



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME : Cadillac Model 7293905 (990553)

SUPPLIER : For Current Address, See Annual Index.

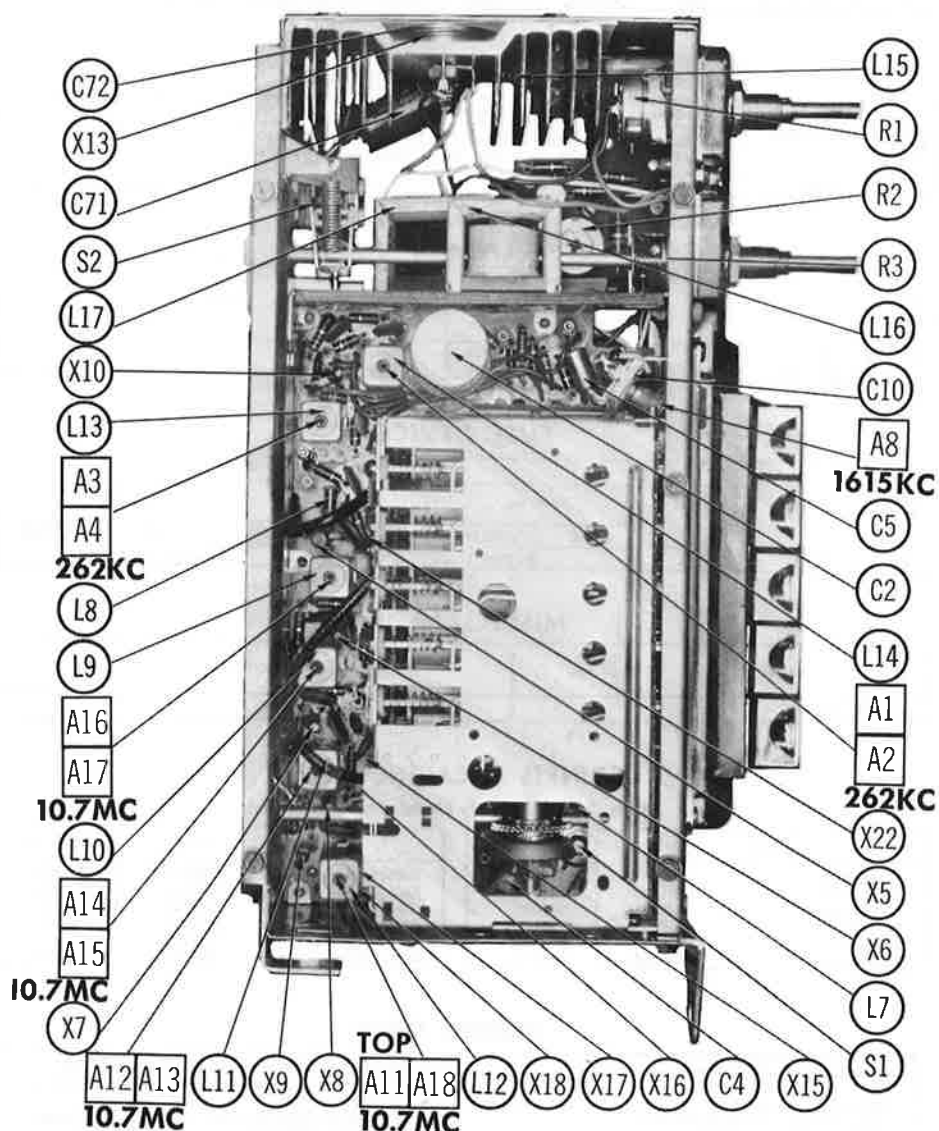
TYPE SET : 13 Transistor AM-FM Receiver

POWER SUPPLY : 12 Volt Storage Battery

RATING : 1.3 Amp. @ 12.6 Volts DC

TUNING RANGE : BROADCAST 540-1615KC
FREQ. MOD: 88-108MC

CADILLAC MODEL 7293905



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

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ALIGNMENT INSTRUCTIONS

Check for specified source voltage. Use only enough generator output to provide a usable indication. Suggested Alignment Tools: A1 thru A4, A11 thru A18. A6, A7, A8, A20, A21, A22.					PUSH-BUTTON ADJUSTMENT 1. Pull button out. 2. Tune manually to desired station. 3. Press button in firmly. 4. Repeat for remaining buttons.
GENERAL CEMENT: 9296, 9297, 9300 WALSCO: 2510, 2546, 2547 GENERAL CEMENT: 8290, 8868, 9087 WALSCO: 2525, 2528, 2587					
SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. High side thru .1mfd to point \diamond , low side to ground.	262KC (400% Mod.)	High Freq. End Stop.	Output Meter across voice coil.	A1, A2, A3, A4	Adjust for maximum.
Check setting of AM oscillator coil core (A5). Rear of core should be 1 3/8" from mounting end of coil form.					
2. High side thru 82mmf to antenna receptacle, 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.					

Pull out left hand pushbutton for Antenna Trimmer Adjustment (A8).

