

"HIS MASTER'S VOICE"

CHASSIS TYPE JA

TECHNICAL SPECIFICATION

FREQUENCY RANGE:

525-1750 Kc/s.

INTERMEDIATE FREQUENCY:

455 Kc/s.

BATTERY:

One Eveready type 2510.

BATTERY CONSUMPTION:

Zero audio output (approximately 7 milliamperes).

400 Milliwatts audio output (approximately 45 milliamperes).

TRANSISTORS:

AF 116N Converter (1).
AF 117N 1st and 2nd I.F. Amplifiers (2)
AC 126 Audio driver (1).
AC 127 *Output NPN
AC 132 *Output PNP
*Matched pair.
0A90 Crystal diodes (2)
1 Overload diode.
1 Detector and AVC.

LOUDSPEAKER:

4in. MSP, V/C impedance, 48 ohms.

CONTROLS:

Tuning control: At right front of cabinet.
On/Off volume: At right end of cabinet.

DIMENSIONS:

Height: 6½ inches.

Width: 9¾ inches.

Depth: 3½ inches.

BATTERY REPLACEMENT:

The battery becomes accessible by slackening the captive rear retaining screw and removing the cabinet back. Detach battery lead clip fasteners, remove discharged battery and replace with new one. Reverse the above procedure for assembly.

SERVICING

Regardless of the stated complaint, the following preliminary checks should be made:

- Battery voltage with set turned on.
- Battery current with no signal input.
- Intermittent connections by gently probing components and soldered connections with an insulated tool.
- Sensitivity — by listening test.
- Distortion — by listening test.

If removal of the printed circuit board is necessary, first remove the back by slackening the captive rear retaining screw.

Withdraw the tuning knob from the spindle.

Remove the three slotted nuts and one self-tapping screw, which hold the printed board to the cabinet. Remove the inverted "U" bracket and the printed circuit board may now be lifted away. If necessary, the speaker leads may be extended to give greater freedom of movement.

Circuit tracing and component identification is simplified by reference to the wiring pattern printed on the component side of the board. Reference should also be made to the component location diagram reproduced in this manual.

Circuit checks with an ohmmeter will give misleading results, and transistors may be damaged by excessive conduction caused by the ohmmeter battery.

Faulty components can usually be located by means of D.C. voltage checks, in conjunction with standard signal tracing procedure.

To unsolder multi-terminal components (I.F. transformers, etc.), it is best to apply heat simul-

taneously to all terminals, using a special iron tip. If a normal iron tip is used, apply the iron to each soldered joint in turn and brush away the solder with a stiff brush. It may be found necessary to remelt and brush several times.

CAUTION: Before using soldering iron, ensure that:

- The set is switched off.
- All testing and earthing leads are removed.
- The soldering iron gives adequate but not too much heat. A low voltage soldering iron is preferred. Apply soldering iron only for a short period of time, bearing in mind that the copper on the board could easily be damaged. If the copper has been damaged, it may be repaired by bridging the gap with tinned copper wire.

Reassembly is carried out by reversing the above procedure. Care should be taken when refitting the dial pointer, that the red line on the pointer should correspond with the white line on the L.F. end of the dial and with the gang fully closed.

OUTPUT TRANSISTORS:

The output transistors are operated in a complementary symmetry configuration. Care must be taken not to connect the emitters of these transistors to earth. The voltage at the emitters should be between -7.5 and -9 volts.

Note: One side of the speaker is connected directly to B—, and not to earth.

ALIGNMENT TABLE

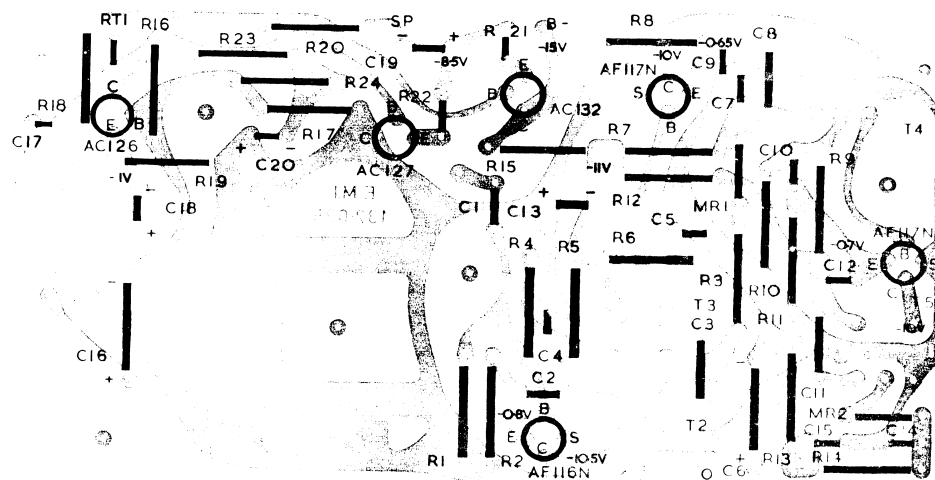
Order of Operation	Connect High Side of Generator To	Tune Generator To	Tune Receiver To	Adjust for Maximum Peak Output
1	Aerial section of gang	455 Kc/s.	L.F. Limit	Core T5
2	Aerial section of gang	455 Kc/s.	L.F. Limit	Core T4
3	Aerial section of gang	455 Kc/s.	L.F. Limit	Core T3
	Repeat steps 1, 2 and 3 until maximum output is obtained†			
4			L.F. Limit	Red pointer to be on white line of dial extremity
5	Inductively coupled* to rod aerial	600 Kc/s.	600 Kc/s. calibration on dial	L.F. Osc. core adj T2†
6	Inductively coupled* to rod aerial	1,500 Kc/s.	1,500 Kc/s. calibration on dial	H.F. Osc. adj. (VC3)
7	Inductively coupled* to rod aerial	1,500 Kc/s.	1,500 Kc/s. calibration on dial	H.F. aerial adj. (VC1)
	Repeat steps 5, 6 and 7			

