

Lighthouse

Founded 1990

The Magazine of the
Eddystone User Group

Issue 82, December 2003



Season's Greetings

EDDYSTONE USER GROUP

A non-profit-making
Group for Eddystone
Radio Enthusiasts
Founded in 1990 by
Ted Moore G7AIR
Issue 82, December
2003

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6.5v. 0.15amp 50p each

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ALSO WANTED rough or
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670C is the same so will do.
Wanted any scrap sets for
spares, can collect mainland
UK. Wanted to buy any
unusual models such as
marine channelised
receivers, the EA10A series,
EM34, EB35 III, 909/A series,
830 series. Phone Ted on
01945 467356 please.

Chris's Column

This will be the last appearance of the fighting fund list. The generosity of our members has been amazing. Thank you. I never expected to collect more than £1000 but after 6 months we have received over £1700. If anyone's name is missing from the list then my sincere apology. Several members increased their subs to make a donation and I am not sure I have picked up every one of those. Hopefully by the time you read this Graeme will have re-equipped the EUG computer set up using an Intel P4 2GHz machine with 80Gb of memory and a decent TFT screen for him to layout the Lighthouse copy on. I will leave Graeme to describe what he finally purchased elsewhere in the newsletter*. This should keep us going for a few more years.

*Note from Graeme: still using old PC as half-way through this Issue! More later.

PC FIGHTING FUND

Roger Bunney	£10	A.C.E. Germaney	£10
Ian Evans	£55	Peter Lankshear	£60
Terry Hart	£10	Ken O'Brien	£50
Stephen Lindsay Smith	£25	E. Selma	£7
James Thomson	£20	Bernard Harris	£20
Mike Gaydon	£15	John Goodwin	£10
A.A. Kendall	£10	Jim Duckworth	£140
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Chris Pettitt	£50	Ernie Wakelam	£25
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Rob Hammond	£50	R Cotterill	£30
Ian Clark	£20	Warren Ziegler	£65
Ken Gummer	£25	Clemens Ostergaard	£10
Anon (several)	£25	Steve Hunt	£4
Anthony Richards	£25	Sam Rees	£10
Angus Vickery	£15	Frank Briffa	£35
PF Rowe	£5	Arthur Owen	£40
		Ron Hall	£100
		Jack Weber	£10
		Total (20/11/03)	£1759

I mentioned in the last Lighthouse that I might keep a log of prices Eddystone equipment was sold for on E bay. Both Ted and Graeme have given their views on the dangers of buying equipment sight unseen and the silly prices achieved by E bay in particular. I guess something is worth what someone else is willing to pay for it and as in all things commercial and auctions in particular, *caveat emptor!*

Despite its critics, E bay is an excellent auction. Sellers (and buyers) can be judged by feedback, which are the comments made by buyers and sellers to each auction. Most Eddystone sellers would appear to be regular traders on E bay so have built up history. Prospective buyers can look at the

comments made by that seller's previous customers and judge for themselves whether they are reliable enough. I have been a regular E bay trader for a couple of years (not Eddystones) and find the system very good.

Anyway the following table is offered for no other reason than to satisfy our reader's curiosity. It is not meant to be a buyers' guide to Eddystone receiver values. As Graeme rightly states, condition is everything.

Most of our readers would rather have a set in good condition and complete rather than working well as missing parts are often more difficult to find than repairing the electronics. This table has been collated from E bay sales over the past 2 months.

Radio	Sold for	Comment
Model EC10	£67	Sold as seen
Model 659	£42	Sold as seen
Model 659/670	£63	Sold as seen
Model 1650	£282	Working
Model 358 with PSU and speaker	£85	Working
Model 870	£63	Working
Model 830/8	£425	VGC believed working
Model 770R	£118	Sold as seen
Model 670	£70	Sold as seen
Model 888A	£205	Working
Model 1995	£1356	Working
Model 659	£59	Sold as seen
Model 640	£62	Sold as seen
Model 770R	£122	Working
Model 730/4	£56	Working
Eddystone Round Speaker with box	£56	VGC
Model EC958/1 spares kit	£27	Complete
Model 640	£62	Working
Model 1650	£410	Working
Model 770U	£101	Working
Eddystone Bug Key	£204	VGC
Model EC10	£102	Working
Eddystone Round Speaker	£82	As new
Model EC10	£66	Working
Model 730/4	£185	Working
Model EC10	£56	VGC
Model 1990R/3A	£425	Working

I WAS INTERESTED in Ted's explanation of how he came to acquire G3EUG and I think that the circumstances warrant the transfer. However I am one of those who think the RA's policy of allowing anyone with the family's approval to acquire another ham's callsign is flawed. We now find the call-signs of well respected silent keys being used by people who want them for no other reason than the letters are their initials. I don't think this should be allowed.

There should be a good reason for the transfer, such as donating the call to a club or society, a younger relative, or to someone who has a real connection with the SK call-sign. As the keeper (or should I say guardian) of G6SL, I claim the right because of my past connections with Eddystone, but I would hate for it just to end up in anyone's hands. What do other members think?

73 de Chris GØEYO

Patron –Eddystone User Group

SOME of the RARER EDDYSTONES CHANGING HANDS ON E-Bay (Above)



**Model 688 Eddystone Round Speaker
in Box (1946-61)**

Production run 5,500+

Price in 1954 £3 3s 3d

Bid price £85

Model 1995

VHF/UHF

**Microprocessor
controlled, very
sophisticated.**

20-1100 MHz.

Introduced 1984

Price new c. £5k

Bid price £1,356



MEDIUM WAVE MEMORIES

-- a follow-up to last
month's report

Last month's "Medium Wave DX" report by your conductor (*Graeme - G3GGL*) produced a flurry of reaction from readers. One member in particular, John, G3ETH, recalled his wartime memories and unearthed his letter which was published in PW for May 1942 . . .

Medium-wave DX Reception

SIR, -- Since there appears to be an increased interest taken in medium-wave DX reception, readers may be interested in the following log of trans-Atlantic stations which I have received during December and January, at times between 00.00 and 05.00 hours B.S.T.: (*Note: BST - British Summer Time - was continued during winter 1941-45 in Britain. DBST - Double British Summer Time prevailed during the warmer season. This was to enable those working extended hours due to the wartime emergency to benefit from lighter evenings. - Ed.*)

246 metres	WCAU, Philadelphia (C.B.S.)
275	.. WBAL, Baltimore (N.B.C.)
286	.. WHN, New York (Independent)
341	.. WABC, New York (C.B.S.)
426	.. WQR, New York (M.B.S.)

The wavelengths given are approximate ones, since the dial of the receiver was not accurately calibrated, and no announcements of frequencies were heard.

On several evenings station CBA, Maritime, Canada (282 metres), was clearly received as early as 22.30 hours B.S.T.

Programmes were also heard from the following stations (owing to poor

reception and interference I am not certain of the call-signs; I should be glad if any reader could verify those given below.)

Approximately:-

195 - 205 metres	Buffalo, WKBW.
195 - 205	.. Boston, WMEX.
195 - 205	.. Washington D.C., WJSV.
277	.. Hartford (Conn.), WPIC.
470	.. St John's (Newf), CONS.

All reception was carried out on a normal 4-valve A.C. broadcast receiver (all-wave superhet). The aerial was an inverted L, open end pointing east. Signals were QSA2-4 and all the stations logged were received on at least two separate nights. --

JOHN L. GOLDBERG (Formby, Lancs)

John goes on to tell us that he joined the Admiralty Signal Establishment in 1944 where he first met the Navy B34, alias the Eddystone 358X, the first communications receiver he'd seen.

He used it to listen to some of the ships/aircraft R/T messages around D-Day and later in the year attended a course on servicing it at the Bath Tub. (Now, alas, a new housing estate). ♣

ALL-WAVE BUZZER-EXCITED WAVEMETER

Discussed by Graeme Wormald G3GGL

Whilst browsing through the Eddystone Short Wave Manual No. 2 of 1935 I decided to study the article that was introduced by the above title. To a degree it must count as one of Stratton's Cinderella projects but, on reflection, it must have had its uses. In principle it is a spark transmitter signal generator! Curious? Read on . . .

"This wavemeter, although of simple design and inexpensive* in cost, will be found useful for many purposes and in our opinion, for general all-round use is preferable to the heterodyne type of wavemeter which is much more costly and employs valves and batteries.

Tuning with the present design is exceedingly sharp and when the buzzer is employed, it can be used in the same way as a heterodyne instrument.

On the other hand it can equally well be used as an absorption wavemeter with the buzzer switched off and due to the loosely couple circuit, there is negligible change in calibration whichever use of the instrument is employed."

(Note from Graeme:- a glance at the circuit will show that as a 'tuned spark' signal generator this instrument will be perfectly effective. What is not too obvious is how to use it as an absorption wavemeter. This normally relies on an indicator such as a flash-lamp bulb coupled into the circuit - usually by a single turn looped round the wavemeter tuning coil. No such device is included in this project. The

only way of using it would be to monitor the meters in the transmitter for a possible, but unlikely, flicker in anode or grid current, as tuning was swept by the wavemeter.

**It must also be remembered that in 1935 a take-home pay of, say, £4 per week would be considered a very fair middle-class income. The actual cost of parts shown for this project totals £2 3s 4½d. The need for parsimony was paramount in pre-war radio construction.)*

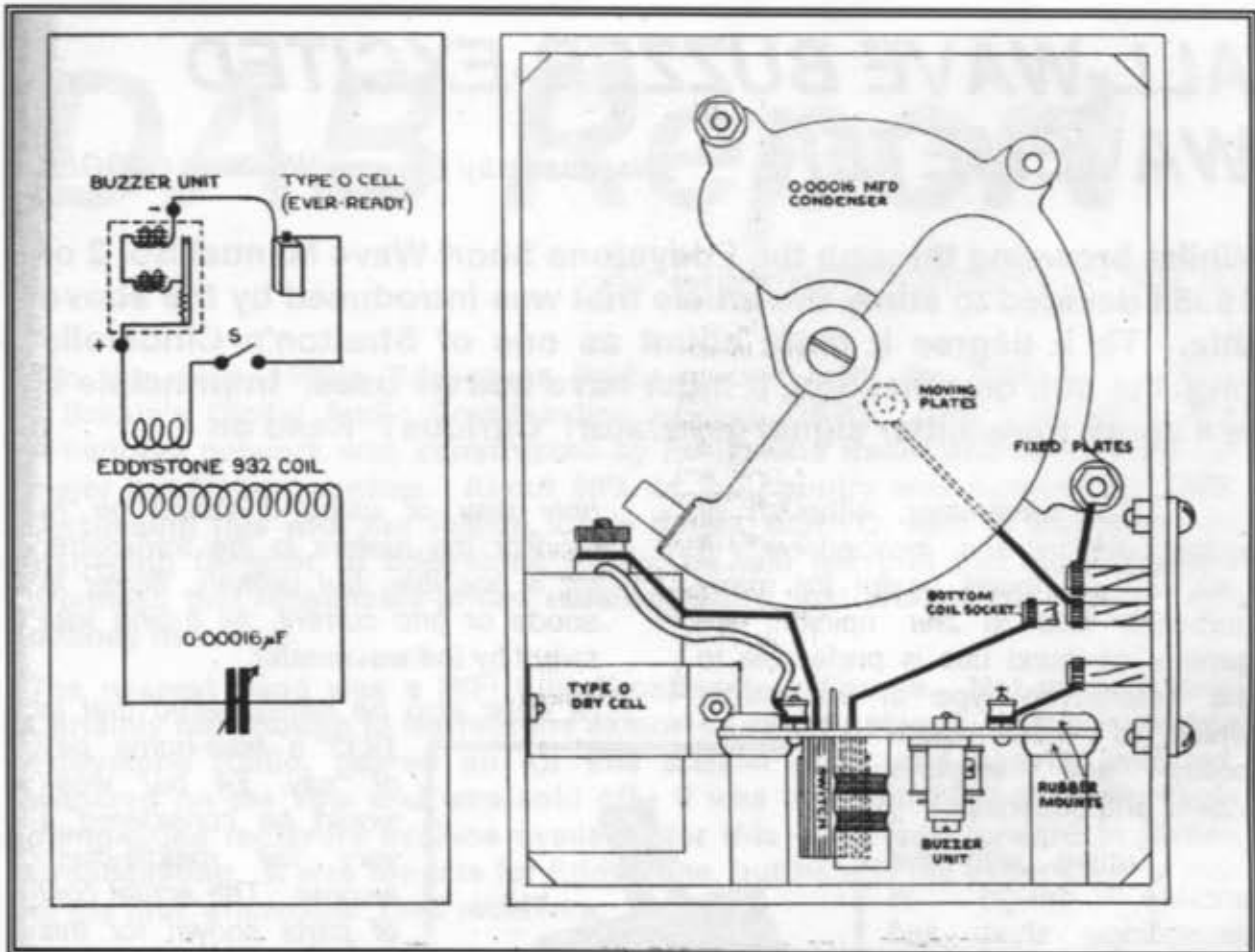


"The buzzer is very silent in operation, the mechanical noise being hardly audible when the battery is

switched on. It is rubber mounted, which prevents mechanical vibration. A resistance shunted across the contacts of the buzzer prevents complete interruption of the circuit, so that a clear generated note free from spluttering is obtained."

