



# RCA MODEL 7Q51

Chassis No. RC-1055, RC-1055C—Mfr. No. 274

## Service Data

1948 . . . . X 7

RADIO CORPORATION OF AMERICA

RCA INTERNATIONAL DIVISION

745 FIFTH AVE., NEW YORK 22, N. Y.



### Electrical and Mechanical Specifications

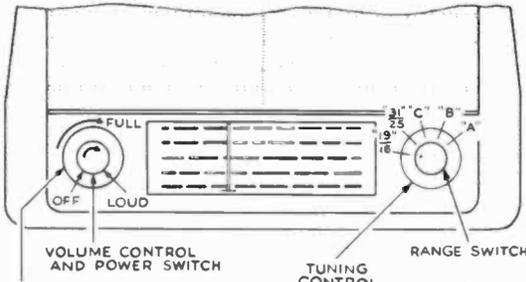
### Description

This instrument is a seven-tube five-band receiver of conventional design with the exception of the spread-band tuning.

A two-section gang condenser one section for antenna and one for oscillator circuit, is used for the A, B, and C bands. The 31-25 Meter and the 19-16 Meter spread bands are tuned by a specially designed permeability tuning system actuated by a cam and rocker assembly which is mechanically fastened to the gang condenser shaft. The core assembly of the permeability tuning system is molded to insure the required tolerances, and tunes both the 31-25 Meter and the 19-16 Meter bands with different circuit constants.

In the 31-25 Meter band position the 31-25 Meter coils (antenna and oscillator) are used. In the 19-16 Meter band position the 31-25 Meter and 19-16 Meter band coils are used in parallel.

The inductances of the A-B-C windings of the multiple antenna coil are all fixed, but the inductances of all other coils in the antenna and oscillator circuits are permeability adjusted. Un-grounded screw-type cores are used for these coils and adjustments are made with a non-metallic screwdriver.



Controls

### Frequency Ranges

Standard Broadcast ("A" Band)	525-1600 kc (571-187 m)
Medium Wave ("B" Band)	2.3-7 mc (130-42.9 m)
Short Wave ("C" Band)	7-22 mc (42.9-13.6 m)
"31-25 Meter" Spread Band	9.5-12 mc (31.6-25m)
"19-16 Meter" Spread Band	15.1-17.9 mc (19.8-16.7 m)
Intermediate Frequency	455 kc

### Tube Complement

(1) RCA 6BE6	Converter
(2) RCA 6BA6	I.F. Amplifier
(3) RCA 6SO7	Det.-A.V.C.-A.F. Amp.
(4) RCA 6F6G	Output
(5) RCA 6F6G	Output
(6) RCA 5Y3GT	Rectifier
(7) RCA 6AT6	Phase Inverter

### Loudspeaker

For Chassis No. RC-1055 ... Type 92570-4 Permanent-Magnet Dynamic  
 For Chassis No. RC-1055C ... Type 92517-1 Electro Dynamic  
 Size ... 6 1/2 in. (16.5 cm)  
 V. C. Impedance ... 3.2 ohms @ 400 cycles

### Power Output

Undistorted	4 watts
Maximum	4.25 watts

### Power Supply Ratings

Symbol	Voltage	Frequency	Watts
Rating A	105-125	50-60	60
Rating B	105-125	25-60	60
Rating C	105-125, 210-250	50-60	60

