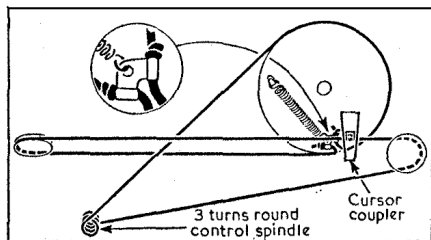


## CIRCUIT ALIGNMENT

Remove chassis from cabinet and stand it in its normal position on the bench. All the I.F. adjustments are then accessible from the rear of the receiver, and the R.F. and oscillator adjustments from one end of it. Before commencing alignment, the receiver and the signal generator should be switched on and allowed to warm up for about ten minutes.

**I.F. Stages.**—Turn gang to maximum capacitance and connect output of signal generator via an 0.01μF capacitor in the "live" lead to anode (pin 6) of V2 and chassis. Switch receiver to M.W., feed in a 470 kc/s (638.8 m) signal, and adjust the cores of L14 (location reference B2) and L13 (B2) for maximum output. Transfer signal generator "live" lead to control grid (pin 6) of V1, and adjust the cores of L12 (A2) and L11 (A2) for maximum output, decreasing the input as the circuits come into line to avoid A.G.C. action.

**R.F. and Oscillator Stages.**—As the tuning scale remains fixed to the cabinet when the chassis is withdrawn, reference is made in the following alignment to the substitute tuning scale fixed to the back of the tuning drive drum. This scale has the trimming and tracking points marked on it in wavelengths, and is read off against the top sloping edge of the thick metal pointer. Check that with the gang at maximum capacitance, the pointer coincides with the datum line on the substitute scale. When the chassis is finally replaced in its cabinet, check that with the gang at maximum capacitance, the cursor coincides with the two dots at the high-wavelength ends of the S.W. and L.W. tuning scales. A dummy aerial, consisting of a 200 pF capacitor, should be connected in series with the "live" signal generator lead for M.W. and L.W., and a 400 Ω non-inductive resistor for S.W. Con-



Sketch of the drive cord system.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 UCH42	140	1.5	50	2.1	—
V2 UBF80	100	3.8	50	1.2	—
V3 UL41	130	36.0	140	7.0	7.7
V4 UY41	210†	—	—	—	*

† A.C. reading.

\* Cathode current 55 mA

CAPACITORS		Values	Locations
C1	Chassis isolators ...	0.001μF	G4
C2	L.W. aerial shunt...	0.01μF	G4
C3	L.W. aerial trim...	600pF	G4
C4	V1 C.G. ...	85pF	G4
C5	1st I.F. trans. ...	100pF	F4
C6	tuning ...	110pF	A2
C7	P.U. isolators ...	0.005μF	F4
C8	P.U. tone corrector	0.01μF	G4
C9	V1 osc. C.G. ...	56pF	F3
C10	A.G.C. decoupling	0.05μF	F4
C11	M.W. osc. tracker	515pF	G3
C12	L.W. osc. trim. ...	33pF	G3
C13	L.W. osc. tracker	365pF	G3
C14	L.W. osc. trim. ...	240pF	G3
C15	Oscillator couplers	0.001μF	F3
C16	S.G. decoupling ...	56pF	G3
C17	2nd I.F. trans. ...	0.05μF	F3
C18	tuning ...	110pF	B2
C19	I.F. by-passes ...	100pF	F4
C20	A.F. coupling ...	0.002μF	B4
C21	Tone corrector ...	0.01μF	B3
C22	V3 cath. by-pass ...	50μF	B3
C23	H.T. smoothing ...	50μF	B1
C24	Mains R.F. by-pass	0.01μF	C2
C25	S.W. aerial trim...	120pF	G4
C26	M.W. aerial trim...	40pF	G4
C27	Aerial tuning ...	528pF	A2
C28	Oscillator tuning ...	528pF	A1
C29	S.W. osc. trim. ...	120pF	G3
C30	M.W. osc. trim. ...	40pF	G3

\* Electrolytic.

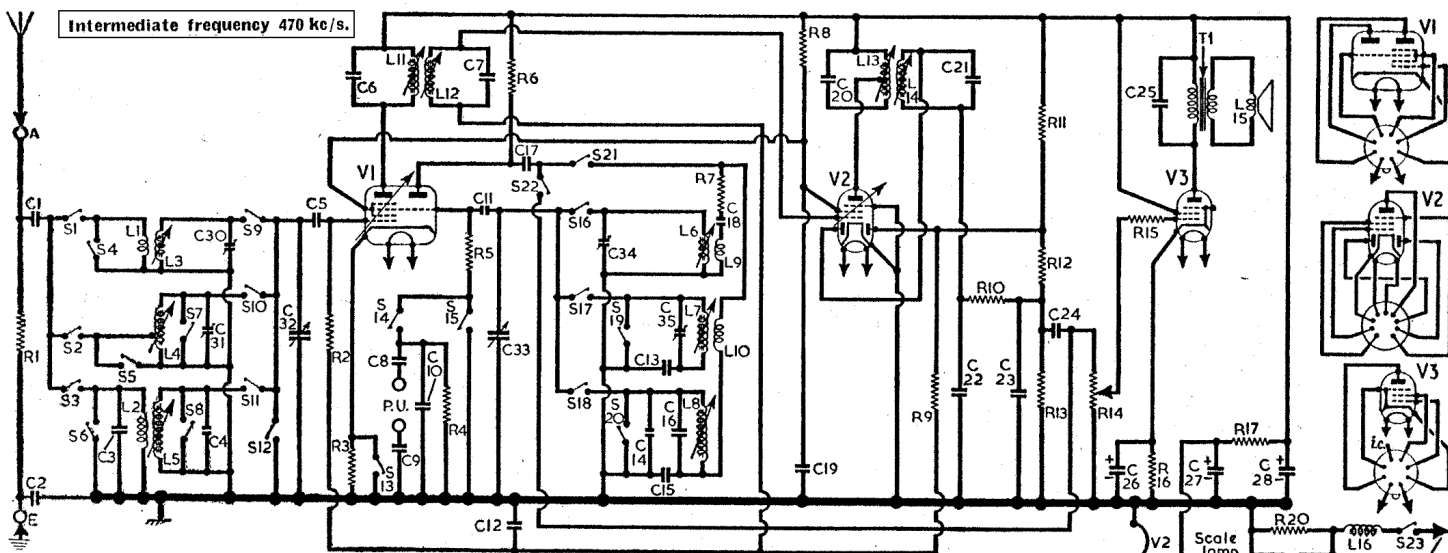
† Variable.

