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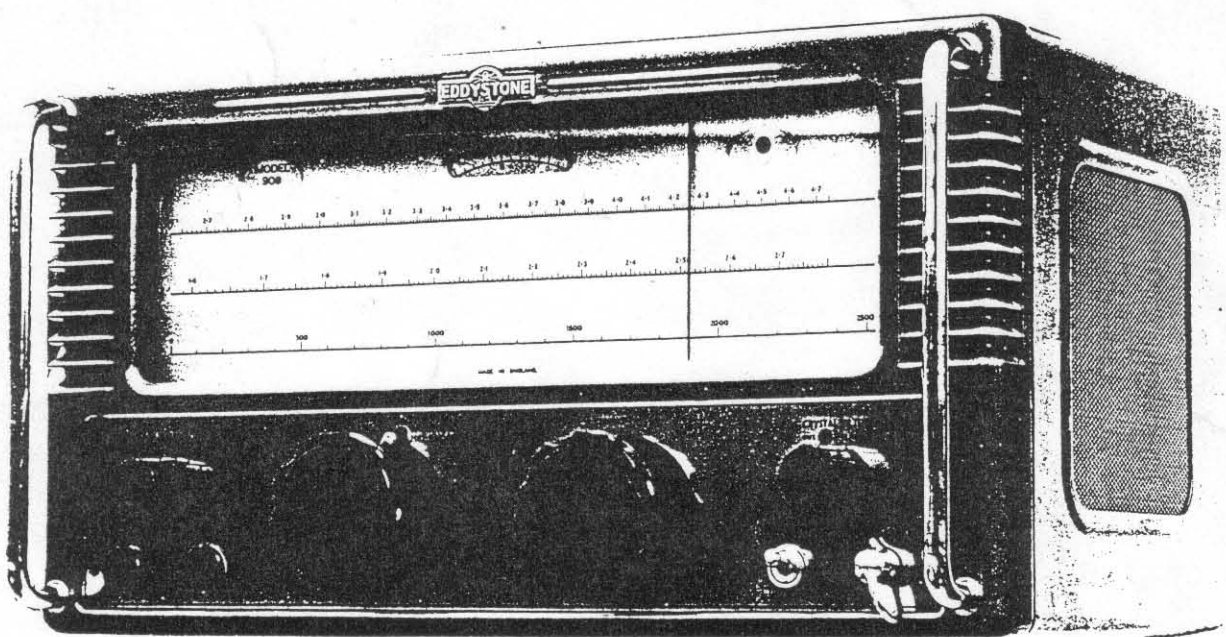
Eddystone User Group Newsletter

Issue No: 31

June 1995



Featured Model: The 909A MF Marine Rx



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*Information quoted from Eddystone Literature by kind permission of
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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.

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.

This is issue 31 of the newsletter and is the first 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.

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. All technical enquiries that you write in with will find their way to Ted Moore for him to answer. Requests for manuals and newsletters will be handled by the EUG volunteers but it can take several weeks, depending on our workload. Please be tolerant to any delays you may suffer in getting what you want. The EUG has now grown to some 230 members and this time of the year a lot of our time is spent on subscription renewals. I am pleased to say that we will have to send reminders to less than 50 members this year. It probably helped that Ted included a renewal form in with the last newsletter.

The National Vintage Communications Fair was held at the NEC on 14th May last and we manned a stand for the EUG. It was nice to see so many members, some of whom use it as an opportunity to renew. We even managed to bring in five new members on the day, including a Dr Jarrett who believes he may be descended from the Rainsford and Jarretts that were the forerunner to Stratton and Laughtons, Eddystone's founders. Following the NVCF a Brian Cauchery VE3DFC of Ontario wrote to the organisers saying we was looking for Eddystone Receivers and they passed his letter on to us. Another NVCF is being held at the NEC in December 1995, but I don't think we can afford to attend more than one such show per annum, so we will have to wait til next May before we set up our stand again.

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.

Tommy Walsh EI7EMB of 28 Clonshaugh Park, Clonshaugh, Coolock, Dublin 17 has a 888A which he has just purchased. He tells us he is love with this set but cannot get access to the inside of the glass and and dial to clean them. Can anyone help him get access to that part of the set?

A letter from Mr Andrew Humphriss, who admits to not being a member, but is a keen collector and restorer of Eddystone Receivers. He is trying to restore an ECR vintage 1939. We have given Mr Humphriss all we have on this set and it is not much. He is looking for any Technical

information on the ECR. Can anyone help him?. He lives at 30 Foxes Way, Warwick, CV34 6AY.

It is with regret that we heard of the death of EUG member Bill Wilson of Aberdeen recently. Bill was a very keen EUG member and used to help Ted with his illustrations. His daughter contacted me with some sketches Ted had sent her Dad and who was unable to complete them prior to his sudden death. She said that Bill got a great deal of pleasure from his EUG activities.

Some Late Adverts:

Wanted - Speaker Units, Panadaptors, 680X, 888A, EA12, 880/1 or 880/2, 880/3, 880/4, EM34, 964, 964/7A, 964/7E, EB35A, EY11. Contact Brian (France) 00 33 93 05 46 61. Leave a number and he will call you back immediately.

Wanted on Eddystone Speaker Plinth like Type 688. Black Crackle if possible, but not essential to match a 640. Reasonable offer accepted to suit senior citizen. Phone 01902 844965 evenings or write to Mr Screen, 59 Wood Road, Codsall, Wolverhampton WV8 1DN

Wanted - Camper and Nicholson receiver model no 7020, will purchase outright or exchange for my Eddystone Panadaptor Model No EP14. Also any Eddystone receivers, particularly models EC10, EB35, 870, 960 please. For cash, collection possible. Please phone 01374 128170 or Fax 01372 454381.

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

Wanted - Table top Cabinet for EC958/7. Contact Stan F5REL, 6 Rue du Bachinet, F: 60430 Abbecourt, France. Fax 00 33 44 89 49 50

Wanted - Eddystone 1650/2. For Sale - Eddystone 1837/2 with full manuals. Superb receiver, £320. Racal RA1772/2 £550. Prefer inspect and collect. Phone Peter 0141 649 2328.

Well that all the news from Eddystone Radio, I will leave you to get on with the interesting bit and read another of Ted's fine newsletters. I do not know where he gets the inspiration. But I know EUG members are grateful he does.

All the best

Chris Pettitt - GOEYO
Managing Director
Eddystone Radio Limited

- Issue 31. -

- Another issue, another year, for EUG and this newsletter. With the help and support of Chris of Eddystone Radio let us hope that we can get to our TENTH anniversary.

- In the last issue Chris mentioned the matter of subscription renewals, I hope that all members will get with it and send their subs; so as to minimise the work required of those anonymous volunteers at the Bath Tub.

- The Bath Tub will soon be no more ! As Chris said the Company will be moving to a new site at the expiry of their lease in West Heath, this news plus the announcement of the big contract that Eddystone have been awarded for DAB radio systems is good news indeed.

- One thing I MUST mention again, PLEASE do not telephone to Eddystone Radio on matters concerning EUG !!! The service that they provide to us in EUG is done purely on a voluntary basis and these telephone calls are a very real nuisance to the staff at Eddystone Radio !!! So come on, let us NOT give anybody cause to call any of the EUG members names, such as NUISANCE.

- Mail enquiries will be dealt with as expeditiously as possible, either directly from the Bath Tub or by forwarding your technical queries to me, and rest assured that I shall reply as soon as possible from this end.

- Apparently the sorting and filing of the Eddystone Archival material has been done, thanks to Alan Ainslie. We are very lucky that so little model information is actually missing, it is very rare that a members queries re the older models goes unanswered.

- Single spacing versus double spacing, as you will note parts of this issue have been typed using single spaced lineage. This is in an attempt to increase the amount of info that we can squeeze into your newsletter, without actually increasing the number of pages. Now, it may be that this format does not suit many members, give it a try and then let me know what you think. I found that at first glance it seemed harder to read, but that after the first few paragraphs everything seemed normal. It does mean a vast increase in the textual content of this newsletter and maybe I can begin to catch up with some of the backlog of material that I have built up, mainly from your mail.

- 1996 sees the 300th anniversary of the first ever lighthouse construction on the Eddystone Reef of rocks. Thanks to the hard graft of one member I am already able to tell members just what their Xmas supplement, to go out with the December issue of the EUG Newsletter, will be. Graeme Wormald has put together a full history of the four lighthouses that have been erected on the Eddystone rocks. All the constructional details and a wealth of historical fact ending with the design details of this, the fourth Eddystone Lighthouse which has now stood on the reef since 1882.

- Just a comment from Graeme Wormald, many members will have heard of the world famous Ted McElroy, still holder - I believe - of the world record for high speed morse. Okay but how many of you knew that the same Ted McElroy was also a stateside agent for Webbs Radio ? Webbs Radio being the then, retail outlet for Eddystone Products.

- Previously Unknown Version of the 940 ? -

- Mail from Robert Ellis mention a 940 which he used to own, apparently a factory modified set. The strange thing being that this 940 was that it had a 12 way Plessey power plug/socket assembly, a NATO stock number, a mod plate where mods 1 & 2 had been struck out, and yes - the powersupply subchassis was in place but there were no components mounted on it, thus accounting for the rather lightweight feel of the set. One other point mentioned is that the DC HT supply was split, one supply going to the AF and output stages, another supply to the RF, Osc; and IF stages.

- The original seller had mentioned that the 940 had come from a 'government' source, but no more was known. How about it ? do any of you ex-MOD bods out there know anything about this version of the 940, please ?

