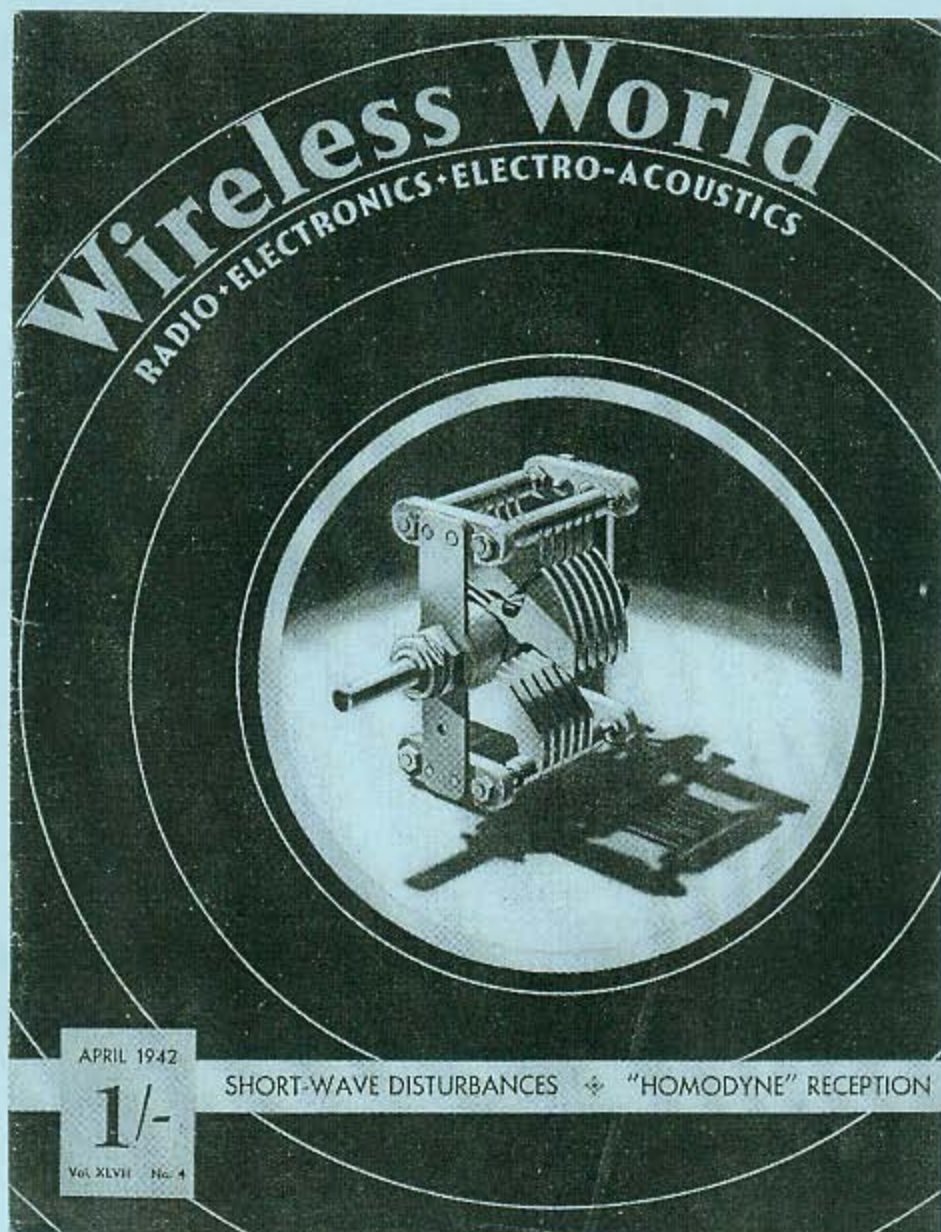


Lighthouse

Founded 1990

The Magazine of the
Eddystone User Group

Issue 94, December 2005



*The one and only time Eddystone featured
on the cover of "Wireless World" April, 1942*

EDDYSTONE USER GROUP

A non-profit-making Group
for Eddystone Radio
Enthusiasts Founded in
1990 by Ted Moore G7AIR
Issue 94, December 2005

Membership Details:-

**Due to the impending
retirement of Graeme
Wormald, G3GGL,
General Secretary of
the Group, the future
of membership is at
present uncertain.**

(See Page 4)

**UNTIL THIS MATTER IS
RESOLVED NO
MEMBERS' RENEWALS
WILL BE TAKEN. ALL
CURRENT MEMBERS
WILL CONTINUE TO
RECEIVE THEIR COPIES
OF LIGHTHOUSE UNTIL
April 2006**

MEMBERS' QUERIES:-

adverts, items for
publication to:-
GRAEME WORMALD
G3GGL

15, SABRINA DRIVE
BEWDLEY, WORCS.
DY12 2RJ, ENGLAND.
Tel: 01299 403 372

G3GGL@btinternet.com

Service Manuals, spares,
Dave Simmons, Windana
House, North Aston,
Bicester, Oxon OX25 6HX
Phone/fax 01869 347 504

DAVE SIMMONS IS OFTEN
AWAY FROM HOME FOR
EXTENDED PERIODS.
IF YOU ARE UNABLE TO
CONTACT HIM PLEASE
CALL TED MOORE G3EUG
on 01945 467 357 or mobile
07957 951 998
for handbook and service
information.

EDITORIAL, FORMAT,
DISTRIBUTION &
MEMBERSHIP by
GRAEME WORMALD
G3GGL

FOR SALE

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Good condition £130 or
swap for EB35 any
model in VGC.
Call Greg Powell on
01538 385 899.

Eddystone 840C very
good condx £130;
Globe Scout AM Tx
£20; **Radiovision
Commander** (conv-
erted R.1155) No
valves, condx
unknown, £30.

Eddystone 670A,
stripped down, new
body unit fitted £30.

Eddystone 720A for
repair or spares £30.

Call Lindsay on
07748877155 or e-mail
lyndsaya1980@hotmail.com

All the above must be
collected and paid in
cash (Glasgow).

Eddystone Receivers & Test Equipt Sale

Dave Simmons is
"Downsizing" his
collection and is selling
a number of receivers
in an 'As Is' condition
together with surplus
Test Equipment.
Those interested
please send S.A.E. for
a list of items to Dave
Simmons, Windana
House, North Aston,
Bicester, Oxon, OX25
6HX. Postal
applications only
please!

Cont next column . . .

FOR SALE cont.

**Panda Cub AM--CW
50 watt table-top TX.**
Outside shabby but
inside complete, clean
and dry, but some
wires lifted. Restoration
project. Price £25.
Buyer to inspect and
collect from Graeme,
G3GGL, 01299 403372
Bewdley (Worcs)
g3ggl@btinternet.com

ICOM IC745 H.F.

Transceiver, covering
all amateur bands, with
FM module. General
coverage receiver 0.1
to 30.0 MHz complete
with Icom speaker, mic
and BNOS psu. New
ROM battery fitted,
£350.

ICOM ICT7E 2m &

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transceiver with HM75a
speaker mic. £80

YAESU FT290R 2m all
mode transceiver with
YM74 mic (damage to
front panel) £80

Standard C8800 2M
fm only transceiver with
mobile mount and mic.
£50.

M.F.J. dsp filter. £50

P.K.232 mbx data
controller £50.

TEKTRONIX 453 port-
able oscilloscope £100.

**All above items have
manuals.**

Cash only buyer
collects. Contact Ralph
G4EBL, 01568 780 396
(Herefordshire)

Cont next column . . .

FOR SALE cont.

Eddystone 689 Semi-Automatic Speed Key



Excellent condition with original setting-up instructions. £75 o.n.o. Tel: Trevor G4EOJ, 01485 542 206.

Eddystone 750, one owner from new, offered due to infirmity, price £120 ono. Also matching round **speaker 688**, price £60 ono. Buyer to inspect and collect. Call Mrs Ruby Robinson, 01438 236 275 (Stevenage)

WANTED

Eddystone 888A with mounting blocks and "S"meter, and/or EA12.

Call Howarth GW3TMP on 01352 771 520 or e-mail gw3tmp@tiscali.co.uk

Eddystone Model 1000/1001/1002/1004; prefer working or repairable. Also wanted, case for EB35, EC10, etc. Call Peter 01727 839 908.

Wanted Eddystone 730/4 in good condx. Contact Desmond on 028207 31743.

Wanted: mains transformer for Eddystone S.640. Call Tony GØMQG on 01603 744197 evenings, or mobile anytime on 07776 317109, or e-mail tony122@ntlworld.com

Wanted; Correct Circuit diagram for KW Vanguard Version 2.

This version has a 6BW6 9-pin valve located in the metal box that contains the 6146 PA valve. Original version has none. Version 3 uses a 6AQ5. Call Roger 01744 731 452.

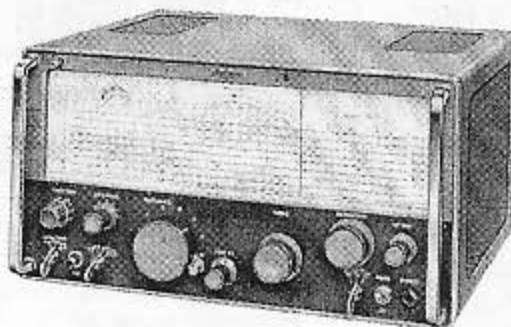
Mobile 07791 630 412 e-mail rogerm0bwp@aol.com

I require an "S-meter" (with no cracked glass) for my **Eddystone EA12.**

ALSO a vernier slow-motion; the type that fits to the panel at 3 points and is about 3" in diameter.

Call Mr Stuart on 01925 659 946.

Avertisement



Is Your Eddystone sick, deaf or just plain not working?

Well don't give up on it.
East Coast Wireless can repair, overhaul or fully restore
your Eddystone as required.

All models, valve or transistor, will receive the same loving care in our well-equipped workshop, ensuring that your Eddystone meets the original specification after repair.

East Coast Wireless currently repairs and restores vintage and classic radios, communications receivers and TVs from all over the British Isles.

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01945 780808
2, Holt Court, Walpole St Peter
WISBECH, CAMBS. PE14 7NY
or e.mail us at - coastwire@aol.com

Chris's Column

Welcome to another issue of Lighthouse, the newsletter of the Eddystone User Group. I am sure the only thing you want to hear from me will be what are our plans for the future of EUG now that Graeme has indicated his wish to retire next April?. Well, as of the time of writing, nothing has been finalised. The next two newsletters after this one will be published and circulated.

A number of you have been in touch to convey your appreciation of the fine work that Graeme has done for us over the years. I know that some of you have also been in touch with Graeme direct. We have had a few suggestions as to how we might proceed after Graeme's retirement.

To recap, neither Ted nor myself wish to take on the responsibility of running the EUG and publishing the newsletter, so we were ideally looking for another Graeme. Well, they obviously broke the mould when they made Graeme as we have not had anyone volunteer themselves.

There are a couple of people who would like to do it but they realise that they do not have the time (and possibly energy). There are members who would like to take over the EUG archives to keep them in trust for the future but we would need to be sure that they were available to Eddystone enthusiasts and not become someone else's property.

A couple have suggested that perhaps we could split the work up, with someone looking after membership, someone else publishing the newsletter, someone else responding to technical queries. This idea has its attractions but will require a number of dedicated individuals to be able to work together for it to be a success and it has its obvious risks. This is still an option but not a preferred one.

On the basis that we will not find another Graeme, we are going to explore further the idea of a virtual

User Group via a web-site.

The essential objective would be to enable all the past newsletters to be available on line. Eddystone manuals could also be downloadable, but for a charge which would hopefully help towards the web-site costs.

We might also look for sponsors to help with these costs. It would also include a forum for enthusiasts to be able to ask questions and seek advice. Above all it must be simple to run and not require membership subs or lists to be maintained. I realise that those members who are not internet capable will miss out, but something is better than nothing which of course may still be the only viable option.

As I say, nothing has yet been decided, and I would be happy to still receive comments and ideas from members as to how we might move forward and in particular ideas for how we might run a web-site. We hope to have a plan for the future by the time of the next newsletter.

If we are closing down EUG but have a plan for a web-site we will invite those members with part subscriptions remaining to indicate whether they want a refund or to donate it to the web-site fund. We will also have an inventory of our assets which are spread out a bit and decide what these might be worth to us if we need to fund a web-site.

73s de Chris GØEYO

Patron, Eddystone User Group



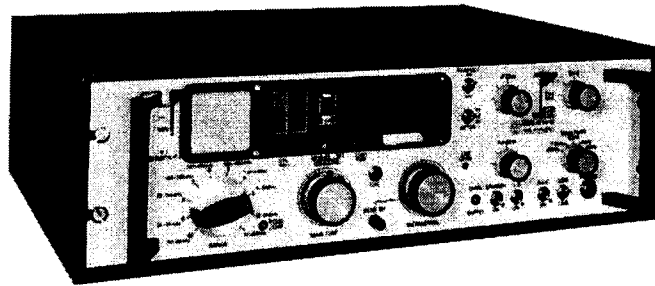
"COMMERCIAL IN CONFIDENCE"

School of Signals

EDDYSTONE HF COMMUNICATIONS

RECEIVER MODEL EC958/7

Assessment trial report No 343/76PV



In 1977 the British Ministry of Defence issued a report on the Eddystone EC958/7, a set considered by some to be the firm's best H.F. receiver. A copy has come my way and I think a few extracts from it will both entertain and inform readers.

Graeme Wormald G3GGL

SUMMARY

"The Eddystone Radio Ltd HF receiver Model No EC 958/7 has been assessed in a military environment. It is highly stable, versatile communications equipment which meets the manufacturers claims throughout. It is most suitable for roles where a sophisticated HF receiver with an exacting performance is required."

(That part is written for senior staff who don't actually wish to read any further. It means they can agree to everything about the set!)

LIMITATIONS

Laboratory tests were limited by lack of high stability HF test equipment.

(Were they trying to say that they needed a cash advance from the Treasury to buy new kit?)

OPERATOR TRAINING

No difficulties were encountered when instructing inexperienced user. 1½ hours was the average time needed by operators to reach a satisfactory level of operator competence.

EASE OF OPERATION

Comments were predominantly favourable. The only adverse factor noted of significance was that whilst wearing Arctic gloves it was difficult to operate the equipment. This was entirely due to the close proximity of the controls on the front panel.

INTEROPERABILITY - to determine the suitability of the EC 958/7 to operate to in service transmitters (*sic*).

The following in service transmitters made test transmissions within the frequency range 2-30 MHz.

- a. D11.
- b. C11 SSB.
- c. UK/VRC-322.
- d. UK/PRC-320.

The EC 958/7 receiver was operated in both static and mobile (Landrover) roles in the following modes:

- a. CW.
- b. SSB (Voice).
- c. DSB.
- d. FSK.
- e. USB (Voice).
- f. LSB (Voice).

RESULTS

Results were generally satisfactory; however slight distortion was noted in the SSB voice mode with reception of voice transmissions from the UK/PRC-320 and UK/VRC-322.

(So it worked OK with the D11 and C11.... Mmmm)

FIELD TRIALS

The receiver was installed in a Landrover 0.75 tonne FFR and, using the following antennas, operated in the CW, SSB (Voice), FSK and DSB modes:

- HF vertical wire 12 metres.
- 30 metre sloping wire.
- 3 metre whip antenna.

Test transmissions were received from ground and skywave propagated signals within the frequency range 10 KHz - 30 MHz.

RESULTS

Reception was satisfactory and no problems were encountered.

STABILITY TESTS

The set was checked for Short Term stability (5 mins from switch on.) Long term stability was checked on HF for 12 hours. Change in ambient temperature was checked.

RESULTS

The equipment was highly stable and no drift long or short term was noted.

ROBUSTNESS

The equipment was operated for a period of 224 hours and was installed in a Landrover which was driven over the Barnsfield Heath Test Track, which comprised 1 km cross country and 100m of 5cm setts (*Cobbles*) for a period of 1 hour at 15 kph.

RESULTS

The equipment operated satisfactorily during the 224 hours of normal operation. It was not possible to operate the equipment while driving over the test track but on completion of the test the equipment functioned correctly.

FAULTS

No faults occurred during user trials. ♣

A.M. Speech Amplifier

Rediscovered by Graeme Wormald G3GGL

I remember first discovering the miniature "12AT7" double triode in the early 1950's when it first appeared on the "ham" market. It had a very high mutual conductance combined with low internal capacities. It was considered to be the bee's knees for homebrew 2-metre converters.

It would work in the newly-arrived "cascode" circuit; it would work as a crystal-controlled local oscillator/multiplier chain, and if there was a triode to spare you could use that as the mixer! A real up-to-date low-noise high-gain "maid of all work".

I then discovered that the BBC were using them as microphone amplifiers! Now, over 50 years later, I've received a batch of NZ vintage magazines from EUGer Peter le Quesne ZL4TCC and in one of one of them is this "high gain microphone amp" using a 12AT7.

Now as you all know, I'm an "octal" fan (much easier to wire), but in this case we'll make an exception because I don't think there is an octal version of the 12AT7 (*alias ECC81*) around these days. (- or any days?)

