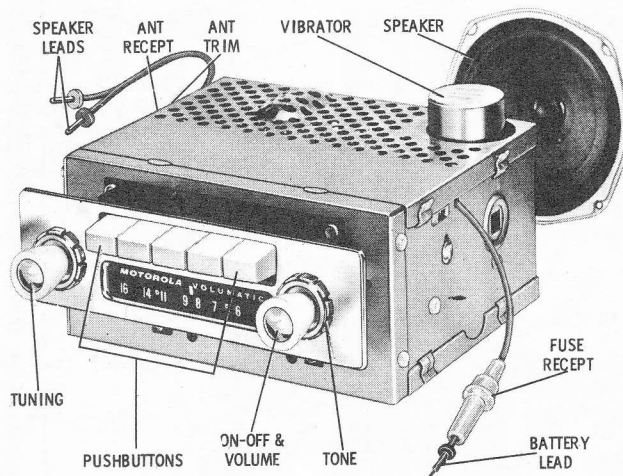


MOTOROLA

Service Manual



GENERAL INFORMATION

TYPE - Automotive type superheterodyne receiver designed for custom installation in the 1958 Volkswagen car.

TUNING RANGE - 540 to 1610 Kc IF - 262.5 Kc

OPERATES FROM - 6 volt storage battery

TUBE COMPLEMENT - 6BA6 RF amp
6BE6 Converter
6BA6 IF amp
6CR6 Det-AVC-AF amp
6AQ5 Pwr amp
6X4 Rectifier

TO SET PUSHBUTTONS

1. Tune in the desired station with the manual tuning knob; tune carefully until you are exactly on station.
2. Pull out the first pushbutton, to unlock it for station set-up, then push button in firmly to set and lock button.
3. Follow the above procedure for the remaining four buttons.

