

Lighthouse

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The Magazine of the
Eddystone User Group

Issue 75, October 2002



1953

The 840 is Announced

Stratton's first AC/DC comms Rx
was also the last "Half-Moon Dial" set

LIGHTHOUSE

ISSUE NUMBER 75, OCTOBER 2002

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Chris's Column

Get you were impressed with the Quick Reference Guide supplied with the last issue of Lighthouse. It had a good write up in the recent issue of Radio Bygones, which by the way is also available on CD. As an habitual magazine collector I am starting to get more and more as CD copies so that I can dispose of the print material.

In fact at my last ARRL subscription renewal I decided to take the CD once per annum option. Won't be the same as reading the printed word every month but at least I am only paying once for the material. Of course all the back issues of the Lighthouse and Newsletter are on CD and I find my set very useful when looking up articles. These are available through Graeme and represent terrific value for money when compared to what others charge.

As I write we are still waiting for the G6SL QSL cards to come back from the printers. It has been nearly 6 weeks now and when contacted they blamed the backlog on a recent move of premises and a printer failure. Hopefully not too much longer.

At Stan Carney's annual bash at the end of July I bumped into Geoff Mellor who was a senior development engineer at Eddystone when I was there. He said he now worked for Raycom which was owned by Ray Withers G4KZH, who had recently gone silent key. Raycom were based in Alcester in Warwickshire and made talk-back equipment for the broadcasting industry.

A few weeks later I get a phone call from Pyors Easton who is MD of SBS Broadcast, the new owners of Eddystone Broadcast and based in Hastings. Pyors rang to say that he had bought the Raycom business and intended to move the Eddystone Broadcast business back to the Midlands to the Raycom unit in Alcester where there was some 6000 square feet of production space available.

He said to me that you can take Eddystone out of the Midlands but you cannot take the Midlands out of Eddystone. This is a great turn up for the chaps who were having to make the weekly commute from Brum to Hastings. They should be settled back in Alcester by next week.

The question of the fate of the Eddystone Museum and Archives should be settled soon. Although the details are currently subject to confidentiality, I think EUG members who were concerned about its future will be satisfied with the outcome. Hopefully, more on this in the next Lighthouse.

I recently spent 5 days in Amsterdam and the International Broadcast Convention 2002. This annual bash of the broadcast industry was down on numbers reflecting the difficult state of broadcasting in Europe and the UK as far as transmission spend is concerned.

Following the collapse of ITV digital the new licence holders, BBC and Crown Castle are going to use existing transmission facilities until there is clear public demand by the take-up of the £100 free to air set top boxes. One thing I did notice at the show was that East European manufacturers were there in greater numbers than ever before and offering good equipment at great value.

My local radio club (Wythall), had a talk from Rob Mannion of Practical Wireless recently and what an interesting life he has led. In talking about the radio industry of the 20's and 30's he likened it to the affect computers have on today's society. He said that the circulation of PW was 250,000 per week just before 1940 and it had a staff of 150. Now circulation is some 25,000 per month and it does this with a staff of 4. How times have changed.

My best 73, *Chris Pettitt* - GØEYO
Patron (g0eyo@blueyonder.co.uk)

Ted's MailBox

A review of Mail and Happenings
By Ted Moore, Founder of EUG

Out and About

The period since I last wrote this column has been quite hectic for me. A move to a new, but temporary, QTH with a very imminent move now to a more permanent QTH has meant that I have had to juggle my time to enable me to visit as many Rallies as possible whilst still keeping up with EUG matters. I have also had to sandwich house-hunting in during the weekdays - if only days had more than 24 hours !

Let me see now, Huntingdon, Leicester, Lincoln, NEC, and Telford. I have met a few EUGers at these rallies and many old friends, I hope to meet many more in the future as I travel about the country to rallies. Llandudno is way up on my list as I used to thoroughly enjoy this one in days of yore.

I have also been able to add a few more sets to my growing collection, probably spending more than my bank manager likes; more of this later.

Not only Eddystones, a few 'aliens' have arrived too, both additions to my alien collection and a few to repair for friends - you meet some strange problems when doing repairs for others and even stranger problems when repairing one's own acquisitions.

Poor Tracking ?

○ That was what I was told about this 1959 STELLA table model, which I bought at a rally. It was working, with

plenty of output and with very little hum - I seem to recall this was a problem many years back on both Philips and Stella versions of this model.

A comment by the vendor that 'tracking seems to be a bit out' did not put me off and when I got it home I powered it up and did a bit of a check on the set. Tracking out ? Well something of the kind and I must be going a bit 'low-emission' myself because I was left puzzled by the results for a couple of hours.

The set looked lovely, gave good audio with very little background noise. FM finished at 104 Mc/s of course but above that you only get those 'thump-thump' stations anyway, and yet the stations were just not where they ought to be. (*Hey, Ted, what about Saga FM 105.7 for the over 50's? -- Graeme*). I went to bed perplexed when, in fact, I should have recognised the reason for the problem.

It came to me next a.m. before I got up. When I did get up and check out my theory it turned out that I had correctly reasoned out the cause of the 'funny' results. This was one of those sets beloved of Philips with two separate cord drives, one where the tuning knob drove the tuning condenser and another cord drive which drove the pointer from a common two-step pulley.

This second cord drive had been renewed by some previous owner and had been wrongly re-strung so that the pointer went from HF to LF whilst the

condenser tuned the other way. Easy enough to sort out and I now have another 'alien' to put away for future enjoyment.

Another alien was a Bush DAC10 for an EUGer, an easy enough fault this, quickly located that is. The repair took much longer as it turned out to be an open-circuit winding on an IF transformer.

Still the repair was accomplished and having a spare chassis for bits I was able to select a full set of goodish valves for the set. Despite the wildly fluctuating mains voltage at my temporary QTH the DAC10 worked okay whilst on test.

Then came an Eddystone EB35 II which had the 'whisker' syndrome, chopping the fourth legs on all of the trannies brought the set back to life but even so it was necessary to change one IF transistor to get good results. The mains psu was duff so testing was primarily done with a PP9 battery, the set was left playing whilst the psu was repaired. A completely shorted zener was removed, the resultant dud rectifier was replaced and the psu was tested on a dummy load.



EB35 Mk II

I use a 1-watt, 180 ohm resistor for this, it can be used on any of these small EB/EC series, which takes about 50 mA from the psu. The two were put

together and given a final test for a whole day. No problems at all, for a change the FM tuner on this model was working well, the vhf oscillator trannie quite often gives up the ghost and replacement is a real chore.

Another repair for a friend was an 840A with very low audio output. Sure enough it was low, to the point where only strong signals got through to the speaker, or the 'phones.

A few basic tests brought me to the anode of the audio voltage amplifier, the triode of a double diode triode. The measured voltage was less than half of one volt and this wasn't coming through the anode load resistor which read total infinity !

How anything was getting through this stage is a mystery but a replacement resistor cured the problem and brought forth the usual good quality signals. The gearing and drive mechanism needed some attention as it had been 'lubricated' with 3-in-1 oil. This stuff is very bad for metal gearing and cord drives.

It appears to absorb some humidity from the atmosphere and within weeks there are traces of corrosion. After cleaning off the oil I re-lubricated the whole drive system with some silicone based grease with a copper content, called 'Copper-lube' it seems to be ideal for our Eddystone gearing. But beware of using it on switch contacts of the Yaxley type as it is conductive.

My Recent Purchases

Amongst my recent purchases at rallies are the following sets. An EB36 still in the Eddystone Radio packing box and with original documentation. I got it for £65 and when I expressed surprise at it not having been snapped up before my arrival, the stall holder said to me, 'Got no FM on it has it ?

Nobody wants it.' So off goes a very puzzled but happy Ted.



The EB36 looks almost like the EB35 but has no VHF-FM

Not a lot to be done apart noisy pots and a dirty range switch. Easily cleaned up. The corrosion in the battery box was mostly cleaned out with emery cloth and a brass wire brush and the remainder was neutralised with a coating of that rust neutraliser fluid sold in Autopart shops.

This cures to leave a very hard surface which can be sanded down and the whole box can then be re-sprayed. 'GGL says this model rarely comes on the market so once more serendipity played its part.

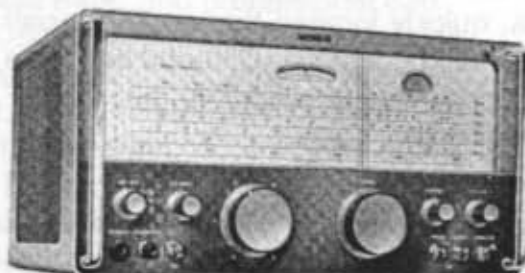
A 770R Mk II

This was another recent acquisition and has brought up a few questions. It is in good external state and the only visible anomaly is the use of 75 ohm BNC connectors replacing the originals for the aerial and IF output.

Not very well done either as both were loose in their 'holes'. They have been left in situ - at least for the time being. The set was pretty dead with only the one station audible - the local fire station on 71.4 Mc/s. A check throughout on the valves was surprising.

The calibrator wasn't working simply because it had an EB91 fitted instead of the correct EF91 - luckily my

recent purchase of a stock of EF91s enabled me to swop this over. The BFO was fitted with an EF91. I later discovered, it ought to have been a 6BA6.



The very successful bandswitched VHF 770R Mk II was the re-housed version of the 770R with the addition of a crystal calibrator

No more surprises in the valve line up and so some checks on the sensitivity were begun. All ranges were off alignment and a full re-alignment job was undertaken.

During this two resistors and a condenser had to be changed. All ranges were brought up to standard and the set is now quite lively.

On one range the oscillator was aligned the wrong side of the signal, a common fault on these VHF sets which have been fiddled with. I once had a 770R which had this done on every range.

This set is now on prolonged 'test' - this means on all day and most of the evening ! It is giving good results on the civil airband and even a number of signals on the VHF marine band from boats on local rivers and canals. The usual crop of utility stations too.

Now the mystery. The set has two Serial Number/Model Type plates, one on the top of the turret cover on the main chassis and another on the centre rear of the outer case.

Both had read Model 770R II and Serial Number FO 0070 as is normal.

The plate on the inner chassis turret cover however had the serial and model numbers crossed out and the following stamped on in cream paint. 'R82 - CNG - 005'.

One assumes this means that the set was a model R82 for a company or organisation known as CNG and this was set number five. The letters CNG seem to ring bells from some way back in my experience, quite apart the usual Compressed Natural Gas meaning that is. Any help on this would be appreciated. A small unofficial mod to the IF takeoff point was also visible, the use of a series condenser and parallel diode to provide a DC output such as would be needed to drive a pen recorder or similar device. Any info to me via Jim Murphy or 'GGL'.

Back Home Again

I went down to the south of the county recently to buy a pretty nice 670C, the asking price of £100 for what is a very basic 'cabin receiver' seemed fair to me at the time. Even more so when I got it home.

My usual first task is to scratch the letters 'TD' on each of my sets, as a security measure. When I turned this one up and took off the case to add my ID I found it was not necessary. The letters TD were there already !!!

A lovely surprise, as when the serial number was checked out this turns out to have been one of those sets from my original collection which were sold off by my ex-wife in 1994. I do wonder where it has travelled in those intervening years.

A quick check out showed that all this 670C needed was a new output 'bottle' - the one fitted had some heater-kathode leakage. This is best measured when the valve has been operated for some time so that your

measurement is made with a valve that is thoroughly hot.

Nice to have an old friend back home again. I would like to get my hands on some of those others so if anybody has one just let me know. The ID letters 'TD' are scratched on the bottom flange of the front panel which is just covered by the lip of the outer case when fitted.

Oh yes, whilst I am at it, 'GGL' wants one of this model, the 670C. It is NOT the same as the Marconi 2232 so do not offer him one of these look-alikes. There are subtle differences from the 670C in both the 2232A and B versions. A few circuit differences and range differences too.

(Thanks for the menseh, Ted, but I'm so desperate that I'll even take one of those 2232B "Elettras" from Mimco - 670C/1 - So long as it's in spotless external condition. Don't mind about working or not, I'll soon fix that. - Greame 'GGL').

My New 840C

I spotted this lurking under the stall at the NEC, not yet put on sale. There was a 77CR II also on this stall but as I had just bought one in the carpark I concentrated on the 840C and left the 770R II there.



