

EDDYSTONE USER GROUP NEWSLETTER



ISSUE No: 58

CHRISTMAS 1999



**MERRY CHRISTMAS AND A HAPPY
NEW YEAR, CENTURY AND MILLENIUM
TO ALL OUR READERS!**

Featured Model - the *Incredible 1650*

- A non profit newsletter for Eddystone Users
- Information quoted from Eddystone Literature by kind permission of Eddystone Radio Limited

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ISSUE No. 58

Presented

By

Ted Moore

A Very Merry Christmas and a Happy and Successful New Year to all EUGers. The production team have worked their hearts out over this Bumper Christmas Special Issue, and hopefully it will be in your hands well before the Festive season begins.

I have mentioned to Graeme that we ought to be including the names of those who are now becoming regular Newsletter team members, the likes of Simon, G8POO, who works so hard to produce pictures and covers for your Newsletters. Just look at his wonderful 'first' this month. A full colour cover! Well done, Simon. Your expertise with computers is one of EUG's most valuable assets.

The final note on the GEC/Marconi saga... there is a reprinted GEC press bulletin in this issue (page ten) but as I write this we hear that

the firm intention is to relocate the Headquarters of the new MARCONI Company in the U.S. of A, no longer will it be in Chelmsford.

Several members have commented upon the use of the old 'lighthouse' logo on the cover of the last issue, as opposed to the usual (Marconi takeover) stylised version. This was the choice of Graeme as being in keeping with the period of the Featured Model, the 750. (See interesting 'Feedback' reports on page eight.)

As usual there is a Supplement with this End of the Year Issue. Graeme chose the Sales Literature and Owner's Handbook of the 1932 model of the famous All World Four, which came into an EUGer's collection earlier this year.

Read on, and enjoy! Ted. •

FRONTIS

It only seems like five minutes ago that Graeme was chasing me for the Frontis for the last issue. He wants to make sure all our readers have their newsletter in good time for Christmas, so that you can have a good read when other (dis)attractions get too much for you. Anyway let me start off by wishing all our members and readers and very merry Christmas and a happy and prosperous new year to everyone.

I am currently trying to get planning permission for a mast and HF beam in my rear garden. I have already had one rejection and have re-submitted a new proposal with less visual impact. It occurs to me that we probably have no actual rights in these matters. It all seems to be a lottery as to whether your proposal is acceptable to the planning officer and the local planning committees. They, in the main, are completely ignorant of our hobby and so how can they make a value judgement as to whether we should or should not have planning permission. If I lose the re-submission I shall go to appeal with the help of the RSGB Planning committee. I am told that they put you in touch with a planning lawyer for who you pay reasonable costs.

Graeme, on hearing that I am going through this process told me of a Dept of the Environment Planning Policy Guidance Document No 8 which allows for planned development of masts up to 15m to assist the mobile phone industry. He thinks it may be relevant to Amateur Radio, almost certainly worth researching. Of course in the early days of our favourite radio company, most people had a 15-20ft wooden pole at the end of their garden to support the other end of a wire antenna. I can remember just such a pole in my grandmother's house. Bet nobody had to worry about planning permission then!

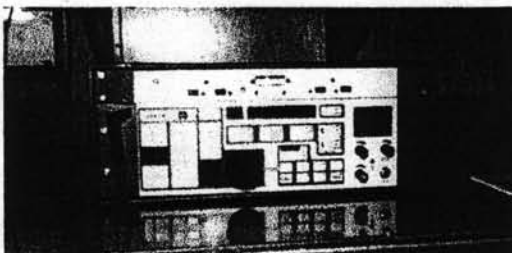
The featured model this month is the Model 1650. This set had just been developed in its original form when I became Managing Director in 1984. The model 1650/2 was the main SSB version and the /3 the ISB version. Les Crompton, the current Eddystone Sales Manager, told me this week that they were still getting orders for the /8 version which I believe was a VLF model. Thinking about the 1650 reminds me of the occasion Eddystone Radio was the victim of a very clever scam by an American con artist who managed to steal *nine* 1650/9A sets from us. Most of these were sold within a few weeks, through some very famous UK dealers. I suspect that they are still in use today. If you have a 1650 with no serial number label, it is almost certainly one of the stolen radios. The whole story is worthy of its own article and I will find the time to write it. Should be interesting reading, it certainly threatened to be career-limiting for me at the time!

We also loaned a 1650 to Operation Raleigh in the mid 80's. It was used as the ship's receiver on the Sir Walter Raleigh and operated by John Layton G4AAL (who now works for Oxfam and is our RSGB Zone Council member. I managed to find a photograph of the receiver in situ on the ship. It was used with the 1529 FSK demodulator (see below)

This Frontis will be the first to be sent to Graeme by the ubiquitous e-mail system. Hopefully he will publish his e-mail address in this or some future newsletter.

All the best 73's. Have a good read

Chris Pettitt
G0EYO – Patron
Chris@g0eyo.freemove.co.uk



RADIO RAMBLINGS

Gottings from my Notebook



By

Graeme Wormald

G3GQL

Season's Greetings and Best Wishes to all EUG readers for the coming Festivities and New Year. It may be the New Millenium but I'm not too sure about the 21st Century, as it's only 99 years since we welcomed the 20th (honest!).

APOLOGIA . . .

Just after the last News Letters (No 57) had been despatched it was discovered that about every 153rd sheet had a printing fault! Mostly it was the left-hand side of a page blank. No way of telling who was affected or how many of you, but a new batch has been printed. ANYBODY with a faulty page(s), please buzz me and a new, perfect copy will come a-whizzing.

COMMENT . . .

Most readers will realise that I am the last person to see the master copy of the Newsletter before it's printed - it's my job to assemble it from all the separate components. Because it's a team effort by members from all around the country (the world, sometimes) we can't have editorial meetings, which means that I am sometimes in a position to comment on Ted's comments! - as members will have noticed in the past from my late scribblings. Well, now I intend to stop this unprofessional conduct and do a post-script towards the end of the Letter. I shall put a little cross, thus **X** beside any item about which I have further information and you will know to look out for it later. OK? Good!

CHRISTMAS GOODIES . . .

This month's bumper issue includes the literature from Stratton's Eddystone All World Four, 1932/3 model. To us previously a mystery model. We'd seen all the adverts but nothing about the works until a model turned up recently, complete with not only its Instruction book but also its Sales literature.

We'd seen the 1930/31 model, with the large (2½") plug-in coils and double Igranic tuning dials, and we'd seen the 1934 model with the small (1½") plug-in coils and ganged tuning. Well this model uses ganged tuning also but with the 1930 type large coils. Feast your eyes on the set which heralded the start of full-scale Shortwave broadcasting by the BBC (from Daventry, or Dane Tree as it used to be pronounced).