- Model 640 QRM.-

- This has come up twice in recent mail, broadcast breakthrough on the 640 receiver, in one case whilst listening to a weak signal from WWV.
- The German language QRM was not identified but it was noticed that it only became audible after dark and when using the external long wire aerial via an ATU. There was no QRM at all when the loft mounted doublet was used.
- After some attempts to identify the signal failed, all efforts went on eliminating the interfering signal. Tuned to a clear frequency on any band the QRM only came up enough to be a nuisance when the operators hands were close to, or touching, the front panel controls. A further check showed that just touching one finger to the Crystal Phase condenser knob was sufficient to bring up the interference sufficiently for the German speech to be identified.
- At EUG this is a known phenomenon, has been known since it was first detailed back in the 1950s. In fact a Short Wave Mag article dealt with the cure of this QRM. (Dec; 1950 if you want to check.)
- Basically you need to open up the set, identify the crystal phasing condenser, and then reverse the connections of the rotor and stator. A look at the schematic for the 640 will show that this puts the rotor more nearly at ground (chassis) level, less chance of pick-up from the rotor getting into the IF stages.

- G6SL, the Eddystone Radio Station.-

- In his foreward to issue 30 Chris mentions this station, and that it was recently activated for International Marconi Day. G6SL has a long & illustrious history as an experimental amateur station. In the pre WW II days it was used as a test station for much of the Strattons VHF equipment.
- From various sources I have been able to discover that G6SL was in the forefront of VHF communication when the amateur 50 Mc/s band was allotted for use in the UK, this was pre the widespread use by television.
- From a 1935 Wireless World article I have been able to glean the following information about test transmissions from G6SL.
- "Ultra- Shorts in the Midlands".-
- Great interest has been aroused by the ultra short wave transmissions from station G6SL, Birmingham, operated by Messrs Stratton and Co Ltd.
- The schedule of transmissions for the next few weeks is as follows,-
- DATES,- June 16th, 23rd, July 7th and 14th.
- TIMES,- 10.30 a.m to 11.30 a.m. Beam Aerial.
- 11.30 a.m to 12.30 p.m. Omni-directional Aerial.
- 3 p.m to 4 p.m. Beam Aerial.
- 4 p.m to 5 p.m. Omni-directional Aerial.
- The beam aerial is directed 50 degrees west of south and the omni-directional aerial is a vertical dipole. The transmissions on 50 Mc/s are telephony frequently interspersed with signals of 3 second dashes of a 500 c/s note for identification purposes. Transmission periods are of ten minutes duration with ten minute intervals for listening or possible two way communications.
- Written or telephoned reports will be welcomed at the Eddystone Works, Bromsgrove Street, Birmingham, 5.
- There are records of these USW/VHF transmissions having been heard on the other side of the atlantic, but no records of any actual across the pond QSOs on this 50 Mc/s frequency.
- Another source however does comment on the fact that on many occasions signals from the U.S of A were heard at G6SL, whether they were heard at this date is not clear.

- Tuning circuits and Quality (Q).-

- The normal inductance (L) and capacitance (C) parallel tuned circuit has losses inherent in its design and construction. These losses reduce the Q of the tuned circuit from the theoretical possible, which is normally taken to mean infinitely high impedance across the circuit at resonance.

- Some of these losses are unavoidable, resistance in the wire of the inductance, leakage in the dielectric of the condenser. However other losses which may exist, and be minimal when the circuit is new, can increase considerably with time and use.

- One factor often ignored is that many coils and condensers use wax for both insulation and fixing purposes, with age this wax becomes hygroscopic, it absorbs water. This alone can be a killer for both coils and condensers, storage in a damp location is an almost certain way to cause damage, apart the wax problem the humidity can cause copper corrosion, in many cases the solder used had an acid based flux and whilst the residue remained dry there was no problem, when damp the acid can eat into metals such as copper and aluminium. Contacts between dissimilar metals can develop small emf s across the contact point, this leads to generation of noise in the signal circuits.

- A test carried out on some of the 1940s wax insulated paper condensers which had been removed as leaky, showed that after drying out at a lowish temperature the leakage could, in many cases be reduced to such a low value that they were suitable for re-use.

- Electrolytics which had been unused for many years were found to have a small DC potential across their terminals, despite long term shorting this p.d would come back again when the short was removed, evidently the make-up of the condenser meant that it was acting as low voltage battery, or maybe the cause was in the soldered joints ?

- Silver mica condensers as used in many RF and IF tuned circuits also cause reduced Q, and off resonance problems as they age. The usual method of construction was a dielectric of mica, with a 'sputtering' of silver on each side of the mica sheet. The leads were soldered to the silver layers. With advanced age the silver apparently emigrates towards the edges of the mica dielectric, if there is a wax layer to insulate, the reduced distance between the two silver electrodes can increase leakage. Eventually the migrating silver may even touch over the edge of the mica, causing a full short circuit. One effect of the movement of the silver is a lowering of the effective capacity, causing the often found change in resonance of the tuned circuit.

- A good digital Capacity meter can be of great help to YOU, even if all your equipment is valved ! Tom Sharpe, ex Plessey.

- The Electro-Magnetic Pulse, and Valves. -

- Just a few notes sent in by one EUG member who does not wish to be named. An article in one of the mags last year mentions the most recent addition to the Nuke arsenal, the so-called EMP bomb.

- It seems that this is a modified Uranium only bomb which has been designed mainly to destroy all electronic circuitry within a radius of several kilometres of ground zero. Ideally the target would be an enemy installation, such as a nuclear device construction facility. Destruction of all electronic equipment would effectively shut down all equipment without causing either melt-down of the reactor cores or a fission explosion with resultant fallout. Gamma Rays are the culprit ! (see below).

- Some quoted figures are of interest to those who champion the Valve over its semiconductor equivalent. The EMP bomb can produce a pulse of up to 25,000 volts per metre in equipment located up to 1 kilometre distant. At a distance of several kilometres the EMP will still be in the range of 5 - 6 kilovolts/metre.

- In the 1970s test of a 1.4 megaton device at Johnson Island, the resultant EMP was recorded as having caused damage on Hawaii Island some 1300 kilometres distant ! Series linked street lighting was blown, circuit breakers tripped out, alarms were set off.

- Silicon chips can be burnt out by as little as 0.08 milli-Joule, even explosive detonators can be set off by as little as 0.02 milli-Joule.

- The out of date (sic) thermionic valve however can easily survive a power pulse of 1 to 2 Joules.

- These latter figures were determined in an underground test conducted in the Nevada desert by the U.S Defense Dep't. The test was specifically designed to test Electronic equipment for the armed forces use. The device used was built to produce a short but concentrated beam of Gamma rays, it had already been decided that these rays are the main effective constituent of the EMP. As a direct result of this test the EMP Bomb has been designed so that it has little fallout, the Gamma rays are beamed in a maximum power beam and it can be effective up to 25 kilometres from ground zero, in the destruction of those modern silicon chips.

- It seems that it is a case of "The Valve is dead, Long live the Valve". If you have a nuclear shelter at the bottom of your garden, then install your 940 or 830, not your EC10 or EC958 .

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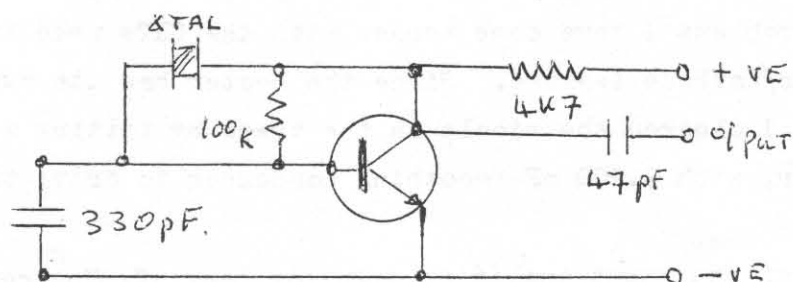
- Calibration Aid for the 770U Receiver.-

- When Simon decided that last winter would be an ideal time to devote his evenings to the restoration of his model 770U one need became immediately apparent, his ancient Advance sig; gene; worked okay but the calibration even at HF was poor. At UHF when the harmonics multiplied the errors the Advance was useless for calibration.

- A crystal oscillator preferably calibrated against WWV would be easily made from junk box items, this could either be used to verify and set the Advance sig; gene; or it could be used to inject a calibrated signal into the 770U. Simon decided that the latter case would be best, as the unit could later be built into his receiver and provide permanent calibration pips throughout the ranges.

- All items came from the junk box in the shack so no prices can be given, however it would seem that a trip to one of the better Rallies should find the parts for about a fiver. None of them are really critical, except the crystal which in this case came from a defunct piece of Tv test gear, it was a metal cased 10.0 Mc/s crystal. Transistors tried in the circuit ranged from the OC171 and BC212 pnp types to the BC548 and the BC 182 npn types, a final choice was the BC 548 as several examples of this are available should one be 'blown' whilst testing the circuit. Whilst building and testing the oscillator the battery feed was a 9 volt PP3, now that it is installed into the 770U as a calibrator the feed is from the cathode circuit of the output bottle - free power !

- Calibration of the oscillator was easily done by beating its output as listened to on an HF receiver (940) with the 10.0 Mc/s signal from WWV. One point to take great care about is not to set up your oscillator to zero beat with the other standard frequency signals, i.e. that of RWM from Moscow which is on 9.996 Mc/s, easy to do this on the 940. If it proves impossible to zero beat the crystal to 10.0 Mc/s you can try the trimmer in parallel with the crystal in lieu of, as shown, in series. The oscillator can be made on a piece of veroboard or in deadbug fashion, however for permanent installation in the 770U this one was on veroboard and fitted into a mini Eddystone diecast box, with a hole for adjustment of the trimmer, coupling to the receiver was via a short length of wire that was left unconnected but stuck to the case of the tuner. See below,-



- Tired Panoramic Adaptors !-

- Recent mail from two members mentions the difficulty experienced with the EP20 and EP17R models. Age is really the problem in both cases ! Many of these that I have repaired in the past had been in military use, they had been switched on from new and never turned off over many years of use. In both of these models the circuitry is closely packed, a lot of heat is generated, and so a cooling fan was fitted, a very necessary item as you will discover soon enough when/if you try to operate the unit without a fan.

- Problems with low gain front ends are quite often simply a case of low emission amplifier valves in the signal path. Not always though, do check all voltages on the valves against the table given in the manual, I have found both leaky decoupling condensers and very high resistance resistors, some times they were several times the marked value and this can be caused by overheating brought on by a leaky decoupler.