840C, last of the successful series of AC/DC economy general-coverage sets, 1961-68

A deposit of £20 followed by a quick trip out to the piggy-bank in the foyer and the payment of another £80

left me the owner of a good looking 840C.

Since I was already lugging an EB36 in my rucksack and carrying a Grundig TK18 in one hand I really had to make a trip out to the car park before spending any more of my pocket money. Good job I am a fit OAP isn't it?

Getting the 840C home and powering it up left me quite chuffed, apart a noisy gain pot nothing was needed. This cleaned up fine with some switch cleaner injected into the 'innards' and the set is in regular daily use now. A wonderfully sensitive set which is presently burbling away on the new NVIS* channel in the 5 Mc/s band.

G3PSZ, G3BPM and MØGEB are chatting away and apart a minimum of slow QSB their signals are remarkably similar in strength. I have often wondered why this form of propagation is not more used for inter UK QSOs.

It has been known that near saturation coverage can be maintained using NVIS since way back when I was in the RAF. (*note from Graeme – see more on NVIS* (Near Vertical Incidence Skywave) in this month's Radio Ramblings column*).

Junk Box Spares

Thanks to EUGer Dave I have a vast quantity of spares such as resistors and condensers to use in my repairs. These have been very welcome recently and I keep promising myself that I shall sort them all out into boxes.

Doing some work on my 940 the other week I found it necessary to swap some fatigued resistors for newer versions and having made some noise tests beforehand I was happily rewarded with a much less

noisy receiver. Four resistors and just the one condenser have made the world of difference.



**S.940 – the last Eddystone
“gentleman's general coverage
receiver” (1962-70)**

This set bought last year from a fellow EUGer down in Romford has been remarkably reliable and can be relied upon for both stability on SSB and for re-settability using the log scale. I have to say that the more I use this 940 the more I appreciate the model.

Another Alien !

I can foresee another disapproving letter coming my way. I have been buying quite a few of these 'aliens' of late. Back in the fifties I was foreman in a radio Tv workshop, part of the GUS network in those far off days.

I quite often see a set which particularly reminds me of those days and simply add it to my collection, pure nostalgia of course. A couple of PYEs have recently come my way.

This Model 1101A is a multi-band table model which I liked having in the workshop in those days. It covers a number of Ham bands from Top Band to 21 Mc/s and AM was still in use then.

This one is really a seven valve set but through judicious choice of valve types it contains just four 'bottles'. The sensitivity is extremely good and I was able to get WWV, RWM, and the

Canadian CHU standard frequency stations using a random wire aerial.

It now has about thirty feet of fine wire wound on the back cover as a single-ended frame aerial and performs well with this. It is likely to become my living room set for B/C reception at the new QTH.

Another PYE had an obscure fault which I eventually tracked down to - guess what ? - resistors which had gone high with age. Heard this one before somewhere have we not ??? I found a 47K which was way up in the quarter-meg range, another 100K which was about twice the marked value and a one Meg which read about one and a half the marked value. Apart this the set was AOK and it is now working fine. Nice to know that not only Eddystones suffer from the tired resistor syndrome.

An EB35

Not the EB35 II this but one of the very early version and without the extra - add on - PCB with the RC coupled IF stage for FM. It simply was DEAD as the proverbial Dodo.

A good look inside helped as both of the back to back diodes across the aerial input had cracked cases, and both were o/c. Usually the sign of a lightning strike nearby and bad news sometimes.

The RF trannie was o/c too and had to be replaced. Before going any further I also chopped the fourth legs of all other trannies, just in case. The set now worked on a PP9 but the psu was dead too.

This was more serious but I tracked it down to a duff mains transfo and similarly afflicted rectifier unit. Replacement transformers of this size and wattage are easy to come by and I used 1N4001 rectifiers in a full wave

bridge circuit. For peace of mind I added new condensers and a new zener and the psu was now happy to power the EB35.

Another happy Eddystone owner, a lady friend this who uses it for bedtime listening to foreign broadcast stations. She has an AR88 downstairs !! Not unexpected as she is an ex-WRAF WOP. Happy listening Joan !

Eddystone Ephemera

A happy find for 50p at the Telford Rally was an original booklet for the model 640, so much better than my photocopied version. I was with 'GGL and James when this was found so I am surprised that I got it before they did. Maybe our tastes differ somewhat. (Note from 'GGL - I've already got one!) Now all I need is a good 640 to go with the booklet, honest, I AM serious.



The S.640 was the first post-war HF receiver aimed specially at the SWL and licensed ham (1947-49). They were sold at £42 plus £10 tax. At this price they compared poorly with the ex-RAF R.1155 selling new at £12 (no tax). Then the tax was cut and Stratton's reduced the price. At £27 it became incredibly popular and 4,000 were sold. Stratton's lost money on them!

I am intent on building up my collection again to what I had some twelve years back, my poor bank manager would have apoplexy if he knew this but what the heck. I only

have another thirty years left to live so I may as well enjoy them.

Apropos the S640

This was a repair done down at Woodbridge the other weekend for a non-EUGer. His 640 had failed whilst in use and his technical know-how - at least regarding Eddystones - is pretty minimal.

The symptoms may be immediately familiar to some of us but are well worth a mention here for the future edification of others.

The AF output suddenly went off, as did the 'S' meter indication on his external meter. Experimentally switching off the Noise Limiter did bring back the audio but the Noise Limiter was useless and the 'S' meter stayed dead.



The Model 669 outboard S-meter was fed via a diode so that there was no problem with zeroing!

It was an easy-peasy repair job and was accomplished in front of the customer by simply replacing the EB34 double diode which functions as both series noise limiter (one diode) and as 'S' meter rectifier (t'other diode).

I did what is now normal practice for me when confronted with a duff EB34. I scraped a small circular window in the grey metallic coating on top of the new EB34 bottle. This is one of the few valves used in Eddystones which does not allow you to see at a glance when the heater is lit up. The 'hole' now allows the valve heater to

be checked at a glance as with all of the other valves in the set.

At a mere £5 for valve and labour he went off swearing to be a future customer, if ever needed. I don't do these repairs for gain but mainly for the challenge and if you are willing to pay the postage or carriage that satisfies me.

870/870A

I was looking at a nice 870A recently, with a view to buying naturally, when I again realised, as I have often in the past, just how unnatural it seems to tune with the scales reversed as on these baby sets.



The 870A cabin set was smaller than the EB36 of a decade later

You get my meaning, we normally have the HF at the right hand end of the scale and LF at the left hand end, just habit I guess but it doesn't 'feel' right does it?

Anyway the asking price was way over the top for one of these so I shall go on looking, this one had none matching knobs and yet the vendor wanted a hundred quid for it!!!

Expensive Rewinds

One new EUGer has problems with his rather rare 504 receiver. In this case the cure could be expensive as Trevor has an O/C mains transfo. Even ten years ago when I had one rewound for a 740 they charged me

nearly £35, a hefty price to pay even though the finished job looked lovely, better looking than the original Strattons job if I may say without being struck down by a thunderbolt.

There are companies who advertise in the magazines and will do an acceptable job for you but be prepared for the price.

Following on from this is a suggestion from one EUGer who tells me that having experienced similar problems in the past he has now learned his lesson and has incorporated a high wattage, low ohms, wire wound resistor in series with the mains transfo primary of his Eddystones.

Both the 730 and the 640 now incorporate a 22 ohms wire wound, 12 watt series resistor between the fuse holder and the mains transfo primary.

The theory being that this will provide a soft start facility to prolong the life of the transformers. His mains are well above 230 anyway and the voltage dropped does not affect operation of the sets. Something to chew over maybe ?

Any comments are welcome on this and other matters.

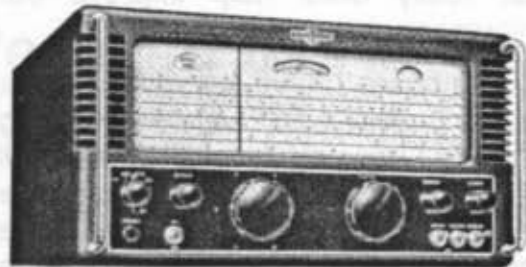
BBC Valve Section

I now have two of these valves, both are 6BA6s and both bear the pale blue label printed on which is 'BBC Valve Section'. One has the date stamp '21 mar 58' and the other has '7 jul 55'. Now this has aroused my curiosity so maybe 'GGL will elucidate. If he wants one as a souvenir I shall be happy to oblige. Oh heck ! there may be some connection here as one of them is in the above mentioned 770R Mk II, which has the odd ball CGN markings, go on Graeme.

(Well thank you, Ted! All my BBC Valve Section souvenirs had pale green labels, but I think they were earlier than yours!)

Every valve that went through the BBC was checked at Head Office before being issued to the provinces! Hence the universal labels.

As for uses of 770Rs in the broadcast industry:- my 770R (a Mk I, but that's academic) was used as an RBR (re-broadcast) receiver at the BBC Llandona (Anglesey, N. Wales) FM transmitter.



One of the uses of the 770R in the BBC was as a standby programme link in case of landline failure

It was kept tuned in to Winter Hill (Lancashire) transmitter ready to be switched in if the landlines failed to Anglesey. There must have been hundreds of 770R Mks I & II used for this.

The other use which I came across was a 770R Mk I used by ATV (Associated TeleVision, one of the first ITV companies) as a radio mike receiver in the old Astoria TV Studios, Aston Cross (Birmingham) in the late '50s and '60s. At the side of the proscenium arch in the main audience theatre was a 27 Mc/s dipole which fed it. Talk about a sledgehammer to crack a nut! – Graeme.)

ATU Construction Project

My recent ability to visit all of the rallies has meant that I have been able

to acquire a whole pile of empty boxes which are being used to construct a variety of ATUs to be used with my working sets.

The usefulness of even the simplest of aerial tuning, in reality matching, units is such that I always use them. What may be a mere whisper of a signal can be peaked up to an S7 or more by correct use of an ATU. There have been many circuits published both in the hobby mags and in our own Newsletter that there is no excuse for not having one, a very simple and inexpensive add-on device that really does help improve our enjoyment of any receiver.

The boxes I have are mostly of the plastic 'project' type but in my foraging at rallies I have also found some useful 'alli' diecast boxes. Some are Eddystone some not, some are unused (i.e. no holes drilled), some have been already drilled. They are all being hoarded for future use.

One of the plastic type boxes has been used to house a purpose-built Command Receiver PSU which has been designed to operate one or two of these useful sets giving the requisite HT and LT supplies with a switched Voltmeter on the front panel.

One BC453 is used for printing out Navtex via the ERA RTTY unit donated by 'GGL. The other Command set is a BC454 which covers 3 to 6 Mo/s and is permanently 'spotted' on 5680 Kc/s to monitor Kinloss SAR transmissions, no stability problems with either after the preliminary warm up period.

Centre Electronics

Nice to meet up with an old friend after so many years, I met Howard (Turner) and his XYL at the NEC and had a natter. Having disposed of his Eddystone/Stratton stock to our Dave

Simmons he is now concentrating on valves and other passive components plus repair jobs.

Peter's 840C (740C!)

I found this article in last month's issue to be very interesting in that it shows just what can be done with those scrap sets so often seen at rallies. They seem destined to be completely cannibalised for spares if nothing else can be done and even a non-standard worker is better than nothing at all in my mind.

Way back I had a similar 670A where somebody had tried to 'tart it up' with the addition of simple fixed tuned transistor BFO etc. I ended up having to do major surgery on this set just to get an acceptable performance from it since the mains dropper no longer existed on the chassis.

It finally went on the air sporting a double wound mains transfo of the toroid type which gave 115 volts output to run the set. Unlike Peter though I have always felt that leaving those resistors across the aerial and earth sockets in situ is a good measure.

My previous QTH, back in the '80s was some 800 feet a.s.h. on top of the West Pennines and rain static was a perennial problem on sets which did not have these discharge resistors. They really do not detract from the performance in any way.

I have a pretty poor specimen of an EC10 which does look quite neat outside but is 'orribly corroded inside. The PCB is going to need a complete rebuild and I intend to completely tin the trackwork as there are several points where the copper has almost succumbed to corrosion.

Broken or missing components are going to require many new bits so I guess that I may as well replace them

all whilst I am on the job. It is for the future so you will no doubt read about it when I get it done.

Geoff's Letters

The inclusion in last issue of these memories from the old Bath Tub reminded me that in my old paperwork I do have those blue prints which Geoff mentions having sent to me. The AW8 and the LPC version are there I am sure.

