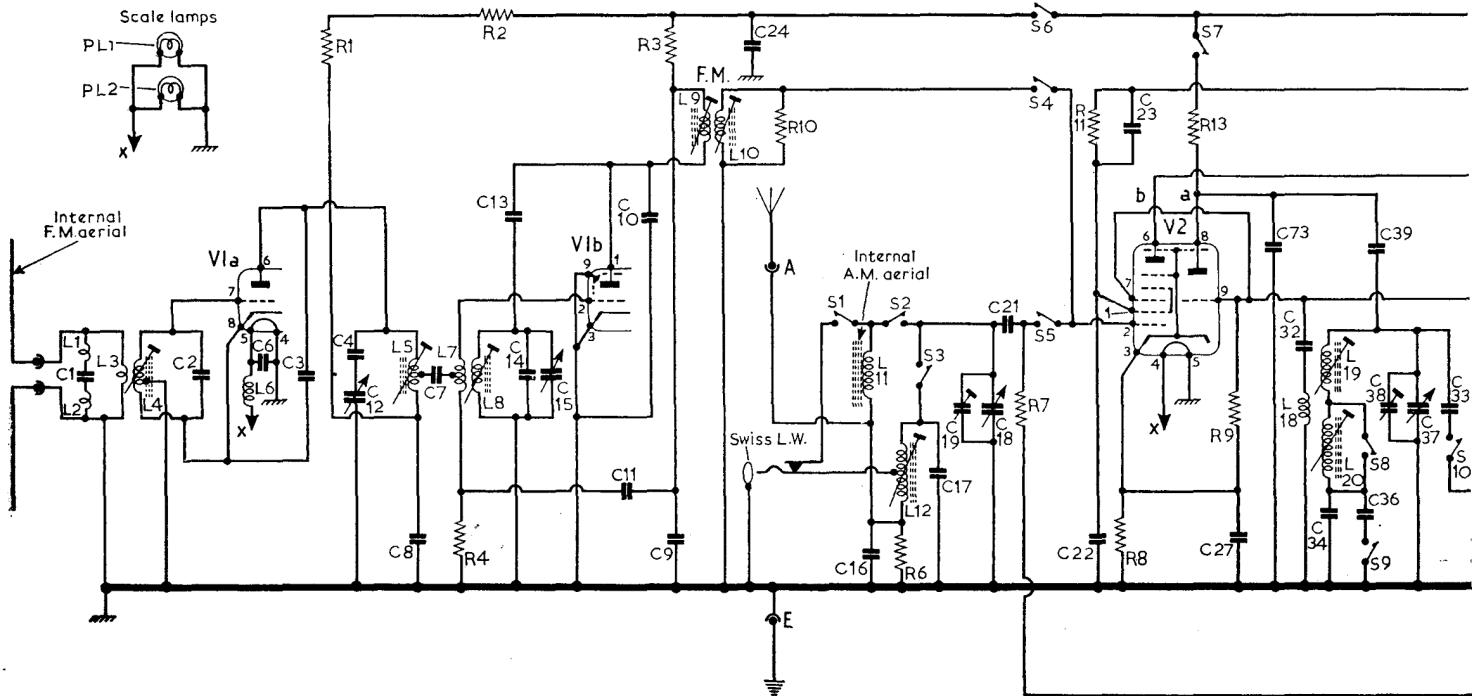
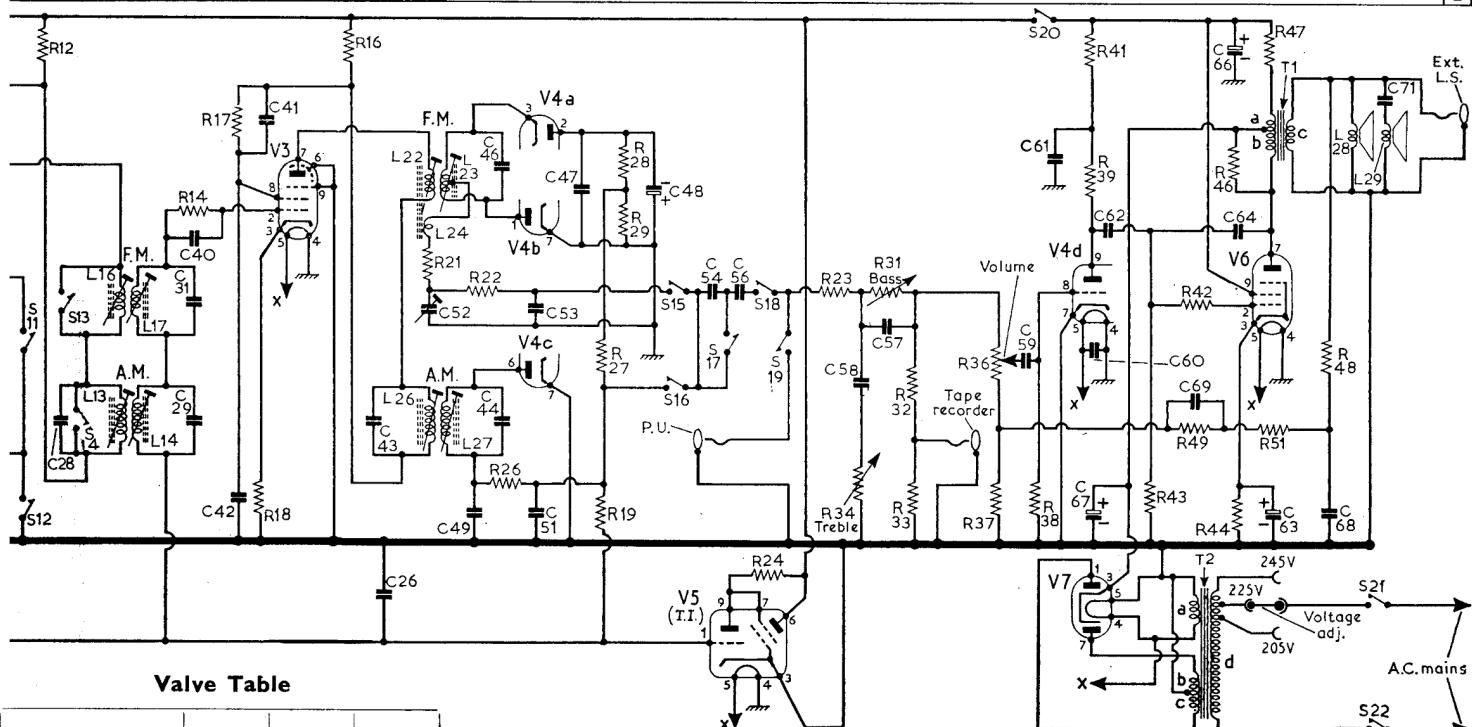


