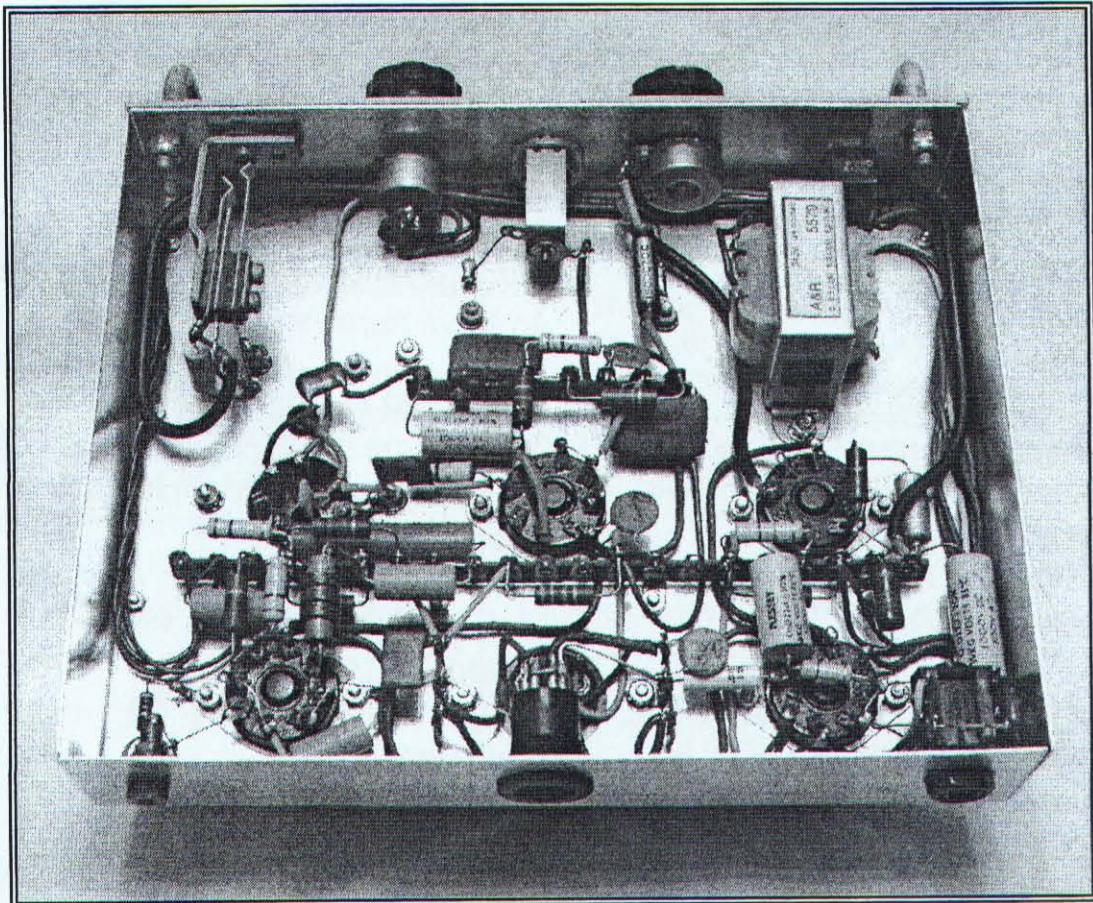


# Lighthouse

Founded 1990

The Magazine of the  
Eddystone User Group

Issue 84, April 2004



**Eddystone 4-valve TRF Clone  
uses octal valves and works well**  
*Details inside*

## EDDYSTONE USER GROUP

A non-profit-making Group for  
Eddystone Radio Enthusiasts Founded  
in 1990 by Ted Moore G7AIR  
Issue 84, April 2004

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All from Graeme Wormald  
G3GGL (details in LH column)

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2-PIN MAINS CONNECTORS for Eddystone sets. Bulgin POLARISED variety with 2 different sized inserts as used in 830, EA12, 850 and many others. Only a few available BRAND NEW so first come first served £5 each including postage. call Simon M5POO on 01434 633913

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THE FOLLOWING EDDYSTONE SETS, ALL WORKING WELL, are for sale on behalf of a member. 770R MkII, £120; 730/4, £150; 840C, £120; 670, £100; 888A, £150; EC10, £80. Contact Ted Moore on 01945 467356 or mobile 07957 951 998

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I have a large quantity of duplicate copies of Practical Wireless, Practical Television and Wireless World magazines that I would like to swap for copies I need to complete my collection. Please contact me with your wants and swaps. I have an EXCEL file I can send with all my wants and swaps listed. Call Mike (evenings): 01455 890570; or e-mail: [Mike.maxey@btopenworld.com](mailto:Mike.maxey@btopenworld.com) (Mike Maxey, 28 Herald Way, Burbage, Leics LE10 2NX)

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## Auction Notice

Members may wish to be aware that an "Eddystone Atlantic Two" receiver is to be entered in the "Radiophile" Special Auction to be held at Wetwood, Staffs on 13<sup>th</sup> June 2004 (open to all). This is believed to be an early version of Stratton's first short wave receiver, c.1927 and is reported to be in nice order  
Further details from  
Chas. Miller 01785 284 696

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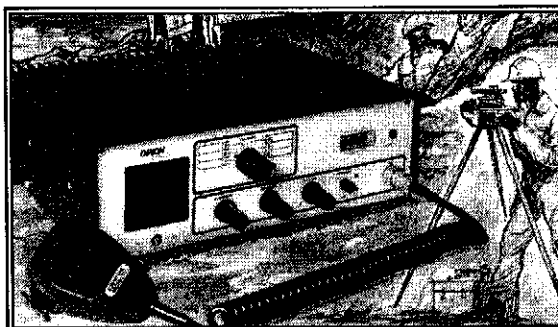
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***EUG will be there!***

# Chris's Column

Welcome to another fine issue of "Lighthouse". I have continued to monitor Eddystone prices on E-Bay throughout the last two months and have been shocked at some of the high prices commanded for fairly common sets. £200 for an EC10 Mk2 albeit in mint condition. I was also shocked to see an Orion 5000 in mint condition (*pictured right*) on the list and wonder how on earth the seller came by it. He only got £122 for it and was expecting in the region of £500. (We used to sell them for £1100). I was also curious as to the number of Eddystone sellers who seem to be based in Birmingham and I am beginning to wonder if some of our sets were shipped over the fence rather than up the drive!



Anyway, E-bay continues to fascinate me. If you have an Eddystone to sell then you can almost guarantee a sale on E-bay. I have combined my last list with current prices so that you can see the range of prices that some sets achieve. You can also see which are the most popular sets offered.

The number of bug keys that seem to be around is surprising, also the prices they fetch of around £100. Remember that the following table is offered for no other reason than to satisfy our readers' curiosity. It is not meant to be a buyers' guide to Eddystone receiver values.

As Graeme rightly states, condition is everything. Most of our readers would rather have a set in good condition and complete rather than just working well. Missing parts are often more difficult to find than repairing the electronics. This table has been collated from E-bay sales over the past 6 months.

Caveat Emptor!

Radio	Sold for
All World 2	£77.00
Eddystone Bug Key	£204.00
Eddystone Bug Key 687	£95.00
Eddystone Bug Key S687	£98.00

Eddystone Bug Key S687	£98.00
Eddystone components catalogue 1936	£8.50
Eddystone External "S" meter	£93.00
Eddystone External "S" meter	£90.00
Eddystone 686 Round Speaker	£59.00
Eddystone Round Speaker	£82.00
Eddystone Round Speaker	£67.00
Eddystone Round Speaker	£68.00
Eddystone Round Speaker with box	£56.00
Eddystone Speaker (round)	£82.00
Marconi Marine Pacific (1873/1S)	£362.00
Model 1061A Pan Adaptor	£262.00
Model 1650	£282.00
Model 1650	£410.00
Model 1650 not working	£292.00
Model 1650/6 (MOD set)	£107.00
Model 1650/7 for repair or spares	£238.00
Model 1990R/3A	£425.00
Model 1995	£1,356.00
Model 358 with PSU and speaker	£85.00
Model 40A Test Receiver	£102.00

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Model 504	£290.00	Model 840C	£120.00
		Model 840C	£167.00
Model 640	£62.00	Model 840C	£155.00
Model 640	£133.00	Model 840C	£72.00
Model 640	£62.00		
Model 640C	£62.00	Model 870	£63.00
		Model 870	£132.00
Model 659	£42.00	Model 870	£67.00
Model 659	£59.00	Model 870A	£122.00
Model 659	£56.00	Model 870A	£67.00
<i>Note from Graeme: I bet the 3 model 659s above are really 670s, see QRG</i>			
Model 659/670	£100.00	Model 880 (Marconi badged)	£250.00
Model 659/670	£63.00	Model 880/2	£215.00
Model 670	£70.00		
		Model 888	£88.00
Model 730/4	£56.00	Model 888A	£205.00
Model 730/4	£185.00	Model 888A	£97.00
Model 730/4	£235.00		
		Model EA12	£320.00
Model 740	£100.00		
Model 740	£25.00	Model EB25 Mk II	£90.00
Model 740	£16.00	Model EB35 Mk II	£104.00
Model 740	£51.00		
Model 740	£95.00	Model EC10	£67.00
		Model EC10	£102.00
Model 770R	£118.00	Model EC10	£66.00
Model 770R	£122.00	Model EC10	£56.00
Model 770R	£46.00	Model EC10	£48.00
Model 770R	£51.00	Model EC10	£115.00
Model 770R/1	£87.00	Model EC10	£160.00
		Model EC10	£33.00
Model 770U	£101.00	Model EC10	£65.00
Model 770U	£45.00	Model EC10	£65.00
		Model EC10	£176.00
Model 830/8	£425.00		
		Model EC10 Mk2	£200.00
Model 840A	£94.00	Model EC10 Mk2	£127.00
Model 840A	£97.00	Model EC10 Mk2	£77.00
Model 840A	£94.00	Model EC10 Mk2	£122.00
Model 840A	£130.00		
Model 840A	£122.00	Model EC10A/2 RF Board	£12.00
		Model EC958/1 spares kit	£27.00
Model 840C	£183.00		
Model 840C	£100.00	Model Orion 5000 Transceiver new	£122.00
Model 840C	£77.00		

We have the NEC Vintage Fair to look forward to on May 2<sup>nd</sup> and we have our

usual stand so please feel free to come and see us.

I am not in the market for anything particular myself although I shall keep a look out for a Hallicrafters Sky rider SX26 or 28 at a price I can afford.

Ted has been doing sterling work operating G3EUG at interesting sites around the country. Regretfully I never got an opportunity to work him but I know many EUG members did. Well done Ted.

Makes me feel guilty about not activating G6SL very often. I shall have to do something this year with G6SL. Perhaps I can find a site with an Eddystone connection to operate from. The old Bath Tub site at West Heath is now a housing estate, with no reference to its famous history in the name of any of the new roads.

A recent article in Radio Bygones #87 about some work that B.M.Sosin of the Marconi Company did on the comparison of receiver performances in the 1970's attracted my attention.

This was published in the company magazine "Point to Point" (later called "Communications and Broadcasting") and rather upset some of Marconi's competitors.

The author seemed to think that the Marconi article was withdrawn but this has been refuted by others who worked for the company at that time. I remember the original work very well and when I took over Eddystone in 1984, Bill Cooke had an original copy of Sosin's paper and his charts.

I think I may have this somewhere in my library of bits. The Eddystone receivers came out of Sosin's investigations very well I seem to remember. Sosin who was Chief Engineer and Chief Scientist, was Polish with an unpronounceable first name so was called Brian by those

who had the courage to address him by his first name. As a young engineer at Marconi in those days, Sosin was pretty much a god to us.

Thinking about the seventies, I am reminded about how the BBC and IBA worked together to give us the best terrestrial UHF TV coverage money could buy.

In the 'nineties these organisations privatised and sold off their transmission arms to American companies who have suffered greatly in the great Telecom crash of 2000.

The industry is now deciding how to switch from analogue to digital but instead of deciding to re-build the UHF antenna network with systems capable of being future-proof they are modifying twenty year old equipment and making a compromise.

The broadcasters don't want to pay for it. It is rather like the usual British trick of building a two lane motorway when they know they will need four lanes in a few years. Industry does not really have the money to invest in new antenna systems.

I think this is the time for government to step in and help provide an antenna infrastructure that will give us a digital terrestrial service that we can be proud of. Wishful thinking I am afraid . . .

Anyway time to finish. Look forward to seeing many of you at the NEC in May.

**73 de Chris GØEYO**

Patron - Eddystone User Group

*P.S. I've just heard that an "Eddystone Atlantic Two" of c.1927 is to be included in Chas. Miller's "Radiophile" Auction at Wetwood (West Mids) on June 13<sup>th</sup>. This was Stratton's first ever short-waver and is incredibly rare. Call Chas. on 01785 284 696 for details. ♣*

# Some Light on 'Rhodesia'

**A conversation with Bill Cooke GWØION**

**by Graeme Wormald G3GGL**

In our last Issue of 'Lighthouse', Ted Moore (*'MailBox'*, pages 22/3 *'BP330'*) queried the "Rhodesian Transmitter" entries in the 1936 Eddystone Blueprint (BP) register. A phone call from Bill Cooke, former Chief Engineer, who joined Stratton's as a technical apprentice in 1935, shed a little light on the mystery . . .

The saga of the mysterious Rhodesian Transmitter had its roots in the amateur radio activities of George Brown G5BJ, Garnett Lapworth G6DL, and Vic Morse G8IK.

pocket and tapping the right numbers into it.