(Further note:- this latter item is a very clever wheeze, but note that the resistance is not shown in the circuit diagram. It must have been a 'special' buzzer.)

"The meter is built into a compact cast aluminium box which gives great mechanical strength and



rigidity so that it is easy to handle without any frequency changes occurring through damage. The construction is very simple indeed and will be easily followed from the accompanying sketches; the buzzer and shunt resistance is (sic) already mounted on a bakelite strip ready for fitting in the metal container. It is only necessary to see that the screws which mount the buzzer through the wooden blocks are not too tight so that the whole assembly is fairly flexible.

Adjustment for the buzzer contacts is made through the small hole with cover at the end of the case. In addition there is an adjustment for the reed tension, which is easily accessible if the bottom plate of the case is removed. This tension is, however, set at the factory and should not require further adjustment. If adjustment is made at any time, care should be taken to see that the reed

does not touch the magnet, otherwise a bad note will result.

A 1½ volt Ever Ready type O cell is employed to energise the buzzer and this will require replacement every few months according to the amount of use. The cost of this battery is quite inexpensive, being 7½d.

The wavemeter coils are interchangeable and Eddystone 4-pin coils, cat. No. 932, are employed. These give approximate wave-ranges and settings as per the figures shown, although it must be appreciated that these figures were taken on one instrument only and may vary slightly in individual cases.

When assembled, the wavemeter can be accurately calibrated and graphs drawn by tuning the receiver to five or six stations on each waverange. The frequency of these stations being known, the

wavemeter is set accordingly and a graph drawn on plotted paper against the readings obtained. It will be noted that the resultant graph is in every case practically a straight line.

In use, whether the wavemeter is employed as a buzzer or as an absorption type, tuning and calibrations are more accurate when the distance from the receiver is increased.

The instrument will also be found useful for lining up 450 K.C. (sic) or higher frequency I.F. stages in superheterodynes, and for this purpose a coupling should be obtained from the wavemeter coil to the anode lead from the first detector valve.

(Interesting that the term "first detector" should be used here for the frequency-changer as it was (is) an Americanism that never caught on over here. I suspect Harold Cox had been swotting up on too many American magazines!

Again comes the reference to its use as a loosely coupled absorption wavemeter with a RECEIVER! This rather baffles me as I don't understand this use at all.

We continue with the calibration tables given in the feature; they cover from 32 mc/s to 136 kc/s with large overlaps, but the mindset of "metres" was still common - Graeme..)

APPROXIMATE COIL CALIBRATIONS

COIL - LB (Light Blue dot)

- 0° - 8.6 metres
- 20° - 9.1 metres
- 40° - 12.25 metres
- 60° - 14.49 metres
- 100° - 18.6 metres
- 140° - 22.0 metres
- 180° - 25.3 metres

COIL - Y (Yellow dot)

- 0° - 13.8 metres
- 60° - 25.75 metres
- 180° - 45.0 metres

COIL - R (Red dot)

- 0° - 27 metres
- 60° - 50.6 metres
- 100° - 89.0 metres

COIL - W (White dot)

- 0° - 51.5 metres
- 60° - 98.75 metres
- 180° - 169.0 metres

COIL - P (Pink dot)

- 0° - 102 metres
- 60° - 191 metres
- 180° - 328 metres

COIL - G (Green dot)

- 0° - 142 metres
- 60° - 272 metres
- 180° - 466 metres

COIL - BR (Brown dot)

- 0° - 302 metres
- 60° - 522 metres
- 180° - 912.5 metres

COIL - GY (Grey dot)

- 0° - 585 metres
- 60° - 1080 metres
- 180° - 2200 metres

A Nice Little Radio

By Roger Bebbington MØBWP

I spotted a tidy-looking 870A cabin set at this year's spring National Vintage Communications Fair at the NEC Arena in Birmingham. It was perhaps a little grubby, but at £50 a good bargain, and an 870A had been on my shopping list for some time. (At a recent local rally I saw one marked up at £80 which soon sold.)



When I got it home on the bench after my 90-mile return journey I found that, after switching on with fingers crossed, it still worked. Even more surprising, on checking up on the valves I found that V2, the IF amplifier, which should be a pentode (12BA6), was actually a 12BE6 heptode frequency-changer (same as V1).

On checking under the chassis I saw that a couple of resistors had been replaced along with C44 (the 0.05 mfd output stage coupling condenser) and also C34 (the 0.05 mfd 500v condenser across the mains filter). Sure enough, I found that one of the half amp mains fuses had been replaced with a five amp type!

A full resistor check showed a few more out-of-spec items which were

duly replaced. On the condenser side of things a full replacement of all the paper condensers was needed as every one was found to be leaking. (*Don't they all! - Ed.*)

Looking at the condition of the loudspeaker and the fact that the radio was set to run off 240v it must have run very hot over many years. (*These little gems were actually made to run off 110v and get rid of the other 130v in UK through a big dropper which is really an electric fire in disguise. - Ed.*)

The radio now runs off a very neat commercial 240/110v step-down transformer bought from my local Tandy store, advertised as a UK-to-USA mains power supply.

My little 870A has now become a nice little radio, as cool as a cucumber. ♣

Ted's MailBox

A Review of Mail and Happenings

By Ted Moore, G7AIR, Founder of EUG

INTERNET 880/2

Another call from our Danish EUGer who bought this 'good working set' via e-Bay auction. It was dead when he got it home and rather than trust his inexperienced hands he put it into the care of a retired professional radio engineer with experience of comms receivers. (see 'Letter from Aarhus'.)



The Eddystone S.880/2 was the company's most complex valve model. First produced in 1962 it featured coverage of 0.5-30.5 mc/s in 30 bands. It had a xtal controlled first mixer and was of very high stability. Using 21 valves it was developed for use by government intelligence agencies.

First off the audio output transfo was duff but he had a suitable replacement. Next was the replacement of those passive components never designed to last for fifty years, condensers and resistors. Many resistors had gone very high in value, the usual thing. These were all replaced and attention was turned to the IF strip, as the AF stages were now making noises.

Faults were cleared up and after this IF strip was re-aligned as per the manual.

This left the front end, a true nightmare for anybody as there is no variable condenser tuning. This set features thirty ranges with each range having variable inductances for RF, Mixer & Oscillator stages. All of these coils have slugs which are located on a 'table' or plate which moves up or down as one tunes from the front panel control.

Imagine it, a truly horrendous task to re-align and one I myself would think seriously before attempting. In this case it has been found that when slugs are set when tuning one way - up or down - then when one begins to tune the other way they are all off again ! There is obviously some friction and/or play in the mechanism for moving the plate up or down. More when I next hear from Clemens, but I believe that the 880/2 is now producing signals.

THE EUG PORTABLE STATION

Well so far with a different location on each occasion the G3EUG callsign has been aired from Wireless Hill in Rutland for the September EUGnet, from Goat Fell Mountain on Arran for the October EUGnet, and from the Great Orme in Llandudno for the November EUGnet.

There was also a special EUGnet for the benefit of our Publisher cum Editor, 'GGL. This was to experiment with his theory re the nature of propagation which we are using on 80 metres. This

net was operated with me, and G3EUG/P at sea level on the sea-dyke at Gedney Drove End just up the road from my home QTH.

Apart from Bovine QRM I also had some from F15s using the RAF Weapons Testing Range nearby. Anyway it more or less laid to rest those ideas about 80 metres and Ground Wave propagation since my very simple half wave dipole in an inverted 'V' configuration gave fantastic results with 'GGL and with G3XFE from Watford who joined us. Despite having the waters of the Wash lapping but a few feet away both Chris and Graeme were solid copy my end and they were getting me just as good.

The evidence of QSB on each of our nets shows that we are using the ionised reflecting layer to provide NVIS propagation, the QSB being the result of this layer going up or down according to the effects of the sun. On this special EUGnet the weakest signal by far was from a nearby non EUGer just across the water from me in Skegness, G3THX was evidently being received via ground wave and was quite poor, the only one to suffer from continental QRM.

On each net we have had around about six to eight stations reporting in, not many when 'GGL says we have well over 150 known licensed amateurs in EUG. Besides the special EUG QSL showing the present Eddystone Lighthouse and Smeaton's Stump as per the August Issue cover there are customised QSL cards from each of the distant locations from which I have operated.

A few regulars such as 'GGL, '3XFE, and '8URU have had cards from each location so far. Come on guys let us hear from you, be you licensed or just an SWL. If my signal is being heard as far south as Southampton and as far

north as Carlisle then a lot of you must have a good chance of being heard by the rest of us.

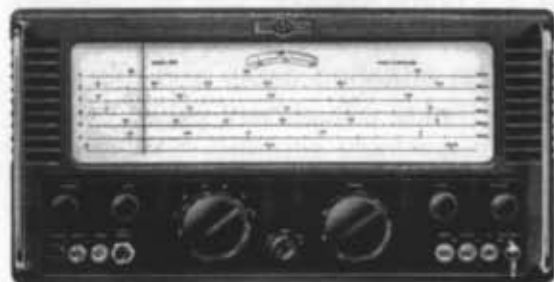
As 'GGL has proven, a reduction in my transmitted power from about forty watts to about 4-5 watts makes only a bit more than one 'S' point difference at his end. And simple aërials work the best too. He has had me working with my wire dipole down to a mere six feet at the centre and both ends with the usual 'droop' at mid element points and it makes very little difference at his end - nor for my reception of his signals.

He does claim to be pure Yorkshireman but I have this sneaking suspicion that his lineage goes right back to the Egypt of the Ancient Pharaohs. He would have made a good Overseer/Slave Driver when the pyramids were being built. He is now talking about experiments with my dipole stretched out on the ground, as was used with many back-pack sets in WW II, even a mention of UNDERGROUND. What ever next ? Underwater maybe ?

IAN'S 888A

Or rather, ex Ian's 888A as he has donated it to the collection. Thanks Ian. The arrival of a donor mains transfo meant that it could be aired on its own psu instead of my bench supply. Many of the resistors have been changed as old age had increased their values way out of tolerance, and valve circuitry is remarkably tolerant ! Condensers too, many have been swapped for those polystyrene modern types always available from John Birkett in Lincoln. Never lets me down his emporium and if I get my order in early enough in the a,m I have sometimes had delivery in next day's post. Not like some suppliers. The 888A is now functioning much better with cleaned up switch wafers too. Old grease on

switch wafers can become conductive through living in a moist atmosphere! Same with carbon deposits on valve holders.



The Eddystone 888A was a ham-band only set produced from 1957 to 1961. It used double conversion to a second I.F. of 85 kc/s, giving very good adjacent sideband selectivity and virtually no second channel.

IF alignment was hardly worth while as it appeared spot on so we were left with the front end, RF, Mixer & Oscillator. Being just amateur bandspread this is usually a doddle, luckily no duff padder or trimmer to mess things up this time. The set is now operating with a fuse wired into the transfo HT secondary centre-tap as per the 750 set. Cannot afford another blown transfo. It has been an expensive and very time-consuming job as even the mechanicals need work.

The scale glass had been replaced with a thin one of ordinary window glass in lieu of plate glass - dangerous this ! A new glass with heat treated edges was made for me locally and this is now fitted. The toggle switches fitted by the seller before Ian bought the set had been soldered in rather untidily and the standby switch was inverted.

The play on the tuning knob spindle was quite unacceptable and this had to be adjusted. A noisy AF pot which did not respond to switch cleaner squirted

inside AND on the spindle bearing was replaced too. Now I just sit and wait for it to pass the soak-test.

THE S.760 AND CALLSIGN 2AO

Never heard of it? And who was 2AO? More to the point what is the connection ? Well taking them in that order I have SEEN one - an S.760. And 2AO was Oliver H. Relly of 'STRATTON' De Roos Rd in Eastbourne, this was back in the 1920s - 1930s. And the connection ? I wish I really knew more about it, but what I have found out follows, read on.

A phone call from a non-Euger called Sy in Yarmouth. He had been given my name and home number by a local amateur. Do I know anything about the Eddystone VHF radio type S.760 and how much did I think one was worth today ? WOW !!! was my first thought. It did not ring any bells at first and I queried whether he meant the 770. No, No, it was definitely 760 as marked on the scale plate and the number plate inside. As to price I knew nothing as I had never seen or heard of one, but little tinkles started up in the back of my cranium.

I explained matters to the gentleman who was calling and suggested that if I might come down to have a look maybe I could help him. The result was an invitation to visit his home in Yarmouth and so I did. It meant putting off a planned visit to Chris '3XFE but I hope Chris understood, and it was worthwhile.

Sy is a real old timer, four years my senior and describes himself as an 'NTP' - that is Non Technical Person but this must refer only to electronics as he is a professional botanist with all sorts of qualifications. Anyway there I met the S.760 as it describes itself on the Model/Serial label riveted to the rear chassis, Serial number is FH 0049. The top left of the scale plate

simply refers to it as the 760, no S prefix and no suffix.

