

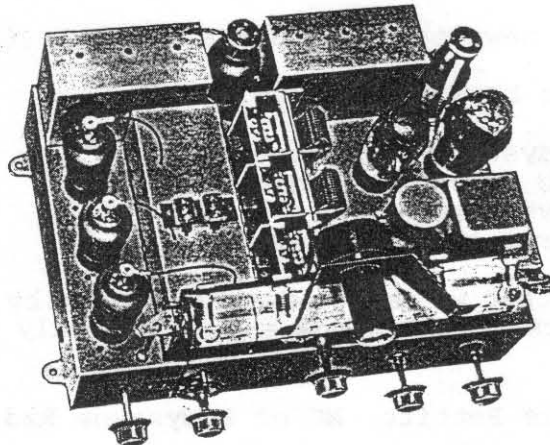
Eddystone User Group



E.U.G. Newsletter

Issue No: 30

Featured Model: "The E.R.A. Receiver"



The top view of the completed diecast chassis. I.F. units at the back, coil unit to left of tuning condenser, Magic Eye and dial lights above revolving roller wavescales. Complete rigidity is a strong feature.

***A non profit newsletter for Eddystone Users**

***Information quoted from Eddystone Literature by kind permission of Chris Pettitt, G0EYO, Managing Director of Eddystone Radio Limited**

***Please address all mail to:**

**Eddystone User Group
c/o Eddystone Radio
Alvechurch Road
Birmingham B31 3PP**

FREE MEMBERS ADS - Please make sure that you put all the details, i.e. Sell or Wanted, Model & Suffix, Condition, Collect or Deliver and last but not least your contact details - name, phone number preferably or address.

Any remittances for subscriptions, badges or manuals must be by cheque or money order. A cheque must be for sterling and on a UK bank as otherwise the bank charges to convert foreign currencies is likely to be more than the subscription. May your cheques payable to the Eddystone User Group and send them to Eddystone below. Please DO NOT send cheques to Ted Moore

The Year for the Newsletter begins with the May/June issue. Issue 24 was the last of year 4 issues and this newsletter is the sixth of year 5. There are 6 issues per year and if you join after the annual subscription date "May" then you will get back copies from the first issue of the current year to date. Your subscription will end with the March/April issue which is this issue and is a little later than usual.

Subscriptions are £10 per year UK. and £11.00 per year Europe. An attractive metal lapel badge specially designed for the EUG is available to members at £2 each.

Copies of Manuals and circuits are available for most Eddystone receivers through the EUG with discounts for members. We have not been able to complete the task of itemising all the manuals and their costs as promised last time but depending upon size and whether it is a photocopy, most manuals cost between £3 and £10. We are happy to send manuals to members on the basis of you paying when you receive the manual as it saves on admin by not having to send you a quote and then you send us an order with the payment.

Back copies of all newsletters are available at £2 each post paid.

All mail for EUG to be addressed to

Eddystone User Group
c/o Eddystone Radio Ltd
Alvechurch Road
Birmingham B31 3PP

PLEASE do remember that we cannot answer queries by telephone. THE EUG is run by volunteers at Eddystone and we can only respond to written queries.

A message from Chris Pettitt, MD of Eddystone Radio Limited,

I cannot believe that we are at the end of year 5 of the Eddystone User Group. Some 30 issues of the newsletter have been written by Ted Moore and together they have become a massive source of information on Eddystone Radios. The company is proud to be of assistance to the EUG and to have administered it for the past 12 months. We are limited to the amount of time we can give to it and I know that many members have learnt to be patient for their information when they send their requests in to us. The recent publicity in the Practical Wireless, Shortwave Magazine and Radcom has resulted in about 25 new members joining the group in the past two months and we find this very encouraging.

EUG will be at the National Vintage Communications Fair on Sunday May 14th at the National Exhibition Centre, Near Birmingham. Look out for the EUG stand and stop by for a chat. Also wear your badges so that we can recognise you. We shall have back copies of the newsletter on

sale and of course will take your subscription renewals. We shall bring along a few of the older sets for you to have a look at.

I mentioned in the last newsletter that EUG member Alan Ainslie, was sorting and filing the Eddystone Radio archives. Well Alan has done a fine job and we took delivery of it this week. This will make information retrieval much easier in the future.

Subscription Renewals

Ted has put in a reminder that all members now need to renew their subscriptions for the next year 1995/96 (issues 31 to 36). You can use the form in the newsletter, or photocopy it if you do not wish to deface your newsletter. Alternatively, a note with your subs will be acceptable as long as you make it clear that this is a renewal.

News from Eddystone Radio

It seems appropriate that after 5 years of the EUG, I should take the opportunity to tell you what is happening at Eddystone these days. Well, over the past ten years we have built up a significant business making FM broadcast transmitters, for major broadcasters throughout the world. We still manufacture hf receivers and we supply these to other systems companies for use in point to point communications for a variety of different applications. The company has recently been awarded a contract by the BBC for the supply and installation of one of the worlds first Digital Audio Broadcast systems. This the biggest contract in the companies history and is a highly prestigious one. DAB will eventually replace FM as the means of providing quality broadcasts, and as it is designed specifically with mobile and portable users in mind, it will suffer none of the present handicaps of analogue FM signals. It is interesting to note that there have been only two major developments in sound broadcasting since it started; AM in the twenties, FM in the fifties and now DAB in the nineties. Eddystone Radio has been there for all of them. One of the few radio companies that can show a pedigree of more than 70 years in the same business. The company is also bringing out a new hf transceiver for the commercial market and this has digital signal processing to give a cleaner signal for phone and data transmission. Finally, the company shall be moving from its present historical site at the West Heath "Bath Tub", to which it moved "temporarily" in 1940, later on this year to another site in the Birmingham area. Life is certainly not dull here at the moment.

International Marconi Day

April 22nd was International Marconi Day and the company call sign, G6SL, was given an "airing", trying to work as many as the IMD special event stations as we could. There is a G6SL QSL card, which is available to members if they would care to write in.

Late Members Adverts

Wanted; Eddystone 1570/1, 962, 940/1, 830/1, EB35/1, EC10 II, Racal 1722. Tom Jones "Gwynant", 6 Maes Y Felin, Llanrhystyd, Aberystwyth, SY23 5AT.

For Sale; Eddystone 770UMk2/2 in fair/good condition. £85 cash. Contact Alf on 0121 475 8647 (Birmingham)

For Sale; 770S rare model with manual £140. 990R good condition, £100. 990S 19 inch rack model, good condition £100. Or sell as one lot £325.

Also sell 770U in as new condition, with scissors for taking valves out £85. All surplus to requirements, buyers to collect. Contact Dave on 01922 417471 (Walsall)

Wanted; 730/4 good condition or other models considered. Contact Bill on 0181 527 5656 (Walthamstow)

For Sale; Unused 1830/1 still in stock at Marconi Marine. £500. Contact David Evans, Marconi Marine, 01245 353221.

Open Day.

Once we have moved into our new premises we intend to have an open day for employees and their families and we shall be inviting past employees and EUG members as well as some of the local radio clubs. We will keep you posted as to the date.

NATIONAL VINTAGE COMMUNICATIONS FAIR ... Sunday 14 May '95

4th
YEAR!



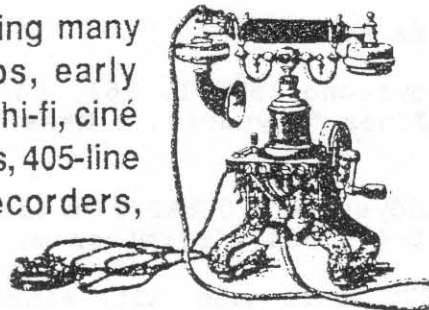
Britain's MAIN
COLLECTING EVENT
FOR VINTAGE
ENTERTAINMENT
TECHNOLOGY!



Pavilions Hall • NEC • Birmingham • 10.30am -5pm
Admission £5* (under-14s free) • Free Car Park

*(includes a FREE copy of The Sound & Vision Yearbook 95/96,
- usual price £3.50 - while stocks last).

300+ major dealers selling many
1,000s of vintage radios, early
telephones, classic audio/hi-fi, ciné
& film items, gramophones, 405-line
television sets, tape recorders,
jukeboxes, records (78s
to CDs) etc. etc.



• DETAILS: (01398) 331532 •

- Issue 30 -

- Five years ago this was just a pipe dream, that EUG would reach its Fifth Birthday with 30 Newsletters to its credit !

- A lot of the credit must go to Kathy Moore, and latterly Chris Pettitt at Eddystone with the admirable help of Pat Hawkins, for the hard work that has been necessary in administering EUG. Believe me, if you ever have the idea of starting such an enterprise, do think twice.

- Many of the original founder members are still with us, and their support over the last five years has been a big factor in our success, contributions from them, be it the odd snippet of info or a full article, have helped me in the preparation of the Newsletters, Keep it up, all of you.

- The model featured this month was the choice of several correspondents, it is a little enough known model, just a few in existence today. Despite that members interest in it is quite consistent, several letters this year so far have asked about it. The E.R.A was out in early 1938, possibly its life on the market was cut short by the restrictions imposed by WW II.

- IT IS THAT TIME AGAIN, yes time to renew your subscriptions to EUG. A £10.00 cheque or M.O sent to EUG at Eddystone Radio will ensure continuity of your membership for another year, and will bring you the usual benefits, SIX issues of the Newsletter, Free radio related ads, and as much technical assistance by mail as you may require to keep your favourite Eddystone on the air. As one member remarked "the Newsletter itself is a bargain at the price, whereas most so-called newsletters tend to be some 4-5 sheets of A4, the EUG letter is an average of 30 sides". Another member in New Zealand comments that the Free Ads alone have been worth more to him than the cost of the overseas subs; A subs renewal form is in this issue, please use it and make the admin; easier for Eddystone.

- A letter from Graeme Wormald, G3GGL, almost a newsletter in itself. Several points to note are that he has acquired a 1925 Eddystone Twin, the price ? a big fat Zero ! It seems that he did some restoration on the set some years back for the then owner, and has now been told that it is his for collection. A very happy Graeme there, and no it is NOT for sale. One member has already offered to buy it. Graeme also makes an offer of his technical assistance to any members in the area of Bewdley, Worcs; he has the necessary test equipment and will be happy to help out any non-tech; members of EUG. Make contact first by phone, 01299-403372, Thanks Graeme. Several more comments from his letter are contained in this issue.