FM ALIGNMENT USING AM SIGNAL GENERATOR — SELECTOR IN FM POSITION

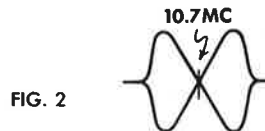
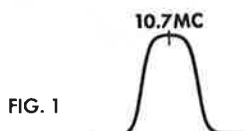
High side thru .1mfd capacitor to point \diamond ; low side to ground.					
GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS	
4. 10.7MC (Unmod.)	Point of non-interference.	DC probe of VTVM to point \diamond ; common to ground.	A11, A12, A13, A14, A15, A16, A17.	Adjust for maximum.	
5. "	"	DC probe to point \diamond ; common to ground.	A18.	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.	

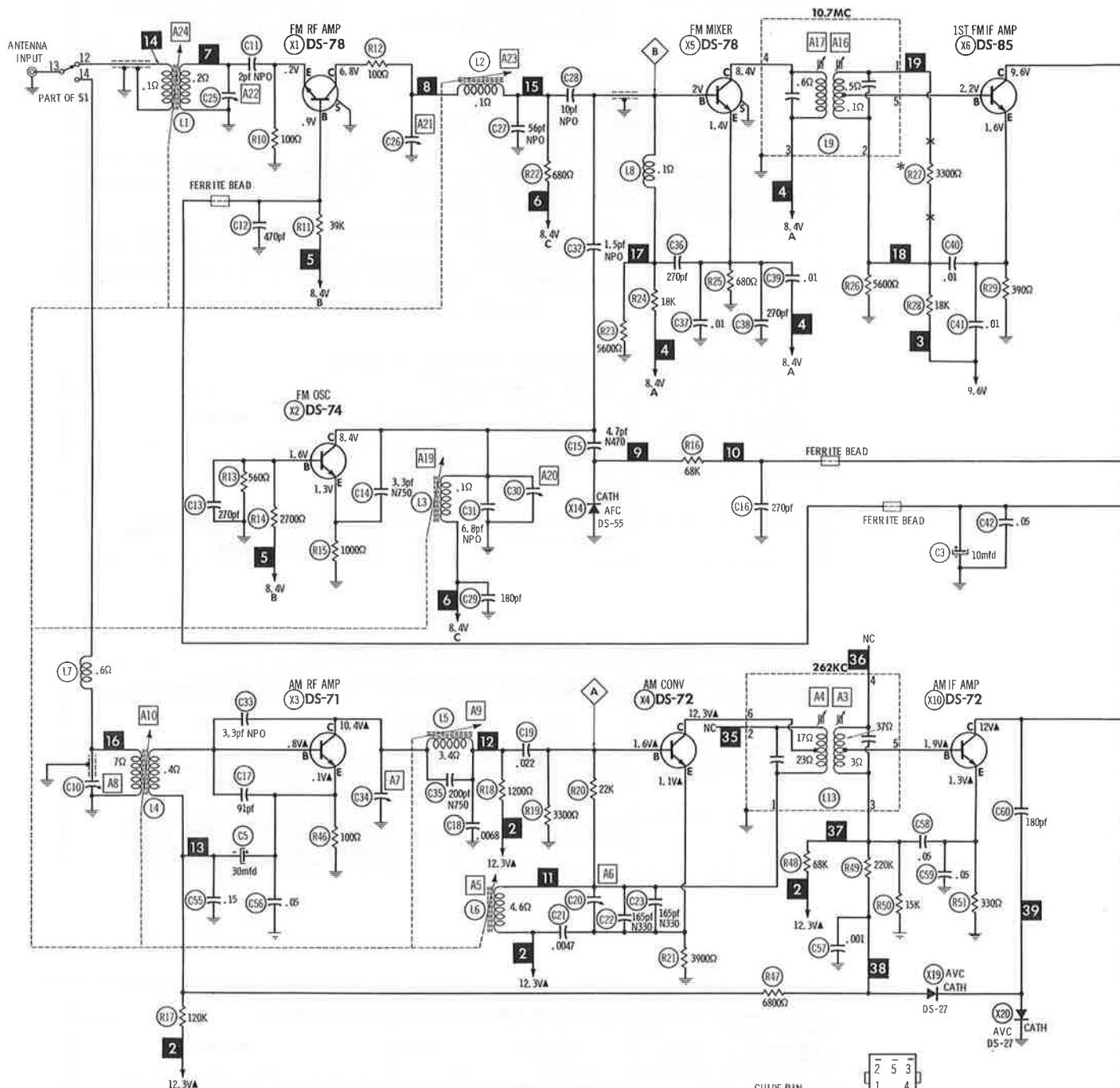
FM IF ALIGNMENT USING FM SIGNAL GENERATOR — SELECTOR IN FM POSITION

High side thru .1mfd to point \diamond ; low side to ground. Use only enough marker signal to obtain indication. Use 60% frequency modulated signal with 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.					
GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS	
4. 10.7MC (450KC Swp.)	Point of non-interference	Vert. amp. of Scope to point \diamond ; low side to ground.	A11, A12, A13, A14, A15, A16, 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. to point \diamond ; low side to ground.	A18.	Adjust A18 (Secondary) to place marker at center of crossover lines similar to Fig. 2. Adjust A11 (Primary) for maximum amplitude and straightness of crossover lines.	

FM RF ALIGNMENT Check setting of FM Oscillator coil core (A19). Rear of core should be 1 3/8" from mounting end of coil form.

Connect generator across antenna terminals with 120Ω carbon resistors in series with each lead.					
GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS	
6. 108MC	Set at high end.	DC probe of VTVM to point \diamond ; common to ground.	A20, A21, A22.	Ground Circultrace Point #10. Adjust for maximum.	
7. 99MC	Tune to signal.	"	A23, A24.	Rock tuning and adjust for maximum. Repeat steps 6 and 7 until no further improvement can be made.	