Give me time to get settled into my new QTH and I shall try to get them all sorted out. Look through the old, early copies of the Newsletter and you will find mention of these sets with info provided by Geoff.

Tv Line Timebase QRM

This is so bad nowadays on Long wave and Medium wave that I sometimes give up listening out of pure despair.

Where it is mains-borne then a brute-force hash filter as fitted on those marine Eddystones does help. Strattons offered a similar add-on filter built into a diecast box as an accessory.

I intend to produce a few of these for my own shack and hope they work out okay. One recent letter tells me that the time-base QRM at the writer's home appears to be much worse on a 20 foot vertical wire than on a similar 20 foot horizontal wire.

In one case it runs straight up from the shack window in the other it goes straight out. This does intrigue me and I intend to do some experiments at my new QTH once I am over getting myself settled in.

An aerial farm no matter how modest will be a necessity. To this end I have already manufactured, and am

using, a dipole cut for the airband. The elements are made from small bore copper tubing as used for central heating, it is fed from satellite grade coax.

The novelty is that it is built into those white plastic conduit tubing and a three way centre box as used nowadays for electricity installations. It has two lengths of tubing with end stops for the elements, a third length to lead in the coax, and a three way box in the middle for the connections.

The elements are kept in place in the tubes by means of a couple of silicon rubber grommets. The whole thing is weatherproof and quite robust and is going to be mounted up on the chimney.

A similarly constructed five-eighths whip with ground planes has been made for use when QAPing on the VHF marine band.

They must work as I can get continental VHF port authority signals with the whip at about 20 feet up. The dipole has been proven to work down at Woodbridge with both UK and continental airband stations.

The good thing is that they look every bit as professional as those 'white-stick' antennas in use by so many utility stations. They cost a heck of a lot less though.

Diss Coax

The mention of Jack Read's problem and his finding of a diss in the coax set me to thinking. Experience tells me that it is always worth while doing a DC continuity test on any length of coax cable both before and after the connectors are fitted.

I had a commercially made coax lead brought to me not so long ago where - straight out of it's bubble packaging - the centre core of the coax

did not show DC continuity. Using one of those inductive continuity testers I proved that it was broken at a point about two inches from one connector.

This coincided with a bend in the cable where it had been bent up to fit into the plastic bubble pack. It was not possible to re-use the original coax plug but fitting a new one made the customer happy. I once had a length of coax taken from a 100 metre roll which proved to have a 'discontinuity' in the screen braid.

No apparent reason just a manufacturing fault which was found when the cable was being prepared for use. The moral must be, as with all components, check before use.

One point regarding coax that is often neglected. It does not like being bent ! Seriously bending it tightly around right angles completely ruins it and can sometimes cause breaks in the internal conductor or short circuits through the polythene insulator.

Just think about it for a moment - the radius of bend and the different length of conductor compared with outer polythene and braid, something has to give.

'GGLs QRN

This sounds very similar to that which afflicted my reception down at Hollesley Bay on the East Coast. Conversation with a local BT chappie informed me that it was almost certainly the telemetry used by electrical utility companies to read the state of their equipment at their various substations.

In effect they use the National Grid - those massive aerial towers you see stalking across the country everywhere - to transmit and receive this telemetry.

So it is not surprising really if it, or harmonics generated by the

essentially square wave signals, does get 'broadcast' all over the country. Maybe we can get some authoritative info on the use of the Grid for telemetry purposes, it has been going on for many years apparently. In some areas they even read domestic electricity meters in this way. *(It suddenly ceased last month - most suspicious - Graeme)*

ENDIT

Guess that is IT for this issue. Tomorrow I go out to a DIY place to buy three - maybe four plain wooden full-size doors. I now have a full size double bedroom for my shack and a separate storage room and these doors are to form the basis of my work bench and operating bench.

More on this project next issue - if I find time to write anything at all. Setting up house again seems to be a full time occupation, an expensive one too. Still it is all good fun.

Look out for a grey Volvo 460 with 'EUG' in the rear window and on the windscreen, and me with 'EUG' on the back of my blue jacket. CU Ted.

P.S. - Soon be the Xmas Super Ginormous Issue. I wonder what Graeme has in store for our - by now obligatory - Xmas Extra ? I did think that he would keep the QRG for that, now what, I wonder ? 73, Ted.

P.P.S. Further note from Graeme - Yes, I meant to save QRG/3 for Xmas but got carried away by my enthusiasm. Stupid Boy! Now I've got to work overtime . . .

TED's MAILBOX

c/o Jim Murphy

63 Wrose Road

BRADFORD BD2 1LN

The EDDYSTONE 840

was announced by Webb's Radio in their Information Folder of 1953. It was the last Eddystone set to use the half-moon dial cabinet, designed for the S.556 tea-planter deluxe and S.504 comms receivers, introduced in 1946. The S.840 was a very close relative of the Type S.740 AC-only model that had been running since 1950 and would shortly be withdrawn . . .

Stratton's agent in Aden, a British Colony on the Red Sea, was Said Ahmed O.Bazara and Brothers. We published a feature on his business in 'Lighthouse' Issue 68, August 2001 ('A Touch of Eastern Promise' – page 36.) It was a port of call for many ships passing through the Suez Canal and the Brothers Bazara had a brisk trade in Eddystones, particularly the Seafarers' Radio, the famous 670 'work anywhere' AC/DC 100-250 volt general coverage broadcast set.

These were treated with suspicion in the Old Country. Anything without a mains transformer was considered cheap and nasty by the aficionados. But when Eddystone's sales chief, Arthur Edwards G6XJ, went on one of his regular export visits to the Brothers he found nothing but praise.

*THIS IS TYPICAL OF DOZENS OF LETTERS RECEIVED BY STRATTON
PRAISING THE VIRTUES OF THE 670 AC/DC CABIN SET:-*

From Mr. M. Wace, Claremont Avenue, Montreal, Canada.

April 1952.

A year ago I bought one of your fine Eddystone "670" Marine Receivers. It's a really first-class radio and we have nothing to touch it on this side of the Atlantic.

One of the reasons was that they were by far the best built 'cabin sets' available, which would work off a ship's 100v DC supply as well as 230v AC at home. How about a real 'Comms' version? said the Brothers Bazara. One with a BFO? And so it was to be; the 840 was born, and it was to continue as the A and C until 1968, a 15-year stretch, a sure winner! This is how Webb's Radio announced the arrival . . .

THE NEW EDDYSTONE "840"

COMMUNICATIONS RECEIVER

FULFILS A LONGFELT NEED FOR AN EFFICIENT COMMUNICATIONS RECEIVER TO WORK FROM A.C. or D.C. MAINS

The Eddystone "840" communications receiver is an A.C./D.C. model, having continuous coverage from 30 Mc/s. (10 metres) to 480 kc/s. (620 metres), and is recommended for professional or amateur use. The receiver is a sound engineering product, designed to give the highest efficiency. The signal-to-noise ratio, selectivity and other technical characteristics are excellent and a good all-round performance is obtainable.

The tuning mechanism, which is gear-driven and flywheel loaded, gives a silky yet wholly positive control. A reasonable degree of bandspread is provided by the auxiliary scale, visible in the top right-hand corner of the main dial. In effect it opens out each range to a length equivalent to sixty inches and is invaluable for logging purposes.

Materials of the highest quality are used throughout, construction is extremely robust, and the workmanship is unexcelled.

The "840" operates equally well from A.C. or D.C. mains, a selector being provided for inputs of 100/110 and 220/250 volts. The insulation between the metal cabinet and the interior has received special attention and is more than adequate.

CIRCUIT

The receiver is a seven valve superheterodyne as follows:

V1	UAF42	RF Amplifier.
V2	UCH42	Frequency Changer.
V3	UAF42	IF Amplifier and AGC.
V4	UAF42	AF Amplifier and Detector
V5	UL41	Output.
V6	UAF42	Beat Frequency Oscillator.
V7	UY41	Rectifier.

All valves have B8A bases.



TUNING RANGE

Range 1	30.6 Mc/s. to 10.5 Mc/s.
Range 2	10.6 Mc/s. to 3.7 Mc/s.
Range 3	3.8 Mc/s. to 1.4 Mc/s.
Range 4	205 Metres to 620

Metres.

The first three ranges are directly calibrated in frequency and the fourth in wavelength, to an accuracy of better than 0.5%. Range 4 includes the International Distress frequency.

TECHNICAL PERFORMANCE

Sensitivity is better than 10 microvolts for a 15 db signal-to-noise ratio. Selectivity 30 db down 10 kc/s. off resonance. Image ratio better than 15 db at 30 Mc/s. and correspondingly higher at lower frequencies. Undistorted audio output .75 watts. Maximum output exceeds 1.2 watts.

AUTOMATIC GAIN CONTROL

The delayed AGC system maintains the output within 25 db for a change in input of 80 db above 3 microvolts. AGC is switched off when the BFO is brought into use.

LOUD SPEAKER

A high-flux loudspeaker is fitted internally, the connections being brought out to the rear to permit an easy changeover to an external speaker when desired. The latter should have an impedance of 2.5 ohms, the Eddystone No. 688 being recommended. On the front panel is a jack to take high resistance telephones, the insertion of which automatically mutes the speaker.

TUNING MECHANISM

The tuning is controlled by a gear-driven, flywheel-loaded mechanism, having a reduction ratio of approximately 140 to 1. It is smooth, positive and free from backlash. In the top right-hand opening is an auxiliary band-spread scale which gives an equivalent of 60 inches per range and permits accurate re-setting.

POWER SUPPLY

Inputs of 100/115 volts and 230/250 volts are catered for, and current consumption is approximately 0.275 amperes. The receiver operates equally well from D.C. mains or A.C. (25/60 cycles) mains.

WEIGHTS AND DIMENSIONS

The weight is 30 lbs. The dimensions are : Overall width 16³/₄" ; Depth, 10¹/₂" Height, 8³/₄".

BEAT FREQUENCY OSCILLATOR --

Gives a variation of plus or minus 3 kc/s. **NOISE LIMITER** -- Optional by front panel switch. Effective against ignition and similar noise.

List Price (in U.K.) £45 : 0 : 0 (Exempt from Purchase Tax)
Webb's Radio, 14 Soho Street, London, W.1. (Tel : Gerrard 2089)

EDDYSTONE SERVICING FOR BEGINNERS

PART SIX – VALVES

BY PETER LANKSHEAR, ENGINEER, NZBC (RETIRED)

It seems that just about everyone, even if they don't know an inductor from a conductor, "knows" that old radios have valves, which aren't available any more; they wear out and are a major source of troubles. Certainly older receivers do have valves, which can occasionally fail, but when put into perspective, there are no real problems with their continued use, so let's have some facts on availability and reliability.

Thanks to the demands of the well healed "Golden Eared" high fidelity brigade, some valve types used by Eddystone are still being made, mostly in Russia and Asia. Practically all other types used by Stratton were made in vast numbers and are still readily available at reasonable prices.

Over the years, Stratton did not use a large variety of valve types. Many were common to several Eddystone models. For example, among the valves used in the 1949 type 680 receiver were 6BA6, 6AL5, 5Z4G, VR150 and 6AM5 and these same valves were used in the last valved Eddystones, the 830 and 940, some 20 years later. With the exception of prewar types, it is unlikely that a valve famine will exist in the lifetimes of most EUGers

Valves do wear out - but under the conservative conditions encountered in Eddystone receivers - very slowly. Individuals vary, but depending on the workload, 10,000 operational hours would be a reasonable *minimum* life expectancy. Recently I had an actual operational life measurement of some

common valves. I have a small piece of equipment using a 12AU7 and a 6AV6 operating continuously and had noted the date when they were installed.

Although the equipment was operating quite well I checked the valves. The 12AU7, which works reasonably hard, had about 75% of original emission whilst the 6AV6 with 1.0 mA anode current, was still within specifications.

The valves were new 6½ years previously and this works out at 57,000 hours service. The 12AU7 was replaced, but the 6AV6 still battles on, by now having now clocked up 60,000 hours. I intend reporting on its progress from time to time, but there is always the possibility that it will outlast me!

Now let us put this information into perspective. Assuming only 10,000 hours valve life expectancy, with 4 hours use daily, it would take more than 6 years to wear out a set of valves. With several receivers used in turn, valve mortality should be very low.

