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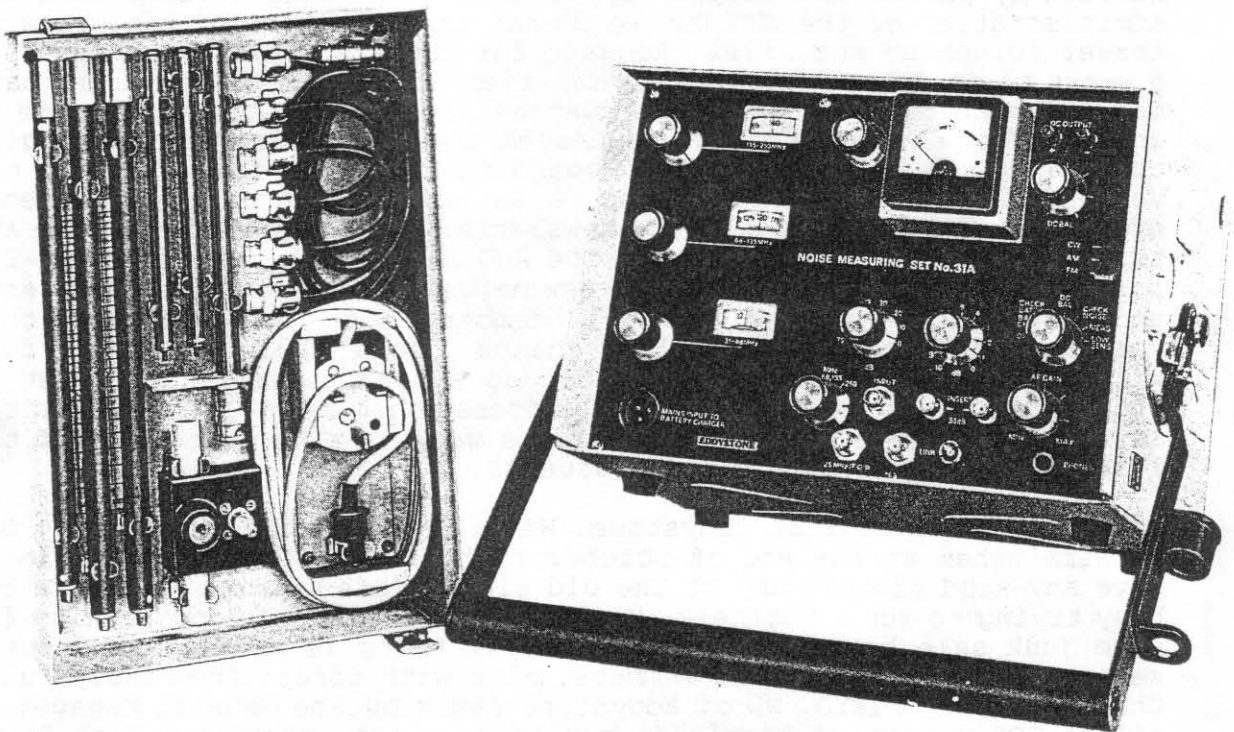
Eddystone User Group Newsletter

Issue No: 32

August 1995



Featured Model: Noise Measuring Set No 31A



*A non profit newsletter for Eddystone Users

*Information quoted from Eddystone Literature by kind permission of
Chris Pettitt, GOEYO, 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, Conditions, Collect or Deliver and last but not least your contact details - name, phone number preferably or address.

This is issue 32 of the newsletter and is the second of six issues for the year 1995/96. If you join after this issue you will get the back issues to and including no 31. Your subscription will end with issue no 36. Subscriptions are £10 per year UK and £11 per year overseas. Metals EUG badges are available at £2 each. Any remittances for subscriptions, badges or manuals must be by cheque or money order and in sterling. We cannot cope with foreign currency as the bank charges for conversion are more than the value of the subscription. Make your cheques payable to **Eddystone User Group**.

Copies of manuals and circuits are available for most Eddystone receivers through the EUG with discounts for EUG members. Manuals cost between £3 and £10 depending on size, and whether original or a copy. Most manuals are now copies. Back copies of all newsletters are available at £2 each post paid.

All correspondence for the EUG should be addressed to Ted Moore, Eddystone User Group, c/o Eddystone Radio Limited, Alvechurch Road, Birmingham B31 3PP. PLEASE do remember that we cannot answer you queries by phone. The company is pleased to be able to help with the administration of the EUG but we do not have the time or resources to answer telephone enquiries. Request for manuals will take about 4 to 6 weeks to deal with provided we can identify the requirement and have the information. Any technical queries are sent on to Ted for him to answer. Where information is requested that requires a bit of digging then this can take some time depending upon the free time of the volunteers. Very few members cause us administrators any problems, everyone seems pleased with the newsletter and the service we give and this is very encouraging to us. The EUG Newsletter print run was 275 for this issue and we have had 13 new members join since the last issue and only one resignation. Only 17 members have failed to renew this year and this will be their last chance. Issue 30 had a renewal form within the newsletter and issue 31 had a separate reminder sheet to those who had not renewed. If your address label shows "renewal" in the last line then please renew, otherwise we will take your name off the list and you will not receive issue 33.

Change is in the air at Eddystone. We will be relocating to Selly Oak in Birmingham at the end of October 1995. I doubt we will be able to have any kind of open day at the old site before we move as we are too busy trying to run a business. However there may be the opportunity for some junk sale between now and then. If there is we will send out a separate letter to all EUG members. Also with effect from early July, Chris Pettitt, GOEYO, MD of Eddystone Radio became General Manager of all of GEC Marconi's Broadcast business, which encompass High Power Short Wave Transmitters, Broadcast and Communication Antennas, Eddystone Radio Digital and FM Broadcast Transmitters and Communications Receivers and Transceivers and a company in the USA which is the sales and project management office for our sales to the Voice of America. As a consequence Chris is spending more than half of his working week in Chelmsford. Dale Harvey has been appointed General Manager at Eddystone responsible for the day to day operation of the business. Chris will still maintain his volunteer role in the EUG, but it may result in some queries taking a little longer to answer.

- Issue 32. -

- Not so long since the last issue was in your hands, please be patient when there is a delay in your receiving the latest Newsletter. In the case of issue 31 the delay was simply that Chris and the volunteers were overwhelmed by the sudden influx of subscriptions, at the start of Year 6.

- The featured receiver this issue is the Model 31, this was a Noise Measuring Receiver originally designed for the then GPO Interference Department, the only major mod throughout its production period was the insertion of a small built-in speaker on the front panel, plus the associated solid state AF amplifier.

- I correspond with many radio enthusiasts throughout the world, not all are members of EUG but all are interested in the older 'hollow-state' - valve type - receivers. There is one theme recurrent in all of the mail, the matter of spares, especially valves, for these sets. We in the UK are quite fortunate in that there are still a number of sources for valves and even for the high voltage resistors and condensers. Other enthusiasts are not so lucky, imagine living in Papua, or Sudan, and needing spares. The cost of postage and packing to these distant parts can be more than the cost of the component, even if you can locate a source.

- The one big problem that does face EUGers is specific Eddystone parts, coils, transfos, scale plates and scale glasses. Apart the chance finding at one of the major rallies your only hope at present is Centre Electronics in Birmingham, or an ad in this Newsletter hoping that another EUGer will be able to help out.

- I have been told of a rumoured stock of 'wound' type Eddystone parts, i.e., IF transfos, RF coils etc; somewhere in the London area. From several correspondents I have been told that there is a chap who has a fair number of these items and is willing to sell them. There is a problem - naturally enough - nobody knows his name or address. The only tip being that he was met at the last Leicester rally and spoken to by several persons. CAN YOU HELP ??? If there is any member reading this who can put EUG in touch with him, please let us know and we can publish his address, maybe even a list of what he has.

- At a time when the VJ day celebrations are with us I have included a photocopy of the 'thank-you' letter that was sent to Eddystone at the end of World War II, by the Co-ordinator of Radio Production for the War Dep't.

- Next Year is the 300th anniversary of the building of the first lighthouse on the Eddystone Reef, do any members have any good photos, or even good photocopies of any connection between Strattons/Eddystone and the lighthouse? They will be included in the next Xmas Supplement. I know that there are photos of the then lighthousekeeper accepting a new EC10 from the Eddystone Managing Director, Arthur Edwards, G6XJ. Could be that there are others. If you know of any please write to me and I can follow up your information.

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S O S * S O S * S O S

- Do you know of any 'mods' to improve gain or performance of the Model 930, (nine-thirty not forty). If so please can you communicate with me at EUG so that the info can be passed to a member, thanks.

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EDDYSTONE

Radio Products

Stratton & Co., Ltd., West Heath, Birmingham, makers of the well-known "EDDYSTONE" SHORT AND ULTRA SHORTWAVE RECEIVERS, TRANSMITTERS AND COMPONENTS have pleasure in announcing that they are now commencing to deliver components, and in the near future will be in production with a new Communications Receiver—the "504."

Priority is at present being given to Overseas orders, and the "556" Receiver (for Export only) is on the production lines. Limited supplies of components for the Home trade will be evenly distributed to accredited Registered Dealers throughout Great Britain and Eire.

In addition to the new model "504" Communications Receiver there will be a wide range of HF, VHF and UHF components and new editions of the popular "Eddystone" shortwave Manual and ultra shortwave Guide. Developments are in hand to cater for the needs of all branches of the shortwave field—the Listener, the "Amateur" Experimenter and the Specialist Expert—and we shall always be glad to co-operate with Manufacturers in producing parts for Set and Instrument construction. Watch the Technical Press for further announcements of "Eddystone" Radio Products. . . .



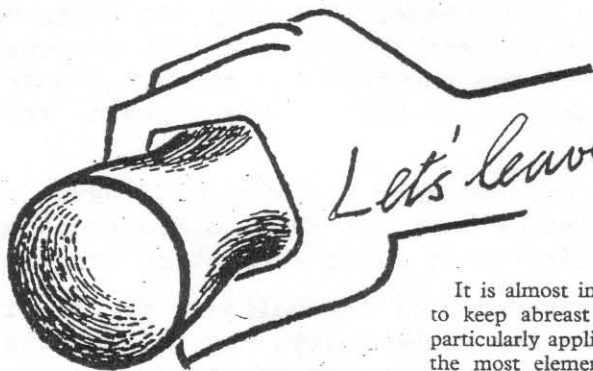
STRATTON & Co., Ltd.

Manufacturers of UHF, VHF & HF Radio Communication Equipment

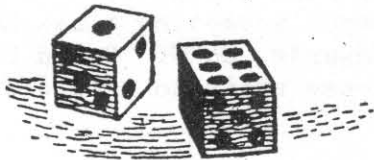
WEST HEATH, BIRMINGHAM, 31



EQUIPPING A LABORATORY . . . ?



Let's leave nothing to chance



It is almost impossible, in this changing age, for any single user to keep abreast of every development in instrumentation. This particularly applies to measuring apparatus, where, to order any but the most elementary requirements without reference to Marconi Instruments, is to hazard both man-hours and money. A preliminary discussion will often disclose a better way of making an essential test or a solution of your most troublesome problems. It will probably introduce you to new instruments, improved techniques and novel applications. It will ensure the planned efficiency of your laboratory in equipment, convenience and economy. Consult Marconi Instruments Ltd., from the start—there is nothing to lose and there may be much to gain.

