

# EDDYSTONE

## ULTRA HIGH FREQUENCY COMMUNICATIONS RECEIVER MODEL 770U MARK II



150 Mc/s. to 500 Mc/s.

## **Eddystone 770U Mark II Receiver**

THE EDDYSTONE "770U" Mark II is a manually tuned double conversion receiver covering from 150 Mc/s to 500 Mc/s in six ranges. It is equally suitable for reception of AM and FM signals and gives a high standard of performance in both modes. Operation is from standard AC mains supplies.

THE MARK II model is a development of the well-known "770U" receiver and retains the time-proven reliability of the original version. It has many applications for normal communications and as an instrument in the field of research and development.

THE VERSATILITY is increased by the provision of outlets at the intermediate frequencies, for use with auxiliary equipment, including the Eddystone "EP14" and "EP17R" Panoramic Display Units, information on which is available separately.

THE RADIO FREQUENCY section of the receiver features closely integrated electrical and mechanical design. A grounded grid amplifier is used in conjunction with a germanium diode mixer. Range switching is achieved with a specially designed coil turret, which forms part of a carefully engineered tuner assembly, ensuring optimum performance throughout the entire coverage.

TWO STAGES of amplification are used at each intermediate frequency, the stage following the diode mixer being a low noise cascode type, arranged to allow an external converter being connected at this point. Low impedance outputs are available at the second intermediate frequency of 5.2 Mc/s from the second mixer stage and from the final amplifier. In all, nineteen valves, four germanium diodes and one transistor are used. The controls are arranged for convenient operation, the scales are well illuminated, and the fitting of a crystal calibrator ensures a high degree of accuracy in determining frequency.

OTHER STANDARD FEATURES include separate audio outputs for speaker, line and telephones; an efficient muting system; built-in tuning meter; separate IF and AF gain controls; and an AGC on/off switch.

STYLING is modern with a two tone finish, and rack mounting and table versions are available. Construction and workmanship are of the normal high Eddystone standard.

## GENERAL INFORMATION

### Frequency Coverage

150 to 500 Mc/s in six ranges:—

Range 1	..	400 Mc/s to 500 Mc/s.
Range 2	..	330 Mc/s to 400 Mc/s.
Range 3	..	270 Mc/s to 330 Mc/s.
Range 4	..	220 Mc/s to 270 Mc/s.
Range 5	..	180 Mc/s to 220 Mc/s.
Range 6	..	150 Mc/s to 180 Mc/s.

### Intermediate Frequencies

The first intermediate frequency is 50 Mc/s and the second 5.2 Mc/s.

### Valve and Semi-conductor Complement

V1	6AM4	(CV5073)	GG RF Amplifier
V2	6AF4A	(CV5074)	1st Local Oscillator
V3	12AT7	(CV455)	1st 50 Mc/s IF Amplifier
V4	6AK5	(CV850)	2nd 50 Mc/s IF Amplifier
V5	12AT7	(CV455)	2nd Mixer/2nd Oscillator
V6	6BA6	(CV454)	1st 5.2 Mc/s IF Amplifier
V7	6BA6	(CV454)	2nd 5.2 Mc/s IF Amplifier
V8	6AU6	(CV2524)	Cathode Follower
V9	6AU6	(CV2524)	FM Limiter
V10	6AL5	(CV140)	FM Discriminator
V11	6AL5	(CV140)	NL/AVC Rectifier
V12	6AM6	(CV138)	Crystal Calibrator
V13	6AU6	(CV2524)	Noise Amplifier
V14	12AU7	(CV491)	AF Amplifier/Muting Control
V15	12AU7	(CV491)	Phase Splitter/Meter Control
V16/17	6AM5	(CV136)	AF Output
V18	150C3	(CV216)	HT Stabiliser
V19	5Z4G	(CV2748)	HT Rectifier
D1	GEX66	—	1st Mixer
D2	GEX13	—	AM Detector
D3/4	GEX13	—	Noise Rectifier
TR1	BFY19	—	Tone Oscillator (Crystal Calibrator)

### Aerial Input

The coaxial socket taking the aerial feeder is located directly on the turret assembly. The input impedance is 50/75 ohms unbalanced.

