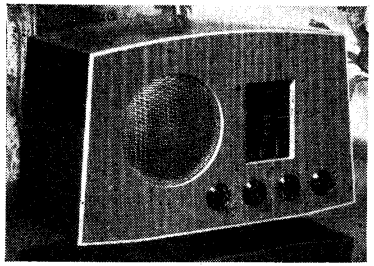
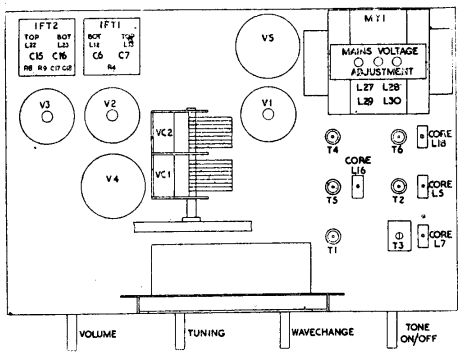
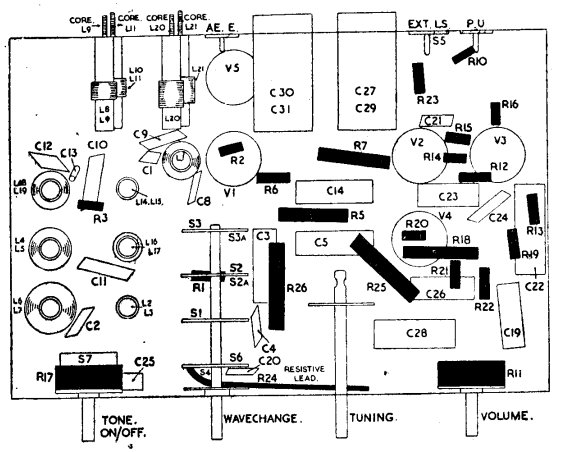
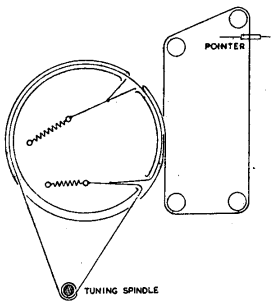
# FERRANTI
# 248

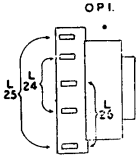


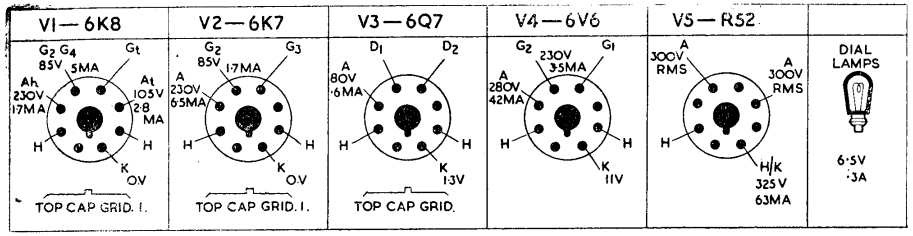



*Five-valve three-waveband superhet with addition of two pre-selected stations. Sockets for external aerial and earth, high-impedance gramophone pickup and low-impedance extension speaker. For 200-250 volts 40-60 c/s AC mains. Veneered wood table cabinet. Made by Ferranti, Ltd., Kingsway, London, WC2.*




