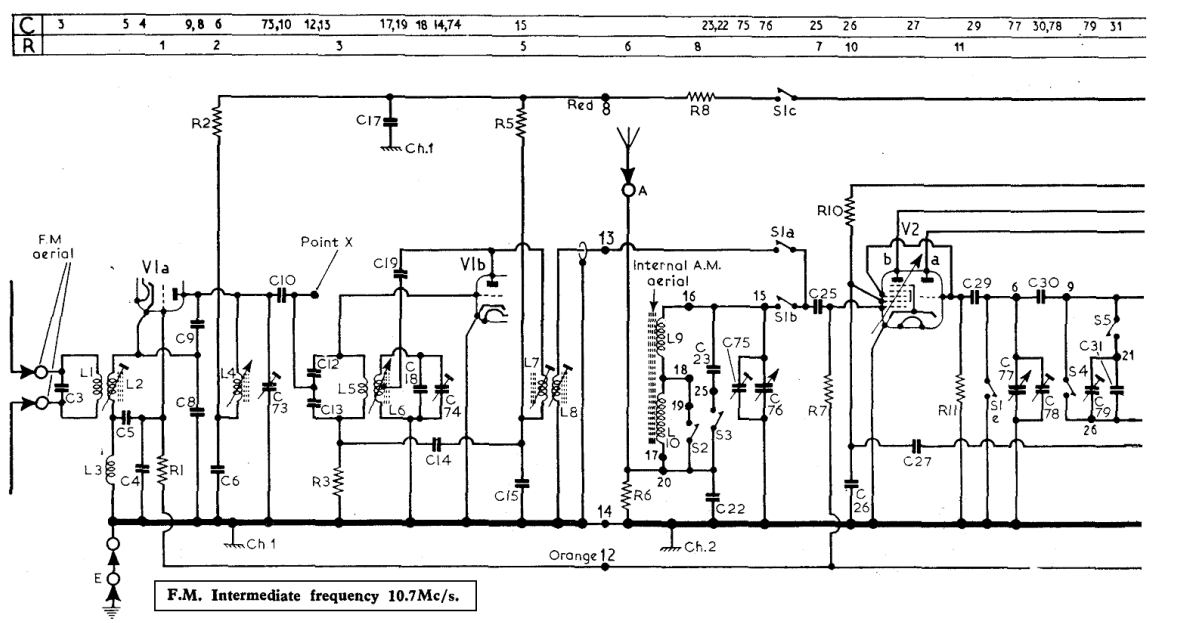


F.M. Intermediate frequency 10.7Mc/s.

Resistors

R1	470kΩ	R26	1·5kΩ	C1‡	—
R2	2·2kΩ	R27	220Ω	C2‡	—
R3	470kΩ	R28	180Ω	C3	20pF
R4‡	—	R29	1·5kΩ	C4	10pF
R5	2·2kΩ	R30	VA1010	C5	500pF
R6	10kΩ	R31	10kΩ	C6	0·002μF
R7	470kΩ	R32	VA1005	C7‡	—
R8	2·2kΩ	R33	47kΩ	C8	16pF
R9	33kΩ	R34	5·6MΩ	C9	5pF
R10	33kΩ	R35	470kΩ	C10	20pF
R11	47kΩ	R36	680kΩ	C11	0·002μF
R12	1kΩ	R37	47kΩ	C12	10pF
R13	33kΩ	R38	2·2kΩ	C13	10pF
R14	1kΩ	R39	15kΩ	C14	12pF
R15	470kΩ	R40	390Ω	C15	115pF
R16	39Ω	R41	100Ω	C16‡	—
R17	47kΩ	R42	1·2MΩ	C17	0·002μF
R18	47kΩ	VR1A	1MΩ	C18	12·5pF
R19	27kΩ	VR1B	1MΩ	C19	25pF
R20	2·2MΩ	VR2A	500kΩ	C20‡	—
R21	6·8MΩ	VR2B	500kΩ	C21	0·002μF
R22	470kΩ			C22	0·005μF
R23	470kΩ			C23	145pF
R24	2·2kΩ			C24‡	—
R25	47kΩ			C25	0·001μF
				C26	0·005μF

