

CIRCUIT ALIGNMENT

Equipment Required.—An accurately calibrated A.M. signal generator, modulated 30 per cent at 400c/s; an A.C. voltmeter for use as audio output meter; a 0-50 μA meter for use as D.C. output meter; a 100kΩ resistor and a non-metallic screwdriver type trimming tool.

If two peaks are obtained when adjusting the iron-dust coil cores, the correct peak is the one nearer the adjusting end of the coil former.

Allow the receiver and signal generator to warm up for at least 10 minutes before commencing the alignment procedure. It is important to maintain the signal generator output as low as possible to avoid A.G.C. action.

A.M. I.F. Alignment

1.—Remove the chassis from the cabinet, then remove the printed circuit board from the metal chassis panel as described in "Dismantling" overleaf. Connect the audio output meter across T1 secondary winding and connect

signal generator, via a dummy aerial, across L9 (A2).

2.—Switch the receiver to M.W., turn volume control to maximum and tone control fully clockwise. Feed in a modulated 470kc/s signal and adjust the cores of L20 (C1), L21 (C1), L15 (B1) and L16 (B1) in that order for maximum output.

3.—Repeat operation 2 until no further improvement in output can be obtained. Disconnect signal generator.

| Resistors | | | Capacitors | | |
|-----------|-------|----|------------|---------|----|
| R1 | 270kΩ | E4 | C1 | 40pF | E5 |
| R2 | 1MΩ | E5 | C2 | 20pF | E5 |
| R3 | 22kΩ | E4 | C3 | 0-001μF | E4 |
| R4 | 6-8kΩ | B2 | C4 | 10pF | E5 |
| R5 | 1MΩ | B3 | C5 | — | E4 |
| R6 | 1MΩ | B2 | C6 | — | E4 |
| R7 | 100kΩ | B1 | C7 | 0-001μF | E5 |
| R8 | 220Ω | B1 | C8 | 8-2pF | E5 |
| R9 | 33kΩ | B1 | C9 | 8-2pF | E5 |
| R10 | 2-2kΩ | B1 | C10 | 14pF | E5 |
| R11 | 56kΩ | B1 | C11 | 9pF | E5 |
| R12 | 22kΩ | C1 | C12 | — | E4 |
| R13 | 1MΩ | B2 | C13 | 21pF | E5 |
| R14 | 2-2kΩ | C1 | C14 | 8pF | E5 |
| R15 | 10kΩ | C1 | C15 | 75pF | E5 |
| R16 | 100kΩ | C1 | C16 | 47pF | A2 |
| R17 | 330kΩ | C2 | C17 | 0-002μF | B2 |
| R18 | 56kΩ | C1 | C18 | 100pF | A1 |
| R19 | 500kΩ | C2 | C19 | — | A1 |
| R20 | 1kΩ | C2 | C20 | 0-001μF | B2 |
| R21 | 10MΩ | C1 | C21 | 0-05μF | B1 |
| R22 | 220kΩ | D1 | C22 | 100pF | B1 |
| R23 | 2-2kΩ | D2 | C23 | 600pF | B1 |
| R24 | 100kΩ | D2 | C24 | 123pF | B1 |
| R25 | 470kΩ | D1 | C25 | 0-05μF | B1 |
| R26 | 10kΩ | D1 | C26 | 12pF | B1 |
| R27 | 220Ω | D1 | C27 | 200pF | B1 |
| R28 | 2-5kΩ | C3 | C28 | 200pF | B1 |
| R29 | 300Ω | B3 | C29 | 0-1μF | C2 |
| R30 | 3-3kΩ | C3 | C30 | 0-01μF | C1 |
| R31 | 70Ω | C3 | C31 | 0-01μF | C1 |
| | | | C32 | 12pF | C1 |
| | | | C33 | 30pF | C1 |
| | | | C34 | 0-002μF | C1 |
| | | | C35 | 200pF | C1 |
| | | | C36 | 200pF | C1 |
| | | | C37 | 100pF | C1 |
| | | | C38 | 100pF | B2 |
| | | | C39 | 0-002μF | D1 |
| | | | C40 | 4μF | D1 |
| | | | C41 | 0-02μF | C2 |
| | | | C42 | 0-01μF | C1 |
| | | | C43 | 0-05μF | D1 |
| | | | C44 | 0-005μF | D1 |
| | | | C45 | 100μF | C2 |
| | | | C46 | 100μF | C2 |
| | | | C47 | 0-02μF | D1 |
| | | | C48 | 0-002μF | D1 |
| | | | C49 | 0-02μF | D2 |
| | | | C50 | 0-002μF | C1 |
| | | | C51 | 0-002μF | C1 |
| | | | C52 | 0-002μF | B2 |
| | | | C53 | 0-001μF | E5 |
| | | | C54 | 0-001μF | E5 |
| | | | C55 | 0-002μF | A1 |

| Coils* | | |
|--------|-------------|----|
| L1 | — | E5 |
| L2 | — | E5 |
| L3 | — | E4 |
| L4 | — | E5 |
| L5 | — | E5 |
| L6 | — | E5 |
| L7 | — | E5 |
| L8 | — | E5 |
| L9 | 5-5 | A2 |
| L10 | (total) 2-5 | B1 |
| L11 | (total) 2-5 | B2 |
| L12 | 0-75 | B1 |
| L13 | 0-6 | B1 |
| L14 | 1-0 | B1 |
| L15 | 10-0 | B1 |
| L16 | 10-0 | B1 |
| L17 | 0-6 | C1 |
| L18 | 0-4 | C1 |
| L19 | — | C1 |
| L20 | 10-0 | C1 |
| L21 | 10-0 | C1 |
| L22 | 2-5 | C3 |

| Miscellaneous* | | |
|----------------|----------------------------|----|
| T1 | a 300-0 | D3 |
| | b 0-5 | |
| | Therm. 1 ¹ 1010 | C1 |
| | Therm. 2 ¹ 1005 | C3 |
| | FB1, FB2 | E5 |
| | S1-S6 | B2 |
| | S7, S8 | D2 |