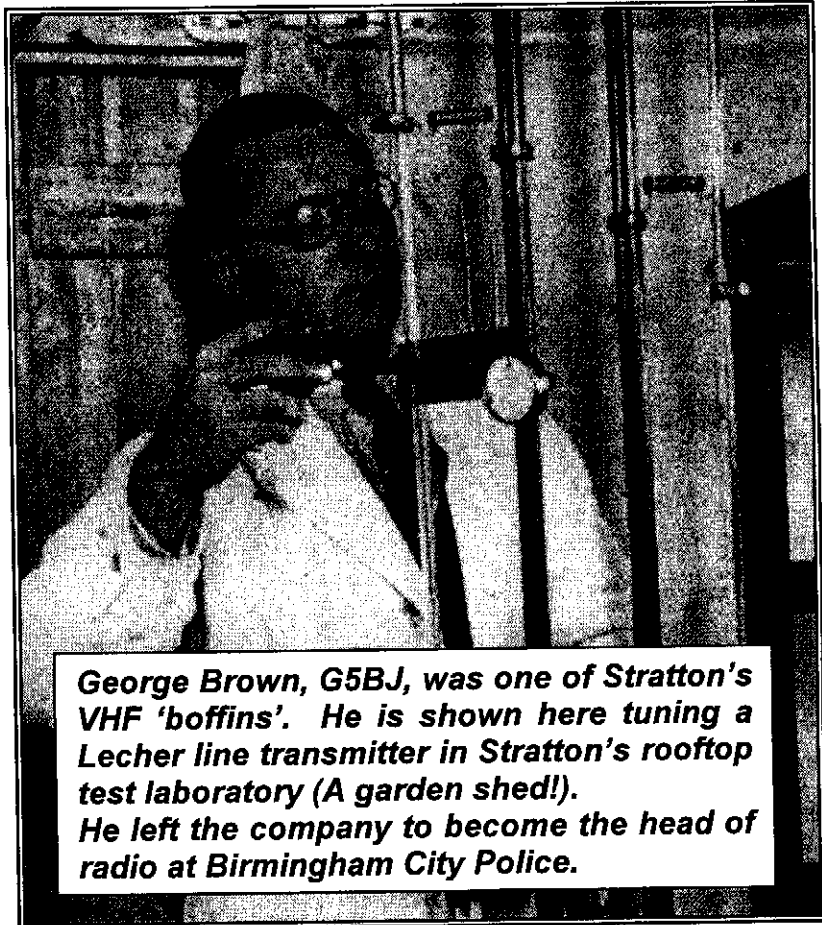
The gentlemen mentioned above were

The ethos of Eddystone radio in the 'thirties was very much linked to the British Empire and amateur radio (*never 'ham' radio in those days*) was one of those manifestations.

You could book a radio-telephone call to New York or Bombay, courtesy of the G.P.O. shortwave beam stations (*using SSB, incidentally*), but if you wished to speak to, say, Rhodesia, then amateur radio was the only way to do it.

This gave the hobby much more kudos than the present day, when speaking to the most far-flung corner of the earth is no more difficult than taking a mobile 'phone out of your

leading members of the Staff of Stratton's wireless department (as the parent firm called Eddystone Radio in those days). They would vie with each



**George Brown, G5BJ, was one of Stratton's VHF 'boffins'. He is shown here tuning a Lecher line transmitter in Stratton's rooftop test laboratory (A garden shed!). He left the company to become the head of radio at Birmingham City Police.**



other to be the first to make contact with any new station opening up some corner of the Empire.

So it came to pass that G6DL had a good friend in Rhodesia and G5BJ had a regular contact in British Honduras, VP6YB. Telephony was beginning to be the in thing with the better-heeled amateurs and Stratton's made the components to produce the goods.

But workshop facilities in the Colonies were marginal, and test facilities non-existent. Now at this distance in time Bill isn't sure if it was the forgotten call sign in Rhodesia or VP6YP who first asked Eddystone to supply him with a good, 50 watt, ready-built table-top rack mounted fone rig.

But it caught the imagination of Harold Cox, Eddystone's technical director, who, oddly enough, wasn't a great supporter of the amateur radio fraternity, in spite of being surrounded by it.

Harold asked George Brown G5BJ to get cracking with a design. This would almost certainly have been encouraged by the regular presence of the Crown Agents' representatives. The Crown Agents for the British Colonies were concerned with trade and administration and the convenience offered by short waves was of great value in the backwoods.

The design was to be based on a quartz 'tritnet' oscillator using the new

Marconi-Osram KT66, a tetrode much like the American 6L6G and the latest thing for efficient oscillators. VFOs were considered to be cheap and nasty in the mid-thirties (and they were).

The set was to operate on the only pre-war band suitable for regular reliable inter-continental daylight communication, twenty metres (*much the same today*). This kept it mechanically very simple, but 20-metre xtals were rare in those days, hence the tritet oscillator which doubled up on forty-metre crystals, readily available.



**Technical Director Harold Cox wasn't usually keen on amateur projects, but he backed this one to Radiolympia!**

The P.A. would be George Brown's favourite, the T40, a chunky RF triode using an HT of 1Kv and capable of dissipating 40 watts, thus allowing a good margin of safety when operating

in the high-level anode modulation condition. The design power of 50 watts was always 'input' in those days, output was practically impossible to measure in the average amateur's shack. One used the rule-of-thumb guide of 66% efficient for a class C stage! The modulator would use class-B push-pull type 42 valves. These were old favourite American UX-based pentodes which on a good day might reach 80% modulation but would never go over. By the time the design reached the Blue Print stage the name 'Rhodesian Transmitter' would be a lot easier to say than 'British Honduran Transmitter'. Hence the entry in the Blue Print book.

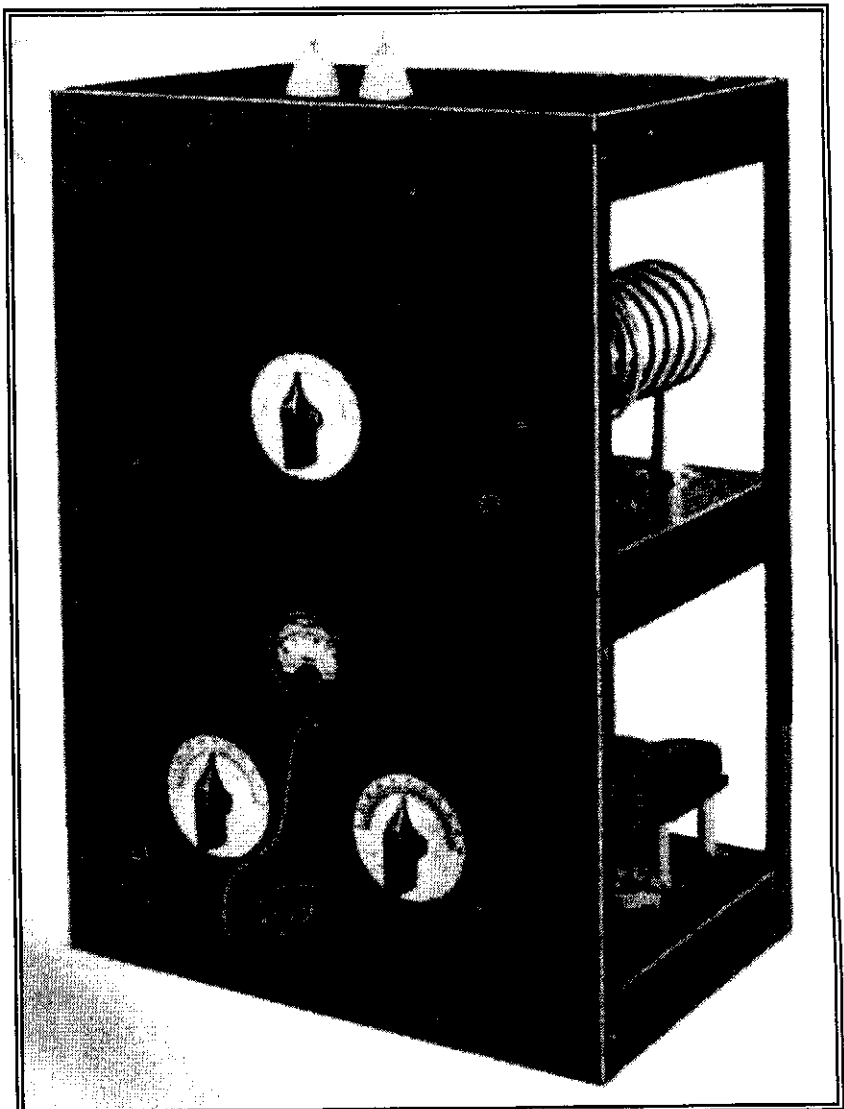
Vic Morse, G8IK, who joined Strattons in 1937 was delegated to make up the transmitters.

The experience gained in producing the HF transmitters for the Mount Everest Expedition in February of the same year (see 'Lighthouse' #76, Dec 2002) would certainly have been applied and the whole rig was most likely to have followed the mechanical construction of the transmitter shown in 'The Eddystone Short Wave Manual No 3' of 1937.

Although only two of these transmitters had been constructed (presumably one each for Rhodesia and Honduras), Harold

Cox's enthusiasm for the project was such that the rig was represented on the Eddystone stand at "Radiolympia", Britain's premier radio exhibition, in 1938.

Presumably the rat-race of 1939, equipping the London Metropolitan police (and others) with emergency VHF radio telephones before the Nazi Blitzkrieg started, put the project on the back-burner and we all know what happened in 1940. ♠



**Eddystone table-top 'rack' transmitter of the late 'thirties**

# Eddystone 4-valve Clone

by David Fletcher G3TVM

In 'Lighthouse' of last December we asked members to let us have details of their 'vintage' construction projects ('Ramblings' pp 46-47) and at the same time promised to report on my own version of an 'Everyman'. (*Graeme speaking . . .*) I know that Ted has started on his project and I have collected all my bits together, but David has pipped us to the post and here we present his *pièce de resistance*. Tell us about it, David.

Dear Graeme,

Firstly, I agree entirely with your remarks about TRFs and the desirability of an untuned RF stage to obtain smooth reaction throttle control. I have also found that it can be difficult to achieve a smooth effective reaction over a range of coils and sometimes even over the coverage of coils at the extremes of the "HF" band.

The photos (here and front page) were taken by my friend G8MEI and I include the CD of them as this QTH is a Computer Free Zone. (*I sometimes wish that EUG was! – Graeme.*)

I have built several versions of this set, but this particular one was constructed because I was looking through my "junk boxes" and found all the necessary metal-work, components and a set of valves to build "an all-metal octal valve TRF", which resulted

in this, my preferred receiver of this type. Regarding the choice of valves (perhaps I should say 'tubes' here), this is based on three major criteria:-

(a) The period – late 'thirties when home-brew TRFs were based on circuits now regarded as "classics".

(b) I have always thought that the U.S. International Octal series of valves was a brilliant concept, in the same way that the "British Standard Whitworth" threads were in the 1800's.

(c) The metal octal valves were the best of the lot and give all the performance that

is required for TRFs without the "high gain instability" and the cramped wiring and soldering problems often associated with "modern" miniature types.

I used 6-pin Eddystone coils (primary not used) with a 6SG7 as an untuned RF; 6J5 as a leaky-grid detector; a



6C5 as the first audio amp and a 6V6 output stage. The output will fill the house!

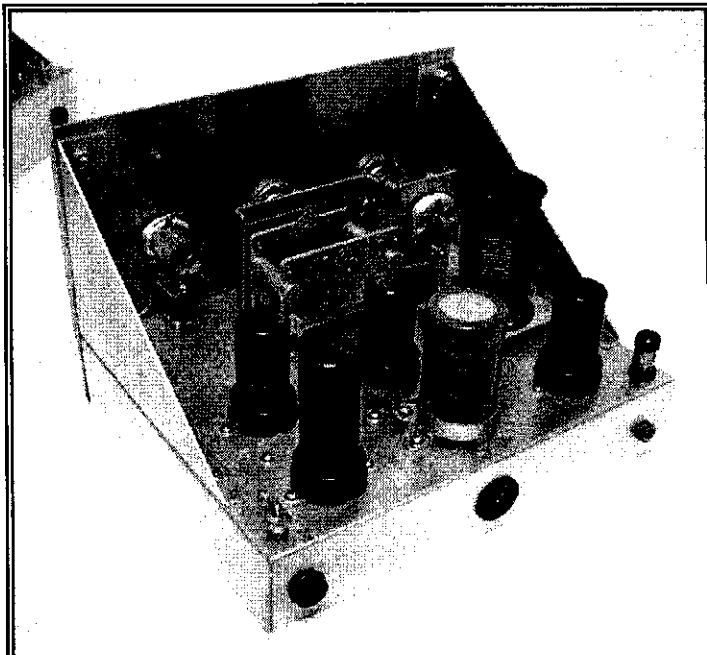
With reference to the circuit values, the reaction components were found by trial and error to give a smooth operation. You may consider there to be an excess of decoupling but I preferred to build it in rather than have to add it later. In my opinion modifications never look as satisfactory as "built right first time".

One other thing about using reaction feedback by means of a coil tap to a pentode's cathode. I don't favour this method as I have found that it is not easy to initially judge where the tap should be on home-brew coils. To then move it nearly always ends up with a scrappy-looking coil where the alteration has been made.

