

EDDYSTONE**Model 640**

General Description : Nine-valve (including rectifier), three-waveband communications receiver with crystal filter and noise limiter. Released 1947.

Power Supplies : A.C. mains, 100-110 and 200-250 volts.

Intermediate Frequency : 1600 kc/s. nominal. All I.F. circuits should be peaked to the frequency of the crystal in the first I.F. stage.

Valves : (V₁) EF39; (V₂) ECH35 or 6K8G; (V₃) EF39; (V₄) EF39; (V₅) 6Q7GT; (V₆) 6V6GT (metal 6V6 must not be used); (V₇) 6X5GT; (V₈) EB34 (noise limiter); (V₉) EF39 (B.F.O.).

Notes : Input impedance (aerial terminals) 400 ohms nominal. Output impedances 2.5 and 4000 ohms. The output across the headphones' socket is attenuated.

The R.F. Gain Control affects the amplification of the R.F. and I.F. valves. In later models, the Send/Receive switch reduces R.F. and I.F. gain, but does not disconnect the H.T. from the valves, a 22000-ohm resistor being wired across one pair of contacts. Non-delayed A.V.C.

Where I.F. break-through is experienced on all bands, the connections to the rotor and stator vanes of the phasing capacitor C38 should be reversed. Should I.F. break-through occur only on band 3, a 1600-kc/s. aerial filter should be fitted.

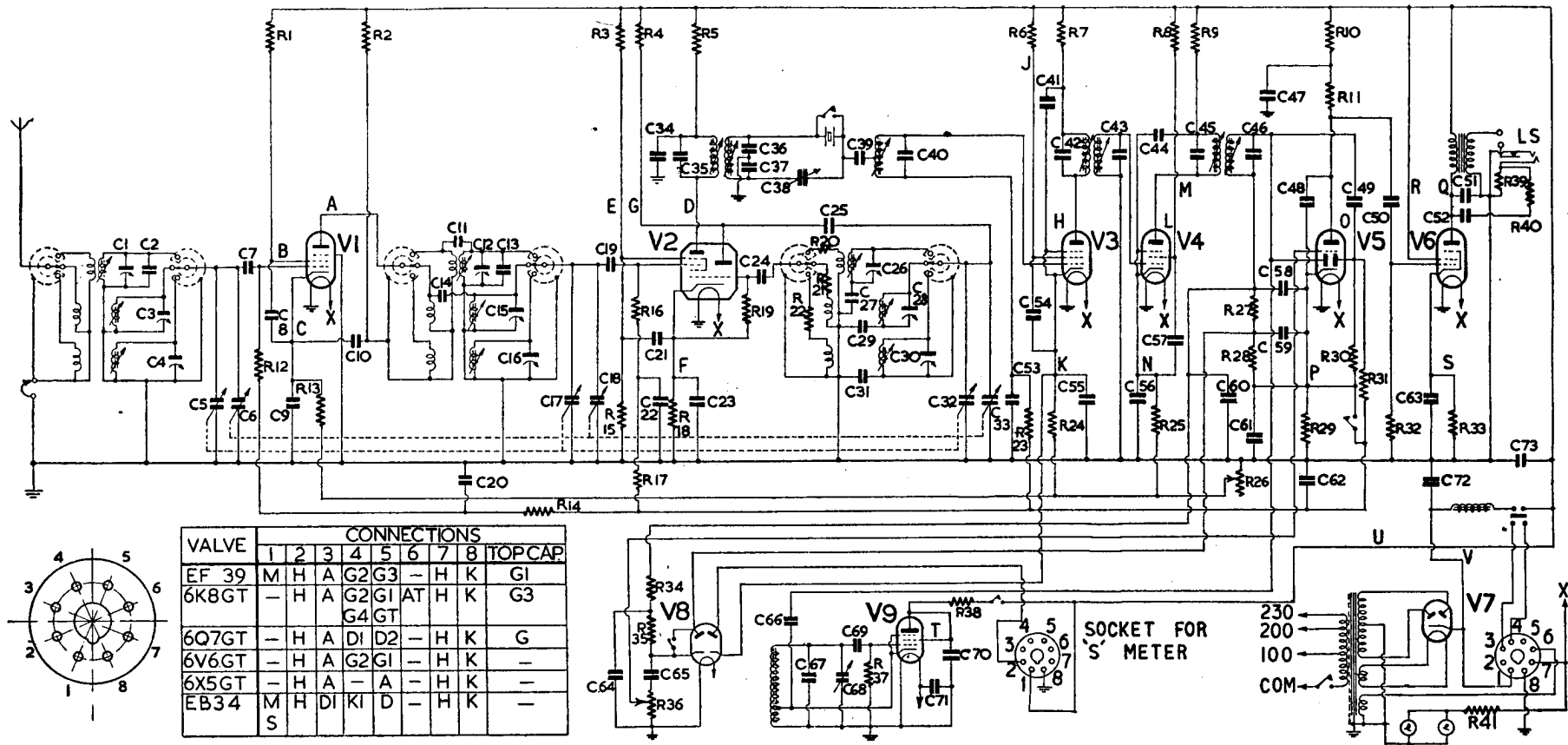
Excessive B.F.O. noise (rustle) may be due to a defective injection capacitor (C66).