See parts list

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

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

▲ Measured in "AM" position.

* Not used in some versions.

NC No Connection.

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

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITACE

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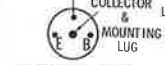
X1 & X5 TERMINAL GUIDE



X2 THRU X4 AND X6 THRU X11 TERMINAL GUIDE

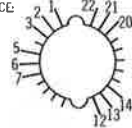


X12 TERMINAL GUIDE



X13 TERMINAL GUIDE

SELECTOR SWITCH S1 SHOWN IN "FM" POSITION.
SWITCH SEQUENCE:
1. FM
2. AM



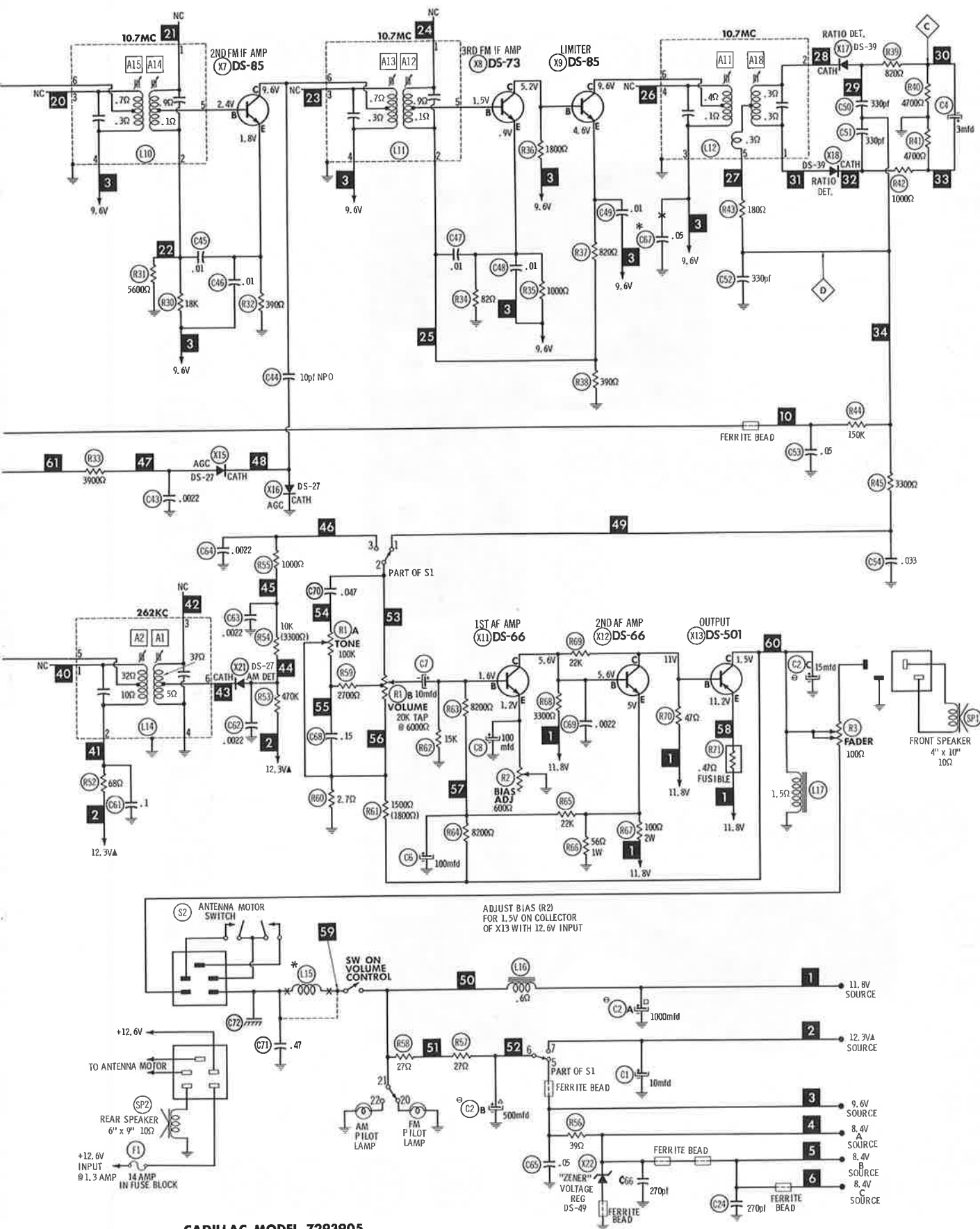
SELECTOR SWITCH S1 TERMINAL GUIDE



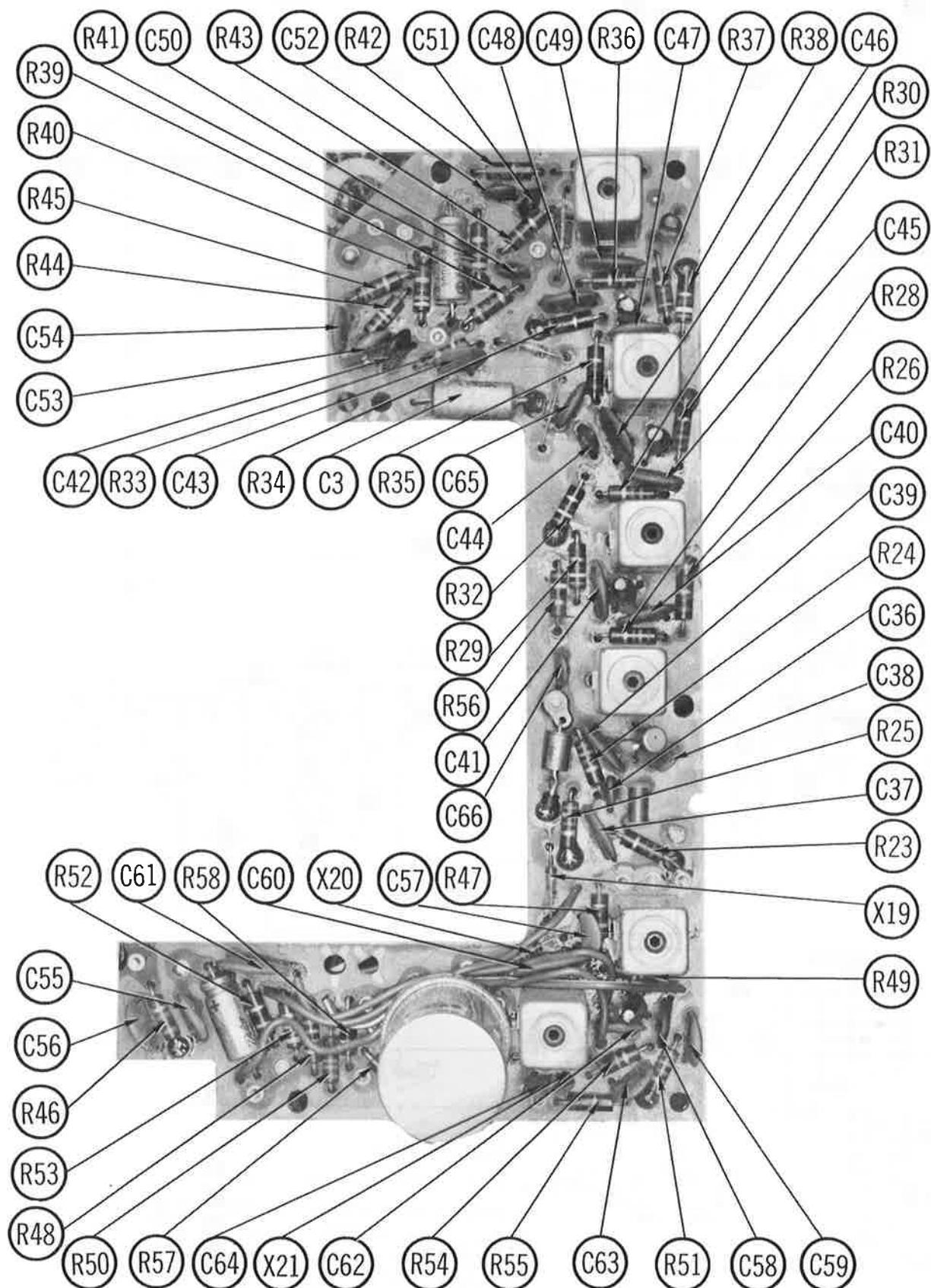
L9 TERMINAL GUIDE

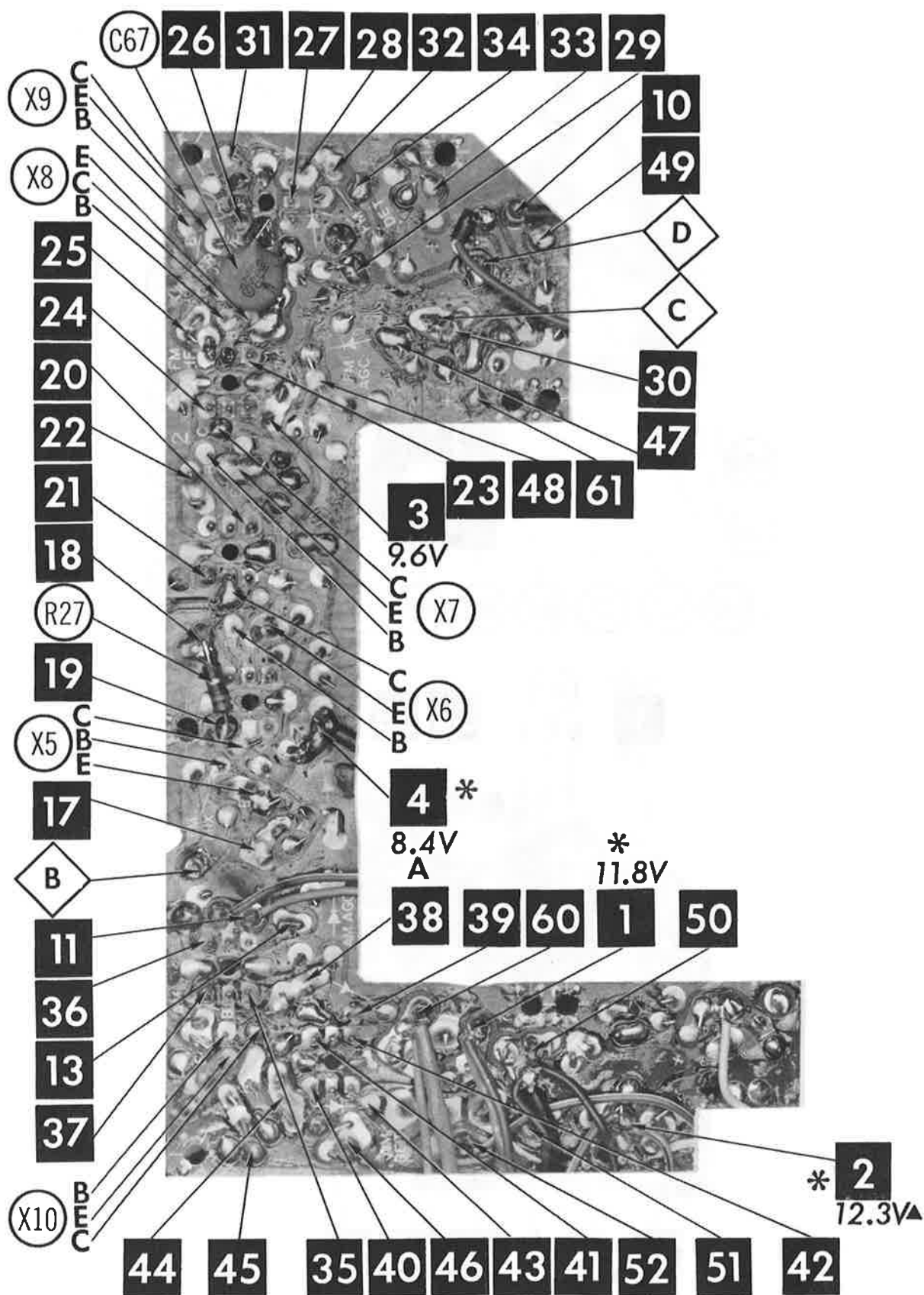


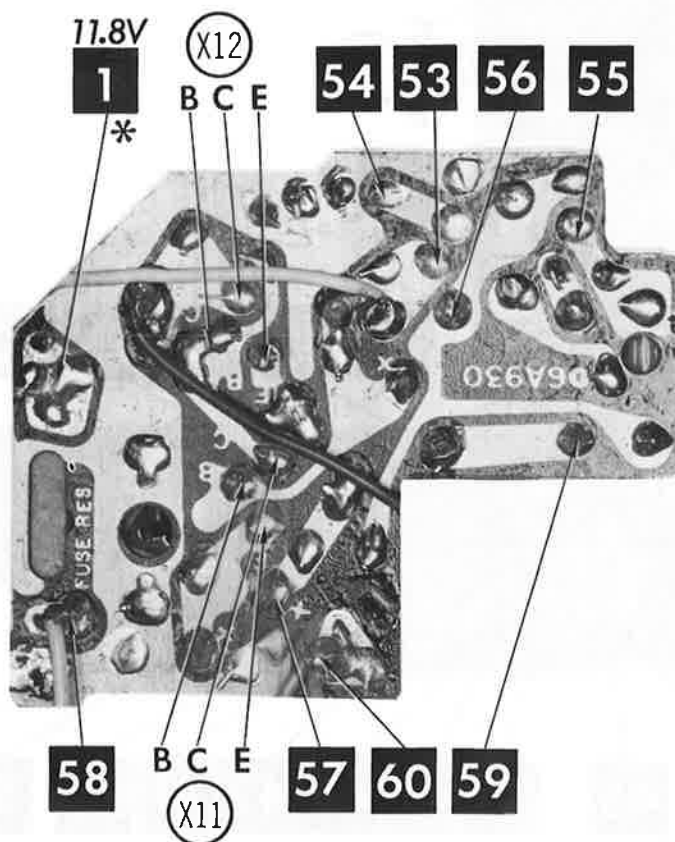
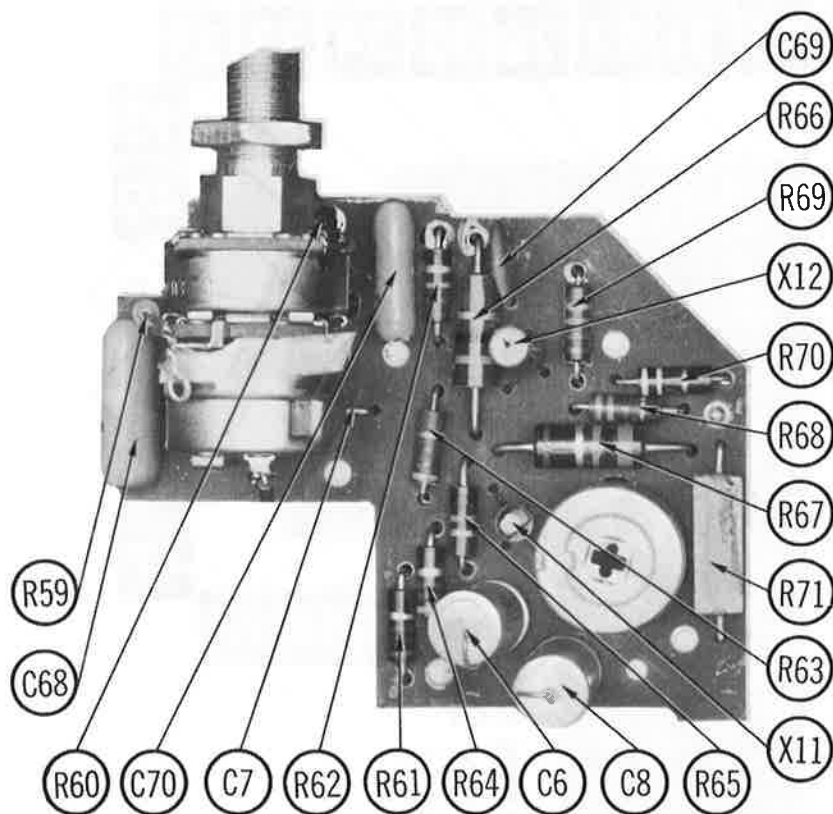
L10 THRU L14 TERMINAL GUIDE