Of course, valves can and do occasionally fail. Cracks in their envelopes can let air in, heaters can burn out and internal welds can come adrift or elements can "short" to each other. Some of these problems are easily recognised.

Air leakage often causes oxidation of the gettering, leaving a white deposit inside the envelope, or the valve gets quite warm, but the heater does not glow. Loose elements can cause crashes and bangs from the loudspeaker when the valve is tapped and internal short circuits can stop valves working properly.

Ideally valves should be tested on a good grade of valve tester, but these are not plentiful and when available can cost as much as an Eddystone in good condition – hardly a reasonable proposition for the owner of a modest collection.

Simple emission-measuring valve testers are of some use but, mounted on a service shop counter, were often intended to sell valves as much as providing meaningful readings. If you do get a valve tester, try to get one of the major brands with lots of bells and whistles such as Taylor or AVO and make sure that the correct manual is present and complete! And be prepared to spend some time learning how to use the tester properly and understanding valve parameters

(Note from Graeme – reports are that the famous AVO Valve Characteristic Meter – the one with the sloping front and the technicians choice - has started to climb in price. If you see a good one under £100 snap it up!)

CHECKING VALVES WITHOUT A TESTER

Fortunately, there are other ways of checking valves. It is a good idea to have some, preferably new, spares on

hand and a basic and practical method is to simply, one at a time, substitute them in the receiver with the AGC switched off, tuned to a weak transmission. If there is little change in performance, clearly the suspect valve is satisfactory.

Certainly a newly acquired receiver, especially if it is not operating, could well need several replacement valves. Some could be worn out, others missing or broken or they could be the wrong types or in the incorrect sockets.

(Another note from Graeme – this latter problem is incredibly common in sets without a pedigree!)

This is where the assistance of the Eddystone manual is invaluable in finding what valve lives where.

Rectifiers can be tested quite readily. Simply note the difference in H.T. voltage between a suspect valve and a new one. If there is less than 15 – 20 volts difference, leave the old one in service. The larger Eddystone receivers have VR150 voltage regulator valves which do wear out in time, although in operation they may still glow and appear to be good, but again there is a simple way of testing them.

Simply measure the receiver's regulated voltage with a reasonably accurate meter. It should be 150 volts, but if it is MORE than about 160 volts replace the regulator. Note that although a worn out voltage regulator may still be glowing, its regulating ability is diminished.

MISTAKEN IDENTITY

One annoying weakness of the miniature valves especially is the labelling. Identification marks are readily rubbed off with handling, and whilst with experience it is often possible to identify a valve by its

appearance, this cannot be guaranteed.

One common trick is to breath on to the valve, or put it in a freezer for a few minutes. The condensed moisture will often highlight the residual writing sufficiently. It is prudent then to relabel the valve with a marker pen or similar.

REPAIRS TO VALVES

Of course it is impossible to mend internal faults, and about the only thing that can be done to miniature valves is to carefully straighten base pins which are easily bent from sideways pressure or careless attempts to force them into sockets.

However, the valves in Eddystone receivers made prior to 1949, and in later sets the octal rectifiers and voltage regulators, may have a problem, especially if they have been subject to heavy handed extraction. The combination of restricted access and tight fitting sockets frequently results in grid caps and Bakelite bases becoming loosened.

This is especially serious in those valves with metal sprayed shielding where loose bases are likely to cause instability, whistles and oscillations. Earthing of the shielding was by means of a fine wire embedded in the coating around the top of the base, and any loosening of the base is likely to destroy the connection.

Carefully unwind the earthing wire, and glue the base and envelope together by inserting some two pack epoxy resin. When the glue has hardened, wind a dozen or so turns of fuse wire tightly on the metallising adjacent to the base, soldering the ends and the earthing wire together. Although these valves are often coated with lacquer over the metallising, contact to the fuse wire is normally

adequate. If you have any doubts, first carefully expose the metallising to be covered by lightly sanding with very fine sandpaper, being careful not to damage the coating further.

After soldering, coat the wire with a thin layer of epoxy resin. The repair will not be very nice looking, but Philips in particular often stuck a narrow paper label around this area of their valves. A narrow strip of tape or heavy paper to disguise the repair will not therefore look too much out of place.

LOOSE CAPS

Loose grid caps and terminals are easily fixed. Melt the solder in the cap, and straighten the lead. Lift off the cap, and after removing any remaining solder and old cement, coat the inside with resin and thread it back into position. Resolder when the resin has cured.

Sometimes the grid wire will have broken off short. Before cementing the cap back on, if necessary extend the lead by soldering on a short piece of 5-amp fuse wire.

More serious is the situation when the wire breaks off flush with the glass. At first sight this may seem to be a hopeless situation, but there is a remedy that works in most cases. Valve glass is relatively soft, and with a bit of care, can be cut with fine file.

Seals around lead out wires are usually generous, and can be cut back sufficiently to expose sufficient lead to salvage the valve. Use a SHARP small fine toothed triangular file and gently cut around the seal so as to expose about ½ mm of wire. Loop a piece of 5-amp fuse wire around the now exposed tip, and carefully solder the junction. Twist the tails of the fuse wire together and refit the cap as previously described.

INTERMITTENT FAULTS

Only the tips of pins in Bakelite bases received any solder, and dry joints can be the source of some very frustrating intermittent valve faults.

Any electrode can be affected, but heater leads in particular can be troublesome, easily recognised when the signal fades away or recovers over a period of several seconds. Often sideways pressure on the valves will reveal the offender.

Re-soldering may not be easy. Lead-out wires are generally a copper-coated alloy with an expansion coefficient the same as glass, and oxidation can make cleaning surfaces very difficult. Although it may sound heretical, the judicious application of a paste flux can be very helpful, but do clean off the residue with a solvent.

VALVE SOCKETS

Like practically all good valve equipment, Eddystone receivers are fitted with high grade moulded valve sockets. These are far more reliable than wafer sockets but even so, they may cause problems. The contacts are quite small brass stampings inserted after the socket is moulded.

These grip the valve pins quite tightly, but in sockets where valves have been subject to a lot of handling, the insert can sometimes lose its tension. This can be retensioned by carefully inserting a sewing needle alongside the contact to squeeze it back into shape.

Sometimes, when removing wiring, it is possible to break a socket contact off flush the bottom of the socket. Pushing the remains of the contact out of the socket from underneath can salvage this situation and it should be possible to refit an unused replacement from another socket.

SPARES

As we have seen, whilst a newly acquired receiver may need replacement valves to make it operational, thereafter valve mortality should be low.

In the event of trouble, it is very helpful to have a few known good spares on hand and my recommendation is not to go overboard, but as opportunity arises, to secure a few spares of each type in use.

Most importantly, if a replacement is not necessary, put the good spare back in its packet. This may be obvious, but there is often not much difference in appearance between good and faulty valves, and chaos and confusion may result if they become mixed up.

THAT JUST ABOUT WRAPS UP this series and I trust that it will be of some help to beginners, but some final points: No amount of reading about faults will teach as much as some hands on experience. **Avoid at all costs blind "stab in the dark" methods of trouble shooting but try and work out what does which.** And a pet concern of mine is workmanship. Your repairs should not be obvious. Don't be shy about cutting replacement component leads to length and refitting them carefully in the original position and dress any leads to look like the original wiring. Eddystone receivers have very neat and orderly wiring – let's keep them that way.

THANK YOU, PETER, on behalf of all our members. It is suggested that pages are photocopied, placed in a transparent-pocket display book and inwardly digested!

GRAEME – G3GGL

“Eddystone Wireless Travelled the World”

We are grateful to EUGer Dave Jones, MW3DUJ, for sending us a 1980 copy of ‘LINK’, the Marconi house magazine, featuring an interesting item of Eddystone news

“Mrs. Amy O’Neil, an 80 year old former missionary, met an ‘old friend’ at Eddystone recently – an Eddystone ‘All Wave Four’ wireless that she and her late husband had first used as far back as 1931 in Siam (*now called Thailand*). At that time Mrs. O’Neil was Principal of St Mary’s College, Bangkok, and her husband was a lecturer at the University.

The O’Neils used the ‘All Wave Four’ for over twenty years – hearing Boat Race results on a sunny beach in Siam, Royal deaths in California, the Coronation in New York and the declaration of the Second World War when in Kent. Weighing over 40 pounds it crossed flooded rivers on a porter’s back and travelled in the hold of several steamers before being consigned to the attic in the early 1950’s.

Found again some years later during a move, the wireless was presented to Eddystone by Mrs. O’Neil, together with the log book recording its historic career, and became an honoured part of Eddystone’s museum.



Mrs. O’Neil’s ‘All Wave Four’



Mrs. O’Neil and Wilf Williams tuning her forty-nine year old Eddystone ‘All Wave Four’ into Radio Hilversum.

Recently Mrs. O’Neil wrote to Eddystone to ask if the wireless was still in being and was invited to Birmingham to see it. Also invited was Mr. Wilf Williams, a senior production engineer who recently retired from Eddystone after over fifty years’ service. Wilf started work as an apprentice in 1930 and may have built Mrs. O’Neils receiver since he worked on the model at the time. Together they tuned into Radio Hilversum, one of the first stations recorded in the log book, and the ‘All Wave Four’ was still going strong.

Mrs. O’Neil had lunch with Managing Director Bill Cooke and visited the factory where she saw Eddystone’s modern range of specialist receivers and noise measuring sets being built and tested. Technology has come a long way since the days when one apprentice built one ‘ll Wave Four’ per day from parts drawn from the store!” *(Written in 1980.)* ♣

PERSONAL PROFILE



Photo by Tony Mayer, Historical Radio Society of Australia.

One of our most prolific contributors, Peter Lankshear, sits at the keyboard contemplating his next feature . . .

Members are always interested in reading about their fellows and when this picture of Peter surfaced from across the world I decided it was time to know a little more. The result of a lot of nagging on my part finally produced some meaningful conversations (as they say). I thought I should share them with you. (Look the other way, Peter!) – Graeme, G3GGL.

I remember when I first saw a feature by Peter Lankshear in an early *EUG NEWSLETTER*, I thought to myself "That name sounds familiar", and no wonder. Peter also writes for the New Zealand Vintage Radio Society's *Bulletin*, the Historical Radio Society of Australia's *Radio Waves*, America's *Old Timer's Bulletin* and Britain's *Radio Bygones*, as well as our own *Lighthouse*. Now that's what I call cosmopolitan!

Peter was born in New Plymouth, in New Zealand's North Island, in 1928. At a very early age, encouraged by his

father, he took an interest in electrical experiments and by the age of 11 knew he was going to have a career in communications engineering.

Around this time he built his first radio, a one-valver using a space charge tetrode (*Wow!*). He's had a soldering iron in his hand ever since! He soon developed an interest in old electronic equipment and collected early valves and other artefacts long before there was a vintage radio movement. His special electronic hobby interests have included the design and building of receivers and

wide range audio amplifiers. Peter's other activities include membership of the local Photographic Society, and he is the Southern Vice President of the New Zealand Railway and Locomotive Society.

He also finds time to be active in the Methodist Church where he uses his skills for such diverse tasks as being treasurer, administering a very sophisticated sound reinforcing and recording system and producing the weekly Church Bulletin (*and I worry about doing a Lighthouse every two months!*).

Whilst Peter was still at college he worked as a technical operator three evenings a week at his local radio station. When his time at college was completed he commenced a career with the New Zealand Broadcasting Service, where he spent 42 enjoyable years, and during which technology changed enormously. At the start of his career the transistor and colour television hadn't been invented. By the time he retired in 1988 the valve and analogue operation had given way to integrated circuits, digital systems, fibre optics and satellite transmissions.

His work experience included installation and operation of radio studios, broadcast and television transmitters and, in the early 1950's, shortwave reception at Quartz Hill Receiving Station. It was at this time that Peter was introduced to and developed an interest in Eddystone receivers. For the 15 years before retirement he was Broadcasting and Television Transmission Superintendent for Southern New Zealand.

Peter continued and explained that during the mid 1960's and 1970's there was a technological explosion in New Zealand with the rapid expansion of TV services. Travel brochures might depict the country as a place of sun-

drenched beaches and forests. The reality is that in many areas it is also incredibly mountainous by British standards. Many New Zealand mountains top 10,000 feet. Mt. Cook in North Island reaches 12,315 ft compared with Britain's highest, Ben Nevis at 4,406 ft. This helps to explain why a New Zealander was the first to conquer Mt. Everest!

