

VALVES	Anode		Screen	
	V	m/A	V	M/A
V1 DK32 ...	81.5	0.5	42.0	1.75
V2 DF33 ...	81.5	2.3	81.5	15
V3 DAC32 ...	9.0	0.04	—	—
V4 DL35 ...	77.0	4.2	81.5	1.0

BUSH - BP90

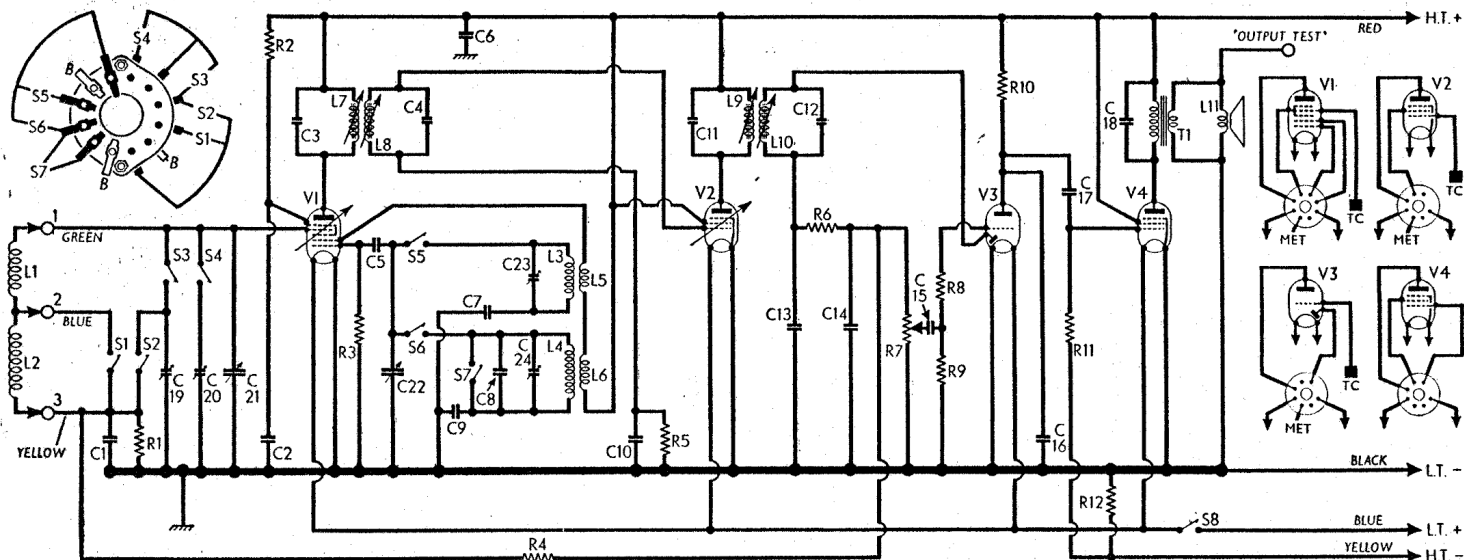
Intermediate frequency 465 kc/s.

CAPACITORS		Values (μF)	Locations
C1	V1 C.G. decoup. ...	0.05	G4
C2	V1 S.G. decoup. ...	0.05	D4
C3	1st I.F. trans- former tuning	0.00006	B2
C4	V1 osc. C.G. ...	0.00006	B2
C5	H.T. Reservoir	0.0005	G4
C6	Osc. M.W. tracker	2.0	F3
C7	Osc. L.W. trimmer	0.000605	H4
C8	Osc. L.W. tracker	0.00018	G3
C9	Osc. L.W. tracker	0.00039	G4
C10	V2 C.G. decoup. ...	0.05	F4
C11	2nd I.F. trans- former tuning	0.00006	C1
C12	I.F. by-pass ...	0.00006	C1
C13	I.F. by-pass ...	0.0001	E3
C14	A.F. coupling ...	0.0001	E3
C15	I.F. by-pass ...	0.005	D3
C16	A.F. coupling ...	0.0001	E3
C17	Tone corrector ...	0.05	D3
C18	M.W. aerial trim	0.005	D4
C19†	L.W. aerial trim ...	0.00004	H4
C20†	Aerial tuning ...	0.00004	H4
C21†	Oscillator tuning ...	—	A1
C22†	Osc. M.W. trim ...	—	A1
C23†	Osc. L.W. trim ...	0.00004	G4
C24†	Osc. L.W. trim ...	0.00004	G4

† Variable. ‡ Pre-set.