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*** FREE MEMBERS ADVERTS ***

- WANTED, screw fixed badge for front panel of model 680X, also wanted a replacement BFO transformer for EC10 II, this is part no;- 6656P. Please phone Alwyn, GØ TPE, on 01-254-201-455 (Blackburn area).
 - WANTED, replacement 1.75 Mc/s crystal filter unit as used in model 40A Noise measuring set, also wanted model 1001 receiver. Phone Keith on 01442-249782 (Hemel Hempstead area).
 - WANTED, model EC10 or 840A to purchase, phone C.J. Harris on 021-353-6748 (West Midlands area).
 - WANTED; a non-synchronous vibrator unit to fit S.687 psu. This is a 6 volt and 4 pin base model. Phone J.H.H. Buckley on 01944-738476 (Nth; Yorks)
 - WANTED, first IF transformer for EC10 II, part no;- 6653P, IF = 465 Kc/s. If you have one spare contact Wilf Corkish, 17 Ballachrink Drive, Onchan, Isle of Man, IM3 4NU.
 - FOR SALE, one Eddystone slow motion dial part no;- 637 in Eddystone catalogues, still new and unused. Phone Geoff, G2 FTY, on 0527-546048, (Worcs; area).
 - WANTED, holder / socket for Eddystone 6 pin plug-in coil former, Your price paid. Phone Phil on 0113-244-0378 (office hours), 0113-281-0264 (evenings till 10 p.m or weekends).
 - WANTED, 2 off valves type A2510 as in front end of the 770S receiver, must be cheap, contact Ted Moore, for Jim Murphy.
 - WANTED, spare contact strips for model 770U turret unit, or would buy spare 770U to cannibalise. Contact Michael Gibbs, 19 Alwyn Close, New Addington, Croydon, Surrey, CRO 0QP.
 - WANTED, to buy any model such as EA12, 888A, 880/2, 830, 850, also older models considered. Contact Frank X. Micallef, 9H1BM, Casa Andrianna, Karm Debono Street, ATTARD, BZN 02, Malta.
- N.B.- please check out changed phone codes when using above numbers ! I have simply copied what the member has given me.

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 - Gone for Ever -

- I recently read that in 1924 there were some 130 manufacturers of radio, sorry wireless, receivers in the U.K. Eddystone is one of the very few survivors from that era. What ever happened to Six-Sixty Radio Ltd ? and Bowyer Lowe ? and Peto Scott ? No those names you see today such as Ferguson and Alba are oriental products imported and sold here.

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- Featured Model, The E.R.A. -

- First advertised in 1937 this model was a 7 valve, allwave, AC mains set intended for building into the customers own cabinet. At a price of 21 Guineas it was certainly in the De-Luxe range for those days.

This was the first Eddystone model which employed range switching of built in coils, as opposed to the practice of changing coils to suit the required range. Two versions were offered, the 'A' model gave 13-85, 200-550, and 900-2100 metres in 4 bands. The 'E' version gave 13-550 metres only, so the 'E' must have stood for Export.

The circuit was a superhet with 1 RF amplifier, frequency changer, using a separate oscillator valve, IF amplifier, 2nd detector, and output valve, with a full wave rectifier for HT. AVC was applied to both the IF and RF stages. A tuning indicator of the magic eye type is fitted just above the calibrated drum scale. This scale is marked in metres and Mc/s on the 2 short wave bands and in metres with station names on medium and long wave. All current broadcast and amateur bands were marked on the scales.

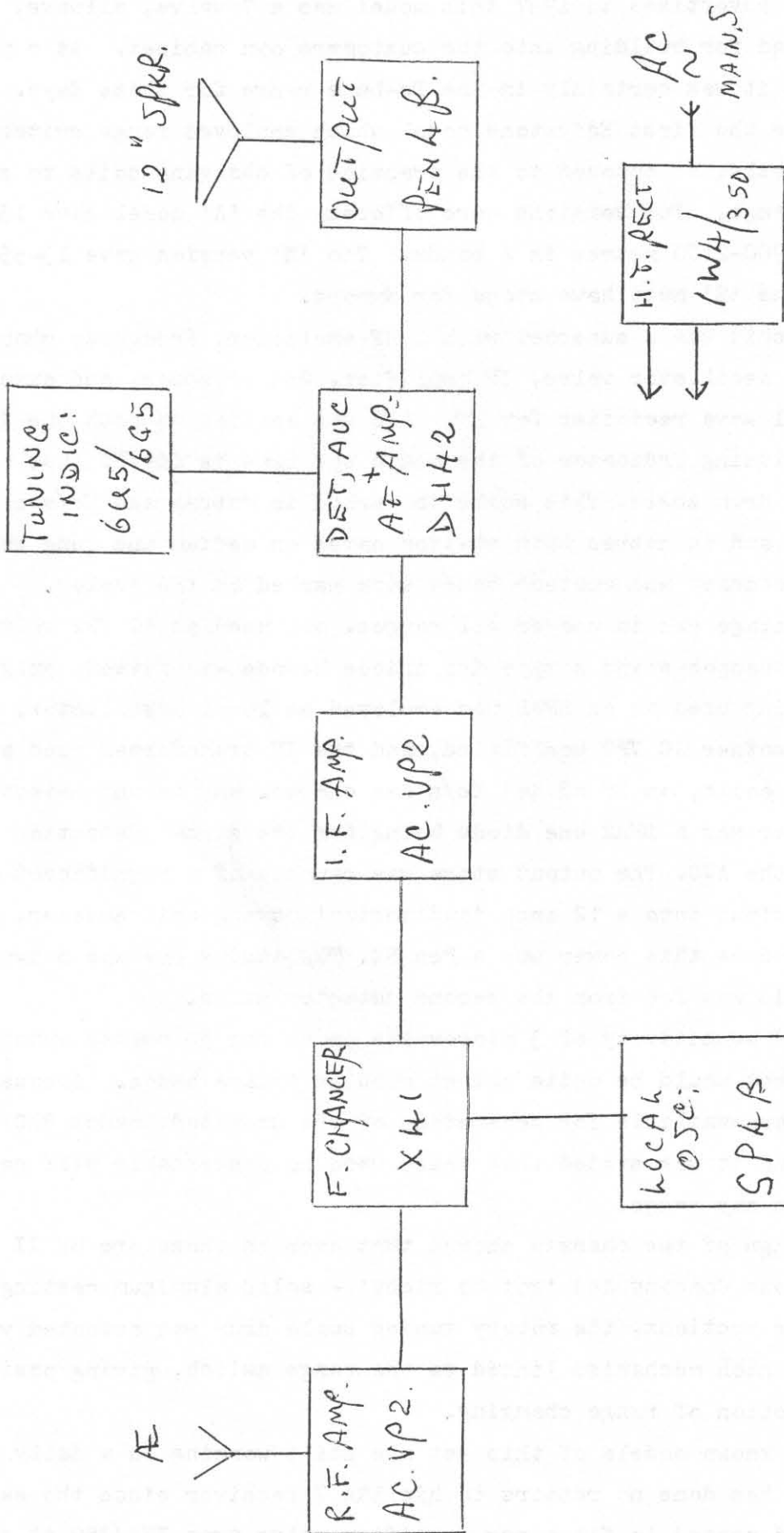
The RF stage was in use on all ranges, and used an AC VP2 valve. For the Frequency changer stage a type X41 triode hexode was fitted, only the hexode section being used as an SP4B was employed as local oscillator. In the IF stage another AC VP2 was fitted, and the IF transformer used air cored litz wound coils, an IF of 465 Kc/s was chosen. The second detector and AF amplifier was a DH42 one diode being for the signal detection and the other for the AVC. The output stage was capable of a magnificent 5 - 7 watts of output into a 12 inch 'auditorium' moving coil speaker, the valve used to produce this power was a Pen B4. The tuning eye was a type 6U5 or 6G5 and this was fed from the second detector stage.

A quoted sensitivity of 3 microvolts input for 50 mWatts output shows that this set would be quite potent even on todays bands. Adequate selectivity was available for separation of the co-sited London BBC transmitters, and it was stated that there were no discernable self generated whistles on any range.

The design of the chassis showed that even in those pre WW II days the Eddystone Company had 'got it right' - solid aluminum castings formed the chassis sections, the rotary tuning scale drum was actuated via a rack and pinion mechanism linked to the range switch, giving positive and firm action of range changing.

Several known models of this set are still working on a daily basis, one member has done no repairs to his ERA 7 receiver since the early 1950s, then he had needed to fit a new rectifier valve type IN4/350 at a cost of 15 shillings.

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E. R. A. 7.
(1937).

- Model EM34, MIMCO 3837A.-

- Three of this model badged as the MIMCO version were recently sold by a now defunct Trawler operating company in the Hull area. At a total cost of just £100 the buyer reckons that he has got a bargain. Two are in perfect working order, no work at all required on either. The third is not yet in a working condition, several broken valves and slight physical damage to the outer case. This last one may be kept as a source of spares for the other two EM34s.

- The set is fitted with a PA system using a built in mike amplifier, a transistor module. Only one set has this module in situ but the lack of the module does not affect the operation of the receiver.

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- Useful addresses for EUG members.-

- A lot of the mail received by EUG consists of queries by members as to possible sources for spares for their Eddystones. Whilst some items may be of Eddystone manufacture, many are in fact still obtainable off the shelf from various dealers. A stock of the current catalogues of these dealers should be kept by anybody intending to restore/rebuild their pet Eddystone.

For actual Eddystone bits your best bet is Centre Electronics, of B'ham, try a call on 021-706-0261, he can usually supply second hand bits from scrap sets, also he is a good source for valves.

Mention of valves brings up the name of Philip Taylor, 3 Silver Lane, Billingshurst, West Sussex, RH14 9RP. call him on 0403-786250 for your valve needs, he is an EUG member. Incidentally he can also supply many of those other bits such as high volts electrolytics, wire wound droppers, and the like.

