

ULTRA - U696

Troubadour

CAPACITORS		Value	Locations
C1	Aerial series ...	15pF	—
C2	L.W. trimmer ...	220pF	F2
C3	V1 C.G. ...	500pF	F3
C4	1st I.F. trans. tuning ...	120pF	A1
C5	V1 osc. C.G. ...	100pF	F2
C6	A.G.C. decoupling ...	0.04μF	F3
C7	L.W. trimmer ...	640pF	E2
C8	Osc. anode coup. ...	100pF	A1
C9	Osc. tracker ...	680pF	F2
C10	S.G. decoupling ...	0.04μF	F3
C11	2nd I.F. trans. tuning ...	120pF	B1
C12	I.F. by-passes ...	100pF	E2
C13	A.F. coupling ...	0.01μF	D2
C14	A.F. coupling ...	0.01μF	E3
C15	Tone corrector ...	0.01μF	C1
C16	H.T. smoothing ...	32μF	B1
C17	H.T. smoothing ...	32μF	B1
C18	Mains R.F. filtering ...	0.05μF	D3
C19	M.W. aerial trim. ...	30pF	A1
C20	Aerial tuning ...	\$528pF	A1
C21	M.W. osc. trim. ...	60pF	E2
C22	L.W. osc. trim. ...	60pF	E2
C23	Oscillator tuning ...	\$528pF	A1

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

RESISTORS		Values	Locations
R1	V1 C.G. ...	1MΩ	F3
R2	V1 osc. C.G. ...	47kΩ	F3
R3	Osc. stabiliser ...	3.3kΩ	F2
R4	Osc. anode feed ...	68kΩ	F3
R5	S.G. feed ...	27kΩ	E3
R6	A.G.C. decoupling ...	1MΩ	E2
R7	Diode load ...	470kΩ	E2
R8	I.F. stopper ...	100kΩ	E2
R9	Volume control ...	1MΩ	D2
R10	V3 C.G. ...	10MΩ	E2
R11	V3 anode load ...	100kΩ	E3
R12	V4 C.G. ...	470kΩ	E3
R13	V4 G.B. ...	300Ω	E3
R14	H.T. smoothing ...	1.8kΩ	C1
R15	Scale lamp shunt ...	39Ω	D2
R16	V5 surge limiter ...	120Ω	C1
R17	Ballast resistor ...	*910Ω	C1

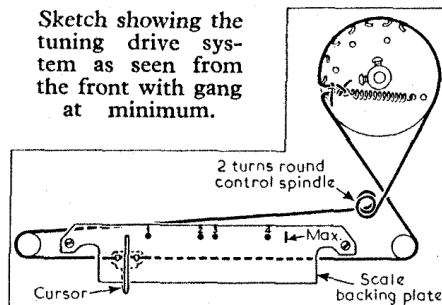
* Tapped at 700Ω + 120Ω + 90Ω from V5 heater.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial ...	1-2	—
L2	L.W. loading coil ...	9-0	F2
L3	M.W. loading coil ...	0.5	F2
L4	Osc. reaction coil ...	1-7	F2
L5	Osc. tuning coil ...	4-6	F2
L6	1st I.F. trans. { Pri. ...	8-5	A1
L7	1st I.F. trans. { Sec. ...	8-5	A1
L8	2nd I.F. trans. { Pri. ...	8-5	B1
L9	2nd I.F. trans. { Sec. ...	8-5	B1
L10	Speech coil ...	2-6	—
T1	O.P. trans. { Pri. ...	270-0	C1
S1-S4	Waveband switches	—	F2
S5, S6	Mains sw., g'd R9	—	D2

CIRCUIT ALIGNMENT

The chassis should be withdrawn from the cabinet for the following alignment adjustments and with the frame aerial still connected, the back cover should be placed in its normal position relative to the chassis. The output of the

