

Sketch of the tuning drive system drawn as seen in the under-chassis illustration with the gang at minimum capacitance and with the scale backing plate removed.

Waveband Switch Table

Switches	Gram	S.W.	M.W.	L.W.
S1	—	o	—	—
S2	—	o	—	—
S3	—	o	—	—
S4	—	o	—	—
S5	—	o	—	—
S6	—	o	—	—
S7	—	o	—	—
S8	—	o	—	—
S9	—	o	—	—
S10	—	o	—	—
S11	—	o	—	—
S12	—	o	—	—
S13	—	o	—	—
S14	—	o	—	—
S15	—	o	—	—

CAPACITORS		Values	Locations
C1	} Aerial couplers ... {	470pF	E4
C2		470pF	E4
C3	Part I.F. filter ...	33pF	E4
C4	"Top" coupling ...	2-7pF	D4
C5	Earth isolator ...	0-01μF	E4
C6	L.W. aerial trim. ...	68pF	D4
C7	V1 C.G. ...	470pF	A1
C8	} 1st I.F. trans tun- ing ... {	150pF	B2
C9		150pF	B2
C10	V1 osc. C.G. ...	100pF	D3
C11	L.W. osc. tracker...	390pF	A1
C12	M.W. osc. tracker...	560pF	A1
C13	L.W. osc. trimmer	150pF	A2
C14	Osc. anode coup. ...	100pF	D3
C15	S.G. decoupling ...	0-05μF	D3
C16	A.G.C. decoupling ...	0-04μF	F4
C17	} 2nd I.F. trans. tun- ing ... {	150pF	B2
C18		150pF	B2
C19	I.F. by-pass ...	100pF	F3
C20	} P.U. isolators ... {	0-001μF	E4
C21		0-005μF	F4
C22	} A.F. couplers ... {	0-005μF	F4
C23		0-005μF	F3
C24	} H.T. smoothing ... {	0-04μF	F3
C25*		50μF	B1
C26*	} A.F. coupling ... {	50μF	B1
C27		0-005μF	F3
C28	Mains R.F. by-pass	0-05μF	G3
C29	Part tone control...	0-05μF	B1
C30†	S.W. aerial trim. ...	35pF	A1
C31†	M.W. aerial trim....	35pF	A1
C32†	Aerial tuning ...	528pF	B1
C33†	S.W. osc. trim. ...	35pF	D4
C34†	L.W. osc. trim. ...	35pF	A2

(continued next col.)

(continued next col.)

* Electrolytic. † Variable. ‡ Pre-set.

CIRCUIT ALIGNMENT

The chassis should be removed from its cabinet for the following alignment adjustments.

I.F. Stages.—Switch receiver to M.W. and turn gang to maximum capacitance. Screw the cores of **L13** and **L15** half-way out of their formers. Connect output of signal generator, via an 0.01 μF capacitor in each lead, to control grid (pin 6) of **V2** and chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of **L14** (location reference F3) and **L15** (B2) for maximum output. Do not re-adjust the core of **L14**. Transfer signal generator "live" lead to control grid (pin 6) of **V1**. Feeding in a 470 kc/s signal, adjust the cores of **L12** (E3) and **L13** (B2) for maximum output. Do not re-adjust the core of **L12**.

I.F. Rejector.—With the receiver switched to M.W. and the gang turned to maximum capacitance, feed in a 470 kc/s signal and adjust the core of **L1** (B1) for minimum output.

R.F. and Oscillator Stages.—As the tuning scale remains fixed in the cabinet when the chassis is withdrawn, reference is made during alignment of the substitute tuning scale printed along the edge of the cursor carriage rail. Readings on this scale are taken against the left-hand edge (as viewed in our under-chassis illustration) of the cursor carriage. The substitute scale readings are given in brackets after each alignment wavelength in the

Drive Cord Replacement.—Approximately 50 inches of nylon-braided glass yarn is required for a new drive, which should be run as indicated in the sketch of the tuning drive system (at foot of cols. 2 and 3), starting with the gang at minimum capacitance and running the cord anti-clockwise round the drum. The cord tension should be adjusted so that the spring is extended to one inch ($\pm \frac{1}{16}$ inch).

Model U182R.—This is the 3-speed auto-radiogram version of the U182 and employs a Garrard RC75A/U A.C./D.C. gram motor. Two pick-up heads are used, one for 78 r.p.m. operation (brown) and the other for 33½ and 45 r.p.m. operation (red).

CAPACITORS (cont.)		Values	Locations
C35†	M.W. osc. trim. ...	35pF	D3
C36†	Oscillator tuning ...	525pF	B1
C37	Tone corrector ...	0-005μF	—
C38*	V3 anode decoupling ...	8μF	—
C39	A.F. coupling ...	0-01μF	—
C40*	V4 cath. by-pass ...	50μF	—

* Electrolytic. † Variable. ‡ Pre-set.