For replacement toggle switches, dial bulbs, pots; transistors and the like you should have catalogues from Maplin, Cirkit, Bulgin, RS, maybe even Tandy although this last one is a bit pricy and should be used as a last resort.

Lastly, in perusing these many catalogues be sure that you will, yourself, come up with some items that can be used in future repairs or restorations, if you do then be sure to write to EUG and share your ideas with us all.

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- Unusual Fault on a Model 940.-

- This member had resurrected a 940 from the loft after some 20 years and when powered up the set displayed a remarkable lack of gain, on all bands. The full set of valves were changed - one at a time - to no avail. Next step was of course to get out the manual and schematic and do a volts check as per the table supplied. Starting at the AF output stage as one should, Dave had about given up hope when he reached the cascode RF stage,

6.

here an anomaly in the volts readings when the valve was unplugged and a probe tip inserted in the pin hole of the socket showed that there was no voltage on pin 2 of the valve (an ECC189), eventually R6 was found to be open circuit. At the same time it was found that R8 had gone very high in value, it was reading about 12 Kiloohm. Both were replaced and the gain was back up to normal.

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- BFO mods for SSB tuning.-

- Many of the older 1950s Eddystones had a BFO tuning swing of some +/- 6 Kc/s, fine in the days when the BFO was used for CW reception only. Mind you I find that figure to have been excessive even then. When it comes to using these sets for SSB today the swing given by the tuning is vastly over large. In my case I have for many years advocated the mechanical mod which consists of removing the rear plate of the stator of the variable condenser used for BFO tuning, it can simply be tweaked off with a pair of long nose pliers. From Stewart comes the suggestion that rather than physically doing damage to the VC it is preferable to fit a series condenser in the 'hot' end of the VC (the stator end). If as he suggests you fit a trimmer of, say, 20 pF with mica insulation, then you can adjust the total +/- swing to suit your taste. One end of the trimmer soldered directly to the stator terminal of the BFO VC will provide sufficient mechanical rigidity to ensure no microphonic instability of the note.

- One thing that some members apparently do forget to do, if mail is anything to go by, is to re-zero beat the note of the BFO by trimming the core of the BFO coil. The knob on the front panel should be at 12 'o' clock for zero beat.

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- The baby of them All ! -

- The 870/870A sets are quite often neglected by EUG members as to many they were simply a domestic circuit fitted into a 'tin case' - not my quote but that of Allan, who wrote recently re his 870A.

The circuit is that of a basic 4 + 1 superhet covering the long, medium, and short wave bands up to 18 Mc/s in the case of the 870, and to 24 Mc/s in the later /A version.

What many people forget is that the 'tin case' was a plus factor that you did not get with a domestic set. External pick-up of signals and QRM in the domestic sets of that time was exacerbated by the wooden or plastic cases. A very common complaint - especially in coastal areas - was that morse signals from Humber Radio, Seaforth Radio or others were being picked up in the IF circuits and passed through to the AF output on top of the wanted signal. This rarely happened with the 870/870A sets as the screening

provided by the metal case and metal front panel inhibited any circuit pick up. The provision of a series tuned IF rejector in the aerial input circuit was also something that the domestic variety lacked.

Many people looked down on the 870/870A when it came out but some thought will show that it did serve the purpose for which it was intended, more or less that of a mini version of the 670 series. As a ship borne cabin receiver operated from either AC or DC of 110 to 240 volts it covered all the bands that were required for broadcast listening around the world. The built in mains filter, of the 'brute-force' type was very effective on the noisy mains supplies, found aboard ship.

Today the set can still provide an advantage over the modern version of domestic set. Whereas the modern all plastic construction leaves the PCB of today's set prone to pickup of all forms of QRM (especially computer generated) with the 870/870A you have a completely screened set, if fed by co-ax or a screened lead from an external aerial you can eliminate most in-house QRM.

Another big advantage of the 'tin-case' is that it screens the set and allows use of an external loop aerial for basic DF-ing on the crowded medium wave bands of today. Where 2 or more 'local' stations are on the same frequency it is often possible to null out all but the wanted station.

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" PICCOLO "

- This multi-channel telegraphy system has been the cause of much mystery amongst EUG members, and the cause of much correspondence from those who are happy owners of the later 830 series receivers. These had a piccolo crystal filter fitted to the narrow selectivity position, in most cases the crystal had been removed before the sets were disposed of by the F & C.O or the DWS.

- In order to cut down on the continuing correspondence on the subject I have located what is the definitive text book on Piccolo, the Bible of the Piccolo system(s) from the design stage through to the final Mark of the system.

- The Piccolo system evolved from a need for the various British Embassies throughout the world, to be able to communicate on a reliable day to day basis with the Foreign Office in London. Clearly for such traffic secrecy was essential. One other need was for the system to give error free communication using the limited facilities available at most embassies. One limitation was that in most cases only low power of some 500 watts was allowed by the host country. Another limit was usually on the aerial facilities available, in most cases a whip was all that was permitted.

- The first experimental system was tested in 1959, using modems produced

by Racal, these used the first generation of Germanium transistors to allow of miniturisation. Twelve units of the Piccolo Mark I were made, tests were carried out initially from the Madrid Embassy to the F & C.O in London. Later tests were conducted between the F & C.O and the New Delhi Embassy. The absolute success of these tests meant that Piccolo could clear in 3 hours all the traffic that 2 hand W/T circuits had difficulty in clearing in 24 hours !!

- By 1975 some 220 units of the Mark III system were in use and hand W/T had been relegated to an 'emergency use only' status. 830/9 receivers with a digital frequency synthesis oscillator system were utilised in many Embassy communications rooms. The last Mark was the Mark VI version which came into use between 1979 and 1981. By 1982 this version was the current one and it was also available commercially as the Racal Model LA1117 Piccolo Modem.

- All the factors associated with long distance telegraph radio links had to be taken into consideration, these include both slow and fast, shallow & deep fading, multipath reception and distortion, doppler shift, static noise and path noise plus co-channel interference. The resulting spec for Piccolo was something like this, a narrow band transmission using single channel, multi frequency telegraphy at 75 bauds providing an error rate of less than one character per 1,000 characters. Error coding and correction techniques were included. The system was capable of use on long distance HF circuits varying from 1,500 to 8,000 Kilomatres in length. A maximum bandwidth of 350 cycles was allowed for, this necessitated close frequency tolerance at both ends.

- Although early systems had experimented with up to 32 tones the definitive Mark VI Piccolo was a 6 tone system per character. This is the one that will be heard on the HF bands today. The lower frequencies of the group are for the letters at the beginning of the alphabet.

- For those who wish to delve further into this subject the book concerned is "Principles and Practice of Multi Frequency Telegraphy" by J.D. Ralphs, it is published by P. Peregrinus. Most libraries can order this for you & it would help to quote ISBN 0 86341 022 7. It is a very theoretical book and some knowledge of maths and radio theory is necessary.

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- Aerial Input Impedances of Different Models.-

- Time to say something about this, as yet another letter has been received from a member who is apparently concerned about the different signal strengths of signals as heard on his Eddystone receivers.

Over the years various input impedances have been in vogue in the communications world, early years saw figures of around 400 to 600 ohms, then in came the 75 ohm 'standard' - this was followed by what now appears to be a fairly universal figure of 50 ohms.

The high figures of 400 - 600 ohms went fine with what was then the norm in aerials, a long-wire balanced against earth. This meant that the signal was a voltage feed into the receiver. Come the advent of co-axial cable as a feed line and the original figure of 75 ohms, manufacturers followed the trend by using this low figure of impedance for the receiver input, later the figure went down to what is now another 'standard' in the industry - 50 ohms. This makes for a current feed into the receiver input. Dipoles and beams match into this figure fairly well, although some multi element beams have figures of 10 - 15 ohms and need to be matched by an ATU into the receivers 50 ohms.

Over the years Eddystone, like all other manufacturers, followed the trend going down from an average of 400 ohms to the present day figure of 50 ohms. Some of the models produced in the 40s and 50s had a figure of @ 400 ohms for the LF (long wave/medium wave) ranges, from 150 to 1500 Kc/s. However on the HF ranges these sets had a figure of @ 75 ohms, this meant that a long-wire could be used for LF and a doublet or dipole for the HF ranges, what did occur in practise was that the HF dipole had both legs tied together and functioned as a 'T' aerial on the LF bands.

Now we come to the problem that is perplexing many members, why are they getting such different signal strengths on two apparently good working sets operated side by side, using the one aerial ? Here is a case that Simon has put to me recently. He is the happy owner of two Eddystones, both fully restored and working well, yet he can do his medium wave Dx-ing happily on the S.680, getting good signals whilst switching the aerial to the 830/5 the same signals are inaudible !

A study of the respective handbooks for these models show that whereas the 680 is quoted as having an @ 400 ohm input for the LF ranges, the figure of 75 ohms is given for the 830/5. As no ATU is in use the fairly high impedance of the long-wire gives a relative match to the 680 input thus providing good signal transfer. Not so with the 830/5 where the high Z of the aerial is mismatched into the very low Z of the input circuit. What to do ? Well as most members are aware I am an advocate of the use of an ATU in all cases. A misnomer really as the unit does not so much tune the aerial as match the aerial impedance to the receiver input impedance, so we ought to call it an

AMU not an ATU. Most members are restricted to the use of Random wire aerials for their reception, although we tend to call them long-wires. At most frequencies in use these will present a high Z to the receiver, especially so on the LF ranges. On the HF ranges some of these random lengths of wire may well resonate at certain frequencies and thus give excellent signal transfer, in fact main however a matching unit will still be needed.

An ATU (AMU) is quite a simple device, nothing difficult in its design or construction, several have been described in past issues of the Newsletter, a lot of designs have been published in past issues of the PW or SWM and other magazines. Cost of a DIY one can be as low as £5- £10 as many items such as the case and knobs may be scrounged, even the dual variable condenser from a discarded 'tranny' may be used in a receive only ATU.

Some of the more common models of Eddystone, together with the quoted aerial impedance figures are listed below, some surprises for a lot of members who really ought to look at the manuals/handbooks of their favourite receiver.