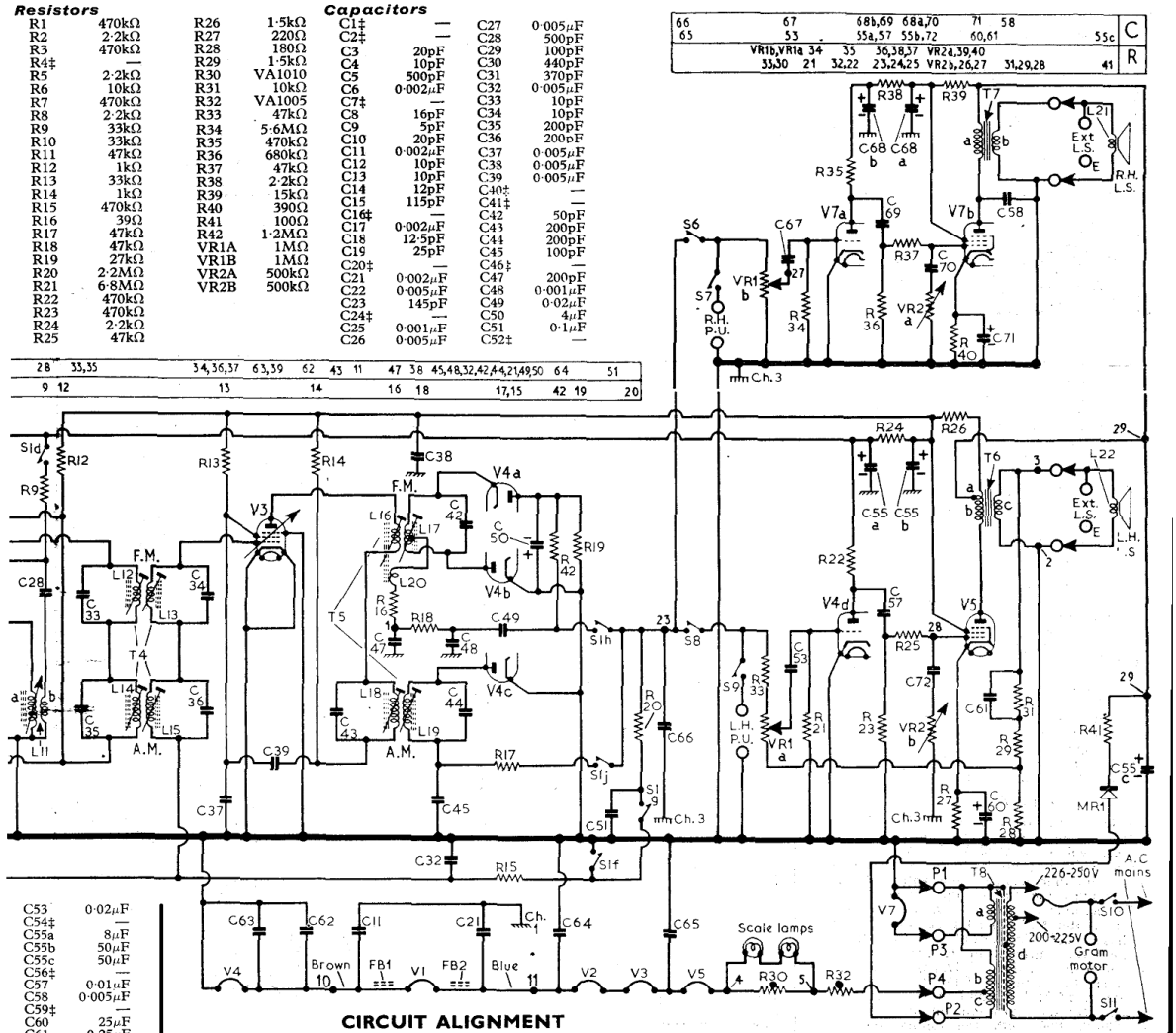
Capacitors

C27	0·005μF	C53	0·02μF
C28	500pF	C54‡	—
C29	100pF	C55a	8μF
C30	440pF	C55b	50μF
C31	370pF	C55c	50μF
C32	0·005μF	C56‡	—
C33	10pF	C57	0·01μF
C34	10pF	C58	0·005μF
C35	200pF	C59‡	—
C36	200pF	C60	25μF
C37	0·005μF	C61	0·25μF
C38	0·005μF	C62	0·005μF
C39	0·005μF	C63	0·01μF
C40‡	—	C64	0·01μF
C41‡	—	C65	0·005μF
C42	50pF	C66	0·001μF
C43	200pF	C67	0·02μF
C44	200pF	C68a	50μF
C45	100pF	C68b	8μF
C46‡	—	C69	0·02μF
C47	200pF	C70	0·01μF
C48	0·001μF	C71	4μF
C49	0·02μF	C72	0·01μF
C50	4μF	C73	2·5pF
C51	0·1μF	C74	2·5pF
C52‡	—	C75	—
		C76	—
		C77	—
		C78	—
		C79	40pF

Miscellaneous*

T6	a, b	240·0
	c	—
T7	a	400·0
	b	—
T8	a	—
	b	45·0
	c	
	d	34·0
MR1	EC14/U657†	
S1a-S1e		—
S1f-S1j		—
S2-S9		—
S10, S11		—

*Approximate D.C. resistance in ohms.
†Fitted below panel.
‡No component.
†Westinghouse.



