Dial Glass	34B64342B01
Knob, Tuning or Volume	36C64336B01	Dial Pointer	52B42479B14
Knob, Tone	36B544812	Push Button	38B42185B01
Knob, Dummy	36K544813		

### 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<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index



NIVICO MODEL 1310  
(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.

NIVICO MODEL 1310

## 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.

## 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.

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

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TQ770

## TROUBLE CHART

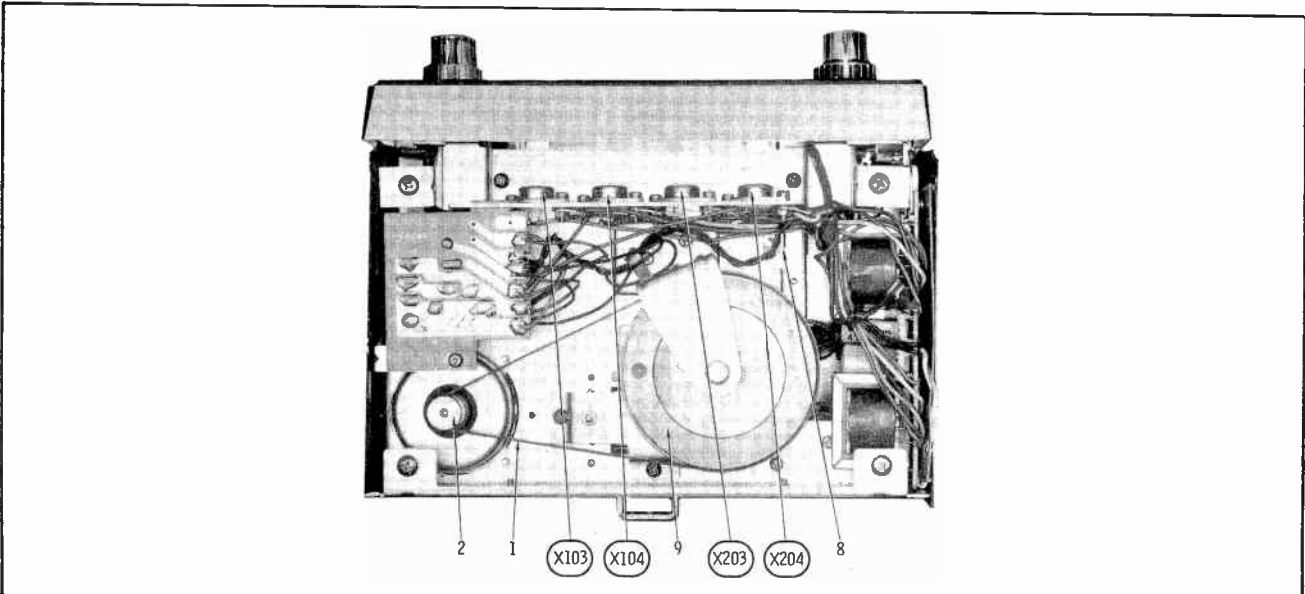
SYMPTOM	REMARKS
Capstan does not rotate.	Belt (1) dirty, worn, or broken. Assembly (10) binding. Motor defective or not supplied with power.
Track-Shift mechanism inoperative.	Switch (S2) dirty. Cam (3) binding or worn. Pin on Bracket (13) worn. Spring in Bracket (13) broken. Solenoid (M3) defective or not supplied with power. Cartridge defective.
Wow or Flutter.	Belt (1) dirty or worn. Capstan dirty or binding. Cartridge defective. Motor 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.

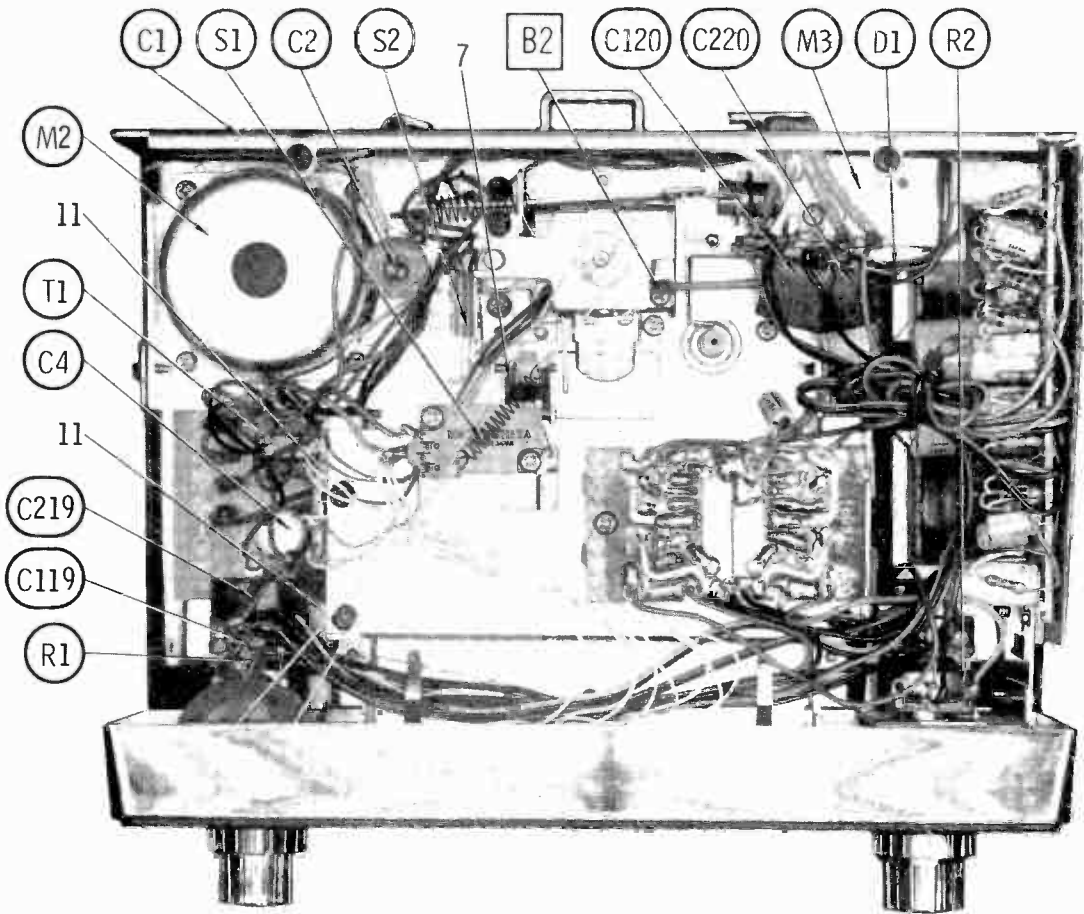
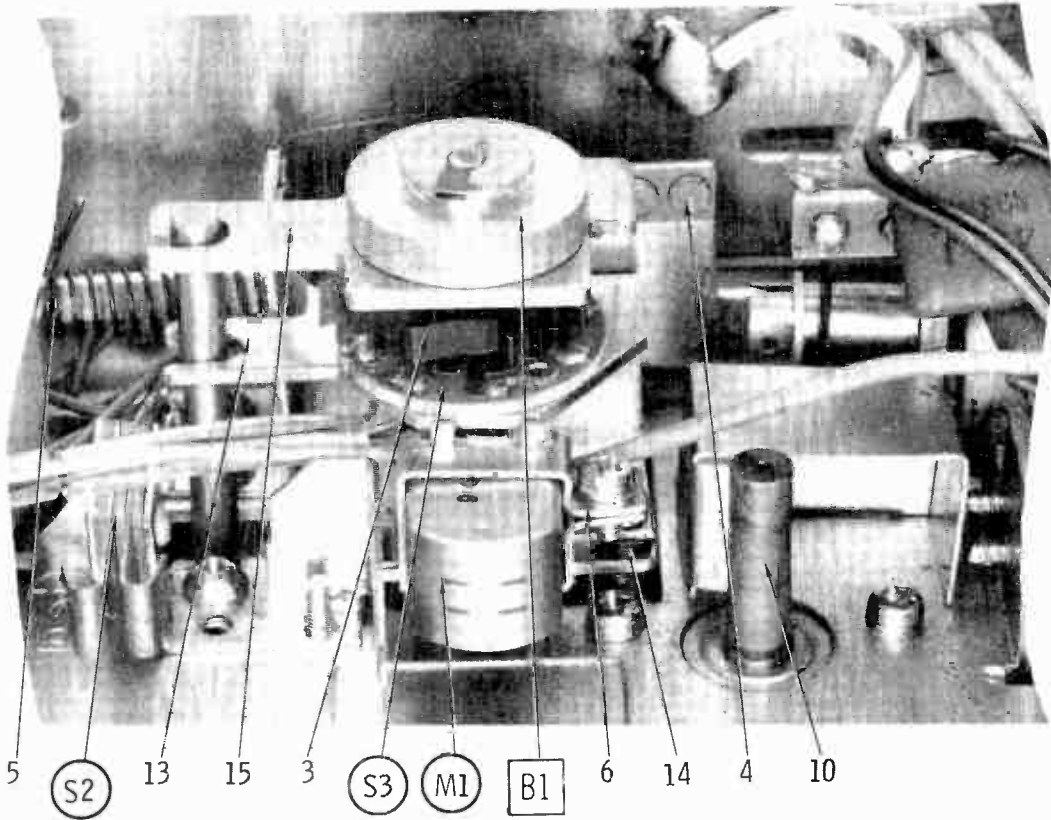
## ADJUSTMENTS

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.

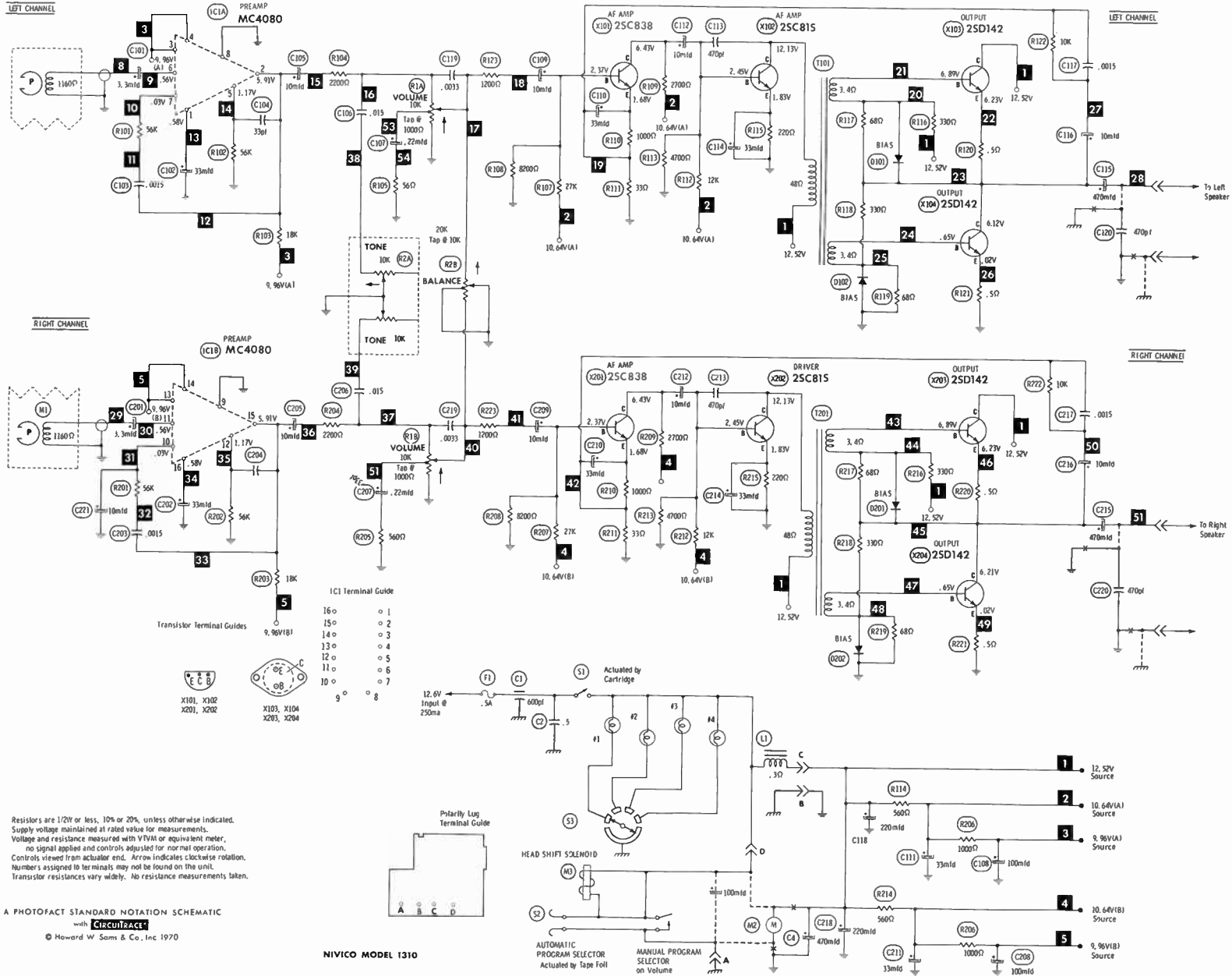
## MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1		Drive Belt	9		Flywheel
2		Motor Pulley	10		Capstan Housing Assembly
3		Track Changing Cam	11		Cartridge Roller (2 used)
4		Track Change Arm	12		Spring
5		Track Change Arm Spring	13		Track Change Bracket
6		Head Mounting Arm	14		Azimuth Spring
7		Switch Actuator	15		Height Bracket
8		Cartridge Lock Arm			





