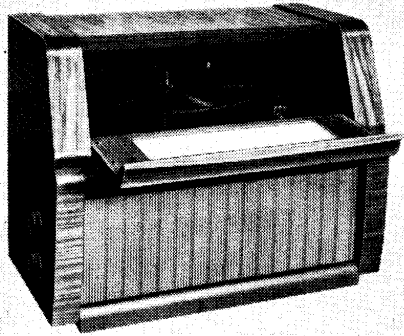


"TRADER" SERVICE SHEET
1125

REGENTONE MULTI 99



Appearance of the Multi 99 table model.

GENERAL NOTES

Switches.—S1-S17 are the waveband/gram switches, ganged in two rotary units above the chassis. These units are indicated in our plan view of the chassis and shown in detail in the diagram overleaf (col. 1), where they are drawn as seen from the mains transformer end of an upright chassis. The associated switch table in the col. 3 overleaf, shows the operations for the four control settings, starting with the control knob fully anti-clockwise.

Pilot Lamp.—A 6.5 V, 0.3 A lamp with a tubular bulb and an M.E.S. base is used to illuminate the scale and the gram compartment.

Gram Unit.—This comprises a B.S.R. 3-speed "Monarch" non-mixer record changer, which takes up to ten 7in, 10in or 12in records. The pick-up is a crystal type using a dual turn-over head for standard and L.P. operation.

Modification.—In some receivers a Mullard diode pentode valve EAF42 may be used instead of an EF41 for V2, its diode anode being strapped to cathode.

Drive Cord Replacement.—About 5½ feet of nylon-braided glass yarn is required for a new drive cord which should be run as shown in the

sketch overleaf (col. 1) with the gang at minimum capacitance. The scale backing plate should be released from the scale assembly by removing six self-tapping Phillips-head screws from its top and side edges, and two counter-sunk self-tapping screws from its underside edge.

