

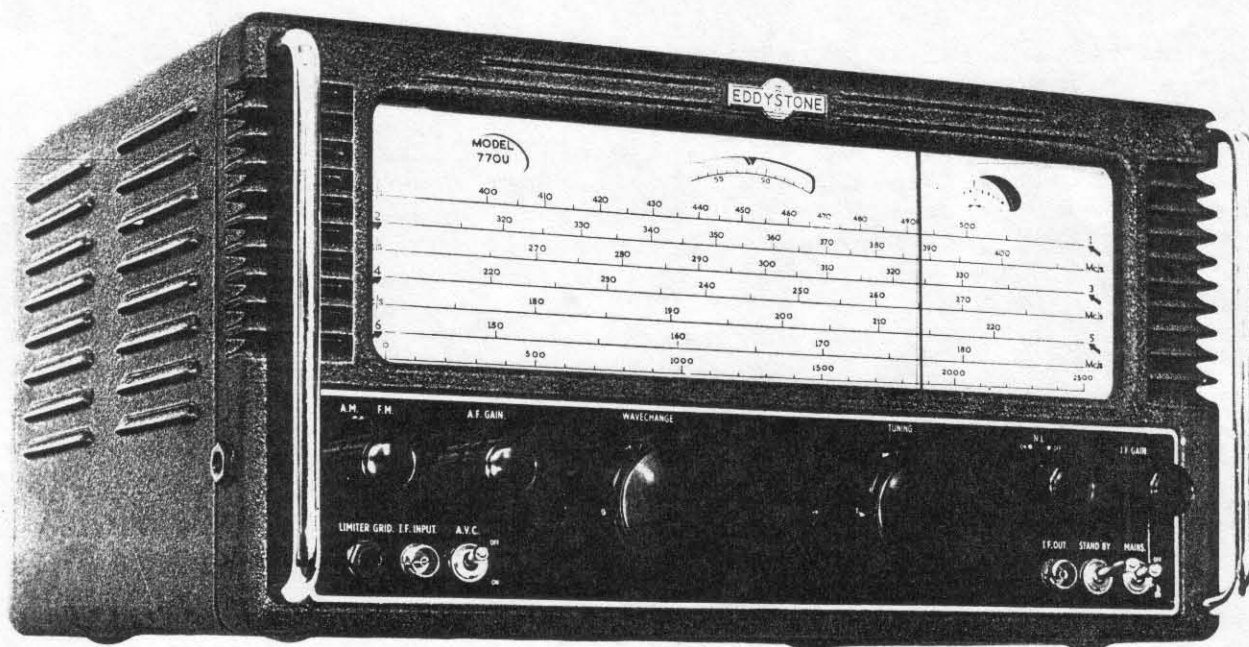
# Eddystone User Group Newsletter

Issue No: 48

April 1998



## Featured Model: 770U UHF Communications Receiver



\*A non profit newsletter for Eddystone Users

\*Compiled and edited by Ted Moore

\*Information quoted from Eddystone Literature by kind permission of  
Duncan Whittle, Managing Director of Eddystone Radio Limited

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Well, they say it is not over until the Fat Lady starts singing, and so I find myself in the unexpected position of writing the frontis for this the last newsletter of the current year. In the last newsletter I explained that I was leaving the company and this has now happened. I have in fact recently started work with another company also in the broadcasting field, but I am still keeping my involvement with the EUG and the newsletter. Graeme has asked me to continue to write the frontis as a "Patron", and I am glad to do so.

First let me give you the official position re the Eddystone Radio Company and the EUG. Duncan Whittle has taken over from me as Managing Director and he has had to cut down on the staff to get the company over a difficult 12 months whilst their order book improves and the situation in South East Asia, where they were particularly successful improves. The consequence of this is that he has accepted voluntary redundancies from a number of people and now does not have the resources that I was privileged to be able to use to print and distribute the newsletter and look after the finances.

Duncan has generously agreed for us to have unrestricted access to the archives and has offered to continue to provide reprints of EUG material and company handbooks. This newsletter will be the last printed at Eddystone and as Graeme explains later in the issue, all future newsletters will be printed commercially and distributed by Graeme and volunteers! We reckon we can do this without increasing the subscriptions. Graeme and I are still signatories for the bank account. Whereas in the past we paid Eddystone for the services they provided, in future we will pay commercial printers and stationers etc. Certainly those of us who are organising the EUG are keen to keep it going very much as before. A number of you have been kind enough to contact Graeme and say nice things about my involvement in EUG. For these comments I thank you. When Ted asked me to get involve right at the beginning it seemed the right thing to do. When his circumstances changed and he asked the company to get more involved, I did not hesitate to agree. I certainly found it difficult to look after the admin side and was very grateful when Graeme took it over, since then my involvement has been restricted to looking after the member database and writing the frontis. Ted started something too important to give up on. I felt the same what some 4/5 years ago and still feel the same today.

We shall be attending the National Vintage Communications Fair at the NEC on Sunday 10<sup>th</sup> of May this year. We hope to see many of our old EUG members who usually take the opportunity to renew their subscriptions (see below) and often sign up new members. Graeme is in charge of what we will show and I am sure it will be interesting.

### **Subscriptions**

Subscriptions are now £12 per year UK and £15 per year overseas. Metal EUG badges are available at £2 each (£3 overseas). Any remittances for subscriptions, badges or manuals must be by cheque or money order and in sterling. Make your cheques payable to **Eddystone User Group**.

Chris Pettitt -(GOEYO)  
(ex Managing Director) (home e mail [GOEYO@compuserve.com](mailto:GOEYO@compuserve.com))

## - ISSUE 48 -

A lot of mail this month regarding the changes at the Factory, and how they may possibly affect all of us EUGers. As I write this we have no news of changes to announce. Should anything be heard before this N/L goes for copying then the info will be included for everybody to read.

I had intended using the 930 VHF Comms Rx as this month's Featured Model but am not sure that we can come up with a photo for the front cover. Thanks to Peter Lepino I do have a manual for the 890 and 930 models (very similar apart coverage) but have nothing more than a basic line drawing of the front panel and rear panel. If we can come up with a photo then I shall use this model next issue. There have been a number of requests for a mention of the 930 or the 890, one of the latter has even turned up in Canada.

Next in line, going by EUGers mail is the 770U. This UHF set was at the time of it's release the only fully tunable UHF Comms Receiver available on the professional market, worldwide.

Why do I always tempt fate ? My other hobbies have included driving fast, exotic cars. Leisure (pleasure !) parachuting. And yes, even operating a fast 42 foot cruiser in the Gibraltar/Tangiers area during the -60s. Then I go one further and start EUG, talk about tempting fate ! I am always thinking and hoping that I have reached a definitive list of Eddystone Models but Fate comes along and shows me how stupid I am. I guess the point of all the above is that thanks to EUGer David Simmonds, and an unknown donor, we now have news of another model. Hands up anybody who has heard of the 750X ???

During a recent visit David produced from his pocket a very good schematic of the 750X. This schematic was definitely a Company document and it is now in my hands for evaluation and the archives. In this issue you will find a first article with some details.

Last issue we featured the RNWAR/RAF CWR Tx as first described in the ESWM 4. Well now the news that Graeme, G3 GCL has embarked upon the construction of this Tx, for use on the EUCnet ? Hopefully ! He must have some device for stretching time at his OTM as apart the administration of EUG Graeme always has several projects on the go. But don't anybody mention the word 'eliminator' to him. This construction project is proof of the saying that sometimes the easy jobs are the most difficult.

Another of the many G3GCL projects is an air test of the All Wave Four - hence the 'elim-----' project. This air test will have to be postponed for a while, Nuff sed.

Thanks to B. King (E is for ?) from Harrogate for the final say-so on the 6J5/L63 story. He confirms that in the Mullard valve manual they ARE exact equivalents. I may have mentioned this before but when I worked for Decca Navigator and Radar in the -50s the Navigator marine receiver used all L63/6J5s, about 20 of them, and we used either type indiscriminately depending upon which we received in stock from the factory. The only care needed was where two were used in a push-push output stage. Here both had to be the same type. Whilst on this subject I have to tell Jerry that the 6C5 is NOT an equivalent for the above. Whilst the pinout is that for a single triode the actual internal configuration of this type is that of a

double triode with kathodes, grids, and anodes paired up before going out of the base. So says Alan, ex Mullards in the '50s.

In his letter Jerry mentions the long ago (in EUG), debate about the equivalency of the ECH35 and the 6K8. He says that like me he had for many years used either one as an equivalent for the other when doing domestic repairs. He has recollections of some anomalies where one would work in a particular model but the other would not, whilst in other sets either gave equally good results.

I do have in my possession very-complete data on both types and they are very different internally, have different operating characteristics too. This info came to me from a very knowledgeable EUGer 'down-under'. He ought to know he worked for one of the big manufacturers.

- - - - -  
- Those Eddystone Coils -

There has been a lot of mail recently about the various four pin and six pin plug-in coils. Most EUGers were after the actual winding data for these coils so that replicas could be produced for use in replica receiver projects.

The good news is that EUGs very own Sherlock has done his usual magic trick and discovered just that data. Thanks a bunch Graeme. It is in this issue for all you DIY merchants. And for formers ? well try Denco. Whilst not the exact same item they are near enough for our purpose. (SEE ALSO P. 29)

- VHF AERIAL FEEDLINE -

In his letter Colin mentions the purchase of a full roll of 300 ohm flat twin from RS. He has already embarked upon an ambitious programme of aerial experimentation. First off is a very successful 6 metre folded dipole using the flat twin for feedline and elements, the use of a flat twin reflector has proved to increase gain usefully so that is staying. An airband folded dipole is at present being tested, both being used with the 770R and the 990R.

Down on HF Colin has his eye on a 10 metre dipole from one chimney to another, again all flat twin.

- - - - -  
- MEA CULPA (again) -

Getting to be a regular item this, isn't it ? Sorry Jim, your advert slipped through last issue. Apologies, and here it is in Issue 48.

- - - - -  
- R.A.F Stanbridge -

Another friend has turned up from those early days and he, Harry Maison has told me that he too was at Stanbridge and we have had some good talks about life there, and in the RAF generally. Did anybody out there work in CCS, or MERCURY at

Stanbridge ??? Or maybe you were in TCM Middle East at Ismailia, or Habbaniya ??? Back nearer home how about Stoke Hammond Receiving Station ??? or Dagnall Transmitters ??? or Greatworth ditto ??? Shan't mention Chicksands or Big Brother may come after me !!!

- - - - -  
- EPHEMERA -

For those of you who collect the bits of paper which have a connection in one way or another with EDDYSTONE then HEAR THIS ! Graeme has heard on the grapevine that an issue of Royal Mail stamps depicting LIGHTHOUSES is to be brought out soon. Naturally enough one will expect to see one of our 'very own' lighthouse, THE EDDYSTONE. Well worth keeping an eye open each time you go to the local P.O.

Hope that somebody puts one on their letter to ME !

- - - - -  
- MORSE, on LF -

Tim writes in from way down in Cornwall to say that listening on what was (is ?) the LF Marine Band around 400 to 500 Kc/s he frequently does still hear a lot of marine morse some ship to ship and some very definitely ship to shore. He comments that this is once again a question of premature announcements of the demise of morse.

- - - - -  
- That 1925 Call Book -

No sooner had the N/L Issue 47 dropped through your letterboxes than I heard from EUGer Peter Lankshear in Australia to the effect that he had an even earlier Call Listing dated 1923 and as published in the old Harmsworth's Wireless Encyclopaedia. Thanks Peter for the copy which arrived in good condition, makes an interesting comparison alongside the Supplement list.

Peter also comments upon the L63/6J5 matter with more or less the same findings as those of EUGer B King. Now Peter mentions the 6C5, and HE says that it had the internal construction of a 6J7 but triode connected ! So what about the previous comments in this issue of its being a double triode configuration ! HELP !!!

(SEE P.29)

- - - - -  
A New 750 Receiver -

No, this is not a comment re the new version of this model but about a new, or nearly so, 750 that has been totally refurbished by its owner Pete Roberts, GW6 AYM.

He went all out on this one, complete repaint job done professionally, new components such as Rs and Cs where necessary, and a full chassis clean up. the results are very well worth

the work involved. Pete says that the 750 is now a fantastic performer, with one slight exception. The 'S' meter will occasionally 'die' and can only be brought back to life by flicking the HT off and on again. This flick restores full operation until the next time that the IF gain pot is adjusted, off goes the meter again ! This does not affect performance and is but a niggling fault. my suggestion is to try for a poor soldered joint, a dry joint will go high resistance until shocked by a jolt of HT.

Pete has also refurbished his 358X and is very happy with the results, he still lacks two original type knobs for this set. DOES ANYBODY HAVE A PAIR OF KNOBS TYPE 2416P, PLEASE. A note to EUG will be passed on, or see his phone number on the advert in this issue.

- - - - -  
- That 3 x EF50 Rx -

Well thanks to Pete Rowe, G3 JSP, we now have another magazine article showing such a model. This one from SWM of August 1946 by Jack Hum, G5 UM. The other circuit from an EUGer down under has one big difference, a lot of Strattons/Eddystone 'bits' are specified and it is by a Company employee. I am still evaluating both of these and so, more later.

- - - - -  
- The Supplement -

From Richard Witney, G4 ICP, a letter re the Calls Listing dated 1925. Richard says that he discovered 3 listed amateurs who lived within his locality at that time. One also who was located in the same road as his parents, and his QTH until the age of 25 years.