All these big hills created a nightmare in providing adequate TV coverage and the result has been literally hundreds of transmitting sites, ranging in power from a few milliwatts for covering small hamlets to seven major stations each of several hundred kilowatts ERP. With a population of under 4 million New Zealand has the greatest number of transmitters and translators per capita in the world.

Many of the country's TV transmission teams are experienced in mountaineering. Early in Peter's TV career he was responsible for maintaining a transmission installation 5,000 ft a.s.l. on Mt. Egmont. After minor blizzards it was quite common to have to dig down through the snow to find the roof of the building!

Peter has been married to Iris for 50 years; they have three children and eight grand children. He is a Registered Engineering Associate and has been conferred life membership of both the New Zealand Vintage Radio Society and the Historic Radio Society of Australia. He has an extensive technical library and his special interests have been Eddystone and Atwater Kent receivers.

For about ten years he conducted the monthly Vintage Radio section in *Electronics Australia*, at the time the largest circulation radio magazine in the Southern Hemisphere.

(Many thanks for the chat, Peter, you can look round now!) ♣

EDDYSTONE ACTIVE AERIAL

LP3382

You may recall that in our last edition of 'Lighthouse' I promised to let you have the circuit of the Eddystone Active Aerial which featured in the latest QRG. This appeared quite fortuitously in a handful of scrap papers being thrown out of the Selly Oak factory last year. It was only a rough sketch so I've re-drawn it here. (*even rougher . . .*)

by Graeme Wormald - G3GGL

This is the one Eddystone item you can actually replicate for yourself and use. As you will see from the illustration in QRG it is built into a small 6cm. by 11cm. by 3cm. 'Eddystone' die-cast box. All you need to do is fix an on/off switch; an external power socket (if you wish); a 50cm. telescopic aerial and a clip for a PP3 9-volt battery.

I would think your next rally should provide all the slightly vintage parts for under a fiver. (the cct is dated 17/2/75). If you are wondering why two of the capacitors are 4mfd and the other is a 4.7mfd, that's just how it is on the original drawing! I shouldn't think it matters in the slightest if they are anywhere from 2.2mfd to 10mfd.

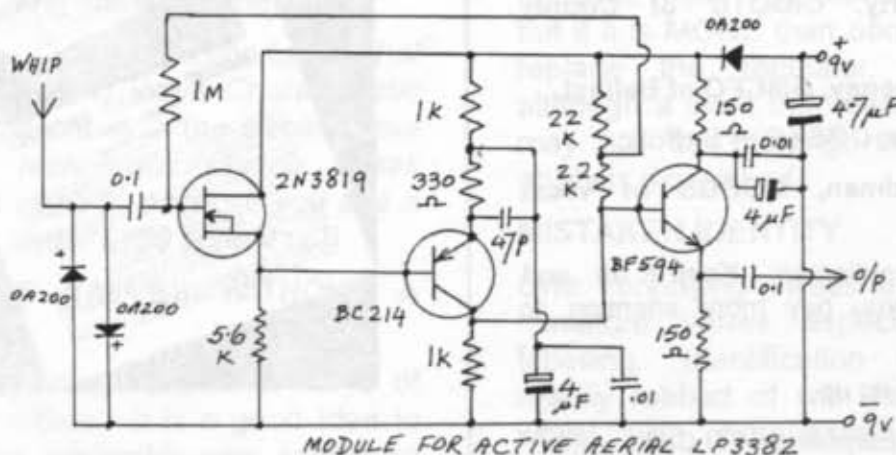
The two OA200 are general purpose silicon diodes to protect the gate of the 2N3819 from excessive input (from a

50cm whip?) and the one in the 9-volt line presumably to stop reverse voltage accidentally zapping the whole thing.

A couple of square inches of Veroboard should provide a perfectly good base and I'm sure that anyone who can change the gain controls on a 730/4 can reproduce this device. It has an extra transistor compared with Peter Lankshear's active aerial and can therefore be expected to have some gain. Compared with a 20ft. whip mounted on the side of the bungalow (my "bench aerial"), the LP3382 gives an increased showing on my AOR 7030 S-meter as follows:-

- 1.4 MHz- 4 S-points
- 14 MHz- 2 S-points
- 24 MHz- 1 S-point

Not too bad, eh? ◆



E.U.G. CROSSWORD NEWS

PuzzleMaster Baffles Brains

Fewer Winners this Month

Hard on the heels of last month's record winning list comes a mixed bag among our regular puzzlers. Anne Robinson has ordered no less than eight out of thirteen entries to leave the stage as Weakest Links.

Puzzle Master Colin Crabb, G4HNN, set a trap which was sprung by members taking an easy way out. Just think about it. When given a three-word answer, V-something-O, the average ham is likely to say "that must be a VFO", without thinking it through.

Just to remind puzzlers, this was 9 Across: "Essential wobblator circuit stage (3 abb)"

How long has a VFO been an essential part of a wobblator, which is essentially a spot channel(s) frequency modulated device?

And, of course, the answer was VCO, which stands for Voltage Controlled Oscillator, not VFO which stands for Variable Frequency Oscillator.

Well, I've been told to spare the blushes, so I'll just do the roll of honour for all those who got it right:

Roger Bracey, G4BZI of Cheshire.

Alan Doherty, G10OTC of County Antrim.

Gary McSweeney, G14CFQ of Belfast.

David Skeate, G0SKE of Suffolk.

Geoff Steedman, M0BGS of West Yorkshire.

Well done, gentlemen. Keep it up, and the rest of you pay more attention to detail!!

Answers coming up:

ACROSS (2) Earphones (7) Cell
(8) Edwin (9) VCO (10) BTEC

(11) Needles (14) Nimrod (15) Greyer
(16) Voltage (19) Mate (20) Soh
(21) Odour (22) Icom (23) Armstrong

DOWN (1) Neutrino (2) Electret
(3) Rewind (4) Hinge (5) Noval
(6) Scots (12) Dream rig (15) Geloso
(16) Vespa (17) LF hum (18) A foot

Which brings us now to the carrot to dangle this month. It can be difficult finding a novelty which exists in sufficient numbers to reward everybody who returns a completed puzzle, but this time the archives have come up with some real ephemera.

In 1954 (that's almost half a century ago) the second version of the highly successful "Eddystone Seafarers' Radio", the model 670A was announced. I have here some original Instruction Manuals for the model. (None of Christine's photocopies, elegant though they were!)

A neat A5 folder giving full installation, servicing, and circuit details. Get your pens out!

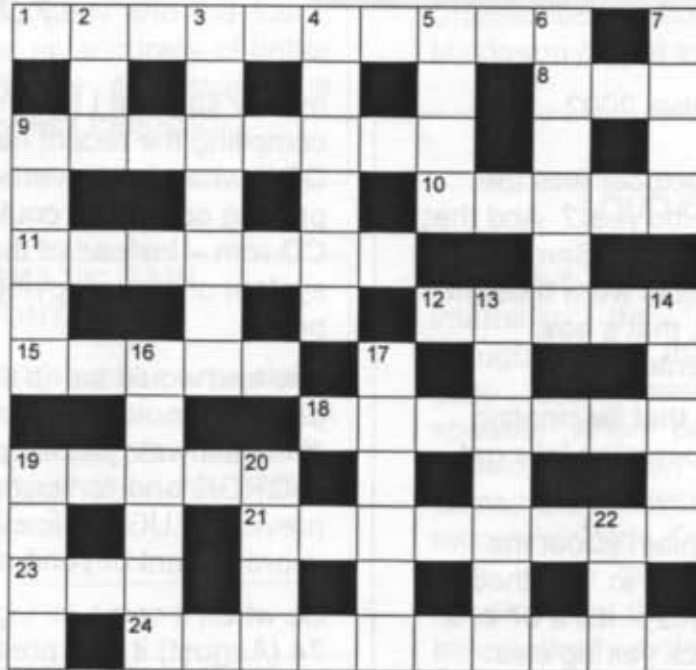


Graeme - G3GGL

E.U.G. PRIZE CROSSWORD No 10

COMPILED by COLIN CRABB G4HNH

Photocopy or write out the answers so as not to spoil your copy. Send to Graeme Wormald at 15, Sabrina Drive, Bewdley, Worcestershire DY12 2RJ, England, to arrive not later than 20th November. See previous page for further details.



ACROSS

- 1) Self-contained Eddystone battery set with plug-in coils, circa 1935 (10)
- 8) Defunct TV broadcasting authority (3) (abb.)
- 9) Type of coil winding that enables enclosure of magnetic field (8)
- 10) Common origin of French, Spanish and Italian (5)
- 11) Small cogwheels that engage with larger ones (7)
- 12) This valve does not grow on trees! (5)
- 15) Green switch for positive feedback (5) (abb.)
- 18) The flexible connection between parts of a camera or enlarger (7)
- 19) Automatic signal that was sometimes heard on 2182Khz to indicate a marine distress

situation (5)

- 21) Common reference to an outboard loudspeaker (8)
- 23) Originators of the ubiquitous P.C. (3) (abb.)
- 24) Of a dielectric, the reciprocal of permittivity (10)

DOWN

- 2) According to Katie in the vintage TV ad. "— gives a meal man appeal" (3)
- 3) An insulating material of hard rubber, used for panels and coil formers etc. (7)
- 4) Method of connecting multiple transfo. windings to increase the available voltage. Series — (6)
- 5) Category of valve in which the cathode is heated to a barely incandescent state, — emitter (4)

6) Stand-by transceiver (3,3)

- 7) Ratio of output power to input power (4)
- 9) Of conical parts in engineering, the difference in diameter per unit length. (5)
- 13) The purpose for which the NTSC system was developed in the USA (5,2) (part abb., US spelling)
- 14) Possible description of a radio announcer with a cold (5)
- 16) Our esteemed Eddystone guide and mentor (6)
- 17) A musical composition for seven performers (6)
- 19) In maths, a fixed reference line for the measurements of co-ordinates etc. (4)
- 20) Prefix denoting one million or 10^6 (4)
- 22) Aerial socket label (3) (abb.)

RADIO RAMBLINGS

Gottings from my Notebook



By
Graeme
Wormald
G3GGL

BEWDLEY, 1st October 2002

Did you know that October was the last month of the Celtic year? And that new year's day was called Samhain, when ghosts and spirits were thought to be abroad? Well, that's how Hallowe'en was invented.

Right, then, so after that fascinating piece of useless information let's get down to bizz.

First of all let me explain about the rash of apparent 'typos' in 'Lighthouse' Issue 74 (August 2002). It's a bit of a long story so pin back yer lug'oles.

As those of you who know me will already realise I am, by nature, a rather unsuitable radio ham by virtue of being (a) a numero-dislexic (or should that be a disnumeric?).

Anyway, whatever it is it means that I have trouble with numbers. In fact, that's why I left the BBC and went into ITV; they told me I'd get nowhere without an HNC in maths (among other things). And I think this failing is related to being:-

(b), a non-achiever in the field of P.C.s. I find them a complete mystery and, other than using them for word-processing, the greatest time-waster since teletext or football was invented.

I've had this machine for three years now and the more observant among you will have noticed my progress as the issues go by. I won't bore you with any other personal revelations but

merely say that I was half-way through compiling the recent new edition of QRG when I discovered that our printing contractor could work from a CD-rom – instead of the previous system of photocopying from my hard print.

The text would be no different but the pictures would be much improved. And so it was; just look at the pictures in QRG/3 and compare them with any previous EUG publication. An improvement beyond all expectation.

So when it came to 'Lighthouse' Issue 74 (August) it was presented on CD, printed and collected; I didn't even check the pages; I knew they would be OK. QRG had been . . .

I was about halfway through stuffing the envelopes when it dawned on me that the front cover, neat and tidy though it was, was in *Times New Roman* instead of *Rockwell Bold*. Mmmm. After they'd all been despatched I looked inside my own copy and saw that some other fonts weren't as expected. Mmmm. Then I noticed that all *justified* paragraphs had *unjustified* first lines. Mmmm.

And then I spotted the real lulu! Page 32 (and others). "a _ watt resistor", etc. Everywhere that I'd inserted a symbol, such as $\frac{1}{2}$, Ω or ϵ , the printer's machine had printed _ . Yes, _ .

