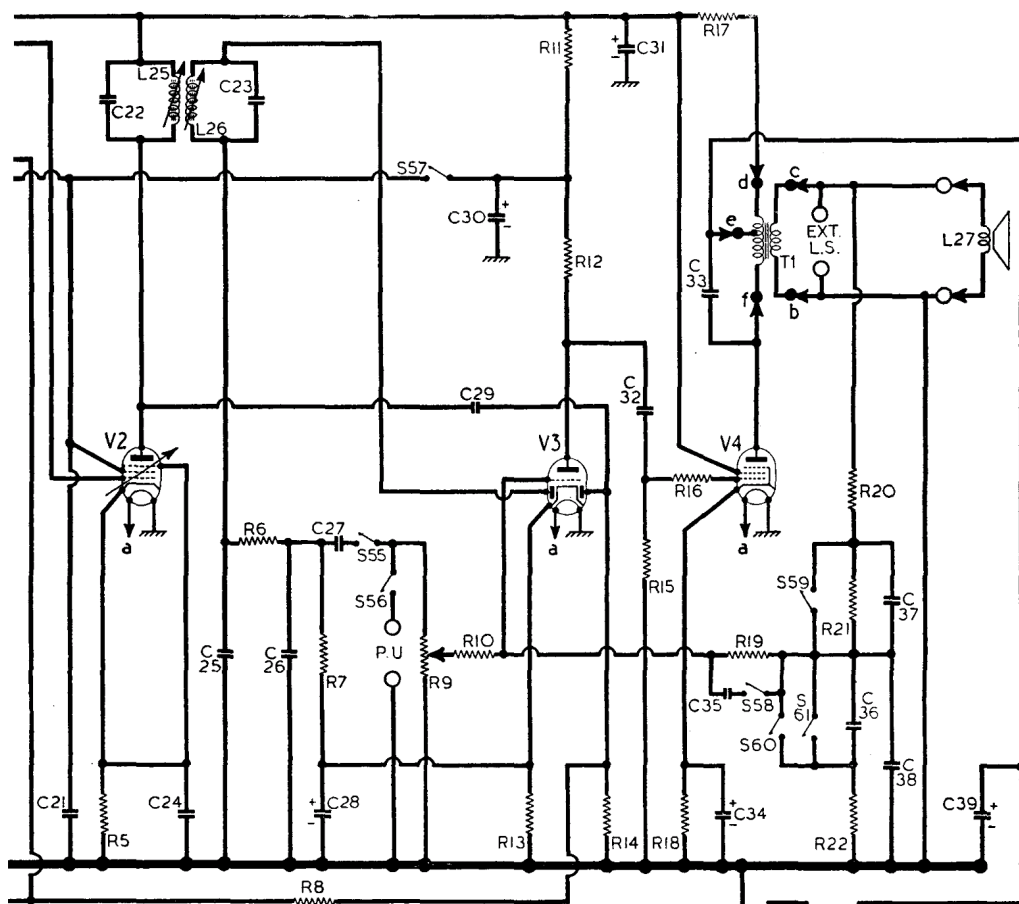
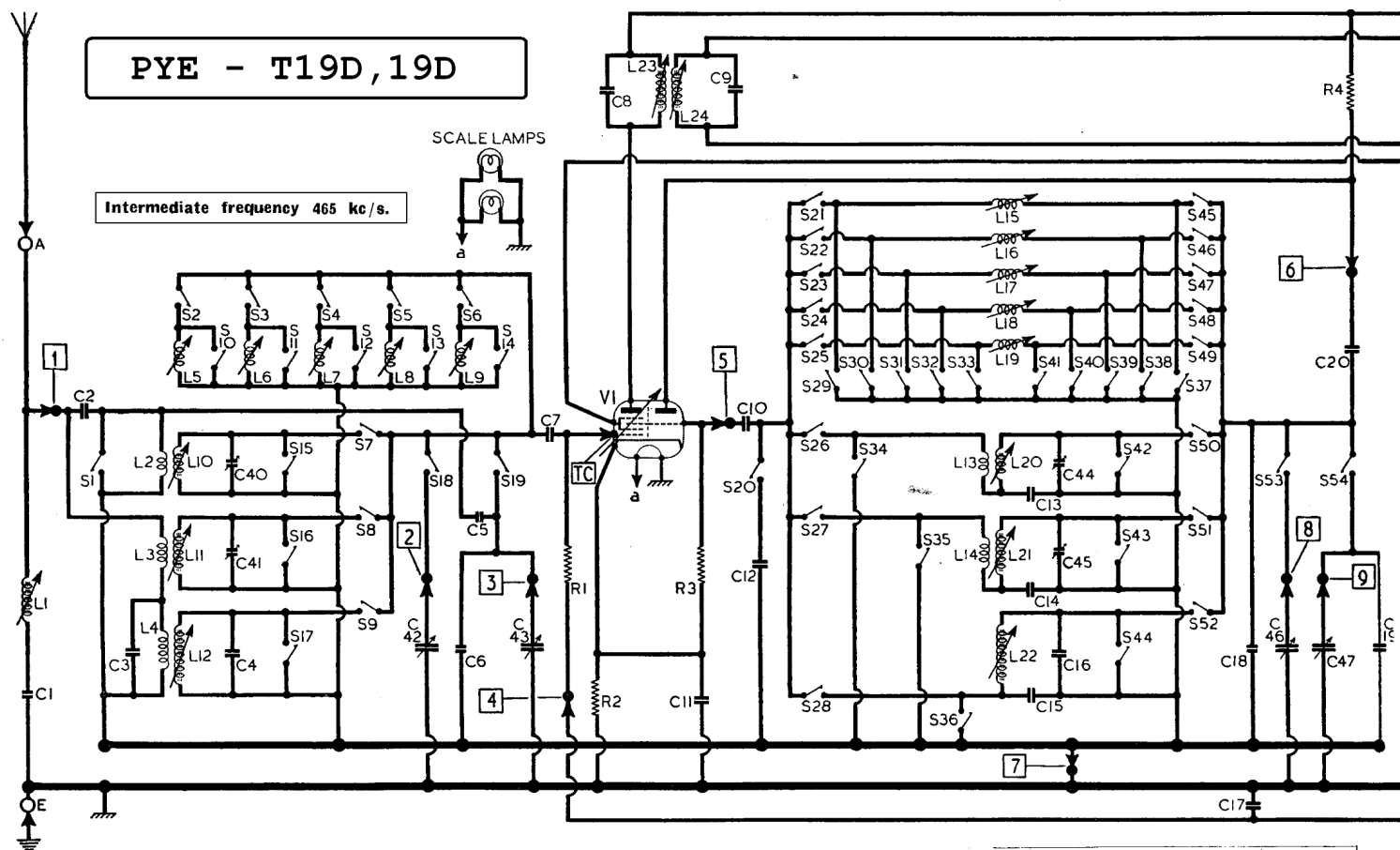