*(Note here from Graeme:- actually, David, Stratton's did work this out for us in the "Amateurs Short Wave Two Receiver" of 1938, as described in "Eddystone Short Wave Manual No 4". It used cathode electron coupled regeneration with an EF6 Continental side-contact valve – it was available from Philips earlier than the octal*



*version EF36 from Mullard (very similar to the 6J7G). The taps were incredibly low down on the windings; the two HF coils (8.8 – 27 metres) only used the*



*pins as common coupling – the other two (20 – 96 metres) were 1/8 and 7/8 turn respectively. Eddystone intended to market them but I've never seen any. I suspect WW2 got in the way!*

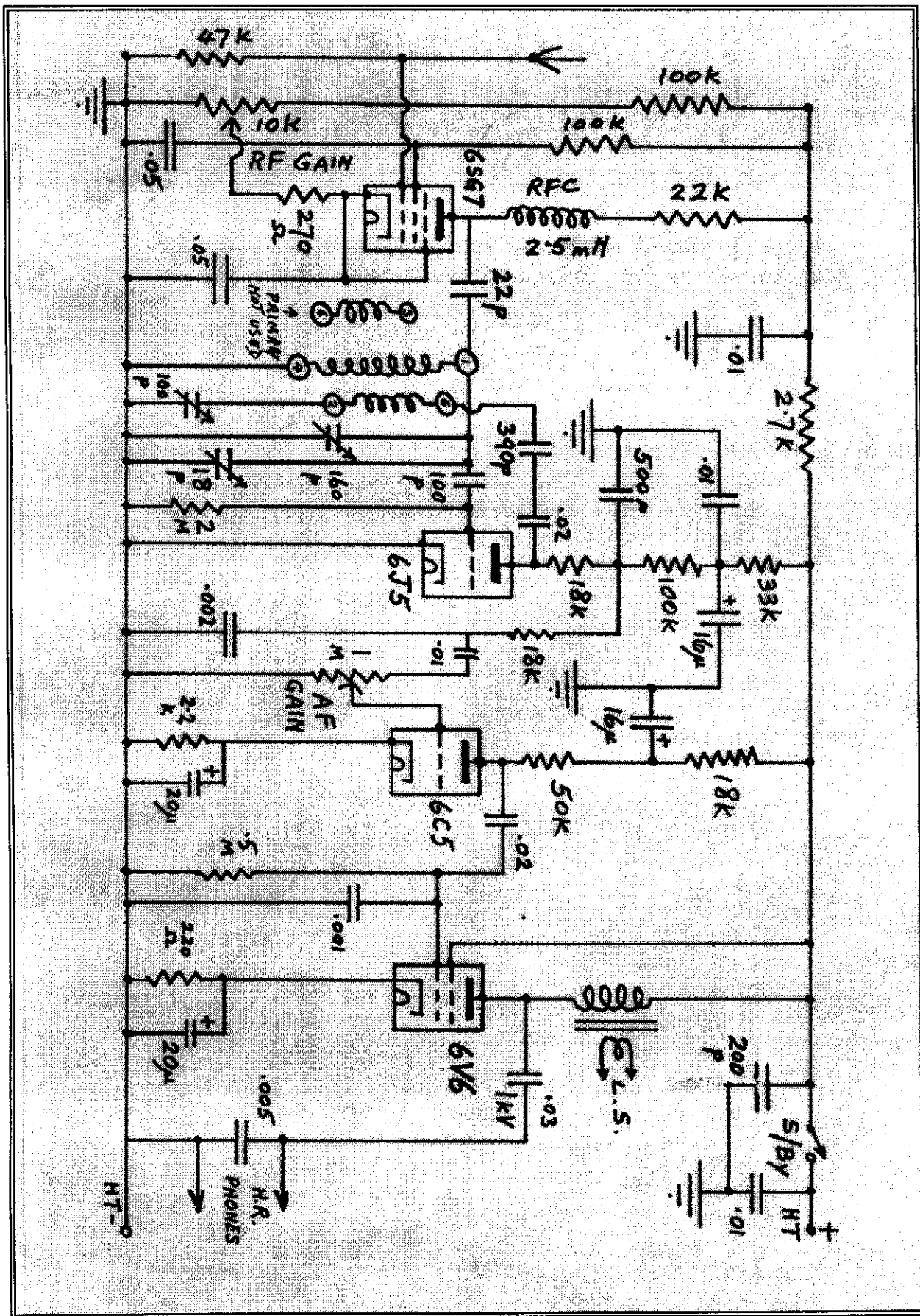
One more item, the speaker, is a bit different. It's an "Eddystone inspired" enclosure fabricated from an old saucepan with "feet" made from a wooden dowel.

Well, there it is; I hope you can make sense of my scrawl. We construct this archaic technology just for amusement and it was very encouraging to have my experiences and conclusions confirmed by yourself.

So there you have it, my philosophy (some might say idiosyncrasy) on "real" wireless.

*David Fletcher G8TVM.*

*Thank you, David, for a most interesting exposition. We all enjoy this kind of feature; everybody please take note and start writing!*



# Ted's MailBox

## A Review of Mail and Happenings

By Ted Moore, G7AIR, Founder of EUG

*In our last issue Ted announced his Special Event Amateur Radio Station, GX3EUG, operating from the top of the old Eddystone Lighthouse on Plymouth Hoe. He now presents his report . . .*

### GX3EUG

Start off with the EPIC, and it was in many ways just that. Propagation conditions on the Saturday were truly horrendous.

At first I - and my helpers - thought it might be the ærial proximity to the enormous granite mass of the lighthouse or the lead sheet coping around the balcony.

It turned out that everybody had the same problems with poor signals between each other and so we just persevered. I had both Reg & Clive to help out and to share the load and so we rotated shifts.

One to operate, one to stay alongside to answer any questions and one to police the Hoe beneath the tower where the guys supporting the ends of my usual inverted dipole were tethered.

I had gone down overnight on the Thursday/Friday, and getting there early I was able to catch a bit of snooze-time before they opened up the Dome Centre at 10.00. When they did open I went in to renew acquaintance with the staff.

Very welcoming they were too. A refreshing attitude when compared with my dealings with other local council staff. After being shown around and allowed to photograph some of their display area I explained what I would need for the Saturday and was told that they would ensure the Caretaker of the Tower (Lighthouse to us) would be there to open up at 09.30 so I could get set up for 10.00. In the event he arrived at about 09.15 ! Thanks Les.

That first day down there I went up to the lamp room at the very top to check out a few dimensions as I would need to take into account that we had to operate without impeding the access for the public visitors.

First off I checked that my folding picnic table and chair would fit under the metal stairs -

they did - just ! Next was trickier, as I needed to know the exact distance from the balcony to the ground below.

No, it is no longer as when the lighthouse was out on the Eddystone



Rocks. The bottom bit, The Stump was replaced on land with a new 'stump' and so I went out onto the balcony with what I had previously prepared for this exercise.

A small plastic pint milk bottle just half full of water and a roll of polyester cord, 50 metres long 'in case'. I attached the milk bottle and then let it spool down to the ground beneath the balcony. Marking the cord at the balcony level I let the lot drop down and raced down to retrieve it all. This gave me the total length needed for each leg of the dipole with an extra 5 metres to allow for slanting.

Down on The Hoe I then paced out a base line and marked off the tether points with tent pegs. This meant that next a.m. it would be a quick erection job with no measuring needed.

A further task was eased by the offer to let me put all my gear in the tower, at ground level just before they locked up at 16.00. I then had the evening to catch up on exercise and sleep.

The very informal attitude of the staff meant that my only injunction had been to take care not to impede access; I had myself promised to stay behind and ensure we had not left any rubbish either above in the lamp room or down on the Hoe.

Come Saturday and I was there early enough, having been given permission to park my car right up close to the Tower - so did the others - made me feel like royalty ! As soon as he opened up I began the trek up with the gear. NINETY THREE steps up and first off was one car battery in its carry bag. Down again and take up the spare battery.

Down again for the Eddystone 40A receiver. Down again for the hamper with the rig and accessories. By now the others had arrived and so we shared the work. The table and chair had to go up too.

I must have made that climb up and down at least a dozen times that day, good job I am fit. I fastened my telescopic mast to the balcony with tie-wraps and attached the apex of the dipole to it before extending it outwards, then letting each leg down separately so as not to get them tangled.



All was set but when I powered up, the 'mush' that met me was terrifying. Getting the aerial matched and then on the air. I heard '3XFE first and then '3GGL, then it started. EUGers and non-EUGers alike had problems with that darned mush. We operated from up there until about 13.00 and then called it a day, not as successful as maybe we hoped, but we did okay really.

Next day was the 'real' EUGnet and this Sunday it was from the other side of the Hoe using a public shelter as a very open-air shack. '3GGL said it all! Conditions on the second day were 100% better than the day before with

our usual S9 or S9+ signals. I was on my own for this net and felt worn to a frazzle by 13.00.

Including a few SWL reports I eventually sent out more than 30 QSLs and this is about twice our usual monthly net total. On the Friday I had a chat with the BBC Radio Devon reporter and they mentioned the Special Event Station on air twice on the Friday and once again on the Saturday morning.

Several of the visitors heard this and made a special trip to the tower to see us, it also brought us at least one extra QSO from a local. Without the help of Clive and Reg I would have been in a mess and so our thanks from all EUG to those two members.

The Dome staff were happy too as we had kept our promise not to impede access and to clean up (my toffee papers mostly). I have promised Dave the Technical Manager that I shall look for an EB35 to present to them from EUG for their display - you see this was the model which Eddystone Radio presented to the Lighthouse Keepers when it first came onto the market.

On the Saturday evening I added to my mileage by visiting EUGer Ken O'Brien in Dorchester, another couple of hundred miles. All told it came to 890 miles for the whole trip.

#### GD7AIR/P

Yes, another prefix ! On a recent sailing trip to the Isle of Man I made a sked with '3GGL and '3XFE to check out the possibilities of operating from just above Port Erin. Just luck or what but we had really good signals both ways although I did put my power up to the maximum of 100 watts - just in case.

Anyway plans are afoot to do the April EUGnet from over there on April 4th.

It is a frequent 'commute' for us in the boat and despite the 84 mph gusts over that weekend we only had a one day delay in setting out for home (HER'S not mine).

#### Fuses, AGAIN !

Well this matter has certainly caused controversy enough since it first came up. I shall now add a little gen straight from the horses mouth - so to speak. This is by way of an Eddystone Radio Amendment Sheet issued with copies of their S.770R Manual. I hope that our genial editor can print it verbatim providing he has mastered the new EUG super speed, ginormous memory computer sufficiently well.

Left me goggle-eyed it did and I am thankful that my Luddite tendencies have preserved me from owning such a contraption. I do feel that this is the slippery slope towards '3GGL becoming a genuine NERD so beloved of microsoft (note the small 'm'). (*Note from Graeme: have a hunt around in my "Ramblings" for a mention of this.*)

This Amendment Sheet also mentions several other changes made since the original manual was printed.

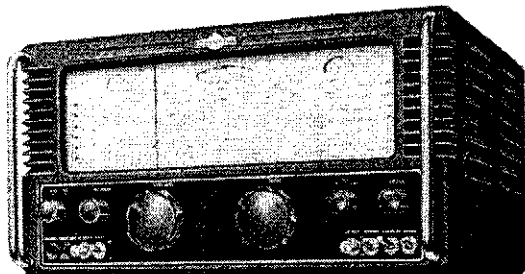
I am finding many more such Sheets and Appendices amongst my hoard of Bathtub goodies and the Appendix 'A' also issued with later 770R manuals is an example, I suppose that it is of equal interest for those owners/users of the 770U.

Recently I had a call from a non-EUGer who was servicing a 770U and he complained bitterly that although everything checked out fine according to the manual for that model he could get no signals at all - not a one !

There was the normal noise level on all ranges all voltages checked out etc; but no signals. My first question was also my last. What kind of aërial



was he using then ? His reply floored me, as well it might. It turned out that his aerial for testing the 770U was simply a few feet of wire laid on the service bench.



I imagine that my suggestion that he used either the domestic TV or FM aerial in the absence of a 'proper' one must have brought results of some kind since there have been no more calls. Let me just re-cap here.

Both the 770R and the 770U, and equally well the 770S, are good receivers but they must be used as specified with a 'suitable' aerial. Honestly they are good sets and if one is 'deaf' then either it is sick or it needs a proper aerial to feed it.

My 770R (I) and my 770R MkII are both at this moment giving me excellent signals from local 'ute' stations, one from G3XFE's area (Watford) needs the gains turned right down - all on a chimney mounted DIY sleeve dipole, you know the type, aluminium tubing inside white plastic electrician's conduit.

#### **Manuals etc;**

I am surprised; there must be a thirst, or hunger, out there for Eddystone Manuals and Booklets. Maybe the fact that I am able to print and supply quickly is the reason but some weeks recently I have sent off 10 or more. The oldie booklets which Strattons-Eddystone have issued from time to time are also proving of interest, the "BETTER RADIO RECEPTION" booklets, whilst old, do contain much

information about earthing, QRM, and many forms of aërials.

I can offer either the 1952 (Strattons) version or the 1966 (Marconi-Eddystone) version in A4 size. The EDDYSTONE 145 Mc/s GUIDE too has gone out to a few EUGers. We must still have some VHF DIY merchants amongst us.

What I am doing is to copy all of these booklets out to A4 size to make easy reading. As with the many manuals I am not out to make a profit, so long as my copying costs are covered I am happy to supply them.

If I have a 'Bathtub Original' (and I do have hundreds of them), then you will get one of them. If not then I shall copy my archive manual for you. I promise to have them in the post within a day or two, allow for the fact that I commute to North Wales to go sailing once or twice a month.

#### **Field Strength Meter Model 678**

As '3GGL will have seen, as did Doug Bateman G6EHN when he made a visit to my G3EUG New York (Lincs.)-portable site in February, I not only am using my 40A receiver for signal monitoring but now have my FSM model 678 in use too.

Very, very, useful for tuning up my inverted dipole whose characteristics vary quite considerably according to how I 'fly' it. If at about 20 feet in the centre and with ends anchored about 12 inches from the ground with tent pegs, then it has a different resonant frequency from when I tether the ends onto 6 feet high poles. If I lower the centre down to about six feet as with the ends then it gives yet another resonance point, as much as a hundred Kc/s difference.

So with the varying weather condx dictating how high or low the pole is extended I am finding either the 40A

or the 678 field strength meter of great assistance. I have taken my EC10 MkII along several times and find that I can usually resolve both the AM & SSB signals well enough - if only I had an Eddystone Tx to go with the rest. I suppose even an Orion 5000 series would be okay since we always remain within spitting distance of 3695. Whatever happened to them all ? (Note from Graeme: Just take a look at "Chris's Column". Read all about the 5000 Orion sold on E-bay!)

### My Phone Numbers !

My apparently, constantly varying phone numbers as printed in Lighthouse appear to have spawned some rather comic comments from various EUGers. Thanks John, Terry, & Mike. It cannot be helped as '3GGL is suffering from Digital Dementia (*numero dyslexia*) or some similar condition. What is more worrying is that it does appear to be contagious, I think that I have caught it, so look out !

### My TRF

Progress is being made ! Very definitely so since our generous Editor-cum-Publisher donated a couple of coil formers and couple of bases for them. Time is the bugbear!

The front panel has been tastefully sprayed Matt Black, the aluminium diecast box has been sprayed a nice bronze colour, after all necessary (and a couple of now un-necessary) holes have been made for valve holders, coil base, variable condenser fixings, AF transformer fixings, input and output sockets etc: Trial positioning of the components following the schematic has shown that three valves is going to be the maximum and so it has become a 3x12SH7 model.

They are 'thirties era valves, the variable condenser is an Eddystone ditto, the coil base and formers too are

from that era, the knobs may be so too if I can come up with a suitable set. It is beginning to look a bit like the Scientific 3, more so than a Kilo 4. My mains psu is completed and tested using a BC454 to listen to Volmets. Next issue we may have it working, touch wood. But only if I spend more time at the bench.

### HT Regulator or Not ?

There are those poor souls who run down the Eddystone models which do not have HT regulation using such as the VR150. They claim that a lack of stability is the result and some have even gone so far as to mount an outboard (even inboard !!) regulator valve as a means of providing increased frequency stability.

