



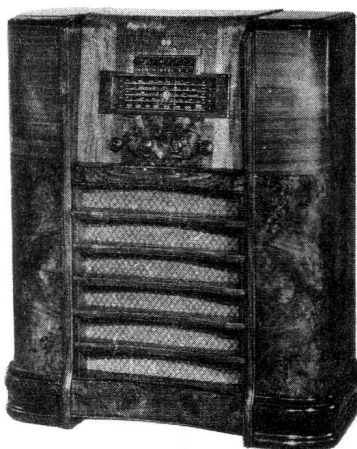
RCA Victor

MODEL A8 (Band Spread)

Eleven-Tube, Five-Band, A-C, Superheterodyne Receiver

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Model A8

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast (A)	540-1,720 kc
"49 M" (49 Meters)	5,900-6,240 kc
"31 M" (31 Meters)	9,410-9,690 kc
"25 M" (25 Meters)	11,680-11,920 kc
"19 M" (19 Meters)	15,090-15,380 kc

R-F ALIGNMENT FREQUENCIES

"49 M" (49 Meters)	6,100 kc. (osc., det., ant.)
"31 M" (31 Meters)	9,550 kc. (osc.)
"25 M" (25 Meters)	11,800 kc. (osc.)
"19 M" (19 Meters)	15,200 kc. (osc.)
"Standard Broadcast"	600 kc. (osc.), 1,500 kc. (osc., det., ant.)

Intermediate Frequency 455 kc.

RADIOTRON COMPLEMENT

(1) Type-6K7	R.F. Amplifier
(2) Type-6SA7	First Detector
(3) Type-6SJ7	Oscillator
(4) Type-6SK7	I.F. Amplifier
(5) Type-6SK7	I.F. Amplifier
(6) Type-6SQ7	Audio Amp.

(7) Type-6SF5	Phase Inverter
(8) Type-6F6	Power Output
(9) Type-6F6	Power Output
(10) Type-5T4	Full Wave Rectifier
(11) Type-6U5	Tuning Indicator

Pilot Lamps One Mazda 47, 6-8 volts, .15 amp.; Two Mazda 44, 6.3 volt, .25 amp.
Fuse (Motor) 3 Ampere

POWER SUPPLY RATINGS

Rating A 105-125 volts, 50-60 cycles, 120 watts
Rating B 105-125 volts, 25-60 cycles 120 watts

POWER OUTPUT

Undistorted 7 watts
Maximum 10 watts

LOUDSPEAKER (RL70H-2)