C	1	2	6	3	4,12	8,7	13,14,15	11,10,9	24	16	17	19	18,21	22	23	27	73	32,34	36,39,38,37,33
R																			
L	1,2	3,4	6		5	7,8		9,10	10	6	11	12		7	11	8	13	9	18,19,20



28	40,31,29	42	41	43,26	52	49,46,44,53,51	47	48	54	56	58	57	59	61	60,67,62	69	66,64,63	68	71	C
12	14	17	18	16	21	22	26	27,19,28,29	24	23	34,31	32,33	36,37	38	41,39	43	42,49	46,44,47,51	48	R
16,17,13,14				22,23,24,26,27														28	29	L



Valve Table

Valve	Anode (V)	Screen (V)	Cathode (V)
V1a 6L12	{*	144	—
V1b 6L12	{*	184	—
V2a 6C12	{*	100	—
V2b 6C12	{*	236	1.4
V2b 6C12	{*	208	1.2
V3 6F18	{*	215	0.7
V4d 6LD12	{*	197	0.7
V4d 6LD12	{*	81	—
V4d 6LD12	{*	78	—
V5 EM84	{*	54	—
V5 EM84	{*	50	—
V6 6P15	{*	260	7.8
V6 6P15	{*	256	7.0
V7 EZ80	{*	268§	286.0
V7 EZ80	{*	268§	280.0

* Receiver switched to A.M.
† Receiver switched to F.M.
§ A.C. reading.

