

PYE FENMAN II

Valve	Anode	Screen	Cath.
V1 EF80	135	5.3	69
V2 ECF80	135	5.3	69
V3 ECH81	135	5.3	69
V4 EF80	135	5.3	69
V5 EF80	135	5.3	69
V6 EBC41	135	5.3	69
V7 EABC80	135	5.3	69
V8, V9 EL84	270	22.5	245
V10 EZ80	260	22.5	245
T.I. EM80	245	22.5	245

*Receiver switched to F.M.

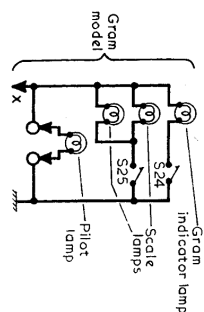
*A.C. reading, each anode.

*Cathode current 10mA.

*EM84 in Gram.

*Target anode 225V.

*Each valve.



Capacitors

C1	47pF	J3
C2	47pF	J3
C3	0.001μF	J3
C4	0.001μF	J3
C5	0.001μF	J3
C6	47pF	J3
C7	0.001μF	J3
C8	0.002μF	J3
C9	1.8pF	J4
C10	1.8pF	J4
C11	9pF	J4
C12	47pF	J4
C13	0.01μF	J4
C14	10pF	A2
C15	10pF	A2
C16	0.001μF	A2
C17	2.400pF	A2
C18	30pF	J4
C19	100pF	H4
C20 ¹⁰	528pF	A1
C21	100pF	H4
C22	0.01μF	H4
C23	50μF	H4
C24	0.04μF	H4
C25	100pF	H4
C26	16μF	B1
C27	360pF	H3
C28	30pF	H3
C29	160pF	H3
C30	150pF	H3
C31	100pF	H3
C32 ¹⁰	528pF	A1
C33	0.01μF	H4

C34	16μF	B1
C35	270pF	G4
C36	160pF	G4
C37	100pF	H4
C38	4.7pF	B2
C39	15pF	B2
C40	0.01μF	G4
C41	0.04μF	G4
C42	0.01μF	G4
C43 ¹⁰	47pF	G4
C44	15pF	C2
C45	18pF	C2
C46	100pF	C2
C47	100pF	C2
C48	100pF	G4
C49	100pF	F4
C50	220pF	G4
C51	0.001μF	G4
C52	0.005μF	H4
C53	0.001μF	H4
C54	0.002μF	F4
C55	100pF	F3
C56	0.001μF	F3
C57	0.01μF	F4
C58	15pF	D2
C59	30pF	D2
C60	30pF	D2
C61	47pF	G4
C62	0.001μF	E3
C63	470pF	E3
C64	0.04μF	F4
C65	0.005μF	F3
C66	25μF	G3
C67	0.04μF	G4
C68 ¹⁰	0.005μF	C1

C69 ¹⁰	0.02μF	H4
C70	100pF	F4
C71	0.02μF	F3
C72 ¹⁰	270pF	E3
C73	25pF	E4
C74	0.001μF	F4
C75	0.01μF	H4
C76 ¹⁰	22pF	F4
C77	0.05μF	F3
C78	0.05μF	F3
C79	50μF	E4
C80	0.01μF	E4
C81 ¹⁰	0.001μF	F4
C82	2μF	—
C83	0.001μF	D2
C84	0.01μF	E4
C85	32μF	D2
C86	32μF	D2
C87 ¹⁰	0.001μF	—
C88	1μF	—

Resistors

R1 ¹⁰	2.2kΩ	A2
R2	22kΩ	J3
R3	56kΩ	J3
R4	1kΩ	J3
R5	220kΩ	J4
R6	100kΩ	J3
R7	4.7kΩ	J4
R8	10kΩ	J4
R9	2.2kΩ	J4
R10	22kΩ	J4
R11	22kΩ	H4
R12	1MΩ	H4