*A coil comprising 3 turns of 16 gauge D.C.C. wire about 12 inches in diameter should be connected across the output terminals to the generator, placed concentric with the rod aerial and distant not less than one foot from it.

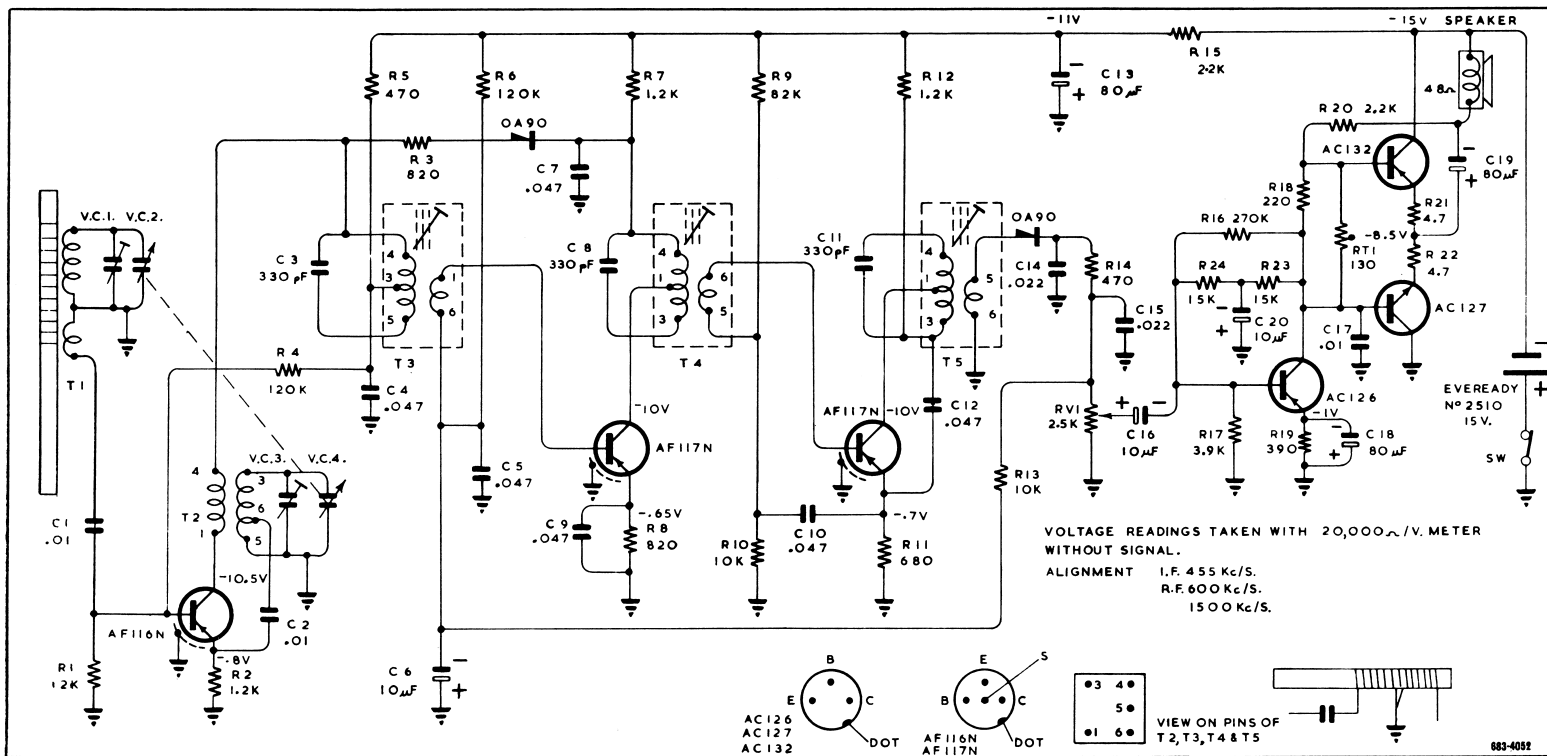
†Rock the tuning control back and forth through the signal.

‡These transformers are a very high Q miniature type. It will be appreciated that the amount of travel for the tuning core to cover its tuning range is much smaller than on normal I.F. transformers. Tuning thus becomes more critical, and the following hints should prove useful.

- The tuning tool used should be a small plastic needle screwdriver whose tip fits cleanly into the tuning core.
- When turning the core, do not use any downward pressure, as the threaded boss has enough resilience to detune the circuit after the pressure has been relieved.
- The threads on the boss may be damaged if the core is wound in and forced against the winding bobbin. This should never happen, as only a light torque is needed to turn the tuning core normally.



PRINTED BOARD, LOOKING ON COMPONENT SIDE



CIRCUIT DIAGRAM — CHASSIS TYPE JA