By now I had worked up quite a sweat as it was a hitherto unknown model, but still those tinkles of alarm and I was having inklings of a previous mention somewhere or other. My efforts at photography are hopeless as 'GGL will tell you my first attempt with a Polaroid brought out just a dark oblong with a white blob in it and so I tried some shots with my other 'camera' - a modern day version of the old Box Brownie. I hope they show more detail.

In desperation I cheekily asked if I might borrow it for a quick run up to Bewdley with a return late evening or early next morning. This provoked absolute horror and I felt as if I had been suggesting running off with it. No go anyway as Sy informed me that it had already been sold and the buyer was coming up in a few days to collect it. How much? I asked. A mere Five Hundred Pounds. Well if given the chance I might have robbed the housekeeping and bought it myself as it is so far unique, despite the production model serial of FH 0049 which places it in August of 1954. There must be more out there somewhere though, if as 'GGL tells me this may have been the 49th of a batch of, say, 50.

The set itself, looks remarkably like a 770R or U the mark 1 version as we call it. Only close scrutiny of the scale plate and finger plate reveal the differences. No CW position on the mode switch, just AM and FM (wide or narrow?). This is at the left, then the AF gain, then come the big knobs the six position range switch and the tuning knob, followed by the aerial trimmer and the IF gain. Under these you have at left the phones socket and a NL switch. At right you have the AC mains switch and a Standby switch -

this latter is anomalous as 'GGL realised immediately as on the rear panel there are no spring terminals for an external Transmit relay, just two for the 2.5 ohms speaker and two for 600 ohm line output. The AC mains goes in via an attached cable and grommet with a mains adjustment panel next to it. The centrally situated Aerial socket is of what I call a Belling & Lee type, aka the usual tv socket of today.

I suppose the most striking thing when you view it from the front is that the scales look as though the designer got his L & C calculations all wrong! Range 6 at the bottom is okay in that it covers the full length of the scale, 0 to 1000 on the logging scale. Range 5 finishes about a 1/2 inch short of the right hand end. Range 4 not quite an inch from the end and so on up to Range 1 which finishes with the 300 Mc/s mark just under the centre of the 'S' meter, and that is it. Total coverage of 30 to 300 Mc/s in six ranges. Inside it looks remarkably like a 770 but obviously no BFO although I could not see where one had been omitted so things must have been slightly re-arranged.

Well so far that is the 760 but Sy and his wife told me it had come from her parents home in Eastbourne some 30 years back when they - the parents - died and the house was sold. Her father, Oliver Relly had been one of the very first of the unlicensed - at first - British amateur wireless enthusiasts and that Stratton had been a 'family name' - she could not recall any more than that. They also had a very nice Mc Michael set with a mahogany horn speaker on top in pride of place in their living room, this too had already been sold as they would soon be selling the house and moving to a retirement home.

Right, I have found a brief mention of the model 760 in the 1994 PW article

by Chris GØEYO, no info though. I am having recollections of sorts. That lop-sided scale plate brings back memories for I saw one with such a scale in the 'museum' way back in the mid '80s before Chris got it all organised, this was sitting on the floor and I recall the way the scales all finished short of the end of the logging scale - what model was it ? I just do not remember.

I have seen what I think was a 770 too with a similar lop-sided scale maybe an early development model of either the 'R' or the 'U' version.

The Blueprint Register ? I have scoured it, no mention of a 760 at all. Though there is a mention of a 770 MoD as well as the infamous 770M. So come on you EUGers, somebody out there must know something. Please tell us all. If it is a 'rogue' development set just tarted up privately for sale as suggested by Bill Cooke, and this sounds a plausible enough explanation then it will be the only one but if there are others then somebody must know something. (See 'Radio Ramblings' for Graeme's comments about this curious addition to the Eddystone stable.)

SICK 840C

Very sick too. Dead as the proverbial Dodo, with not even heaters lit up. A rather too high continuity reading across the mains input led me straight to the Ballast/dropper resistor and this was checked against another, section by section.

Not a problem there so further continuity tests along the heater chain led me to the valve holder of the AF output valve. Valve in-situ, same high resistance reading of several Kilohms across the heater pins. Valve OUT and ditto.

In the event the valve heater was open circuit and the high reading was

coming from the partly carbonised paxolin of the valve holder itself. Overheating from loose pin contact maybe had burned up the paxolin, slight moisture in the air had rendered the material conductive. A fair bit of cursing, time, and sore fingers later the 840C was back on the air with a ceramic valve holder for the output bottle.

The paxolin one was NOT the original so there must have been previous problems here. The condenser coupling between the chassis and the outer case had been chopped out and so a replacement was fitted - somebody must have thought it to be redundant.

MY REBUILT EB35

This is now talking again. Still no IFTs from Dave so I have it going on AM and it looks and sounds better than my old EB35 Mk II which I got back recently via Jim. It is styled differently to the MkII version and I quite like it, so temporarily - until I get a set of FM IFTs it is in use on my bedside table. I was nearly caught out several times by the attentions of 'the crazy cannibal' who had previously owned this set.



The Eddystone EB35 was the broadcast sibling of the popular EC10. It also had VHF-FM as well as long waves. It was introduced in 1965 and was an instant hit. Prince Charles had one installed by Webb's Radio in his car.

Luckily I checked before power up as he had also reversed the polarity of the 6.5 volt Zener on the main board. Then there was the wiring to the switch wafers. I shudder when I think of the mess it was in but it does seem okay now after many hours squinting around about and in between those wafers. I think I may have a clue as to why it had been so cannibalised. The mains psu which came with it had been put aside until after the set was operational - I like to do my bench testing on these with a battery box.

When I picked it up to install it in the EB35 I did a double take, it is a 924A which is NEGATIVE EARTH and meant for the EB35 III not the Mk I or II which need POSITIVE EARTH. If this had been fitted and then powered up then no wonder he had to chop out all of the trannies, electrolytics and some resistors too.

Can't be too careful of these things, not for nothing are these germanium trannies called 'the fastest fuses on three legs'. Luckily I always have a good supply of these OC171s etc; in stock courtesy of John Birkett's emporium.

40673

No, not a phone number. To those initiates this number may well produce howls of despair since it is the tag of a dual gate Mosfet much used by Eddystone and not manufactured for more than twenty years.

My past calls to almost every known dealer in this country have always brought the response, 'sorry no longer available'. There are near equivalents but although I have tried them they do not work 100% - at least not to my ears.

Lo and behold, just before Christmas too, Birkett's tell me that they 'just opened this box and there they were', lots of lovely 40673s. I provisioned my

spares supply immediately and so if any of you are searching for a 40673 then get onto Birkett's pronto, use plastic, and get some for yourself. But be quick his stock won't last forever. Oh by the way, John never answers the phone himself these days, his able staff tell me that the thing you see sitting in the shop or at Rallies is just a stuffed puppet.

GUY FAWKES STRIKES AGAIN

I have not been a fit companion for anybody these last few days, my temper has been atrocious ever since bonfire night when some yobbos stuck a firework up my Volvo exhaust pipe and then bunged it with rags. Next a.m it started reluctantly and by the time I got a mile away it just conked, after a bang which I thought was back firing.

The RAC bod diagnosed a blocked exhaust and when we got to a garage we discovered that the 'banger' had not only demolished some baffle plates in the exhaust silencer but also had wrecked the catalytic convertor. Result was a final bill for £537 00, and me off the road for FIVE DAYS.

Good job I have my bike. Ban Fireworks I say !!! Seems others in this area had similar experiences to mine. This episode meant I had to cancel a trip again, to go and see Chris in Watford. If I was a bit curt on the phone over this period then please accept my belated apologies - by the time you read this I shall once more be my normal placid self.

STABILITY

If empty space inside the cabinet is a help to good thermal stability - as they say - then surely the CR100 and its pals ought to be pretty stable. But they never did have a reputation for real good state of the art stability and this one I had to look at for a pal was the worst I have known.

It was actually a CR150D and ex Air Ministry so had probably never been switched off during its active service lifetime. These used to be rack mounted with a separate diversity unit to control the AVC lines, hence the suffix 'D'.

This one would move up in frequency by as much as a half megacycle during the first hour after power up. Much toil and trouble later I had the problem licked (not literally so) and the set was returned to Phil for him to enjoy it, hopefully for another twelve years.

What was happening was that as the innards of the set began to warm up the heavy coating of old grease on the bearings of the tuning gang was softening up and changing its conductivity, or resistivity, whichever. Complete removal of this age-old goo and re-lubrication seemed to effect a complete cure.

Drift was now minimal after this TLC and over a two day soak test with a number of power up/down cycles it behaved quite well. They always did drift, as do most valve sets, when powered up and getting up to normal operating temperature. This CR150D is now pretty good once warm. It could happen to Eddystones you know, check it out.

Some greases when old and in contact with dissimilar metals actually produce a diode effect so you will get a different conductivity reading when measured one way compared with the other. Oils too, any containing natural mineral oils are suspect as such as castor oil absorb humidity from the atmosphere.

LIGHTNING

We have all heard of the various physical manifestations known as Forked Lightning, Ball Lightning, Sheet Lightning. As one who has been sailing for many years I have also met

up with St Elmo's Fire where the mast and rigging glows eerily with a pale blue phosphorescence - just static electricity.

Recently whilst on the EUGnet on top of the Great Orme I was listening to '3XFE and watching the lightning hitting the surface of the sea and skipping along before disappearing. It happened several times that the lightning flash hit the surface and then appeared to skip along as a stone does when you throw it slanting at the surface of a pond.

Now sea water being such a good conductor I would expect the electricity to be immediately dissipated and there be no 'flash' left to go skipping along. Can any serious physicist out there help me with info on this phenomenon please?

STRAY 1990R/3

There appears to be this stray 1990R/3 lurking out there in the south of England, looking for a good home. I have had two calls about it so far. One from an EUGer and another from a non-member.

To begin with it was being offered for £400 but at last hearing it had dropped to £250. Why this? Well it seems that the top UHF ranges are dead. The top two ranges give no output at all and this leads me to believe that the separate tuner for these ranges has been 'blown' by static. I may be wrong and there may indeed be two of this type but from what details I got it is one and the same set. £250 is not a bad price for a performer like this, and whilst new tuners are not available it ought to be possible to repair the duff one, with care. Even without those top two ranges the set would be a good buy, mine is always in use.

B/CAST DX

Anent 'GGL's comments in last issue

re his experiences with BC Dx. It can still be found out there if you can get around today's crowded band problem and combat the many strange varieties of QRM. I still go listening for that odd bit of MW Dx at night when I get fed up with winking out those still existing long wave beacons, aero or marine.

I find a lot of the old Soviet bloc countries do still use their aero or marine beacons and have heard a couple of Latvians, a Ukrainian and even some down in Poland. As to the broadcast bands you do need a good sensitive set which is not too selective. I know you need selectivity to combat co-channel QRM but I prefer to go hunting with broader selectivity at first, and quite often putting in some attenuation before the RF amplifier can help more than extreme selectivity.

I use the 40A a lot for my LW or MW Dxing as this has both the RF and an IF attenuator plus it has such good sensitivity with all of those lovely ferrite aërials, one for each range! I do sometimes use the supplied external loop but those ferrite rods usually do the trick.

WINTER IS NIGH

Well this is traditionally the time of year when folk like us turn to the repair bench to while away those long, dark, evenings. It doesn't always turn out that way with constant phone calls etc; but being without wheels for five whole days, and nights, has meant that I can get on with other things.

Even had to cancel my weekend up in Wales with my young ladies (mum and daughter). I had some quality listening time too and have discovered some local-sounding nets on top band, all in a Slavic-like language.

Enquiries locally tell me that some of the refugees are using ham radio gear for these nets for just gossiping. Maybe they ought to be told to use CB.

MORE BOVINE QRN

One kind of QRN I have located is caused by the regular discharge at intervals of several seconds from those electric cattle fence units. They do produce about 7 kilovolts across the terminals so given the length of some of those fences they radiate their spark transmissions quite well.

I discovered this when visiting a pal who has a farm in the locality. Driving into his yard my car radio was assailed by this regular 'tick - tick' noise and it was there on the tractor radio nearby too. He told me it is on the radio at their home too and so they never listen to the radio these days. I got some of the wire that they use from him to see if it could be of use for my /P aërial but have decided to stick with what I have.

All for this year, have a nice festive season, get some listening done and if you haven't heard me on the EUGnet from Plymouth Hoe then listen out for the January EUGnet and find out where it is from.

Happy New Year too. CU. TED.

Don't forget that you can reach Ted by mail at 21, PRINCE STREET, WISBECH, CAMBS. PE13 2AY or by landline on 01945 467 357 or mobile 07957 951 998.

The Eddystone User Group Net takes place on the first Sunday of every month at 10.00 local time.

The Net Director is Chris G3XFE and will call on 3695 +/- QRM.

Several Members have expressed an interest in raising AM activity so that vintage Eddystone RXs may be used.

Members are invited to use AM on the same frequency for the half-hour before 10.00; call CQ EUG and listen carefully.