Richard's letter contained a stock of photocopies of old SWM and QST ads which will be utilised in future N/Ls, Tnx Richard.

- - - - -  
- A New EUGer ! -

Jesse, an american lady, has now become the owner of a refurbished 870, in that nice shade of green which allowed so many owners to keep their 870 in the domestic living room.

One problem survives after the refurbishment by Graeme, the knobs do not match. So PLEASE, if anybody out there has a set of those GREEN knobs for Jesse's 870 can you let EUG know pronto ? THANKS IN ADVANCE.

Welcome to EUG Jesse, may you have lots of fun on the Short Wave Bands, until Tom or Sarah commandeer the 870 !

- - - - -  
- Product Detectors for 730 et al; -

Ron C Brown, GW6 WRP, has written re the addition of a

product detector for those early models, a mod which does not need holes drilled in the front panel. Here are the steps that Ron suggests for fitting a 6BE6 product detector as per those later models. Here goes,-

"It is well known that BFOs such as that used on the 730/4, do not provide sufficient voltage injection for proper resolution of SSB signals. Obviously, this fact was recognised by Eddystone who installed product detectors in their later models such as the 940. It is, of course, possible to increase BFO injection but this has the undesirable effect of blocking the AVC system. Let me state before detailing the mods carried out that I am not in favour of drilling extra holes in receivers or making irreversible changes - in this modification none are needed.

The addition of a product detector to the 730/4 may be carried out as follows (in this case I followed the circuit design of the 940 product detector);-

1, Remove the screened BFO box, RF gain control and Mains switch.

2, Remove and retain components within the box. Rewire for the 6BE6 product detector. There are sufficient spare holes in the bottom of the can for the required extra connections.

3, Replace the RF gain control with one fitted with an integral switch. This becomes the Mains ON/OFF switch. Retain old control.

4, Replace original mains switch with a double pole/double throw variety (Centre Electronics has them). This becomes the AM/SSB/CW switch and should be wired as per the circuit diagram. Retain old switch.

If necessary, to reduce the swing of the oscillator, wire a low value ceramic condenser in series with the original control. No vane removal is needed."

That is it, says Ron. - Try it and see !

- - - -  
- A Perennial Question -

Here we go again, Simon asks about re-stringing his 770U as he has had three goes at this and got nowhere.

Several early issues of the N/L have details for such as the 840A or the 670A but Simon says that he has stumbled over the differences with his 770, there are differences which add difficulties he says. I hope that the enclosed full page description from a manual will help you Simon.

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- More Old Adverts -

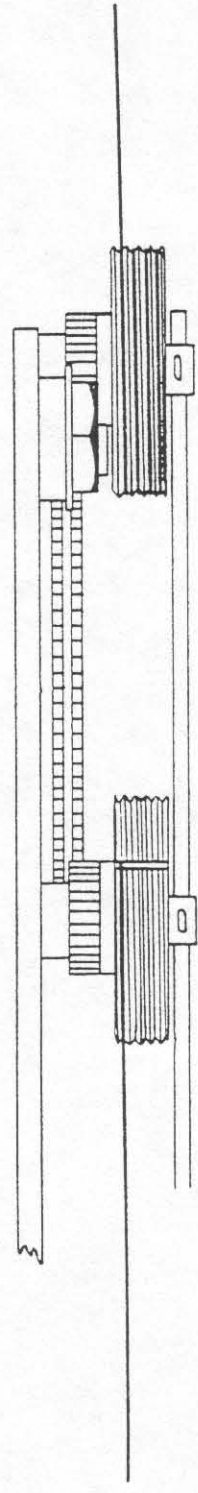
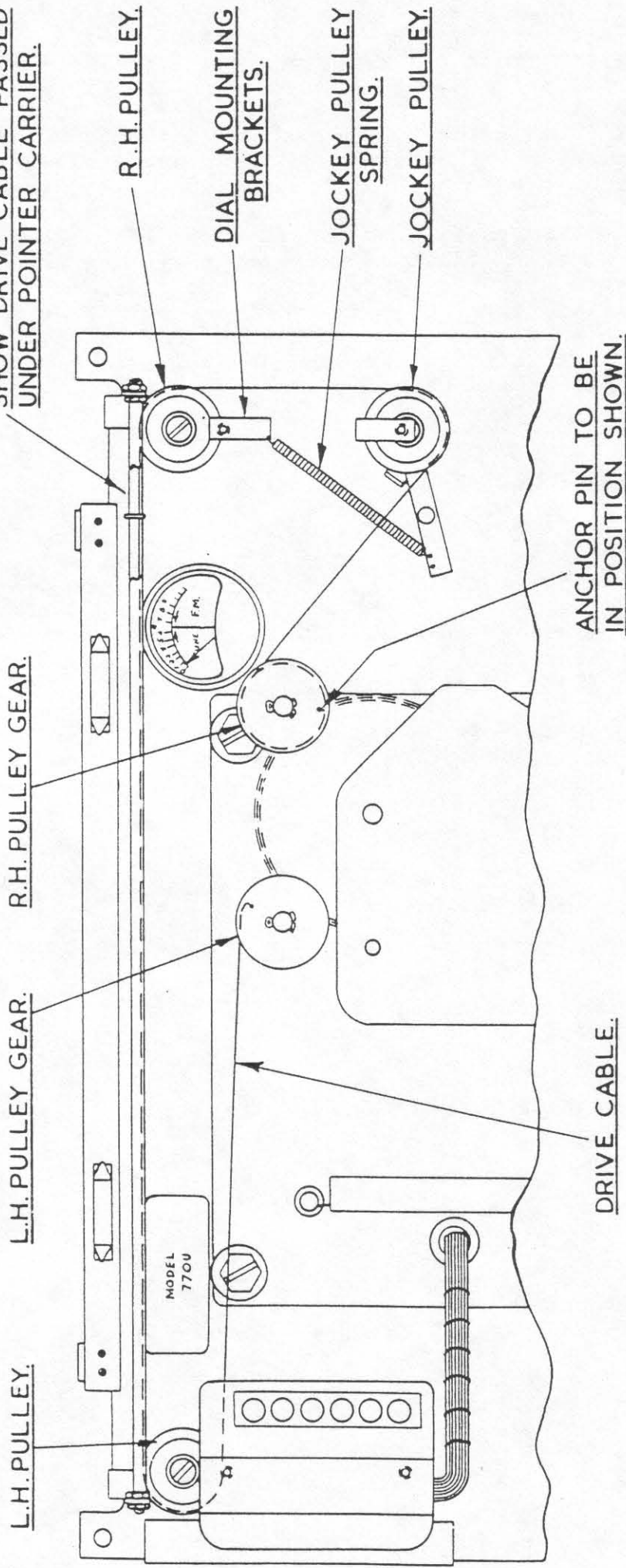
From Tom Toth, G4 ORF, we get some more old WW ads for use in the N/L. Thanks Tom. These ads come from a 1927 volume of WW, the old, the real, Wireless World.

Hope that you got the EA12 manual Tom, and that it is of some help. The EA12 is a lovely receiver and well worth keeping in good condition.

- - - -

# Eddystone Radio 770U

THIS PORTION CUT-OUT TO  
SHOW DRIVE CABLE PASSED  
UNDER POINTER CARRIER.



PLAN VIEW SHOWING CABLE FITTING  
ON PULLEY GEARS.

Drive Cable Fitting



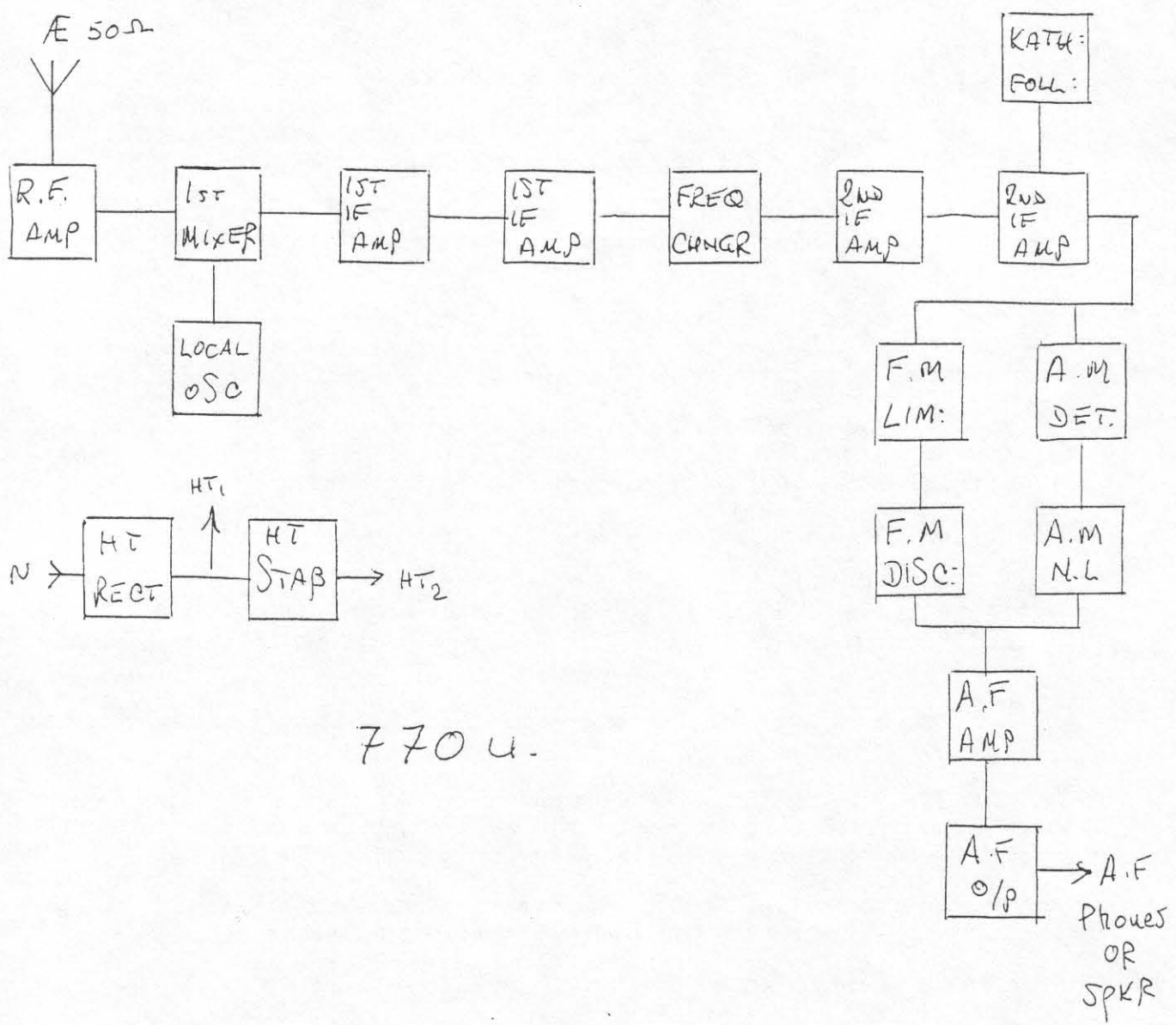
- Featured Model, The 770U -

This fully tunable UHF receiver came out in 1955 and used 15 valves in the early version, this went to 17 valves in later versions. Most valves were the miniature B7G or B9A types but octals were retained for the power supply and stabiliser.

Four germanium diodes of the GEX series were also utilised. A GEX66 in the first mixer stage, two GEX34 in the noise limiter and a further GEX34 in the detector stage.

There were in all some ten versions of the original 770U and all covered the ranges from 150 to 500 Mc/s in 6 bands. A first IF of 50 Mc/s was down converted too a second IF of 5.2 Mc/s, this latter matched the input to the Eddystone Panadaptor.

The 770U was sold to all of the Defence Forces in the UK and to many overseas countries, it was used by such as Jodrell Bank, Nasa, the RCA, and a number of Universities both in the UK and abroad. At the time of its inception there was no other comparable UHF receiver on the world market and this fact alone was responsible for its international sales success. A block diagram is given below.

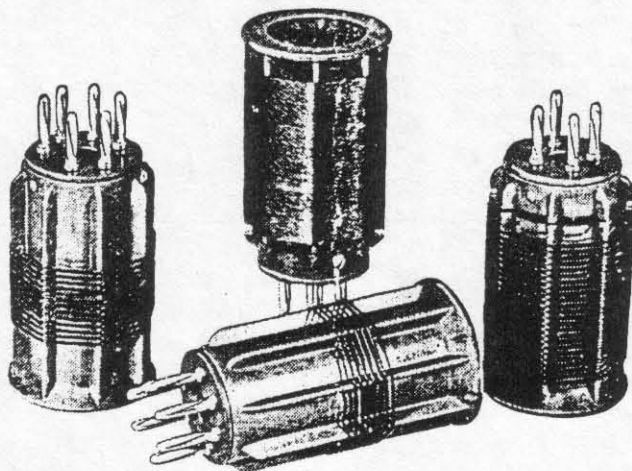


8/ The procedure to be adopted in fitting a replacement wire is as follows. Reference should be made to the relevant drawing at the rear of this manual.