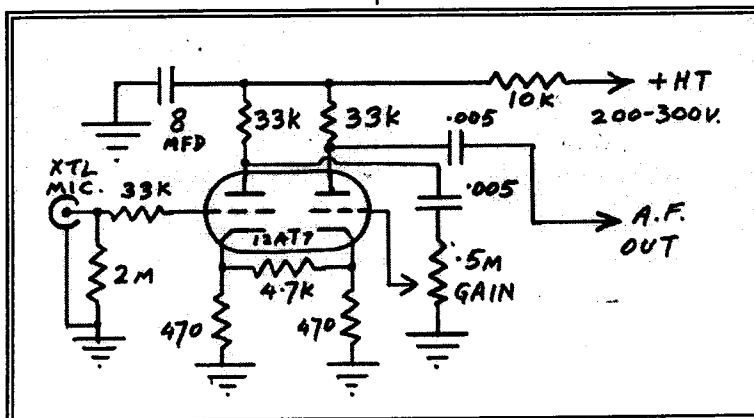
This pre-amp was devised by Don Sutherland, ZL2AJL who states: -

"The circuit as shown gives a gain of one thousand times. Using an ordinary diaphragm type crystal microphone, it will fully drive a 6V6 or similar valve with the gain about

half-way up, and speaking in a normal conversational tone of voice. (The mic gain on the Junk-Box Baby needs to be flat out and close up!)

"The construction is quite straightforward, but the following points should be noted: -

- (1) Mount the valve socket close to the front of the chassis with the mike socket on one side, and the gain control (midget type for preference) on the other.
- (2) Shielding of the input circuit is not necessary as a rule.
- (3) Suitably locating the 8 mfd decoupling condenser will provide shielding from adjacent circuits.
- (4) All resistors should be of the smallest type and supported directly from the socket terminals. Earth the centre shield of the socket.
- (5) Resistor tolerances are not particularly critical except the 4.7K negative feedback resistor, which should be +/- 5%.



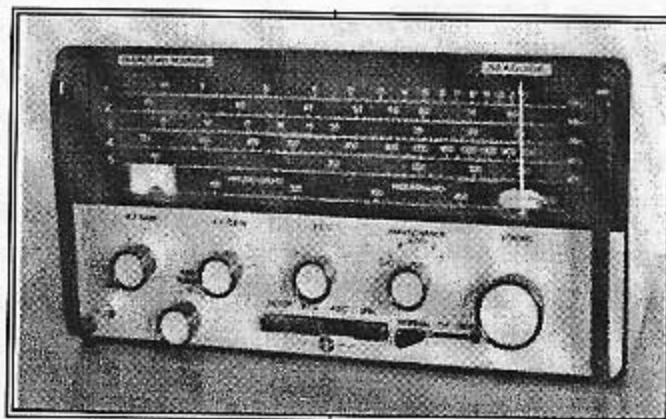
Marconi "SEAGUIDE"

a.k.a. EC10M

By Ted Moore G3EUG/G7AIR

I first met this model in the mid - '80s when I had one for repair, ever since then I have sought one for myself - almost 20 years! Recently an EUGer offered me a SEAGUIDE and I have been enjoying playing with it; many thanks Richard.

The very sparse info that we had on this rare model can be gauged by the short comment made by 'GGL in his QRG, second or third hand info mostly.



communications receivers, and incidentally as does the EB35-36-37 series of broadcast receivers.

The scale plate is different to these

I now have both the full Marconi Manual and the original blueprint from the Bathtub no less.

(Note from Graeme 'GGL; Actually the EC10M doesn't appear at all in QRG, I'd never heard of it when I compiled it. It wasn't marketed by Eddystone and so didn't appear in their literature, in common with other badged Eddystones. The nearest I got was the EC10A-series, mentioned further down this article.)

What can I say - It looks like an EC10 but has so very many differences that it becomes a separate model entirely. Instead of going up to 30 Mc/s as does the EC10 this goes up to just 22 Mc/s as is common for many marine

sets however and is marked with the NATO number ZOO-2530-01. The Marconi Marine Manual got this wrong printing it as 2350 !

This set is badged as Marconi Marine on the top left of the front panel, and as Seaguide on the top right, it does however have the Lighthouse symbol on the fingerplate just below the 4 way switch block. It is also marked on the rear model/number plate as being manufactured by Eddystone Radio as model EC10 M and in my case serial number 0188, so they made a few of them !

This set has the EC10 Mark II type of 'S' meter circuitry with five Ranges as follows -

Range 1 - 8.3 - 22 Mc/s

Range 2 - 3.5 - 8.5 Mc/s

Range 3 - 1.46 - 3.52 Mc/s

Range 4 - .55 - 1.5 Mc/s

Range 5 - .15 - .35 Mc/s

It has DF ranges marked on Range 3 (1.8 - 2.0 Mc/s and 2.63 Mc/s) plus range 5 (.285 - .325 Kc/s) these being the old Trawler Band and the NDB Band respectively.

Why 2.63 Mc/s on its own has been marked I do not yet know, it is certain that one of our EUGers will be able to elucidate.

A grey case with black front panel and handles but silver fingerplate, in my case it is in perfect condition. Controls are from left to right RF Gain with On/Off switch incorporated, below this and to the right is the Fine Tune, then comes the AF Gain, BFO, Wave-change (Range) and the large knob at the extreme right is the usual Tuning. The 4 way push button switch is the usual Filter, BFO, AVC, Dial-lamps; but then to the right of this we have a three position toggle switch which is marked Normal, DF, Sense. The Range switch is further marked with DF in brackets against the 5 and the 3 ranges.

All clear enough so far but the rear panel too has differences from the norm, an earth terminal and three belling-lee type coax sockets take up the aerial panel at bottom left, in the bottom centre is a panel with two preset pots; for the DF Sense facility settings, one pot; for Range 3 and one pot; for Range 5.

At the bottom right is a panel containing Hi Z output via a phono socket and a normal jack socket for Headphones, plus the aforementioned model/serial plate.

Power supplies can be via the usual battery box taking 6 'D' type cells or the type 924 mains psu. However there is another option for this, the marine version.

Mine came with the 12v to 9v converter unit so that it can be operated directly from the more usual 12 volt battery supplies on board both small craft and larger ships, this is the type 945psu, by Eddystone of course, although extremely rare this psu could - if available - be used with any of the EB/EC sets excepting the EB35 Mark III as this is negative earth due to the inclusion in its circuitry of those many legged devices called ICs.

The actual circuitry is very much akin to that of the EC10 II apart from the added Sense /DF switching and coils plus pots. However, having already got 4 EC10 II and 6 EC10 and 11 EB35s I have to say that the trackwork on the two pcbs is somewhat differently laid out. Not unusual if you consider that amongst my 6 EC10 sets I have 3 different versions of pcb, amongst my 11 EB35 sets I have 5 different versions of pcb, and even with the EC10 II there are at least two versions of pcb !! - Variety is the spice of life they say, and it was certainly true for Eddystone.

Incidentally this serial number of 0188 further bears out my previous comments that none of these 'baby'

sets had year & month prefix letters, if the plates are authentic, just the four digit number.

Yes I know what people will say, there are always exceptions. I received a 680/2 recently, complete but in bits. All looked A.O.K. at first but then I thought that the model/number plate looked rather too shiny and new.

Another look and I found that if the new-looking plate was to be believed this 680/2 had been manufactured in November 1973 - YK - of all things !! I have seen and own a fair number of sets with these inconsistencies and - Yes - several have very new looking plates.

My SEAGUIDE was acquired as GWO, and indeed it is so. Very good working order as I have found nothing needed apart from chopping the Screen legs on the OC171s to reduce circuit noise a bit and a slight retrim to give maximum performance on the Trawler Band and the Beacon band.

This was NOT really necessary but was done to suit my personal needs. I also treated the pots to a taste of switchcleaner on the spindle bearing and through the fine aperture in the aluminium back, the switches too.

In the QRG I note that GGL quotes the possibility of a 720 Kc/s IF, for the EC10A series, did he get that info from me ? Possibly so as I have until now harboured that delusion regarding the EC10M. The truth for this set is more prosaic as the IF turns out to be the standard (or nearly so) of 465 Kc/s.

(Note from Graeme 'GGL :- I acquired

the information from the service sheets, as I have the handbooks for all the EC10A- series and they all have 720kc/z IF's. The reason for this is that the sets tune through the range 300-550kc/s, thus obviating the possibility of an IF within this range. This range is omitted in the Seaguide, thus allowing the normal EC10 IF of 465 to be used.)

What more ? Well it is pretty stable if left for 10 minutes to settle down thermally, more usual to get this on valve sets but I find it often so with these baby Eddystones where stability is obtained by a simple zener diode. After warm up I could keep Shannon 5505 on tune for long periods even when using the battery pack.

Gain is sensibly the same as for the EC10 II except on range 1 where the EC10M seems more lively, possibly as a result of different LC values for the reduced range coverage. My first night of ndb chasing brought me a total of 14 beacons using my home made 'Hula-Hoop' DF loop which I noted, belatedly, is not matched correctly into the EC10M.

I found that I got more crisp speech when using my 'everyday' extension speaker model 935, but then this speaker gives the same result no matter what set I use it with.

If anybody needs help with one of these sets, or a copy of the Marconi Marine workshop manual plus schematic then please get in touch.

Ted ♠

Christmas Day 1942

How it dawned for EUG's President!

To look at the picture below you could be forgiven for thinking I was snowballing in the Vale of Evesham or East Anglia. Would you believe that I was a few miles north of the Sahara Desert in the Province of Cyrenaica?

In October, 1942, the tides of war finally turned for Britain and the Allies. For almost two years the Axis powers had made mincemeat of most of Europe and the Far East. Our island had been snatched from Hitler's juggernaut by the RAF's Fighter Command in 1940 and now we had achieved a real desert victory at El Alamein.

Rommel, the Desert Fox, had finally over-reached himself and been repelled by General Bernard Montgomery, known to all as "Monty". He led a seriously strong army of combined Commonwealth forces, of which the 7th Armoured Division, nicknamed the Desert Rats, caught the public's imagination.

As soon as our land forces started their rapid forward advance we of the RAF's mobile radar unit, euphemistically known as AMES 881 (*Air Ministry Experimental Station*) got on the road and followed them up to Cyrene. This was situated at about 2,500 feet up, just south of the historic town of Apollonia, renowned for its historic ruins.

The outlook was superb and our 1.5 metre, 250 Kw radar scanner monitored the whole of the eastern Mediterranean to say nothing of Italy. The Luftwaffe was a spent force in the Med and times were easier. We were a small, self-contained unit and our two cooks managed to acquire a couple of live turkeys in the local market. These

were kept in a small compound and well-fed with all our scraps.

Christmas day dawned with an unusually bright glow through our covered windows. Incredible; we had a real White Christmas!



***Bill takes aim with a snowball
in the Western Desert, 1942!***

After a morning of sunshine and snow we took our places for a turkey dinner, served in the traditional way by our Commanding Officer . . .

BILL COOKE, GWØION

E Bay Watching . . .

November 2005.

By Chris Pettitt GØEYO

We have seen some very active bidding on Eddystone receivers this month on E Bay. Prices varied considerably with the occasional bargain. However some items went for very good money which only goes to show that some Eddystone collectors are not short of cash.



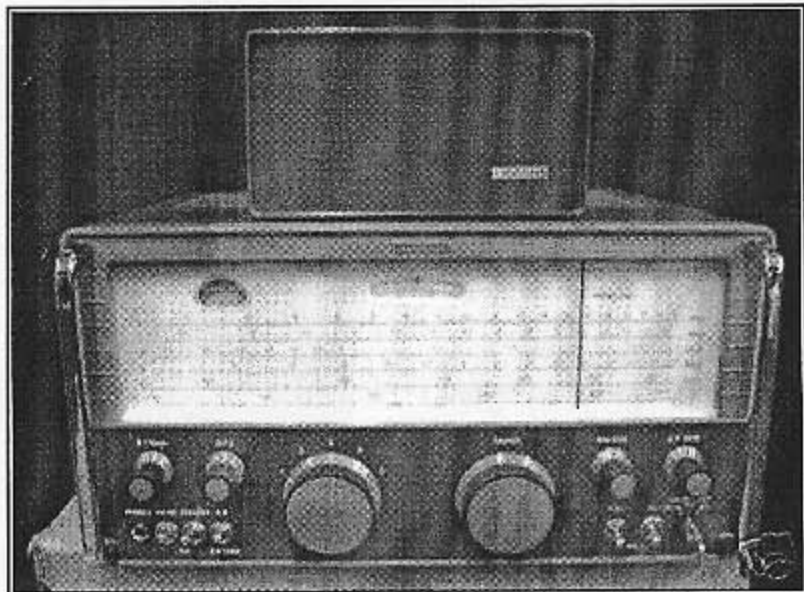
One that attracted my eye was this 880/2 which went for £418. Looks to be a very nice set.

The seller did not say much by way of description but he did say that not very many had been made.

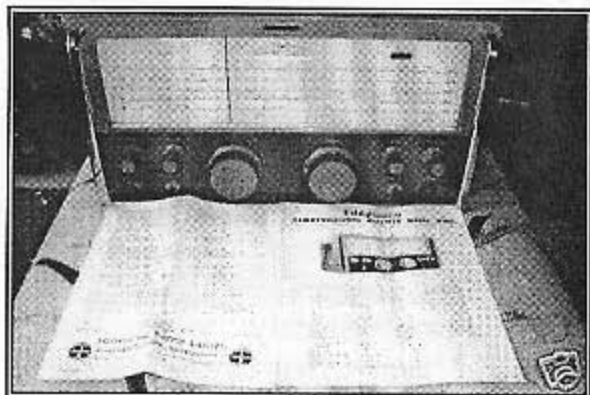
Anyway I think this must be a record price for an 880/2 on E bay.

Another set which got an exceptional price was an EC10 mk 2. I don't have any pictures from the sale as E bay tend to delete them after a couple of months but it was described as being in exceptional condition and eventually sold for £205.

I liked the look of this 940 which came with its original speaker and the boxes.

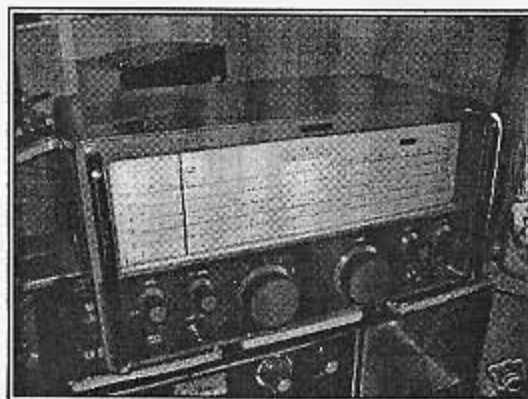


It looked in mint condition and went for a very mint £365.



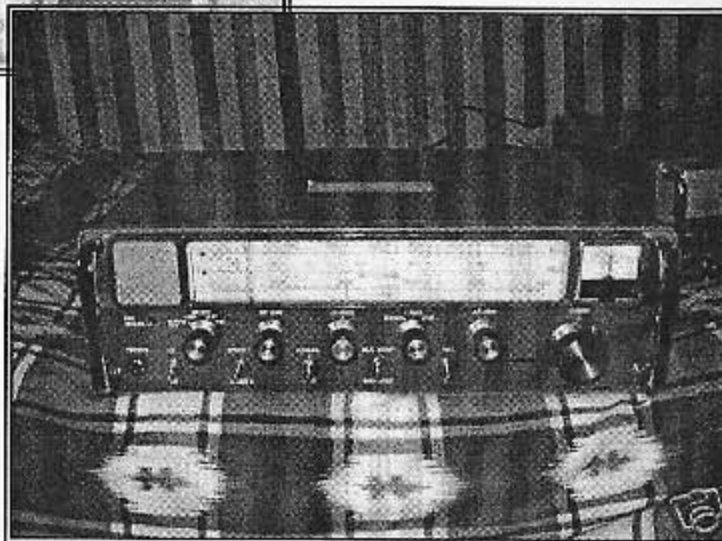
The 840C receiver has been a regular visitor to E Bay this month. A couple of nice examples went for good prices, one at £156 and the other for £256.