Letter from Aarhus*

By Clemens Ostergaard

There is much debate going on concerning the question of the auction of Eddystone radios, mainly via e-Bay. Clemens acquired an 880/2 from this source and found that its description was rather less than honest. This is mentioned by Ted in his MailBox but I have just received an e-mail from Clemens giving us the low-down on this mobile disaster area . . .

Dear Graeme,

Hope you are well, and things are going fine with the change of computerisation

By now, the 880/2 is working. Just. At the end of this mail is a list of the problems found when I got it from the net-auction, e-bay. Caveat Emptor, it is almost as if it had been a kit radio.

Most is fixed now, an AF transformer has been fitted, removing V20, the line amplifier.

The main remaining problem is linked to the fact that one of the two groups of three sockets/plugs behind the lower front panel must have been smashed completely at some time. It is simply gone, and in its place is a small green rectangular plug. It is quite insufficient, and explains that the AGC is inactive, there is no AGC. Also no AF filter, no Noise Limiter, no calibrator because not connected. All co-axes to this plug have aged and gone brittle, intermittently short-circuiting.

How do you rate the chances of finding these plugs/sockets 6081P, 6082P? If I could, I could then rewire the co-axes.

There is still the problem of resistors being sometimes four times the spec value, so if I am out of luck this may never become a really good radio. On the other hand, as it is it does pull in a

lot of the stronger stations on all bands.

Well, I'll be glad to have any advice on the socket/plug problem.

*Clemens, Aarhus *DENMARK.*

List of Problems with 880/2

- No original bottom cover
- Top cover, no snap locks
- No cover for wave-switch
- No original bottom cover for Oscillator box
- No original side covers for oscillator box
- Many xtals not working
- No RF cover
- No Xtal calibrator
- Output transformer burnt out
- No drive cover and no dial-light holders
- BFO product detector not working
- No AGC, meter not working
- 14 kc/s filter gone
- No audio filter
- No noise limiter
- Monitor not working
- Rear contacts smashed, bracket missing
- Main bolt missing on front panel
- Crystal filters not working
- Plugs and sockets behind middle of front panel smashed and replaced with unoriginal
- Many co-ax cables aged and shorted
- No Megacycle indicator left and right. ←

E.U.G. CROSSWORD NEWS

19 Entries; 18 Correct

Typesetting error ignored

Sometimes I wonder if I'll ever manage to re-format Colin's Prize Crossword (which comes down the wire in an incompatible program) without getting it wrong!

For those who just do it at home for the fun, Question 6 down should have been 7, and 6 should have been "Mistakes in the service manual".

Half of you thought that was a devious clue, some rang up for the clue, but only one ignored it and I must allow him in because all the rest was OK.

In fact, the only entry error was in 11 Across: "Af mute control on vhf rx" One entrant managed to fit into the space "silence" instead of "squelch". But don't laugh, his first language is not English! How many of the rest of you could do it in Serbo-Croat?

Anyhow, 18 copies of the EB37 workshop manuals have been despatched to our entrants; no errata there.

This month's Roll of Honour goes like this:

Brian Blake, G3JOS, of Rugby.

Roger Bracey, G4BZI, of Crewe.

Terry Emenev, G3RIM, of Esher.

Richard Gaskell, GØREL, of Oxford.

John Goldberg, G3ETH, of Chester.

Richard Hall, GMØOGN, of the Outer Hebrides.

Mike Maxey, G8CTJ, of Burbage.

Chris Morgan, G3XFE, of Watford.

Ian Morgan, GM3OZJ, of Dalget Bay.

Garry McSweeney, Gi4CFQ, Belfast.

Anthony Richards, GW4RYK, of Montgomery.

David M Pratt, G4DMP, of Leeds.

Jack Read, of Cheshire.

Dr Roger Roycroft, G1NXV, of Macclesfield.

Geoff Steedman, MØBGS, of Leeds.

John St Leger, G3VDL, of Okehampton.

David W Whiting, of Ontario.

Fred Woods of Liverpool.

My! What a list, I shall have to get Colin to make it harder. Now for the answers to puzzle No 16:-

ACROSS: 1) Quadradyne, 8) RCA, 9) Trimming, 10) Image, 11) Squelch, 12) Sharp, 15) A fuse, 18) Quarter, 19) Group, 21) America, n 23) IFT, 24) Schematics

DOWN: 2) Uhr, 3) Dimmers, 4) Alinco, 5) Yagi, 6) Errata, 7) Base, 9) Tesla, 13) Harpist, 14) Peron, 16) U bolts, 17) Museum, 19) Gain, 20) Path, 22) Arc

Nothing left now but to say that this month's puzzlers will be competing for Instruction Manuals for the marine receiver Model 670C. This set was intended for cabin use in sea-going vessels and covers long, medium and short waves (AM) in six bands.



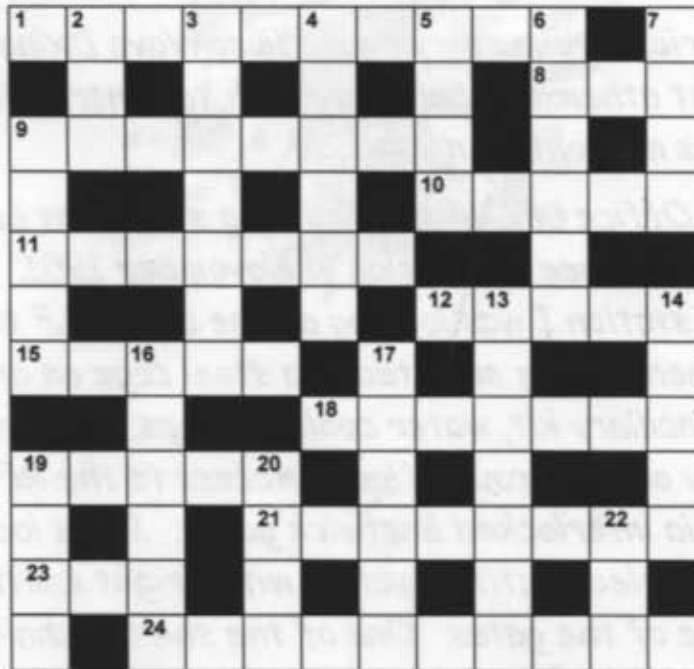
*Good luck
puzzlers, have a
happy Christmas*

Graeme, G3GGL

E.U.G. PRIZE CROSSWORD No 17

COMPILED by COLIN CRABB G4HMH

Photocopy or write out the answers so as not to spoil your copy. Send to Graeme Wormald at 15, Sabrina Drive, Bewdley, Worcestershire DY12 2RJ, England, to arrive not later than 25th January, 2004. See previous page for further details. Don't forget to include your name!!



ACROSS

- 1) One might (e.g.) hone phased audio networks to feed these transducers (10)
- 8) Thermionic display device (3, abb.)
- 9) Restored to sound condition (8)
- 10) "Fiend Hört mit" The first word in this WW2 German radio comms emblem translates as "the ---" (5)
- 11) Set of parts for a home brew variable frequency oscillator (1,3,3, pt. abb.) (5)
- 12) Shipping forecast area (5)
- 15) Test lead accessories (5)
- 18) Indicates an o/c supply circuit on a battery portable (2,5)
- 19) Accommodating phonetic ident. (5)
- 21) WW2 German allies (8)
- 23) Commercial television

company that originally produced "Crossroads" and "Golden Shot" (3, abb.)

24) Substance widely used for encapsulating and embedding electronic components (5,5)

DOWN

- 2) Popular electronics monthly (3, abb.)
- 3) Perhaps I, mad Don, could turn out to be a record producer, with some stylish assistance (7)
- 4) The flow of electrons in a cylindrical beam, in which space charge divergence is counteracted by a radial electric field is known as --- flow (6)
- 5) It's often quite done perhaps, to indicate a point of zero current or voltage on a conductor (4)
- 6) Fine mesh valve electrode interposed

- between two other electrodes to reduce electrostatic capacitance (6)
- 7) Antenna stabiliser (4)
- 9) Common rx front end stage (2,3, abb.)
- 13) The second largest country in Europe after Russia (7)
- 14) WW2 British allies (5)
- 16) The interval between two frequencies having a ratio of 2:1 (6)
- 17) --- converter, a mechanical device that converts A.C. to D.C. (6)
- 19) Theatrical lighting conceals inherent design problem (4)
- 20) Official description of the original Bath Tub (4)
- 22) Former North Sea radio pirate with international pretensions (3, abb.)



Letter from Amersham (Bucks)

by Angus Vickery

Dear Graeme,

A few matters for consideration/discussion please.

1. *Radio memories - your story on medium Wave Dxing encourages me to suggest that other members may wish to contribute their memories. Here is my contribution:-*

I joined the Post Office LF/HF transmitting station at Leafield (near Oxford) as a trainee technician in November 1951. During my first week at the station I was looking at one of the LF transmitters. All the RF components were mounted in a steel cage on an upper floor whilst the ancillary kit, water cooling pumps, etc., were immediately below on the ground floor. Access to the RF components was via interlocked Bostwick gates. I was looking at a row of six water-cooled rectifier valves with bright emitter filaments near one of the gates. One of the shift technicians approached me and said "Boy, don't put your arm through the gate to touch the valves. The high voltage will kill you. We are not bothered about you dying, it's all the bloody paperwork we will have to fill in." Boy remembered this safety advice for the rest of his working life!

2. *Also in the 81st issue of 'Lighthouse' you mention the Koomans aerials at B.B.C. Skelton.. At Leafield we also utilised Koomans aerials for some of our Point to Point services but without any slewing. These aerials were supported from 180 foot high SS towers. Do you remember how the slewing worked? I assume that it was based on a phasing network. (You're dead right, Angus - Graeme). I do remember that the rigging gang were very careful when lowering these aerials for maintenance/repair to ensure that they could be raised into position, like lifting a curtain as it unfolded without kinks or tangles - happy days if the weather was fine*

3. *Thank you for all the work you contribute to the preparation of the 'Lighthouse',*

Kind regards, Angus.

8. Advertisements

HIGH SIGNAL - NOISE RATIO

WIRELESS WORLD

DECEMBER, 1941.



SPECIFICATION

MODEL "358" receiver employs one stage of R.F. amplification, frequency changer, two I.F. amplifiers, a separate beat frequency oscillator, octal base Mullard or Otram 6.3 volt valves. Frequency range is continuous from 22 m/cs. to 1.25 m/cs, using four fully screened interchangeable coil units. Five additional coil units extend the range 31 m/cs. and 90 k/cs. Illuminated dial is accurately calibrated with four standard coils. Additional coils supplied with separate graph. Logging scale supercedes the old type band spread control. **SEPARATE POWER UNIT** assures freedom from drift.

The Eddystone "358" Communication Receiver, and its counterpart the medium frequency Model "400," set new standards in signal-noise ratio, provide unusual sensitivity and selectivity and a reliability more than equal to the exacting demands of present-day operation.

MODEL "400," A highly sensitive receiver covering medium frequencies only. Similar to the "358," but is provided with four coils only covering frequency range from 130 k/cs. to 2,200 k/cs. Optimum gain is secured with very high signal to noise ratio.



EDDYSTONE "358" & "400"

Both models available with Bendpass Crystal Filters.

SUPPLIED TO PRIORITY ORDERS ONLY.

WEBB'S RADIO

Open 9 a.m.—4 p.m. Sats. 12 noon.

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

Tel.: GERrard 2089

EDDYSTONE'S MODELS 358 & 400 shown here being advertised the month that the USA entered W.W.2. The sets were then being manufactured at the "Bath Tub" following the destruction of the Birmingham city centre factory the year before.

Eddystone's New 'Tank' Condenser, 1936

In 1936 Stratton & Co introduced two novelties. One was the "All World Two" receiver, arguably the most popular of their pre-war receivers, if only because it was cheap and offered on 'easy terms'. It remained in production until the fall of France in 1940. The second item was the strangely named Tank Condenser.

This was a small receiver tuning condenser which covered a range of 140 mmfd in ten click-steps of 14 mmfd. This was achieved by the use of a mechanism which bore a distinct resemblance to the well-known 'Yaxley' rotary switch.

In effect it gave each plug-in coil ten tuning ranges, achieved by the use of a bandspread slow-motion condenser of about 18 mmfd, thus giving a small amount of overlap on each position. It was used in the 'All World Two' and sold separately for home constructors.

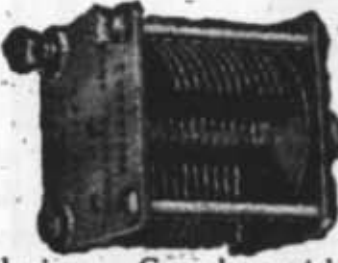
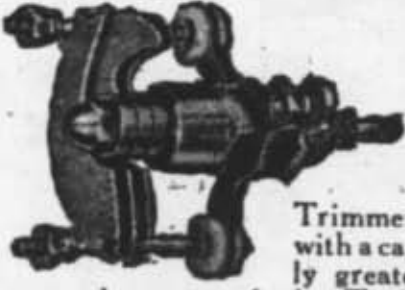
The use of the word 'tank' in such a

context was odd, because in the world of the radio-amateur a 'tank condenser' was always the large, wide-spaced variable condenser used to tune the anode circuit of the transmitter's output stage.