These two important documents are stapled with the rest of the Newsletter, it is much cheaper to produce this way. Enthusiasts who wish to file them separately should detach them carefully and put them in a plastic clasp binder. The sort which use a glass-clear plastic cover and a coloured spine which slides on. About 48p. from your friendly neighbourhood stationery shop.

continued>>>>>>

EDDYSTONE SPECIFIED . . .

This month we feature the very last Eddystone Short Wave Two, taken from the ESWM No 6 of 1947. The pages have been beautifully restored and presented by Simon. The receiver itself is virtually the same as the All World Two of 1936 but the circuitry is a little more refined. Surprisingly for 1947 the set still uses two volt filament valves, although 1.5 volt 'alldry' valves on international octal bases were common enough by then. Also very curious is the fact that ESWM (Eddystone Short Wave Manual) No 6 was the last ever published, in spite of the fact that the introduction asks for 'suggestions for future issues.' According to Bill Cooke (former Chief Engineer), the problem lay in Harold Cox (Technical Director), who felt that home construction would not lead to any further business for the Company. In spite of this, however, they continued manufacturing Short Wave components for another quarter-century!

FIRST SUNDAY NET . . .

The first Sunday in November found a larger attendance than usual; seven stations came up on the Net with one being a new joiner. It went on for 2½ hours even! Don't forget Sunday the 2nd Jan 2000 for the first EUG contact in the new year, and then Sun 6th Feb and Sun 5th March. Go on; write it down now. 10.00 local time, 3695kc/s +- QRM.

A sad piece of news arrived last week. Pete, G4DAN, in Mistley, Colchester, a regular breaker on our Net, became SK in October. Pete, who was widowed earlier this year, always had some interesting new item to contribute. We shall miss him.

MODERN TECHNOLOGY CREEPS IN . . .

You'll have noticed Chris Pettitt's comments about his *Frontis* having been transmitted to me by E-mail. You may also have noticed that I've had an E-mail address on the front cover for months. But it was (is) located at Simon's QTH two hundred miles away! The big difference now is that I have a facility on the premises; I've augmented my vintage Amstrad Locoscript PCW with a new Windows PC. The only problem is that I'm not yet very Windows-literate and have managed to foul up the works several times!! So for the moment let's not worry about new e-mail addresses or we may cause more confusion than you could believe . . .

Suffice to say that Anthony has sent me a first class feature about his Model '909' (Swedish Merchant Marine radio) on a 3½" floppy. It was translated perfectly, and will appear in our next issue. So go ahead, anybody with a feature: send it on disk. Whilst on the subject of 'Information Technology' (IT, as they call it,) let me put your minds at rest about address labels. Last month these came to me by post from Chris, as they always did, and whilst sticking them on I noticed some were a bit odd. One was addressed to Waldstrasse (Wood Street), Germany, for instance. I thought this might take a while to get there and then I realised that the third line was missing on them all! Most of them were stuck on by this time, so the easiest way to cope was to hand-write the missing line. It was MY writing, not your postman's, so worry not. Chris sent his best apologies and E-mailed me the full works, so now I'm the official keeper of the label list! I hope they're OK now.

WATCH OUT further down the Newsletter for the above mentioned Post-Script. ●

EUG On The Air

One of my regular nonEUG correspondents in the US of A is Jed Bouska who, whilst living in Oregon, commutes weekly from his home near Battle Creek to Seattle.

His last letter mentions to me that on these weekly commutes he has the chance to listen to "EUG" which broadcasts on a 24 hour basis. Not what many may expect, a broadcast station, but an aviation Navaid. Whether it is a VHF VOR transmission or an MF NDB he omits to mention, but it gives the ID callsign of "EUG" in slow Morse followed by some long dashes. The transmission is repeated ad infinitum.

In effect this is the Navaid for the municipal airport at the city of EUGENE in the State of Oregon and it is located just south of Seattle the capital of Washington State.

Jed's hobby is the collecting of WW II communications equipment and he has a large collection which goes from smallish airborne GEE receivers (2 valve) up to multi-valve receivers for both radio and radar. TED.

X

Plug-in Coils

Steve says that he has begun the task of making up a set of four-pin coils as per the old advert on page 5 of the last issue. He adds that the cost of making just ONE coil nowadays will be more than it would have cost to buy a full set of FOUR & SIX pin coils!

Since the formers, or a suitable replica, are now available commercially he has high hopes of getting the job done within a reasonable time scale. The plan then will be for a replica period receiver. The correct Eddystone slowmotion tuning units are not available but he does have a couple of "period" Muirhead units cannibalised from a couple of U/S RF units that belonged to the R.1355 (GEE) radar receivers.

Chassis are not a problem either since the larger sized diecast aluminium boxes are STILL available from the likes of RS. TED.

Turkish 770R

Further to the item in the last issue of the Newsletter, re the Turkish-lettered 770R (Mk I) we have now been told that some were made for the Turkish Aviation Authority and that they were still performing well many years later.

X

The Bath Tub information is that a small batch of 770R Mk I were supplied to Amendment 1205 for rack mounting and a further small batch supplied in normal table mounting configuration to Amendment 1206, all had Turkish marked front escutcheons. No suffix was allotted but it is assumed from the dates that they were otherwise normal /3 receivers. For those interested the Engineers initials on the document containing this information are WJS/LM. TED.

AC/DC Sets on 110 Volts

Just a reminder here from one keen EUGer who has decided to run his 840A and 670A from an "Isolator/Dropper Transformer" in an attempt to lessen the useless heat produced when they are run from 230 volts.

Ian says that there is a pronounced drop in the AF output power available when the sets are operated on 110 volts (same heater volts but lower HT volts). Whilst not a problem for normal listening it might well be if one is tempted to run several speakers from the one set (! ! !). He adds that during the past hot summers his shack was quite noticeably cooler when both sets were switched on side by side, than has been the case in previous summers. He ought to know, he has had both sets for 12/15 years now.

770R Mk II for the Royal Navy ?

Shortly after the first Mk II version of this set was produced to the NATO designation number 5820-99-102-9696 a further batch was produced to a NATO specification number 5820-99-971-8329 and these were for the Royal Navy. There may have been some slight mods but no details survive.

Much later still a further batch was produced and these were for the Royal Air Force, again no details exist beyond this. The final four digits make me think this RAF batch were ordered first but then who knows just how these NATO numbers work(ed).

Coax Shorting Plugs for 770 Series

Graeme makes mention of this in the last issue, where the use of this "shorting plug" pushes up the gain on the 770R (Mk II) sets. Further to this matter I would mention the following.