1. Remove the receiver cabinet.
2. Remove all knobs, switch rings, jack sockets and potentiometer nuts.
3. Remove the finger plate. (Some slight resistance will be felt in this operation. It is due to an adhesive which is applied during the initial assembly of the receiver). Remove the screws holding the coaxial sockets.
4. Place the receiver on a bench so that the panel overhangs the edge, and remove the screws and distance pillars which secure the panel handles.
5. The panel can now be removed, exercising care in easing the loose controls, etc. from their respective fixings.
6. Having taken off the panel, next withdraw the range lamp carrier by unscrewing the knurled screw at the left-hand side of the scale.
7. The scale plate must now be removed by taking out the four fixing screws. It should be noted that the left-hand screws also serve to secure the "shade fitting" for the range indicator lamps and that spacing washers are fitted to the two right-hand screws. Remove the scale by sliding down behind the pointer.
8. Next, slacken off the flywheel and slide it forward so that the vernier scale can be removed.
9. Once the vernier scale has been taken off, the complete drive wire mechanism will be clearly visible. The faulty drive wire can be removed by unsoldering from the pointer carrier and taking out the anchor screws on the two drive pulleys after these have been taken off the drive plate.
10. The tuning control should now be rotated in a clockwise direction until the tuning gang is set to minimum capacity. The right-hand drive pulley can now be replaced after one end of the new drive wire has been fitted to the anchor screw. The anchor screw should be positioned as shown in the diagram at the rear of the manual.
11. Bring the wire forward, press firmly into pulley slot and wind three turns round the pulley in a clockwise direction. To simplify the next part of the operation, the wire can be secured in the pulley grooves by means of a short length of adhesive tape.
12. Using the drawing as a guide, take the wire round the jockey wheel and the two top pulleys, applying sufficient tension to maintain the jockey wheel in a position almost touching the dial mounting bracket. The wire should pass beneath the pointer carrier.
13. Take the left-hand drive pulley, place drive wire in rearmost groove, press into pulley slot and secure to anchor screw. Refit left-hand pulley with anchor screw in position shown in diagram. The tape can now be removed from the right-hand drive pulley.
14. Refit the vernier scale but **do not secure**. Slide the flywheel back into the correct position and lock its grub screw.
15. Replace the scale plate, remembering to fit the "shade fitting" at the left-hand side and the spacing washers at the right-hand side. The range indicator lamp mounting can also be replaced.
16. Check that the tuning gang is still set to minimum capacity and set the pointer to exactly 2500 on the logging scale.
17. Temporarily secure the drive wire to the pointer carrier by means of a small piece of adhesive tape. Rotate the tuning control and check that the pointer traverse is correct. Remove the tape and solder the drive wire to the pointer carrier.
18. Set the pointer to read exactly 1200. Rotate the vernier scale so that its zero mark lies at "12 o'clock." Tighten the two grub screws securing the vernier.
19. Replace panel, etc. by reversing operations 1 to 5.
20. Check dial calibration using an accurate signal generator or frequency meter.

## Low Loss Interchangeable Coils

COVERING 9 METRES TO 2,000 METRES.



Our coils are of the highest efficiency, and first-grade workmanship. Using D.L.-9 high frequency formers, matched inductances, and H.C. enamelled wire. Helically slotted pins ensure full surface contact. Windings are soldered to pins, which are rivetted and cannot work loose. The approximate wave-ranges of the coils are for a 160 m.mfd. tuning condenser, and allow for average circuit load.

### FOUR PIN TWO WINDING. CAT. No. 932.

#### WINDING TURNS AND INDUCTANCES.

Type	Metres	Primary	Grid	Inductance	Code	PRICE
BB	9-14	3	2 $\frac{3}{8}$	0.50 $\mu$ l.	ACBB	2/9
LB	12-26	2	3 $\frac{7}{8}$	1.08 $\mu$ l.	ACBE	2/9
Y	22-47	4 $\frac{1}{2}$	8 $\frac{3}{8}$	3.62 $\mu$ l.	ACYE	2/9
R	41-94	9 $\frac{1}{2}$	23 $\frac{3}{8}$	14.24 $\mu$ l.	ACRO	2/9
W	76-170	15	35	45.0 $\mu$ l.	ACWO	3/3
P	150-325	25	92	0.188 mH.	ACPI	3/6
G	260-510	40	138	0.420 mH.	ACGO	3/6
BR	490-1000	30	315	1.90 mH.	ACBR	4/6
GY	1000-2000	140	630	6.98 mH.	ACGY	4/6

### SIX PIN THREE WINDING. CAT. No. 959.

#### WINDING TURNS AND INDUCTANCES.

Type	Metres	Primary	Grid	Inductance	Reaction	Code	PRICE
6 BB	9-14	1 $\frac{1}{2}$	2 $\frac{3}{8}$	0.51 $\mu$ l.	3	EXBB	3/3
6 LB	12-26	2	3 $\frac{7}{8}$	1.07 $\mu$ l.	3	EXLIB	3/3
6 Y	22-47	4 $\frac{1}{2}$	8 $\frac{3}{8}$	3.62 $\mu$ l.	4 $\frac{1}{2}$	EXYEL	3/3
6 R	41-94	9 $\frac{1}{2}$	23 $\frac{3}{8}$	14.13 $\mu$ l.	9 $\frac{1}{2}$	EXRE	3/3
6 W	76-170	10	35	45.0 $\mu$ l.	14	EXWO	3/9
6 P	150-325	42	92	0.188 mH.	35	EXPI	4/6
6 G	260-510	90	138	0.428 mH.	40	EXGO	4/6
6 BR	490-1000	200	315	1.53 mH.	80	EXBRO	5/-
6 GY	1000-2000	300	630	7.05 mH.	140	EXDOY	5/-

### SIX PIN COIL BASES FOR CAT. No. 959 COILS.

For above baseboard wiring. D.L.-9 insulation, low self capacity, one piece sockets, positive electrical contact.

CAT. No. 969.

Code ESAF.

PRICE .. 2/3

For under baseboard wiring. D.L.-9 insulation with special ribs to reduce leakage between sockets.

CAT. No. 964.

Code ESAF.

PRICE .. 1/3

The four-pin coils, Cat. No. 932, have standard valveholder fittings.—See page 10.



- Members Adverts, A Statement -

There have been some comments in other radio related mags recently about adverts which keep appearing, and which are quite evidently from Traders who are using the Free Ads for Trade purposes. I have to say that in EUG my policy has always been to print any ads by Members or non Members just so long as they are of interest to EUGers. If a trader happens to have a number of Eddystone receivers for sale, then Okay, this is good for Members so the advert goes in. Where I will draw the line is adverts for nonrelated items, such as Desirable Semi, 3 Bedrooms, etc; - there is a proper place for such ads and it is NOT in our N/L.

Again, on the subject of our Members Adverts. There have been some suggestions that those of us who run the EUG might profit from being first to see and read the mailed in adverts. Far from this being the case - all ads go into the N/L and neither Graeme nor I have any advantage re "getting in early". Those of you who know my present circumstances will realise that I cannot do this. As for Graeme, well I happen to know the sources of many of his Eddystones, I know they did not come from our Members adverts.

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- A State of Flux -

To say that things are in 'a state of flux' at present would be to minimise the effect of Chris Pettit's leaving Eddystone Radio for new pastures. A letter from the new Boss to Chris, and copied to myself and Graeme, says that all cooperation is to cease forthwith. Well this is a blow to EUGers everywhere. Graeme is still working on this problem and hopes to have words with the new Boss, there is for instance the matter of all the Archive material built up by US in EUG. Much of this has been sent in by YOU the keen Eddystone collectors worldwide. So, it is STILL a matter of wait and see.

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- AVC Problems in an 840A -

This set had given no previous problems since it was acquired second (?) hand in the mid eighties. Then came the last Xmas holidays when sudden large changes in audio output began to occur, this without any adjustment to the controls.

Some observations were made, before even the set was unplugged and opened up. First off, it did not happen immediately, but only after some minutes of operation, when the set had had time to reach normal operating temperatures inside. Second was that it never ever happened when the set was receiving SSB or CW, only on AM.

This latter fact was the pointer to the approximate location of the problem since the one change in circuitry that occurred here was that the AVC line gets earthed to chassis when the BFO is turned ON for SSB/CW.

A quick 'shufti' at the 840A schematic brought out a few possible components which might just cause the present symptoms.

One item in particular seemed a likely candidate. Look at the schematic and you will find that C44 the 0.1 muffs tubular paper condenser which decouples the AVC line can - if leaky or s/c - cause just such symptoms. It was located and chopped out of circuit. Yes it was definitely very leaky even with just the battery of an Avo across it on OHMS. A new 0.1 muffs was fitted and the set returned to normal operation, no 'shunting' up and down of AF.

Thought was given to the possibility of other similar items being similarly leaky, a distinct possibility ! In the event it was found useful to swop the following items due to leakage problems and a low indicated capacity on test. C3, C21, C22, C41, C44, and C57 to C61 inclusive. New polyester types were fitted here, all rated at 350 vw.

The set has now been in use for several months since the repair job and all appears to be back to normal, it may just be imagination but the 840A seems better than before !

- - - - -  
- The 888 Double Superhet -

This all amateur bands model is a pretty good performer even on today's bands, and normally it is pretty reliable too.

When Steven powered up recently his usual practice of checking calibration after warm up produced nothing, no crystal markers at all. Several pushes of the CAL switch brought nothing except a slight smell of burning ebonite (?). The set was quickly switched off, and for good measure was also unplugged from the mains and aerial. With his 'heart in his mouth' Steven took off the case and inverted the receiver on his work cum operating bench. He went straight to the CAL switch as his experience many years back as a telephone engineer had brought back memories. The ebonite used often in those days as insulation on switches or jack plugs would often break down when any more than a few volts appeared across the insulating barrier. The prime example remaining in Stevens mind was where the 370 volts of 17 c/s ringing appeared across the 'tip & ring' of a jack plug which had slight traces of moisture on the insulation.

What happened here was that the ringing voltage caused 'tracking' to begin, here the insulation began to burn up and become no more than charred carbon, itself a conductor.

Sure enough, this was exactly what had happened on the CAL switch insulation. There was no possible chance of obtaining either a new switch or the necessary insulating washers. It was decided to use the model maker's skills and tools at hand to reproduce small insulating pieces to replace the damaged bits. The material chosen was perspex which is fairly easy to work and is pretty strong too. The whole job took several evenings but the 888 is once more chirping away on Calibrate.

Whilst the set was out on the bench a check was made of the alignment using a local club member's digital signal generator. At all points the calibration was still within the tolerance shown in the manual, except at the top end of 30 Mc/s. Even here the difference was so minimal that it was not felt necessary to do any adjustment.

## - FREE MEMBERS ADVERTS -

WANTED - Model EA12 in good condition. A GOOD home offered to a GOOD example of this receiver for daily use in my Amateur Transmitting Station. Please state price, and can collect. Contact Richard on 01376-584478 (Essex). Thanks.

STILL SEEKING - 960, 890, 930, models urgently wanted. Please phone with price required. 01372-454381 or 0374-128170 anytime. Thanks, Peter.

WANTED- Somebody to check out for me my 940 receiver, repair the RF stages and realign. Phone Bill on 0141-562-4571 (Glasgow).

FOR SALE- Dial Type 898, unused but needs attention, £5 only. Also FOR SALE 659/670 receiver and swop or sell knobs type 2416P/785 Eddystone parts numbers. Phone Pete roberts on 01792-232782 or write GW6 AYM, QTHR, Thanks.

WANTED- Keith Norton in Australia wants to know the size of the hex key used for the dial and tuning screws of the 830 receiver, (is it 1/64th ? Ted). Also have you a spare or do you know of a source please ? Address is 11/12 Waterloo Crescent, St Kilda, Victoria, Australia, 3102. Thanks.

WANTED- Model 1002 receiver in GWO please to complete small collection. Also WANTED plinth type speaker model 989. Also FOR SALE two off 830 front panels with glass and scales and tuning gears including the incremental tuning and S meter. One off 830 RF unit with 3 gang condenser, peak RF condenser and all coils plus trimmers. Also some of the switches. Approx 20 plus coils for 730 with trimmers. Please phone Jim on 01700-340304, or write Jim McGowan at 20 Keats Avenue, Romford, Essex, SS3 7AR. Thanks.

FOR SALE- Two pairs of BROWNS adjustable headphones with metal headband and original leads, how about you fixing up my 940 in exchange for these phones ??? Bill Gibson on 0141-562-4571 in Glasgow.

FOR SALE- 990S in excellent condx c/w manual, £75. Model 40A receiver/noise measuring unit with psu and battery box, mint at £145. Sailor R2022/T2031 complete marine 400 watt station in VGC with manuals, was asking £600 now asking £350 ono. JIL SX400 receiver scanner 26-520 Mc/s no gaps all mode, 12v DC, c/w manuals, like new in flight case, must sell, was £275 now £225. Antenna telescopic 46 feet, complete kit, £80. Yaesu FTM2001 h/held, new/unused cost £300 now sell at £250, Standard RK230S/TB professional marine VHF at £250. Please call Jim cameron for above on 01202-368446 evenings.

WANTED- EP1061B panadaptor unit, also FOR SALE 770R receiver 18-165 Mc/s and 770U receiver 150-500 Mc/s Both working and no mods or faults. £50 each set. delivery by arrangement. please call Peter on 01935-881783 (Somerset), Thanks.

WANTED- info on the operation and effectiveness of WWII RAF FISHPOW airbone fighter detector. Call Keith on 0161-224-0313 (Manchester).

## REPLACEMENT DIAL GLASSES

After reading the Newsletter article on page 39, issue 41 regarding the difficulty of obtaining replacement dial glasses, I began to ponder!

Firstly may I say that my experience of Eddystone receivers is very limited even though I have been a member for 2 years now. I joined initially to try and find a **Pristine** example of the **EC10 Mk2** and I'm still looking!  
However, that's another story.