Be that as it may, the two novelties were married together, thus giving the 'A.W.2' a very distinctive tuning system; a 'clicker' and a bandspread.

The 'tank' of course was the subject of one of Stratton's famous patents, this time in the name of Geo. Stratton Laughton, the eldest son of Geo. Abe Laughton, the chairman of the board.

BANDSPREAD TUNING OUTFIT.
Devised to simplify station selection.

 <p>The Tank condenser unit has a capacity range of 10 x 14 m. mfd. Achieved by a patented step by step device. Complete with scale and knob.</p> <p>Tank Unit : Cat. No. 1042. Price 6/-</p>	 <p>In parallel with the Tank capacity is the slow motion Bandspread Trimmer condenser, with a capacity slightly greater than each step by step of the Tank condenser. Complete with dial.</p> <p>Trimmer Unit : Cat. No. 1043. Price 6/6</p>
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*Advertisement from Practical & Amateur Wireless
(now PW) Nov 7th 1936*



PATENT SPECIFICATION

Application Date: Jan. 23, 1936. No. 2116/36

Complete Specification Left: Nov. 16, 1936.

Complete Specification Accepted: May 11, 1937.

PROVISIONAL SPECIFICATION

Improvements in and relating to Variable Electrical Condensers

We, STRATTON AND COMPANY LIMITED, a British Company of Balmoral Works, Bromsgrove Street, Birmingham, and GEORGE STRATTON LAUGHTON, British Subject of the Company's address, do hereby declare the nature of this invention to be as follows:-

The invention relates to improvements in the construction and arrangement of variable electric condensers more particularly those for use in connection with wireless circuits.

The use of rotatable bladed condensers in wireless circuits is well known and it has been found that if a single variable condenser of large capacity is used in a circuit small variations in the setting of the condenser may make considerable variation in the tuning of the circuit; this is especially the case in short wave wireless apparatus.

Thus it is often difficult to separate two stations having only a small difference in wave length. An attempt has been made to overcome this by providing the condenser with two adjusting means, one giving

rapid adjustment and the other fine adjustment.

According to the invention we provide a large variable condenser capable of being set at a number of predetermined positions. This is used with a small variable condenser large enough to give a total variation in capacity equal to that between two adjacent positions of a large condenser. Thus supposing the steps between the predetermined positions of the large condenser represent units of capacity, then the maximum variation of the small condenser would be only slightly greater than one unit.

According to a further aspect of the invention a convenient method of positively locating the large condenser in a number of predetermined positions is by mounting on the condenser spindle a disc provided with a number of holes or indentations which co-operate with a ball or other detent. The disc or the detent being so arranged that there shall be a certain amount of resiliency between them.

In a particular construction the

main or tank condenser consists of a rotary variable condenser similar to those usually employed and having a number of fixed blades and a number of intermediate semi-circular blades carried on a spindle rotatable by means of a knob.

It differs however, from the known constructions in that mounted on the spindle is a circular disc made of resilient metal and provided with a number of holes. The holes are arranged around part of the circumference of a circle which is concentric with the spindle.

A steel ball, which is soldered or otherwise fixed to a plate that forms part of the frame or supporting members of the condenser, is arranged to co-operate with the holes in the disc. So that as the moving blades are rotated, this ball which tends to flex the disc will enter the holes and form a series of stops or detents to locate the blades in predetermined relative positions.

The first hole locates the blades in a position of maximum capacity and the last hole locates them in the minimum position. The intermediate holes are arranged to give equal steps of capacity between these two extremes. A second and smaller ball is arranged diametrically opposite the first ball in a position where it will not enter the holes but will ride on the disc and provide a thrust to balance the thrust of the large ball and prevent it warping or inclining the disc. In use, the improved positive step tank condenser is used in conjunction

with what is frequently called a band spreading condenser; for example a smaller single blade or other convenient variable condenser giving a total range of variation in capacity slightly greater than one of the steps in the tank condenser.

An advantage of the invention is that a fairly large movement of the small condenser will be necessary to effect a small change in tuning and this will assist the operator in obtaining a correctly tuned circuit and will separate stations which would appear to be so close in wavelength as to be on top of one another if the tuning was adjusted as usual at the present time by means of a large variable condenser.

An advantage of the preferred construction is that the ball co-operating with the resilient disc form a simple and effective way of locating the movable blades of the tank condenser in a number of predetermined positions.

Dated this 22nd day of January, 1936.

BARKER, BRETTELL &
DUNCAN,

Chartered Patent Agents,
75 & 77, Colmore Row, Birmingham, 3.

(Note from Graeme:- I wonder if this click-stop system of tuning sowed the seeds of the variable detents in the R.A.F. 1154 transmitter, allowing the VFO frequencies to be set up on the ground by wavemeter, which then allowed rapid QSY in the air? And the same goes for the famous army WS 19 tank set.)

Fig. 1

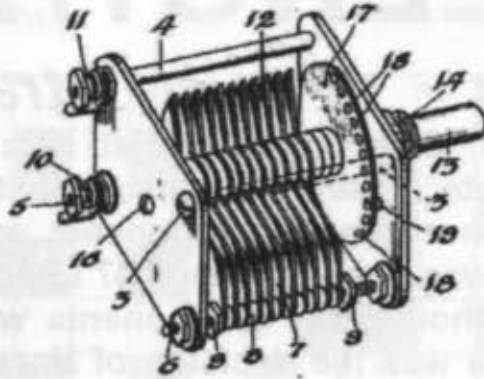
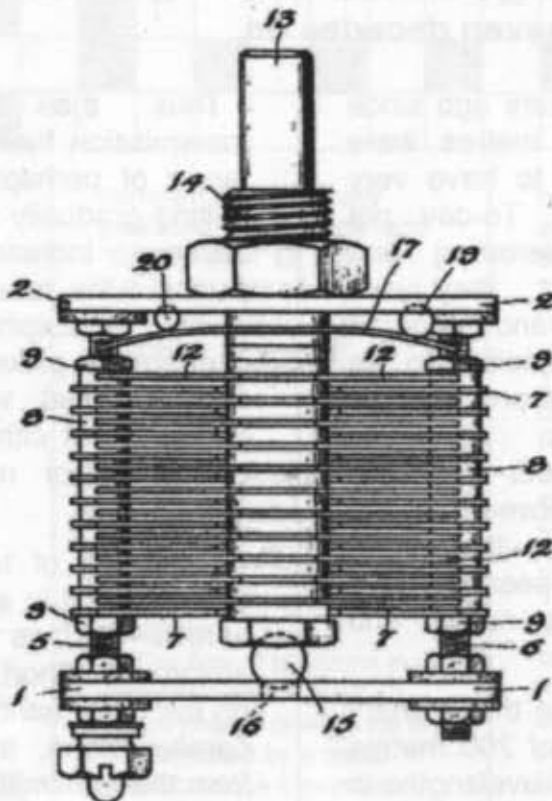


Fig. 2



[This Drawing is a reproduction of the Original on a reduced scale.]

Malby & Sons, Photo-Lith.

“THE SHORT WAVELENGTHS”

by Stratton, 1932

In 1932 Stratton & Co. published the first of a series of seven ‘magazine’ type booklets. They contained constructional articles featuring Eddystone short wave components and other general features. The last one was published in 1947 after which they never appeared again, even though the components were produced for the next 20 years. This was the decision of Harold Cox, technical director of the company from the 1920s until 1967. His reason was that “We never make a profit out of selling short-wave components”. Curious! We now reproduce Eddystone’s first known dissertation on the nature of Short-Waves, taken from “Eddystone Short Wave Manual No.1” It still makes interesting, if simplistic reading, seven decades on . . .

It is not very many years ago since wavelengths under 50 metres were little used and thought to have very little commercial value. To-day, not only are they an interesting and fascinating study, but they are employed for numerous and important commercial services in addition to the transmission of broadcast programmes over enormous distances.

The wavelengths under consideration we would class between 12 and 50 metres, because ultra short wavelengths below this seem to have rather different characteristics and uses

The difference between the ordinary broadcast wavelengths of 200 metres upwards and the short wavelengths is due to the fact that as the wavelength decreases the frequency increases very rapidly and the results from the propagation of the wave from the transmitting aerial is much altered.

Thus the ordinary broadcast transmission has a general maximum range of perhaps a thousand miles, getting gradually weaker the more the distance increases, until however powerful the receiver there is a point when atmospherical and other interference picked up with the signal and amplified with it becomes so strong that it either drowns the signal completely or renders it not worth listening to.

This type of transmission may be said to travel in a plane parallel to the earth’s surface and is gradually absorbed. Short wave transmissions, on the other hand, do not travel in this parallel plane, they radiate upwards from the transmitting aerial at an angle which varies according to the frequency of the wave and time of day. They then come into contact with a reflecting layer in the ether which is termed the Heavyside layer, which reflects them earthwards again.

There is, therefore, an initial zone in the vicinity of the transmitter in which the direct signal is not heard at all. This distance of silence will vary, due to the factors previously stated, and is known as the skip distance.

Normally the skip distance increases as the wave(length) decreases and during the hours of darkness. On the wavelengths under discussion this distance is of the order of 800-1000 miles; it may be more at times, but it is often less. This process of reflection is continued throughout the whole process of propagation, and so the wave travels round the earth.

Since the rays of the original transmission form a very large number of angles, and the angles of reflection also alter, it is generally heard at all points outside the skip distance, although there can be certain distances where a greater signal strength is received.

This method of travel enables the wave to go much greater distances than the longer broadcast wavelengths at first referred to, without anything like the corresponding loss of strength. It is therefore possible, for example, to pick up the Chelmsford* short wave transmission in Singapore and reproduce it on the loudspeaker, whereas the London stations** operating on the higher wavelengths with considerably more power are quite impossible to receive.

It will also be appreciated that physical features of the surrounding country, such as a range of mountains, will not have the same absorbing or screening effect on the short wave transmission as on the longer wave one.

Another important feature of the short wavelengths is that as the wavelength decreases the amount of interference from atmospheric or static

disturbances in the ether is also considerably decreased. Thus in the tropics where this class of trouble can be very bad indeed, the short wavelength is a great advantage. Listeners, therefore, who are remote from any ordinary wavelength broadcasting station or are in the tropics can receive and enjoy broadcast programmes by means of short-wave transmissions, without which wireless reception would be for all general purposes impossible.

It is the short wavelength transmission which has developed and perfected the present long distance telephone by wireless link, by means of which it is possible for telephone conversations from one end of the world to another to be carried out.

* *In November 1927, the B.B.C. commenced transmissions from an experimental short-wave station G5SW situated at the Marconi works at Chelmsford. This transmitter worked on a wavelength of 25.53 metres (11.75 Mc/s) with approximately 16 kilowatts in its aerial system.*

** *The London stations were the new 'twin wave' transmitters installed at Brookmans Park (still in operation) for the London Regional and National programmes (which later became the Home and Forces programmes, and are now Radio 4 and Radio 2). In 1932 each transmitter was working with an aerial power of approximately 30 kilowatts. They operated on wavelengths of 356.3 and 261.3 metres respectively. (842 kc/s and 1,148 kc/s).*

Copies of all the Eddystone Short Wave Manuals can be obtained from the E.U.G. Archivist, David Simmons, 'Windana House' North Aston, Bicester, Oxon, OX25 6HX Tel/fax 01869 347504



Sideband Snag



By Graeme Wormald G3GGL

The other week I was phoned by a member who had recently acquired one of those great old favourites, a model 830/7. This is one of several classic Eddystone valve sets fitted with a product detector for SSB/CW reception and a traditional diode for AM. Jim came up with a problem which was new to me on any of the models. It set me thinking . . .

"It's working on AM and USB but it's weak on LSB," reported Jim.

Quite frankly this didn't compute in my brain as a logical fault. Browsing a copy of the circuit diagram I confirmed that the only USB/LSB difference in the active part of the product detector was the value of fixed tuning condenser in the oscillator circuit.

"Does the speech resolve properly on LSB, as good as on USB?" I asked Jim. "Oh, yes," he said, "perfectly readable but just very quiet"

This exonerated all the immediate components in the circuit because the first thing to happen with any such problem would be an incorrect local oscillator frequency which would completely mess up the resolution of the speech. Donald Duck would be back in town.

The switch that selects the upper and lower sidebands, AM and CW is S5, a four-way rotary switch (Yaxley-type).

But wait a minute! It's S5e, so what are all the other little S5's doing?

Well S5a selects the output from the AM detector diode and CW/USB/LSB from the product detector. S5b selects slow AGC for SSB and fast AGC for AM/CW. S5c selects HT for SSB/CW for the product detector (no HT for AM).

So what if one of these switch contacts was not up to the mark after thirty or forty years? We know it happens with the very similar wavechange switches. Do we bother to work out which section may be causing that crackling on band 3? No. We spray the lot with *Servisol Super Ten* and give it a wiggle. I told Jim to do the same with all the banks of S5.

He phoned me a couple of days later to say "Abracadabra". Both sidebands were now at the same level. And remember this problem could crop up in the 880-series, the 940 and 888A, as well as any other 830 model. ♦

The EDDYSTONE KILODYNE 1936 KitSet

Described by Graeme Wormald, G3GGL.