PYE - T19D, 19D

SCALE LAMPS

Intermediate frequency 465 kc/s.



Valve	Anode		Screen		Cath. V
	V	mA	V	mA	
ECH35 ...	250	2.0	100	2.7	2.3
EF39 ...	155	6.5	100	1.7	2.4
EBC33 ...	250	5.3	—	—	—
EL33 ...	35	0.3	—	—	—
AZ31 ...	280	32.0	250	4.2	5.5
	280†	—	—	—	295.0

† Each anode A.C.

RESISTORS

Values

R1	V1 hex. C.G. ...	1MΩ
R2	V1 G.B. ...	220Ω
R3	V1 osc. C.G. ...	47kΩ
R4	V1 osc. H.T. feed	15kΩ
R5	V2 G.B. ...	330Ω
R6	I.F. stopper	100kΩ
R7	Diode load	470kΩ
R8	A.G.C. decoupling	1MΩ
R9	Volume control	1MΩ
R10	V3 grid stopper	2.2MΩ
R11	V3 H.T. feed	33kΩ
R12	Triode anode load	220kΩ
R13	V3 G.B. ...	6.8kΩ
R14	A.G.C. diode load	1MΩ
R15	V4 C.G. ...	470kΩ
R16	V4 grid stopper	22kΩ
R17	H.T. smoothing	1.8kΩ
R18	V4 G.B. ...	150Ω
R19	Neg. feedback	4.7MΩ
R20		10kΩ
R21		18kΩ
R22		10kΩ

OTHER COMPONENTS

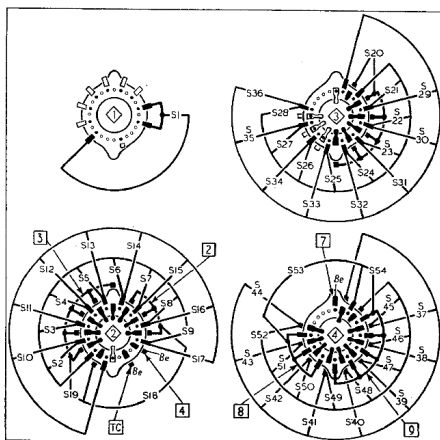
Approx. Values (ohms)

