# Admiral

# SERVICE MANUAL No. T1043

# for Models 5T31X - 5T32X - 5T33X - 5T34X - 5T38X

# Using the 5T3X 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 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 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 wire 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 a long nose pliers or metal pick. Continue heating the lugs and brush away the molten solder with a small stiff wire 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.

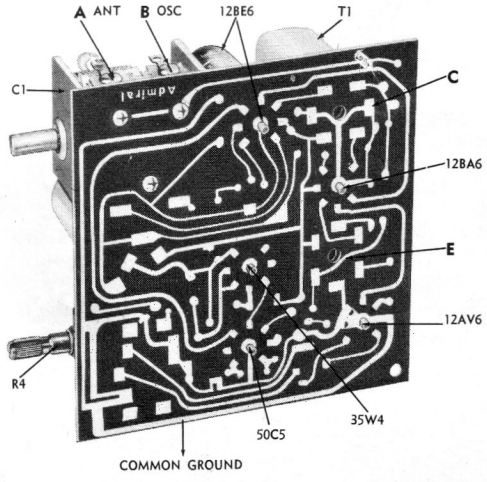


Figure 1. Bottom View of Chassis.

**CHASSIS 5T3X**
**MODELS 5T31X . 5T32X . 5T33X . 5T34X . 5T38X**

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Models 5T31X Ebony, 5T32X Maroon, 5T33X Ivory, 5T34X Beige, 5T38X Green.

## 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 or 60 cycles AC or DC.

***Power Consumption:*** 30 watts.

***Antenna:*** Built-in loop antenna.

***Speaker:*** 6" PM. with Alnico V magnet. Voice coil impedance, 3.2 ohms.

## VOLTAGE PRECAUTION

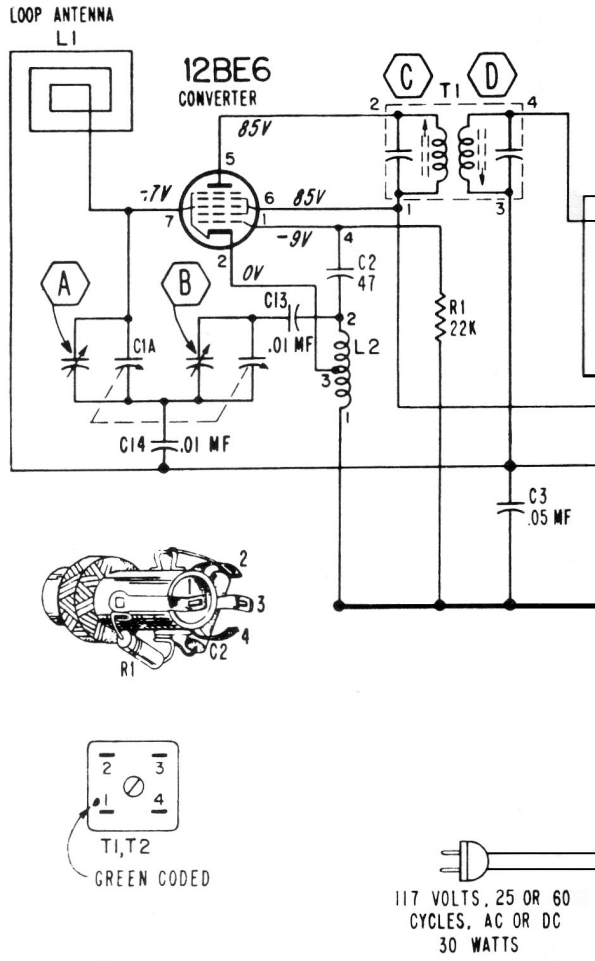
The chassis of this receiver is connected directly to one side of the power line. To avoid possibility of damage to test equipment or to printed circuit wiring, do not place the chassis directly on a metal service bench, tools or other metal objects.

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.