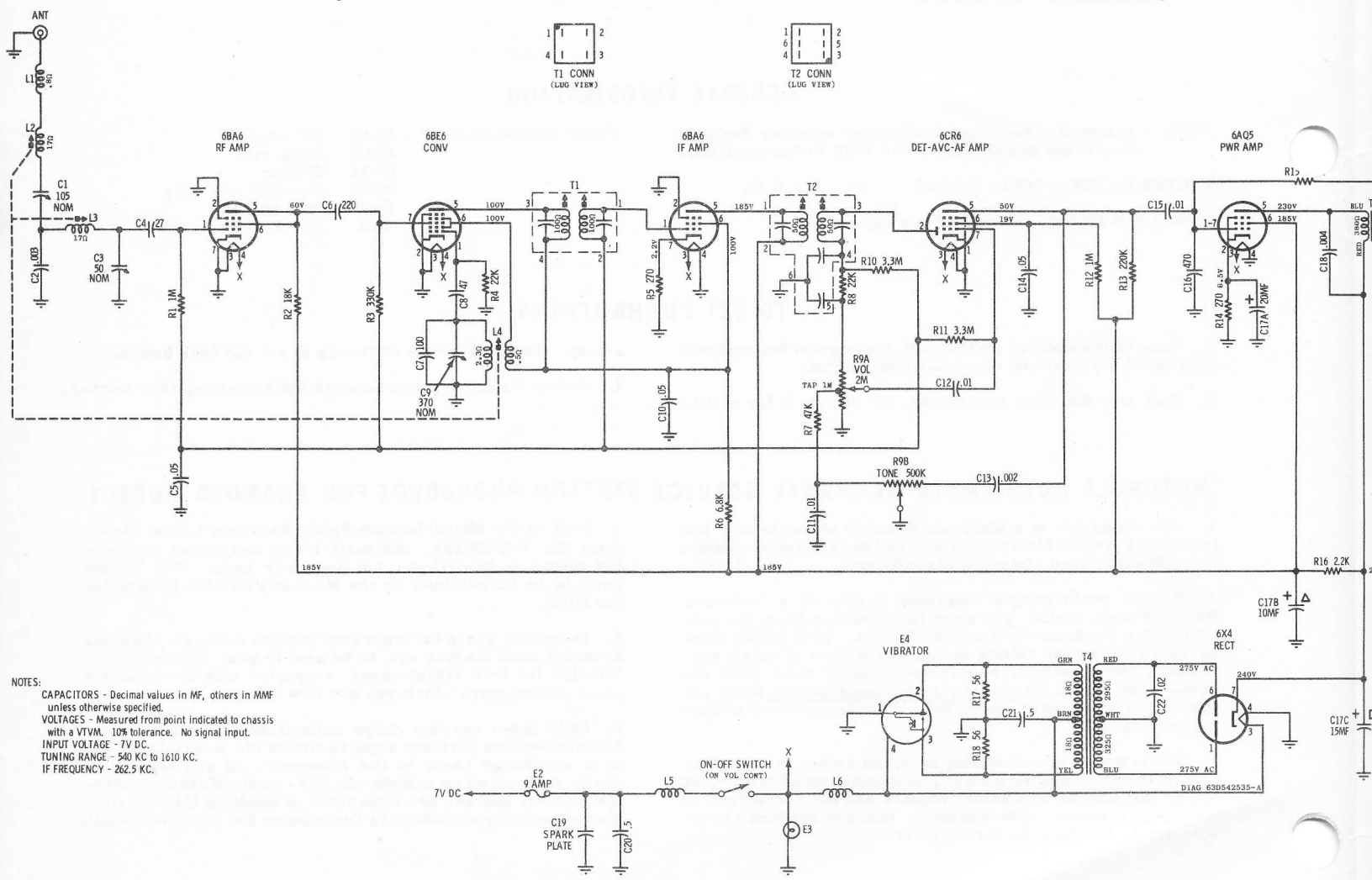
MOTOROLA AUTO RADIO WARRANTY SERVICE STATION PROCEDURE FOR BRANDED MODELS

1. The definition of a Motorola Branded Model is one that is branded with the Motorola name, and distributed to dealers through authorized Motorola Distributors.
2. Before performing a warranty repair on a Motorola Branded Auto Radio, you must first receive from the customer the Customer's Warranty Policy. This policy must be filled out by the selling dealer at the time of retail purchase. The Customer's Warranty Policy must show the radio to be within the ninety-day warranty period if the repair is to be handled under the Motorola Auto Radio Warranty Plan.
3. The removal or reinstallation of the radio, the elimination of motor noise, tire static, electrical interference, or faulty installation and aerial repairs are not considered as warranty repairs. Consequently, charges for these services are to be borne by the customer.
4. Fill in the Motorola Auto Radio Warranty Labor Claim, Part No. 54P480884, and mail White and Green copies to the Motorola Distributor serving your area. The Yellow copy is to be retained by the Warranty Service Station for his files.
5. Defective parts for warranty repairs made on Motorola Branded Auto Radios are to be sent to your Motorola Distributor for free replacement, supported with the defective parts return form which you are now using.
6. Only those service shops authorized by their Motorola Distributor can perform repairs within the warranty period on a no-charge basis to the customer. If you are not already authorized as a Motorola Auto Radio Warranty Service Station, and you are interested in handling this service, please contact your Motorola Distributor for complete details.