L1	I.F. filter coil ...	34.0
L2	Aerial coupling coils	12.5
L3		45.0
L4		250.0
L5		Very low
L6	16 m aerial tuning	Very low
L7	19 m aerial tuning	Very low
L8	25 m aerial tuning	Very low
L9	31 m aerial tuning	Very low
L10	49 m aerial tuning	0.5
L11	S.W. aerial tuning	1.0
L12	M.W. aerial tuning	3.0
L13	L.W. aerial tuning	18.0
L14	Osc. reaction coils	Very low
L15		0.4
L16		Very low
L17		Very low
L18	16 m osc. tuning	Very low
L19	19 m osc. tuning	Very low
L20	25 m osc. tuning	Very low
L21	31 m osc. tuning	0.3
L22	49 m osc. tuning	0.5
L23	S.W. osc. tuning	0.5
L24	M.W. osc. tuning	2.6
L25	L.W. osc. tuning ...	4.5
L26	1st. I.F. trans. { Pri. ...	10.0
L27	2nd I.F. trans. { Sec. ...	10.0
T1	Speech coil ...	2.5
	O.P. trans { Pri. total	460.0
		0.4
		40.0
T2	Mains trans. { Pri. total	480.0
		480.0
		6.3V htr.
		Very low
		Very low

CAPACITORS		Values
C1	I.F. filter tune ...	47pF
C2	Aerial coupling ...	100pF
C3	L.W. aerial shunt...	100pF
C4	L.W. aerial fixed trim. ...	120pF
C5	Aerial coupling ...	5pF
C6	Bandspread fixed trim. ...	50pF
C7	V1 hex. C.G. ...	100pF
C8	1st I.F. transformer {	100pF
C9		100pF
C10	V1 osc. C.G. ...	100pF
C11	V1 cath. by-pass ...	0.01μF
C12	Bandspread osc. tune ...	125pF
C13	S.W. osc. tracker...	0.0017μF
C14	M.W. osc. tracker...	500pF
C15	L.W. osc. tracker...	200pF
C16	L.W. osc. fixed trim	150pF
C17	A.G.C. line decoup.	0.05μF
C18	Oscillator fixed trim ...	15pF
C19	Bandspread fixed trimmer ...	100pF
C20	Osc. anode coupling	100pF
C21	V1, V2, S.G. decoupling...	0.1μF
C22	2nd I.F. trans. {	100pF
C23		100pF
C24	V2 cath. by-pass ...	0.1μF
C25	I.F. by-passes ...	100pF
C26		100pF
C27	A.F. coupling ...	0.002μF
C28*	V3 cath. by-pass ...	50μF
C29	A.G.C. coupling ...	10pF
C30*	H.T. feed decoup.	2μF
C31*	H.T. smoothing ...	32μF
C32	A.F. coupling ...	0.005μF
C33	Tone correction ...	0.01μF
C34*	V4 cath. by-pass ...	50μF
C35	Neg. feedback ...	20pF
C36		0.05μF
C37	H.T. smoothing ...	0.05μF
C38		0.002μF
C39*	S.W. aerial trim. ...	32μF
C40†	M.W. aerial trim....	50pF
C41†	Osc. tuning ...	50pF
C42†	Aerial band-spread tuning ...	\$487pF
C43†	S.W. osc. trim. ...	\$10pF
C44†	M.W. osc. trim. ...	50pF
C45†	Osc. tuning ...	\$487pF
C46†	Osc. band-spread tuning ...	\$45pF
C47†		

