

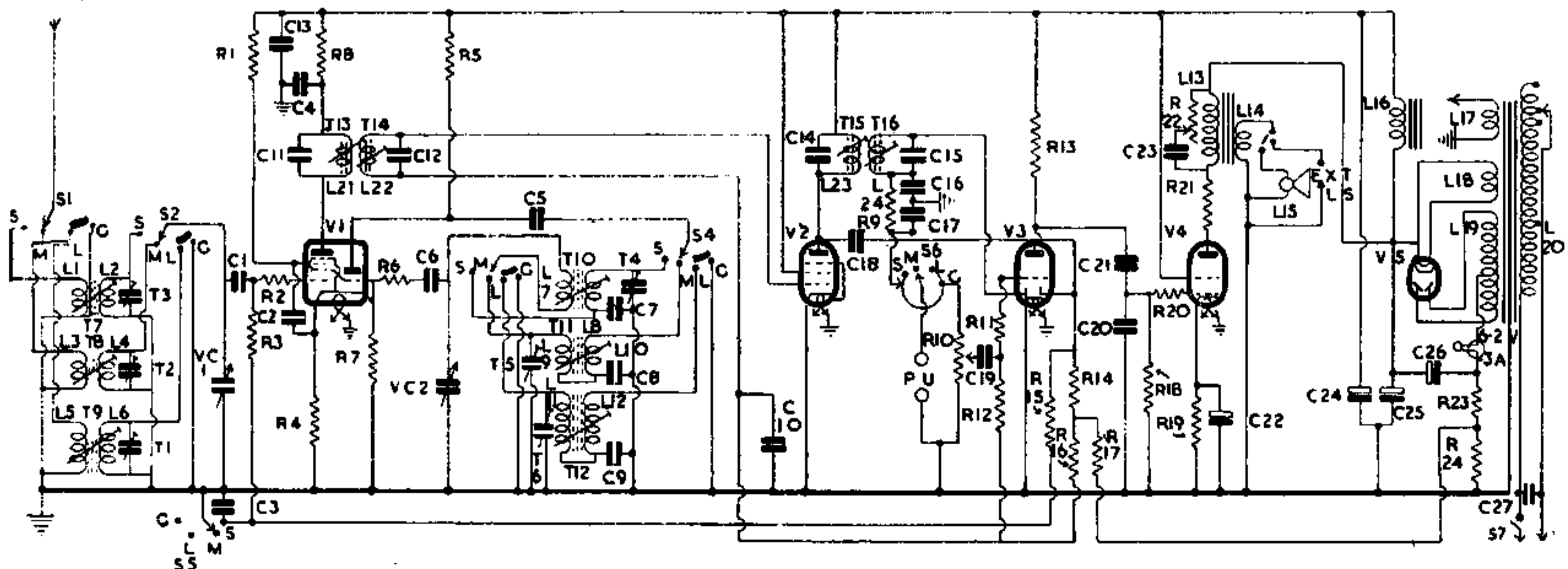
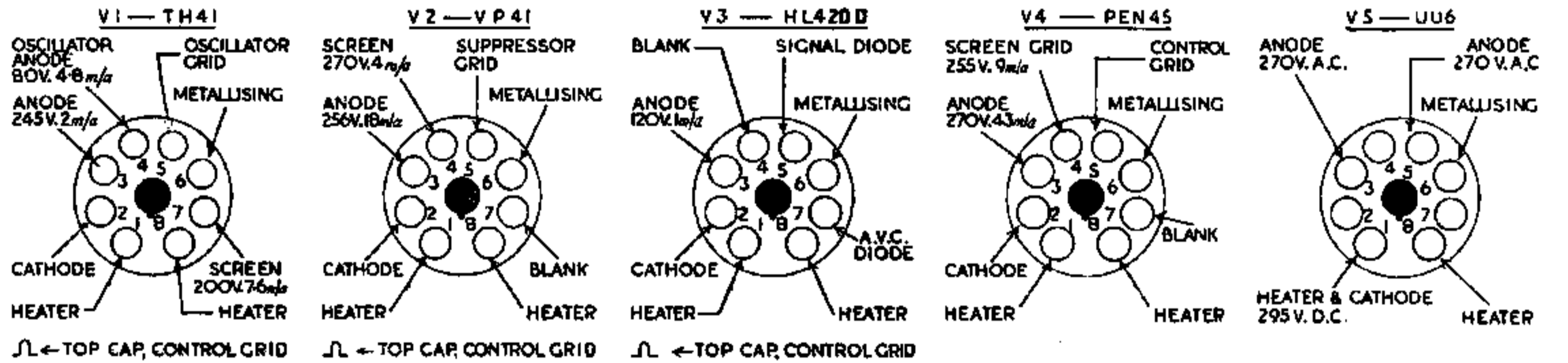
