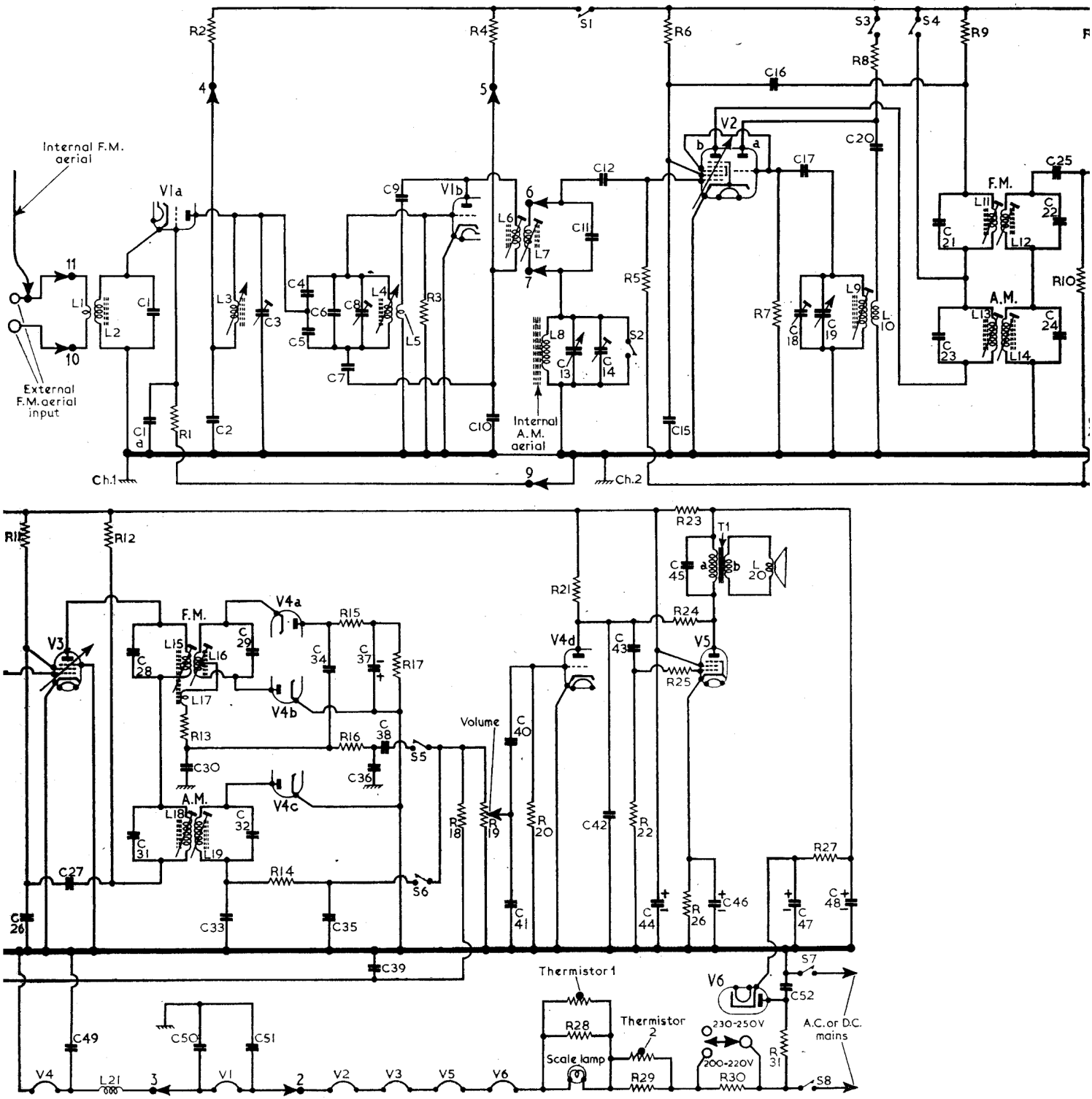


CIRCUIT ALIGNMENT

Equipment Required.—An A.M. signal generator, modulated 30 per cent at 400c/s; an F.M. signal generator, capable of being deviated by ±25kc/s and ±75kc/s; a 3Ω output meter; a model 8 Avometer for use as D.C. output meter; an oscilloscope; a length of insulated wire to form a coupling loop; a 0.05μF capacitor, and one of 500pF, and a non-metallic trimming tool.