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- Cleaning those Eddystone Fluted Knobs.-

- Mention from one of the DIY members of the above 'dirty job'. He tried a number of methods and says that by far the best is a dilute solution of household bleach and a toothbrush, soak the knob in the bleach and then brush vigorously with the toothbrush. BE WARNED however that the bleach will splash around. Wear either protective goggles, at least ordinary specs; and either wear an old sweater or an apron !

- Whilst on the subject of cleaning, the product 'T' cut as sold for car paint work restoration can be used to clean up the cases of Eddystone sets.

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- Removing the dial glass and scale for cleaning.-

- I know that this has featured in early newsletters but then some of the more recent members are still asking 'how can I get the glass and scale out to clean them ?'

- In the early 'slide rule' models, i.e. the 670A, 840A, 888 etc; it is a fairly simple matter - if you know how and have some patience.

- Here goes, take off the case by removing the four large screws at the four corners of the rear panel, pull off the case. It may be necessary to give an assist here by inserting the tip of a screwdriver in the slot provided at the bottom of the front panel where the case fits over the lip on the casting.

- Having removed the case look at the inner side of the front casting at the four corners where the chassis and supports are connected by large diameter screws. These are the four screws that must be removed in order to separate the chassis from the front casting and scale plate.

- First however is the awkward bit, you must remove all the knobs on the front fascia, also the holding rings on the toggle switches. This will enable the casting to be pulled away when the four large screws are removed. One job often overlooked here is to release the pointer from the drive wire, or if you can to disengage it from the scale plate.

- The front casting plus dial glass and scale plate can now be removed and laid flat on a soft cloth. The screws holding the scale and glass to the panel can be taken out and the scale plate lifted off, the glass is best washed in warm soapy water and dried with tissues. DO NOT scrub the scale or you will end up with a blank scale plate, the figures come off easily so best is a soft wipe with lukewarm soapy water.

- Replacement is simply the reversal of the above steps, DO take care in refitting the controls to the front panel, make sure they go back in the same position, switches the right way up, and do verify there are no wires broken off. It is easier to resolder these, if broken, before replacing the chassis and panel together.

- With the later models, i.e. the 670C, 840C, 940, etc; it is much easier as the glass can be removed without separating front panel and chassis. The two louvred strips at either end of the slide-rule scale opening can be removed by unscrewing the four small screws on their inner side, this allows the glass to come out and then one can clean the scale, again without rubbing !

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- Low Volts DC supply for operation of a Calibrator.-

- When it is decided that a built-in transistor calibrator would be a nice - and useful - addition to a favourite analogue receiver, the question of how to supply the required 4 - 9 volts arises.

- There are two main methods used on Eddystone receivers. The first is to employ a silicon bridge rectifier across the 6.3 volt heater winding, smooth the resultant 'dirty' DC with a high value electrolytic of, say, 2200 mF. A second more elegant method is simply to derive the low volts from the cathode of the output 'bottle'. The cathode of this AF output valve is several volts above chassis, positive in fact. It is DC and it can supply a minimal current just about enough to operate a single tranny calibrator.

- SFERICS. -

- Just a reminder that oil is not the preferred lubricant for the drive train of your Eddystone. A silicon or molybdenum sulphide type of high melting point grease is much better. Vaseline will do in an emergency but it tends to run when the set is hot. Liberal use of the grease on the drive gears and the pointer slide will make that silky smooth geared drive train even more 'user friendly'. Do not forget the spindle and bearing of the flywheel. The end bearings of the tuning gang are also a frequently ignored place, dried out grease here can cause sticking or even noise in the signal.

- If you are replacing the valves with new ones DO NOT throw away the old valves. Put them away safely as in an emergency, should one of the new ones go o/c, then you can use the old one whilst waiting for delivery of a replacement valve.

- So few users of the Eddystone sets realise that they often have a built in output supply for driving a cassette recorder with a low value AF signal, or maybe driving one of those RTTY decoders at low level. Where is this mystery output signal ??? Well those terminals marked AF Input are so wired that they are also an AF Output. A look at the circuit of say the 940 will show that this is so. It is a pure AC feed point which is isolated both from the grid input of the volume control and the detector circuit.

- In the film 'Dr NO' there is an Eddystone receiver shown, Ken Taylor thinks that it might be an 888, but would like to know if any eagle-eyed EUGer can make a positive ident of this model ? If you can let EUG know please.

- Another query from Ken, following the publication in a recent SWM of a 1 valve receiver operated from a single 1.5 volt supply. Just what is the simplest possible configuration for a DAB receiver ? Can any of the solid state members help him out ?

- On the subject of DAB, in reply to all those who ask whether it will make all our old sets useless, hardly so as AM and FM will still be broadcast for at least twenty years or more.

- Mention of Bletchley Park by several correspondents, some of whom went to the rally and were able to tour the exhibits. Several Eddystone sets in view, as well as the more widely used HROs and AR88s.

- Are you a Keep-Fit enthusiast ? maybe you are into weight-lifting ? If so then check out the Free Members ads, where Jim Murphy has a model 770S offered for sale. It is in very good working order but there is one drawback to this model, it weighs half a ton !!! No not really, that is not quite so, but the set is a twin to the 880 series and it is big and heavy. What is so good about this rare beast ? Well it covers from 500 to 1000 Mc/s in one band. It uses precision engineered cavity tuned circuits, machined from brass hence the weight. Jim says that it MUST be collected.

- A new member in France, Brian, is asking for an EY11 receiver, to buy. Well if anybody out there knows anything about this model PLEASE do let EUG know some details. There are no records at Eddystone on this model, it is presumed to be a variant of the EB/EC series meant for Yachtsmen, but we know no more.

- In the 50s Eddystone made several console model TV receivers, nothing is known about these sets and EUG would appreciate some details. Do you know ? Then share your info with us all, let me know and I will put it in the N/L.

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- E.R.A versus E.R.A.7. -

- Several queries this month relate to the featured model in issue 30, the ERA. Checking through all the info that I have here, both period adverts and factory blueprints, it seems that it may have been called simply "the ERA" at the start of its life. Then the "7" was added on later.

- A very early blueprint of the schematic was BP 347 and it was simply called the ERA receiver. A later reproduction of this blueprint, still BP347 but dated 1957, showed the name as the ERA 7.

- Now the original BP 347 was dated 16-6-1937, the later repro is a copy of BP 347 dated 29-10-1937. A period review in the W.W magazine circa 1938 was calling it the ERA 7.

- To my knowledge there is no difference in the circuitry and for all purposes they are one and the same.

- 940 versus 940 HF. -

- This is another query, re the two 'different' models that are to be found in ads of the period when the 940 was being made and sold.

- A thorough search of all the literature seems to show that the so-called "940 HF" was simply a "940". Several ads for the HF model were published, in - for example - the RSGB Bulletin. A check on the photos shows a normal front panel, with controls as per the manual photo for the 940. None of the factory manuals or schematics show an HF suffix, so it may be that the HF bit was just a matter of advertisement hype.

- Correction ??? -

- If any members can throw any further light on either of the above models then please do let EUG know. Good A4 copies of any literature tending to prove or disprove my comments above will be welcome.

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- Spare Parts Sources !!! -

- Gordon needed replacements for some of the controls on his recently purchased 730/6. Most important were the toggle switches and the push only calibrator switch. The RF pot was also intermittent in operation, no amount of cleaning would 'fix' this one.

- Firstly an attempt was made to get good used items of the original design. No luck here despite many phone calls to the various dealers in bits and pieces for old receivers.

- Thought was given to using modern replacement types which had the correct dimensions, so that no mods had to be made to the hardware (front panel) of the 730/6.

- The Cirkit catalogue came up with a simple push to make only switch, ideal for the calibrator switch since it had a rating of 240v AC @ 1amp, it also was a good fit in the hole on the front panel. This item is stock number 53-00300 in the Cirkit catalogue, but it is also available from Maplin and Radiospares.

- Next came the dud AVC switch, this seemed beyond repair as it was jammed in the off position, switch cleaner made no difference. The Cirkit catalogue again came up with a suitable replacement toggle switch, type SM259 and stock number 53-22016. This switch fitted nicely in place of the dud item and the dolly blended nicely with the originals on the front panel facia.

- Last of all was the RF gain pot, this is a wire wound item, linear tracked and without a switch. Since no suitable type was found in the Cirkit Catalogue a visit to the Blackpool Rally was used to look out a suitable type, this was found at a price of 50 pence, before soldering into circuit it was liberally cleaned with switch cleaning fluid since experience has shown that old shelf stock items such as this, although unused, may be noisy due to slight amounts of corrosion on both the wire element and the rotary slider.

- Whilst at the Rally a box of miscellaneous knobs was carefully checked & several Eddystone knobs found, at 10 pence each they were snapped up.

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- Poor Quality Co-ax. -

- A number of letters in the recent mail have commented on the use of TV type coax being used as down leads for HF aerials. The first thing is to say that co-ax must NEVER ever be used connected directly to a simple random wire aerial ! Even with a short length of several metres you will have a very big mismatch problem, the effect will be the same as fitting a condenser of several hundred puffs across the aerial to earth ! All of your received signals would be effectively shunted to earth via this capacity. Co-ax is only an effective conduit for RF when it correctly matched at BOTH ends.

- Tv type co-ax is made to a price, not to a high technical specification. One of the methods used to save production costs is to skimp on the copper screening conductors, one article I have read states that some commonly used types of TV co-ax have only a 35% outer screening factor. In one case an EUG member had tried using co-ax lead-ins to eliminate computer hash from a PC in frequent use next door. The Tv stuff had only minimal effect, when he swapped over to some quality type co-ax which had a double screened outer he described the effect as "quasi-miraculous". Hash pick-up was almost completely eliminated and the S meter reading for the hash dropped to zero, from its previous S 5 level.

- Good co-ax makes a good match directly to a simple wire type dipole for MF/HF purposes, but such a dipole will only be really effective on one band.

- Use of a folded dipole, or doublet, means that the matching impedance will now be circa 300 ohms, the effective bandwidth of this aerial will be much wider than with the simple dipole, one cut for 3.5 Mc/s will form a good receiving type aerial for up to 20 Mc/s, it will not be resonant over this range but a good ATU will do wonders. It cannot be fed with co-ax, which will usually be of 50 or 75 ohm impedance. Either 300 ohm twinlead feeder can be bought and connected directly or for the sake of economy plastic twinlead as used for domestic items may be used. This makes a good enough match for receiving use. Contrary to what many seem to believe, this twin lead does not need to be screened as with co-ax. As it is there is almost negligible pickup over its length, since what one leg picks up will be cancelled out by what is picked up on the other leg of the lead in. Why not buy or borrow from your library a copy of the ARRL Antenna Handbook ? This book will explain quite a lot about simple aerial systems and the language is not too technical.

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- E.U.G not for Eggheads. -

- The cartoon in this issue needs some explanation. Amongst the letters from members recently many which came with the next years subs contained a number of comments about the contents of the EUG Newsletters. The general consensus seemed to be that keeping it 'readable' for the many non-tech; members was one of the attractions. Putting it all in easy to take-in language does help all those members who want to enjoy their Eddystone with out having to learn the technicalities of electronics.

- A Scottish member is responsible for the Egghead comment, he further states that in his five years of membership he has only once had to ask for explanations about an article, it was the one on resistive attenuators !