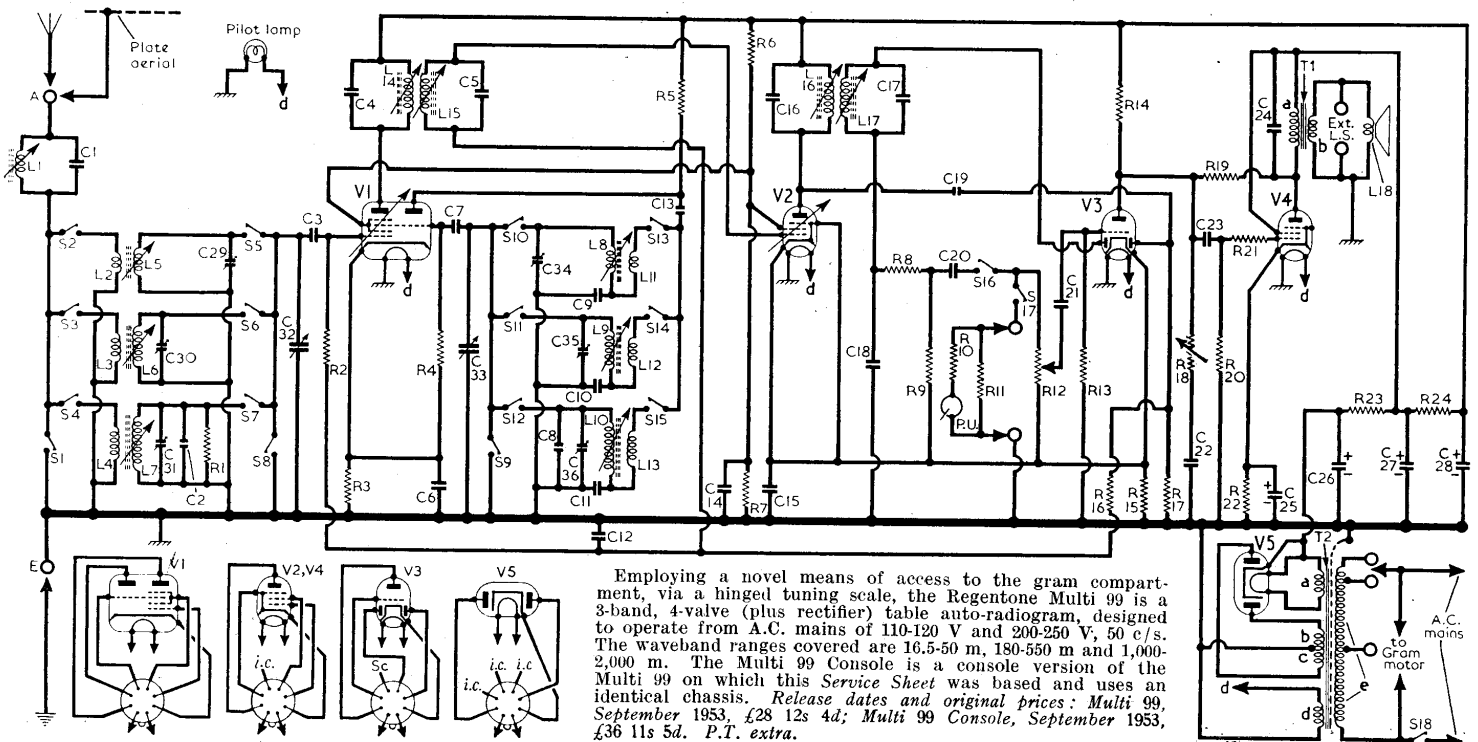
COMPONENTS & VALUES

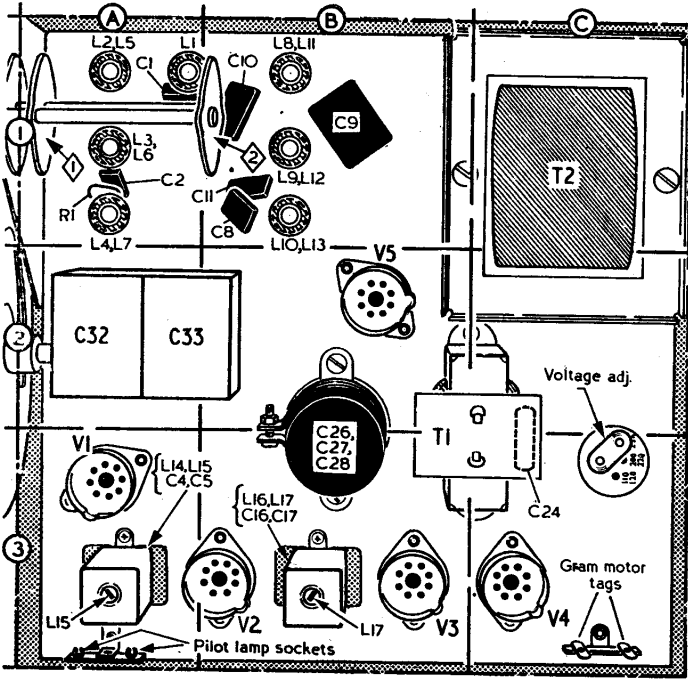
CAPACITORS		Values	Locations
C1	I.F. filter ...	0.001µF	A1
C2	L.W. aerial trim. ...	20pF	A1
C3	V1 C.G. ...	200pF	D5
C4	1st I.F. trans. tuning ...	100pF	A3
C5		100pF	A3
C6	V1 cath. by-pass ...	0.1µF	D4
C7	V1 osc. C.G. ...	100pF	D5
C8	L.W. osc. trim. ...	65pF	B1
C9	S.W. osc. tracker...	1,500pF	B1
C10	M.W. osc. tracker...	500pF	B1
C11	L.W. osc. tracker...	150pF	B1
C12	A.G.C. decoupling	0.1µF	D6
C13	Osc. anode coupling	65pF	D5
C14	S.G. decoupling ...	0.1µF	D5
C15	G.B. by-pass ...	0.1µF	E4
C16	2nd I.F. trans. tuning ...	100pF	B3
C17		100pF	B3
C18	I.F. by-pass ...	200pF	E4
C19	A.G.C. coupling ...	35pF	E4
C20	A.F. coupling ...	0.001µF	E5
C21		0.005µF	E4
C22	Part tone control...	0.01µF	F6
C23	A.F. coupling ...	0.02µF	F5
C24	Tone correction ...	0.002µF	F3
C25*	V4 cath. by-pass ...	25µF	F4
C26*	H.T. smoothing ...	16µF	B2
C27*		32µF	B2
C28*	8µF	B2	
C29†	S.W. aerial trim. ...	—	D6
C30†	M.W. aerial trim. ...	—	D6
C31†	L.W. aerial trim. ...	—	D6
C32†	Aerial tuning ...	—	A2
C33†	Oscillator tuning ...	—	A2
C34†	S.W. osc. trim. ...	—	E6
C35†	M.W. osc. trim. ...	—	E6
C36†	L.W. osc. trim. ...	—	E6