NOTE: DEMAGNETIZE HEADS AFTER SERVICING

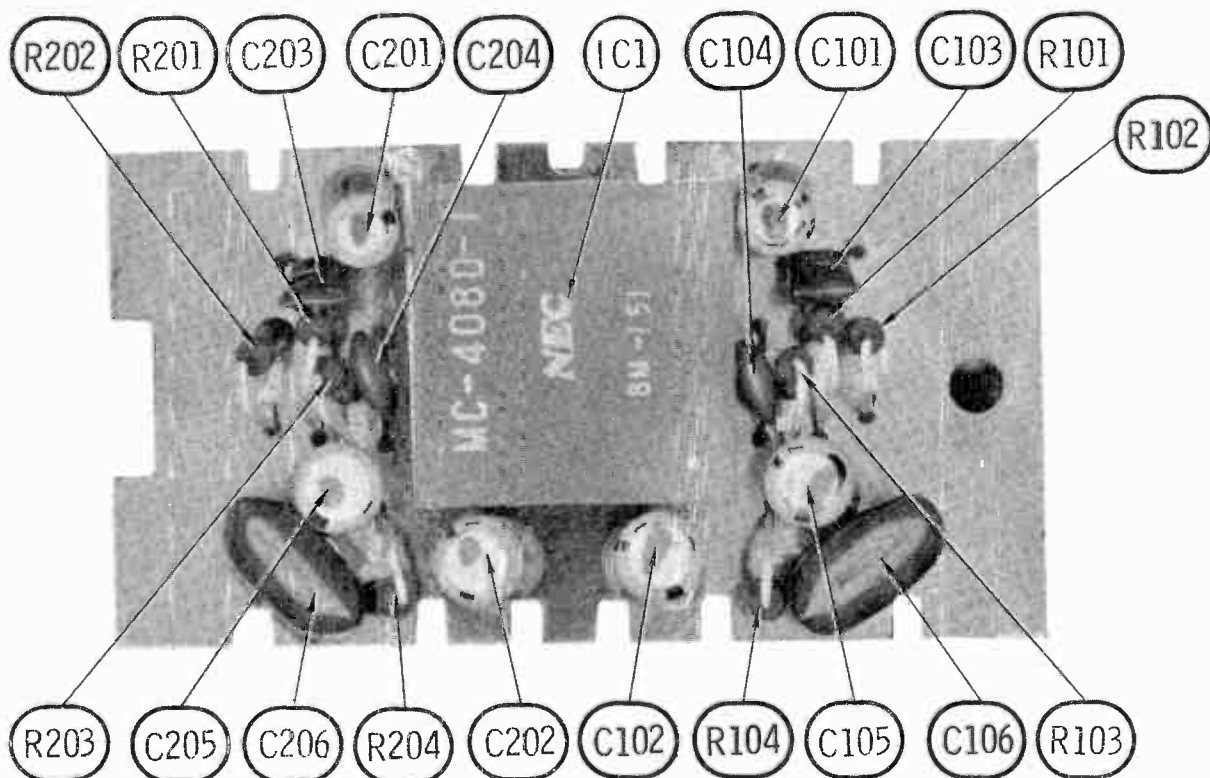
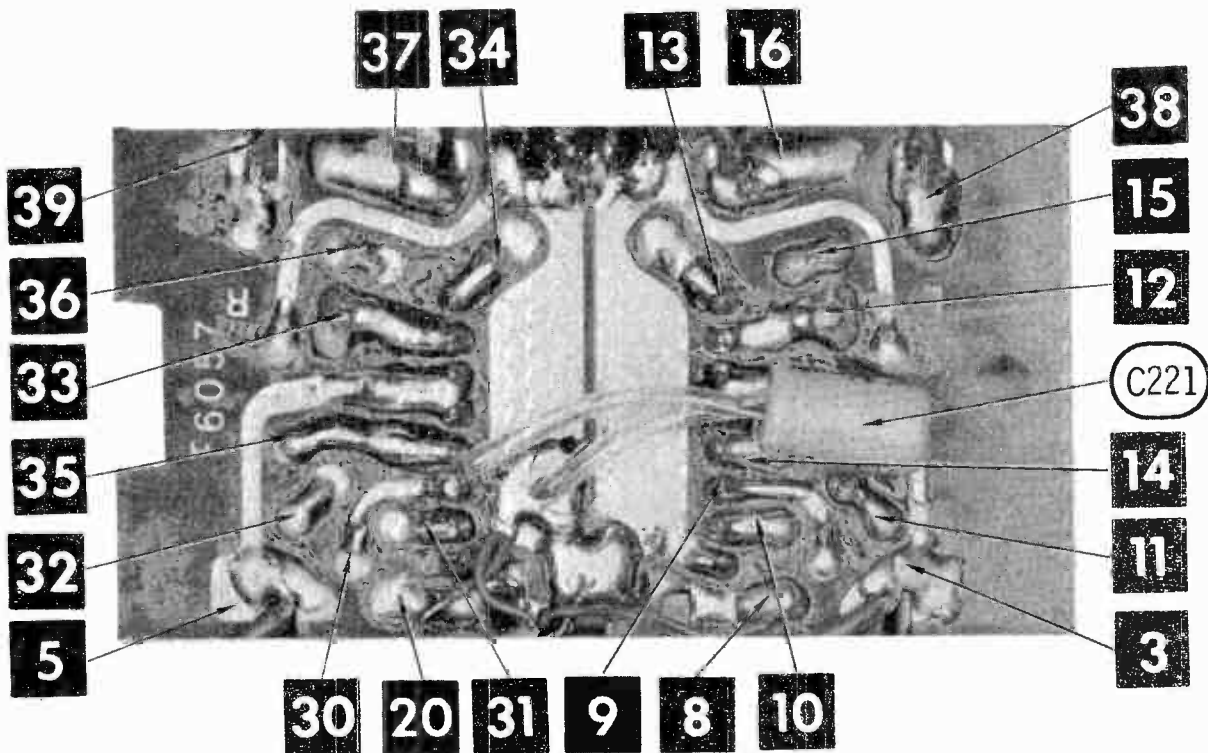


Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated. Supply voltage maintained at rated value for measurements. Voltage and resistance measured with VIVA or equivalent meter, no signal applied and controls adjusted for normal operation. Controls viewed from actuator end. Arrow indicates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

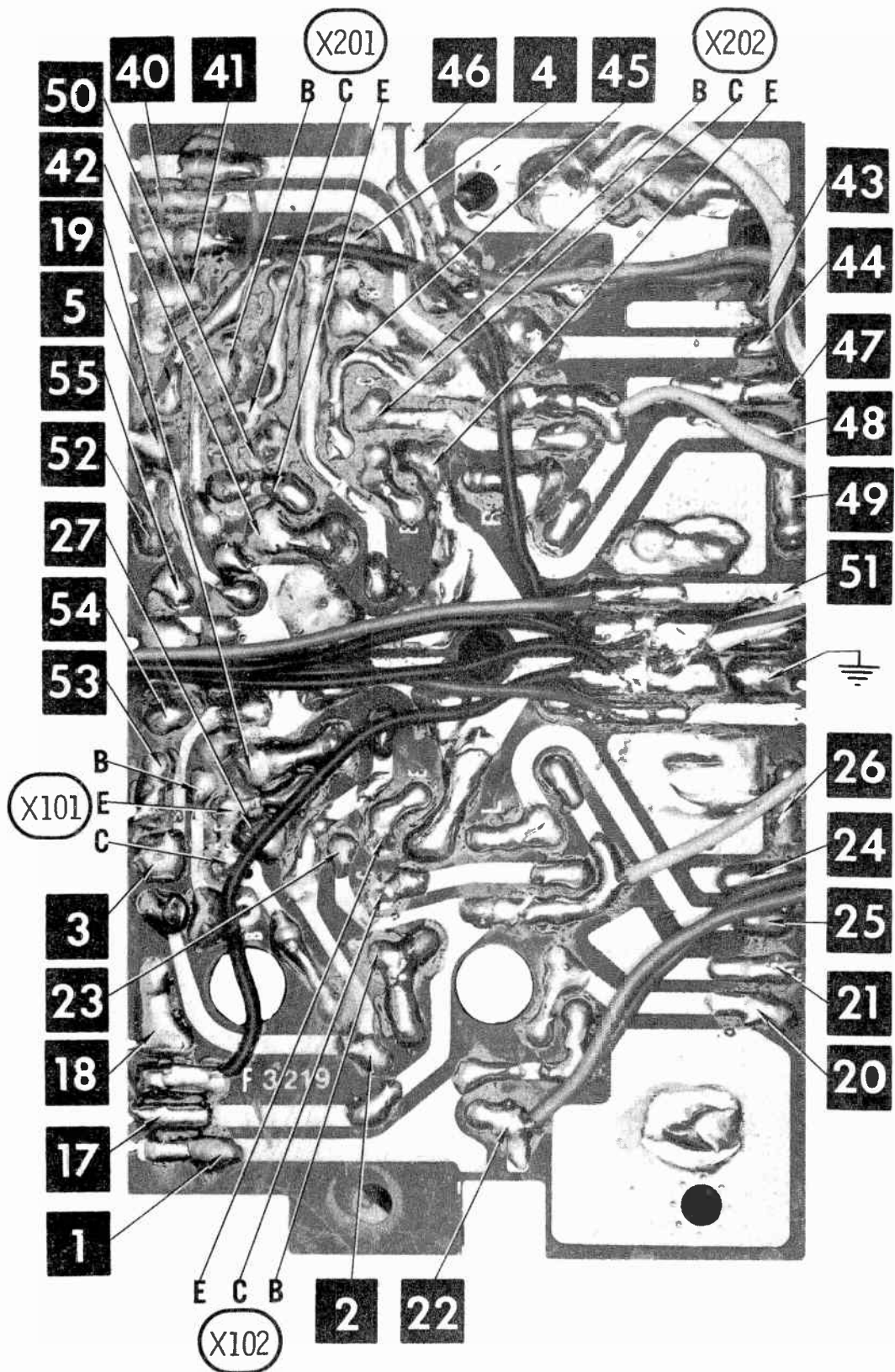
A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CIRCUITRACE** © Howard W. Sams & Co., Inc. 1970