Type 12 inch Electrodynamic
Impedance (V.C.) 3.4 ohms at 400 cycles

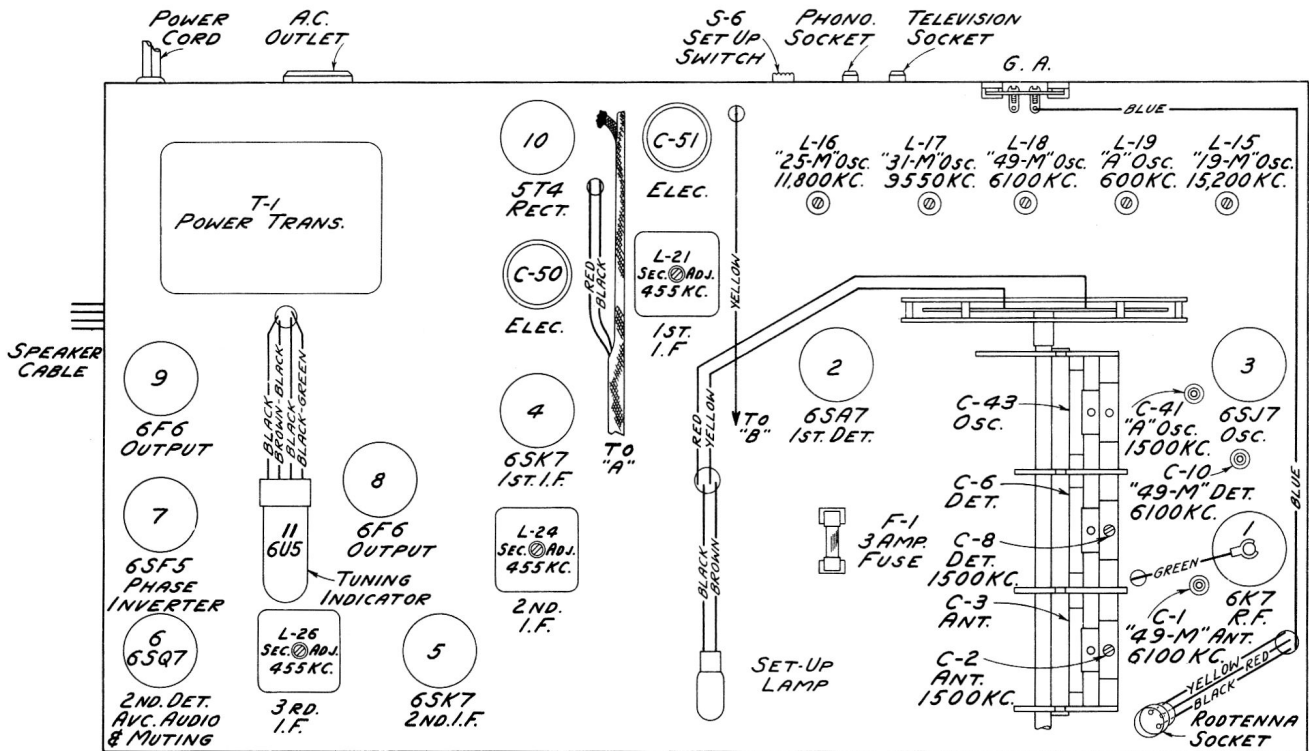
Mechanical Specifications

Height	40 $\frac{1}{4}$ inches
Width	33 $\frac{3}{4}$ inches
Depth	15 $\frac{1}{8}$ inches
Weight (Shipping)	105 pounds
Weight (Net)	90 pounds
Chassis Base Dimensions	15 $\frac{1}{2}$ inches x 8 $\frac{1}{2}$ inches x 3 $\frac{1}{4}$ inches
Overall Chassis Height	8 $\frac{3}{4}$ inches
Operating Controls	(1) Power-Volume, (2) Radio-Phono-Telev. Tone Switch, (3) Manual Tuning, (4) Range Switch, (5) Eight Push Buttons

General Description

This receiver employs an eleven-tube, five-band, "Magic Brain" superheterodyne circuit, the arrangement of which is shown in the Schematic circuit diagram. Features of design include:— "Electric Tuning" for seven broadcast stations, push-pull power output stage; magnetite-core I.F. transformers and oscillator coils; temperature-stabilized capacitors; four short wave spread bands; automatic volume

control; Phono and Television audio input sockets; "Magic Eye" tuning tube; aural-compensated audio volume control; Radio-Phono-Television tone control switch; "Electric tuning" set-up switch; phase inverter circuit; "Magic Rodtenna" attachment plug; A.C. outlet socket; new straight line "Spread Band" dial; variable selectivity I.F. channel; and a 12 inch, dust proof electrodynamic loudspeaker.



Chassis Layout and Alignment Adjustments

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the

drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 240° mark on the calibration scale when the plates are fully meshed.

Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6SK7 2nd I.F. Grid	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	3rd I.F. Trans.	L25 & L26
2	6SK7 1st I.F. Grid	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	2nd I.F. Trans.	L23 & L24
3	6SA7 1st Det. Grid	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	1st I.F. Trans.	L20 & L21
4	Ant. Term	300 Ohms	6,100 kc	"49 M"	6.1 mc (106°)	"49M" Osc.	L18
5	Ant. Term	300 Ohms	6,100 kc	"49 M"	6.1 mc (106°)	"49M" Det.	C10
6	Ant. Term	300 Ohms	6,100 kc	"49 M"	6.1 mc (106°)	"49M" Ant.	C-1
7	Ant. Term	300 Ohms	9,550 kc	"31 M"	9.55 mc (73.5°)	"31M" Osc.	L17
8	Ant. Term	300 Ohms	11,800 kc	"25 M"	11.8 mc (90°)	"25M" Osc.	L16
9	Ant. Term	300 Ohms	15,200 kc	"19 M"	15.2 mc (78°)	"19M" Osc.	L15
10	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (151.5°)	"A" H-F Osc.	C41
11	Ant. Term	200 Mmfd.	600 kc	"A"	600 kc (30°)	"A" L-F Osc.	L19
12	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (151.5°)	"A" Det.	C8
13	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (151.5°)	"A" Ant.	C2

