

Motorola

CHASSIS
HS-289
HS-289A

MODEL
52R11
52R12
52R13
52R14
52R15
52R16

TO REMOVE CHASSIS FROM CABINET:

1. Remove the four screws which hold the back cover, and remove the cover and line cord.
2. Pull off the two control knobs from the front of the receiver.
3. Remove the Phillips head screw under the tuning knob, on the front of the receiver.
4. From the back, remove the screw which holds the line cord plug.
5. Disconnect the leads from the speaker.
6. From the back, remove the three screws which mount the chassis. CAUTION: Do not lose the insulating washers on the screws - they prevent damage to the printed circuit by the heads of the screws. See Figure 1.
7. Slide the chassis from the cabinet.

CIRCUIT DESCRIPTION

The circuit of this chassis is conventional - there are no built-in resistors or capacitors. Leads are printed on both sides of the chassis base, thereby replacing the usual connecting wires and making wiring more uniform.

Chassis HS-289A is the same as HS-289 except for the locations of electrical components

A dual 250 mmfd ceramic capacitor replaces capacitors C-3 and C-6 used in chassis HS-289.

SAFETY PRECAUTIONS

1. The chassis of this receiver is connected directly to the power line. However, the power cord circuit is broken by an interlock when the cabinet back is removed for replacing tubes. When aligning or servicing the chassis from AC, an isolation transformer should be inserted between the power line and the chassis.
2. Do not service the chassis on a metal plate, because of the possibility of a short circuit.
3. Use caution when handling the chassis with power applied, because all high voltage leads are exposed.
4. The outer edges of the chassis and the large printed areas in the center are at ground potential.

ANTENNA

Under certain circumstances, in early models, AC hum was induced into the loop antenna. This condition was corrected in later models by repositioning the loop. Figure 3 shows the revised location.

(A) = CHASSIS MOUNTING SCREWS

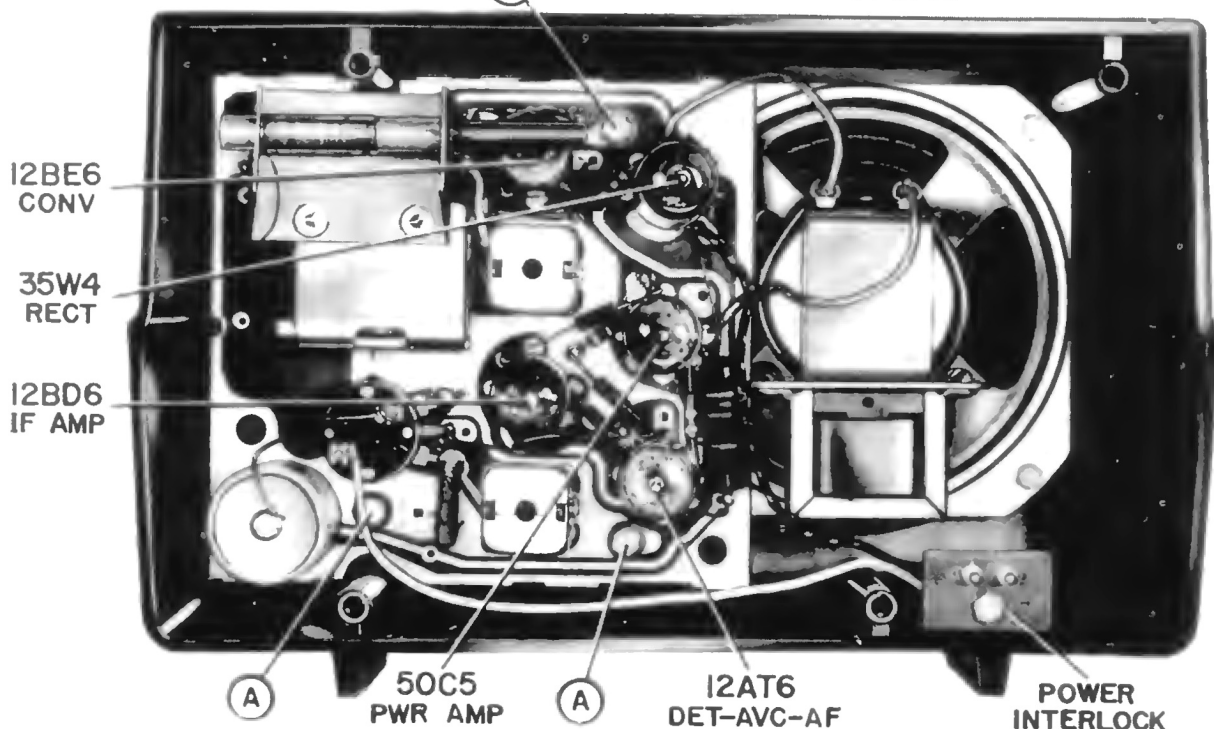


FIGURE 1. REAR VIEW OF RECEIVER (LATE MODEL)