R13	47kΩ	H4
R14	220Ω	H4
R15	220Ω	H4
R16	220kΩ	H4
R17	22kΩ	H4
R18	2.2kΩ	H3
R19	2.2kΩ	G4
R20	1MΩ	G4
R21	56kΩ	G4
R22	47Ω	G4
R23	220Ω	G4
R24	2.2kΩ	G4
R25	330kΩ	G4
R26	100kΩ	G4
R27	220kΩ	G3
R28	220kΩ	G3
R29	100kΩ	H4
R30	47kΩ	H4
R31	100Ω	F4
R32	88kΩ	H4
R33	22kΩ	H4
R34	1MΩ	E3
R35	330kΩ	F3
R36	56kΩ	F4
R37	22kΩ	G3
R38	1MΩ	F3
R39	22kΩ	F4
R40	33kΩ	C2
R41	3.9kΩ	G3
R42	47Ω	G3
R43	56Ω	G4
R44	10Ω	G3
R45	220kΩ	F4
R46	1MΩ	G4
R47	100kΩ	F4
R48	100kΩ	F4
R49	1MΩ	G4
R50 ¹⁰	820Ω	C1
R51	100kΩ	H4
R52 ¹⁰	1MΩ	F3
R53	330kΩ	F3
R54	100kΩ	F4
R55	1MΩ	H4
R56	220kΩ	F4
R57	1kΩ	F3
R58	3.9kΩ	F4
R59	470kΩ	H3
R60	68kΩ	F4
R61	390kΩ	E3
R62	470kΩ	F3
R63	10kΩ	F3
R64	10kΩ	F3
R65	180Ω	E3
R66 ¹⁰	0.18Ω	C1
R67	1kΩ	E4
R68	1MΩ	—
R69	1MΩ	—

Other Components¹⁰

L1	—	J3
L2	—	J3
L3 ¹⁰	—	J3
L4	—	J3
L5 ¹⁰	—	J4
L6	—	J4
L7	—	A2
L8	—	A2
L9	2.0	A2
L10	3.5	J4
L11	16.0	H4
L12	1.0	H3
L13	1.5	H3
L14	6.0	H4
L15	10.0	B2
L16	10.8	B2
L17	—	B2
L18	—	B2
L19	—	C2
L20	—	C2
L21	10.0	C2
L22	10.8	C2
L23	—	D2
L24	—	D2
L25	3.0	—
L26	3.0	—
L27	5.0	—
L28	5.0	—
L29	15.0	—

T1 { a	330.0 ¹⁰	C1
b	330.0 ¹⁰	
c	—	

T2 { a	—	D1
b	215.0	
c	225.0	
d	23.0	

S1-S19	—	J4
S20-S22	—	E3

PYE
FENMAN II

¹ May be 22pF.
² May be omitted.
³ Approximate D.C. resistance in ohms.

⁴ 180Ω
⁵ 0.002μF
⁶ 330pF } Values in Gram.

⁷ 2.2kΩ
⁸ 0.68Ω } Values in Gram.
⁹ Omitted in Gram.

¹⁰ Swing value, min. to max.

CIRCUIT ALIGNMENT

Equipment Required.—For A.M. alignment, a signal generator covering the range of 200-1,500 kc/s, and an 0.01μF capacitor.

For F.M. alignment, two methods are given. The first, under "F.M. Meter Alignment," requires an A.M. signal generator covering 10.7 Mc/s and 80-100 Mc/s, and with an output impedance of 75Ω; a 100μA D.C. microammeter, or a 0-10V high-resistance D.C. voltmeter; a 0-100mW output meter; an 0.001μF capacitor. The second method, under "F.M. Wobbulator Alignment," requires a wobbulator capable of being deviated by ±200 kc/s; an oscilloscope; a signal generator capable of providing an unmodulated output at 10.7 Mc/s; an 0.001μF capacitor; a 1 kΩ resistor.

Reference is made during the following instructions to tuning points on a substitute scale printed on the rear of the scale backing plate. This scale is read against the left-hand edge of the cursor carriage, viewed from the rear. Check that with the gang at maximum, the scale reading is zero.

