

General Description: The 13RN460 is a two-waveband (M.W. and L.W.) push-button car radio designed for operation from a 12-volt positive or negative earth supply. Six transistors and one crystal diode are used, and the printed panel may be hinged back for servicing. Five rotatable, push-buttons are provided for tuning, and these may be pre-set if required. A 5-pin DIN socket is fitted on the rear of the case for tape recording and playback. Power supply: 12-volt D.C. (either pole earthed). Consumption 800 mA. Fuse, 1.5 amp. Loudspeaker, 5 ohms.

Semiconductors: (T₁, 2, 3) AF117; (T₄) OC71; (T₅) AC128; (T₆) AD149.

Notes

1. *Removing the Outer Cover Plate.*—To remove the outer cover plate, withdraw the four screws from the top of the plate, also the two screws from either side, then lever the cover plate upwards.

2. *Removing the Scale and Chromium Escutcheon.*—Pull off the volume and tone control knobs, unscrew the large nuts fitted over each spindle and remove the plastic scale together with the chromium escutcheon. When re-fitting, ensure that the large spacer is fitted over each control spindle before replacing the chromium escutcheon.

3. *Scale Lamp Replacement.*—Remove the scale and chromium escutcheon as described above. Detach the scale backplate to gain access to the lamp.

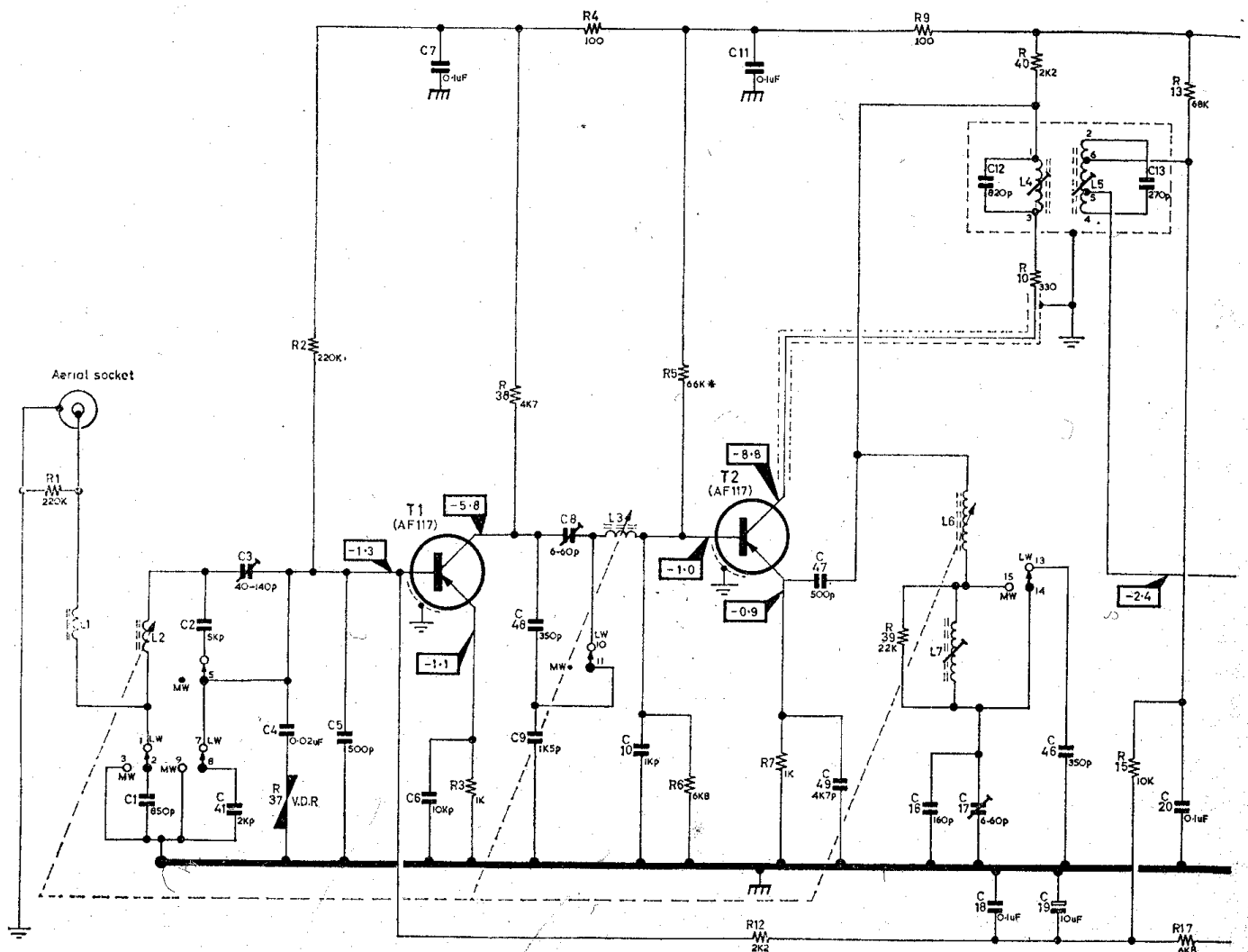
4. *Polarity Adjustment.*—To adjust the receiver for negative earth operation, pull out the polarity plug which is situated at the rear of the chassis, turn it through 90° and replace.

