Valve Table

Valve		Anode (V)	Screen (V)	Cathode (V)
V1a 6L12	*	—	—	—
	†	110	—	—
V1b 6L12	*	—	—	—
	†	160	—	—
V2a 6C12	*	85	—	—
	†	—	—	—
V2b 6C12	*	233	52	—
	†	206	58	—
V3 6F18	*	219	96	1·6
	†	192	79	1·6
V4d 6LD12	*	76	—	7
	†	73	—	7
V5 6P15	*	260	245	7
	†	258	223	6·3
V6 EZ80	*	268§	—	288
	†	268§	—	282
T.I. EM°5	*	245‡	—	—
	†	223‡	—	—

*Receiver switched to A.M.
†Receiver switched to F.M.
§Each Anode (A.C.)
‡Target anode 15 V

CIRCUIT ALIGNMENT (A.M.)

Equipment Required.—An A.M. signal generator; an output meter; a hexagonal trimming tool and an aerial coupling coil. The aerial coupling coil is made up with about 20 turns of enamelled copper wire wound on a 6in. diameter former. A suitable hexagonal trimming tool is available from the manufacturer's service department.

1.—Connect the signal generator output suitably terminated to **V2** control grid (pin 2). Connect the output meter in place of the speaker speech coil.
2.—Switch to M.W.; turn volume control to maximum. Feed in a modulated 470 kc/s signal and adjust **L25** (location reference B2), **L24** (F4), **L20** (B2) and **L19** (G4) for maximum output.
3.—Disconnect the signal generator and connect the coupling coil across its output leads. Place the coupling coil about one foot away from the receiver, coaxially with the ferrite rod. Rotate the tuning gang to maximum and check that the cursor is in line with the calibration marks at the R.H. end of scale.
4.—Tune receiver to 500 metres. Feed in a 600 kc/s signal and adjust **L15** (G4 inner core) and **L12** (A1) for maximum output.
5.—Tune receiver to 220 metres (mark on scale). Feed in a 1,364 kc/s signal and adjust **C30** (G4) for maximum output.
6.—Tune receiver to 200 metres. Feed in a 1,500 kc/s signal and adjust **C19** (G4) for maximum output.
7.—Switch receiver to L.W. and tune to 1,700 metres. Feed in a 176.5 kc/s signal and adjust **L13** (B2) for maximum output.
If replacement aerial coils are fitted repeat

operations 4-7 until no further improvement can be made. When connected in the correct sense the distance between the end of each coil and the adjacent end of the rod should be approximately ½in.

CIRCUIT ALIGNMENT (F.M.)

Equipment Required.—An A.M. signal generator covering Band II frequencies and 10.7 Mc/s; a model 8 Avometer for use as a receiver output meter; two matched 180kΩ resistors; a damping unit comprising a 1,000pF capacitor and a 470Ω resistor in series; a hexagonal trimming tool.

During alignment, the signal generator attenuator should be adjusted to give an output reading of 25V, except for operations **3** and **6**. For operation 3 the output should be maintained at 8V.

1.—Switch to F.M. and turn volume control to maximum. Connect the Avometer between **V4a** (pin 2) and chassis. Connect the signal generator to **V3** (pin 2).
2.—Feed in a 10.7 Mc/s signal and adjust **L21** (C2) for maximum output.
3.—Transfer the signal generator to **V2** (pin 2). Connect the damping unit between **V2** (pin 6) and chassis (capacitor to chassis). Feed in a 10.7 Mc/s signal and adjust **L18** (G4) for maximum output. Transfer the damping unit to **V3** (pin 2)

Resistors

R1	18kΩ	J5
R2	22kΩ	J5
R3	220kΩ	J5
R4	4·7kΩ	J5
R5	2·2kΩ	G4
R6	22kΩ	H4
R7	1MΩ	G4
R8	47kΩ	G4
R9	33kΩ	G4
R10	1·8kΩ	F4
R11	33kΩ	G4
R12	2·2kΩ	G4
R13	47kΩ	G4
R14	150Ω	G4
R15	2·2kΩ	F4
R16	220Ω	B2
R17	100kΩ	F4
R18	100kΩ	F4
R19	3kΩ	F4
R20	2·2MΩ	F4
R21	4·7MΩ	F4
R22	270kΩ	F4
R23	2·7MΩ	F4
R24	33kΩ	F4
R25	180kΩ	F4
R26	1MΩ	F3
R27	470kΩ	B1
R28	1MΩ	F3
R29	10MΩ	F4
R30	100kΩ	F4
R31	180kΩ	F4
R32	470kΩ	F4
R33	47kΩ	F4
R34	180Ω	E3
R35	1,350Ω†	F4
R36	3·3kΩ	F4
R37	2·2kΩ	F4
R38	33kΩ	E4
R39	220Ω	E3
R40	180Ω	E3