- Another perennial problem with these units as they age is either a lack of focus or lack of X/Y adjustments, sometimes the pots do nothing, in other cases the spot can be moved but will not centre. I have found from past experience that this lack of focus, and possible lack of movement of the trace can be located in the passive components of these circuits. Take the focus of the spot on the EP17R, assuming you have the correct HT4 of circa 600 volts negative at the end of R91, the 22K that goes to the Brilliance pot, then you will find your fault is in one of those resistors that make up the potential divider down to positive chassis (this for neg; EHT). If a check does not reveal a very high resistor then go for C92 the 0.05mF condenser. It should be a 'Visconal' type rated at 600 VAC. Despite the fancy name they do go leaky and the replacement needs to be rated for at least the same RMS volts. I have swopped this on occasions for a 1 Kv AC rated polystyrene type, they work and they apparently last. For the immovable spot syndrome, try a check on voltages of V11 and V12, if too low try a check on the resistors and condensers in those circuits, C91 especially is very prone to leakage, a 0.1 poly type rated at least for 1 Kv DC will go nicely here. In one case I found that the $\frac{1}{2}$ meg Y shift pot actually read out at nearer to 4 megs ! A replacement must be of the linear track type. I suspect that Tony Morton, GØ MDZ might well have found his fault here.

- The only problems I have come across with the CRTs used in these units is one of heater/kathode leakage. Since the heater has its own well insulated LT winding I cleared the ripple on the trace by fitting a full wave bridge rectifier, with 2,200 mF smoothing condenser to drive the heater from D.C.

- Questions of the input amplifier gain, or lack of. You can check out

Panadaptors cont;

the valves on a valve tester if you have one or know of a friend with one, not many of the commercial Tv repair places can do this nowadays, unfortunately. Failing this a partial substitution can be done, the V3 EF94 can be swapped with the V10 calibrator. The V2A, $\frac{1}{2}$ ECF80 can be swapped with V5, 6, 11, or 13, but NOT V12 which is an ECF82. How to tell if one is 'low' ??? well feed your 5.2 Mc/s signal into the input of the calibrated Db pad, at C11 say. A simple swop of the V1 and V4 E180F valves here in V4 socket will show any disparity in gain between the two. The EF94 are going for about £2, as are the EF93. The E180F are about £3.50 each, you may get any of these a bit cheaper at a rally, but try Philip Taylor and see what he can do for you, he is after all an EUG member.

- The sweep oscillator occasionally gives a few problems, if you have tried the ECF82, V5B, and the ECF80, V6B, then check out the various resistors and condensers. Bad linearity with a very cramped trace at one end can be the silicon diode D2, I have used various modern types from 1N4001 to 4007 seem to work here. D1 has never been a problem, this is the varicap and is listed as a 100SC2.

- For realignment of the 720 Kc/s IF amplifier you need to centre your injection signal on the crystal frequency, which will surely have aged a bit and be off frequency, the cause of some loss of gain at times.

- One point that many owners of these units ignore is that they may be used with other models which have no IF output socket fitted. Nothing is easier than to fit an IF take-off point. Using the final IF amplifier you locate the cathode pin of the valve socket, this will have both a bias resistor and a decoupler connected to it. Lift the earthy end of the condenser by unsoldering it from chassis, fit a 47 or 56 ohm, $\frac{1}{2}$ watt resistor between the free end and the chassis. Lead a length of low capacity co-ax from the junction of the condenser and the new resistor to a coax socket mounted at the rear of the set, VOILA - an IF output ! No re-alignment needed.

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-Special Quality Valves.-

- A number of sets use valves which are so-called 'special Quality' types made for longer life with the same characteristics of the more down to earth domestic types.

- For our use it is often possible to fit the domestic variety with good results. The E88CC, for instance, may be replaced by an ECC88, it works okay too. In the article on the panadaptor above, mention was made of the E180F, an EF180 will work here. The transposition of the 2nd and possible 3rd letters in the line-up will show you what to look for. In many cases the domestic type is available as it was used in Tv sets.

- The Imperial Short Wave Six. -

- No, you avid collectors of rare models, don't jump for your cheque book in the hopes of adding to your collection. A reader has mentioned the above model, he says that together with his Dad and brother he built one in - he believes - 1937. It was kit-set, of the early DIY type and he recalls very vividly that one of his tasks was the winding of the coils for both short wave and for 'ultra short wave' bands. The coils were wound on Eddystone formers and these had ribs for the wire. It was, as the name shows, a six valve model but that is about all he can recall.

- There is no record in any of my files of such a model ! Not as being sold by Strattons/Eddystone at least. What I have come up with is a model of this name which was the subject of a very complete build it yourself article in the Wireless World of about that period, and yes, it did specify a number of Eddystone components including the DL9 composition coil formers.

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- Early 640 Factory Mods; -

- In the first batches of the 640 that left the factory the Standby switch was in the HT line and completely cut off the HT. The official circuit diagram still does show it in this position.

- However this did cause stability problems as the removal of HT allowed a cooling down of the valves, with a resultant change in frequency as HT came back on. Later versions of the 640 did away with this one cause for criticism of an otherwise very good receiver. In the later version the standby switch was fitted in the RF gain control circuit at the 'earthy' end of R26, the RF gain pot; again it does not break the circuit in the standby position but simply puts a 20 Kilohm resistor into circuit in series with R26, thus providing a considerable reduction in the stage gain. HT is left on all valves so that there is no cooling down of components with the ensuing change in frequency.

- One other advantage gained from this mod is that the 640 can still act as a 'listen-through' device when transmitting, providing side-tone on CW. Since the power of the associated Transmitter may vary considerably the fixed 20 Kilohm may temporarily be replaced with a 50 Kilohm pot whilst the required degree of attenuation in standby mode is determined, a fixed value resistor of the requisite value can then be fitted.

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- Wave Trap for that QRM from a local station. -

- Many of the Eddystone models that we use have a built in wave trap, designed originally to eliminate QRM at the receiver IF of one or other of the Post Office Coast stations that had MF transmitters on or near the 450 to 465 Kc/s IF range. These days this is not a problem, I cannot recall when last I had mention of this kind of QRM.

- However there are often letters which mention that breakthrough of one or other of the high power domestic transmitters is causing problems.

- One common cause appears to be the Radio 5 signal on 909 Kc/s, about twice the 450 Kc/s IF of many sets. This is a 200 Kilowatts transmitter which is located north of Sheffield.

- A tried and tested method of completely eliminating this pest is to retune the wave trap that is fitted in the aërial circuit of many models, so that it tunes to the 909 Kc/s.

- Let's take one model as an example, in the EC10 you have a wave trap which consists of a coil of circa 60 micro Henry, slughtuned, and resonated by a 0.002 micro Farad fixed condenser. The centre frequency of this is about 465 Kc/s. Replacing the 0.002 mF with a 500 pF condenser should now allow you to re-resonate the wavetrap to 909 Kc/s, eliminating the QRM from Radio 5. Okay the LC constants may be a bit out for a real Hi-Q circuit but it certainly does work.

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- A Painless Mod for Your 940 ? -

- This is one I have heard of before, yet have never tried out for myself, the info comes from Alan Carrol. If you want to get increased audio gain, as much as 6 db, then simply swop the V9 (ECC82/12AU7) for an ECC81/12AT7, same pinout and no change in resistor values necessary.

- I have heard of this being done in other receivers using the same valve in the AF/phase splitter stage, so it is not purely a 940 mod.

- High Value Resistors. -

- Many of the older valve models will by now be showing signs of old age, if not senility. One of the most common culprits of age related symptoms must be the higher value resistors used in that era. It would be very unusual to open any 50s model, where you did not find those 100 kilohms to be reading high. I have found them reading up in the $\frac{1}{2}$ Megohm range, frequently. More usual is to find a 100 kilohm which reads something like 180 to 200 kilohms.

- Now there are two schools of thought on this problem, mine and 'the others', take your pick. Most people who mention the subject blame the actual resistors as being of inferior quality, they just go high with age say the others.

- For myself I have another theory, I blame those infernal paper type condensers which always go leaky with age. In practice I have found that where there is a high screen dropping resistor then it will be decoupled to chassis by a paper type condenser, which Surprise-Surprise, just happens to have gone leaky. Now look at it this way, some of those leaky condensers are very leaky ! enough to have an appreciably low internal resistance. This causes the current passing through the resistor to rise, the resistor can get over-hot. THIS overheating is what causes the large increase in value of the resistor ! It does happen if you run some bench tests, and yes, I have had many examples of those condensers that had an almost complete short-circuit internally. It would certainly perk up the gain of your 1950s model if you could swop all of the resistors, and the leaky paper condensers. For a start the modern type of resistor is not so noisy as those older ones, many of them became prolific generators of noise when at operating temperature. The modern versions of those carbon rods are also smaller in physical size for a given rated wattage.

THE AMATEUR RADIO HANDBOOK

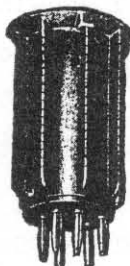


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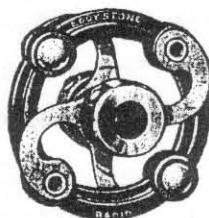


PRECISION SHORT WAVE COMPONENTS

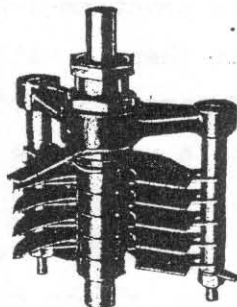
To-day, with the improved laboratory and workshop facilities and the enhanced skill and knowledge of our progressive team of radio engineers, we are still proud to claim that EDDYSTONE Components are ahead of competitive items.



No. 1003



No. 1009



S.W. COIL FORMERS. 8 ribs with an outside diameter $1\frac{1}{2}$ ", winding space is $2\frac{1}{4}$ ". Threaded formers carry 14 threads to the inch. No. 1002 6-pin plain. No. 1003 6-pin threaded.

COIL BASE. DL9 Chassis Mounting. For 6 pin Eddystone Coll. No. 964.