NIVICO MODEL 1310

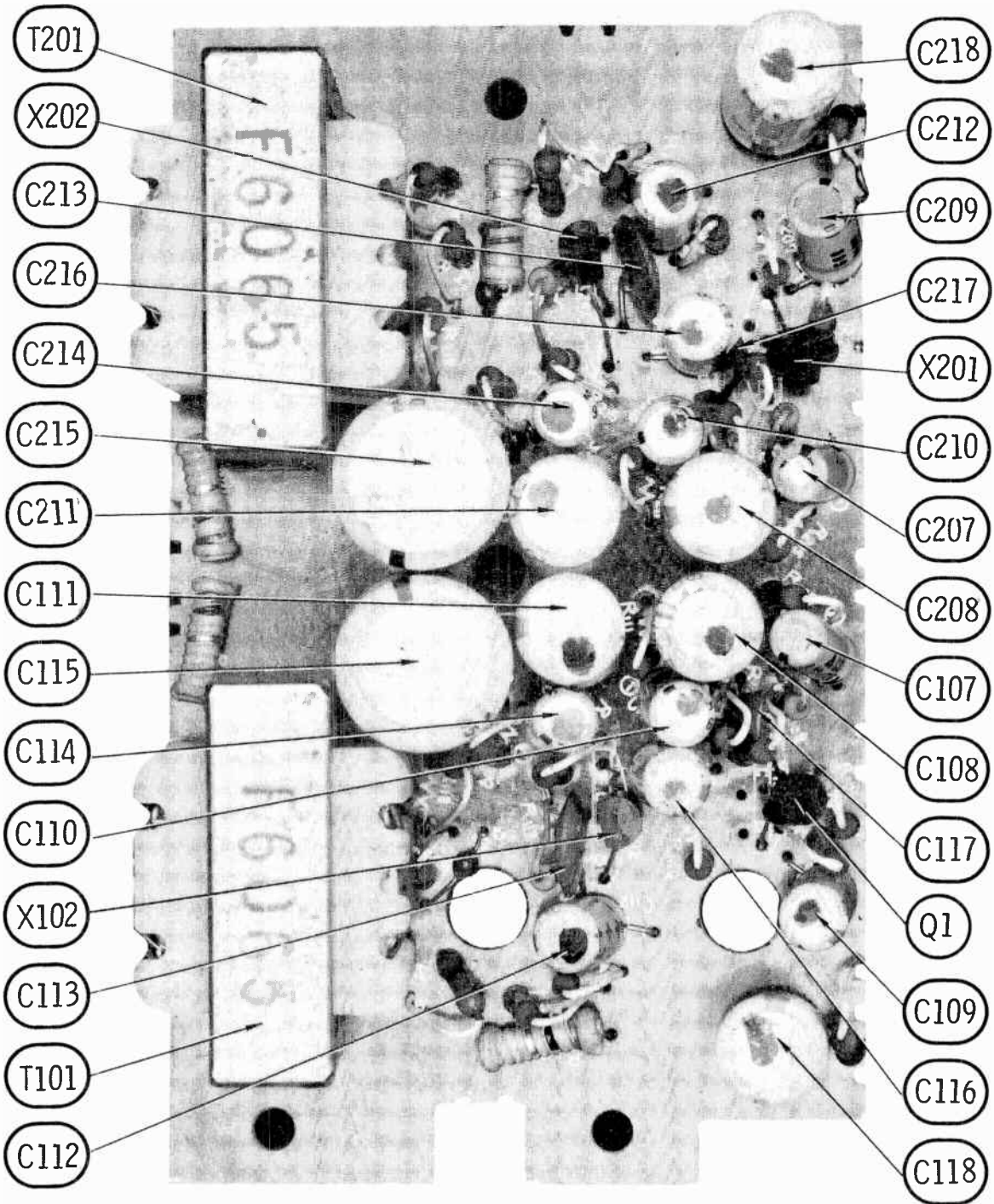


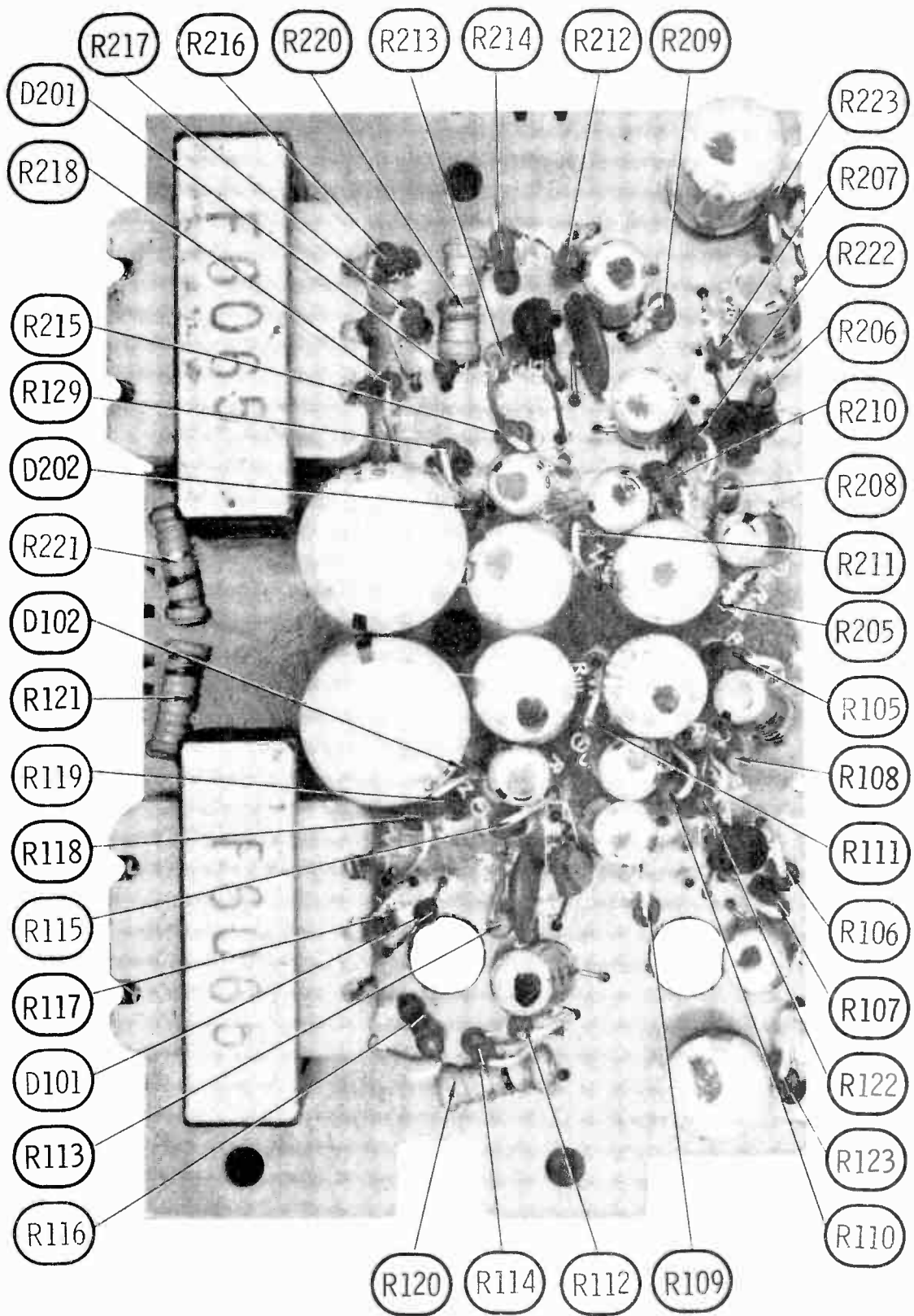


NIVICO MODEL 1310



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<sup>®</sup> 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.
X101	2SC838	AF Amp		GE-10	TR-21	HEP728	SK3020	ECG 123
X102	2SC815	Driver		GE-10	TR-21	HEP728	SK3020	ECG 123
X103	2SD142	Output (1)		GE-24mp*	TR-23	HEP703	SK3028*	ECG 124
X104	2S0142	Output (1)			TR-23	HEP703		ECG 124
X201	2SC838	AF Amp		GE-10	TR-21	HEP728	SK3020	ECG 123
X202	2SC815	Driver		GE-10	TR-21		SK3020	ECG 123
X203	2S0142	Output (1)			TR-23			ECG 124
X204	2SD142	Output (1)		GE-24mp	TR-23		SK3028	ECG 124

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

## INTEGRATED CIRCUITS

ITEM No.	FUNCTION	MFGR. PART No.	REMARKS
IC1	Preamp	MC-4080-1	

## 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.	
D1		GE-504A	804 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
D101		GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
O201		GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	

## 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.
C4	470 16V		BCD15500	EA15-500	PC500-16	QT1-30A	MTV500DN15	TL-1166
C101	3.3 16V		BCD50003	EP30-2	PC5-100	MT1-3	MTV3C850	TL-1302
C102	33 6.3		BCD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C105	10 16V		BCD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C107	.22 25V							
C108	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C109	10 16V		BCD2501C	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C110	33 6.3V		BCD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C111	220 16V		8CD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C112	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C114	33 6.3		8CD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C115	470 16V		8CD15500	EA15-500	PC500-16	QT1-30A	MTV500DN15	TL-1166
C116	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C118	220 16V		8CD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C201	3.3 16V		8CD50003	EP30-2	PC5-100	MT1-3	MTV3C850	TL-1302
C202	33 6.3V		8CD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C205	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C207	.22 25V							
C208	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C209	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C210	33 6.3V		BCD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C211	220 16V		8CD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C212	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C214	33 6.3		BCD15025	EP6-25	PC30-35	MT1-13	MTV30C825	TE-1132.1
C215	470 16V		BCD15500	EA15-500	PC500-16	QT1-30A	MTV500DN15	TL-1166
C216	10 16V		8CD25010	EP15-10	PC10-50	MT1-5	MTV10CB50	TE-1155
C218	220 16V		8CD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164

NIVICO MODEL 1310

## 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.
C1	600		DBE2P47		DPMS2P5	10P-4-504	PVC105	2PS-P50
C2	.5		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C103	.0015		NPO-DI 33	DTZ-33	NP033	CCT0-330	CN0433	10TCC-Q33
C104	33		TTP-01	CK-103	MGP01	CCD-103	TA110	T6-S10
C106	.015		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C113	470		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C117	.0015		GPD X5R332K	DD-332	GP3300	CCD-332	JF233	2SS-D33
C119	.0033		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C120	470		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C203	.0015		NPO-DI 33	DTZ-33	NP033	CCT0-330	CN0433	10TCC-Q33
C204	33		TTP-01	CK-103	MGP01	CCD-103	TA110	T6-S10
C206	.015		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C213	470		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C217	.0015		GPD X5R332K	DD-332	GP3300	CCD-332	JF233	2SS-D33
C219	.0033		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C220	470							

### 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	Volume, Left	10K Tap @ 1000					
B	Volume, Right Track Selector Switch	10K Tap @ 1000					
R2A	Tone	10K					
B	Balance	20K Tap @ 10K					

### 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.	
T1	250ma	.3	5MH						

### 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.	
T101	3	1	1						
T201	3	1	1						

### 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	.5 Amp			AGC 1/2	H0J	312.500	150145		

### TAPE HEADS

ITEM No.	MEASURED			PART No.	NORTRONICS PART No.	DESCRIPTION
	INDUCTANCE	BIAS/ERASE VOLTS (RMS)	BIAS FREQ.			
M1	400mh				5800 (1)	8-Track Stereo Play (1) Use original mounting.

### MISCELLANEOUS

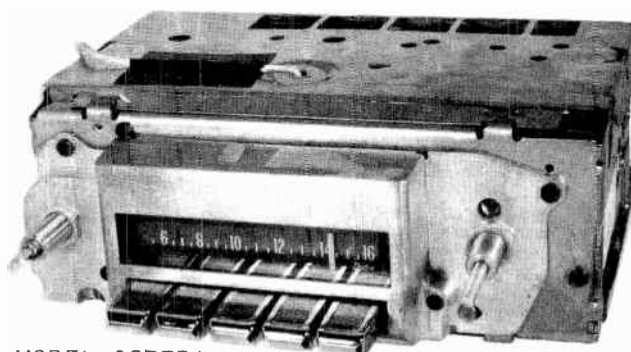
ITEM No.	PART NAME	PART No.	NOTES
M2	Motor		
M3	Solenoid		
S1	Switch, Power		
S2	Switch, Automatic		
S3	Program Selector Switch, Program Indicator Selector		



# PHOTOFACT<sup>®</sup> with CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index

NOTE: Manufacturer Part Numbers Shown Are UNITED DELCO



MODEL 02BPB1

PONTIAC MODELS 02BPB1  
02BPBK1  
(70-Pontiac)  
02GPB1  
02GPBK1  
(70-Grand Prix)

PONTIAC MODELS 02BPB1/BPBK1, 02GPB1/GPBK1

## 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.

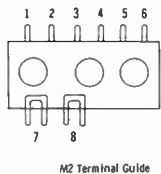
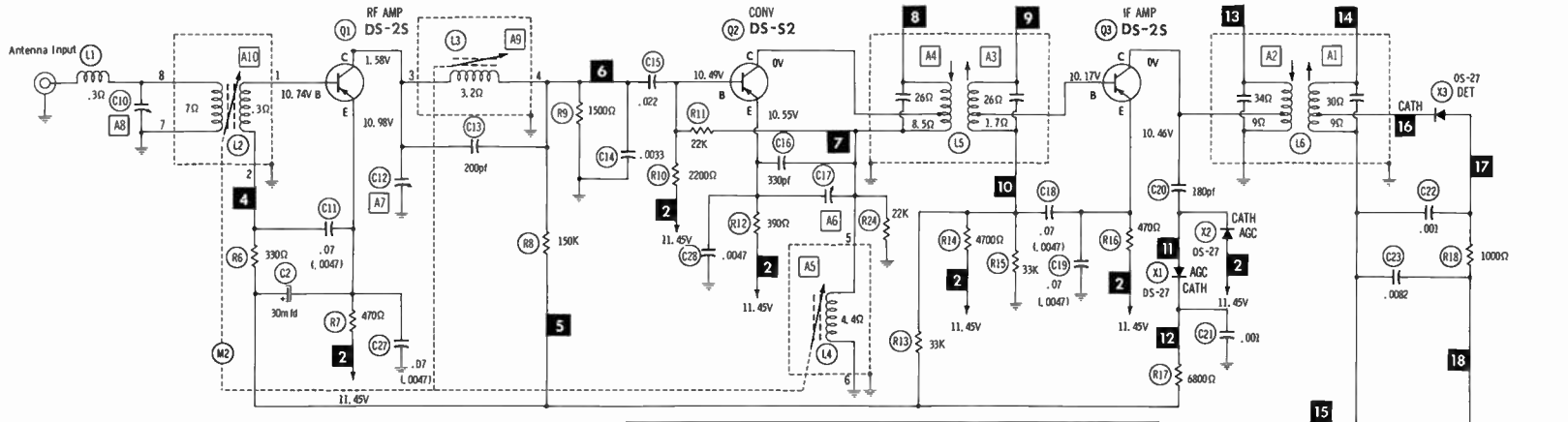
	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to point $\Delta$ , low side to ground.	262KC 400 cycle modulation	High freq. end stop.	Output meter across voice coil.	A1,A2, A3,A4	Adjust for maximum.
Check setting of oscillator coil core (A5). 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.

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

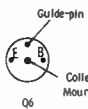
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TD700R

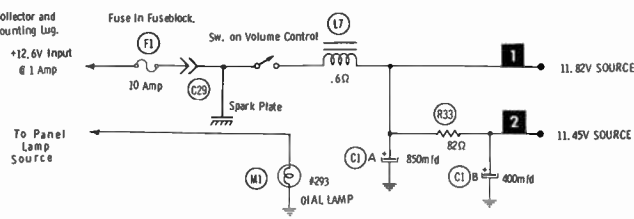
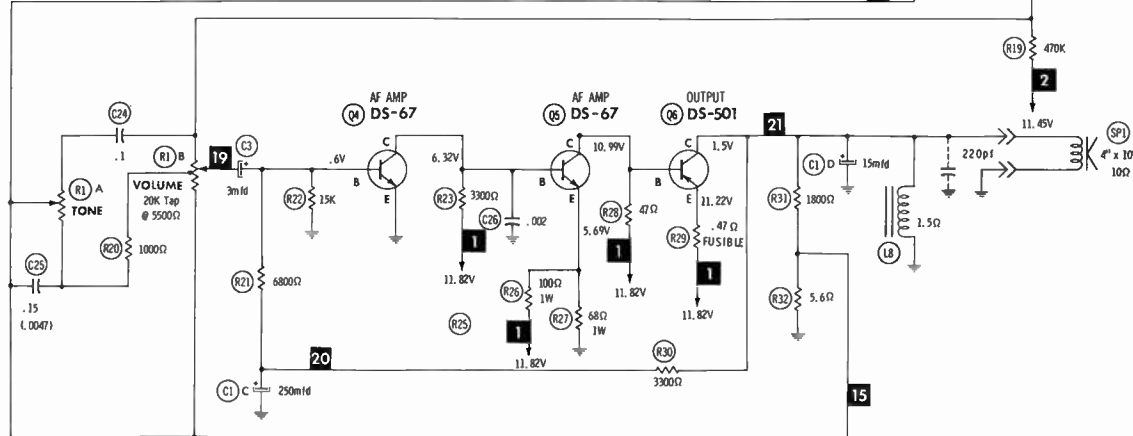


Resistors are 1/2 watt or less and rated 10% or 20% unless otherwise indicated.