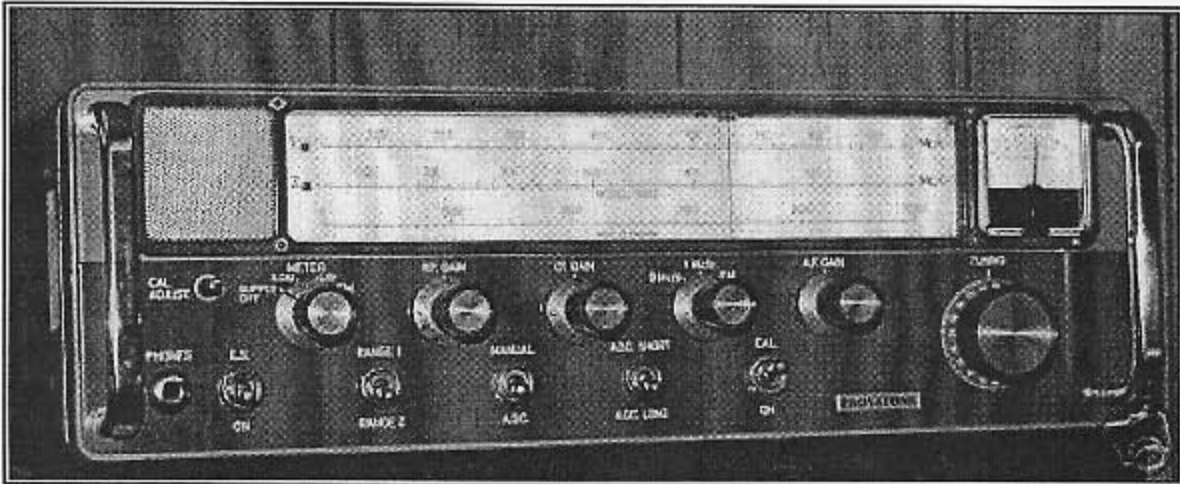
See if you can tell which one went for the highest price . . .



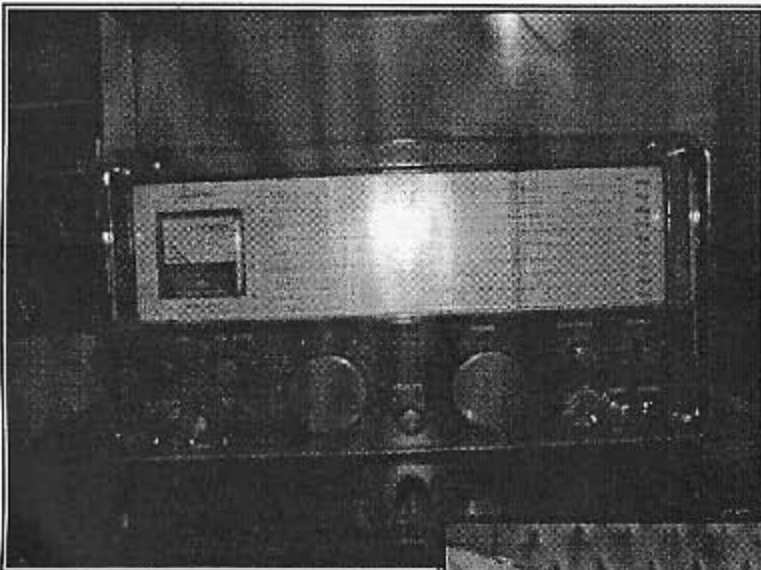
You don't often see sets from the 990 series but these two came up from the same seller and got prices which I thought represented good value for money.

The 990R (above), the more popular, went for £87 and the 990S (right), went for £90.





Another 990S which was sold later on went for £175 which is what I would expect to get for one of these radios.

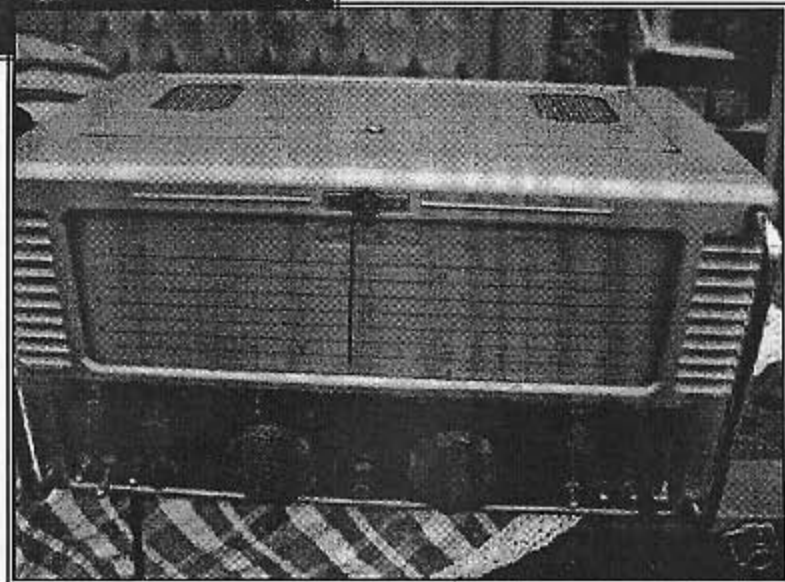


Finally a couple of ham band sets came up and were knocked down for good prices (for the seller that is!). This EA12 made £137

And my old favourite the 888A went for £138.

Well that's all from the E bay room for this issue. Keep looking; you might just get a bargain. (The 840C with the handbook fetched the higher price.)

73's de Chris GØEYO



Repairing Drive Gears on Slide-Rule Eddystones

Readers may recall some time ago that we carried an article on the above subject by Anthony Richards GW4RYK. Anthony who is big in the vintage car restoration world, has contacts which led to his acquisition of long 'rods' of gear wheel which he saws off and uses to replace the damaged parts. These are available to members (via GW4RYK - QTHR). Tony GØMQG, a 'new' member, not having read about Anthony's system, has achieved the same results using a commercially available cog. The principle is very similar and is outlined here:-

At a rally recently I obtained a MIMCO 2232A cabin model (alias Eddystone S.670A) in rather poor condition, with a view to restoring it.

One of the (many) jobs I had to do to it was to repair the tuning pointer drive cord assembly and investigation of the gearbox and drive cord assembly revealed that it needed to be dismantled and cleaned, etc.

I discovered that the gear teeth had stripped off the two tufnol gear/pulleys that carry the two ends of the pointer drive wire and so I needed to either replace these or repair the old ones.

On investigating various catalogues available to me I discovered that "Farnell in one" supply small "Acetal" gears of various sizes. It seemed that a "module 0.5, 24 tooth" seemed to be close to the original. I'm not a precision engineer so I bow to the experience of anyone in the group who is able to say if the original teeth are "module" or "D.P." types.

These gears in the Farnell catalogue however do seem to work except that

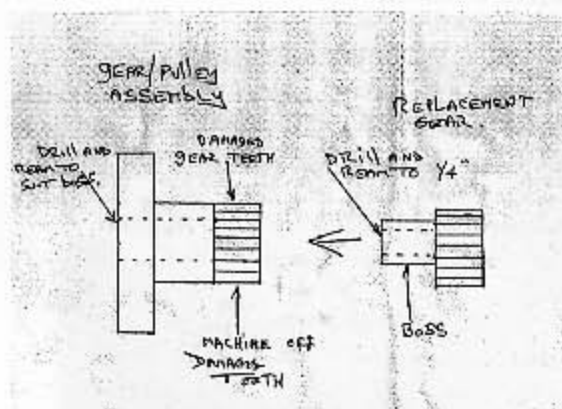
they are white instead of brown. (*Note from Graeme – many of the later slide-rule sets had white gears.*)

A few jobs are needed to be done to use these gears on the original pulleys and these are as follows :-

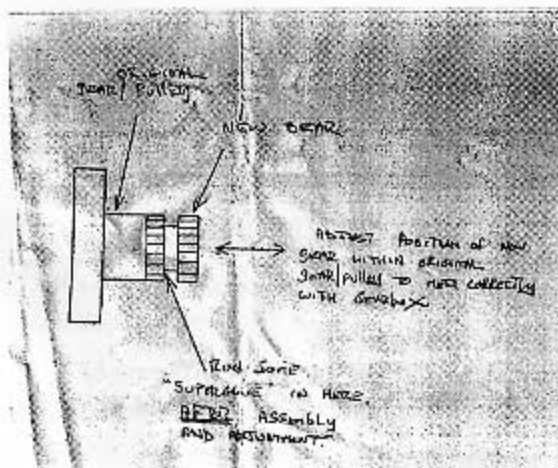
- 1) To machine off the original teeth back to undamaged ones on the old gear/pulley assembly.
- 2) To machine the hole in the centre of the original gear/pulley assembly to take the boss on the new gear (the boss on the ones I got measured 9.7mm – (*which is about 3/8" Imperial – Graeme.*)
- 3) To machine the hole in the centre of the new gear to take the fixing bolt (drill and ream to 1/4").

Both these holes need to be drilled and reamed very carefully as concentricity is very important. I strongly suggest that the drilling is done by someone

with access to a lathe with collet chucks. I'm fortunate in that I know someone with such equipment.



It may be possible to drill these very carefully with an electric drill but be very careful not to shatter the original Tufnol gear/pulley assemblies as the Tufnol is brittle and could break very easily. If you are not too happy about drilling these then I suggest taking them to someone who can drill them on a lathe as previously mentioned but tell the "machinist" that the pulley assemblies are rather brittle.



Once the machining is finished assemble the "Acetal" gear into the original Tufnol gear but don't glue at this stage, and carefully assemble onto the gearbox in order to ascertain the position of the new gear within the old pulley assembly so that it meshes

correctly with the brass gear in the gearbox. Then very carefully remove it again to fix the new gear to the old pulley assembly. I found that a small amount of "superglue" fixes the two nicely.

Run the glue into the assembly and lay the pulley side down while the glue is setting. Don't try putting glue onto one piece and assembling the two as they may set in the wrong position and be impossible to separate. Also be very careful not to get any glue onto the gear teeth or pulley grooves.

There may be other ways of repairing these of course, and someone may have a better idea than mine. There was an advert in an old copy of "Lighthouse" from someone who could explain how to repair these (*note from G. - this was Anthony GW4RYK, as mentioned above; the system is very similar, both are based on grafting a new toothed section.*).

Lastly, the gears that I used are in the current "Farnell in one" catalogue under catalogue number 347-1240 priced at 40 pence each (at this price I bought 10 off which brings the price down to 36 pence each). I'm not sure if they have a minimum order value or what their postage etc charges are (I bought mine via the company I work for - I have an understanding boss!)

Farnell can be contacted via:-

Tel: 08701 200 200

Fax: 08701 200 201

e-mail sales@farnellinone.co.uk

web www.farnellinone.co.uk

address:- Farnell in one

Canal Road

Leeds LS12 2UT

Tony GØMQG

E.U.G. Masters' Crossword News

By Colin G4HNNH

This month I was hoping to use my newly acquired crossword compiler software to give us a crossword solution grid for easy reference. There have been some teething troubles with this so we will have to make do with our normal solution format.

Here is the solution for EUG crossword No. 28. Please note the technical references for those who wish to peruse clue sources:

Across:

1. ALL WAVE FOUR¹

6: AVIATOR

8: LOAD²

9: ORATORIO

11: ESSEN

13: CAIRO

14: EISENACH

16: UGLY

17: CALL DUE

19: NEUTRALISER³

Down:

1: ATV

2: WATSON

3: VARIAC

4: FOLIO

5: RADIOSONDE⁴

6: AMPERE TURN⁵

7: IRISES

10: RUINED

12: FASCIA

13: CHILLI

15: EGYPT

18: UDR

We Had eighteen entries this time of which only one was incorrect. Either the crosswords must be getting easier or perhaps skills are improving.

The one mistake we had was in 18 down (Defunct Irish Militia) we had UVR instead of UDR.

Roll Of Honour for EUG Crossword No. 28

Tor Marthinsen of Tønsberg, (Norway)

Phil Harris G4SPZ of Bewdley (Worcs)

Roger Bracey G4BZI of Crewe (Cheshire)

Oliver Barnes M1DYW of Wivenhoe (Essex)

Graeme Wormald of Bewdley (Worcs)

Mike Maxey G8CTJ of Burbage (Leics.)

A.A. Kendall RS20353 of Isleworth(Middx)

John St. Leger G3VDL of Oakhampton (Devon)

J M Read of Nantwich (Cheshire)

Liz and Richard Gaskill G0RJX & G0REL of Kennington (Oxford)

Geoff Steedman M0BGS of Leeds

Roger Roycroft G1NXV of Macclesfield (Cheshire)

Keith Seddon of High Peak (Derbyshire)

Les Cates G4AVE of Reigate (Surrey)

Gary McSweeney G14CFQ of Belfast

David Jones MW1DUJ of Llanelli (Carms)

David Skeate G0SKE (location unknown)

For those of you who are still pondering last months puzzle, here is a run down on the solution focusing on the clue types:-

Across:

1. Anag. of "a low rf value"

6: Anag. of "via rota"

8: Straight def.

9: Straight def.

11: Pun (Ger. Essen= to eat)

13: Straight def.

14: Straight def.

16: Straight def.

17: Straight def.

19: Straight def.

Down:

1: Straight definition

2: Pun on Dr. Watson (Watt)

3: Straight def.

4: Container (F-oli-o)

5: Straight def.

6: Straight def.

7: Homophone

10: Straight def.

12: Synonym

13: Homophone

15: Anag. of "type G"

18: Straight def.

Technical References

1. QRG 2nd. ed. Page 17

2. Chambers Dictionary of Science & Technology Vol 2 (1974) page 698

3. Collins Dict. Of Electronics (1988) page 209

4. Ibid page 266

5. A Dictionary of Electronics (Penguin 1966) page 377

Thats all for this time.

A very merry Christmas
from G4HNNH

EUG MASTERS CROSSWORD 29

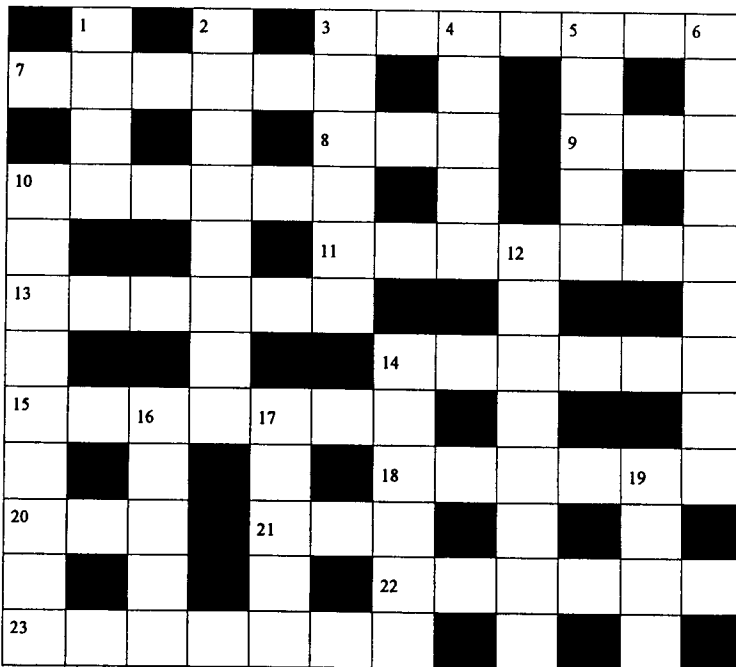
Compiled by Colin
G4HNNH

Across

- 3 Internet video aids. (3,4 pt. abb.)
- 7 ----- Unit. The unit used in measuring variations of modulation in comms. circuits, eg., telephone or broadcasting. The unit is the decibel expressed relative to a reference level of 1mW in 600 Ω (6)
- 8 RT sign off. (3)
- 9 Front fascia, designed to conceal secret service reference. (3 abb.)
- 10 Computer directive, possibly remade. (4,2)
- 11 I parcel oddly a poor man's retro radio. (7)
- 13 These might be useful, at some stage, to G3EUG/MM but he would have to sign /M instead. (6)
- 14 A Doubling or halving in frequency. (6)
- 15 Device used in nuclear physics for separating isotopes. (7)
- 18 Radio waves returned to the transmitter with sufficient magnitude and delay to be distinguishable from the directly transmitted waves. (6)
- 20 Transfo. designed for use in a fixed-tuned amplifier between the 1st. and 2nd. detectors in a superhet. (3 abb.)
- 21 Military honour. (3 abb.)
- 22 German radio op. (6)
- 23 The frequency where the response of an amplifier of filter is 3dB below maximum is known as the ---- --- frequency (4,3)

Down

- 1 Some info necessary for identifying RT slang. (4)
- 2 ----- electrometer. A type of electrometer consisting of a flat cylindrical metal box in the form of individually isolated compartments inside which a thin metal vane is suspended horizontally. (8)



- 3 Si unit of magnetic flux (plural form). (6)
- 4 Onomatopoeic radio signal. (5)
- 5 Type of computer code (sounds like Arthur may have invented it). (5)
- 6 & 17 Down Cabin set could provide ears for sea raid perhaps. (9, 5)
- 10 Free IRC, it seems, produces psu component. (9)
- 12 Storage action of a flip-flop circuit. (8)
- 14 Unique. (3,3)
- 16 Type of valve base. (5)
- 17 See 6 Down. (5)
- 19 British Prime Minister, 1955-57. (4)

Please send your entry, to arrive not later than 15th. January, direct to:-

Colin Crabb G4HNNH, 41 West Drive,
Edgbaston, Birmingham, B5 7RR

e-mail (no attachments please):-
g4hnh@smartemail.co.uk

Your name.....

(Call sign).....

Address.....

.....

.....

email.....

INSIDER'S CHOICE

By Terry Parker G4NXN

Terry was 'Head of Test' at the Bath Tub in the vintage days of Eddystone. It's not often he goes into print but we are pleased to present one of his blockbusters; especially saved for Christmas!