As the tuning scale remains fixed to the cabinet when the chassis is removed for alignment purposes, an alignment tuning scale is fixed to the receiver chassis. A sketch of the alignment tuning scale is shown, together with the appropriate alignment points, in the sketch of the drive cord system shown at the foot of cols. 1 and 2 overleaf.

Before commencing the alignment procedure, allow the signal generator and receiver to warm up for at least 10 minutes.

A.M. ALIGNMENT

1.—Connect output meter to **T1** secondary in place of speech coil. Connect A.M. signal generator, via the 0.05μF capacitor, to **V2** control grid (pin 2).

2.—Switch receiver to M.W. and turn gang to minimum capacitance. Feed in a modulated 470kc/s signal and adjust the cores of **L19** (G6), **L18** (C1), **L14** (G5) and **L13** (B2) for maximum output, progressively reducing the signal generator output as the circuits are brought into line to maintain a 50mW reading on the output meter. Disconnect signal generator.

3.—Loosely couple the A.M. signal generator output, via the coupling loop, to the ferrite rod aerial coil **L8** (mounted in cabinet). Check that with the gang at maximum capacitance the cursor coincides with the zero line on the alignment tuning scale.

4.—Tune the receiver to 550m. Feed in a 545·5kc/s signal and adjust the core of **L9** (B1) for maximum output.

5.—Tune the receiver to 200m. Feed in a 1,500kc/s signal and adjust **C18** (B1) and **C14** (B1) for maximum output.

6.—Repeat operations 4 and 5, then disconnect signal generator.

F.M. ALIGNMENT

1.—Connect the D.C. output meter, switched to its 10V range, across **C37** (C2), positive lead to chassis. Connect the A.M. signal generator to **V2** control grid (pin 2) via the 0·05μF capacitor.

2.—Switch receiver to F.M. Feed in an unmodulated 10·7Mc/s signal and adjust the cores of **L15** (C2), **L12** (G5) and **L11** (B2) for maximum output, progressively reducing the signal generator output to maintain a 5V reading on the D.C. output meter.

Resistors

R1	680kΩ
R2	10kΩ
R3	680kΩ
R4	15kΩ
R5	1MΩ
R6	15kΩ
R7	47kΩ
R8	15kΩ
R9	2·7kΩ
R10	1MΩ
R11	33kΩ
R12	2·7kΩ
R13	68Ω
R14	100kΩ
R15	1kΩ
R16	47kΩ
R17	27kΩ
R18	1MΩ
R19	500kΩ
R20	10MΩ
R21	100kΩ
R22	470kΩ
R23	1·5kΩ
R24	820kΩ
R25	10kΩ
R26	270Ω
R27	500Ω
R28	2·2kΩ
R29	2·7kΩ
R30	250Ω
R31	100Ω

Capacitors

C1	20pF
C1a	220pF
C2	1,500pF
C3	10pF
C4	10pF
C5	10pF
C6	†18·7pF
C7	10pF
C8	10pF
C9	25pF
C10	85pF
C11	33pF
C12	100pF
C13	401pF
C14	—
C15	0·005μF
C16	0·005μF
C17	100pF
C18	—
C19	165pF
C20	100pF
C21	12pF
C22	12pF
C23	250pF
C24	250pF
C25	100pF
C26	0·005μF
C27	0·005μF
C28	12pF
C29	47pF
C30	220pF
C31	250pF
C32	250pF
C33	100pF
C34	220pF
C35	100pF
C36	0·001μF
C37	5μF
C38	0·01μF
C39	0·1μF
C40	0·01μF
C41	250pF
C42	220pF
C43	0·01μF
C44	50μF
C45	0·005μF
C46	50μF
C47	32μF
C48	32μF
C49	0·002μF
C50	0·001μF
C51	0·001μF
C52	0·01μF

