

INTERNATIONAL
MODEL 86M1

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TRADE NAME	International Model 86M1 (For 1958 International "A" Line Trucks)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output		
TUBES(Six)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 1st IF Amplifier, 12BL6 2nd IF Amplifier, 12DL8 Det. -AVC-AF Amplifier, 12AL8 Trigger		
POWER SUPPLY	12 Volt Storage Battery	RATING	2.2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540-1600KC		

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1. .1mfd	High Side to Pin 7 (Grid of 12AD6 (V2). Low Side to Chassis.	262.5KC (400v Mod.)	High Freq. End Stop	DC Probe to Point A Common to Chassis.	A1, A2, A3	Adjust For Maximum Deflection
2. .1mfd	"	"	"	"	A4	Adjust For MINIMUM Deflection
3. Fig. 1	Thru Dummy to Antenna Receptacle	1610KC	"	"	A5, A6, A7	Adjust For Maximum Deflection

It is not necessary to perform steps 4 and 5 unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A8, A9, A10) out of coils but not out of coil forms.

4. Fig. 1	Thru Dummy to Antenna Receptacle	1610KC	High Freq. End Stop.	DC Probe to Point A Common to Chassis.	A5, A6, A7	Adjust For Maximum Deflection
5. Fig. 1	"	1020KC	Tuner Carriage 9/16" From High Freq. End Stop.	"	A8, A9, A10	Adjust For Maximum Deflection Repeat Steps 4 & 5 With Step 4 Last.
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					