I thoroughly enjoyed last February's article by Anthony Richards, GW4RYK, entitled "Memoirs of an Eddystone Collector", and I suspect that most EUG members reflect on early days of radio with "tales to tell" of models they owned and cherished, with others that remained just unaffordable dreams.

It raised memories of some two years ago, when I was "pressed" into giving a talk to a local radio club about Eddystone Radio and its products.

I took along a number of receivers to provide a tangible basis for discussion of various design features and methods of construction etc. At the end of the talk, whilst gathering up my bits and pieces, I was asked by two people "which was my favourite Eddystone receiver?"

I had to think hard, and was unable to really give a direct answer since most of the receivers I own all have their own individual attributes, together with a lot of nostalgic memories.

However, there is one receiver that I would consider to be a firm favourite. This was purchased some three years ago and carried home over 100 miles in my ageing MGB roadster, in the passenger foot well with my "complaining wife". It has been virtually "untouched" in terms of maintenance, and always seems to give a good performance compared to

other Eddystone receivers that I own.

This particular receiver belongs to the post-war era, and I think it worthwhile just briefly reflecting on this period, and the development of communications receivers, since it highlights some of the problems that faced Eddystone and its product designs at that particular time.

Certainly it must have been an exceptionally difficult period for *any* company emerging from its wartime activities. In the case of Eddystone it may have enjoyed the benefit of government contracts by virtue of its diversification into a multitude of products, but its core business of receiver design and production was "on tickover".

In terms of Communications receivers the 358 and its variants had found application in the armed services and the Merchant Navy. The 504 model was very short-lived and the Eddystone management must have had a lot of faith in the commercial success of the 640 (aimed at the ham/swl market) to have placed bulk orders (5000) for its "outsourced" components.

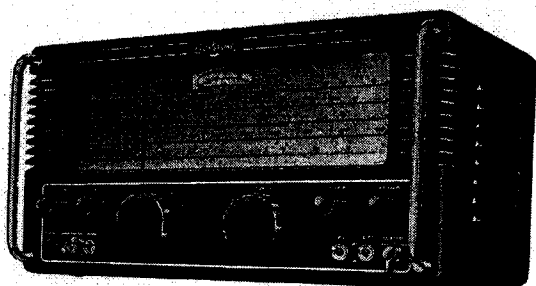
The 640 started at a selling cost of £42 plus purchase tax. This *may* have been a justifiable price given the company overheads and labour-materials cost, but it cannot have helped its progress at a time when skilled workers were earning but a few

pounds a week (Eddystone skilled staff at this time – 1947 – were paid between £4:10 shillings and £5 per week), and must have been hampered by the sheer volume of readily available surplus equipment and associated spares.

“Joe Public” would have been faced with an abundance of AR88 – HRO – 1155 - R107 - BCetc, the cost of which would have been like “loose change” compared to a 640. This must have posed considerable difficulty for a specialist company producing small batches of quality receivers.

Much of the war-surplus equipment also performed very well, and why not? In the case of the AR88 for example (and others mentioned), the design and production costs would have been enormous, certainly by comparison to Eddystone designs of this period.

Eddystone “soldiered on” and the next 30 months saw the design of two communications receivers; firstly the 680, thought by many to be the first “professional” receiver that the company produced, and it enjoyed worldwide sales and a long production life.



My chosen favourite communications receiver came next, the Eddystone 750, which began its design around Christmas 1949. That’s a long time ago, and in view of the fact that I have no real knowledge of the performance specification that it must have met, I have included some recent measure-

ments that I have taken.

This receiver was the first true double conversion receiver produced. It used the same variable selectivity principles as the 680, i.e. mechanical adjustment of IF coil spacing with beryllium copper interconnecting wire, but without the click-plate indexing. This provides the operator with continually variable selectivity and I’m always amazed how well the interconnecting wires stand the test of time and repeated use.

It was the first model to use a slide-rule scale and the visual presentation was further improved by the use (again for the first time) of the “ratio arm”, sometimes called “linearising arm”, which was fitted between the gang and the slow motion drive to definitively adjust the rate of gang rotation thereby providing a linear tuning facility.

The first IF frequency was deliberately optimised to 1.62 MHz, this being (at that time) a more favourable area of the MW spectrum in order to minimise potential 1st IF breakthrough.

Measurements show IF breakthrough better than -60dB taken at mid-band position in the lower range (480 to 1450 KHz), and from -63/-73dB from 2 to 12 MHz, and being in excess of -80 Db on the upper range.

I feel in hindsight this receiver illustrates the efforts being made for careful design. The second IF which was chosen at 85 KHz allows potentially higher Q figures, providing for better selectivity than, for example 450/465 KHz, and the potential for greater IF stage gain.

Significantly, only one dedicated low frequency (2nd) IF stage was included within the 750, as opposed to the 680 series which had two dedicated IF stages, albeit at the higher frequency of 450 KHz.

Selectivity measurements performed on the 750 and compared with the 680 published selectivity plots show that the inductive filtering performance (in terms of shape factor) of both receivers is very similar.

The 750 measured in its narrowest position shows 1.3 KHz at -6 dB and 8.43 KHz at -40 dB, and in the widest position 8.24 KHz at -6 dB and 18.95 KHz at -40 dB.

My preference when short wave listening is CW and, as such, the 750 does not have the benefit of a narrowband crystal filter (as did the 640/504 and some of their contemporaries) but I have found the narrow position quite effective for taking CW traffic, and the "soft filtering" is pleasant on the ear when tuning the CW sections of the ham bands.

The N78 (used as the final audio stage in the 750) was pressed into service in many roles, certainly giving a good account of itself as a transmit P.A. valve operating to quite high frequencies, and the circuit design has been appropriate to keep this stage unconditionally stable. I find the 750 audio quite distinctive and appealing, particularly when taking SSB traffic.

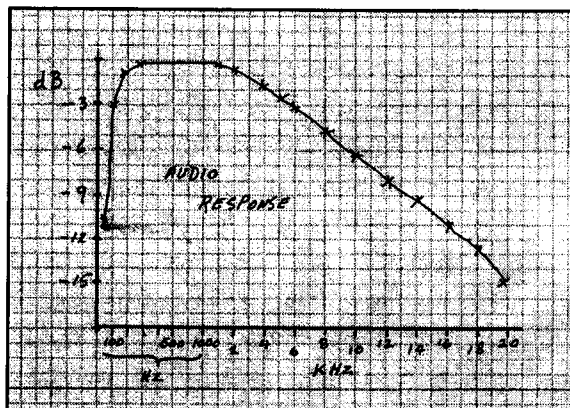
Hum can sometimes be a problem on pre-war, and wartime receivers. I understand the availability of higher value electrolytic capacitors (and possibly rectifier valves capable of withstanding higher capacitive loads) were not available in earlier days. In view of this fact line ripple was more difficult to control. Designers were liable to accept a limited level and try to cancel this out in later stages.

"Hum bucking" type circuits were commonplace in the late '30s and early '40s. Eddystone receiver type 504, in keeping with some American designs of the period, (the AR88 being one)

used similar techniques.

N.B. Owners of the Eddystone 504 receivers should be aware that R93 (used within just such a hum cancellation circuit) will, in the event of H.T. fault currents, act as a fuse and burn out. This resistor is not easily accessible and an easily reversible mod of additional fusing internally is worthwhile.

In contrast, the 680/750 receivers were carefully designed to reduce hum to low levels. For example, extra care was taken with heater circuits balanced against ground, and the end result is good. The 750 behaves very well and I cannot detect any hum, under any circumstances, when using my SG Brown phones.



The AF performance graph indicates a -3db response of 100Hz to 5KHz, providing good low frequency response, and this fact together with the level of feedback applied to the final audio stage contributes to its very nice, "full" sounding audio on SSB signals, and with careful use of gain controls it does resolve SSB signals very nicely, despite the fact that it had never heard of SSB when it was born, and does not have a product detector.

It is interesting to note that with the improvements in design at this time it was not necessary to sacrifice the low frequency audio performance of the receiver in the quest for hum-free

audio.

The 750 also benefits in providing the operator with full control of the gain distribution of the receiver, in this case having independent RF and IF gain controls, as opposed to all previous designs, and even more contemporary designs (680/740), which had a combined RF/IF gain control.

I find the independent controls helpful in today's band conditions providing for better receive optimisation. I have, in the past, spent considerable time comparing the subjective performance of Eddystone's 750, 830, 880, and 958 under crowded band conditions. Despite its age I was very pleasantly surprised at how well the 750 performed against the "heavyweights", in terms of "winkling out" very weak signals.

There were receivers of this vintage that suffered from poor HF performance. Better quality receivers at this time utilised a 2 RF stage design, which also, by virtue of the increased pre-mixer selectivity, improved image performance with commonly-used low frequency IF's and the additional RF stage also often provided better AGC performance.

The 750 had a single RF stage and, in keeping with some other Eddystone receivers, utilised a **resonant primary** on the tuned circuit between the RF stage and mixer. This principle has some clear advantage in terms of additional effective gain, but is not easily managed in terms of gain variation across the band.

This requires a low Q primary (the primary position on the coil former with respect to the base of the diecast coil box helps here) with both inductive and capacity coupling to the secondary, and finally with the alignment points carefully selected to optimise sensible

overall gain variation. The primary resonant frequency is designed to fall some 10% to 15% less than the lowest frequency of use in any particular band.

The 750 has been designed with an aerial input impedance of nominally 400 ohms; this was in keeping with specifications generally attributed to shipping requirements but it also filtered into broadcast receiver design too, and continued for some time.

I well remember a visit to France as late as the 1970's, for an Eddystone receiver performance trial with a French government authority. They insisted, to my surprise, without any prior notice, that the Eddystone receiver under test should meet this particular dated specification, as well as the CEPT specification.

In this early post war time period high impedance aerials would have been more the norm, and as such would have been more appropriately matched to the 400 ohm input of the 750, more so than perhaps in "today's world" where current fed, low impedance aerials (typically standardised with terminal impedances of 50 to 75 ohms) are more commonplace. However, it should be remembered that because of the relatively high impedance at the input to the first tuned circuit, some provision must be arranged for a sensible match, both in terms of operating and for alignment purposes. Sadly, I am sure that in some cases convenience overrides this important issue.

I have detailed below some AM signal to noise figures (33% mod; taken in a 3 kHz bandwidth), with an interposed matching unit between signal generator (50 ohms) and receiver. In view of the non-defined IF selectivity (i.e. no click stop settings), I have established, by measurement, the

correct position for a 3 kHz bandwidth, and used this for all S/N measurements.

A standard 2 microvolts input was used throughout, on spot frequencies between 2 and 28 MHz (the lowest frequency range was not measured).

Range 1	28 MHz	14 dB S/N
	23 MHz	13 dB S/N
	15 MHz	10 dB S/N
Range 2	11 MHz	17 dB S/N
	8 MHz	17 dB S/N
	5.2 MHz	16 dB S/N
Range 3	4.4 MHz	15 dB S/N
	3.2 MHz	15 dB S/N
	2.0 MHz	13 dB S/N

In general, I find signals on this receiver "stand out" against a quiet background, and I am sure that it competes very favourably with many contemporary receivers in terms of HF performance, due to its gain distribution, and its -40 dB plus image response on the highest frequency range.

Measurements show image at -40 dB or greater between 22 MHz and 28 MHz, with 14 MHz measured as -60 dB (a typical single conversion receiver, utilising low frequency IF's (450 kHz) with 2 tuned circuits providing pre-mixer selectivity may well suffer image performance as low as the mid 20's within this range of frequencies).

On lower ranges of course, the 750 image performance is considerably better, typically -72 dB at 4.2 MHz and >-80 dB at 1 MHz.

I have measured the AGC performance at 10 MHz, which showed 12 dB change for 80 dB increase above 5 microvolts. Perhaps not startling by today's standards, but, I think, giving

the limitations of the number of IF stages, this is quite a good performance, and I'm sure would have been more than acceptable "in its day".

Also it should be noted that this function is only available for receiving AM signals; the AGC being disabled under BFO use.

The Eddystone 750 must be classed as a general coverage communications receiver. It covers a similar range as the 680, but the full receive band coverage (due to its more economical design) is provided within 4 switched bands as opposed to the 680 with 5 switched bands, also the 680 circuit diagram indicates a small amount of tank capacitance across each oscillator coil unlike the 750 which has none. The averaged-out tuning range on the 750 is 2.81:1, and on the 680 is 2.42:1.

Whilst not wishing to go over old ground, I think most EUG members recognise that there is considerable difficulty in maintaining stability throughout this quite large extent of tuning range.

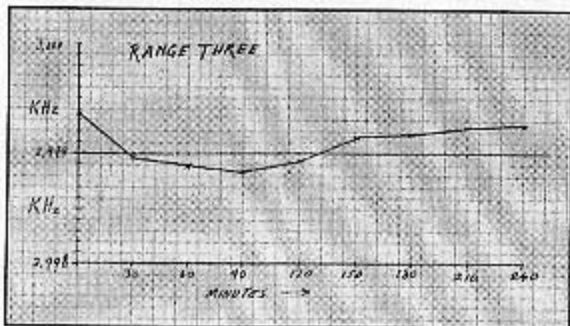
More expensive designs with reduced tuning ranges, and with the capability for control of temperature compensation due to proportionately higher values of tank circuitry, should potentially offer far better stability. However, this does not come cheaply, either in the design budget or in the more labour intensive operations of both production and test, which, as always, is reflected in the selling price.

Given the above limitations I feel stability is still good, settling quickly, and then followed by a slow controlled drift as the heat permeates through the mass of metalwork until thermal equilibrium is obtained.

I have enclosed some drift performance measurements taken in a nominal mid-band position of the top

three ranges. It seemed sensible to take measurements over a typical four-hour operating period (since this may simulate a typical SWL or "ham" session), with a "throw-away" 30 minute initial settling period.

The receiver is fitted with a ventilated cabinet and is bench-mounted with negligible restriction to surrounding air space. The receiver controls are "untouched" and the source frequency is monitored with a counter, and adjusted to audible zero beat, on the 750, at 30 minute increments prior to recording of information (this measures the accumulative movement of first and second conversion oscillators and BFO).



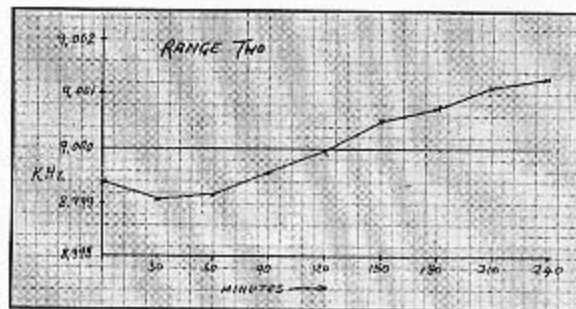
During the Range 3 test the ambient temperature steadily climbed from 24° C to 27° C; a thermometer mounted internally on top of the 750's gang cover plate showed a change of 24° C to 44° C over the 4½ hour period.

At the completion of the test I gave the top of the cabinet a sharp bump and noted that the 750 receiver shifted frequency about 50 Hz low; repeated use of the wave change produced a shift in frequency of about 15 Hz.

The graph shows the worst half-hour period as being the first 30 minutes after initial warm-up which resulted in a 358 Hz shift low. The maximum frequency deviation occurred after 1½ hrs, this being 493 Hz low, with good settling after that. After four hours the

receiver was within 69 Hz of the Initial start frequency.

The graph below shows the Range Two drift characteristics, taken at 9 MHz, and measured after a 30-minute warm-up period again, showing some similarities to the Range Three figures in terms of drifting low in the first 30 minutes, in this case falling 330 Hz. The worst recorded deviation, for any half-hour period, being 482 Hz. After 4 hours the receiver was within 1.82 KHz of the initial start frequency.



During the Range Two test the ambient temperature was fairly constant at 24° C, with the inside receiver temperature measurement climbing from 24° C to the last measurement of 42° C, again the thermometer was positioned on top of the gang cover plate.

At the end of the test I applied some shock to the top of the cabinet and observed a shift low of some 60 Hz, and repeated use of the wave-change caused the received position to change from 60 to 90 Hz.

The graph below shows the Range One stability performance, taken at 24.7 MHz; the initial 30 minute period shows a quite sharp fall, minus 10.71 KHz; but then settling and slowly rising to within 2.4 KHz of the start figure after 4 hours.

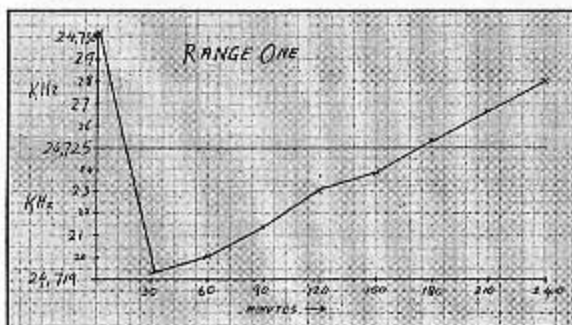
The next worse figure in any other selected half-hour period within the 4 hour duty cycle is 1.58 KHz, and

allowing the first 30 minutes as "still settling" then the average shift in any of the following half-hour periods is 1.18 KHz.

