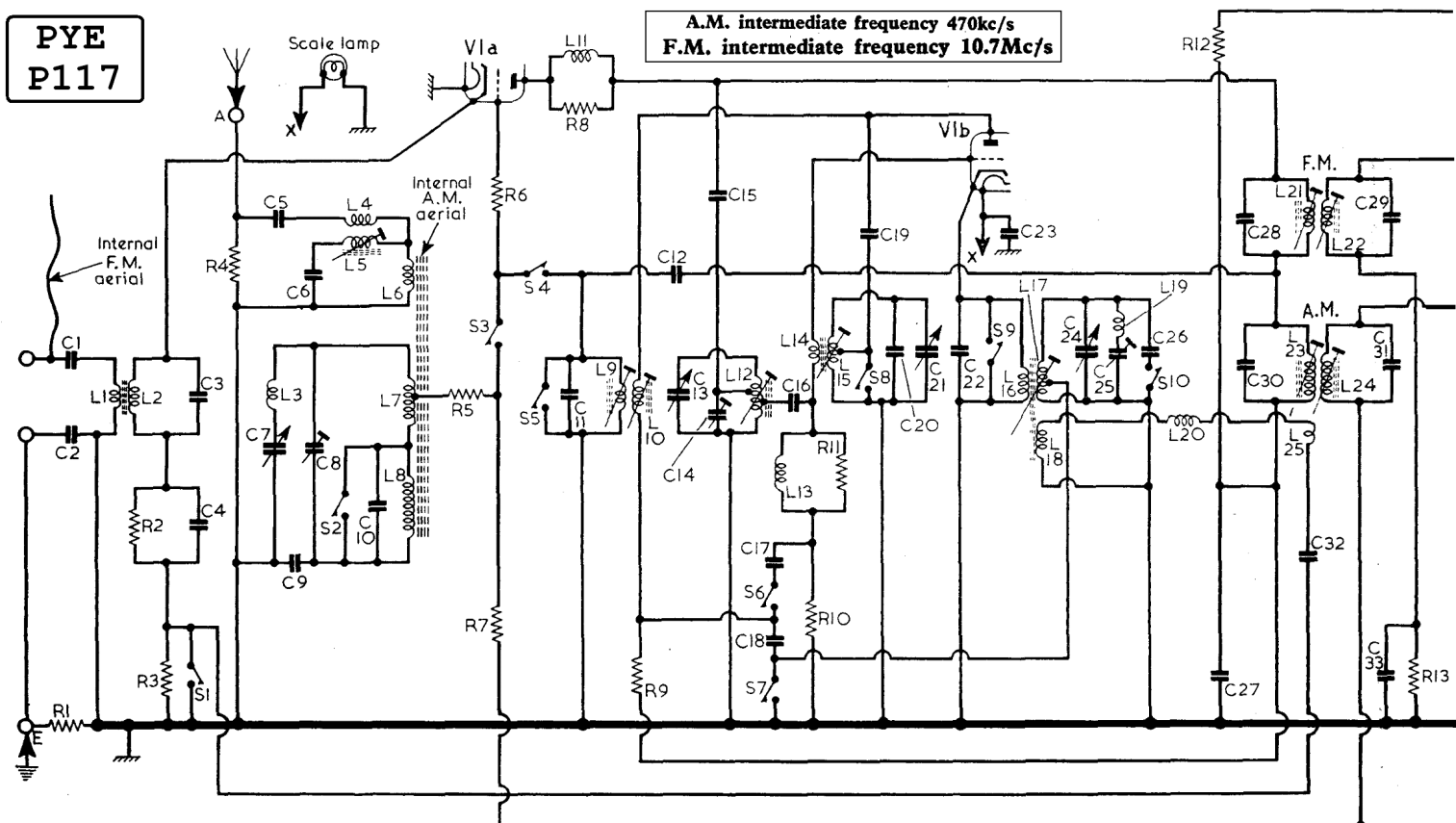


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Switch Table

Switches	L.W.	M.W.	F.M.
S1	—	—	C
S2	—	—	C
S3	—	—	C
S4	C	C	C
S5	C	C	C
S6	C	C	C
S7	—	—	C
S8	—	—	C
S9	C	C	C
S10	C	C	C
S11	C	—	C
S12	C	—	C