Capacitors

C1	22pF	A2
C2	10μF	J5
C3	2·7pF	J5
C4	100pF	J5
C5	11·5pF	C1
C6	350pF	J5
C7	10pF	J5
C8	82pF	J5
C9	15pF	J5
C10	15pF	J5
C11	11·5pF	C2
C12	4,700pF	J5
C13	0·01μF	J5
C14	4,700pF	J5
C15	3,900pF	H4
C16	4,700pF	G4
C17	27pF	G3
C18	0·01μF	G3
C19	15pF	G4
C20	510pF	C1
C21	470pF	G3
C22	0·002μF	G4
C23	4,700pF	G4
C24	0·01μF	G4
C25	220pF	G4
C26	130pF	F4
C27	425pF	G4
C28	100pF	G4
C29	64pF	F4
C30	30pF	G4
C31	510pF	C1
C32	0·01μF	G4
C33	15pF	B2
C34	220pF	B2
C35	220pF	B2
C36	0·005μF	G4
C37	0·01μF	G4
C38	0·04μF	G4
C39	56pF	C2
C40	560pF	F4
C41	220pF	B2
C42	390pF	B2
C43	0·04μF	F4
C44	100pF	F4
C45	680pF	F4
C46	0·04μF	F4
C47	4μF	F4
C48	0·01μF	F4
C49	270pF	F4
C50	1,800pF	E3
C51	0·01μF	E3
C52	0·1μF	F4
C53	0·01μF	F4
C54	470pF	F4
C55	0·005μF	F4
C56	0·002μF	F4
C57	50μF	E4
C58	50μF	E4
C59	50μF	E3
C60	0·005μF	F4
C61	0·1μF	E4
C62	0·04μF	E4

Coils*

L1‡	—	A2
L2‡	—	A2
L3	—	B1
L4	—	B1
L5	—	J5
L6	—	J5
L7	—	J5
L8	—	J5
L9	—	J5
L10	—	J5
L11	—	J5
L12	—	A1
L13	15·0	B1
L14	3·0	G4
L15	6·5	G4
L16	12·0	G4
L17	1·3	B2
L18	1·7	B2
L19	5·5	B2
L20	5·5	B2
L21	1·6	C2
L22	—	C2
L23	—	C2
L24	5·5	B2
L25	4·0	B2
L26	—	—

Miscellaneous*

T1	a	32·0	
	b	720·0	E4
	c	—	
T2	a	—	
	b	210·0	
	c	230·0	D2
	d	5·0	
	e	5·0	
	f	43·0	
FB1		—	C1
FB2		—	C2
S1-S21, S24-S27		—	F3
S22, S23		—	A1
S26, S27		—	F4

*Approximate D.C. resistance in ohms.
†Two 2·7 kΩ's in parallel.
‡Wire loop.

and adjust **L17** (B2) for maximum output. Remove damping unit.

4.—Transfer the signal generator to the F.M. aerial sockets. Feed in a 10.7 Mc/s signal and adjust **L11** (J5) and **L9** (J5) for maximum output. Readjust **L21** for maximum.

5.—Ensure tuner screen cover is in place. Set receiver to 92.5 Mc/s. Feed in a 92.5 Mc/s signal and tune in the signal by adjustment to **L7** (J5). Then adjust **L5** (J5) and **L4** (B1) for maximum output. The correct peak on **L4** is the second one which occurs when screwing the core from the top of the former.

6.—Wire the 180kΩ resistors in series and connect them between **V4a** (pin 2) and chassis. Connect the Avometer from their junction to the A.F. end of **R17** (F4). Feed in an unmodulated 10.7 Mc/s signal and adjust **L22** (F4) for zero reading between the positive and negative peaks.