During the Range One test the ambient temperature steadily climbed from 23°C to 25°C; a thermometer mounted internally on top of the 750's gang cover plate showed a change of 23°C to 44°C over the 4½ hour period.

At the end of the stability test I again "shocked" the top of the cabinet and noted a frequency shift of 380 Hz, and repeated switching showed a frequency shift of 47 Hz at worst.

It should be remembered in this latter test that the wiring to the switch wafers, and wafers themselves (forming a variable reactance element) are a considerably greater part of the tuned circuit values than other lower ranges, and this is clearly reflected in the results. It should also be noted that the general repeatability of mechanical indexing will have deteriorated through normal use.



Whilst both the 640, and the early 680, may have had temperature-related problems requiring some increase to chassis and cabinet dimensions, by contrast I have used my 750 for extended periods (often during hot summer months), and the small RS temperature label on the top of the mains transformer indicates that peak temperature has never exceeded 60°C.

The 750 is housed in a smaller 9" deep by 16¾" wide by 8¾" tall vented cabinet. Typical manufacturer's temperature ratings for a transformer of this type would have been 85°C.

As I have grown older, I have begun to appreciate Eddystones with smaller footprints and more manageable weight. I will not dwell on the difficulties of maintenance of the AR88 – 880 – 830 – 770 series of receivers as my hair gets greyer.

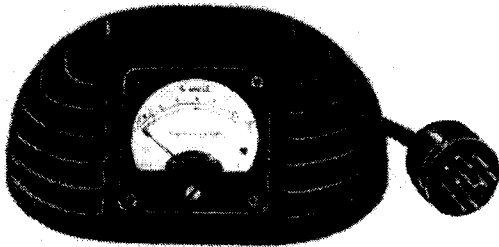
The earlier 640 receiver (also with a 1.6 MHz first – and only – IF tuned down to 1.1 MHz but the 750 includes a further low frequency range of 500 KHz to 1450 KHz, imposing some tracking difficulties. Clearly even close-tolerance tracking capacitors did not maintain sensible production spreads since the design allowed for a parallel trimmer capacitor for the test engineers to optimise scale calibration on the lowest band, thereby providing better display accuracy.

The earlier Eddystone 358 and 504 receivers utilised Tufnol gearing for the tuning drive; the Eddystone 750 uses brass gearing, and the drive performance, despite the receiver's age, is still smooth and is free of any significant "short term" or "long term" backlash.

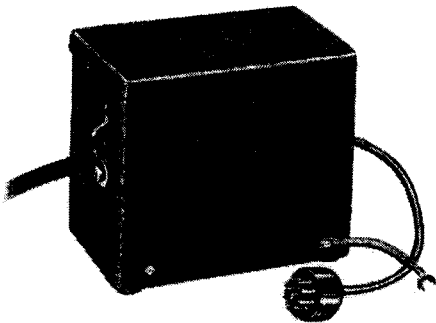
I am, now, virtually inactive as a transmitting amateur, but I do still enjoy listening to CW signals. I find that despite the 750's quite limited tuning resolution on ham band CW sections (compared to modern equipment which boasts tuning resolutions of the order of 1 Hz), I can, by virtue of the quality and durability of the Eddystone drive, still accurately tune CW traffic on all bands, with selectivity at its narrowest, and the repeatability is good when referenced to the logging scale.

As with most Eddystones of the period there was provision for desensitising the receiver. The 750 standby function provides in excess of 80 dB desensitisation, and I have enjoyed the opportunity of taking "a step back in time" and used it with a valved CW transmitter and straight key, "listening through" to my outgoing carrier, without the need for generation of side-tone.

For those operators that feel the need for a carrier level meter, I believe there was a version of the 750 that provided an integral meter, but on the standard model provision was made for fitting of an external S-meter via a rear connector.



There is also an ancillary connector for external supplies and Eddystone manufactured a dedicated vibrator power supply for the 750 driven by a 6 volt accumulator for field operation use, and I am sure that "in its day" this must have considerably increased this receiver's versatility.



Its starting price in the market place was less than £50, and taking everything into account this must represent a careful well-balanced

design, since it was almost the same initial price as the 640 of two years earlier, and around half the price of the 680X; still a fortune in those days, but it found favour with the Marconi company, some 15 years before taking over Eddystone, and was badge-engineered as the Marconi HR100.

I understand that approximately 400 were ordered by Marconi, and were "teamed up" with their transmitters, mainly in overseas installations, with some finding service aboard shipping.

The Eddystone 750 went on later to form the basis for the design of the popular amateur band receivers models 888 and 888A.

Whilst not produced in large quantities, they seem to "turn up" world-wide, which I think begs the question of whether that was their original "place of work", or subsequent "retirement home" in the hands of an enthusiast? Certainly I have noted a few being advertised in the USA and Canada, and given the size of the production run I would be surprised if they don't become far more collectible in the future.

I have an interest in other areas of old technology, with modest collections, and I always try to consider any dated hardware in its own time-period of manufacture, and in particular the difficulties and costs of its design, production, and marketing, and how it must have performed "in the face of" contemporary competition.

I try to avoid drawing comparisons with modern equipment, accepting that even 5 years of movement of technology can be a "quantum leap", but I am always grateful if my "dated treasure" has some merit in "today's world", and for my particular application it is my belief that, some five and a half decades from "conception", that the Eddystone 750 can still give a

good account of itself and is a true practical classic.

As a final note, in a previous Lighthouse I read a comment regarding EC10 models with differing position of scale markings. I would like to give a simple explanation of this fact.

This particular range of receivers utilised a fairly low cost commercially produced gang that was close-spaced in all three sections. The production spread in terms of "law" could be quite poor; this gave the test engineer a bit of a "headache" when it came to calibrating the oscillator section to fit the scale.

Some gangs received from the manufacturers were not really manageable and it was more cost-effective to have a new scale made that accounted for the batch production spread.

Also some batches of gangs provided poorer microphony performance, and I recall one instance where quite a large batch was returned to the manufacturer, due to the difficulties encountered.

Significantly, later designs that made use of outsourced gangs that could be critical in performance, had the oscillator section wide spaced and of better quality, the 1000-series being a typical example.

Whilst on the subject of calibration of an oscillator to fit the scale legend, it may be of interest to members to know that the VHF/UHF models 990R and 990S, and probably their valve predecessors, were not calibrated to a fixed scale legend, but each scale was individually made to suit each set.

The test engineer would Selotape a piece of graph paper (identical to scale size) on the drive plate, and then

painstakingly mark with a pencil all of the scale points using a frequency standard as a reference as he "walked" the cursor up the scale.

This paper would have the serial number of the set written on the back, and would be sent to the drawing office where the scale was made, and then later fitted to the receiver, just prior to final inspection.

♣

P.S. By Graeme G3GGL.. *In my early days as a member of EUG, before my time was taken up by running it (!) I would occasionally repair members' valve "high street" models that were giving trouble. Two members brought me 750s for repairs and when these were completed I was highly impressed by their superb performance. Definitely a favourite.*

For my on-air activities I have acquired a 888A hambander which combines all the advantages of the 750 plus switched AVC, crystal calibrator and adjustable oscillator. Also included is a product detector for enhanced CW and SSB reception, plus a CW audio filter which many operators, including me, prefer to an IF crystal filter (much easier to adjust).

I have been looking through an old Stratton "scrapbook" of customers' letters. This is one of dozens of testimonials . . .

FROM: Mr W. J. Ford, of Toronto, Canada. April 1954.

"I have recently received one of your Eddystone Model 750 receivers and am amazed at the workmanship and quality of the set.

"Having come into contact with practically all American-made sets including various RCA, National, Hallicrafters and Collins equipment, both for civilian and military use, I can truly say that I have never seen a receiver so well engineered, both electrically and mechanically as your Eddystone Model 750."

♣

Measuring End-fed Aerial Current

By Graeme Wormald G3GGL

Way back in the dear old days beyond recall we used to have three ways of measuring the RF current in an end-fed aerial. The first was pretty basic: it was a flash-lamp bulb in series with the aerial lead. Cheap, easy to replace when it blows; but no good for comparisons.

The next (and most expensive to manufacture) was the thermocouple ammeter. This was actually a moving-coil galvanometer (typically less than one milliampère sensitivity). It was connected to a thermo-couple element which in turn was heated by a resistive element through which the HF current flowed. It would work from DC to RF.

Fortunately it was used in large quantities by the Air Ministry and we could all buy them for pocket-money after the war. It was a good job, too, because the chance of survival of a thermocouple during extended experimental work was practically zero. They were the predecessors of the transistor as the quick-blow fuse in the ham shack.

Most of them are now blown and they don't make them any more! They were available down to 350 mA sensitivity and the most common surplus item was 500 mA, although they were available up to several tens of amps.

The last (and much simpler) was the hot-wire ammeter. This was a simple arrangement of a pointer fastened to a return spring connected to a small resistive element which expanded

when current (DC to RF) flowed through it. They blew just as easily as the thermocouple (and then read full-scale deflection all the time!).

However the biggest problem was that I never saw one with a maximum scale of less than 4 amps which made them far too insensitive for kitchen table and QRP experiments.

A problem common to both these meters is that they are very non-linear, the low end of the scale being crushed.

The very practical alternative to all these devices is the rectified current RF meter, which seems to have emerged early in WW2 in British Army field radios; notably the W.S.18, W.S.19 and W.S.22.

These were all portable or mobile radios with power outputs ranging from 0.25 to 12 watts.

They already made use of a 500 micro-ammeter switched as a general test meter and one of the positions was used for aerial current.

At this point I shall digress for a moment to consider the whole question of end-fed aerials and aerial current.

It's axiomatic that, along an end-fed aerial wire, at the open (far) end the impedance (and therefore the voltage) is very high. The current is virtually nil.

Tracking back from this point down the aerial, at one quarter wavelength from the far end the current will now reach a maximum and the voltage a minimum. In practical terms the impedance to earth may be around 30 ohms.

At this point five watts of RF will produce a voltage of 12 and a current of 0.4 ampères. This is the classic case for a quarter-wave Marconi aerial and is quite easy to measure and make meaningful adjustments.

Should we then track back another quarter wave down the wire then we shall have produced a classic end fed half-wave Hertz aerial.

Received opinion is that the impedance to earth at this point will be about 2,000 ohms. Mmmm.

This means that 5 watts of RF up the chimney will produce a current of 0.0025 ampères (more readily understood as 2.5 milliamps). It also produces an RF voltage of 2000, more readily understood as 2kV, and that's R.M.S. Peak will be 2.8kV.

No wonder you can get a nasty RF burn when messing about with that new QRP rig. If it was DC you'd probably be dead!

However, interesting though it may be, this isn't the point of my diversion. The point I am making is that the question of RF measurement at the base of an end-fed aerial is a very variable feast.

Traditional RF meters won't cope with

the 100:1 current ratio attendant upon a frequency change of a mere octave, to wit, doubling it.

This is one of the reasons why the $\frac{1}{4}$ wave Marconi was (is) so popular; it is easy to load and peak. That's also why, when using an end fed $\frac{1}{2}$ wave Hertz the old-time ham used his PA anode current as his touchstone.

If the anode current dipped to 90% of off-resonant current he knew the smoke was going up the chimney!

But aerial theory was ever a black art and those putting end-feds up over small garden lots would aim for the 'magic figure' in terms of length versus number of bands to be covered! Readers may recall that I have sworn by a 'magic length' of 98 feet in the past. (*It's true; I still swear by it.*)

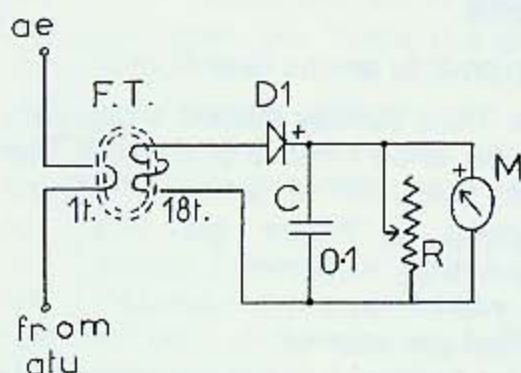
It's perfectly obvious that a quarter-wave on 'eighty' is a half-wave on 'forty' and a full-wave on 'twenty'. These latter two will be both difficult to load and measure. The happy medium is the ideal.

But what I'm getting round to are instructions for making your own transformer-fed aerial meter at a cost of a packet of peanuts. And it won't attract the monkeys, I guarantee!

WEEKEND PROJECT

Let's discuss the circuit shown on the next page. The heart of the unit is the Current Transformer (F.T.) made out of a half-inch diameter ferrite ring. These things come in all colours and I can never recall the optimum to use. But as you're scouring either your own junk box or somebody else's at a rally you

have to take what comes. (price fivepence.) The one I used was painted cream on the outside. The primary is one 'turn'. Not actually a true turn, but the wire joining the input from the atu and the output to the aerial passes through the hole on its way.



The secondary is 18 turns of varnished copper 24 s.w.g. or whatever you've got. It can be as thin as you like. It will carry less than a milliamp.

The rest of the circuit will look familiar. Yes; it's a crystal set with a meter instead of headphones plus a 'volume control'.

The rectifier, D1, is an unmarked small signal germanium diode, price a penny. The RF return feed condenser, 'C' is a 0.1 mfd., 60 volt or thereabouts ceramic disc (price a penny.)

The actual meter is about 1½ inches square and is calibrated in VU units. It is about 50 micro-amps full scale and I obtained two (left and right) for 20 pence.

The sensitivity control (which is the device's secret weapon) is the shunt rheostat, 'R', which is a 10k wire-wound which had been in my junkbox since 1948. I place no monetary value

on it but I guess you'd get one for tenpence if you looked hard enough.

Alternatives:- My meter was just put together and it worked. I'm sure you could use practically any diode for 'D1', it's just that germanium has a lower forward resistance than silicon.

I expect 'C' could vary by a factor of ten (0.01 – 1.0 mfd) and 'R' by a factor of two (5 – 20 Kiloohms.)

The actual movement could probably go up by a factor of ten (500 micro-amps) but these little 50 µA movements are so cheap and easier to find.

USING THE METER

Start off with the sensitivity control at minimum (i.e. the meter movement shorted out).

Throw up a modest aerial, insert the current meter and load it in the usual way with your favourite atu. A handful of watts; not more than five, in a quiet place on the band.

Then slowly start to advance your meter shunt ('R') until the meter deflects. Then use your judgement!

PROBLEMS are likely to arise from a too insensitive movement with a high DC resistance. Check it out with your 20,000 ohms per volt station multimeter.

NOW LOOK FOR THE FEATURE ON THE CLASSIC COLLINS COUPLER AND MULTIBAND END-FED AERIAL LATER IN THIS ISSUE.

▲

In Consideration of Amplitude Modulation

Graeme Wormald G3GGL

Band conditions haven't favoured the use of AM very often this season and I don't intend to keep repeating negative reports. I shall try to be more positive in my observations.

First of all let me mention that Ted's had a few setbacks with his health lately, not the least being on the First Sunday Net of 2nd October. He set out in G3EUG/MM intending to moor on a sandbank and erect his 80-metre dipole and loop for comparisons.

In fact he never came up on channel either AM or SSB and further landline calls to him produced no response. By the following Tuesday I was ready to call out the coastguard but he reported in. He'd been caught by one of those North Sea storms and the breakers had been higher than his cabin. He'd had to keep battened down with his sails reefed.

So at 09.00 (local) on the 2nd I put out a call on eighty and had but one AM QSO with Ron, G8URU, by Hadrian's Wall. A first class hour of 5 & 9 took place before we changed over to SSB and pulled in another seven EUGers.

All 5&9 except for John, GØUCP, on Merseyside (*now there's a good old Lancashire call; does anybody remember the 'U.C.P.' tripe and cowheel shops? Are they still there? It stands for 'United Cow Products' by the way*). Sorry to distract, John. You were only 1&2 with me and I understand you only had five watts, but as the difference between five watts and fifty watts is only about a couple of 'S' points at most I suspect you have an aerial problem.

The second Sunday produced long

skip on forty and no G stations. . . .

The Third Sunday started a day early for me when I had a phone call from Ted, G3EUG/P at 9.10 on Saturday morning. "Where are you?" he requested. "At home" I replied. "No, no, what frequency are you on?" That baffled me somewhat. Ted had been under treatment during the week and I had the idea that he'd lost a day. He had.

Notwithstanding; I switched on the 888A and the KW Vanguard; retuned the aerial from the abortive forty metre session of the previous weekend and there he was. A most beautiful 5&9 and giving me ten over.

As I was chatting with him my eyes ran over the meters (*as you do with valve gear*) and I noticed that the 6146 in the KW was only drawing 40 milliamps (*instead of 100*) and the atu readings were all over the place.

After reassurance from Ted that my signal was perfectly OK I relaxed and let my eyes analyse things properly. It was giving the typical symptoms of a fallen aerial. Mmmm.

Then I spotted it! The VFO in the KW was switched to eighty metres, as it should be, but the PA band switch was set on forty metres (*from the week before*). *Good Grief!* I was doubling in the PA. And not very well at that as I had set up the atu on eighty.