Stratton ephemera of valve sets is quite rare in general and pre-war ephemera from the Bromsgrove Street works in Birmingham city centre is very rare indeed. Members will recall that the entire contents of the works vanished in a conflagration started by an oil-bomb dropped with incredible accuracy by Reichmarshall Göring's Luftwaffe in the autumn of 1940. We are reliant entirely on private sources and these need watching for sales leaflets such as the one here described. Any ordinary 'wireless buff' would pay 10p for it at a bric-a-brac stall at the N.E.C., but we Eddystonians would happily pay a pound or three! Although we do have a copy of the construction manual (1935) and also the relevant Eddystone Short Wave Manuals, the 'flyer' or sales leaflet shown here is a gem indeed. We are grateful to James for the opportunity to view it.

The Kilodyne Four series was first widely publicised in the Eddystone Short Wave Manual (ESWM) No 1 of 1932. It was offered in two versions, battery or mains. The latter was known by the rather quaint title of "All Electric Four". This was a curious British English usage of the epithet 'Electric' (as in 'electric clock') as a noun, to describe a supply of mains electricity as 'The Electric'.

The added affirmative of 'All' probably stems from the late 1920's introduction of the battery eliminator which, in most cases, only eliminated the H.T. battery and still required the 2v filament accumulator (L.T.) and 9v or 15v grid bias battery (G.B.). The American terminology of A, B, and C batteries was never introduced into British radio.

However, back to our updated 1936 version; this was also offered in mains and battery form. This was a little unusual as most Eddystone kit sets were battery only.

All Eddystone 'straight' kit receivers had aperiodic (that is to say, untuned) aerial input circuits. On the face of it this may seem a little bit 'basic' but in practice it was quite advantageous.

The presence of a tuned stage would not add to the selectivity one jot; in a regenerative receiver all the selectivity takes place in the detector grid circuit. It may add little gain, but it has one overwhelming advantage over its lacking rival: the reaction becomes incredibly well controllable due to isolating the aerial from the feedback circuit. No more 'dead spots' in the middle of the band you want to listen to. And the R.F. gain control applied to this stage stops that awful 'blocking' on strong C.W. signals. But even more important, the set was much easier to 'set up' with only one tuning control and no ganging (and cheaper, too!).

So let's look now at the following pages and see how Eddystone presented their kit.

EDDYSTONE

KIT OF PARTS
FOR THE
HOME CONSTRUCTOR

KILODYNE 4

*The
World
your
Playground*

ALWAYS RADIO



By 1936 it was much cheaper to buy a ready-made set than build-it-yourself. But Eddystone was catering for the well-healed enthusiast who got his kicks from 'home-brew' (as many still do!).

EDDYSTONE 1936 KILODYNE 4

A 13-2000 METRE RECEIVER GIVING WORLD WIDE RECEEPTION



Showing three views of the battery model KILODYNE. The open vision scale, the diecast chassis and under-chassis lay-out of components are clearly shown.

The 1936 "KILODYNE FOUR" Kits are supplied for either battery or A.C. mains operation. Both instruments are primarily short wave receivers and afterwards adapted for use on the broadcast and long wavelengths, unlike many sets in which the procedure is reversed and the short wave performance is only a secondary consideration. As long distance reception and overseas reception of the Empire short wave stations is the most important requirement, the value of this method of design will be appreciated.

Prominent features of the design are ease of operation, complete freedom from body capacity effects even on the shortest waves, no dead spots on any wave-band and smooth and definite reaction everywhere. In the case of the all-electric receiver, although the power pack is built on the same chassis as the receiver, no trouble is experienced from hum due to the design and layout of the components. In this model also the loud speaker is part of the assembly. Economy of current consumption in the battery receiver and the fact that all parts are suitable for use under tropical conditions are points which will appeal to the overseas user.

Four efficient valve stages give the set exceedingly long distance capability with freedom from inter-stage noise, outside static and electrical interference which is most pronounced when the "KILODYNE" is compared with sets employing a larger number of valve stages, each of individually lower efficiency.

Only those who have handled a 1936 "KILODYNE" can appreciate its wonderful capabilities. World-wide loud speaker reception of short waves is assured, together with an excellent all-round performance on the higher wave-bands. The range of the set on the medium wave-bands is well above average. We would, however, stress that the short wave performance has been the first consideration and that extreme selectivity on the medium and long wavebands is not possible without a plurality of tuned circuits and in the case of the "KILODYNE" this is not claimed.

SPECIFICATION:

CHASSIS AND COMPONENTS.

The chassis is a one-piece aluminium die-casting, giving a rigid and strong assembly and complete freedom from noise due to loose metal parts. Cellulose finished battleship Grey inside and out and ready drilled for mounting components. The components are made from first-class materials and are constructed to withstand tropical conditions.

CIRCUIT.

Both receivers employ a screened grid high frequency stage, using the new vari-mu high frequency pentode valve. This valve is coupled to the detector by means of a high-frequency transformer and reaction is obtained by coupling a reaction coil in the plate circuit of the detector valve to the grid coil of the high-frequency transformer. The detector valve in both instances is followed by two low-frequency stages with pentode output. The battery model has one stage of resistance coupling and one Ferranti L.F. transformer, while the A.C. model has two stages of resistance coupling. The A.C. model has an additional full wave rectifying valve. The A.C. kit is complete with energised moving coil loud speaker. The speaker is a fundamental part of the equipment because the field coil is specially

wound for use as a smoothing choke in the high tension supply. An output transformer matched for the final output valve is fitted to the loud speaker.

VALVES.

A.C. Model.

Mullard VP4 7-pin Metallized H.F.
Osram MH4 "Catkin" Detector.
Mullard 354V Plain L.F.
Mullard PM24M Pentode Output.
Mullard DW3 Rectifier.

Battery Model.

Osram VP21 7-PIN Metallized H.F.
Mazda HL2 Metallized Detector.
Mazda HL2 Metallized L.F.
Mullard PM22 Pentode Output.

WAVE-RANGE.

Interchangeable coils are used in order that the set may be used on all wavelengths between 13 and 2,000 metres. The standard kit is supplied with four coils only which cover the short wave and medium wave broadcast bands between 13.5/85 and 260/510 metres. Additional coils are available as shown overleaf.

CONTROLS.

Tuning is by one knob only with slow motion open vision dial, with travelling pointer. This dial is delightfully smooth without any trace of back-lash. A

volume and selectivity control is fitted on the right of the panel and a slow motion condenser for reaction adjustment is on the left. Both sets are exceedingly simple in use.

CURRENT CONSUMPTION.

Battery Model.

From H.T. source: 14m/Amps at 135 volts or 18 m/Amps at 150 volts.

Filament Supply: .6 amps at 2 volts.

A.C. Model.

45 watts at 230 volts.

BATTERY SUPPLY

The battery model requires at least 135 volts high tension and triple capacity units are recommended. Up to 165 volts high tension may be used, but if dry batteries are employed this considerably increases the current drain. With a D.C. eliminator or accumulator high tension, the higher voltage can be profitably employed. Grid bias is automatically obtained from the high tension supply and the

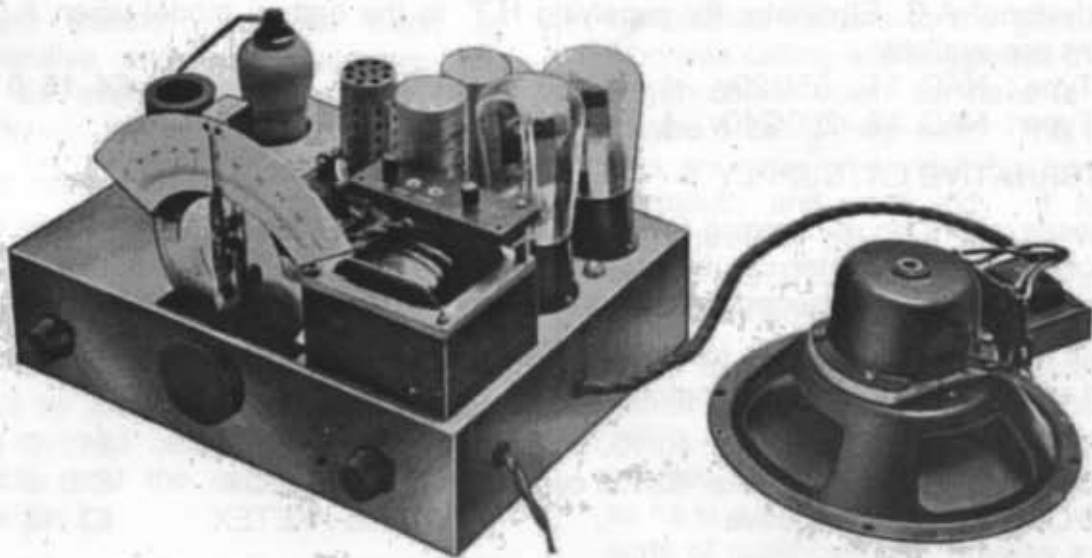
bias voltage adjusts itself for any high tension voltage in use. A 2-volt low tension accumulator is needed for the valve filaments.

GRAMOPHONE PICK-UP.

Terminals for using a gramophone pick-up are fitted at the back of the receiver.

ASSEMBLY.

Assembly of the kits can be followed without difficulty with the help of the wiring diagram and instructions. It has been found advisable to make use of soldered joints in the case of certain connections since in many instances, several wires go to one point and a good connection is essential for efficient short wave operation. Naturally, the A.C. kit is rather more complicated than the battery model, due to the extra apparatus needed for the power supply. The panel and chassis in both cases are ready drilled for the mounting of components and all requirements down to the smallest nut are provided with the kit. Final information for connecting up and operation is also included.



Showing the A.C. model KILODYNE complete with power supply and loud speaker. The panel has been removed for the purpose of the photograph.

1936 KILODYNE KIT

PRICES:

1936 "Kilodyne Four" Kit for battery operation, complete as specification.

Code : *KILCO* £6 19 6

SET OF 4 VALVES for above

Code : *KILVA* £2 1 0

The following items are needed to form a complete installation:-

1 "Eddystone" Loud Speaker, permanent magnet moving coil type, of special finish and construction for tropical use. This speaker is matched to the output of the KILODYNE FOUR receiver which is highly desirable for best results. It is sensitive to weak signals but will handle up to 4 watts undistorted output. The speaker is housed in an attractively finished teak cabinet with dark maroon relief.

Code : *PERMA* £4 10 0

1 "Eddystone" 135 volt triple capacity high tension supply, comprising three 45-volt block units. This battery is made specially for use overseas.

Code : *ALBAS* £2 2 0

1 Exide Accumulator, type CZG8, 80 amp. hour capacity. (This battery will give 3 hours' use daily for 50 days before re-charge is necessary) Code : *ALCU* £1 2 6

1 Aerial and earth equipment, suitable for short wave and tropical requirements, comprising 75 ft. coil single strand enamelled copper aerial, insulated earth wire, 2 pulleys, 2 "Eddystone" Insulators, "Eddystone" glass lead-in tube, lead-in wire, copper earth tube and automatic lightning arrestor. Code : *AERIA* £1 0 0

ALTERNATIVE H.T. SUPPLY :-

"Eddystone" D.C. Eliminator for supplying H.T. to the battery model when D.C. mains are available. Type D.C.5, 200-250 volts only. Code : *ALDIM* £3 0 0

"Eddystone" A.C. Eliminator for supplying H.T. to the battery model when A.C. mains are available.

Type : NAC. 11, 95/120v. } 40/100 cycles £4 15 0

Type : NAC. 12, 200/240v. }

ALTERNATIVE L.T. SUPPLY :-

In cases where no re-charging facilities are available, the "Ever-Ready" type of air cell L.T. accumulator can be utilised. This will give roughly six months' use before replacement is necessary. Code : *AIRCEL* £2 5 0

1936 "Killodyne Four" Kit for A.C. mains operation, complete with moving coil loud speaker and matching transformer.

Model AC/1 200/250 volts, 40/100 cycles Code : *KELEC* £12 0 0

Model AC/2 95/120 volts, 40/100 cycles Code : *KILOX* £12 0 0

SET OF 5 VALVES for above Code : *KETEX* £3 18 0

Supplementary Equipment for Receiver :-

Coils for special wavelengths (if required)

Type 6W.	76/170 metres	4/-
Type 6P.	150/325 metres	5/-
Type 6BR.	490/1000 metres	6/-
Type 6GY	1000/2000 metres	6/-

1 B.T.H. Gramophone Pick-up, complete with tone arm and volume control.

Code : BEPIC £1 1 0

1 "Avominor" Test Set, a splendid instrument for checking emission of valves, voltages and individual components in the KILODYNE FOUR.

Reads current. 0-6, 0-30 and 0-120 milliamps.

Reads voltages. 0-6, 0-120 and 0-300 volts.

Reads resistances. 0-10,000, 0-60,000 ohms and 0-1.2 and 0-3 megohms.

