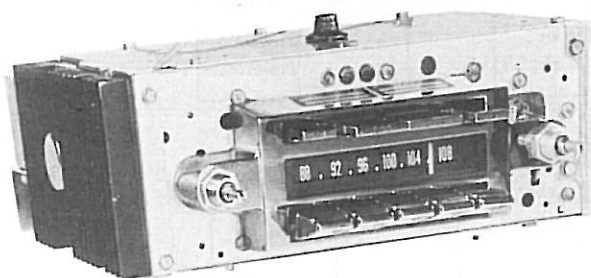




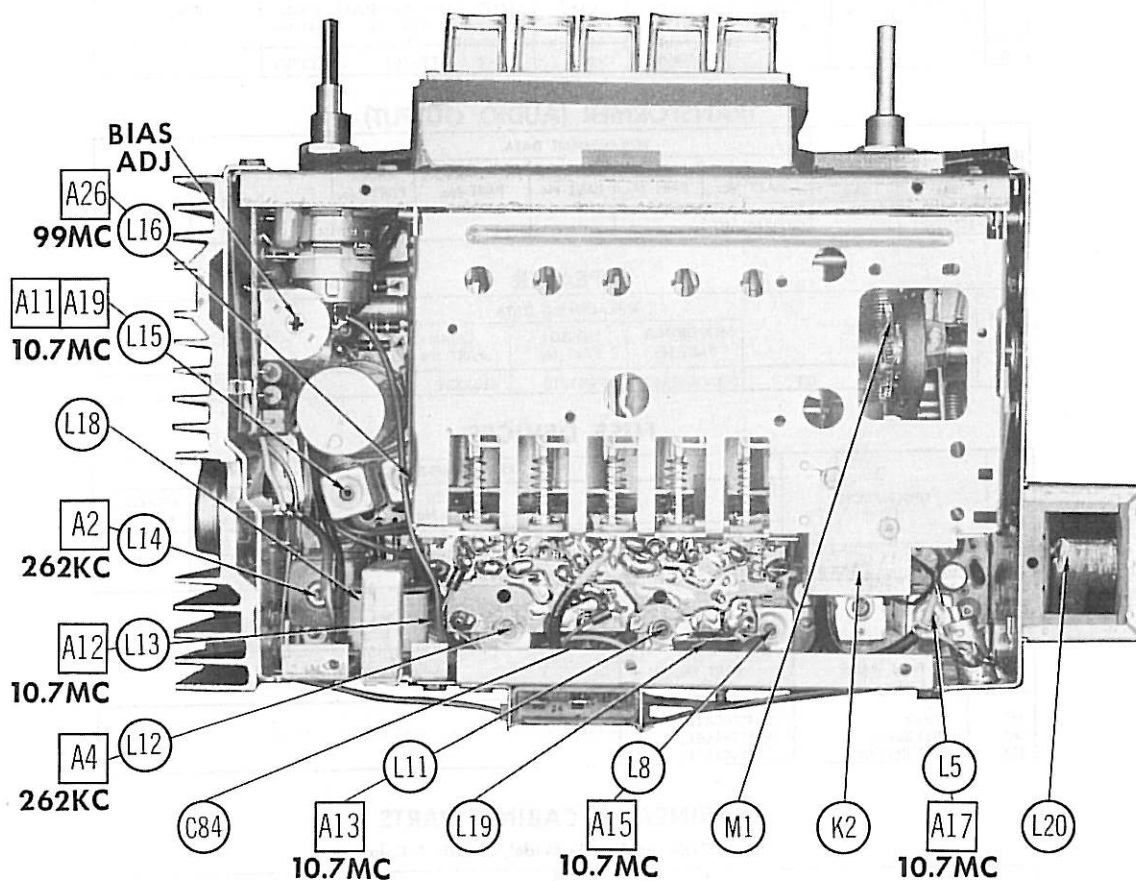
PHOTOFACT[®] with

CIRCUITRACE[®]



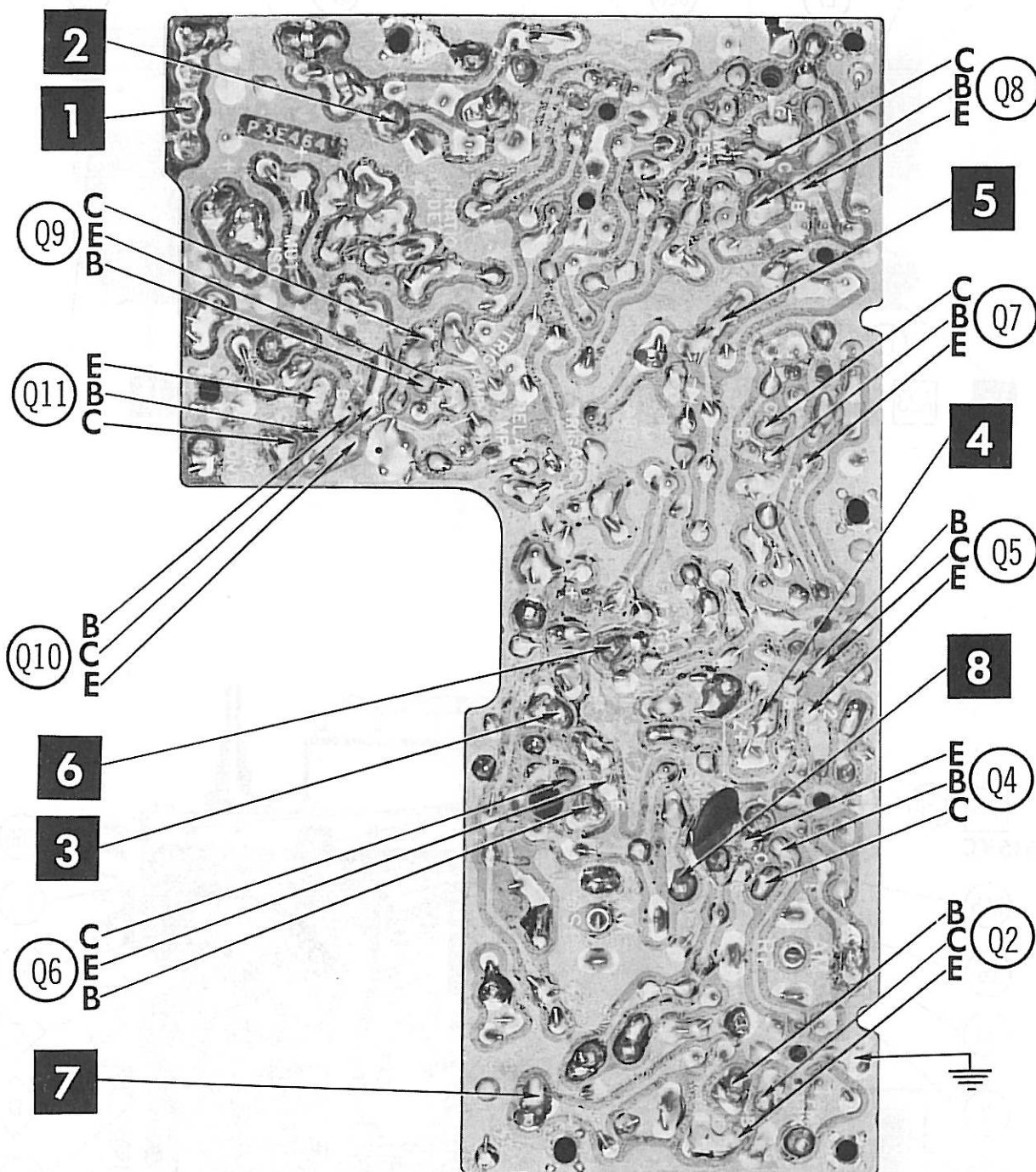
TRADE NAME : MoPar Models 419 (1967 Imperial)
 421 (1967 Chrysler)
 SUPPLIER : For Current Address, See Annual Index.
 TYPE SET : 14 Transistor AM-FM Receiver
 POWER SUPPLY : 12 Volt Storage Battery
 RATING : 1.5 Amp. @ 12.6 Volts DC