5. *Printed Panel.*—To gain access to the components, etc., on the printed panel, remove the outer cover plate, scale and chromium escutcheon as detailed above. Withdraw the two outer fixing screws from the front end of the baseplate, then hinge back the panel from the chassis.

Trimming Instructions

(a) **General:** Output should be observed with an output meter set for 5 ohms load, trimming level 500 mW. Disconnect the loudspeaker, and set the volume and tone controls to maximum.

(b) **Calibration Marks:** Remove the white scale backplate; the calibration marks are stamped with an inverted "V" in the metal edge of the front



W25 a

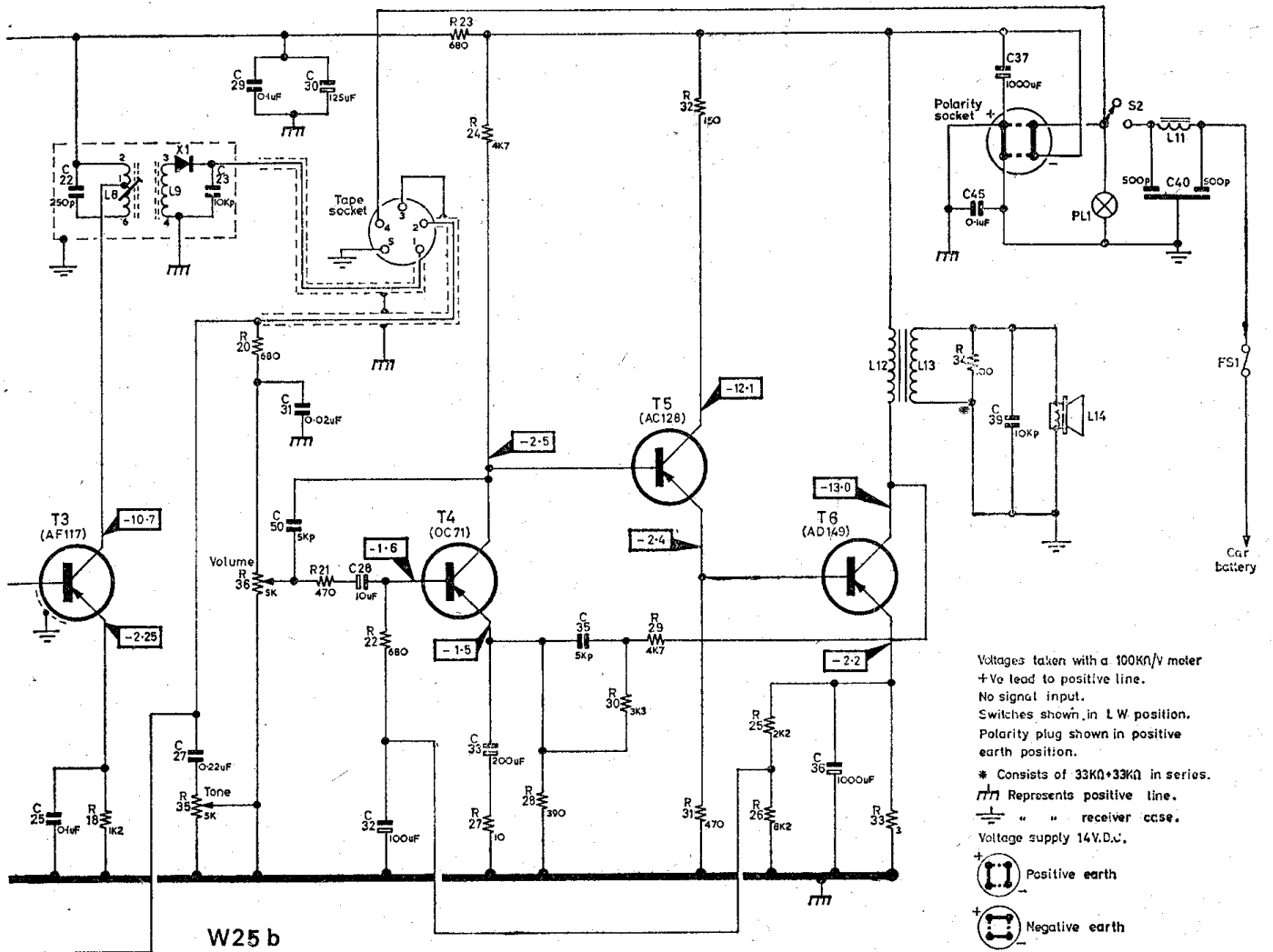
CIRCUIT DIAGRAM—PHILIPS MODEL 13RN460 (PART)

plate above the push buttons. From left to right they indicate: 1600, 1300, 1000, 200 and 600 kc/s.

I.F. Alignment: Connect the signal generator via a 50 pF. capacitor to the base of T2. Depress the right-hand push button, and set the pointer to the high frequency end of the scale. Inject a signal of 470 kc/s., 30 per cent. modulation, and adjust the cores of L8, L5 and L4 for maximum output.