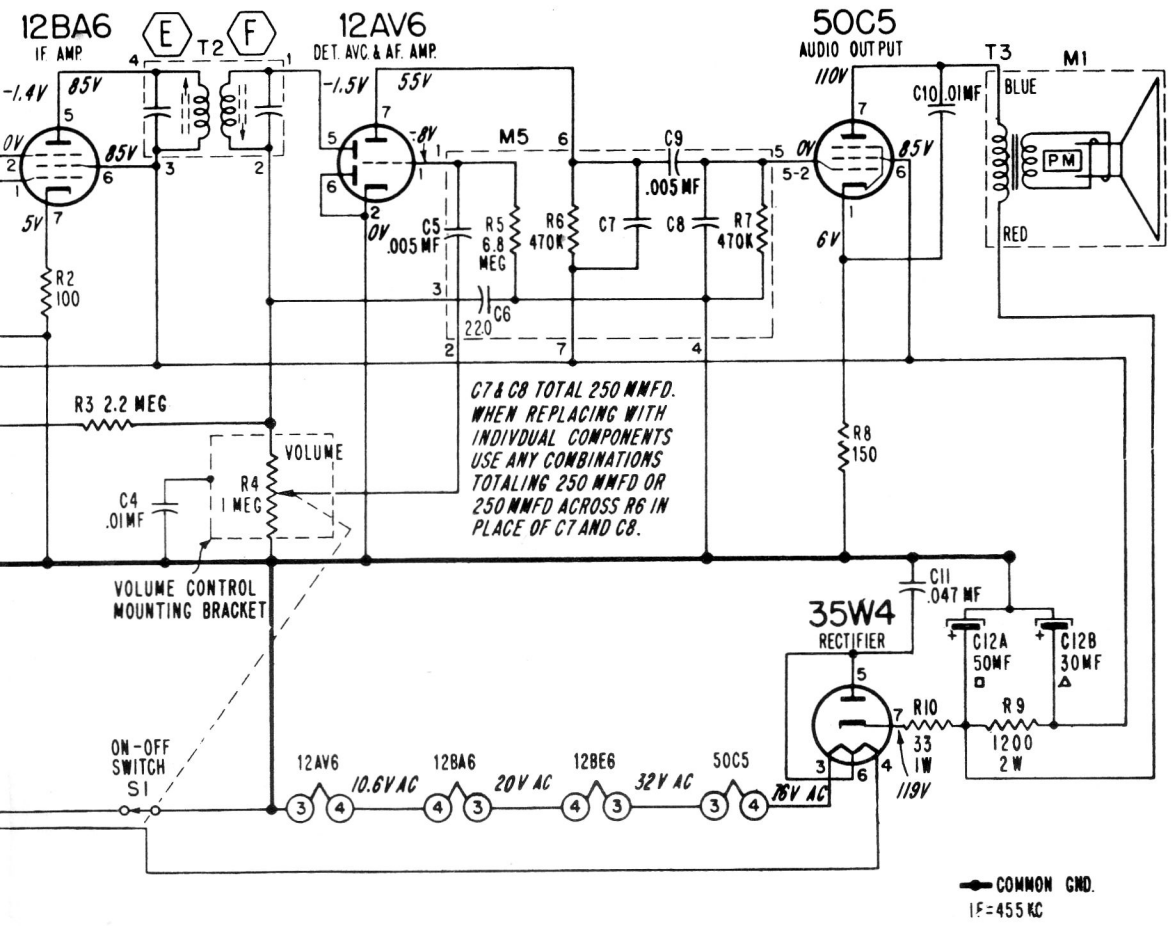



## RESISTORS

| Symbol | Description | Part No. |
|---|---|---|
| R1 | 22,000 ohms, ½ watt | 60B 8-223 |
| R2 | 100 ohms, ½ watt | 60B 8-101 |
| R3 | 2.2 megohms, ½ watt | 60B 8-225 |
| R4 | 1 megohm, Volume control (includes switch S1) | 75C 25-3 |
| §R5 | 6.8 megohms, ½ watt | |
| §R6 | 470,000 ohms, ½ watt | |
| §R7 | 470,000 ohms, ½ watt | |
| R8 | 150 ohms, ½ watt | 60B 8-151 |
| R9 | 1,200 ohms, 1 watt | 60B 14-122 |
| R10 | 33 ohm, 1 watt | 60B 28-3 |