In my use of these sets there was a note affixed to the inside of the 770R manual, an ADDENDUM. This did specify the use of such a plug in the IF socket as otherwise there would be a mismatch causing loss of signal. Whether it was a complete "short" or whether it contained a matching load resistor of 75 ohms I never did check. It seems that any manuals we have at EUG do not contain this ADDENDUM notice and so hence the confusion. Worthwhile for anybody having the manual to insert a mention for future users.

TED. ●



PRESS RELEASE

For Immediate Release



More News from Eddystone's New Owner

Megahertz Win Contract to build Kenyan TV & Radio Station

Cambridge, England 07/06/1999

Megahertz Communications Ltd. have secured a contract to design and install Kenya's first digital TV station. 'The Nation' group, famous for the newspaper of the same name, hope to capitalise on their position as the leading newspaper in the country with this new venture. The Nation is the countries largest media group, and this represents a major investment into broadcasting for them.

The new station is to be installed on the sixth floor of the prestigious Nation Building in central Nairobi. While the initial aim is to cover the Nairobi area, it is intended that the service area will eventually extend to the whole country.

The Television Station represents only the second all-digital station to go on-air in Africa. The first being e.TV (Midi TV), based in Cape Town, South Africa. Megahertz were also the main contractors for that project, and the station was completed earlier this year by the Cambridge-based firm.

The Nation TV complex will consist of a three-camera production studio, together with a single camera presentation with video file server and transmission studio. Alongside the studios, a viewing room and a total of 3 Avid edit suites will be installed. The aim is to have the studios on-air before Christmas this year.

The contract is the successful conclusion to extensive discussions between Megahertz personnel and contractual and engineering staff from the 'The Nation'. Also involved are Visual Engineering and Wilken Telecommunications, both based in Nairobi.

Commented Mr Gideon K. Muoka, Head of Television, of the Nation "Despite stiff competition from international companies, we chose Megahertz because of its successful track record on the African continent, and their understanding of the local conditions regarding African stations. Furthermore Megahertz were able to provide a digital solution that can also accommodate our present analogue systems still currently in use throughout Africa. With our planned expansion of the network into Eastern African region, were more comfortable with an organisation such as Megahertz that had the ability to competently handle large projects"

Consultants on the project are the South African Broadcasting Corporation (SABC).

LAST MONTH'S MODEL

Feedback on the S.750

Last month's Featured Model has produced some interesting comment and response. First of all, we have found a contemporary review of the set, from the December 1952 edition of "The Radio Amateur" – a long lost magazine. It describes the set as being 'the latest model', although it had been announced three years previously and on the market for over two years. The likely explanation is that all the early models went for export to earn hard currency, of which Britain was desperately short.

Restoration Reports



Brian has been restoring one for the past two years and has now reached the 'cosmetic' stage. His biggest problem was random noise generated by dirty valve-holders, which refused to respond to the usual aerosols. In the end he had to change five of them, the first local oscillator being the toughest job.

Possible Design Fault



Chris, G3XFE, sends us a letter about a 750, which could well refer to any Stratton set of the period. A sobering thought. Chris reports:-

"I realise that it is almost unthinkable but could this actually be a design fault with an Eddystone? I recently acquired an old S.750. It didn't work on two of the bands, and worked after a fashion on the others. Dial calibration was grossly inaccurate, which turned out to be another matter, however. Whilst tracing the circuit to establish where exactly the fault was, I narrowed it down to the oscillator coil assembly in the central die-cast coil block.

"Touching the AVO probes across the 6-23pf trimmers sitting on top of the coil formers for ranges 2 and 3 revealed open circuits, despite the diagram showing that the parallel tuned cct should have given some reading. I gingerly unsoldered the stiff leads that connected them to the wafer switches, unscrewed the bottom retaining screws and lifted out the offending coil formers. Nothing visibly wrong so far.

"Further examination revealed, once I had used a hair drier to remove surplus wax, that the bottom of the winding passed through a hole in the former, and out the

other side, simply for security. Then it went up to the tag on top of the coil for connection to the band-change wafer switch.

"The drillings in each case did not pass through the solid part of the coil formers. They passed instead further up through that part of the former which was hollow and threaded, into which the tuning slug screwed.

"At some stage the dust iron core had been screwed so far down (in a bid, presumably, to find that elusive peak) that it had sheared right through the fine wire at the bottom of the winding and made it go open cct. Is this a first? Because when I mentioned it to Graeme (G3GGL) he said that he had never heard of this problem before. I wondered if this was a two-off on this set only. It's a noteworthy point because, if it's a standard design, be very wary of screwing those slugs in too far, or you'll have to suffer the rigmarole of going through this whole process to rectify the fault."

BEWARE!

THE EDDYSTONE "750" RECEIVER



The latest model of the Eddystone range of communication receivers—the "750"—is an instrument which will please the most discerning user. Not only is the performance well ahead of any similar receiver we have handled, but both mechanically and aesthetically, one is left with the impression that this is, indeed, a quality production.

The wide full vision tuning dial scale and the arrangement of the controls as well as the general proportions of the receiver, give it a most pleasing appearance and whilst admittedly the appearance of one's receiver is not the main feature one is interested in, it is good to see such a good performer also looking well. The velvet smoothness of the controls also adds to one's pleasure in handling this receiver.

We have now had one of these receivers in use ourselves for some time so we can give readers a first hand impression of its performance. The first most noteworthy feature is, of course, the wide dial scale. This and the absence of separate band setting and bandspread dials, enables one to retune to a station with perfect certainty and is a most useful asset to the SW broadcast listener. The accuracy of the dial readings—which are in Mcs—on our receiver is most praiseworthy.

The second feature which deserves comment is the selectivity control. When in the maximum position, the selectivity is certainly quite adequate for the most crowded of amateur bands and the system used gives an ideal range from phone conditions to CW working. The double superhet circuit has certainly resulted

in a receiver whose selectivity is well able to cope with the QRM on the lower frequency amateur bands. Briefly, the technical specification is as follows:—

A 6BA6 is used as the RF amplifier followed by a ECH42 as mixer, with a 6AM6 as oscillator, the signal frequency being converted to 1620 kcs. The frequency changer (1620 to 85 kcs is an ECH42. The 85 kcs IF is a 6BA6. 2nd Det., AGC and AF are provided by a 6AT6. A 6AL5 is used in the noise limiter and "S" meter circuits, with a N78 as output amplifier. BFO is a 6BA6 with 5Z4 rectifier and VR/150/30 completing the compliment of eleven valves.