CERAMIC COIL FORMERS. A Frequentite ceramic former $5" \times 2\frac{1}{2}"$. Spiral grooves take 26 turns of wire up to 12 gauge. No. 1090.

VALVE HOLDERS. DL9 Chassis Mounting. 4 and 5 pin. No. 954.

STAND OFF INSULATOR. Beehive pattern No. 916.

AERIAL STRAIN INSULATOR. $3\frac{1}{2}"$, 400 lbs. strain. No. 999.

LEAD THROUGH INSULATOR. No. 1018.

INSULATED FLEXIBLE COUPLER. Diameter $1\frac{1}{2}"$ for $\frac{1}{2}"$ spindle. No. 1009.

SHORT WAVE H.F. CHOKE. Low loss end connections. D.C. resistance 22 ohms. Inductance 1.25 millihenries. 5—180 metres. No. 1010.

SHORT WAVE H.F. CHOKE. D.C. resistance 10 ohms. Inductance 1.5 millihenries. Heavy duty. No. 1022.

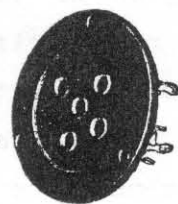
POINTER KNOB. 2" black bakelite for $\frac{1}{2}"$ spindles No. 1027.

SMALL POINTER KNOB. $1\frac{1}{2}"$ black bakelite for $\frac{1}{2}"$ spindles. No. 1044.

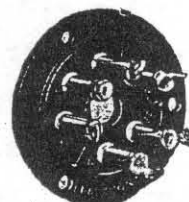
INSTRUMENT KNOBS. $2\frac{1}{2}"$ fluted knob in polished black bakelite with brass insert for $\frac{1}{2}"$ spindle. No. 1076.

$1\frac{1}{2}"$ knob as above. No. 1089.

Popular Type $1\frac{1}{2}"$ knob. Fitted grub screw but without brass insert. No. 1086.



No. 954



No. 964

EDDYSTONE NEW TYPE MICRODENSERS.

No. 1094. 18 m.mfd., high voltage type. Minimum capacity, 3 m.mfd. Max., 18 m.mfd. D.C. flash-over voltage, 3,500 volts.

No. 1129. 40 m.mfd., high voltage type. Min. capacity, 3.8 m.mfd. Max., 40 m.mfd. D.C. flash-over voltage, 2,300 volts.

No. 1093. 60 m.mfd. high voltage type. Min. capacity, 4 m.mfd. Max., 59.5 m.mfd. D.C. flash-over voltage 2,300 volts.

No. 1130. 100 m.mfd. Min. capacity, 4.5 m.mfd. Max., 100.5 m.mfd. D.C. flash-over voltage, 1,000 volts.

No. 1131. 160 m.mfd. Min. capacity, 4.75 m.mfd. Max., 161 m.mfd. D.C. flash-over voltage, 1,000 volts.

AIR DIELECTRIC TRIMMER. Designed for use with I.F. Transformers. Minimum capacity, 3 m.mfd. Maximum, 65 m.mfd.

MIDGET CONDENSERS. Suitable for trimming, balancing or band-spreading. Minimum capacity, 3 m.mfd. Maximum 65 m.mfd.

Write for Lists and also Specification of the "358" Communication Receiver.

WEBB'S RADIO

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

Telephone: Gerrard 2089



- 100 Years of Radio, 1995.-

- With 1995 being celebrated as the anniversary, or centennial of Marconi it is perhaps important to make some comments about OUR part of the radio profession. In 1997, just two years to go, it will be the 75th anniversary of Eddystone Radio, originally known as Strattons.

- With the recent comments in all the radio press let us try to remember that Eddystone is perhaps the only one of those manufacturers left. Whether the recent takeover of Roberts will mean the end of that marque is not yet known, but it might well be.

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- Lighthouse Radio, (see Issue 28).-

- Nice to see that some of you do read the Newsletter, and try to help out. Allan tells me that he has heard this station on about 10.451 Mc/s on a number of occasions, weekends only so far. From some very basic DFing that he has done it looks as though this station operates from the Irish Republic, and hence it is a Pirate, had to be anyway on that frequency, I thought. Thanks Allan.

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- Metal Valves, eg 6V6M.-

- This has been mentioned several times, that a metal 6V6, the 6V6M, should not be fitted to the output stage of the 640 receiver. Steve has found out the hard way, that the tie point for an HT supply was pin 1 of the normal 6V6G valve holder, when he went to remove the metal version from a 640 sent to him for repair he got a 'belt' from the can, and has a scar on his hand caused by the edge of the 640 case. (But what was he doing swapping the output bottle when the set was ON ???). I have to admit that I have seen 640s where there was not, and never had been anything on pin 1, but if you are going to use a 6V6M then make sure that pin 1 goes only to chassis, to earth the metal can. (see comment last page, Ted).

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- The EC10, and PW Magazine.-

- The write up in PW for May has a mention that no less than five EC10 receivers are owned by PW staff members, seems to say something for the model in todays world of high tech; synthesised receivers.

- Mind you eagle eyed E.U.G members will know that at least one of those five EC10s is very different from the others. Know what I mean? Well it was shown recently in that mag and with a magnifying glass it was possible to see that it was an EC10/2A, different spec and more rare too.

* * * TO ALL E.U.G. MEMBERS, YES THAT MEANS YOU ! * * *

* It really should not be necessary to have to say this, but it is. The point is that despite the frequent mentions in the Newsletters there are still many members who are disrupting work at Eddystone Radio by telephoning or faxing in on E.U.G MATTERS.

Can I repeat that the admin work that is done by Eddystone Radio, on behalf of the E.U.G. is done purely by VOLUNTEER members of the staff at Eddystone. All matters concerning E.U.G. must be communicated by mail, clearly marked E.U.G. or Eddystone User Group. This is in order that it may be put aside from Company mail. E.U.G. matters will only be dealt with when the volunteers have time available.

When speaking with Chris recently, he made the point that some members are not sticking to these guidelines, and are disrupting work at the factory with their phone calls or faxes.

We in E.U.G. are very lucky to have the help of Eddystone Radio in getting the Newsletter out, and in channeling all the mail, where necessary to me. As the Group gets bigger, and we have had some 30 new members since the recent mention in PW/SWM, this problem can get worse ! It is up to us to realise how lucky we are to have the backing of Chris and Eddystone Radio, so come on, keep to the above rules please ! They do have a Company to run there at the Bath-Tub.

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- Those Bargains at the Rallies. -

- Two recent letters from one member and one not yet member, anent the old tale of sets bought at the B & B stand, sets described as working okay in one case and GWO in the second case. Yet both proved to be non-goers when the buyer got home. If at all possible do at least try to power up the set before parting with your hard earned pennies, there is usually a socket around somewhere.

- One set mentioned above was a nice looking 770U, really good external condition. When opened up it was found that all the cores in the IF formers were smashed to bits, damage even extended to o/c windings on some IFTs.

- The second case was more serious, this was an EC10 which was found to lack both IFT1 and one of the output AF transistors, chances of getting a new IFT are pretty low, as one or two members will affirm.

- If you cannot power it up then do try and get the set opened up for a visual inspection, always carry a screwdriver in your pocket if you are at a rally to buy.

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- Jumping on the Bandwagon. -

- There are signs that the success of the E.U.G has brought Eddystone receivers into the limelight again. Over the last few months there have been a number of mentions of them in the various hobby magazines, there have been articles about the EC10, and just this last month there has been an article in RB about the 358 series. Again there has been an advert in the mags; for a resumé of circuits and info on various models of Eddystone. This was on offer at £9.50, since this is almost the cost of your annual subs to E.U.G it seems that somebody is making a tidy profit there.

- One thing to watch out for though is incorrect or very misleading info in these articles. Usually where the writer has not checked up on the facts as supplied by the Company manuals. I have noted several instances where the description of the model does not tally with what we know of the set. In one notorious case I was able to check back and find that the errors contained in the article had actually been printed for the first time in the 1950s editions of Newnes Radio & Television Servicing. The ONLY place where I have ever seen them printed ! So do take care before accepting the info contained in these articles.

- In the Newsletter we cannot, and do not, guarantee whatever info we print, but what we do print is usually taken from either Company literature or from the recollections of former Strattons/Eddystone engineers. Often from my own personal knowledge of a lifetime of working with Eddystones in my shack.

- One circuit that I saw recently published was for the model 750, now that set has never had an electrolytic decoupling condenser in the kathode circuit of the AF output bottle ! Yet this schematic showed a 25 mF, 25 vw condenser there. It also had the output bottle as a 6AQ5, with the corresponding pinouts marked on the circuit. No 750 ever left the factory with a 6AQ5 in this position, the correct one was, of course the N78.

- Another very oft misquoted item in magazine articles is the use of a 6K8G in lieu of an ECH35, or vice versa. In all 640 sets it was a 6K8G, in all the 504 series it was an ECH35. They are not direct equivalents, as correspondence with a very knowledgeable New Zealand member proved a few years back. They will work, in most situations, fair enough, but have a look at the table of pinouts and voltages over the page. I remember some years back having a 504 that was deaf above 16 Mc/s and unstable too. It all came down to a slightly low emission 6K8G in the V3 position as Frequency changer, putting a known good ECH35 there and Abrecadabra, cured. The fact that the ECH35 has an external metallising coat may have something to do with the cure ! I guess that the moral must be, get the manual/handbook from the source, don't rely on oft copied and maybe incorrect schematics.

14.

- Comparison of ECH35 & 6K8G Data. -

Pin 1,	2,	3,	4,	5,	6,	7,	8,	TC.
ECH35- M	H	A	G2 G4	GT G3	AT	H	K	G1
6K8G -	H	A	G2 G4	G1 GT	AT	H	K	G3

N.B - note the pin 5 and the top cap connections, and the lack of any internal connection to pin 1 of the 6K8G, in the latter case this pin 1 may be used as a tie point for other components.