I have recently read in a pretty ancient copy of Technical Topics by Pat Hawker that such a procedure can in fact produce even worse frequency stability ! Just stop spluttering and hear this. A variation in mains input voltage will cause the HT supply to go up or down, okay so far ?

But this same variation which takes HT & LT up or down will cause an opposite effect on the frequency of the oscillator. If an increase in HT makes the frequency go one way then the increase in LT will make the same oscillator's frequency go the other way, the two partly cancelling each other out. Hence a now stable HT will make frequency stability worse. This will of course have been taken into account by the designer. I can see another argument looming here, so discuss.

### MODS ! no, NO Never

If a mod means any external changes to the set then the simple answer is DON'T DO IT. How often have '3GGL and myself said this. Holes whether they be on the front panel or on the rear chassis panel or on the case are

quite simply the best way to **reduce** the resale value of your Eddystone.

I had a recent case of an 840C with a quite well done power indicator neon, mounted in a hole **drilled in the finger plate**. I was offered £75 by one caller until I happened to mention this mod whereupon he rang off, no comments, just a dead line.

Another, after hearing of this mod commented that it spoiled everything and his original fair offer dropped to £15 - unless I could source and fit a new finger plate. Ditto with an EC10 with several phono sockets fitted to the rear panel, interested until the mod was mentioned, then '*Sorry mate*'.

I feel the same way myself and whilst I will happily do small internal wiring mods, which are reversible, I will not contemplate anything which needs holes drilled. It does spoil an otherwise very nice set so **don't do it**.

The fitting of several phono sockets on the rear panel of an 870A also turned off several prospective buyers. This had an unsuspected (by me) vice too. The original owner had used it on a 240-120v isolation transfo, just as I do with everything in my play room. The problem did not show up until the new owner took it home. He came on the landline complaining that as soon as it was turned on everything in the house 'blew'. As his son was doing his homework on the word processor he lost a couple of hours work and was far from happy with his Dad !

Well he came all the way up from Ipswich with it next weekend and we did some investigating.

Worked fine in my playroom, but when used in the kitchen it tripped out the ELCB, knocking off my CCTV, fridge, & cooker ! More checks and I discovered that a Belling-Lee coax socket fitted by the previous owner (I think) was earthed to the wrong side

of the break contact earth socket on the rear panel.

I did as I suppose I ought to have done in the first place, but time did not permit. I removed the coax socket and the three phono sockets, put the wiring back to original and fitted a thin sheet of paxolin over the now unnecessary holes. He was happy with the set now and considered my work done free to be payment for his journey. Please, please don't make any holes in your Eddystone(s).

### The NEC

You will have this before the event so please do try to attend. EUG will have an enlarged (x 2 = 4 tables) stand with all that we usually have and more, including a display of all those fancy QSL cards that we have been sending out for the monthly EUGnets.

One or two of you have received a card from each net since I started running G3EUG/GX3EUG/G7AIR. I still use G7AIR for the AM net which precedes the SSB net as this net is just about the **ONLY** time I ever go on the air - time just is not available unless somebody requests a special sked.

What '3GGL has planned for the second extra table I know not as yet. Perhaps he will elucidate in this issue. (*Of course!*) I intend to be there when they open for traders and not to leave until the end.

### The perils & pitfalls of DIYing

This is anent my home-brew project of a TRF receiver for 80 metres. And do (did) I have **PROBLEMS !!!**

Right, well first off I had decided to use 12SK7 x 3 in my TRF as I have an over-abundance of these tin can types for my Command Rxs. I began as one should with the O/P stage and worked back to the aerial but got no

further than the O/P stage because of problems making the RF pentode work as an AF O/P amplifier.

I know they did it okay with an EF50 but that has a mA/V rating of around 6 whereas my choice of 12SK7 has only a bit over 1.6. In the event I recalled a swap that improved performance of the BC453-4-5 series where one used 12SH7s in the IF strip in lieu of the 12SK7s.

Much better, and whilst no amount of fiddling with bias or anode/screen volts got me more than about 100 mW before, I could now get plenty of O/P with 150v HT & 100v Screen. But my psu can give me 240v if necessary.

Then feeding in a 1Kc/s tone I was able to get a good ½ W but strangely enough whilst I waited it began to reduce to 50% of that after about 5 minutes. With 'real' audio, i.e. music from a CD player I noticed that at this juncture when the 5 minutes or so had passed the audio became quite tinny, or reedy.

Now I am using a 3W rated mains transfo as AF o/p transfo, 6v-0-6v O/P. It was when I viewed the input 1 Kc/s against the output 1 Kc/s on my scope that the penny dropped.

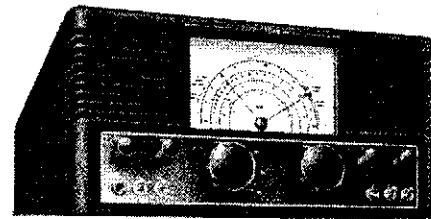
I was getting saturation of the core due to the DC in the primary winding - there is just not enough iron to take the current from the HT supply. Saturation equals frequency doubling as one recalls from one's C&G teaching ! So just a word of warning, it may be wise to use parallel feed in lieu of series feed for the O/P transfo, putting an anode resistive load in and using more HT volts.

I now have 240v HT with a resistor of 8.2 K and a 2.2µF coupling condenser, result is nice audio once I put a .0005µF down to earth across the primary. But what a long

nightmare, I suppose I am getting rusty and ought to have guessed my problem sooner. I shall now use all 12SH7s in the line-up as they have a gm of 4mA/V compared with the gm of 1.6 of the 12SK7s. So there it rests at present

### New 640

The 640 I swapped with EUGer Tony for a 770R is fine, but I had forgotten the one 'vice' of this model, if unmodded.



The phasing control condenser has the nasty habit of acting as an aerial to input signals at IF (1600 Kc/s) when ever you touch the knob. The spindle is not earthed to RF !

Anyway it is easy enough to reverse the connections to this variable condenser to cure the problem - I only need the time. It has been burbling away happily in the kitchen for some time now on soak test. Tony had incorporated the recommended mod to reduce transfo heating and it runs quite cool.

So there you are, for this month. See you at the NEC on May 2nd, do make an effort to turn up as we shall be there to meet and chat. I have promised to be 'good' and not buy any more sets.

*Vy 73 de Ted*



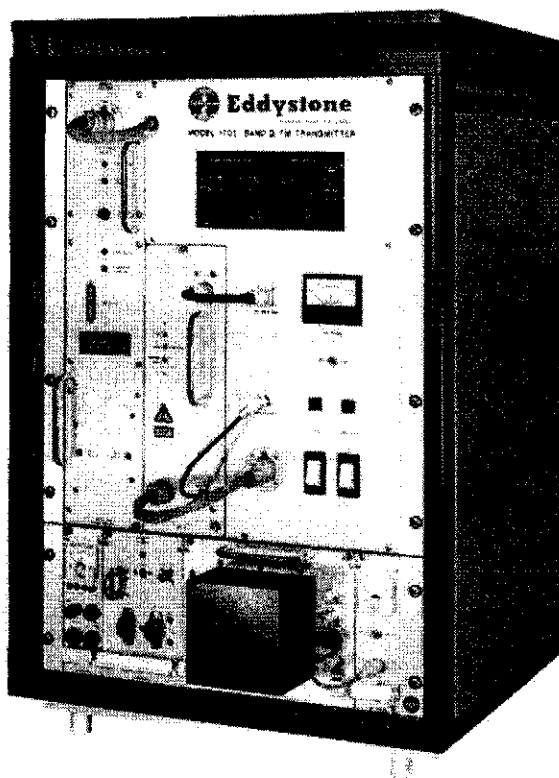
21 Prince Street  
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# Another Receiver Review

by Graeme Wormald G3GGL

Last month we reviewed the DAB situation, in which Eddystone Radio played a sad but leading part, and saw one of the new generation of receivers.

*This month we remember that Eddystone plays a leading role in the expansion of FM Broadcasting to the shires and valleys of Britain and many overseas countries. Most British local radio and community repeater stereo FM transmitters from 5 watts up to 10 kW have been made by Eddystone for the past 20-odd years. (500 watt FM Stereo Tx shown on right.) During this period HiFi outfits of every description have been available to listeners but one outstanding product hit the market about four years ago.*



Anybody who has been involved with broadcasting or the music industry over the past 30 years or so will have come across the concert hall sound systems produced by the BOSE Corporation of Massachusetts, USA.

I once asked the price of one of their speakers and was quoted a sum of four figures, since when I have held them in great awe.

Then, when the Patent 'BOSE Wave Radio/CD' adverts appeared in the Sunday Supplements about four years ago my curiosity was aroused. But one thing held me back. No price is

ever mentioned and no shop ever sells them. You deal direct with the manufacturers.

This I found rather off-putting. I'm the same with shops or market stalls (and radio rallies) which have no prices displayed. I walk on. So for a couple of years I steadfastly ignored BOSE and pondered over my 25-year old Sony hi-fi separates system.

Over the years I've actually changed everything but the FM tuner. I changed the big 'Wharfedale' speakers for a 'Jamo' sub-woofer system. Then I added an 'Aiwa' CD player from a

clearance sale and retired the turntable to accommodate it. The Compact Cassette lost its LH channel and was repaired three times by 'Sony'. Then it went again so I replaced it with a later 'nearly new' model. Then the 'Sony' amplifier died after a mains surge (the electricity company denied it!) and I bought a cut-price 'Technics' from a catalogue clearance shop.

What I'm actually getting round to saying is that the XYL could no longer work it and it was looking such a hotch-potch that even I was ashamed of it. I walked round my local hi-fi emporia but found that fashions were aimed very much at the younger generation. A cross between Blackpool illuminations and a classic Harley Davidson. And the XYL didn't want any more big speakers!

I decided to sleep on it and the months passed by. Then one day, chatting with an ex-son-in-law (I have a complicated extended family) I showed him an advert for the 'BOSE Wave/CD' and pondered as to its efficacy in view of its exceedingly compact presentation. Absolutely everything is included within the case except the visiting card remote control. Just to arouse your scepticism I'll tell you that it measures 14" wide by 4½" high by 8" front-to-back.

"Yes," said Steve, "I've got one; you wouldn't believe its performance!"

Now Steve was a roddie with a travelling pop group in an earlier life and is a reasonably accomplished musician. I would take his word.

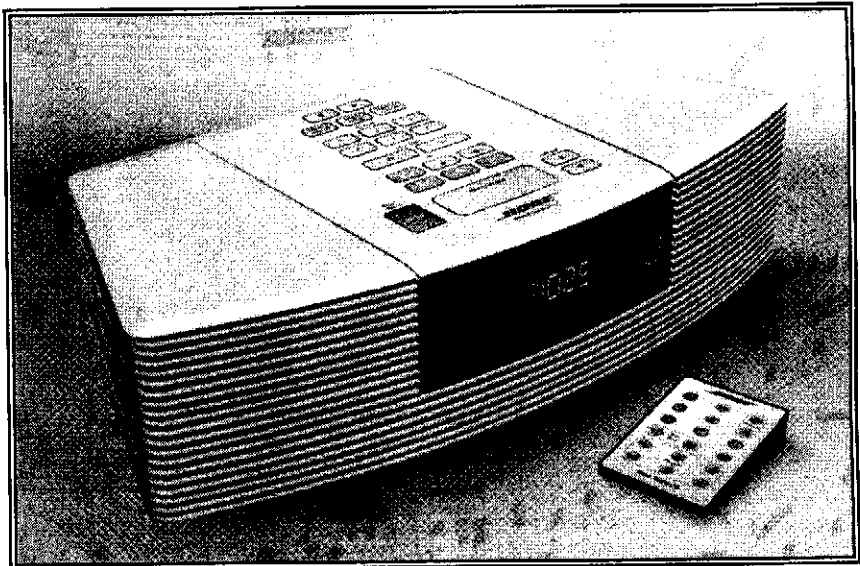
"How much?" I queried, my Yorkshire blood emerging. "It's not cheap,"

replied Steve. "It's £399 but it's worth every penny. They let you try it at home for a month and if you like it pay them £39.90 a month for ten months."

Being in full possession of the facts I sent for my 'free' trial model. The performance is, in my opinion, unbelievably, incredibly good. And I once used to monitor broadcast sound for a living. Speech is a bit woofy but music is heavenly.

Needless to say I kept my trial set and a year later bought another for the XYL's lounge. The touch controls are very easy to use, it covers medium wave AM as well as FM and comes in Graphite Grey or Platinum White.

Visitors to Bewdley's Civic Heritage presentation in the Town Hall last



September were amazed to be told that the rich deep sound of Gilbert & Sullivan overtures was coming from the small box in the corner.

But enough of my poor sales pitch; if I've caught your attention and you were thinking of neat new equipment consider it. Call 0800 022 044 and ask BOSE about it. But don't get confused, they do sell larger versions.

***I have no connection with the Bose Corporation nor have they any knowledge of this feature.*** ♠

# **Construction Details for an Indoor Earth System**

**Submitted by Bryan Marsh from New Zealand**

***(But missed the Post for Christmas!)***

- ***Take one empty two-litre ice-cream container.***
- ***Fill with soil from garden.***
- ***Bury about 5 feet of stranded copper wire in the soil, leaving enough wire to reach the earth terminal on your Eddystone 940.***
- ***Discard the A2 to E link.***
- ***Saturate the soil with water and replace container lid.***
- ***Place unit on top of 940.***
- ***If you wish, also place the speaker on top.***
- ***For good (?) reception connect aerial wire to metal window frame.***

No! This isn't a joke; I found it when called in by an OAP who said his 940 wasn't picking up signals. His other problem was the large number of TV and SKY antennas near his flat.

The fault was in the voltage regulator, an OD3, which was shorted on pins 2 and 5. There was one other fault which I found on taking the 940 home. An intermittent SSB switch, or so I thought, turned out to be a broken connection on one of the BFO capacitors. Needless to say, I don't wish to be called back as he has an outside flight of steps to his flat and at my age I required help.

On speaking to Peter Lankshear he found the lady of one house had wrapped the earth wire round a knife blade and jammed it in a flower pot.