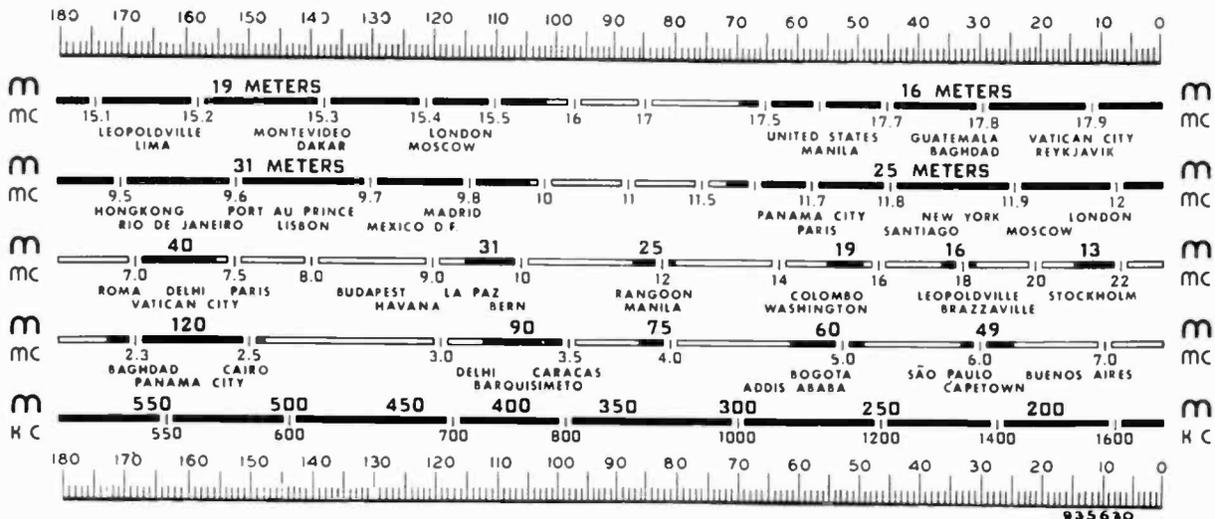
Instruments of Rating C have a switch on the chassis to select 105-125 or 210-250 volt operation (switch marked 117v—235v). (Shipped with switch in 235v position.)

Dial Lamps (2) Mazda No. 44, 6.3 volts, .25 amp.

### Cabinet Dimensions

Height	10-13/16 in. (27.4 cm)
Width	16 1/4 in. (41.3 cm)
Depth	8 1/4 in. (21 cm)

Tuning Drive Ratio ... 13 1/2 to 1 (6 3/4 turns of knob)



Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 143° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedures."

### Alignment Procedure

**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator 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 indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees.

As the first step in r-f alignment, check the position of the drum. The "180" mark on the drum scale must be vertical and directly over the center of the gang-condenser shaft 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.

**Pointer for Calibration Scale.**—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180" mark on the calibration scale when the plates are fully meshed. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

**Receiver Dial with Calibration Scale.**—To determine the corresponding frequency for any setting of the calibration scales, refer to the dial with calibration scale drawing.

**Dial-Indicator Adjustment.**—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the end calibration mark, and gang condenser fully meshed. The indicator has a clip for attachment to the cable.

**Spread-Band Alignment.**—For spread-band alignment an extremely high degree of accuracy is required of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials.

Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by one of the following methods:

1. Zero-beat the test-oscillator against short-wave stations of known frequency.
2. Check test-oscillator signals with a crystal controlled oscillator. A final check should be made on actual reception of short-wave stations of known frequency.

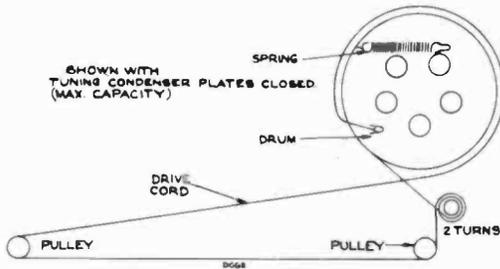
For additional information, refer to booklet "RCA Victor Receiver Alignment."

Step	Connect high side of test oscillator to—	Test oscillator frequency	Turn radio dial to—	Adjust for maximum output
1	Pin #1 of 6BA6 thru .01 mfd. capacitor	455 kc	Quiet point near 600 kc A Band	T-3 2nd I.F. trans.—top and bottom
2	Pin #7 of 6BE5 thru .01 mfd. capacitor			T-2 1st I.F. trans.—top and bottom
3	Ant. terminal thru 200 mmfd capacitor	1400 kc	A Band 27.3°	C14 osc. C5 ant.
4		600 kc	A Band 142.6°	L7 osc.
5		Repeat steps 3 and 4		
6		6.1 mc	B Band 28.2°	C15 osc. C4 ant.
7	Ant. terminal thru 300 ohm resistor	2.5 mc	B Band 148.9°	L9 osc.
8		Repeat steps 6 and 7		
9		17.75 mc	C Band 34.4°	†C16 osc. C3 ant.
10		7.2 mc	C Band 160.3°	L11 osc.
11	Ant. terminal thru 300 ohm resistor	Repeat steps 9 and 10		
12		9.5 mc	31-25 Meter Band 169.6°	†C13 osc. C2 ant.
13		11.8 mc	31-25 Meter Band 44.8°	†L12 osc. L5 ant. †
14		Repeat steps 12 and 13		
15	Ant. terminal thru 300 ohm resistor	17.75 mc	19-16 Meter Band 37.5°	†C19 osc. C8 ant.
16		15.2 mc	19-16 Meter Band 157.2°	†L13 osc. L6 ant.
17		Repeat steps 15 and 16		

