

When the opportunity came to take a look at the Eddystone 750 general coverage receiver in this series Rob Mannion G3XFD couldn't resist the temptation! He's in no doubt....it's a real classic.

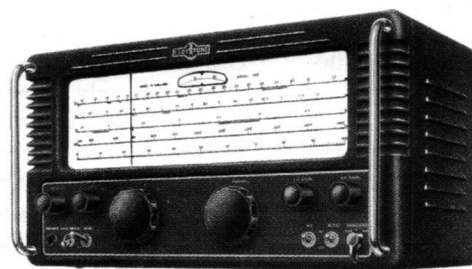
When the PW Editorial team decided to feature the Eddystone 750...I took the job on myself. I did so because I've got very fond memories of this truly classic receiver.

I actually purchased my first 750 from 'Bandit Bill' (Bill Lowe) in Matlock in Derbyshire in 1966...a purchase from a reliable dealer I never regretted. Bought 'blind' over the telephone, the set duly arrived a week or so later and was in continuous use until 1997 when the mains transformer failed.

The failure was because the main rectifier valve developed an internal short circuit. All would have been well except that the previous owner (I'd never checked the fuse...silly me) had placed a 3A fuse in the transformer protection circuit. This, when the fault developed caused the transformer to 'cook'.

Finally, before I get under way with this article, my thanks go to my good friend Alan Ainslie, from Farnham in Surrey who now owns the extensive Eddystone archives. He provided the valuable original Eddystone 750 archive material for me to use. It's in mint condition and was a privilege to use.

My thanks also go to another good friend...Ben Nock G4BXD. Ben's photography and general assistance in this project are much appreciated.



EDDYSTONE COMMUNICATIONS RECEIVER Model "750"

Instruction Manual

The Eddystone "750" receiver is of the double superhetrodyne type and combines high sensitivity with an unusually good signal-to-noise ratio. All but two of the eleven valves are of the miniature type, details being provided with the circuit diagram. The selectivity is continuously variable over wide limits and this feature, in conjunction with the separate RF, IF and AF gain controls, enables maximum results to be secured under varying conditions of operation.

The four ranges are as follows :

Band 1	...	32 Mc/s. to 12 Mc/s.
Band 2	...	12 Mc/s. to 4.5 Mc/s.
Band 3	...	4.5 Mc/s. to 1.7 Mc/s.
Band 4	...	1465 Kc/s. to 480 Kc/s.

The fifth position of the wavechange switch desensitises the RF section of the receiver to permit a pick-up to be used without break-through.

The Amateur Bands are distinctively marked in green, on the basis of the International allocations made at the Atlantic City Conference in 1947. The broadcast bands are shown in red. It should be noted that the scale markings (all in frequency) are linear and also that the International Distress frequency of 500 Kc/s. is covered.

- Stratton and Co., the original manufacturers of the Eddystone equipment were renowned for their attitude to existing customers, and possible buyers of their equipment. This copy of the Model 750 Instruction Manual (from the Eddystone archives) would have been sent in reply to any enquiries to their Birmingham headquarters. Rob G3XFD even had very helpful hand-written instructions arrive explaining - at some length - how he could fault-find an unusual a.g.c. problem. Such was the Eddystone service. Illustration courtesy of Alan Ainslie.

It's A Classic-

The

Eddystone

Introduced In 1949

The original manufacturers of the Eddystone marque - Stratton & Co. Ltd, based in Birmingham in the English West midlands, published the full specifications of

the 750 receiver in September 1949. Interestingly, they announced at the same

time that deliveries would commence in early 1950 stating "Order now from your local Eddystone Dealer for delivery in rotation as released".

radio enthusiast of the day...and one which is still capable of working extremely well on our busy h.f. bands.

The Eddystone 750 is a double conversion superhet type and, for its time, provided unusually good signal-to-noise ratio and selectivity. Eleven valves were used and these, with the exception of two, were of the then very modern

The price - for anyone fortunate enough to be able to afford £45 in those days of austerity - purchased what was to prove to be an extremely reliable receiver. It was also one of the most 'state of the art' receivers available to the

miniature all glass type. The N78 audio output valve (B7G base) is of particular interest (see later).

With a first i.f. of 1.620MHz and a second i.f. of 85kHz the Eddystone 750 provided general coverage reception from 480kHz to

32MHz in four bands. Using the large (left side, see heading photograph) mounted five* (See note) position range switch, the band selection was arranged as follows: **Band 1:** 12 to 32MHz, **Band 2:** 4.5 to 12MHz, **Band 3:** 1.7 to 4.5MHz, and **Band 4:** 480kHz to 1.465MHz.