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- Isolation Transfos. -

- Having found that use of one of these is a help in reducing internally generated heat when operating his 840C, Colin went looking for one, and he nearly had a stroke when he found the asking price was "sky-high" the lowest price that he was quoted was £35, far more than he was budgetting for this item. A faulty HI-FI unit that had been gathering dust was found to contain a large toroid transfo. When examined it was found to be rated at 160 VA, and had two separate 120 volts primary windings usually connected in series for UK mains. The secondary was a split winding for 40 + 40 volts. Some tests made on the bench with the 840C connected across one 120 volt winding,

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whilst the two were used across the 240 mains gave encouraging results. This gave him a step down facility so the 840C could be run on the 120 volt range thus cutting down on internally generated heat. BUT it did not give the needed isolation, did it ?

- Putting a meter across the two secondaries connected in series showed an off-load reading of just over 90 volts. With the 840C connected across here, and with the set switched on there was still 85 volts when warm-up was over. The 840C worked but gain was noticeably low, and measured volts were low at both HT and across the heater chain. What to do ?

- Some study of the circuit diagram seemed to indicate that HT could be brought up a bit by using a silicon diode for HT, this was wired in circuit connected to the wiring that originally went to the anode and cathode of V8, V8 was left in situ to keep the heater chain intact.

- The heater voltages were corrected by shorting out R39, which is a 100 ohm 4 watt wire wound type. The set now appeared to work normally, as before.

- A label was prepared and fixed to the rear of the 840C case, near the mains input, this detailed the mods inside. The toroid transfo showed no signs of undue warmth even after a full days operating and so it was built into a second hand steel box, using insulated washers on the fixing bolt. For little more than a few hours of experimentation the 840C can now be used safely via the isolation/step down transfo, one of the unexpected benefits that came with this installation was an almost complete reduction of mains generated QRM from various domestic items that had previously caused trouble. A final mod got rid of the last slight interference caused by the garage door opener. A 0.001 muff polystyrene condenser rated at 660 volt AC was wired across the input of the new transfo. This was the only 'bought' item at 80 pence.

Colin Davis.

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- SSB on an 870A ? -

- My 870A is in constant use for broadcast listening, for this it is ideal as my choice is usually one of the 'big' B/C stations on SW.

- When I wanted to listen to the Volmet broadcasts, either from Shannon or from RAF Volmet, I had to go over to the FRG8800. Now in my shack this meant unplugging the 870A and plugging in the FROG. Since I also have but the one random wire aerial it was necessary to swop this over from one set to the other.

- Something had to be done, such manoeuvres meant getting up from my comfy chair. A first experiment with the 870A showed that SSB, and CW reception were possible on the 870A if I fed in a signal from an external oscillator. The first test used a cheap and nasty 'tranny' that no longer had any AF output but did function okay in the RF/LO part of the circuit. coupling a short lead from the chassis of this 'tranny' to the aerial lead-in was a good enough coupling and it was instantly possible to resolve RAF Volmet on 11,200 Kc/s. Also Shannon came through okay when tried.

- It was known that the inside of the 870A case would provide loads of space for a mini pcb built BFO using semiconductors but this was ruled out, I am a dedicated Hollow-state technology fan, the FROG was an aberration necessary when I was in student digs.

- A look at the circuit showed the existence of a tuned 465 Kc/s IF rejector circuit, a series type rejector wired from the aerial input to chassis. My experience is that this is no longer necessary as the use of the MF marine band is minimal in this area of the UK. Taking it out of circuit makes no difference to operation of the 870A.

- A series rejector operates by conducting through its low resonant impedance any signal on the IF frequency to which it is tuned. Having had a 1950s valve type Heathkit where the BFO signal was obtained by IF regeneration/feedback, I decided to try this on my 870A. The top end of L11 - the IF rejector coil - was taken from C1 and connected to the top end of the secondary of T2 the

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last IF transfo. This is the lead of the IFT that goes to pin 6 of V3. The other end of the rejector circuit is the earthy end of C2, now here comes the tricky part. A longish length of insulated wire is soldered to C2 and the wire taken towards the bottom of the valve holder for V1. A single turn loop of wire was made and positioned near to V1, pin 5. The rest of the wire was left loose for a test. With the 870A switched on, and tuned to the LF outlet for RAF Volmet, on 4722 Kc/s, it was possible by some experimenting to provide enough feedback via what is now a series acceptor circuit. Trimming of L11 varied the level of feedback and this was done for a good audio signal from the speaker. Now upon earthing the end of the wire the signal became its normal mickey-mouse style of AM reception, the feedback had been grounded. What was needed was the drilling of a small 5 mm hole in the rear panel of the chassis to hold a mini toggle switch, one side went to the loose wire and the other to chassis. Some experimentation was needed with both the position of the wire loop near V1 and with the position of the core in L11, to find the best possible reproduction on several different SSB signals. I can now listen to either the strong RAF Volmet or to the much weaker Gander Volmet and no longer need to unplug one Rx and power up the other when swooping from AM to SSB. The BFO facility provided means that I can even resolve the stronger Beacons at the top end of the LW (range 5) band.

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 - Frame-Aerial Wire ? -

- When it was decided to make a loop aerial for MW broadcasting, to be used with an EB37, some thought was given to both the construction of the 'frame' to hold the loop and the wire to be used. Not being one to spend from my piggy bank when it was unnecessary, I looked for what was to hand.

- An unused and redundant IDC cable that had formerly been on a computer lead was in the junk box, at 2 metres long this would allow a loop of 50cms, almost 20" per side. In the event a plywood frame of 18" per side was made up, it was a simple 'X' configuration glued at the centre for rigidity. The IDC cable was 34 way stuff and it was fixed to the ends of the 'X' with adhesive, using one of the ends of the plywood as a joining position for the individual wires of the IDC cable. The wires were soldered together in such a way that the ends were staggered, making up a continuous coil of wire, excepting the two centre wires which were left out of the coil so formed. These two were soldered together to produce a centrally positioned 2 turn pickup coil, got it? A solid dielectric variable condenser cannibalised from a 'tranny' was fixed at the centre of the 'X' frame and connected across the ends of the newly formed 32 turn coil. Leads from the 2 turn pickup coil were taken to the aerial input of the EB37. Using just one half of the VC coverage of the MW band from about 1500 Kc/s right to the LF end at 520 was possible, shunting in the second half of the VC and adding a 100 puff ceramic condenser across the VC gave coverage of the LW band also.

- At present the actual MW coverage is too wide, it appears to tune down to about 470 Kc/s, one or two turns of the IDC cable may need to be removed to give the correct coverage, and take the HF end up to 1600 Kc/s. The LW band is cramped in just a portion of the tuning range of the VC, so some change is needed here, a combination of series and parallel fixed condensers will be tried so as to spread the LW band a bit.

- The 'X' frame is mounted on a plywood base and by turning the whole thing it is easily possible to null out QRM signals or to maximise the wanted signals as required. Stood on top of the EB37 the loop aerial takes up no extra bench space and is amazingly effective.

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- A letter from Ray Thomas recently commenting upon the similarities between the Racal RA17 and the 880. Weight, Ranges etc; even the various controls. Well the fact is that an Admiralty spec; issued around about that time may have been the starting point for both these models, just hearsay from 'a former employee' but if his memory is to be relied on, then there could well have been that common design spec;

- Ageless -

- My 750 was recently being admired by a newcomer to the SWL brigade. A quick twirl brought in the Shannon met service, another twirl brought the Jazz Hour on VOA, and again to bring in HCJB from Quito, Ecuador, on SSB. By now his enthusiasm was evident, but rapidly quashed when he asked me 'how much are they new ?' - I had to tell him that particular set dated from the early -50s, as old as his father it turned out ! Still he has decided to go for a 940 or an 830, and is now scanning the adverts for one. An added plus is that he will be paying about one third of the cost of one of those horrid alien sets.

- Publicity ? -

- Has he bitten off more than he can chew ? Well Mike Makin - one of our more adventurous members has accepted to lecture on, and show off, his collection of Eddystones. His letter to me, whilst not of the Mayday level, was easily of Pan status. He has built up a small collection of six Eddystone sets already, what he needed was some background info on Eddystone. This was sent to him post-haste and I am now awaiting his report on the evening at Carmarthen Amateur Radio Society, just hope he did not let us down and retire to hissing and booing ! Come on Mike, tell us.

- Unwanted Fame ? -

- Whilst sympathising with all those owners of Marconi badged sets which came out of the 'Bath-Tub' it isn't so easy to help them out. Marconi are not at all forthcoming with the necessary info, I know as several members have commented on their negative results, I tried myself with no success. Surely somebody, somewhere can provide a list of all those Eddystones which went out under the assumed Marconi name ? Same goes for all those Debeg, ITT, Redifon and Hagenuk models, but NO I am not going to attempt to list all of them too !

- D.I.Y -

- PLEASE, don't try it if you do not have the necessary know-how and the correct tools. So many letters coming in to EUG comment on the 'mess' in their newly acquired Eddystone, this can be anything from just broken dust cores to wrong value, PCB rated, components fitted in lieu of the originals. In one case recently mentioned some 60 volt working disc type

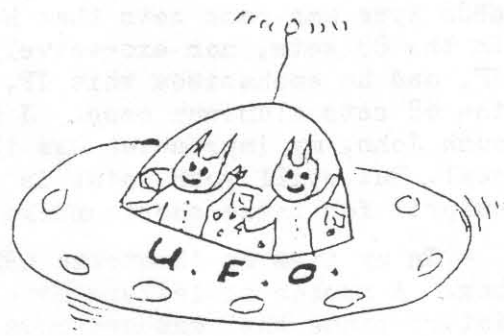
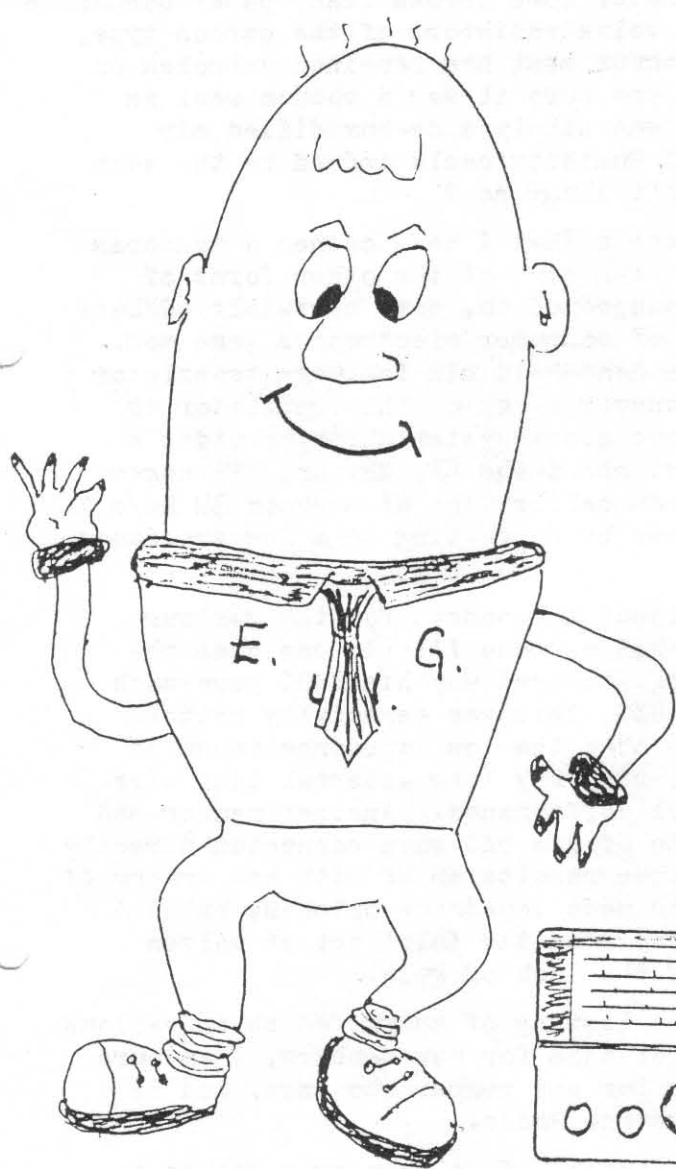
condensers suitable for a battery operated tranny had been used in a 640. To compound the error they had been 'tag-soldered' using the low melting point solder which is so common today for PCB working. If you do not know then ask, most engineers will know more than YOU, although the abysmal ignorance of today's type of electronic engineer, when confronted with a chassis full of hot bottles, has to be seen - and heard - to be believed. Funnily enough many of them can accept an AC/DC type circuit quite happily, since a number of modern PSUs do have similar circuitry.