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1a ECC85	190	2.3	—	—	2.4
V1b ECC85	167	10.0	—	—	1.0
V2 EBF89	150	4.0	—	—	—
V3a ECL82	138	5.0	—	—	—
V3b ECL82	185	9.5	70	1.9	—
V4 EZ80	172	9.3	63	1.9	—
	60	0.5	—	—	—
	57	0.5	—	—	—
	225	28.0	195	5.8	14.0
	220	26.3	182	5.2	13.0
	222	—	—	—	245.0*
	222	—	—	—	237.0*

\*Set switched to A.M.  
†Set switched to F.M.  
‡Each anode A.C. reading.  
\*Cathode current 58mA.  
\*Cathode current 65mA.

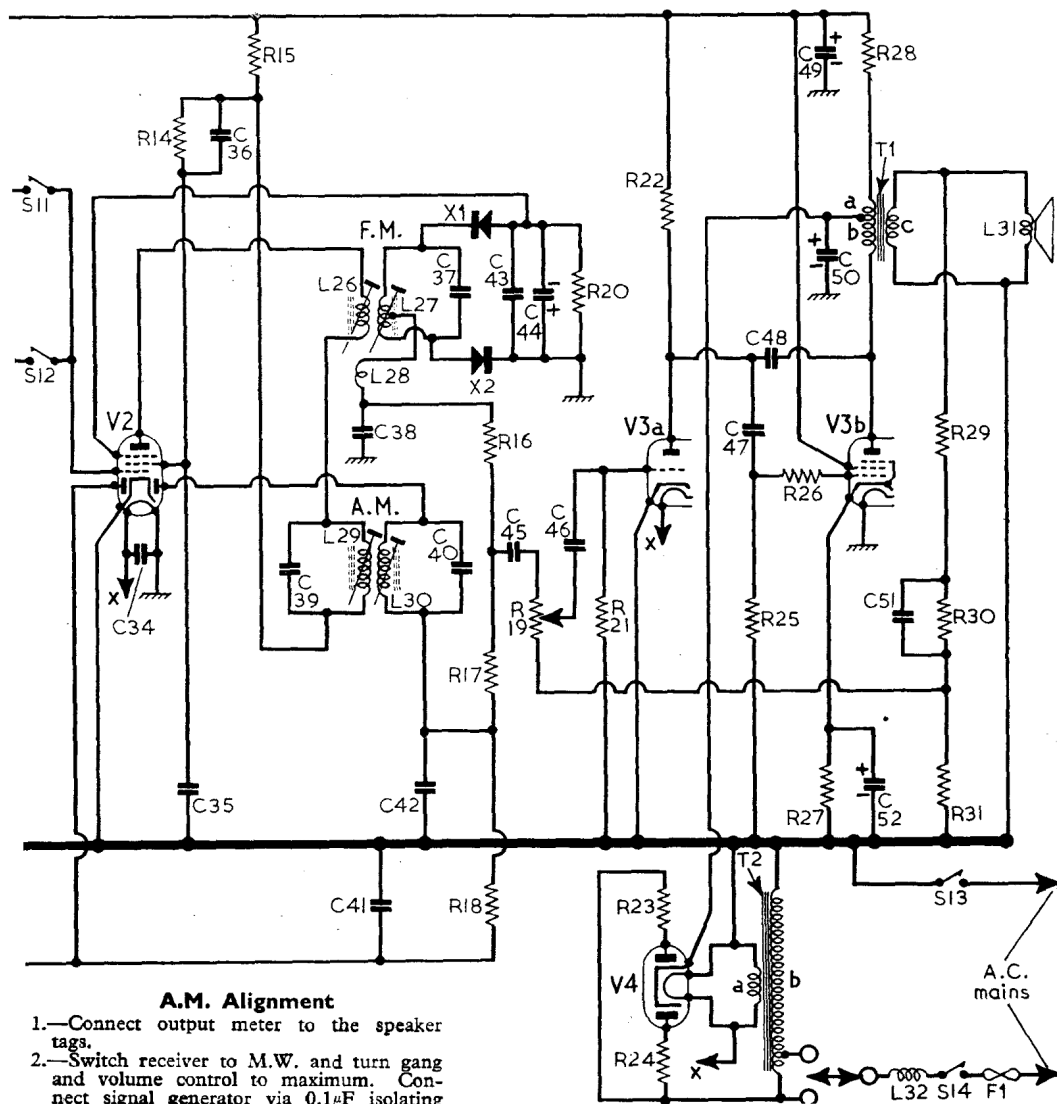
### CIRCUIT ALIGNMENT

**Equipment required.**—A.M./F.M. signal generator, 30 per cent modulated for A.M. (for F.M. alignment the 10.7Mc/s signal is deviated by  $\pm 75$ kc/s and the 89Mc/s signal is deviated by  $\pm 15$ kc/s); an output meter; a piece of ferrite rod which is employed as a tuning wand; and a short-circuited loop of wire; and an insulated trimming tool for core adjustments.

As the tuning scale remains fixed to the cabinet when the chassis is removed for alignment purposes, a dummy scale must be made up. This can be done from the scale pattern in col. 6 overleaf.

