PHILCO - 120

CIRCUIT ALIGNMENT

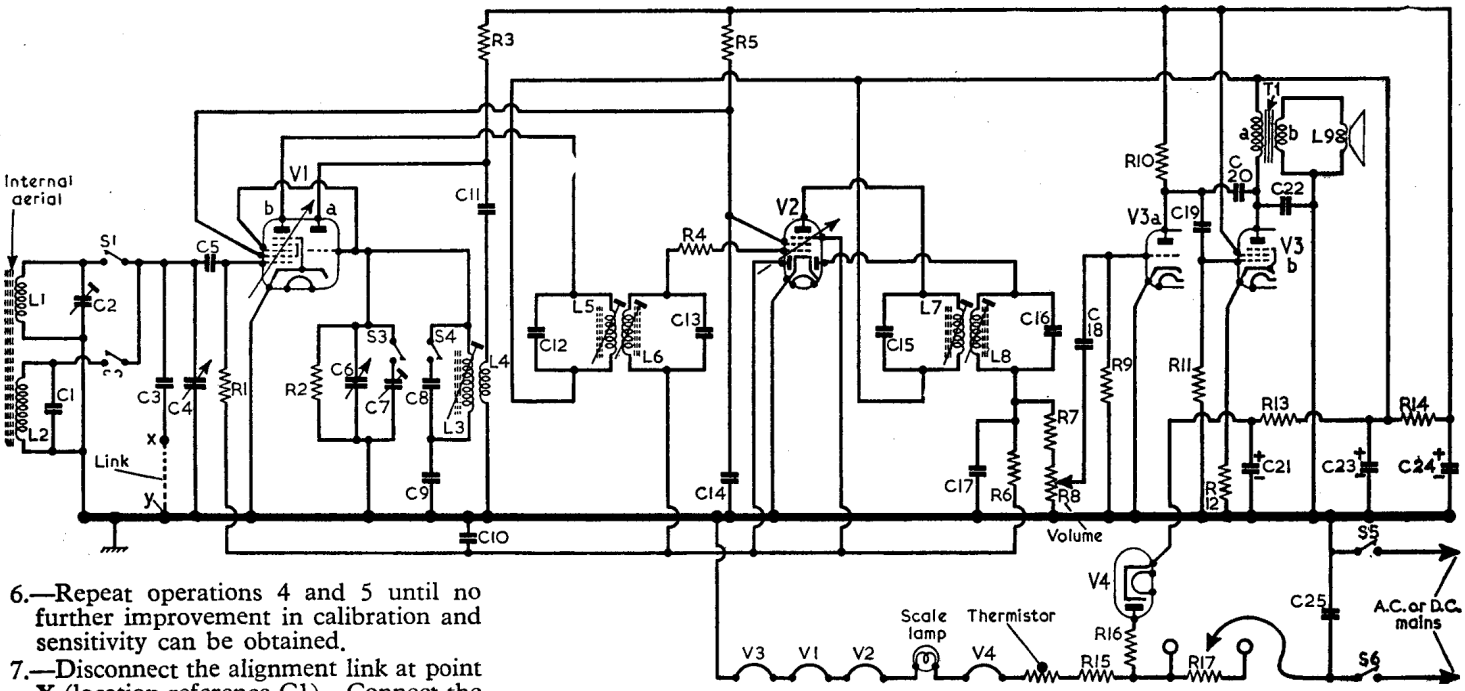
Equipment Required.—A signal generator, modulated 30 per cent at 400c/s; an A.C. voltmeter for use as output meter; a 0.05μF capacitor; and two trimming tools, a non-metallic screwdriver type and a slotted type.

As the tuning scale remains fixed to the cabinet when the chassis is removed for alignment purposes, a dummy scale must be made up from the scale pattern shown overleaf.

Allow the receiver and signal generator to warm up for at least ten minutes before commencing the alignment procedure. Adjust the signal generator attenuator to maintain the output level below 0.5V during the following operations.