Now this had me completely flummoxed, and whilst I was scratching my nose and pondering, I

received communication from Peter, (Stan Carney's computer-literate son), who suggested that I had presented my work prepared on a PC (true), but that the printer had processed it in Mac. Well, yes; is that a Big Mac or something the young lady was wearing?

It seems that Mac is a rival system of computing, rather like VHS and Beta in the videotape world. Everybody uses VHS at home but the professionals use Betamax. Apparently everybody (or nearly everybody) uses PC at home, but the professionals use Mac (which I now gather is short for Apple Macintosh, what a silly name!).

So a trip to the printer's with my #74 CD-rom. An hour later comes back a phone call: "It works fine now, I must have used Mac before." It's amazing what you learn about this business the more you try it!

So please accept my apologies, and take your corrections from the inference: if it's 75 or 50 it should be Ω , if it's anything to do with watts it should be $\frac{1}{2}$, and anything to do with money it should be €. Sorry.

BACK TO QRG/3

A few more amendments but not enough for a page on its own.

Page 26, R.H. column, bold print "NOTE: etc". This should be followed by "Except the S.504 and S.556 where the input impedance is 70 Ω unbalanced."

Page 47, Model 1002. Add also:- "Model 1002/2, as 1002 but without internal NiCad and charger."

Page 15, para iii which starts "For instance, etc." It has been pointed out that the Scientific 4 (page 16) had a non-regenerative anode bend detector. (ore about this next month!)

Model 1560: This model was omitted, probably because I couldn't find a picture or specification! I now find it was badged as the 'Marconi Marlin' (c.1980) marine Rx and was never marketed by Eddystone. I'm told that it looks like the Eddystone Model 1670 (page 46) and was used for Broadcast and Beacon reception:-

1560R/1 30 switched channels with digital readout of channel number.

1560R/2 Manual tuning, 180kHz-1.6MHz.

I had a surprise phone call from Dick Carroll, who was placed in the newly purchased Eddystone Radio company by Marconi's in 1965 as 'Works Manager', a slightly nebulous title which soon changed itself to 'Managing Director'. "What a splendid booklet," said Dick, "But you've left out the **EC10 Diplomat**." I said I'd never heard of it and he went on to explain that it was a DWS Special. It had ten switched xtal channels (in addition to its general coverage). They could be set up for the BBC General Overseas Service for 7/24 reception without fiddling. He then explained that only TEN were manufactured, fitted in deluxe leather carrying cases and sent out to our top ten Embassies! Keep watching!

SOMETHING FAMILIAR . . .



This photo of a C & N R7020 was sent by EUGer Geoff Steedman who explained that it was made in Gosport in the '60s, possibly for the British Antarctic Survey, and used our

favourite dial! It's also full of AF117's, says Geoff.

NEW LICENCES

I see that the new 'Foundation Licence' has started to take off quite seriously, there being well over 4,000 new M3xxx tickets having been issued so far. About half are to time-served Class B-ers and the rest to 'genuine' Foundation scholars.

I know there has been some criticism from the dinosaurs of the radio hobbies world, but face facts. Ham radio has had a good run for its money for almost a century and, as a hobby, has been totally eclipsed by licence-free rivals, from e-mail and chat-rooms to PMR446 (*those little hand-held 446MHz rigs with a range of 3 miles, now down to £29 a pair*).

I've held a ticket for 53 years which puts me in the true *old codger* brigade. That's why I'm messing about with all this vintage gear, because it's all I understand! Welcome them all aboard, is what I say, and if they've never heard of an Eddystone, then tell 'em!

And what I also intended to mention is that quite a large minority of our members are still holding Class B-only licences. Because of not being quite sure of the procedure, many don't know how easy it is to 'upgrade' and get out on the HF bands with 10 watts, which, as any old timer will tell you is quite enough. That's how short waves started!

My simple answer is to call the RSGB, who organise the 'Morse Foundation' test (*which it is impossible to fail*). One may not be a member, but that doesn't matter, just call Potters Bar on **0870 904 7373** and ask them about it.

The system is actually based on Amateur Radio Clubs having a 'tester' on the books, but you don't have to be

a member of one. Some testers operate quite independently and will see you at home. It takes about half-an-hour.

It's the only way to put some new life into the hobby. Give it a try.

NVIS (*Near Vertical Incidence Skywave*)

The new '60-metre band' has sparked off a lot of chat about aerials for short-skip (*NVIS*) on the LF bands and long skip (*DX*) on the HF bands.

'Technical Topics' by Pat Hawker, G3VA, in this month's RadCom (*October, 2002*) features a big spread on 'low loops'. Members may recall my exhortations in recent issues to set up a low loop.

I erected one some years ago for 80 metres (*it was originally considered to be a one band aerial because of the matching arrangements*) but I just fed it with a bit of co-ax and found it would load up on **ANY** frequency!

Its performance in UK on 40 and 80 is excellent. Its transatlantic performance on 15 and 20 is splendid. It's about 20 ft high in a valley. I commend it. Use the biggest loop you can fit on the plot. Don't worry about resonant length or height.

I use the Pi tank circuit on my *Trio TS-520S* (1982 vintage – valve PA) to load it barefoot, but solid state rigs would need a simple ATU.

THERE'S NOTHING NEW!

But whilst we're talking about *low aerials* (which don't need expensive Planning Consent) let me tell you about the British Army 1939 **Signals Training Pamphlet No 24, "AERIALS"**.

Although it is referring to a horizontal half-wave aerial for sky-wave operation (*NVIS?*) it gives us the following little gem:-

"... an aerial height of **10 to 12 feet** may be adequate... the anticipated effect of raising the aerial height to **20 feet** is a gain of **half an "R" strength** and a further gain of the same amount may be anticipated if the height is increased to 40 feet..."

An "R strength" is what they used to call an "S point" before the War. As in "You're coming in here Q5 (*readability*) and R9 (*strength*), old man." So don't panic about the height, whatever the type of aerial.

THE RADIO HOSPITAL

A long letter from EUGer John Gillespie, Ontario, Canada, extols the virtues of his Eddystone 830/4. He acquired this (*the Canadian version of the 830/7*) in a very sick condition at a local 'hamfest' (*rally*).

One point to note is that he acquired a new **Finger Plate** for his 830 from Dave Simmons (see inside back cover). By the time he'd finished he was amazed at the performance, and tuning accuracy from what is, in fact, a very low-technology piece of gear. At *least* as accurate as the Collins R390A he says! (*and how much did the Collins cost new?*)

John's speciality is running a mobile "Radio Hospital", a truck fully fitted as a service workshop (*see next page*). John is no fan of high tech. and feels that much of the 'old technology' was misunderstood in its day, or just not appreciated.

He is looking out for a European Valve Characteristic book such as the Wireless World series, which later became the **ILIFFE** series. Has anybody got one to spare? John would be very grateful and re-imburse cost and postage. Details:-

John Gillespie, 55 West 4th Street,
Hamilton, Ont., Canada L9C 3M5.

DIECAST METAL BOXES

We have a note to hand from Rob Hammond, VE3EIL, about our entry for diecast boxes in QRG/3 (page 58, Post-Script).

Rob would like to point out that the Eddystone logo, for use on diecast boxes and components, was purchased by Hammond Electronics Ltd. – a UK company. They still proudly use it on the boxes which continue to be cast in the Midlands and sold around the world.

Thanks, Rob. One day I'll get my head round all these trade marks, logos and licences! (See Chris, page 3, *ibid*)

WHICH CAME FIRST?

A note here from Roger Bracey, G4BZI, concerning the query on page 14 of Lighthouse #74 (*First Slide Rule*)

He sends us an extract from 'Practical Wireless' for August 1955. "*Makers of the well-known Eddystone receivers have produced two new leaflets describing models '670A' and '840A,' etc., etc., ...*"

This makes it very difficult to believe that that the 670A was available a year before the 840A came onto the market. I think any claims for dating should be based on the Eddystone serial number dating system (*as described in QRG/3, page 26*).

R.A. 2002 POCKET BOOK

Members may care to know that the U.K. Radio Authority has now published its new 2002 Pocket Book.

This essential guide to Independent Radio lists contact details, frequencies, air dates and licence expiry dates for all Independent radio stations in the UK.

Available free of charge to all who telephone 0207 887 4299 and tell the friendly robot their name and QTH (this is a dedicated line; the only robot-line

that's easy to use!)

Or write to the Radio Authority, 14 Great Queen Street, London WC2B 5DG. It's still free!

E-MAIL ADDRESS

If you look extremely closely at some of the small print you will notice that I've got a new e-mail address. The old one will still work, so don't anybody panic, nothing's got lost.

You can find me at:-

graeme@eddystone-radio.com

It's tied to our new EUG Internet Domain 'www.eddystone-radio.com' and any member may have an address on it for £25 p.a. using his/her own name or callsign as the prefix.

No need to change your internet provider or dial-in access. All mail will be redirected to your existing mailbox.

For full details e-mail our Computer Consultant, Simon 'POO', on simon@eddystone-radio.com If you can't set up the simple change in your e-mail software he'll help you do it.

There will be an area for any member with 'Eddystone Mail' to have their own homepage with photos and information about their hobby.

FRIENDS OF CHiDE

Friends of *who?*, I hear you say.

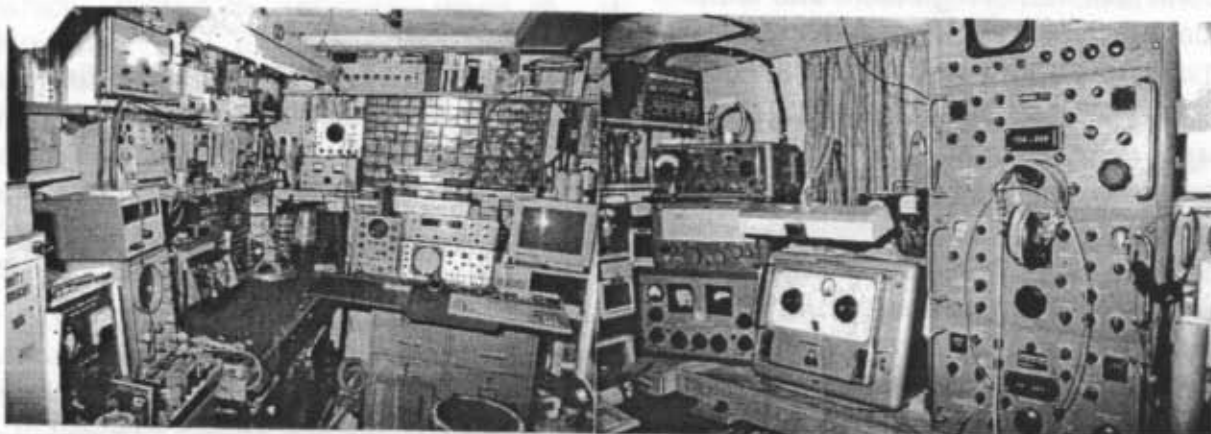
CHiDE is the acronym for 'Centre for the History of Defence Electronics' which is based at Bournemouth University. CHiDE has for the past few years been taking oral history from anybody who has interesting memories to add to the archive.

If you become a Friend of CHiDE the annual membership fee is £15. For this you will receive four issues of "Transmission Lines" a newsletter full of matters of electronics history interest. The current issue contains features on 'The Battle of the Atlantic'; E.K.Cole's Secret Radar Factory; memoirs of a Nav Rad in a Bristol Brigand and Recollections of the RAF 'Y' Service, among others.

You will be invited to the annual Spring Lecture (held in May at the University) and also the September Symposium.

There are also summer visits to places of interest which have included Duxford Imperial War Museum, Bletchley Park, Neatishead Radar Museum, Arborfield, H.M.S. Collingwood, etc., etc.,

Information and application form from:-
CHiDE, Studland House,
12 Christchurch Road, Bournemouth
BH1 3NA. ♣



John Gillespie's mobile vintage Radio Hospital, Ontario, Canada



MORE MEMORIES FROM THE BATH TUB

*Recalled by
Stan Carney*

Like most 18-year-olds of the post-war decade, Stan Carney served his two years' National Service. It led to a lifetime's career in engineering with Eddystone Radio. Stan remembers . . .

“In the RAF I met a young man who worked at Eddystone before he joined the Air Force. His name was Beresford, I am unsure at the moment of his Christian name, I think it was Peter but I can't be certain, memory fades a little. He told me about Eddystone and where it was; and I didn't live very far away from it.