The main controls are: tuning, band selector, separate r.f. and i.f. gain, b.f.o. switch and a.g.c. control (delayed a.g.c. is off when b.f.o. is on), noise limiter, stand-by (desensitising)

variable-tuning system. It's very effective and is still used today in modern equipment...the only difference being that the i.f. tuning is achieved electronically instead of mechanically. Eddystone were there first though!

Separate radio frequency (r.f.) and intermediate frequency (i.f.) gain controls are provided on the receiver. They enable the operator to 'balance' the front-end gain with i.f. gain to the best effect...and they are really



● An original black and white publicity photograph from the Eddystone archives. Courtesy of Alan Ainslie.

switch, mains on/off and mechanically linked selectivity control.

The slide-rule type dial, with the well-placed logging scale on the 750, was of course superbly engineered. When first introduced it must have been a real eye-opener...and even today it's extremely attractive and easy to use. The broadcast bands are clearly marked in red, and the Amateur Bands are shown in green (excepting the modern 10, 18 and 24MHz WARC bands).

In operation the dial tuning with its heavy flywheel effect is superbly smooth...a real joy to operate. In my opinion (with the

useful! I say this because there have been many occasions when being able to reduce the front end gain, while increasing the i.f. gain...has enabled me to continue a QSO.

Note *The fifth position was provided to desensitise the receiver so that the rear panel provided audio pick-up could be used (The provision of a 'Gramophone Input' on receivers was commonplace at the time).

Eleven Valves

The Eddystone 750 uses 11 valves, and it's an interesting line-up including: **V1** (r.f. amplifier), **V5** (85kHz i.f. amplifier) and **V9*** (providing the beat frequency oscillator) are 6BA6 pentodes (B7G base), **V2** (1st i.f. mixer/oscillator) and **V4**** (2nd i.f. mixer) are ECH42 triode-hexodes (B8A base), **V3** (separate 85kHz local oscillator) is an 8D3 pentode (B7G base), and **V6** is a DH77 double-diode triode, providing the 2nd detector, automatic gain control (a.g.c.) and a.f. amplification (B7G base).

Next is **V7**, a D77 double diode in which one diode provides noise limiting, and the other half forms part of the S-

The Famous Eddystone Lighthouse Logo

Although the story I'm about to tell may be apocryphal in nature...I think it's worth re-telling because I've heard it from several sources!

If you've ever had the privilege of sailing by (not too closely!) to the famous Eddystone Leading Light rock lighthouse, you'll realise that the Eddystone logo - even taken into account any artistic licence - does not look much like the existing magnificent structure. However, the clue to the origins of the logo - **Smeaton's Stump** - can be seen on our front cover this month thanks to **Trinity House in London**.

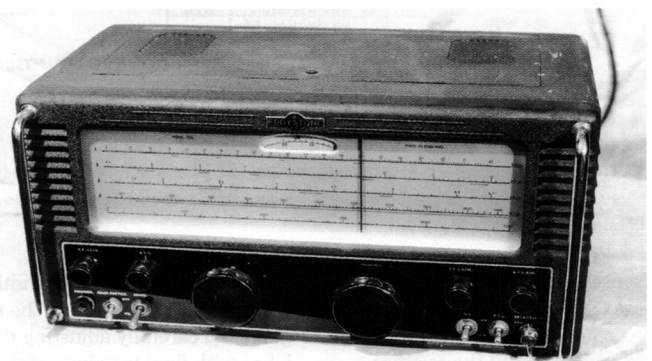
The Eddystone reefs have a long, and terribly dramatic - often tragic - history and I recommend you read up on the subject. However, although the original light built by the brave **Whinstanley** (he disappeared, along with his remarkable structure in a tremendous storm one night) didn't last long...it saved many lives and made it obvious another light had to be built.

The second lighthouse - built by Smeaton was so successful it lasted around a century, only having to be replaced when the rock it was built onto started to crack...endangering the lighthouse.

The Eddystone lighthouse we now see was then built onto a nearby rock...and the old lighthouse dismantled (except for the remaining 'Smeaton's stump') and was re-erected on Plymouth Hoe where you can see, and visit it for yourself.