ALIGNMENT

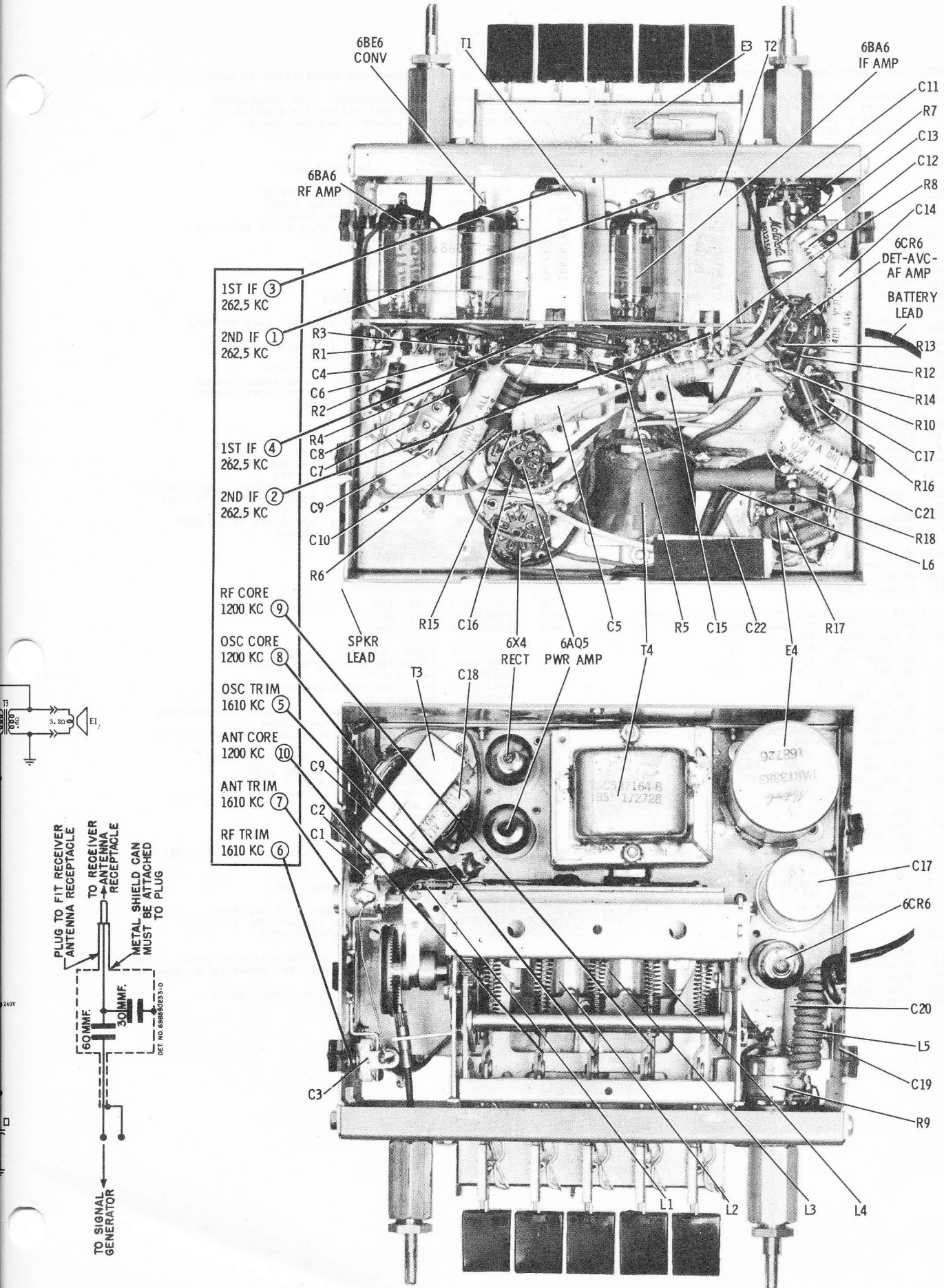
Connect an output meter across the speaker voice coil; set volume to maximum and tone to treble. Attenuate the signal generator output to maintain 1.79 volts on output meter at all times to prevent overloading the receiver. Refer to alignment photo for adjustment locations.

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY (400 cycle mod)	TUNER SET TO	ADJUST	REMARKS
IF ALIGNMENT					
1.	Ant recept thru .1 mf & chassis	262.5 Kc	Hi end stop	1, 2, 3 & 4	Adjust for maximum.
RF ALIGNMENT					
2.	Ant recept thru dummy (see detail)	1610 Kc	Hi end stop	5, 6 & 7	Adjust for maximum.
NOTE: Do not perform steps 3, 4, 5 & 6 unless the tuner has been tampered with or components have been replaced. Remove the escutcheon, dial scale assembly and dial background plate to expose the core screws. Before proceeding with step 3, back the tuning cores as far as possible out of the coils to eliminate their effect on trimmer adjustments.					
3.	Ant recept thru dummy (see detail)	1610 Kc	Hi end stop	5, 6 & 7	Adjust for maximum.
4.	"	1200 Kc	Tuner carriage 9/32" from hi end stop	8, 9 & 10	Adjust for maximum.
5.	"	1610 Kc	Hi end stop	5, 6 & 7	Adjust for maximum.
6. Repeat steps 4 and 5 until no further increase, then cement tuning cores in place. Step 5 should be the last adjustment.					
ANTENNA TRIMMER					
7.	-	-	Weak station around 1400 Kc	7	With radio installed in car and antenna fully extended, adjust antenna trimmer for maximum.