So when I left the RAF I thought - what a good idea to go and join this company that I'd heard of. After having been out of the Air Force for some two months whilst waiting for a course on wireless (from Radar), I dug the garden, trimmed the hedges, altered the sheds, did this, that and the other, until one day Mother said: "Don't you think you should get a job?" And so I thought, "Why not?"

I phoned up Eddystone for an interview; I had the interview on the Friday with the production manager, whose name was Norman Scobie. His first question to me was "Well, tell me about yourself?", which I did. Ten minutes later he said, "When can you start?" so I said, "I can start on Monday", he said "Fine". The interview ended and I started work with Eddystone Radio in November 1953.

“On the Monday morning I came to work and was introduced to my new foreman Mr. Ted Hopkins. I started work on the final assembly of an IMR receiver (*the IMR54 ships' main receiver*) which later became the Eddystone 700. When I first started work on the IMR, on final assembly of

the thing it was so heavy you could hardly pick it up. It was so hard to turn the knobs you'd need to have the strength of Charles Atlas, but we got it together.

The total assembly time when I started was fifty-one hours, and towards the end of the run it got down to more like eighteen or twenty hours.

“**T**he funny story about this set was that Ted Hopkins, the foreman, would have to sit there for half an hour when his staff went off to lunch, as they went early, and his group went later.

The technical director, Mr. Cox, used to come down to Mr. Scobie's office, which was directly opposite the foreman's office, and Ted, screened by the racks between him and the office windows, would play with some large washers.

He would count them out into piles of ten and take them from the bench and put them onto a little shelf and count the piles out into tens, until he'd go a row of about a hundred.

Then he would sweep them all back onto the bench and start again. Mr. Cox used to watch this on a regular basis but did nothing. One day Ted came down as I was about to go off for a late lunch.

Before I left I saw Ted carry this very, very large cardboard box, which was obviously very, very heavy from the way he was staggering. He got it down to the far end of the production line, put it down, mopped his brow with his handkerchief, and went off back as if to collect another one.

Whilst he was away, Mr. Cox, the technical director, who had been watching him from the production manager's office, came out and walked down the line past me as I was going off to lunch. He looked at the

cardboard box, opened the lid, and as I was passing said “I thought so, the bloody thing's empty!”

“**I**n the early part of 1954 I was transferred to another section to start work on a new receiver called the 770R. I had not been at work on it very long when a new chap came to join us, he was called Mr. Ken Mills.

Now Ken and I were introduced and I was asked to show him the ropes of the final assembly of the 770R, which I was doing at the time. We were chatting away when I discovered that he had been employed at a rate of pay higher than mine!

As soon as I discovered this I parted company from Ken, put him in his own place, and told Mr. Addison that if he wanted to pay Mr. Mills more than I, he would have to show him through the final assembly works himself!

Within ten minutes I had got a rise which took me just ahead of Mr. Mills and therefore I went back to showing him what to do. That was Mr. Mills's introduction to Eddystone Radio.

A short time later I went off on my course, which was to last six months, and I came back to Eddystone in the Autumn of 1954. I found that the changes had been very little; the IMR production was nearly finished and they had got the last half dozen sets to do.

The section had been disbanded, and the foreman had been “retired”. I was asked if I would finish off the IMR in a little shed on the outside of the main factory, with a tester called Mr. Geoff Woodburn. Geoff was very well advanced in radio technology and he was to test the final lot after I had built them. This often meant going out and getting the parts in order to

complete the receivers. And the last receiver to be made, exactly the same but in a different cabinet, was the Eddystone 700 of which I believe the only one ever made is still in the Eddystone museum.

“In the Autumn of that year new sets were coming from the development shop and the pressure was on the tool room to produce tools at an enormous rate for which they had to work a lot of overtime.

Towards Halloween during the overtime period the toolmakers Sid Beech and Norman Ashford were there very late one night. It was quite dark and past nine o'clock. They were about to wash their hands and go home and they'd been telling each other ghost stories.

Bill Neil, who was the maintenance foreman, had to lock up and he was inquiring as to when they were going to leave. They were telling the stories and he joined in and told a few, then he said, "Well, come on, lock the gates, chaps, and I'll see you outside."

Then he went off to lock up the other areas. Sid and Norman locked up their department and walked down a long corridor, past the press shop and past the mechanical section, switching off the lights as they went.

As they switched off the last lights they went through double swing doors leading to a sliding door about ten feet away. But in between a cold clammy hand touched their faces. They shot out, jamming themselves in the door as they went. They fought to get out. Sid was about halfway up the drive in about two seconds flat, and Norman was only two seconds behind him. Bill Neil had clambered onto the overhead pipes in that little distance between the swing doors and the sliding door and he'd put his hands

down and touched their faces as they went past.

The speed at which those two moved was something to be seen (only it was dark and you couldn't) but the story was very much around the factory the next day.



A young Stan at the Bath Tub in 1968

“The 830/7 was a very smart receiver, which had an incremental frequency scale. It was mounted on the front panel and had to be aligned with its tuning unit which was mounted on the IF chassis. The two spindles had to be aligned in order to get an accurate reading between the main scale and the incremental. This was done on the first few sets by eye and it was very difficult.

On one of these sets the chief inspector and the chief development officer aligned the incremental scale. The scales were then printed in accordance with their findings. But one of the problems was that they had aligned with a receiver which was not accurately lined up

Realising that we were having difficulty with alignment I worked out a method of aligning the two spindles with a much greater degree of

accuracy. So good that it made all the scales out!

But we had an inspector who was quite cute with these things. He got us to align it exactly as it should be then he moved the oscillator unit in the direction that he knew the original one would have been misaligned.

To do that he had to find the misalignment spot on the unit in order to get the scales to be accurate.

That was Arthur Keen doing the inspection. He did a fine job although everybody thought that he was a little bit slow but he wasn't. He was a bit pedantic in his work and wouldn't let anything move past him unless it was of the right order.

“We had produced probably a few hundred of the 830/7 when we received an order from Canada for a hundred, and having produced the hundred we shipped them off to Canada. They didn't seem to have gone very long when I got an instruction to go and report to the technical director's office.

We had already got word that there had been trouble in Canada. Something was amiss. So with a heavy heart I moved towards the director's office. On the way up I met the production manager, Joe Addison. He said, "I know where you're going. Just remember, we didn't have the Canadian spec." That was all. He passed by and I went on into Mr. Cox's office.

He sat me down and said: "We've just had a report from Canada. They're not accepting our sets. They're all coming back, and it's because you didn't do them to the Canadian spec."

I said "Canadian spec? We didn't have a Canadian spec, there wasn't any thought of a Canadian spec, we built them to our spec." to which he

said "No Canadian spec? Ahmm; did I tell you about my trip to Sweden? We had a great time in Sweden." And that was the last I heard about the Canadian spec. until we got them all back and had to do some alterations. Not terribly much but we had to put them right and then the Canadians were happy.

“We produced a receiver called the 840C. This was an AC/DC receiver in the same style as the 830 with a vernier dial and a full sweep main dial. The first few sets went into the test shop and produced terrific roars of disapproval. They found that the innards were connected to the outers, which naturally shouldn't be. On an AC/DC set the inside is totally isolated from the outside.

They couldn't find what was wrong and it was thrown back to me to have a look at. So bit by bit I stripped the set down, and finally when there was only a gang and a front panel we'd still got a short circuit. There was nothing connecting the tuning gang and the front panel together except rubber grommets which, having replaced them twice, found that everything was still the same.

But then having taken a rubber grommet and checked it by itself I found that this was not insulating rubber but conductive rubber of the sort used for aeroplane tires. We'd got thousands of rubber grommets, all of the same sort, all conductive.

Once we'd got these exchanged by the manufacturer we were able to produce our 840C receiver and there was no connection between the inner and the outer.

But its a strange thing how you remember conductive rubber, especially when it's a rubber insulating grommet!"

What's in a Callsign?

Ever since the Wireless Telegraphy Act of 1904 Callsigns have been a Fact of Radio Life. But some discovered from the wartime Bath Tub open a whole new chapter!!.

By Graeme Wormald, G3GGL

The earliest callsign I can recall is the famous "MGY", otherwise known as the R.M.S.'Titanic'. The "M" prefix always was British but it's only in recent years, with the expiry of all the "Gs" that it has migrated from the merchant marine to ham radio.

Last year, whilst Eddystone radio was "clearing out" their Selly Oak factory, I collected sundry boxes of "rubbish". One of them produced an interesting curiosity in the form of two Amateur Radio Station Log Books ("Approved by G.P.O."), printed and published by G6MN, famous for his QSL cards in the 'forties and 'fifties.

But there the familiarity ended. One was dated November 1942 - February 1948 with the callsigns G4VC and G9FJ in the names of H.N.Cox and A.G.Lapworth.

The other was dated June 1945 - February 1948 with the callsigns G4WK and G9FJ.

What price World War Two in all this? I don't know, but inspection of the fairly sparse entries (a total of seven pages) shows VHF operation on frequencies ranging from 74.0 Mc/s to 129.5 Mc/s and power inputs from ten to 200 watts.

H.N.Cox, was, of course, the Technical Director of Eddystone Radio during this period. Closer examination of the logs shows that the stations worked (locations not given) were M2YL, G9FI, G4VB, and M2YL12-13-

14-15-16 and 18. A real hotch-potch if I ever saw one!

The true clue, however, is given by an entry which reads:- "Used police call sign M2YLO. Report on quality and strength very good. Test carried out with Control." The date was 29th December 1942 at 15.45 hrs on 95.9 Mc/s using an input power of 200 watts.



Harold Cox - Technical Director

Other interesting clues are the following entries:-

"Dem. for Belfast Harbour Board",
"Dem. for Mr Kelly, Lowestoft",
"Tests with Turkish visitors",
"Dem. For Singapore Police",
"Dem. For Port Directorate, Barra" (that's in the Outer Hebrides, in case you were wondering).

Old habits die hard, do they not? But then, we must remember that 2LO was actually an amateur callsign!



POO'S PONDERINGS

'Stray thoughts from an absent mind!'
by Simon Robinson M5POO

September 15th saw 'POO rising from his pit far too early in order to attend the second National Vintage Communications Fair of the year. There was very little Eddystone equipment available this time, just a few of the more common sets. Eagle eyed Ted however spotted the jewel of the fair; read Ted's column to find out more.

Neighbourhood Watch

A friend called to see me recently and donated a non-working EB36A to the collection; a rare set as it turns out. The radio is in average condition and has a few reversible modifications. It's designated purpose in life makes you wonder if 007 might have had one up his sleeve.

According to the manual the EB36A is a "compact, lightweight communications receiver, expressly designed for professional monitoring services". Primarily this 'monitoring' took the form of world wide news collection. One has to imagine an agent sitting in his tiny hotel room eagerly listening to low power transmissions from just over the border, in a country where western visitors were unwelcome to say the least.

There are several differences between the EB36A and the standard EB36.