RESISTORS		Values (ohms)	Locations
R1	V1 C.G. decoup. ...	2,200,000	G4
R2	V1 S.G. decoup. ...	20,000	E4
R3	V1 osc. C.G. ...	47,000	F4
R4	A.G.C. decoup. ...	2,200,000	G4
R5	V2 C.G. resistor ...	4,700,000	F4
R6	I.F. stopper ...	47,000	E3
R7	Volume control ...	500,000	E3
R8	V3 grid stopper ...	100,000	D3
R9	V3 grid resistor ...	4,700,000	D3
R10	V3 anode load ...	470,000	D4
R11	V4 grid resistor ...	1,000,000	D4
R12	V4 G.B. resistor ...	820	D4

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	1.0	—
L2	L.W. frame aerial	12.0	—
L3	Oscillator	1.5	H3
L4	tuning coils	2.0	H3
L5	Oscillator	1.5	H3
L6	reaction coils, total	6.5	H3
L7	1st I.F. trans.	17.0	B2
L8	2nd I.F. trans.	7.0	B2
L9	2nd I.F. trans.	7.0	C1
L10	trans.	7.0	C1
L11	Speech coil	2.5	—
T1	Output trans.	500.0	B1
S1-S7	W/band switches...	—	G3
S8	L.T. circ. switch ...	—	E3



Tuning Drive Wire Replacement.—The tuning drive is quite simple, and its course is shown in the sketch (Col. 3) which is drawn in three-quarter perspective as viewed from the same end as the gang drum, with the gang at maximum. It is helpful if the strut supporting the upper edge of the scale backing plate is removed during the process.

Take 8ft of drive wire, which can be obtained from the makers, and clamp and solder the ends into the anchor plate, forming a closed loop 30½ in in circumference. Run the wire as shown in our sketch, then fit the cursor in line with the extreme right-hand indentation at the top of the scale backing-plate (about 1½ in from right-hand edge of backing-plate). Finally adjust pointer as described under "Circuit Alignment."

CIRCUIT ALIGNMENT

If only the aerial and oscillator circuits require alignment, the chassis need not be removed from the cabinet. Access to the oscillator trimmers is obtained through a hole in the bottom of the cabinet, normally covered by the left-hand runner (viewed from rear); this is removed by withdrawing three wood screws. The "output test" test tags at the rear of the chassis provide a convenient connection for the output meter.

With the gang at maximum the pointer should coincide with the calibration marks on the right-hand side of the scale. It may be adjusted in position by slackening the two drive drum screws and rotating the drum on its spindle.

I.F. Stages.—A damping unit consisting of a 30,000 Ω non-inductive resistor in series with a 0.05 μF capacitor should be made up, to be connected across the primary winding of a transformer when the secondary is being adjusted, and vice versa. Switch set to M.W., turn gang and volume control to maximum,

connect signal generator leads to control grid (top cap) of V2 and chassis, feed in a 465 kc/s (645.16 m) signal and adjust L10 (C1) and L9 (E3) for maximum output. Transfer "live" lead to top cap of V1 and adjust L8 (B2) and L7 (F4) for maximum output. Repeat these operations until no improvement results.

R.F. and Oscillator Stages.—The signal generator should be coupled to the receiver via a single loop of wire about the same size as the frame aerial, and placed 6 to 12 inches away from it. The chassis should be in the cabinet.

M.W.—With the set still switched to M.W., tune to 300 m on scale, feed in a 300 m (1,000 kc/s) signal and adjust C23 (G4) and C19 (H4) for maximum output. Check calibration at 200 m (1,500 kc/s) and 500 m (600 kc/s).

L.W.—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal and adjust C24 (G4) and C20 (H4) for maximum output. Check calibration at 1,500 m (200 kc/s) and 2,000 m (150 kc/s).