Transistor Terminal Guide



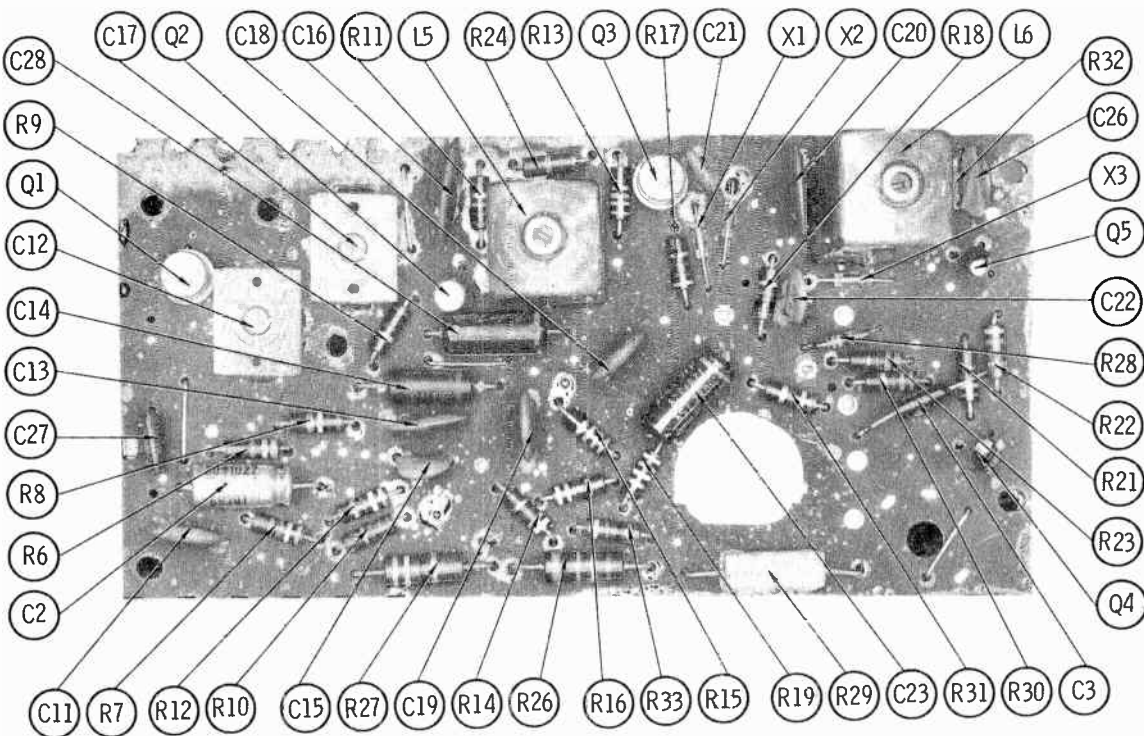
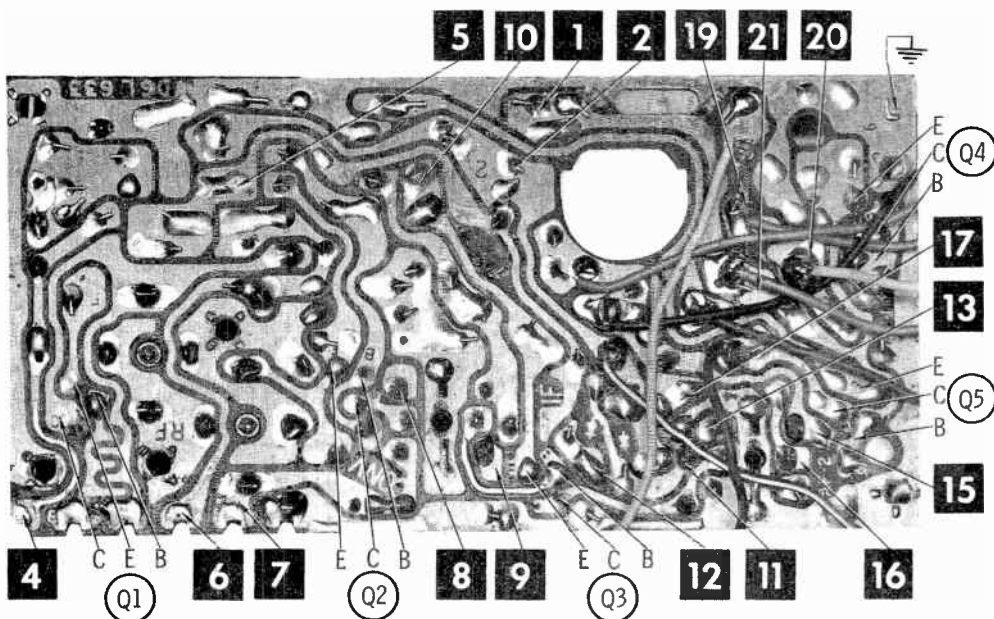
- ⊙ See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise 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 v<sub>pk-pk</sub> signal at picture tube.



A PHOTOFAC STANDARD NOTATION SCHEMATIC  
with **CIRCUITRACE**  
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**PONTIAC MODELS O2BPB1/BPBK1, O2GPB1/GPBK1**





PONTIAC MODELS 02BPB1/BPBK1, 02GPB1/GPBK1

## 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<sup>®</sup> 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-25	RF Amp	DS-25	GE-9	TR-14	HEP2	SK3006	ECG 126
Q2	DS-52	Converter	DS-25	GE-9	TR-14	HEP2	SK3006	ECG 126
Q3	DS-25	IF Amp	DS-25	GE-9	TR-14	HEP2	SK3006	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-501	Output *	DS-501	GE-4	TR-03	HEP231	SK3012	ECG 105

\* 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						
		DELCO 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	7311993			000009A			
B	400 16V							
C	250 2V							
D	15 11.5Vrms							
C2	30 6V	7296313	BCD15025	EP15-25	PC30-35	MT1-13.5	MTV30CB25	TE-1132.1
C3	3 12V	7296348	PTT127	EA15-2	AL3-150	MT1-3	MTA3050	TE-1122

### 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.
C10	.07	#7294355						
C11		#7287935						
C12								
C13	200 N750		N750-01 200	OTN-200	N220	CCTN-201	CN7201	10TCU-T20
C14	.0033 75V		DBE6033	CPR-3300J	6033	60P-1-332	PVC6233	6PS-033
C15	.022		V1612522		DPMS6522	10P-1-223	PVC1122	225P2231W03
C16	330 N180	#7282165				*	*	
C17								
C18	.07							
C19	.07							
C20	180 N80							
C21	.001		GPD X5F102K	DM-102	GP1000	*	*	
C22	.001		GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-010
C23	.0082 75V		DBE6082	CPR-8200J	6082	60P-2-822	PVC6282	2SS-010
C24	.1		TTP-1	CK-104			TA010	6PS-082
C25	.15 75V		DBE6P15		DPMS4P15	40P-4-154	GPV6015	TG-P10
C26	.002		GPD X5F202K	DM-202	GP2000	CCD-202	GP220	4PS-P15
C27	.07							2SS-020
C28	.0047 75V		DBE605	CPR-5000J	DPMS605	10P-1-502	PVC625	
C29		#7271564						6PS-050

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

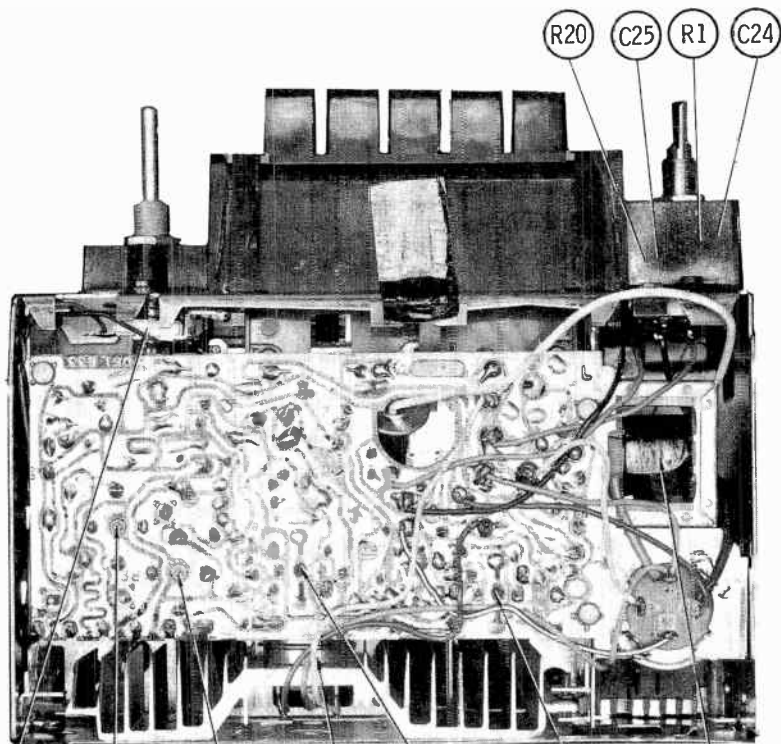
### CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	100K	7307366 (1)	F1-100K, R14-25K, BB102, SB004, FFS106, RFS114, KR-4		* QJ-2636A	P15L, SH4250, 4118, RU253T53, OX1187, IS1750, US41
B	Volume/Switch	20K Tap @ 5500					
A	Tone	100K	7308960 (2)	F1-100K, R14-25K, BB104, SB004, FFS108, RFS200, KR-4		** QJ-2637A	P15L, SH4250, 4114, RU253T53, OX1437, IS1937, US41
B	Volume/Switch	20K Tap @ 5500					
R2	Fader	100 2 Watt	7312914 (3)				
	Fader	100 2 Watt	7312911 (4)				

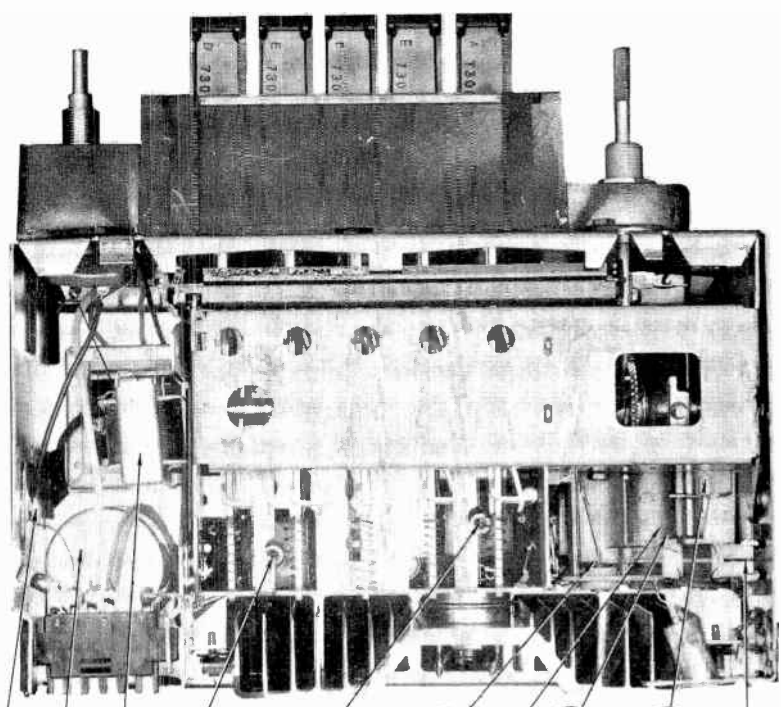
\* "Concentrikit" Equivalent K-8 Kit with Base Elements and Shafts; B11-128, P22-109 (Panel)  
B19-119X, R16-118 (Rear)  
S51 (5) (Bushing)  
N4 (Nut)  
76-1 (Switch)

"SNAPTROL" Equivalent BUB, (5) CF13, CR50T, SF9, SR9, N4, GC

( CONTINUED ON PAGE 106 )



- C10  
A8  
 1615KC
- A7  
 1615KC
- A6  
 1615KC
- Q6
- A4  
 262KC
- A2  
 262KC
- L8



- C29
- C1
- L8
- A1  
 262KC
- A3  
 262KC
- A5
- L4
- M2
- A9
- L3
- L2
- A10
- L1

## 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 (cont)

\*\* "Concentrikit" Equivalent K-8 Kit with Base Elements and Shafts; 811-128, P17-112 (Panel)  
819-119X, R1-127  
S51 (Bushing)  
N4 (Nut)  
76-1 (Switch)

"SNAPTROL" Equivalent 8U8, (5) CF13, CR50T, SF10, SR10, N4, GC

- (1) Used in Models 028P81 and 028P8K1.
- (2) Used in Models 02GP81 and 02GP8K1.
- (3) Used in Model 028P8K1.
- (4) Used in Model 02GP8K1.
- (5) Alter Bushing and Adjust Spacer Nut (N4) to meet requirements.