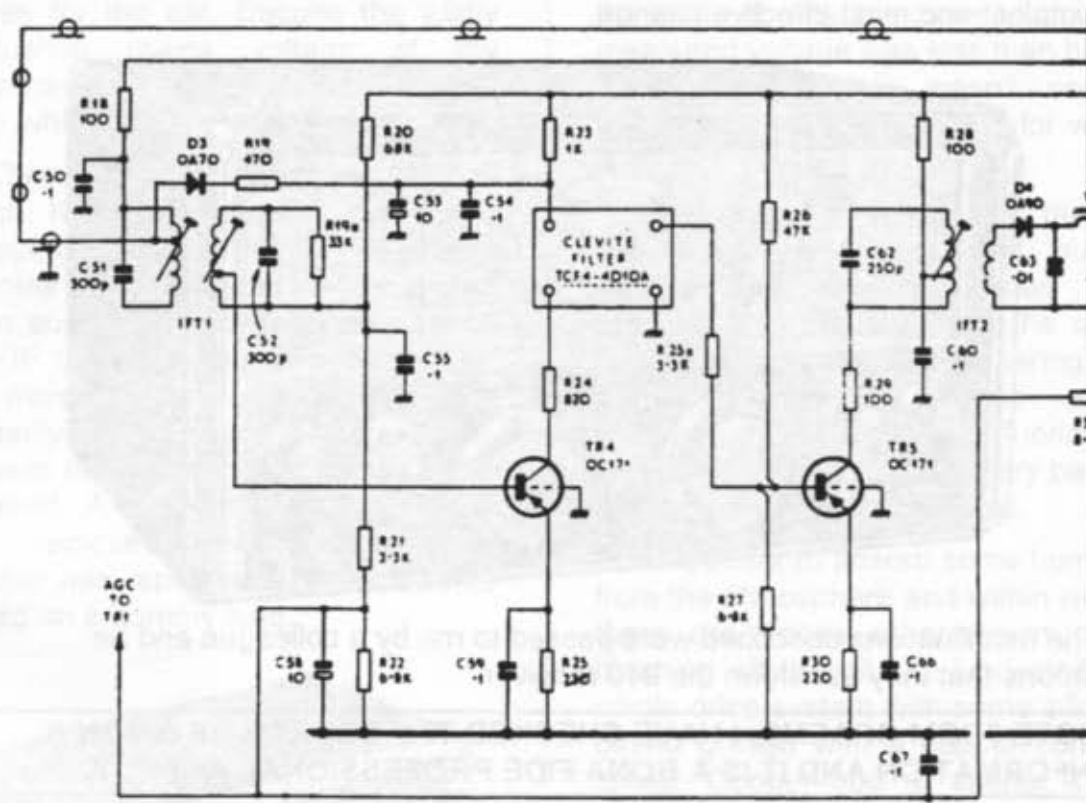


Power for the set could be provided by a battery pack, the usual 924 mains power unit or a 945 power converter to allow operation from vehicle battery supplies.

Audio output was primarily provided for use with 150 ohm 'telephones' and at low level via a 600 ohm output on a 4 pin 'Jones' connector. No speaker was fitted however my example has no transformer and a speaker HAS been fitted. Frequency coverage is quite different to the standard model and covers the following bands:

- | | | | |
|----------|-----------------|----------|-----------------|
| Range 1: | 15.0 to 22.0MHz | Range 4: | 550 to 1500 KHz |
| Range 2: | 8.5 to 15.0 MHz | Range 5: | 150 to 350 KHz |
| Range 3: | 3.5 to 8.5 MHz | | |

By far the biggest difference is the use of a piezoelectric ceramic filter in the I.F. stages. Selectivity is quoted as 6dB down at 3.5KHz and the -60dB points are at 7.0KHz. The I.F. circuit is shown below:



My set needed every OC171 replacing in order to restore operation and had a 47pF ceramic capacitor fitted across the filter to make it less peaky! The 3.5KHz bandwidth may sound narrow but the radio was designed to monitor voice transmissions and for this it is perfectly acceptable. A narrow bandwidth allows effective rejection of adjacent channels.

In all other respects the set is identical to the standard model however this may make it difficult to spot at a local rally or flea market. If you like tropical band DXing then an EB36A could find a space on your bedside table although the XYL might have other ideas!

Improving the 940

I am dead against making any changes to the design of a receiver, regardless of make. The modifications I am about to describe were made to allow the 940 to be used in a professional rather than an amateur environment. All the 'problems' mentioned are valid however but it must be remembered that the 940 was designed to fit between the low cost 840C and professional 830 series of receivers. Harold Cox gave Bill Cooke the design remit to use as many parts as possible from existing stock. It was put together in a few short months and became a very successful set, priced at just over £100-00. The 940 was never designed to be a professional receiver.

Undertake any changes at you own risk but make sure you have the required skill and equipment to do the job. The AGC mod. is, in my opinion, the simplest and most effective change.



The modifications described were passed to me by a colleague and he reports that they transform the 940 receiver.

NOTE FROM GRAEME: I HAVE CHECKED THE SOURCE OF SIMON'S INFORMATION AND IT IS A BONA FIDE PROFESSIONAL AGENCY.

Poor General Stability (drifting) – this was caused by poor temperature compensation of the local oscillator and the unstable capacitance formed between the triode section of the ECH81 grid and cathode.

Frequency 'jumping' – shows up when either the ambient temperature varies or the sun shines on the receiver.

Frequency 'Wobble' – noticed when the set was tapped and caused by poor mechanical integrity between the coil box and tuning gang.

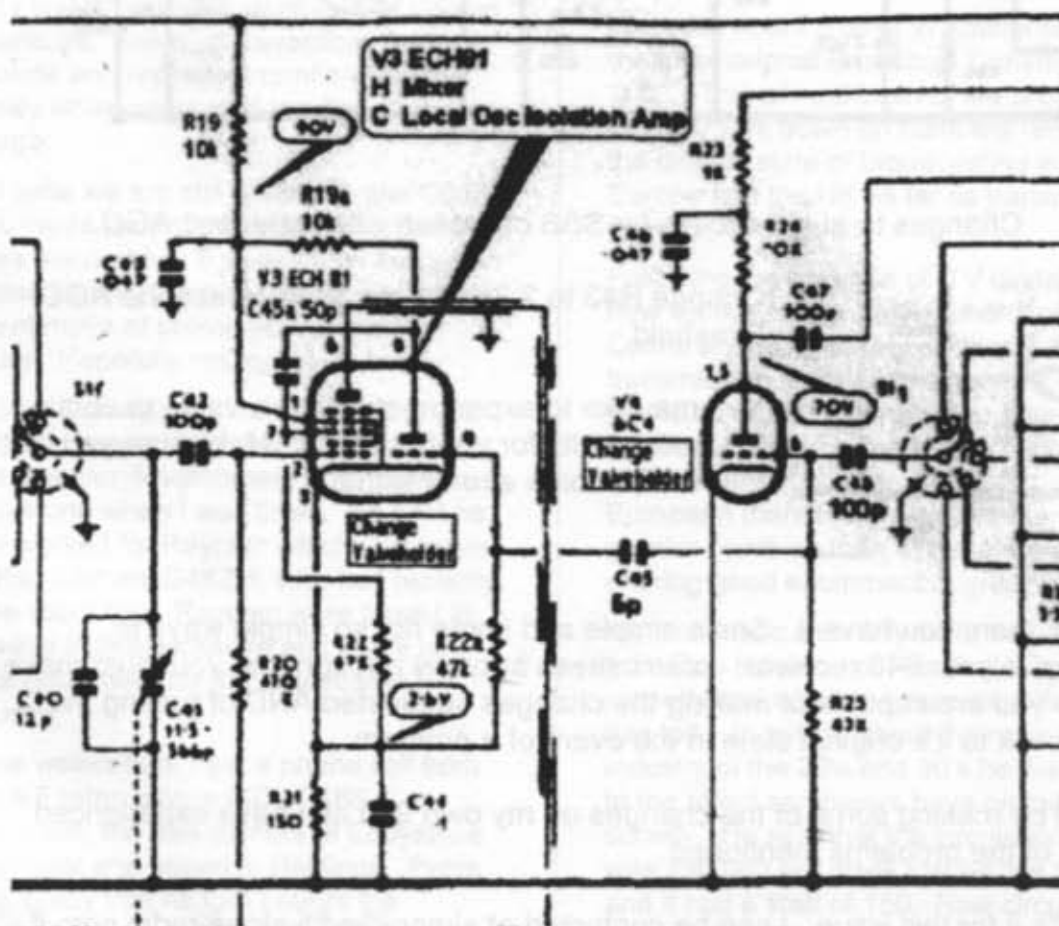
Very poor SSB performance when using maximum RF gain with AGC 'on' – caused by far too high an AGC threshold.

Excessive Local Oscillator Pulling – noticed on strong signals and due to over coupling of the local oscillator to the mixer and again ECH81 triode / grid capacitance.

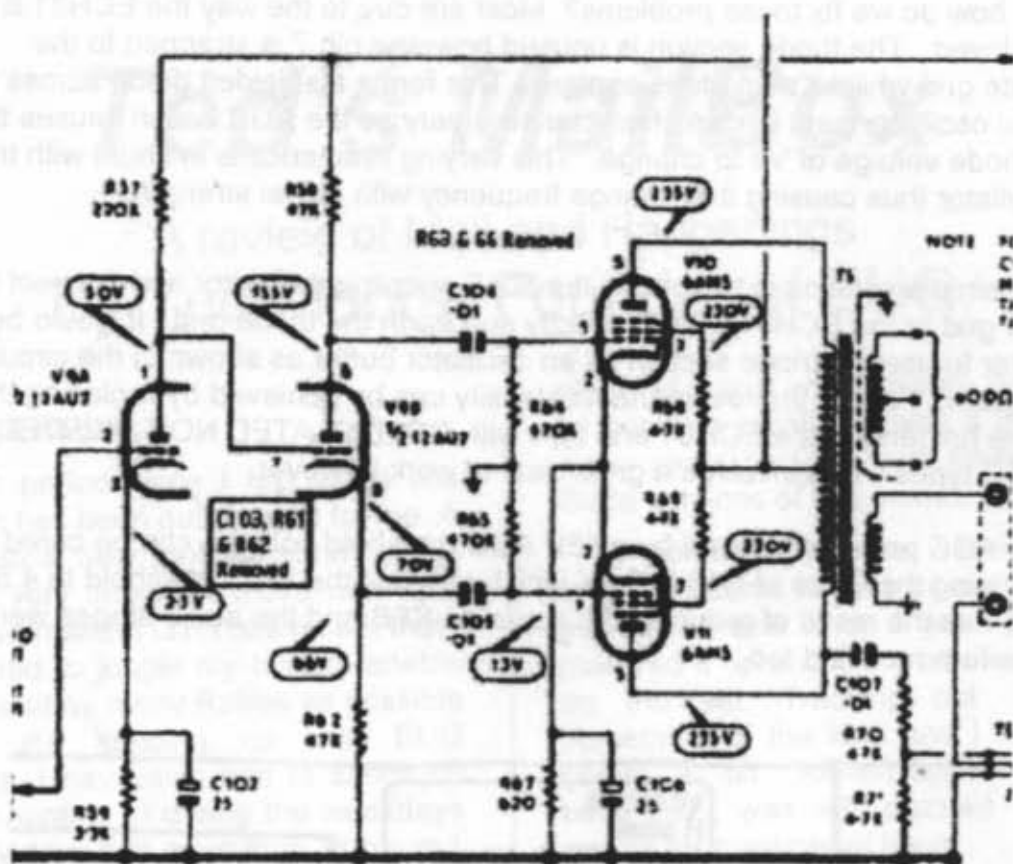
So, how do we fix these problems? Most are due to the way the ECH81 is deployed. The triode section is unused however pin 7 is strapped to the triode grid whilst it's anode is earthed. This forms a shielded diode across the local oscillator path whose characteristics vary as the AGC action causes the cathode voltage of V3 to change. This varying reactance is in shunt with the oscillator thus causing it to change frequency with signal strength.

The simple solution is to remove the 50pF coupling capacitor and connect the 6C4 grid to the ECH81's pin 7 directly and earth the triode grid. It would be better to use the triode section as an oscillator buffer as shown in the circuit diagram. Further improvements in stability can be achieved by replacing the valve holders for the ECH81 and 6C4 with GOLD PLATED NON-SKIRTED PTFE types. This involves a great deal of work however.

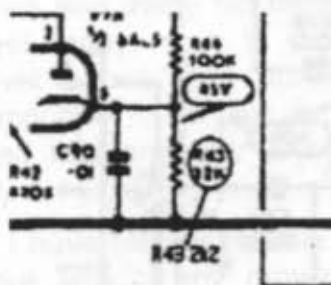
The AGC problem, caused by a 45V AGC threshold voltage, can be cured by changing the value of R43 to 2.2K which reduces the AGC threshold to 4.5V. This has the result of reducing the audio on SSB and the audio stages were therefore modified too.



Modified Local Oscillator circuit incorporating buffer amplifier.



Changes to audio circuits for SSB operation with increased AGC.



Change R43 to 2.2K in order to decrease the AGC threshold.

You may like to experiment with this value to obtain the best results for your listening. Make sure you test the receiver on a strong signal.

Well, there you have it. Some simple and some not so simple ways to improve your 940 receiver. I can't stress strongly enough that you must make sure you are capable of making the changes suggested AND of putting the set back to it's original state in the event of a problem.

I will be making some of the changes on my own 940 as I have experienced ALL of the problems mentioned.

That's it for this issue. I can be contacted at simon@eddystone-radio.com if you have any questions but in the meantime.....

73 de Simon M5POO

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