CIRCUIT ALIGNMENT

Equipment Required (A.M.).—A signal generator, modulated 30 per cent at 400c/s; an A.C. voltmeter for use as audio output meter; a 0.1μF capacitor; a hexagonal and a screwdriver-type trimming tool.

Equipment Required (F.M.).—Two methods are given below for the alignment of the F.M. stages in this receiver. The wobbulator method is recommended by the manufacturers. The equipment required for this is an oscilloscope; a wobbulator, deviated by ±100kc/s and ±15kc/s; a 300Ω matching pad; and an A.C. voltmeter for use as an audio output meter.

The spot frequency method requires a signal generator; a 20,000Ω/V meter; and two matched 100kΩ resistors.

A.M. Alignment

1.—Switch the receiver to M.W. and turn the tuning gang to maximum capacity. Turn volume control **VR1a** to maximum and volume control **VR1b** to minimum. Set the tone control fully anti-clockwise.
2.—Connect the audio output meter across **T6** secondary winding. Connect the output of the A.M. signal generator between chassis and **V2b** control grid (pin 2) via the 0.1μF capacitor in its live lead.
3.—Feed in a modulated 470kc/s signal and adjust the cores of **L19, L18** (location reference C2), **L15** and **L14** (location reference B2) for maximum output.
4.—Check that with the tuning gang at maximum capacitance the cursor coincides with the right-hand edges of the L.W., M.W. and F.M. tuning scales.
5.—Transfer the signal generator to the A.M. aerial and earth sockets. Tune the receiver to the datum mark at the right-hand end of the M.W. tuning scale. Feed in a modulated 575kc/s signal and adjust the core of **L11** (B1) for maximum output. Then slide the former of **L9** (A1) along the ferrite rod for maximum output.
6.—Tune the receiver to 200m (1,500kc/s). Feed in a modulated 1,500kc/s signal and adjust **C78** (A2) and **C75** (A1) for maximum output.
7.—Repeat operations 5 and 6.
8.—Switch the receiver to L.W. and tune it to the datum mark at the right-hand end of the L.W. tuning scale. Feed in a modulated 180kc/s signal and adjust the former of **L10** (A2) for maximum output.

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F.M. Alignment

(Wobbulator Method)

1.—Connect the oscilloscope, via a 47kΩ resistor in its live lead, across **C47** (C2). Connect wobbulator to **V2b** (pin 2).

2.—Switch the receiver to F.M. and tune it to the low frequency end of the F.M. tuning scale. Detune the core of **L17** (top core, not bottom core as shown in the chassis illustration) by unscrewing it.

3.—Feed in a 10.7Mc/s signal, deviated by ±100kc/s, and adjust the cores of **L16, L13** and **L12** (location references C2, B2) for maximum output consistent with a symmetrical response curve.

4.—Transfer the wobbulator to "point X" (location reference G4). Feed in a 10.7Mc/s signal, deviated by ±100kc/s, and adjust **L7** (A1) until the response curve dips slightly and broadens out to give a symmetrical rectangular shape.

5.—Turn the tuning gang through its complete range and check that the response curve remains symmetrical. Then return the tuning gang to its "closed" position.

6.—Screw the core of **L17** (top core) through its tuning point and check that the resulting inverted response curve is symmetrical. Then re-adjust **L17** to give a symmetrical "S" shaped curve. Disconnect the oscilloscope and the wobbulator.

7.—Connect the audio output meter across **T6** secondary winding. Connect the wobbulator to the F.M. aerial sockets via a 300Ω matching pad.

8.—Feed in an 87Mc/s signal, deviated by ±15kc/s, and adjust **C73** and **C74** (location reference A1) for maximum output.

9.—Check the calibration at 100Mc/s.

(Spot Frequency Method)