† Oscillator frequency is higher than signal frequency on all bands. Use minimum capacity or minimum inductance peak on oscillator adjustments if two peaks can be obtained.

\* Pre-set L12 and L5, with tuning condenser at minimum capacity (0°), so that the cores are exactly 1/8 in. (3.175 mm) from the bottom end of their respective coils (coil end to bottom end of iron core—not the insulating rod of the core assembly).

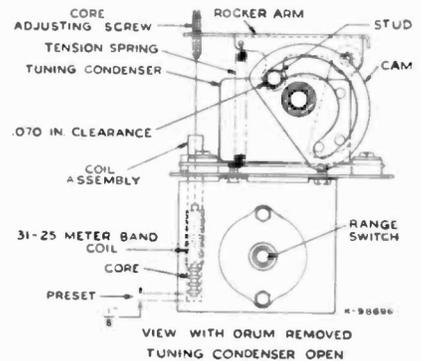
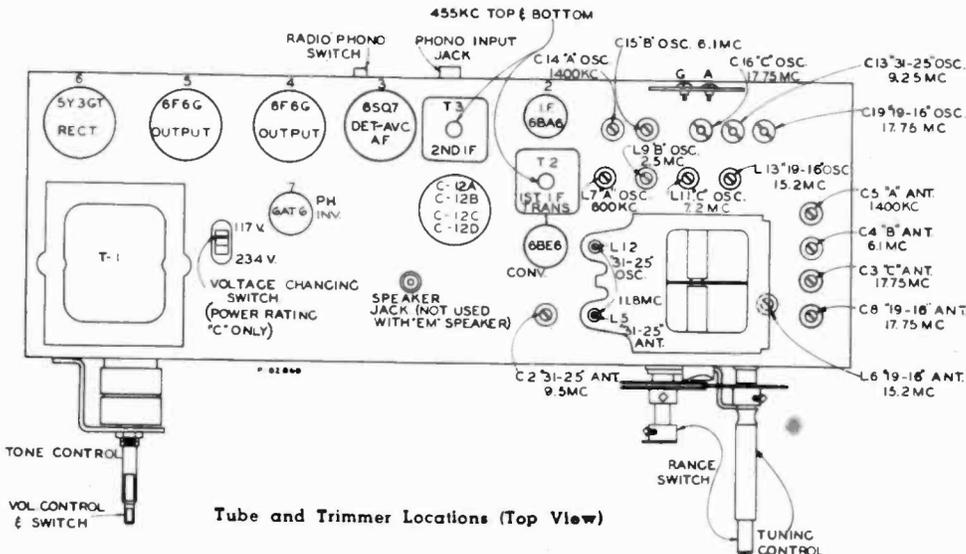
† If dial reading for maximum output at 11.8 mc is lower than 11.8 mc, rotate studs approx. 1/2 turn clockwise—if higher rotate approx. 1/2 turn counterclockwise.



