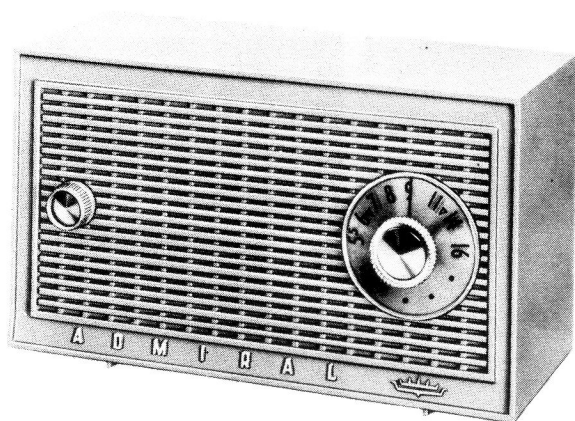


Admiral Radio

4D3X CHASSIS



SPECIFICATIONS

CIRCUIT: Superheterodyne using 4 miniature tubes.

FREQUENCY RANGE: Standard broadcast band, 535 to 1620 KC.

INTERMEDIATE FREQUENCY: 455 KC.

POWER SUPPLY: Power line of 117 volts, 50 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.

GENERAL

This receiver employs the latest radio circuitry and a "printed" circuit wiring technique. The "printed" circuit wiring used in this receiver replaces the hookup 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 hookup wire. However, when servicing, it is important to read the service information given in this manual with respect to the technique of servicing a printed circuit re-

MODEL IDENTIFICATION

MODEL	COLOUR	CHASSIS
C33X	White	4D3X
C37X	Rose Beige	
C38X	Turquoise	
C39X	Grey	

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 a long nose pliers or 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.

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 (centre 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, at the top rear. Lift cabinet top slightly and slip cabinet back out. Lift back up and out of base of cabinet. Remove the screw under the TUNING knob, the screw that holds the VOLUME bracket to the cabinet. Slide the chassis out of tuning rack after disconnecting the output trans-

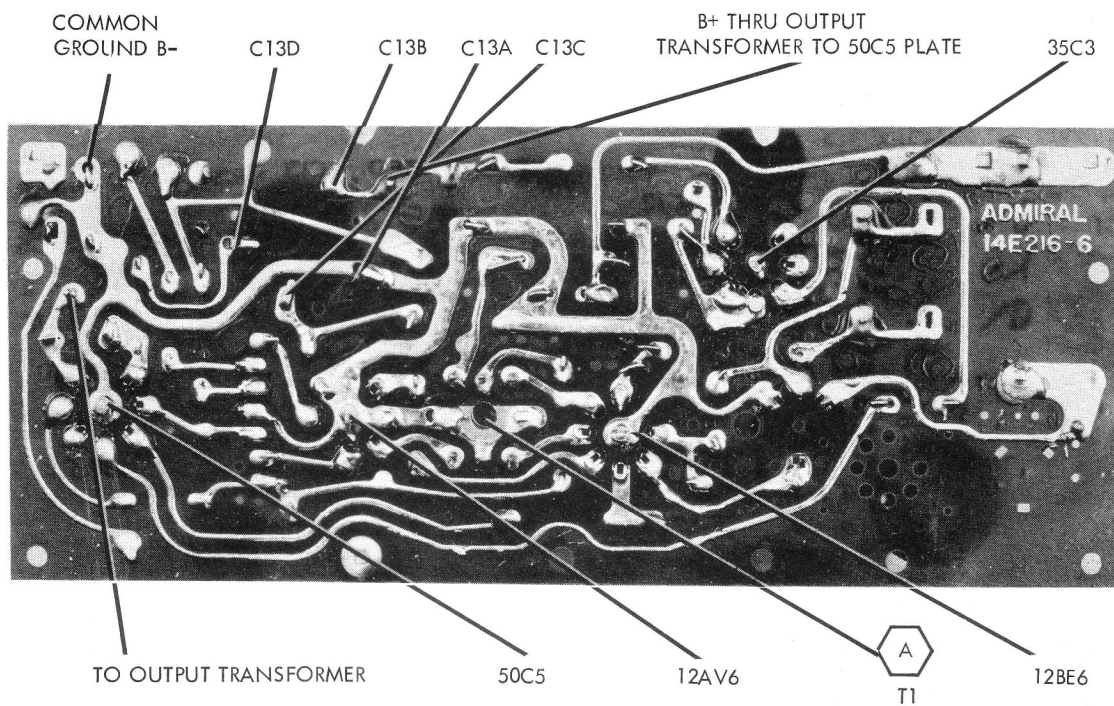


Figure 1. Bottom View of Chassis.