R.F. Alignment: Medium Wave: Depress the right-hand button and set the pointer to the 1600-kc/s. calibration mark. Slightly unscrew trimmers C3 and C8. Apply a signal of 1600 kc/s. via the dummy aerial to the receiver aerial socket. Adjust C17 to find signal and C3 for maximum output. Tune the receiver to the 1000-kc/s. calibration mark, and set the generator to 1000 kc/s. Adjust the cores of L6, L3 and L2 (accessible through holes in the rear of the chassis when T6 insulating cover is removed) for maximum output. Retune receiver and signal generator to 1600 kc/s. and adjust C3 and C8 for maximum output. Check the calibration at 1300 kc/s. and 600 kc/s.; these should fall within the scale calibration marks.

Long wave.—Depress the left-hand button, then set the pointer to the 200-kc/s. calibration mark. Inject a signal of 200 kc/s. via the dummy aerial to the receiver aerial socket. Adjust the core of L7 for maximum output.



Voltages taken with a 100k Ω /V meter
 +Ve lead to positive line.
 No signal input.
 Switches shown in LW position.
 Polarity plug shown in positive earth position.
 * Consists of 33k Ω +33k Ω in series.
 --- Represents positive line.
 --- " " receiver case.
 Voltage supply 14V.D.C.
 + Positive earth
 + Negative earth

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