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

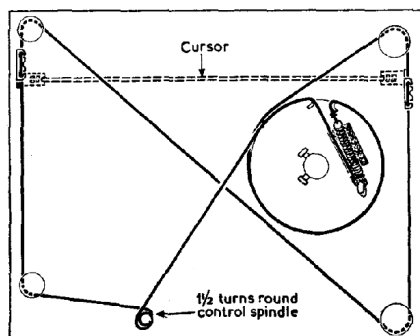
Switch	L.W.	M.W.	S.W.	B-S.5 49 m.	B-S.4 31 m.	B-S.3 25 m.	B-S.2 19 m.	B-S.1 16 m.
S1	o	o	—	—	—	—	—	—
S2	—	—	—	—	—	—	—	—
S3	—	—	—	—	—	—	—	—
S4	—	—	—	—	—	—	—	—
S5	—	—	—	—	—	—	—	—
S6	—	—	—	—	—	—	—	—
S7	—	—	—	—	—	—	—	—
S8	—	—	—	—	—	—	—	—
S9	—	—	—	—	—	—	—	—
S10	—	—	—	—	—	—	—	—
S11	—	—	—	—	—	—	—	—
S12	—	—	—	—	—	—	—	—
S13	—	—	—	—	—	—	—	—
S14	—	—	—	—	—	—	—	—
S15	—	—	—	—	—	—	—	—
S16	—	—	—	—	—	—	—	—
S17	—	—	—	—	—	—	—	—
S18	—	—	—	—	—	—	—	—
S19	—	—	—	—	—	—	—	—
S20	—	—	—	—	—	—	—	—
S21	—	—	—	—	—	—	—	—
S22	—	—	—	—	—	—	—	—
S23	—	—	—	—	—	—	—	—
S24	—	—	—	—	—	—	—	—
S25	—	—	—	—	—	—	—	—
S26	—	—	—	—	—	—	—	—
S27	—	—	—	—	—	—	—	—
S28	—	—	—	—	—	—	—	—
S29	—	—	—	—	—	—	—	—
S30	—	—	—	—	—	—	—	—
S31	—	—	—	—	—	—	—	—
S32	—	—	—	—	—	—	—	—
S33	—	—	—	—	—	—	—	—
S34	—	—	—	—	—	—	—	—
S35	—	—	—	—	—	—	—	—
S36	—	—	—	—	—	—	—	—
S37	—	—	—	—	—	—	—	—
S38	—	—	—	—	—	—	—	—
S39	—	—	—	—	—	—	—	—
S40	—	—	—	—	—	—	—	—
S41	—	—	—	—	—	—	—	—
S42	—	—	—	—	—	—	—	—
S43	—	—	—	—	—	—	—	—
S44	—	—	—	—	—	—	—	—
S45	—	—	—	—	—	—	—	—
S46	—	—	—	—	—	—	—	—
S47	—	—	—	—	—	—	—	—
S48	—	—	—	—	—	—	—	—
S49	—	—	—	—	—	—	—	—
S50	—	—	—	—	—	—	—	—
S51	—	—	—	—	—	—	—	—
S52	—	—	—	—	—	—	—	—
S53	—	—	—	—	—	—	—	—
S54	—	—	—	—	—	—	—	—



Diagrams of the wave-band switch units (below) viewed from the rear of an inverted chassis.

DRIVE CORD REPLACEMENT

About 50 inches of Nylon braided glass yarn is required for a new drive cord for the T19D, and about 30 inches for the 19D. A few inches more would allow greater latitude in tying off.



The course taken in the T19D is shown in the sketch above, where it is viewed from the rear (neglecting obstructions) with the gang at maximum capacitance.

The 19D drive looks like the T19D drive with the right-hand vertical run omitted, the downward diagonal run from the top left pulley going round the drum instead of past it. The cursor is supported on one side only.

CIRCUIT ALIGNMENT

I.F. Stages.—Remove the chassis from the cabinet, switch set to M.W., turn gang and volume control to maximum. Connect signal generator leads to control grid of V1, via a 0.1μF capacitor, and to chassis. Feed in a 465 kc/s (645.16 m) signal, and adjust the cores of L26, L25 (locations B2, F5), L24, L23 (A2, F5) in that order for maximum output, reducing the input as the circuits come into line to avoid A.G.C. action.

I.F. Filter.—Switch set to M.W. and turn gang to maximum. Transfer signal generator leads to A and E sockets via a suitable dummy aerial (see R.F. and Oscillator stages). Feed in a 465 kc/s signal, and adjust the core of L1 for minimum output.

R.F. and Oscillator Stages.—Since the calibrated glass scale is mounted in the cabinet, and alignment adjustments must be carried out with the chassis on the bench, a substitute scale having 100 divisions is printed on the rear left-hand side of the scale backing plate. Readings on this scale are taken against the upper edge of the middle tongue of the drive cord clamp on the cursor carriage.

With the gang at maximum capacitance, the reading on the substitute scale should be 100, and if any error is found, the cursor carriage may be slid up or down on the drive cord to correct it. When the chassis is inserted in the cabinet, the cursor should coincide with the black dots at the highest wavelength ends of the scales with the gang at maximum capacitance. Connect the signal generator leads to A and E sockets, inserting a suitable dummy aerial in the "live" lead. This may consist of a 200pF capacitor for L.W. and M.W., and a 400Ω resistor for the S.W. and band-spread ranges.