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.			IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R29	.47			7281890					

### COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke	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 M2.

### FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (O CURRENT 1000~)	PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L7	1 Amp	.6	8mh	1221623	C-4095	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.	
L8	30mh	1222297					

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		PART No.	QUAM PART No.		
SP1	4" x 10" PM 10 ohms 4" x 10" PM 10 ohms	7312972	410A210	Model 02BPB1, 028P8K1 Model 02GPB1, 02GP8K1	

### 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			AGC 10		311010			

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1 M2	Dial Lamp Tuner Coil Assembly	7287957	#293

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

ITEM	PART No.	ITEM	PART No.
Escutcheon	7311549	Knob, Tuning or Volume	9794856
Dial Glass	7307457	Knob, Tone	9791115
Dial Pointer	7308230	Knob, Dummy	9784349
Push Button	7307451		

### WIRING DATA

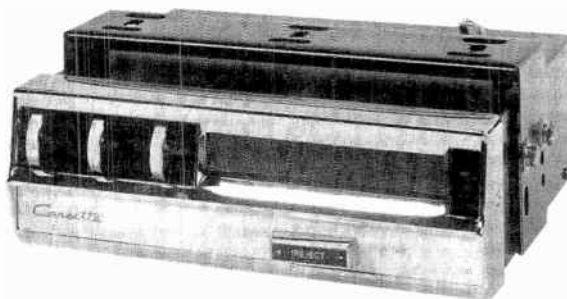
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530	(Solid) Available in 12 Colors
	8524	(Stranded) Available in 12 Colors
Shielded Hook-up Wire	Use BELDEN No. 8885	
Rear Seat Speaker Extension Cable	Use BELDEN No. 8782	(Stranded) Coded Parallel Leads
Bonding Strap	Use BELDEN No. 8661	(3/8 In.) or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



# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

For Supplier Address See PHOTOFACT Index



RANGER MODEL R-100-C  
R-100-C2  
R-100-C4  
(4-Track Tape Player)

## OPERATING INSTRUCTIONS

Insert cartridge until it locks and turns unit on.

Set operating controls as desired.

The cartridge will automatically eject at the end of the tape and turn the unit off.

Press the Reject button to eject the cassette and turn the unit off manually.

## 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.

RANGER MODELS R-100-C/-C2/-C4

## ADJUSTMENTS

1. All voltage measurements referred to in this chart are made at a tape speed of 1 7/8 ips with an audio VTVM having a flat response to 100KC.
2. All torque measurements are made at a tape speed of 1 7/8 ips with a spring scale applied to a point 1 inch from spindle center.
3. All pressure measurements are made by using a spring scale to determine that point at which pressure is just removed.

ADJUST	REMARKS
Play Take-up Torque	Nominal value 1/2 oz. Controlled by tension of Spring (18).
Fast Forward Take-up Torque	Nominal value 1/2 oz. Controlled by condition of rubber parts in drive train.
Rewind Torque	Nominal value 1 oz. Controlled by condition of rubber parts in drive train.
Pressure Roller Pressure	Nominal value 10 oz. Controlled by moving Spring (8) from hole to hole.
Play Head Azimuth	Connect an AC VTVM across left output, play an azimuth-test tape, and adjust B1 for maximum output.

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

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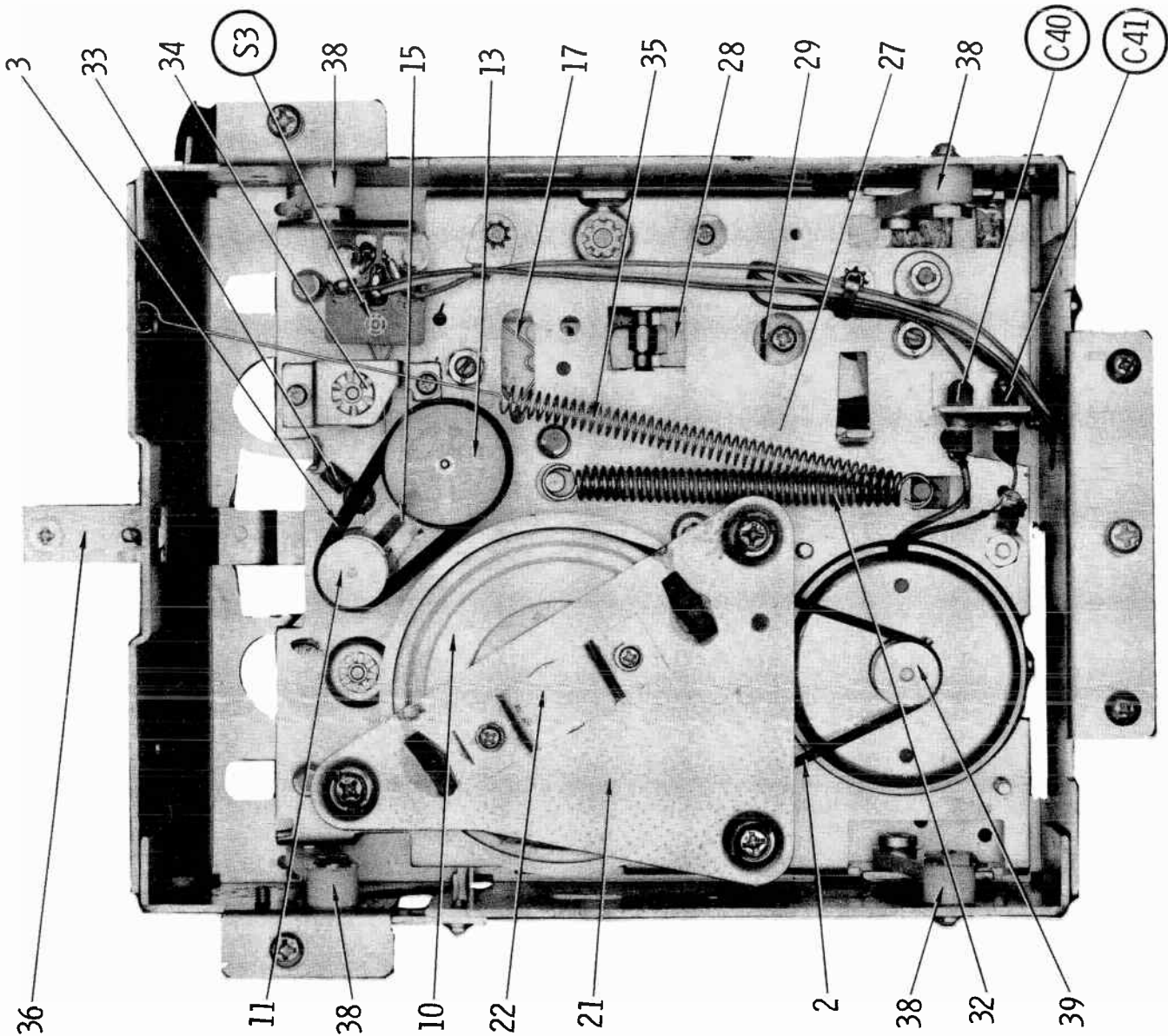
TQ772

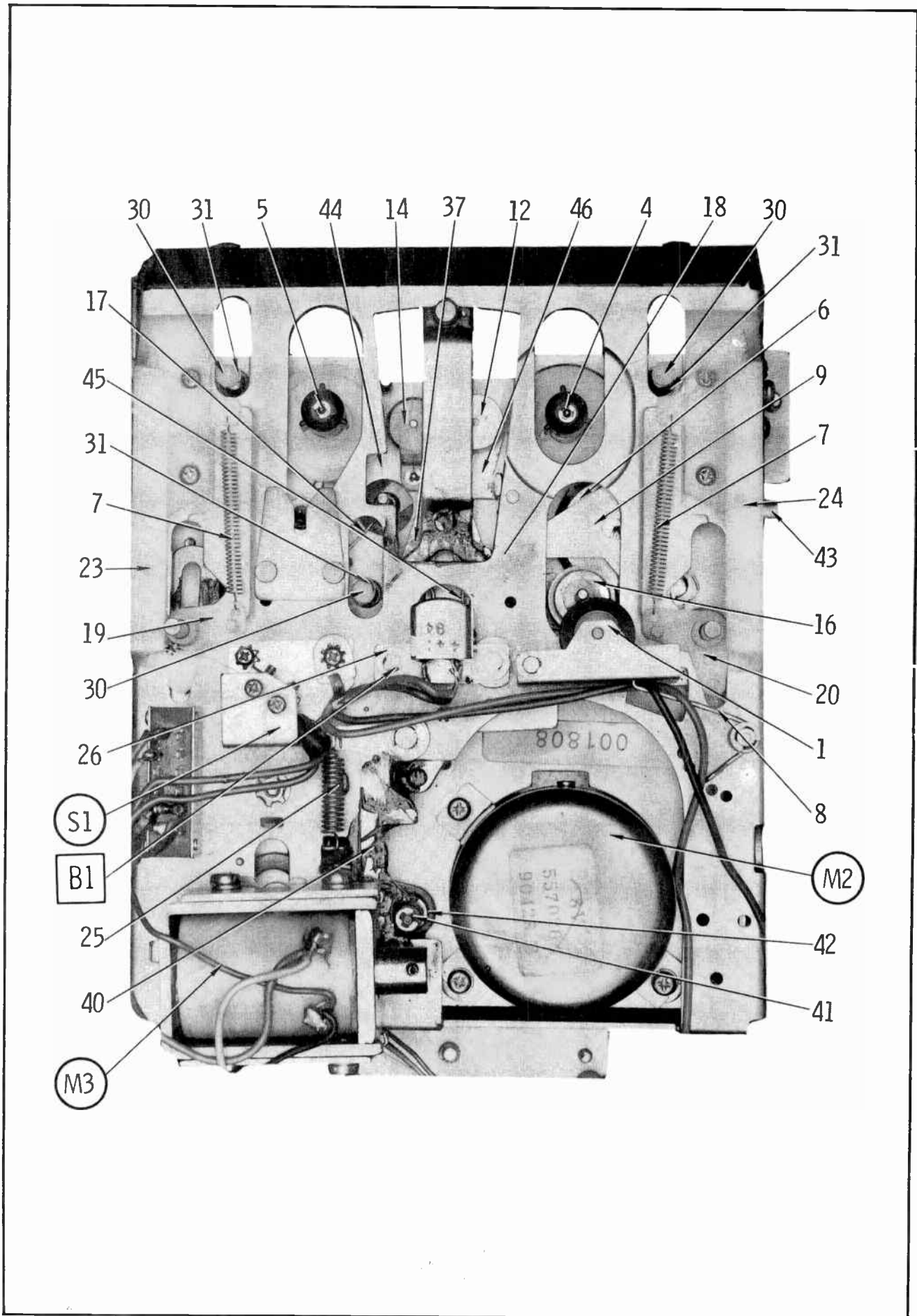
## TROUBLE CHART

SYMPTOM	REMARKS
Take-up erratic or inoperative in Play or Record.	Spring (18) misadjusted. Spindle (4) binding. Idler (6) dirty, worn, or binding. Plate (9) binding.
Take-up erratic or inoperative in Fast Forward.	Spindle (4) dirty, worn, or binding. Idler (12) dirty or binding. Belt (3) dirty or broken. Idler (13) dirty, worn, or binding.
Rewind erratic or inoperative.	Spindle (5) dirty, worn, or binding. Idler (14) dirty, worn, or binding. Idler (12) dirty, worn, or binding. Idler (13) dirty, worn, or binding. Belt (3) dirty or broken.
Capstan does not rotate.	Belt (2) dirty, worn, or broken. Flywheel binding. Motor defective or not supplied with power.
Tape rides up and down between capstan and pressure roller.	Capstan bent. Roller (1) worn. Excessive take-up torque.
Wow or Flutter.	Roller (1) dirty or worn. Belt (2) dirty or worn. Bearing (16) binding. Cassette defective. Motor defective. Excessive take-up torque.
Sound is weak or distorted.	Play Head dirty, misadjusted, or defective. Amplifier defective. Cassette defective.

## MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	171126-009	Pressure Roller	24	171105-018	Left Cassette Guide
2	171131-009	Drive Belt	25	171156-028	Lock Lever Spring
3	171131-008	Fast Wind Belt	26	171156-029	Head Azimuth Spring
4	171126-012	Take-up Spindle	27	171156-031	Lever Spring
5	171126-013	Supply Spindle	28	171156-033	Stepper Plate Spring
6	171117-011	Take-up Idler	29	171156-032	Plate Spring
7	171156-027	Chassis Lock Arm Spring(2 used)	30	171157-002	Cassette Shifter (3 used)
8	171156-030	Pressure Roller Spring	31	171156-034	Shifter Spring (3 used)
9		Take-up Idler Plate	32	171156-035	Chassis Spring
10	171147-020	Flywheel	33	171156-037	Fast Forward Idler Spring
11	171147-019	Fast Wind Pulley	34	171156-038	Supply Spindle Drag Spring
12	171150-006	Fast Forward Idler	35	171156-040	Reject Spring
13	171117-013	Fast Wind Idler	36		Function Selector Lever
14	171126-011	Rewind Idler	37		Fast Wind Lever
15	171103-023	Fast Wind Arm Assembly	38		Chassis Swing Lever (4 used)
16	171126-010	Capstan Bearing	39		Motor Pulley
17	171156-039	Fast Wind Arm Spring	40		Chassis Lock Lever
18	171156-036	Take-up Idler Plate Spring	41		Lock Roller
19		Right Chassis Lock Arm	42		Positioning Lock Lever
20		Left Chassis Lock Arm	43		Take-up Arm
21		Flywheel Lower Bracket	44		Panel Assembly
22		Flywheel Lower Bearing	45		Fast Wind Spring
23	171105-017	Right Chassis Guide	46		Fast Wind Actuating Lever





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- [B1]
- (M2)
- (M3)



## SEQUENCE OF OPERATION

### Play

Pressing the cassette into the unit between Guides (23) and (24) pivots Arms (19) and (20) to release Assembly (44). Arms (19) and (20) press the posts on Assembly (44) to pivot Levers (38), swinging Assembly (44) upward. Arm (19) also actuates Switch (S1).