The story continues! When Stratton & Company's artist visited the area (so the story goes anyway) to work on the logo which we now know so well...it was too stormy to visit the area near the Eddystone rocks. Undaunted he drew the squatter-shaped (but still very attractive) re-erected Smeaton tower on Plymouth Hoe. **Whatever the real story is...I enjoy this version and I hope you did too!**

Rob G3XFD.



● Over 50 years since the Eddystone 750 was first produced many of them - such as this example - are safe in the hands of dedicated collectors. Some are even found to be using the original valves! Photograph courtesy of Ben Nock G4BXD.

750

exception of the Eddystone EA12) it outclassed all the other models produced by Stratton & Co.).

The receiver is provided with variable selectivity achieved by a mechanically-adjusting i.f. core

meter circuitry, when the external meter is used (B7G base). Next comes **V8**, the unusual (***)see note below) audio output valve (B7G), **V10** is the full wave power rectifier (octal base). Finally, h.t. voltage stabilisation is provided by **V11**,

a VR150/30 stabiliser.

Notes *The screen grid of V9 is 'strapped' - connected directly to the anode in this oscillator.

** The triode section of V2 has its anode 'strapped' to the anode, and thus does not work as a triode. Local oscillator

injection is from V3, via the grid of the triode section of V2.

*** The N78 is a remarkably unusual, and extremely versatile B7G based a.f. output valve. It's capable of working from audio frequencies up to 144MHz (and above!). Never a cheap valve, it featured as a power amplifier in several 1960s PW v.h.f. projects.

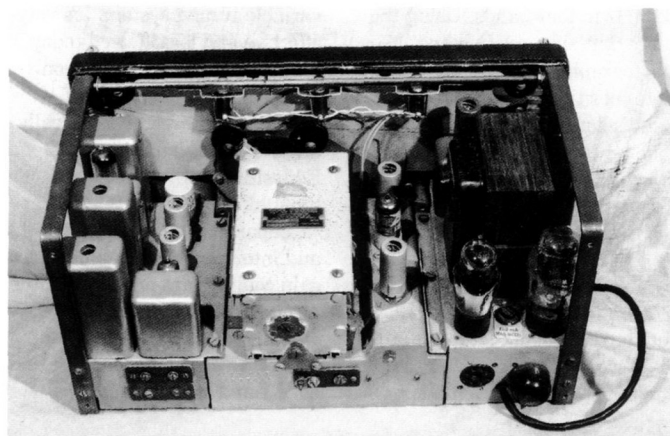
Always On Duty

Usually, I would entitle this section of a review-type article as 'On the Air'...but in the case of the Eddystone 750 I think 'Always on duty' is more appropriate! I say this because the G3XFD 750 was always on - and was only ever switched off when my family and I moved

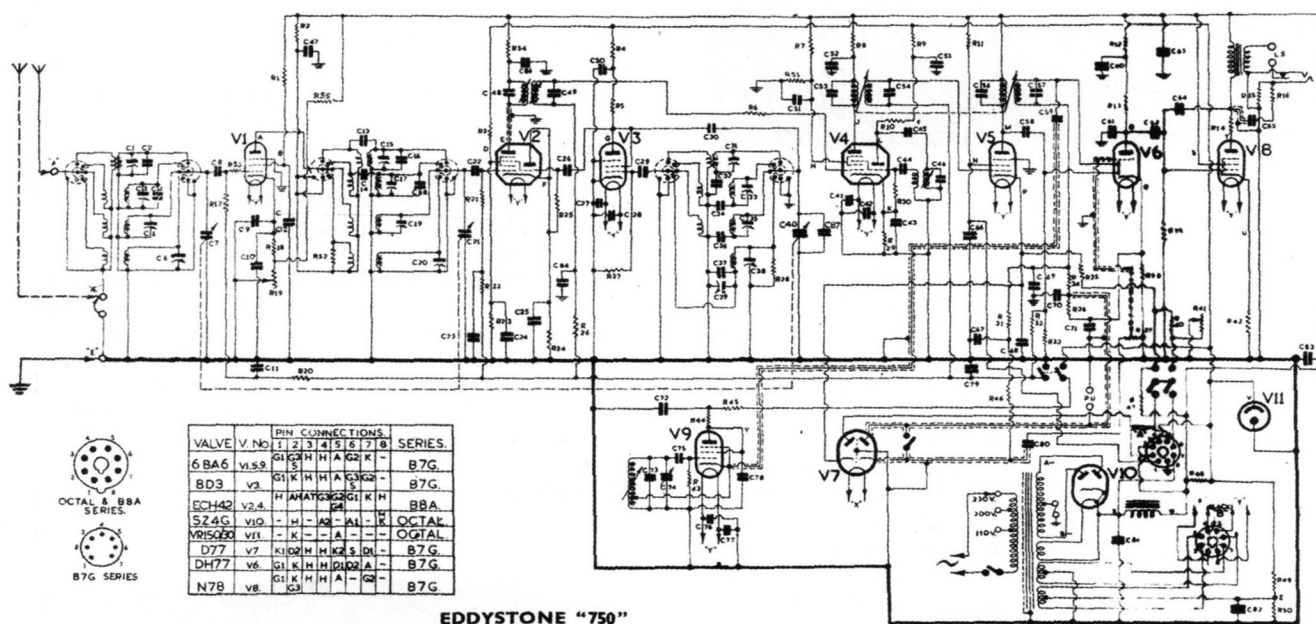
hours at a time.