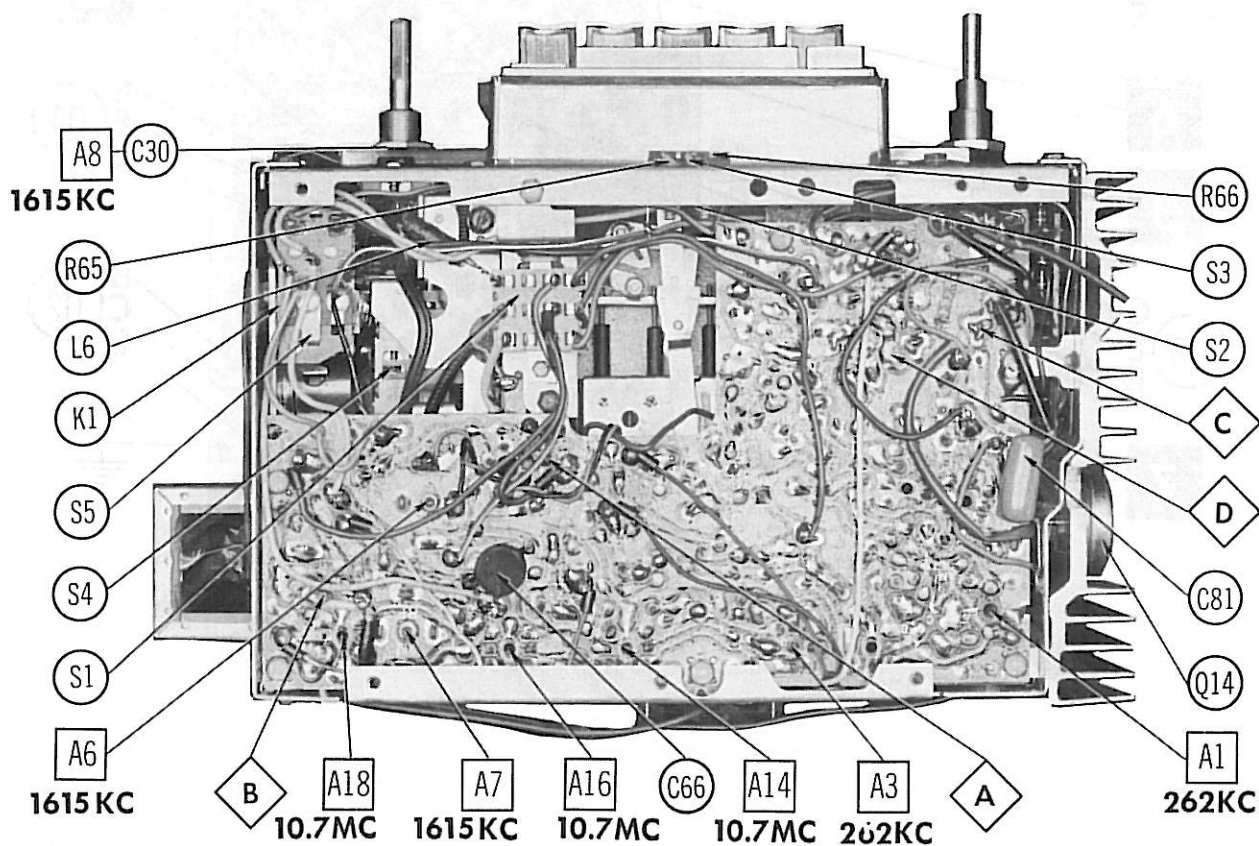
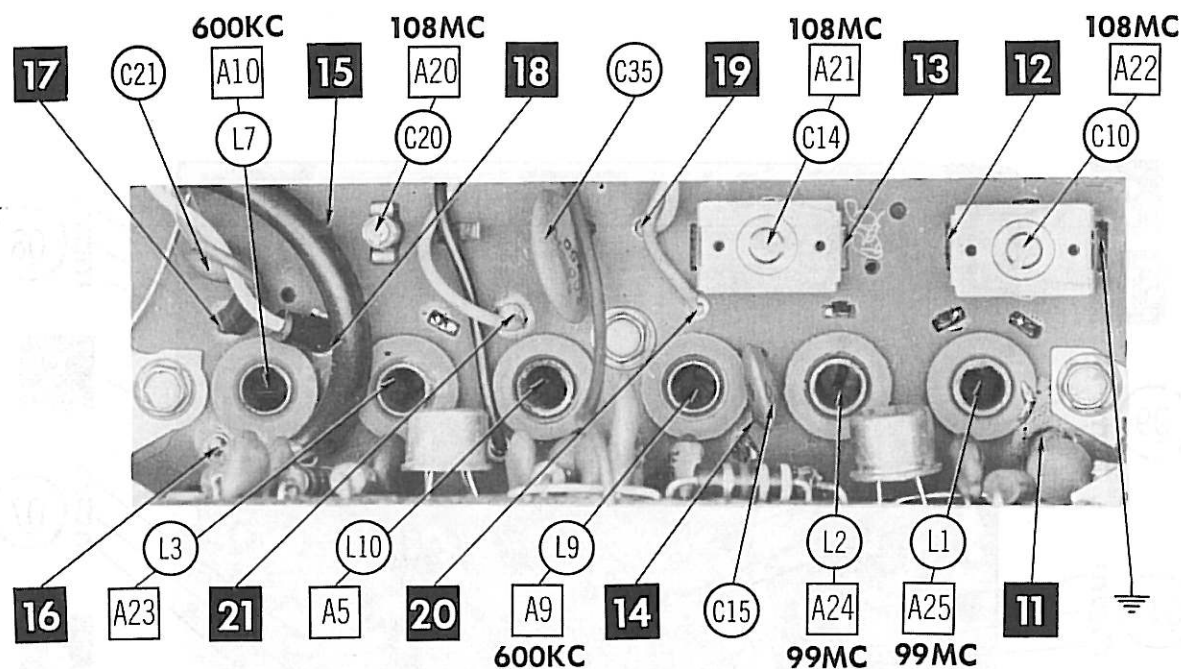
MOPAR MODELS 419, 421



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.

A5 thru A10, A19 thru A26.

GENERAL CEMENT: 5009, 8782A, 8987

WALSCO: 2531-X, 2538

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.

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. High side thru .1mfd to point Δ , low side to ground.	262KC (400v 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.					