640, - 400 ohms.	670,- 400 ohms.
670A,- 400 ohms.	670C,- 400 (range 5&6) 75 (range 1-4).
680,- 400 ohms.	680X,- 400 ohms.
730,- 75 ohms.	740,- 400 ohms.
750,- 400 ohms.	830,- 75 (early versions) 50 (/12).
840,- 400 ohms.	840A,- 400 ohms.
840C,- 75 ohms.	870,- 400 ohms.
850,- 75 & 300 ohms.	870A,- 400 ohms.
880 (& /2),- 75 ohms.	888,- 75 ohms.
888A,- 75 ohms.	909,- 75 ohms.
910,- 75 ohms.	940,- 75 ohms.

- Spare Parts Wanted !!!! -

- If you have any spare parts for Eddystones, i.e.- IF transfos, mains transfos, knobs etc; or if you have a defunct Eddystone that may be used for spares, then PLEASE do share them with other members of the EUG.

- One member is asking in the ads for an IFT for his EC10, since this part number 6653P is the same as used on most of the EC10 series and on all of the EB series then surely somebody can come up with one.

- How about knobs ? that one large tuning knob, part number 3146/1P, that is in your drawer may be all that is needed to complete somebodies 840A.

- Come on now, do your good deed for the day, if you have any Eddystone bits and pieces let EUG know and we can tell all the members.

(The following is rather longer than is usual in the Newsletter, I have printed it verbatim as it serves several purposes. It is a good lesson in the servicing of a newly acquired, second user receiver. It also is a cautionary tale, NOT to take for granted the sellers description of an item. Thirdly it will show those members who would like to submit an article, just what we need for future issues. Don is a G3 plus 3 - licensed back in the early 50s, coming back to radio after more than 30 years he had to delve deep into his memory banks before undertaking this servicing job on his 840C. -Ted.)

- I bought my present communications receiver at the Leicester Show in 1994, I have come back to amateur radio recently and having seen the 840C I guessed that it must be an updated version of the old Eddystone 840 that I owned so many years ago. Not that it looked very similar, gone was the almost square dial with $\frac{1}{2}$ round scales marked on it. This 'C' version has a long rectangular dial, rightly called a 'slide-rule dial' by many.

- The set was purchased from its original owner before being put on the B&B stand at the Show. He asked for £50 - and got it. I asked whether the set was in working order and was assured that it was, but 'I tweaked it a bit for the ham bands'. Well this did not sound too bad to me, and I had done quite a lot of work on valve equipment in the 40-50s, both military and civvy sets, so I brought the set home.

- First results did not impress me at all, it DID work, but even to my rusty ears the sensitivity seemed remarkably poor. I knew little about Eddystones since my old 840 had never needed any work done in the 4 years that I used it.

- A quick look inside showed that 'tweaking' had certainly taken place, not just under the chassis, in the coil box, but also to the IF cores ! A number of clearly non-original soldered joints could also be seen. Discretion made me decide to proceed no further before I could obtain the circuit diagram & some re-alignment information. Contact was made with the EUG and a copy of the handbook plus schematic was bought, further correspondence with EUG was able to clear up several inconsistent component values that could be seen under the chassis. I also discovered that the dial lights fitted were an extra, none are on the original 840C, although I can remember there was a single bulb on my older 840.

- The work was started in December, and not completed until February, due not so much to the amount of work needed, more to my desire to 'get it right' as per the specification.

- From the handbook I was able to check out the anode, screen and kathode volts of each stage. The latter is quite often a good indicator of the stages efficiency and I found immediately that all stages had lower than normal volts

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on the kathodes. Going back to the HT rectifier I discovered that HT was down by some 18 volts, 16% of total. Checking back through the wiring I discovered that the 2 dial bulbs were 12 volt, 0.3 amp types and had been wired in series, and put into the AC line after the mains switch and before the volts adjustment panel. For the time being they were simply shorted out and the HT now came up to within spec; at 117 volts DC. (this with the volts adjustment plug set to 230 volts.).

- All the quoted voltages in the table now appeared to be okay yet there was no change in the gain of the set, still deaf on all ranges. I put this down to the 'twiddling' that was evident on RF and IF coils. A good modern signal generator with crystal calibration had been borrowed, checks with this showed that the IFs were broadly tuned to about 465 Kc/s, the correct IF is 450 of course, and they were far from being peaked for maximum gain and selectivity. This was my next job, and having reset the cores to 450, peaked them for maximum, I sealed them with beeswax that was melted into place with the tip of the soldering iron.

- Further checks showed that there was a considerable improvement in over-all gain, this was before I had even touched the coil box cores under the chassis. It was at this point that I got a 'belt' of AC from the chassis, an investigation showed that whilst live and neutral were correctly connected as far as the 2 pole mains switch, the connections from the switch were in new looking plastic wire, and were reversed ! I put them back as they should have been and began doing a few other checks, safety last in this case as I found that C1 & 2 had been shorted out. These are isolation condensers in the aerial input circuit, when checked both were found to be okay so the s/c links were removed. A further 'mod' was discovered at this time, probably the real reason for the deafness of the set. The AVC line was earthed to chassis either when the BFO is on or when the range switch was put to 3,4, or 5. I found that some re-wiring had been done to the range switch wafer 'c' which is supposed to take AVC off the 2 HF ranges at the local oscillator grid, leaving AVC on just the RF and IF stages. Putting this back to normal was about the most difficult part of the repair job, involving as it did work within the coil box, on the wafer of the range switch. It was worth while doing though, the 840C seemed to be miraculously cured now, with a mere 4 foot of wire for an aerial I got signals on all bands, although I am sure that BBC world service should not have been on 5.2 Mc/s !

- Remained the re-alignment of the RF, Osc; & Mixer stages, as the above out of band reception of the Beeb showed, re-trimming was necessary. I began with the LF ranges and worked up to range 1, on the assumption that if I started with range 1 then anything I did to the others could put that HF range out again. All were way off peak, on several ranges the mixer

cores were evidently at the wrong end of the coil. The local oscillator cores appeared to have been twiddled quite a lot as the slots were well worn, looked as though they had been twiddled with a metal screwdriver too. I spent more time on this part of the job than on any other, wanting to get the calibration right, and learned quickly that whilst the coil box cover made little difference on the low end of the scales, it made a lot of difference at the HF end, moral is to have it in place when doing the trimming. No real difficulties were encountered here, all came within calibration quite easily but at some time I shall replace several of the cores, where damage to the slot makes adjustment a bit awkward. These were again sealed within the formers with beeswax as I have little faith in the pieces of rubber that were used, with age the rubber becomes friable and vibration can easily move a core.

- Final checks were now made wherever I could discern what appeared to be a non-original soldered joint, good job too as I found that several components had been replaced with different values. The first I found was R25 the anode load for the magic eye valve, a DM70. In place of the $\frac{1}{2}$ meg there was now a mini PCB type with a value of 270 Kohm, the correct value was fitted. Next came C71 which ought to have been a 0.1 mF paper type across the tone control pot; it was now a 0.25 mF polyester type, far too high a value as this made the range of the tone control quite far out from normal sounding. A third item was R33, the 47 Kohm used across the standby switch, this had been reduced to a 15 Kohm, possibly to allow of 'listen-through' facilities. I put the correct value in here as per the circuit.

- My last job was to set the BFO correctly, although the core in the BFO can appeared not to have been touched I found that the BFO was off a few Kc/s from zero beat, with the knob set at 12 'o' clock. All now appeared to be normal and I set to to de-mod the dial lamp wiring that had been fitted, I have never understood why none had been fitted originally but they are hardly necessary and so were removed. At this point I took the opportunity to resolder the CZ1 thermistor, the soldered joints at each end looked a bit 'dry' to me.

- My £50 purchase was now completely renovated, no cosmetic work was needed to the outside paintwork, the scale had no need of cleaning, the mains lead was still in good nick and so I left it as was. Several points I would like to make about the work I carried out over the 2 month period. It cannot be stressed to much that for such a receiver the handbook with re-alignment details, and circuit diagram, is a necessity. I had thought that this being one of the 'simpler' models I could manage without, could not have been more wrong as it happened. The cost of £3 for the handbook, plus several stamps for letters to EUG to elucidate several points, was nothing compared with the time that was saved. I must also mention that if you are re-aligning such a set you must follow the procedure given, and not take any short cuts. One thing

that is vital - yet often overlooked is to short out the local oscillator when re-trimming the IFTs, do so by shorting the stator of the forward section of the tuning gang to chassis. Another point often missed is that for correct trimming of either RF or IF stages you must switch off the AVC, if there is no switch then s/c it to chassis. My own experience tells me that for SWL purposes valves have a long and useful life, I had the seven (not the DM70) tested and all were still within the green, GOOD, section on the scale. Whilst the 840C is not today's technology by any means I found that I could quite easily hear most of the available CW and SSB signals on the bands, noise level was much lower than on the very hi-tech digital Yaesu that I had on loan, I found this so be especially so on the MF range (range 5), at the LF end.

- It is to be hoped that other EUG members will take heart now and do those jobs for themselves, there is nothing mysterious about re-alignment if you DO follow the instructions given in the handbook. Don Bush.

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- EC10A/2.-

- Did anybody spot the EC10/A2 poking in to the left of the picture on the front cover of the February SWM ? It was obviously a posed picture to display the many modern solid state items in the photo, still very nice for us in EUG to know that SWM has an Eddystone, maybe it is used as an emergency reserve receiver, for use when all else fails ?

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- An A.T.U. -

- I have always advocated the use of and the benefits of an A.T.U when using any receiver, or transmitter. They are one of the simplest items to build as a DIY job. Looking at the photo on page 51 of the SWM for February I see that a build yourself kit for the one illustrated costs £44 plus p & p.

- The items needed, two rotary switches, a tuning condenser, a coil, knobs and terminals cost far less than the asked price. All are available from maplins or Electromail, the case can be home made preferably metal. A trip to one of the rallies will get you the bits needed for about a tenner and the work need not take more than one evening. Come on somebody try it, and then tell EUG about your DIY ATU.

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- Chasing N.D.Bs. -

- Since the re-organisation of the Maritime NDB band there are changes which both help and sometimes hinder the avid NDB chaser.