RESISTORS		Values	Locations
R1	L.W. aerial shunt...	100kΩ	A1
R2	V1 C.G. ...	330kΩ	D4
R3	V1 G.B. ...	330Ω	D5
R4	V1 osc. C.G. ...	47kΩ	D5
R5	Osc. anode feed ...	33kΩ	D4
R6	S.G. H.T. potential divider ...	15kΩ	E4
R7		18kΩ	E4
R8	I.F. stopper ...	47kΩ	E4
R9	Signal diode load...	270kΩ	E4
R10	P.U. filter ...	470kΩ	—
R11		270kΩ	—
R12	Volume control ...	1MΩ	F6
R13	V3 C.G. ...	2.2MΩ	E4
R14	V3 anode load ...	220kΩ	E4
R15	V2, V3 G.B. ...	270Ω	E4
R16	A.G.C. decoupling	1.2MΩ	E4
R17	A.G.C. diode load...	1.2MΩ	E4
R18	Tone control ...	250kΩ	F6
R19	Neg. feed-back ...	1.2MΩ	F4
R20	V4 C.G. ...	470kΩ	F5
R21	V4 C.G. stopper ...	10kΩ	F4
R22	V4 G.B. ...	180Ω	F4
R23	H.T. smoothing ...	1kΩ	F5
R24		1kΩ	E5

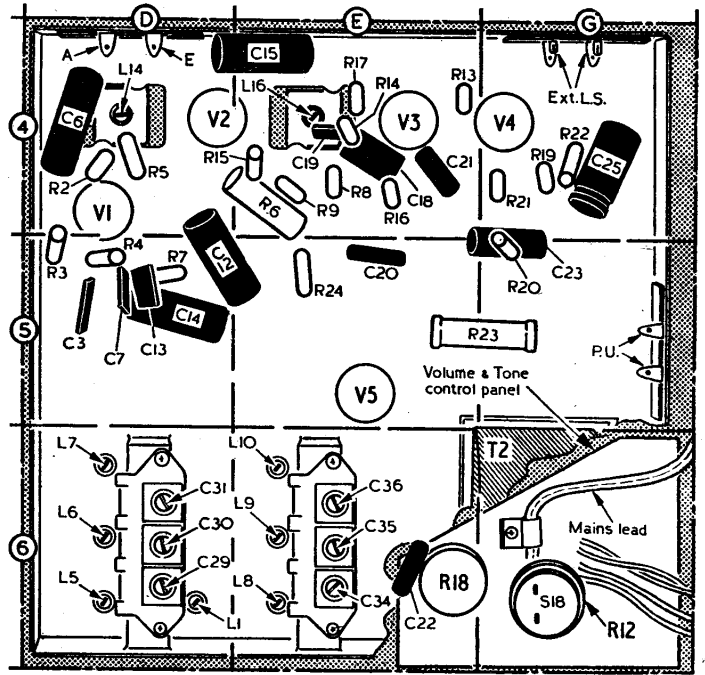
OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	I.F. filter coil ...	2.2	A1
L2	Aerial coupling coils ...	0.3	A1
L3		2.25	A1
L4		9.0	A1
L5	—	—	A1
L6	Aerial tuning coils	3.0	A1
L7		25.0	A1
L8	Oscillator tuning coils	3.5	B1
L9		10.5	B1
L10	Oscillator reaction coils	0.4	B1
L11		1.5	B1
L12		3.7	B1
L13	1st I.F. trans. {Pri. Sec.}	11.0	A3
L14		11.0	A3
L15	2nd I.F. trans. {Pri. Sec.}	11.0	B3
L16		11.0	B3
L17	Speech coil ...	2.5	—
L18	—	—	—
T1	O.P. trans. {a b}	550.0	C2
T2		Mains trans. {a b c d, total}	0.6
	275.0		C1
	275.0		C1
	0.3		—
S1-S17	Waveband/gram sw. ...	—	A1
S18	Mains sw., g'd R12	—	B1

* Electrolytic. † Variable. ‡ Pre-set.





Left: Plan view of chassis.



Right: Under-chassis view as seen when chassis is lifted and pivoted forward on its front edge.

DISMANTLING

- Removing Chassis.—Unplug the pick-up, plate aerial and pilot lamp leads from the chassis; unsolder gram motor leads from tag panel on right-hand rear corner of chassis; remove two 2BA round-head screws with washers from the sides of the gram motor shelf and slide shelf and motor rearwards out of cabinet;
- remove two wood screws securing volume and tone control panel to baffle;
- remove hexagon-head self-tapping chassis screw from base of cabinet;
- remove two Phillips-head wood screws securing baffle to front of cabinet and withdraw chassis complete with baffle.

CIRCUIT ALIGNMENT

The trimmers and core adjustments can be made accessible by removing the cabinet base and back covers (total of eight Phillips screws).

I.F. Stages.—Switch receiver to M.W. and turn gang to maximum capacitance. Connect output of signal generator, via an 0.1 μ F capacitor in "live" lead, to control grid (pin 6) of V1 and chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of L17 (location reference B3), L16 (E4), L15 (A3) and L14 (D4) for maximum output. Repeat these adjustments until no further improvement results.