As Assembly (44) swings upward, Spindle (4), Spindle (5), and the capstan are moved into proper positions in the cassette. The capstan pinches the tape against Roller (1). Arm (43) is also released to allow Spring (18) to pivot Plate (9), pressing Idler (6) against Spindle (4) and the capstan to provide take-up torque.

Assembly (44) is locked in the up position by Lever (40) and Roller (41) until Solenoid (M3) is energized or Lever (36) is pressed in, pivoting Lever (40) to release Assembly (44).

The motor -- through Pulley (39), Belt (2), Fly-wheel (10), and Idler (6) -- drives Spindle (4).

### Fast Forward (From Play)

Moving Lever (36) to the left pivots Lever (37) against the right post on Assembly (44) to move Assembly (44) forward, moving the cassette from Roller (1) and Head (M1). Lever (37) also

pivots Spring (45) to pivot Lever (46), pressing Idler (12) against Spindle (4).

The motor -- through Pulley (39), Belt (2), Fly-wheel (10), Belt (3), Pulley (11), and Idler (12) -- drives Spindle (4).

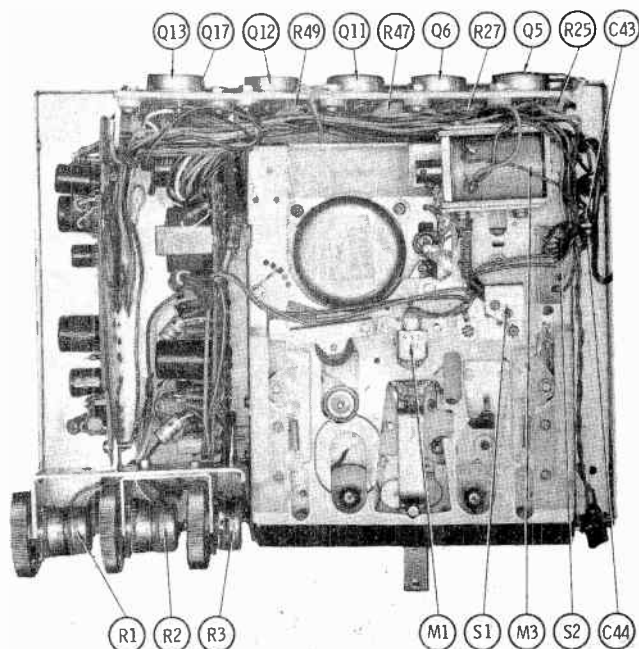
As Assembly (44) moves forward, Arm (43) is pressed against the chassis to cause Arm (43) to pivot Plate (9), moving Idler (6) from Spindle (4) and the capstan.

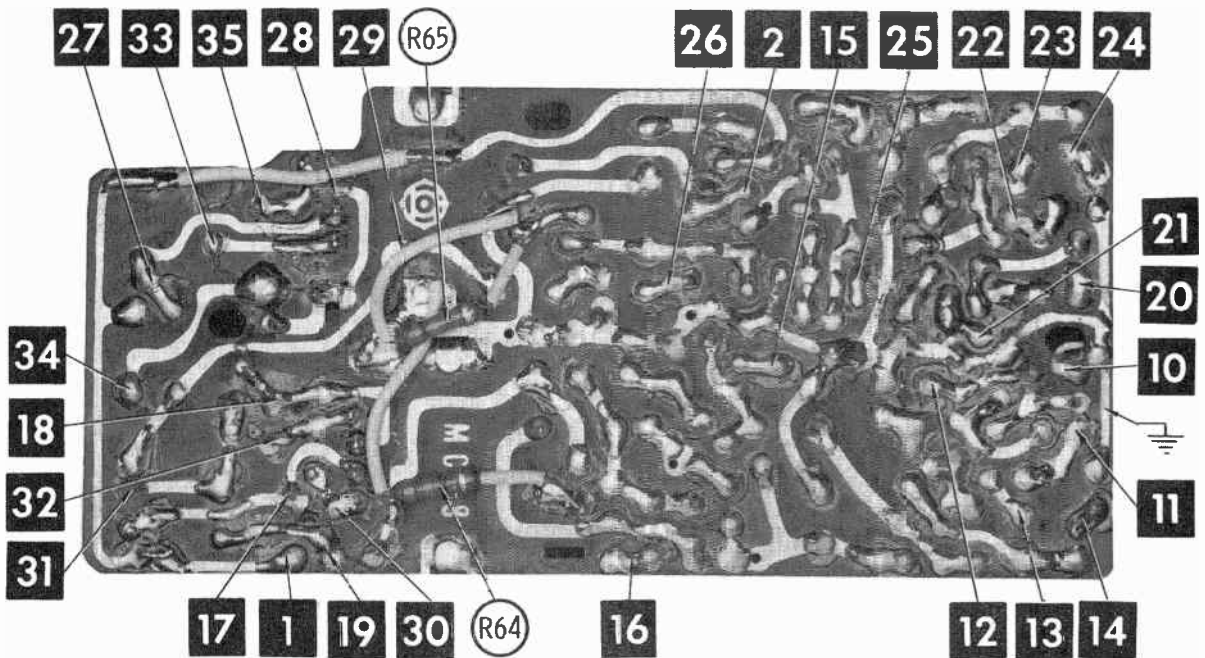
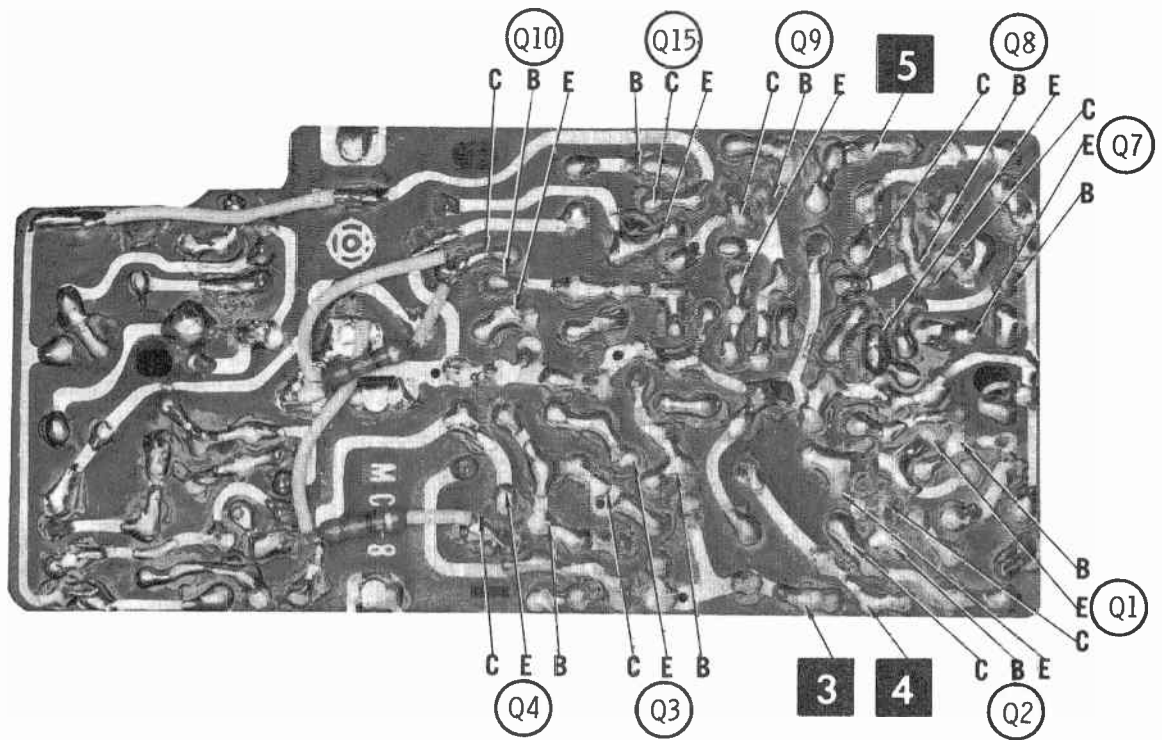
### Rewind (From Play)

Moving Lever (36) to the right pivots Lever (37) against the left post on Assembly (44) to move Assembly (44) forward, moving the cassette from Roller (1) and Head (M1). Lever (37) also pivots Spring (45) to pivot Lever (46). Lever (46) presses Idler (12) against Idler (14), pressing Idler (14) against Spindle (5).

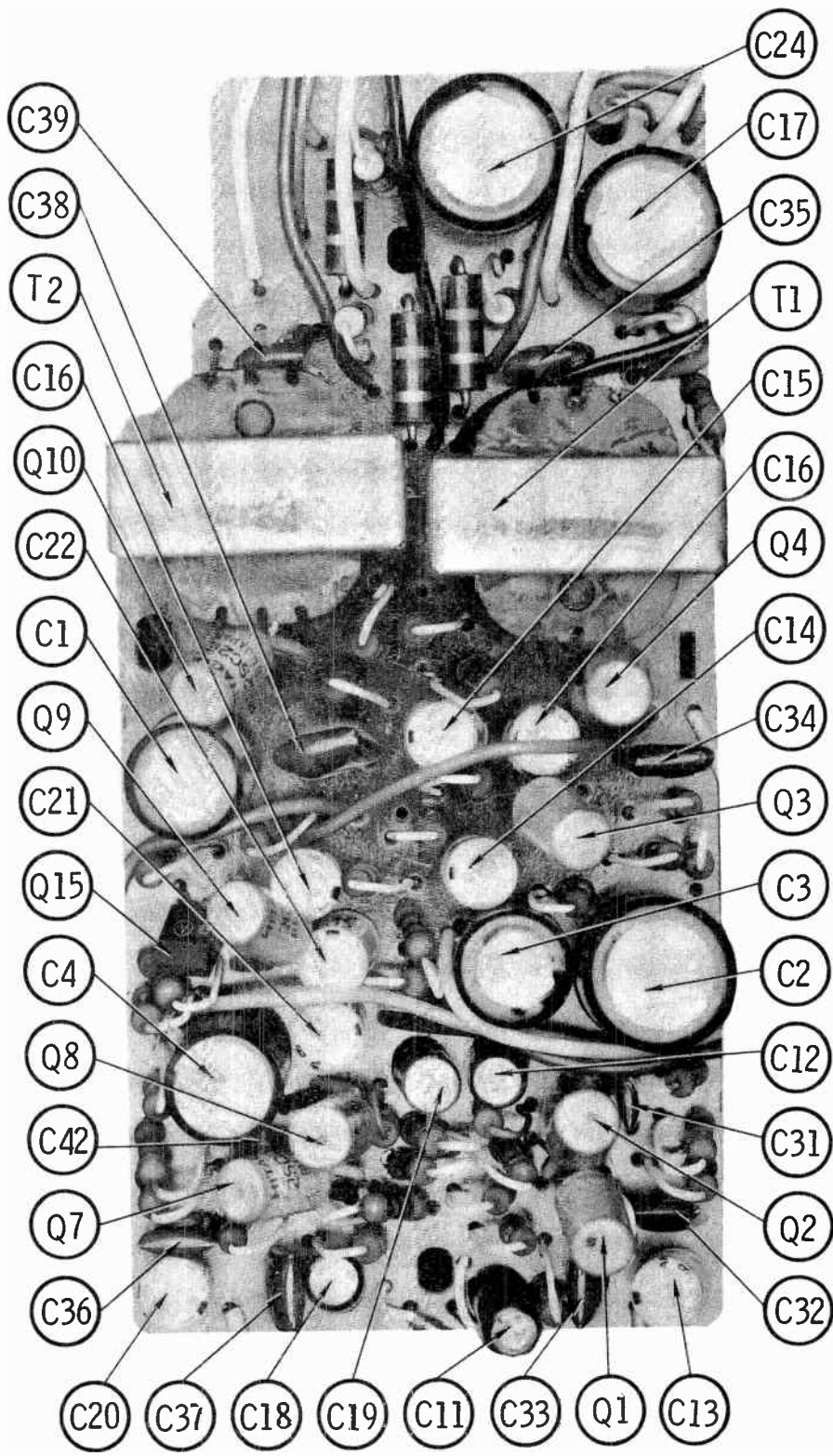
The motor -- through Pulley (39), Belt (2), Fly-wheel (10), Idler (13), Belt (3), Pulley (11), Idler (12), and Idler (14) -- drives Spindle (5).

As Assembly (44) moves forward, Arm (43) is pressed against the chassis to cause Arm (43) to pivot Plate (9), moving Idler (6) from Spindle (4) and the capstan.