FM ALIGNMENT USING AM SIGNAL GENERATOR — SELECTOR IN FM POSITION

High side thru .1mfd to point Δ , 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 Δ ; common to ground.	A11, A12, A13, A14, A15, A16, A17, A18.	Adjust for maximum.
5. "	"	DC probe to point Δ ; common to	A19.	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 Δ , low side to ground. Use only enough marker signal to obtain indication. Use 60v frequency modulated signal with 450KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

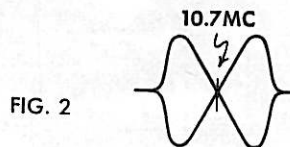
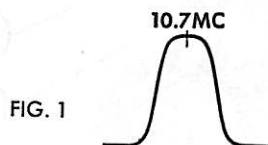
GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
4. 10.7MC (450KC Swp.)	Point of non-interference	Vert. amp. of Scope to point Δ ; low side to ground.	A11, A12, A13, A14, A15, A16, A17, A18.	Disconnect stabilizing capacitor C6. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C6.
5. "	"	Vert. amp. to point Δ ; low side to ground.	A19.	Adjust A19 (Secondary) to place marker at center of crossover lines similar to Fig. 2. Adjust A11 (Primary) for maximum amplitude and straightness of crossover lines.

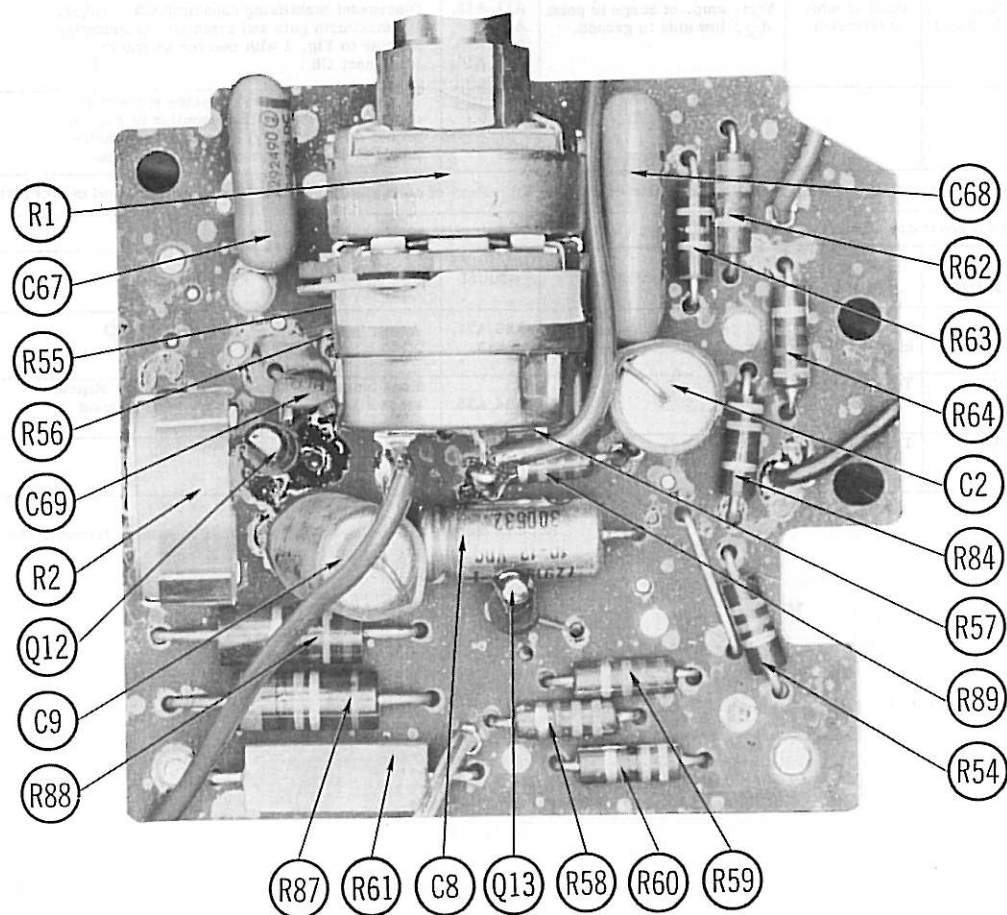
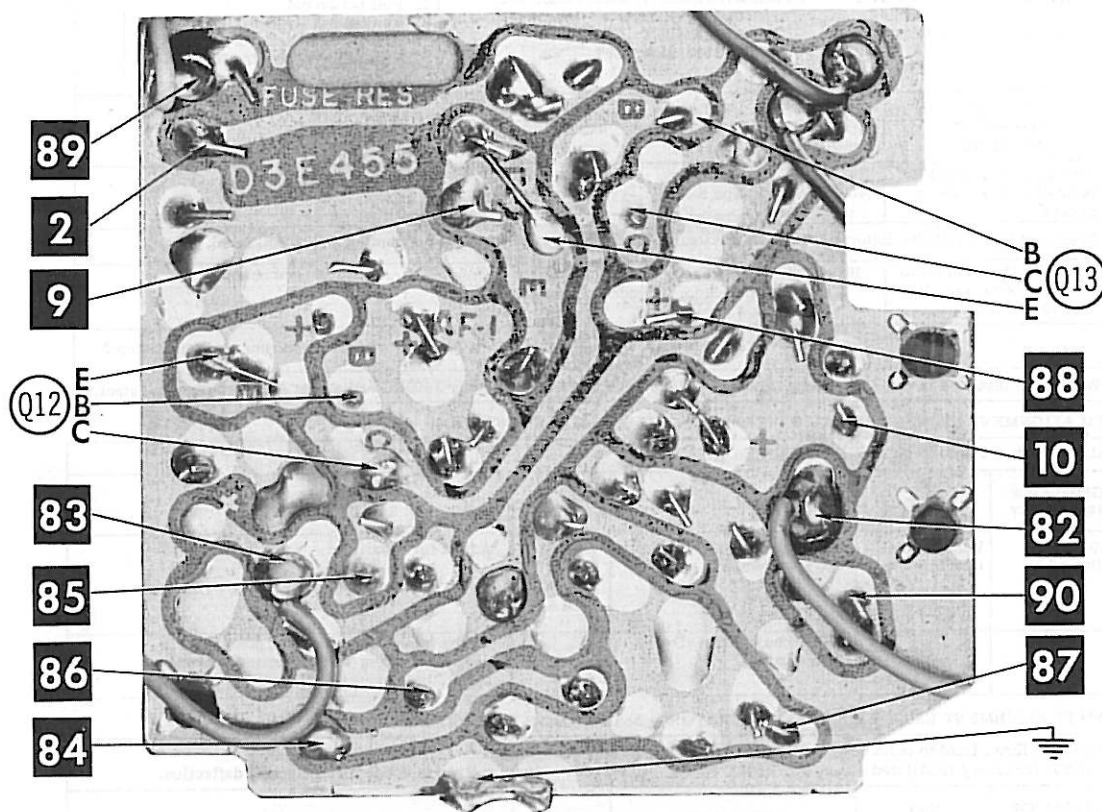
FM RF ALIGNMENT Check setting of FM Oscillator coil core(A23). Rear of core should be 1 3/8" from mounting end of coil form