NOTE: If AC power is used, insert an isolation transformer between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to ground (the outer edges of the chassis) through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to ground.
3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.
5. Use a small fibre screwdriver for aligning the IF and diode transformers (a "K-Tran" alignment tool is recommended).
6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.
7. See Figure 2 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	.1 mf	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.		Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

1. To prevent tube breakage, remove them before replacing components. CAUTION: Remove the tubes only by pulling them straight out. Wiggling a tube may bend a socket clip causing poor contact with the tube pin.

2. WHEN REMOVING DEFECTIVE COMPONENTS USE ONLY A SMALL SOLDERING IRON (60 WATTS OR LESS) TO AVOID DAMAGE TO THE WIRING. DO NOT USE A SOLDERING GUN. WARNING: THE LEADS ARE VERY THIN, AND EXCESSIVE HEAT WILL BURN THEM OR LOOSEN THEM FROM THE BASE MATERIAL.

3. Printed connections or leads, if damaged, may be replaced with a jumper of regular hookup wire.

4. It is recommended that IF transformers, the volume control, or the electrolytic capacitor be removed by immersing all the lugs simultaneously into a small soldering pot. The component may then be lifted off the chassis easily. If a soldering pot is not available, heat each lug individually with a small soldering iron, and shake off as much molten solder as possible. Then, by alternately heating and loosening each lug, the entire component will be freed.

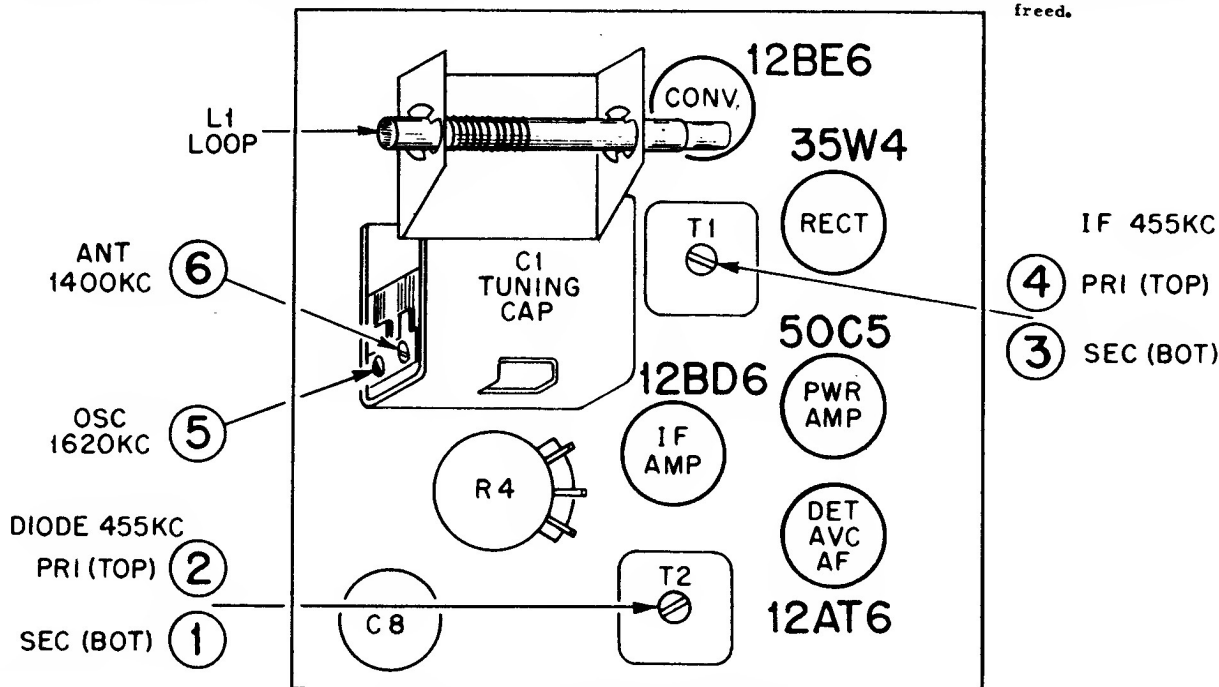


FIGURE 2. TUBE AND TRIMMER LOCATIONS (LATE MODEL)

FIGURE 3. FRONT VIEW OF CHASSIS - WIRED