- Some voltage readings for the two valves are given below,-

DATA	ECH35	6K8G
Hex An V,	250v	250v
Hex An I,	3.0mA	2.5mA
Hex Sc V,	100v	100v
Hex Sc I,	3 mA	6 mA
Hex G1 V,	-2 v	-3 v
Kath; Res;	215 ohms	300 ohms
Hex G1 cap;	5 pF	4.6 pF
Hex G1 -Tri G1 cap;	0.2 pF	0.3 pF
Conv; Cond; Hex;	0.65 mA/v	0.36 mA/v
Int Res; Hex;	0.9 Mohm	0.6 Mohm
Tri An V,	100v	100v
Tri An I,	3.3 mA	3.8 mA
Mut; Cond;	2.8 mA/v	0.36 mA/v
Tri G1 I (osc;)	0.2 mA	3.8 mA
Tri G1 cap;	9 pF	6.5 pF

(these figures quoted from a W.W article of the 40s.)

- Conversion Conductance. -

- In the above figures for the comparison of 6K8G and ECH35 valves the one figure that does stand out is the Conversion conductance, in the ECH35 it is twice that of the 6K8G. This alone could be the reason for some of the problems found when a substitution is made. Another factor could be the differing interelectrode capacity. Whilst this might make little difference on the lower frequency bands it would almost certainly do so on the higher frequency bands where the slight differences in capacity could put the associated tuned circuits off resonance, leading to gain reductions and even instability.

- Please Do Not Adjust Your Set. -

- When one member of EUG decided to recommence using his 750, after some 20 years off the air, he immediately became aware of a considerable reduction in the quality of the received audio signals.

- Some tapes made from AM medium wave broadcasts in the 60s still existed, comparing these with present day signals showed that the 'heard' lowering in quality was not purely imagination, nor approaching senility. Ian did what anybody would do, he did a complete restoration job on the 750, finding nothing circuit-wise that could account for the poor AM quality. As the 750 has always been renowned for the high quality reproduction of it's AF stages, when used with a good speaker, a special check for distortion was made on the AF and output stages.

- The net result of all this was - no improvement ! Surprise, surprise, even on a modern Hi-Fi set up the AM distortion still existed. Ian's next step was a letter to EUG, the arrival of this letter coincided with a very amusing epistle from another member, Robert Ellis. The subject matter was the same, poor quality of the present day AM broadcast transmissions, the difference being that Robert recognised the symptoms as being caused by the processing used at the studio end.

- All AM broadcasters now use some form of signal processing at the studio end. Present day band congestion means that the sidebands transmitted can never exceed 4.5 Kc/s, each channel width on MW is just 9 Kc/s. You would be very lucky to recover even 4.5 Kc/s of audio spectrum without some QRM sounding like Mickey Mouse talk caused by the adjacent channel signals.

- It is necessary to compress within this maximum of 4.5 Kc/s all the needed intelligence of the studio output signal, be it music or speech. What results is a very high average modulation level, compared to unprocessed signals where the modulation is jumping up and down in level. This does give a better, apparent, signal to noise level at the receiver.

- Inquiries by EUG have produced the information that most of this signal processing is done in the studio by a device called "OPTIMOD AM", this name is more or less self explanatory ! By this means the actual levels of processing of the different parts of the audio spectrum can be controlled (programmed), by the station operators to provide a signal which has much more strength at the receiver than an unprocessed signal. Nothing is free, as we all know. What price is paid is a distinct loss of quality, the speech may be clear enough but there will be undue emphasis on certain sounds, i.e the letters 'S', 'T', and 'P' will be sibillant.

- Is that all clear ?, please do not blame your Eddystone for any perceived poor quality of AM signals. And it will not help to contact your friendly local radio station to complain, they will not have any idea what you are talking about. ("just another crank").

- After the Holiday ... -

- Seemingly twice a year Broadcasters on Short Wave change their scheduled frequencies in order to take advantage of the changes in ionospheric propagation, light or dark mornings and evenings mean that whilst you listen at the same local hour the actual ionospheric conditions change at that time during the year.

- Lower frequencies come into use during the winter months, higher bands are used in the summer months as the MUF (maximum usable frequency), goes up.

- What has this to do with your holidays ? well it seems that at about this time (May/June), I get mail from a number of members asking why they can no longer hear their favourite station on the usual frequency, and the letter usually concludes with the plaintive cry of "what can have gone wrong with my xxx model Eddystone, it was perfectly okay before I went on holiday, but now I cannot hear zzz station" - the time for change of schedules is usually May and November !!! Write to your favourite station asking for a copy of their scheduled frequencies and programmes, it will cost nothing. An Aerogram

at 36 pence will usually bring you regular updated station information, as published several times a year.

- - - - -
- Variable AVC Constants.-

- If you have one of the latter day Eddystones with a variable AVC, or as the newcomers to the hobby call it AGC, then you will get better Sideband signals with the AVC switched to Slow, since this sideband signal varies in strength at a syllabic rate. AM responds best, usually to a Fast AVC. If you are a CW habitue then you will know that NO AVC is better.

- Should you have one of the 'hollow-state' models then you will find that sideband signals are more easily resolved when the AVC is off, otherwise the signal may be swamped by the BFO signal.

- - - - -
- Resolution of Sideband Signals.-

- If you are a neophyte (beginner to YOU), at sideband tuning with one of the early valve models then you may wonder how to start. What station can you tune to, so as to practise your SSB tuning? Trying to learn whilst tuning to an amateur station which goes on and off the air like a Yo-Yo is a No-No.

- By far the most regular station on the air on sideband, in any area, will be one of the Volmet stations. In the UK the best appears to be RAF Volmet on 4722 Kc/s. This is audible with good signal strength throughout all of the UK and most of Europe. The beauty of setting up to a known, good signal is that once you have your receiver controls set you can mark the control positions and assuming you are using the same sideband then you can simply set the controls and go looking for other similar stations, only the RF gain will need some slight adjustment to accomodate differing signal strengths. Go on try it!

- - - - -
- Rescue Co-ordination.-

- At any time when there is a large Air/Sea rescue effort going on around the coast of the UK, or an Air rescue in the mountains, you will find RAF rescue aircraft on 5680 Kc/s. What few people realise is that after dark another SAR channel is brought into use. Next time try monitoring 3023 Kc/s where you can often hear Air to air and Ship to air SSB signals. Plymouth Rescue and Edinboro' Rescue have both been heard in contact with fixed wing aircraft (C-130 Hercs) and with helicopters of the RAF, plus RN ships at sea involved in the operation.

- - - - -
- Esoteric QRM.-

- Several years ago I myself experienced static QRM on my EC10 whilst my wife was sat nearby. It proved possible to correlate this static with the turning of the pages in the new, glossy magazine that the XYL was reading. Turning out the light sparks could be seen as each page was turned!

- Now comes another form of 'modern' QRM. Dave was plagued with spats of noise as he tuned his 940 around 10 Mc/s looking for the Standard Frequency station. His friend, for whom the 940 was being demonstrated, was stood nearby and attempting to get his pipe going, using a lighter. The QRM turned out to be caused by the piezo-electric effect of the 'electronic' lighter. A ceramic element is stressed to provide a long thin spark to ignite the gas in the lighter.

- Gas central heating ??? Yes certainly this can cause QRM, it is very common for the sparks produced when the thermostats operate, to cause noise on a radio. This can be heard on any band, even up to VHF.

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- Featured Model, the 909A.-

- According to the manual this model was destined for marine use by mainly coastal shipping, hence the limited band coverage of 1.6 Mc/s to 4.7 Mc/s in two ranges only. Somewhat like the 400 version of the S. 358 model. There the similarity ends, the 909A, and its variants the 909A/1 and /2 are an early 1960s model in the familiar diecast case of that time, slide rule dial and AC/DC circuit configuration.

- This latter is a little more complicated than is usual for the models of that period. By means of internal adjustments and external connections the 3 versions can be made suitable for operation on AC or DC of from 110 to 240 volts, from just 24 volt DC supplies with a built-in solid state HT convertor, or from external only HT and LT DC supplies. Quite a complicated system but suited to a mixture of the various supply voltages likely to be found on coastal going vessels. The classification is as follows,-

909A - AC/DC mains supply or external DC supply of HT and LT voltages.

909A/1- Operation ONLY from external DC supply of HT and LT voltages, 24 volt at 0.6 amp and 100 to 150 volt at 70 mA. None of the power supply components are fitted in the set.

909A/2- A transistorised power supply is fitted inside for direct operation from a 24 volt DC supply as found on most small vessels.

In all other respects the 3 variants are the same, a single conversion superhet designed specifically for marine use with variable tuning for the marine bands plus a fixed tuned band for the emergency R/T channel of 2812 Kc/s, it is also possible to switch output from the receiver up to a remote bridge located speaker when the radio room is unattended - necessary for monitoring of the 2182 channel. No tuning of the 909A main tuning knob is necessary for this facility as fixed tuned circuits are included in the band change section. The internal speaker may be switched out at will from the front panel when the remote facility is in use, or when 'phones are to be used. As with all Eddystone models full tropicalisation is employed and the set is suitable for use in any climatic area. The 909A seems to have been built to a spec for the Swedish government as there is mention in the manual of the availability of certain common spares in Sweden.

cont;

909A cont;

- The circuit is a standard single conversion, 2 band (1.6 to 2.7 and 2.7 to 4.7 Mc/s) superhet for reception of A.M and M.C.W only. C.W was rarely used in the coastal radio service and so no BFO is fitted. A balanced double crystal filter is provided to provide extra selectivity when needed. (Fish-Fone was notorious for side-band splatter when AM was the mode used by most trawlermen, especially when one of the more anarchistic of them tried re-broadcasting his favourite radio program over the R/T channels).