But lets return to the replacement dial glasses.

Just how much of a problem is it?

Is it a common problem?

What process was used to apply the scales to the original dials, screen printing perhaps?

Have we got access to detailed drawings outlining the original scales, dimensions/line thickness/colours etc.?

It should be fairly straightforward to produce artwork on a PC to mimic the original dial scale. The straight ones should be easy anyway, those consisting of concentric arcs may prove more difficult because the writing also follows an arc and would require software to handle this. If anyone has access to some of the larger drawing packages, it may be worth looking to see if this can be done. Printed onto clear acetate sheet, this 'Positive or Negative' could then be given to a 'Printer' to allow him to reproduce the desired pattern printed on glass.

Perhaps a 'Home Brew' method could be devised by somebody!

Unfortunately, I am not well versed in the final printing stage, and it may well prove to be too expensive to consider given the small quantities involved.

Admittedly, the new scale would not be the original. However, this improvised part would, where no original was available, allow an otherwise unattractive receiver to look 'pretty' again. Other societies working on the restoration of Cars, Steam engines etc. have to resort to remaking unavailable parts in order to present the final article.

What are your views on the above, is it worth pursuing?

Gary.

(SEE PAGE 29 - GRAEME)

## DIGITAL FREQUENCY READOUT FOR YOUR EDDYSTONE!

The problem of what frequency a radio receiver is tuned to can be a matter of contention, especially among users of equipment blessed with analogue dials.

To solve the problem with my old SSB transceiver I designed and built a digital frequency display unit. The unit can add or subtract two frequencies and display the result which is all very nice. However, since it contains more than 30 integrated circuits it's not exactly a weekend project and one that I'll not be repeating!

However, whilst browsing the current issue of QST magazine, I noticed the following advertisement which stopped me in my tracks. A digital frequency display unit not much bigger than a box of matches and with programmable IF/BFO offsets. Just what the Doctor ordered for radio enthusiasts.

Further details need to be obtained from the U.S.A. in the first instance, but the unit can eventually be paid for with a VISA card or similar. Be prepared to pay Import Duty and VAT if required, although I have purchased several small items from the 'States' before and despite being inspected by customs, have all been allowed to pass with no additional charge.

It should be noted that it appears to be in Kit form. But, given the small size it probably does not have a large component count. The unit could be mounted into a small box which could sit on top of your Eddystone Rx and connected to the receiver via flying leads fitted with small Croc clips.

It would obviously be very important to ensure that the oscillator Peak to Peak voltage from the Eddystone is scaled with two resistors if necessary to fall within the operating range of the counter.

The above is all supposition on my part. The only information I have is what you see here, but I feel sure it will be of interest to some EUG'ers even though it will set you back some \$55.

It may be worth investigating.

Gary.



**Digital Frequency Display**

A miniature frequency counter to display the RF frequency of superhet receivers or transmitters. Upgrade to 8 digit with external divider (battery not included).

**\$49.95 Kit**  
\$1.50 S&H  
(\$3.00 foreign)

Adjustable IF offset (+ or -)  
0-32 MHz in 500 Hz increments  
LO Input range  
0-32 MHz 100 Hz resolution  
Displays modes  
MUF, FM, CW, USB, LSB, FSK, FAX, bank  
SSB BFO offset (+ or -)  
0-25 KHz in 100 Hz increments  
Prescalle Range  
1-256 (multiplies to counter external dividers)  
External prescalle divider also use to 85Hz

Displays connect RF lead for any LO IF / HF receiver



**L/C Meter IIB**  
Digital Inductance/Capacitance Meter

**\$89.95 Kit, \$119.95 Assembled**  
\$4.00 S&H (\$10.50 foreign)

RANGE  
001 uH / 10 nH to 150 mH  
Dial to 1.5 uFd

RESOLUTION  
4 digits + Eng. Units  
ie. 1.234 uH / 123.4 pF

ACCURACY  
1% typical

AUTOMATIC RANGING  
SELF-CALIBRATING  
Component Matching Modes  
Component tolerance in voltage  
% difference in voltage  
5 measurements per second

Almost All Digital Electronics  
1412 Elm St. S.E., Auburn, WA, 98002  
Voice 206-351-9316, FAX 206-931-1940,  
E-mail nell@aeade.com  
<http://www.aode.com>



- Ted's 940.-

No, not this Ted, but Ted Saunders whose rather sick 940 was 'dealt with' by Graeme some months back.

It was a new acquisition and had as Graeme said been used "as a basis for experiment and fixing something that didn't need fixing". Graeme calls this a rather "Philistine" attitude to what is nowadays a collectors item. I have to agree, having before me Graeme's account of the task he faced.

The set was deaf, so much so as to be virtually dead. The classic checks were done moving backwards from the speaker to the RF stages. No problems with the AF stages. The IF stages produced nothing at the design frequency of 450 Kc/s yet a little searching of the spectrum above and below this showed a fair response at about 496 Kc/s ! but only on the MIN selectivity position, practically none on the MAX or CRYSTAL positions.

One IF slug was MIA, captured by the Demon Twiddler no doubt. This was duly replaced and the IF stages were re-aligned on the MIN position. The other two selectivity positions appeared to utilise an alien 455 Kc/s mechanical filter with transistor interface (UGH !) of which there were no details. The BFO coil had lost its slug, another MIA in the hands of the D.T. In this case however an undersize slug had been glued into place in the coil former. This was drilled out and a proper slug was fitted, alignment of the BFO was done later.

The 940 was now working sufficiently well to enable some re-alignment of the tracking, which had of course been well adrift due to all these, and previous, manipulations. It was however found to be still very deaf. The RF gain pot; circuit was examined, this had been repaired by Ted Saunders, nothing untoward was discovered here.

Examination in detail of the RF stages was next on the agenda. V1 was producing around 16 Dbs of gain, this seemed to be fair enough. V2 was producing about minus 50 Dbs ! A very effective attenuator stage in practice. The valve tested out okay but further checks showed zero volts on the screen grid. A few checks showed that the feed resistor, R14 (47K), was open circuit but there were no signs of 'burning' or excessive dissipation. This was replaced and the set came back to life

Other items dealt with were as follows, R9, the grid bias feed for V1 screen grid looked burnt and measured in at 13 K instead of 3.3K; this too was replaced with a resultant slight increase in gain.

The RF gain control was so fierce in operation that the BFO could not be used on strong signals. The full effect of the control took place in about 2mms of movement ! The RF gain and AVC circuits had been tampered with by our D.T. ... all the facts are not known. Graeme deemed discretion the better part of valour and simply removed the first RF stage from the RF gain chain to make the set more manageable on CW and SSB.

As far as the mods to the selectivity control are concerned this is where the worst of the 'fixing' was done by our D.T. It appears that the MAX-MIN wiring has been re-routed so that the MIN wiring is now connected permanently to the MAX circuit leaving the 940 permanently on MAX selectivity, this is no problem in itself.

The MAX position is probably wired to the mechanical filter and the gain is very much down, this is because the filter is

the wrong frequency (455 Kc/s). In the crystal position the mechanical (455) and the crystal (450) filters appear to be both in circuit in series ! Not very clever.

In the final analysis the set works very well on the MIN selectivity position, it is now a very good and very sensitive radio. Maybe not so good with CW/SSB in a crowded band.

From Graeme's letter to Ted Saunders it sounds as though he enjoyed breathing new life into this previously ill-treated 940, hope that TED is enjoying using it on air.

- - - - -

- Rebirth of a Sphinx.-

This set was resurrected from the loft of a relative during clearing out work prior to selling the house. It came to its new home together with a box of period parts and several rather poorly looking, dried out, glass accumulators of the 2 volt type.

There was also what appeared to be a 'Battery Eliminator' in a metal case thoroughly rusted over on the outside and with the remnants of a woven cotton mains lead.

The Sphinx is housed in a wooden cabinet and was of the type of set designed by Strattons for use in a domestic environment. Readers not familiar with this model should refer back to the Featured Model item in Issue 15 of the N/letter, out in October 1992.

Typical of table models of that era the Sphinx has a minimum of controls on the front panel with a slide rule type dial, YES, even in the early 1930s Eddystone had these dials, albeit somewhat shorter in length.

Basically this battery version of the Sphinx is a four valve TRF set with a vari-mu screened grid RF stage inductively coupled to the Detector and with reaction in the detector valve anode circuit. This is followed by two stages of AF amplification with coupling by a Ferranti interstage transformer, the output is a pentode.

All valves were in their sockets and what appeared to be a full spare set was in the box of bits that came with the set.

First step was a clean off of the 60 odd years of dust, done gently using one of those car vacuum cleaners and a 1" paint brush - but gently ! The metallic coating on all valves looked okay but experience says that it is fragile after so many decades. Cleaning of the cabinet was minimal as it was intended that this be renovated by a son-in-law who has French Polishing experience, apart one dent in a side panel and a scratch on the top there was no other damage.

Time to examine the chassis with the eye of a radio engineer rather than that of a housemaid ! All components when cleaned with a paraffin soaked brush looked to be in good condition and allowing for the then usual 20% tolerance the resistors appeared to be usable, condensers checked out okay too, but then they were made to last in those days, no cost cutting exercises which meant a shortened life expectancy.

This model employed a switched coil pack - maybe it was Strattons first such model (?) The switching arrangements are such that with five switch positions the RF and Detector coils cover the then MW band of 150 to 580 metres, and the four SW

bands cover 13.4 to 85 metres. The dial and scale were easily cleaned up without any use of modern solvents as the materials used in the thirties appear remarkably susceptible to these liquids !!! Be Warned !!! Paraffin does the job when used with either a clean paint brush or some tissues.

The wiring from chassis to loudspeaker and from chassis to the battery/accumulator looked a bit 'iffy' and so it was replaced with some similar stuff sold today for use on period type table lamps, looked quite 'in' when wired up.

The remains of an actual EDDYSTONE HT battery were in the junk box, advertised as a 'Triple-Capacity 135 volt HT Battery' this came in 3 blocks, all by now very badly corroded by leakage from the carbon-zinc cells and destined for for the bin. A temporary psu supply of about 110 volts came from the one on the bench. For the 2 volts LT a single cell of a 12 volts Lead Acid battery sufficed for tests. Despite the warning in the paperwork that came with the set, that a minimum of 135 volts was needed, and that up to 165 could be used it was thought that the 110 volts available from the bench supply would do, after all a 135 volts battery would drop to at least this level with age and use.

Without any aerial attached it was easily seen that the set was 'live' as a touch on the GRAM sockets produced a healthy hum in the speaker -which would later need cone repairs. A touch on the aerial socket with a screwdriver produced faint sounds also and so the station longwire was detached from the KWM-1 transceiver and connected to the Sphinx, music and speech at several points on the MW and a fair number of stations on all SW bands but, there appeared to be an intermittent in the tuning circuit and the band change switch was noisy as hell.

The variable condenser needed more treatment for age, it was cleaned up this time with medical alcohol and then a slight touch of silicone grease added on the moving surfaces, a check with the prods of an AVO showed that this grease is of the conducting variety but do check.

The bandswitch problem was one of dirty contacts but being loath to use modern contact cleaners it was necessary to go over these contacts with a slip of 'crocus' paper such as is used for cleaning up the commutators of small electric motors. This job took probably longer than any other during the whole restoration project and was the cause of much swearing. When completed the set was tried again and after some 6 decades of repose the Sphinx had been reborn, it worked well on all ranges but the calibration, once metres had been transposed into Kc/s, seemed a bit off. This was not considered to be of prime importance and would be dealt with later.

Attention was now turned to the rusty eliminator that had come with the set. The metal case was cleaned up and then repainted with one of those car de-rust primers before being sprayed black with an aerosol. The innards of the eliminator showed that it was meant to furnish only HT and that LT would have to come from an accumulator.

Checks on the circuitry were done and whilst some wiring had to be replaced the only really duff items were the two smoothing condensers. There was no external marking to indicate either capacity or working voltages they were just metal cases, squarish, with top terminals and what had been rubber grommet insulation. The bottom plate of these was removed with a mini

grinder wheel in a drill. The guts were removed and binned. This left a rather tatty case which when cleaned and spray painted would easily hold a modern 16 microfarads, 450 volts rated electrolytic. The bottom plate was resoldered in place and the component was refitted to the eliminator.

The mains transfo looked okay but again as a precaution it was removed cleaned up, and after electrical checks showed it worked, the whole thing was suspended for several days in a pot of clear varnish, the lid replaced, and the pot left in a warm spot in the cupboard which houses the gas central heating boiler.

The next problem was the metal rectifier unit, a huge finned device probably of the copper oxide variety. It did show some front to back differences when AVOed but being of a suspicious nature it was not re-used. It was replaced in situ after being cleaned and sprayed but left unconnected. As this was a fullwave rectifier circuit two silicon diodes rated at 700 volts were wired in its place and easily concealed underneath the old item. A potential divider across the output from the eliminator gave a choice of 150, 135, 120, 105, and 90 volts. The wire was okay and resistance checks showed it could be reused with new systoflex insulation.

The smoothing choke looked okay and checked out okay on the AVO but it got the same treatment as the mains transfo, into the varnish pot it went.

The whole eliminator was rewired and checked out on the bench for some time, on a dummy load.

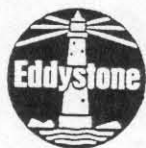
The handbook specified an average room volume would require some 14-15 mA of HT current and the dummy load was made up of junk box 5 and 7 watt resistors to draw a load of 25 mA, with no ill effects after 3 hours the unit was deemed serviceable.