### IF Points

A winding on the first 50 Mc/s intermediate frequency transformer is brought out to a coaxial socket and serves two purposes. The output from a separate converter, with a signal frequency outside the range of the receiver, can be fed in at this point, whilst a signal at 50 Mc/s and with a wide bandwidth can be taken out for application to auxiliary equipment. Two further sockets provide outputs at 5.2 Mc/s, one

at an early point in the second IF chain and giving a bandwidth of approximately one megacycle, the other from a cathode follower and with a narrower bandwidth. These outputs, with a nominal impedance of 75 ohms, allow direct use of the EP17R and EP14 Panoramic Display Units.

### Audio Outputs

Terminals at the rear have output impedances of 2.5 to 3 ohms for speaker and 600 ohms (balanced or unbalanced) for line. A matching speaker unit, in plinth form (Cat. No. 906) is available and serves also to lift the front of the receiver for greater operational convenience. A jack on the front panel is provided for use with a telephone headset.

### Audio Input

The audio stages can be used independently by connecting an external signal source to terminals at the rear. Also, a low level signal from the detector stage can be taken from this point, as is sometimes desirable.

### Crystal Calibrator

An internal crystal calibrator provides tone modulated marker points at intervals of 50 Mc/s and scale correction when necessary is made by mechanical adjustment of the cursor.

### Tuning Meter

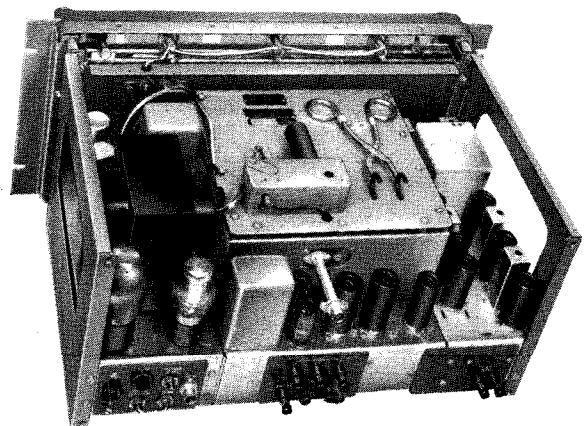
A built-in meter facilitates accurate tuning on both AM and FM. In the former mode, the meter reading gives an indication of relative carrier amplitude.