Check that with the gang at maximum the cursor coincides with the "set pointer" spots at the low frequency end of the scale.

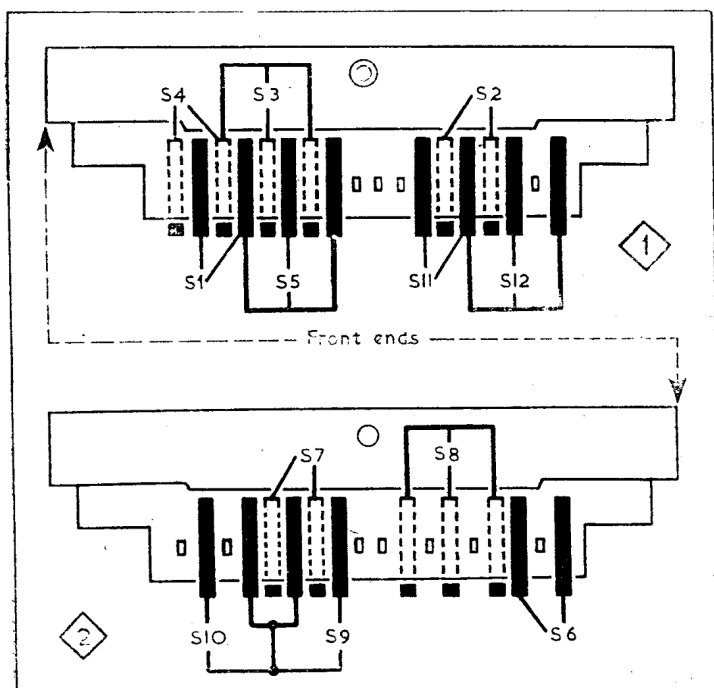
When adjusting the coils of L9, L10, L21, L22, L26 and L27 it will be found that two peaks can be obtained with each core. The correct peak is the one nearer the adjusting end of the coil.



### A.M. Alignment

- 1.—Connect output meter to the speaker tags.
- 2.—Switch receiver to M.W. and turn gang and volume control to maximum. Connect signal generator via 0.1 $\mu$ F isolating capacitors to the control grid (pin 7) of V1a and chassis. Feed in a 470kc/s signal and adjust L30 (C2), L29 (F4), L24 (B2) and L23 (G4) for maximum output reducing the signal generator output as the circuits are brought into line.

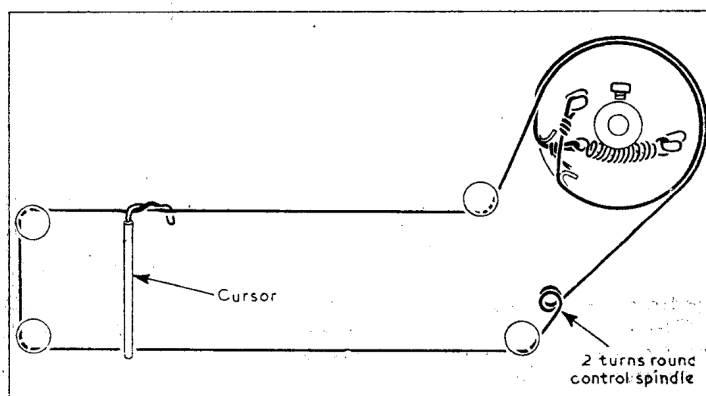
- 3.—Connect signal generator to A.M. aerial and earth sockets. Feed in a 470kc/s signal and adjust L5 (A2) for minimum output.
- 4.—Tune receiver to 500m, feed in a 600-kc/s signal and adjust the core of L16, L17, L18 (H3) for maximum output.