## INDUCTORS

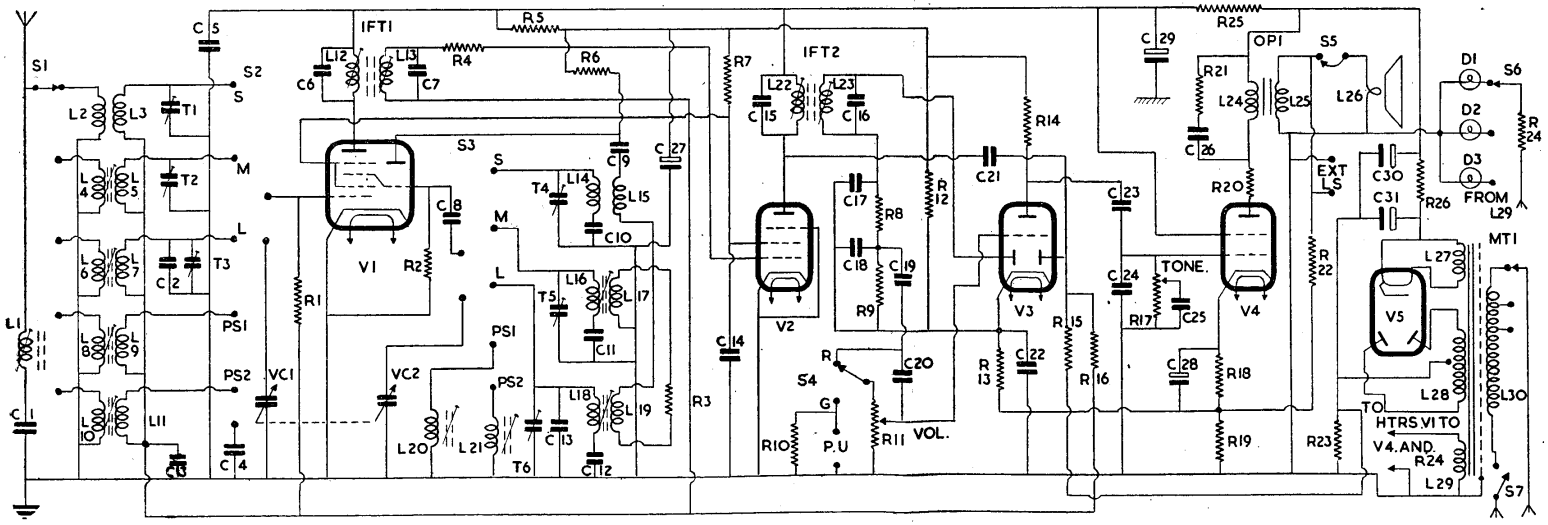
| L | Ohms | L | Ohms |
|---|---|---|---|
| 1 | 20 | 16 | 4 |
| 2 | .3 | 17 | 1 |
| 3 | Very Low | 18 | 10 |
| 4 | 30 | 19 | 3.5 |
| 5 | 3 | 20 | 2.5 |
| 6 | 50 | 21 | 3.5 |
| 7 | 18 | 22 | 9 |
| 8 | .5 | 23 | 9 |
| 9 | 4.5 | 24 | 400 |
| 10 | 1.4 | 25 | .5 |
| 11 | 8 | 26 | 2.5 |
| 12 | 9 | 27 | Very Low |
| 13 | 9 | 28 | 200 |
| 14 | Very Low | 29 | Very Low |
| 15 | .5 | 30 | 26 Total |

## RESISTORS

| R | Ohms | Watts |
|---|---|---|
| 1 | 1M | ¼ |
| 2 | 47K | ¼ |
| 3 | 470 | ¼ |
| 4 | 2.2K | ¼ |
| 5 | 6.8K | 1 |
| 6 | 22K | ¼ |
| 7 | 10K | 1 |
| 8 | 100K | ¼ |
| 9 | 470K | ¼ |
| 10 | 100K | ¼ |
| 11 | 1M | Potr. |
| 12 | 68K | ¼ |
| 13 | 330 | ¼ |
| 14 | 100K | ¼ |
| 15 | 1.5M | ¼ |
| 16 | 1.5M | ¼ |
| 17 | 500K | Potr. with switch |
| 18 | 270 | 1 |
| 19 | 7 | — |
| 20 | 100 | ¼ |
| 21 | 22K | ¼ |
| 22 | 68 | ¼ |
| 23 | 47 | ¼ |
| 24 | 7 | Resistive Lead |
| 25 | 3.3K | 2 |
| 26 | 680 | 2 |