- DYFED Members ? -

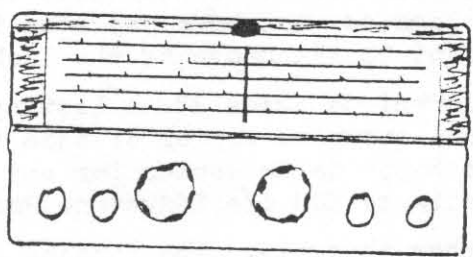
- Are there any EUG members in the Dyfed area who would like to communicate with Mike Makin ? Don't be shy ! I know that a number of members do not like to make known their interest in expensive hardware such as Eddystones, but if you do want to contact Mike then try,- 'Awelfan' , Llandarrog Rd, Carmarthen, Dyfed, SA32 8BE.

- Plug in Adaptor -

- From Graham Leese the idea of a plug in adaptor to enable use of different types of valves in the situation where the original is either unobtainable or just too expensive (vide UL41 !!!). The idea is not new of course, I used it myself in the early 50s and I am sure that many others used it before my time. Just that Graham dug it up out of the depths of his memory. Basically you will need a valve socket to fit the new type valve (in this case an ECC82), and a base (plug) from an old valve of the original type used, and to be replaced (in this case an EF39 in the S.358 receiver). The idea is to replace the basic RF pentode circuit of the first stage in the S.358 with a cascode circuit as per in the EA12. Graham says that the main problem is to mechanically secure the new socket above the old base, he does this using a central brass, threaded rod secured with some araldite. If the filament/heater wiring is made from thickish single copper wire then the rigidity is even more complete. One factor is that the ECC82 series are 'dirt cheap' these days compared with some other valve types. The extra components are wired in the space between the socket and the 'plug'. Result is an adaptor that will simply plug into the EF39 socket, enabling direct and immediate substitution for comparison purposes or for permanent use. I will add that Octal type plugs are readily available today so there is no need to vandalise that 6V6 or EF39 for a base. Most types of sockets can be found at rallies, or if not try John Birkett, he will dig one out for you from somewhere.



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HEADS.



Unfinished Business ?

- A query in the last issue re the 940 sans a psu has reminded one of our members that some 830 sets were used in triple diversity racks with one common psu for HT and LT, both being stabilised DC (yes even the LT heater supplies). He wonders if the 940 was one of a similar 'rack' of receivers ??? Come on somebody must know more.

- Re my comments on the worn out condensers and resistors of the 40s and 50s. I have been told by somebody who is an avid collector of the WS88 type man pack sets that he has never come across leaky paper condensers in the 88 sets, nor excessively high value resistors of the carbon type, IF, and he emphasises this IF, the vacuum seal has remained unbroken on the 88 sets aluminum case. I am not too sure it was a vacuum seal as such John, my impression was that it was simply a de-humidified air seal. But still your point is taken ! Humidity could indeed be the main culprit for these shortcomings - didn't I say so ?

- In my item on 'Esoteric QRM' it seems that I have opened a Pandoras box. A number of letters have dealt with some of the other forms of interference that members have been subjected to, some certainly oddball but others more common in todays age of consumer electronics gone mad. The examples mentioned range from the hand-held six language translator which gives beeps on a nearby 958 whenever a key on the translator is pressed, to the more down to earth home alarm system which provides a multitude of 'calibration' points throughout the LF, MF, and HF ranges on a 740. Problem is though - who needs calibration pips every 32 Kc/s ? This latter was almost completely cured by converting to a low impedance aerial feed-in using coax.

- Oh heck, the mention of varying input impedances for the various models has made many members think, what a shame !!! In one case the member who shall not be named has long wondered why his 840C gave such poor results compared with his older 840, this was especially noticed when he was Dxing on MW. He knows now that the low impedance input of his 840C was simply a big mismatch to his very long external long wire. Using an ATU gives him an almost equal performance. Another member had often wondered at the poor performance of his 940 when connected directly to an outside random wire, he got better results on MF with his tranny !! Now that he has swapped over to a home made impedance matching balun & coax feed he is delighted, has even replaced the 'old' set of valves that he thought might be the cause of the lack of gain.

- The Xmas Supplement to issue 28, a listing of known faults on various models. I have had a query re copies of this for new members, I am sure that Chris will be happy to do copies for any member who asks, and is willing to pay, write to EUG c/o Eddystone Radio.

- From a non-member this tip. The fitting of silicon type diodes in place of a valve will not only reduce the power consumption by several watts, but by doing so your set will run very much cooler - very helpful if you have a small unventilated shack in summer ! He does state that small 0,01 mfd ceramic condensers should be wired in parallel with each diode and a series input resistor of some 200 ohms be fitted. The whole lot, diodes, condensers, and resistor may cost less than a new valve.

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- Making the 640 Speak.-

- James says that the idea for this came when he read an old SWM which was purchased at a rally, the date was 1951 !

- The 640 is still used as a station receiver and yet an almost complete second 640 had been sitting in the attic for sever years more as an insurance against any requirement for spares than anything else. The missing items were two knobs and a tumbler switch so these would be easily obtained. It took some 6 months of attendance at rallies before all of the specified items had been collected, as per the article in SWM.

- A start was made by stripping the front casting from the spare 640, this was entrusted to a relative more used to metal working than James. There are a number of holes required to be made in this casting to take the two meters and the switches for the built-in CW/AM QRP transmitter.

- Whilst the casting was away the chassis work was begun. The idea is to remove the 6V6 AF output stage from its subchassis and re-locate it next to the 6Q7, both 6Q7 and 6V6 were replaced with the GT versions to make a little more space. The vacated sub-chassis is now to be used for the CO=PA circuitry, an EL91 crystal oscillator followed by an EL42 PA stage. Modulation for the AM operation is provided by switching of the 6Q7GT and 6V6GT from their AF output stage role to that of a driver - modulator.

- Although the original article gave specs for 4 sets of coils to cover 10, 20, 40, and 80 metres it was decided to stay with 80 metres for the time being.

- It is to be emphasised that there is a lot of metal-bashing to be done for this mod so be sure that you can either do it, or get somebody else to do it for you. And do try to get all the necessary bits collected together before you start. The 640 can now be used for full break-in working on 80 metres CW or on 80 metres phone, contacts on CW have been made all over europe, local phone contacts have been made with good reports up to 200 miles.

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The FET for that Active Antenna.

- A number of letters have asked where to obtain a suitable FET device for the Active Antenna that was described in issue 31. Graeme Wormald has written to apologise for not stating that the source was Birketts of Lincoln. Incidentally another article by Graeme has come in - just too late for this issue so you will all have to hold your

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breath for a couple of months, it will be in *33. The format that Graeme is using, typed A4, is ideal for inclusion in the Newsletter and does save me a lot of re-typing.

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- 740 Catastrophe ! -

- When the reliable 740 went dead during a recent hot weekend of listening, first thoughts went to fuses and the like. A thorough check out showed that it was something far more complex. When the set was out of its box on the bench a few voltage tests soon isolated the reason for the 'deadness' of the 740.

- The primary of the AF output transfo was open circuit, now this is not a frequent or common fault and so I went further into the cause of this O/C winding. The screened lead from pin 2 of the EL42 valve, that is the anode connection, goes to the tone control R27. It has a rubber insulation, all that separates the HT carrying wire from the earthed screening. In this case the rubber had turned to a sticky goo which was so liquid as to allow of contact between the inner wire and the outer screen, an instant path to earth for the HT via the primary winding.

- It was a case of shutting the stable door after the horse had gone, as I decided to rewire the circuit so that C41 and C50 went to the pin 2 of the EL42 directly before the HT could go into the screened lead.

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- No Magic Eye operation on a 659 ? -

- On this, and any other model using an AVC fed magic eye the one frequent cause for poor closing of the 'eye' may be the paper type of decoupling condenser that goes from the AVC line to chassis. If it is at all leaky then the AVC level will drop considerably as this is a very high impedance circuit, hence less volts to operate the magic eye valve. Also poor AVC performance but this is often not noticed.

- If there is a high value resistor in series with the grid of the magic eye valve then check it out, if this is considerably higher than specified then it too can cause a similar problem.

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- After 35 Years Unused ! -

- A recent move from the family home to a pensioners flat brought forth the S.504 from its retirement in the loft. It had been boxed up with the phones and other relics of those happier SWL days circa 1960, long before the arrival of a houseful of children.

- The mains lead was of the old Red/Black/Green rubber variety and the plug was of the large round pin 15 amp type. A new 13 amp plug was fitted and the set was powered up, not without a few qualms. In the event there was no need for any worry, the set warmed up okay and a few feet of wire connected to the aerial socket brought forth signals on all ranges.

- A length of insulated copper wire, some 40 feet of it, was strung out of the nearest window to the roof line of a nearby garage, not too high up but beggars cannot be choosers. This was sufficient to enable reception of a multitude of stations, seemingly far more than had ever been heard on the 504 in the 60s. My interest in 'listening' has once more been kindled and I am again able to appreciate the build quality of the model 504, typically Eddystone.

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- Ken Quigg and his 670. -

- My model 670 had an uncomfortably high 50 c/s hum level. Measured at V6 the UL41 anode it was about 1.5 volts peak to peak. Shorting V5 grid to chassis brought this down to 0.1 volt p to p. Further investigation revealed the reason. R25, a 13Kohm, which is the grid to chassis resistor, shared a common chassis-return soldering tag with the bottom end of the heater chain ! (possibly a high resistance connection tag to chassis ? Ted.) That is V5 heater went to earth at the same tag as R25. The cure was easy. Lift off R25 and resolder to the chassis end of R52/C29 the V5 kathode to chassis return. This simple operation dropped the hum level at V6 anode from the 1.5 to 0.2 volts p to p. A further improvement was to add 47 muf across the reservoir condenser. (but doesn't this exceed the maximum capacity as quoted by the valve maker ? Ted). Measured hum was now less than 0.1 v p to p, and barely audible.

- Two other mods I have done, but not for the purists !

Mod; 1, - Use germanium diodes instead of the diodes inside V4 and V5. This helps to reduce hum and also permits the audio volume to be reduced to zero by R20, the volume control. (but on my 670 the volume control already does reduce audio to zero, as it should ! Have you a high resistance chassis return to the pot; ? Ted).

Mod; 2, - Position 5 of the range switch is intended for gramophone P.U use. Instead I fitted a set of long wave coils etc; and now have coverage from 150 to 210 Kc/s with really excellent sensitivity and 2nd channel rejection. Just the thing for long wave Dxing with a tuned loop.

by Ken Quigg, GI4CRQ.