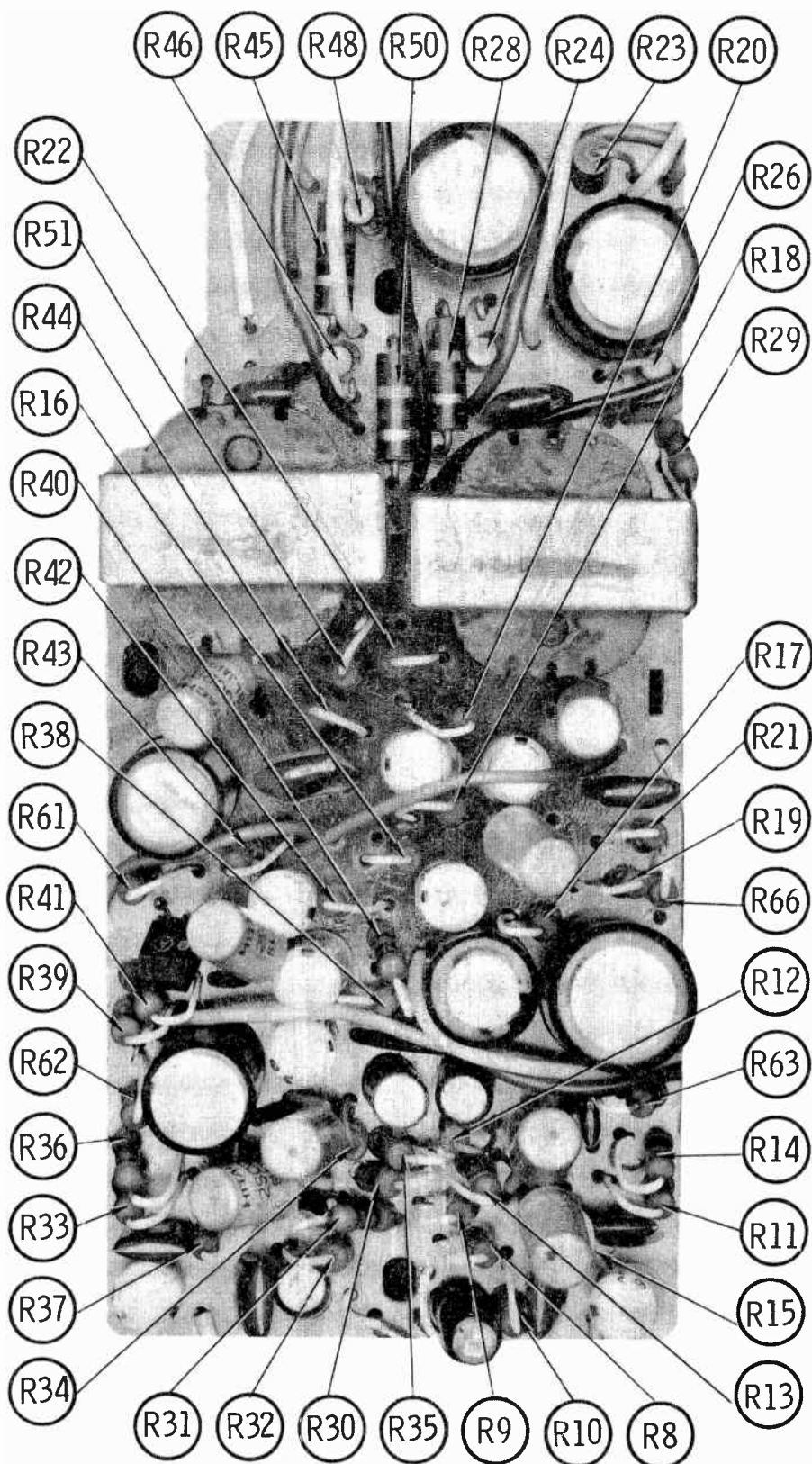


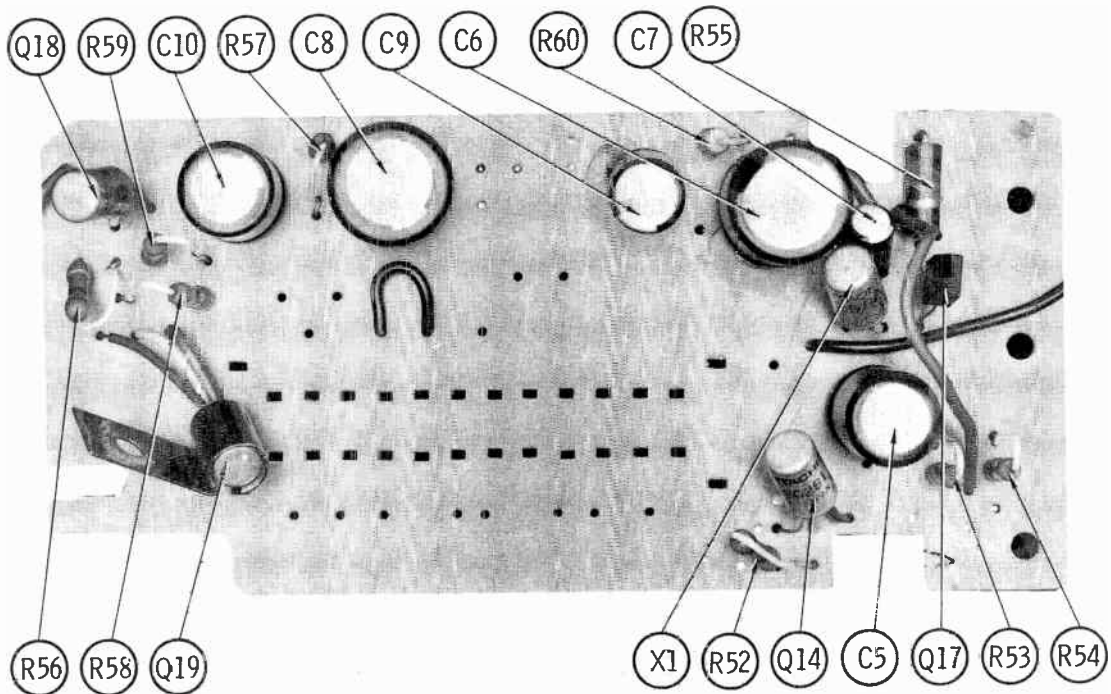
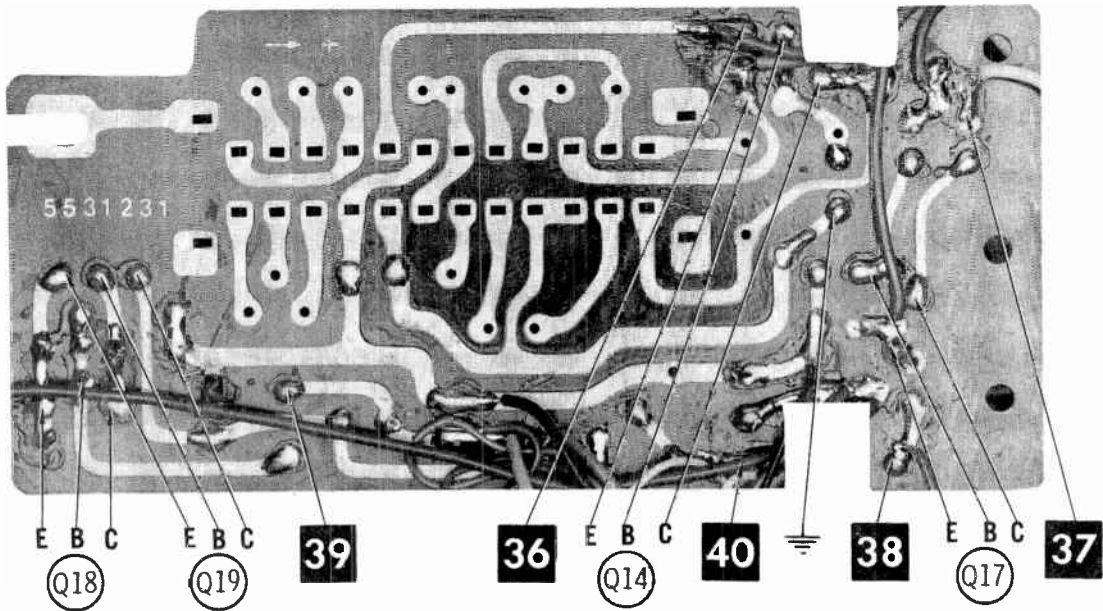


A Howard W. Sams CIRCUITRACE Photo



RANGER MODELS R-100-C/-C2/-C4

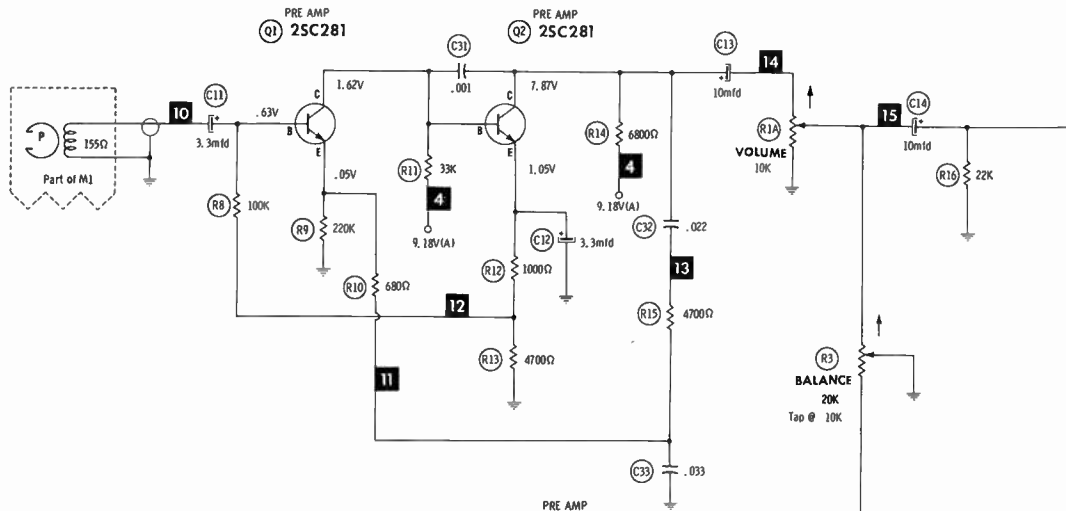




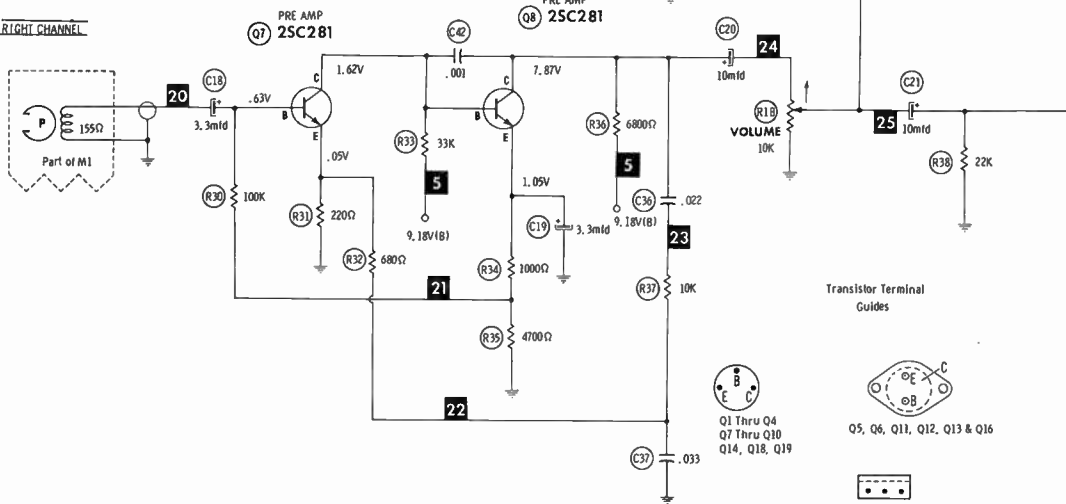
RANGER MODELS R-100-C/-C2/-C4

**NOTE: DEMAGNETIZE HEADS AFTER SERVICING**

LEFT CHANNEL



RIGHT CHANNEL



Transistor Terminal Guides



Q5, Q6, Q11, Q12, Q13 & Q16



Q15, Q17



Speaker - Power Terminal Guides

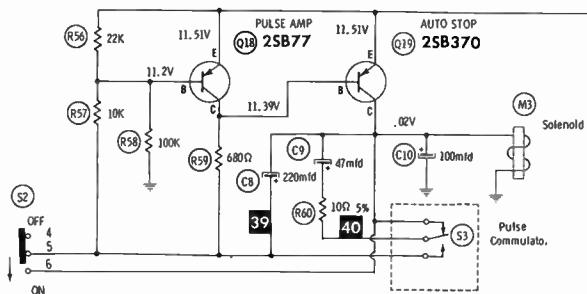
6	o	o	12
5	o	o	11
4	o	o	10
3	o	o	9
2	o	o	8
1	o	o	7

S2 Terminal Guide

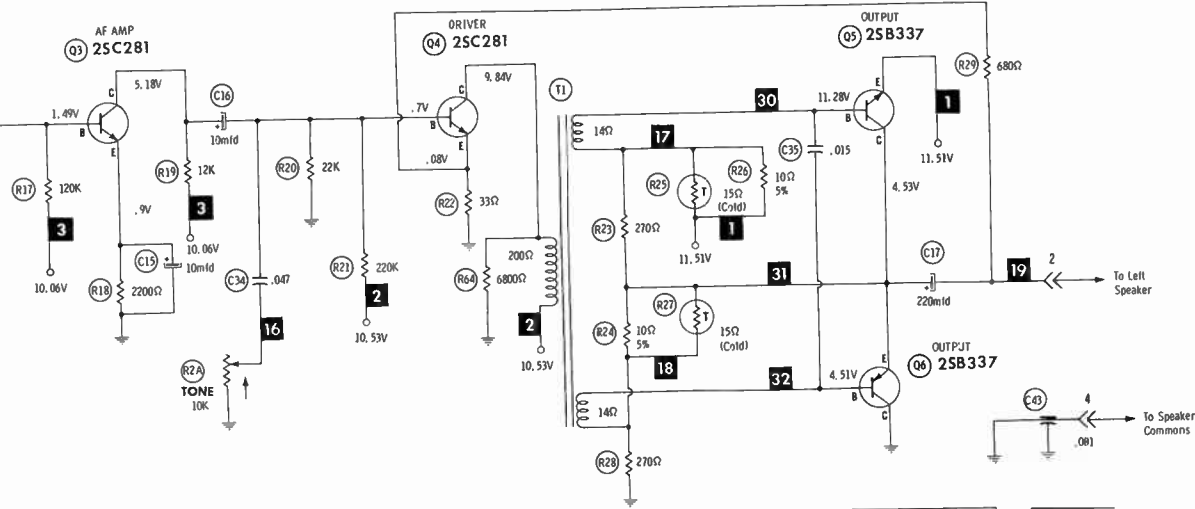
See parts list.  
Resistors are 1/2W or less, 10% or 20%, unless otherwise indicated.  
Supply voltage maintained at rated value for measurements.  
Voltage and resistance measured with VTVM or equivalent meter,  
no signal applied and controls adjusted for normal operation.  
Controls viewed from actuator 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 PHOTOFACIT STANDARD NOTATION SCHEMATIC  
with **CIRCUITRACE**