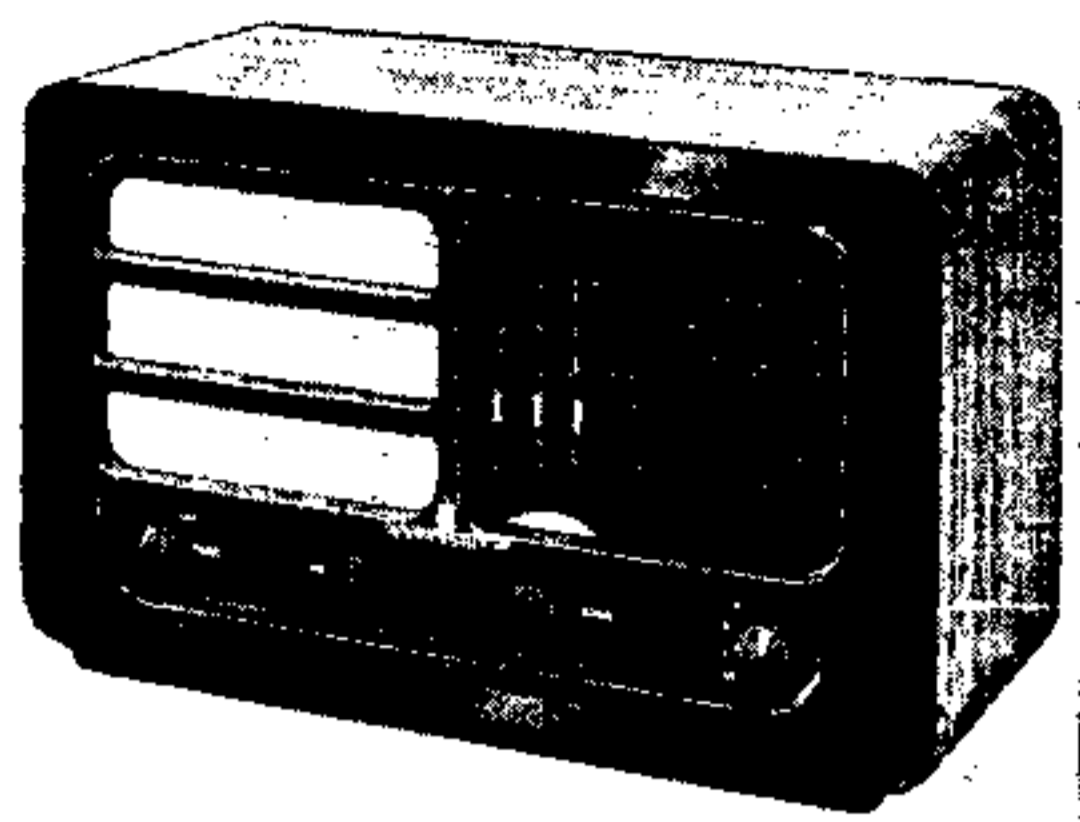
# AMBASSADOR 545H