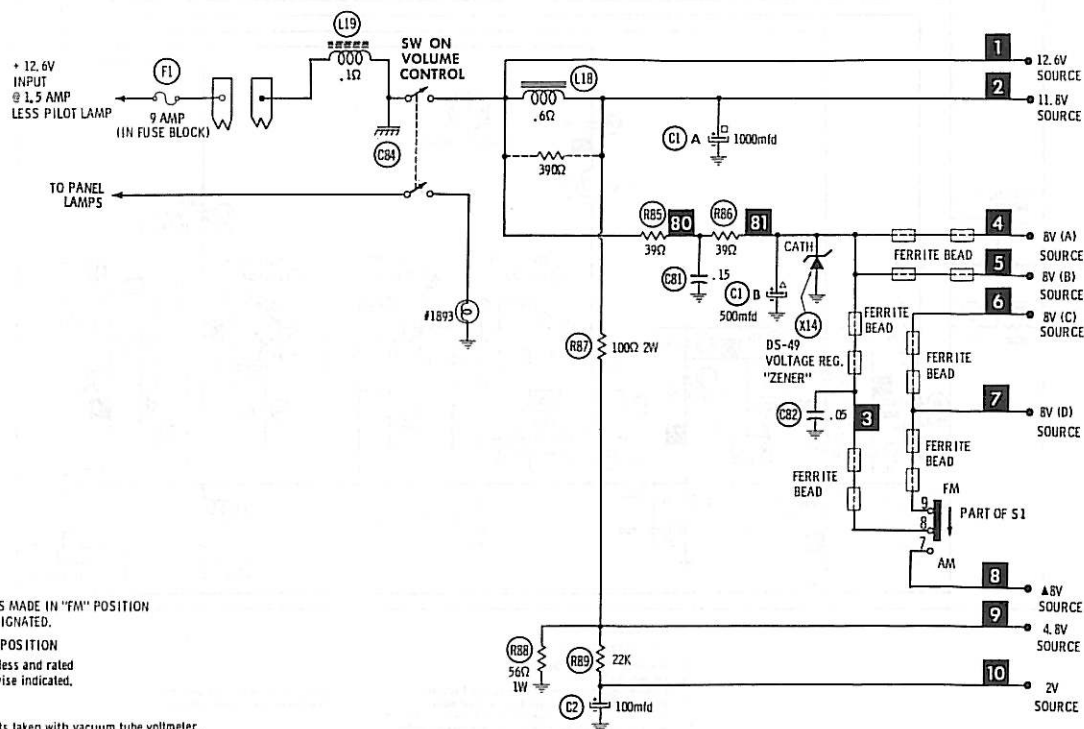
Connect generator across antenna terminals with 120Ω carbon resistors in series with each lead.

GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
6. 108MC	Set at high end.	DC probe of VTVM to point Δ ; common to ground.	A20, A21, A22.	Adjust for maximum. Ground Point Δ .
7. 99MC	Tune to signal.	"	A24, A25.	Rock tuning and adjust for maximum. Repeat steps 6 and 7 until no further improvement can be made.
8. 99MC	Tune to signal.	"	A26.	Adjust for MINIMUM.

Remove dummy and tuning knobs for access to antenna trimmer (A8)

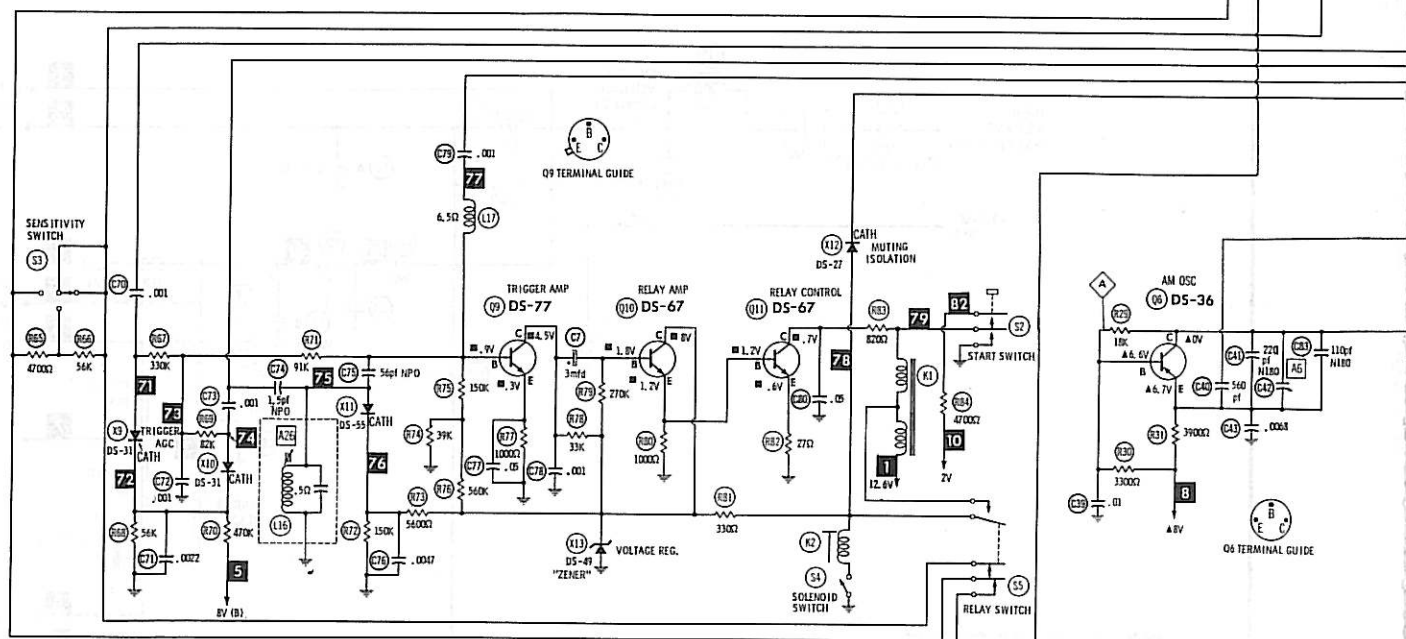
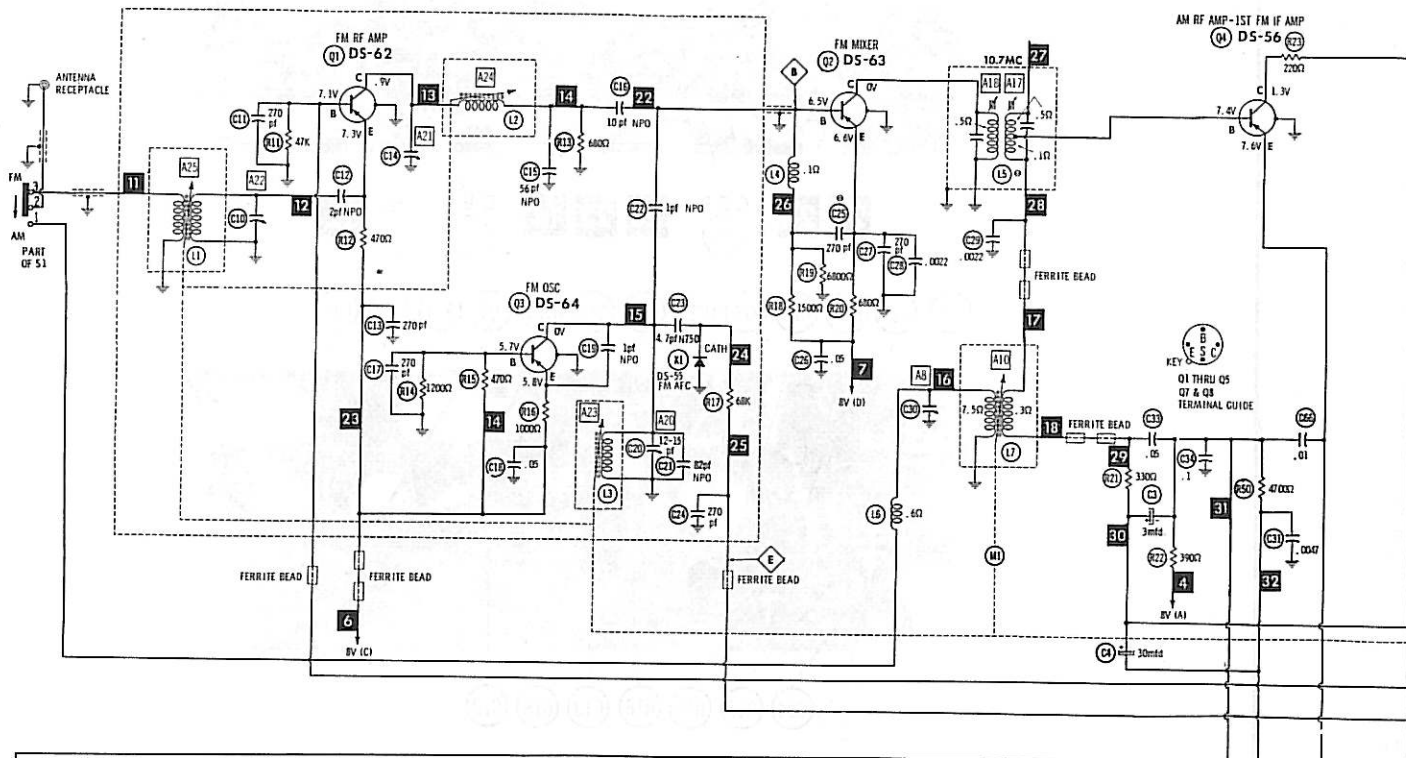