7.—Reconnect the meter between **V4a** (pin 2) and chassis. Adjust the signal generator attenuator to read 25V on the meter. Again reconnect the Avometer to the position given in operation 6, and shift the signal generator frequency slightly, if necessary, to obtain a zero reading. Remove the meter and the resistors. Switch the signal generator to 30 per cent modulation and adjust **R19** F(4) for minimum sound.

Drive Cord Replacement.—To replace the drive cord, a length of steel wire and a length of nylon braided glass yarn, each about 22in long are required. Form loops in the ends of both cords. Turn the tuning gang to maximum (fully meshed). Take the steel wire, and from the rear of the drive drum, pass the loop at one end over the lower stud in the drive drum moulding. Bring the wire out of the drive drum through the rear slot, and guiding it in the rear groove in the drum perimeter, take it round the L.H. small pulley as shown in the diagram below. Make a temporary anchorage of the free end to a chassis member.

Next take the nylon braided glass cord and hook the loop at one end over the upper stud in the drive drum moulding. Bring the cord out of the drum through the front slot and make two turns clockwise round the drum, starting in the first (front) groove.

Make two complete turns anti-clockwise round the tuning control spindle starting from the rear. Continue round the R.H. small pulley as shown in the diagram. Hook the tension spring to the free end of the cord and hook the other end of the tension spring to the loop in the free end of the steel wire. Attach the cursor to coincide with the calibration marks at the R.H. end of tuning scale.

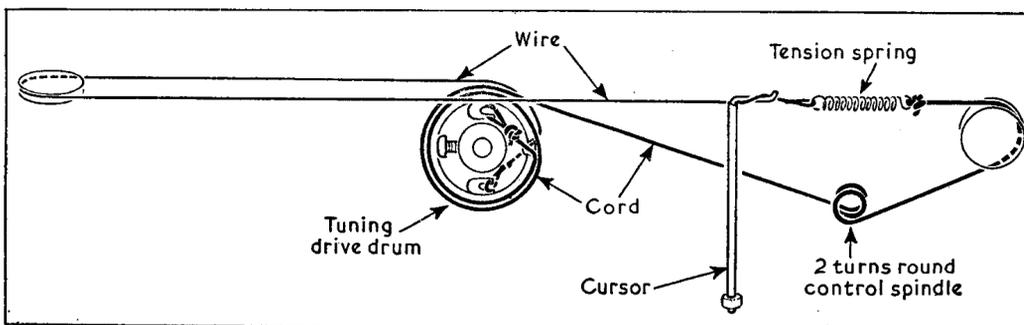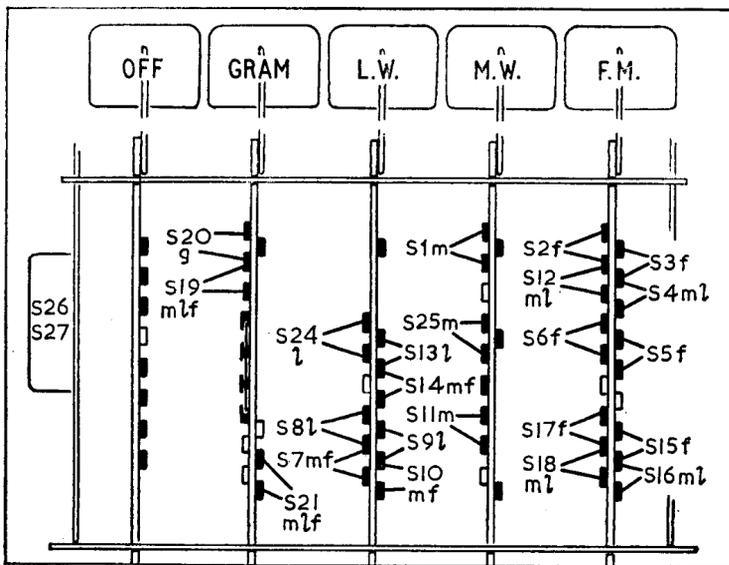*Right: Press-button unit as seen with the chassis inverted.*

Diagram of the tuning drive assembly as seen from the front.

Modifications.—In some receivers, **C6** may be 470pF not 350pF. **C48** may be wired on the other side of **S17f**, that is between **R17** and **S17f**.

Scale Lamp.—This is a 6.8V 0.3A bulb, M.E.S. fitting.