How many odd stories like this do members know? *(But please don't fill the Lighthouse!)*



# E.U.G. PRIZE CROSSWORD No 19

COMPILED by COLIN CRABB G4HNH

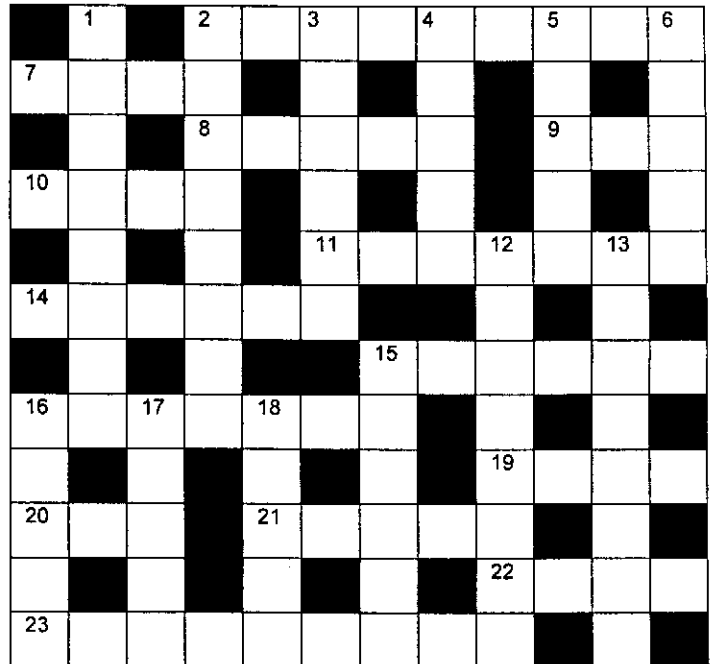
Photocopy or write out the answers so as not to spoil your copy. Send to Graeme Wormald, G3GGL, at 15, Sabrina Drive, Bewdley, Worcestershire DY12 2RJ, England, to arrive not later than 25<sup>th</sup> May. See next page for further details. Don't forget to include your name!!

## ACROSS

- 2) Weighty mathematician with atmospheric connections (9)
- 7) Army technicians' unit (4, abb.)
- 8) Lapse into Michael's name to ident Eamon's tv successor (5)
- 9) Irish radio station (3, abb.)
- 10) Go back in time to give out (4)
- 11) Certain trigonometrical functions (7)
- 14) Silent about join up (6)
- 15) Gag Ted about his latest test instrument (6)
- 16) Dutch radio mag. available here in the UK in translation (7)
- 19) US municipal state-chartered corporation occupying a definite area (4)
- 20) Operational condition of 2 down (3)
- 21) Volume control (2,3, abb.)
- 22) Musical wind instrument (4)
- 23) Screen Don about reference to an old capacitor (9)

## DOWN

- 1) — impedance, that found at the end of a transmission line (8)
- 2) Appreciation, ie thanks perhaps, for identifying a matt black component (4,4)
- 3) — ratio, the ratio of width to height of a tv picture (6)



- 4) Faeroe, Shetland and Orkney are all examples (5)
- 5) — Khan, famous name in cricket (5)
- 6) Not at odds around seven (5)
- 12) Cut in rod, perhaps this ferrite could act as a former for one (8)
- 13) The antiparticle to the positron (8)
- 15) A must for the wine-maker (6)
- 16) Set of moral values (5)
- 17) Ingested (5)
- 18) Inside, you are extra certain to reveal this scope display (5)





# E.U.G. CROSSWORD NEWS

## 'Italian Handle' foxes EUGers

### 3 correct, 6 fail.

I must be the first to admit that I was also foxed by last month's X-word, but not so much by the 'Italian handle' (11 Across) as by its immediate predecessor (10 Across), the test gear for measuring reactive volt-amperes.

If I'd had enough common sense I'd have formed every word possible out of "blank, dee, blank, ee," and looked them up in my *Chamber's Technical Dictionary* (1940, price £1.50 at a charity stall). Because if I'd looked up "idle" I'd have seen "idle current wattmeter . . ."

Three others of you had the same problem but six got it right. There must be more engineers in EUG than I gave credit for!

The real man-trap was the "Italian handle". Most of you (including me to start with) made it up by sticking an "o" as the second letter of "ar, blank, en, ay, el, dee, oh". Sounds Italian, doesn't it? Not really, because there's no such name in the *Brockhampton Dictionary of First Names* (1995, 5000 names with derivatives).

There is, however, "Renaldo", which two puzzlers gave, but, tough luck, this is Spanish. The real answer, which three of you found, is "Rinaldo" which, in case you're interested, is an Italian form of "Reginald" (as are *Ronald* and *Renaldo*).

So here we go with this month's Roll of Honour:-

**Richard Gaskell GØREL of Oxford;**

**Joe LeKostaj K9LY of Illinois, USA;**

**Tor Marthinsen, Tønsberg, Norway.**

So let's give all the answers for you puzzlers at home who didn't quite make it:-

#### **Puzzle Number 18:-**

**Across; (1) hambander (7) halo  
(8) MIMCO (9) ISP (10) idle  
(11) Rinaldo (14) Murray  
(15) dimmer (16) any wire  
(19) TATG (20) bug (21) adieu  
(22) rack (23) resonance**

**Down; (1) hand burn (2) home brew  
(3) memory (4) acorn (5) drill  
(6) repro (12) armature  
(13) die stock (15) design  
(16) amber (17) yagis (18) ID AFN**

I've come to the part now where I usually tell you what the 'carrot' is to encourage members to enter the competition. And I've run into a brick wall again!

Let's look at it this way; I'll confer with Ted to see what we can come up with that's new to most of us and it will then be a surprise to all of us!

The last time this happened I suggested that the time may have come to rest the puzzle. This was very much a mistake as members reacted by saying they would still try to solve it even without a carrot and would I please tell Colin G4HNN that it was their favourite feature! So "Well Done" Colin, members don't do it just for the prizes.

Graeme G3GGL ♠

# Memories of Yesteryear

by Doug C. Bishop

*I have been inspired to relate my D.I.Y. connections with Eddystone products before W.W.II as a result of items I read about in the February issue of Lighthouse, to remind one of days "long ago" . . .*

My fascination for all things electric started long before I became an apprentice electrician in 1935 (it took me six months to get a job after leaving the Bath Technical College). My wage was five shillings (25p) per week which would rise to the "improvers' rate" of £1-10s (£1.50) on reaching the age of twenty.

Money was tight, and so to supplement my pocket money I used to do electrical and radio repairs 'on the side' to buy tools (some of which I still have). I used to purchase Eddystone components from a local radio shop that had a franchise to sell these items and had an agreement with them to pay by instalments.

I also recall that cycling home one night from a job, without a front light, a 'copper' booked me. I was fined five shillings, so that was all my profit from that job gone!

I built a 56 mc/s (5 metre) Rx using, of course, Eddystone parts, but which had capacity problems. I fitted long extension shafts to the controls but it still drifted. It still wouldn't pick up ham stations as I could only use an indoor antenna in the centre of town in a valley surrounded by hills. I still have the 56 mc/s coils; one turn of copper tube.

You write of doing EUGNET from Smeaton's Tower so I'll write about my experience in 1938 when I pushed my bicycle up Lansdown Hill up to Beckford's Tower at the top. I was loaded with the 56 mc/s Rx along with

H.T. battery, accumulator and headphones, etc. It was 6d (2p) to go in and climb 150 steps to a top room with windows.

I had found out that the Bristol branch of the RSGB were holding a 56 mc/s V.H.F. field day. It was a bitterly cold Sunday morning as I lowered my random length of antenna wire through a hole and listened in hope of hearing a signal in my headphones.

And now I relate to a second item in 'Lighthouse' as I recall my cramped ears listening and hands freezing for what seemed forever, to receive a signal from G5JU, Jerry Walker calling CQ\*\* and then in QSO with another ham that I couldn't pick up. Jerry, from Eddystone Radio, sent me his QSL card which got lost in the air-raids on



Bath whilst I was on Foreign Service.

As a sequel to this, I never did qualify for 'big money' as an **Jerry Walker G5JU**

improver, as I enlisted as a volunteer reservist in the R.A.F., having applied for aircrew. I was finally demobbed in 1946 with a gratuity of £50 which I threw in the air with delight!

For me the pre-war enthusiasm I most enjoyed was the Golden Years of life with Eddystone.

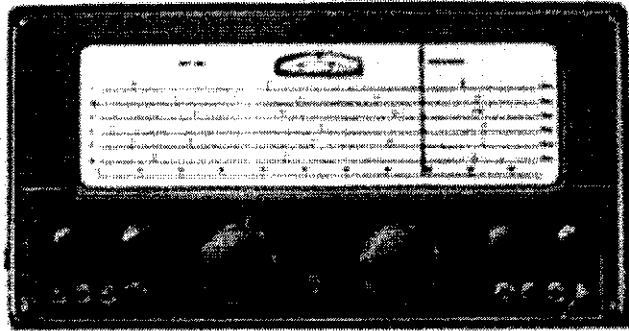
\*\* at a distance of 80 miles! ♠

# EDDYSTONE '888A' RECEIVER

## AMATEUR BANDS EXCLUSIVELY — FULL BANDSPREAD

### MAIN FEATURES

- ① Coverage of the six bands 1.8 Mc/s to 30 Mc/s, each spread over the full wave (12 m. long) and directly calibrated.
- ② Scale accuracy from 3 kc/s per division on 10 metres to 250 kc/s on Top Band.
- ③ Crystal-controlled calibration oscillator, giving 100 kc/s marker points.
- ④ Double superhet circuit for high selectivity (IF's 1620 and 85 kc/s.)
- ⑤ RF stage, mixer and separate oscillator (stabilised)—12 valves in all.
- ⑥ Audio Filter of advanced design, offering at 1,000 c/s for improved CW sensitivity.
- ⑦ Meter detector for SSB, simplifying adjustment of gain controls.
- ⑧ International type valves throughout.
- ⑨ Monitoring on stand-by; send-receive switch to control external relay contacts.
- ⑩ **Plus** Noise Limiting; Aerial Trimmer; external "I" Meter socket; independent RF, IF and AF gain controls; variable selectivity; separate AGC switch.
- ⑪ Rust-proofed and tropicalised. Gray finish.



### OPERATIONAL CONTROL

Two essential features in a receiver are first-class performance and ease of control—*one without the other will not produce the desired results.* The "888A" possesses both. So all were accepted, in handling the various controls enables the keen operator to secure maximum intelligibility, whether the signals be CW, AM telephony or SSB.

### THE PERFORMANCE

**SENSITIVITY** better than 5  $\mu$ V for 20 dB signal-to-noise ratio at gain 20 mW output at 50%; Modulation, CW sensitivity better than 5  $\mu$ V.

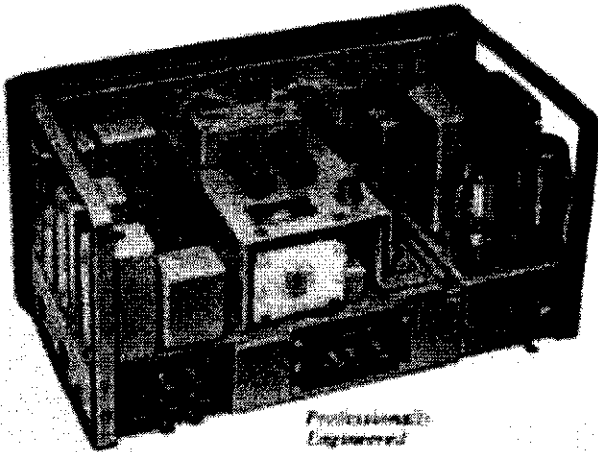
**SELECTIVITY** variable from 30 dB to 60 dB down, 3 kc/s off resonance. Audio filter attenuates 32 dB for signal only 200 cycles off resonance.

**IMAGE RATIO** better than 11 dB at 30 Mc/s, progressively higher on LF bands.

**POWER OUTPUT** exceeds 24 watts into 25 ohm load.

**LIST PRICE £118 (in U.K.)**

Matching Accessories available.



Professional Engineer

FULL DETAILS ON REQUEST FROM THE MANUFACTURERS

**STRATTON & CO. LTD.**

EDDYSTONE WORKS  
104, HURLEY STREET

ALVECHURCH ROAD

BIRMINGHAM, 11

Circle 124 on Reader Service Card

The Eddystone 888A hambands-only receiver was probably the best-built piece of amateur radio gear available in Britain at the end of the 'fifties . . . but turn over.

# A Pause for Thought

by Graeme Wormald G3GGL

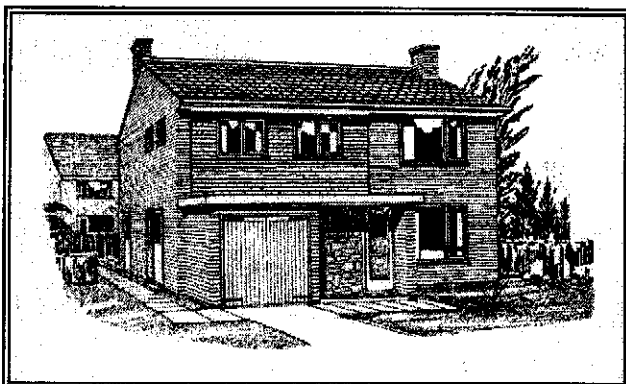
Why are we so 'hooked' on the magic of Eddystone? What is it makes us so misty-eyed when we read the old adverts? I'll tell you why. It's because most of us couldn't afford them!

The other day I was leafing through some 'fifties R.S.G.B. Bulletins (as we used to call RadCom). They had come to me via a devious route from a Silent Key who'd been a better hoarder than me. As I searched for Eddystonia a card fell out. It was a free raffle ticket for an Eddystone 888A hambander to be presented at the RSGB Exhibition in November 1959.

'Ping' went my memory bank. That was the month Eda and I had just moved in to our first house with two very small daughters. We'd been living in rented flats until then. Housing was scarce in the 1950's.

In 1956 I'd left the B.B.C. and made a 'win or bust' decision to join the new untried I.T.V. During that period of three years I'd moved from the £500 p.a. the B.B.C. were paying me as a lab technician to the dizzy heights of £1,250 in I.T.V. as a Master Control engineer. I was earning more than my father, (the late G3JQE), who was a graduate research chemist. I was 28.