- Valve lists etc; ??? -

- From EUG member we have received a very comprehensive list of valves and other items, including those elusive 'droppers' for the AC/DC sets. If you are interested then an sae to Philip Taylor, 14 Willow Walk, Canewdon, Rochford, Essex, SS4 3QH will bring you the three page list. Don't forget the stamped addressed envelope, I am sure that Philip give EUG members special attention.

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- £10 or £2, take your pick. -

- This must work, have now had this info from four economy minded EUG members, makes sense too as it is not a 'non-reversible' mod. The UL41 has been mentioned before as being very expensive, and not too reliable in use. Since it is commonly found in the AC/DC models I guess that the difference in price between a UL41 and a UL84 is very worth taking into account.

- Seems that with no change in circuit parameters the UL84 is a good enough replacement for the UL41, barring the base difference of course.

- The idea is that a base adaptor, B9A socket to B8A plug can be made up for pennies, thus allowing a 'plug-in' replacement, if a UL41 does miraculously appear at any time then the adaptor and UL84 can come out and be held in reserve.

- The needed parts are a B9A socket and a B8A plug, both are commonly found for pennies at rallies, a length of 20 swg tinned copper wire and some systoflex type sleeving, the heat shrink type could be used and it can then cover the whole tag and wire on the socket. Six wires are soldered to the following pins of the socket, 2, 3, 4, 5, 7, & 9. suitable lengths of systoflex are now slid onto the wires and shrunk on with a source of heat, the XYLS hair dryer maybe, or just the soldering iron bit if you are not feeling too adventurous ! Next step is to ascertain the length of lead needed, in my trial I got away with a three quarter inch total, the last $\frac{1}{4}$ inch bared of systoflex. The wires are soldered to the B8A plug as below,-

Plug Pin 1	to Socket pin 4.	Plug Pin 2	to Socket pin 7.
" " 5	" " " 9.	" " 6	to " " 2.
" " 7	" " " 3.	" " 8	to " " 5.

- Just plug in and sample ! In my 840A all appears to be working okay with voltages in spec; Many thanks to those of you who have come up with this info, guess this will give you all a couple of quid to spend on something else. Bill.

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- SFERICS. -

- In 1918 a One Megawatt generator, which produced its output directly at 30 Kilocycles, was installed at Bordeaux, France. This was for communication with the USA. The 30 Kc/s meant a wavelength of 10,000 metres and was thought to be state of the art in those days. Of more interest is the fact that this generator was driven by a coal-fed steam engine. Was this the origin of the phrase 'Steam Radio' ???

- There was a predecessor to EUG, back in 1933-4 there was an Eddystone owners club with its own lapel badge, this seems to have been run directly by the Company. So far EUG knows of only one of the original members of this club, Mr D.C. Bishop of Bath still has his badge ! Does anybody out there know more about this Eddystone Club ? please let me know.

- For those interested in having a valve only station there is an article in PW magazine for February 1993 which may be of interest. It describes the construction of a valve type Active aerial using one ECC81 valve, two resistors, and three condensers. The unique factor is that both the heater supply and the HT supply is from a single 12 volt source. In the circuit as used the ECC81 two triodes are parallel connected and the 12 volts on the anode give sufficient gain to make the AA useful on all HF bands.

- Two Metres in 1918 ? - In this year when World War I was coming to an end the Army was using a trench type transmitter using 2 triode valves in a cross connected anode to grid oscillator circuit, according to Patent Number 149018 taken out by one Mr Jordan the wavelength in use was 'about two metres'.

- Those NDBs that we EUGers like to 'chase' on the Long Wave Beacon Band are nothing new ! The first recorded NDBs were operated in the US of A circa 1921. They were located on the shores of the American Great Lakes for shipping use. By 1923 France had followed suit and had some operating around the Atlantic coast line, in this case the range was quoted as being from 5 to 20 miles.

- Using his 770R Mark II a member of EUG has been monitoring and taping a number of Russian Satellites. His library of recordings covering more than 30 years of listening is now on some 120 cassettes, all dated and timed. The original aerial is still in use and the only change to his set up has been from open reel recording to cassette tapes.

- The Gulf war was a good enough reason for Ian to resurrect his old 670A and power it up. Since then he has used it almost constantly to monitor news broadcasts from around the world. Ian makes one rather important comment, 'the BBC is no longer an unbiased voice and it can be very useful to get the real facts from the source'.

- A non-member from Pickering in Yorkshire has written to say that in looking through his old SWL logs he came across an entry commenting on the good reception of the signal from Schenectady in the US of A. The stated wavelength was 26.8 metres, this gives a frequency of 11.195 Mc/s. Guess what he was using to hear this historical station ? An Eddystone Short Wave Two. And NO, unfortunately he does not still have the receiver, just his log books.

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- Powering up of Old Valve Sets.-

- A reminder from one member that a wise precaution to be taken when first powering up any old receiver is to do a visual check not only of the external mains lead but also internally to verify that the insulation is still intact. He recently had a 1940s domestic set to check out and found that whilst the mains lead looked okay, it was very different on the inside of the chassis, the rubber had turned to a sticky goo and movement of the lead caused complete shorts of live and neutral. No doubt that chassis heat was the culprit here.

- Another matter is that of electrolytics, they respond well to being 'reformed' for several hours at a lower voltage. A tip from the old days, wire a 100 watt bulb in series with the mains lead & leave for a couple of hours. This is far better than suddenly applying the full voltage and then having to clean out of the chassis and cabinet all the muck that is ejected from a 'blown' electrolytic.

- Wavechange switches can become noisy, usually they were of the self-wiping type and so several to and fro movements help clear the corrosion, in difficult cases an application of switch cleaning fluid may be necessary, same treatment for the pots be they wire-wound or carbon track.

- Many of the older models used a single pole mains switch, Yes, even Eddystone did this ! It is best to fit a matching double pole switch if possible, pots with DP switches are easily available.

- And do be careful if you are fitting solid state rectifiers to replace the original valve rectifier. One result of this swop is a somewhat higher HT voltage, taken unkindly by the electrolytics which are probably tired anyway. Another consequence is that the full HT is applied to the circuit before the valves have a chance to warm up, some marginal paper condensers may decide to 'go' - this will cause associated resistors to overheat, a veritable domino effect.

- One last warning, PCB type solder has too low a melting point for use in valve receivers, amazing how many times repairs have come unstuck because the solder used just melted out of the joint when the set had been on for a few hours. But then if you do the job properly you make a soldered joint 'mechanically secure' before soldering, or do YOU ?

James Evans.

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- Electromail Spares. -

- A few items that may be of use to those who do their own repairs, Jack had need of some toggle switches and looked them up in his Electromail Catalogue. So far he has been able to replace all the old and worn toggle switches on his receiver, plus the well-worn calibrator switch.

- Jack notes also that Electromail do a replacement audio output transfo that could well serve as replacement for most Eddystone receivers. Another item he found of interest was the octal valve base of chassis mount design.

- The 3 volumes of the E'mail catalogue are sure to be of interest to those who do their own repair work, and for the cost of a few £fs are a good investment.

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- Those Whiskers on Old Germanium Transistors. -

- The gradual growth of the whiskers from the collector to the metal can of the old Mullard transistors has long been the cause of trouble for those owners of sets such as the EC10 or the EB35 series.

- A number of theories have been advanced by members of EUG, and others, as to the cause of this growth.

- In a recent letter from an ex Mullard engineer the following facts were stated. The whiskers are found to be a compound of Germanium Aluminium Oxide, $GeAlO_2$. This is a polycrystalline compound and its growth between the collector material and the can is due to the low potential difference which exists between the two points. It has been shown that unused transistors from the same batch as used, and 'whiskered' transistors, do not have any growths. Yet after a period of use they will develop the same whiskers and eventual leakage and noise.

- Furthermore when these metal can trannies are used without the metal can being earthed, the crystals do not grow !

- Okay so far, yet if you study the circuits in, say an EC10, it will be seen that operating these trannies without earthing the case you can get some instability. It is well documented that this happens on the HF ranges so the can MUST be earthed to chassis.

- One suggestion is that the fourth lead, the can earth lead should be earthed only through a 0.1mF condenser, thus bypassing to earth all the stray RF but not allowing any direct DC connection. If anybody tries this let EUG know please !

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- ELF and VLF Signals, Use of the 850. -

- Many of us in EUG know of that rare bird the 850, with its low frequency ranges going down to 10 Kc/s. One EUG member at least uses his 850/2 for an ongoing investigation into atmospheric noise generated by thunderstorms. He has it connected to a chart recorder to provide a permanent record. The aerial used is a roof-mounted 8 foot whip and he has a ground provided by a 4 foot copper rod buried in the garden soil below the shack window.

- Whilst the main interest is in 'atmospherics' he often does connect up a long wire of some 100 feet and tune around the VLF bands. There are many stations using this range, navigational (i.e. Decca.) or standard time signals (i.e. Rugby or WWV.) Many can be easily identified as they have either a well known format and callsign, or they can be fairly accurately DFed.

- If you can get hold of an 850, either the /2 or the /4 are most common, then you too may be interested in learning more about the VLF bands.

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- IF Transfo Mods, as per last issue. -

- Just a suggestion from Allan, if you are contemplating the DIY mod as was outlined in the last newsletter. Try to get hold of a spare IF transfo beforehand, do the mod on THIS, substitute it in your set to check the effect on selectivity. If you should damage this transfo whilst working on its

windings then you can at least refit the original, and your set will not have suffered any lasting unrepairable damage.

- Allan further goes on to say that he would consider the improvement in selectivity so gained hardly worth the work involved. A similar increase in IF selectivity might be obtained in other ways, less onerous than that described.

- He mentions that in the 870A the removal of the damping resistor R4 would possibly help increase selectivity, at the risk of circuit instability if C32 is not in good condition.

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- Oriental Black Boxes. -

- A letter from a member who wishes his name to be kept out of print, does mention the glut of those 'Far Eastern Delights' that one sees advertised in most magazines these days.

- He goes on to quote that in the main they offer bad performance at very inflated prices. The oft-quoted long list of 'specs' and the obviously paid for reviews of these sets may take in many of the less technically minded but they are a cause for laughter to those who 'know'.

- This member has one of these Oriental receivers, and when used alongside his EAL2 he frequently finds that he can hear signals on the EAL2 when they are still buried in noise on the black box model.

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- Those Paper Insulated Condensers. -

- These condensers are often found to be very leaky, and are much maligned for this. The oft overlooked fact that they are well outside of their designed life is ignored. Nobody in the 40s or 50s expected that the sets which used these components would still be in regular daily use.

- An article in a French language radio magazine tries to take some of the blame for the leakiness from the component itself. It is stated that the wax used both internally and externally is the culprit.

- This wax is, in effect, hygroscopic. It acts like a sponge and soaks up humidity. Any period of storage, or use, in a damp or humid atmosphere will result in the wax soaking up moisture, with the resultant leakiness that we know so well.

- In tests done it was shown that paper insulated condensers and wax coated mica condensers which showed up leaky on a test, could be 'rejuvenated' by leaving them in a warm dry atmosphere for several days. In many instances the components could be replaced into the circuit where they had been previously.

- Some tests were done where the component was boiled up in fresh wax and allowed to cool and dry out in a non-humid atmosphere, this too had a similar rejuvenating effect on the item. Stan Pine.