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NC NO CONNECTION.

▲ TAKEN IN "AM" POSITION.

■ MEASURED WITH TUNER SEEKING

○ See parts list

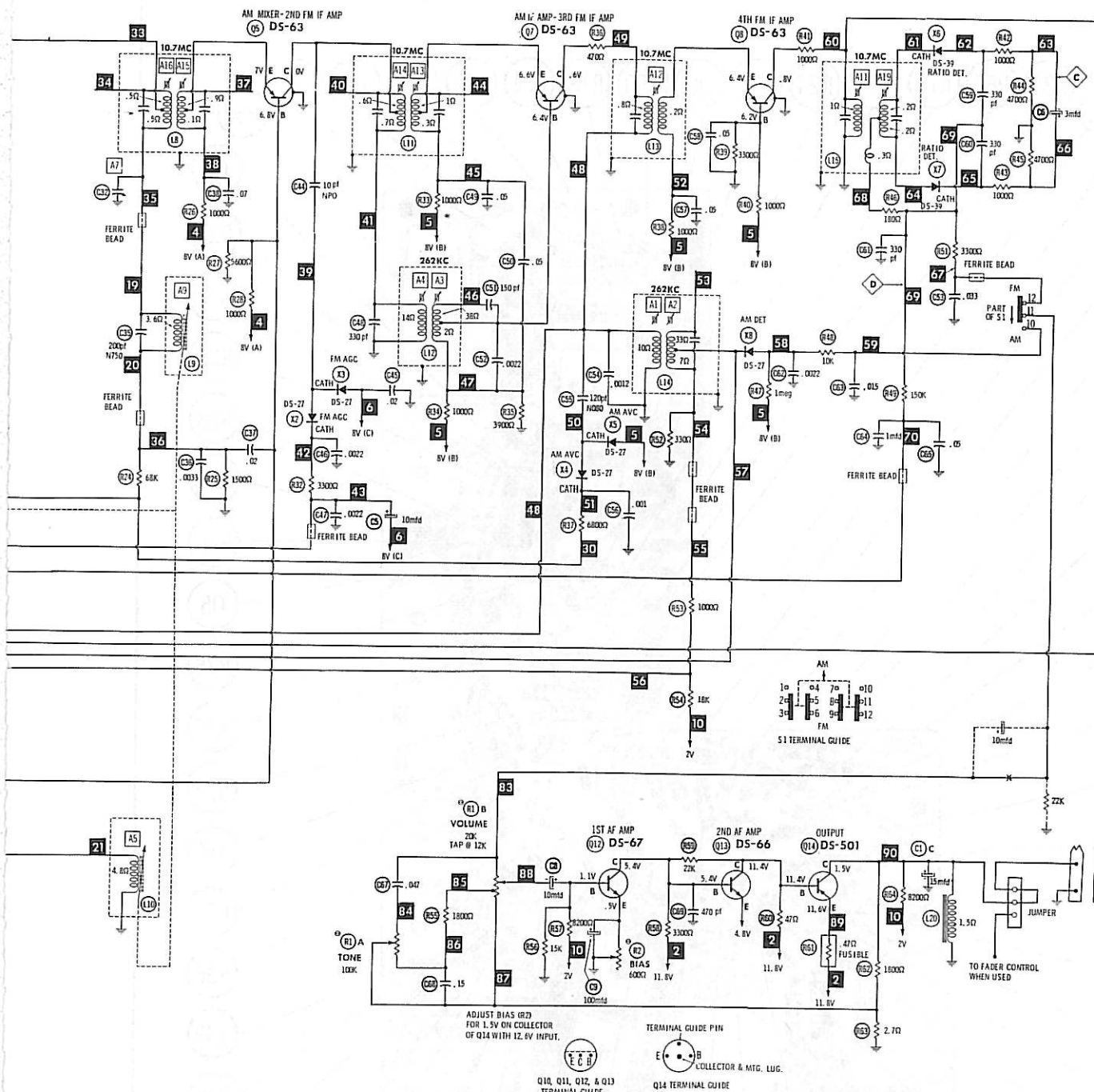
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found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