## CAPACITORS

| C | Capacity | Type |
|---|---|---|
| 1 | 30pF | Silver Mica |
| 2 | 50pF | Silver Mica |
| 3 | .1 | Tubular 350V |
| 4 | 120pF | Silver Mica |
| 5 | .1 | Tubular 350V |
| 6 | 105pF | Silver Mica |
| 7 | 105pF | Silver Mica |
| 8 | 100pF | Silver Mica |
| 9 | 1000pF | Silver Mica |
| 10 | 4000pF | Silver Mica |
| 11 | 470pF | Silver Mica |
| 12 | 130pF | Silver Mica |
| 13 | 100pF | Tubular Ceramic |
| 14 | .1 | Tubular 350V |
| 15 | 90pF | Silver Mica |
| 16 | 105pF | Silver Mica |
| 17 | 150pF | Silver Mica |
| 18 | 150pF | Silver Mica |
| 19 | .02 | Tubular 350V |
| 20 | 100pF | Silver Mica |
| 21 | 50pF | Silver Mica |
| 22 | .25 | Tubular 350V |
| 23 | .05 | Tubular 500V |
| 24 | 400pF | Silver Mica |
| 25 | .01 | Tubular 500V |
| 26 | .005 | Tubular 1000V |
| 27 | 4 | Electrolytic 500V |
| 28 | 50 | Electrolytic 15V |
| 29 | 12 | Electrolytic 500V |
| 30 | 8 | Electrolytic 500V |
| 31 | 8 | Electrolytic 500V |



## FERRANTI 248—*Continued*

**AERIAL** signal is fed to IF filter consisting of L1, C1, and to S1 and thence to coupling coils L2 (SW), L4 (MW), L6 (LW), L8 (PS1), L10 (PS2). The grid coils L3 (SW), L5 (MW), L7 (LW), trimmed by T1, T2, T3, C2, are switched by S2 to g1 of frequency changer V1, and to tuning capacitor VC1. L9 (PS1), L11 (PS2) are permeability-tuned and are connected by S2 to V1 and to fixed tuning capacitor C4. VC1 is disconnected by S2 when in PS1 or PS2 positions. AVC and a standing bias, decoupled by R16, C3 is fed through the tuned coils. R1 is fitted to provide a circuit for the bias when wavechange switch is in the GRAM position. L12, C6 which form the primary of IFT1 are in the hexode anode circuit of V1.

**Oscillator** is connected in a tuned-grid shunt-fed circuit. The grid coils L14 (SW), L16 (MW), L18 (LW), trimmed by T4, T5, T6, C13 and padded by C10, C11, C12, are switched by S3 to tuning capacitor VC2, and through C8 to grid of triode oscillator portion of V1.

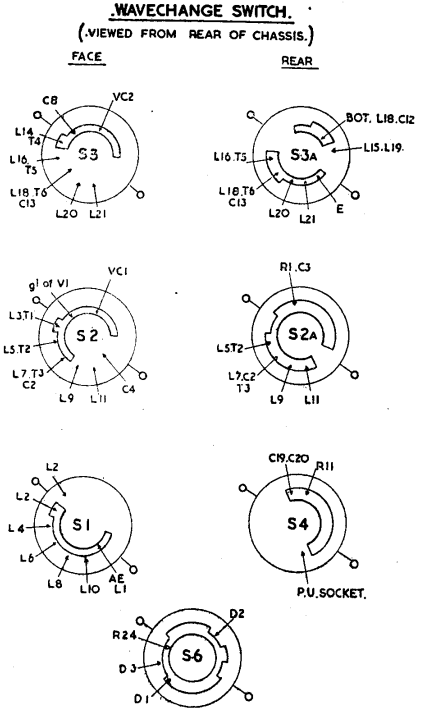
L20 (PS1), L21 (PS2) are permeability tuned and are connected by S3 to oscillator grid and to the LW coil L18, VC2, being disconnected when S3 is in PS1 or PS2 positions. Thus T6, C13 provide the fixed tuning capacity for L20, L21 and L19 function as a common reaction winding. R2, C8 give automatic bias for oscillator grid.

The anode reaction voltages are developed inductively on L15 (SW), L17 (MW) and L19 (LW, PS1, PS2) and are fed through C9 to oscillator anode, of which R6 is the load resistor. R3 is series limiter.