*Approximate D.C. resistance in ohms. ¹Mullard.

| Valve | Anode (V) | Screen (V) | Cathode (V) |
|------------|----------------------|------------|--------------------|
| V1a UCC85 | † 98 | — | — |
| V1b UCC85 | † 70 | — | — |
| V2a UCH81 | * 80 | — | 3-2 |
| V2b UCH81 | { * 140 | 140 | 3-2 |
| | { † 122 | 122 | 2-9 |
| V3 UF89 | { * 140 | 85 | — |
| | { † 130 | 80 | — |
| V4d UABC80 | { * 59 | — | — |
| | { † 55 | — | — |
| V5 UL84 | { * 240 ¹ | 167 | 12-0 |
| | { † 235 ² | 150 | 10-8 |
| V6 UY85 | 230 ³ | — | 255-0 ⁴ |

¹Anode current 56 mA.
²Anode current 50 mA.
³A.C. reading.
⁴Cathode current 90 mA. approximately.
 *Receiver switched to A.M.
 †Receiver switched to F.M.

F.M. I.F. Alignment

- 4.—Disconnect the yellow lead from tag 16 on the printed circuit panel (location reference B2), connect signal generator output between the yellow lead and chassis. Connect the 0-50μA meter with the 100kΩ resistor in series across C40, positive lead to chassis.
- 5.—Switch the receiver to F.M. and tune it to 100Mc/s. Feed in an unmodulated 10.7Mc/s signal and adjust the cores of L17 (C1), L13 (B1), L14 (B1), L7 (E4) and L8 (E5) for maximum reading on the D.C. output meter.
- 6.—Repeat operation 5.
- 7.—Feed in a modulated 10.7Mc/s signal and adjust the core of L18 (C1) for minimum reading on the audio output meter.
- 8.—Readjust L17 as described in operation 4, then repeat operation 7. Disconnect signal generator and D.C. output meter.

A.M. R.F. Alignment

- 9.—Refit the printed circuit panel to the metal chassis panel and replace chassis in cabinet. Feed signal into the A.M. aerial socket. Turn tuning spindle fully anti-clockwise and, ensuring that the cores of L9 and L11 are fully out, check that the cursor coincides with the 101Mc/s calibration mark on the F.M. tuning scale.
- 10.—Switch the receiver to M.W. Feed in a 600kc/s (500m) signal and tune it

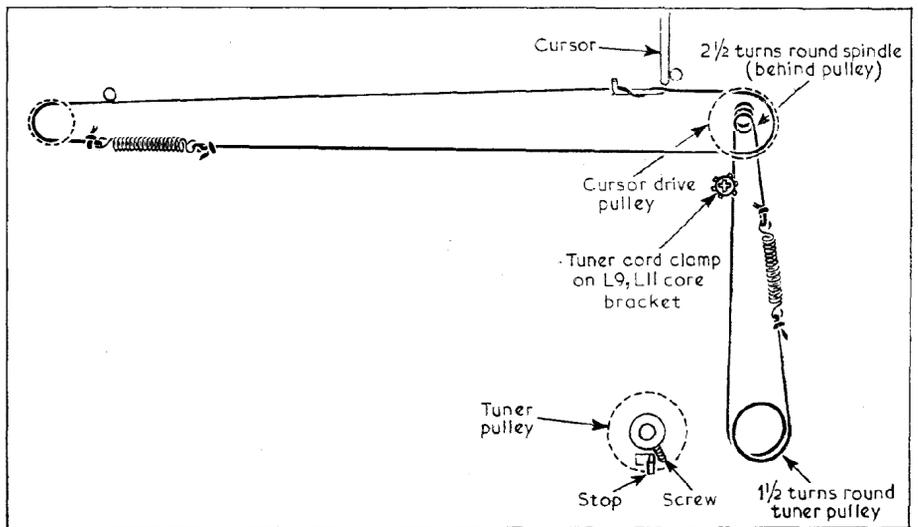


Diagram of the drive cord assembly. The horizontal drive is in front of the chassis; the vertical one is behind. A sketch of the tuner pulley shows the position of its stop.

- 11.—Replace the core of L12 and adjust it, together with C19 (A1), for maximum output.
- 12.—The cores of L9 (A2) and L11 (B2) will be properly adjusted at the works, and should not require re-adjustment.

F.M. R.F. Alignment

- 13.—Switch the receiver to F.M. and connect F.M. aerial. Tune to one of the F.M. transmissions and check calibration. The calibration will normally be correct when the tuning spindle is turned fully clockwise and the grub screw securing the F.M. tuning drive pulley is resting against the stop on the F.M. tuner unit. Should adjustment be required, however, tune to an F.M. transmission and loosen the grub screw on the F.M. tuning drive pulley; then adjust the tuning control so that the cursor coincides with the appropriate calibration point. Retighten grub screw.