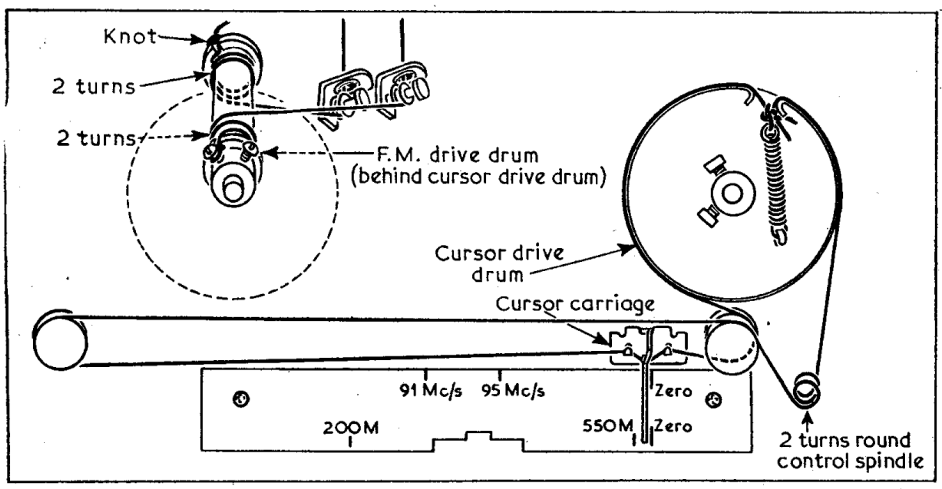
†14pF and 4·7pF

Miscellaneous*

T1 a	480·0
T1 b	—
Thermistor 1	VA1010
Thermistor 2	VA1010
S1-S6	—
S7, S8	—

Valve			Anode (V)	Screen (V)	Cath. (V)
V1a	UCC85	*	—	—	—
		†	105	—	—
V1b	UCC85	*	—	—	—
		†	80	—	—
V2a	UCH81	*	95	—	—
		†	—	—	—
V2b	UCH81	*	127	70	—
		†	127	70	—
V3	UF89	*	140	72	—
		†	127	66	—
V4d	UABC80	*	90	—	—
		†	86	—	—
V5	UL84	*	185	165	11·5
		†	185	153	11·25
V6	UY85	*	—	—	250·0
		†	—	—	247·0

†Measured with receiver switched to A.M.
*Measured with receiver switched to F.M.



Below.—*Sketch of the tuning drive system, including the alignment tuning scale. The F.M. drive is shown inset (left) in order to make the details clear.*

3.—Without changing the signal generator output, feed in a modulated 10·7Mc/s signal and adjust the core of **L16** (G6) for *minimum* reading on the audio output meter.

4.—Readjust **L15** as in operation 2, then repeat operation 3.

5.—Transfer A.M. signal generator via the 500pF D.C. isolating capacitor to the junction of **L3, C2** (E4). Feed in an unmodulated 10·7Mc/s signal and adjust the cores of **L6** (E3) and **L7** (E4) for maximum reading on the D.C. output meter, progressively reducing the signal generator output to maintain a 5V reading on the D.C. output meter. Disconnect A.M. signal generator and D.C. output meter.

6.—Connect F.M. signal generator to the aerial sockets. Tune the receiver to 95Mc/s. Slacken off the two screws on the F.M. drive drum then, without moving the tuning cursor from the 95Mc/s calibration point on the scale, rotate the F.M. drive drum fully anti-clockwise.

7.—Tighten the screws on the F.M. drive drum, then tune the receiver so that the cursor coincides with the zero line on the tuning scale.

8.—Feed in a 91Mc/s signal, deviated by ±25kc/s, and adjust **C8** (E3) for maximum output.

9.—Slacken off the F.M. drive drum screws and tune the receiver to 91Mc/s. Feed in the 91Mc/s signal, deviated by ±25kc/s, and rotate the F.M. drive drum for maximum output, then tighten the drive drum screws.

10.—With the receiver still tuned to 91Mc/s, feed in the 91Mc/s signal and adjust **C3** (E3) for maximum output.

11.—Connect oscilloscope across **T1** secondary winding. Feed in a 91Mc/s signal, deviated by ±75kc/s, and set the signal generator attenuator to 100μV. Adjust volume control to obtain a 500mW reading on the audio output meter and check for a symmetrical sine-wave trace on the oscilloscope. If the trace is asymmetrical repeat operations 1-5.

CHAMPION - 881