The tuning range is in four bands: 32 to 12 Mcs; 12 to 4.5 Mcs; 4.5 to 1.7 Mcs and 1465 to 480 kcs.

Sensitivity is stated as being better than 5uV for a 20 db signal to noise ratio at all frequencies. Selectivity is variable from 30 to 60 db down for 5 kcs off resonance. The "drift" is stated by the makers to not exceed 300 cycles after 20 minutes warming up for a 5% change in mains voltage and it is our experience that this claim is well justified.

The dimensions of the receiver are 16½ ins. width, 10 ins. deep and 8½ ins. high. Weight 40 lbs. and current consumption 70 watts.

This is a really first class receiver, well suited to the needs of both the transmitting and the SW listening enthusiast, which we have no hesitation whatsoever in thoroughly recommending. List price in U.K. is £68 and the receiver is exempt from Purchase Tax. ●

GEC / MARCONI

Well – strike the GEC bit! There have been several items in the financial pages of the newspapers just lately which have speculated about changes at GEC / Marconi, especially with the merger between GEC and British Aerospace being finalised.

One recent item said that GEC had decided to sell off Marconi (much as they did with Eddystone) just as soon as the merger was complete.

A week later, possibly in answer to all the erroneous speculation, the GEC / Marconi Company themselves announced that in fact almost the opposite would be happening. The following is the article in its entirety.

“GEC to rename itself Marconi after Disposal

“One of the most famous names in British industrial history was reborn yesterday after GEC confirmed that it is to rename itself Marconi following the sale of its defence electronics business to British Aerospace.

The original Marconi Company was founded in 1897 in Chelmsford by Guglielmo Marconi, an immigrant from the Italian city of Bologna, to exploit his revolutionary concept of wireless telegraphy. The apparatus was first used to send telegrams and was also adopted by the Italian Navy.

Marconi wireless equipment was used to send distress calls from the Titanic and to detect Zeppelins, submarines, and ships during the First World War. Marconi Co;

became part of GEC in 1968 following the merger of GEC and English Electric. The new Marconi company will consist of three divisions – Communications, Systems, and GEC Capital – and will have sales of £3 billion. Provided GEC receives shareholders support, Marconi will be listed in the FTSE 100 Index by the end of this year.”

So we can look forward to a renewed use of the Marconi name, but some of the details in the above article have bothered me, was Wireless really used to detect submarines and ships in WW I? I was not aware of this myself. Can anybody fill me in on this, please? TED.

High Prices for Eddystones

Anthony tells me that he has recently monitored a super auction catalogue on the Internet for a firm which rejoices in the name of Dreweatt Neate. He says that there were some 200/300 radio lots on offer including the inevitable Eddystones. The prices realised for these latter were as follows:-

Scientific Four	£420
840A	£60
740	Not Sold
680	£60
958	£250
940	£175
EC10 Mk II	£90
s.688 speaker	£20
ditto + S meter	£35

Anthony comments that these were about as expected although he has no idea as to the condition of the various models.

.....continued >>>

X The idea of a Sci-4 being up for sale must interest many EUGers, wonder who got it? And is he an EUGer maybe ?

Anthony also mentions that he has finally tracked down an S.909 courtesy of the Swedish ARS, maybe we shall be hearing about this model if he gets the time to do an article. TED. (The article is already with Graeme and will be in next month's Newsletter.)

GEC Model BRT400 Rx


A letter from one non-member who has seen EUG on the Internet. He has a circa 1950s model of a GEC communications receiver BRT400. What he is asking is whether this has any Eddystone connections. Well I do not know the model first-hand but since it was designed and built in the mid 1940s and first marketed in 1947 I doubt very much that it has any Eddystone ancestry. I have written him to say this but if any EUGer can correct me I shall let him know. It did continue in manufacture until about 1968 and I know of a few still in use by SWLs. TED.

Phonetics

Dave writes in to comment on the antics of an Italian Amateur heard on 80 metres recently. The signal here in the UK was pretty strong and since the 'G' station at this end of the QSO was not fifty miles from Dave he cannot see the need for the following fancyful phonetics;

L for London, I for Istanbul, B for Bologna, Y for Yokohama, and A for America. This is all counter to the preferred Phonetic

Alphabet which chooses words that are easily discernible over noisy or weak circuits. What Dave wonders is whether all countries include knowledge of the preferred phonetic alphabet in their Amateur Radio Licence Examination ? I don't know Dave, but they ought to, and I have heard such as the above myself, and worse. TED. ●

EDDYSTONE SPARE PARTS AND USERS' HANDBOOKS

*Don't forget to order all the
above from*
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The Pre-History of Eddystone

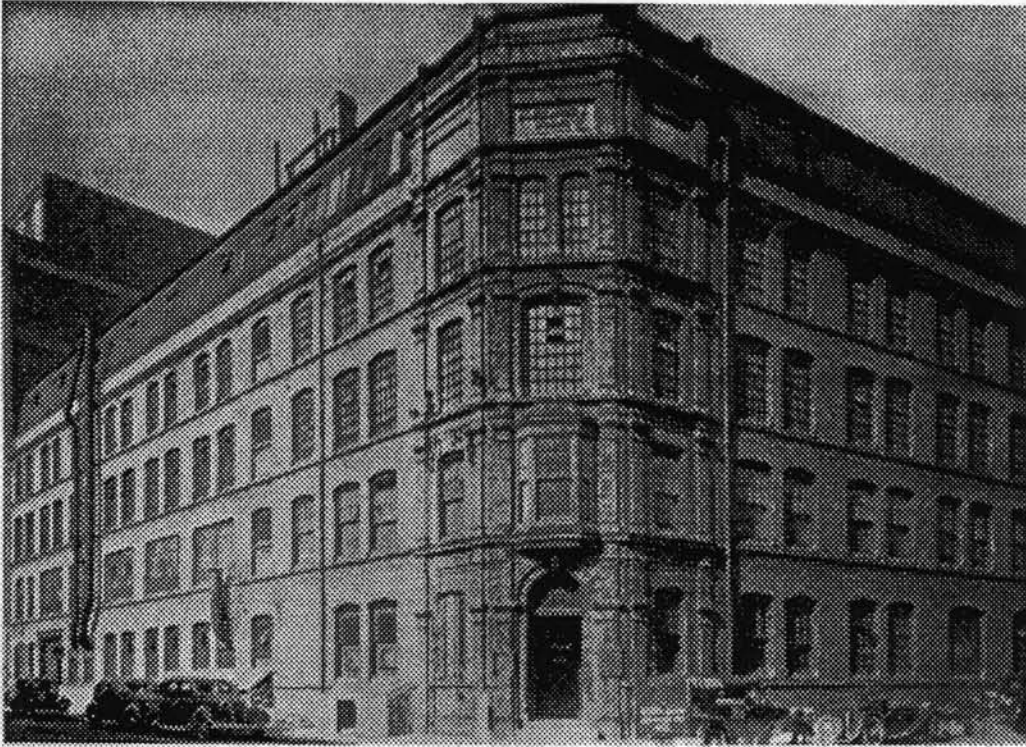
Last month we read how the 'new' town of Birmingham grew during the 18th and 19th centuries and how the small firm of Jarrett & Rainsford was joined by George A Laughton, the new teenage whizz-kid of the industry. In this episode we learn how G.A.L. (as he was always called) first showed the entrepreneurial spirit which later was to change the face of Short Wave Radio . . .

