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EKCO SERVICE DATA

MODEL U245

See also Service News Sheets Nos :

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MODEL U245 is a five-valve (including rectifier) superheterodyne receiver, designed for operation on the medium and long wavebands. Features include a built-in Ferrite rod aerial for use on both wavebands and provision for the connection of an external aerial/earth system.

The receiver is contained in a "mulberry" colour plastic cabinet and operates from either A.C. or D.C. mains.

MAINS SUPPLY

200-220 volts and 230-250 volts D.C. or 25-100 c/s. A.C. Internal adjustment to suit the local mains supply is made by repositioning a single lead on the mains resistor.

MAINS CONSUMPTION

40 watts (approximately).

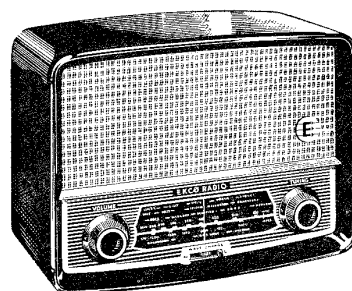
WARNING. As is customary with A.C./D.C. receivers the chassis is "live" to one side of the mains, and care must be taken before handling an exposed chassis, to ensure that it is connected to the "earthed" side of the supply. Test with a neon lamp and insulated leads between chassis and a good earth. If the lamp glows, reverse the mains plug. The chassis will be "live" on an earthed positive D.C. supply.

CONTROLS

Front (left) VOLUME—ON/OFF.
Front (right) TUNING.
Centre (below scale) WAVEBAND LEVER.

VALVES

V1 UCH42 Frequency Changer.
V2 UF41 I.F. Amplifier.
V3 UBC41 Detector, A.V.C., A.F. Amplifier.
V4 UL41 A.F. Output
V5 UY41 H. T. Rectifier.
All valves are MULLARD and have B8A bases.



WAVEBAND COVERAGE

M.W.	1560-530 Kc/s.	192-566 metres.
L.W.	305-142 Kc/s.	983-2112 metres.

INTERMEDIATE FREQUENCY 470 Kc/s.

L.S. IMPEDANCE

3 ohms at 400 c/s. The speaker fitted is a 7 inch by 4 inch elliptical type.

OUTPUT. Approximately 1 watt.

CIRCUIT DETAILS

Signals from the external aerial pass via C1, the aerial coils, and coupling capacitor C4 to the frequency changer grid. On L.W. L9 and L10 are in series whilst on M.W., L10 is short circuited by the switch SW3. The Ferrite rod passing through the aerial coils, acts as an internal aerial and gives an adequate signal input to the grid of V1 on either band in areas of reasonable field strength. R15 is fitted to minimise modulation hum when an external aerial is connected.

Conventional H.F. type transformers are used in the oscillator circuit, the appropriate coil being selected by a switch SW4 and connected to the grid circuit of the triode (V1).

The resultant I.F. signal at the mixer anode is then fed via the first I.F. transformer L1.L2 to V2, amplified by this pentode valve, and passed via the second I.F. transformer L3.L4 to one diode of V3 for demodulation.

From the diode load R5.R4, the A.F. component is fed via C17 to the triode section of V3, amplified and subsequently passed to the grid of a pentode output stage V4 for final amplification.

A.V.C. voltage is developed by coupling a part of the signal from V2 anode circuit via C16 to the remaining diode of V3, the rectified output being filtered by R8 and C19 and fed back to the grids of V1 and V2. Delay volts are obtained via R7 from the centre tap of the two bias resistors R17 and R18. A standing bias is also applied to the output stage via R14.