I.F. Rejector.—Transfer signal generator leads to A and E sockets, and feeding in a strong 470 kc/s signal, adjust the core of L1 (D6) for minimum output.

R.F. and Oscillator Stages.—Connect output of signal generator, via a dummy aerial, to A and E sockets. Check that with the gang at maximum capacitance, the cursor coincides with the dots at the ends of the tuning scales and with the 100 mark on the "Station Guide" scale.

L.W.—Switch receiver to L.W., tune to 1,875 m, feed in a 1,875 m (160 kc/s) signal and adjust the cores of L10 (E6) and L7 (D6) for maximum output. Tune receiver to 1,000 m, feed in a 1,000 m (300 kc/s) signal and adjust C36 (E6) and C31 (D6) for maximum output.

M.W.—Switch receiver to M.W., tune to 521.7 m, feed in a 521.7 m (575 kc/s) signal and adjust the cores of L9 (E6) and L6 (D6) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C35 (E6) and C30 (D6) for maximum output.

S.W.—Switch receiver to S.W., tune to 40 m, feed in a 40 m (7.5 Mc/s) signal and adjust the cores of L8 (E6) and L5 (D6) for maximum output. Tune receiver to 20 m, feed in a 20 m (15 Mc/s) signal and adjust C34 (E6) and C29 (D6) for maximum output.

Sensitivity Figures.

The figures given below represent the maximum permissible input signals required to produce a 50 milliwatt output across T1 secondary winding. A 0-100 milliwatt output meter, with an input impedance of 2.5 Ω , should be connected across T1 secondary winding in place of the speaker speech coil L18, and the signal generator output should be modulated by 400 c/s to a depth of 30%.

Overall Sensitivity.—Connect output of signal generator to A and E sockets.

S.W.—The input signal required at 40 m should not be greater than 30 μ V, and that at 20 m should not be greater than 8 μ V, to produce a 50 milliwatt reading on the output meter.

M.W.—The input signal required at 521.7 m should not be greater than 11 μ V, and that at 200 m should not be greater than 7.2 μ V, to produce a 50 milliwatt reading.

L.W.—The input signal required at 1,875 m should not be greater than 34 μ V, and that at 1,000 m should not be greater than 7 μ V, to produce a 50 milliwatt reading.

I.F. Sensitivity.—Transfer signal generator output, via an 0.1 μ F capacity in the "live" lead, to control grid (pin 6) of V1 and chassis. The input signal required at 470 kc/s should not be greater than 39 μ V to produce a 50 milliwatt reading on the sound output meter.

Waveband Switch Table

Switch	L.W.	M.W.	S.W.	Gram
S11	—	—	—	C
S21	—	—	C	—
S31	—	C	—	—
S4	C	—	—	—
S5	—	—	C	—
S6	—	C	—	—
S7	—	—	—	—
S8	—	—	—	C
S9	—	—	—	C
S10	—	—	C	—
S11	—	C	—	—
S12	—	—	—	—
S13	—	C	—	—
S14	—	C	—	—
S15	C	—	—	—
S16	C	—	—	—
S17	—	—	—	C

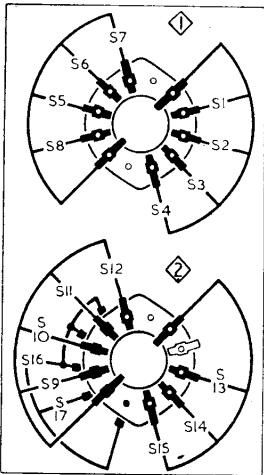
VALVE ANALYSIS

Valve voltages and currents given in the table below are those quoted by the manufacturers, and represent the average figures measured on a number of receivers when they were operating from A.C. mains of 230 V, the voltage adjustments being set to the 230-250 V tapping.

Voltages were measured on the 400 V and 10 V ranges of a Model 7 Avometer, chassis being the negative connection in every case. When the oscillator grid is shorted to chassis, its anode current drops to 4 mA and its anode voltage rises to 97 V.

Valve	Anode		Screen		Cath. V
	V	mA	V	mA	
V1 ECH42	235	2.5	90	4.0	2.7
V2 EF41	Oscillator		90	1.5	1.9
	235	5.0			
V3 EBC41	110	0.5	—	—	1.9
V4 BL41	240	33.0	254	6.0	7.0
V5 EZ40	295*	—	—	—	315.0†

* A.C., each anode. † Cathode current 57 mA.



Left: Diagrams of the waveband switches as seen from the mains transformer end of the chassis.

Below: Two views of the tuning drive system. The bottom view shows the drum portion as seen from the end of the chassis, and the upper view shows the horizontal portion, seen from rear.