Dial-Indicator and Drive Mechanism

### Critical Lead Dress

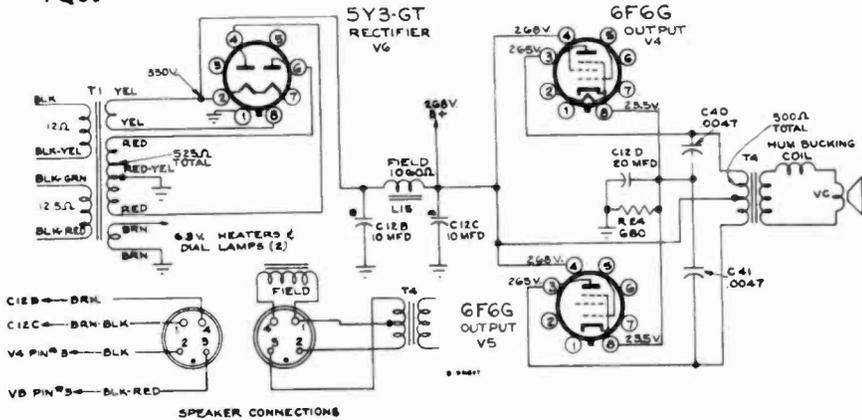
1. The 6BA6 screen by-pass capacitor C27 should be dressed close to the chassis with short leads.
2. The grid resistors R12 and R20 should be dressed close to the chassis with short leads.
3. The speaker wires should be dressed as far away from the 6SQ7 and 6AT6 sockets as possible.



Spread-Band Tuning (Front View)

7Q51

Chassis No. RC-1055C



\*Trimmer capacitors C14, C15 are of different value Bracket is stamped 940415-2 (940401-8 in RC-1055 chassis).  
 \*Trimmer capacitors C13, C16, C19 are of different value. Bracket is stamped 940415-5 (924463-4 in RC-1055 chassis).

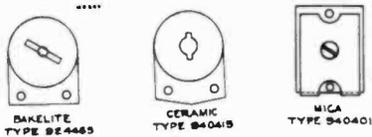
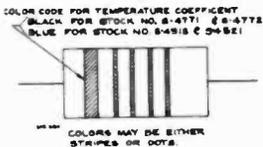