Not shown in the circuit diagram is a 0.0005- μ F. mica capacitor wired across the heater of V₂.

Alignment Procedure : Trimmer lay-out and alignment frequencies are given on pages 196-7.

Voltage Values : Voltages given below are between the points indicated and chassis. Receiver at 14 Mc/s. on Range 1, aerial shorted out; R.F. and A.F. gain controls maximum; crystal, noise limiter and B.F.O. off. The voltage indicated depends upon the internal resistance of the particular meter employed. A tolerance of plus or minus 5 per cent should be allowed on the figures given.

<i>Circuit Reference</i>	<i>1000 ohms/volt Testmeter</i>	<i>333 ohms/volt Testmeter</i>	<i>Circuit Reference</i>	<i>1000 ohms/volt Testmeter</i>	<i>333 ohms/volt Testmeter</i>
A	200 v.	190 v.	M	85 v.	70 v.
B	70 v.	60 v.	N	2.2 v.	2.1 v.
C	3.0 v.	2.75 v.	O	75 v.	40 v.
D	225 v.	200 v.	P	1.4 v.	0.8 v.
E	85 v.	85 v.	Q	217 v.	215 v.
F	4.1 v.	3.8 v.	R	225 v.	225 v.
G	75 v.	70 v.	S	10.5 v.	10 v.
H	200 v.	190 v.	T	95 v.	90 v.
J	75 v.	60 v.	U	225 v.	225 v.
K	3.0 v.	2.75 v.	V	250 v.	250 v.
L	200 v.	190 v.			



VALVE	CONNECTIONS								TOP CAP
	1	2	3	4	5	6	7	8	
EF 39	M	H	A	G2	G3	-	H	K	G1
6K8GT	-	H	A	G2	G1	A	H	K	G3
6Q7GT	-	H	A	G4	GT	-	H	K	G
6V6GT	-	H	A	G2	G1	-	H	K	-
6X5GT	-	H	A	-	A	-	H	K	-
EB34	M	H	DI	KI	D	-	H	K	-
	S								

CIRCUIT DIAGRAM—EDDYSTONE MODEL 640

- Capacitors.**
 3/20 pF. (air)
 3/20 pF. (ceramic)
 3 pF.
 6 pF.
 10 pF.
 20 pF.
 40 pF.
 100 pF.
 200 pF.
 2100 pF.
 950 pF.
 380 pF.

- C1, C3, C4, C12, C15, C16
 C26, C28, C30
 C66
 C14
 C13
 C2, C20, C39
 C49, C58, C59
 C7, C19, C24, C25, C69
 C35, C40, C42, C43, C45, C46, C67
 C27
 C29
 C31
 C5, C17, C32
 C6, C18, C33
- 400 pF.
 0.01 (paper)
 0.0005
 0.002 (mica)
 0.01 (mica)
 0.1
 8 (Elec)
 25 (25 v.)
 16 (or 12 v.)

