

# EKCO - U354

## VALVE ANALYSIS

Valve voltages and currents given in the table below are those derived from the manufacturers' information.

Valve	Anode		Screen		Cath. (V)
	V	mA	V	mA	
V1 UCC85					
a	164	7.5	—	—	1.65
b	151	5.0	—	—	—
V2 UF80	85	4.5	85	1.5	0.9
V3 UF80	60	2.0	60	1.0	1.0
V4 UABC80	75	0.45	—	—	—
V5 UL84	220	55.0	175	3.5	10.2
V6 UY85	228 <sup>1</sup>	—	—	—	230.0 <sup>2</sup>
T.I. DM70	80	0.15	—	—	—

<sup>1</sup>A.C. reading.

<sup>2</sup>Cathode current 98mA.

## Capacitors

C1	1,800pF	H4
C2	0.001μF	H4
C3	30pF	E3
C4	0.001μF	H4
C5	8.2pF	H4
C6	6pF	H4
C7	3pF	H4
C8	12pF	H5
C9	10pF	H5
C10	17pF	H5
C11	44pF	H5
C12	8.2pF	H5
C13	0.01μF	D2
C14	0.03μF	D2
C15	1,500pF	C2
C16	0.03μF	D2
C17	15pF	E3
C18	50pF	E3
C19	0.003μF	C2
C20	0.01μF	C2
C21	0.01μF	C2
C22	0.005μF	B2
C23	0.003μF	C1
C24	25pF	F3
C25	0.01μF	B2
C26	220pF	B2
C27	2μF	B2
C28	32μF	B1
C29	0.001μF	B2
C30	0.01μF	B2
C31	470pF	B2
C32	40μF	B2
C33	40μF	B2

## Resistors

R1	220Ω	H4
R2	1.5MΩ	E3
R3	1.5kΩ	E3
R4	1MΩ	H4
R5	4.7kΩ	E3
R6	150Ω	D2
R7	15kΩ	C2
R8	10kΩ	C2
R9	5.6kΩ	C2
R10	330Ω	C2
R11	62kΩ	C2
R12	100Ω	C2
R13	22kΩ	C2
R14	250kΩ	C2
R15	1MΩ	A1
R16	10MΩ	B2
R17	5kΩ	B2
R18	27kΩ	B2
R19	22kΩ	B2
R20	1MΩ	B1
R21	220kΩ	B2
R22	47kΩ	B2
R23	1MΩ	B2
R24	820Ω	B1
R25	820Ω	A2