IN 1909 J & R ACQUIRED a substantial factory building in central Birmingham. Alexandra Works in Kent Street, near the market area of the city, was a five-floor building of 45,000 sq. ft. It was purchased for the sum of £5,751 and another £2,000 was spent on increasing the floor space to 60,000 sq. ft., a cost of about 3s. 4d. (16p) per sq.ft.

THE YEAR 1911 saw the Coronation of King George the Fifth and G.A.L. was running a small section of Jarrett & Rainsfords, selling coronation badges, flags and so on. Certain component parts were made by a man called Carter who had a small workshop in the city. But he liked his ale too much and the business was on the skids; deliveries were erratic.

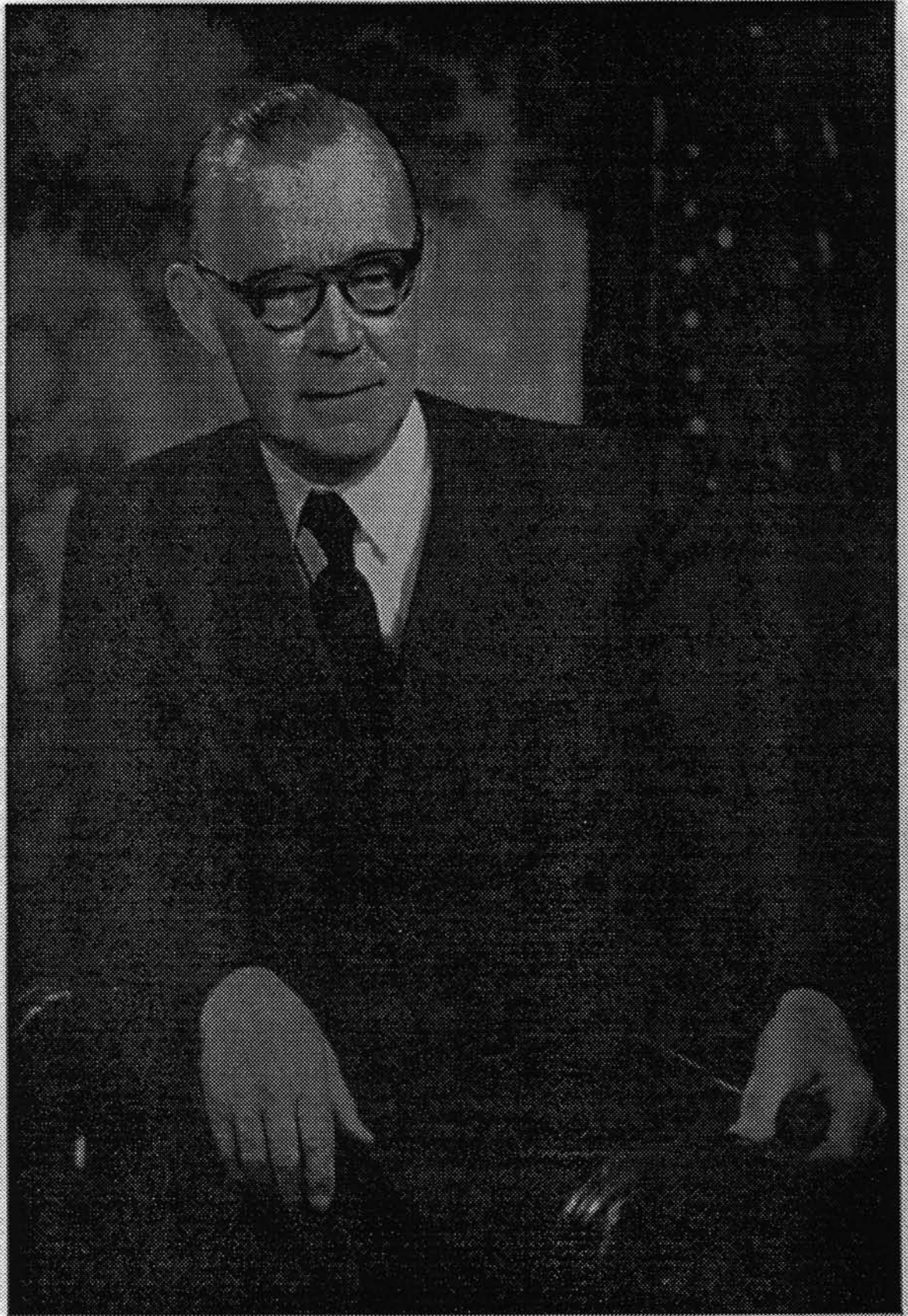
ONE SATURDAY MORNING he came to J & R and said he'd no money to pay his workforce, which consisted of two girls, and that he was going to close down. But he offered to sell his hand-presses for £50 and then work for 50s. (£2.50) per week. G.A.Laughton went to visit his works - a small workshop up a rickety staircase. The plant consisted of four hand-presses, a few tools, some benches; and he had two girls working on the presses, plus his own labour.

BEING DESPERATELY IN NEED of the goods G.A.L. decided to buy the firm himself, and gave it the name of "Stratton" - it was the name of the hero from his wife's favourite novel and had already been used to Christen their eldest son - George Stratton Laughton! It was a modest beginning for what was to become one of the most famous names in British short wave radio. Four hand-presses, two poor girls, and a drunken toolmaker! (And he only lasted a fortnight before he went on the spree and got the order of the boot.) G.A.L. was 29 years old when he was elected a Director of Jarrett and Rainsford in 1912. He remained on the board as Director, then Managing Director, then Chairman of the Company until his death in 1963.



ALEXANDRA WORKS, 60,000 square feet
Before and after the Blitz, November 19th, 1940.
(Note hole in water tank at top right in ruins of Globe Works, seen in background.)