CIRCUIT ALIGNMENT

Alignment Notes.—If any of the valves or components in the F.M. circuits are replaced, the associated circuits should be realigned. The F.M. tuner cover should be in place during alignment of the F.M. R.F. circuits.

When aligning the A.M. circuits the volume control should be set at maximum output and the signal generator adjusted to give an A.F. output of 500mW (1.2V A.C.) across the speech coil L28. When aligning the F.M. circuits the volume control should be set at minimum output if the loudspeaker or output meter is dis-

connected. The M.W. aerial coil L11 is adjusted by sliding the aluminium ring (shown in location reference A1) along the ferrite rod. Do not attempt adjustment of the winding itself. Coil cores should be adjusted to the tuning position which occurs with the core nearest the open end of the former.

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Resistors			R21	180Ω	G4	R43	680kΩ	F4	C36	235pF	G3	L7	—	J6
R1	4.7kΩ	J5	R22	39kΩ	G4	R44	180Ω	F4	C37	510pF	A1	L8	—	B1
R2	4.7kΩ	J5	R23	180kΩ	G4	R45	—	†	C38	30pF	▲	L9	—	B1
R3	12kΩ	J5	R24	470kΩ	E3	R46	100kΩ	F4	C39	100pF	H4	L10	—	A1
R4	1MΩ	J5	R25	—	†	R47	1,350Ω	F4	C40	68pF	G4	L11	—	A1
R5	—	†	R26	100kΩ	G4	R48	2.7kΩ	F4	C41	0.01μF	G4	L12	33.5	J4
R6	22kΩ	H4	R27	330kΩ	G4	R49	47kΩ	F4	C42	0.005μF	G4	L13	10.6	B2
R7	470kΩ	H3	R28	22kΩ	G4	R50	—	†	C43	100pF	C2	L14	10.6	B2
R8	150Ω	H4	R29	10kΩ	G4	R51	2.7kΩ	F4	C44	330pF	G4	L15	—	†
R9	47kΩ	H4	R30	—	†				C45	—	†	L16	1.0	B1
R10	47kΩ	H4	R31	5MΩ	H3				C46	56pF	C2	L17	1.6	B1
R11	47kΩ	H4	R32	3.3MΩ	F4	C1	22pF	H4	C47	0.01μF	G4	L18	1.6	G4
R12	3.3kΩ	G3	R33	150kΩ	G4	C2	18pF	J5	C48	4μF	G4	L19	2.2	G4
R13	39kΩ	H4	R34	1.5MΩ	F3	C3*	1.8pF	J5	C49	100pF	G4	L20	4.5	G4
R14	100kΩ	G4	R35	—	†	C4	150pF	J5	C50	—	†	L21	—	†
R15	—	†	R36	1.5MΩ	D1	C5	—	†	C51	100pF	G4	L22	1.6	C1
R16	3.3kΩ	G4	R37	390Ω	D1	C6	1,800pF	J5	C52	250pF	F4	L23	—	C1
R17	47kΩ	G4	R38	10MΩ	F4	C7	22pF	J5	C53	1,000pF	G4	L24	—	†
R18	68Ω	G4	R39	220kΩ	F4	C8	1,000pF	J5	C54	1,000pF	F4	L25	—	C2
R19	2.2MΩ	H4	R40	—	†	C9	91pF	J5	C55	—	†	L26	10.6	C2
R20	—	†	R41	150kΩ	F4	C10	2.7pF	J5	C56	0.01μF	G4	L27	5.3	C2
			R42	47kΩ	F4	C11	15pF	J5	C57	470pF	H3	L28	—	—
						C12	11pF	A2	C58	3,000pF	F4	L29	—	—
						C13	22pF	J6	C59	0.01μF	E3			
						C14	5.6pF	J6	C60	0.01μF	G4			
						C15	11pF	A1	C61	0.1μF	F4			
						C16	3,900pF	H4	C62	4,700pF	F4			
						C17	33pF	H4	C63	50μF	F4			
						C18	510pF	A2	C64	10pF	F4			
						C19	30pF	▲	C65	—	†			
						C20	—	†	C66	50μF	A2			
						C21	470pF	H3	C67	50μF	A2			
						C22	0.005μF	H4	C68	0.04μF	F3			
						C23	0.01μF	H4	C69	0.1μF	E4			
						C24	0.01μF	G4	C70	—	†			
						C25	—	†	C71§	2μF	—			
						C26	0.03μF	H4	C72	—	†			
						C27	0.04μF	H4	C73‡	5.6pF	H4			
						C28	100pF	B2						
						C29	100pF	B2						
						C30	—	†						
						C31	15pF	B1						
						C32	100pF	G4						
						C33	62pF	G4						
						C34	150pF	G4						
						C35	—	†						