On the Amateur bands I found the 750's selectivity and sensitivity was perfectly acceptable for a.m. and c.w. working. I used it for thousands of a.m. QSOs on 1.8, 3.5 and 7MHz (particularly on 7MHz). Sensitivity was even good enough for 28MHz operation, whereas other receivers I had in those days lacked sensitivity up on 10 metres.

Although the beautiful dial with its 220 to 1 reduction drive was delightful to use...the cramped nature of the 7 and 14MHz tuning had to be tolerated along with the early difficulties in resolving single sideband (s.s.b.) transmissions. The latter was quickly overcome by adjusting the bandwidth



● The Eddystone 750 removed from its 'wrap around' heavy steel casing. The main i.f. section is seen on the left, with the main r.f. front end assembly shown in the centre. The high quality tuning and dial cursor mechanism can be seen between the main tuning capacitor screening lid, and the scale illumination lamps. The main power supply and transformer are to the right. Photo courtesy of Ben Nock G4BXD.



● The full circuit diagram of the Eddystone 750 double conversion superhet communications receiver. The only problem for owners was the use of the comparatively rare - and expensive to replace - B7G based a.f. output valve (see text). From (and reproduced with permission) of the Eddystone archive collection courtesy and permission of Alan Ainslie.

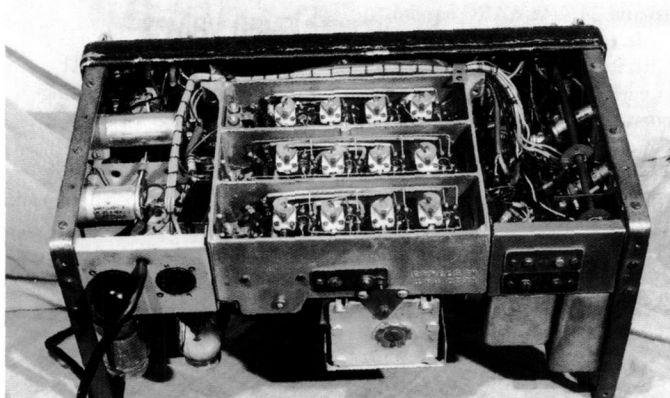
house, etc. It was this continuous use (reducing power supply and switch-on surges) which made it so reliable...until the rectifier failed as already mentioned!

The 750 proved to be an excellent general coverage receiver, and along with my Amateur Radio use it was used extensively for broadcast reception. The 3W plus of audio from the large diameter 3Ω loudspeakers I used with the set delivered excellent audio. That was when I noticed how the set drifted as I would listen to Radio Netherlands from Hilversum for

control (reducing the bandwidth a little), and also reducing the r.f. gain, and carefully adjusting the b.f.o., with final tweaking of the i.f. gain control. It's a skill which is quickly learned!

To finish off this quick look at the 750 (I could write a book on this receiver alone!) I must say that my opinion is that it's still very much viable on the air. It's not just a semi-vintage receiver for collectors...instead it's a living and breathing tribute to the skill of Eddystone Radio...and a great companion! Long live the Eddystone 750!

PW



● Underside view of the 750 receiver showing the main tuning assembly coils. The main i.f. circuitry is to the right. The mechanical linking control for i.f. 'selectivity' tuning (with its core operating links) can be seen on the far right. Also seen, on the rear panel, are the antenna input and earth connections, together with loudspeaker terminals and pickup input. The octal style socket provided connections for external h.t. and l.t. via a separate battery and vibrator unit. Connections were also provided for a separate S-meter. Photo courtesy of Ben Nock G4BXD.