Portrait by BARON

GEORGE A. LAUGHTON
Chairman

MEANWHILE, BEFORE THE GREAT WAR, the Stratton business had been developing the production of cheap jewellery. Imitation stones were imported from Bohemia (which later became Czecho-Slovakia) and mounted in Birmingham. In order to produce their own metal parts Stratton's installed the first automatic stamps to be used in the jewellery trade in Birmingham.

BETWEEN 1910 & 1914 G.A.L. made many buying trips to the Continent, especially to Germany where power machinery was outstripping that back home in Britain. He recalled that amongst his many German business friends their only failing was their inability to see a joke. He recalled that on one of his visits he arrived at a German railway station where a stop was made for refreshment. Seeing a man in a black suit taking a plate of sandwiches to a lady he assumed he was a waiter. "Bringen Sie mir etwas Schinkenbrot, bitte" he called out in his best Brummy German ("Please bring me a ham sandwich"). The resulting tirade from what turned out to be a respectable German businessman caused G.A.L. to beat a hasty retreat . . .

BUSINESS AS USUAL. England started the 1914 war with this slogan and Stratton's business boomed. The supply of cheap jewellery from the Continent dried up and the firm made a killing, but the war went on, and on . . . The manufacture of luxury goods was curtailed and Stratton's plant was turned to the war effort. First and foremost they made chamfered duralumin washers for the aircraft industry. The famous S.E.5 (the 'Spitfire' of the first war) was mainly made of hardwood fastened together with steel bolts and dural washers. The chamfer of this washer was originally turned off in a lathe but Stratton's, with their automatic stamps could produce a better and stronger article much faster and at a lower price.

AFTER THE WAR Stratton's continued to use this new, hard alloy of aluminium for peaceful purposes. Knitting needles, thimbles, hatpins and crochet hooks. Germany & Austria were out of the market and the world-wide demand for manufactured goods caused a boom in Birmingham. Many of the smaller companies were combining to pool resources and reduce overheads. Jarrett & Rainsford were no exception and in 1920 the firm purchased Stratton & Co from G.A.L. and changed their name to Jarrett, Rainsford & Laughton, or J. R. & L. for short. In this booming time of ladies' long hair (only trimmed, never cut) the Company was producing six tons of hairpins *A WEEK*. How many packets would that be?

Next month we shall hear about the strange quirk of fashion which brought about the birth of our favourite shortwave wireless sets.

AF Stage Coupling Condensers

A recent letter from one EUGer says that more should be printed about the problems caused by faulty (leaky or s/c) coupling condensers between the output of the audio driver amplifier stage and the grid of the audio output valve. He has cause for complaint here since he has had to replace both a 6V6 and the associated output transformer. The former had gone low emission after just a few months of use and the latter had gone open circuit primary due to the extra heavy anode current being drawn by the 6V6. The offending item was a 'paper' type condenser which coupled the audio signal from the driver to the grid of the output 6V6. It was reading almost a complete short when tested on the ohms range of an AVO 7, thus the 6V6 would have been drawing far too much current. He decided to replace the kathode bias resistor also since it showed signs of overheating although was still just about within tolerance.

What is important to note here is that the coupling condenser used here ought NOT to be a 'paper' type. Either a good mica, ceramic or polystyreen type is preferable. Thanks Joe. Ted.



Audible Raindrops ?

Here we have one of the effects of the long hot summer, followed by the inevitable rain. This correspondent had erected a long, long wire during the fine weather, this to replace his rather badly corroded folded dipole. He had been feeding the new wire directly to the input of his EC10 MkII.

The long wire comes in at the top of the chimney level and then has a direct vertical drop of some 20 feet to his shack, thence into the aerial socket of his receiver. The first heavy rains brought horrendous static of the 'machine gun' variety on all bands and the set was switched off, for later examination of the cause of the phenomenon. When next he powered up his EC10 II he got ZILCH out of it, volts okay on the pcb, audio okay from the AF input but not a peep from the RF end.

It took some head scratching and many meter checks but he eventually came up with the answer, a dud transistor in the first RF stage. When removed and checked it was short circuit through all four legs! Obviously static damage.

Despite having had the EC10 II for a number of years it had always in the past been used via the ATU to match it to the doublet aerial, the ATU contains a static discharge resistor across its input.

Shutting the stable door may be an appropriate phrase but he has now coupled the long wire to his repaired receiver via the old ATU and has a good outside earth connection too! Ted.

More Letters From Ted's Mailbox

RUBBER FEET

X Alan says that having replaced the operating table in his shack he found that both his 830 and his 840C caused marks on the surface. Before this became too noticeable he purchased some of those stick-on rubber feet and fitted them to both receivers. Problem solved! And all for 60 pence. He suggests that the chosen rubber feet should be thick enough to lift the receiver up by about a centimetre so as to clear the metal 'bumps'. - Ted.

MULTITONE ELECTRIC CO.

This from Anthony on behalf of a Swedish enthusiast. Can any EUGer please provide information on the Type TA38 transmitter which is a crystal controlled model covering 3 to 4 mc/s with an output of approximately 5 watts. Please, if you know anything let one of us know so that the info can be passed back to Sweden. Thanks.

MODEL 31A NOISE RECEIVER

Having spotted this in the Index update, George is wondering whether there was a Model 31? Was the 'A' version the P.O. model or what?

The first version of this VHF noise measuring, and locating, receiver was to a Post Office specification and this was the 31A, there never

was a '31'. Then along came the Eddystone version, which was the 31A/1. Eddystone realised that having produced the original for the P.O. they had a model which could be marketed to other customers. Okay? - Ted.

S.730 VARIANT

Mention in the last Issue of a crystal controlled variant of the 680X has caused Jim to write in re his 730/6 which also has a switched crystal facility. This set is in a very light grey colour and not the dark grey used on his 730/1A. Jim has no background information on either of these and would appreciate some indication as to which service used these two variants. Thanks. - Ted.

DIFFERENT COLOURED 830s

Steve has two 830s and both are the /7 version, okay so far BUT one is light grey and the other is dark grey. The light one has a knob on the selectivity control and the dark grey has a chromed lever for selectivity control.

Again, Steve is asking whether any EUGers can help him find out which services or government depts used these sets? If anybody can help then please do let me know so that the info can be passed on via your Newsletter, not just for Steve but for everybody. - Ted. (more over >>)

Ted's Mailbox – Continued . . .

THANKS, FROM JIM

When Jim asked in the last Issue for help with his EC958 cursor adjustment he hardly expected the overwhelming response that he got. Sam Rees was one EUGer who jumped in answer to the Mayday call.

Starting from a long phone call Sam then stripped the relevant mechanism on his own 958 in order to elucidate the workings of the drive adjustment. He followed this up with a letter containing all of the necessary info AND drawings of the cursor adjuster.