My gamble had paid off. I'd made it into the top 5%. So we went house-hunting for the best new house we




RADIO SOCIETY OF GREAT BRITAIN		
<b>Radio</b>		Royal Horticultural
<b>Hobbies</b>		Old Hall,
<b>Exhibition</b>		Vincent Sq., S.W.1
N <sup>o</sup> 37421		
Wednesday to Saturday		
November 25th to 28th 1959		
11 a.m. to 9 p.m.		
Win a £110 Eddystone 888a World Famous Communication Receiver		
<small>The Free Winning Entry Card can only be headed to at the Exhibition Desk.</small>		
<small>Write Name, Address and Call Sign on reverse side</small>		

could afford. We found it in Four Oaks, one of the nicer parts of Sutton Coldfield (5 miles north of the city of Birmingham). This picture is the exact house. It had 3 double bedrooms, a built-in garage and solid teak parquet flooring throughout. The back garden was long enough for a decent Zep and it cost £3,150. The mortgage repayment was £18 per month.

Do you see what I'm getting at? Nobody of my generation, married and bringing up a family, could possibly afford to buy an Eddystone 888A in 1959 at £110, unless he came from a remarkably well-heeled family or had independent means.

That same house now wouldn't give you much change out of a quarter of a million mazumas. That would give the 888A a relative value today of £8,700. Wow!

I know relative values change, and the standard of living has improved no end over the past 50 years, but the point I'm making is this:- if I couldn't afford it in 1959, who could? The answer, regrettably, is that most of them are silent keys.



**AMATEUR BAND SIGNALS**  
...it receives them  
...it sorts them out  
...and lines them up

**PRICE £110**  
Carriage paid within U.K.

**Congested Amateur Bands necessitate bandspread ...**  
and more **BANDSPREAD**  
**the '888A' has the answer**  
12 inches of accurate calibration on each band

**EDDYSTONE '888A'**  
**AMATEUR BANDS RECEIVER**  
**is in stock at WEBB'S**

Available on WEBB'S EXTENDED PAYMENT  
Deposit £22 followed by 12 monthly payments of £7.15.6  
or 18 monthly payments of £5.8.7.

Open Hours: 9.30-10.30 (Thursday 7 p.m.) Saturdays 9-4 p.m. Telephone: GERRARD 2081/7326

**14 SOHO STREET, OXFORD STREET, LONDON, W.1**

Stratton's bombarded the RSGB Bulletin with adverts containing testimonials of which the following is just one, but I think it sets the scene:-

WHITE LADYES  
CHEYNEY GATE  
PINHOE  
NR EXETER  
TEL: STOKE CANON 345

January 20<sup>th</sup>. 1959.

A. Edwards, Esq.,  
Messrs Stratton & Co;  
Alvechurch Road,  
West Heath,  
BIRMINGHAM 31

My dear Arthur,

I felt I must drop you a line to say how delighted I am with my 888A receiver - my original 888 is still going strong but the later model in my opinion is the best receiver in the world. I propose to keep both receivers and shall be delighted to let you or any other ham see these at work. I have disposed of my A.R.88 because the two Eddystone receivers give me everything I want - and more besides.

My daily sked with ZL2OU still goes well and this morning's was No. 5061.

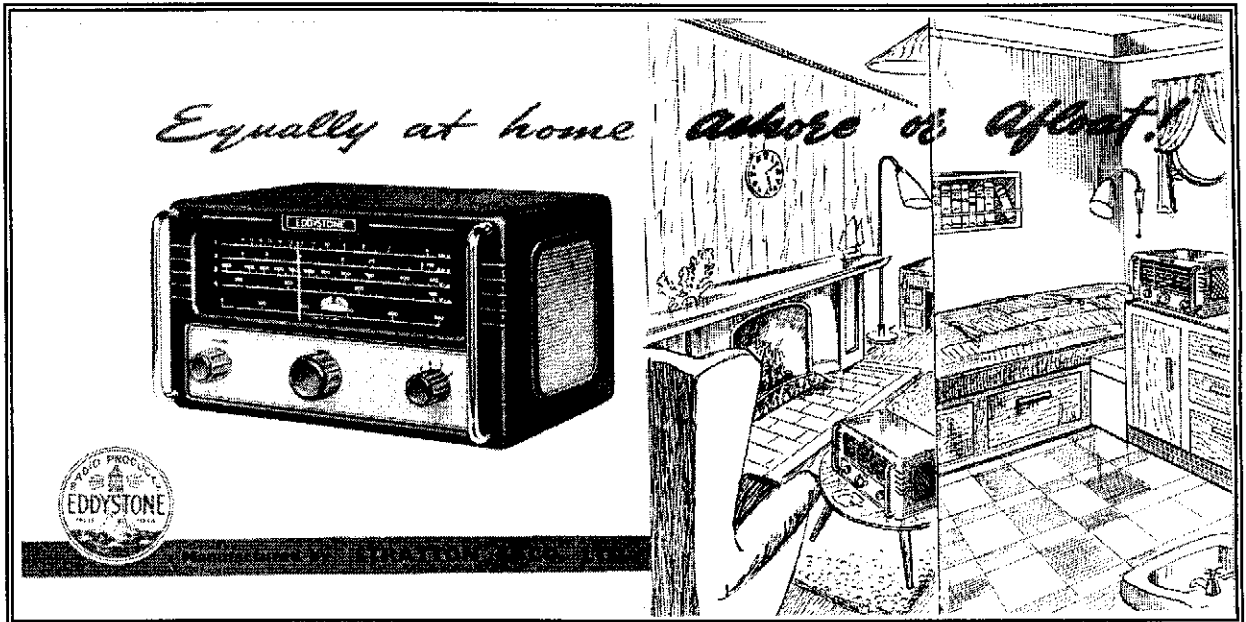
Best wishes,

Yours sincerely,

*Herb Bartlett, G5QA*

hab/ch

**In 1956 Stratton produced a midget general coverage AM receiver. It was targeted at both the ship-board and cult domestic market. It would run off any mains supply anywhere in the world or a ship's generator. It would couple to a low interference doublet and was a partner to the extremely successful 670-series. Over 3000 were produced and this is how it was introduced to the public.**



### **SALIENT FEATURES of the EDDYSTONE "870" RECEIVER**

- Four Wavebands giving wide coverage.
- Gear drive flywheel controlled tuning mechanism.
- Clear horizontal scales.
- Good quality with ample volume.
- Good performance and selectivity.
- Operates equally well with AC or DC mains.
- International type valves, easily replaceable.
- Two-tone finish metal cabinet, with chrome relief.

- Built-in mains filter.
- Choke smoothing for low background noise.
- Semi-portable, light in weight, and easy to install.

### **Technical Information**

**FREQUENCY COVERAGE.** Four ranges cover the principal short, medium and long wave broadcast bands as follows:-

Band 1	18 Mc/s to 5.9 Mc/s (16.66 to 50.7 metres)
Band 2	6.3 Mc/s to 1.95 Mc/s (47.6 to 153.8 metres)
Band 3	1500 kc/s to 540 kc/s (200 to 556 metres)
Band 4	380 kc/s to 150 kc/s (789 to 2000 metres)

**CIRCUIT AND VALVES.** The five valve super-heterodyne circuit is designed to give optimal performance. All valves are modern International types, readily obtainable anywhere. Special attention has been paid to the tuning coils, which are most efficient. These coils have adjustable dust-iron cores and air trimmers, ensuring consistently accurate alignment and uniform sensitivity.

**TUNING DRIVE AND SCALE.** Two main features of the "870" receiver are the smooth drive and clear open scales. The drive is geared, with flywheel loading.

The scales are clearly marked in frequency and the logging scale provides fine tuning. It also enables station settings to be recorded. The dial is edge illuminated, with the recognised broadcast bands suitably indicated.

**POWER SUPPLY.** The "870" receiver operates equally well from AC or DC mains supplies and an adjustment is provided for voltages of 100/120 and 200/250. The on/off switch, incorporated in the volume control, is of the double pole type, ensuring the complete isolation of the receiver from the mains when switched off.

Both sides of the mains are fused and "Thermistors" prevent sudden surges when switching on, leading to longer valve life.

Choke smoothing is employed, with high capacity condensers, ensuring an output free from hum.

**AUDIO OUTPUT.** Adequate volume and good tonal quality is provided by the high efficiency speaker, in connection with negative feedback and a well-matched output transformer.

**GENERAL CONSTRUCTION AND FINISH.** A diecast front panel is used to ensure maximum rigidity. Components throughout are of the highest quality

and the receiver is suitable for use in all climates.

The metal cabinet is finished in two-tone style with durable stove enamel, giving a pleasing appearance and having the ability to stand up to hard usage.

Chromium plated handles fitted to the front panel serve both for protection and for carrying the receiver.

Access to the interior is readily obtained by removing four screws at the rear, when the cabinet can be detached

**MINIMISING INTERFERENCE.** The "870" receiver has been designed to minimize locally generated electrical interference. The internal filter unit, in series with the mains supply leads, prevents noise carried along the mains from entering the receiver.

A metal cabinet is used to provide additional screening, a feature which is lacking with a plastic cabinet. The aerial sockets are arranged to take either a single wire aerial or feeders from a doublet aerial.

The latter is recommended for noisy locations and is particularly suitable for use on board ship, and in areas having DC mains.

The mains connections and all plugs and sockets are completely insulated so that metalwork can be directly earthed.

**WEIGHT, DIMENSIONS, ETC.** Weight: 11½ lbs. unpacked. Width: 11<sup>1</sup>/<sub>16</sub>", Depth: 8<sup>3</sup>/<sub>16</sub>". Height 6<sup>3</sup>/<sub>8</sub>". Consumption: 0.2 amperes.

*(This set is very popular with EUGers and always gives a good account of itself. The paper condensers and high-value resistors usually need attention after 50 years. It runs very hot on 230 volts but nice and cool via a 110 volt transformer. —Graeme.)*



# *Reciprocity Disproved*

*Graeme Wormald, G3GGL*

**“The interchange of electromotive force at one point in a network and the current produced at any other point produces the same current for the same electromagnetic force.” *Law of physics.***

**In the world of amateur radio this is commonly applied to an aerial by saying that the ‘goodness’ (or gain, if appropriate) is identical for both transmission and reception. For instance, a two-metre yagi with a gain of 10 dB in transmit mode will also have the same gain in receive mode. So what about this . . .**

Over many years, ever since I discovered that it can be well-nigh impossible effectively to end-feed a half wave aerial (due to the rather high impedance involved), whenever I have needed a simple end-fed HF aerial I have used the ‘magic’ length of 97 ft. This is advocated in several older aerial books and I think the idea is that it will present a medium impedance on all the (pre WARC) ham bands, thus simplifying matching. It also needs either a good straight earth or a counterpoise (the latter being best for an upstairs shack).

I have found it to be an easy ‘loader’ with simple home-brew “L”-networks or commercial units like the Kenwood AT-230. Such units usually match from about 20 ohms to 500 ohms and are quite put off by the 2,500 ohms of a half-wave or multiples thereof.

The aerial doesn’t need to be high up because on the LF bands high angle radiation is needed for

inter-G use and on the HF bands even a ‘low’ aerial is ‘high’, and there will be plenty of low angle radiation for the DX. Remember that 12 ft is a quarter wave on 15 metres.

## **WE START AGAIN . . .**

When I moved to the present QTH, some 15 years ago, I was presented with a somewhat aerial-unfriendly location. A modern bungalow with no chimneys, on a sloping modest site with the back fence higher than the roof-line.

The whole site is about 80 ft by 70 ft with the bungalow about 70 ft by 24 ft on the lower long edge.

Thus I have three adjoining neighbours; a minor main road at the back; two adjacent lamp posts and a long overhead telephone line across the back to one neighbour. My vehicular access is in one front corner.

If you can’t envisage this, don’t worry, it will unfold itself.



When I first arrived on the scene I spoke to the Area Planning Officer, fortunately an old friend. (It's not what you know . . . it's who you know.) I decided that a useful accessory would be a 6 metre aluminium scaffolding pole in the top corner of the garden, near the road and considerably higher than the roof.

This was at a time when planning law was being re-written and the matter might be considered controversial. His advice was to go ahead and see if anybody said anything. (Nobody did!)

I took the precaution of painting the pole dark green. The slope of my garden is continued across the road and climbs up around 200 ft before levelling off. The pole is well-nigh invisible against this from neighbouring properties.

At the same time I quietly fastened another similar pole to the far end wall of the bungalow, about 10 ft from the ground, thus giving a top height of about 30 ft. The shack is in a corner bedroom beneath this pole.

It would take a 97 ft end fed very nicely, in the form of an inverted "L". The downlead was fed through a hole drilled through the brickwork and sleeved in plastic tube; the earth was a combination of a 6 ft rod driven into sandy, damp ground and a set of  $\frac{1}{4}$  wave insulated wires buried under the new block-paved drive.

It loaded perfectly on all nine bands and, in the absence of indications to the contrary, radiated OK.

### THE HORIZONTAL $\lambda$ LOOP

After several years I read an article in QST about large horizontal loops. Now such aerials are not common and aren't listed in many radio books. When they are described they are quoted as being messy to match (quarter-wave matching sections) and are also described as single band aerials.

But the article in QST said "Stick up a full-wave loop, anywhere you can, any height, and feed it with a piece of co-ax, length and type not critical. It will then work on all harmonics using a simple ATU". (or AMU, for the pedants).

This provided me with food for thought, because in addition to the existing pair of poles I also have a telegraph pole carrying the line to next-door, about 3 ft outside my other corner, and a TV receiving pole on the other end of the bungalow.

This produced a rough oblong about 300 ft in circumference. Work that out on your fingers and it's a little over a full wave on eighty!

I removed the 97 footer, erected the loop, and behold! It loaded on all bands, even Top Band, which is rather odd, because a half-wave loop should be open in the middle! And it *worked* on all

bands too. Not that I hanker after DX these days but it will easily get into North America on 15 metres as well as being one of the stronger signals on the Eddystone 80 metre "First Sunday" net. I regularly get good reports from EUGer Duncan in Orkney, so that's not bad for well over 400 miles in daylight with an aerial having an average height of about 17 ft. and a bungalow sitting in the middle of it.

### A MEANS OF COMPARISON

For some quite unknown reason, round about the turn of this year, I decided to re-install the 97 footer back in its old position, which is diagonally across the corners of the loop.

It loaded up just the same but on receive (on eighty) it was about an "S" point down on the loop (on most stations) and was noticeably 'noisier'.