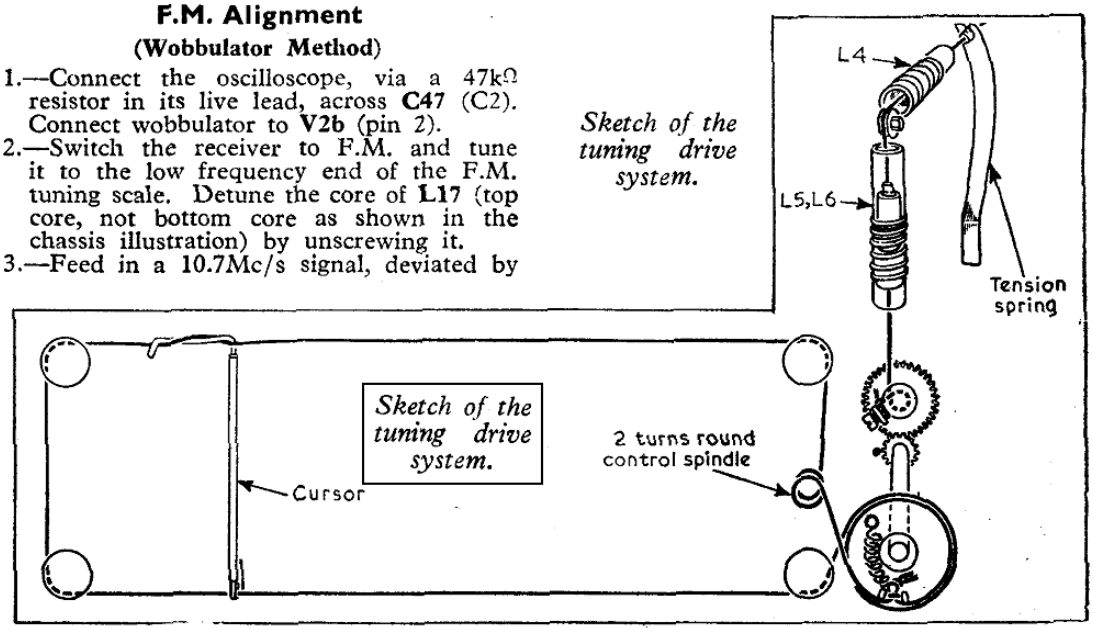
1.—Switch the receiver to F.M. Connect the two matched 100kΩ resistors in series across **R19** (C2). Connect the 20,000Ω/V meter between the junction of the two 100Ω resistors and tag **1** at the junction of **R16, R18** (location reference C2). Switch the meter to its 2.5V D.C. range. Connect the signal generator to "point X" (location reference G4).

2.—Detune the core of **L17** (top core, not bottom core as shown in the chassis illustration) by unscrewing it. Feed in an unmodulated 10.7Mc/s signal and adjust the cores of **L16** (bottom core, not top core as shown in the chassis illustration), **L13** (B2), **L12** (B2), **L8** (A1) and **L7** (A1) for maximum reading on the meter.

3.—Re-adjust **L17** (top core) for a zero reading on the meter, reversing the meter connections to ensure accuracy.

4.—Transfer the signal generator to the F.M. aerial sockets. Connect the meter between

Sketch of the tuning drive system.



Sketch of the tuning drive system.

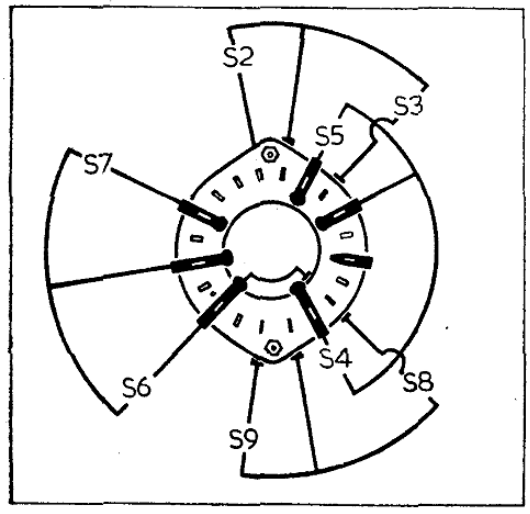
Drive Cord Replacement.—About 41in of nylon braided glass yarn is required for a new drive cord, which should be fitted as shown in the sketch in cols. 2 and 3.

Should a breakage occur in the F.M. tuner drive cord, the complete drive cord assembly (Part Number 233/0009) should be replaced.

3.—Re-adjust **L17** (top core) for a zero reading on the meter, reversing the meter connections to ensure accuracy.

4.—Transfer the signal generator to the F.M. aerial sockets. Connect the meter between

Switch	Gram.	L.W.	M.W.	F.M.
1c, 1e, 1f, 1h	—	—	—	C
1b, 1d, 1g, 1j	C	C	C	—
2	—	—	C	—
3	—	C	—	—
4	C	—	—	—
5	—	C	—	—
6	—	C	C	C
7	C	—	—	—
8	—	C	C	C
9	C	—	—	—



Switches.—S1a-h and **S1j** are the A.M./F.M. changeover switches, ganged in a single slide-type unit and shown in our plan view of the chassis in location references B2, C2. A detailed diagram of the switch contacts is shown at the bottom of the illustration, where they are drawn as seen when viewed in the direction of the arrows. The switch operations for the four control settings, starting with the control in the fully anti-clockwise position, are given in the switch table in col. 4.

S2-S9 are the A.M. waveband and gram switches, ganged in a single rotary unit and shown in location reference A1. The switch contacts are identified in the diagram shown in col. 4, where they are drawn as seen when viewed from the rear of an upright chassis. The switch operations for the four control settings are given in the switch table in col. 4.