- You now do need a receiver with a BFO since they are now all supposed to be CW beacons, unlike the Aero beacons which remain MCW. You will also discover that there are up to 5 beacon transmissions on each frequency, they operate on a time multiplex basis. Whereas in the past it was arranged that those on one frequency would be spaced well apart geographically, you will now find that they are grouped closely together within a small area.

- It is still possible to do a lot of Beacon Dx-ing, from the UK, with a good outside longwire aerial, a decent receiver, and some patience it is usually possible to hear beacons from a number of European countries, plus most of the UK. NDBs in Norway, Iceland, Holland, Belgium, France & Spain are there if you choose the right time for your listening. I have heard that at Cape Spartel on the northern tip of Africa many times. Beacons in Norway and Iceland quite often come in better than those across the channel. Those in Ireland are easily audible in daylight, whereas the evening or early morning are best for those beacons in Europe. A direct sea path is sure to give better signal strength than one overland.

- Receivers ? well believe me the best of all is the Eddystone 850, either the /2 or the /4. This set which covers 10Kc/s (yes Kc/s !) to 700 Kc/s only is ideal for NDB chasing and will easily outperform those modern black box sets which are all noise at the low frequencies that NDBs use. Used with a good outside aerial the 850 should pull-in any beacons that are there, do use a good low resistance earth in conjunction with your aerial, the difference is quite marked at LF. If you do not have an 850, and they are a bit rare, then any model covering the 290 to 350 Kc/s range will do, a good list of the call letters of the more easily heard NDBs, giving location and frequency will help.

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- Tuning SSB with your Eddystone. -

- I do KNOW that I have mentioned this previously, yet several new members have mentioned the difficulties of tuning SSB on the older valve models.

- These older sets were designed and built before SSB became the preferred comms; mode for speech on the HF bands. Result is that they do not have an SSB detector, they use an envelope detector which is usually a simple diode $\frac{1}{2}$ wave detector. SSB really requires a product detector, so if you do not want to mod your Eddystone by fitting a mini, built-in product detector what can you do ? Make use of what you have ! You CAN receive SSB quite well if you know how to set the controls. First thing is to locate a good

strong fairly continuous SSB signal, one of the Volmet stations will do for this, there are a number of them in the 5 - 6 Mc/s band. Tune the set for maximum audio signal, with the BFO off. Turn the AF gain almost full up & regulate your signal strength to a suitable level with your RF gain. The AVC should be off if it has an AVC off. Where the BFO and AVC share a single switch, no matter as it will go off when the BFO is turned on. Once you have your signal tuned for maximum AF output, unintelligible though it will be, turn on the BFO and now tune the BFO for zero beat where the signal will now become intelligible, just like magic !

- On some models, i.e. the 840 series, the BFO range is too much to enable easy resolution of the SSB signals. I have always advocated taking one plate off the VC used to tune the BFO, thus reducing the capacity swing but those who do not want to damage their set can simply put a 15 pF ceramic condenser in series with the VC.

- Most valve models DO need time to achieve thermal stability, so that drift is minimised, otherwise you will be following the SSB signal all over the band. I would leave a good $\frac{1}{2}$ hour for most of the sets to settle down before attempting to listen to SSB signals.

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- Members FREE Adverts.-

- Good to hear from several more EUG members that they have been successful with their Ads in the Newsletter. One recent letter mentioned 7 replies to an ad in the last issue. Dave in Cumbria says that although he is not yet a member he was alerted to an ad by his cousin, who is a member. He rang up immediately, got in the car, travelled 70 plus miles and bought himself an Eddystone. Hope this means we get a new member ?

- Seriously though, anybody member or not can offer for sale Eddystone products, members can advertise for sale, wanted, or swop of any radio gear Eddystone or otherwise. And it is FREE ! Not many things are free these days so take advantage of this offer.

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- Warning ! -

- Just a comment from one member, re the fragile nature of those all glass miniature valves. Age and the 'heat treatment' which they have to endure in normal service does make these valves very sensitive to any kind of physical stress. Those with the pip on the side, i.e. the UAF42 types, are usually held in their bases by a spring clip on the base. If undue force is used when the valve is removed the pip will break, the vacuum will be broken and the valve U/S. The power valves, output and rectifier are particularly prone to such damage, they are also the most expensive ones.

- With the older octal types the effects of heat and age act differently. One effect is for the adhesive which holds the glass 'bottle' into its ebonite base to weaken and no longer adhere to the glass. Any further force will damage the wires leading from the pins to the glass seal. It is possible to re-fix the two parts together using some epoxy adhesive. In the case of those with a metallic coating, for screening purposes, the coating begins to flake away, leaving the unscreened, bare, glass. This can cause instability in the receiver circuits. If the pieces of metallic coating are big enough they can be re-glued back in place, if not then an aerosol can of metallic screen paint can be used to re-cover the glass. Often the earthing contact between the screened coating and the pin on the base, usually pin 1, will break. This again causes instability. In this case it is often possible to solder a fine wire to the wire sticking from the base. The new wire should then be wound tightly around the screen coating near the top of the base, and soldered in place.

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- Valves for the 770S Receiver. -

- Jim Murphy has been pricing replacement valves for this set and finds that one of them, I suspect either the A2521 (CV2453) or the DET22 (CV273), costs around £40 ! Yes Forty pounds. I had no idea that this was so and cannot find prices for either of these in current valve adverts.

- Question, does anybody know a source for either the A2521 or the DET22, and the current prices for them ? Alternatively does anybody know of any possible equivalents ? Jim does have a 770S receiver in good working order and is waiting for a suitable aerial to use with it.

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- Valves Again ! -

- Andy has bought himself a nice looking 640 receiver, at a bargain price of £20. Externally it looks lovely, internally though he finds that all of the octal valves have been removed, valves bases too. B7G and B9G bases have been fitted and all miniature valves substituted for the octals. The

problem now is that there is considerable instability on all bands, with the RF gain full up tuning in any signal causes a high pitched whistle on top of the signal, (RF instability). With the AF gain full up the audio sounds 'limited' - with the noise level becoming quite intrusive. It looks as though some attempts had been made to cure these symptoms as a number of resistors have been changed in value. Andy has decided to make the 640 a long term restoration project, since cash is tight (he is one of the millions of unemployed !) it is a case of saving up and buying the bits as and when he can find them. A start has been made with the purchase of some suitable octal valve sockets, he has listed the resistors needed and will be after them at the next rally. He finds the inflated prices of such items at places like Tandy or Maplin to be several times more than Rally prices. More when he gets the job done, thanks Andy.

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- Replacement of Valve Rectifiers by Silicon Diodes. -

- Don Bushe has mentioned to me that it is not simply a case of connecting a silicon diode across the anode - kathode pins of the valve base, and then leaving out the valve. Too true there Don, best thing is to take a look at one of the valve type sets that do use diodes in the HT rectifier circuit, try the circuit diagram of the EA12.

- Here you have a conventional HT secondary winding, centre tapped for a full-wave rectifier circuit. Each 'outer' of the secondary goes to a 140 ohms wirewound resistor (6 watt rating). This resistor then goes to the silicon diode, the positive outputs of the two diodes are connected together and go to the smoothing circuitry. These resistors serve basically to cushion the applied voltage. In many more modern power supplies there would also be a small value, high voltage , condenser wired across the diode.

- So you can do away with that expensive, uneconomical, power consuming valve. It can be replaced with very inexpensive diodes (try 1N4007s), but do please include a series resistor, and possibly a parallel condenser. You will find the heat build up in your set will be considerably less, the transfo will run cooler since there is no heater to consume current. You could even extend the life of the transfo in this way.

- I make one proviso here, if the electrolytics are at all suspect then it may be best to replace them NOW. They are used to a gradual build up in HT, they will now have to support a higher than normal HT whilst the heaters of the other valves are warming up.

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- The Redifon Model R 145. -

- From one member of EUG we get the information that he had his memory jolted by the sight of an Eddystone model 1002 on the front of Issue 25.

Checking up on the other variants of the 1000 series he came across a picture of the 1004. This bears a remarkable resemblance to the Redifon model R 145 that he had used at his place of work, some years ago.

I have queried this myself with a former Eddystone member and he can confirm that he owned a Redifon badged version of the 1004.

From info at EUG it would seem that this model - the 1004 - was also sold as the MIMCO Sentinel, the Hagenuk E92, and as an ITT model the number/type of which we are not yet aware.

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- The EY11 Receiver. -

- Queries from Dave Woods as to the info available on this model, the unhappy fact is that neither EUG nor present Eddystone Radio management can come up with much on this set. It WAS a transistorised set for the Yachtsman, it probably covered the usual marine bands plus Medium and Long wave broadcast bands. It may have been a variant of the EC10/EB35 models - and that is all we can come up with.

- It really does seem strange that no information is now available on either this or the previous Yachtsman, the 720. Come on, somebody out there MUST know more about them ???

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- The Scientific Portable Three. -

- Info on this model has been provided recently to EUG, thanks Bill. It would seem that this was out as early as 1930, it was a suitcase type receiver, much used for summer picnics by Bill's family. Dimensions were $15\frac{1}{4} \times 15\frac{1}{4} \times 10$ inches, a wooden case and all up weight with HT battery & accumulator was some 34 pounds. It had an internal Celestion loudspeaker and ran from a 2 volt Exide accu; with a 'Triple capacity' 120 volt HT battery. Despite the word 'Scientific' in the model name the controls were limited to an ON/OFF switch, volume, reaction and main tuning. The circuit was that of a TRF with HF amplifier, detector, and LF amplifier. A screened grid was used in the front end, followed by the triode detector and a pentode LF and output stage. This info should satisfy a number of members who have, in the past, asked for more data on the Sci-3.

- MIMCO Type 6689.-

- Several of these have come on the market recently, if they look like an EC10 it is no coincidence !

The 6689 is a MIMCO badged version of the standard EC10 Mark II, and not the EC10/2 as one member suggested. It has the normal Mark II additions such as the Fine tune control and the standby facility. Prices for those I have heard about were £50 per unit, pretty good buy that.