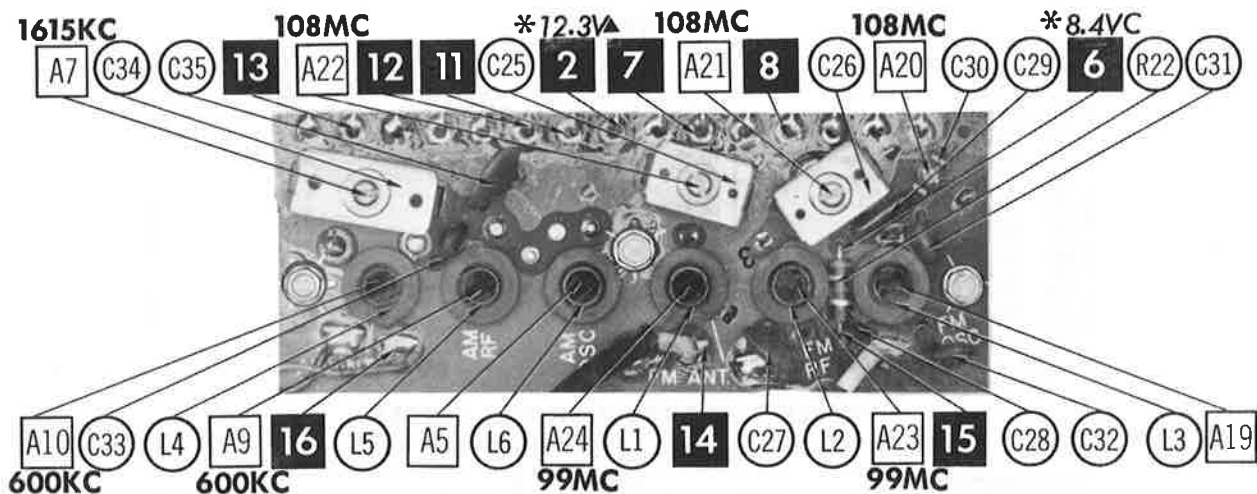
CADILLAC MODEL 7293905





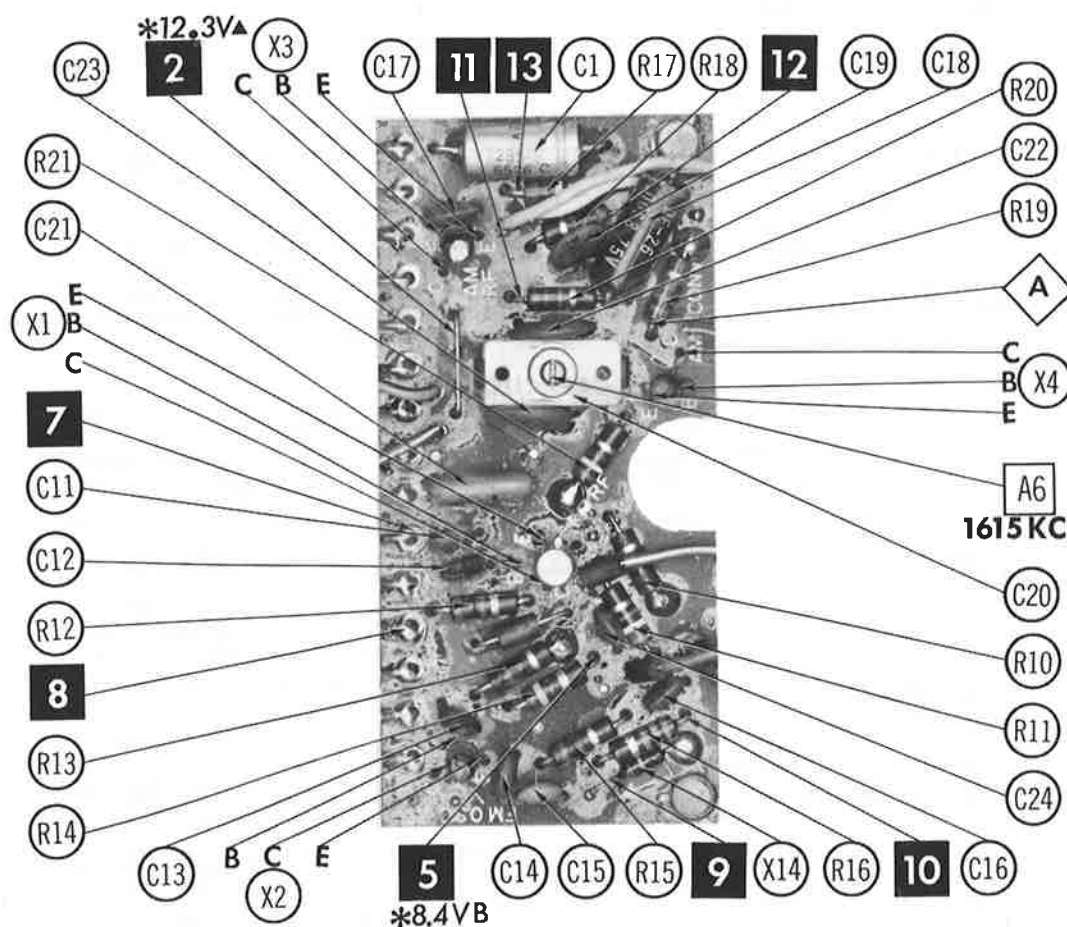


*VOLTAGE SOURCE



*VOLTAGE SOURCE

▲ MEASURED IN AM POSITION



*VOLTAGE SOURCE

▲ MEASURED IN AM POSITION

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.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	DS-78	FM RF Amp.	DS-81		SK-3018	NPN
X2	DS-74	FM Oscillator	DS-74	GE-11	SK-3018	NPN
X3	DS-71	AM RF Amp.	DS-75	GE-10	SK-3020	NPN
X4	DS-72	AM Conv.	DS-75	GE-10	SK-3020	NPN
X5	DS-78	FM Mixer	DS-81		SK-3018	NPN
X6	DS-85	1st. FM IF	DS-74	GE-11	SK-3018	NPN
X7	DS-85	2nd. FM IF	DS-74	GE-11	SK-3018	NPN
X8	DS-73	3rd. FM IF	DS-74	GE-11	SK-3018	NPN
X9	DS-85	FM Limiter	DS-74	GE-11	SK-3018	NPN
X10	DS-72	AM IF	DS-75	GE-10	SK-3020	NPN
X11	DS-86	1st. AF Amp.	DS-66	GE-10	SK-3020	NPN
X12	DS-66	2nd. AF Amp.	DS-66	GE-10	SK-3020	NPN
X13	DS-501	Output	DS-501	GE-4	SK-3012	PNP *

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