‡ Pre-set.

RESISTORS		Values	Locations
R1	Aerial shunt ...	1MΩ	G4
R2	V1 C.G. ...	680kΩ	F4
R3	V1 G.B. ...	330kΩ	G4
R4	P.U. shunt ...	680kΩ	F4
R5	V1 osc. C.G. ...	47kΩ	G3
R6	Osc. anode feed ...	10kΩ	F3
R7	Osc. stabilizer ...	100kΩ	F3
R8	S.G. H.T. feed ...	27kΩ	F3
R9	A.G.C. decoupling	1.5MΩ	F3
R10	I.F. stopper	47kΩ	F4
R11	Part A.G.C. delay	20MΩ	F3
R12	bias pot. divider	680kΩ	E3
R13	Diode load ...	330kΩ	E4
R14	Volume control ...	500kΩ	D3
R15	V3 C.G. stopper ...	47kΩ	E3
R16	V3 G.B. ...	180kΩ	E3
R17	H.T. smoothing ...	1kΩ	E4
R18	V4 surge limiter ...	250Ω	C2
R19	Heater ballast ...	*1.43kΩ	C2
R20	Scale lamp shunt...	75Ω	E4

\* Tapped at 1,030Ω + 200Ω + 200Ω from V4 heater.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Aerial coupling coils	0.5	G4
L2	—	50.0	G4
L3	—	—	G4
L4	Aerial tuning coils	7.0	G4
L5	—	20.0	G4
L6	—	—	G3
L7	Osc. tuning coils ...	5.0	G3
L8	—	5.0	G3
L9	Osc. reaction coils...	0.5	G3
L10	—	1.0	G3
L11	1st I.F. trans. {Pri. ...	12.5	A2
L12	— {Sec. ...	12.5	A2
L13	2nd I.F. trans. {Pri. ...	12.5	B2
L14	— {Sec. ...	12.5	B2
L15	Speech coil ...	2.3	—
L16	—	3.0	C2
L17	Mains R.F. chokes	3.0	C2
T1	O.P. trans. {Pri. ...	410.0	—
S1-S22	Waveband switches	—	G3
S23	—	—	—
S24	Mains sw., g'd R14...	—	D3



Switch S13 opens on gram to provide grid bias for V1 triode, which operates as a pre-amplifier.

nect output of signal generator, via dummy aerial, to A and E sockets.

**L.W.**—Switch receiver to L.W., tune to 1,400 m on substitute scale, feed in a 1,400 m (214 kc/s) signal and adjust the cores of L8 (G3) and L5 (G4) for maximum output. Check calibration over band.

**M.W.**—Switch receiver to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the cores of L7 (G3) and L4 (G4) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C35 (G3) and C31 (G4) for maximum output. Repeat these adjustments until no further improvement results.

**S.W.**—Switch receiver to S.W., tune to 30 m, feed in a 30 m (10 Mc/s) signal and adjust the cores of L6 (G3) and L3 (G4) for maximum output. Tune receiver to 15 m, feed in a 15 m (20 Mc/s) signal and adjust C34 (G3) and C30 (G3) for maximum output. Repeat these adjustments until no further improvement results.

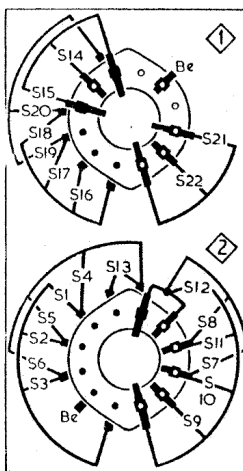
**Drive Cord Replacement.**—Forty inches of nylon braided glass yarn is required for a new tuning drive cord, this length allowing plenty for tying off. The cord should be run as shown in the accompanying sketch, where it is drawn as seen from the front of the chassis. The pointer coupler can be fitted afterwards, but its position must be adjusted as explained under "Circuit Alignment" with the chassis in the cabinet.

The cord is terminated at both ends in a

small metal plate, and can be made up in advance and fitted afterwards. The makers give the exact circular length of the cord after clamping its ends in the plate as 36in.

Right: Waveband switch diagrams.

BUSH - DAC31



Waveband switch table.

Switch	S.W.	M.W.	L.W.	Gram.
S1	o	o	o	o
S2	o	o	o	o
S3	o	o	o	o
S4	o	o	o	o
S5	o	o	o	o
S6	o	o	o	o
S7	o	o	o	o
S8	o	o	o	o
S9	o	o	o	o
S10	o	o	o	o
S11	o	o	o	o
S12	o	o	o	o
S13	o	o	o	o
S14	o	o	o	o
S15	o	o	o	o
S16	o	o	o	o
S17	o	o	o	o
S18	o	o	o	o
S19	o	o	o	o
S20	o	o	o	o
S21	o	o	o	o
S22	o	o	o	o