NOTE:—Align the I.F. Circuits by means of the oscillograph, for a symmetrical curve. Peak R.F. stages of all bands. Manual tuning button must be depressed during the alignment.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

NOTE:—All spread band adjustments should be made with the chassis fastened in the cabinet and the pointer accurately aligned to the dial.

Spread-band Adjustments.—Alignment of the spread bands requires special procedure since test oscillators used alone are not ordinarily sufficiently accurate for this purpose. The RCA Stock

No. 9572 Crystal Calibrator affords a convenient and accurate alignment standard. Wrap a few turns of wire around the crystal calibrator and connect one free end to the antenna terminal of the receiver. Using the crystal calibrator to obtain the necessary accuracy, follow the tabulated alignment procedure for the "31M.", "25M.", and "19M." bands.

For the "49M." band, snap crystal calibrator "Hi-Lo" switch to "Hi", turn the range selector to "49M." band, and set receiver dial pointed to 6.0 mc. Adjust oscillator adjusting core L18 for minimum "Tuning Tube" opening. Use the peak indicated by the alignment table. Snap "Hi-Lo" switch to "Lo" and locate 6,100 kc (the first 100 kc harmonic above 6,000 kc) by slightly readjusting L18 with the dial pointer set at 6.1 mc. This method insures selection of correct crystal-calibrator harmonic.

When aligning with the RCA Stock No. 150 Test Oscillator use the variable (unmodulated) oscillator† and "Magic Eye" indication of receiver output. Set test-oscillator dial 800 kc lower than the desired signal for the four lower frequency ranges and 800 kc higher than the desired signal for the two high ranges and use in same manner as TMV-97-C. Insert an open-circuit telephone plug in the test oscillator "Ext. Mod." jack, so the modulated fixed-frequency oscillator will be cut off, and align on the unmodulated variable oscillator signal, which will close the "Tuning Tube" and evidence itself by a rushing noise in the speaker.

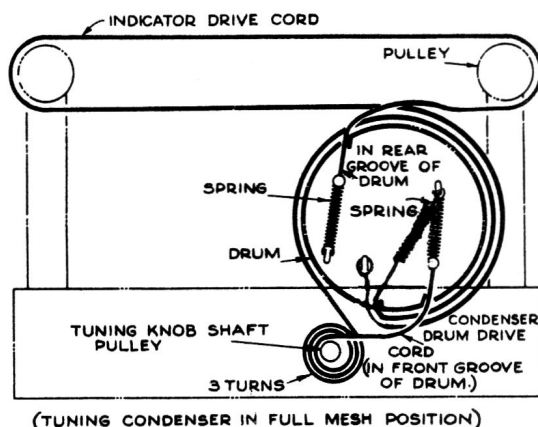
If the crystal calibrator signals are weak, disconnect test oscillator while using the crystal calibrator.

† The No. 150 Test Oscillator employs a fixed-frequency (800 kc), modulated oscillator and a variable, unmodulated oscillator. The scale is calibrated to the sum frequency for the two higher frequency ranges and to the difference frequency for the four lower frequency ranges.