### Controls

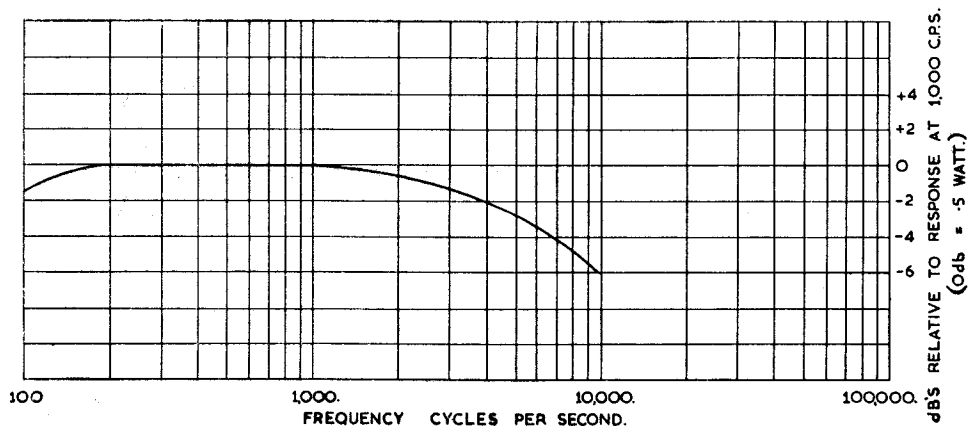
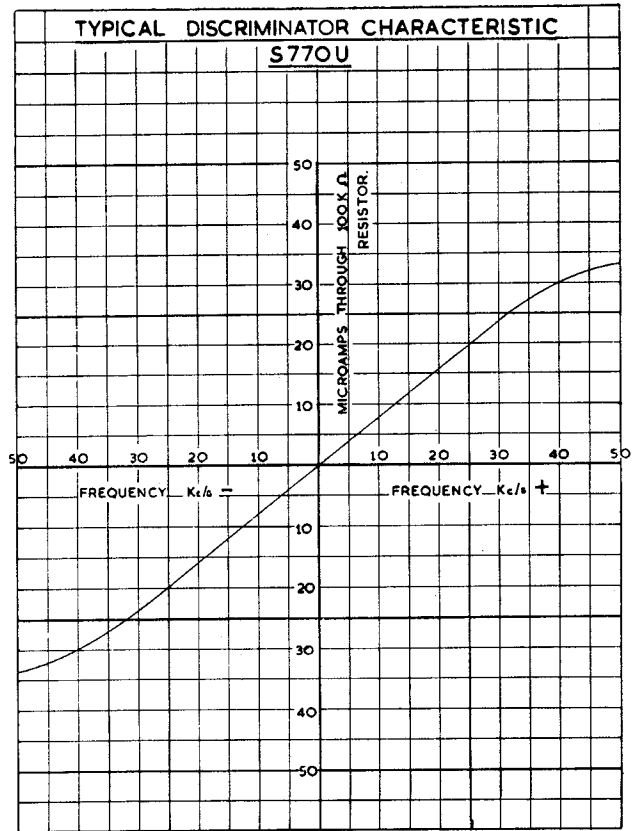
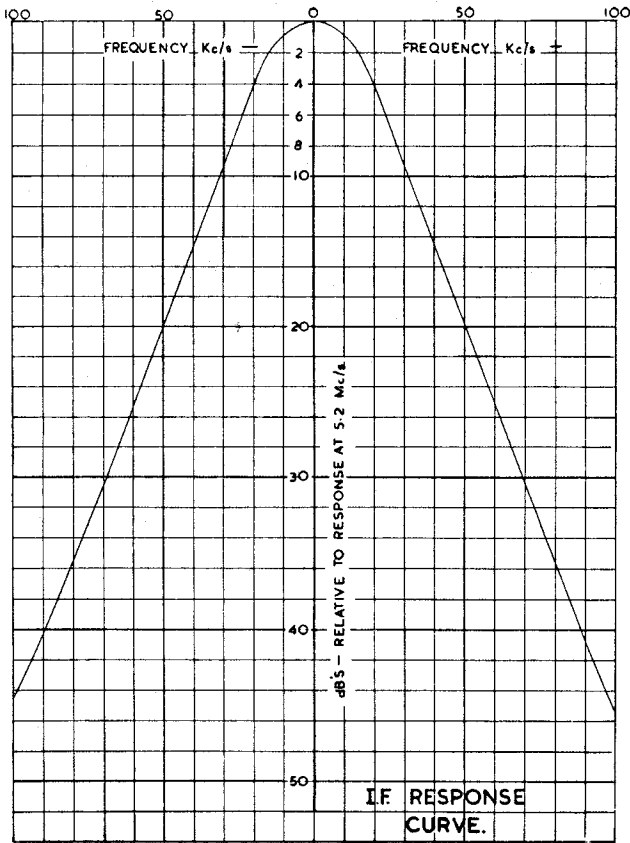
Tuning, with 140/1 reduction drive; mode switch (AM — FM); IF gain; AG gain; noise limiter on/off; standby switch; muting on/off; mains on/off; cursor adjustment. Preset controls at the rear for adjustment of muting level and of the meter zero in AM and FM modes.

### Power Supply

Operation is from standard AC mains, 100/125 volts and 200/250 volts, 40/60 cycles, the consumption



# Eddystone 770U Mark II Receiver



Response curve of the audio section of 770U Receiver

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being approximately 90 volts-amps. The live side of the input is fused.

## Physical Details

Weight	..	53 lbs. (24 kg.)
Width	..	16 $\frac{3}{4}$ inches (42.5 cm.)
Depth	..	15 inches (38.1 cm.)
Height	..	8 $\frac{3}{4}$ inches (22.2 cm.)

## AVERAGE TECHNICAL FIGURES

### Sensitivity

Better than 10 microvolts for a 15 dB signal-to-noise ratio (50 milliwatts output, 30% modulation at 400 c/s).

### Image Rejection

25 dB at 400 Mc/s and 40 dB at 200 Mc/s.

### Selectivity

The overall IF response is 6 dB down 20 kc/s off resonance and 20 dB down 50 kc/s off.