Resistors		
R1	1MΩ	E4
R2	22kΩ	E4
R3	22kΩ	E4
R4	100Ω	E4
R5	10kΩ	E4
R6	1·8MΩ	E4
R7	68kΩ	D3
R8	500kΩ	D3
R9	10MΩ	D3
R10	220kΩ	D3
R11	680kΩ	D3
R12	330Ω	D4
R13	220Ω	E4
R14	3kΩ	E4
R15	560Ω	A1
R16	100Ω	D4
R17	140Ω	A1
Capacitors		
C1	155pF	B2
C2	—	C1
C3	5pF	C1
C4	—	C2
C5	75pF	F4
C6	—	C2
C7	—	C1
C8	475pF	F3
C9	550pF	F4
C10	0·004μF	E4
C11	0·001μF	F4
C12	100pF	B1
C13	100pF	B1
C14	0·03μF	F4
C15	200pF	B1
C16	200pF	B1
C17	75pF	E3
C18	0·005μF	D3
C19	0·005μF	D3
C20	56pF	D4
C21	40μF	B2
C22	2,200pF	D4
C23	40μF	B2
C24	20μF	B2
C25	0·03μF	D3
Coils*		
L1	1·0	C2
L2	5·0	B2
L3	5·0	F4
L4	1·0	F4
L5	8·0	B1
L6	8·0	B1
L7	5·5	B1
L8	5·5	B1
L9	3·0	—
Miscellaneous*		
T1 {a	350·0	A2
T1 {b	—	A2
Thermistor	VA1010	D4
S1-S4	—	F3
S5, S6	—	D3

**Approximate D.C. resistance in ohms.*



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

7.—Disconnect the alignment link at point **X** (location reference C1). Connect the signal generator to point **X**.

8.—Switch the receiver to L.W. and tune it to 220kc/s. Feed in a 220kc/s signal and check that maximum output falls within the 220kc/s calibration block. If maximum output falls outside the calibration block, repeat operations 4 and 5. Then feeding in a 220kc/s signal, slide the former of **L2** (B2) along the ferrite rod for maximum output while rocking the tuning gang.

9.—Switch the receiver to M.W. and tune it to 580kc/s. Feed in a 580kc/s signal and slide the former of **L1** (C2) along the ferrite rod for maximum output while rocking the tuning gang.

10.—Tune the receiver to 1,500kc/s. Feed in a 1,500kc/s signal and adjust **C2** (C1) for maximum output.

11.—Repeat operations 9 and 10. Then reseal the formers of **L1** and **L2** by softening the retaining wax with a warm soldering iron.

12.—Reconnect the link at **X**.

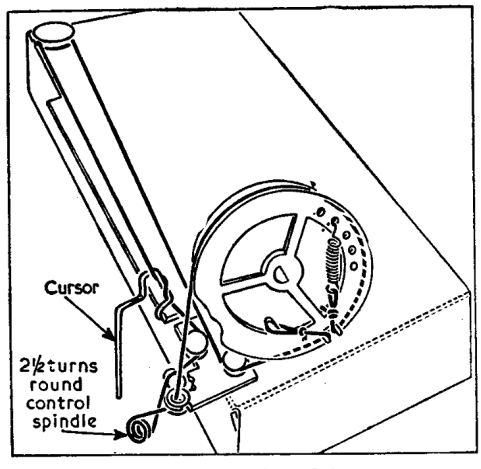
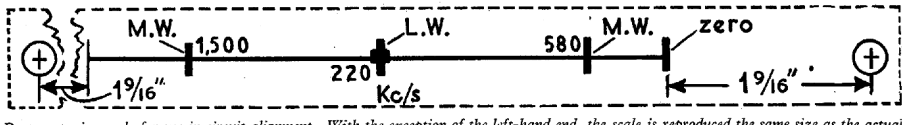


Diagram of the tuning drive system.

Valve		Anode (V)	Screen (V)	Cath. (V)
V1 UCH81	{a	74	—	—
	{b	210	72	—
V2 UBF89		210	72	—
V3 UCL83	{a	70	—	—
	{b	204	160	8.4
V4 UY85		*	—	220·0

**No reading quoted.*

Drive Cord Replacement.—About 35½in of nylon-braided glass yarn is required for a new tuning drive cord. It should be run as shown in the sketch of the tuning drive system at the top of this column, where it is drawn as seen with the gang at maximum capacitance.



Dummy tuning scale for use in circuit alignment. With the exception of the left-hand end, the scale is reproduced the same size as the actual tuning scale. The distances between the ends of the calibrated section and the centres of the control spindles are the same.