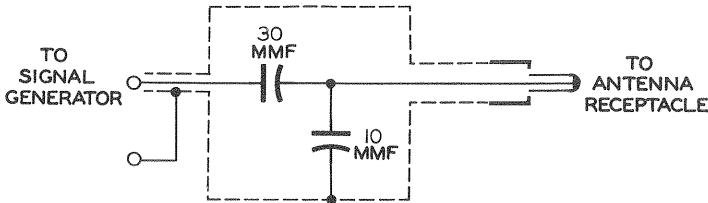
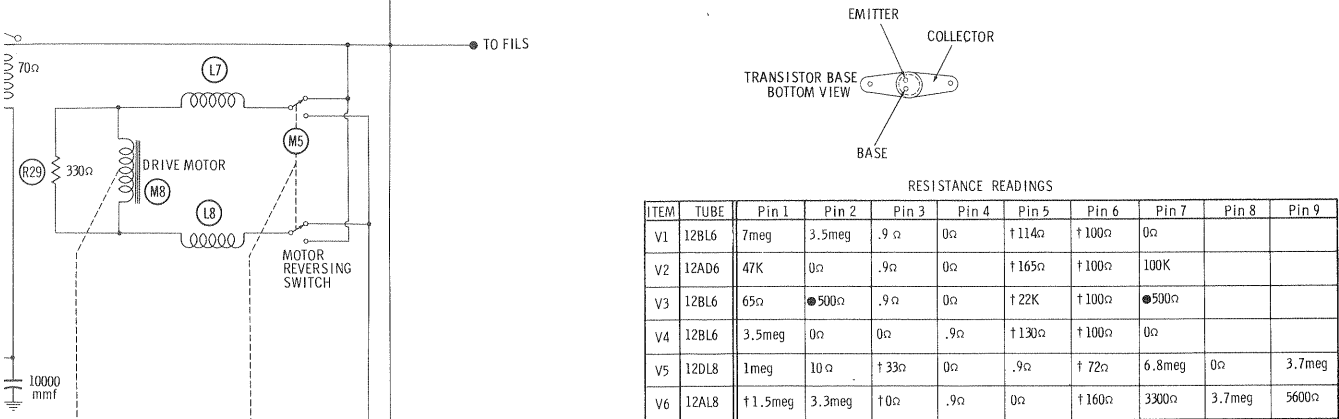
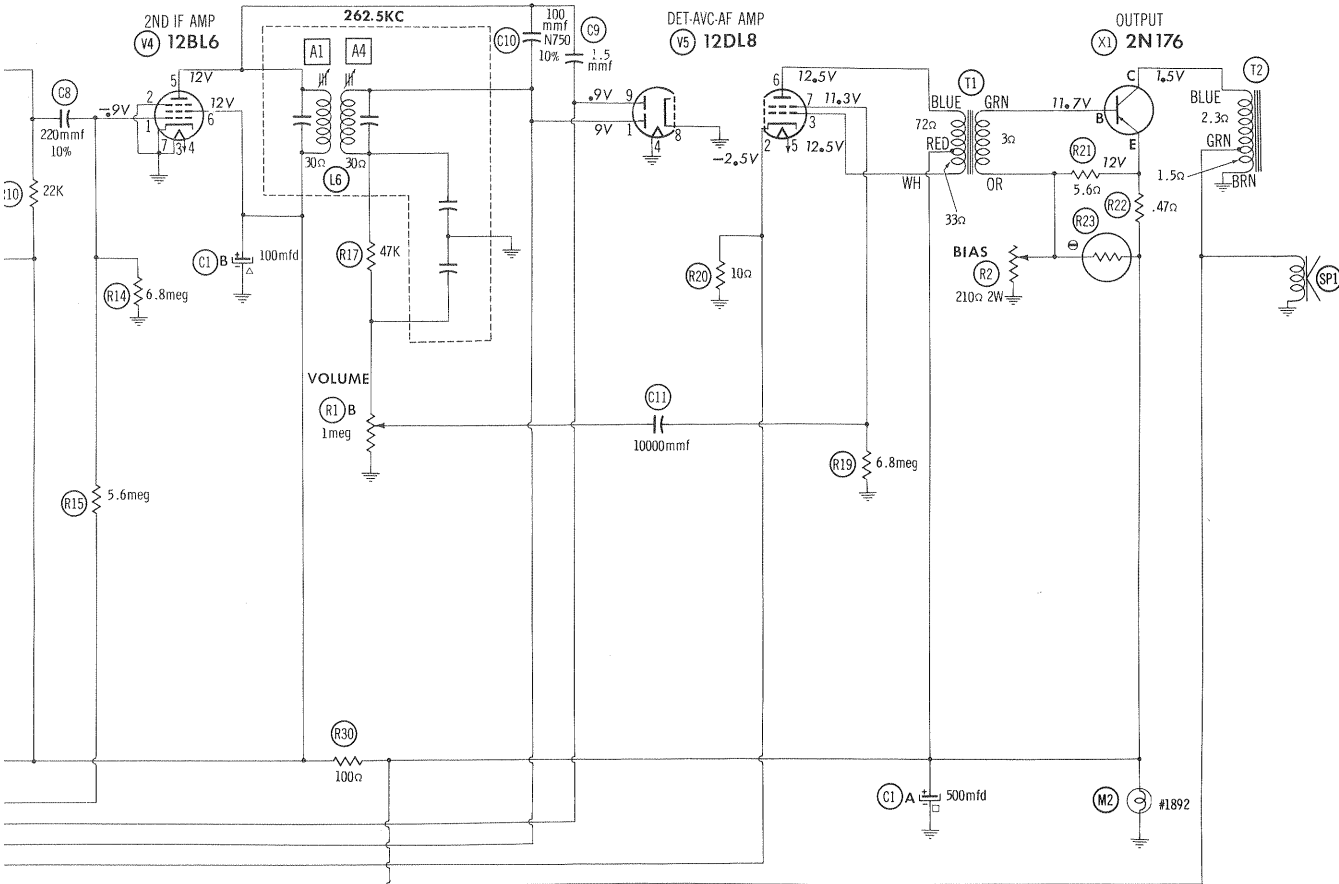


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H375

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● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION
† MEASURED FROM JUNCTION OF R30 AND C1A