- Aerial input was low impedance, 75 ohms, via a PL259 type plug into a band-pass coupled double tuned circuit. This fed an RF amplifier - a 12BA6 vari-mu RF pentode. A separate mixer is used, the 12BE6 being fed by a 6C4 local oscillator, with switching for use of a 2647 Kc/s crystal when used on the 2182 monitoring mode. The double crystal filter follows the mixer stage and this is switched as required from the front panel. Two IF stages follow and the usual 12BA6 valves are fitted here and the IF transfos are double tuned with a primary and secondary 'Q' of at least 100 at the IF of 465 Kc/s. The 12AT6 diodes are used, one for signal detection and one for AVC detection, with the AVC being fed to V1, V2, V4, and V5. A metal rectifier is used for the switchable noise-limiter which acts on the detected AF signal prior to amplification by the triode of the 12AT6 valve. A 19AQ5 tetrode is used for AF output and with the low HT of this model an output of just over 500 milliwatts is available. The output stage is fairly complicated due to the various output facilities provided. Two secondary windings of 2.5 and 600 ohms allow for speaker or phones, the former being available for the built-in speaker or a remote, bridge mounted one, switching for this is part of the wavechange switch, when the switch is put to 2182 Bridge the remote is activated.

- The power supply section is quite complicated, for AC/DC mains it has a pure series heater circuit plus $\frac{1}{2}$ wave HT rectifier and smoothing circuitry. On 24 volt operation the heater configuration is a series parallel circuit, and as said previously HT comes from an external source. On the 909A/2 the HT comes from a built-in transistor convertor using two 0C28 s in a self excited oscillator circuit.

- Mechanically the 909 series resemble most sets of that period which left the West Heath factory, sub-assembly units for IF, and PSU are on either side of the central RF and coil box assembly - as always a die-cast case. The tuning mechanism is a 140:1 gear driven unit which is coupled to the dial-cord drive of Terylene. Front panel controls are

cont;

AF gain, 4 position wavechange switch (band 1, band 2, 2182, and 2182 Bridge.), main tuning, crystal filter, NL, and phones/speaker switch. Sensitivity is quoted as better than 10uV for an output of 500 mW and with a S/N ratio of 15 db. Selectivity is about 7 Kc/s with 10 db width and using the crystal filter it is 4 Kc/s at 10 db. AF response is quoted as being flat from 400 c/s to 4 Kc/s. The image rejection is better than 90 db for the whole range covered. IF rejection is better than 100 db. Calibration is within 0.5 % on all frequencies. (See block schematic).

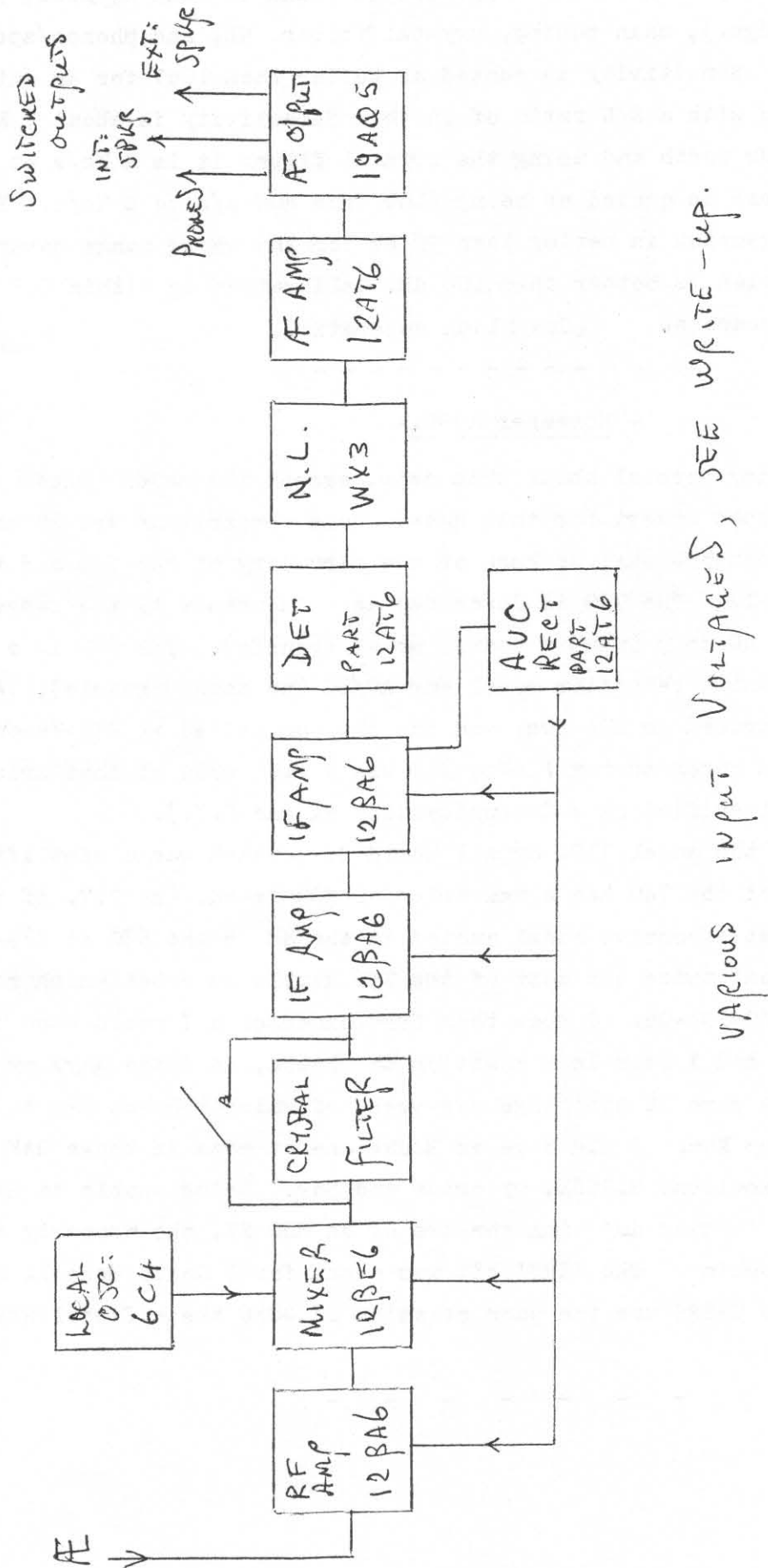
- - - - -
 - November 1950. -

- Nothing special about this date, except the model prices that are in the Webbs advert for this date. Some comparisons are surprising, when we compare what we know of the circuitry of the 740 and the 670 for example. The 740 is described as a 'newcomer to the range' with 8 valves AC only (thus a costly mains transfo). The 670 is a 7 valve plus selenium rectifier model for AC/DC (no mains transfo). Yet the 740 was priced as £29-10s, and the 670 was priced at £39-7s-6d plus £8-19s-2d purchase tax ! The 740 was a real snip at that price since it was classified as a Communications Rx (no P.T.).

- Even the model 710, or All World Six, which was a simplified version of the 740 had a new price of £39-7s-6d. (no P.T. if for export).

The most expensive model quoted in the ad is the 680 at £89-5s-0d, it cost almost twice the cost of the 750 double superhet which retailed at a mere £49-10s-0d. I know that from experience I would have preferred the 750, had I been in a position to choose, in those days my weekly pay was a mere 28 shillings per week, of which ten bob had to be sent home to my Mum. I did have an Eddystone at home in those RAF days, it was an excellent S.358X, my pride and joy. Being unable to have it with me I was 'making do' with the use of an HRO MX, the property of G3IRS at RAF Locking. The 'IRS' bit was meant for 1 Radio School, and at that time G3IRS was the poor relation of G8FC the official RAF club station.

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- Rogue Models, Yes there were some ! -

- Rogue ? well I guess that may be one way of describing those sets which I have come across, sets which do not fit the specification of the particular model. This is not just those suffixed types with a different set of knobs like the 830/8 or the various 730 versions with differing aerial sockets.

- There was one example I met way back in the late 60s, it seems that a fair number of 870 receivers, the very early ones, were a 4 valve plus metal rectifier set. In all these years I have never come across any Eddystone literature or diagram which covers these 870 sets, Oh yes I did have one myself and it was bought new by the original owner, the metal rectifier was original.

- How about my 670A, full slide rule scale etc; but when you open it up it had the push-pull audio stages of a 670, further checks showed that it had the central RF unit of coil pack and variable condenser plus switching of the 670A and also the psu chassis of a 670A, just the AF chassis was from the 670. By the serial number it was an early model.

- How about the 850/4 that had a very original looking DC output for driving a pen recorder ? Conversation with an ex Eddystone engineer later showed that a few of these were done at the factory for the Met; Office - thunder storm recordings ???

-The best of all the rogue sets though has to be an S.680. This model was brought back into my mind by recent correspondence with a very observant member. We all know, or should know the familiar 680 line-up of 15 valves, a very comprehensive circuit of 2RF, FC, LO, 2IF, Det/AVC, AF & phase inv; p/p output, BFO, NL, regulator, and Rectifier. This of course required the very deep chassis and case like the later 680X. How about taking a close look at the 680 which is featured in Chris Pettitt's article in the PW mag of February -94, this set I know well and it is certainly labelled a 680, it was featured in the Wireless World of October -47 according to Graeme Wormald, and described as a 9 valve superhet, 2RF, 2IF and a crystal filter. BUT look at it carefully, it is in the smaller case such as is used on the 670/840 series, only two thirds as deep as the REAL 680 and 680X, a careful look will show it has the phones socket in the bottom left hand corner of the FRONT panel, unlike the later 680 where it is at the side of the front casting. A number of other differences can be seen, the Rogue has no vent louvres at the side of the case, the later 680 has, the Rogue has no lift up top lid, the later model has, the Rogue has 3 toggle switches at bottom right, the later 680 has 2 plus a rotary switch knob. The ROGUE is definitely marked as a model S.680 on the front escutcheon at bottom centre, the later set is not so. It is evident that the ROGUE does not have the mechanical variable selectivity that is fitted to the later set. In other words this is a very different animal, this ROGUE 680. I wonder how many of this early version exist ? Any

members who have one of the 9 valve version are asked to let EUG know, I am particularly interested in the serial letters/number and a circuit if such does exist.

- Just one more word on the 680, I heard some years back from Geoff Woodburn that there was a 680, and a 680 series II. Could this be the answer ?