RADIOTRON SOCKET VOLTAGES

Type	Plate	Screen Grid	Control Grid	Cathode	Heater
6K7 R.F.	220V	80V	....	....	6.5V
6SA7 Conv.	220V	80V	....	2.3V	6.5V
6SJ7 Osc.	165V	165V	....	....	6.5V
6SK7 1st I.F.	225V	80V	....	3.5V	6.5V
6SK7 2nd I.F.	225V	80V	....	3.0V	6.5V
6SQ7 Audio	135V	....	....	....	6.5V
6SF5 Inverter	135V	....	....	....	6.5V
6F6 Output	350V	230V	-22V	....	6.5V
6F6 Output	350V	230V	-22V	....	6.5V
6U5 Indicator	350V	....	....	....	6.5V

NOTE:—All the above voltage values should hold within plus or minus 20% when measured with a 1,000 ohms-per-volt meter, on a line voltage of 115 volts.



— Drive Cord Arrangement for Tuning Condenser.

Electric Tuning Mechanism

The circuit of the electric tuning mechanism is shown on page 7. A separate push button assembly is mounted in the cabinet, removed from the chassis. Seven buttons are provided for electric tuning, the eighth button being used for manual

tuning and alignment purposes. The tuning unit assembly is similar to those used in the '39 series receivers, refer to Service Notes for these receivers for mechanical details.

Adjustments for Electric Tuning

Proceed to set up for Electric Tuning as follows:—
(1) Place the Set-up Switch, located on the rear of the chassis, to "SET-UP" position.

(2) Push in Manual tuning button and tune in the first station by means of the Manual Tuning Control.

(3) Press button No. 1 (button on extreme left).

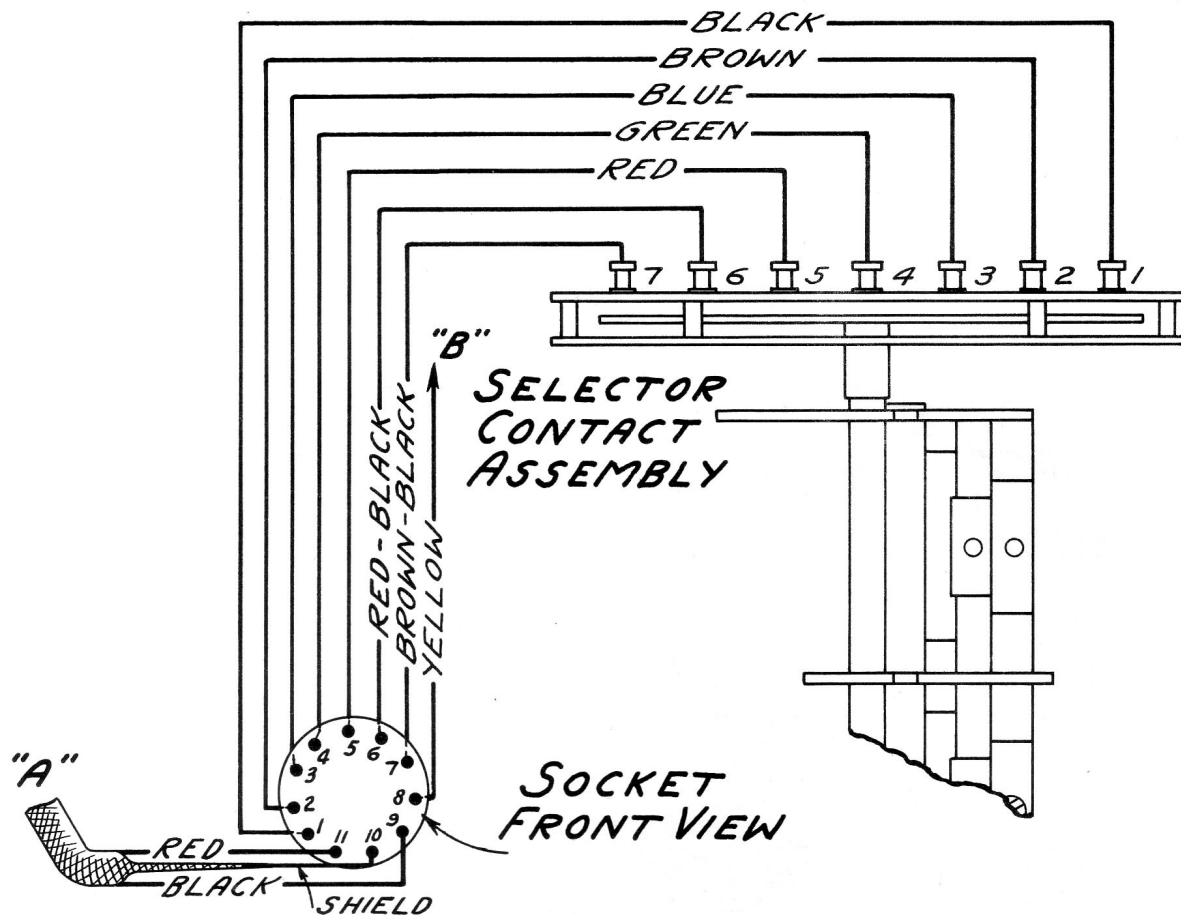
(4) Looking in the back of the receiver you will see two semi-circular slots mounted in an assembly on the rear of the gang. In the slots are seven adjusting pins corresponding to the seven push buttons. Pin No. 1 is in the lower slot on the left hand side.