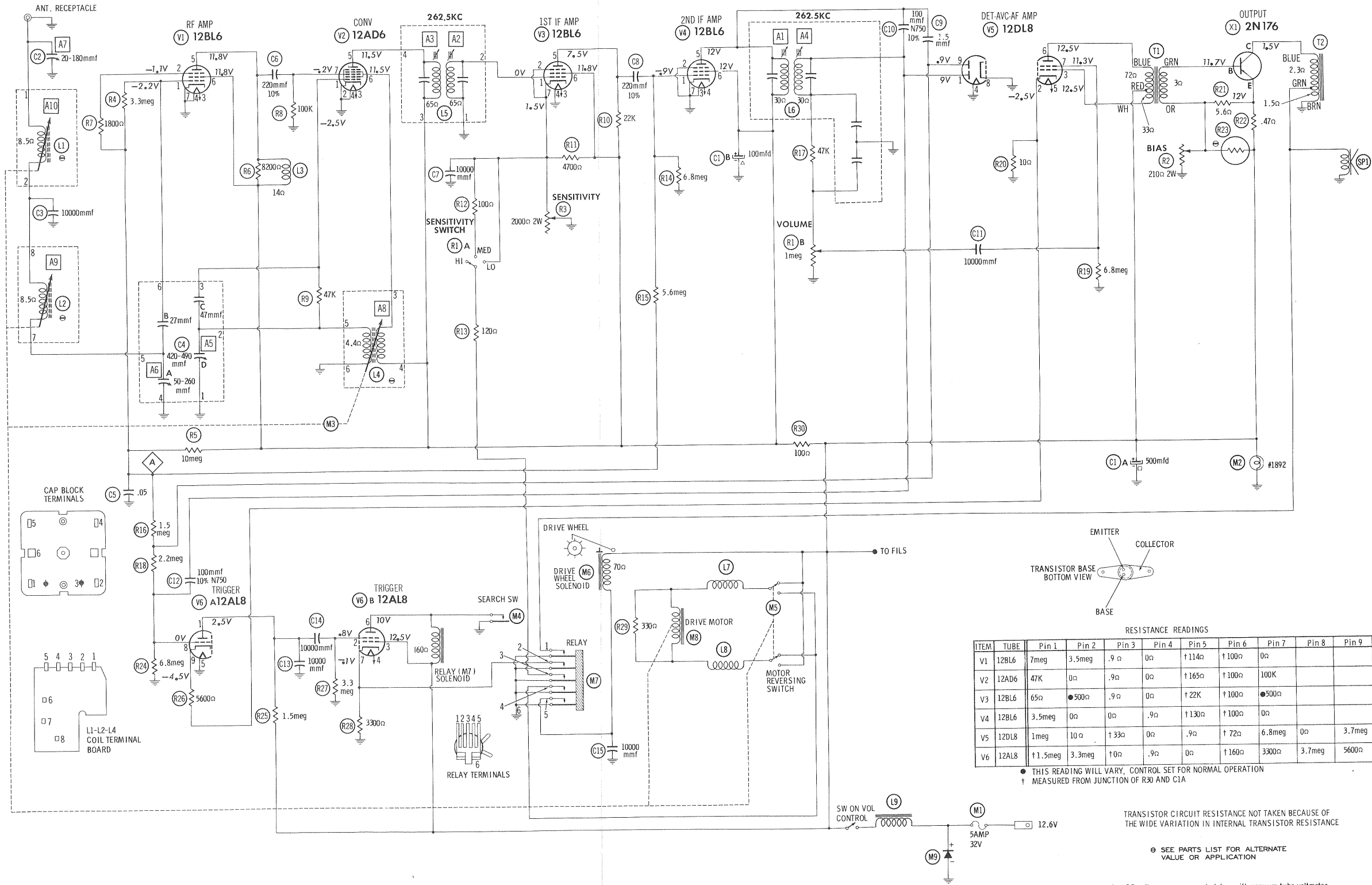
TRANSISTOR CIRCUIT RESISTANCE NOT TAKEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

INTERNATIONAL
MODEL 86M1



TRADE NAME
MANUFACTURER
TYPE SET
TUBES(Six)

POWER SUPPLY
TUNING RANGE—BRO

Volume control should
output reading. Use:

DUMMY ANTENNA
1. .1mfd
2. .1mfd
3. Fig. 1
4. Fig. 1
5. Fig. 1
6. With radio installed in

SIGN GENER. COUPL
High Side to (Grid) of 12
Low Side to

It is not necessary to
If necessary, back to

Thru Dumm
Antenna Re

Thru Dumm
Antenna Re

With radio installed in

The listing of any av
not constitute in any c
guaranty by Howard W
and suitability of such
these parts have been
to Howard W. Sams &
H375