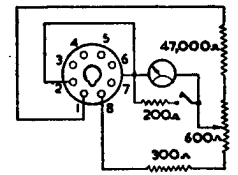
- C36, C37
 C8, C9, C10, C20, C21, C22, C23, C34, C41, C44, C52, C53, C54, C55, C56, C57, C62, C65, C70, C71
 C48, C60
 C51
 C50
 C64
 C47, C72
 C61, C63
 C73

- Resistors.**
 2.6 (wire)
 12
 100
 270
 330
 400
 560 (or 500)
 3.3k
 4.7k (or 5000)
 15k
 20k
 22k (or 25k)
 All 1/2-watt except R3, R4, R15, R33 (1-watt).

- R41
 R20
 R21
 R33
 R18, R25
 R13, R24
 R22
 R39
 R2, R5, R7
 R9, R29
 R3
 R15
 R38
- 27k (or 30)
 33k
 47k
 100k
 0.27M
 0.47M
 1M
 2.2M
 10k pot.
 0.5M pot.

- R4, R10
 R40
 R19, R23, R37
 R1, R6, R8, R27
 R11, R32
 R12, R14, R16, R17, R28, R30, R31
 R34
 R35
 R26
 R36

- Arbitrary Scale**
 (based on 6 db. change per S unit)
- | | |
|-------------|--------------|
| S1 7.5 μA. | S6 77 μA. |
| S2 16 μA. | S7 100 μA. |
| S3 27 μA. | S8 125.5 μA. |
| S4 41 μA. | S9 157 μA. |
| S5 58.5 μA. | |



"S" - METER

EDDYSTONE

201

EDDYSTONE RECEIVERS

INTRODUCTORY NOTES

Manufacturers : Messrs. Stratton and Co. Ltd., Eddystone Works, Alvechurch Road, West Heath, Birmingham 31.

The front panel and the coil-box of all models are stout diecastings, while separate chassis are used for the power unit, I.F. section and output stage.

In each model, the cabinet is easily removable by withdrawing four large screws at the rear. Most parts of the receiver are then readily accessible.

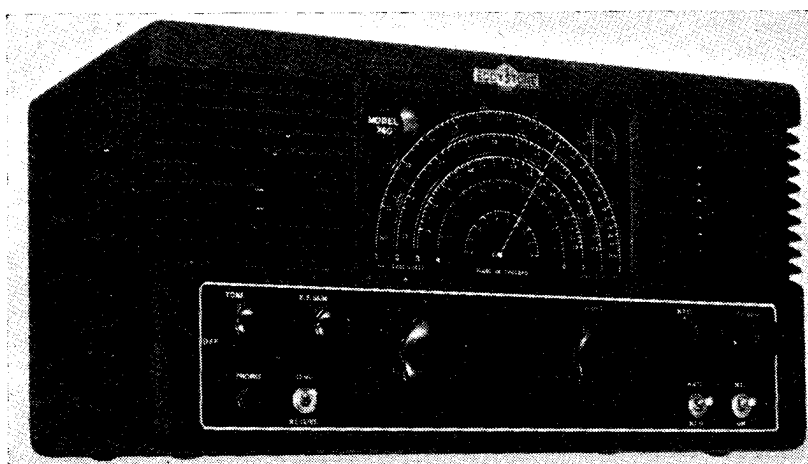
All coils (R.F. and I.F.) are permeability tuned, trimmers also being provided in the R.F. and oscillator sections. Alignment is carried out following the normal procedure, variations being indicated where necessary. When changing a valve, it is usually only necessary to re-adjust the appropriate trimmer capacitors to correct any differences in stray capacitance, and there is then no need to remove the lid of the coil-box. For full alignment, however, this lid must be taken off. Always remember to adjust the trimmers at the high-frequency end of a range and the cores at the low-frequency end. The correct alignment points are given in the table below. Where variable selectivity is fitted (Models 750, 680), alignment should be carried out with the control set at *maximum* selectivity.

Models 640, 740 and 750 are adapted for operation from a 6-volt accumulator and auxiliary H.T. supply. The octal plug which completes the L.T. connections must be inserted in the socket at the rear. This plug and its internal connections should be examined if any failure of or variation in the heater supply occurs.

