

CIRCUIT ALIGNMENT

Equipment Required.—An A.M. signal generator covering the range 150kc/s to 100Mc/s, modulated 30 per cent at 400c/s; an A.C. voltmeter for use as A.F. output meter; a 20,000 Ω /V D.C. voltmeter or D.C. valve voltmeter for use as D.C. output meter; an R.F. valve voltmeter; two matched 100k Ω resistors; a 2.2k Ω resistor and a 0.01 μ F capacitor connected in series for use as a damping unit; a 0.01 μ F capacitor; an 80 Ω resistor; and a non-metallic screwdriver-type trimming tool.

As the tuning scale remains fixed to the cabinet when the chassis is removed for alignment purposes, an alignment tuning scale, calibrated in centimetres, is fixed beneath the lower edge of the tuning scale backing plate.

In the A272, a rearward bend in the crank in the centre of the bottom limb of the cursor assembly is used as a pointer, while for model A272C the rim of the eyelet on the drive cord is used as the pointer.

For A.M. alignment, adjust the signal generator attenuator so that the reading on the A.F. output meter does not exceed 0.7V. For F.M. alignment, adjust it so that the reading on the D.C. output meter is maintained as near as possible to 8V without the damping unit in circuit, or 4V with it.

Except where otherwise indicated, adjust the cores of all coils for the first peak ob-

tained from the adjusting end of the coil former.

A.M. Alignment

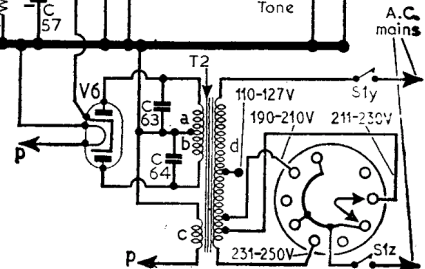
- 1.—Remove the chassis from the cabinet. Stand the chassis on the mains transformer end and check that with the tuning gang at maximum capacitance the tuning pointer coincides with 5.5 (A272) or 5.0 (A272C) on the centimetre tuning scale.
- 2.—Connect the A.F. output meter to the external speaker sockets (A272) or to T1 secondary winding (A272C). Connect signal generator via the 0.01 μ F capacitor to V3 control grid (pin 2).
- 3.—Switch receiver to M.W. and turn the gang to maximum capacitance. Unscrew the cores of L19, L20 (C1) and L24 (B1). Feed in a modulated 470kc/s signal and adjust the cores of L25 (B1) and L24 for maximum output. Do not readjust L25.
- 4.—Transfer the signal generator, still via the 0.01 μ F capacitor, to C19 (H3). Feed in a modulated 470kc/s signal and adjust the cores of L20 and L19 (C1) for maximum output. Do not readjust L20.

- 5.—Transfer signal generator output, via a dummy aerial, to the A.M. aerial socket. With the receiver still switched to M.W., tune it to 7.3 (A272) or 6.8 (A272C). Feed in a modulated 600kc/s signal and adjust the cores of L15 (C2) and L12 (D1) for maximum output.

- 6.—Tune the receiver to 13.65 (A272) or 13.15 (A272C). Feed in a modulated 1,364kc/s signal and adjust C31 (F3) and C19 (H3) for maximum output.

- 7.—Repeat operations 5 and 6.

- 8.—Switch receiver to L.W. and tune it to 8.25 (A272) or 7.75 (A272C). Feed in a modulated 176.5kc/s signal and adjust L16 (F3) for maximum output, then ad-