The set was now powered up on the HT eliminator and appeared to work well on the 120 volts position so it was left there, no use in over running it if it was happy on 120 volts. After several hours with no untoward reactions the set was deemed sufficiently renovated and attention was turned to provision of an LT supply. First thought was to renovation of one of the glass accus, much time was wasted on these but to no avail and eventually it was necessary to purchase a suitably sized 2 volt accumulator in a black plastic casing, not period but still it works and appears able to provide some 30-40 hours of use on one charge.

Next came the recalibration, given the tolerances that existed in those days the only really necessary work was on the MW and second SW range, this was easily done and the set could now be used, minus the cabinet, for serious workshop listening, nice tone from the speaker once the tears in the cone had been UHUED.

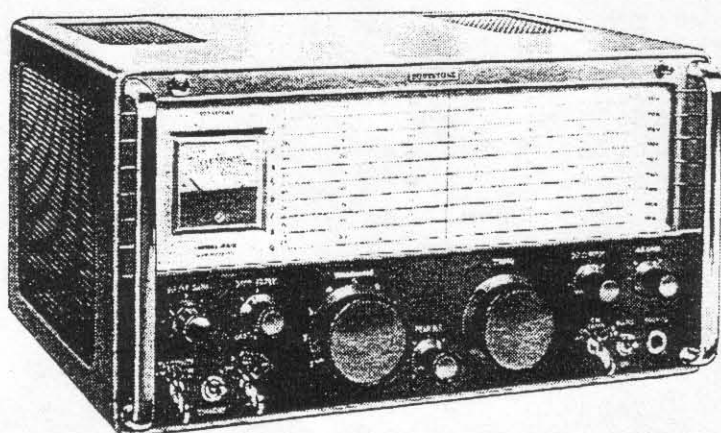
Work on the cabinet has begun and is promised in several weeks (Johnny ?), in the mean time the Sphinx is once more earning its keep as background listening. No way is it for sale.  
Nick.

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P.S.- as a corollary to the above Sphinx article Nick has since written to confirm that the cabinet has been received back and the chassis/speaker refitted. Both new accu and the eliminator



# Eddystone

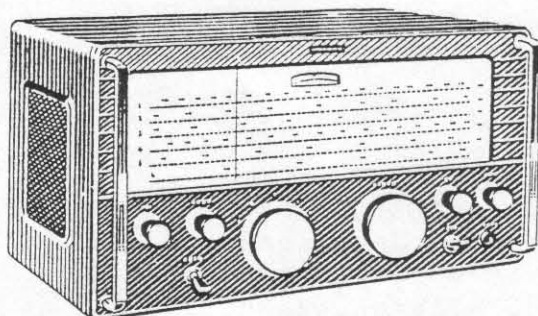
## Amateur communications receivers



### EA12

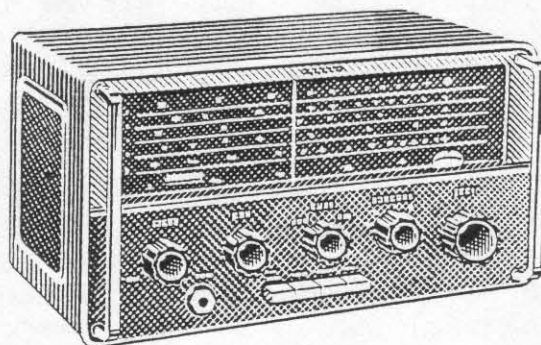
An amateur bands double-conversion superheterodyne receiver, for a.m., c.w., and s.s.b. reception. For all amateur channels between 1.8 MHz and 30 MHz in nine 600 kHz bands with 28 MHz to 30 MHz in four bands.

**Primary features.** Crystal-controlled 1st oscillator, 2nd oscillator with continuously variable selectivity to 50 Hz, muting switched or by external relay, twin noise limiters, for a.m./c.w., and s.s.b., short-term drift better than 20 Hz and less than 100 Hz in any one hour, 'S' meter calibrated in nine levels of 6 dB and dB levels beyond 'S9', two a.g.c. time constants, deep slot filter, independent r.f., i.f., and audio gain controls with outputs for i.s.k. and panoramic adaptor. £185.



### 840C A.C. or D.C. communications receiver

An 8-valve receiver with gap-free coverage from 500 kHz to 30 MHz metres providing excellent reception of broadcast programmes and all major s.w. channels including marine and international distress frequencies. The famous Eddystone extended band spread and logging scale is an essential feature. Suitable for a wide range of a.c. and d.c. voltages. Fully tropicalized. £66.



### EC10 communications receiver

The fully transistorized EC10 communications receiver, supreme in its class, covers both medium-wave broadcasting and all shortwave service to 30 MHz. Incorporating the famous Eddystone tuning drive, with logging scale and auxiliary vernier, shortwave reception is particularly simple. Battery operated or from optional a.c. mains unit. £53.

Comprehensive information from your Eddystone distributor or: **Eddystone Radio Limited, Eddystone Works, Alvechurch Road, Birmingham 31. Telephone: Priory 2231. Telex: 53708**

A MARCONI COMPANY

ALTD/EDSS

- An 880/4, alias Goliath.-

This /4 variant of the 880/2 is very rarely seen and many of those that are in the hands of EUGers have Marconi logos on them, one has a Siemens logo even ! Several others have the Eddystone logo but with transfers showing the name of DEBEG, another one of the customers who bought Eddystones and 'badged' them.

This particular set has the lighthouse logo okay but it has a dark blue transfer just below the Eddystone name which simply states GOLIATH and the letters RSA. Now do they stand for Republic of South Africa ??? Surely not as it was only a dream in Nelson Mandela's eye in those days when the 880 came out. So what to make of this transfer ???

Anyway the set was delivered as part of the purchase price and Mark had it carted upstairs too, for free. Good job as it weighs in at 87 pounds, almost as much as Mark weighs !

The set had been bought 'as seen' but it was working fine said the seller. And it was too, when Mark got it wired up to mains and the station ATU and switching box.

No surprises as a normal /2 had been used for many years in the job at a Gov't establishment. Further scrutiny showed a number of differences though. The main one being that the /2s calibrator used a 100 Kc/s crystal with the same pips. This /4 version had a 500 Kc/s crystal in the calibrator unit, no real problem here as once set the set stays put for years.

One more difference on the front panel was a combined, concentric RF and IF gain control, not so convenient this but acceptable.

In use it was soon found that the variable - switched - selectivity control gave quite different bandwidths than on the /2. Only when the necessary gen had been sent from EUG could Mark get to grips with this variant feature.

More unusual is that the Noise Limiter function is not fitted at all ! Peculiar omission this ! What No Spiky Noises Off ???

And again an omission, no Audio Filter, but this was partly made up for by better spread bandwidths with a much narrower NARROW one.

One addition that is useful at Mark's QTH is the provision of a built-in mains suppression unit, in the AC feed, nice idea this !

All in all these changes meant a quite different layout of the front panel controls and whereas some of them fell naturally to hand for a practised user like Mark, others had to be re-learnt. The /4 is a welcome addition to the stable and joins the 830/9, 730/6 and 640 receivers. For the moment it has pride of place but who knows what will happen after the novelty has worn off ?

As a complete contrast there is an 870 up in the attic which is waiting for some TLC, all new valves for a start and then a repaint of the top and rear of the case which are badly rusted as though the set had been left under a dripping tap - maybe it has. This project is one for the Easter hols and steps are being taken now to obtain a set of valves, other bits can be obtained locally.

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- The 850/4 Manual - In error ! -

Only when Keith got in touch with me last Xmas was he able to sort out the problems that had occurred when he had tried to re-align his 850 as per the manual.

I had these errors marked out in MY copy but his copy did not. A letter of explanation soon sorted him out though. This now meant a complete re-alignment job as trying to follow the manual table of alignment frequencies had got him an 850 that was woefully insensitive on all ranges.

In the factory manual on page 16, at the bottom, is a table of frequencies for re-alignment of the RF and Mixer coils and trimmers. All very well so far BUT in practice the columns for FREQUENCY for both trimmers and coils are TRANSPOSED. I guess that for one used to doing regular alignment jobs this might have been noticed at once, or when difficulties in tracking emerged.

The error was corrected in later issues of the manual by the issue of an ERRATA sheet so if you have a manual dated after 1968 this ought to have been included - PLEASE CHECK BEFORE YOU DO ANY WORK ON YOUR 850/4. TED.

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- Early & Late 358 Receivers.-

There is an easy enough way of identifying the very early sets, made in 1940-41 and that by the 'S' meter. If you have an early set it will have a round cased meter. The later sets had the more or less standardised MoD meter case which was square.

Another difference is the change in design of the carrying handles, In the early sets these were flattened where they were attached to the case. Later sets had all round handles but the changeover date is so far a bit obscure. Going by serial numbers there seem to have been several months when either type of handle was fitted, or could it be that some sets - all second hand of course - may have had their cases swopped around whilst in service workshops ? Ted.

- - - - -

- The EP20 Panadaptor.-

This unit had been bought as scrap for just a couple of quid but when time really did become available for a good scrutiny it seemed that there was very little wrong with it apart the lack of a tube. A few slivers of glass on the chassis showed what must have happened, one duff tube and Hey Presto one u/s panadaptor.

Really though apart one missing valve, and one damaged coax socket it seemed remarkably okay. The valve and socket presented no problems for one like Tom with his 30 odd years of goodies in the junk box, sorry junk wardrobe.

Little thought was given to prices when the search was begun for a suitable Cathode Ray Tube. Not at first, but very soon after Tom took note. Prices seemed to vary from £12 up to a maximum of £30, with one offer of a good, tested, second

hand DP7-91 equivalent. In the event, not being as rich as the proverbial Croesus, it was decided to pay £7.50 for the guaranteed good and tested second hand tube. When fitted this worked fine with no trace of any 'burns' on the screen.

The EP20 has been used with an 830/7 and has also been used many times in its secondary role as a 'wobbulator' for the realignment of other manufacturers sets. In this role it has proved quite useful, a note giving details of its use as a wobbulator can be found on pages 11/12 of the EP20 manual.

- - - - -  
- Model EA12 Faults.-

It is a pretty sure thing on this, the EA12, set that when one range only goes down then you head straight for the crystal that provides the Local oscillator for that range. Logical enough as each crystal serves the one range !

Another simple, logical fault finding tip is that when all four of the '10 metres' ranges, 1,2,3, & 4, go down then you check the common RF or Mixer tuning circuits.

Less simple to fault find is a problem that appears to be increasing with age, on this and other models. The calibrator operation becomes intermittent, sometimes becoming completely non-operative.

What seems to happen is that the peculiar bias system used causes problems with the kathode of the valve, in this case an EF94. Simply fitting a new valve cures the problem and a check done on an Avo Valve Tester shows that the valve has almost nil emission. This valve can sometimes be 'regenerated' by running the valve heater at 7.5 volts for several hours without any other voltages on the other electrodes, don't ask me why but a suggestion from Karl is that this is kathode poisoning.

Did you know that there is an internal adjustment pot;- RV6 - for setting the attack level of the CW/SSB noise limiter circuit ? there sure is ! Located almost centrally on the right hand - IF/AF sub-chassis, this pot; has no effect on the completely independent AM noise limiter.

Those RF/IF gain pot; knobs - they don't seem to match the rest ? That's correct they don't but they are original fittings, maybe an economy measure, who knows ?

Ian

- - - - -  
- 680X Drift.-

If you have this model and you get sudden quick fluctuations in frequency, as evidenced by a warble to the BFO note when tuned to a carrier, then do not panic. And please don't go diving in under the chassis disturbing all sorts of bits and pieces.

This has been found in many cases to be due to a tired, and low emission stabiliser valve. This is a VR150/30 and with advanced senility - like me ? - you will notice that the purple glow begins to 'wobble' a bit. The striking volts get higher as the valve ages and this wobble is a manifestation of age.

As the valve struggles to conduct the current taken, hence the voltage across it, varies. This causes slight but definite



changes in oscillator frequency which are more noticeable on ranges 1 and 2 and more so on SSB than AM. New VR150/30 valves are cheap and supplies are plentiful as yet, well worth buying in a spare NOW.

- - - - -  
- Low Audio Out on a 670A.-

Nothing had ever gone wrong with this set, not in the 12 years since it was bought, from its original owner.

Now the set had almost no audio output when warmed up although for a fraction of a second as it warmed up there was a burst of sound, quickly cut-off.

The usual quick cures were thought of, some spare valves were bought and tried to no avail. Servicing skills are very limited here and even a meter had to be borrowed. By following the advice of the manual for this set and after a good long study of both chassis and circuit, the table of voltages was checked out. The only severe discrepancy, way out of tolerance as per the table of readings, was at point L. this is the anode of V4 a UAF42 used as voltage amplifier and AF detector. Here it was found that the reading was a mere 5 volts. Even allowing for the use of a different meter to those prescribed in the manual it was felt that something was wrong. The valve was swapped a second time but the new one gave the same reading and so the original was replaced.

The HT - if it can be called HIGH tension here, is derived via two resistors forming a 10:1 potentiometer, with a decoupling electrolytic at the centre. The result is that on a good moving coil meter you can expect about 15 volts only. A check on the screen volts just made things worse - zero or even a very slight negative reading ! I am told that this should have told me everything, so says a Mr Know-it-all at the Club. In the event after powering down and doing some resistance checks of the associated anode and screen resistors I came to the conclusion that the screen dropper was o/c. It was ! Hurrah for me ! This ought to be a funny value, a 730 kilohm but in this case it read at INFINITY. No doubt about it. Taking into account the large tolerances that are allowed in these valve circuits it was felt that to fit the nearest preferred value of 720K would suffice. And it did. The set came back to life, voltage readings were as per manual allowing for slight tolerances.