POWER SUPPLIES

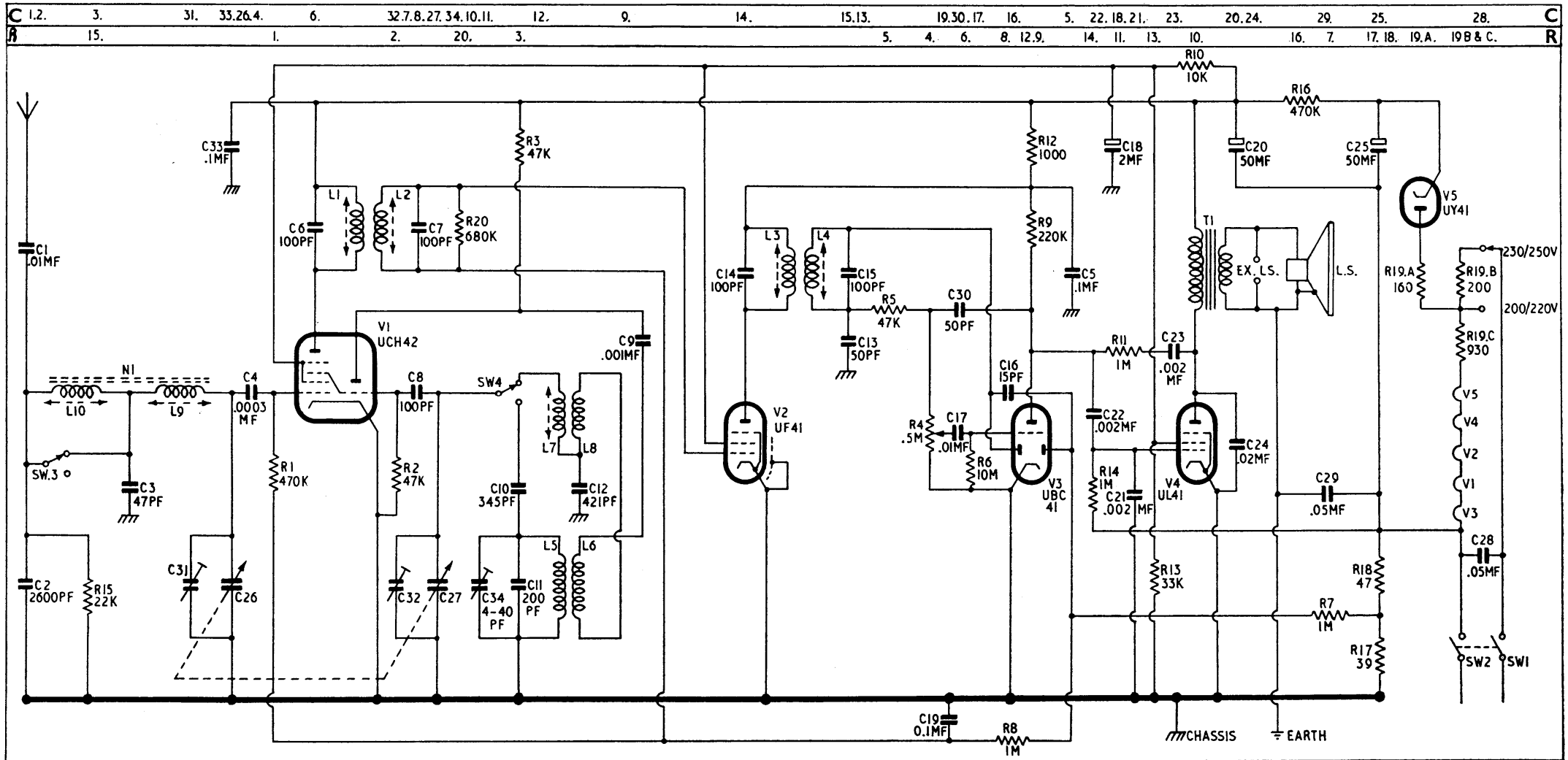
H.T. is obtained from a half wave rectifier V5, the D.C. output from which is smoothed by C25, R16 and C20. Additional smoothing of the H.T. feed to the valve screens is provided by R10 and C18.

The series heater chain is connected between the ballast resistor R19 and one side of the mains input, the other side of the mains being taken to one of two taps provided on the resistor, according to the local supply voltage.

CHASSIS REMOVAL

Disconnect the mains supply.
Slacken the grub screws in the control knobs and remove the knobs. Remove the back cover held by 5 screws. From under the cabinet, remove the two plinths held by two PK screws each, then remove four chassis securing screws thus exposed.

Withdraw chassis to the extent of the loud-speaker leads. The plinths must be replaced when the chassis is refitted.



DRIVE CORD

Before fitting a new drive cord, details of which are shown in the diagrams, the cord should be stretched for about 24 hours to prevent slack drive developing after a short period of use.

POINTER SETTING

With the tuning capacitors fully closed, the pointer should coincide with the small marks at the right-hand end of the scales. To adjust, slide the pointer along the cord as necessary.

ALIGNMENT

I.F. Fully mesh the tuning capacitors by turning the control knob fully clockwise. Switch to M.W. and set V/Control to maximum. Connect an output meter across the loud-speaker tags. Inject a 470 Kc/s. signal (mod. 30 per cent), via a 0.1 mf. capacitor to pin 6 of V1.

Align cores of L4.L3.L2 and L1, in that order for maximum response.

Check for symmetry and centre frequency, and readjust slightly if necessary.

Tolerance for symmetry and centre frequency is ± 0.5 Kc/s.

R.F. Input modulated 30 per cent. at 400 c/s. to A and E sockets via a standard dummy aerial.

SWITCH TO M.W. Tune to 1200 Kc/s. and inject a signal at the same frequency, then adjust C32 for calibration.