This is about what you'd expect, because the loop is 285 ft in circumference, i.e. almost four times longer than the end fed, thus accounting for the 6 dB difference (one "S" point is usually about 6 dB on most sets). And it's a well-known maxim that loops are always quieter on receive than open-ended aerials (end-feds and dipoles).

So where's all this leading? I've not said anything yet to justify the title of this article.

What I'm getting round to saying is that if this 97 footer is one "S"

point down on receive it should be one "S" point down on transmit. To the same station, that is to say.

Now on the March First Sunday Net (7th) I decided to experiment. I set up the two aerials each with its own ATU and a switch so that I could instantly change over whilst in QSO. The in-line digital signal processor (dsp) (described in *Lighthouse Issue 80, August 2003*) was switched out of circuit, thus putting the two aerials on the same footing.

With eight stations lined up for the test I found that some of them were now so far down in the noise (on the 97 footer) that I was having trouble reading them.

Anyway, I made a transmission to them all on the little newcomer. The result was shattering. Some stations said I was just the same but other stations said I was STRONGER! I was so confused I had to do a re-check, but there was no mistake.

My 97 footer was much better at sending than receiving. What is the world coming to?

And it's no use saying that spurious effects were being caused by the other aerial(s), the telephone lines, the lamp-posts or the house plumbing/wiring/gas pipes. These are all common to send and receive on both aerials.

Reciprocity is a myth . . . ♠

# Problems with Screws and Wavechange Switches

by Chris Morgan G3XFE

When Chris acquired an example of the fairly rare EB37, the last of the Eddystone EC10 derivatives, he was disappointed by the poor mechanical state of the bandswitching. Whilst discussing it on the EUG 'First Sunday' 80 metre net (3695kc/s 10.00 local time) he was overheard by Ron (M3RKO), who came to his rescue with a scrap RF board from the very similar EB35. Chris continues . . .

The switch wafers were identical, at least those sections were that I needed to replace; the mixer and two oscillator wafers. On the EB37 the weak plastic inserts through which the spindle is inserted had enlarged.

I had no idea why but the result was that there was a lag and some of the break-before-make sections overlapped the contacts; and the other types didn't always 'make' unless I 'tweaked' the band-change switch slightly beyond the band position then returned it back.

Even then it was unreliable and sometimes wouldn't work until I had rapidly turned the switch through all ranges several times. Clearly it was of no practical use as a receiver.

Once I started removing the defective plastic wafers a further fault revealed itself. Two of the wafers had cracked horizontally between both mounting screw holes: loosening them further caused the bottom part to drop off.

I thought no more about it until I slackened off one of the replacement wafers from the other board and the same thing happened.

I can't say whether the 'new' board had

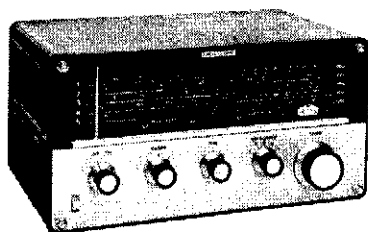
been fiddled with but to be fair the soldered contacts on the offending wafer appeared original and why would anybody need to fiddle with it any way?

It occurred to me that this was probably no coincidence and if we were to rule out man-handling of the switch presumably all that remains is a case of over-tightening the wafers when assembling. Perhaps a cautionary note here to only tighten as much as is needed to hold it against the torsion movement of the spindle.

I've noticed a tendency in other areas to clamp down screws until the threads are fit to burst! Whenever I have received a set back from Graeme I noticed that

all the case-retaining screws were only lightly fitted. Rightly so in my humble opinion, and with good reason.

I discovered by accident one day when I screwed a case back on whilst the set was operating, the signal moved off frequency as I tightened the screws. The stress was distorting the inner structure of the receiver and when I slackened them the station returned. Is this a common problem, I wonder? ♠



# RADIO RAMBLINGS

*Gottings from my Notebook*

By  
Graeme  
Wormald  
G3GGL

Bewdley, March 2004.

Spring is in the air and so is the snow! I suppose it will turn out OK in the end so greetings to you all

Before I dive into our usual ramblings I'll mention a special little ramble I made to Normandy at the start of the month. This year sees the 60<sup>th</sup> anniversary of D-Day, as most of you will be aware. The chance of a visit nearer the time will be a lost cause so junior op David (G7BMZ) suggested we make a winter visit.



Here we are at the museum in Sainte Mère Eglise, with the famous church tower behind us. Perhaps the most emotive and certainly the most concentrated tour I've ever made.

I took the opportunity to check Droitwich BBC Radio 4 on 198 kc/s by taking my Sony 7600 along. We spent three nights in Caen, some 250 miles south of the big "T" aerial. On the first and last nights (c.10pm) the transmission was unreadable and really only detectable with the BFO on.

On the Saturday night the signal was just Q5, but with a terrific level of QRN. Quite frankly, I was much put out. Is this the same transmitter that used to be readable in the Suez Canal Zone? Readable into the Gulf of Mexico? Well it certainly isn't any longer.

It's over 30 years since I last visited Northern France (actually the Somme). During this period I was interested to note that the French people, who are traditionally worse than the English at learning a second language, are rapidly catching up with the rest of the world.

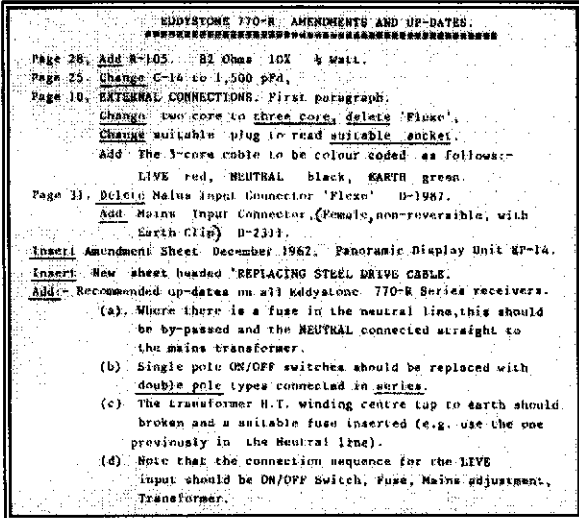
In 1972 there were so few Anglophones around that I had to speak French! This time I was embarrassed to be answered in English by the majority of locals I addressed. Is my French so poor? I did get a credit in School Cert French! And the *Academie Française* is fighting a losing battle to halt the flow of Anglo-Saxon into the Republic. Every shop I entered was emblazoned with "Have a Break, have a Kit-Kat" in English

It was a great trip, and I commend the tour operators. If anybody wishes to know about them I shall be pleased to answer any queries.

## MORE HT FUSE REFERENCES

Elsewhere in this Issue I have discussed the problems of my transformer-less 730/4. I made mention of a War Office directive to modify the fusing arrangements of the

set. Well Ted sent me a copy which he found tucked away in an odd box which he inherited from the Bath Tub. And now that I've dug it out I find that it refers to the 770R!



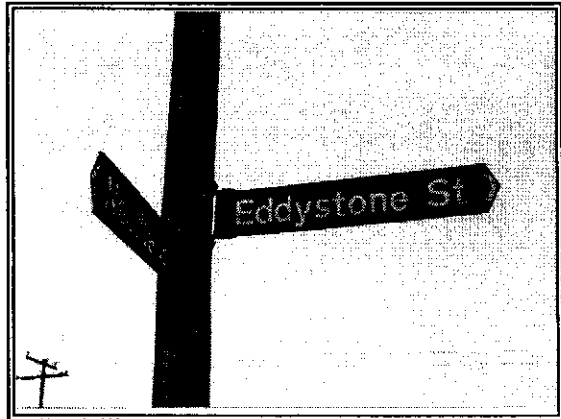
However, the principle is just the same for both sets. The first thing they tell you to do is change the two-pin reversible mains connector for a polarised three-pin version, like the 940/830 etc which came along later. Well there's not much we can do about that because we haven't got any such connectors.

It would actually be better to hard-wire it with the existing connector removed, like the New Zealand civil air authority which we reported about some time ago. The line and neutral could not then be reversed. But what I'm getting round to saying is this: they tell us to leave the line fuse (which they call the *live fuse*) in situ but to take the neutral fuse out of the circuit and place it in the HT centre tap to earth. So there!

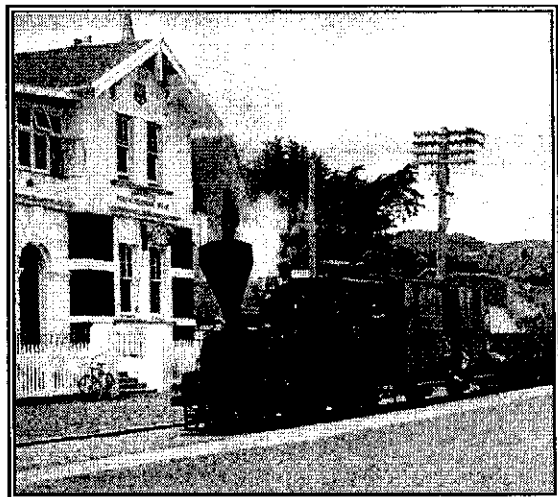
### NEWS FROM DOWN UNDER

Last year EUGer Peter Lankshear, of Invercargill, N.Z. had occasion to travel to Dunedin, about 130 miles distant. He tells me that the roads are so quiet he can cruise at the speed limit of 100 kph (about 60 mph) almost all the way.

On the way back he stopped off to take this photograph:-



It is the main street of a little country town called Kaitangata at the mouth of the Cluta River. Its chief activity was coal-mining and it was settled by the Scotts, so Peter found it to be a bit out of place. BUT, if you look at the crossing street (not very clear in this print) you will see that it is "Needle St"; also a bit puzzling until you recall that the "Needles" is also a lighthouse in the English Channel. It undoubtedly started off as "Needles St", which sounds just like "Needle St". 'Nuff said! They were both named by an English mariner, not a Scottish miner.



Peter also sends us this delightful picture of the local Chuffabilly heading down the main street in days gone by. Would that we could turn the clock back . . .

### EDDYSTONE 5700 TRAWLER R/T

In our last Issue we included a rather nice colour brochure of the Eddystone 5700 100 watt SSB HF compact marine transceiver. There was only one problem . . . We had 352 members and the leaflets ran out at 322. My deepest apologies to the unfortunate 30 who missed out. They weren't selected for it; the order of filling was completely random.

### THE \$US SINKS

Since we upped our subscription a year ago and now accept currency notes of any country, the US Dollar has slipped something like 23%. I know that when I was fixing the 'equivalents' I went to the *bureau de change* in Kidderminster Post Office and asked them how many U.S. Dollar Bills I'd have to give them to get £23 in exchange. (They change without fee). The answer came back \$35.02, so we gave our cousins the benefit of the two cents.

But now \$35 only brings me £17, so I'm sorry, bud, I've had to put an extra ten bucks on the renewal, (USA only), making it \$45 (or still £23) from today.

### WYTHALL CLUB RALLY

Ted, G7AIR, very kindly picked me up on Sunday to attend the Ham Rally at Chris Pettitt's club in South Birmingham. It was at a new venue and although having checked the street map one is always slightly apprehensive about new ground.

Well, we needn't have been, it was the best directed rally I've attended in years. No sooner had we left the M42 motorway than we were presented with a string of yard-high posters leading us to the gate. None of your notebook pages pinned onto telegraph poles every so often. Well done, Wythal!

We were pleased to see a nice Eddystone 730/4 offered (and sold) for

£100, and a very clean 840A was sold before we reached the hall! I don't know what it fetched but it is a nice model, easy to service, and much rarer than its later sibling, the 840C.

James de la Mare met us in the hall and we discussed his arrangements for the NEC. Those of you who visited the EUG stand at the NVCF last year will recall James's display case filled with Pre-War Eddystone S.W. Components. It engendered much interest and this year he is gathering together a display of immaculate 1940s and 50s components. These were about the limit of Eddystone purchasing for most of us; I know they were for me.

A set of 20-metre and 40-metre four-pin plug-in coils for the xtal oscillator and buffer tuning in my first transmitter (1949) together with suitable variable condensers. That was it. The PA tuned circuit was salvaged from a TU7B unit (ex Flying Fortress, etc., and readily available new because the RAF stripped out most American radio from lend-lease aircraft and installed their own).

But I digress. James will have a good selection for us to drool over.

### AS FIRM AS A ROCK

Last week I was sorting the change in my pocket and putting all the bronze pence into the charity box when I noticed something odd about one of the tuppenny coins.

Instead of depicting the Prince of Wales' Feathers on the reverse (tails) side it had a Lighthouse. No kidding! A quick glance at the obverse showed Her Majesty's head as usual. So back to the Lighthouse . . .

It wasn't the Eddystone, because it appeared to be built on a promontory, with adjacent rooflines. Out to sea there was a distinct 3-masted sailing

ship. Mmmm. A proper look at the 'Heads' side showed me that in place of the legend "D.G. REG. F.D. 1989" (By the Grace of God, Queen, Defender of the Faith, 1989) it carried the word "GIBRALTER 1989".

But I think we should adopt it as a cousin to our own Eddystone and encourage our friends to bring us souvenirs from their visits.

### NEW MACHINE

When I was reporting on the new PC last month I was unable to report on the process of formatting the whole 'Lighthouse' magazine. Readers may recall that this was one of my most serious problems, as the majority of 'experts' told me it couldn't be done. Well I managed to do it in two hours compared with the one expert's estimate of five hours . . . (and my time a year ago of 3 days!)

Not wishing to count my chickens too soon I think we may have every confidence that this issue will be 'put to bed' very quickly.

I'd like to comment again on the new 19" TFT monitor. I find it incredibly restful to use, (no longer having A1/G1 vision) not just because it's large and crisp, but because, having no 'back' to it, I can push it to the back of the desk and have a reading distance of 30" instead of 10" with the old CRT.

### RENEWALS

This month sees most of you renewing membership. This is actually a left-over from the times when EVERYBODY renewed in April, but now we take membership from any month. But what I'm actually getting round to saying is that **don't anybody renew** until they get a great big form telling them to!

Ever so often I get a cheque on its own which doesn't fit in with my accounting system. I then discover that it's a

member who has (a) forgotten when he is due for renewal, or (b) knows he is due to renew next month and decides to jump the gun.

I've just said it once but I'll say it again: don't renew your subscription until I ask you for it. (***We've actually got some members who renew so often that they are fully paid up until the end of 2006!***)

If you see a month/year after your address on the 'Lighthouse' envelope it's not a coded message to remind you that it's time to cough up again. We are much more open about it. It's a coded message to **ME** to enclose a whopping great renewal notice in your 'Lighthouse' for that month.