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- Digital Frequency Counters. -

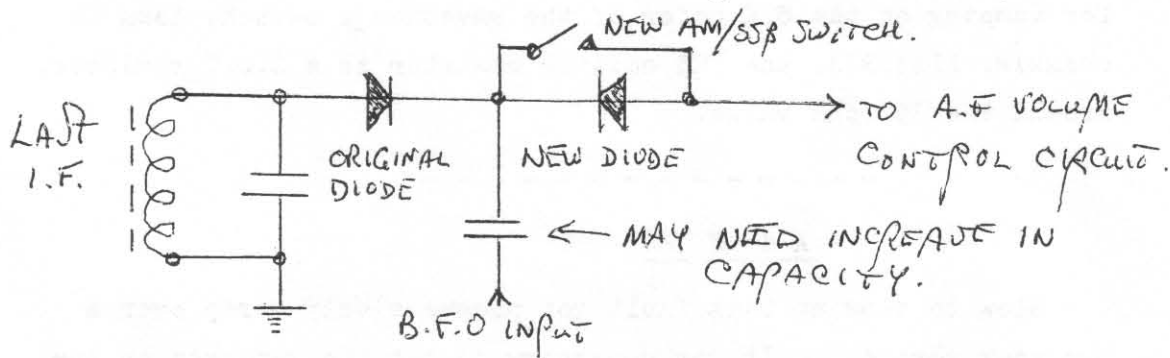
- Stan Pine reminds EUG members that if they really must have a DFM readout on their old Valve model then there are many DFM modules available on the market these days. A look through the catalogues of such companies as Maplin, Electromail, Cirkit etc; will show that there are many such DFMs with the facility of adapting the module to take a variety of incoming signals to match the various IFs in use.

- In most cases a low capacity connection to the receiver local oscillator is necessary, and may be provided easily. The one thing that must be taken into account is the effect that this connection will have on the frequency of the local oscillator. It will often be necessary to retrim the L.O after connection, at least on the HF ranges.

- SSB mod for a 680, or others ? -

- If you are not averse to doing mods to your Eddystone then the following from Kev Bailey is a mod to assist/facilitate the use of your 680 on SSB. It is of course good for other models with a similar 2nd detector stage.

The idea is to modify the injection/detector circuitry so that by flipping over a SPST switch one can go from AM to SSB.



The above circuit is not original and was originally seen as a mod for a 'surplus model' receiver, non-Eddystone of course.

Components required are few and the Standby switch can be wired up for this purpose as it is so rarely used for its Standby mode.

- Motorboating. -

- Out of place in this newsletter ? a leisure activity of a different kind ? No, this is the low frequency chugging sound heard when decoupling systems are ineffective. In this case it was a different reason, the 840C had begun to 'moboat' when the volume control was turned up high, it could not be reduced to a no signal condition by turning the pot down. Looked like a component fault and from appearances I guessed at a duff pot. Not far off as it turned out. The soldered joint from the bottom of the pot track to chassis connection was 'dry'. For the uninitiated this means it was open-circuit. A resolder job with 25 watt iron and some new solder did the job and the 840C was back to normal. The only recorded fault in this set since new, not a bad record that.

- The 960, Variations on later sets. -

- This was the first transistor model and was effectively a solid state version of the 940, but not as good in my estimation.

Whilst all used the first generation transistors there was a much altered local oscillator circuit in the later sets sold. One other difference was that these later models used S.O.T resistors for damping on the S₁K wafer of the wavechange switch, down to chassis. Also R24, the TR5 emitter resistor is a S.O.T resistor, around the 390 ohm value.

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- A deaf 940.-

- Slow to show up this fault got progressively worse over a two week period . It was necessary to get the set open on the bench as a quick check on the valves, by known good replacements, did nothing to alleviate the low gain.

- Eventually a combination of component failures were traced and when replaced the 940 was as good as new, so to speak. First off I found that R44 had gone high, up to 198 kilohm, as had R19 from recommended value to 43 kilohm. Next was the turn of 'paper' type condensers. C90 was definitely leaky on my LCR bridge, as was C43. Two paper types replaced by polystyrene types and another try with the set. This time it seemed to be normal and was boxed up and put into daily use again. Three months later no further manifestations of deafness. I suspect that now is the time for me to begin collecting all new resistors and condensers so that I can do a complete replacement job on this 940.

- - - - -

Telephone: Regent 7041

Ext.
All communications on the
subject of this letter should be
addressed to—

THE CO-ORDINATOR OF
RADIO PRODUCTION,
AAS/RPE.

Your Reference

RADIO PRODUCTION
EXECUTIVE.

REGENT ARCADE HOUSE,
REGENT STREET.

W.1

24th Sept. 1945.



Dear Sir,

You will probably know that, with the termination of the Japanese war, the work of this Department is completed and the Executive has now disbanded.

On behalf of the Executive, I cannot let this opportunity pass of expressing their heartfelt thanks for the splendid work done both by your Management and by your Workers in meeting their demands for Variable Condensers and several radio components.

In expanding your capacity, and also in the production of the many new types of components demanded by the Services, you were set an arduous task. But despite far more than your fair share of damage by enemy air attack, you maintained output at the highest level, and thus played an important part in the production of Radar equipment - the weapon so successful in the prosecution of the war.

I should be obliged if you would convey to your Management and to all your Workpeople the Executive's gratitude for their contribution to the final victory.

Yours faithfully,

A.A. Saunders
A.A. SAUNDERS,
Co-ordinator of Radio Production.

The Managing Director,
Messrs. Stratton & Co. Ltd.,
Alvechurch Road,
West Heath,
Birmingham, 31.



Buy BRITISH — the BEST

EDDYSTONE

Foreword

After six years of war service we are again able to produce a Catalogue of "Eddystone" Components to meet the needs of the Short Wave Experimenter, the Professional Radio Engineer and the Specialist Trader.

The reputation of "Eddystone" products for high efficiency and outstanding performance, already firmly established, is now further enhanced by experience gained in research to produce equipment for exacting war needs—an undertaking "Eddystone" were well fitted to carry out from their unique position of specializing in equipment for the Home and Overseas Short Wave Markets.

Experienced users will require no reminder of the excellent "Eddystone" quality. To newcomers may we stress that they will do well to insist on "Eddystone" components, thus ensuring the best possible results. A keen and personal interest is taken in the design and production of all "Eddystone" equipment.

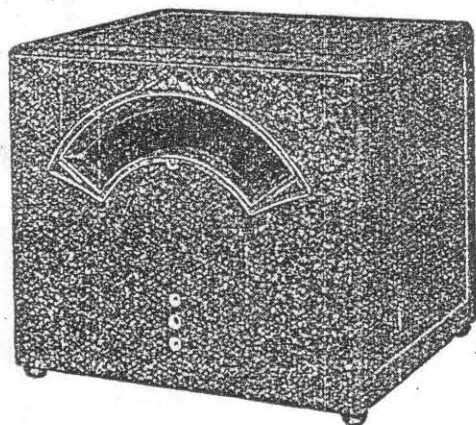
Our products are obtainable from selected Registered Dealers. If you have any difficulty in obtaining supplies please write to us when we shall be happy to give you the address of your nearest "Eddystone" Agent.

STRATTON & CO. LTD.

Manufacturers of HF, VHF and UHF Equipment
Eddystone Works, West Heath, Birmingham 31.

NEW EDDYSTONE LINES

for AMATEUR USE



METAL CABINET

An entirely new method of cabinet construction for the enthusiast. This latest Eddystone production comprises an all metal cabinet of aluminium-copper alloy diecast in two halves. These hinge together with overlapping joint. Perfect screening with instant accessibility, this cabinet offers endless possibilities for the construction of amateur gear. Can be supplied with or without escutcheon hole. Smart brown crystalline finish.

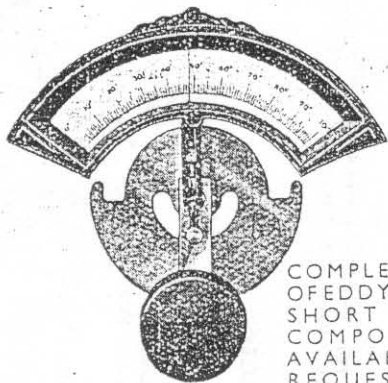
No. 974. With escutcheon gap. Price 27/6
No. 975. Plain undrilled cabinet. Price 27/6

Size: 9 1/2" x 8" x 8"

DIAL DRIVE

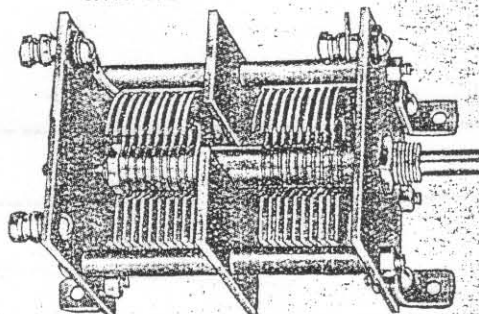
This dial drive can be used with the metal cabinet described above. It is a precision made article suitable for all purposes where accuracy and smoothness of tuning are required. The 6" open vision dial is travelled by a moving pointer and the reduction ratio is 22:1.

No. 970B—Black } Price 10/6
No. 970W—Walnut }



COMPLETE LIST
OF EDDYSTONE
SHORT WAVE
COMPONENTS
AVAILABLE ON
REQUEST.

S.W. GANGED CONDENSER

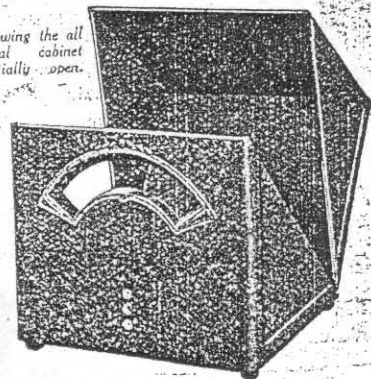


A precision made gang condenser for short wave work and highly suitable for amateur band super-hets. All brass construction with well screened sections, low minimum capacity, giving large tuning range ratio.

No. 973. 2-gang, 40 m.mfd. sections. Price 15/-
No. 967. 2-gang, 150 m.mfd. sections. Price 17/6

Can be supplied 3-gang if desired.

Showing the all
metal cabinet
partially open.



EDDYSTONE

SHORT WAVE COMPONENTS

STRATTON & Co
Ltd
BROMSGROVE ST.
BIRMINGHAM.

London Service
Depot: Webb's
Radio Stores, 14
Soho St., Oxford St.,
W.1

- Bugs, of the Third Kind.-

- There are BUGS, as beloved of Entomologists, there are BUGS as used by the KGB. Lastly are those BUGS which we in EUG are concerned with, of the kind that spoil our listening or maybe even stop the listening altogether.

- Perhaps one of the commonest that we encounter is a temporary, or even long term reduction in performance. This may be a loss of gain, increased noise level, or lack of the usual frequency stability that we have come to expect in our Eddystone receiver.

- Once the problem has been isolated and found to be in the receiver, and not caused by one of the ancillary items used with the receiver, then we can begin to locate the fault.

- Do try to make certain that your fault condition is not in, say, the phones, the external speaker unit, the aerial (or ATU if used). Only then suspect your Eddystone as, whilst nothing is perfect, these sets were so over-engineered that problems even after some 30 years are quite minimal.

- You know, or think that you know, the fault is with your receiver, what now? Well open up the set, remove the retaining screws at the rear of the case and pull it off, be sure to disconnect it from the mains whilst so doing! Do a good, long, visual inspection both of the top chassis and the underchassis, noting any signs of damage such as burnt looking resistors or oozing white deposits from the electrolytics. Best to make notes comparing the items that look doubtful with the actual circuit diagram. A look at the schematic will show that many resistors may be checked for ohms value whilst in situ, possibly some condensers too. Do this with a good meter, allowing +/- 10% in the case of resistors. Paper condensers should read infinity on a good meter and electrolytics should after charging up read very high ohms, close to infinity. Any that are doubtful should be replaced. Newer components tend to be smaller than those in our 50s sets so replacement should be easier. BUT, do not try using PCB, low melting point solder on valve equipment.