PARTS LIST AND DESCRIPTIONS
 TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6		V4	2nd IF Amplifier	12BL6	
V2	Converter	12AD6		V5	Det.-AFC-AF Amplifier	12DL8	
V3	1st IF Amplifier	12BL6		V6	Trigger	12AL8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			GE	PAYTHEON	SYLVANIA	
X1	2N176	Output	2N155	2N176/ 2N342		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX	CORNELL-DUBILIER	MALLORY	PYRAMID	
C1A	500	16	A7H2-02-10	B0445	WP200- 5		R2452 *
B	100	16					

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA				NOTES
			CENTRALAB	CORNELL-DUBILIER	ERIC	MALLORY	
C2	20-180		MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	
C3	10000		20A491526	BPD-01	DD-103	BYA6S1	5HK-S1
C4A	50-260		21R482726				
B	27		20B542094				
C	47						
D	420-490						
C5	505	200	8R121005	P268N-05	DF-503	CUR2S5	4TM-S5
C6	220		21K121698		DD-221	L10T22	MS-322 10%
C7	10000		21R482726	BPD-01	DD-103	BYA6S1	5HK-S1
C8	220		21K121698		DD-221	L10T22	MS-322 10%
C9	1.5		21R115959	NPO-SIL 5	TCZ-1B5	C10V15C	5TCOB-V15
C10	100		21R410036	N750-D1100	TCN-100	C10T1U	5TCU-T1
C11	10000		21R482726	BPD-01	DD-103	BYA6S1	5HK-S1
C12	100		21R410036	N750-D1100	TCN-100	C10T1U	5TCU-T1
C13	10000		21R482726	BPD-01	DD-103	BYA6S1	5HK-S1
C14	10000		21R482726	BPD-01	DD-103	BYA6S1	5HK-S1
C15	10000		21R482726	BPD-01	DD-103	BYA6S1	5HK-S1

CONTROLS

ITEM No.	RATING RESIST-ANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	
R1A	Switch	$\frac{1}{2}$				
B	1meg		18B542219			
C	Switch	2	18K540718			
R2	2102	2		39-200		Sensitivity Volume
R3	20002	2	18K520298	39-2000	FL-2, 5K	Bias (Wire Wound) Sensitivity

PARTS LIST AND DESCRIPTIONS (Continued)
 RESISTORS

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

ITEM No.	RATING OHMS	WATT	MOTOROLA PART No.	NOTES	ITEM No.	RATING OHMS	WATT	MOTOROLA PART No.		NOTES
R4	3.3meg		6K119407		R18	2.2meg		6K127001		
R5	10meg		6R5622		R19	6.8meg		6K122321		
R6	82002		6K119831		R20	102		6K124668		
R7	18002		6K122445		R21	5.62		17K739323		Note 1
R8	100K		6K125534		R22	0.472		17K488266		
R9	47K		6K121299		R23	0.472		6K540634		
R10	22K		6K119835		R24	6.8meg		6K121933		
R11	47002		6K121847		R25	1.5meg		6R8460		
R12	1002		6R8326		R26	56002		6R8117		
R13	1202		6R8270		R27	3.3meg		6K121278		
R14	6.8meg		6K123321		R28	33002		6R8036		
R15	5.6meg		6R8460		R29	3302		6R8010		
R16	1.5meg				R30	1002		6R8326		
R17	47K		6K121299							

Note 1. Temperature compensating unit, 102 @25° C

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		MOTOROLA PART No.	REPLACEMENT DATA	NOTES
	PR1	SEC.			
T1	10:	1	25C542378	Merit Stancor Thordarson PART No. PART No. PART No.	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		MOTOROLA PART No.	REPLACEMENT DATA	NOTES
	PR1	SEC.			
T2	102	3-42	25K542338	Merit Stancor Thordarson PART No. PART No. PART No.	