### NEW LICENCE PRIVILEGES

It was announced last week by the new Post Master General that from 1<sup>st</sup> April 2004, members of the EUG who hold a current Class 'A' Amateur Transmitting Licence will be eligible to use the Zone Ten 40-metre band.

This covers 7.000-7.300 MHz and the modes allowed will be CW and AM only. Members wishing to take advantage of this privilege should write, asking for a Notice of Variation, to R. Hill, Esq., M.P., P.O. Box 88, London, W.C., quoting this reference.

### EDDYSTONE PARTNERS

Last month I promised to root out some of the vintage AM/CW rigs that would have partnered the "golden age" Eddystones. Over the page we start with the "Q-MAX" B4/40 compact Tx. Take a look!

### NATIONAL VINTAGE COMMS FAIR

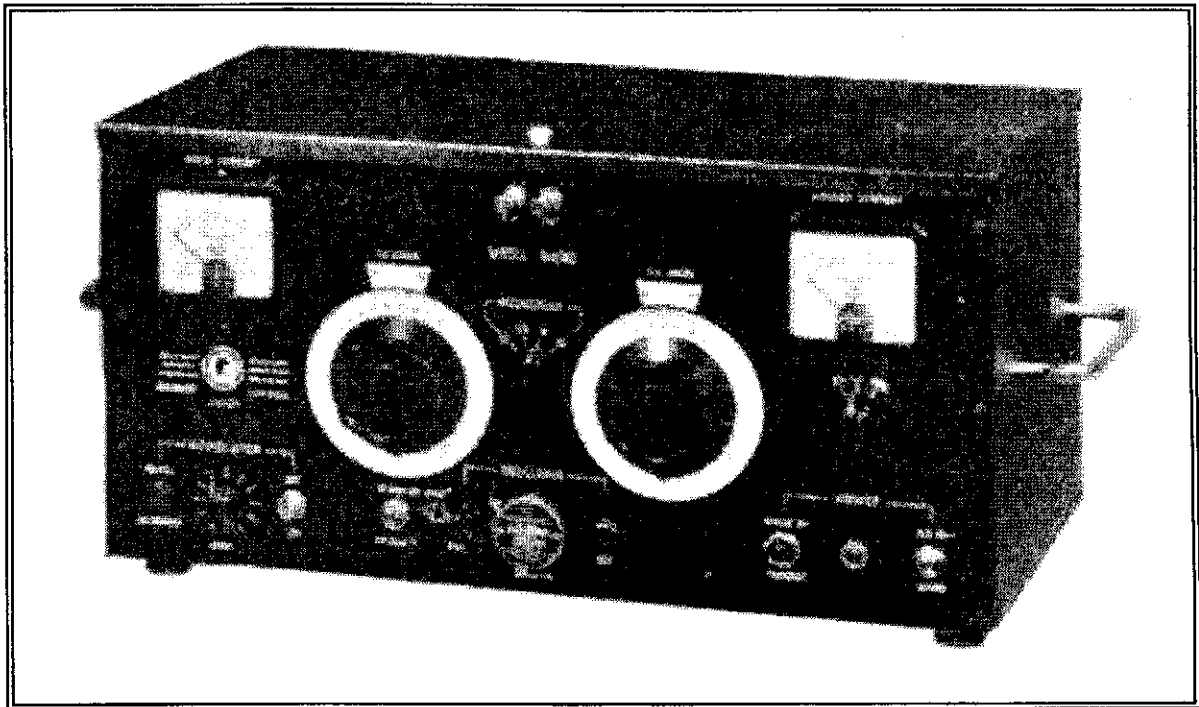
Just one last word to remind you of the Fair. Look out for the LIGHTHOUSE and come and have a chat at the EUG stand.

Vy 73, Graeme, G3GGL ♠

Presenting a partner for Eddystone, c.1948

# **THE "Q-MAX" B4/40 TRANSMITTER**

**A complete 40 watt – Four Band  
Transmitter for Phone or C.W.**



- **Four Bands 80-40-20-10 metres at the turn of a single switch.**
- **Two Tuning Controls only.**
- **40 watts C.W., 35 watts Phone to KT8C Final.**
- **Built-in Modulator and Power Pack.**
- **High efficiency Four band Tank Coil Turret.**
- **All essential circuits metered.**
- **Instant Crystal changing from front of panel.**
- **The whole completely housed in attractive black crackle finished steel cabinet, 19 ins. by 10 ins. by 9½ ins.**



## NOTHING EXTERNAL EXCEPT MICROPHONE AND KEY

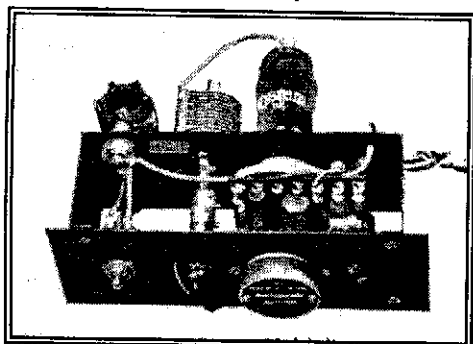
A 'TT11' (Miniature 807) is used as a Pierce Multiplier Crystal Oscillator giving outputs at 3.5, 7 and 14 Mc/s., driving an EL32 as a Buffer/Doubler, in turn driving a KT8C as a Power Amplifier.

The Buffer/Doubler switching is so arranged that the P.A. is always driven as a Straight Amplifier on any selected output frequency and automatically takes the right harmonic from the Pierce Multiplier regardless of the crystal fundamental frequency.

Sufficient drive is thus obtained on 28 Mc/s from a 3.5 Mc/s Crystal or on 14 Mc/s from a 1.8 Mc/s Crystal.

The P.A. Tank Coils are incorporated in a switched turret of high efficiency and ganged to a second turret in the Driver Unit – one single front panel four position switch determining the complete transmitter frequency.

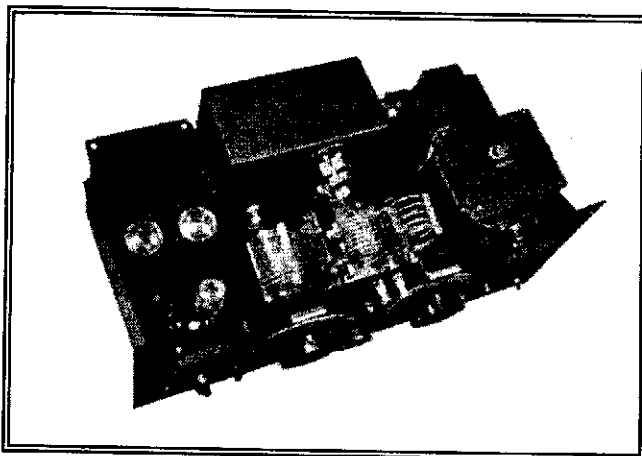
Fixed link coils also turret switched, give maximum coupling on each band to a low impedance output.



*Pierce Multiplier*

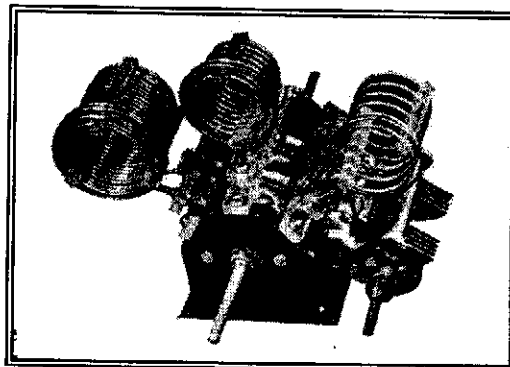
The Modulator utilises a pair of matched 6L6's running under Class AB conditions and gives ample gain from a standard D.104 Crystal microphone to modulate fully 35 watts input on phone.

For use on C.W. Telegraphy – the power supply to the modulator is switched off and keying is effected in the cathode of the crystal oscillator, to



enable "Break in" to be used on Spot frequencies.

A stabilised bias voltage drawn from a built-in bias pack, is applied to the Buffer/Doubler and P.A. stages, giving full protection in "Key up" position and when changing crystals.



*P.A. Turret*

Provision is made for taking input from a V.F.O. at low impedance – keying then being effected at the V.F. source.

This transmitter can easily be adapted to cover any combination of frequencies, and in its present form will cover the 21 Mc/s band.

**PRICE : £75 complete.**

At today's values this would be about £2,200 (using the price of a stamp). Split channel xtal control was still the norm and the future 21 Mc/s band had just been announced. - Graeme.

# 730/4 Power Transformer Disaster

Graeme Wormald – G3GGL

In recent Issues of Lighthouse the question of transformer problems has loomed large. Well I've not escaped the problem either. When we started playing with A.M. transmission late last year I decided to bring my venerable 730/4 into the frame. But all was not what it seemed to be . . .

The Eddystone 730/4 is probably the most common 'top of the market' set produced by Stratton's before the Marconi era. It was first produced as the 730/1 in 1953/4 as a freelance professional general coverage receiver. It was based closely on the successful 680X, itself an improved version of the 1949 680.

Every facility was included and the general specification was upgraded. So was the price (£230); it cost double that of the 680X. It was ordered by the Diplomatic Wireless Service (DWS) and then caught the eye of the Military. In the late 'fifties a thousand, designated 730/4, were ordered by the War Office.

As a new member of EUG in 1994 I had been the proud owner of a 680X for about eight years. It was sheer chance, therefore, that when I was visiting my eldest daughter on the east side of Birmingham, I discovered that Howard Turner, alias 'Centre Electronics', was only a mile away. I nipped along and found he had two

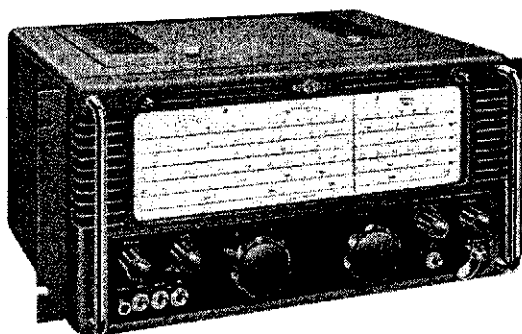
Eddystones on offer; both 730/4. They were both working and I took the cleanest for £110.

I used it regularly for BC listening until last summer, when I put it on the top shelf to make room for my 'new' 670C.

I had always been slightly surprised by the heat generated in the mains transformer and which transferred itself to

the top of the lid (in spite of the cooling grid). But it's a big chunky set and I guessed that was the nature of such beasts. I still had a little niggles in the back of the mind when I found the transformer too hot to touch. But it worked.

Last November I took it down and powered it. The centre scale lamp was out. How fortunate that Dave Simmons had just sent me samples of his new Bulgin/Eddystone lamp-holders! The riveting of the old one had gone dirty; it would work after a good wriggle, but then died after a few minutes. I changed it and left it running with the AF gain down while I



answered the 'phone.

As I hung up I realised that **ALL** the dial lamps were out. So was the green range-indicator lamp. So was the VR150/30 neon regulator. Very suspicious. I could think of nothing but a blown fuse that would cause such a lack of action. And it was too.

The 730/4 is fitted with a 750mA fuse in each mains leg as original equipment. (*It's interesting to note that an official army modification altered this, but more about it in 'Ramblings'.*)

My 730 still had the original two spare fuses clipped in the storage facility under the lid. I used one. The set didn't even give me the satisfaction of a flicker of light when I switched it back on. Nothing. The new fuse had blown. Mmmm . . .

I just couldn't think of any fault within the set which would blow mains fuses without any accompanying smell and smoke. My brain, knowing exactly what was wrong, tried to produce a less serious alternative, but couldn't.

I'd lost that most expensive combination of iron and copper, the mains transformer. And it had to be shorted turns on the primary. Nothing else could be so lightning fast.

I checked the DC resistance of the primary and found it to be 8 ohms. I'd no record of what it should be but it seemed a bit low. If only I had another 730 to check it against . . . if only pigs could fly.

Then came my bright idea of the day. What other Eddystone models used the transformer type 5339.P specified for the 730/4? Not the 940, which uses a 3937.P, nor the 770R which also uses the 3937.P. But what about the 830/7? Not much hope really, they're not even the same generation; but let's have a look.

Never! But yes, the 830 uses the

5339.P same as the 730. Fancy that! So down came the 830 from the shelf; not to cannibalise it (God forbid) but to check its DC resistance. 10 ohms. A bit close; let's double check. Still 8 ohms on the bad one.

By this time I was getting used to the idea of waiting for a scrap 730 (or 830?) before I could breath life back into my old faithful. And then my guardian angel whispered in my ear. "Go check that shelf in the garage. You know you buy every mains tranny you find under a rally table if it's not over a pound."

Without much enthusiasm I went out in the freezing cold (there's nothing so cold as transformers!) and started to shuffle them out. And this is where you'll never believe me; there was an incredibly scruffy 'Partridge' transformer with the anonymous-looking number 5339 P stamped on the plate. The original 5339.P was a 'Parmeko', but so what?

An hour later the 730/4 was warming up with all the fuses intact and the lights glowing. It remained on for a week; a fair enough soak, I thought.

There are two morals to this little tale. The first is never to pass by a mains transformer that looks as if it will fit an Eddystone (but pay no more than a pound!). And the second is not to sit around waiting for something to turn up. Go look in your junk box(es) and see what's lurking there.

Oh, yes, and the 'new' transformer has a DC resistance of 10 ohms, the same as my 830. The 'bad' one is still 8 ohms.

It does run cooler with the lid slightly ajar, but it will stay on 'Shannon Volmet' USB transmission on 5505 kc/s for days on end with only the slightest change in voice pitch. Not bad for a 50-years-old design.

♣



## “EUG First Sunday Net”

This takes place on the first Sunday of each month and all members are invited to call in for a report or a natter. SWL reports will be confirmed by QSL from Ted G3EUG/P and Graeme G3GGL

**The frequency is 3695 +/- QRM**

The net controller is usually Chris G3XFE

The first call is at 09.30 (local time) and is made on AM to give members the opportunity to use vintage Eddystone receivers and associated homebrew or veteran AM transmitters. Brief checks are made until 10.00 (local).

Then at 10.00 (local) the SSB net commences. This has been known to continue until mid-day so there is plenty of time to accommodate late-comers.

**Please Call In.**

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