A quick change as Ted was talking and I went back to him to a report of end-

stopping on his S-meter. My self-induced fault condition couldn't have been radiating more than a few milliwatts on 3605. It just goes to show how well AM works during good conditions.

The next day we had the real 'Third Sunday 80-metre AM Net'. Condx were absolutely awful. I had a steady white noise background of S7 and although both Ron G8URU and TED G3EUG/P were S9 I could only give them both 'Readability 2'. Hopeless. *(Ted made insinuating remarks about my Rx which I could just hear!)*. After half an hour's frustration I bowed out. I had tried changing from 60 ft dia horizontal loop to 15 ft dia vertical loop but couldn't tell if they reported me!

During the week I received two EUGers listener reports, which give an interesting background.

Ray, G3TQM near Exeter reports: "Your initial calls were clear and easily discernable with good clear modulation. Both Ted and yourself were readability 5 though with varying noise strengths of 3-4 at all times.

"There was a distinct increase in signal strength from 09.10 to 09.25 here in Devon but thereafter it lapsed into increasing noise though the clarity of both yourself and Ted G3EUG/P was still noticeable.

"I detected no difference in signals whichever loop aerial you had in use.

"Ron G8URU was initially slightly less clear with continued noise and after 09.15 his signals were slowly overwhelmed in noise."

Many thanks, Ray, for your reports.

Ray tells us that his RX is an old army surplus WS16, an extremely rare bird. *(part of a field jamming outfit)*.

This was followed by a report from Roger (*dormant G8ZMM*) located at Romsey, north of Southampton.

"I tuned up on 3605 kc/s at 09.18 and initially heard Graeme, G3GGL. He was in QSO with another station who was discussing a possible receiver problem at Graeme's end, the other callsign was very difficult to resolve. *(This was Ted G3EUG/P trying to blame my rotten report to him on my 888A having lost its gain!)*.

"Conditions were dreadful, very high noise levels and deep fast fading, quite the worse for a long time. G3GGL about S5-7, the other operator (*Ted*) down to S2-5.

"A G3GTL (? - a non-member located at Bedford) was heard calling with AM on the frequency but at 09.30 several calls were put out by G4ORF which appeared to be local to me at S9+10, this seemed to go unheard 'up country'. *(This was EUGer Tom G4ORF, also located in Romsey! It seems you chose a poor day, Tom.)*

"At about 0934 there was SSB QRM from GM4GJY in QSO on 3602 kc/s. My receiver was an FRG100 + 60 ft of wire."

Many thanks, Roger. AM activity reports are very encouraging to receive, especially under adverse condx.

A report has just come in on e-mail (as I write!) from Tom G4ORF in Hampshire (quoted above). Tom writes:-

"I was on the frequency of 3602+/- from 09.19 (local time) to 09.45.

"In the beginning I could just make you out at 3 & 3 then it went down. The frequency was full of what sounded like popcorn being prepared and the speech sounded very muffled. About this time I also vaguely heard G3EL or EUC or whatever.

"At about 09.31 there was a message of "Please change your receiver". Afterwards it was a staccato type noise blanketing everything, the definition of which should have been "Noise to

signal ratio" of many tens of dBs.

"I had more luck with G1EDP from the Forest of Dean area (*Mike in Gloster*) on about 3615 to 3617. (AM is not so easy to set accurately as SSB in the presence of noise.) He was marginally better than you were, but only for a short while. I think G3XG (?) came in as well for a while after which I closed down and gave my ears a rest.

"The most annoying part was that every time someone announced their callsign, a QSB, often differential QSB took half of it out.

"My antenna is the 5MHz triangularly folded dipole. This may have played its part in my problems, but I was desperate to join in, come what may."

Many thanks, Tom. I don't think Ted, G3EUG/P, can blame it all on MY rx after all!

FIRST SUNDAY, NOVEMBER (6TH)

The AM section of this operation came up clean and clear, with yours truly working Ron G8URU (Carlisle), followed by Ted G3EUG/P (Cambs), Dave G8JXK (Somerset) and G8YKE, Peter in Kettering (Northants).

All reports were 5 and 9 (plus), no QRN and little QSB.

The SSB segment produced a further four members.

SECOND SUNDAY 13th Nov. 7143 kc

Back now on that dodgy band, Forty Metres! QSB was rampant and I heard Ted GW3EUG/P operating from the top of the Great Orme on the North Wales coast. But he didn't hear me . .

I then made contact with Ron G8URU in Carlisle, reports being from 1 & 3 to 5 & 9.

Ian in the Kingdom of Fyfe, GM3OZJ reported in at 4 and 7.

SWL Alan in Morayshire (about 400 miles N of Bewdley sent a QSL reporting that he had heard yours truly

but nothing of Ron or Ted. . .

Then an e-mail arrived from Peter DC6BN who was staying near Mariestad, Southern Sweden (Peter gets around a lot!)

"Using my Yaesu FT-817 and the car's remotely tuneable ATAS-120 (approx 1.5 metres length) I was watching around 7143 yesterday.

"At 09.00, your time, I heard GW3EUG/P calling, 4 & 2. I used the LSB mode to copy him. Shortly afterwards I heard you calling, this time I switched to AM mode, my report 4 & 2 with QSB.

"On 7143 I heard also a BC station, possibly talking Chinese, which interfered with your signal.

"You went to continue at 7146 which was without interference. Still lots of QSB, but I noticed you tried to talk to a G8 station (*G8URU*).

"I made an attempt to call you twice but without success. I had to close at 09.15. I was only using 3 watts and my short aerial so I didn't stand much chance!"

Thanks Peter; I reckon you were about 700 miles from me.

THIRD SUNDAY; 20th Nov, 3605 kc

Good contacts made from Bewdley with Ted, G3EUG/M on the banks of the Nene (Cambs); Peter, G8YKE using a doublet in Kettering and Ron G8URU with a '5RV north of Carlisle. Sporadic QSB but mostly 5 & 9.

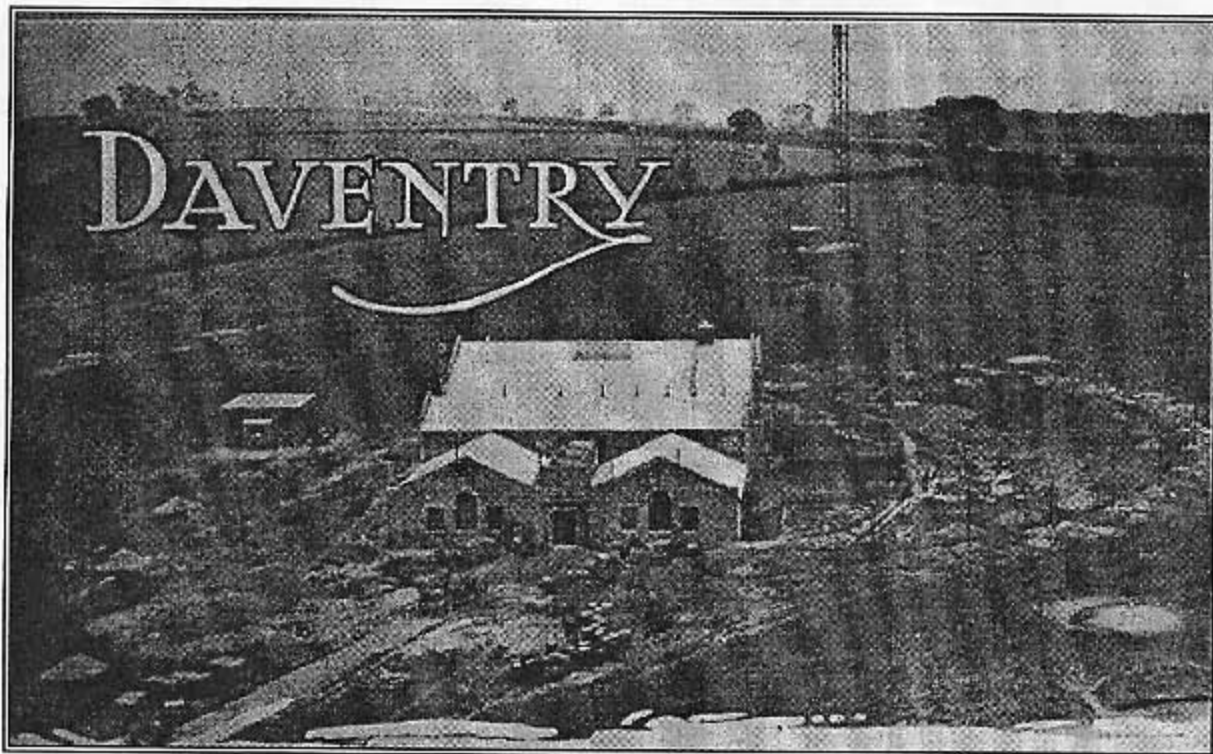
OUTLOOK: MIXED

After our superb inter-G activity when the 'new' forty metre extension was released a year ago we have had a year of disappointment on that once-supreme band.

But for members wishing to use their Eddystones on real AM ham signals remember that the 'Boat-anchors' operate most mornings on 3615 kc/s and always welcome our licensed members to call in. ♠

Early Eddystone Radios

by Tor Marthinsen



Daventry transmitter photographed from one of the two 500ft masts, summer 1925

For a long time I have been interested in the early Eddystone radio receivers, some of which were known to me only through Ted's lists of receivers. However now that Graeme and Chris have been to see Alan Ainslie's wonderful collection we have proof of existence of an 'Eddystone Crystal Set', the 'Regional One' and the 'Scientific Five'. To my knowledge there are but a few black holes left of receivers mentioned in text but not seen.

I think that a short history lesson is appropriate here. The start of broadcasting in England was from the Marconi transmitter in Chelmsford in February 1920, however the permission to broadcast was withdrawn in November the same year. It was not until May 1922 that a second Marconi transmitter in Chelmsford (2MT) began broadcasting. Other transmitters followed rapidly so that by the end of 1924 there were 9 main stations (1.5 kW

each) and 10 relay stations (120 Watts each) in operation.

Another experimental transmitter was built in Chelmsford at the end of 1924 (5XX) using a wavelength of 1600 meters. With a power of 25 kW this was the most powerful transmitter in the world. This transmitter was later (July 1925) moved to Daventry.

Crystal sets and simple valve sets were popular, and the industry quickly

adapted to exploit the possibilities of this new medium. A receiving license was necessary if you wanted to listen to the programmes, and by the end of 1924 there were more than a million licence holders.

Of these about 65% were for crystal sets. This was soon to change, the number of high power transmitters in Europe, combined with the poor selectivity of the crystal sets, meant that for serious listening you needed a set with valves. In a listener's report to the magazine 'The Wireless World' from May 26th 1926 we can read: *'I am troubled by the unselectiveness of the crystal, as stations such as 2LO, 2ZY, 2BM, Oslo and Hamburg all come in together, and jam each other unrecognisably.'*

In February 10th of 1926, WW printed a survey of available radio receivers. Crystal sets were still popular, and, surprisingly, we see that for the valved sets, the two- three- and four-valve receivers were equally popular, each having nearly 30% of the market.

The manufacturers frequently had the cases or cabinets made by people from the furniture trade. Often the valves were mounted on the outside of the case, together with the tuning coils. When the valves were mounted inside the cases there were holes in the front panel to enable you to see them. The valves used in the early receivers were invariably of the type known as 'bright emitters', a fitting name as the light emitted from these valves was like the light from an ordinary light bulb. It was important to control the heating current in these valves so they all had a series (variable) resistor in the heater chain, called a rheostat. Depending on size it

could double as a primitive volume control, and as the resistance wire usually stopped short of the end stop of the slider, it could also act as an on/off switch.

Tuning was effected by means of either a variometer, a variable inductor or a variable condenser, mostly directly driven. Reaction was utilized to increase amplification, but it had a side effect, as too much reaction would lead to sideband cutting. However this was mostly a problem on the low frequencies.

In 1925 the valves had changed to the dull emitter types, and over the next few years the rheostats disappeared. The screen-grid valve appeared in 1927 and the output pentode in 1928.

So how does Eddystone fit into all this? The earliest reference we have to Eddystone is the registration of the trade mark in February 1925. We have some early patent applications from 1925 and from 1926 we have both adverts and descriptions from the weekly magazine 'The Wireless World'. We have a most comprehensive Eddystone catalogue from 1926 containing descriptions of both complete receivers and single components. All this implies that the company was well established in 1925.



Early Eddystone plug-in coil set

The Stratton people may have gained experience from putting together kits from other manufacturers in 1923-24,

to circumvent the problem with the BBC registration. They may have started to produce the components most suited for a company new to the trade - the tuning coils.

Three different receivers are described in the catalogue, however four pages are missing. They would certainly have described the Eddystone loudspeakers and transformers, they might have described other receivers as well! The earliest description of Eddystone components that I know is from WW for January 13th 1926 where they tell us about Eddystone's new short-wave coils.



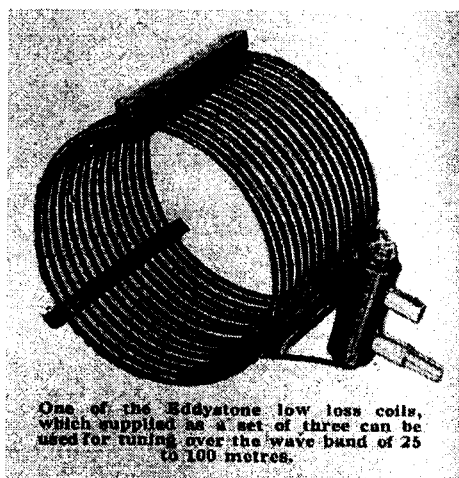
Single plug-in coil

A company new to the trade would most likely concentrate on two types of receivers, a crystal set and the simplest valved receiver with a substantial market, the two-valve receiver.

The earliest reference to an Eddystone receiver is from the early 1926 survey. It is difficult to say how accurate this survey is, Eddystone is represented with the Twin only. In the survey for the next year Eddystone is not mentioned at all and we know that they had at least three receivers at this time, as described in their catalogue.

One problem with dating early radio receivers is that we do not really know for how long a certain set was offered

for sale. Also the improvement in valve manufacture and basic circuit technique meant that the receivers were constantly being changed. So we must not be surprised when we find receivers which are different but using the same name (Twin). On the other hand we also find similar receivers having different names (Short Wave/Atlantic Two)! Very confusing.



Eddystone were quick to make use of the new valves, as two of their 1928 models featured a screengrid valve for input and a pentode for output. Over the next ten years they still used a triode for detection in their straight sets, with a few exceptions. These were the 'Amateur's Two' of 1932, the 'All World Two' of 1936 and the 'Improved Everyman's Shortwave' from 1938, all kit models. For an output valve both triodes and pentodes were used.

We can be quite certain that Eddystone had two- three- and four-valve radio receivers for sale most years during the 1925-1935 period.

Crystal Set, 1925.

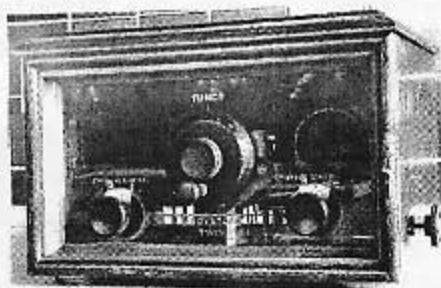
Unusual for its type it has what looks like a perikon



detector. This was one of the more stable detectors, not relying upon an easily disturbed cat's whisker but using two crystals, zincite and chalcopyrite, in firm contact. It would be of great interest to have a picture of the front plate and the inside, the case seems to be larger than usual for this type of set. With the advent of the numerous powerful transmitters after 1925/26 listening with a crystal set became difficult. I would have placed this receiver earlier had it not been for the Eddystone transfer on the case, so it has to be 1925.



"Twin", 1925. Mentioned in 'Wireless World' February 10th 1926 and in the catalogue the same year. The tuning incorporates a reduction drive, patented by Eddystone in early 1925. The actual reduction seems to be rather small, perhaps only 4:1. The set has the early style plug-in coils and two rheostats.

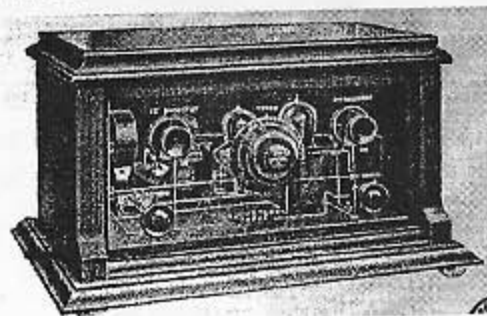


Smaller "Twin" (without battery box)
The price according to the WW survey

was £15-15-0 for a complete receiver with all accessories and loudspeaker. There were two different cabinets, this might account for the name!



The later 1928 model has no rheostats, fixed coils, the 'new-style' reduction drive, a wave-change switch and an on/off switch.



"Three", 1926.