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

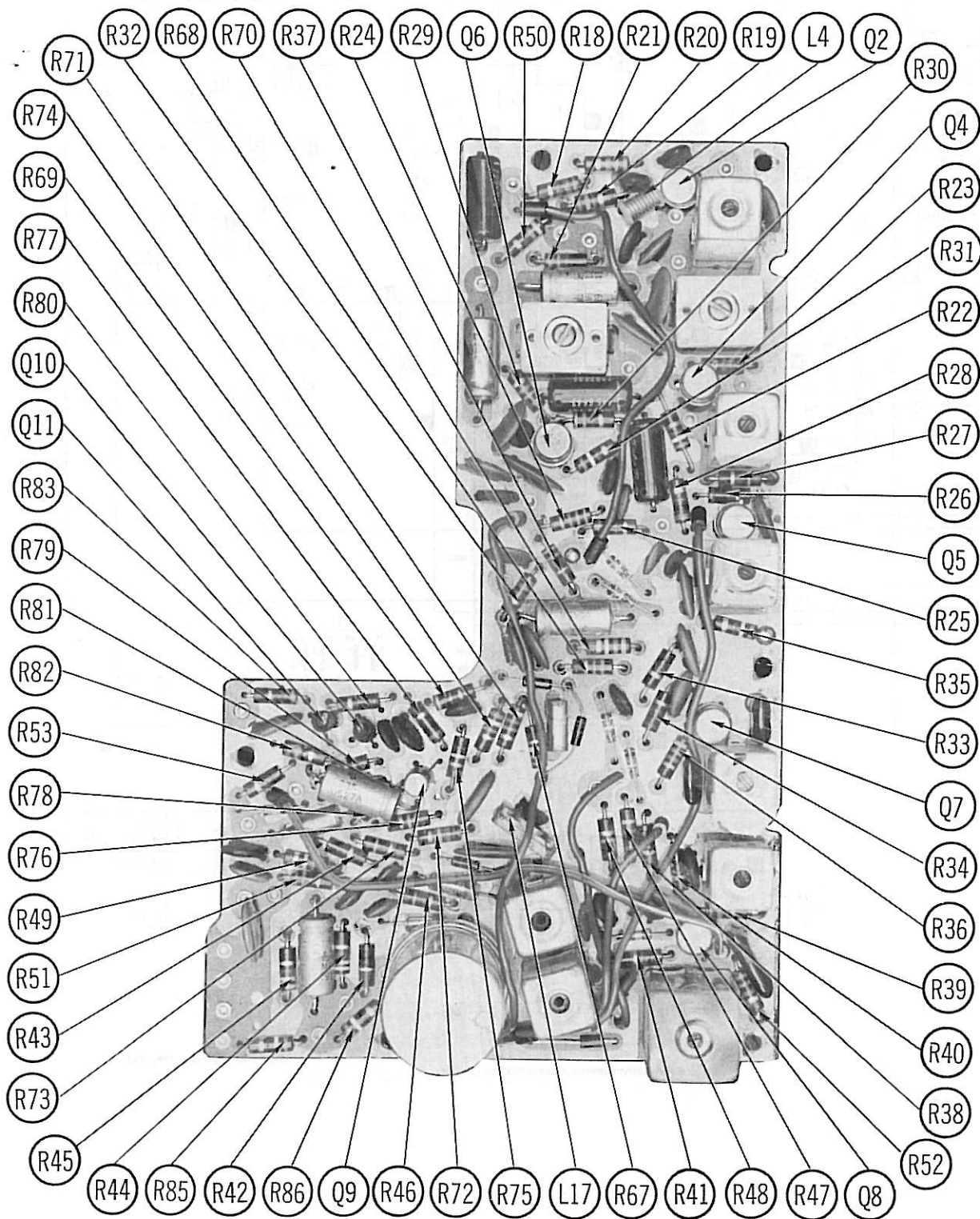
A PHOTOFACT STANDARD NOTATION SCHEMATIC

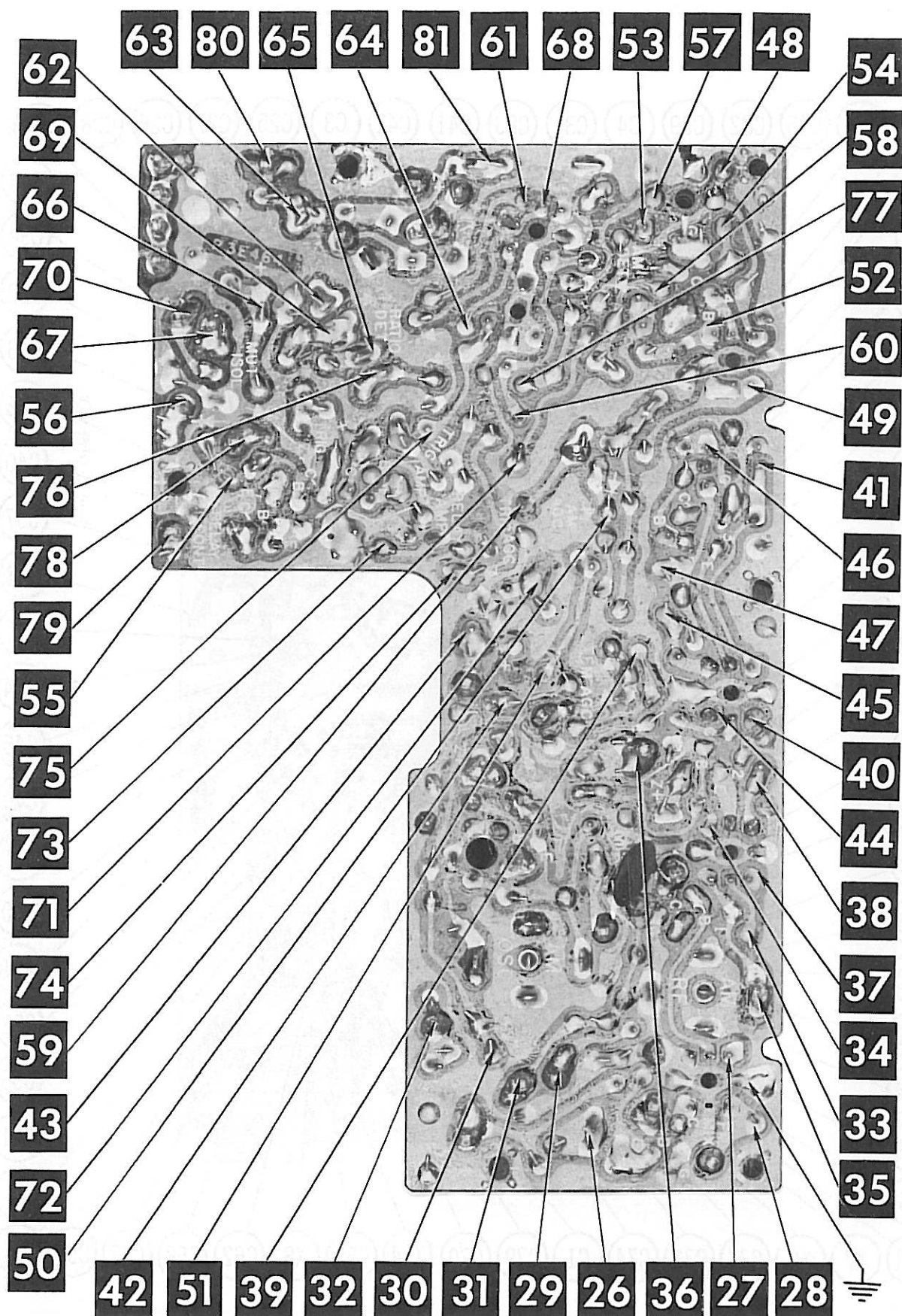
with **CIRCUITRACE**

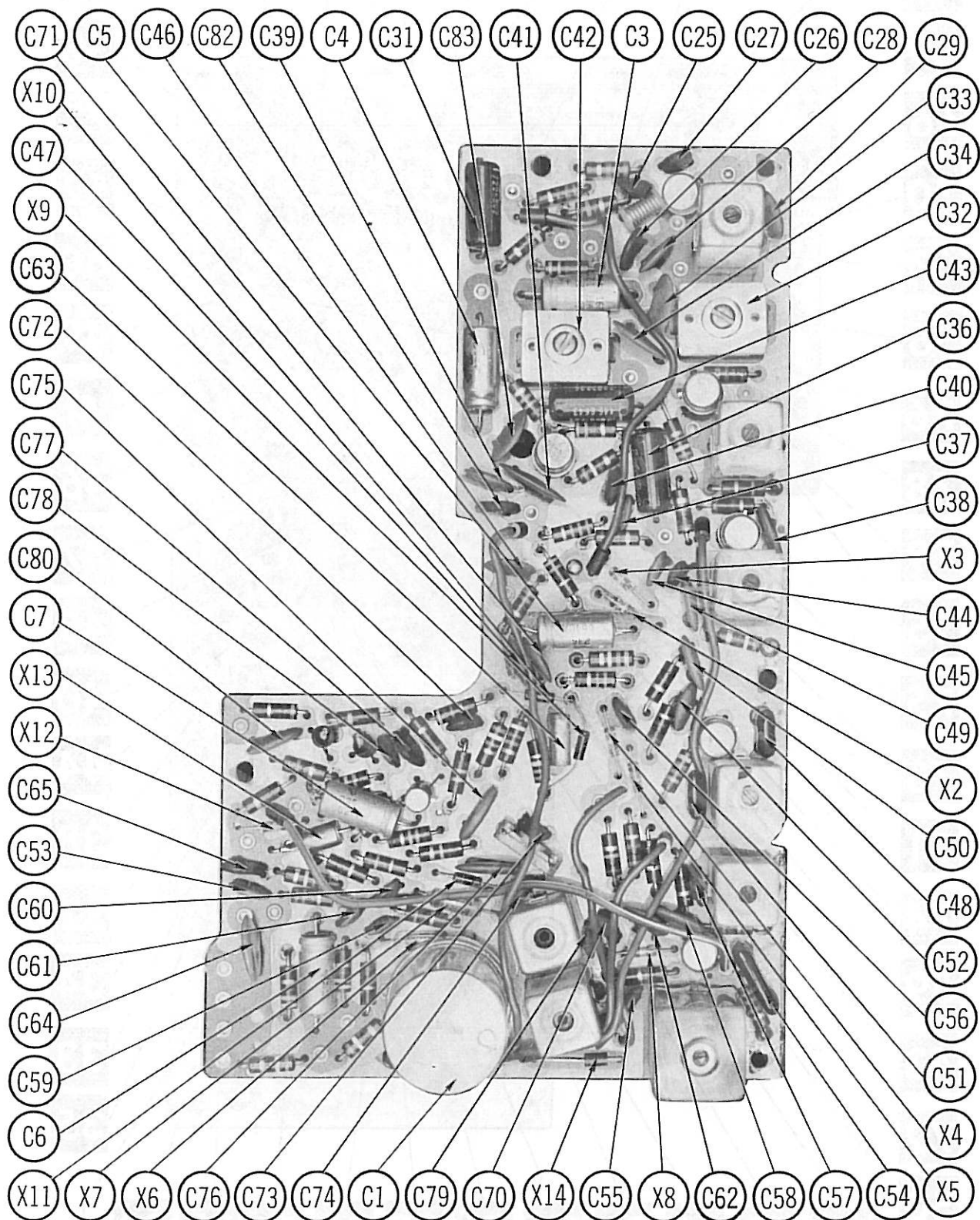
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MOPAR MODELS 419, 421







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
Bonding Strap	Use BELDEN No. 8861 (3/8 In.) or 8870 (3/4 In.)

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.	
Q1	DS-62	FM RF Amp	DS-41		TR-17	SK-3006	PNP
Q2	DS-63	FM Mixer	DS-41		TR-17	SK-3006	PNP
Q3	DS-64	FM Oscillator	DS-41		TR-17	SK-3006	PNP
Q4	DS-56	AM RF-1st FM IF Amp.	DS-56		TR-17	SK-3006	PNP
Q5	DS-63	AM Mixer/2nd FM IF	DS-56		TR-17	SK-3007	PNP
Q6	DS-36	AM Oscillator	DS-25	GE-9	TR-06	SK-3008	PNP
Q7	DS-63	AM IF/3rd FM IF	DS-56		TR-17	SK-3007	PNP
Q8	DS-63	4th FM IF	DS-56		TR-17	SK-3007	PNP
Q9	DS-77	Trigger Amp.	DS-77	GE-10	TR-21	SK-3020	NPN
Q10	DS-67	Relay Amp.	DS-66	GE-10	TR-21	SK-3020	NPN
Q11	DS-67	Relay Control	DS-66	GE-10	TR-21	SK-3020	NPN
Q12	DS-67	AF Amp.	DS-66	GE-10	TR-21	SK-3020	NPN
Q13	DS-66	AF Amp.	DS-66	GE-10	TR-21	SK-3020	NPN
Q14	DS-501	Output	DS-501	GE-4	TR-03	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.
X1		DS-55	1N34AS	1N34A			
X2		DS-27	1N34AS	1N34A			
X3		DS-27	1N34AS	1N34A			
X4		DS-27	1N34AS	1N34A			
X5		DS-27	1N34AS	1N34A			
X6		DS-39	1N34AS	1N34A			
X7		DS-39	1N34AS	1N34A			
X8		DS-27	1N34AS	1N34A			
X9		DS-31	1N34AS	1N34A			
X10		DS-31	1N34AS	1N34A			
X11		DS-55	1N34AS	1N34A			
X12		DS-27	1N34AS	1N34A			
X13		DS-49					
X14		DS-49					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	1000	16	7291356	PWH3-54-45			FPS300.93	PCL-3021.9