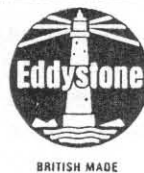
- Okay so now you have cleared up any suspicious bits, if you have any spare, replacement valves get them ready. Power up the set, remembering that the AC and HT DC are nasty and can bite. Check out the set again, with and without an aerial, if the problem was noise is it still there? If the problem was low gain is the set still low gain? try swapping the valves one at a time. SWITCH OFF BEFORE REPLACING EACH VALVE and allow time for warm up each time. Was the problem stability? then try tapping the various components in the local oscillator circuit a Bic pen is ideal for this, insulating and not liable to give too hard a tap. The frequency changer should be tapped as the signal - preferably a stable heterodyne - is listened to. Under the chassis the same process, try tapping the components associated with the suspected part of the circuit.

- A mains hum, whether or not the set is tuned to a station, will usually be indicative of HT smoothing condensers, although it could in AC/DC sets also be indicative of a heater/kathode leak - common enough in the UY41 or UL41 type valves.

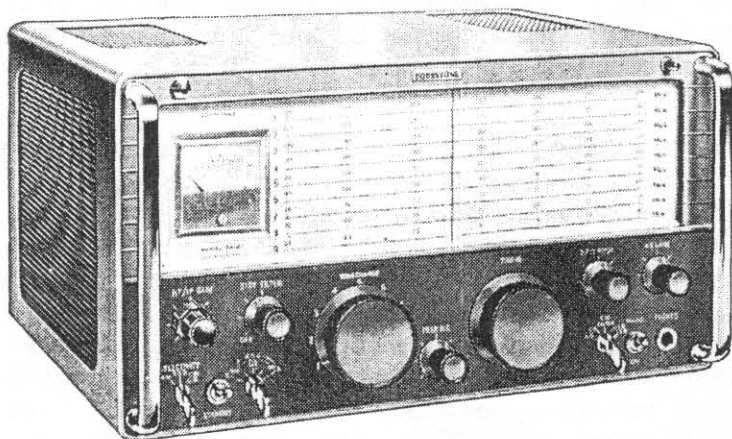
- Rarely will the problem be located in any of the actual Eddystone made components, although there are increasing signs of age related problems with the silver mica condensers in tuned RF and IF circuits. An open circuit winding in any coil, RF, IF or AF will most often be caused by increased current flow due to a failed paper condenser somewhere in the circuit. Noise when tuning the main tuned circuits is often from dried up and solidified grease on the rotor bearings. Noisy pots are sometimes repairable by cleaning with switch cleaner but often it is best to fit a

cont;

Eddystone

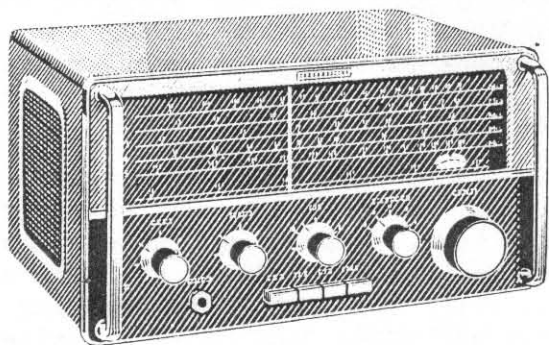


Amateur communications receivers



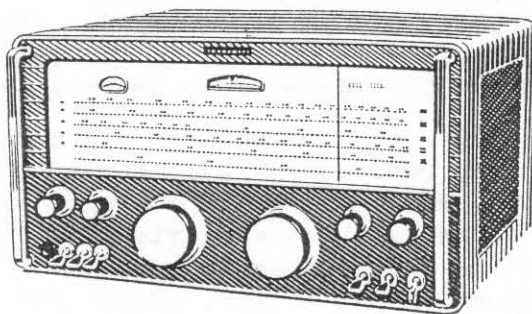
EA12 An amateur bands double-conversion superheterodyne receiver, for a.m, c.w, and s.s.b reception. For all amateur channels between 1.8 MHz and 30 MHz in nine 600 kHz bands with 28 MHz to 30 MHz in four bands.

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 f.s.k and panoramic adaptor.



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.



940 H.F communications receiver

An outstanding 13-valve receiver with two r.f and two i.f stages, silicon diode noise limiter circuit and high quality push-pull output. Built to a professional specification, facilities include provision for c.w, a.m, and s.s.b reception over the range of 480 kHz to 30 MHz in five bands. Suitable for 110/125 V and 200/250 V. 40-60 Hz a.c mains.

Comprehensive information from your Eddystone distributor or: Eddystone Radio Limited, Eddystone Works, Alvechurch Road, Birmingham 31. Telephone: 021-475 2231. Telex: 33708

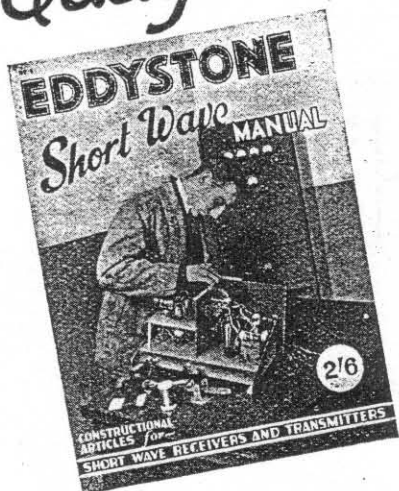
A MARCONI COMPANY

LTD/ED551

22.17

FOURTH EDITION; 1ST PRINTING, SEPT 1968

Again published — the Eddystone Short Wave Manual



This popular manual of absorbing interest to every Ham and Short Wave Radio constructor will be available at the end of October. The Eddystone Short Wave Manual can be obtained ONLY from authorised Eddystone Dealers.

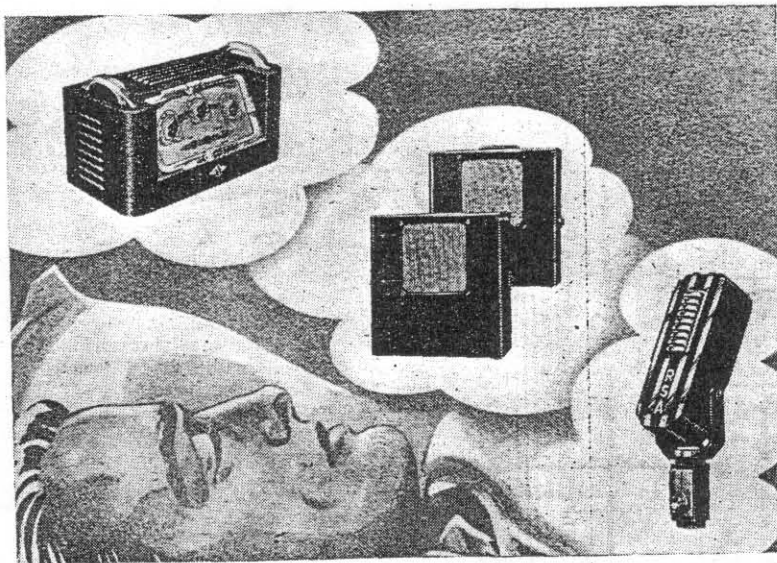
WE REGRET—A NOTE OF WARNING

It is our duty to you (and in fairness to all our registered Dealers) to be frank regarding the present supply position of Eddystone Components. In view of to-day's manufacturing difficulties (common to all) we are not finding it easy to meet the demand as quickly as we would wish. We must in the Nation's interest maintain our Export Drive thus leaving only a portion of our output for the Home Market. To avoid disappointment, order your Eddystone Components well in advance. Don't blame your dealer if he cannot fulfil your entire requirements over the counter—he is doing his best for you and we are doing our best for him. You may be sure that we, the manufacturers, are doing everything possible to increase output. Distribution of our products will be made evenly throughout the country—you may not have to wait, but if you do, please be patient.

(If you do not know your local Eddystone Dealer, we will, if you desire, send you his address. Please send postage. We do NOT supply direct.)

Published by

STRATTON & Co., Ltd., Eddystone Works, Alvechurch Road, West Heath, B'ham 31



DREAMS DO COME TRUE . . .

There's been nothing new for you from R.S. for 7 years now—like many others we were actively engaged on the Big Job. But in our few leisure moments we were dreaming of a new factory and a new range of Sound Equipment.

Now our dreams are coming true, we've got our new factory, and the new range is almost ready for you.

Be amongst the first to receive full details of our new equipment—write to-day.

MICROPHONES

LOUDSPEAKERS

RADIO

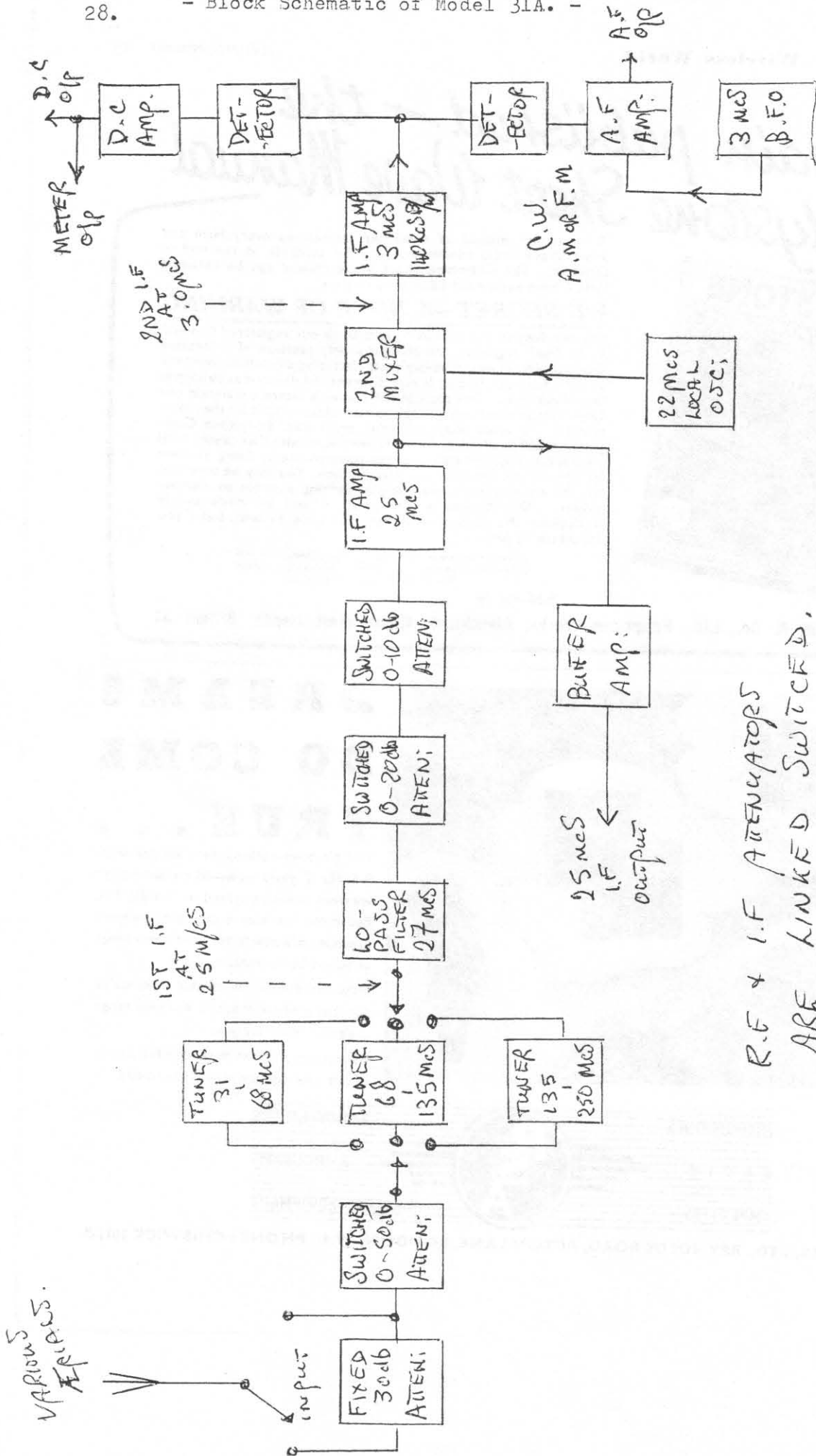
RADIOGRAMS

AMPLIFIERS

PORTABLE EQUIPMENT



R.S. AMPLIFIERS, LTD., REYNOLDS ROAD, ACTON LANE, LONDON, W.4. PHONE: CHISWICK 1011-3



R.F. & I.F. ATTENUATORS ARE LINKED SWITCHED.