The set was boxed up again and some six months later it has performed flawlessly on each occasion it has been used, almost nightly.

None of the new valves appeared to make any difference in the operation of this set and so they have all been re-boxed and put on the shelf for a rainy day, when ever.

In retrospect it is thought that at least 12 years of ownership with no problems, no valve replacements even, is only what is to be expected from Strattons products - after all the All World Eight on the back shelf can be powered up at any time and works perfectly, why shouldn't the much newer 670A do at least the same ?

James.

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- Modern 'phones and the 640 -

The 640 has been used for many years with a pair of ex WD phones - the unpadded type marked as DLR-2. An unasked for Xmas prezzy from a relative was a pair of nicely padded Hi-Fi type phones with the usual stereo plug fitted.

Being at that advanced age where every little comfort is appreciated the phones were examined to see what could be done to enable use with the 640.

The plug had to go and a standard mono type was procured - ex junk box - and the rewiring was re-arranged at both ends to allow of mono use with both low impedance inserts wired in series. This proved easy enough with a few soldered joints and the phones were now tested out on the 640. Audio level was so far down on a comparison with the higher Z old phones that checks were made to see if there was a fault on the wiring that had just been done, but none was found.

A look at the circuit of the 640 showed that the feed for the phones socket was via two low value condensers and two resistors, quite evidently there was not enough audio to feed the new lo-Z phones. They were also much less efficient than the venerable DLR-2 phones.

It had to be done ! The phones socket on the 640 was rewired so that the new phones were fed from the lo-Z secondary of the output transfo - as is the speaker. The break jack still cuts off the speaker but now the audio signal level is much more in line with that needed for the new phones.

Hi-Fi phones, by their very designation, reproduce a full range of AF. Far more than is needed for CW/SSB on short wave. More than is needed for even AM on SW !

Recollecting a previous item about 'mechanical' tuning of this type of headset by dint of the insertion of cardboard circles in front of the earpieces. The size of the hole punched in these cardboard circles is what gives you the restricted AF, after some checks it appeared that holes of about 3 mm gave good signals on SSB/CW and AM. There was a definite reduction of bass and top notes.

The new phones are now in full-time use with the old DLR-2s put aside for emergencies, after some 50 years they deserve their semi-retirement.

Alan.

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- The S.700.-

This set is rarely seen, and rarely even mentioned in our N/L, there just are not many out there to talk about !

Mike was at the last EUG stand at the NEC last May and he says that he will be there for the next one (May ?) this year. Mike wants to know whether there is any chance of having the 700 model in pride of place on the EUG stand ? He comments that it would be a very definite crowd-puller and if it had such as the 870 or 870A on one side to show the difference in scale it would show something of the difference in products that came out of the Bathtub in the '50s.

It is a nice idea Mike. But it is something that will have to be left to those running the stand, the sheer weight of a S.700 goes against its use on the stand. Think of the poor guy

who has to carry it ? However it is a matter for those concerned with the NEC, over to you Chris and Graeme !!!

- - - - -

- A German 1830 Receiver ? -

A recent purchase at a rally in Holland was this ex-ships receiver with all front panel markings in German. Despite this the Edystone logo proved sufficient temptation for Norman to part with the equivalent of £130 in Dutch Florins.

It looked good from the outside, one or two recent scratches but no more. No power was applied until the set was home and had been opened up on the bench for a good visual inspection - see I do read the N/L hints ! so Says Norman !

Anyway all seemed okay inside bar some dust which came away with the vacuum cleaner.

With no knowledge at all of German, and my daughters school lessons having little nautical/radio content, it was very much a matter of guesswork to begin with. A photo of an 1830 was found in an advert and with a magnifying glass it was possible to make out some control lettering. The rest was just guessed at. The mains input was set at 220 and this was okay since our home supply never gets above 220 anyway. Powered up the set worked fine first time. Many hours of listening have now been done on the set, a printed sketch of the english version of the lettering was obtained from EUG and the labelling in German has been learned by heart - no attempt at relabelling will be made. The Siemens plate on the rear of the set accounts for the German language and it seems that a number of 1830s were sold by Siemens, and other companies.

As a main station receiver it is definitely a step up from the old 740 and 840A so these two are now "Standby" sets should the 1830 ever play up. It took some getting used to, my first ever solid state receiver. The no-signal noise level seems to be higher than I am used to with valve sets, but then a check with a Lowe 225 on demo in a store shows that the 1830 is not an exception. Seems to be a general failing of semicon stuff.

I have already been offered £200 for the set but am not to be tempted, just wish I knew the original NEW price when it left the factory ?? Anybody out there know, please ??

- - - - -

Colin

- The model 1810 ? -

Don't know it ? Well hardly surprising ! I just thought that after mention above of the 1830 I would try a puzzle set for you all.

This model which came out in 1990 - I saw one on bench test at the Bathtub in early 1990 - is designated as a "VHF Tactical Receiver" and it has a really high spec; to Ministry of Defence standards.

It covers just 20 to 88 Mc/s and has channel storage and scanning facilities with a large red LED display.

Don't expect to find any on the 'surplus' market for a few years to come.

- - - Ted.

- Dead 740.-

Whilst listening to the 740 during the past summer the set had simply 'died' with no output at all on either phones or speaker. The complete reliability of this set over more than 15 years meant that not only was Steve unfamiliar with the circuit and the inside of the set, he was also lacking any kind of spares. He wrote to me (Ted) and described the symptoms quite clearly in his letter, he also expressed the desire to get the set back working with an absolute minimum of expenditure - being out of work meant funds were low.

Steve did the checks that I suggested and came up with a problem with these sets and any others which use the 6AL5/EB91 valve. The heater had gone open circuit on the valve used in the V7 position. This valve had a name for going o/c heater, as had the predecessor the EB34.

Steve tried out the other 6AL5/EB91 from the V9 position and the set worked okay. But of course the S meter and noise limiter did not work now !

A few phone calls to club pals located a spare second-hand 6AL5/EB91 which was offered free so Steve accepted the valve fitted it and is now back on the air. Total cost being some local phone calls and a favour to be repaid. The valve in question is still quite cheap to buy and at rallies they are often to be seen in 'gash' boxes for 50P each so Steve will be looking out for one in the future, just in case.

- - - - -  
- 820 AM/FM Tuner.-

The 820 is a mono only AM/FM, LW/MW/VHF, valve type tuner meant to be used ahead of mono Hi-Fi amps of the 50s era.

The circuitry is pretty standard for the period with full tuning of the then VHF band of 87.5 to 100 Mc/s and with three preset switched channels, one for LW and two for the MW band.

This example had been in longtime, continuous use in a domestic set-up where it fed a home-built Mullard amplifier.

When it did decide to go wrong it really did 'blow-it'. A dual 32+32 muff electrolytic which is chassis mounted had blown, not through the rubber seal on the base - under chassis in this model - but from a tiny pin-prick caused by corrosion of the aluminium case. The resultant squirt of white 'stuff' had gone sideways and had sprayed the rearmost gang of the 3 gang variable condenser. A clean up job was first and this was done by careful use of one of the XYLs fine bristled paint brushes plus the suction of the car mini-vacuum cleaner. Great care had to be taken not to disturb the setting or spacing of the variable condenser plates and as a final stage in the clean-up an aerosol of compressed air was used blowing through the plates whilst the gang was fully open (HF end of the scale).

A replacement 32+32 muff was obtained from a dealer, the diameter was the same but the new one was slightly less tall, so no problems there. It was resoldered into place quite easily as this part of the underside of the chassis is far from crowded and contained no frequency sensitive wiring, luckily. As this gang of the

p.t.o-

variable condenser is the oscillator a careful check was made of the calibration, this was found to be okay so the cleaning had not disturbed the frequency calibration.

The 820 is back functioning as before but a decision has been made to buy a replacement set of valves, those in the set have been there some 15 years and are in daily use.

Stan Pike.

- - - - -  
- SFERICS.-

Where have the SFERICS gone ask several members, none more vociferous here than Sam who states that he thoroughly enjoyed this column in earlier Newsletters, whether they be Eddystone related or not. Okay, here goes, -

The right value fuse ! seems simple but do you ever check out the actual fuses in use in your equipment ? One member who did recently do so is happy now that he did. The actual in-line cartridge fuse in the 940 was a 10 amp one in a ceramic tube, the mains plug fuse was even worse as it was a 13 amp one !

Both should really have 1 amp; types for full protection.

Cleaning those 'fluted' knobs, easy-peasy says Derek. Use a toothbrush and some vinegar to begin with then wash and brush again in a solution of warm water and washing up liquid, result is New looking knobs. If there is a grub screw take it out and dry the hole and thread before applying a drop of 3 in 1 oil and replacing the screw.

The 840A is one of the simpler models, circuitwise, but it can suffer from changes in mains supply voltage. Darren found that the supply in their remote area was jumping up and down as appliances were turned on or off about the farm. The problem has been solved by the purchase of a second hand 'Stabivolts' transformer as is sold on the continent for use with Tv sets. Cost was a 'fiver' and the 840A is now a pleasure, no longer a pain.

Invisible aerials ? easy says this member. Having moved to a new home where absolutely no outside aerials are allowed he got over the problem by unwinding the whole secondary off a duff heater transformer, the resultant length of approximately 18 swg varnished wire is now running out through the window frame and is supported under the eaves by thin nylon thread nothing is visible from ground level at all and reception is much improved over the 'bit of wire around the picture rail'.

Need a vibrator unit for such a model as the 710/All World Six ? The suggestion sent in is that those specialists in repairing or renovating old car radios may be able to help. They advertise in the Classic Car Magazines and a phone call could solve your problem.

Those cheap wideband VHF/FM aerial amplifiers can give new life to your 770 sets, they come for upwards of a couple of quid at rallies and used with a pretty inefficient aerial they can make your 770 much more lively.

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- ENDIT -

That is IT, the end of the last issue of the eighth year of this Newsletter ! Never thought it would get so far.

Please be aware that your next years subs are now due and that the cost for UK members will unfortunately have to be £12 per annum, £15 for those living overseas. Looking at the various other Newsletters available for the Radio Hobbyist it is still a bargain, if you don't think so then add up the costs of paper, copying, postage, etc; and see if YOU can do better. I take nothing out of the subs myself for MY costs, pay all postage also for your mail if there is no SAE. So come on EUGers, lets be prompt and help out Graeme our able administrator, send in your subs PRONTO for next years Newsletters and the fringe benefits that come with membership. Ted.

**WHOA THERE, TED! IT MAY BE THE END OF YOUR BIT, BUT THERE ARE STILL ANOTHER EIGHT PAGES OF YOUR FAVOURITE NEWSLETTER TO GO; JUST KEEP READING . . .**

#### MEMBERS' LATE ADVERTS

WANTED: a source of BRASS tubular rivets used to secure the contacts of Yaxley switches used on Eddystone wavechange for my 888. Pete, G4DAN, 01206 395968.

WANTED: EP20 or EP1061A, ideally in good working order but prepared to look at complete non-worker. Call 01283 821084 any time (near Derby).

FOR SALE: Eddystone 740, re-crackled, re-aligned and serviced, £75. Matching round speaker, re-black-crackled, £38. Carriage at cost. 01326 241054 (Cornwall)

FOR SALE: Eddystone 870 in good working order and reasonable condition, £65. Still wanted are 909A and 960 receivers. Call Anthony 01686 630255 (Powis).

OBSERVATIONS by Graeme, G3GGL, on some contents of THIS newsletter . . .

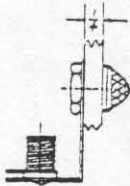
Letter from Gary on page 13 re- scales on glass dials; I know Howard Turner at Centre Electronics (see info sheet - 0121 706 0261) has had new ones made for the 870A - probably by the firm which made them originally. I've seen them, they're perfect, but pricey!

Page three - Peter Lankshear must have done a midnight flit; he was living in N.Z. last week! Re- the 6C5, which has characteristics much like the 6J5; I've put the spy-glass on a 6C5G and IT IS a pentode connected as a triode. Whatever next!

Pages 2 and 9, winding details of Eddystone plug-in coils and formers for same: also try Isoplethics (see previous N/Ls) as a source for new coil formers on octal bases, around £3 each. Telephone 01692 403230.

# HEADPHONES — INSULATORS — KNOBS — JACKS

## HEADPHONES — HOLDERS



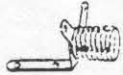
HEADPHONES—Brown's Lightweight 2000 ohms D.C. resistance £1/4/-  
 HOLDER—Dial Light M.E.S. Clip On ..... 1/3  
 HOLDER—Batten Bakelite M.E.S. .... 1/-  
 INDICATORS—Signal Lamp, Red or Green, complete with Bracket and Holder. .... 2/9



## HACKSAW BLADES

9in. and 10in. .... 5d. each

## INSULATORS



The stand-off and feed-thru types listed are offered subject to availability. Small shipment arriving from time to time.