A.M. Alignment

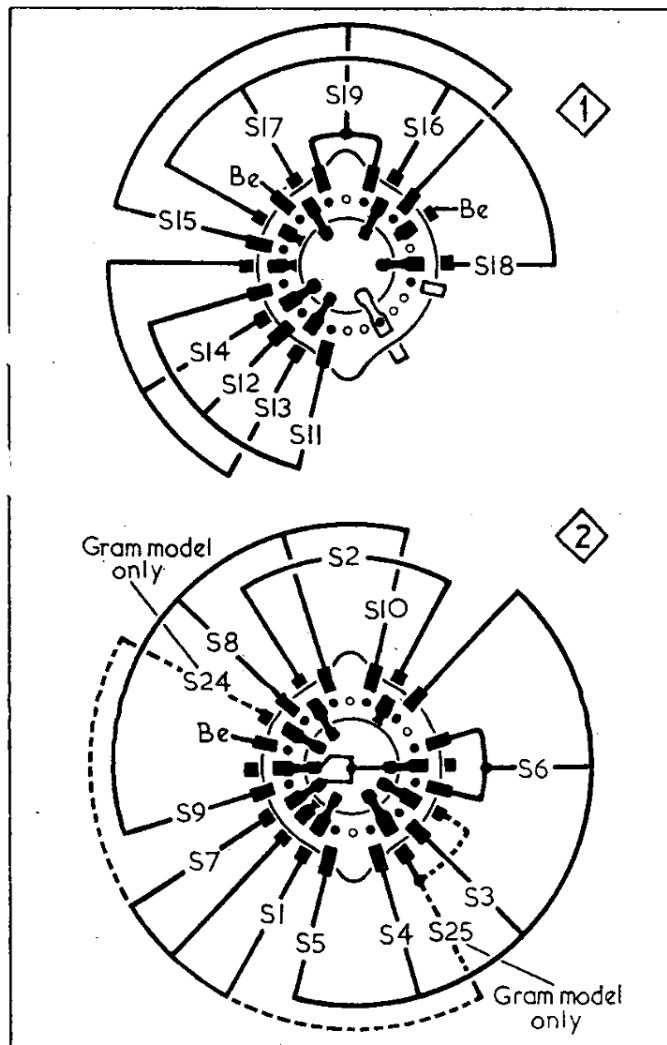
- 1.—Switch receiver to M.W. and tune to high wavelength end of scale. Connect output of A.M. signal generator, via 0.01μF capacitor in the "live" lead, between chassis and control grid (pin 2) of V3.
- 2.—Feed in a 30% modulated 470 kc/s signal and adjust the cores of L22 (location reference C2), L21 (G4), L16 (B2) and L15 (H4) for maximum output.
- 3.—Transfer signal generator output, via a standard dummy aerial, to A and E sockets. Feeding in a 470 kc/s signal, adjust the core of L9 (A2) for minimum output.
- 4.—Tune receiver to 18 on substitute scale, feed in a 600 kc/s signal and adjust the cores of L13 (H3) and L10 (J4) for maximum output.
- 5.—Tune to 87.5 on scale, feed in a 1,500 kc/s signal and adjust C28 (H3) and C18 (J4) for maximum output.
- 6.—Repeat operations 5 and 6 until no further improvement results.

- 7.—Switch receiver to L.W. and tune it to 43 on scale. Feed in a 214 kc/s signal and adjust the cores of L14 (H4) and L11 (H4) for maximum output.

