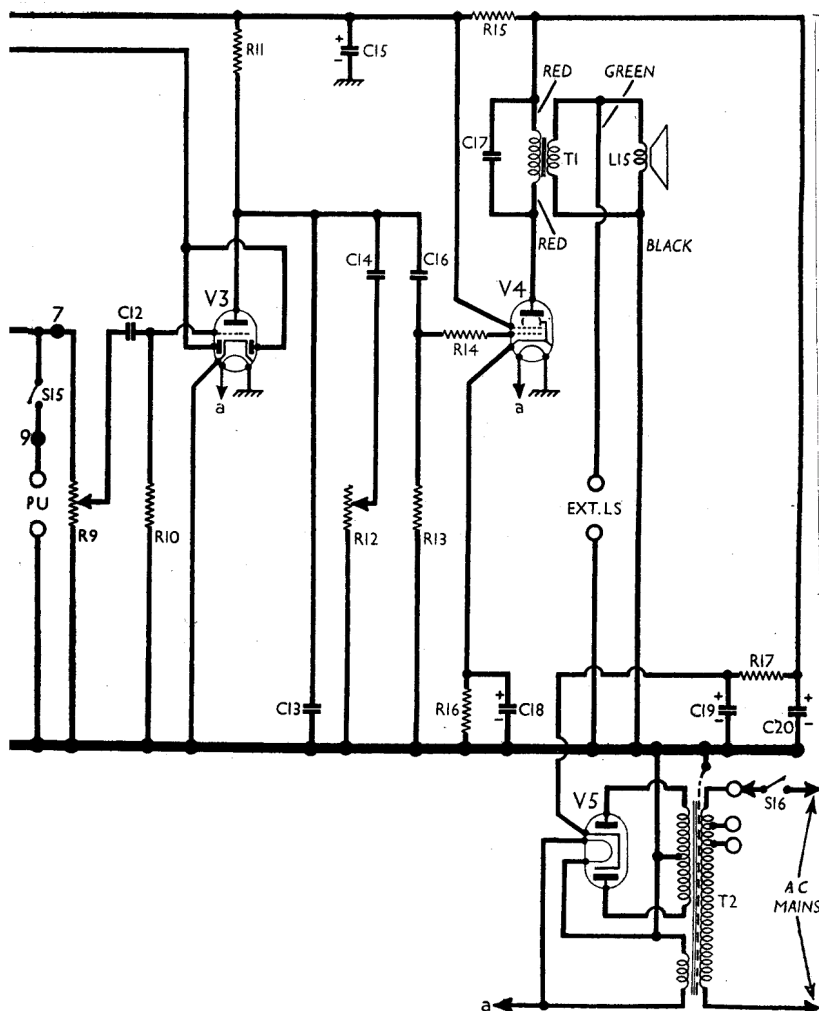


Intermediate frequency 470 kc/s (or 465 kc/s)



CAPACITORS		Values
C1	A.G.C. decoupling	0.01μF
C2	V1 osc. C.G.	50pF
C3	Osc. M.W. fixed track	572pF
C4	Osc. L.W. fixed trim	33pF
C5	Osc. L.W. fixed track	150pF
C6	Osc. anode coupling	0.0022μF
C7	V1, V2 S.G. decoup.	0.1μF
C8	Cathodes by-pass	0.1μF
C9	I.F. by-pass	100pF
C10	A.G.C. decoupling	0.05μF
C11	I.F. by-pass	100pF
C12	A.F. coupling	0.01μF
C13	I.F. by-pass	400pF
C14	Part tone control	0.01μF
C15*	H.T. decoupling	16μF
C16	A.F. coupling	0.01μF
C17	Tone corrector	0.002μF
C18*	V4 cath. by-pass	25μF
C19*	H.T. smoothing	16μF
C20*	H.T. smoothing	16μF
C21†	1st I.F. trans. tuning	—
C22†	1st I.F. trans. tuning	—
C23†	2nd I.F. trans. tuning	—
C24†	2nd I.F. trans. tuning	—
C25†	Aerial S.W. trim.	—
C26†	Aerial M.W. trim.	—
C27†	Aerial L.W. trim.	—
C28†	Aerial tuning	—
C29†	Oscillator tuning	—
C30†	Osc. S.W. trim.	—
C31†	Osc. M.W. trim.	—
C32†	Osc. L.W. trim.	—

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coils	—
L2		24.0
L3		96.0
L4	Aerial tuning coils	—
L5		2.0
L6		18.0
L7	Osc. tuning coils	—
L8		3.5
L9		9.5
L10	S.W. react. coil	1.0
L11	1st I.F. trans.	Pri. 5.0
L12		Sec. 5.0
L13	2nd I.F. trans.	Pri. 5.0
L14		Sec. 5.0
L15	Speech coil	3.0
T1	Output trans.	Pri. 300.0
		Sec. 0.5
T2	Mains trans.	Pri. (total) 38.0
		H.T. sec. (total) 400.0
S1-S13	W/band switches	Heater sec. 0.2
S14		—
S15		—
S16	Mains sw. g'd R12	—

* Electrolytic. † Variable. ‡ Pre-set.