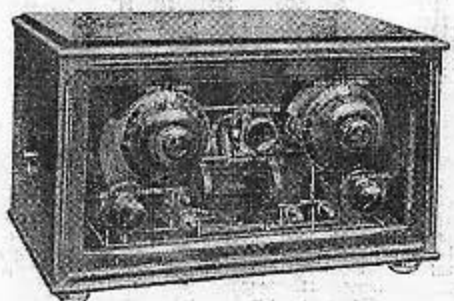
This receiver is in the catalogue from 1926, said to be model two. Eddystone's new reduction drive is used for the tuning control, giving a reduction of 128:1. The plug-in coils used are the early types. The circuitry is probably as the 'Twin' with an extra L.F. valve added.



"Two", 1926.

In the catalogue of 1926. There is one rheostat common to the two valves. On the front there is a control knob

marked 'Coil Coupling', this is probably a reaction control. The tuning seems to be direct and it uses the early type plug-in coils.



"Short Wave", Spring 1927.

The first Eddystone receiver to use a variable capacitor for reaction. By using a large capacity here the frequency shift when operating the reaction control was much smaller than with the swinging coil method. New coils had been developed for this set, also a new choke. This was similar to the one which won the 'best coil' competition in WW for spring 1926 (readers' coils), it is used in series with the reaction coil.

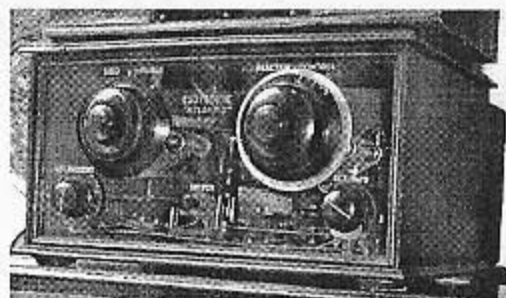
A later version had a new coil-holder, where the first (aerial) coil-holder is hinged, to give a variable coupling. Also a new cone-shaped Eddystone choke is used.

"Portable Three", 1927. (No picture available)

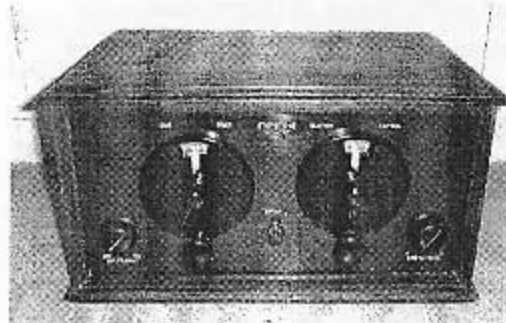
In WW for May 25th we can read that there is a Stratton 3-valve portable, featuring a Reinartz tuned frame, detector valve, resistance-coupled L.F. stage followed by a transformer-coupled stage.

The double-wound frame, rotatable separately from the set, tunes to wavelengths of 250 to 600 metres. A wooden cabinet is covered with Rexine-cloth. Tuning controls are on the end panel, so that the receiver

can be operated when closed.



"Atlantic Two", Autumn 1927. Last version with a glass front plate. There is only one rheostat (for the detector valve) and the headphones contacts are removed from the front panel.



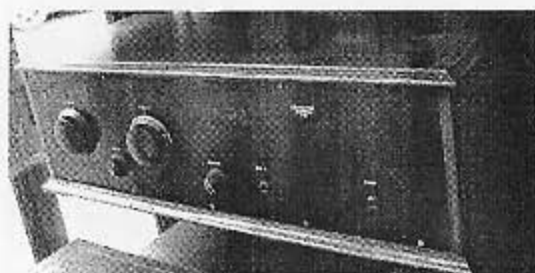
A later (1928) version had a metal front panel, and the Eddystone slow motion tuning drives were exchanged for the 'Indigraph' type, having a reduction of 9:1



"Scientific Four", 1927.

This is Eddystone's version of the famous WW design 'Everyman Four', but with plug-in coils covering 270-550 metres and 1000-3000 metres. The first Eddystone receiver with a tuned HF stage. It is described in WW for September 28th 1927, available

complete or as a kit of parts



"Scientific Five", 1928.

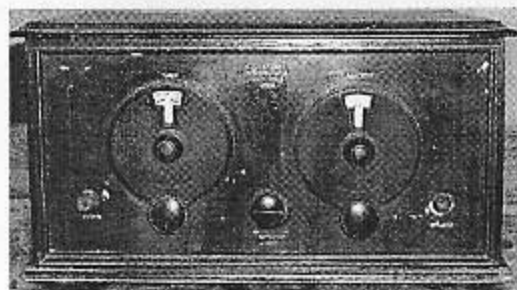
Very little is known about this model. From the picture it seems to be a further development of the Scientific Four but with these differences: Neutraliser is removed from the front panel, one rheostat has been removed, there are new dial drives (looks like those on the Scientific Three Portable) and there is provision for a gramophone pick-up. The fifth valve might be an added L.F.-stage.



"Regional One", 1928.

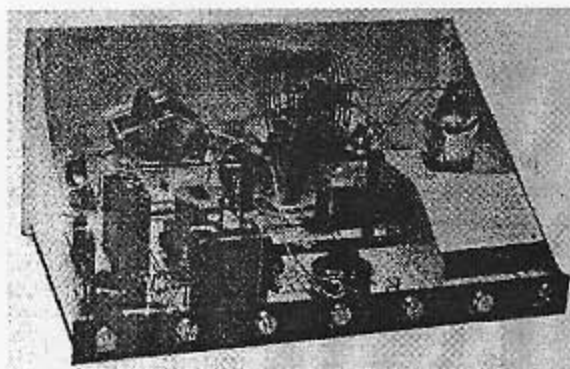
Eddystone's only single-valve receiver, no rheostat, two wavebands (long and short), headphone jack probably operates an on/off switch. (Note from Editor: The "short wave" range referred to above was almost certainly "medium waves". This was quite common at this time.) The circuitry is probably like the detector

stage of the 1928 Twin. An experimental transmitter (5GB) was put into operation at Daventry in August 1927, to start the 'Regional' scheme, so I would date this receiver to 1928.



"Scientific Short Wave Three", 1928.

An early version is presented in 'Lighthouse' #91. This is one of the first receivers to use a screen grid valve as R.F. amplifier, tuning in the anode circuit. It probably has a triode as output valve and it does not have the metal chassis and the elaborate screen box for the input valve of later models.



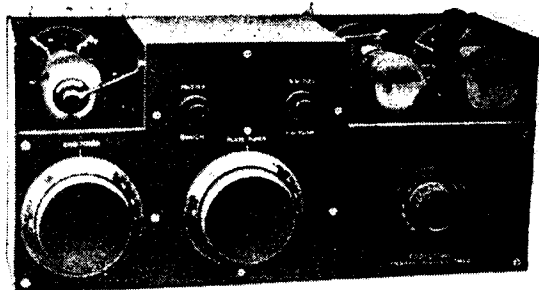
An improved version is described in WW Sept 26th, waverange 14-3000 metres. A pentode is used as output valve.

Price exclusive of accessories and royalties was £ 14 - 10 - 0. Also available as a kit, price £ 8 - 10 - 0 including royalties, coils for 18-100 metres included.

A further improved version of the kit model is announced in WW for Sept 25th 1929, probably featuring a tuned grid (detector valve) system.



"Scientific Portable Three", 1928.



Chassis only

Described in WW for Oct. 3rd. At first available as a chassis only, later as a complete set, price £ 26 - 15 - 0 which includes all accessories, built-in frame aerial and loudspeaker. This is the first receiver with a tuned screengrid valve as R.F. stage. Two wave ranges, 300 to 500 and 900 to 1800 metres, tuned grid and tuned anode. The reduction drives used here are the Wingrove and Rogers type with a reduction of 29:1. Later version has

tuned aerial, tuned grid.

"Scientific Four S/W", 1929. (No picture available)

Entirely different from the Scientific Four of 1927. Mentioned in 'Wireless World' Sept. 25th. Wave-range 16-550 metres. Screengrid R.F. valve with choke input from the aerial, grid detector with reaction and two L.F. stages (choke- and transformer-coupled). A parallel vernier condenser is connected across the tuning condenser. Complete decoupling is provided and it has provision for a pick-up. The price for a set including valves and royalties was £ 27 - 0 - 0

A special export model was supplied with a teak case.

(Three valves), 1929. (No picture available)

A new three valve receiver in a metal case was shown at the exhibition in 1929 and mentioned in WW for Sept. 25th. This could be an improved "Scientific Three" or an "Atlantic Three".

For those interested in early broadcasting and receivers I can recommend a very good book by *Gordon Bussey*, in IEE's 'History of Technology Series', no 13:

*"WIRELESS:
The crucial decade,
1924-34"*



Single-Wire Multi-Band Aerial (before G5RV arrived!)

By Graeme Wormald G3GGL

Here we examine one of those pre-war “magic length” single-wire multi-band aerial systems complete with a “matching unit” which is derived from the famous “Collins Coupler”. It has one advantage over the near-universal ‘5RV, and that is, being end fed, it will suit a “shack” in the corner of a plot. At 85 feet it’s also 20 feet shorter.

In case you can’t quite recall the major feature of the Collins Coupler then I’ll remind you. It uses no coil taps or roller-coasters. It has one coil for each band and does all the rest of the matching with two independent variable condensers.

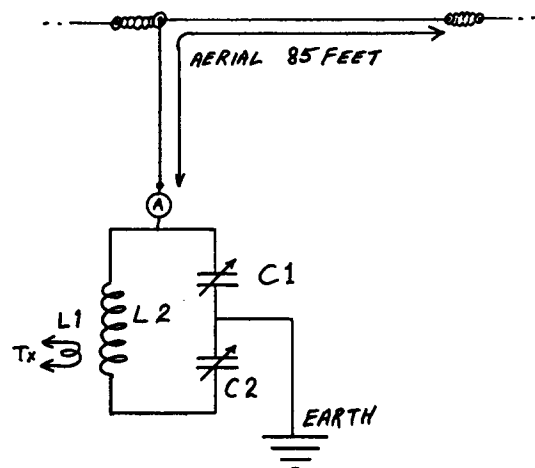
Most of us knew there was little difficulty about feeding a dipole on one frequency. But it is quite another matter to evolve a system which radiates well on frequencies lower than the fundamental, such as 1.8 Mc/s when less than 100 feet of wire can be erected.

Take a look therefore at the simple circuit gshown here, derived from the Collins Coupler of yesteryear. Remember that all this pre-dates the use of the S.W.R. meter. The standard method of tuning was to monitor the anode current of the final amplifier and keep watching the aerial current as one tuned up.

Because it worked well from 160 to 10 metres (old bands, but also WARC when suitably tuned) this was the nearest thing to an all-amateur band system that one could reasonably expect to get where the available space was limited to less than 30 yards.

The way the Collins Coupler works is that the EARTH tap (*the junction of C1 and C2*) is moved, electrically speaking, up or down the coil L2. This

depends on the settings of C1 and C2 when adjusted to resonate L2 at the transmitting frequency.



The coil L2 is linked to the transmitter via a link coupling, L1, and coaxial cable and tuned with the two condensers C1 and C2, adjustment being as follows:-

With the co-ax link at the Tx end disconnected, the output stage is tuned for resonance *i.e. to greatest dip with no load*.

With C1 and C2 at minimum capacity, the co-ax link is then re-connected to the Tx and C1 is gradually rotated towards maximum till the anode current begins to rise.

As it increases, C2 is adjusted to keep the circuit in resonance *i.e. minimum obtainable plate milliamps*.

As an example, say we were using it

with a *JunkBox Baby* (see Lighthouse Issue 89, Feb 2005) or a *CODAR AT5 QRP 80/160 valve AM Tx*, (very popular among our readers).

Suppose the (unloaded) PA anode current at exact resonance is 12 mA. On moving C1 it might rise to 35 mA. Then by resonating with C2 it can probably be dipped to around 25 mA.

The process is continued until the normal loading, say 45 mA, is reached. Precautions against "overloading" *i.e. over-coupling*, must be taken. The resonance "dip" in the anode current must be distinct (*say 10% of off-tune current*).

At the same time, the aerial current meter (*see feature on Page of this issue*) should be watched for the best output).

The theory of this system is that the circuit C1 – C2 – L2 can be made to match, *within reason*, any wire to any frequency. Experiments under practical conditions have show that there is a certain amount of *MAGIC* in the length of 85 feet.

Hundred-foot aerials don't take well to the higher frequencies like 14 and 28 Mc/s, and 60-70 foot wires are difficult to load up on Top Band (*1.9 Mc/s*)

What it comes to is this; if you can get up 85 feet of wire (*measured from the coil L2 to the insulator at the far end of the aerial*) and use it with this matching circuit, effective radiation can be obtained on all bands, one-sixty to ten.

At this point the question of EARTH must be addressed. There's no point in operating from an upstairs room and expecting a 15-foot earth wire to perform with the following coils, especially on the HF bands. It will be necessary to do some experimenting with the size of the coils before completing construction.

Since the system works by adding

sufficient inductance to the aerial to make it resonant at the required frequency in terms of quarter-waves, it follows that the RF ammeter "A" will show different readings from band to band. This is because the electrical position in the system will alter considerably, especially when large frequency changes are made on the LF bands.

When using the RF aerial meter described on Page it will be found that the 'sensitivity' control will be of great value.

At any particular frequency the adjustment of C1, C2 should be such as to give maximum RF current on the ammeter, within the limits of normal PA loading.

VALUES

When Top Band is required C1 and C2 should be not less than 500pf each. These will be impossible to adjust on the HF bands without a slo-mo, so smaller values could be used in parallel if needed

The original pre-war coils were based on 2 and 3 inch formers. These are a bit large for our times and I have transposed the turns as suitable for 4 or 6-pin 1½ Eddystone (or similar) plug-in coils. The figures may have slipped a little in the conversion (numbers are not my strong point), so I would suggest you start by doing a mock-up for your favourite valve rig band (80 or 160?) and experiment.

Band	L1(turns)	L2 (turns)
160	10	60
80	6	30
40	2	11
20	1	6
10	1	3



Ted's MailBox

A review of Mail and Happenings
By Ted Moore G7AIR, Founder of EUG

TRYING TO TELL ME?

It might well be that, who knows ? but having decided that the time had come to ship another load of sets up to Deganwy I first put batches of them on soak test, just a couple of hours really but it does make sense since my repair facilities are mainly based in Wisbech.

As soon as I powered up my MIMCO 2232A I heard a 'pop' and the set failed to come on. This is an old one and I could go straight to it.

The 1000 volt DC working, 600 volt AC working condenser across the mains input had 'popped', taking out a fuse. An 870A refused to come on too, this was a duff 35W4 and as I had no spares I got onto Langrex, aka RST, who supplied me with some, for this set and future use.

All well and good, two quickies done in seconds due to experience of this kind of fault. Not so the 1002 which had no apparent AVC action.

More complicated, this, but again similar problems had been found in the past. The AVC comes from an IC. Rather than change the IC which is simply not available I just chopped the three legs and soldered on a BC182.

Quite a fiddly job given that my fingers are beginning to protest when asked to perform similar tasks in tight corners.

The final problem set was an EC10

which gave a very good impression of a chip pan in full spate. Experience again came to my aid.

The base bias resistors in the AF driver stage must have been gently frying away and the resultant noise was being amplified up by the following stages.

A couple of new resistors from my vast stock cured this but I did chop the fourth leg on all of the OC171s. I have been told that this can lead to instability but after performing the 'snip' on most of my 'baby' Eddystones I have yet to find one single case of instability. Good decoupling by Eddystone designers must be the answer.

* * *

CARNAGE !!

What else can it be called when a perfectly good working 680/2 is disembowelled to provide 'just' the BFO coil unit to repair a 740 which is already in pretty poor state with a non-original scale plate.

Thanks to an SOS call from EUGer Jim I was told that I could have the complete set, less BFO unit, if I cared to collect. And surprisingly it is too in good nick, the BFO can, valve base and other bits came with it, just the BFO coil had been taken.

A replacement BFO unit not being

available the cannibalised one is being rebuilt using an IF coil from a domestic set. But why on earth do such a thing? The 680/2 is a far more potent performer than any 740 and in this case too the 680/2 was in nice condition whereas the 740 was practically a basket case.

* * *

NON-EDDYSTONE ?

Far from it, but as I do have three other PYE of Cambridge BC sets around the house I took pity on this one. I was at our local 'ginormous' Sunday Market and spotted this monster sized -50s type transportable sitting on the wet ground.

The seller's asking price of 'a tenner' was brought down to three pounds when I pointed out the peeling rexine and general unkempt state of the set.

Getting it home almost strained my still recovering shoulder muscles but when I got it on the bench I discovered that it is a PYE PE94MBQ/LW a long plus medium plus 3 SW bands AC/Battery model, with the full info available in those invaluable R & TV Servicing books by Molloy.

This model has an EZ41 rectifier supplying both HT and LT dc supplies for a five (Yes, an RF stage !) valve plus magic eye circuit.

It did not work straight off as the reservoir/smoothing electrolytics had blown, soon discovered by the white deposits on the inside of the case just below the said condenser can.

Disconnecting this can but leaving it in situ I fitted some new condensers from my vast hoard. At power up, done rather tentatively I must admit, the set came alive and sounds quite nice for a

-50s, so-called Transportable.