Tune to 1333 Kc/s. and inject a signal at the same frequency, then adjust C31 for maximum output.

Tune to 600 Kc/s. and inject a signal at the same frequency. Adjust L7 core and the position of L9 on the Ferrite rod, for maximum response.

Recheck calibration at 1200, 857.1 and 600 Kc/s., then repeat the above procedure, if necessary.

SWITCH TO L.W. Tune to 187.5 Kc/s. and inject a signal at the same frequency, then adjust position of L10 on Ferrite rod, for maximum response. In models with C34 fitted, adjust this trimmer at 187.5 Kc/s. for calibration.

Check calibration at 166.7 and 250 Kc/s.

Switch to M.W. and readjust L9 on Ferrite rod at 600 Kc/s., if necessary.

VOLTAGE AND CURRENT DATA

Valve	Anode		Screen		Cathode	
	V	m.A	V	m.A	V	m.A
V1 (Mixer)	170	1.7	72	2.9	—	—
V1 (Osc.)	55	2.3	—	—	—	—
V2 (I.F. Amp.)	165	3.8	72	1.1	—	—
V3 (A.F. Amp. Det.)	78	0.4	—	—	—	—
V4 (Output)	157	27	72	3.7	—	—
V5 (Rectifier)	205 (A.C.) 62		—	—	190	45

OTHER VOLTAGES : Bias voltage (total) 3.8 volts ; Bias voltage (tap) 1.7 volts ; H.T. (unsmoothed) 190 volts ; H.T. (smoothed) 170 volts. Operating conditions ; Receiver quiescent at 1 Mc/s. (Volume control at minimum), with 240V A.C. input. All voltages are with respect to the chassis and measured with a 20,000 ohms/volt meter.

VALVE BASE DATA

Valve	1	2	3	4	5	6	7	8	Base
UCH42 V1	H	A	OA	OG	G2.G4	G1	K	H	B8A
UF41 V2	H	A	K.G3	—	G2	G1	K	H	B8A
UBC41 V3	H	A	G1	I.S	D	D	K	H	B8A
UL41 V4	H	A	K.G3	—	G1	G1	K.G3	H	B8A
UY41 V5	H	A	—	—	—	—	K	H	B8A

D.C. RESISTANCE OF WINDINGS

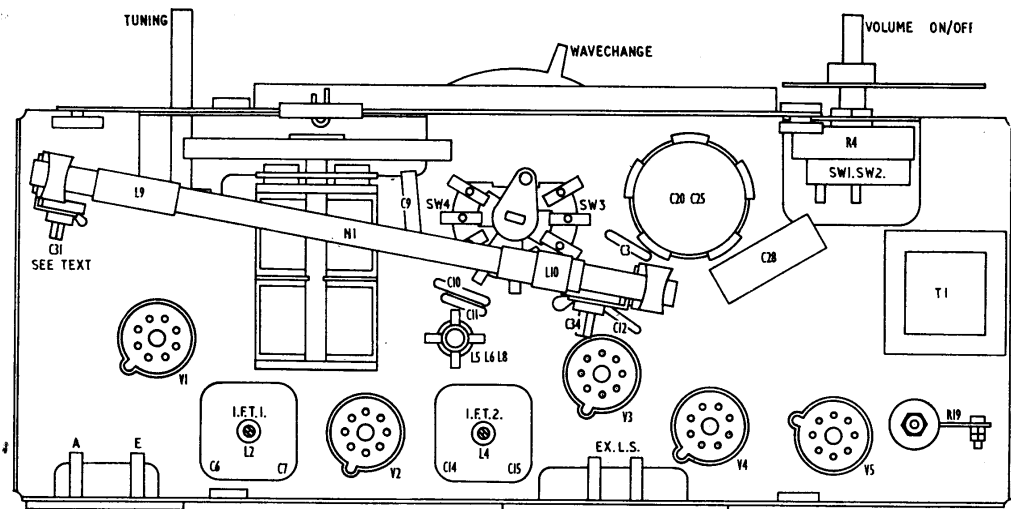
Winding	Ohms	Part No.
L1	11.5	SA5062
L2	11.5	
L3	11.5	SA5062/1
L4	11.5	
L5	6.3	DP21864/1
L6	3.2	
L7	3.4	DP21864/1
L8	1.5	
L9	1.4	DP22998
L10	3.5	DP22999
T1 pri.	430	SA5377/1

T1 Sec. Less than 1 ohm.