Five-valve, including rectifier, superhet receiver for AC mains of 200-250V, 50-100 cycles. Three wavebands including short waves with mechanical hand spreading. Provision for PU and external speaker; plug and socket switch for external and internal speakers. Marketed by R. N. Fitton, Ltd., Brighouse, Yorkshire. First production, February, 1946.

**A**ERIAL is taken direct to moving contact of S1 and hence to the primaries of three iron-dust cored aerial transformers. The secondaries, each with trimmer, are selected for V1 grid by S2. Both S1 and S2 short out the ranges of longer bands when they are not in use. VC1 is the RF section of the gang tuning condenser. AVC and some standing bias is parallel-fed to V1, the frequency-changer, by R3, decoupled by C3, and with C1 as DC stopper and R2 as oscillation-stopper. On SW the AVC line is

shorted to chassis by S5. Cathode bias for V1 is obtained from R4, while the screen potential is obtained from R1 decoupled by C2. Triode oscillator portion of V1 obtains its HT via R5, C5 parallel feeding the anode circuit via S4. Iron-dust transformers are used for the oscillator. On SW L8 is used in the anode together with a fixed padder C7 and trimmer T4. C7 is common to both anode and grid circuits giving increased coupling. L7 is the grid coil and is connected to the main tuning capacitor VC2 by S3. MW anode coil is L10, L9 being the grid coil; T5 is a variable trimmer and C8 is a fixed padder common to both anode and grid circuits. On LW L12 is used in the anode and L11 in the grid, with variable trimmer T6 and a common impedance C9 to increase feed-back. Leak-and-condenser bias is derived from C6, R7. R6 is a stabilising device. The longer wavelength circuits are short-circuited when not in use. Decoupled by R8 and C4, the heptode anode portion of V1 contains an IF transformer of the permeability-tuned type with primary C11 and L21, and secondary C12 and L22. About half the AVC voltage and some standing

bias is fed to V2, the IF amplifier being decoupled by R16 and C10. Full HT is used on the screen of V2. Second IF transformer comprises L23 and C14 in the primary and L24, C15 in the secondary. Trimming for the two transformers is by means of variable iron-dust cores T13, T14, T15 and T16. Demodulator diode is driven from the IFT2 secondary, its load being R10. R9, C16 and C17 are an IF filter. Pickup input is connected in parallel with the volume control R10 via S6. The AF signal passes to the triode grid via C19 and R11. Unusual feature is the application of full AVC to the triode grid via R12. AVC diode of V3 is driven from the IF valve anode to reduce the damping on the secondary of IFT2. AVC load is R14 and R17, the circuit to earth being completed by R24 which gives standing bias. Slight delay is applied to the AVC diode by this arrangement. R13 is the anode load to V3, C20 being fixed tone control. The coupling condenser to V4 and its leak are C21 and R18 with R20 as stabiliser. Cathode bias for V4 is obtained from R19 decoupled by C22. R21 is an anode oscillation stopper. Continued column two, next page



### CAPACITORS

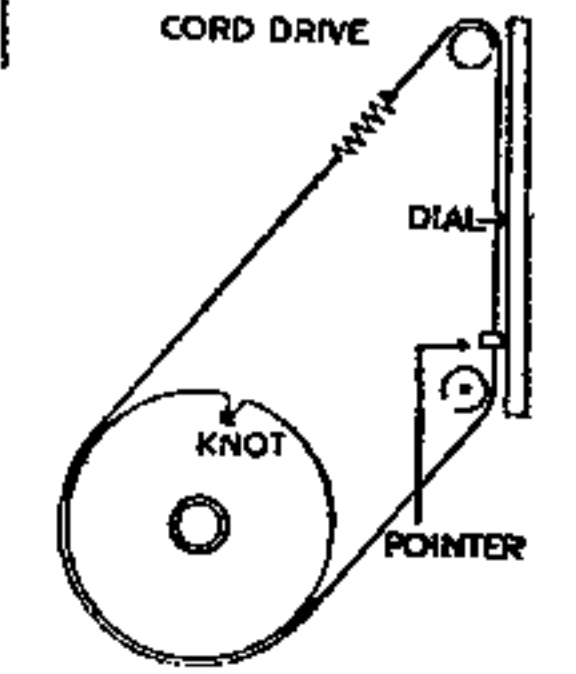
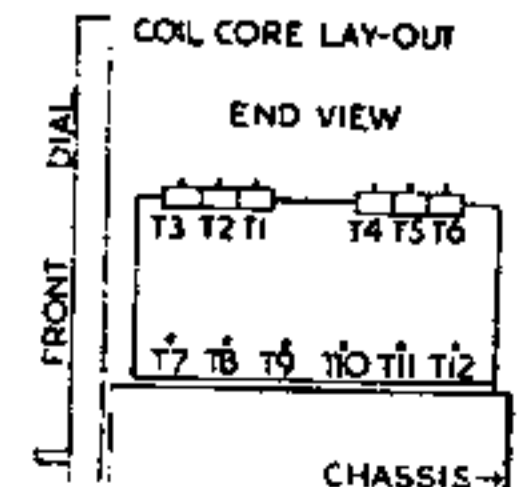
| C  | Mfd       | C   | Mfd                 |
|----|-----------|---|---------------------|
| 1  | 50 pfd    | 16  | .0002 mfd           |
| 2  | .1 mfd    | 17  | .0001 mfd           |
| 3  | .01 mfd   | 18  | .25 pfd             |
| 4  | .1 mfd    | 19  | .01 mfd             |
| 5  | .0001 mfd | 20  | .0005 mfd           |
| 6  | 50 pfd    | 21  | .02 mfd             |
| 7  | 240 pfd   | 22  | Electrolytic 50 mfd |
| 8  | 625 pfd   | 23  | .04 mfd             |
| 9  | 200 pfd   | 24  | Electrolytic 8 mfd  |
| 10 | .1 mfd    | 25  | Electrolytic 8 mfd  |
| 11 | —         | 26  | 8 mfd               |
| 12 | —         | 27  | .01 mfd             |
| 13 | .1 mfd    | Capacitors C11, 12, 14, 15, these are in sealed unit. |                     |
| 14 | —         |   |                     |