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- 'Phones for use with Older Eddystones.-

- Several recent letters have dealt with the fact that the phone sockets on the older sets will not accept the 3 way stereo phone plugs as fitted to all the modern headphones, as sold for Hi-Fi use. In fact what happens is that only one earphone actually works. If the plug is of the moulded on type there is not much to be done with it, except chop it off, buy a mono plug from Tandy or a similar outlet, and fit that.

- If, as many do, the plug can be opened, then you can re-wire it to operate in the mono socket, using tip and sleeve, leaving the ring connector dis;

- Another alternative, should you not wish to modify the 'phones, is to make up an adaptor unit, this means buying/obtaining a stereo socket and a mono plug, wiring them together with a short lead when it will simply be a plug-in matter for either your Eddystone or your Hi-Fi.

- The wide-range reproduction, supposedly so, of these phones, coupled with the low impedance will not provide you with the necessary 'communications quality' that you need for good listening on a comms; receiver. In effect you need a restricted audio bandwidth for comms; work. One way of getting this at minimal cost is to fit a disc of cardboard, thinnish stuff will do, into the earpad of the phones. A hole pierced in the centre of the disc will limit the range of audio passed on to your ears, experiment with the size of hole to suit you. A smaller hole gives minimum AF pass and a larger hole more AF range.

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- EB35 and EB37 Models. -

- The EB37 was a later version of the EB35/EC10 series, however both it and the EB36 do not have a VHF/FM band. Since these last two came out after the EB35, EB35II and EB35III, when VHF/FM had already become an accepted fact of life I have often wondered at the reason for omitting the FM facility.

- Jim Elman tells me that from a comparison of the two models (35 & 37) on the bench, there is a definite improvement on broadcast reception on the MW broadcast band on the EB37. Selectivity is improved, possibly, he says, due to the lack of complicated switching and wiring that was needed on the EB35s. He had checked and corrected alignment of both sets before the sets were put on the test, selectivity of the EB37 was definitely up without being such as to cause 'top-cutting'. With today's mass of local and national stations, plus the evening intrusion of all those foreign signals, the EB37 wins easily over the EB35. Just a pity that so few of the EB36 and 37 come on the market. I haven't seen one for years.

- Digital Meters, a NO NO. -

- Unless you are prepared to take into account the differences in readings that these meters provide, vis a vis the older analogue type, then do not use one to service your valve type receiver.

- Numerous letters recently have commented upon the fact that the readings obtained with a modern digital type meter bear no resemblance to the readings that are listed in the Eddystone manuals.

- A case in point, this member had a 940 which was ailing, he bought the manual and schematic, spent some £40 on a meter, and then tried to check out the voltage values as listed in the table, hoping to eliminate parts of the 940 circuit and isolate the actual faulty stage. His letter tells of the wide disparity of readings obtained, especially so in the audio driver circuit where the anode volts came out at about 25% high. This stage is a voltage amplifier circuit hence it has a high impedance. When using the analogue meter the lower impedance of the meter 'drags' the volts down a bit from its usual working level, this 'dragged down' voltage is what is printed in the table. What YOU would read with your Avo ! The digital meters with their inherently high input impedance will give a more accurate 'working' level voltage which will be higher than the stated value. In this case it involved the cost of buying a replacement valve (12AU7) and a 25mF electrolytic, which were eventually found to be blameless. The fault was found to be in a piece of screened lead in the AF gain control circuit.

- Mobile with an Eddystone. -

- When it was decided to take the EC10/2A away on holiday last year, Tony wondered about using it whilst travelling up to Scotland. The car is a much loved and well kept Sunbeam Rapier of 1960 vintage, not many mod-cons as he puts it. Several tests were made both stationary and mobile, the ignition interference was quite easily cleared with series resistors and a shunt condenser across the LT circuit. Not so easy was the whine from the old DC type dynamo as fitted in those early cars. Having tried shunt condensers and a series choke of VERY thick wire, with little improvement, Tony decided to check on the 'run' of the wiring for both the dynamo/charge circuit and for his EC10.

- The EC10 had simply been connected up to an 'accessory' supply under the dash on his Rapier. This went via the fuse box in the engine compartment to the battery, it was part of the original wiring loom and was bundled up with all the other under-dash cables.

- A screened can 'brute-force' choke was attached to the rear of the EC10 using the case fastening screw, this was taken via a length of screened cable rated at 15 amp, ex an industrial type fan, directly to the battery lug. The result was a complete cessation of the dynamo whine, the battery acting as a very large capacity condenser. At no point was the case of the EC10 in contact with the car bodywork, the antenna was fed via co-ax and consisted of a 5/8 2 metre whip on the roof.

- Whilst running mobile on the trip up North it was possible to listen to various Volmet signals on SSB in comfort, plenty of audio. On several occasions the Edinburgh Rescue signals could be heard plainly - so long as the windows were kept closed !!!

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- Aerials for the older Eddystones. -

- A recent comment by one member, (this means YOU Jim Murphy !) that a signal on his 840C was very much weaker than on his 740, when using the same aerial, well this set me to thinking. A bad thing to do sometimes for it does make you realise that you have in reality known the answer all along.

- Read the manual/handbook for YOUR receiver is what I always tell members, fair enough but I have read and re-read all the manuals and handbooks time after time, and still had to think about why Jim was getting weaker signals on his 840C than he was on his 740. Pretty simple really, the 740 has a 'high impedance' aerial input circa 400 ohms whilst the 840C has a low impedance input of circa 75 ohms. The aerial used by Jim is a random wire, certainly not anywhere near to a resonant length at the frequency he uses, this will have a pretty high impedance - voltage fed - which will more nearly match the 740

then it will be the 840C. Paradoxically if Jim puts up the loop aerial that he is talking about this may give him better signals on his 840C than on his 740. All depends on the length of side of the loop and the frequency in use of course ! There is an answer, a good ATU which can match both input from aerial and output to the set, this would need to be a Pi type coupler not just the inverted L type.

- I note that the older 840 has a 400 ohm input too, just that when the 'C' version came out the craze was for low-Z inputs.

- Moral must be to check what the manual says. (I forgot !).

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 - American Forces Radio on VHF.-

- This was heard recently down on the Suffolk coast area by an EUG member, he had been using the EB35 II on batteries from a caravan location and had used one of those omni-directional 'halo' VHF/FM aerials which had a built in pre-amp; circuit.

- The scale of the EB35 II indicated approximately 102 Mc/s and the signal started off by being a bit 'wavery' but firmed up to a good listening level for more than an hour around midday. The nature of the aerial prevented him from doing any basic DF checks but Ian does say that there was nothing at all audible when he connected the little Sony trannie. Please can anybody help Ian to identify the outlet location as he would like to be able to obtain a letter of verification from AFN.

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 - AF and RF pot; replacements.-

- Several members have commented that they purchased replacement $\frac{1}{2}$ Meg pots at the Norbreck Rally, the vendor claimed that they were suitable for replacing old AF volume pots in such as Eddystones. THEY ARE NOT ! It seems that they are linear track types in lieu of the required logarithmic law types that are specified for Eddystone sets. They will work, after a fashion, but you will find control of the level to be quite at variance with what you had previously. The correct pots have recently been available from Birketts so I am told by Don Bushe.

- HISTORY FACT -

- In 1928, at the Radio Olympia Show the Eddystone S.G/H.F Short Wave Kit model cost a massive (for those days), £8-10-0d. For a 2 valve kit set this was more than a months wages for many people, it did not mention in the advert that you would need almost another equal sum for the HT and Lt battery and accumulator, the phones, the aerial etc; Ours was never an inexpensive hobby !

- VALVE TYPES USED IN ORIGINAL MOD MODELS -

- Several letters from members have recently commented on the valve type numbers as fitted in their ex MoD Eddystone models.

- In each case it has been ascertained that the sets still used the 'CV' type valves, as fitted when new. In one model 730/4 the type CV4009 valves are equivalents for the 'civvy' type, you can find valves made by various manufacturers such as Brimar, Mullard, which replace the CV valves. The recommended civvy types will be those which are stated in the handbook/manual for your model. (try the 6BA6 or a CV454 !).

- That Front-end valve for the 770S -

- The valve type A2521, CV2453 which goes in the V1 and V2 position of this model have been difficult to obtain, and pricey when they can be found. There is a civvy equivalent type to this, the 6CR4, it is a B9A base UHF triode. Can anybody find a supplier for this latter type ? One member has mentioned a quote of some £40 per valve, for the A2521, this seems to be way out of line and I am sure that a source for 6CR4 types must exist somewhere, come on help out another member,

- Incorrect, but Original, Wiring ? -

- Another point from the letter (epistle ?) received from Graeme Wormald, G3 GGL, is that whilst looking for a fault on a 730/4 that he had bought, he came upon an incorrectly wired, or fitted, Noise Limiter switch. The switch operated in the opposite way to the legend on the front panel (down = off, up = on). From the appearance of the wiring, the length of wire available to the switch, there could be no doubt that it had been wired into the set in this manner. Maybe we ought to call him Sherlock Wormald now ? In the same set he discovered the reason for incorrect zero-ing of the S meter, again an apparently original, wrong value R61. 20K in place of 27K.

TUNABLE ACTIVE AERIAL

ANOTHER WEAPON IN THE EDDYSTONE USERS' ARMOURY

Have you ever seen a device so simple that you think it's not worth bothering about? Well here's one that's so *KISS** you'll wonder why you never had one years ago.

Wideband active aerials have had a bad press for three perfectly valid reasons. One, they're expensive to buy; two, they're complicated to make; three, they cause birdies and spuriousities from strong signals. So what's the answer? Make it tunable, that's what! OK, I can hear the groans already. "I haven't got enough hands to cope with the matching unit, the set tuning, and now active aerial tuning!" Forget the matching tuning, you don't need it. This machine will go straight into 400 ohms or 75 ohms without turning a hair

It was the culmination of a search for the best aerial for medium-wave DXing with my 680X. (And it can be used for HF as well.) I live ten miles from Droitwich with four MF/LF transmitters powering up to 500kW. My 275ft end fed can pull *4 volts* peak to peak from them. A decent preselector can have up to three controls. All too much. A giant tuned loop was constructed from a hula-hoop and multicore cable. It worked very well but it was suspended on a swivel from the shack ceiling. Turning it to null-out strong stations meant crouching in a corner. It had to shrink, but so did the DX, which wasn't all that strong to start with.