R26	47kΩ	B2
R27	150Ω	B2
R28	33Ω	A1
R29	350Ω	G3
R30	300Ω	G3
R31	100Ω	G3

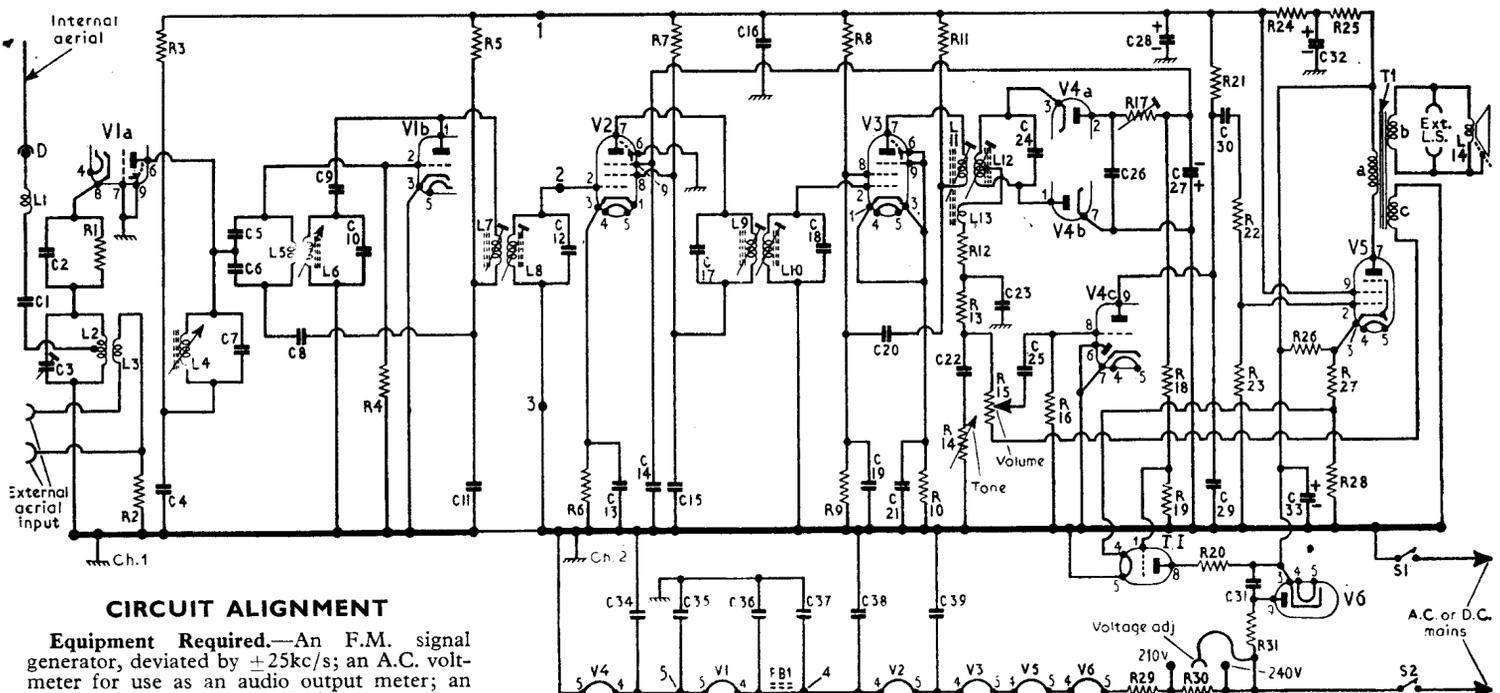
## Coils\*

L1	—	E3
L2	—	E3
L3	—	E3
L4	—	H4
L5	—	H5
L6	—	H5
L7	—	H5
L8	—	H5
L9	—	E3
L10	—	E3
L11	—	F3
L12	—	F3
L13	—	F3
L14	3.0	—

## Miscellaneous\*

T1	{ a 165.0	} A2
	{ b 0.35	
	{ c 0.23	
FB1	—	H4
S1, S2	—	A1

\*Approximate D.C. resistance in ohms.

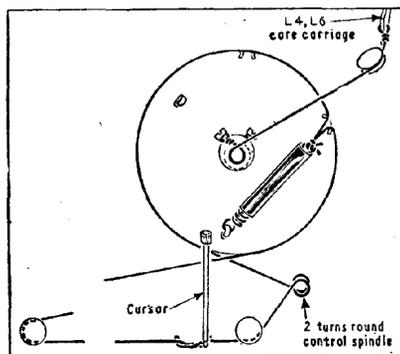


## CIRCUIT ALIGNMENT

**Equipment Required.**—An F.M. signal generator, deviated by  $\pm 25$ kc/s; an A.C. voltmeter for use as an audio output meter; an 0-50μA meter for use as a D.C. output meter; a matched pair of 220kΩ resistors; and a damping unit comprising a 4.7kΩ resistor and 0.001μF capacitor connected in series.

### I.F. Alignment

- 1.—Connect the matched pair of 220kΩ resistors in series across C27 (location reference B2). Connect the 0-50μA meter between chassis and the junction of the two 220kΩ resistors, and the signal generator to the control grid (pin 2) of V3.
- 2.—Tune the receiver to a point on the band free from any incoming signals and turn the volume control to maximum. Feed in an unmodulated 10.7Mc/s signal and adjust the core of L11 (F3) for maximum reading on the meter.
- 3.—Transfer the micro-ammeter chassis connection to the junction of R12, R13 (location reference C2). Feed in an unmodulated 10.7Mc/s signal and adjust the core of L12 (F3) for a zero reading on the meter. This will occur midway between a positive and negative peak.
- 4.—Repeat operations 2 and 3.
- 5.—Remove the 50μA meter and the two 220kΩ resistors. Connect the audio output meter across the external speaker sockets and transfer the signal generator to the control grid (pin 2) of V2.
- 6.—Connect the damping unit across L9. Feed in a 10.7Mc/s signal, deviated by  $\pm 25$ kc/s, and adjust the core of L10 (E3)



### Circuit Alignment—continued

- for maximum output, keeping the signal generator output as low as practicable. Transfer the damping unit to L10 and adjust L9 (E3) for maximum output.
- 7.—Remove the screening cover from the tuner unit. Transfer the signal generator to the junction of R3, C4 (location reference H4), taking care to use a blocking capacitor as this point is at H.T. potential. Transfer the damping unit to L7. Feed in a 10.7Mc/s signal, deviated by  $\pm 25$ kc/s, and adjust the core of L8 (H5) for maximum output. Then damp L8 and adjust L7 (H5) for maximum output.

### R.F. Alignment

- 1.—Check that with tuning control turned fully clockwise the carriage of L4, L6 cores is 1/32in from its fully open position, and that the cursor coincides with the datum marks at the right-hand end of the tuning scale. If necessary, the position of the core carriage may be adjusted by loosening the two screws on the drive drum and rotating it on its spindle.
- 2.—Connect the signal generator to the aerial socket, and the output meter across the external speaker sockets.
- 3.—Turn the volume control to maximum and tune the receiver to 92Mc/s. Feed in a 92Mc/s signal and adjust the cores of L6 (H5) and L4 (H4) for maximum output.
- 4.—Check that the calibration at 87Mc/s, 94Mc/s and 99Mc/s is within  $\pm 0.3$ Mc/s. Check that the oscillator is operating below the carrier frequency by tuning the receiver to 100Mc/s and identifying the image at 78.6Mc/s.
- 5.—Disconnect the signal generator and connect the internal aerial. Tune the receiver to a transmission and adjust the aerial trimmer C3 (E3), if fitted, for maximum output.

**Cursor Drive Cord Replacement.**—A length of nylon cord approximately 36in long is required for a new cursor drive cord.

**Tuner Drive Cord Replacement.**—A length of nylon cord about 8½in long is required.