C20 is used in place of C17; C21 is used in place of C18. Circuit and values are unchanged. The identifying color code is shown above.

R24 (680 ohms) is used in place of R18 (560 ohms); R7 (22,000 ohms) is used in place of R4 (18,000 ohms); R23 (100,000 ohms) is used in place of R5 (82,000 ohms). The speaker field coil (L15 1060 ohms) replaces R19 (2200 ohms). The revised power supply circuit is shown above.

\*In some chassis a five section capacitor (C13, C14, C15, C16, C19) is used.

Partial Schematic Diagram—RC-1055C

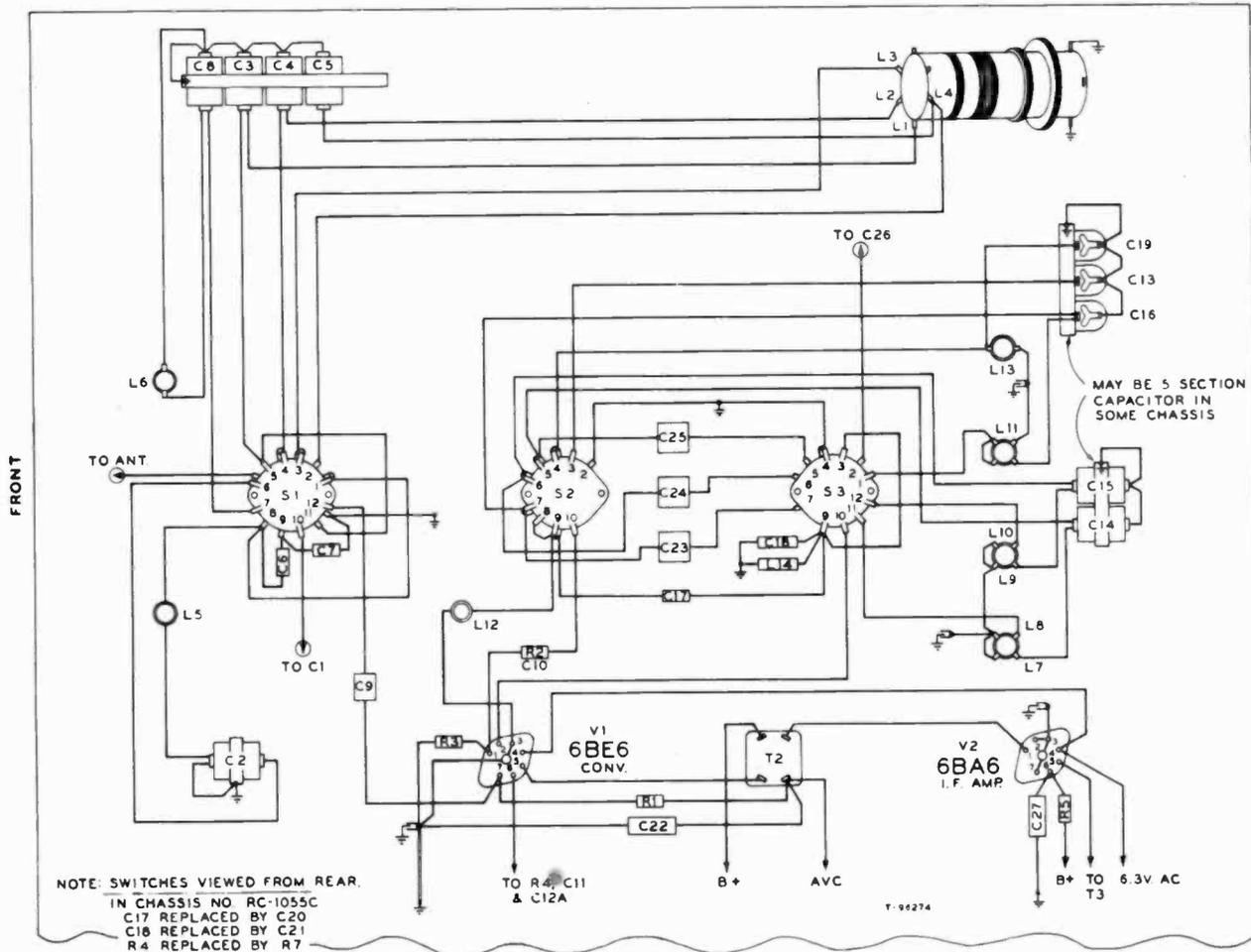
The above Schematic Diagram shows the power supply and speaker circuits of Chassis No. RC-1055C which uses an EM speaker. Except as described elsewhere on this page it is identical to Chassis No. RC-1055.