RESISTORS		Values
R1	V1, V2 fixed G.B.	150Ω
R2	V1 osc. C.G.	82kΩ
R3	A.G.C. decoupling	150kΩ
R4	Osc. anode load	47kΩ
R5	H.T. feed	22kΩ
R6	A.G.C. decoupling	2.2MΩ
R7	I.F. stopper	56kΩ
R8	T.I. H.T. feed	1MΩ
R9	Volume control	0.5MΩ
R10	V3 triode C.G.	10MΩ
R11	Triode anode load	220kΩ
R12	Tone control	0.5MΩ
R13	V4 C.G. resistor	0.47MΩ
R14	Grid stopper	56kΩ
R15	H.T. decoupling	4.7kΩ
R16	V4 G.B.	330Ω
R17	H.T. smoothing	1kΩ

ETRONIC ETA632, ETA539

VALVE ANALYSIS

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 7S7	175 Oscillator 78	2.8 2.2	98	3.9	2.0
V2 7B7	175	6.6	98	1.6	2.0
V3 7C6	73	0.28	—	—	—
V4 7C5	250	30.0	175	2.9	9.0
V5 7Y4	278†	—	—	—	315.0
T.I. Y63	12 Target 175	0.1 0.8	—	—	—

† Each anode, A.C.

Switch Table and Diagrams

Switch	Gram	Long	Med.	Short
S1	—	—	—	C
S2	—	—	C	—
S3	—	C	—	—
S4	—	—	—	C
S5	—	—	C	—
S6	—	C	—	—
S7	C	—	—	—
S8	—	—	—	C
S9	—	—	C	—
S10	—	C	—	—
S11	—	—	—	C
S12	—	—	C	—
S13	—	C	—	—
S14	—	C	C	—
S15	C	—	—	C

CIRCUIT ALIGNMENT

For these operations the chassis must be removed from its cabinet as described under "Dismantling the Set." The intermediate frequency is now 470 kc/s, but prior to the operation of the Copenhagen wavelength allocations it was 465 kc/s. The following procedure applies to ETA539 and 632 models throughout.

I.F. Stages.—Switch set to M.W., turn volume and gang controls to maximum and tone control to "high." Connect signal generator (via 0.1 μ F capacitor in the "live" lead) to control grid (pin 6) of V2 and chassis. Feed in a 470 kc/s (638.3 m) signal, and adjust C24 (B2) and C23 (B2) for maximum output. Transfer signal generator "live" lead to control grid (pin 6) of V1, feed in a 470 kc/s signal, and adjust C21 (A2) and C22 (A2) for maximum output. Repeat all four adjustments with signal generator connected to pin 6 of V1 until no further improvement results.

R.F. and Oscillator Stages.—In order to perform the alignment procedures with the chassis out of its cabinet, the makers recommend that a substitute scale be made up from a strip of transparent or translucent paper. This is placed behind the tuning scale, and the alignment points are marked on the paper against the tuning scale. An alternative method of

marking, however, is described below. With the chassis in the cabinet, turn the gang to maximum, when the pointer should coincide with the high wavelength ends of the tuning scales, it may be adjusted in position by loosening the two drum drive boss screws.

Make a pencil mark on the scale backing plate against the left-hand edge (when viewed from the rear) of the cursor carriage. Now tune to the following trimming points on the scale and likewise mark the edge of the backing plate. The sequence and approximate positions are shown in the ETA539 tuning drive sketch below, where they are letter coded for reference in the following instructions.

Transfer signal generator "live" lead to A socket via a suitable dummy aerial.

S.W.—Switch set to S.W., tune to

50 m (b) on scale, feed in a 50 m (6 Mc/s) signal, and adjust the cores of L7 (E4) and (whilst slightly rocking the gang) L4 (E3). Tune to 20 m (e) on scale, feed in a 20 m 15 Mc/s signal and adjust C30 (E4) and (while rocking the gang) C25 (E3). Repeat these operations until no improvement results.

M.W.—Switch set to M.W., tune to 500 m (c) on scale, feed in a 500 m (600 kc/s) signal and adjust the cores of L8 (F4) and L5 (E3) for maximum output. Tune to 200 m (f) on scale, feed in a 200 m (1,500 kc/s) signal and adjust C31 (F4) and C26 (E3) for maximum output. Repeat these operations until no improvement results.

L.W.—Switch set to L.W., tune to 2,000 m (a) on scale, feed in a 2,000 m (150 kc/s) signal, and adjust the cores of

L9 (F3) and L6 (F3) for maximum output. Tune to 1,000 m (d) on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C32 (F3) and C27 (F3) for maximum output. Repeat these operations until no improvement results.

DRIVE CORD REPLACEMENT

The tuning drive systems are different in the two models, but the same kind of cord may be used in each case. This may be Nylon braided glass yarn or good quality plaited and waxed flax fishing line. The two systems are shown in the sketches in cols. 4 and 5, where the gang is turned to maximum capacitance in each case, but whereas the ETA539 drive is viewed from the rear, that of the ETA632 is viewed from the front.

In each case two separate cords are involved, the gang drive cord and the cursor drive cord. To distinguish them in our sketches, the gang drive cord is shown in broken line, and the cursor drive cord in solid line.

Model ETA632.—Take two feet of cord for the gang drive, and four feet for the cursor drive. These lengths will leave ample to spare for tying off. The courses followed by the two cords are obvious from the lower sketch of the two, which is drawn as seen from the front of the chassis after removing the scale backing plate (two self-tapping screws, with a spacing sleeve on the left-hand screw).

Model ETA539.—Take two feet of cord for the gang drive, and five feet for the cursor drive, which leaves ample in each case for tying off. The courses followed by the cords are clearly shown in the upper sketch of the two, which is drawn as seen from the rear of the chassis with the gang at maximum.