During manufacture, all receivers are subjected to an ageing process and are then calibrated to an accuracy of plus or minus 0.5 per cent.

The transformers fitted to mains models are for 40-60 c/s. operation and are not suitable for 25 c/s. supplies.

The glass and dial can be cleaned by using a thin artist's brush, long enough



GENERAL APPEARANCE OF POST-WAR EDDYSTONE RECEIVERS
(MODEL 740)

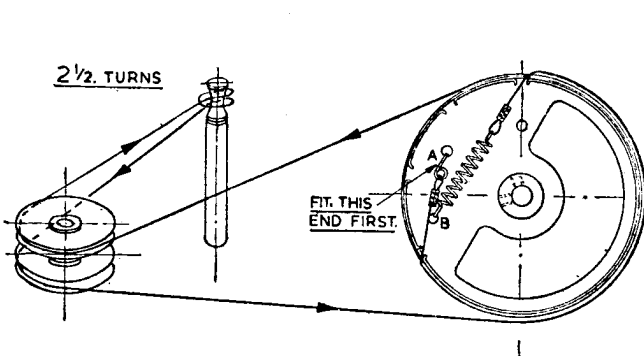
to reach all parts of the glass. The dial lights are standard in all receivers, bulbs with miniature bayonet caps, rated at 6.3 volts, 0.3 amp., being used. To change a lamp, it is only necessary to press the holder, which is sprung into place, and pull out.

A standard wiring code is used as follows :

A.C. mains	Grey	Heaters	Yellow
H.T.	Red	Negative to chassis	Brown
Anodes	Light blue	Chassis potential	Black
Grids	Green	Other leads	White

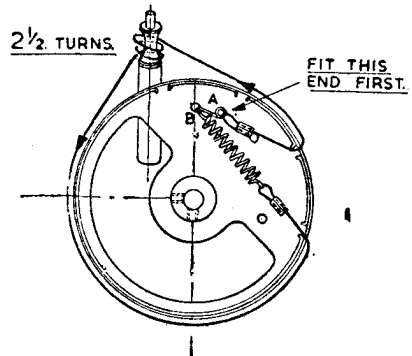
ALIGNMENT FREQUENCIES

Model	Range 1		Range 2		Range 3		Range 4		Range 5	
	High (Mc/s.)	Low (Mc/s.)	High (Mc/s.)	Low (Mc/s.)	High (Mc/s.)	Low (Mc/s.)	High (kc/s.)	Low (kc/s.)	High (kc/s.)	Low (kc/s.)
556, 504	30	14	13	6.5	6.5	3	2800	1400	1300	600
659, 670	28	13	12	6	2.6	1.3	1200	600	—	—
640	30	13	12	5	4	2	—	—	—	—
710, 740	28	12	9	4	3.2	1.5	1200	550	—	—
750	30	13	11	4.7	4.2	2	1350	550	—	—
680	28	14	13	6	5.8	2.5	2500	1200	1100	500



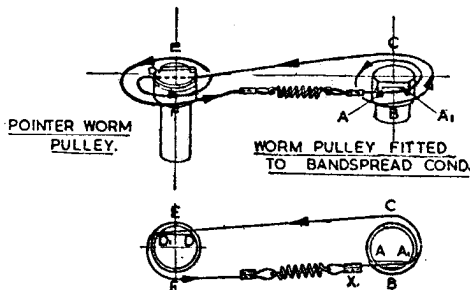
BANDSET.

TURN BANDSET CONDENSER TO MAXIMUM CAPACITY; THE DRIVE DRUM FITTED TO THE CONDENSER SPINDLE SHOULD THEN BE ORIENTATED AS SHOWN. USE CORD. D.1069. COMMENCE AT 'A' & FINISH AT 'B'.



BANDSPREAD.

WITH THE BANDSPREAD CONDENSER SET AT MAX. CAPACITY; THE DRIVE DRUM IS FITTED IN THE POSITION SHOWN. USE CORD. D.1070. COMMENCE AT 'A' & FINISH AT 'B'.