This was the answer:- A ferrite rod aerial with a mosfet amplifier and a bipolar impedance matcher. An aerial is salvaged from an old AM radio. All windings are removed except the medium-wave coil. A rotating unit is then constructed from plastic overflow pipe and a standard jack plug. It's easier to make than to describe, look at the picture. Plugged into a jack socket mounted vertically it rotates easily.

The unit uses a tuning condenser of about 500pf. This may be an old junk-box item, a miniature air-spaced twin-gang from a 'sixties set, or a midget solid dielectric. Each half is usually about 250pf so connect them in parallel. A 40673 (or similar) mosfet is a low noise, high impedance amplifier. Both gates are strapped and the source earthed. High impedance output from the drain is

directly coupled to the base of a bipolar emitter-follower (BC109 or similar), giving high-to-low impedance with unity gain. The device is a lot simpler than the description. Just look at it; a tuned circuit, two transistors, two resistances and two condensers, there's nothing to it and it works every time!

It can be constructed 'ugly' style on a couple of stand-offs, or on a piece of five by six *Veroboard* (make it ten by ten if you've big fingers!), or a little etched board if you're into that sort of thing.

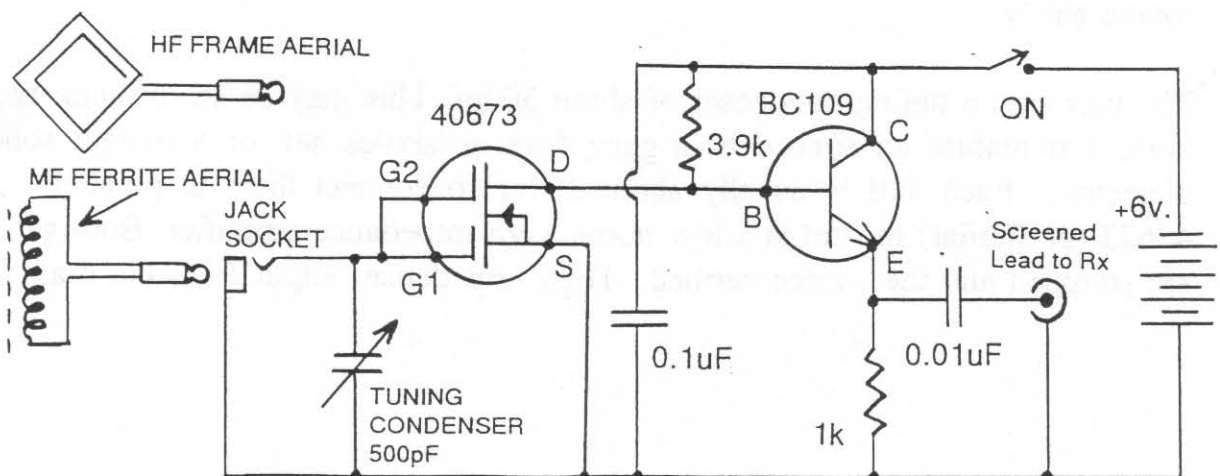
For HF use a mini frame aerial, about six inches square, with a few turns (one to ten) wound in slots in the corners of a plastic or thin plywood sheet. It's effective up to about 20 Megs. You could use one with a dozen or two turns instead of a ferrite rod for MW. For LF beacon-hunting wind some extra turns on a ferrite or fifty or so on a mini-frame. Plenty of room for enjoyable experiment here.

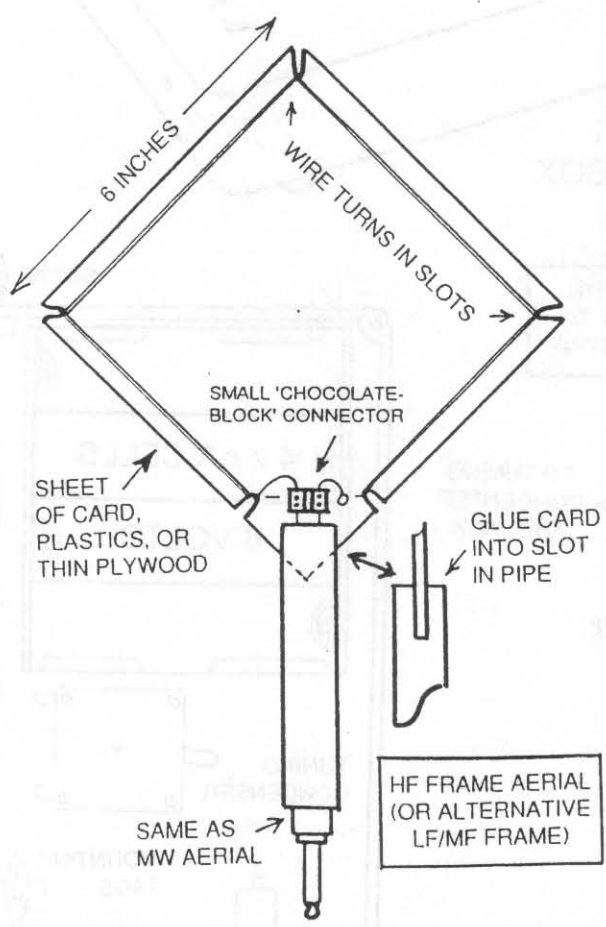
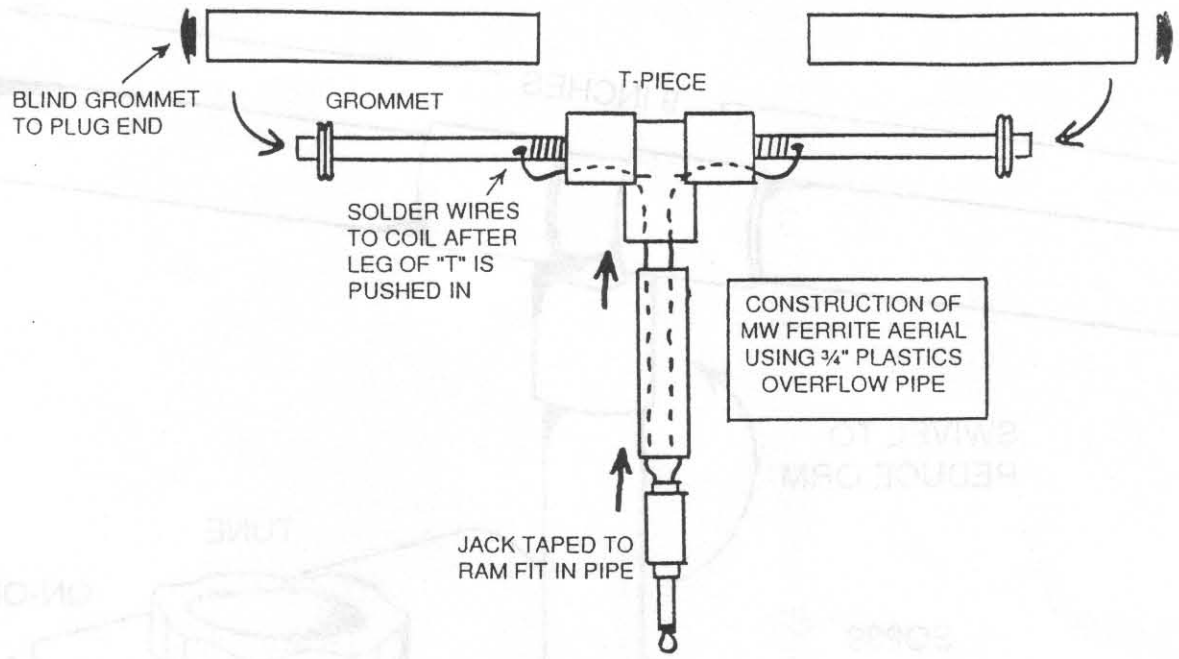
The current consumption is about 4mA, which means it's easy to run on dry cells and the whole lot can be fitted into an Eddystone die-cast box. The tuning condenser should have a fairly large knob on it, say 2 inches, for easy operation. It doesn't need a scale as long as you can remember which way is HF and which way is LF. (The air-spaced ones usually open to the left and the midget ones *vice versa*.) It takes a few minutes to learn to drive it; an S-meter makes it easier. Beware of tuning to a strong station off the desired frequency. The knack soon comes.

This little wonder has to be heard to be believed. OK, sometimes you'll get better results from your 50 foot vertical, sometimes you'll do better with your rhombic, but by golly, it'll lick the pants off most lesser things and it's the flat-dweller's salvation. . .