SPEAKER

ITEM No.	TYPE		MOTOROLA PART No.	REPLACEMENT DATA	NOTES
	SIZE	FIELD V. C. IMP.			
SPL	5 $\frac{3}{8}$ "x7 $\frac{1}{2}$ "	P.M.	3-42	50C542399 57A1	

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	REPLACEMENT DATA			NOTES
			Meissner	Merit	Miller	
L1	Ant. Coil		PART No.	PART No.	PART No.	
L2	RF Coil	24B537932				
L3	RF Choke	24B537932				
L4	Osc. Coil	24A560200				
L5	Input IF	24B537931				
L6	Output IF	24B536693				
L7	RF Choke	24B533073				
L8	RF Choke	24A542379				

Note 1. Part of coil and plate assembly 1V549431

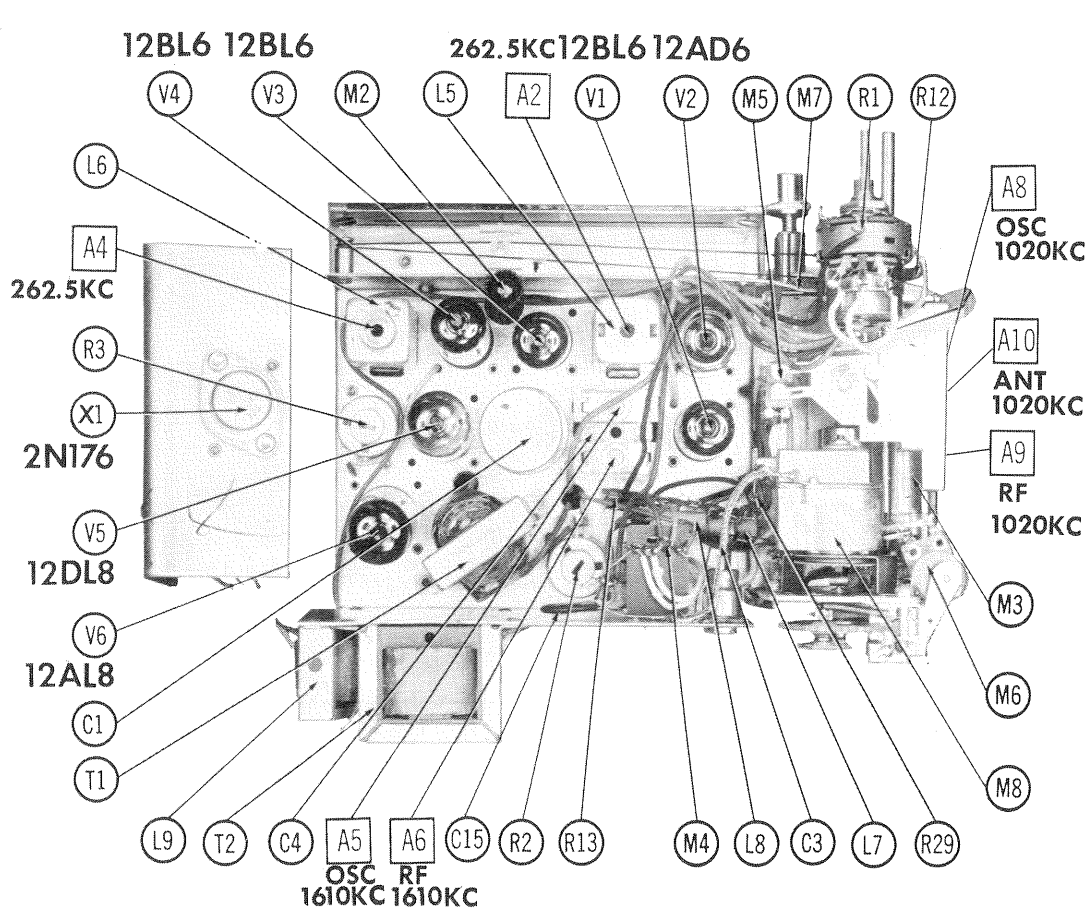
FILTER CHOKE

ITEM No.	RATINGS TOTAL D.C. CURRENT	D. C. RESISTANCE	MOTOROLA PART No.	REPLACEMENT DATA			Triad PART No.
				Inductance (mH)	Merit PART No.	Stancor PART No.	
L9	2.2A	.90		4MHL. H.V.	25K560034		