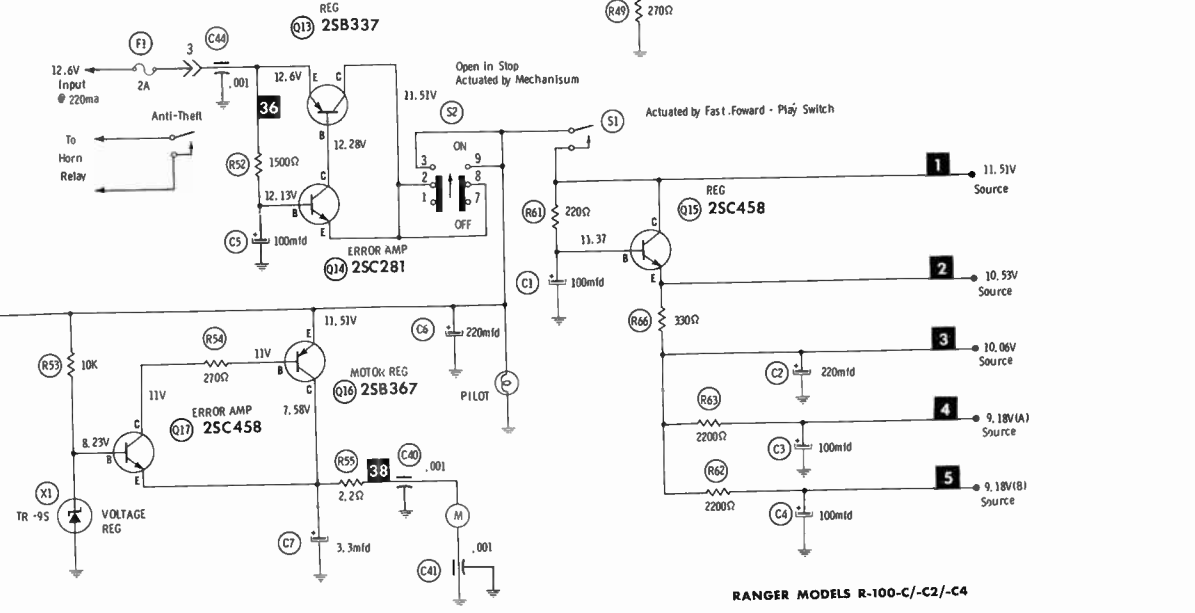
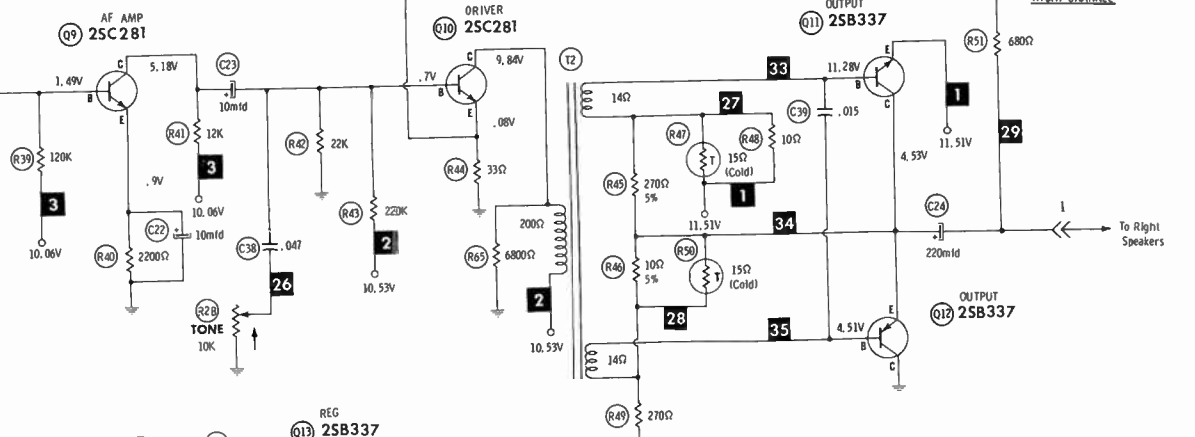
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LEFT CHANNEL



RIGHT CHANNEL



RANGER MODELS R-100-C/-C2/-C4

## 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<sup>®</sup> 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	25C281	Preamp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q2	25C281	Preamp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q3	25C281	AF Amp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q4	25C281	Driver	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q5	25B337	Output (1)	171162-082	GE-13mp*	TR-01	HEP232	SK3013*	ECG 121mp*
Q6	25B337	Output (1)	171162-082	GE-13mp*	TR-01	HEP232	SK3013*	ECG 121mp*
Q7	25C281	Preamp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q8	25C281	Preamp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q9	25C281	AF Amp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q10	25C281	Driver	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q11	25B337	Output (1)	171162-082	GE-13mp*	TR-01	HEP232	SK3013*	ECG 121mp*
Q12	25B337	Output (1)	171162-082	GE-13mp*	TR-01	HEP232	SK3013*	ECG 121mp*
Q13	25B337	Voltage Regulator	171162-082	GE-3	TR-01	HEP232	SK3009	ECG 121
Q14	25C281	Error Amp	171162-118	GE-17	TR-21	HEP50	SK3019	ECG 123
Q15	25C458	Voltage Regulator	171162-119	GE-20	TR-21	HEP53	SK3020	ECG 123
Q16	25B367	Motor Regulator (1)	171162-083	GE-17	TR-21	HEP53	SK3020	ECG 131
Q17	25C458	Error Amp	171162-119	GE-20	TR-21	HEP53	SK3020	ECG 123
Q18	25B77	Pulse Amp	171162-120	GE-2	TR-14	HEP250	SK3003	ECG 102
Q19	25B370	Auto Stop	171162-121	GE-2	TR-14	HEP630	SK3004	ECG 102

(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	TR-9S	GE ZD-9.1	12M9.1	ECG 139		Zener

### 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	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C2	220 16V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C3	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C4	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C5	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C6	220 16V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C7	3.3 16V		BCD50004	EP30-5	PC5-100	MT1-3	MTV4CB50	TE-1201.2
C8	220 16V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C9	47 16V		BCD15050	EP15-50	PC50-16	MT1-16	MTV50CB15	TE-1133
C10	100 16V		BCD15100	EP15-100	PC100-16	MT1-19	MTV100CF15	TE-1162
C11	3.3 16V		BCD50004	EP30-5	PC5-100	MT1-3	MTV4CB50	TE-1201.2
C12	3.3 16V		BCD50004	EP30-5	PC5-100	MT1-3	MTV4CB50	TE-1201.2
C13	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C14	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C15	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C16	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C17	220 16V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164
C18	3.3 16V		BCD50004	EP30-5	PC5-100	MT1-3	MTV4CB50	TE-1201.2
C19	3.3 16V		BCD50004	EP30-5	PC5-100	MT1-3	MTV4CB50	TE-1201.2
C20	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C21	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C22	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C23	10 25V		BCD25010	EP30-10	PC10-50	MT1-5	MTV10CB50	TE-1204
C24	220 16V		BCD20200	EA15-250	PC200-16	MT1-23	MTV200CK15	TE-1164

### 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.
C31	.001	35	GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-010
C32	.022	47	TTP-02	CK-203	MGPO2	CCD-203	TA120	TG-S20
C33	.033	49	TTP-03	CK-303		CCO-303	GP130	TG-S30
C34	.047	51	TTP-05	CK-503	MGPO5	CCO-503	TA150	TGL-S50
C35	.015	45	TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C36	.022	47	TTP-02	CK-203	MGPO2	CCD-203	TA120	TG-S20
C37	.033	49	TTP-03	CK-303		CCD-303	GP130	TG-S30
C38	.047	51	TTP-05	CK-503	MGPO5	CCD-503	TA150	TGL-S50
C39	.015	45	TTP-01	CK-103	MGPO1	CCD-103	TA110	TG-S10
C40	.001		EF-6-100	FT-1000		CCF-102		
C41	.001		EF-6-1000	FT-1000		CCF-102		
C42	.001	35	GPD X5F102K	DM-102	GP1000	CCD-102	SM210	2SS-010
C43	.001		EF-6-1000	FT-1000		CCF-102		
C44	.001		EF-6-1000	FT-1000		CCF-102		



## 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				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume, Left	10K	171145-047				
B	Volume, Right	10K					
R2A	Tone, Left	10K	171145-047				
B	Tone, Right	10K					
R3	Balance	20K Tap @ 10K	171145-024				

### RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.
R25	15 (Cold)		171162-123
R27	15 (Cold)		171162-123

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.
R47	15 (Cold)		171162-123
R49	15 (Cold)		171162-123

### 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	6	1	1	171161-043					
T2	6	1	1	171161-043					

### 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	171128-001		AGC2	HDJ	312002	150145		

### TAPE HEADS

ITEM No.	INDUCTANCE	MEASURED		PART No.	NORTRONICS PART No.	DESCRIPTION
		BIAS/ERASE VOLTS (RMS)	BIAS FREQ.			
M1	125mh			171115-010	5230 (1)	Cassette 4-Track Stereo Play (1) Use original mounting.

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Motor	171115-011	
M3	Reject Solenoid	171161-042	
S1	Switch, Power	171158-037	
S2	Switch, Power	171158-036	
S3	Switch, Sensor	171158-038	
S4	Switch, Anti Theft	171158-039	

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

ITEM	PART No.	ITEM	PART No.
Knob, Volume on Tone or Balance Escutcheon	171134-040 171125-039	Knob, Reject Indicator Lamp	171107-010 171050-121

### 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.)

RANGER MODELS R-100-C/-C2/-C4

# 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

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AC-2907 58 .....	8	CH-67PB 67 Chev. ....	46	MU-67PB 67 Mustang .....	36	TOKAI		PP8MVF 68 Fastback,	
AC-2977 60 .....	12	CHT-63M 63 ChevTruck..	26	OF-63PB 61/63 F-85 .....	26	CR-105 .....	33	Squareback,	
AC-2978 60 .....	13	CHT-64M See page 136		OF-64PB 64 F-85 .....	23	MR-65 .....	34	PP8MVG 68 Karmann Ghia,	
AC-3084 61 .....	17	CHT-65M 65 ChevTruck..	35	OF-65PB 65 Olds .....	35			PP8MVT 68 Transporter,	
AC-3085 61 .....	15	CHT-65PB 65 Chevrolet		OF-66PB 66 F-85 .....	37			PP8MVW 68 Sedan,	
AC-3086 61 .....	17	64 Chev. Truck .....	23	OF-67PB 67 F-85 .....	46			R2BT 62 Transporter ..	17
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		Truck .....	37	OL-66PB 66 Olds .....	37				
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0BG .....	13	4TMVT 64 Transporter..	26	7BVT 67 Transporter ..	46	8SMVG 68 Karmann Ghia	61	Vanguard 736 .....	15
0BT 60 Transporter ...	13	4TMVT 64 Transporter		7BVW 67 Sedan .....	46	8SMVT 68 Transporter .	61		
0BV 60 Sedan .....	13	Serial #50,001		7BV3 67 Type 3 .....	46	8SMVW 68 Sedan .....	61		
1BG 61 .....	16	and Higher .....	29	7BVXG 67 Karmann		9SMVF/-6 69 Fastback,			
1BT 61 Transporter ..	16	4TMVW 64 Sedan .....	26	Ghia .....	44	Squareback		WARDS RIVERSIDE	
1BV 61 Sedan .....	16	4TMVW 64 Sedan Serial		7BVXT 67 Transporter..	44	9SMVG/-6 69 Karmann			
2BG R2BG .....	18	#50,001 and Higher ...	29	7BVXW 67 Sedan .....	44	Ghia			
2BT 62 Transporter ...	18	5FMBG 65 Karmann		7BVX3 67 Type 3 .....	44	9SMVT/-6 69 Transporter		EMV-16630A .....	56
2BV 62 Sedan .....	18	Ghia .....	30	7FBVG 67 Karmann		9SMVW/-6 69 Sedan ....	64	FMV-16631A .....	58
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2FMBV 62 Sedan .....	22	6BVG 66 Karmann		7FBV3 67 1600, Type3..	43				
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3TBVG .....	20	6BVT 66 Transporter ..	37	Ghia .....	49	3BN 63 .....	20	WHITE	
3TBVT 63 Transporter..	20	6BVW 66 Sedan .....	37	7FBVX(T) Transporter..	49	4TBN 279958/959/960/			
4FMBG 64 Karmann		6BV3 66 Type 3		7FBVX(W) Sedan .....	49	961 64 Volvo .....	33		
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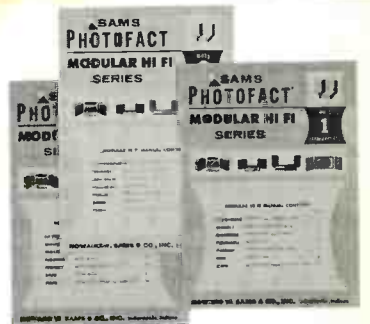
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