Capacitors

Socket Voltages and Cathode Currents

Tube	Plate V.	Screen V.	Cathode V.	Current
1. 6BE6	268	93	....	9.5 ma.
2. 6BA6	268	62	....	7.6 ma.
3. 6SQ7	77	....	....	0.3 ma.
4. 6F6G	265	268	23.5	20.0 ma.
5. 6F6G	265	268	23.5	20.0 ma.
6. 5Y3GT	....	....	330	57.5 ma.
7. 6AT6	65	....	....	0.5 ma.



R. F. Wiring Diagram (Bottom View)





## Replacement Parts

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
<b>R F PLATE SUB-ASSEMBLY</b>			
S-4512	Board—Antenna-Ground terminal board	S-4561	Resistor—Fixed, composition, 470,000 ohms, 1/2 watt (R14)
S-4513	Capacitor—Trimmer capacitor, single, 4-70 mmf (C2)	S-4562	Resistor—Fixed, composition, 2.2 megohm, 1/2 watt (R6)
*S-4514	Capacitor—Trimmer capacitor, dual, 4-70 mmf and 3-35 mmf (C14, C15)	S-4478	Resistor—Fixed, composition, 4.7 megohm, 1/2 watt (R12, R20)
*S-4770	Capacitor—Trimmer capacitor, dual, 30-65 mmf and 5-50 mmf (C14, C15)	S-4563	Socket—Dial lamp socket and lead assembly
*S-4515	Capacitor—Trimmer capacitor, triple, two sections of 5-25 mmf and one section of 8-50 mmf (C13, C16, C19)	S-4564	Spring—Dial drive cord tension spring
*S-4769	Capacitor—Trimmer capacitor, triple, three sections of 5-50 mmf (C13, C16, C19)	S-4565	Shaft—Range switch control shaft
S-4516	Capacitor—Trimmer capacitor, quadruple, four sections of 3-35 mmf (C3, C4, C5, C8)	S-4566	Shaft—Tuning control shaft
S-4517	Capacitor—Ceramic, 7 mmf (C6)	S-4480	Socket—Phono input or speaker output socket
*S-4518	Capacitor—Ceramic, 22 mmf (C17)	S-4567	Socket—Tube socket, octal, for 6SQ7 tube
*S-4771	Capacitor—Ceramic, 22 mmf (C20)	S-4482	Socket—Tube socket, octal, for 5Y3GT or 6F6G tubes
S-4519	Capacitor—Ceramic, 27 mmf (C7)	S-4568	Socket—Tube socket, miniature, for 6AT6 tube
S-4520	Capacitor—Ceramic, 27 mmf (C31)	S-4569	Switch—Radio-phonograph switch (S6)
*S-4521	Capacitor—Ceramic, 120 mmf (C18)	S-4570	Switch—Voltage change switch (S4)
*S-4772	Capacitor—Ceramic, 120 mmf (C21)	S-4571	Transformer—Second I.F. transformer (T3)
S-4439	Capacitor—Mica, 220 mmf (C9)	S-4572	Transformer—Output transformer (T4)
S-4440	Capacitor—Mica, 560 mmf (C25)	S-4573	Transformer—Power transformer, 105-125 volts, 50/60 cycles (T1)
S-4522	Capacitor—Mica, 3000 mmf (C24)	S-4574	Transformer—Power transformer, 105-125 volts, 25/60 cycles (T1)
S-4442	Capacitor—Mica, 6000 mmf (C23)	S-4575	Transformer—Power transformer, 105-125 or 210-250 volts 50/60 cycles (T1)
S-4820	Capacitor—Ceramic, .01 mf. (C28)	S-4576	Washer—"C" washer for range switch shaft (inside)
S-4448	Capacitor—Tubular, .047 mf, 200 v (C22)	S-4577	Washer—"C" washer to retain tuning shaft on range switch shaft
S-4523	Capacitor and Resistor Assembly—56 mmf capacitor and 33 ohm resistor (C10, R2)	<b>RC-1055C MAIN CHASSIS ASSEMBLY</b> (Refer to listing of RC-1055)	
S-4524	Choke—Cathode choke coil (L14)	<b>DELETE</b>	
S-4525	Coil—"A" band oscillator coil with adjustable core and stud (L7, L8)	S-4545	Capacitor—Electrolytic capacitor
S-4526	Coil—"B" band oscillator coil with adjustable core and stud (L9, L10)	S-4552	Resistor—560 ohms (R18)
S-4527	Coil—"C" band oscillator coil with adjustable core and stud (L11)	S-4553	Resistor—2200 ohms (R19)
S-4528	Coil—"31-25 Meter" band antenna or oscillator coil (L5, L12)	S-4555	Resistor—18,000 ohms (R4)
S-4529	Coil—"19-16 Meter" band antenna or oscillator coil with adjustable core and stud (L6, L13)	S-4557	Resistor—82,000 ohms (R5)
S-4530	Condenser—Tuning condenser (C1, C26)	S-4480	Socket—Speaker socket (used for phono in both chassis)
S-4531	Core—Adjustable core and stud for 31-25 meter band antenna or oscillator coil	S-4573	Transformer—Power transformer
S-4532	Drum—Tuning condenser drum, hub and cam assembly	S-4574	Transformer—Power transformer
S-4533	Grommet—Rubber grommet to mount tuning condenser	S-4575	Transformer—Power transformer
