

# ULTRA - U626

## Troubadour

### CIRCUIT ALIGNMENT

The chassis should be removed from its cabinet for alignment operations.

**I.F. Stages.**—Switch set to M.W., turn gang and volume controls to maximum, connect signal generator (with a suitable capacitor in each lead) to tag 4 (red lead) on back cover. Feed in a 465 kc/s (645.16 m) signal, and adjust the cores of **L9**, **L8**, **L7**, and **L6** (location references C2, E4, A2 and F4) for maximum output. The makers suggest that the I.F. stages be aligned at 470 kc/s (638.3 m) when the Copenhagen Plan comes into effect.

**R.F. and Oscillator Stages.**—With the gang at maximum capacitance the cursor should be vertical and coincident with the last dot at the high wavelength end of the tuning scale. It may be adjusted in position by sliding the cursor carriage along the drive cord. For the R.F. adjustments a coil should be made up as follows for connection to the signal generator: Wind 13½ turns of 18 S.W.G. enamelled wire on to a former of ¼ in diameter for a length of 1½ in. It should be placed approximately 6 in from the frame aerial of the receiver.

**M.W.**—With the set still switched to M.W., connect coil to signal generator output and tune receiver to 200 m (dot on scale), feed in a 200 m (1,500 kc/s) signal and adjust **C26** (B2) for maximum output. Tune to 500 m (dot on scale), feed in a 500 m (600 kc/s) signal, and adjust **C25** (A2) for maximum output. Repeat these adjustments rocking the gang slightly for optimum results.

**L.W.**—(These adjustments should always be made after the M.W. alignment.) Switch set to L.W., tune to 1,362 m (dot on scale), feed in a 1,362 m (220 kc/s) signal, and adjust **C24** and **C22** (A1) for maximum output.

**Drive Cord Replacement.**—About four feet of Nylon braided glass yarn is required for a new drive cord. Its course is shown clearly in our front view of the chassis.

**Chassis Modification.**—Although most of these receivers are fitted with the Mazda 10L D11 valve in **V3** socket, a number have gone out with the Mullard UBC41. These valves are quite satisfactory alternatives, but two circuit changes are required when substituting one for another. Our chassis had the Mazda valve, and the appropriate components are quoted in this *Service Sheet*, but when the Mullard valve is used **R10** must be changed to 330 kΩ and **R8** is shunted by **R17**, which we show dotted in our circuit diagram.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 10C1	180 Oscillator	1.3 2.0	45	3.7	—
V2 10F9	180	3.5	45	1.1	—
V3 10L D11	32	1.3	—	—	—
V4 10P13	205	25.0	180	5.0	8.5
V5 U404	205†	—	—	—	213.0

† A.C. Cathode Current 43mA.

RESISTORS		Values	Locations
R1	V1 hept. C.G. ...	470kΩ	G4
R2	V1 osc. C.G. ...	47kΩ	G4
R3	L.W. damper ...	1.8kΩ	A1
R4	Osc. anode load ...	68kΩ	G4
R5	V1, V2 S.G. decoup. ...	27kΩ	G4
R6	A.G.C. decoupling ...	1MΩ	E4
R7	I.F. stopper ...	100kΩ	D4
R8	Volume control ...	1MkΩ	C2
R9	V3 triode C.G. ...	4.7MΩ	D4
R10	V3 triode load ...	100kΩ	D4
R11	V4, C.G. ...	330kΩ	D4
R12	V4, G.B. resistor ...	300Ω	D4
R13	Surge limiter ...	120Ω	E3
R14	Smoothing resistor ...	1.8kΩ	D4
R15	Lamp shunt ...	38Ω	C2
R16	Heater ballast ...	910kΩ†	B1
R17	Diode load* ...	180kΩ	C2

\* Used only when V3 is Mullard UBC41. † Tapped at 700Ω + 120Ω + 90Ω from V5 heater.

### CAPACITORS

		Values	Locations
C1	L.W. fixed trim. ...	170pF	A1
C2	V1, hept. C.G. ...	390pF	A2
C3	1st I.F. transformer	120pF	A2
C4	tuning ...	120pF	A2
C5	V1, osc. C.G. ...	120pF	F4
C6	L.W., M.W., fixed tracker ...	570pF	A2
C7	L.W. fixed trim. ...	520pF	A2
C8	A.G.C. decoupling ...	0.05μF	F4
C9	Osc. anode coup. ...	120pF	G4
C10	V1, V2 S.G. decoup. ...	0.05μF	F4
C11	2nd I.F. transformer	100pF	C2
C12	tuning ...	100pF	C2
C13	I.F. by-passes ...	200pF	D4
C14	I.F. by-passes ...	100pF	C2
C15	H.T. R.F. by-pass ...	0.05μF	E4
C16	A.F. coupling ...	0.01μF	D4
C17	Mains R.F. by-pass ...	0.01μF	F3
C18	Tone corrector ...	0.01μF	D3
C20*	H.T. Smoothing ...	24μF	A2
C21*	H.T. Smoothing ...	16μF	A2
C22†	Aerial L.W. trim. ...	55pF	A1
C23†	Aerial tuning ...	\$528pF	A1
C24†	Osc. L.W. trim. ...	55pF	A1
C25†	Osc. L.W., M.W., track ...	55pF	A2
C26†	Osc. M.W. trim. ...	55pF	B1
C27†	Oscillator tuning ...	\$528pF	A2

\* Electrolytic. † Variable. ‡ Pre-set.  
§ "Swing" Value, min. to max.

### OTHER COMPONENTS

		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	1-1	On back cover
L2	L.W. frame aerial...	1-9	
L3	L.W. loading coil...	12-0	
L4	Osc. coupling coil...	3-0	G4
L5	Osc. tuning coil ...	3-3	G4
L6	1st I.F. trans. { Pri. ...	7-0	A2
L7		7-0	A2
L8	2nd I.F. trans. { Pri. ...	10-0	C2
L9		10-0	C2
L10	Speech coil ...	2-5	—
T1	Output trans. { Pri: (a) ...	20-0	C2
	{ Sec: (b) ...	380-0	
S1-S7	Waveband switches	0-2	A1
S8, S9	Mains sw., g'd. R5	—	C2

Intermediate frequency 465 kc/s (or 470 kc/s).