I shall make no attempt to find batteries for it, a 7.5 volt LT and 120 volt HT. The rexine which was coming unstuck at the edges has been re-glued into place and after a clean up with furniture polish it looks really good.

All this for THREE pounds, would that I could find Eddystones at my local Sunday Market for that price.

* * *

AND ANOTHER NON-EDDYSTONE

Again at the Sunday Market, I usually get there dead early at about 0700 in the belief that the Early Bird (me) gets the Worm (in this case a five band marine DF receiver).

The maker is unknown but it has LW (for NDBs), MW (for BC stations) VHF/FM which covers from 88 to 170 Mc/s, i.e. airband, 2 metres, and Marine band plus a few utility stations, plus Trawler Band, plus the CB band.

There is a large diameter compass rose on the top of the case and within this a chunky rotatable ferrite rod aerial, and 'S' meter and DF/sense switches plus two fold down telescopic whips.

And for two pounds fifty it even had some batteries in it, not exactly new but good enough to check it out before handing over my pocket money. It will of course become part and parcel of the permanent radio gear on Esselle.

* * *

FAME ? OR NOTORIETY ?

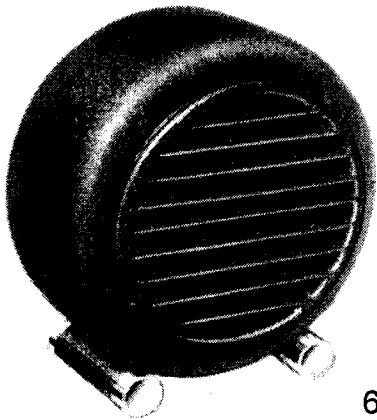
I do not ever buy things at the door, and all those catalogues etc; get binned pronto but on this occasion I jumped at the chance.

A rather - as we say - motherly lady with a plastic shopping bag from a large supermarket stood at the door. She asked if I was Ted Moore and I admitted this was the case.

She then withdrew a 7" round diecast speaker, model 688, from the plastic bag. She claimed that she had got my name and address from the internet and asked did I want to buy it ?

Expecting some fabulous estimate I asked her the price and was told just £15. I bought it ! We were both happy and I took my new toy up to my playroom, not knowing, or caring really, whether I had just the shell or a complete, with speaker, unit.

There was no tell-tale lead and plug. As luck would have it there was a very nice ELAC speaker which when tested worked AOK. A new lead & plug and off it went, works a treat.



688

There is just one question remaining, where on earth does my name and address appear on the internet ? 'GGL tells me that there are more than 300,000 entries for a Ted Moore but he did not want to check them all out, musicians, playwrights etc; a very common name !

MAD DOGS & ENGLISHMEN . . .

This was the comment made by Richard, GW4RYK during our recent 'First Sunday' EUGnet. A propos my recital as to the prevailing weather conditions.

I was out /P on my favourite site, the west bank of the River Nene just below the West Lighthouse - there are two, one on each bank and both disused. Well suffice to say that with a spring tide some two feet above normal and with what Yarmouth Coastguard called Force 7 south westerly winds the water was in a bit of a turmoil, even the Port Sutton Bridge Pilot Boat was having a bad time as it went out into the Wash to meet an incoming freighter.

Add to this the torrential rain which came on just after I had got my usual inverted 'V' up and running, my poor Volvo was rocking from side to side and from front to back. I had been out into the Wash in these conditions the previous weekend and really think the only thing that kept the ELLESSE from turning over was the added weight of my two heavy duty Lead Acid batteries down in the bilges, all very exhilarating.

Anyway we had pretty fair conditions for communications with me being able to give a five and nine, or nine plus to most stations. This on both AM and SSB. it was whilst we were coming to the end of the AM hour that I realised that my escape route back up onto the road had turned from a nice stony track into a rushing stream.

Hence Richard's quite apposite remark shewing his knowledge of Noel Coward ! I packed up early on in the sideband hour after giving reports to those who had followed us from AM.

I rapidly ripped down my aerial system bunged it all into the boot and, thoroughly soaked, I headed for the road. First attempt resulted in the Volvo being flushed back to the bottom of the incline and so I engaged the differential lock, backed up a bit and took a flying run at the approximate position of the track.

Only just made it and there is a vast amount of mud all over the car, but then I do not believe that Volvos were designed for this kind of thing. All good fun you know!

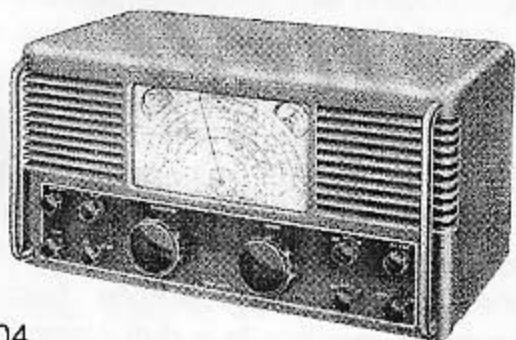
* * *

MY NEW S.504

Having recently acquired this, together with a Marconi clone 2245A, from none other than 'GGL, I was so pleased with the performance of it (the 2245 also really, but that is another tale) that I did not even take off the case, very unlike me!

Still, given the source I knew I had no problems. It was such a good performer that I had it on extended soak for THREE whole weeks, very sensitive and after warm up very stable too, despite its age.

Time came when I got nosey and just had to have a look inside. No surprises - fairly clean and tidy, untouched in so far as I could see.



504

Anyway before taking it up to Deganwy with the present load I pulled out the valves one by one. Again no surprises until I got to the Frequency Changer.

In lieu of the standard Mullard ECH35 there was a nice shiny new looking RCA/Radiotron 6J8-G. Never heard of this beast? Join the club as neither I nor 'GGL had heard of it.

The sparse info gleaned from a pre-war B. Babani hardback copy of Radio Reference Handbook is that it is a Triode Heptode. 'GGL then looked in his 1942 ARRL Handbook and it confirmed the designation.

This valve looked sparkling new with bright yellow painted lettering. Anyway a quick shufti under the chassis and no sign of new soldering around the valve base, and it did work a treat, so it was swapped for a Red Mullard ECH35.

Performance not quite as good as with the alien valve! The same held true when I tried it in one of my 640s, very good performance possibly better than the 6K8-GT which was fitted.

It is a mystery really as in all my years I have never come across a 6J8 valve which despite it being a triode-heptode (as opposed to triode-hexode) works very well. I have fitted a new ECH35 in the 504 but am keeping the 6J8 to try in one of my S.358s.

* * *

THE 2245A

Another 'almost clone' of the standard 670A with but minor differences in the scale markings and a slightly over-large MIMCO badge on the front. Again a set in very nice condition, but then coming from the lair of the 'Old Man of Bewdley' what else would one expect? It gives a good account of

itself despite the limitations of just the 'four knob' controls and another clone to add to my growing collection of clones. No work needed and so it too will be on its way to Deganwy soon.

WANTED !

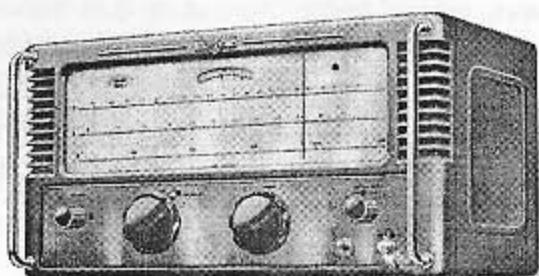
Yes, Wanted, by me. I am looking for an 850/2, /3 or /4. This is the VLF receiver which starts at the unheard of LF of just 10 Kc/s.



850/2

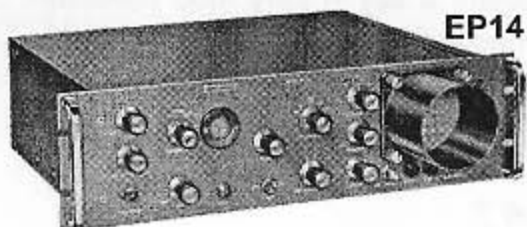
The /2 and /4 are badged as Eddystone, the /3 will be badged as either Eddystone or STC as is the /5, an unseen version.

I would also like to get hold of an S.909 but then almost all of these went to Sweden. Also if you have one I



909

would like either an EP14 or EP15. Go on, make my Christmas a really happy one. Collection can be arranged and payment in Cash.



EP14

870 WOES

Yes really. This was one of those scheduled to go up to North Wales and into my Real Collection, so ably looked after by Sasha.



870A

Well doing my usual power up check before putting it with the others I had a shock. No sound no lights, just a deafening silence.

Now this 'baby' is usually so reliable, so trouble free, that I tend to not worry about them. In this case however a bench check was necessary and guess what? A duff 35W4, no less. A usually pretty reliable valve in my experience.

Anyway an SOS to Langrex, aka RST on 0208 684 1166 and my 870A was back on song. The valve tester showed an almost full Heater - Kathode short. This particular set was the one left by some unknown person at my neighbour's house, for me. Despite having made extensive enquiries I have not found anybody to claim it.

* * *

640A

Never seen or heard of this one? Well it must have existed because not only have I got a Bath Tub blueprint but I also have a handwritten list of check voltages made by somebody servicing one, where he apparently tracked down the problem to a duff electrolytic

decoupler.

So come on, who knows about this 640 variant ? Somebody must do so, please get in touch with me, I shall repay you with a copy of the blueprint. It may well have been a Marconi variant but that is mere guesswork on my part.

* * *

THAT 760

Remember my account some issues back of my long distance trip to look at this previously unknown model ?? It was a VHF set which looked like a 770R but which covered 20 - 300 Mc/s. Unfortunately I was politely told that it had already been sold for a fabulous price to some unknown person.

I could only look at it and lust. Well now, looking for some entirely different info I came across a list produced on early computer paper which gives the following info re the 760;- VHF Comms; Receiver, 20 to 300 Mc/s, Mains operated and the date as being 1952.

This is a list produced by Richard Baker and was at that time considered to be a definitive list of models. I was given it by Chris Pettitt's secretary during a visit to the Factory.

* * *

SIX OF 'EM !

At a recent Rally I spotted a van load (well almost) of 770R and 770U being transferred from one dealer's (?) van to another. They never even got into the Rally. Being naturally nose where Eddystone sets are concerned I checked and there were FOUR 770R II and TWO 770U II. No other info was forthcoming from the two gents doing

the deal but it must have been pre-arranged.

They did all look okay too, nothing visibly missing. Somebody must have got what he considered to be a bargain.

* * *

ESSELLE

I shall not be taking her out of the water this winter, still some good (?) sailing weather to come I guess.

Having been out twice this month (October) for a four day and a three day trip I shall not be out for a couple of weeks, a new bulb looks like being necessary in my masthead light. It might be dud or just corroded contacts but I have built up a replacement unit consisting of six ultrabright Red LEDs, six ditto Greens and six ditto Whites.

I intend to solder this unit in place of the bulb holder and trust that it will be more reliable, it will be necessary to take down the mast and this is an all day job.

It is amazing the amount of maintenance work involved after just three or four days out in the Wash/North Sea. Having been thrown heavily against the cabin door at one point I must also do some repairs to that.!

Seasons Greetings to all of you out there in the snow (?),

Happy Christmas,

Ted

**21, Prince Street, Wisbech,
Cams. PE13 2AY
Tel: 011945 467 356**

RADIO RAMBLINGS

Gotting's from my Notebook



By
*Graeme
Wormald*
G3GGL

Bewdley, November 2005.

Seaon's greeting to all our readers, especially from me, as this is my last Christmas in the 'Hot Seat' at EUG.

As you will have read last month in Chris's Column I felt that the time had come to stand down whilst I was still capable of reading & writing! I shall take the Group up to next Easter, by which time I hope Chris will have found my replacement.

My grateful thanks go to all of you who have sent me good wishes and their appreciation of my activities over the past years; I am most gratified.

DIMINISHING RETURNS

During the past ten years or so that I've been helping out with EUG I have learnt more about the Law of Diminishing Returns than I ever previously understood.

I first came across it in the sixth form at school. We were learning the principals of economics. It seemed quite basic and easy enough to follow at the time. It went like this:

A starving man will pay a lot for a loaf of bread. He'll pay quite well for another loaf of bread. An hour later, after wolfing the lot he'll feel quite nauseous and offer very little for the third loaf.

Real life is a little different because the novelty factor enters into it. This is how it affected me. My first Eddystone (a 680X) was a revelation. So were

the next ten. The next ten were very interesting. The next ten presented a problem; I'd run out of storage space and I was getting behind in restoring them! But no matter, they were still an impressive display – those that weren't hidden away in the loft, that is.

At this point I realised that my good intentions of firing them up in rotation had collapsed. At the same time I realised that some would never be used on the ham-bands . . . they just didn't 'suit'.

You've guessed it. I started to dispose of them. Over a modest period of time my 30-odd models had dwindled to single figures. This gave opportunity to make serious assessment and comparison of the eight remaining.

The 730/4 was doing very well until it 'died in the night'. It's still awaiting repair. (The time problem rears its ugly head again.) It was a leading contender because of its 70-ohm IF output which is ideal for monitoring AM signals on the 'scope. (I only use my Eddystones for AM and CW)

This month's favourite is the 888A. A direct-reading hamband frequency scale is a revelation. But no IF output.

I think the EA12 is due to take pride of place by Christmas. Hambands and IF output both available. I only have one problem with it and I suppose it's my own fault. The Slot Filter plays up. Instead of 'running' a slot through the IF bandpass it works like an IF

attenuator. There must be an answer somewhere but I've not put my finger on it yet. The rest is OK. But it just 'bugs' me having an otherwise decent set with a faulty facility.

My 'jewel in the crown', alias 830/7, is, of course a winner, but is the novelty wearing off? I keep turning the incremental tuning the wrong way and ending up 100 kc/s off tune. Honestly! I don't know if it's my well-known number-blindness or a psychological error in the presentation of the set.

I notice that the Canadian version, the 830/4, has the incremental display the reverse of the European version. This causes me even more confusion.

I suspect that the law of Diminishing Returns is starting to creep up on me. I no longer need continual refreshment! But three Eddystone babies will always stay on the shelf; the 870, the 670C and the 840C. That's because they're cute, and the 840C gets used on 80 metre AM. Perfectly OK during the week when the hot-shot contesters are resting up.

I think I'll take the opportunity here to put in a blurb for my "Panda Cub" for sale notice on page 3. Yes; I bought a Panda Cub (sight unseen) via a SK auction (NOT on E-bay!) and after staring at it for 6 months I've decided it's too much to work on and anyway, I've no room in the shack. Classical Diminishing return . . .

I already have five AM tx rigs anyway, so why I went chasing after a sixth heaven knows. But if you're seeking a bargain price reduction you just turn to page 3.

THOSE END-STOPPERS!

I think it must be about three or four years since the matter first cropped up in Lighthouse. A member reported a fault on his newly-acquired EA12.

"When I switch the mains on the S-meter slams hard over then very slowly returns to zero (assuming, of course, that no signal is present)."

I explained to our member that he had no fault, it was a design quirk. The 830/7 is just the same – for the same reason. Both of these sets use the same solid state HT rectifiers. Silicon.

The S-meter is in a bridge circuit in the cathode of the second IF. The HT has no warm-up time but the rest of the set does! It's the old story of replacing a valve rectifier with silicon diodes and putting an excessive strain on some parts of the circuit (especially screen de-couplers).

Well, the other week I was reading a snippet which had come my way and it described a sure-fire cure for all these problems. I don't know why I hadn't thought of it before!

Between the HT winding centre-tap and earth insert a thermistor! You know, one of those black things Eddystone use in all their universal AC/DC cabin sets to slow things down during the warm-up period. Couldn't be simpler. The sort that runs at low resistance at 100 mA should be fine. (Try Birkett in Lincoln; he usually has some).

SHIP AHOY!

I was quite taken aback recently to read the Ofcom report of a campaign starting at the end of October to sweep FM radio broadcast pirates off the air in Greater London.

53 illegal broadcasters TXs were seized.

17 TXs and aerials (*sic*) disabled.

Nine letters of warning sent to night clubs that have advertised events on illegal radio stations.

The operation involved 18 Ofcom field staff and 32 Police officers. Wow! ♣



**N.B. SPECIAL GD3EUG/P from the
summit of Snaefell I.o.M. 6th Dec***

The next "First Sunday" nets will take place on
6th Dec*; 1st Jan 2006; 5th Feb.

Freq. 3695+/- QRM

Times: 09.00 for AM and 10.00 for LSB (local times)

Controller G3GGL



"SECOND SUNDAY 40 metre A.M. Tests"
11th Dec; 8th Jan. 2006; 12th Feb.

Frequency 7143 +/- if spot in use by other net

Listen for G3GGL on A.M. time 09.00 – 10.00 local



"THIRD SUNDAY 80 metre A.M. TESTS"
18th Dec; 15th Jan. 2006; 19th Feb.

Frequency 3605-3025 kc/s. A.M. only! Time 09.00 -- 10.00 local

Listen for G3GGL

**Please send listener reports and comments to G3GGL
QTH details below.**

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