Resistors		R31	6.8k Ω	C28	528pF \S	C59	50 μ F
R1	10k Ω	R32	150 Ω	C29	40pF	C60	0.01 μ F
R2	220k Ω	Capacitors		C30	140pF \S	C61	50 μ F
R3	470k Ω	C1	22pF	C31	40pF	C62	0.25 μ F
R4	4.7k Ω	C2	18pF	C32	15pF \dagger	C63	470pF
R5	27k Ω	C3	56pF \S	C33	0.01 μ F	C64	470pF
R6	150 Ω	C4	17pF \S	C34	100pF \dagger	Miscellaneous*	
R7	68k Ω	C5	500pF \dagger	C35	10pF \dagger	T1 { a 13.8	
R8	220k Ω	C6	82pF \dagger	C36	100pF \dagger	b 475.0	
R9	1M Ω	C7	3.3pF \dagger	C37	0.01 μ F	c —	
R10	4.7k Ω	C8	10pF \dagger	C38	0.04 μ F	T2 { a —	
R11	39k Ω	C9	1.800pF	C39	0.01 μ F	b —	
R12	82 Ω	C10	22pF \dagger	C40	0.04 μ F	c 140.0	
R13	3.3k Ω	C11	17pF \S	C41	15pF \dagger	d 146.0	
R14	100k Ω	C12	0.005 μ F	C42	100pF \dagger	e 26.5 (total)	
R15	100k Ω	C13	0.001 μ F	C43	100pF \dagger	S1-S20 —	
R16	1.5M Ω	C14	0.001 μ F	C44	220pF	S21, S22 —	
R17	330 Ω	C15	5pF \dagger	C45	100pF \dagger		
R18	470k Ω	C16	1.800pF	C46	180pF \dagger		
R19	18k Ω	C17	2.7pF \dagger	C47	100pF		
R20	500k Ω	C18	120pF \dagger	C48	0.04 μ F		
R21	10M Ω	C19	40pF	C49	100pF		
R22	100k Ω	C20	0.04 μ F	C50	470pF		
R23	150k Ω	C21	528pF \S	C51	5 μ F		
R24	250k Ω	C22	0.01 μ F	C52	0.02 μ F		
R25	470k Ω	C23	0.04 μ F	C53	0.1 μ F		
R26	22k Ω	C24	68pF \dagger	C54	1.800pF		
R27	5.6k Ω	C25	520pF \dagger	C55	0.04 μ F		
R28	220 Ω	C26	100pF \dagger	C56	0.001 μ F \dagger		
R29	1.35k Ω	C27	390pF	C57	50 μ F		
R30	1.8k Ω			C58	0.005 μ F		

- just **L13** (H4) to the *second* peak obtained from the adjusting end of the coil former.
- 9.—Tune the receiver to 14.55 (A272) or 14.05 (A272C). Feed in a modulated 300kc/s signal and adjust **C29** (G3) for maximum output. Disconnect signal generator and A.F. output meter.

F.M. Alignment

- 1.—Connect the D.C. output meter, switched to its 10V range, across **C51** (E4), positive terminal to chassis. Connect signal generator via the 0.01 μ F capacitor to **V1a** cathode (pin 3).
- 2.—Switch the receiver to F.M. Turn tuning gang to maximum and volume control to minimum. Feed in an unmodulated 10.7Mc/s signal and adjust **L21** (B1) for maximum output. Adjust the signal generator attenuator to obtain an 8V reading exactly on the D.C. output meter, then disconnect the D.C. output meter.
- 3.—Connect the two matched 100k Ω resistors in series across **C51** (E4). Set the pointer of the meter accurately to zero, then connect it between **C44** (F4) and the junction of the two 100k Ω resistors. Without altering the signal generator attenuator setting, adjust **L22** (F4) for a zero reading exactly on the D.C. output meter. Disconnect the meter and the 100k Ω resistors.
- 4.—Reconnect the D.C. output meter across **C51**, positive terminal to chassis. Connect the damping unit between chassis and the junction of **L17**, **C34** (F4). Feed in an unmodulated 10.7 Mc/s signal and adjust **L18** (C1) for maximum output, progressively adjusting the signal generator attenuator to maintain a 4V reading on the D.C. output meter.
- 5.—Transfer damping unit to **V3** control grid (pin 2) and chassis. Feed in an unmodulated 10.7 Mc/s signal and adjust **L17** (F4) for maximum output, while still maintaining a 4V reading on the D.C. output meter.
- 6.—Disconnect damping unit and re-check setting of **L21** core.
- 7.—Connect damping unit between chassis and **V1b** anode (pin 6). Feed in an unmodulated 10.7 Mc/s signal and adjust **L10** (H3) for maximum output.
- 8.—Transfer damping unit to **L10**. Feed in an unmodulated 10.7 Mc/s signal and adjust **L9** (D2) for maximum output. Disconnect damping unit and signal generator.