If C52 is to be adjusted for A.M. rejection without first adjusting the I.F. circuits, it is essential that the signal generator is adjusted to the exact frequency of the I.F. transformers. Do this by connecting the matched 180kΩ resistors and the D.C. meter as in operation 5 and adjust the signal generator for zero reading on the meter. Then proceed as in operation 5 under "F.M. Circuits."

Equipment Required.—An A.M. signal generator with the required frequency coverage; an audio output meter or a 0-1.5V A.C. voltmeter; a high resistance D.C. voltmeter with ranges of approximately 0-2V and 0-25V; a 0.01μF capacitor; a matched pair of 180kΩ resistors; a damping unit comprising a 470Ω resistor in series with a 1,000pF capacitor; an R.F. coupling loop for alignment of the A.M. aerial circuits, constructed by winding about 20 turns of enamelled copper wire on a 6in diameter former, and a hexagonal trimming tool. M.W. and L.W. oscillator coil cores L19 and L20 can both be adjusted from the rear end of the former. Adjustment to the F.M. anode and oscillator printed coils L5 and L8 can be made using a conventional screwdriver.

A.M. CIRCUITS

- Turn the tuning gang to the maximum capacitance position and check that the cursor lines up with the marks at the extreme left-hand ends of the scale aperture. Set the volume control at maximum output. Unscrew the core of L26 (location reference C2). Connect the signal generator via the 0.01μF capacitor to V3 pin 2 and connect the audio output meter across the loudspeaker connections.
- Switch to M.W., feed in a 470kc/s signal and adjust L27 (C2) and L26 for maximum output. Do not re-adjust L27.
- Transfer the signal generator via the 0.01μF capacitor to V2 pin 2. Feed in a 470kc/s signal and adjust L14 and L13 (B2) for maximum output. Do not re-adjust L14.
- Disconnect the signal generator from V2 pin 2 and connect its output across the R.F. coupling loop. Place the loop about one foot away from the R.F. end of the receiver in the same axis as the ferrite rod aerial.
- Tune receiver to the 500m calibration mark on scale. Feed in 600kc/s signal and adjust L19 (G4) and the adjusting ring for L11 (A1) for maximum output.
- Tune receiver to the 220m calibration mark on scale. Feed in a 1,364kc/s signal and adjust C38 and C19 (switch unit) for maximum output.
- Switch receiver to L.W. and tune to the 1,700m calibration mark on scale. Feed in a 176.5kc/s signal and adjust L20 (G4) and L12 (J4) for maximum output.

Capacitors

C1	22pF	H4
C2	18pF	J5
C3*	1.8pF	J5
C4	150pF	J5
C5	—	†
C6	1,800pF	J5
C7	22pF	J5
C8	1,000pF	J5
C9	91pF	J5
C10	2.7pF	J5
C11	15pF	J5
C12	11pF	A2
C13	22pF	J6
C14	5.6pF	J6
C15	11pF	A1
C16	3,900pF	H4
C17	33pF	H4
C18	510pF	A2
C19	30pF	▲
C20	—	†
C21	470pF	H3
C22	0.005μF	H4
C23	0.01μF	H4
C24	0.01μF	G4
C25	—	†
C26	0.03μF	H4
C27	0.04μF	H4
C28	100pF	B2
C29	100pF	B2
C30	—	†
C31	15pF	B1
C32	100pF	G4
C33	62pF	G4
C34	150pF	G4
C35	—	†