S-4534	Plate—Rocker arm plate and stud assembly, less adjustable cores	S-4572	Transformer—Output transformer
S-4535	Resistor—Fixed, composition, 22,000 ohms, 1/2 watt (R3)	ADD	
S-4476	Resistor—Fixed, composition, 470,000 ohms, 1/2 watt (R1)	S-4596	Capacitor—Electrolytic capacitor, comprising three sections of 10 mfd, 450 volts, and one section of 20 mfd, 25 volts (C12A, C12B, C12C, C12E)
S-4536	Screw—Rocker arm plate bearing screw	S-4597	Plug—Four contact female plug for speaker cable
S-4894	Socket—Tube socket	S-4765	Resistor—Fixed, composition, 680 ohms, 1 watt (R24)
S-4537	Spring—Rocker arm plate tension spring	S-4766	Resistor—Fixed, composition, 22,000 ohms, 2 watt (R7)
S-4538	Switch—Range switch	S-4767	Resistor—Fixed, composition, 100,000 ohms, 1 watt (R23)
S-4539	Transformer—First I.F. transformer (T2)	S-4598	Transformer—Power transformer, 105-125 or 210-250 volts, 50/60 cycles (T1)
	† Used on Chassis No. RC-1055.	Other items identical to listing for RC-1055	
	* Used on Chassis No. RC-1055C.	<b>SPEAKER ASSEMBLIES—92570-4</b>	
** These capacitors may be interchanged as a group but should not be interchanged individually.			
On some Chassis No. RC-1055C a five-section trimmer capacitor is used in place of Stock Nos. S-4769 and S-4770.			
<b>RC-1055 MAIN CHASSIS ASSEMBLY</b>			
S-4540	Bracket—Dial cord bracket and pulley assembly (two required)	<b>SPEAKER ASSEMBLIES—92517-1</b>	
S-4439	Capacitor—Mica, 220 mmf (C36)	S-4768	Cone—Speaker cone
S-4541	Capacitor—Tubular, .0033 mf, 600 v (C35, C37)	S-4599	Coil—Field coil
S-4542	Capacitor—Tubular, .0047 mf, 1000 v (C40, C41)	S-4600	Plug—Four-prong male plug
S-4543	Capacitor—Tubular, .0068 mf, 400 v (C34)	S-4601	Speaker—6 1/2" E.M. speaker complete
S-4820	Capacitor—Ceramic, .01 mf. (C27)	S-4602	Transformer—Output transformer
S-4444	Capacitor—Tubular, .01 mf, 400 v (C11, C29, C32, C38, C39)	<b>MISCELLANEOUS</b>	
S-4544	Capacitor—Tubular, .015 mf, 400 v (C33)	S-4581	Back—Back cover for cabinet
S-4545	Capacitor—Electrolytic, comprising one section of 20 mfd, 400 volts, two sections of 10 mfd, 400 volts, and one section of 20 mfd, 25 volts (C12A, C12B, C12C, C12D)	S-4582	Baffle—Baffle board and grille cloth assembly
S-4546	Coil—"A", "B" and "C" bands antenna coil (L1, L2, L3, L4)	S-4583	Bezel—Dial bezel
S-4547	Control—Volume control, tone control and power switch (R10, R11, S5)	S-4584	Cabinet—Plastic cabinet
S-4313	Cord—Dial drive cord (approx. 45" required)	S-4585	Cover—Plastic dial cover
S-4548	Cord—Power cord	S-4586	Dial—Glass dial scale
S-4549	Gear—Gear and hub for range switch shaft	S-4439	Emblem—Trademark emblem (RCA)
S-4550	Gear—Gear and hub for range switch control shaft	S-4500	Emblem—Trademark emblem (RCA Victor)
S-4551	Lever—Range indicator lever and hub	S-4587	Grille—Metal grille
S-4552	Resistor—Fixed, composition, 560 ohms, 1 watt (R18)	S-4588	Grommet—Rubber grommet for chassis mounting
S-4553	Resistor—Fixed, composition, 2200 ohms 2 watt (R19)	S-4503	Grommet—Rubber grommet for speaker mounting
S-4554	Resistor—Fixed, composition, 10,000 ohms, 1/2 watt (R15)	S-4589	Indicator—Station selector indicator
S-4555	Resistor—Fixed, composition, 18,000 ohms, 1 watt (R4)	S-4590	Knob—Range switch knob
S-4556	Resistor—Fixed, composition, 22,000 ohms, 1/2 watt (R9)	S-4591	Knob—Volume control knob
S-4557	Resistor—Fixed, composition, 82,000 ohms, 1/2 watt (R5)	S-4895	Knob—Tuning control knob
S-4558	Resistor—Fixed, composition, 100,000 ohms, 1/2 watt (R21)	S-4896	Knob—Tone control knob
S-4559	Resistor—Fixed, composition, 270,000 ohms 1/2 watt (R17)	S-4897	Lamp—Dial lamp, Mazda type No. 44
S-4560	Resistor—Fixed, composition, 330,000 ohms, 1/2 watt (R8)	S-4592	Plate—Dial back plate
S-4476	Resistor—Fixed, composition, 470,000 ohms, 1/2 watt (R13, R16)	S-4593	Screw—Chassis mounting screw
		S-4511	Spacer—Metal spacer for speaker mounting
		S-4595	Shield—Dial lamp shield