RCA Victor "Magic Rodtenna"—This receiver is designed for use with Stock No. S-2477 Rodtenna. A three prong plug is provided on the chassis for convenient connection of this antenna, wherever the conventional type of outdoor antenna, is not practical. It is not advisable to replace a conventional type of antenna with the Rodtenna. Read the instructions enclosed with the Rodtenna for complete details.

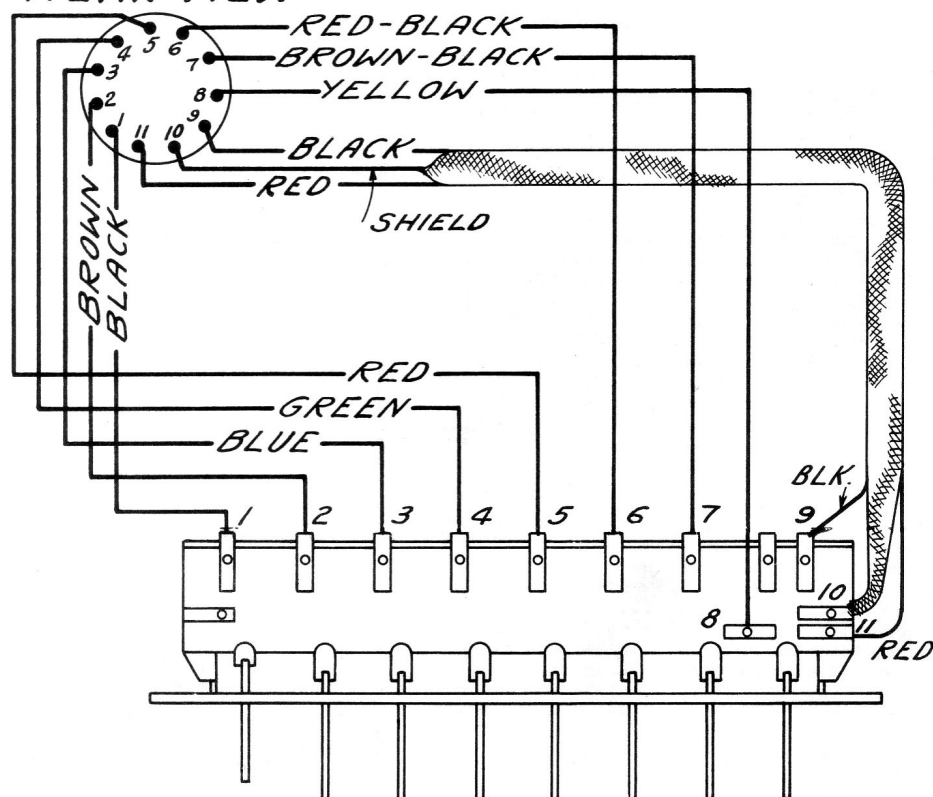
Pin No. 2 is in the upper slot on the left hand side. The pins are staggered in a similar manner around the slots.

