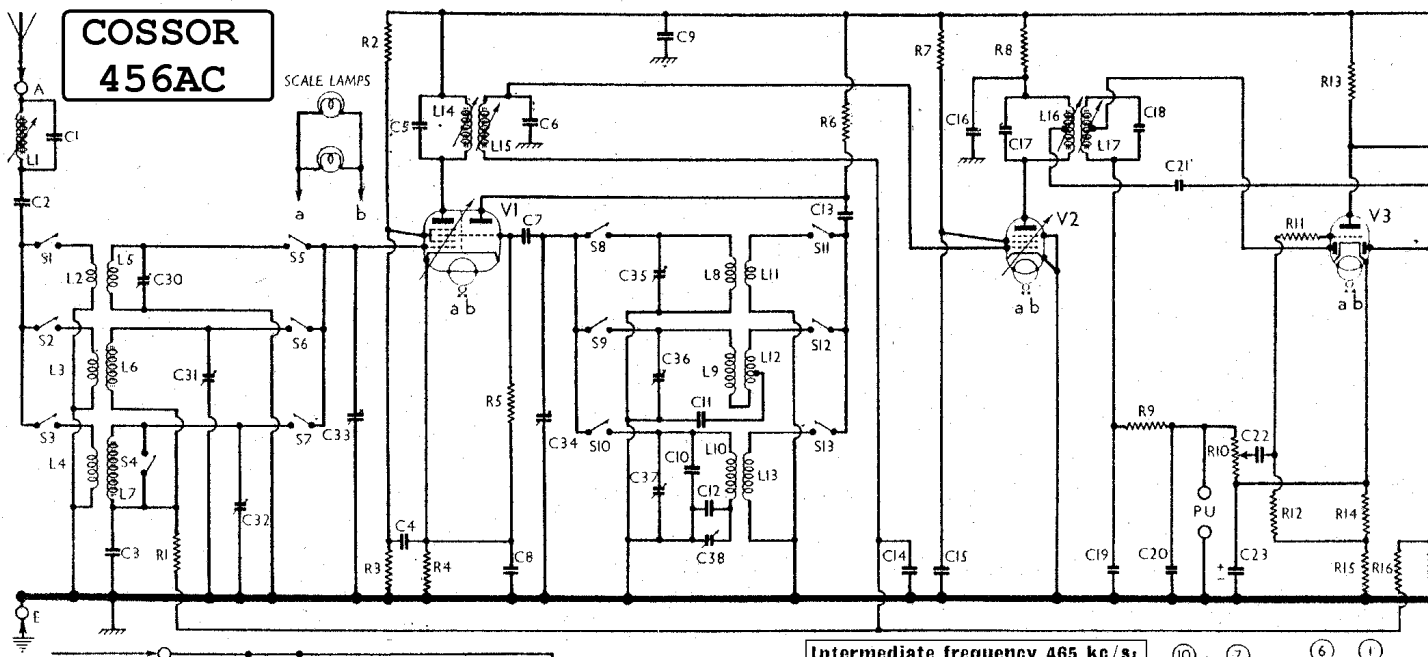
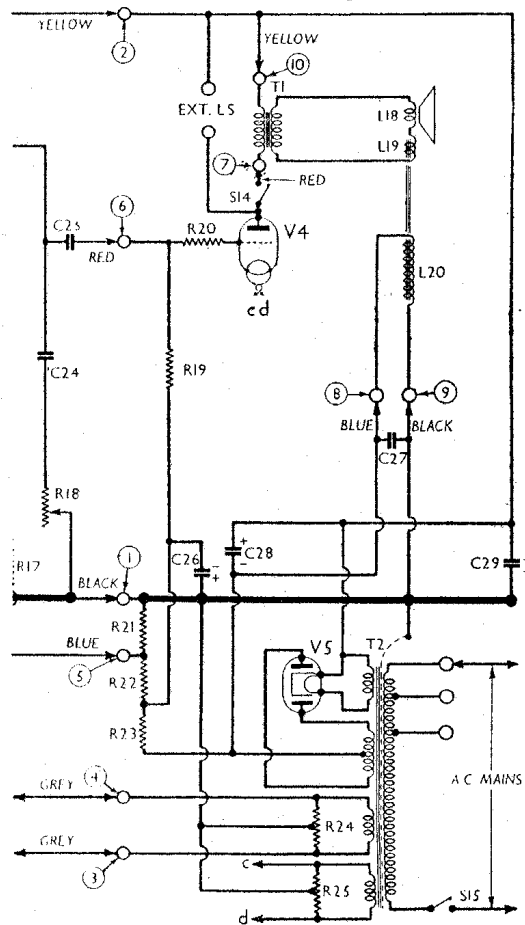
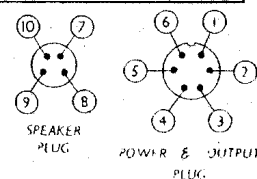


