

Canadian Admiral

SERVICE MANUAL No. T1039

for Models 5R31X • 5R32X • 5R33X • 5R35X • 5R36X • 5R37X 5R38X • 5R39X

Using the 5R3X Radio Chassis

GENERAL

This receiver employs the latest radio circuitry and a "printed" circuit wiring technique. The "printed" circuit wiring used in this receiver replaces the hook-up wire used in earlier receivers: see figure 1. The "printed" circuit wiring is permanently bonded to the underside of the plastic chassis base. This results in uniformity of chassis wiring, fewer wiring troubles and simplified circuit tracing and trouble shooting. All circuit components are of standard size and design and are mounted on the top side of the chassis: see figure 2. Audio circuit components are contained in a couplate.

Trouble shooting and parts replacement will, in general, be the same as for receivers wired with hook-up wire. However, when servicing, it is important to read the service information given in this manual with respect to the technique of servicing printed circuit receivers.

SERVICING THE SET

Servicing "printed" circuit sets is, in general, much the same as servicing ordinary receivers. However, certain tools and techniques are well suited for this type of work. The following items are especially useful:

1. Good pair of long-nose pliers.
2. Sharp wire cutters.
3. Small stiff glue brush (for solder removal).
4. Pencil type soldering iron with a small tip (35 watts or less).

WARNING: Excessive heat may damage the "printed" circuit during component replacement if a soldering pencil, iron or gun of higher wattage rating is used.

5. 60-40 low temperature rosin core solder (should be used for all soldering).

6. Tinned jumper wires.

7. Metal pick (soldering aid).

COMPONENT REPLACEMENT

All components used in this receiver are of standard size and design and are mounted on the top side of the chassis see figure 2.

Resistors and capacitors should be replaced by clipping out the defective part and neatly soldering the new part to the connecting leads remaining from the original part.

If a unit, such as the oscillator coil or IF transformer is to be removed, heat the mounting lugs with a pencil type soldering iron and straighten them with long nose pliers or a metal pick. Continue heating the lugs and brush away the molten solder with a small stiff glue brush. Remove the defective unit by lifting it off the chassis. Before inserting the new unit, be certain that the lug holes are open and free from solder. Forcing a lug against a solder filled lug hole may break the bond between the chassis base and the "printed" wiring. It is, therefore, necessary to exercise care when replacing units.

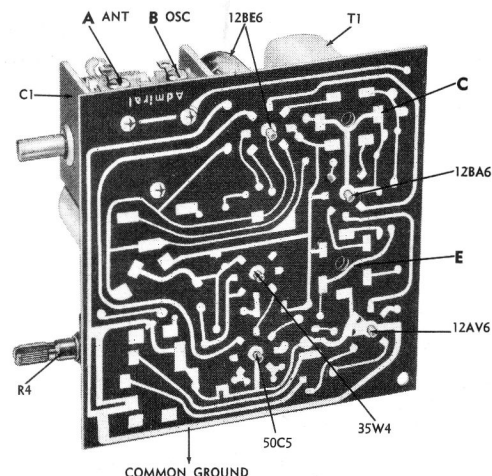
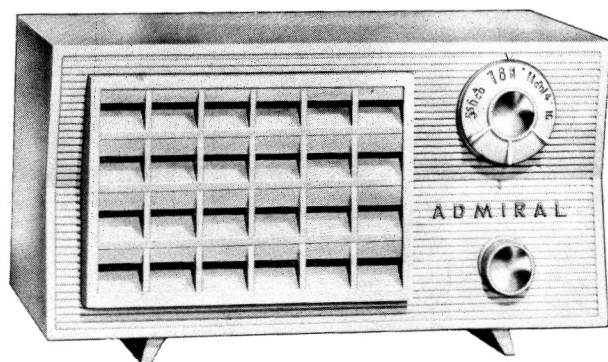


Figure 1. Bottom View of Chassis

CHASSIS 5R3X
MODELS 5R31X - 5R32X - 5R33X - 5R35X - 5R36X
5R37X - 5R38X - 5R39X



Models 5R31X Black, 5R32X Maroon, 5R33X Ivory, 5R35X Cherry Red, 5R36X Sun-Gold Yellow, 5R37X Beige, 5R38X Green, 5R39X Grey.

SPECIFICATIONS

Circuit: Superheterodyne using 5 miniature tubes. See additional circuit information on front page.