VARIOUS PERIODS.

- Featured Model, The 31A. -

- This set is correctly described as a 'Noise Measuring Set' and is supplied with all the necessary ancillaries which enable it to perform this function fully.
- Despite this the very high sensitivity of the basic receiver, better than 2 microvolts at the input socket, allow of its being used as a full receiver with a suitable, efficient aerial system.
- The total coverage is from 31 Mc/s to 68 Mc/s, 68 Mc/s to 135 Mc/s & 135 Mc/s to 250 Mc/s, from three separate tuning units each with its own tuning knob and scale.
- The tuning units feed their output at a first IF of 25 Mc/s into the separate First IF Unit, this goes to the Second IF unit at 3 Mc/s via a local oscillator/mixer of the Ring Modulator type.
- Output of the Second IF Unit goes to the Detector and AF amplifier unit. For SSB a 3 Mc/s BFO unit can be fed in at this point. For measurements a DC amplifier and meter control unit is provided.
- What I have not yet mentioned are the two built-in highly accurate Attenuator units. The first is in the aerial input circuit and before the 3 tuners, this has a fixed 30 db attenuator which can be switched in or out of circuit as required. This is immediately followed by a switched 0 - 50 db attenuator providing 10 db steps.
- The second attenuator is between the tuner output and the 25 Mc/s IF amplifier. It is preceded by a 27 Mc/s low pass filter. The attenuator has two switches, for 0 - 20 db in 10 db steps and 0 - 10 db in 1 db steps.
- An external output is provided from the output of the 25 Mc/s IF amplifier unit, this could be used to drive a panadaptor.
- The output of the 3 Mc/s IF unit goes via a band pass filter with a pass band of 140 Kc/s
- Contrary to what one would expect the 22 Mc/s second local oscillator is free-running and not crystal controlled, although I understand that a small number of 31As were later modified by one user to crystal control.
- Similarly the 3 Mc/s BFO is a free-running oscillator used on CW or SSB reception only.
- Modes available are quite comprehensive, whilst the switching indicates just the three, CW, AM or FM, the 31A can handle phase mod signals on the FM position and on CW position it gives adequate reception of SSB. The BFO is not variable but the trimmer may be tweaked to give either USB or LSB offset on a received signal.
- The original design of the 31A was for an interference measuring set to a specification (W.6912) for the British Post Office. It is the commercial version of the Post Office Measuring Set 31A and complied fully with the then BS standard in force (BS.727.1967). It can be used with the aeriels supplied for the location and measurement of CW carriers, impulsive noise, or modulated signals. A small fixed dipole, horizontally polarised, or a vertical whip may be used, connected to the 75 ohm input.
- Power supplies are mains of 100/125 and 200/250 volts AC and this is used to charge a built in Nicad pack of 12 volts which supplies the receiver circuitry. The battery pack is of 2 amp/hours capacity, the design of the 31A is such that some 12 hours of use can be expected from a fully charged battery.
- In use the 31A can be set up to measure either the voltage or the field strength of the received signals, a built-in calibrator function allows the receiver to be set prior to measurements being taken.
- Using all discrete components, of the germanium, pnp, type the 31A has double screening of the complete unit and each separate unit contained in the case has its own screened box. The 31A Mk II is different from the older 31A in that it has an IC loudspeaker amplifier unit which drives a small internal speaker fitted to the right of the front panel.
- A total of 36 transistors and 17 diodes are used in the 31A, with the added IC in the Mk II version. A positive earthed supply is used with a battery protection circuit to prevent overcharging. See block schematic.

- Free Members Adverts. -

- SELL, model 770S in good working order, see item in the newsletter re this model. Very heavy so must be collected. Please ring Jim Murphy in Bradford area on 0274-615925 if you think it is worth £125 to own this rare beast. Complete with manual and schematic.
- WANTED, urgently an I.C type number SP8629, this is a pre-scaler type for extending the range of an RS DFM module up to 150 Mc/s. Or the source for this I.C. Does any member have info for otherwise increasing the HF coverage of this DFM module type RS 258-063 ??? Please write to P.F. Rowe, The Beeches, 58 North Lane, East Preston, Littlehampton, West Sussex, BN16 1HN, Thanks.
- WANTED, any model Eddystone speaker units, also 680X, 888A, EA12, 880, or 880/2, /3, or /4, EM34, 964, 964/7A, /7E, EB35A, EY11, and any Eddystone Panadaptors. Call Brian on (France) 00-339305-4661, will get your number from you and call back immediately to cut your costs to minimum.
- WANTED, Eddystone Receiver 770U Mk II and 830/2, must be in excellent condition with manuals. Please write in first instance to Brian R. Cauthery, VE3 DFC, 19150 Hurontario Street, RR #1 Caledon, Ontario, LON 1C0, Canada. or try phone on Canada, 519-927-5858.
- WANTED, replacement 'S' meter for model S.930 receiver (not 940). Please contact Ron Snashall, 107 Clift Crescent, Chisholm, A.C.T. 2905, Australia. or phone 06-291-9337 (Australia).
- WANTED, Holder/socket for Eddystone 6 pin plug in coil former. Your price paid. Ring Phil on 0113-244-0378 (office hours) or 0113-281-0264 (evenings till 10.00 p.m and weekends.).
- SELL, Eddystone 770U, Mark 2/2, 150 - 500 Mc/s in fair to good condx, price £85 cash. Contact Alf on 0121-475-8647, (Birmingham area).
- SELL, Model EA12 receiver in good working order with manual and circuit, £150 or near offer. Mr. u. Seibert, 36 Narbonne Ave, Eccles, Manchester, M30 9DL, or phone 0161-789-3243.
- WANTED, EUG still needs info and/or circuit of the EY11 Yachting model receiver, PLEASE, somebody out there must know about this set ? Write Ted at EUG.

- I.F Regeneration for the 840C -

- Having used this receiver for more than 20 years as an SWL I have on several occasions wished for slightly more selectivity. This has usually been when my listening has suffered from degradation of the wanted signal on today's crowded broadcast bands. Being a 'wrinkly' with some fifty years of 'wireless experience' I have recollections of the various methods that were used in the early days to increase the selectivity of the rather wideband receivers then in use.

- Slight positive feedback was one 'trick' that was often resorted to, I can remember using it myself on a 4 valve straight set prior to getting my first superhet. In this case I fitted a very low capacity preset between the anode and grid pins of the second RF valve.

- Looking at the circuit of my 840C I decided that a similar thing could be done on the V3 I.F amplifier stage. Opening up the set and inverting it on the bench I found that there was plenty of space to do the job directly across the underside of V3. A twisted wire, low capacity condenser was decided upon, two lengths of single strand, polythene insulated wire, each about 2" long were prepared, with a one eighth bared end on each wire. The bared ends were soldered onto the tags of pins 2 (the anode) and pin 6 (the control grid) of V3. The two wires were then twisted together for their full length, a firm twist gave me a fixed low value condenser which could be adjusted downwards in capacity only, by snipping off small lengths of the 'twist' - in the event I chose to reduce the length by $\frac{1}{4}$ inch each time. The 840C was powered up on the bench in its inverted position, REMEMBER THAT IT IS AN AC/DC SET AND THAT MAINS VOLTAGES ARE PRESENT? TAKE PRECAUTIONS ! After warm up a weak signal was tuned in on range 1, actually a RTTY signal sending 'revs', with BFO off I tuned the RTTY station for maximum, AF gain full up and RF gain almost at maximum.

- There was definitely too much feedback as I was getting a definite BFO effect on the signal, which increased to a whistle as I further increased the RF gain. It took me 3 snips off the length of twisted wires before I had just eliminated any of the BFO effect. A check was made at several points on all ranges and the signals did seem clear of any traces of over-regeneration. Turning the set right side up again I tuned through the 6 Mc/s and the 15 Mc/s bands, after so many years with this set I was more or less used to the results obtained on these favourite bands, there was a definite 'sharpening of the signals' over those received about an hour previously on the same bands, without the 'condenser' being fitted. The mod has been left

32.

in place and now - some 3 months later - I have decided that it has provided a worthwhile improvement to my 840C. A simple reversible mod that has not affected the value of my receiver, cost nothing, and has enhanced my listening pleasure.

The following are some late items that came in since Ted went to press on this newsletter so are included here so that members will not have to wait too long for their requests to be printed.

For Sale: Eddystone 830/7 very recently professionally serviced and re-aligned. £200 V.G.C.. Panadaptor EP20 (EPR17 combined unit) also available. Eddystone 1837/2 pristine condition looks as if it has just been delivered. £350 plus. EC958 very good clean condition GWO £350. Wanted: 880/2, 880/3 or Marconi Marine H2304. Contact Mr Hamilton, Telephone 0161 224 9313.

Wanted - 770RII/7 or similkar in complete and unmodified condition. Ring 01270 67059 evenings. Jack Read, Nantwich, Cheshire.

Finally a letter from an Italian enthusiast who is not a member and finds it difficult to read the newsletter because of his poor English. but is interested in a book of photographs and of technical data of Eddystone Receivers!. I will send him back copies of the newsletters and hopefully when Alan Ainslie's book comes out he can get a copy of that. However if any EUG member wants to correspond with our Italian fan, he can be contacted as follows; Mr Sabino Fina, Via Cesimali 80, 83042 - ATRI PALDA, AVELLINO, Italy.

-ENDIT. - ENDIT. -

-Another issue ready to go for copying, hardly seems like six years since I first had the idea for EUG, but it is.

- The Xmas Supplement seems to have become a regular thing, as the subject matter has been decided for the coming Xmas - the Eddystone Lighthouse - I would be interested in hearing from members with any info at all, or photos, which indicate any connection between the Eddystone Lighthouse and the Eddystone Radio Company.

- Items for the Newsletter are best sent in ready typed, or computer printed, as was the article in the last issue by Graeme Wormald. This is far better than me having to interpret handwriting and typing up to item myself. However PLEASE don't let the above comment stop you all from sharing your info with EUG, for those without access to a typewriter I can ALWAYS do your item

73,

Ted Moore.