RESISTOR 3		Values	Locations
R1	Anti-static shunt ...	1MΩ	E4
R2	V1 C.G. ...	470kΩ	D3
R3	V1 osc. C.G. ...	27kΩ	D3
R4	Osc. stabilizers ... {	100Ω	D3
R5		680Ω	A1
R6	Osc. anode load ...	22kΩ	D3
E7	S.G. H.T. feed ...	22kΩ	D4
R8	I.F. stopper ...	180kΩ	F3
R9	A.G.C. decoupling ...	1MΩ	F3
R10	Diode load ...	330kΩ	F3
R11	P.U. shunt ...	220kΩ	F4
R12	Volume control ...	1MΩ	G4
R13	V3 C.G. ...	10MΩ	F3
R14	V3 anode load ...	56kΩ	F3
R15	V4 C.G. ...	470kΩ	F3
R16	V4 C.G. stopper ...	47kΩ	F3
R17	H.T. smoothing ...	1-95kΩ*	F3
R18	Tone control ...	20kΩ	C1
R19	V4 G.B. ...	180Ω	G3
R20	Thermistor CZ3 ...	—	F3
R21	Thermistor CZ3 ...	—	G3
R22	MR1 surge limiter ...	47Ω	G4
R23	Heater ballast ... {	950Ω	G3
R24		125Ω	G4
R25	Tone correctors ... {	125Ω	G3
R26		6-8Ω	—
R27	H.T. decoupling ...	47kΩ	—
R28	V3 anode load ...	2-2kΩ	—
R29	V3 anode load ...	100kΩ	—
R30	V4 C.G. ...	220kΩ	—
R31	V4 anode stopper ...	33kΩ	—
R32	Gram motor volt- age adj.... {	200Ω	—
R33		700Ω	—

* Made up of two 3-9kΩ in parallel.

following instructions. Check that with the gang at maximum capacitance (this occurs just short of the fully clockwise setting of the gang) the left-hand edge of the cursor coincides with 0.6 on the substitute tuning scale. When the chassis is finally replaced in its cabinet, check that with the gang at maximum capacitance the cursor coincides with the vertical datum lines at the highest wavelength ends of the tuning scales. Transfer signal generator leads, with isolating capacitors, to **A** and **E** sockets.

M.W.—Switch receiver to M.W., tune to 500 m (2.25 on substitute scale), feed in a 500 m (600 kc/s) signal and adjust the cores of **L10** (A2) and **L5** (A1) for maximum output. Tune receiver to 220 m (11.45), feed in a 220 m (1,363 kc/s) signal and adjust **C35** (D3) and **C31** (A1) for maximum output. Repeat these adjustments until no further improvement results.

L.W.—Switch receiver to L.W., tune to 1,700 m (4.1), feed in a 1,700 m (176.5 kc/s) signal and adjust the cores of **L11** (D3) and **L6** (D4) for maximum output. Tune receiver to 1,000 m (12.75), feed in a 1,000 m (300 kc/s) signal and adjust **C34** (A2) for maximum output.

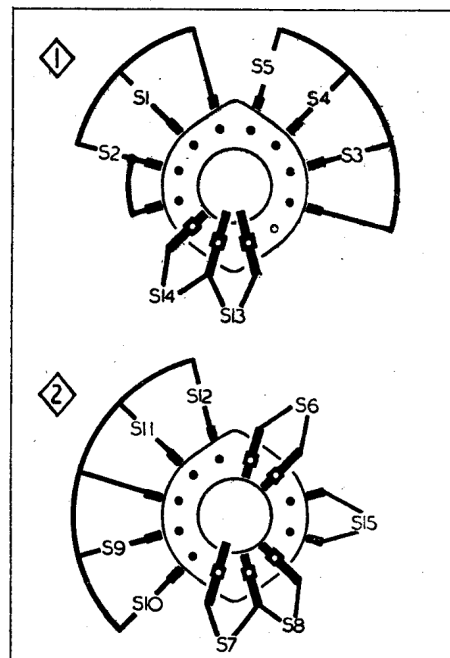
S.W.—Switch receiver to S.W., tune to 16.86 m (13.9), feed in a 16.86 m (17.8 Mc/s) signal and adjust **C33** (D4) and **C30** (A1) for maximum output, rocking the gang for optimum results while adjusting **C30**. **C33** should be set to the lower capacitance peak. Feed in a 44.8 m (6.7 Mc/s) signal and tune receiver to it. Check that the substitute scale reading is between 2.35 and 2.65. If the calibration falls outside these limits, the spacing of the top turns of **L4** and **L9** should be adjusted. Repeat these adjustments until no further improvement results.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	I.F. filter ...	17-0	B1
L2	Aerial coupling coils ... {	39-0	A1
L3		—	A1
L4	Aerial tuning coils ... {	7-0	A1
L5		29-0	A1
L6	Oscillator reaction coils ... {	—	D4
L7		—	A2
L8	Oscillator tuning coils ... {	4-5	A2
L9		10-0	A2
L10	1st I.F. { Pri. ...	6-2	B2
L11	trans. { Sec. ...	6-2	B2
L12	2nd I.F. { Pri. ...	6-2	B2
L13	trans. { Sec. ...	6-2	B2
L14	Speech coil ...	2-5	—
L15	Mains filter chokes {	7-0	C1
L16		7-0	C1
L17	78 r.p.m. P.U. ...	22-0	—
L18	33½, 45 r.p.m. P.U. ...	22-0	—
L19	O.P. trans. { a ...	25-0	—
L20		405-0	B1
T1	P.U. trans. { b ...	—	—
T2	Waveband switches { a ...	4-0	—
S1-		840-0	A1
S15	Mains sw. g'd R12... {	—	—
S16		—	G4
S17	Motor switch ... {	—	—
S18		—	—

If it is found necessary to replace the short wave coils **L2**, **L4** and **L7**, **L9**, the spacing of their top turns will have to be adjusted as described above to obtain correct tracking.

Valve		Anode		Screen	
		V	mA	V	mA
V1	10C1	{ 152 68 152 55 168	{ 2-0 Oscillator 4-0 5-0 1-7 43-0	42	3-6
V2	10F9	152	5-0	42	1-4
V3	10LD11*	55	1-7	—	—
V4	10P14	168	43-0	152	6-0

* 10LD3 in Gram model.



Diagrams of the waveband switch units, drawn as seen from the tone control end of an upright chassis.