Code : AVOM £2 0 0

ALL



BRITISH

Sole Manufacturers : STRATTON & CO. LTD., EDDYSTONE WORKS,
BROMSGROVE STREET, BIRMINGHAM 5, ENGLAND.

POST SCRIPT TO "KILODYNE FOUR"

Can anybody remember the Ever-Ready Air Cell?
I've never heard of it and none of my references
have a mention.

I believe the codes in the price list were for
telegraphic use (*but what about the A.C. Eliminators
and extra coils?*).

The prices, of course, are pounds, shillings and
pence. (5/- is five shillings; twenty shillings to the
pound, twelve pence to the shilling.)

Graeme - G3GGL

Letter from Minchinhampton

By James de la Mare

Dear Graeme,

Many thanks for Lighthouse 81. I heard it thump onto the floor inside the front door with some surprise as I had not expected the new issue so soon with the Royal Mail strike problems. I immediately broke off what I was doing to read through it as I always do if I am at home when it arrives! As always one can't comment on every interesting article but your last one, that on Medium Wave DXing, brought to mind some bits and pieces I had read elsewhere . . .

It doesn't seem to be only long distance transmissions on Medium Wave which have become less accessible over time. The RSGB Low Frequency Experimenters Source Book (2nd Edn) reprinted an article from Radio Bygones of Feb. 1996 entitled "Practical Measurements of Long Wave Propagation". In it was described a voyage of a Royal Navy cruiser *H.M.S. Antrim* in 1922 more or less due south to West Africa. The ship carried radio equipment installed for testing low frequency transmissions from the Admiralty transmitter on Horsea Island, Portsmouth harbour. This apparently had two 446 foot masts, and the tests were carried out on 2000, 4000 and 6000 metres.

The article was accompanied by comments on propagation changes by Geoff Arnold who had been a seafarer about fifty years ago. He wrote:

"In my early seafaring days, I noticed a gradual deterioration in range on the VLF and LF bands. In late 1951, VLF time signals from Rugby GBR on

16kHz were clearly audible as far as the west and north-west coasts of Australia, but a few years later it was a struggle to hear them anywhere east of Ceylon. Similarly on the LF broadcast band. The longwave BBC Droitwich Light Programme outlet on 200kHz, which after dark had been entertainment value right down the Red Sea to Aden and beyond, in later years dropped into the noise in the eastern Mediterranean and was lost by the time the Suez Canal was reached."

And he goes on to speculate on the reasons for this. Seafaring EUGers might now like to refer to their copies of Brown's Nautical Almanacs from the 1950s. At that time, of course, there was still a sizable and important Merchant Navy, and many suppliers would advertise all the requisites of the Service, including navigational, optical and signalling equipment. The 1957 volume contains extensive advertising by Alf Willings & Co of West Hartlepool, enthusiastic suppliers of Eddystone Radios who are mentioned in the EUG QRG under the 670 set . . .

Willings & Co advertise the 670A and 840A receivers. They actually list by name "a few of the vessels supplied and installed with the famous EDDYSTONE Marine Radio Receivers" by themselves – over 300 ships. They then print testimonials from satisfied customers who had 670 receivers.

In another part of the same Almanac, however, another advertisement appears; this time about the Eddystone 670 receiver. Again the advertisement quotes testimonials from users – headed "Your Colleagues in the Mercantile Marine are enthusiastic about the EDDYSTONE 670 Marine Receiver".

The first one (Mr. H.W.E.) says ***"The results of the "670" have been more than satisfactory especially as my aerial is not particularly good. You may be interested to know that I receive BBC medium wave programmes regularly in Karachi. Signals come in loud and clear except for static from about 1900 GMT, approximately midnight here. This medium wave performance is not a freak reception for I have carried the station all through the Mediterranean down the Red Sea and across from Aden to Karachi, hearing the BBC Home Service every night. (now Radio 4 on 330 metres, of course) "Short wave reception is of the same standard, Australian stations, Belgian Congo, Argentine, U.S.A., they all come in at good volume without interference. Tuning has to be done carefully, but does not require any technical expertness. Any normal listener with reasonable patience could obtain the same results.***

"Your receiver is the best I have come across for use on board ship and I have no hesitation in recommending the Seafaring

community to take the Eddystone for satisfactory listening."

The QRG tells us that the 670 was made during the period 1948-54, so by 1957 they were well into the era of the 670A (1954-62) and the 840A. Willings were still advertising the 670's virtues three years after production ended. Even if listeners could be entertained by the BBC on Medium Wave as far away as Karachi in those days, however, the impression is that such long distance regular listening was rapidly on the way out by the mid-1950s. So, indeed, were passenger ships and much of the marine radio market for Strattons!

Post-script from Graeme:

When I worked as a technical assistant at BBC Skelton in 1953-4 I lived in the Corporation's hostel in Penrith (now a hostel for problem families – so what's new?)

The hostel accommodated about twenty staff, mainly young bachelors, straight out of National Service. One of the residents, a senior technical assistant, was an odd man out, being nearer to forty than thirty.

He was quite badly disabled, having been a merchant navy radio officer during the Battle of the Atlantic. His radio shack had been raked by machine-gun fire from a passing Junkers 88 dive-bomber whilst he was inside it. The result was a very bad nervous twitch and a total inability to send Morse via a shattered wrist. He could occasionally be persuaded to comment about his former profession.

I well remember one observation: he could monitor the BBC Droitwich 200 kc/s transmission into the Gulf of Mexico, when it became cut off by the Florida peninsula.

What's it like now? ♦

AMERICAN DX

By Peter Lankshear

Broadcast Engineer, NZBC, Retired

Although it is a very long way from the U.S. to New Zealand, from the 1920's it was quite common to receive American stations on Medium Wave. A 1929 Radio Guide that I have lists about 75 stations which it says could be received in New Zealand.

M.F. reception over such a long distance may seem a bit far-fetched, but New Zealand's being west of the U.S. is a factor. As West Coast America is 4 hours ahead of New Zealand in sun time, as darkness arrives here, there is a night path to the U.S. Of course, two hemispheres are involved, which means going from Winter to Summer or vice versa, but the end result is a "window" of a couple of hours or so when evening reception is possible.

In those days, most New Zealand stations closed at 10.30pm so that in the summer, there were clear channels for an hour or so before the East Coast of Australia became dark and their stations "took over".

I recall being excited as a youth when I picked up a U.S. station on my regenerative 3 valve receiver late one summer evening when I should have been asleep. Later, in the late 1940's, I lived in Napier (Peter Le Quesne's patch) and the time of year was winter and there were power restriction in force. (There had been no power station building during the War).

The Government in its wisdom decreed that all radio stations should close down between 5.00pm and 6.00pm to conserve power. They did not however reckon with my landlady. The family had a good radio setup, a Philco 37-620 with an R.F. amplifying

stage and the traditional aerial with a 40ft high flat top aerial about 60 ft long. She was not to be deprived of her dinner music and she simply tuned to 640 Kc/s to KFI, a 50kw Los Angeles station. There was a bit of fading of course, but good entertainment nevertheless.

Serious DXers were very adept at getting QSL cards from American stations. The attached page is copied from a booklet put out by a local radio shop around 1950. The late Arthur Cushen who was the internationally known blind DX doyen produced it. I knew Arthur well and it is almost certain that he would have compiled the list from his own verification cards.

The ultimate DX of course is Antipodean reception and it has been achieved and verified on M.W. A local enthusiast managed to pick up, just before sunrise, a BBC station in Northern Ireland. The BBC had a policy of not issuing verifications, but this time Eric was lucky as they were broadcasting a local storm warning and his report was verified.

This happened about 50 yrs ago and I have asked Eric several times if I could photograph the verification, but unfortunately he is well advanced in years and so far has not been able to locate it. Still I am living in hopes. Oh, and by the way, his receiver was an Eddystone 740 !!!!

PRINCIPAL NORTH AMERICAN STATIONS

This short list covers only a few of the 2,600 stations operating in the North American continent (1950). The ones listed are the most consistent heard in this country (New Zealand). Reception is best at dusk and during summer from 11pm to 2am.

Call	Location	kc/s	Watts	Call	Location	kc/s	Watts
KFMB	San Diego	550	1,000	KMOX	St. Louis	1120	50,000
KMVI	Hawaii	550	1,000	KWKH	Louisiana	1130	50,000
KMJ	California	580	5,000	KSL	Salt Lake	1160	50,000
KGMB	Honolulu	590	5,000	KEX	Oregon	1190	50,000
KFRC	San Frisco	610	5,000	WOAI	San Antonio	1200	50,000
KGW	Oregon	620	1,000	WGAR	Cleveland	1220	50,000
KNGS	California	620	1,000	KCOK	Tulare	1270	1,000
KPOA	Honolulu	630	10,000	KXOB	Stockton	1280	1,000
KFI	Los Angeles	640	50,000	KITO	California	1290	5,000
WSM	Nashville	650	50,000	KFAC	Los Angeles	1330	5,000
KNBC	San Frisco	680	50,000	KHON	Honolulu	1380	5,000
KULA	Honolulu	690	10,000	KGER	Long Beach	1390	5,000
KIRO	Seattle	710	50,000	KENO	Las Vegas	1460	1,000
WGN	Chicago	720	50,000	KGKO	Dallas	1480	500
KGU	Honolulu	760	2,500	KYOS	California	1480	5,000
XELO	Mexico	800	100,000	KSTP	St. Paul	1500	50,000
WFAA	Dallas	820	50,000	WTOP	Washington	1500	50,000
KOA	Denver	850	50,000	KGA	Spokane	1510	50,000
WLS	Chicago	890	50,000	WLAC	Nashville	1510	50,000
XEW	Mexico City	900	100,000	KOMA	Oklahoma	1520	50,000
KFRE	California	940	50,000	WKBW	Buffalo	1520	50,000
KJR	Seattle	950	5,000	KFBK	Sacramento	1530	50,000
KHBC	Hawaii	970	1,000	WCKY	Cincinnati	1530	50,000
WNOX	Knoxville	990	10,000	WPTR	Albany	1540	50,000
KOMO	Seattle	1000	50,000	XEXO	Mexico	1550	50,000
KFVD	Los Angeles	1020	5,000	XERF	Villa Acunna	1570	50,000
WBZ	Boston,	1030	50,000	XEDM	Hermosillo	1580	50,000
XEG	Monterey	1050	50,000	KSJO	San Jose	1590	1,000
KNX	Hollywood	1070	50,000	WAKR	Ohio	1590	5,000
KWJJ	Oregon	1080	50,000	KOGT	Texas	1600	1,000
KING	Seattle	1090	50,000	KASH	Eugene	1600	1,000
XERB	Tijuana	1090	50,000	WKNK	Michigan	1600	5,000
KXLA	Pasadena	1110	10,000				

DAB Report

By Graeme Wormald G3GGL

In the early 1990's Eddystone Radio worked with the BBC to produce Britain's Digital Audio Broadcasting system (DAB). The foundation of a national network was constructed by Eddystone Radio and installed in 27 major population centres. About 60% of the country was covered by 1995. Discussing this with our Patron, Chris Pettitt, GØEYO, who at that time was Managing Director of Eddystone Radio, he told me that the radio industry promised that reasonably-priced receivers were 'just around the corner'. But nobody delivered.

The nearest thing was a HIFI tuner costing four figures. Not many takers. Certainly not enough to warrant the extension of the network. In the meantime Eddystone Radio, geared up for this special order and heavily invested, withered on the vine and was sold off. It was not until 2003 that affordable stand-alone receivers became available for this giant leap forward in British Broadcasting. It was too late for Eddystone, but here is my experience of one of the first 'affordable' DAB receivers.

'PURE Digital'.

I must admit to knowing absolutely nothing about the 'PURE Digital' company which is responsible for what has probably been the most widely advertised DAB receiver so far. I am even less knowledgeable about naming the set 'Evoke'.

I guess I'm just a bit old-fashioned and like to see nouns used for names, not verbs and adjectives. However, once I overcame this prejudice and took it at face value I was rewarded when my (quite) large gang of offspring asked me what I would like for my recent birthday. As most of you out there will already know it's difficult for 'lay' people to buy

meaningful gifts for us radio nuts.

But on this occasion it was quite easy, because I said: "A DAB radio, please." Now this sort of thing can be easier said than done, but this one's easier done than said. It's kept in-store by Argos Catalogue shops (and many other retail outlets). Price £99. In the past few days I see that it's now offered by some for £89.



So what's it all about? Well, first of

all, digital radio is immune to interference; it's either there or it's not. First class transmission quality. It's transmitted in part of the old ITV Band III, 217-230 MHz. I reside in the lowest part of the West Midlands, it's impossible to get lower than the River

Severn and I live on the banks of it (about 90 ft asl and 90 miles from the sea). My local DAB transmitter is about 18 miles away at 'Turners Hill' (near Wolverhampton) with lots of high ground between us, but it seems to come in fine.

Listening to it on my Eddystone 990R there are three distinct 'carriers' (or 'multiplexes' as they are called) receivable here on a 25 ft high discone and in the AM mode they sound like continuous 'woodpeckers'.