As I had thought, there is no friction pad fitted. Jim has now corrected the fitting on his own 958 and has a working cursor adjustment.

Jim wants his sincere thanks sent out to all those who rang with suggestions and he mentions specifically Sam Rees GW0NLB, Terry Parker G4NXN, Alf Jennings, and Ron Drew G8URU. Jim comments: "What a great bunch EUGers are!"



PRE-PRODUCTION S.640 ?

This letter from the U.S. of A. mentions that Stewart has purchased an S.640 in apparently GWO for the sum of \$20. It was bought at what is the U.S. equivalent of a car boot sale. What intrigues me is that this set has just the serial number 016 with no Year/Month letters. Now then, when this model first appeared the Company sent a first pre-production batch to certain amateurs around the world asking for their reports on the receiver. Can this be one of those first 640s? can anybody out there please help with this? Does anybody know of other 640s without Year/Month letters? Help !!
Ted.



***DON'T FORGET, KEEP
THE QUESTIONS AND
ANSWERS COMING TO
TED'S MAILBOX:-***

***C/o Jim Murphy
63 Wrose Road
BRADFORD
BD2 1LN***

Featured Model

The EDDYSTONE 1650

Recent EUG Newsletters have raised the controversy of a 'cutoff' date. This referred both to the supply of knowledge (from your compilers) and the supply of literature (from David Simmons, our archivist). The reason, of course, is the complexity of most solid state models and the enormity of their service manuals!

EDDYSTONE'S FIRST MICROPROCESSOR

The question was triggered by enquiries about ex-Ministry examples of the 1650, recently disposed of. This model, developed in the early 'eighties, was Eddystone Radio's first venture into a microprocessor-controlled receiver and it ran to at least 12 variants. It featured in our 'de-luxe' give-away leaflet the Christmas before last. And, to judge by our Patron's 'Frontis', it will feature in a future thrilling story of adventure and disaster in these annals!

A LUCKY FIND

But of special interest to our more 'advanced' members is the discovery that a mere 12 years ago the 1650 was reviewed in Ham Radio Today magazine by Chris Lorek, G4HCL. It's most unusual for a professional set to be featured in this way in a radio hobbies magazine and we thought it worthy of reproducing here in our newsletter. As most of you will be aware, HRT was acquired by the Radio Society of Great Britain a couple of years back. They dropped the 'Ham' from the title (the RSGB were never very keen on this American epithet) and it is now their High Street shop window as 'Radio Today'.

COPYRIGHT CLEARANCE

A suitably polite letter was whizzed off to Steve Telenius-Lowe, G4JVG, Editor of Radio Today, requesting clearance to present the feature to our Members. Back came the answer 'Only too pleased to oblige', so with grateful thanks to Steve and copyright acknowledgements to RSGB Publications, we present:

"JOIN THE PROFESSIONALS"

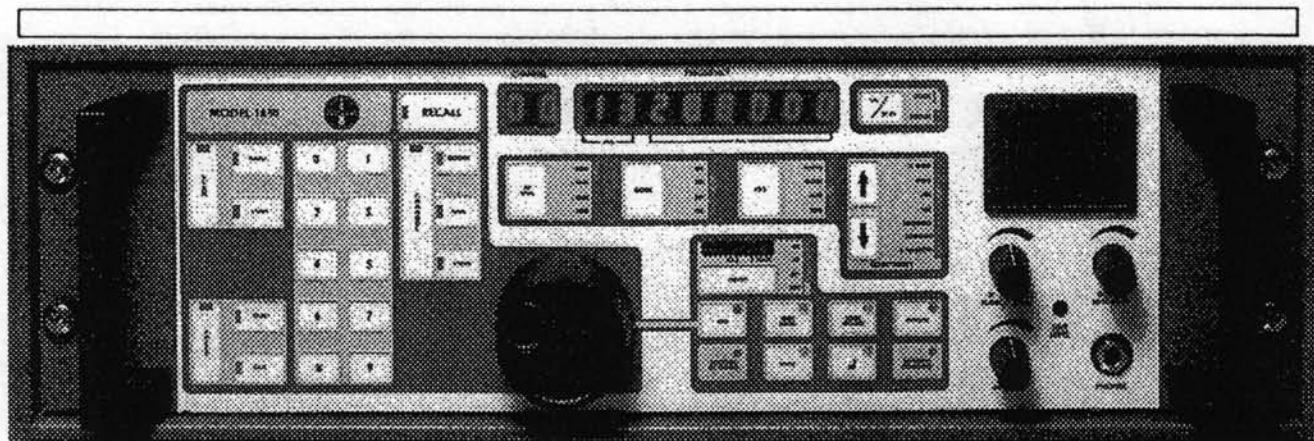
'How Good are High Grade Receivers?'
from 'Ham Radio Today' for August 1987

Just keep on turning the pages . . .

© RSGB Publications

EDDYSTONE 1650

REVIEW



The Eddystone 1650 receiver.

Super rig and super price, but just what do professional users get for their money in the 'ultimate rig' market? Chris Lorek, G4HCL, casts an envious eye over the new Eddystone 1650 receiver

OK, you've now had your HF station set up for a while, complete with the 'ultimate' in amateur gear and the associated 'ultimate' aerial array. Certificates are starting to adorn your shack wall. Either as a transmitting amateur or primarily as a listening station, you feel that you could go just that bit better, a larger aerial will put a better radiated signal out but unless you go to the extent of something like a huge rotatable log periodic array you'll probably just end up putting more attenuation in your receiver to counteract the never ending 'power struggle' on the HF bands. I sometimes sympathize with amateur QRP devotees in this ongoing power rat-race, as communications efficiency is often dependant upon extracting weak signals from the high power QRM, rather than the signal itself not getting there in the first place.

What's The Solution?

Rather than campaign for all the propaganda and other stations to reduce their power, the remedy can only lie in improving your receiver's

immunity to strong adjacent frequency signal reception. Advances in HF receiver technology have brought us transistors and IC's, the digital synthesiser, reliability, and an overall deterioration in strong signal handling, when compared to receivers of the 'good old days'! I recently visited the shack of a very experienced HF listener, equipped with all mod cons such as Data, TOR, Fax, and weather satellite reception facilities. His £900 latest all-singing Japanese receiver was placed to one side in favour of his veteran Eddystone valve receiver, simply because it pulled the signals out of the never ending QRM when the other failed.

CQ DX, CQ DX

If you're an LF/HF DXer, take a look at ON4UN's excellent book on 80m DXing, or W9KNI's 'The Complete DXer', and see what the leading DX stations use. You won't find the latest transceivers, in fact you won't find *any* transceivers, as they use separate receivers, of the 'classic' makes not originating from the land of the rising sun.