L.W.—Switch set to L.W., tune to 1,330 m (41 on substitute scale), feed in a 1,330 m (225 kc/s) signal (200 kc/s (1,500 m) for model 19D and adjust the cores of L22 (F4) and L12 (F3) for maximum output.

M.W.—Switch set to M.W., tune to 500 m (83 on scale), feed in a 500 m (600 kc/s) signal and adjust the cores of L21 (F4) and L11 (G3) for maximum output. Tune to 200 m (6 on scale), feed in a 200 m (1,500 kc/s) signal and adjust C45 (F4) and C41 (F4) for maximum output.

S.W. (Model T19D).—Switch set to M.S.W., tune to 1,500 kc/s (95 on scale), feed in a 1,500 kc/s (200 m) signal and adjust the cores of L20 (F4) and L10 (F3) for maximum output. Tune to 3.3 Mc/s (17 on scale), feed in a 3.3 Mc/s (90.9 m) signal and adjust C44 (F4) and C40 (F4) for maximum output.

S.W. (Model 19D).—Switch set to M.S.W., tune to 3.0 Mc/s (83 on scale), feed in a 3.0 Mc/s (100 m) signal and adjust the cores of L20 (F4) and L10 (F3) for maximum output. Tune to 7.0 Mc/s (11 on scale), feed in a 7.0 Mc/s (42.87 m) signal and adjust C44 (F4) and C40 (F4) for maximum output.

Band-spread Ranges.—A crystal-controlled signal generator should be used to align these ranges, but where this is not available the calibration may be checked against broadcasting stations of known frequency. Note: Coil numbers move up one in the 19D.

49 m band.—Switch set to 49 m, tune to 6.1 Mc/s (44 on scale), feed in a 6.1 Mc/s (49.18 m) signal and adjust the aluminium cores of L19 (F4) and L9 (F3) for maximum output.

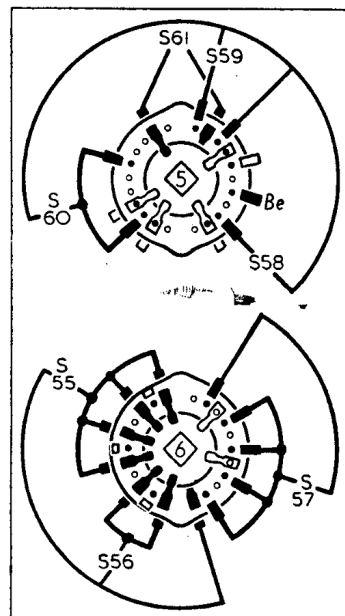
31 m band.—Switch set to 31 m, tune to 9.6 Mc/s (45 on scale), feed in a 9.6 Mc/s (31.25 m) signal and adjust the aluminium cores of L18 (F4) and L8 (G3) for maximum output.

25 m band.—Switch set to 25 m, tune to 11.8 Mc/s (45 on scale), feed in a 11.8 Mc/s (25.42 m) signal and adjust the aluminium cores of L17 (G4) and L7 (F4) for maximum output.

19 m band.—Switch set to 19 m, tune to 15.3 Mc/s (44 on scale), feed in a 15.3 Mc/s (19.61 m) signal and adjust the aluminium cores of L16 (G4) and L6 (F3) for maximum output.

16 m band.—Switch set to 16 m, tune to 17.8 Mc/s (44 on scale), feed in a 17.8 Mc/s (16.85 m) signal and adjust the aluminium cores of L15 (G4) and L5 (F3) for maximum output.

13 m band (Model 19D).—Switch set to 13 m, tune to 21.6 Mc/s (50 on scale), feed in a 21.6 Mc/s (13.89 m) signal and adjust the aluminium cores of L15 (G4) and L5 (F3) for maximum output.



Tone control switch diagrams

Switch	Off	Fid.	Bri.	Mel.	S.W.	Gram Fid.	Gram Mel.
S55	—	o	o	o	o	—	—
S56	—	o	o	o	o	—	—
S57	—	o	o	o	o	—	—
S58	—	o	o	o	o	—	—
S59	—	o	o	o	o	—	—
S60	—	o	o	o	o	—	—
S61	—	o	o	o	o	—	—

PYE - T19D, 19D