(5) Move pin No. 1 along the slot until the pilot light located in the centre of the chassis, near the front of the cabinet, goes out. Button No. 1 is now set to the station originally tuned in manually.

(6) Reset the Set-up Switch (located on the chassis back apron) to "OPERATE" position. In the event, station is not heard properly, when No. 1 button is pressed, repeat above procedure.



PLUG
REAR VIEW



PUSH BUTTON SWITCH ASSEMBLY

REPLACEMENT PARTS FOR MODEL A8

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
30766	Cap-Tuning indicator tube rubber cap.....	11452	Resistor-470,000 ohm,1/10 watt(R28)
31863	Board-Ant.-grd.terminal board.....	12013	Resistor-1 meg.,1/10 watt (R1).....
12884	Capacitor-Adjustable air trimmer 2-20 mmfd.(C1,C10).....	13730	Resistor-1 meg.,1/4 watt (R2).....
12714	Capacitor-Adjustable air trimmer (C41).....	31056	Resistor-1.2 meg.,1/10 watt (R17)...
31350	Capacitor-18 mmfd.(C42).....	5131	Resistor-2.2 meg.,1/10 watt (R11)...
31353	Capacitor-15 mmfd.(C39).....	12679	Resistor-2.2 meg.,1/4 watt (R15)...
31354	Capacitor-33 mmfd.(Temp.Comp.)(C47)	31418	Spring-indicator drive cord tension spring (Pkg.2).....
31348	Capacitor-510 mmfd.(C40).....	13638	Spring-Drive cord tension spring (Pkg.5).....
31349	Capacitor-62 mmfd. (C44).....	14887	Retainer-Indicator drive cord pulley retainer(Pkg.10).....
31352	Capacitor-120 mmfd.(C45).....	S-2446	Retainer-A.C.socket retainer(Pkg.3)
12724	Capacitor-120 mmfd.(C9).....	31365	Socket-Dial lamp socket(Insulated).
31351	Capacitor-190 mmfd.(C48).....	31364	Socket-Dial lamp socket.....
12694	Capacitor-220 mmfd.(C7).....	S-2447	Socket-A.C.female socket.....
12720	Capacitor-100 mmfd.(C32).....	33514	Socket-Phono.-Telev.socket.....
12724	Capacitor-120 mmfd.(C46).....	31572	Socket-Antenna cable socket.....
5107	Capacitor-.0025 mfd.(C29).....	31251	Socket-Tube socket.....
30303	Capacitor-.0035 mfd.(C55).....	33491	Switch-Tuning unit set up switch(S6)
4838	Capacitor-.005 mfd. (C28,C35,C37).	S-2624	Switch-Range switch (S1,S2,S3)....
14393	Capacitor-.01 mfd.(C4,C5,C11,C12, C15,C16,C18,C19,C23,C31,C33,C34, C54).....	S-2625	Switch-Station selector push button switch.....
4886	Capacitor-.05 mfd.(C49).....	S-2627	Tone control-Radio,Phono,Telev., tone switch(S4).....
4839	Capacitor-0.1 mfd.(C17,C22,C24,C30)	S-2628	Transformer-First I.F.transformer (L20,L21,L22,C13,C14).....
12484	Capacitor-.25 mfd.(C36,C38,C53)...	S-2629	Transformer-Second I.F.transformer (L23,L24,C20,C21).....
30867	Capacitor-0.5 mfd.(C52).....	S-2630	Transformer-Third I.F.transformer (L25,L26,C25,C26,C27,R12).....
5212	Capacitor-16 mfd.electrolytic capacitor(C51).....	31226	Transformer-Power transformer 110 volt,25/60 cy.(T1).....
14531	Capacitor-25 mfd.electrolytic capacitor(C50).....	31225	Transformer-Power transformer 110 volt,50/60 cy.(T1).....
32088	Capacitor-60 mfd.(60 cy.only)(C56)	S-2631	Volume Control & power switch(R13,S5)
32435	Capacitor-180 mfd.(25 cy.only)(C56)	TUNING MOTOR ASSEMBLIES	