- - - - -
- The Model 890 ??? -

- Yes this did exist Tom, no idea how many were made but my info on it is as follows, a valve model VHF/FM receiver for AC mains only. There were two versions the 890 with a coverage of 70 - 90 Mc/s and the 890/1 with a coverage of 100 - 120 Mc/s, both had AVC and AFC fitted. The date of manufacture seems to have been late 1956 so it could be that they were test models for evaluating the newly proposed FM bands, this is borne out by one source which states that they had an AM facility. In the years running up to the start of the VHF/FM service, the BBC did broadcast parallel transmissions from Wrotham, one AM and one FM. At that time some of the 'experts' were for AM and some were for FM broadcasts on the VHF bands. I have never come across either of these versions of the 890 and have no further info on the circuitry, if any reader of this does have some info on either 890, then please do share it with all EUG members.

- - - - -
- The 400/400X models.-

- A recent article in the Radio Bygones mentions this model, and gives the impression that it is merely an LF/MF version of the 358/358X.

- The facts are that the 400/400X is a very different animal under the skin ! It does cover only the 4 LF/MF bands that are covered by the 358/358X but the coils are not interchangeable, not at all, because the 400/400X sets have a completely different IF of 110 Kc/s !

- The line-up of the 400/400X is very different, as is the circuitry. The 400/400X was intended for CW reception only and therefore does not have either AVC or a second detector stage where the IF signal is rectified and fed as AF to the output. Here you have a second mixer and local oscillator using a second ECH35, the beat note from this is an audio note and this is fed to the output.

- Oh yes, the RB article quotes an EL35 as being the output valve, it was never this in original equipment. An EL32 (grid to top cap type) was the usual output bottle, for battery use and economy a triode output stage was specified using a 6J5/L63 - the output from this was more than adequate for phones use. The dual crystal, bandpass circuit in the IF stages was much better than the single crystal filter of the HRO sets and provided true single signal reception on CW. - - - - -

- Increased Selectivity ? -

- I'm not sure that I favour this but here goes. Jake in Scotland has a nice 870A which is as basic as any Eddystone can be, except for the pre WW II models. This is a simple 4 + 1 superhet, with input directly to the frequency changer, then an IF amp; and detector/AVC/AF amp, and output.

- This line up gives him more than adequate sensitivity using his external long wire aerial. Problems arise from the crowded nature of both the short wave and medium wave bands, where the single IF stage gives him minimal selectivity.

- Not wanting to change the internal or external appearance of the 870A it was a case of studying the circuit to see what could be done to improve upon the selectivity, nothing visible such as an extra IF stage was even considered.

- Looking at the schematic, whilst having the set open on the bench, it was decided to concentrate on the IF stage. Adding a crystal filter was a possibility, but then where to fit it ? could the newer ceramic filters be utilised ? A start was made by removing one of the IF transformers and opening up the can, the base and former just slide out of the can, once the unit is taken out of the chassis. Reading up in an old ARRL handbook it was noted that, within limits, the further apart the primary and secondary coils were, on the former, then the higher the degree of selectivity. The construction of the transformer, two separate windings on the tubular former, seemed to allow of some further spacing between them. Problem was the shellac (I think) varnish that held the windings in place on the former. Anyway it seems that after trying a number of 'softeners' on this varnish the stuff could be removed easily with some acetone on an artists paint brush, soaked in acetone the coils could be gently re-positioned about a $\frac{1}{4}$ of an inch further apart. But could the IFT still be trimmed to 465 Kc/s ??? It was a case of 'suck it and see'. This was why just the one IFT had been removed - it was known that RF and IF alignment was correct before the one IFT had been removed. Now it was a case of resealing the windings in place, with hot wax this time, re-fitting the IFT, and trying to re-trim it to match the other IFT, at 465 Kc/s.

- Sounds easy enough ? Well according to Jake it was, a piece of cake in his words. The re-alignment of the modified IFT caused no problems at all as it happened, and whilst there was some apparent loss in overall gain on the bench, no sensitivity problems were encountered in practical use.

- Tests on several signals on medium and short, signals that had been selected previously, showed a considerable improvement in the ability to tune a signal 'on the nose' and not have to listen to the usual monkey chatter of adjacent channel signals. It was decided to go the whole hog and to mod the second IFT in the same manner, when this had been done a very definite improvement in selectivity was available. The fact that there now appeared to be some sideband cutting on music signals was not thought to be any disadvantage since the 870A is used for Dxing and not for 'Hi-Fi' listening. With the Globe ATU in use the 870A is now very useful for MW Dxing of local radio stations, several South of England signals have been identified already, the technique used is mainly that of evening listening, when the wanted and unwanted signals on the wanted frequency tend to fade in or out at different rates, some patience will up ones Dx score considerably, even with a basic 4 valve superhet.

- The method used above seems that it may be applied to other, more complex models, an attempt is to be made on improving the performance of an 840C, where the more than adequate gain but lack of selectivity make it a prime candidate.

Re the above,-

I think that to undertake such a mod you must needs have a certain amount of technical knowhow and plenty of confidence in your own ability. The damage that could occur when moving the windings, could mean the ruin of your perfectly good receiver, and spares are not easy to get ! Ted.

- FREE MEMBERS ADVERTS. -

- YES ! FREE ! to all EUG members, put your Sell, Swop or Wanted Ads in the Newsletter. These ads do work if the price is sensible ! Mail from members in the past has all been to the effect that the ads are successful, after all, the readers are all interested in the same thing as YOU are, in Eddystone products. You may advertise other makes and models but please none of these "4 bed, semi, type of ads.

- WANTED, Eddystone Receivers, any model considered, particularly 960, EC10 series, EB35 series, EB36, EB37, 870, 870A, and any die cast speakers. Also Edometer, Panadaptors, etc; Wanted for Cash, collection may be possible. Please telephone any time 0374-128170, or Fax 01372-454381. Ask for Peter.

- EXCHANGE, 1949 Murphy Radio Console, 'Baffle' model, number AI46/CM7, this is a 7 valve AC mains set in ver good electrical condx and lovely cabinet swop for Eddystone 888A in good condx. Hacker portable VHF 'Herald' excellent condx, £25. Buyer collects. May exchange both for first class 888A. Contact Terence on 01444-241567. (Burgess Hill, Sussex).

- WANTED, valve holders for the PM22A and SP2 type valves, to build a replica All World Two, can you help ??? Contact Philip Parker, G3AVN, at 18 Belvedere Court, High Street, Dawlish, Devon, EX7 9ST.

- WANTED, HT smoothing choke for Eddystone 640, or any similar type of 10 henry at 80/100 mA. Have 4 off 10.7 Mc/s IF transformers valve type, are Eddystone part no;- 856, unused. Phone Ron, G4GFQ, QTHR, phone 01253-867308.

- WANTED, internal speaker suitable for use in model 840C, this is a 2.5 - 3 ohm type not the modern 8 ohm type. Contact W.D. Work, Ostoft, Shapinsay, Orkney, KW17 2EA.

- WANTED, to buy an Eddystone 1650, or would do a swop for an unused Icom 736 transceiver, please contact Ian Hatton, 55 Worcester Crescent, Derby, DE21 4ER.

- SELL, Marconi Spectrum Analyser type TF 2370/1, £125. Also 2 off R.1155 at £40 each. Also sell various models of b'cast and comms; receivers, offers please. Might also swop above items for model 1000 series receiver or other HF models of Eddystone. Contact P. Trembath, G7SBL, Flat 3, 4 Penrose Terrace Penzance, Cornwall.

- WANTED, Eddystone 830/7, buyer will pay good cash price for good example and can collect. Ring Tom, 01267-202321. (Carmarthen).

- WANTED, Eddystone 730/4, must be in excellent condx; and unmodded, cash waiting for good example. Hugh Kemp, G4TMO, 01793-784358.

- WANTED, plug in 6 volt non-synchronous vibrator unit to fit the S.687 power unit. Ring J.H.H. Buckley on 01944-738476.

- WANTED, Eddystone models 1570/1, 962, 940/1, 830/1, EB35, EC10 II, and Racal 1722. Contact R. Jones, Gwynant, 6 Maes Y Felin, Llanthyrsted, Aberystwyth, Dyfed, SY23 5AT.

- WANTED, first IF transfo for EC10 II, this is a 465 Kc/s type part no; 6653P in the Eddystone catalogue. Contact W. Corkish, 17 Ballachrink, Onchan, Isle of Man, IM3 4NU.

- WANTED, still wanted ! a model 960, good price paid for good set, might do a swop for a valve model of mine, someone somewhere must have a 960 to dispose of ! Please phone Anthony on 01686-630255.

- WANTED, 1.75 Mc/s crystal IF filter as used in Model 40A Noise Measuring Set. Also wanted Model 1001 receiver. Contact Keith on 01442-249782.

- WANTED, holder/socket for Eddystone 6 pin plug-in coil former. Your price. Ring Phil on 0113-244-0378 office hours, or 0113-281-0264 evenings.

- Spain and Man-made Static.-

- This is a subject that is always a topic for those who listen on Medium or Short Wave, be it on an Eddystone or other make.

- The following item was actually printed in a May, 1936 issue of Wireless World ! Sixty Years on things are infinitely worse, all of the proposed, or enacted legislation has done nothing to alleviate the problem of QRM from other equipment. Read on,

Spain is yet another country to make a determined onslaught on the annoying man-made static which is so disturbing to radio listeners.

In the future all makers of electrical apparatus of a type likely to cause interference are compelled to state the exact degree of interference - expressed in scientific terms - caused by their wares.

Heavy fines are to be imposed for non-compliance with the order.

In cases where complaints are received and which on investigation reveal interference of less than 1 mV/m no action will be taken.

(W.W. for May 22, 1936)

- Replica 1930 Models.-

- A number of EUG members have written in recently to express their interest in constructing replicas of the various kit sets that were made in the 30s era. One member even intends doing a replica of the Eddystone Twin.

- Parts are likely to be the big problem here, as there is no real source for them.

- If any member has the odd pre-WW II component, i.e. B4 or B5 valve holders, coils or coil formers, intervalve transformers etc; that is surplus to his requirements then please do make them available to other EUGers via the Free Ads. Come on make somebody happy ! Provide him with those bits that he needs.