## CAPACITORS

| | | |
|---|---|---|
| C1A | 354 mmf, max, Ant. } gang | 68B 64-2 |
| 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, molded | 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 |




## COILS, TRANSFORMERS, ETC.

| Symbol | Description | Part No. |
|---|---|---|
| L1 | Antenna, Loop | 69Y 197-1 |
| L2 | Coil, Oscillator (includes R1 and C2) | 69A 190-2 |
| T1 | Transformer, 1st IF | 72C 28-65 |
| T2 | Transformer, 2nd IF | 72C 28-65 |
| M1 | Speaker (6" PM) and Output Transformer | 78B 100-1 |
| M4 | Couplate (includes R5, R6, R7, (C5, C6, C7, C8, C9) | 63C 6-14 |
| S1 | Switch, On-Off | Part of R4 |

## MISCELLANEOUS PARTS

| | |
|---|---|
| Compression Ring | |
| Pointer Knob | 19A 31-10 |
| Tuning Knob | 19A 31-29 |
| Shield, Tube | 87B 52-2 |
| Socket, Tube | 87A 35-7 |
| Socket, Tube, Shield Mtg. | 87A 35-10 |
| Spacer | |
| Gang Mounting | 32A 221 |
| Line Cord | 89W1-6 |

## CABINET PARTS

| Description | Part No. |
|---|---|
| Cabinet | |
| ebony | 34D 82-1 |
| maroon | 34D 82-2 |
| ivory | 34D 82-3 |
| beige | 34D 82-4 |
| green | 34D 82-5 |
| Cabinet Back, Fiber (includes loop antenna) | 69Y197-1 |
| Dial Scale, Metal | 21B 81 |
| Grille, Metal | 36B 67 |
| Knob, Pointer | |
| ebony | 25B 61-1 |
| maroon | 25B 61-2 |
| ivory | 25B 61-3 |
| beige | 25B 61-4 |
| green | 25B 61-5 |
| Knob, Tuning | |
| ebony | 33A 141-2 |
| maroon | 33A 141-4 |
| ivory | 33A 141-6 |
| beige | 33A 141-8 |
| green | 33A 141-10 |
| Knob, Volume | |
| ebony | 33A 141-1 |
| maroon | 33A 141-3 |
| ivory | 33A 141-5 |
| beige | 33A 141-7 |
| green | 33A 141-9 |

§Part of couplate, part number 63C6-14. Numbers on schematic correspond to lead numbers on couplate 63C6-14.

## 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.

See Service Manual No. S559 for additional information on printed circuit servicing.

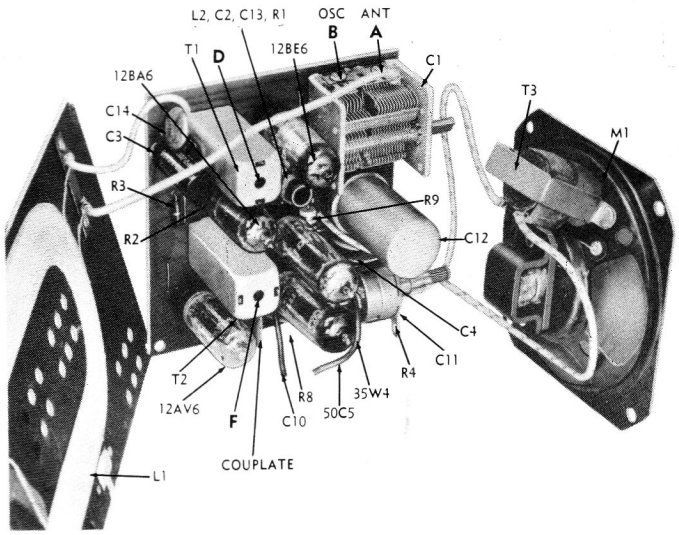



Figure 2. Top View of Chassis. Location of components and alignment points shown.

### 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 three hex head screws and the two snap buttons 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 screw that holds the line cord retainer or interlock to the cabinet. Slide the chassis out of its mounting rack after disconnecting the output transformer leads.