COSSOR 456AC



Intermediate frequency 465 kc/s



CAPACITORS

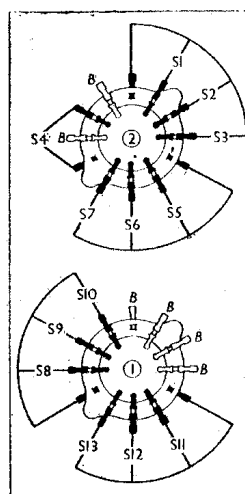
		Values (μF)
C1	Aerial I.F. filter tuning ...	0.00025
C2	Aerial series capacitor ...	0.0005
C3	V1 hex. C.G. decoupling ...	0.05
C4	V1 S.G. decoupling ...	0.05
C5	1st I.F. transformer tuning capacitors ...	0.000225
C6	V1 osc. C.G. capacitor ...	0.0001
C7	V1 cathode by-pass ...	0.1
C8	H.T. circuit R.F. by-pass ...	0.1
C9	Osc. L.W. fixed trimmer ...	0.00005
C10	Osc. M.W. fixed tracker ...	0.000638
C11	Osc. L.W. fixed tracker ...	0.00014
C12	V1 osc. anode coupling ...	0.0005
C13	V2 C.G. decoupling ...	0.05
C14	V2 S.G. decoupling ...	0.05
C15	V2 anode decoupling ...	0.1
C16	2nd I.F. transformer tuning capacitors ...	0.00006
C17	V3 signal diode load ...	0.000075
C18	V3 grid stopper ...	0.00005
C19	V3 C.G. resistor ...	0.00005
C20	V3 triode anode load ...	0.00005
C21	V3 C.G. coupling ...	0.005
C22	V3 cathode by-pass ...	50.0
C23	Part variable tone control ...	0.01
C24	V3 triode to V4 A.F. coupling ...	0.01
C25	V4 C.G. decoupling ...	12.0
C26	Speaker field shunt ...	0.05
C27	H.T. smoothing capacitors ...	8.0
C28	Aerial circ. S.W. trimmer ...	—
C29	Aerial circ. M.W. trimmer ...	—
C30	Aerial circ. L.W. trimmer ...	—
C31	Aerial circuit tuning ...	—
C32	Oscillator circuit tuning ...	—
C33	Osc. circ. S.W. trimmer ...	—
C34	Osc. circ. M.W. trimmer ...	—
C35	Osc. circ. L.W. trimmer ...	—
C36	Osc. circ. L.W. tracker ...	—

RESISTORS

		Values (ohms)
R1	V1 hex. C.G. decoupling ...	470,000
R2	V1 S.G. H.T. potential divider ...	22,000
R3	V1 fixed G.B. resistor ...	33,000
R4	V1 osc. C.G. resistor ...	150
R5	V1 osc. anode H.T. feed ...	22,000
R6	V2 S.G. H.T. feed ...	33,000
R7	V2 anode H.T. feed ...	100,000
R8	I.F. stopper ...	4,700
R9	Manual volume control ; V3 signal diode load ...	47,000
R10	V3 grid stopper ...	500,000
R11	V3 C.G. resistor ...	100,000
R12	V3 triode anode load ...	2,200,000
R13	V3 triode G.B. and A.V.C. delay resistors ...	47,000
R14	A.V.C. line decoupling ...	1,000
R15	V3 A.V.C. diode load ...	1,000
R16	Variable tone control ...	1,000
R17	V4 C.G. resistor ...	3,300,000
R18	V4 grid stopper ...	1,000,000
R19	V4 C.G. decoupling ...	250,000
R20	V4 grid stopper ...	470,000
R21	G.B. and A.V.C. potential divider resistors ...	100,000
R22	Heater circuit potential dividers ...	6,800
R23	Heater circuit potential dividers ...	68,000
R24	Heater circuit potential dividers ...	150,000
R25	Heater circuit potential dividers ...	25*

* Centre tapped.

Switch Diagrams



Diagrams of the two waveband switch units, drawn as seen when viewed from the front of an inverted chassis. The associated table appears below.

Switch Table

Switch	S.W.	M.W.	L.W.
S1	—	—	—
S2	—	—	—
S3	—	—	—
S4	—	—	—
S5	—	—	—
S6	—	—	—
S7	—	—	—
S8	—	—	—
S9	—	—	—
S10	—	—	—
S11	—	—	—
S12	—	—	—
S13	—	—	—