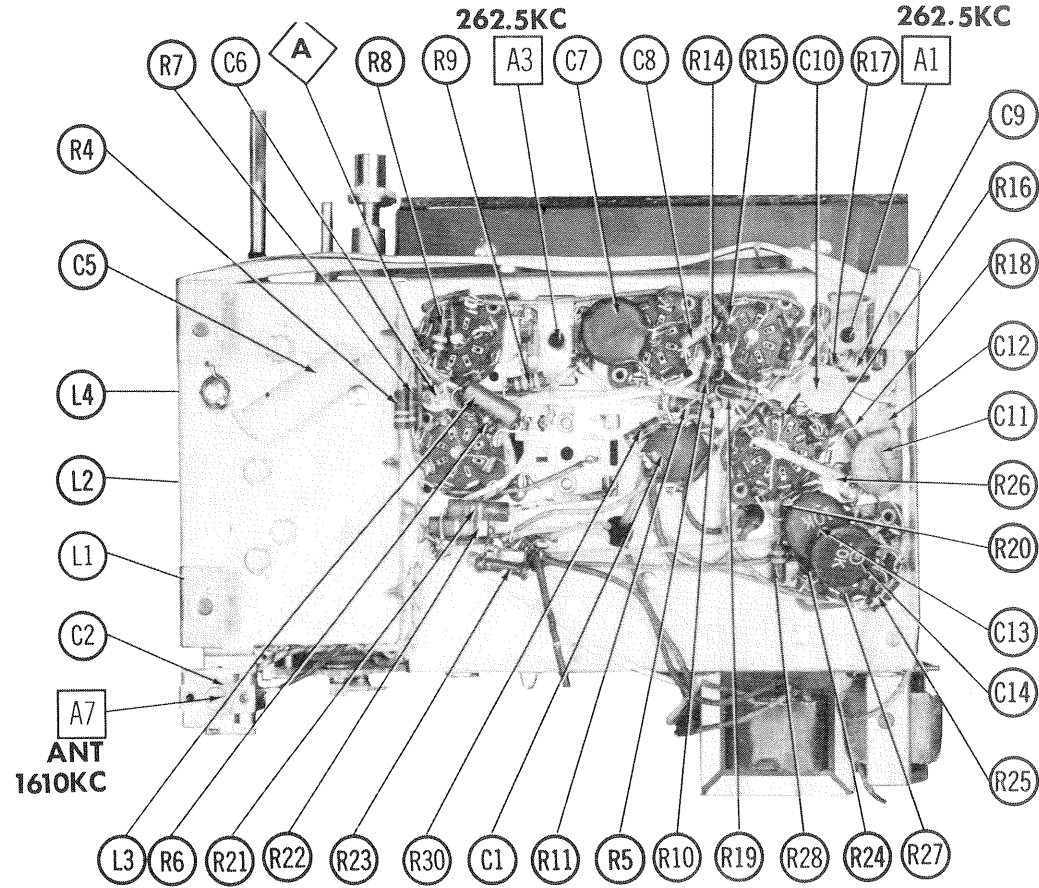
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			MOTOROLA PART No.	LITTELFUSE FUSE	BUSS FUSE	
F1	1A.C.	5A		30100R	15A004	
				FUSE HOLDER	FUSE HOLDER	
				6AD199345	07549305	
					AG4A5	HAF

CHASSIS—TOP VIEW

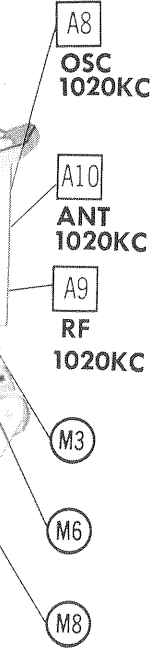


CHASSIS—BOTTOM VIEW



ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLOY PART No.
R1A	Switch	18B542219				
R2	1meg	18K540718				
R3	2000	18K520298		38-2000		Sensitivity Volume
	2			38-2000		Bias (Wire Wound) Sensitivity

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PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW

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

ITEM No.	RATING		MOTOROLA PART No.	NOTES	MOTOROLA PART No.	NOTES
	OHMS	WATT				
R4	3.3meg		6K119407		6K127001	
R5	10meg		6K156222		R19 6.8meg	
R6	5000		6K119501		6K122321	
R7	1800		6K122445		R20 100	
R8	47K		6K125594		17K739323	
R9	22K		6K119379		17K489266	
R10	22K		6K119379		R22 0.47	
R11	4700		6K121847		6K540634	
R12	1000		6K1376		6K121033	
R13	1200		6R6270		6R6460	
R14	6.8meg		6K122321		6R6117	
R15	5.6meg		6R3988		6K121278	
R16	1.5meg		6R6480		6R6036	
R17	47K		6K121299		6R6010	
					R30 100	

Note 1. Temperature compensating unit, 100 @25° C

TRANSFORMER (DRIVER)

ITEM No.	RATING		MOTOROLA PART No.	NOTES	MOTOROLA PART No.	NOTES
	OHMS	WATT				
T1	10:1	1	25C542378			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING		MOTOROLA PART No.	NOTES	MOTOROLA PART No.	NOTES
	OHMS	WATT				
T2	100:3-40	25K542338				

SPEAKER

ITEM No.	RATING		MOTOROLA PART No.	NOTES	MOTOROLA PART No.	NOTES
	OHMS	WATT				
SPI	5 1/2"x7 1/2"	PM 3-40	50C542399	57A1		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA		MOTOROLA PART No.	NOTES
		MOTOROLA PART No.	QUAM PART No.		
L1	Ant. Coil	24B537932			
L2	RF Coil	24B537932			
L3	RF Choke	24A560200			
L4	Rect. Coil	24B537931			
L5	Input LP	24B535693			
L6	Output LP	24B535073			
L7	RF Choke	24A542379			
L8	RF Choke	24A542379			

Note 1. Part of coil and plate assembly 1V342431

FILTER CHOKE

ITEM No.	RATINGS		MOTOROLA PART No.	NOTES	MOTOROLA PART No.	NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE				
L9	2.2A	.90	4M1L Hy.	25K560034		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			MOTOROLA PART No.	FUSE	HOLDER	BUSS PART No.
M1	LAG	5A 32V	65R122345	301005, (LAG 5A 32V)	155004	AGA5
						HA5

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Pilot Light	65R538410	#1892
M3	Tuner Switch	77K542324	MST-237 (Complete)
M4	Switch	40A542391	Search (Leaf Type)
M5	Solenoid	40K537765	Motor Reversing (Leaf Type)
M6	Relay	58A537563	Drive Wheel
M7	Motor	80C539576	Search Button
M8	Motor Plate	58K542419	Tuner Drive
M9	Spark Plate	48K539953	Selenium Type

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36K592302	Dummy
Knob	36K473550	Search Sensitivity
Knob	36K542332	On-Off-Volume & Tuning
Button	38A542400	Search
Dial Scale	34B542223	
Dial Pointer	52A542227	

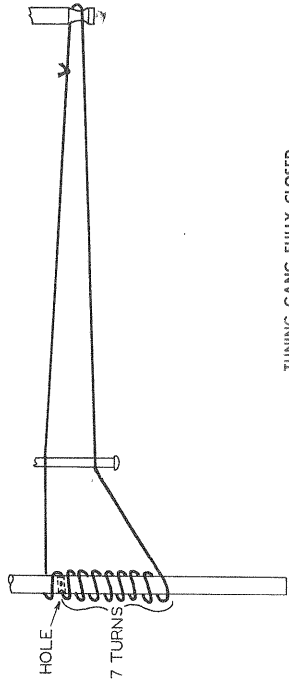
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8824 (Stranded) Available in Ten Colors
Bonding Strap	Use BELDEN No. 8861

TRANSISTOR BIAS ADJUSTMENT (R2)

The transistor current should be checked after the transistor is replaced.

1. Set bias control (R2) fully counter-clockwise (maximum resistance)
2. Connect an accurate low range VTVM from the transistor collector (outer case) to chassis.
3. Apply power to the receiver and allow a 15 minute warm-up period.
4. Adjust R2 for a reading of .75 volts on the VTVM. This is equivalent to a collector current of 425MA.



TUNING GANG FULLY CLOSED

DIAL CORD STRINGING