Frequency Range: Standard broadcast band, 535 to 1620 KC.

Intermediate Frequency: 455 KC.

Power Supply: Power line of 117 volts, 25 to 60 cycles AC or DC.

Power Consumption: 30 watts.

Antenna: Built-in loop antenna.

Speaker: 4" PM. with Alnico V magnet. Voice coil impedance, 3.2 ohms.

VOLTAGE PRECAUTION

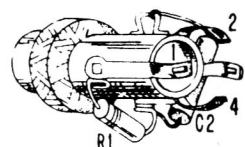
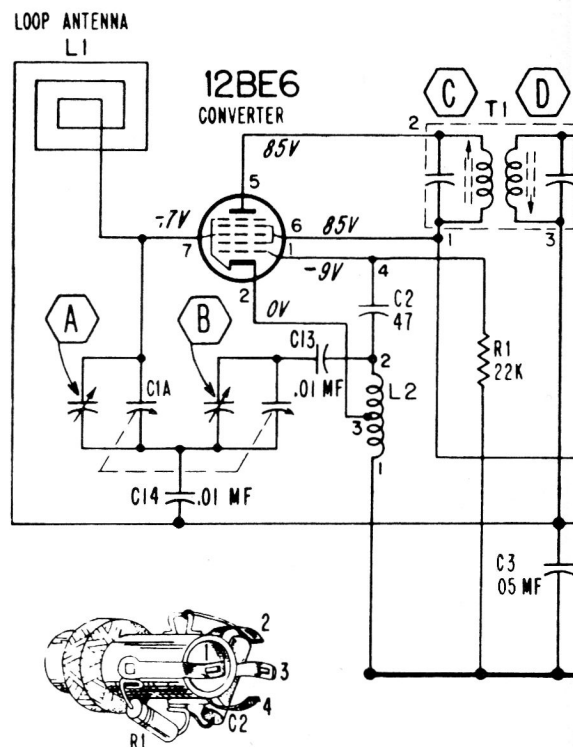
The chassis of this receiver is connected directly to one side of the power line. To avoid possibility of damage to test equipment or to printed circuit wiring, do not place the chassis directly on a metal service bench, tools or other metal objects.

When taking voltage readings or making resistance measurements, use test leads with needle point prods to avoid possibility of short circuit between sections of the printed circuit wiring.

VOLTAGE DATA

Voltages shown on schematic diagram.

- All readings made between tube socket terminals and common ground; see figure 1.
- Dial turned to low frequency end; volume control at minimum.
- Measured on 117 Volts AC line.
- All voltages measured with vacuum-tube voltmeter.



5R3X

5R3 TABLE
POWER SWITCH



RESISTORS

Symbol	Description	Part No.
R1	22,000 ohms, 1/2 watt	60B 8-223
R2	100 ohms, 1/2 watt	60B 8-101
R3	2.2 megohms, 1/2 watt	60B 8-225
R4	1 megohm, Volume control (includes switch S1)	75C 25-1
§R5	6.8 megohms, 1/2 watt	
§R6	470,000 ohms, 1/2 watt	
§R7	470,000 ohms, 1/2 watt	
R8	150 ohms, 1/2 watt	60B 8-151
R9	1,2000 ohms, 2 watts	60B 20-122

CAPACITORS

C1A	354 mmf, max, Ant.	} gang	68B 64-1
C1B	89.3 mmf, max, Osc.		
C2	47 mmf, 500 volts, ceramic		65C 6-79
C3	.05 mf, 200 volts, paper		64A 12-1
C4	.01 mf, 450 volts, ceramic		65C 10-3
§C5	.005 mf, 450 volts		
§C6	220 mmf, 450 volts		
§C7	{ See note on		
§C8	{ schematic.		
§C9	.005 mf, 450 volts		
C10	.01 mf, 450 volts, ceramic		65C 10-3
C11	.047 mf, 400 volts, paper		65A 13-5
C12A	50 mf, 150 volts	} elect.	67C 30-1
C12B	30 mf, 150 volts		
C13	.01 mf, 450 volts, ceramic		65C 10-3
C14	.01 mf, 450 volts, ceramic		65C 10-3