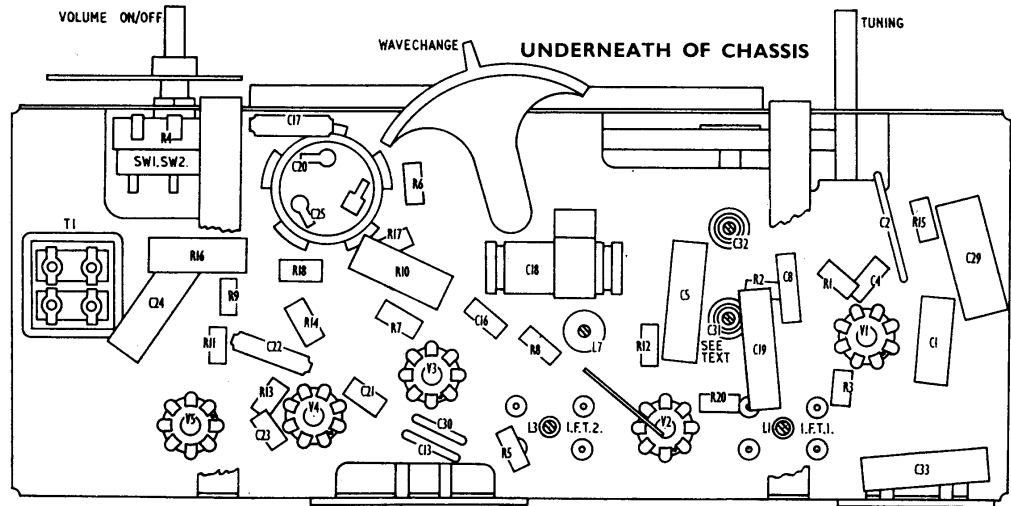
SERVICE NOTES

ALTERNATIVE POSITION OF C31 TRIMMER

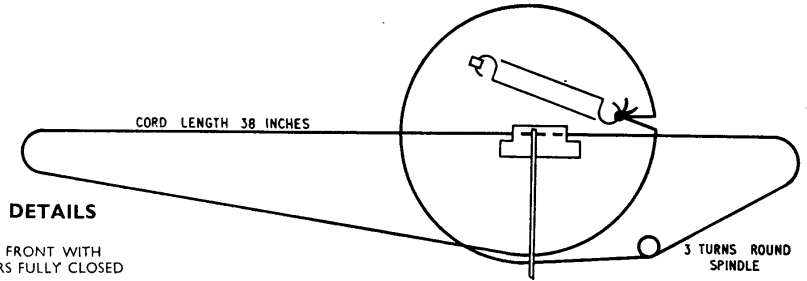
In early models the tuning capacitor has only one trimmer (C32), the other trimmer (C31) being positioned on the Ferrite rod supporting bracket. Later models will, however, have both these trimmers situated on the tuning capacitor itself.



TOP OF CHASSIS

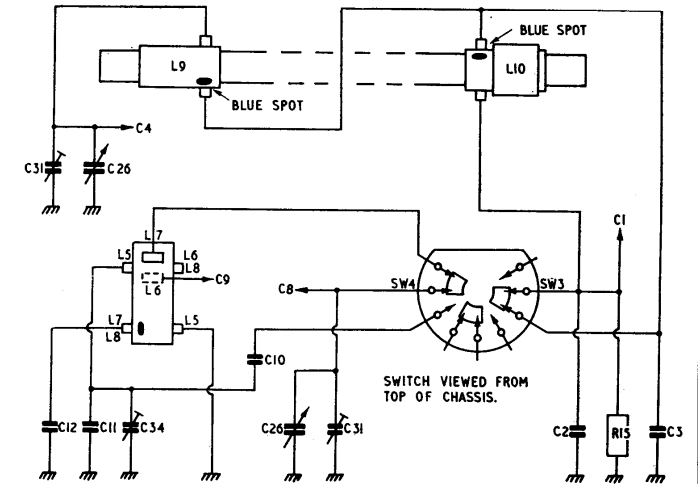


UNDERNEATH OF CHASSIS



DRIVE CORD DETAILS

VIEWED FROM THE FRONT WITH TUNING CAPACITORS FULLY CLOSED



SWITCHING AND COIL WIRING DIAGRAM

SERVICE DEPT., E. K. COLE Ltd.,
Somerton Works, Arterial Road,
Southend-on-Sea
'Phone: Southend 42296
Head Office: Ekco Works, Southend-on-Sea

SCOTTISH SERVICE DEPOT:
17, Cadogan Street,
Glasgow, C.2.
'Phone: Central 3633/4

NORTHERN SERVICE DEPOT:
55, Whitworth Street,
Manchester, 1
'Phone: Central 6711/2

MIDLAND SERVICE DEPOT:
11, Brook Street,
Birmingham, 3
'Phone: Central 2505/6