S-2621	Coil-"A" band antenna coil (L6,L7)	31229	Body-Station setting contact body, less contact tip and tip spring...
31257	Coil-"A" band oscillator coil(L19)	32093	Damper-Variable condenser tuning motor damper.....
	L2,L3,L4,L5).....	31239	Gear-Knob shaft drive gear & hub...
31266	Coil-Spread band detector coil (L8,L9,L10,L11).....	32434	Motor-Tuning drive motor 25 cy.(M1)
31258	Coil-19 meter band oscillator coil (L14,L15).....	32095	Motor-Tuning drive motor 60 cy.(M1)
31254	Coil-25 meter band oscillator coil (L16).....	31228	Plate-Station setting contact plate
31255	Coil-31 meter band oscillator coil (L17).....	31231	Plunger-Station setting contact plunger (Pkg.2).....
31256	Coil-49 meter band oscillator coil (L18).....	32086	Roller-Friction roller mounted on tuning motor shaft.....
31234	Condenser-3 gang variable condenser(C3,C2,C6,C8,C43).....	31233	Rotor-Selector disc-mounts on rear of gang shaft.....
31273	Drum-Station selector drive cord drum.....	14350	Screw-8/32 square head set screw for selector disc.(Pkg.10).....
31480	Lamp-Electric tuning adjustment lamp.....	31232	Spring-Station setting contact tip spring (Pkg.10).....
11891	Lamp-Dial lamp.....	31230	Spring-Station setting contact body spring (Pkg.10).....
31280	Pulley-Indicator drive cord pulley	32094	Washer-Spring tension washer for motor damper.....
5040	Plug-4 contact female speaker plug	REPRODUCER ASSEMBLIES RL70H-2	
31271	Pulley-Station selector knob shaft pulley.....	13866	Cap-Dust cap for cone center(Pkg.5)
31250	Resistor-Voltage divider comprising one 1,500 ohm,one 2,650 ohm,one 3,400 ohm,one 12 ohm,and one 180 ohm sections(R23,R24,R25,R26,R27)	11234	Coil-Field coil (L29).....
11296	Resistor-330 ohm,1/4 watt (R4)....	11469	Coil-Neutralizing coil (L28).....
12512	Resistor-470 ohm,1/4 watt (R9)....	31275	Cone-Reproducer cone & voice coil(L27)
14720	Resistor-1000 ohm,1/4 watt(R6,R7, R8).....	5039	Plug-4 contact male speaker plug...
12312	Resistor-3,300 ohm,1/4 watt (R14)...	31530	Reproducer complete.....
14284	Resistor-22,000 ohm,1/10 watt(R29)	14534	Transformer-Output (T2).....
11300	Resistor-33,000 ohm,1/10 watt (R3, R21).....	14357	Washer-Field coil retaining washer (Pkg.5).....
11281	Resistor-100,000 ohm,1/10 watt(R5)	MISCELLANEOUS ASSEMBLIES	
14560	Resistor-100,000 ohm,1/4 watt(R10, R19,R30).....	S-2632	Button-Station selector push button
12264	Resistor-220,000 ohm,1/10 watt(R16, R31).....	31281	Cord-Indicator pointer drive cord...
11453	Resistor-270,000 ohm,1/10 watt(R18, R20).....	31283	Cord-Variable condenser drum drive cord.....
		S-2633	Dial-Station selector dial scale...
		S-2634	Escutcheon-Station selector dial scale escutcheon.....
		S-2209	Fuse-3 Ampere tuning motor fuse(F1)
		34383	Indicator-Station selector indicator pointer ass'y.....
		S-2540	Knob-Volume,tone,range or tuning control knob.....
		S-2541	Markers-Station call letter markers (1 set).....
		S-2635	Screw-Push button spring & spacer retaining screw (Pkg.10).....
		14270	Spring-Knob retaining spring(Pkg.10)
		S-2636	Spring-Push button actuating spring (Pkg.3).....