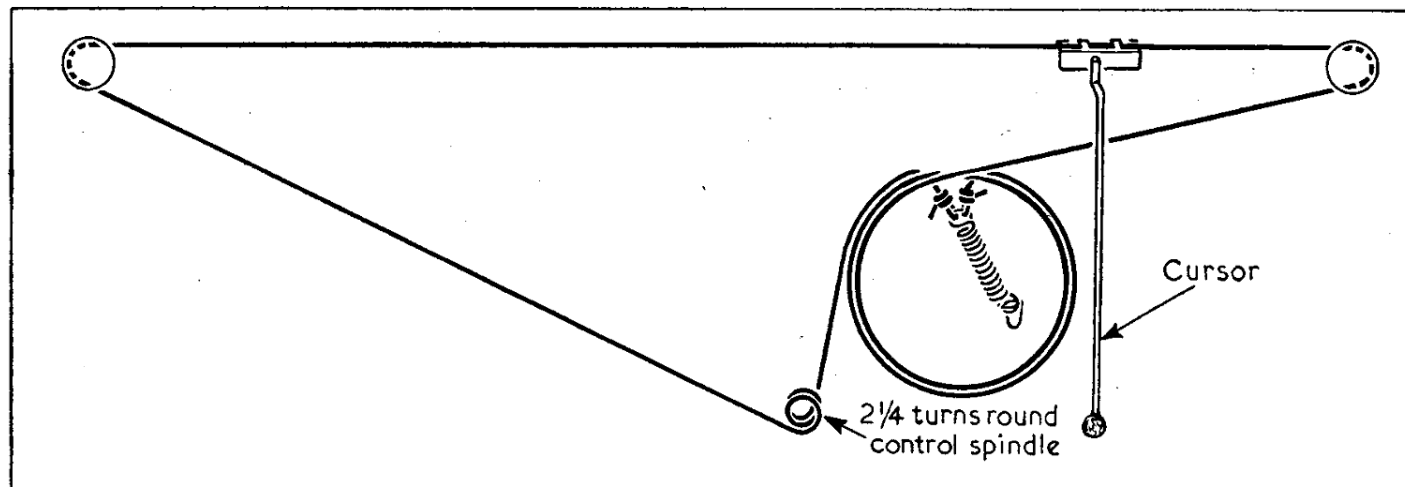
F.M. Meter Alignment

- 8.—Switch receiver to F.M. Connect 0-100 mW output meter across external speaker sockets. Connect D.C. microammeter in series between the lower end of R26 (G4) and chassis, or, alternatively, connect high-resistance D.C. voltmeter across C43 (G4).
- 9.—Connect output of A.M. signal generator, via an 0.001μF capacitor in the "live" lead, between chassis and control grid (pin 2) of V5.
- 10.—Feed in a 30% modulated 10.7 Mc/s signal and adjust the core of L23 (F4) for maximum reading on milliwatt meter.
- 11.—With volume control set to maximum, adjust output of signal generator to give reading of 50 mW on output meter.
- 12.—Adjust the core of L24 (D2) for minimum reading on output meter.
- 13.—Transfer live signal generator lead to control grid (pin 2) of V4. Feed in an unmodulated 10.7 Mc/s signal and adjust the cores of L19 (G4) and L20 (C2) for maximum reading on D.C. microammeter or D.C. voltmeter.
- 14.—Transfer live signal generator lead to control grid (pin 2) of V3b. Adjust the cores of L17 (H4) and L18 (B2) for maximum reading on D.C. meter.
- 15.—Transfer live signal generator lead to control grid (pin 2) of V1. Adjust the cores of L7 (J4) and L8 (A2) for maximum reading on D.C. meter.
- 16.—Connect output of signal generator to F.M. aerial sockets. Tune receiver to 84.5 on substitute scale, feed in a 99 Mc/s signal and adjust C11 (J4) for maximum reading on D.C. meter.

- 17.—Tune receiver to 27.5, feed in an 89 Mc/s signal, loosen lock nut on L6 core adjustment (A1), and adjust the core of L6 for maximum reading on D.C. meter. Tighten lock nut, and, if necessary, readjust C11 to correct calibration.
- 18.—Adjust the cores of L4 (A1) and L2 (A1) for maximum output on D.C. meter.



Diagrams of the band/gram switch units as seen from the rear. Below is the associated table.



Sketch of the drive cord system as seen from the front with the gang at maximum.

Switches	Gram.	L.W.	M.W.	F.M.
S1 ...	●	—	—	●
S2 ...	—	—	—	●
S3 ...	—	—	—	●
S4 ...	—	—	●	—
S5 ...	—	—	—	—
S6 ...	—	●	●	—
S7 ...	—	●	●	●
S8 ...	—	●	●	—
S9 ...	—	—	—	●
S10 ...	●	—	—	—
S11 ...	—	—	●	—
S12 ...	—	●	—	—
S13 ...	—	—	●	—
S14 ...	—	●	—	—
S15 ...	—	—	—	●
S16 ...	—	●	●	—
S17 ...	—	—	—	●
S18 ...	●	—	—	—
S19 ...	●	●	●	—

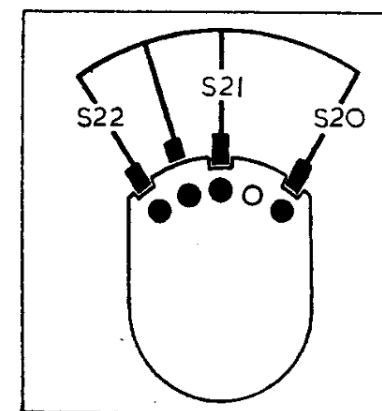


Diagram of the tone control switch unit as seen from the front of an upright chassis.

**PYE
FENMAN II**