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X14		DS-55	1N34AS	1N34A			
X15		DS-27	1N34AS	1N34A			
X16		DS-27	1N34AS	1N34A			
X17		DS-39	1N34AS	1N34A			
X18		DS-39	1N34AS	1N34A			
X19		DS-27	1N34AS	1N34A			
X20		DS-27	1N34AS	1N34A			
X21		DS-27	1N34AS	1N34A			
X22		DS-49					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		DELCO PART No.	REPLACEMENT DATA				
	CAP.	VOLT.		AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	10	12	7292738	PTT53	NLW10-15	MT1-5	TT12X10	TL-1128
C2A	1000	16	7291356 ①	PWH3-54-45			FPS300.93	PCL-3021.9
B	500	16						
C	15	115RMS						
C3	10	12	7292738	PTT53	NLW10-15	MT1-5	TT12X10	TL-1128
C4	3	12	7291860	PTT50	NLW3-15	MT1-3	TT12X3	TE-1122
C5	30	6	7278896	PTT27	NLW30-15	MT1-13	TT6X30	TE-1092
C6	100	4	7291810	PTT30	NLW125-6	MT1-21	TT6X100	TE-1102
C7	10	12	7292738	PTT53	NLW10-15	MT1-5	TT12X10	TL-1128
C8	100	4	7291810	PTT30	NLW125-6	MT1-21	TT6X100	TE-1102

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Part Number 7283675 used in some versions.

CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10			#7290345						
C11	2	NPO		NPO-DI 2.2	DTZ-2R2	CZ601CJ2R2D	CCTO-2R2	CN0522	10TCC-V22
C12	470			DI-470	DD-471	JBZ601YP471K	CCD-471	JF347	10TS-T47
C13	270			DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C14	3.3	N750			TCN-3R3			CN7533	10TCU-V33
C15	4.7	N470					*	*	*
C16	270			DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C17	91				DD-910		CCD-910	GP491	5GA-Q91
C18	.0068	75V		DBE6D68	CPR-6800J	WMF1D68	1DP-1-682	PVC4268	6PS-D68
C19	.022			BPD-02	DD-203	BYT6012U203Z	CCD-203	B120	5HK-S20
C20			#7295192						
C21	.0047	75V		DBE6D47	CPR-4700J	WMF1S47	6DP-1-472	PVC6247	6PS-D47
C22	165	N330					*	*	*
C23	165	N330					*	*	*
C24	270			DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C25			#7293221						
C26			#7291003						
C27	56	NPO			TCZ-56		CCTO-560	CN0456	10TCC-Q56
C28	10	NPO		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CN0410	10TCC-Q10
C29	180			DI-180	DD-181	JBZ601YP181K	CCD-181	GP318	5GA-T18
C30			#7292611						
C31	6.8	NPO		NPO-DI 6.8	DTZ-6R8	CZ601CH6R8D	CCTO-6R8	CN0568	10TCC-V68
C32	1.5	NPO		NPO-DI 1.0	TCZ-1			CN0510	10TCC-V10
C33	3.3	NPO		NPO-DI 3.0	DTZ-3R3		CCTO-3R3	CN0533	10TCC-V30
C34			#7295193						
C35	200	N750		N750-DI 200	DTN-100		CCTN-201	CN7320	10TCU-T20
C36	270			DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C37	.01			BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C38	270			DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C39	.01			BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C40	.01			BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C41	.01			BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C42	.05			TTD-05		HOV101ZV503Z		TA150	TH-850
C43	.0022			DI-2200	CF-222	JBX601YP222K	CCD-222	JF222	10TS-D22
C44	10	NPO		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CN0410	10TCC-Q10
C45	.01			BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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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.
C46	.01		BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C47	.01		BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C48	.01		BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C49	.01		BPD-01	DD-103	BYV102ZU103M	CCD-103	B110	5HK-S10
C50	.330		DI-330	DD-331	JBZ601YP331K	CCD-331	JF333	10TS-T33
C51	.330		DI-330	DD-331	JBZ601YP331K	CCD-331	JF333	10TS-T33
C52	.330		DI-330	DD-331	JBZ601YP331K	CCD-331	JF333	10TS-T33
C53	.05		TTD-05		HOV101ZV503Z		TA150	TH-S50
C54	.033		TTD-03	CK-303				TG-S30
C55	.15		TTD-1	CK-104	HOV101ZV104Z		TA010	TG-P10
C56	.05		TTD-05		HOV101ZV503Z		TA150	TH-S50
C57	.001		BPD-001	DD-102	HVX162XP102M	CCD-102	B210	5HK-D10
C58	.05		TTD-05		HOV101ZV503Z		TA150	TH-S50
C59	.05		TTD-05		HOV101ZV503Z		TA150	TH-S50
C60	.180		DI-180	DD-181	JBZ601YP181K	CCD-181	GP318	5GA-T18
C61	.1		TTD-1	CK-104	HOV101ZV104Z		TA010	TG-P10
C62	.0022		DI-2200	CF-222	JBX601YP222K	CCD-222	JF222	10TS-D22
C63	.0022		DI-2200	CF-222	JBX601YP222K	CCD-222	JF222	10TS-D22
C64	.0022		DI-2200	CF-222	JBX601YP222K	CCD-222	JF222	10TS-D22
C65	.05		TTD-05		HOV101ZV503Z		TA150	TH-S50
C66	.270		DI-270	DD-271	RR05CW271K	CCD-271	GP327	5GA-T27
C67	.05	①	TTD-05		HOV101ZV503Z		TA150	TH-S50
C68	.15	75V	DBE2P15		WMF1P15	1DP-1-154	PVC1015	2PS-P15
C69	.0022		DI-2200	CF-222	JBX601YP222K	CCD-222	JF222	10TS-D22
C70	.047	75V	DBE2S47		WMF2S47	1DP-2-473	PVC1147	2PS-S47
C71	.47	75V	DBE2P47		DPMS2P47	1DP-4-474	PVC1047	2PS-P47
C72		#7282370						

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

Delco Part Number.

① Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone	100K	7294903	F1-100K,R14-25K		†QJ-2188A	
B	Volume/Switch	20K Tap @ 6000Ω		FFS103,RFS201, BB100,SB104, KR-4			
R2	Bias	600Ω ZW	7286601	V-600	U39-600	110-600	MR600P
R3	Fader	100Ω	7282410				

† "CONCENTRIKIT" Equivalent: K8 Kit, with Base Elements and Shafts: B11-128, P17-105 (Panel)
B19-119X, R1-200 (Rear)
S7 (Bushing)
N4 (Spacer Nut)
76-1 (Switch)

"SNAPTROL" Equivalent: BU8①, CF13, CR50T, SF8, SR13, N4, GC.

① Alter bushing to meet requirements.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	DELCO PART No.			IRC PART No.	WORKMAN PART No.	DELCO PART No.
R71	.47Ω (Fusible)			7281890					

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.
L1	FM Antenna	①					
L2	FM RF	①					
L3	FM Oscillator	①					
L4	AM Antenna	①					
L5	AM RF	①					
L6	AM Oscillator	①					
L7	RF Choke (8uh)	7255738	19-1009	BC-565	4611	RTC-8521	T822
L8	RF Choke (.18uh)	7291800					
L9	1st. FM IF	7296100					
L10	2nd. FM IF	7296101					
L11	3rd. FM IF	7296102					
L12	Ratio Detector	7296103					
L13	1st. AM IF	7295169					
L14	2nd. AM IF	7295170					
L15	"A" Lead Choke (1.4uh)	7241708②	19-4215	BC-537	5230	RTC-9181	T963

① Part of Tuning Coil Board Assembly Part #1222504.

② Not used in some versions.

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.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	DELCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L16	1.3A	.6Ω	8MH	1221623	C-4095	TC-2	TR-154	TY17KT	

CHOKE (AUDIO OUTPUT)

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

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				DELCO PART No.	QUAM PART No.	
SP1	4" x 10"	PM	10Ω	7290505	410A2Z10	Front
SP2	6" x 9"	PM	10Ω		69A2Z10	Rear

FUSE DEVICES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
F1	SFE	14A		In Fuse Block	307014		SFE 14	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
S1	AM-FM Selector Switch	7296904	
S2	Antenna Motor Switch	7290366	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Dial Glass	7282406	Pushbutton #3	7282173
Escutcheon	7282405	Pushbutton #4	7282174
Dial Pointer	7290791	Pushbutton #5	7282175
Pushbutton #1	7282171	Knob-Tuning or Volume	1485464
Pushbutton #2	7282172	Knob-Tone or Fader	1485466

WIRING DATA

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