You will realise at this point that I don't really understand any of the technicalities of all this (I am a true-born member of the analogue race!). Rather than attempt any further explanations I will refer all those who wish to learn more to (A) The Radio Authority, tel: 0207 430 2724, who will send you lots of gen; or (B) the BBC Reception Advice unit on 0870 010 0123 who will give you lots more.

Or you can purchase the 2004 edition of "Radio Listener's Guide". Send a cheque for £5.95 (to cover cost and postage) payable to the following and sent to Radio Listener's Guide, FREEPOST (SWB40688), Plymouth PL8 1DX. You will be amazed at the wealth of information about British (and Irish) radio broadcast transmission services of every description.

Now back to my subject. The 'Evoke' has a half-wave telescopic aerial plugged into a 75-ohm 'F' type co-ax socket, which can also be used for a separate aerial (dipole, yagi) fed in the usual way by co-ax. Just how an end fed half-wave matches into 75-ohms I don't know, but it works perfectly well anywhere in the bungalow. If you shorten it to a quarter-wave it tends to just stop working in dark corners . . .

The set itself is quite diminutive, 8" wide by 5½" high by 3½" deep, with a maple-veneered pale wood cabinet,

but one thing, it isn't portable. Transportable, yes. But NOT portable.

Although it has a nice handle on top and clip-on aerial it is powered by a chunky black brick (or 'wart' as some people call them) that plugs into the wall socket and supplies 1.2 ampères via a slimline cable to a little power jack at the back of the set. There is no battery storage and if there was it would be flat by lunchtime.

The set has a backlit LCD display with two rows of digits. The top row gives the name of the station you are tuned to. The bottom row gives loads of selectable information which I won't try to explain but merely say that it will scroll through all available stations in alphanumeric order (no less than 39 on my set) and then immediately tune to any one selected merely by pressing the knob.

It will also tell you about the programme; display the title of the music and the performer. Quite incredible.

But the most incredible thing of all is the sound quality. The built-in 3" speaker will fill a large room with orchestral sounds. Rich creamy bass and light frothy treble. Beautiful sound balance. It must have acoustic chambers like the *Bose Wave* radio.

If you want it in stereo you must purchase a matching right-hand speaker (c.£29). There are sockets on the back of the set for stereo headphones and stereo line for feeding into another HIFI. But believe me, it's absolutely stunning as a stand alone device. I commend it. And it has a rotary volume control knob, not one of those irritating double push-buttons.

My only criticism is that the LCD display really needs to be at eye level, and would be much better angled upwards (like the old Bush DAC90). ♣

680X Follow-up Report

by Roger Bebbington MØBWP

I felt I should write a short 'follow-up' report on the 680X described in my article "A Job Worth Doing" in Lighthouse No 79 (June 2003). I had previously mentioned that the audio output was somewhat low and distorted. Read on:

After refitting the front to the rest of the radio it was time to switch on again and trace the audio problems.

The sound now seemed worse than it was before I had removed the front for cleaning. In the event it turned out that there were *THREE* separate faults with the set.

The first thing I noticed was that one of the EL91 push-pull output valves was hotter than the other.

And there was microphony apparent, especially when anything was touched or tapped.

Eventually I tracked the microphony down to dry bearings on the main tuning condenser gang. The lubrication previously applied (*fifty years ago?*) had long since dried up, as it had on all the other moving parts

The microphony was now cured, but the audio quality was still worse than it was before I removed the front diecast panel. It was time to check out everything I'd done.

After much head scratching I realised that I had managed to set the crystal

phasing control about 180 deg out of position. When it appeared to be switched 'OUT' it was actually switched 'IN'. Not good for AM reception!

My attention now turned to the output stage and the reason one EL91 was running hotter than the other. I had previously checked every valve on the valve-tester as being quite OK. Swapping the output valves round didn't swap the fault round.. Every resistor and

condenser associated with the output stage also checked as OK, including the two silvered mica anode to grid coupling condensers.

Only the output transformer was now left to check out. This was the one item I had hoped would be OK, but unfortunately this proved to be at the root of the problem. I found that one of the primary windings had shorted turns and measured only about half the resistance of the good winding.

At the time of writing these notes the search is on to find a substitute transformer. My 680X will no doubt then become an outstanding performer again. ♣



RADIO RAMBLINGS

Gettings from my Notebook



By
Graeme
Wormald
G3GGL

Bewdley, November 2003.

At last autumn has arrived. I've been banging on about our wonderful year of fine Wx but I think that, at last, nature has taken over. The mercury has finally dropped from the low 60s (F) to the high 30s and the mists are turning the day gloomy and dank.

Not so in the antipodes where this morning I had the strange experience of watching the first Rugby football match I've ever watched in my life! Yes, England won the World Cup and it lifts the spirits of even crusty old sportophobes such as me. *(sorry, Bill!)*

Actually, in the 1940's I attended school where the playing of 'Rugger' was compulsory. Fortunately it's such a disjointed game that one apathetic player can easily keep clear of the action just by running about in the mid-field and keeping clear of the ball.

PUSHED ON THE BACK BURNER

Last month Dave Simmons rang me to say that he had acquired a modest quantity of those unique Eddystone slide-rule dial lamp special holders. Brand new 'Bulgin' stock which I've never seen offered before.

Not only that, but he has the 6.5 volt 0.3 amp miniature bayonet lamps to fit them (as specified

by Stratton). He also has 6.5 volt 0.15 amp lamps to match. See our "FOR SALE" page for details.

Now I once spent two years looking for such a replacement holder for the middle lamp in my 730/4 which had gone wonky and intermittent. So a small supply is considered to be essential.

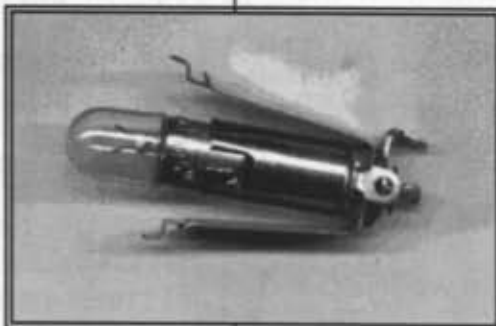
Then I had a brainwave. The models 840C and 670C, the final versions of the very popular universal AC/DC sets have no provision for illuminating the dial. But they DO have the special holes in the pressed steel beam atop the tuning scale. Why not fit some?

I've even had members call me who, having acquired a 'new' 840C, quite a common model, told me somebody had stripped out the dial lights!

Now this model was introduced during Bill Cooke's long reign as Chief Engineer at Eddystone, c.1961. So I decided to call him and enquire about

it. "All a question of safety" boomed Bill. "All that earthed frame, with six terminals of hot AC floating about the place. No, no, it would never do!"

Mmmm... I thought about it carefully, but



two hours later, a blown fuse, and a burnt-out resistor, decided that it was a project that I couldn't write up for readers. As Bill said, "It would never do" if I was responsible for the electrocution and/or incineration of one of our members. Food for thought, though.

ANOTHER MYSTERY EDDYSTONE

In Ted Moore's "MailBox" this month he has a fascinating story about a previously "unknown" Eddystone, the model 760 of c.1955. If you haven't read it yet, read it before you read this.

This set dates (yet again) from Bill Cooke's suzerainty in the engineering department at Eddystone. So I called him anew. He couldn't remember it. He phoned his old colleagues and called me back. They couldn't remember it either. In fact, Bill said it was never on the books.

But I told him the set was said to bear a strong resemblance to the 770R, (which was originally intended to cover 20-300 mc/s). "Well," said Bill, "We did experiment with an American Mallory tuner which covered 30-300 mc/s; but it came to nothing." He then went on to describe the black economy at the Bath Tub.

"The place was littered with 'dead' experimental models which were raffled off for charity or even just given away. Some may have looked like Eddystones but they certainly never worked like them!

"We did have one assembler in the prototype department who was a dab hand at breathing new life into these rejects. This came to light once when we had an 880/4 sent in for servicing by a professional user. When we checked his credentials we found we had no record of selling him this set and when we looked inside we found it was nothing like an 880/4!

"A little detective work pointed the finger at our assembler. He nearly got the sack for it. How many more 'rogue sets' from his stable exist out there? He certainly had access to the serial number plates (which also carry the type number) and the engraving machine. It's my guess that's where it came from."

OK, Bill, thanks for the insight. I think I've got to agree with you at this stage. I only wish Ted had been successful in borrowing the set for a day or so. I would dearly love to examine its entrails. Ah, well . . .

THE KILODYNE

I was delighted when the original leaflet for the "KILODYNE 4" dropped through my letter-box last week. (See page 31 in this Issue for a reprint.)

It has fired my imagination and made my fingers itch. My greatest satisfaction in the radio game comes from making things with valves in them. Always did and, I guess, always will. I thank the Lord that I was born into a world that still remembered the thrill of home-construction.

My first efforts bore a remarkably close relationship to the famous Eddystone All World 2, although I'd never heard of it at the time (1946). By the time I was first licensed I had spent my school summer holidays building 'the rig'.

The results of the R.A.E. had come through at the beginning of August, and although my father said I'd no hope of passing (*'not a cat in Hell's chance'* were his actual words) he was quite mistaken. My design was a Chinese copy of two others, one in the 1939 RSGB Handbook and the other in the 1948 ARRL Handbook.

It was CW only, crystal controlled and ran ten watts DC input to the final (two TT11s in push-pull, ex RAF TR1143). It was built onto an open 19" rack

panel and the separate P.S.U. was likewise.

Strangely (but I suspect I was not alone) I had succumbed to the siren call of the ex-WD market and was using an ex-army R107 receiver. A home-brew T.R.F. would have been perfectly adequate in those dear lost days beyond recall.

What I'm really getting round to saying is that I'm making an (early) New Year Resolution to build a Kilodyne Four replica this winter. It won't be a slavish mechanical copy, I would never live long enough to get all the specified parts, but it will be essentially the same circuit. Come to think of it, the 'Improved Everyman' of 1938-40, as covered in our April Issue is a Kilodyne in all but name.

I think mine will be an A.C. version . . .

Come on, Eddystonians, let's have stories and pictures of *your* vintage constructional projects.

MORE FIRST SUNDAY

Ted, G7AIR, continues to activate our new station, G3EUG/P, from exotic locations within these islands. Thank you, Ted, it is providing us all with renewed interest, and don't forget, listener reports are particularly welcome for these operations. Full details are shown at the end of this month's "MailBox".

There is some interest in using A.M. on this net, which will allow members with vintage Tx gear to marry them up with Eddystone receivers. For instance I have a KW 'Vanguard' table-top all-band AM/CW tx of c.1957. I bought it from a silent key sale in RadCom a few years ago for £15; they are about if you look out.

It must weigh about 150 lbs, having two large HT trannys (one each for RF and Modulator), one large LT tranny and one large modulation tranny

(push-pull 6L6G's). A single 6164B in the final (the so-called 'miniature 807'). It gives about 50 watts carrier at full throttle. And is rock-steady half-an-hour after switch-on. I usually use it with my 730/4, as being the same vintage.

The suggestion is that, rather than confuse the net in mid-stream, those with A.M. facility come on the air calling "CQ EUG" from 09.30-10.00 am local time. Same freq. as the normal net, viz: 3695kc/s, going HF to find a clear spot (the 'Rotary' net operates on about 3693 at this time).

Give it a try, Ted will be listening on AM and will answer calls, but will probably be saving his batteries rather than making his own AM calls. Chris G3XFE, our net conductor, is a frequent AM user and will be around.

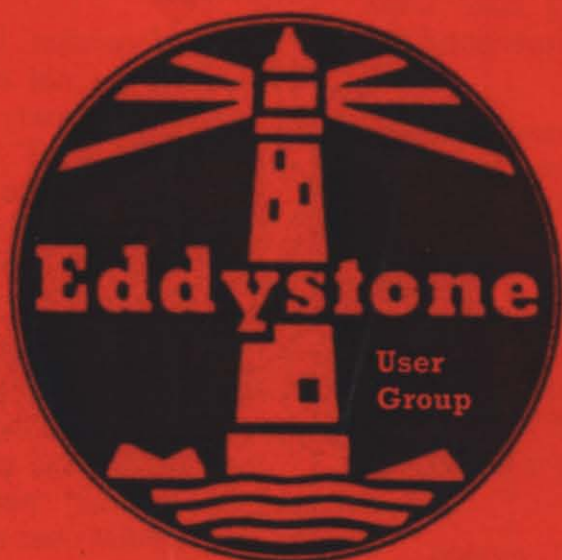
MEDIUM WAVE DX

My little feature on this subject in the last issue of Lighthouse (*October, p.42*) has produced more comment than the average article. You will read members' reactions in no less than three features in this month's issue.

One other letter from Dave Goodwin in York has a throwaway paragraph on the subject:

"Reference your mention of MW Dxing. I do remember in the early sixties, probably in early December as it was getting dusk, hearing the VOA transmitter in the Philippines on 1140kc/s..... I remember that I had not had my 840C for very long – still paying ten bob a week on HP for it! – and I was well impressed. In those days, of course, the VOA announced their transmitter sites, unlike now."

My special best wishes to all our members for a Very Merry Christmas and a Happy New Year. Vy 73, Graeme, G3GGL



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