- 5 Band Switched Coil Pack, 1935.-

- An advert has been received, taken from a 1935 catalogue. This ad depicts a coil pack with either two or three bank switch, with the coils mounted around the rotary wafers.

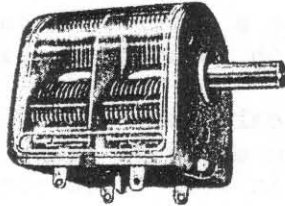
- Three version are offered, Cat no; 960 covered 12-27, 21-42, 33-68, 260-540 & 1100-1900 metres, at 35 shillings.

Cat 961 covered 12-27, 21-42, 33-68, 170-350, & 310-700 metres, at 32/6 pence.

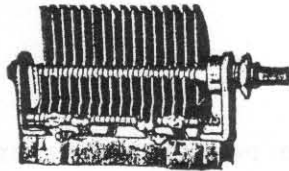
Cat 962 covered as cat 960 but with only a two bank switch, at 27/6 pence.

- This was not an Eddystone catalogue but a general type published by DAYZITE Ltd, Wholesale Factors of 17 & 18 Lisle Street, London. The contents included Victor Model 'S' bicycles at £5/2/6 pence, or easy terms of 10/3 pence per month, all deliveries in the firms own vans were free up to 25 miles.

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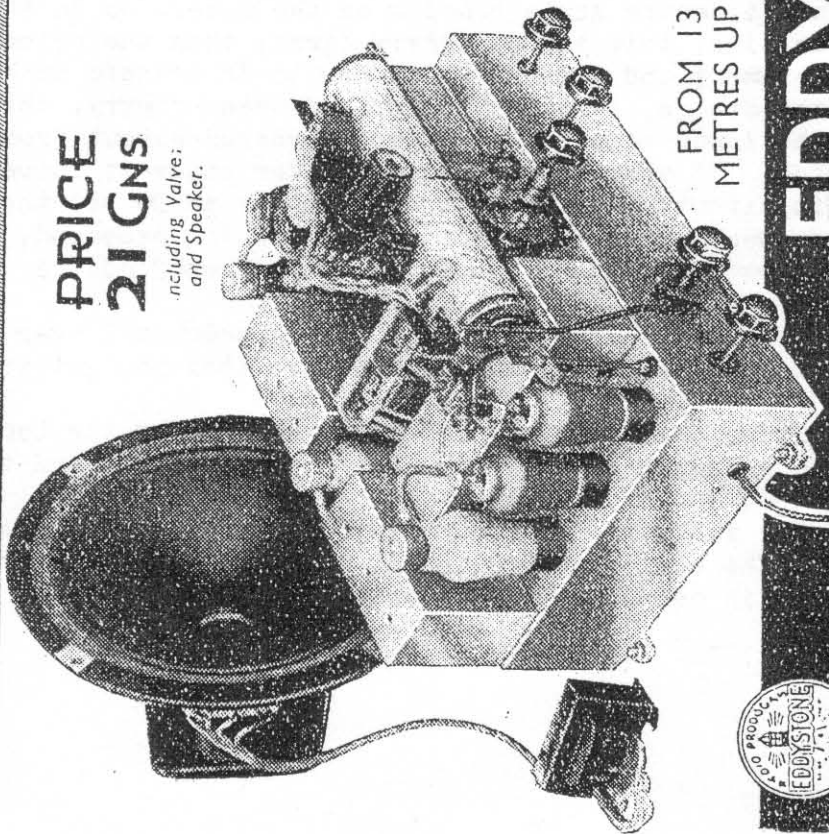
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Wireless World April 14th 1938 p6 (Ads)

- Members Adverts Continued. -

- WANTED, info please on the Mullard High Speed Valve Tester, and also the Avo Transistor Test Set type TT 166. Contact G.P. Whitlock, address 13 Ingestre Rd, Stafford, Staffs; ST17 4DJ.

- WANTED, cheap source for two off valves type A2510, are V1 and V2 in the model 770S receiver. Contact Jim Murphy, 63 Wrose Rd, Bradford, BD2 1LN, West Yorks;

- I.F re-alignment. -

- In answer to several members of the DIY persuasion I will just give a brief run through of the process of IF re-alignment.

- First off you must have a sig; gen; that is accurately calibrated at the IF frequency you need. Most of the analogue types that were in use in the 'old days' are NOT sufficiently accurate. Next you need some form of power output meter, an analogue meter on AC volts, with a dummy load across it or the speaker across it will do.

- The most important thing you will need is the correct type of trimming tool for the IF cores. NO, never try it with a metal screwdriver bit, when you remove the bit from the core the tuned circuit will go off tune again !

- Connect the sig; gen; to the set across the mixer section of the tuning gang, either via a small value capacity or a dummy aerial as specified. At the same time you MUST earth the stator of the local oscillator section of the tuning gang to kill the L.O.

- Connect the output meter or AC voltmeter across the speaker coil, set to a suitable low range, but start high and work down to that suitable range or you risk blowing the meter.

- Next step is to kill the AVC by shorting it to chassis, a made up lead with croc clips at each end will do here.

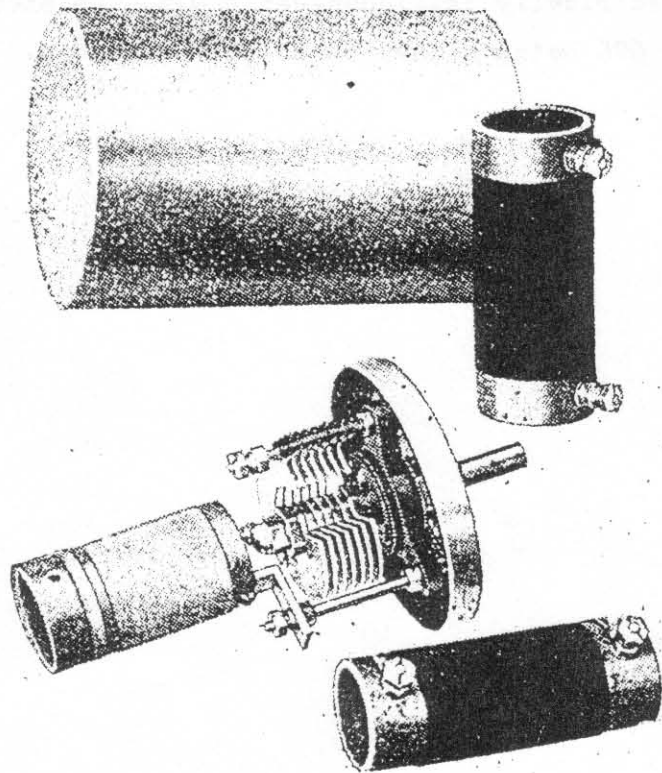
- Only now do we get to the actual trimming. Starting at the last IF, the detector stage, having set the sig; gen to give a suitable level of output on the meter, about half scale, you trim the secondary first, to give the maximum output. Next you do the same for the primary, re-check the secondary is still peaked, that stage is done, if need be reduce the input signal to maintain a centre scale reading on the meter. Go to the next IF transfo back in line, trim the secondary first, then the primary, do a re-check of both primary and secondary. Go now to IF transfo number one, and trim as for the others, secondary first and then primary, then re-check. Keep reducing the input signal as you get increased output from the newly peaked IF transfos. If there is a crystal filter stage it is very important to have it in circuit when doing the re-trim, and DO set the sig; gen signal to correspond with the centre of the filter passband, this may be slightly offset from the actual specified IF frequency due to ageing in the crystal.

- Some engineers like to go back to the start and re-check all over again, in my experience this is not necessary if you are sure that you got it right the first time.

- Now remove the shorting lead from the AVC line, ditto from the local oscillator section of the tuning gang. Remove the sig; gen; lead and the connections for the output meter/voltmeter.

- Your IF should now be fully re-trimmed, BUT you may now notice some slight discrepancies in the scale calibration at the high end of the scales. This means an RF re-trim is needed, that is another story, watch this space.

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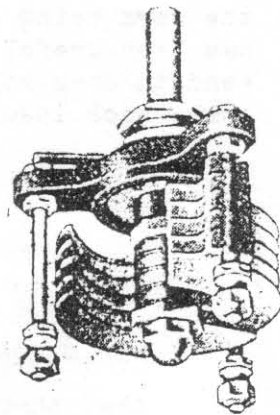


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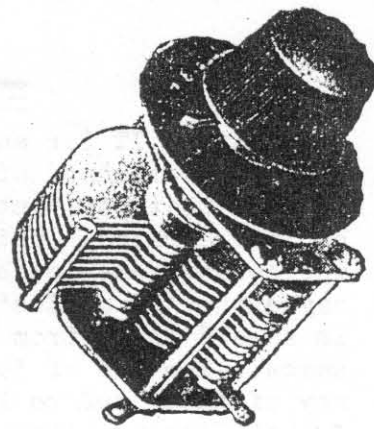
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- ENDIT. -

- That is IT for another issue of the Newsletter, I hope that it is up to the standard of the past 30 issues. If not blame ME ! And let me know what you want changing, if possible any suggested changes will be incorporated. This close spaced typing is the one item that I would appreciate some feedback about. Let me know if it is harder to read, maybe the 'wrinklies' amongst you can let me have your comments. It is a good thing from my end, as I can get so much more in the same space. The use of 'old ads' from Strattons or Eddystone, I welcome any of these and so long as they are good copies, or originals, then I shall include them. Most comments re the old ads have been positive.

- Thanks for all the expressions of good-will that have come in this last couple of months, they are much appreciated this end. Proof that the work being done on both the Newsletters and in answering your mail has been useful to members. Keep your mail coming, if the item you send in does not appear immediately, be patient. There is only so much space each issue and I have a backlog.

73,
Ted Moore.

N.B.- Re the note on page 11 over the 6V6 valves. It must be said that there is no 6V6M as the correspondent states ! The original 6V6 was a metal type valve. The big bottle glass version is thus a 6V6G, the smaller tubular glass version being the 6V6GT. All three are electrically interchangeable with the exception of the pin 1 on the 6V6 being connected to the metal can. Ted.