NOTES:
 CAPACITORS - Decimal values in MF, others in MMF unless otherwise specified.
 VOLTAGES - Measured from point indicated to chassis with a VTVM. 10% tolerance. No signal input.
 INPUT VOLTAGE - 7V DC.
 TUNING RANGE - 540 KC to 1610 KC.
 IF FREQUENCY - 262.5 KC.

SCHEMATIC DIAGRAM



6BE6 CONV T1 E3 T2 6BA6 IF AMP

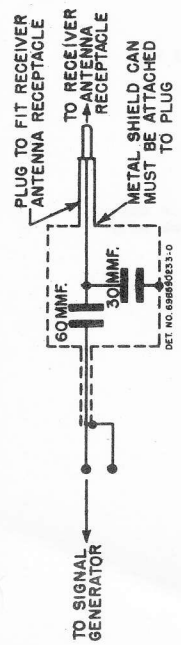
6BA6 RF AMP

- 1ST IF ③
262.5 KC
- 2ND IF ①
262.5 KC
- 1ST IF ④
262.5 KC
- 2ND IF ②
262.5 KC
- RF CORE
1200 KC ⑨
- OSC CORE
1200 KC ⑧
- OSC TRIM
1610 KC ⑤
- ANT CORE
1200 KC ⑩
- ANT TRIM
1610 KC ⑦
- RF TRIM
1610 KC ⑥

- C11
- R7
- C13
- C12
- R8
- C14
- 6CR6
DET-AVC-
AF AMP
- BATTERY
LEAD
- R13
- R12
- R14
- R10
- C17
- R16
- C21
- R18
- L6

R15 C16 6X4 RECT 6AQ5 PWR AMP C5 R5 C15 C22 R17

- SPKR LEAD
- T3 C18
- T4 E4
- C17
- 6CR6
- C20
- L5
- C19
- R9
- L1
- L2
- L3
- L4



DUMMY ANTENNA
DETAIL

ALIGNMENT ADJUSTMENTS AND PARTS LOCATIONS

REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Electronic parts of equivalent rating are not necessarily of equivalent standards. The components listed in this Service Manual have been chosen for reliability and applicability to the specific circuits involved. For maximum customer satisfaction and minimized call-backs, use the exact Motorola parts replacement.