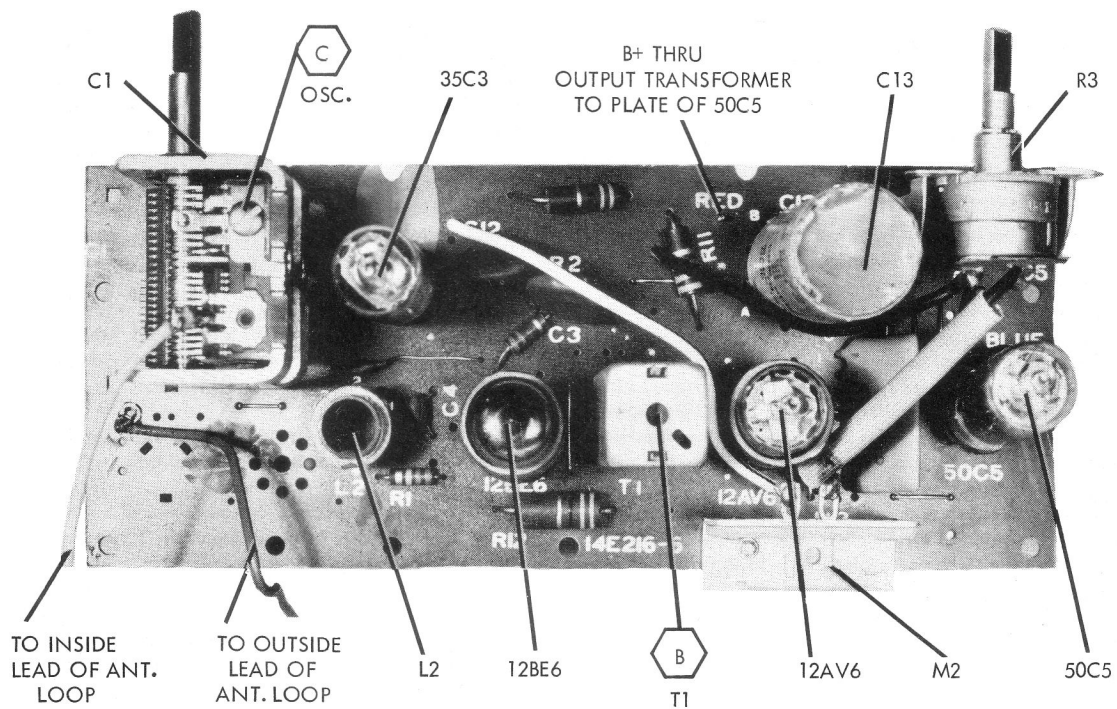
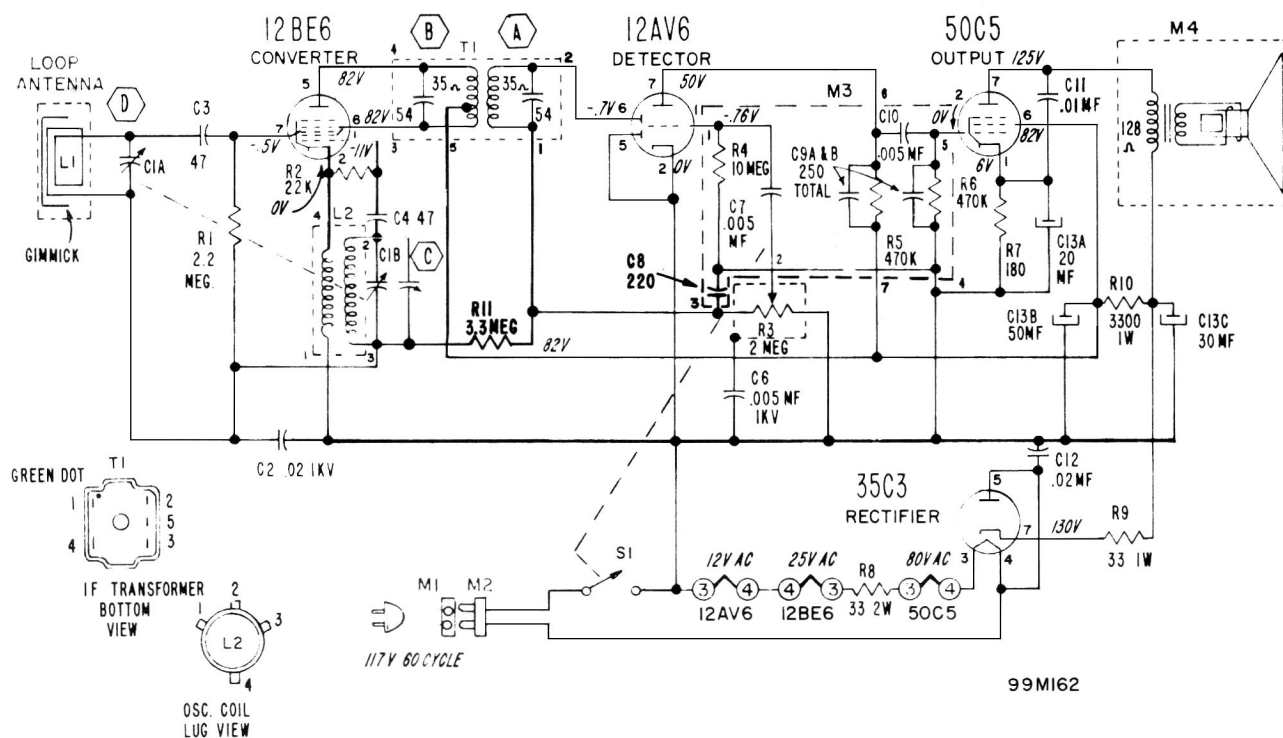