EDDYSTONE TYPE 1019—Miniature stand-off approximately 7/16in. high 1/3 base ..... 3/-  
 EDDYSTONE TYPE 916—Beehive type stand-off, 1 1/2in. high, 2in. diam. .... 2/9  
 EDDYSTONE TYPE 695—Feed-thru overall length approx. 1 1/2in. .... 6/9  
 EDDYSTONE TYPE 1018—Feed-thru, overall length approximately 2 1/2in. maximum diam. 1 1/2in. .... 6/9  
 JOHNSON (limited stock)—Large stand-off 4 1/2in. type ..... 6/9  
 JOHNSON TYPE 603—Cone 3in. high ..... 4/9  
 AERIAL INSULATOR—Small Egg 1 1/2in. long ..... 5d.  
 AERIAL STRAIN INSULATOR—2 1/2in. long ..... 1/-



## LOW LOSS AERIAL LEAD-IN

The outside insulator is of special vitreous porcelain which will withstand the weather, and has a long leakage path between the metal portion and earth.

The tube itself is of 1/4in. diameter, high tensile strength glass with special electrical qualities. The metal portion is polished and Nickel Plated, and wing nuts are fitted at both ends for general convenience. A special moulded watertight rubber washer fitted inside the insulator prevents breakage and allows for errors in mounting. Length of glass tube behind insulator 3 1/2in. Price 6/9



### JACKS

Gramic Insulated Jacks for headphones, pick-ups, microphones, etc. Compact and reliable. Available in two types.  
 P71 Open Circuit ..... 3/9  
 P72 Single Closed Circuit ..... 4/3



### BAR OR POINTER KNOBS

1 1/2in. finished in Black, Red or White ..... 1/3 each  
 2 1/2in. finished in Black ..... 2/3 each

### ORNAMENTAL RADIO KNOBS

Small Acorn shape ..... 10d. ea.  
 Round Ornamental 1in. diam. 1/- ea.  
 Round Ornamental 1 1/2in. diam. 1/3 ea.

## JACKS — KNOBS

### KNOBS



Eddystone Fluted, 1 1/2in. diam., Black ..... 3/3  
 Eddystone Fluted, 2 1/2in. diam., Black ..... 4/9  
 N.Z. made Fluted, 2 1/2in. diam., Type "M" ..... 3/-  
 N.Z. made Fluted, 1 1/2in. diam., Type "J" ..... 2/6  
 Eddystone Skirted Knob similar to illustration but knob is plain. Overall diam. 1 1/2in. .... 2/9 each.  
 N.Z. made Skirted Knob similar to illustration. Skirt 2 1/2in. diam. Knob is 1 1/2in. diam. .... 3/- each

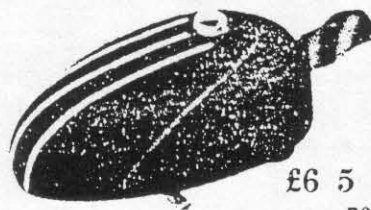


## EDDYSTONE SEMI-AUTOMATIC KEY

As the illustration shows, this key is of really modern design, being totally enclosed in a streamlined diecast housing, which is finished a fine ripple black with chrome relief.

The movement has received special attention and is a fine example of first class light engineering. Words cannot do justice to the beautiful action, you must try the key for

An Outstanding Production



£6 5 0  
 nett

yourself to appreciate it. It is fully adjustable to enable any operator to make full use of the wide range of speeds provided.

The handle has been designed to give equal facility to right or left-handed operators. A short circuiting switch is fitted to the base, which is a heavy diecasting provided with rubber feet and with holes for screwing down.

## The Cooke Report

*Bill Cooke, GWØOIN, worked as a professional radio engineer at Eddystone for the incredible period of 52 years. First with Stratton and then GEC-Marconi. For most of that time he was the Company's Chief Engineer. E.U.G. is fortunate in scooping an interview with Bill in which he recalls some of his life and times with the Company.*

### IN THE BEGINNING . . .

"I first saw the light of day in Birmingham, the city of a thousand trades. It was the first year of peace after the War to End all Wars. My first steps were taken as the 'twenties unfolded. They were the landmark years of our century. The public embraced technology as never before. Flying records were broken daily; the motor car invaded town and country; television was demonstrated; talking films arrived, - and the BBC was born.

"The new Company was a commercial venture formed by the Big Six of the radio world: Marconi, Metrovick, GEC, BTH, Western Electric and RCC. They were joined by no less than 1,710 smaller companies. One of them was Stratton & Company, a long-established fancy-goods and hairpin manufacturer in Birmingham. They specialised in shortwave components and sets, trading under the catchy name of 'Eddystone', known the world over from the famous lighthouse. To gain public attention and advertise Eddystone products G.S.Laughton, the boss's son and instigator of the wireless enterprise, set up loudspeakers in Moseley Park and relayed BBC broadcasts to amazed visitors.

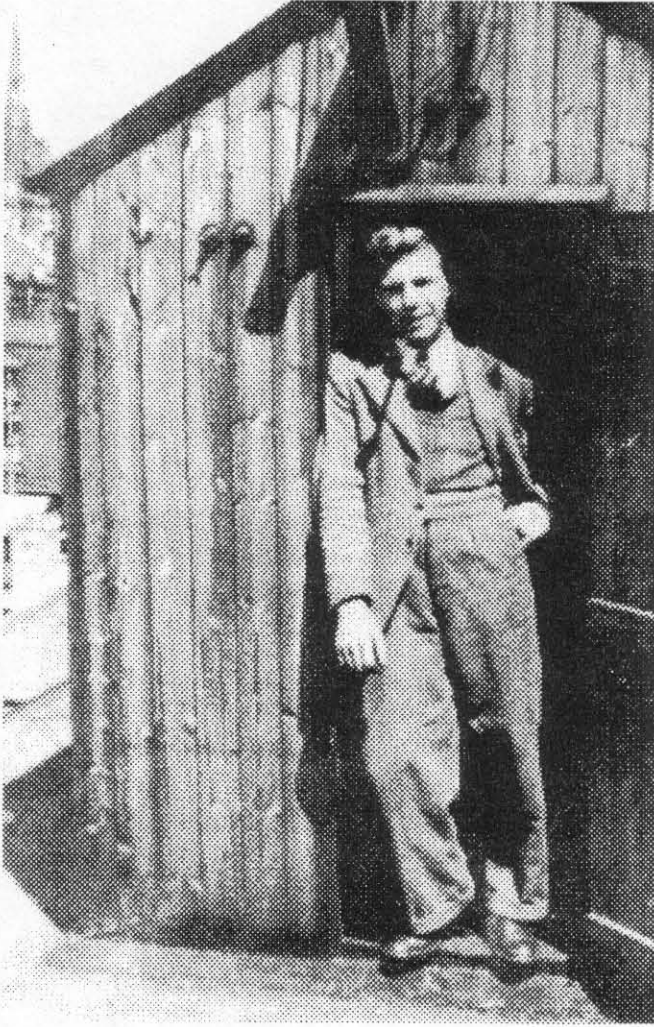
"Father had served in the Royal Flying Corps during the Great War and was well up in these wonders of science. I had hardly passed my third birthday when 5IT, the Birmingham station of the BBC, went on the air. It was November, 1922. At home crystal sets and aerial masts were the order of the day; I could wind a basket coil before I could read and write.

"The Midlands was the centre of BBC technical development. In 1925 the high power long-wave transmitter, 5XX, opened at Daventry, and the first high power medium-wave transmitter, 5GB, followed it in 1927. The new Studio Centre in Broad Street, Birmingham, was the largest and most up-to-date in the world. Wireless mania was here to stay and 'home-brew' was the way of life. It was a very heady atmosphere in which to grow up.

"By 1930 I was ready to build my own shortwave set. The choice for parts naturally fell upon Stratton's, a short tram-ride from home. Off I went with my hard-scrimped pocket-money to the Balmoral Works in Bromsgrove Street, near the City centre. Not content with just going to a shop, I had to see where

*continued . . .*





the goods were made. I found myself being given a guided tour by George Stratton Laughton himself. I must have made a good impression because he promised me a job when I left school! All this at eleven years old!

### *OFF TO WORK WE GO . . .*

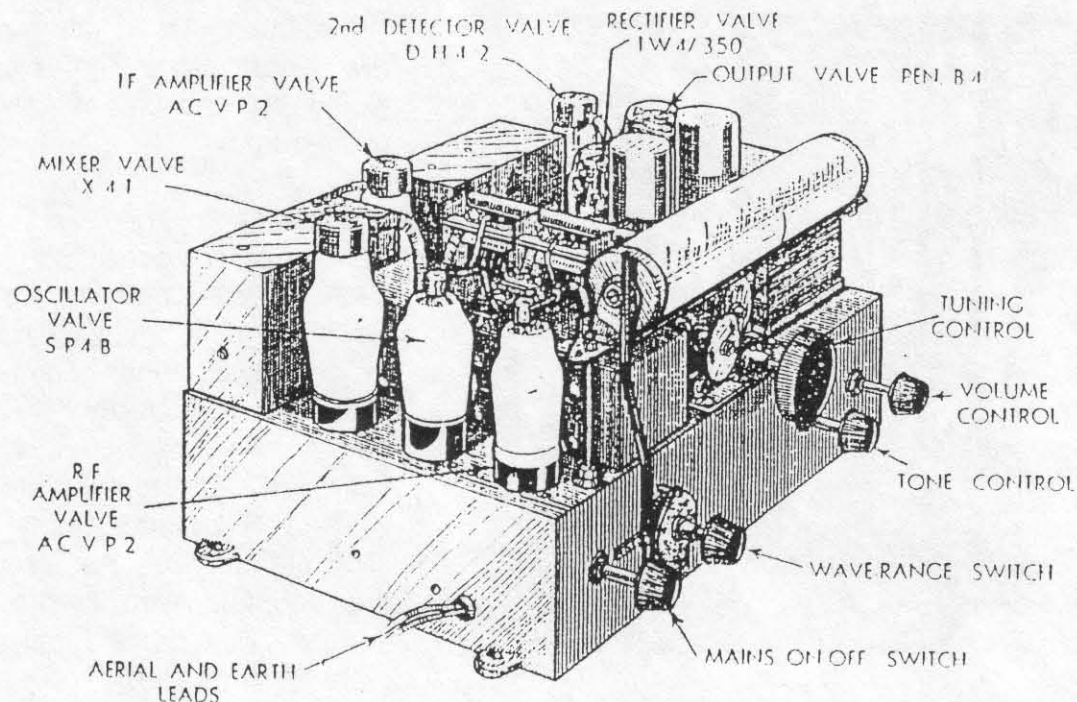
"So, five years later I started work at Stratton's, becoming one of 'Cox's Boys'. (Harold Cox was the General Manager and later Technical Director.) We graduated through the tool room, model shop, test section, service department, design, and drawing office. And we didn't just watch. We had to do the lot: make a pattern - cast it in metal - machine it and drill it, assemble and wire it. And as if that wasn't enough, we did night school at Suffolk Street Tech. Cox's boys were considered the pick of the bunch!

"As a final test, we had to go to stores, draw all the parts for an 'All World Four' and start constructing. At each stage we reported to Fred Addis (in charge of assembly); he checked each joint and put a dab of black paint on it. At

the end of the day you were expected to have a working model on the bench; and not just receiving Zeeson and Moscow, it was expected to get KDKA as well as W8XK (Pittsburg) and W3XAF (Schenectady). It was just too bad if conditions were poor! I must have managed OK because soon afterwards it fell upon me to construct the first ERA7, the pride of the Company. It was an eight-valve, four-band superhet with all-diecast chassis and switched bands. The 'Wireless World', reviewing it on April 14th 1938, stated: 'Workmanship under the chassis is in keeping with the clean exterior . . . This is an instrument which cannot fail to catch the eye of the experienced wireless enthusiast.'

"The snapshot (above) taken about 1938 shows me relaxing in the doorway of the Experimental Hut on the roof of the Eddystone factory. Believe it or not all testing of new models was done up here; the insulators for the twin feeders can clearly be seen (no co-ax in those days). See later on for a photo of George Brown, G5BJ, working on VHF gear inside the hut. Along with everything else at Eddystone it was destroyed by German bombing in December, 1940. What a Christmas!

"This is the production model of the ERA 7 with diecast aluminium chassis. My prototype was entirely hand-made from copper sheet . . .

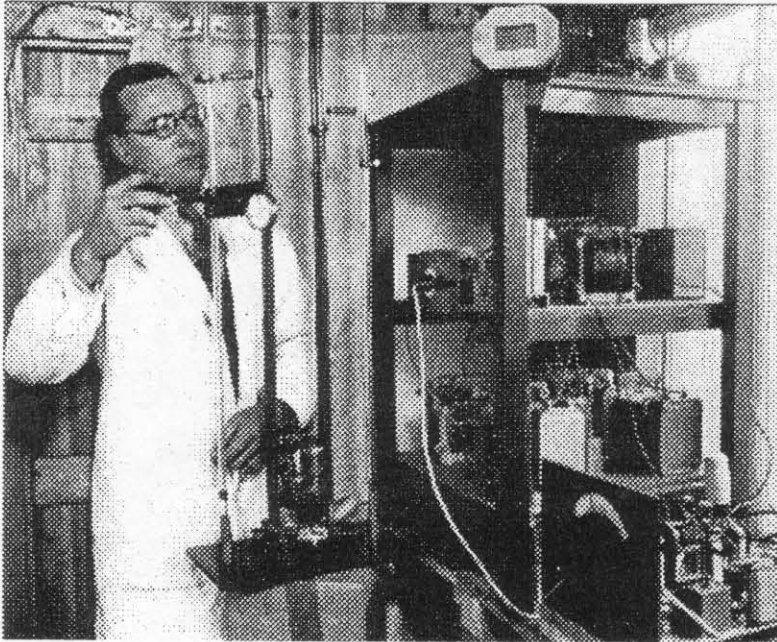


"Before long war clouds were gathering and the Company put a lot of effort into developing fixed and mobile VHF communications. Working for Stratton's wasn't just nine to five. It was from breakfast-time to bed-time when there was a project developing - and there nearly always was. Mindful of the vulnerability of telephone lines to enemy bombing, the London Metropolitan Police ordered Eddystone two-way VHF radio-telephones to be installed in all their 95 police stations and New Scotland Yard, together with mobile installations. Round the clock, seven days-a-week became the rule. Extra staff was taken on. The job was finished in July 1939, and then another twelve Police Forces ordered the sets!