B	500	16						
C	15	11.5rms						
C2	100	4	7291810	PTT30	NLW125-6	MT1-21	TT6X100	TE-1102
C3	3	12	7291860	PTT50	NLW3-15	MT1-3	TT12X3	TE-1122
C4	30	6	7290896	PTT27	NLW30-6	MT1-13	TT6X30	TE-1092
C5	10	12	7292738	PTT53	NLW10-15	MT1-5	TT12X10	TL-1128
C6	3	12	7291860	PTT50	NLW3-15	MT1-3	TT12X3	TE-1122
C7	3	12	7291860	PTT50	NLW3-15	MT1-3	TT12X3	TE-1122
C8	10	12	7292738	PTT53	NLW10-15	MT1-5	TT12X10	TL-1128
C9	100	4	7291810	PTT30	NLW125-6	MT1-21	TT6X100	TE-1102

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		#7293221						
C11	270		DI-270	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C12	2	NPO	NPO-DI2.2	DTZ-2R2	CZ601CJ2R2D	CCTO-2R2	CNO522	10TCC-V22
C13	270		DI-270	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C14		#7291003						
C15	56	NPO		TCZ-55		CCTO-56	CNO456	10TCC-Q56
C16	10	NPO		DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C17	270		NPO-DI10	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C18	.05		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C19	1	NPO	NPO-DI1.0	TCZ-1			CNO510	10TCC-V10
C20		#7292611						
C21	8.2	NPO	NPO-DI8.2					10TCC-V82
C22	1	NPO	NPO-DI1.0	TCZ-1			CNO510	10TCC-V10
C23	4.7	N750		DTN-5	CZ601UJ5R0D	CCTN-050	CN7547	10TCU-V47
C24	270		DI-270	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C25	270		DI-270	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C26	.05	(.0022)†	TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C27	270		DI-270	DD-271	CD15F271J500	CCD-271	GP327	5GA-T27
C28	.0022		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C29	.0022		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22