**IF amplifier** operates at 465 kc/s. L13, C7, the secondary of IFT1, feeds signal, AVC voltages and a standing bias to g1 of IF amplifier V2. R4 is a grid stopper resistor. L22, C15, the primary of IFT2, is in the anode circuit.

**Signal rectifier.** L23, C16, the secondary of IFT2,

*Continued p. viii, at foot of RM Electric 492 review.*




### TRIMMING INSTRUCTIONS

| Apply signal as stated below | Tune Receiver to | Trim in Order stated for Max. Output |
|---|---|---|
| (1) 465 kc/s to g1 of V1 via .05 mF | LW Band with gang condenser fully meshed | Core of L23, L22, L13, L12 |
| (2) 465 kc/s via dummy aerial to AE/E sockets | MW Band with gang condenser fully meshed | Core L1 for minium output |
| (3) Check to see that, with gang condenser fully meshed, dial pointer is coinciding with marks at top ends of SW and LW scales. Adjust if necessary. | | |
| (4) 1.58 mc/s via dummy aerial to AE/E sockets | 190 metres | T5 |
| (5) 1.4 mc/s as above | 214 metres | T2 |
| (6) 600 kc/s as above | 500 metres | Core L16, L5. Repeat (4), (5) and (6) |
| (7) 300 kc/s as above | 1000 metres | T6 |
| (8) 266 kc/s as above | 1128 metres | T3 |
| (9) 167 kc/s as above | 1800 metres | Core L18, L7. Repeat (7), (8) and (9) |
| (10) 1.149 mc/s as above | 1370 metres (approx.) | Reduce output to minimum by altering relative positions of "live" connecting leads to L6, L7 |
| (11) 18 mc/s as above | 16.67 metres | T4 (use minimum capacity setting) |
| (12) 15 mc/s as above | 20 metres | T1 |
| (13) 6.67 mc/s as above | 45 metres | Adjust tracking leads from L14 to W/C switch and leads from L3 to WC switch for max. output, Repeat (11), (12) and (13) |
| *Preselected Stations* | | |
| PS1. (14) 880 kc/s-1.5 mc/s as in (4) | 200-340 metres | Core L20, L9 |
| PS2. (15) 535 kc/s-940 kc/s as above | 320-560 metres | Core L21, L10 |
| Final adjustments are best carried out on actual station signals and after receiver has thoroughly warmed up. | | |

*Note.*—Any alteration to LW alignment will affect pre-selected oscillator tuning.

## FERRANTI 248—*Contd. from page vi*

feeds signal to one of diodes of V3. R9 is diode load and R8, C17, C18 and RF filter.

**AVC.** C21 feeds signal at anode V2 to second diode V3. R15, its load resistor, is returned to chassis through R23 so as to provide delay voltage and standing bias for grids of V1, V2. R16 is feed resistor and C3 decoupling capacitor.

**AF amplifier.** C19 feeds rectified signal to S4 and thence, through the volume control R11, to grid of triode section V3. C20 is tone correction capacitor. Cathode bias is obtained from potential divider formed by R12, R13, R19 and negative feedback, from secondary of output transformer OP1, is applied to the cathode of V3 by R22, R19. C22 is negative feedback correction capacitor.

**Output stage** C23 feeds signal to grid of beam tetrode output valve V4. R17 is its grid resistor and with C25 gives variable tone control.

R18, decoupled by C28, provides cathode bias. Negative feedback, from secondary L25 of output transformer OP1, is introduced into the cathode circuit by R22, R19.

L24, the primary of OP1, is in the anode circuit, the HT for which is obtained from junction of R25, R26. R20 is anode stopper and R21, C26 tone correcting circuit. L25, the secondary of OP1, feeds into an 8-inch PM loudspeaker L26. Sockets are fitted on L25 for connection of a low-impedance extension speaker. S5 enables the internal speaker to be silenced when using an extension. Negative feedback from L25 is fed by R22 to cathodes V1 and V2.