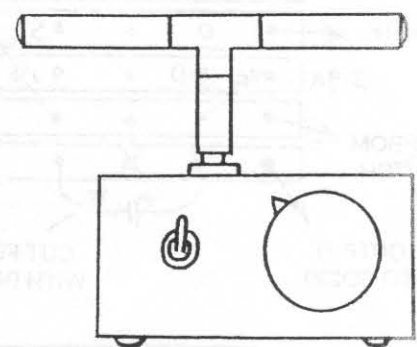
GRAEME G3GGL

*KISS = *Keep It Simple, Stupid!*



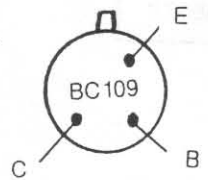
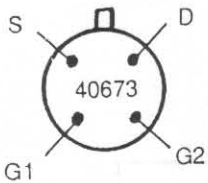
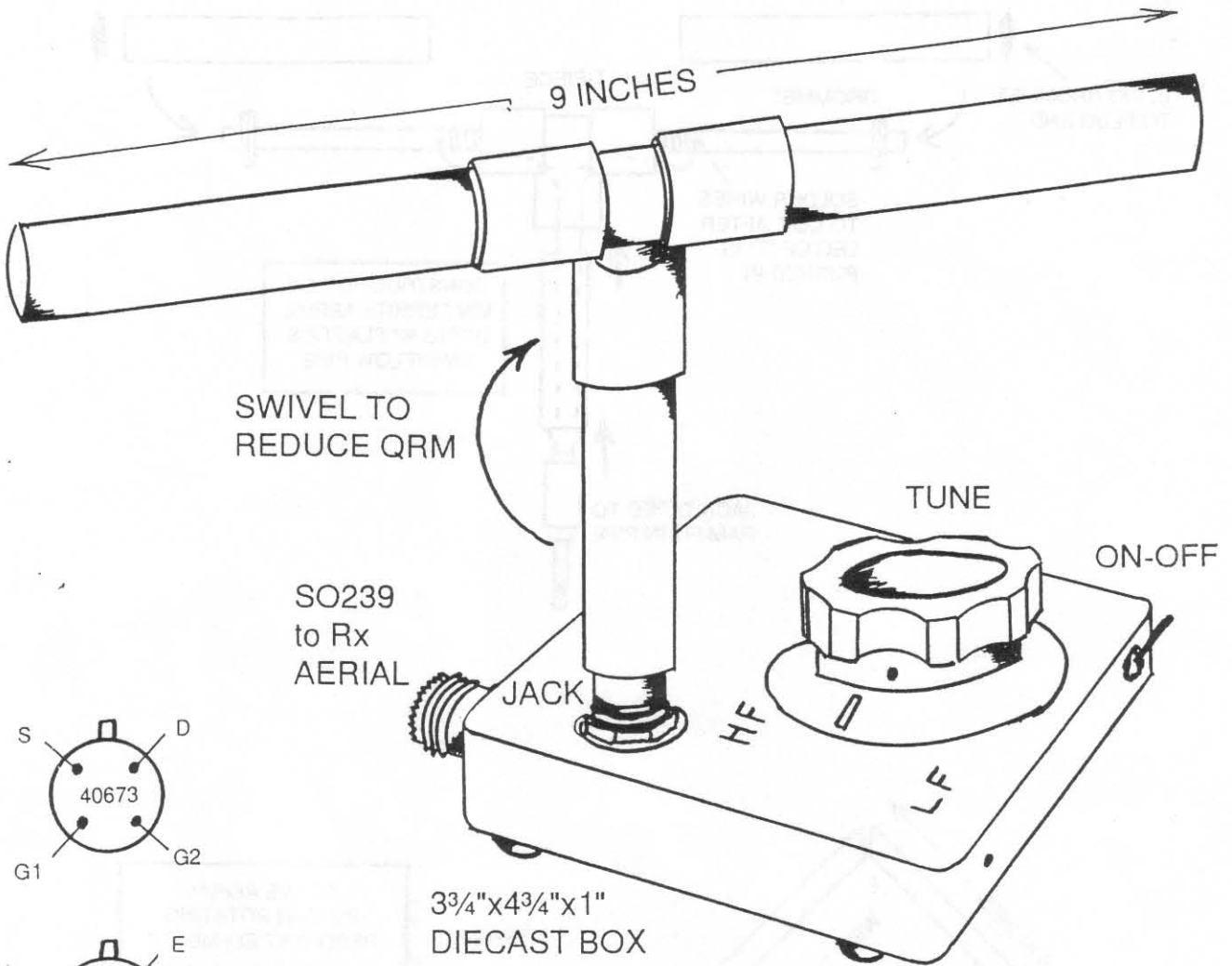


ACTIVE AERIAL PLUG-IN ROTATING RESONANT ELEMENTS

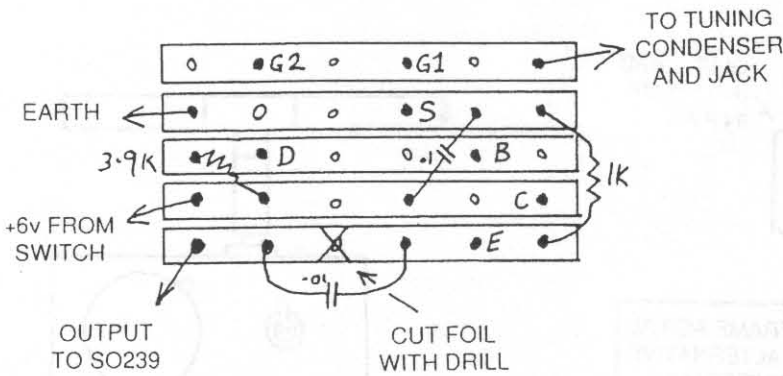


ALTERNATIVE PRESENTATION FOR LARGER TUNING CONDENSER AND/OR BATTERY

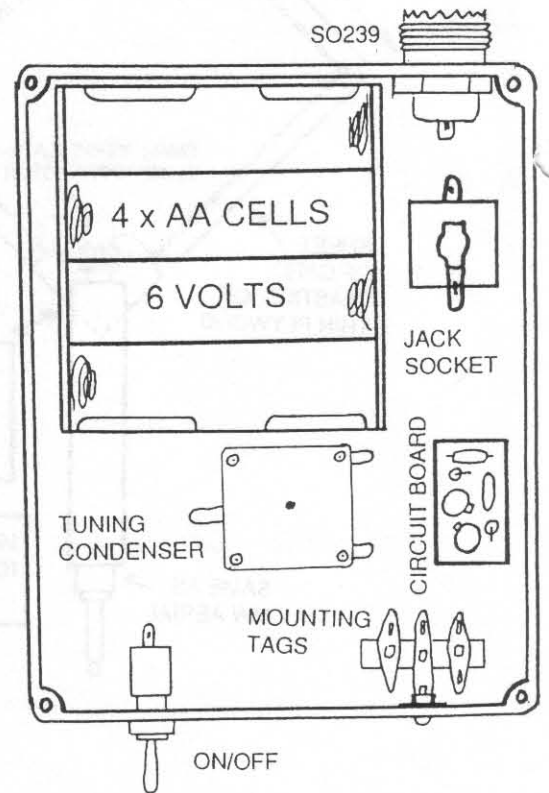
ACTIVE NARROW-BAND LOOP AERIAL



SPRAY THE CASE WITH CAR AEROSOL PAINT TO MATCH YOUR EDDYSTONE



SUGGESTED LAYOUT ON VEROBOARD, FROM FOIL SIDE. COMPONENTS ON OTHER SIDE



- Diversity Reception. -

- A number of letters have brought up the subject of diversity reception, as a result I believe, of mention in a recent magazine article.
 - Diversity reception can be either Frequency Diversity (where transmitters on different frequencies send out the same signal, received on separate receivers and the signal is then combined.). Alternatively Space diversity can be used, (here one transmitted signal is received on several receivers fed by separate aerials located at different sites.).
 - Whichever method is used the receivers are coupled at the AVC level so that the strongest signal will be fed to line for use. Signals will be variably affected by fading, this will not be the same even for 2 closely related frequencies, nor will the fading be the same at 2 or more different receiving sites, thus the receiver system coupled at AVC level will at all times select that signal least affected by fading. Several models of the Eddystone sets that we have do have the AVC brought out to a rear socket so that they may be used on diversity systems. If you have 2 880 receivers you can yourself set up a double diversity receiving system.
- - - - -

- Members Subscription Form for Year 1995 -96. -

- Membership Number (if known),- _____
 - Name (callsign, if any),- _____
 - Address, - _____
 - Post Code,- _____
 - Subs enclosed, UK - £ _____ . O/seas - £ _____ . (IN Sterling).
 - Method of Payment, - Money Order, Cheque, Cash. (Cheques payable to EUG or Eddystone User Group please).
 - Any additional sum for Manuals etc; ? - _____
 - PLEASE SEND ALL SUBS AND PAYMENT FOR MANUALS ETC TO EUG c/o Eddystone Radio Ltd. Alvechurch Rd; West Heath, Birmingham, B31 3PP.
 - No Telephone calls please ! Eddystone Radio cannot accept calls for EUG, all communications by mail.
- - - - -

- Notes for NDB Chasers. -

- Andy tells us that when he began his present NDB Dx-ing using his 'bog-standard' 850/4 receiver his set-up was simply the 850 plus a long piece of insulated wire hanging out of the bedroom window, lead-in plus outside wire totalled about 25 foot.

- With this set-up and a copy of the NDB table as published in the SWM he was quite disappointed to hear just 6 Beacons, 4 of which were marine type and 2 of which were later ascertained to be aviation beacons.

- As a result of some correspondence with EUG a number of changes were made to the set-up in use. The first one was that a much longer length of aerial wire, some 150 feet in all, was obtained. One end of this was fastened to the highest branches of a tree at the very bottom end of the garden. The other end came to be fastened via some nylon line to the top of a plastic drain pipe near to the plastic guttering. The end was led in through a hole in the window frame to the receiver. An ATU was made up using far more turns than specified for normal HF/MF types, a compromise was arrived at where it covered from 170 to 500 Kc/s. The 850 was trimmed for maximum gain at the top end of range 2 and the LF end of range 3. Andy can now hear some 30 - 40 NDBs on any evening ! Moral is to experiment !

SUBS - SUBS - SUBS - Please see the other side of this sheet for the subs renewal form. The subs year goes from the May/June Issue of the Newsletter no matter when you joined. (you will have received issues back to the start of the year in which you did join EUG.

PLEASE HELP EDDYSTONE TO ADMINISTER EUG BY RENEWING YOUR SUBS ON TIME. AND DO SEND REMITTANCES TO EUG c/o EDDYSTONE RADIO.

Thanks,

Ted.

Eddystone User Group

"The First Five Years Of EUG"



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Tracy Murphy

- End it -

- Another issue, a very special Fifth Birthday one for EUG. Hope that members everywhere enjoy the contents. Remember that YOU can help compile YOUR newsletter, send anything for insertion to Ted Moore c/o EUG at Eddystone Radio.

- Do PLEASE take note of the Subs; Renewal Form in this issue, prompt renewal will help Eddystone to administer the Group for us all.

- Any Members Ads should get to me before the end of June for insertion in the next issue, the earlier the better.

73,

Ted.

10	980	1	1000
11	1304	2	1000
12	Kilobits	3	1000
13	All World	4	1000
14	200 All PM	5	1000
15	200	6	1000
16	B.C.R.	7	1000
17	1000	8	1000
18	1000	9	1000
19	1000	10	1000
20	1000	11	1000
21	1000	12	1000
22	All World Two	13	1000
23	The 450 Receiver	14	1000
24	Model B.R.A.	15	1000

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