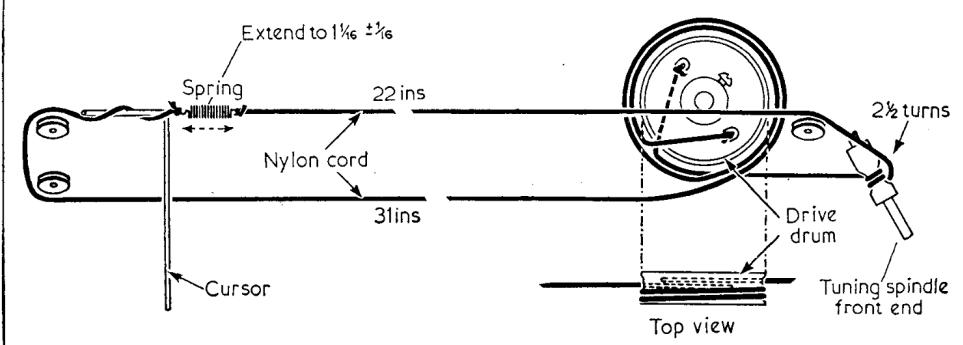
Coils

L1	—	H4
L2	—	H4
L3	—	B2
L4	—	A2
L5	—	B2
L6	—	J5

Transformers		
T1	a	32.0
T1	b	680.0
T1	c	—
T2	a	—
T2	b	230.0
T2	c	210.0
T2	d	53.0
PL1	6.8v	0.3A
PL2	6.8v	0.3A
S1-S22	—	G3

¶ Approximate D.C. resistance in ohms.
§ A684 only.
† No Component.
‡ Or 2.2pF
‡ Omitted from early receivers.
▲ Switch unit drawing.

DRIVE CORD ASSEMBLY



F.M. CIRCUITS

- Switch to F.M. and turn the volume control to the minimum output position. Set the tuning gang to maximum capacitance. Connect the signal generator via the 0.01μF capacitor to V3 pin 2. Connect the D.C. output meter across C48 location reference G4 (positive terminal to chassis).
- Feed in a 10.7Mc/s modulated signal and adjust L22 and L23 (C1) for maximum output maintaining 5V D.C. on the meter by adjustment of the signal generator attenuator.
- Connect the damping unit between V2 pin 6 and chassis (capacitor to chassis). Transfer the signal generator via the 0.01μF capacitor to V2 pin 2. Feed in a 10.7Mc/s modulated signal and adjust L17 (B1) for maximum output.
- Transfer the damping unit to V3 pin 2 and adjust L16 (B1) for maximum output. Remove the damping unit.
- Connect the two 180kΩ resistors in series across C48 to make an artificial centre tap and wire the D.C. meter between the tap and the junction C52, R21, R22. Maintaining an output of 15V D.C. across C48 adjust L23 for zero reading on the meter. Then remove the 180kΩ resistors, turn the volume control for maximum output and adjust C52 (F4) for minimum audio output.
- Re-connect the D.C. meter across C48 and transfer the signal generator to the F.M. aerial sockets ("live" lead to the thin socket). Maintaining 5V output on unmodulated signal and adjust L8 (B1), L5 (B2) and L4 (A2) for maximum output.

Switch Table

Switch	Gram.	L.W.	M.W.	F.M.
S1	C	C	—	C
S2	—	—	C	—
S3	C	—	—	C
S4	—	—	—	C
S5	C	—	—	C
S6	—	—	—	C
S7	C	—	—	C
S8	C	—	—	C
S9	—	—	—	C
S10	—	—	—	C
S11	C	—	—	C
S12	C	—	—	C
S13	C	—	—	C
S14	—	—	—	C
S15	—	—	—	C
S16	C	—	—	C
S17*	—	—	—	C
S18	—	—	—	C
S19	C	—	—	C
S20	—	—	—	C
S21‡	C	—	—	C
S22‡	C	—	—	C

* Closed when "Music" key is depressed, open when "Speech" key is depressed.

‡ Open when "Off" key is depressed.

GENERAL NOTES

Switches.—S1-S22 are contained in a piano-key type press button unit wired to a printed circuit panel. The panel is an integral part of the unit which can only be replaced as a whole. The illustration in col. 4 shows the foil side of the switch unit panel and interconnections with the main chassis. The switch table in col. 4 indicates the operation of each switch where C under the appropriate heading means closed, and a dash means open.