Figure 2. Top View of Chassis Showing Location of Components and Alignment Points.



ALIGNMENT PROCEDURE

- Use an isolation transformer if available; otherwise connect a .1 mfd. capacitor in series with low side of 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 (Converter) tube 12BE6.	455 KC	Gang fully open	"A" and "B" for maximum output
2	Same as "STEP 1"	1620 KC	Gang fully open	"C" 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	Antenna Gimick "D" for maximum output (Rock gang for optimum results)

*Adjustment "A" made from underside of chassis; see figure 1.

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.

Voltages shown on schematic diagram.

All reading 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.

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. 6--40 low temperature rosin core solder (should be used for all soldering).
6. Tinned jumper wires.
7. Metal pick (soldering aid).

RESISTORS			COIL, TRANSFORMERS, ETC.		
Sym.	Description	Part No.	Sym.	Description	Part No.
R1	2.2 meg, $\frac{1}{2}$ W, 10%.....	60B8-225	L1	Loop Antenna.....	69N7-1
R2	22K ohm, $\frac{1}{2}$ W, 10%.....	60B8-223	L2	Oscillator Coil.....	69B215-5
R3	Volume Control, 2 meg ohm, 30%.....	75D56-2	T1	I. F. Transformer.....	72C175-2
R4	10 meg, $\frac{1}{2}$ W, 20%.....	Part of M3	M2	Plug Interlock.....	88W36
R5	470K ohm, $\frac{1}{2}$ W, 20%.....	Part of M3	M3	Couplate Audio.....	63C6-20
R6	470K ohm, $\frac{1}{2}$ W, 20%.....	Part of M3	M4	Speaker - 4" P.M.....	78B142-2
R7	180 ohm, $\frac{1}{2}$ W, 10%.....	60B8-181		or	
R8	33 ohm, 2W, 10%.....	60B20-330	M4	Speaker - 4" P.M. (Preferred).....	78B142-3
R9	33 ohm, 1W, 10%.....	60B14-330			
R10	3.3K ohm, 1W, 10%.....	60B14-332			
CAPACITORS			MISCELLANEOUS PARTS		
C1A	326.8 mmfd, max. ant.		Terminal and Connect.....	9C28-51	
C1B	102.1 mmfd, max. osc. gang.....	68C76-2	Chassis P.C. Board.....	14E216-6	
C2	.02 mfd, GMV, 1000V.....	65M1-11	Bracket, Interlock.....	15B2049-1	
C3	47 mmfd, $\pm 20\%$, 500V.....	65D10-198	Spring Clip (Spkr. Retainer).....	18A267-1	
C4	47 mmfd, $\pm 20\%$, 500V.....	65D10-198	Tube Socket, 7 Pin.....	87D35-13	
C5	47 mmfd, ± 2.5 mmfd, 500V.....	65D10-101	Tube Socket, 7 Pin.....	87D35-14	
C6	.005 mfd, GMV, 1000V.....	65D10-14	Tube Shield, 7 Pin.....	87B52-2	
C7	.005 mfd, $\pm 20\%$, 600V.....	Part of M3			
C8	220 mmfd, $\pm 20\%$, 500V.....	Part of M3			
C9	250 mmfd, 500V.....	Part of M3			
C10	.005 mfd, 500V.....	Part of M3			
C11	.01 mfd, $\pm 20\%$, 500V, Ceramic	65D10-41			
C12	.02 mfd, Ceramic, 500V.....	65D10-137			
C13A	20 mfd, 25V				
C13B	30 mfd, 150V Electrolytic.....	67C39-5			
C13C	50 mfd, 150V				
			CABINET PARTS		
			Knob (Tuning).....	33C350-1	
			Knob (Volume).....	33C350-2	
			Cabinet (White) (C33X).....	34E147-1	
			Cabinet (Rose Beige) (C37X).....	34E147-2	
			Cabinet (Turquoise) (C38X).....	34E147-3	
			Cabinet (Grey) (C39X).....	34E147-4	
			Trim Insert.....	23B362-1	
			Antenna & Cabinet Back.....	69N7-1	
			Line Cord and Plug.....	89B62-4	