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.
C30	.0047 75V	#7292582	DBE6D47	CPR-4700J	WMF1S47	6DP-1-473	PVC6247	6PS-D47
C31		#7298201	TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C32	.05		TTD-1	CK-104	HOV101ZV104Z		TA010	TG-P10
C33	.1 16V		N750-DI200	DTN-200		CCTN-200	CN7320	10TCU-T20
C34	200 N750		DBE6D33	CPR-3300J	DMF6D33	6DP-1-332	PVC6233	6PS-D33
C35	.0033 75V		TTD-02	CK-203	HOR101ZV203P	CCD-203	TA120	TG-S20
C36	.02	#7288631	TTD-01	CK-103	HOV101ZV103P	CCD-103	TA110	TG-S10
C37	.07		DI-560	DD-561	JBY601YP561K	CCD-561	GP356	5GA-T56
C38	.01	#7297733						
C39	560	#7282165						
C40	220 N180		DBE6D68	CPR-6800J	WMF1D68	1DP-1-682	PVC4268	6PS-D68
C41			NPO-DI10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C42	.0068 75V		TTD-02	CK-203	HOR101ZV203P	CCD-203	TA120	TG-S20
C43	10 NPO		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C44	.02		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C45	.0022		DI-330	DD-331	JBZ601YP331K	CCD-331	GP331	10TS-T33
C46	.0022		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C47	330		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C48	.05		DI-150	DD-151		CCD-151	GP315	10TS-T15
C49	.05		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C50	.0022		TTD-03	CK-303		CCD-303	GP130	TG-S30
C51	.033		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C52	.0012	#7293588	DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C53	120 N080		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C54	.001		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C55	.05		DI-330	DD-331	JBZ601YP331K	CCD-331	GP331	10TS-T33
C56	.05		DI-330	DD-331	JBZ601YP331K	CCD-331	GP331	10TS-T33
C57	330		DI-330	DD-331	JBZ601YP331K	CCD-331	GP331	10TS-T33
C58	330		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C59	.0022		DBE4S15	DMF4S15		4DP-1-153	PVC6115	4PS-S15
C60	.015 75V			UK-105	HGX3R0XR105P		MAG31	HY-135
C61	1mfd 3V		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C62	.05		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10
C63	.047 75V		DBE2S47	DMF2S47		4DP-3-473	PVC2147	2PS-S47
C64	.15 75V		DBE4P15	DMF4P15		4DP-4-154	PVC6015	4PS-P15
C65	470		DI-470	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47
C66	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C67	.0022		DI-2200	DD-222	JBX601YP222K	CCD-222	GP222	10TS-D22
C68	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C69	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C70	1.5 NPO		NPO-DI1.5	DTZ-1R5		CCTO-56	CNO515	10TCC-V15
C71	.56 NPO		TCZ-56			CCD-472	GP247	10TCC-Q56
C72	.0047		DI-4700	DD-472	JBT601YP472K		TA150	TG-S50
C73	.05		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C74	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C75	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C76	.05		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C77	.15 75V		DBE4P15	DMF4P15		4DP-4-154	PVC6015	4PS-P15
C78	.05		TTD-05	CK-503	HOV101ZV503Z		TA150	TG-S50
C79	.110 N180	#7297732						
C80		#7271564						

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

CONTROLS

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

ITEM No.	USE	RESIST- ANCE	REPLACEMENT DATA				
			PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Tone Volume/Switch	100K 20K Tap @ 12K	7298432①				
	Tone Volume/Switch	100K 20K Tap @ 12K	7298147②				
R2	Bias	600Ω 2W	7286601	V-600	U39-600	110-600	MR500P

① Used in Model 419
② Used in Model 421

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.
R61	.47Ω Fusible			7281890					

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				
		DELCO PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.
L1	FM Antenna	①				
L2	FM RF	①				
L3	FM Oscillator	①				
L4	RF Choke (.18uh)	7291800				
L5	1st FM IF	7292791				
L6	RF Choke (8uh)	7255738				
L7	AM Antenna	①				
L8	2nd FM IF	7291358				
L9	AM RF	①				
L10	AM Oscillator	①				
L11	3rd FM IF	7291359				
L12	1st AM IF	7288144				
L13	4th FM IF	7291360				
L14	2nd AM IF	7293318				
L15	Ratio Detector	7294335				
L16	FM Trigger IF	7287612				
L17	RF Choke (100uh)	7294748				

① Part of M1.

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.	
L18	1.5 Amp.	.6Ω	8mh	1221623	C-4095	TC-2	TR-154	TY17XT	
L19	1.5 Amp.	.1Ω	245uh						

CHOKE (AUDIO OUTPUT)

ITEM No.	INDUCTANCE	REPLACEMENT DATA					NOTES
		DELCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L20	35 mh	7296712					

FUSE DEVICES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
F1	SFE	9 Amp.		In Fuse Block	307009		SFE9	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
K1	Relay	7295713	
K2	Solenoid	1221409	
M1	Tuner Coil Assembly	7297984	
S1	AM-FM Selector Sw.	7296365	
S2	Start Switch	1222661	
	Start Switch	1222660	
S3	Sensitivity Switch		
S4	Solenoid Switch	7268030	
S5	Relay Switch	7293447	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

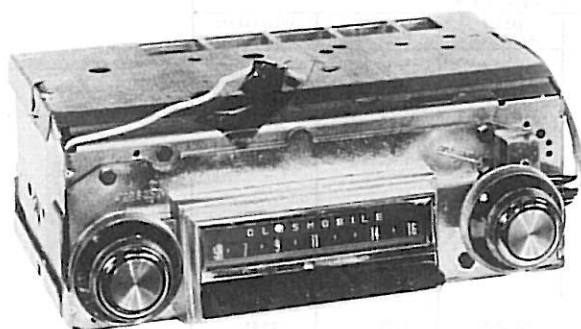
ITEM		PART No.	ITEM		PART No.
Dial Drum		7296895	Dial Pointer	Model: 419	7298437
Escutcheon	Model: 419	7298444	Dial Pointer	Model: 421	7298237
Escutcheon	Model: 421	7298427	Push Button	Model: 419	7297973
Dial Glass	Model: 419	7298234	Push Button	Model: 421	7297975
Dial Glass	Model: 421	7298011			

MOPAR MODELS 419, 421



PHOTOFACT[®] with

CIRCUITRACE[®]



TRADE NAME: Oldsmobile Model 7299563
(1967 Oldsmobile F-85)
SUPPLIER: For Current Address, See Annual Index.
TYPE SET: 6 Transistor AM Receiver
POWER SUPPLY: 12 Volt Storage Battery
RATING: .6 Amp. @ 12.6 Volts DC (Less Lamp)
TUNING RANGE: BROADCAST 540-1615KC

OLDSMOBILE MODEL 7299563

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: 2531-X, 2536

A6, A7, A8.

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 (A), 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 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 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 fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.

Remove tuning and dummy knobs for access to Antenna Trimmer (A8).

PUSH-BUTTON ADJUSTMENT

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