- 9.—Connect signal generator, terminated with the 80 Ω resistor, to the F.M. aerial sockets. Tune receiver to 8.65 (A272) or 8.15 (A272C). Feed in an unmodulated 91 Mc/s signal and adjust **L7** (D2) and **L5** (D1) for maximum output, then disconnect signal generator.

- 10.—In early versions of the A272C, **C7** is a pre-set oscillator neutralizing capacitor (see "Model A272C" col. 4). To adjust the neutralizing capacitor, connect the R.F. valve voltmeter, switched to its 1V range, between **V1a** anode (pin 1) and chassis. Tune the receiver to 11.2 and adjust the neutralizing capacitor for minimum reading (dip between two peaks) on the R.F. valve voltmeter. Then disconnect the valve voltmeter and re-adjust **L7** as explained in operation 9.

- 11.—After replacing the chassis in its cabinet, set the gang to maximum and see that the right-hand edges of the cursors (A272) or their centres (A272C) coincide with the right-hand ends of the tuning scale apertures.

Valve Table

Valve	Anode (V)	Screen (V)	Cath. (V)
V1a ECC85 ..	114	—	—
V1b ECC85 ..	109	—	—
V2a 6C9 ..	24	—	—
V2b 6C9 ..	172	—	—
V3 6F18 ..	30	—	1.1
V4d EABC80	200	73	1.3
V5 6P1 ..	174	78	1.3
V6 UU9 ..	178	82	1.3
	166	76	1.1
	72	—	—
	71	—	—
	248	210	7.8
	242	200	7.3
	245 \dagger	—	265.0
	245 \dagger	—	260.0

*Measured with receiver switched to M.W.
 \dagger Measured with receiver switched to F.M.
 A.C. reading.

Switch Table

Switches	FM	MW	LW	Gram
1	—	—	—	—
2	C	—	—	—
3	—	—	—	—
4	—	—	—	—
5	—	C	—	—
6	—	—	—	—
7	—	—	—	—
8	—	—	—	—
9	—	—	—	—
10	—	—	—	—
11	—	—	—	—
12	—	—	—	—
13	—	—	—	—
14	—	—	—	—
15	—	—	—	—
16	—	—	—	—
17	—	—	—	—
18	—	—	—	—
19	—	—	—	—
20	—	—	—	C

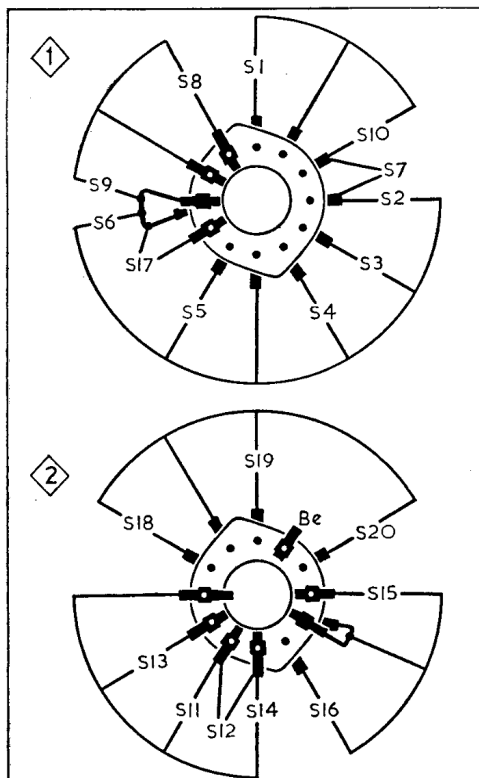


Diagram of the switch unit drawn as seen from the rear of an inverted chassis