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial I.F. filter coil ... 4.0
L2	Aerial S.W. coupling coil ... 0.4
L3	Aerial M.W. coupling coil ... 24.0
L4	Aerial L.W. coupling coil ... 150.0
L5	Aerial S.W. tuning coil ... Very low
L6	Aerial M.W. tuning coil ... 2.0
L7	Aerial L.W. tuning coil ... 15.0
L8	Osc. S.W. tuning coil ... Very low
L9	Osc. M.W. tuning coil ... 4.5
L10	Osc. L.W. tuning coil ... 15.0
L11	Osc. S.W. reaction coil ... 0.16
L12	Osc. M.W. reaction coil ... 4.5
L13	Osc. L.W. reaction coil ... 7.0
L14	1st I.F. trans. Pri. ... 4.5
L15	1st I.F. trans. Sec. ... 4.5
L16	2nd I.F. trans. Pri. total ... 18.0
L17	2nd I.F. trans. Sec. total ... 18.0
L18	Speaker speech coil ... 2.0
L19	Hum neutralising coil ... 0.15
L20	Speaker field coil ... 1,000.0
T1	Speaker input trans. Pri. ... 100.0
T2	Speaker input trans. Sec. ... 0.15
T3	Mains V1-V3 heat. sec. ... 28.0
T4	V4 heater sec. ... 0.1
T5	Rect. heat. sec. ... 0.2
T6	H.T. sec. total ... 240.0
S1-S13	Waveband switches ...
S14	Speaker switch ...
S15	Mains switch ...

* Electrolytic. † Variable. ‡ Pre-set.

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 41STH	276 Oscillator 80	1.5 6.0	110	5.0
V2 MVSPenB	246	5.0	116	1.5
V3 DDT	149	2.3	—	—
V4 2P	270	43.0	—	—
V5 431U	295†	—	—	—

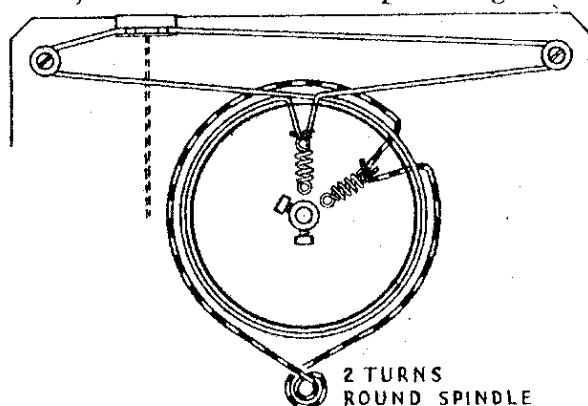
† Each anode to H.T. negative, A.C.

Drive Cord Replacements

There are two cords used in the tuning drive, one from the control spindle to the drum, and another from the drum to the scale pointer.

The course taken by these cords is very simple, and can be seen easily from the sketch below, where the whole system is represented as seen from the rear. The position shown is that adopted by the drum and pointer when the gang is at maximum capacitance.

The whole operation of replacing both cords can be easily carried out without dismantling the scale assembly, but it should be noted that the drive cord from the spindle goes in the front groove of the drum, while that from the pointer goes in



Sketch showing the positions of the drive cords, as seen from the rear. One is dotted to distinguish it from the other.

the rear groove. In order to distinguish between the two cords, one is shown plain in our sketch, while the other is shown in alternate black and white links. The two cords are, of course, actually of the same material.

The pointer should be fitted last, being clamped to the cord by pressing the tongues on the carriage round the cord. The gang should be at maximum, and the pointer should cover the small white "breaks" in the coloured lines running along the length of the top and bottom scales.

COSSOR 456AC

CIRCUIT ALIGNMENT

I.F. Stages.—Connect signal generator via a 0.1 μ F capacitor to control grid (top cap) of **V2** and chassis, short-circuit **C34** to stop the oscillator, feed in a 465 kc/s (645.2 m) signal, and adjust the cores of **L16** and **L17**, softening the wax by the application of a warm screw-driver. Transfer signal generator to top cap of **V1**, and similarly adjust cores of **L14**, **L15**.

The existing lead to each top cap should be left in position, and the response curve of the I.F. stages should be symmetrical, with a perceptible flat top when viewed on an oscilloscope. After these adjustments, remove short-circuit from **C34**.

I.F. Rejector.—Connect signal generator to **A** and **E** leads, tune to top of M.W. band, feed in a strong 465 kc/s signal, and adjust core of **L1** for minimum output.

R.F. and Oscillator Stages.—With gang at maximum, pointer should cover the small white "breaks" in the coloured horizontal scale lines near the right-hand ends of the top and bottom scales. Connect signal generator leads to **A** and **E** leads on set, via a suitable dummy aerial. This may consist on M.W. and L.W. of a 0.0002 μ F capacitor, and on S.W. of a 400 Ω resistor.

L.W.—Switch set to L.W., and tune to 1,200 m on scale. Feed in a 1,200 m (250 kc/s) signal, and adjust **C37**, then **C32**, for maximum output. Feed in a 1,875 m (160 kc/s) signal, tune it in, and adjust **C38** for maximum output, while rocking the gang for optimum results. Repeat the L.W. adjustments.

M.W.—Switch set to M.W., and tune to 214 m on scale. Feed in a 214 m (1,400 kc/s) signal, and adjust **C36**, then **C31**, for maximum output. Tracking is fixed.

S.W.—Switch set to S.W., tune to 18 Mc/s on scale, and feed in an 18 Mc/s (16.67 m) signal. Adjust **C35**, then **C30** for maximum output, while rocking the gang for optimum results. **C35** must be adjusted to the peak involving the smaller trimmer capacitance.