### THE POLISH TRANSMITTERS . . .

"As if all this wasn't enough, at Easter, 1939, the Polish Army Signal Corps had arrived to order three high-power point-to-point H.F. transmitters. I well remember their comic-opera hats, never before seen in Birmingham. Harold Cox had a habit of biting off more than the firm could easily chew; he never refused business. I suspect everybody else HAD refused the business, because Eddystone was not renowned for its QRO HF transmitters; in fact, it had never made any before!

"Several of us were put to work on the Polish Transmitters and for a while I worked with George Brown, G5BJ, who had carried out significant work on the police equipment and was now giving his attention to the Polish modulator and exciter. George decided to modify (with the minimum of change) a Police Base Station TX to a frequency of 7-8Mc/s to meet the exciter requirements. It is this sample unit which I



believe is being referred to as 'the Polish Transmitter' in previous EUG Newsletters. I saw this rack a few years ago; the exciter would be capable of 80-100 watts output.

"However, the Polish Transmitter consisted of *THREE* racks housing Power Supplies, Switching, Exciter, Modulator and Final. The Final utilised two RCA 833's (later 833A's) running about 4,000 volts at 400 mA to the plates in Class C providing nearly 1.5 kilowatts output. As I recall, the modulator also used 833's in Class B and the Final was plate modulated on the prototype, though consideration had been given to low level modulation.

The photo above shows George Brown, G5BJ, working on a 60 mc/s tuned line transmitter in the 'garden shed' laboratory on the roof of Eddystone's Balmoral Works in 1937. Looking very dapper in his white lab coat, George had to reach the hut by way of a ladder and a hole in the roof! Whilst tests were being carried out a telegram was received from New York saying that signals had been picked up there. Another 'first' for Eddystone.

#### *A DAY TO REMEMBER . . .*

"I have extremely good reason to remember the Polish Modulator rack. During July 1939, E.J. ('Pick') Pickard, Manager of Webb's Radio in London (Stratton's retail outlet) was transferred to Eddystone to manage the Polish project. One day he decided to work on the Final rack as the tank circuit was overheating badly. He therefore decided to isolate the Final rack from the Modulator rack. 'Pick' had also noticed that the plate current meter in the Mod-rack was sticking and asked me to change it after he had isolated it.

"Remarkably, I removed the meter and replaced it, believing that the Mod-rack was without HT. I then picked up the box spanner to tighten the meter nuts, placing my left hand on the front panel. As I put the spanner on the meter I was zapped by the full blast of 4,000 volts! Down I went and took the Modulator rack with me. I don't know how long I was 'out', but I was brought round by Charlie Smith, the Store-Keeper and resident First-Aider. I ended up in the old Queen's Hospital (later the  
continued . . .

Accident Hospital) in Holloway Head and returned to work a week later. War was imminent and most of the young men working on the Polish and Police Projects were Army or RAF Reservists; they were called up for Military Service within days, including myself.

"When I returned from the War Harold Cox told me that two of the Polish Transmitters had been completed and the third was almost ready when the factory was destroyed by bombing in 1940. By this time Poland had been occupied by Nazi Germany. He said that negotiations had taken place with General Sikorski's Polish Government-in-Exile, but that we never made any money out of it!

"When I visited Poland, around 1960, regarding Panoramic Displays and Noise Measuring equipment I did mention the Polish Transmitters, but so many people had passed away by then and little was known of the project."

*In the next E.U.G. Newsletter Bill Cooke recalls the post-war years of Eddystone at its new home, the Bath Tub.*

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## **RADIO RAMBLINGS**

**(By Graeme G3GGL)**

### *A NEW BROOM AT THE MILL . . .*

I'm writing these lines after Ted had completed the first 30 pages of this newsletter and have the advantage of hindsight. First of all the latest position at the Eddystone factory. As members will have seen elsewhere there have been big changes. Chris Pettitt, GØEYO, has left the Company and moved to pastures new. Fortunately for us he is still batting for EUG and will continue to keep the membership database up-to-date and provide our address labels and Patron's message, as well as supervise the accounts. The Company, in common with all manufacturing firms, must constantly adapt to changing market conditions and seek to improve its efficiency. Several of the staff at Selly Oak have taken voluntary redundancy, including Pat Hawkins, who looked after our bank account and Newsletter despatch. Our grateful thanks go to you, Pat, for services rendered at a very difficult time for the Group. Christine, our faithful supplier of Newsletters and Manuals, will have her work load considerably increased, and as a result this is the last Newsletter the Factory will be producing for us. The good news is that Chris, GØEYO, has negotiated with his successor, Duncan Whittle, for Handbooks from the Eddystone archives to continue to be available to the Group, although sometimes there may be more of a wait. We crave the indulgence of Members during this period of reorganisation and apologise in advance for any little hiccups. If you have not had a reply to any query, or an order has been ignored, please write again.

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*TRIBUTE . . .*

Now, I think, is an appropriate time to pause and pay tribute to Chris Pettitt. Most 'single product' user groups, of which there have been many in the radio-hobbies domain in the past three decades, have a life of three or four years. Events overtake the driving force and things fold up. Even the well-known 'Morsum Magnificat' is to close at the end of this year. E.U.G. was in just the same position four years ago; Ted was unable to arrange for the Group to be administered and the end was in sight. Then Chris stepped in and organised things from Eddystone Head Office. Virtually unheard of in modern times. Something that couldn't go on forever, but it gave the Group time to get its second wind and be ready to carry on. If it wasn't for Chris, you wouldn't be reading your favourite Newsletter today. Thank you, Chris, from 320 happy members.

*IMPORTANT CHANGES . . . READ THIS.*

As a result of the changes at the Factory we shall now be arranging for Newsletters to be copied by a commercial printer. From the next issue (June) we shall have the option of continuing with the present format (A4 stapled) or in the reduced size A5 booklet with cover, like many other group newsletters, eg SPRAT, QRV, MERCURY.

Advantages of the present format are: larger typeface and circuits, etc., continuity with the past eight years, easy copying of back-numbers and the facility to continue enclosing colour brochures, etc., without folding them. Disadvantages are greater postal charges, greater envelope charges, and 'amateurish' appearance. The advantages of the A5 booklet are: more 'professional' appearance, with reduced postal and envelope charges. Disadvantages are smaller print, impossible to reprint back-numbers and any A4 enclosures would have to be folded. The production costs are about the same. **THE CHOICE WILL BE MADE BY YOU, THE MEMBERS OF E.U.G.** When you return your pink renewal form (DO IT NOW!) just make a note in the corner: 'A4' or 'A5' preferred. Then wait and see what the postman brings!

*RAF CIVILIAN WIRELESS RESERVE . . .*

The one-lung crystal controlled transmitter which was featured in the last EUG Newsletter caught the imagination of several members, including myself. It uses a rather novel but simple circuit which performs either as a straight fundamental oscillator or, when the grid switch is opened, as a Pierce harmonic oscillator. The original article fails to give the 'health warning' that there is High Tension all over the place! On the morse key (when it is up), on the shaft of the tuning condenser (which therefore must use an insulated bush), and on the plug-in tuning coil!

I decided to build one on an Eddystone diecast box, 3"x4"x7" (approx), using an existing power supply (built for the Short Wave Two Rx). The 3"x7" side is big enough for the simple controls: that is to say a 2" meter, a tuning knob, two toggle switches and a keying jack. As no coil details were given a 40-metre coil was wound to suit the tank condenser; 15 turns on a standard 1½" plug-in coil with a 3-turn close-wound output loop over the cold end. It oscillates fine with either a 7mc/s or 3.5mc/s xtal.

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But the note has a distinct chirp; a bit like the signals that used to come out of the USSR twenty years ago. The chirp varies depending on the type of xtal used and the precise tuning. A 'tickler' condenser was tried, (small twisted wire pair across grid and anode) but no improvement noted. Xtals tried were 10X/, FT243, HC6U and HC25U. The 10X/ and FT243 are the worst, as you would expect, all being over 50 years old and not hermetically sealed. With careful adjustment of tuning (not necessarily for greatest output) the HC6Us can be coaxed into producing a passable note. However, the L/C ratio of the tank circuit is far too high and this warrants investigation.

Several valve types were tried, all with an HT of 280 volts. These are the results:-

Valve	Plate Ma	Watts in	Watts out	Efficiency
6J5G	17	4.8	0.75	16%
6F6G	40	11.2	3	27%
6V6G	60	16.8	7	42%
6L6G	70	19.6	8	41%
EL34	80	22.4	11	49%

The efficiency figures are, of course, overall and include circuit losses and measuring errors - but these are the same for all cases. Interesting to note that the first two valves are a triode and pentode respectively; the rest are beam tetrodes and the EL34 (still made) is a much later generation than the 1936 6V6/6L6.

When this feature was published by Eddystone Radio around the end of 1938 the RAF CWR had become firmly established with 820 members. They were organised into two groups of 12 regions, each under the control of an experienced licensed ham, including Eddystone's J.N.Walker, G5JU, famous for his many constructional projects in the Short Wave Magazine and the RSGB Bulletin (and very likely the author of our little set).

Frequencies used were 2583 and 2727 kc/s (around 115 metres). The Air Ministry control transmitters were located at Greenford, Middlesex, but the operators were based in Adastra House, Kingsway, London (later the home of Independent Television News). Of the 820 members about 300 were fully licensed hams (as opposed to SWLs and the 'apprentices' who held Artificial Aerial Licences).

The first aim of the Civilian Wireless Reserve was to train its members in the use of morse code, and to this end it may be compared with the Novice scheme. Crystals were issued by the Air Ministry for use in members' own transmitters and on passing a test at 6 words per minute a badge was issued! (This must be the ultimate collectors' item; has anybody ever seen one?) On attaining 12 w.p.m. a training allowance of 6d per hour was given and members could visit and train with the R.A.F. (6d was the equivalent of the modern 2½p, but in 1938 it would buy 10 quality cigarettes or half a gallon of National Benzol Mixture (petrol), in other words the equivalent of about £1.50 today.) On attaining a speed of 18 w.p.m. (the standard aircrew wireless operators' speed) a grant of £2 was made towards the upkeep of the member's own rig! (About £60 in modern money). All in all not a bad scheme for building up a nucleus of capable radio operators in a period of emergency.

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The scheme paid off when Flight-Lieutenant C S Goode, G2OH, one of the former Regional Controllers, together with Sergeant Leslie Hill, G8KS, flew to France to set up RAF Signals headquarters. It was September 4th 1939, the day after Prime Minister Neville Chamberlain declared war on Nazi Germany.

### *E.U.G. BADGES . . .*

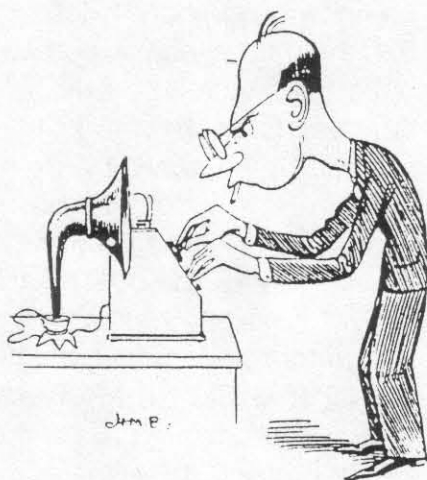
I've just received a new consignment of E.U.G. Badges, the first batch having been sold. They are metal, of the very best quality, none of your plastic junk here (no names). Three-quarters of an inch in diameter, they are a replica of the Company's Lighthouse Logo with chromium-plated lining, dark blue background and white detail. The words 'Eddystone user group' are lightly superimposed thereon. They all have the American-style stud fitting, which has been found easier and more reliable than the old 'safety-pin' fastening.

These are available to Home members at £2 each, post paid, and Overseas members £3 each post paid. As this is a silly amount to find in a foreign or colonial bank we are making a special offer of two badges for a £5 note to members abroad. This is a very sensible idea because every time you change your coat you mislay one of them for about a fortnight! Send to me, Graeme G3GGL, at the usual QTH. *WHY NOT ORDER ONE WHEN YOU RENEW MEMBERSHIP?*

And speaking of renewing membership . . .

**DON'T FORGET THAT THIS IS THE LAST NEWSLETTER OF THE E.U.G. YEAR  
IT'S ALSO THE LAST ONE BEING COPIED FOR US AT THE FACTORY  
THE NEXT ONE WILL BE DONE BY A PRINTER, WE DON'T INTEND TO PAY HIM FOR COPIES SENT TO  
DEFAULTERS, SO WE WON'T SEND ANY TO MEMBERS WHO DON'T RENEW THEIR SUBS BY JUNE.**

**AND DON'T FORGET TO TELL US IF YOU WANT A4 OR A5 (See Page 36)**



**SEE YOU AT THE N.E.C. NATIONAL VINTAGE FAIR 10th MAY**