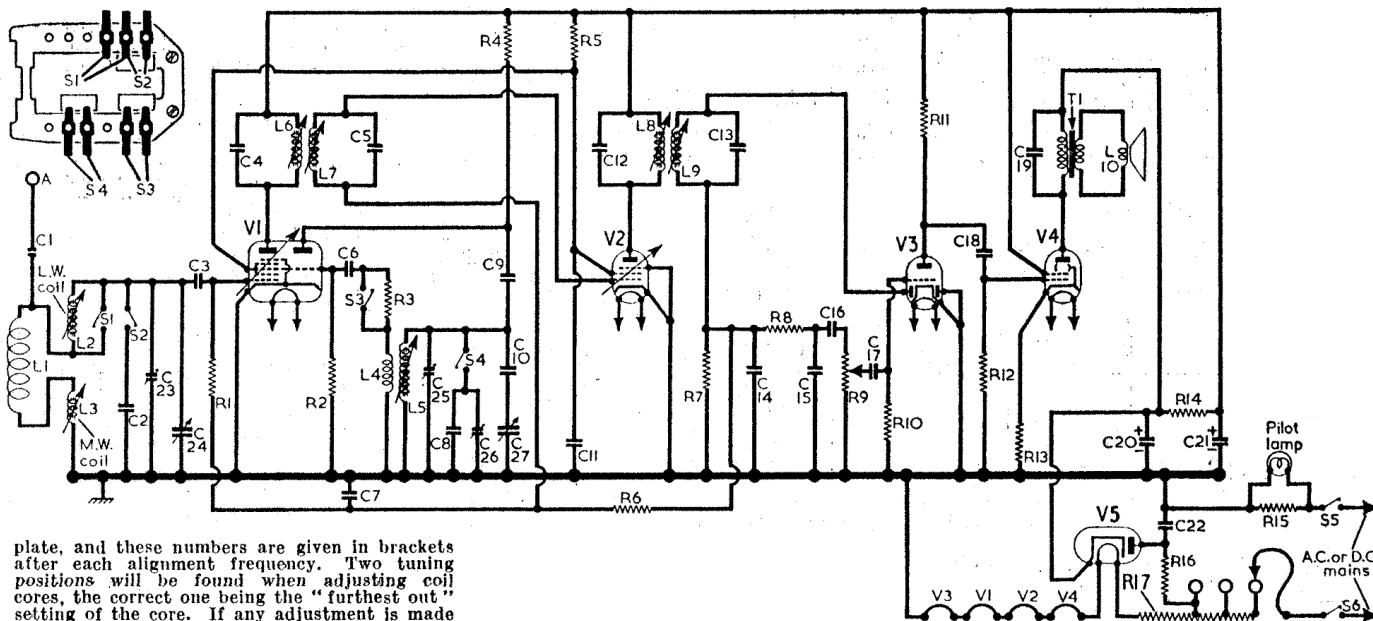
Sketch showing the tuning drive system as seen from the front with gang at minimum.



signal generator should be connected to a coil consisting of 14 turns of 18 s.w.g. enamelled copper wire wound on a 1/4 in former to a length of 1 1/4 in, and placed about 6 in from the frame aerial.

I.F. Stages.—Switch receiver to M.W. and turn gang to maximum. Feed in a 471 kc/s (637 m) signal and adjust the cores of L9 (location reference B1), L8 (E2), L7 (F3) and L6 (A1) for maximum output.

R.F. and Oscillator Stages.—Check that with the gang at maximum capacitance the cursor coincides with the vertical mark at the right-hand end of the red scale backing plate. As the tuning scale remains fixed in the cabinet when the chassis is removed, reference is made during alignment to numbered calibration points along the top edge of the scale backing



plate, and these numbers are given in brackets after each alignment frequency. Two tuning positions will be found when adjusting coil cores, the correct one being the "furtherst out" setting of the core. If any adjustment is made to the M.W. trimmers or to the oscillator core then the L.W. band must be realigned.

M.W.—With the receiver switched to M.W., tune to 500 m (4 on scale), feed in a 500 m (600 kc/s) signal and adjust the cores of L5 (F2) and L3 (F2) for maximum output. If a signal generator with an accuracy within ±1 kc/s is not available for the above adjustment of L5, the receiver should be tuned to calibration mark 4 and L5 should be adjusted while rocking the tuning control of the signal generator about 500 m for maximum output.

The calibration of the receiver should then be checked on a station of known wavelength near 500 m, and if the cursor is to the right of the correct position the core of L3 should be screwed in by one turn, and if to the left the core should be screwed out by one turn, and the above procedure repeated. Tune receiver to 200 m (1 on scale), feed in a 200 m (1.500 kc/s) signal and adjust C25 (E2) and C23 (A1) for maximum output. Repeat these adjustments.

L.W.—Switch receiver to L.W., tune to 1.429 m (2 on scale), feed in a 1.429 m (210 kc/s) signal and adjust C26 (E2) and the core of L2 (F3) for maximum output.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 10C1	175	1.3	40	4.0	—
	24	1.8	—	—	—
V2 10F9	175	3.5	40	1.0	—
V3 10LD11	33	1.4	—	—	—
V4 10P13	202	25.0	175	5.0	8.5
V5 U404	†202	—	—	—	210.0

† Each anode, A.C.

Drive Cord Replacement.—About three feet of nylon braided glass yarn is required for a new drive cord, although a few inches more would provide a more comfortable margin for tying off. The cord should be run as shown in the accompanying sketch, where the system is drawn as seen from the front with the gang at minimum capacitance.

The cursor can be fitted afterwards, and with the gang at maximum capacitance it should be

slid along the cord until it covers the short vertical line at the right-hand end of the scale backing plate, which is the correct position of alignment.

Frame Winding.—L1 is wound on the back cover of the receiver, and is terminated at two small sockets on a small terminal strip which also carries the external aerial socket. A third small socket is used as an anchorage for the isolating capacitor C1, and is joined to the upper of these two small sockets which are coded red (upper) and white (lower) to agree with their connecting leads from the chassis.