### INDUCTORS

| L  | Ohms                       |
|----|----------------------------|
| 1  | very low                   |
| 2  | very low                   |
| 3  | 15                         |
| 4  | 2                          |
| 5  | 65                         |
| 6  | 20                         |
| 7  | very low                   |
| 8  | very low                   |
| 9  | 3.5                        |
| 10 | .5                         |
| 11 | 8.5                        |
| 12 | 1.5                        |
| 13 | 290                        |
| 14 | .5                         |
| 15 | 1.75                       |
| 16 | 1,500 choke or 4,000 Field |
| 17 | very low                   |
| 18 | very low                   |
| 19 | 245 plus 245               |
| 20 | 23                         |
| 21 | 11                         |
| 22 | 11                         |
| 23 | 11                         |
| 24 | 11                         |

### RESISTORS

| R  | Ohms    |
|----|---------|
| 1  | 22,000  |
| 2  | 22      |
| 3  | 474,000 |
| 4  | 22      |
| 5  | 39,000  |
| 6  | 22      |
| 7  | 47,000  |
| 8  | 1,000   |
| 9  | 47,000  |
| 10 | 500,000 |
| 11 | 47,000  |
| 12 | 2.2 meg |
| 13 | 220,000 |
| 14 | 470,000 |
| 15 | 2.2 meg |
| 16 | 1 meg   |
| 17 | 470,000 |
| 18 | 470,000 |
| 19 | 220     |
| 20 | 10,000  |
| 21 | 47      |
| 22 | 10,000  |
| 23 | 440     |
| 24 | 22      |



## TRIMMING INSTRUCTIONS

| Apply Signal as Below.  | Tune Receiver to | Adjust in Order stated for Max. Output. |
|---|------------------|---|
| (1) 465 KC to top cap of V1 via .01 mfd after removing lead. S C VC2 to chassis | Range 1. 150 KC  | T16, T15, T14, T13                      |
| (2) 350 KC to aerial and earth via dummy aerial Remove VC2 S C                  | Range 1. 350 KC  | T6                                      |
| (3) 142 KC as in (2)  | Range 1. 142 KC  | T12                                     |
| (4) 300 KC as in (2)  | Range 1. 300 KC  | T1                                      |
| (5) 160 KC as in (2)  | Range 1. 160 KC  | T9                                      |
| (6) 1750 KC as in (2)   | Range 2. 1750 KC | T5                                      |
| (7) 540 KC as in (2)  | Range 2. 540 KC  | T11                                     |
| (8) 1500 KC as in (2)   | Range 2. 1500 KC | T2                                      |

|                        |                       |   |
|------------------------|-----------------------|---|
| (9) 600 KC as in (2)   | Range 2. 600 KC       | T8  |
| (10) 21.5 MC as in (2) | Range 3. 13.95 metres | T4, taking care to trim to max. signal using the least capacity |
| (11) 6.0 MC as in (2)  | Range 3. 50 metres    | T10   |
| (12) 18.0 MC as in (2) | Range 3. 16.67 metres | T3  |
| (13) 6.0 MC as in (2)  | Range 3. 50 metres    | T7  |

Notes.— The use of an output meter is strongly recommended. Turn tone and volume controls fully clockwise.