### FM Deviation Acceptance

The discriminator accepts deviations of up to 40 kc/s with negligible distortion.

### Scale Accuracy

The scales are individually hand calibrated to an accuracy within 0.2%.

### Frequency Stability

The overall drift does not exceed one part in  $10^4$  per degree Centigrade change in temperature after a warm-up period of 15 minutes.

### AGC Characteristics

Less than 12 dB change in audio output for a 60 dB increase in signal above 10 microvolts.

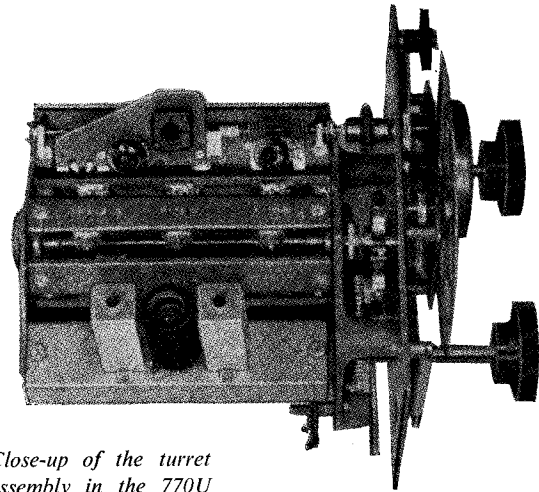
## Audio Output

2.5 watts maximum into 3 ohms. The frequency response of the audio stages is level within 3 dB from 200 c/s to 10 kc/s.

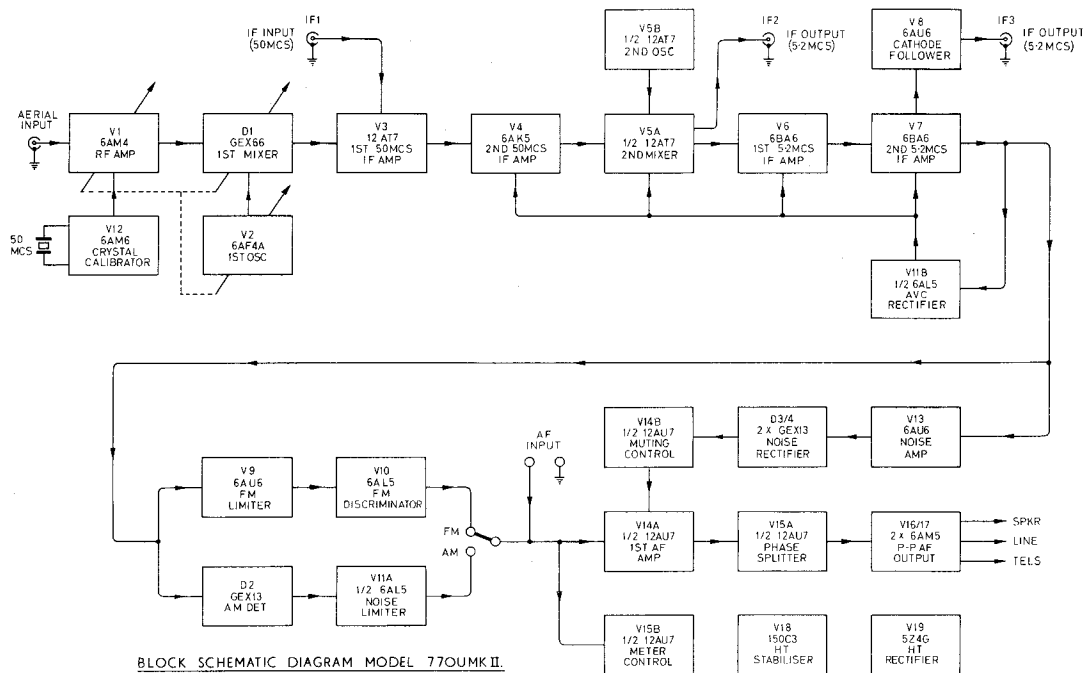
## Instruction Manual and Guarantee

A comprehensive instruction manual is supplied with the receiver and our normal 12 months guarantee applies against faulty workmanship and components (excluding valves and semi-conductors).

*In the interests of continued improvement, we reserve the right to amend this specification without notice.*



Close-up of the turret assembly in the 770U



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