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
ELECTRICAL PARTS					
C-1	20K542441	Capacitor, mica trim: 40 mmf to 430 mmf		42A4215	Clip, vibrator grounding
C-2	8K740911	Capacitor, paper tub: .003 mf 200V		15C541670	Cover, bot (wiring side)
C-3	20K542018	Capacitor, mica trim: 20 mmf to 120 mmf		15K541823	Cover, top (tube side)
C-4	21R410089	Capacitor, cer disc: 27 mmf 500V NPO		*32B542237	Gasket (covers dial scale ret brkt)
C-5	8R121005	Capacitor, paper tub: .05 mf 200V		36K542005	Knob, dummy
C-6	21K121698	Capacitor, cer disc: 220 mmf 500V		36B522020	Knob, tone
C-7	21R410036	Capacitor, cer disc: 100 mmf 500V NTC750PPM		*36K542973	Knob, vol & tuning
C-8	21R115593	Capacitor, cer disc: 47 mmf 500V NTC750PPM		1V542214	Pointer
C-9	20K542092	Capacitor, mica trim: 310 mmf to 390 mmf		*38K542956	Pushbutton
C-10	8R121567	Capacitor, paper tub: .05 mf 400V		9K541991	Receptacle, fuse
C-11	21R482726	Capacitor, cer disc: .01 mf 500V		*34B542775	Scale, dial
C-12	8R121002	Capacitor, paper tub: .01 mf 400V		1B541917	Shaft, manual tuning: incl bushing
C-13	8R121568	Capacitor, paper tub: .002 mf 600V		9A530168	Socket, ant
C-14	8R121567	Capacitor, paper tub: .05 mf 400V		9A70208	Socket, 4 pin (vibrator)
C-15	8R121002	Capacitor, paper tub: .01 mf 400V		9K541697	Socket, pilot light
C-16	21R410121	Capacitor, cer disc: 470 mmf 500V		9K539132	Socket, tube: 7 pin min
C-17	23A485677	Capacitor, electrolytic: 10-15 mf/350V; 20 mf/25V		29A76280	Terminal, pin: black (spkr leads)
C-18	8R121000	Capacitor, paper tub: .004 mf 600V		29K76282	Terminal, pin: white (spkr leads)
C-19	64K530177	Spark Plate		4K481689	Washer, felt (knobs)
C-20	8K122076	Capacitor, paper tub: .5 mf 100V		MOUNTING PARTS & ACCESSORIES	
C-21	8K122076	Capacitor, paper tub: .5 mf 100V		*7B542795	Bracket, front radio mtg (LH)
C-22	8R122269	Capacitor, paper tub: .02 mf 1000V		*7B542798	Bracket, front radio mtg (RH)
E-1	50C634230	Speaker, PM: 5"; 3.2 ohm VC		*7B542767	Bracket, rear radio mtg
E-2	65R16248	Fuse: 9 amp		8A4491	Condenser, noise suppression (ignition coil)
E-3	65R10867	Bulb, pilot light: 6V; #44		8B538244	Condenser, noise suppression (volt reg)
E-4	48B3333	Vibrator, 6V		2A2869	Nut, hex: 7/16-28 (radio mtg)
L-1	24K537545	Choke, ant spark		*3S128062	Screw, tapping: #10 x 3/8 (spkr mtg)
L-2, 3, 4	-	See Tuner Replacement Parts List		6A4141	Suppressor, distributor
L-5	24K542019	Choke, RF		*13B542780	Trimplate
L-6	24A538914	Choke, hash		TUNER 77K542165 (AT-233) PARTS	
Resistors - Note: All resistors are insulated carbon type unless otherwise specified					
R-1	6K122324	1 meg 20% 1/2W	L-2	24C535458	Coil, ant
R-2	6R5734	18,000 10% 1W	L-3	24C535458	Coil, RF
R-3	6R6014	330,000 20% 1/2W	L-4	24C535456	Coil, osc
R-4	6K119405	22,000 20% 1/2W		77K542165	Tuner, AT-233: complete
R-5	6R6432	270 10% 1/2W		1V560625	Adjusting Screw & Nut Assembly
R-6	6K122012	6800 10% 2W		1A540830	Arm, pointer
R-7	6K121299	47,000 10% 1/2W		45B534574	Arm, pushbutton extension
R-8	6K119405	22,000 20% 1/2W		43A4326	Bearing, ball
R-9	18B542013	Dual Control & Switch: vol 2 meg, tap at 1 meg; tone 500K		1V535114	Clutch Assembly: incl friction washers, crown gear & pinion gear
R-10	6K119407	3.3 meg 20% 1/2W		1V542258	Coils & Mtg Plate Assembly: incl L2, L3, L4 & mtg plate
R-11	6K119407	3.3 meg 20% 1/2W		76K534642	Core, iron tuning (ant & RF coil)
R-12	6K122324	1 meg 20% 1/2W		76K534644	Core, iron tuning (osc coil)
R-13	6R6015	220,000 20% 1/2W		5K536918	Grommet, coil mtg (ant & RF)
R-14	6R6432	270 10% 1/2W		5K534727	Grommet, coil mtg (osc)
R-15	6R6014	330,000 20% 1/2W		5K534508	Grommet, core mtg
R-16	6R476130	2200 20% 2W		45A534509	Link, connecting
R-17	6K125697	56 10% 1W		1K542255	Plate, coil mtg
R-18	6K125697	56 10% 1W		42K534660	Retainer, clutch
T-1	24K542491	Transformer, 1st IF: 262.5 Kc		3S124064	Screw, tapping: #4 x 5/16 (mounts coil mtg plate)
T-2	24K542675	Transformer, 2nd IF: 262.5 Kc		76B534589	Sleeve, iron
T-3	25B70171	Transformer, output		41A534566	Spring, connecting link
T-4	25C537164	Transformer, power		41A501096	Spring, pointer
MECHANICAL PARTS					
	7B541865	Bracket, dial background		41A534538	Spring, split gear anti-backlash
	7C541894	Bracket, dial scale ret		41A535493	Spring, tension (clutch bar return)
	*43K542777	Bushing, mtg		4A501039	Washer, "C" (pointer arm)
	42A500196	Clip, dial scale ret		Note: The volume of replacement on the following parts is small, consequently, it is suggested that ordering be done only as required.	
	42B733793	Clip, IF mtg		45C534697	Arm, clutch release (tuner part)
				*1V542884	Kit, radio mtg parts

*New Item, Appears in any List for First Time