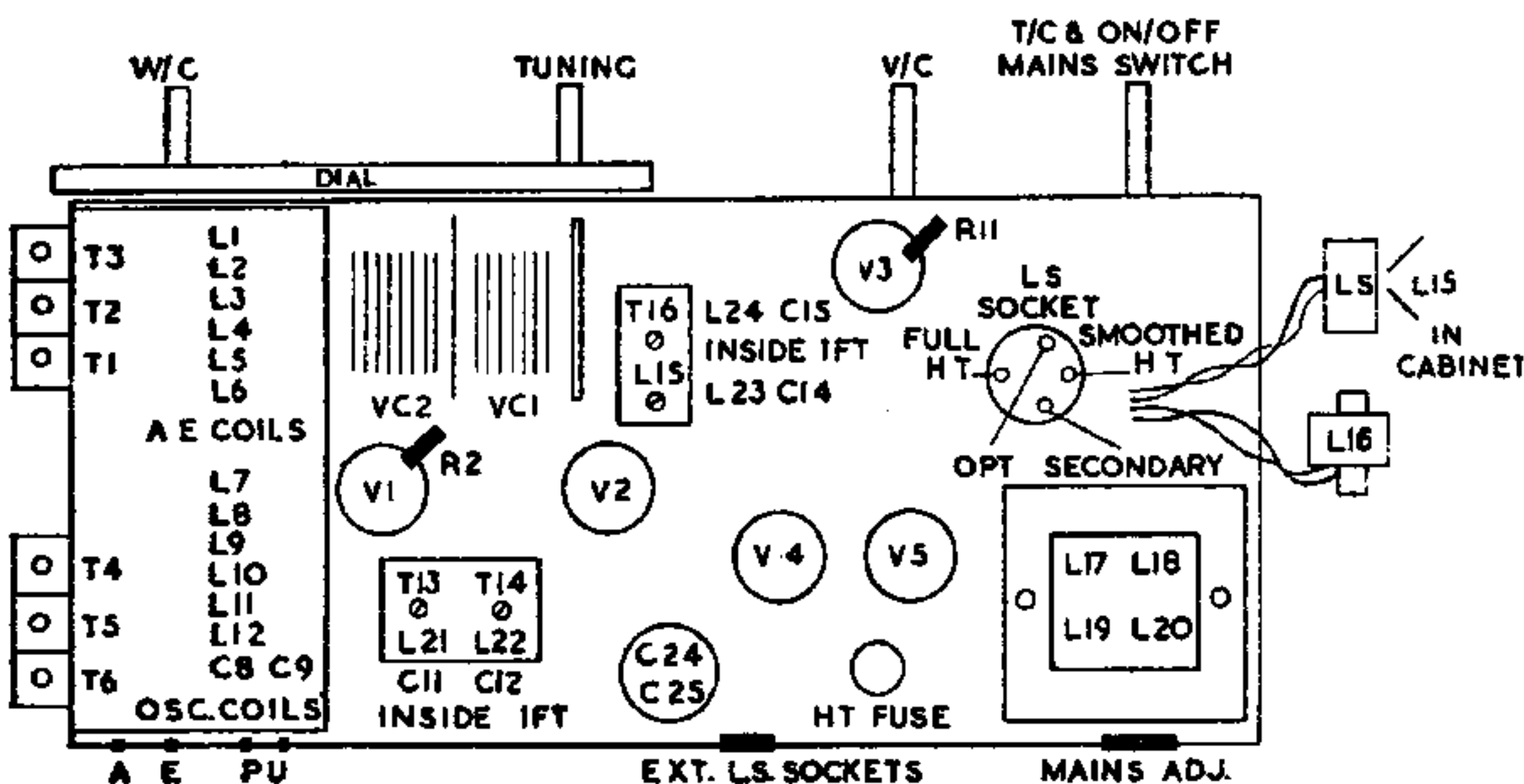
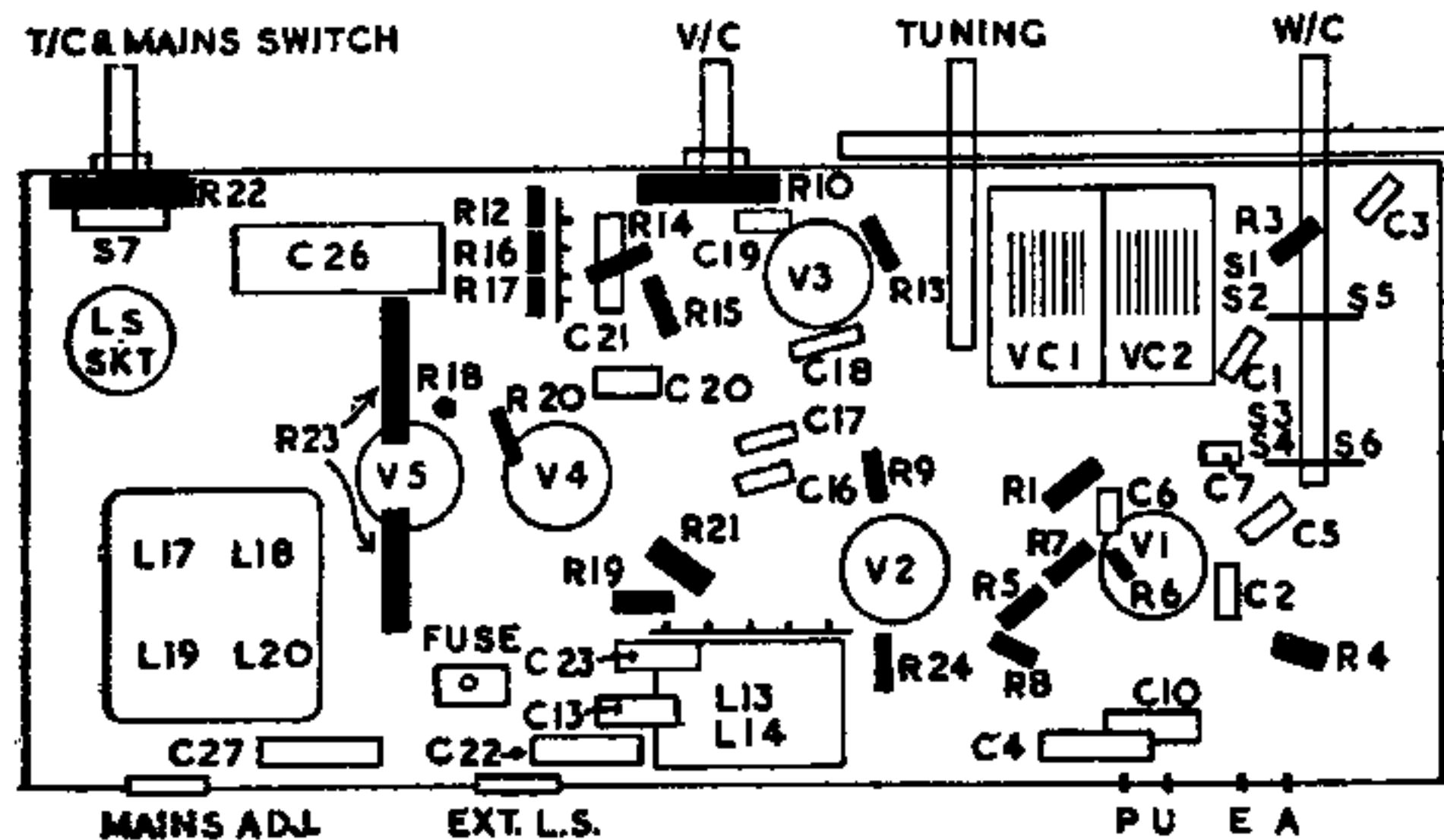
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R22 and C23 across the output transformer primary. L13, provide variable tone control. Secondary L14 drives either an internal speaker (PM) speech coil L15 or an external PM speaker of the 3-6 ohm impedance type. A shorting link is provided at the rear of chassis to allow external or internal speaker alone to be used.

A two-pin plug provides tapings for 200-220, 220-230 or 230-250 volt 50-100 cycle mains on the primary L20 of the mains transformer. L17 is a 6.3 v valve heater winding, one side being earthed.

A 4V full-wave rectifier is supplied by L18 and L19 whose centre tap is returned to earth via R23 and R24 to provide bias for V1, V2 and V3. R23 is a current limiting device. A 6.2V .3A MES bulb is used as an HT fuse in the negative line.

Smoothing is accomplished by C26, C25, L16 and C24. L16 may be replaced by a speaker field energising winding where applicable. A mains RF by-pass C27 is fitted across the input. On the test chassis C24 and C25 negative leads were taken to junction of R2 and R24 and not earthed as shown.



Underside and top of chassis layouts of the Ambassador 545 H