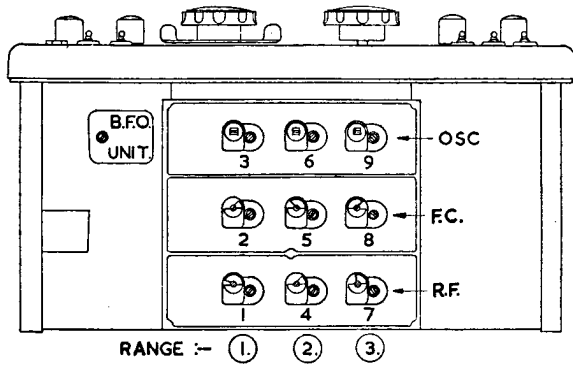
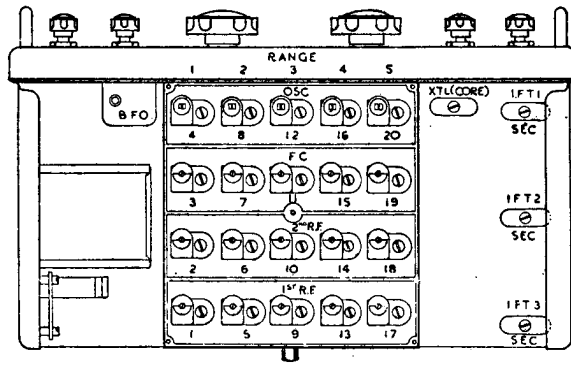
BANDSPREAD POINTER DRIVE.

SET BANDSPREAD CONDENSER AT MAX. CAPACITY. WITH WORM PULLEYS IN POSITIONS SHOWN. FIT CORD D.1071. IN SLOT. A.A. SO THAT THE CORD CLIP 'X' JUST CLEARS THE PULLEY. NOW COMPLETE ASSEMBLY BY FOLLOWING. A1.B.C.D.E.F.

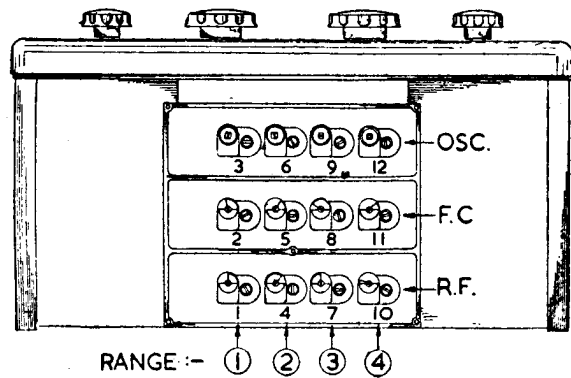
CORD DRIVE REPLACEMENT—EDDYSTONE MODEL 640

Turn receiver panel downwards top towards you ; then with cover removed and looking down on the receiver, the cord drives would appear similar to the inverted rear views shown. To fit cords, remove dial bulbs and reflector plate and proceed as indicated in the diagrams.

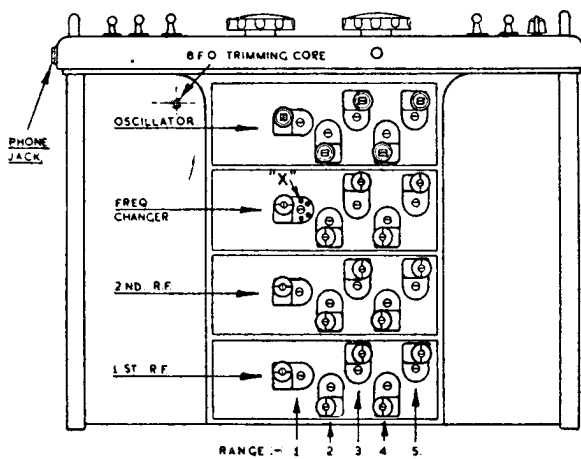
CORE AND TRIMMER LAY-OUT—
EDDYSTONE MODELS 504, 556



CORE AND TRIMMER LAY-OUT—
EDDYSTONE MODEL 640



CORE AND TRIMMER LAY-OUT—
EDDYSTONE MODELS 659, 670, 740, 710



CORE AND TRIMMER LAY-OUT—
EDDYSTONE MODEL 680