CABINET PARTS

Cabinet		
black	34D	77-1
maroon	34D	77-2
ivory	34D	77-6
green	34D	77-7
gray	34D	77-8
cherry red	34D	77-9
sungold yellow	34D	77-10
beige	34D	77-11
Cabinet Back, Fibre (includes loop antenna)	69Y	195-2
Knob Tuning		
black	33C	133-1
maroon	33C	133-3
ivory	33C	133-5
green	33C	133-7
gray	33C	133-9
beige	33C	133-11
white	33C	133-13
cherry red	33C	133-15
sunglow yellow	33C	133-17
Knob, Volume		
black	33C	133-2
maroon	33C	133-4
ivory	33C	133-6
green	33C	133-8
gray	33C	133-10
beige	33C	133-12
white	33C	133-14
cherry red	33C	133-16
sungold yellow	33C	133-18

Knob, Volume

Line Cord	89W 2-1
Compression Ring (for Knobs).....	19A 31-10
Retainer, Line Cord, Fiber.....	32A 223
Shield, Tube	87C 7-19
Socket, Tube	87A 35-7
Socket, Tube, Shield Mtg.....	87A 35-10
Spacer, Gang Mtg.....	32A 221

ALIGNMENT PROCEDURE

- * Use an isolation transformer if available; otherwise, connect a .1 mfd. capacitor in series with low side of signal generator and connect to chassis.
Caution: Do not connect a ground wire directly to chassis.
- * Set volume control full on.
- * Connect output meter across speaker voice coil.
- * Use lowest setting of signal generator capable of producing adequate indication on lowest scale of output meter.
- * Use a non-metallic alignment tool with a blade 3/32" wide for aligning IF transformers.
- * Repeat adjustments to insure good results.

STEP	CONNECTION OF SIGNAL GENERATOR	SIGNAL GENERATOR FREQUENCY	RECEIVER GANG SETTING	ADJUSTMENT
1	Through a .1 mf capacitor to pin 7 of the 12BE6 (Converter) tube	455 KC	Gang fully open	*"E", "F", *"C" and "D" for maximum output
2	Same as "STEP 1"	1620 KC	Gang fully open	"B" for maximum output
3	Radiated Signal. Loop of several turns of wire, or place generator lead close to receiver loop for adequate signal pickup.	1400 KC	Tune in generator signal	"A" for maximum output

*Adjustments "C" and "E" made from underside of chassis; see figure 1.

An open or damaged section of "printed" circuit wiring can be replaced by soldering a short jumper wire across the points to be connected. Pigtail trimmings from capacitors and resistors are ideal for this purpose.

To avoid need for complete tube socket replacement, defective tube socket pin clips may be replaced individually. Tube socket pin clips are available under part number 87A35-2.

Note: If sockets must be replaced, the tubular shield (center connection) at the bottom of each tube socket must be securely soldered to the "printed" circuit wiring, otherwise hum or oscillation will result.

TO REMOVE CHASSIS FROM CABINET

To remove the chassis from the cabinet, proceed as follows:

Remove the line cord plug from the AC outlet, the knobs from the front of the cabinet, and the four screws in the corners of the cabinet back. Remove the screw under the **Tuning** knob, the screw that holds the **Volume** control bracket to the cabinet and the

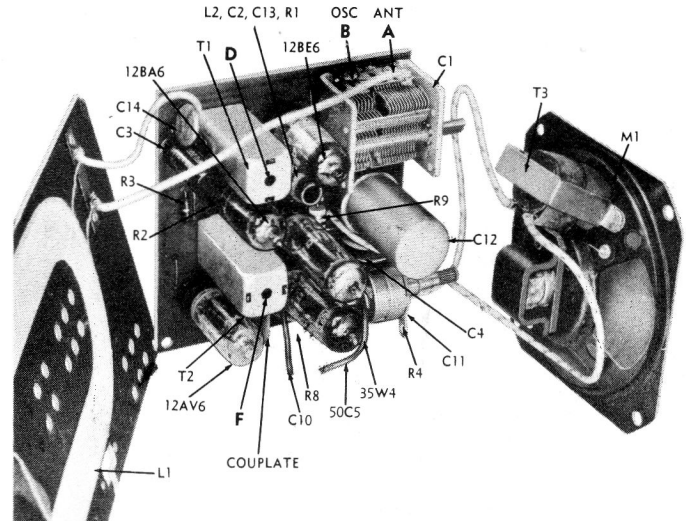


Figure 2. Top View of Chassis. Location of components and alignment points shown.

screw that holds the line cord retainer to the cabinet. Slide the chassis out of its mounting rack after disconnecting the output transformer leads.

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