On the left are seen the two slide-type waveband switch units.

Below is a sketch of the tuning drive system, drawn as seen from the front with the gang at minimum capacitance.

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5.—Tune receiver to 200m, feed in a 1,500-kc/s signal and adjust C8 (A2) and C25 (A1) for maximum output.

6.—Repeat operations 4 and 5 until no improvement in calibration can be obtained.

7.—Feed in a 500m (600kc/s) signal, and tune it in accurately. Take the piece of ferrite material (the core from an old coil could be used) and hold it close to the end of the ferrite aerial rod. If this results in an increased output, more inductance is required in L7, and the turns should be closed up to produce it.

8.—Still feeding in the 600kc/s signal, take the short-circuited turn of wire, and hold it close to the end of the ferrite aerial rod. If this results in an increased output, the inductance of L7 is too high, and the turns should be spaced slightly to reduce it.

Note: If L7 is correctly adjusted, either of these tests will result in a decrease in output.

9.—Feed in a 214kc/s (1,402m) signal, and tune it in accurately. Then take the piece of ferrite material and hold it close to the end of the ferrite aerial rod, near L8, and repeat the procedure explained in 7 and 8 but using 214kc/s and adjusting L8 as required for L.W. alignment.

### F.M. Alignment

1.—Switch receiver to F.M. and turn volume control and gang to maximum. Connect signal generator to control grid (pin 2) of V2 and chassis. Feed in a 10.7-Mc/s signal, deviated by  $\pm 75$ kc/s and adjust L27 (C2) and L26 (F4) for maximum output.

2.—Connect signal generator across R10 (H3). Feed in a 10.7Mc/s signal, deviated by  $\pm 75$ kc/s and adjust cores of L22 (B2), L21 (G4), L9 (G3) and L10 (A1) for maximum output.

3.—Transfer signal generator to F.M. aerial and earth sockets. Tune receiver to 89Mc/s. Feed in a 89Mc/s signal, deviated by  $\pm 15$ kc/s and adjust cores of L15 (H3) and L12 (H4) for maximum output.

4.—Tune receiver to 97Mc/s. Feed in a 97Mc/s signal, deviated by  $\pm 15$ kc/s and adjust trimmer C14 (H4) for maximum output.

**Switches.**—S1-S12 are the waveband switches. They are assembled beneath the chassis in two groups; each consisting of two rows of switches, one row on either side of a strip of insulating material. The two groups are indicated in the underside view of the chassis, and are distinguished by the numbers 1 and 2 in diamond surrounds. Arrows further indicate the points of view adopted when preparing the detailed diagram at the foot of cols. 1 and 2.

In this diagram, one group (2) is seen from the right-hand end of the chassis while the other is seen from the left-hand end; both, with the chassis upside down.

The switch control is below the centre of the tuning scale and operates through a bell-crank lever. The associated table in col. 5 shows the switch positions for the three control settings, starting from the left-hand position of the control. A dash indicates that the switch is open, C that it is closed.

**Drive Cord Replacement.**—A piece of nylon braided glass yarn about 33 inches long is required for the drive cord. This should be fitted in the manner shown in the sketch (foot of this page) where it is drawn as seen when viewed from the front of the chassis with the gang at minimum capacitance.

When replacing the cord, first tie a small loop in each end so that the overall length is 31 inches. With the gang at minimum capacitance, pass one loop over the left-hand anchor tag on the drive drum. Lead the cord through the gap and round the drum in an anti-clockwise direction and wind on approximately three-quarters of one turn. Next, pass the cord round the four small pulleys behind the scale; first under the top right-hand one, then round the top and bottom left-hand ones and, lastly, under the bottom right-hand one.

Thread the cord behind the control spindle bracket and wind two turns on the spindle, back turn last. Hook the spring into the free loop in the cord, bring the cord over the drum as shown, and pass it through the gap in the rim, then hook the spring on to the right-hand tag. Finally, fit the cursor.

**F.M. Aerial.**—A two-foot length of insulated wire is provided as an aerial for normal F.M. reception. If this is allowed to trail from the set it will give satisfactory results within the service area.