Eddystone's latest offering, that may be of interest to the amateur wanting the best of everything, is the Model 1650 receiver covering 10kHz to 30MHz. As would be expected, the price tag of just over £3000 plus VAT reflects it's performance. Do you get what you pay for, or would you be better sticking with your trusty transceiver? It depends what you're after. If you're a casual listener, not too worried about reliable communication then it may be *too* good, if however you wish to be able to receive signals where all others fail then read on to see what it can offer. Alternatively you might, like me, just like to see what you can't afford!

Features

The receiver offers complete coverage of 10kHz to 30MHz in 5Hz increments, the frequency control being commanded by direct key entry, tuning knob, or remotely from a computer. AM, USB, LSB CW modes are selectable, together with bandwidth, AGC, RF sensitivity and BFO injection frequency. FSK or NBFM operation is available as an option if required. 99 memories are available each storing any combination of the above together with the reception frequency. Memories may be independantly selected or may be scanned with a user selected scanning rate of 1 to 99 seconds reception time per channel. A sweep mode is also available, where the receiver automatically tunes bet-

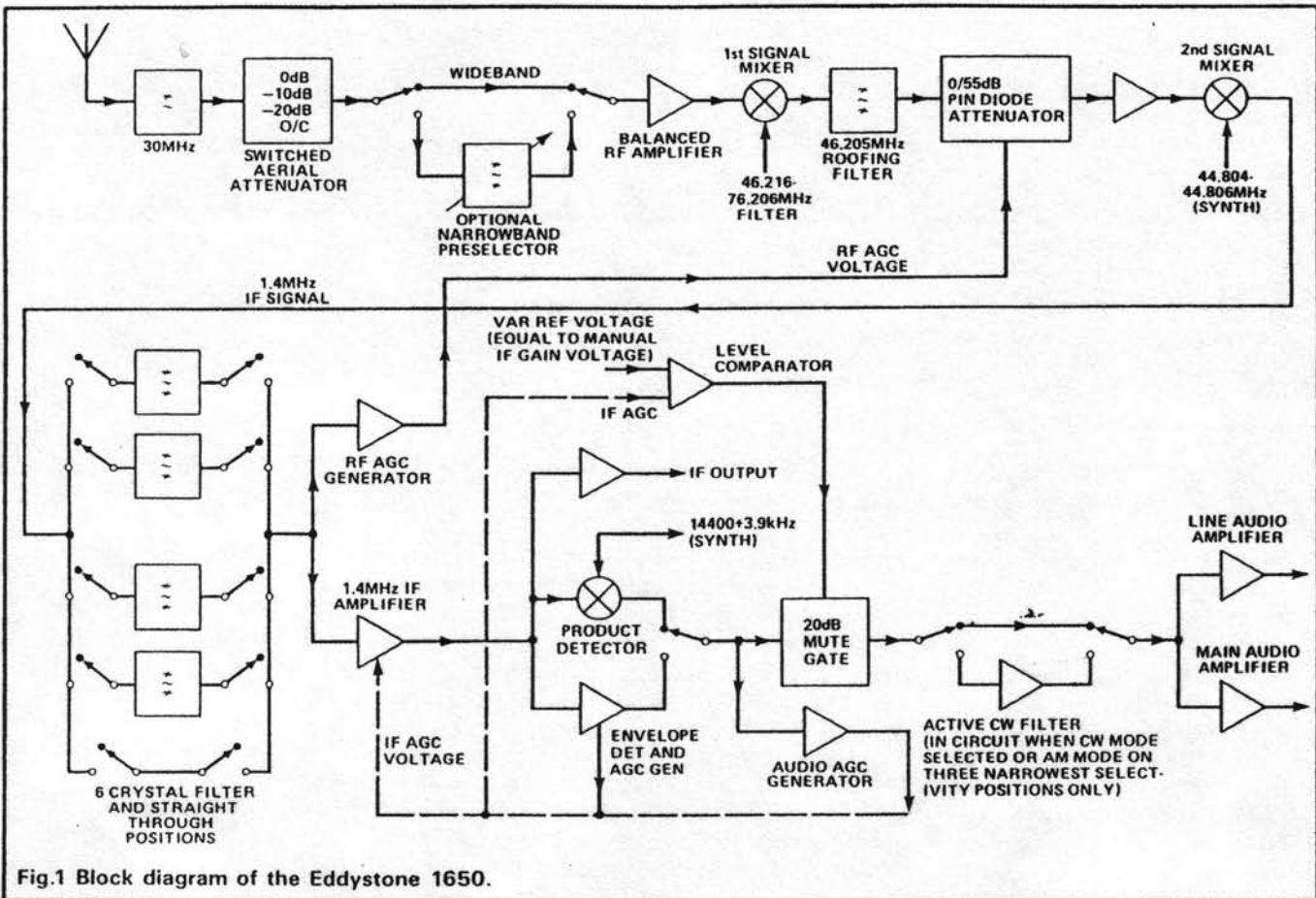


Fig.1 Block diagram of the Eddystone 1650.

between the frequencies stored in two sequential memories, the sweep rate being adjustable from 1kHz to 29kHz per second. All front panel controls are fitted on a sealed membrane panel, with a switchable tone bleep signifying each correct control entry.

Six receive bandwidths are available, these being Very Narrow (400Hz), Narrow (1kHz), Intermediate (3kHz), SSB (2.4kHz), Wide (8kHz), and Very Wide (14kHz), using individual crystal filters for the narrow modes together with a roofing filter used in the Very Wide position. The AGC may be switched to operate on audio level, on RF level (with fast or slow decay) or may be switched off altogether and the overall gain manually controlled with the IF gain control. When AGC is used, the IF gain control functions as an audio mute, similar to a carrier-operated variable squelch, giving a 20dB reduction in audio output when muted, this control being enabled by a front panel mounted push button. An RF attenuator of 10dB and 20dB may be switched in if required, and a 'MIN' sensitivity position disconnects the aerial input

via an internal relay. A 10-segment LED bargraph indicator provides a meter function of signal strength, audio output line level, or signal centre zero.

The optional front end pre-selector (more of this later) may be switched in or out as required by a further push button, other controls allow CW/FSK BFO injection frequency variation between ± 3.9 kHz, loudspeaker on/off, display dimming down to zero, meter function, remote control, and keyboard tone on/off. A preset line level control allows adjustment of the 600ohm audio output level from zero to 30mW. Besides this output, a small front panel mounted loudspeaker may be used, or mono headphones via the adjacent jack socket.

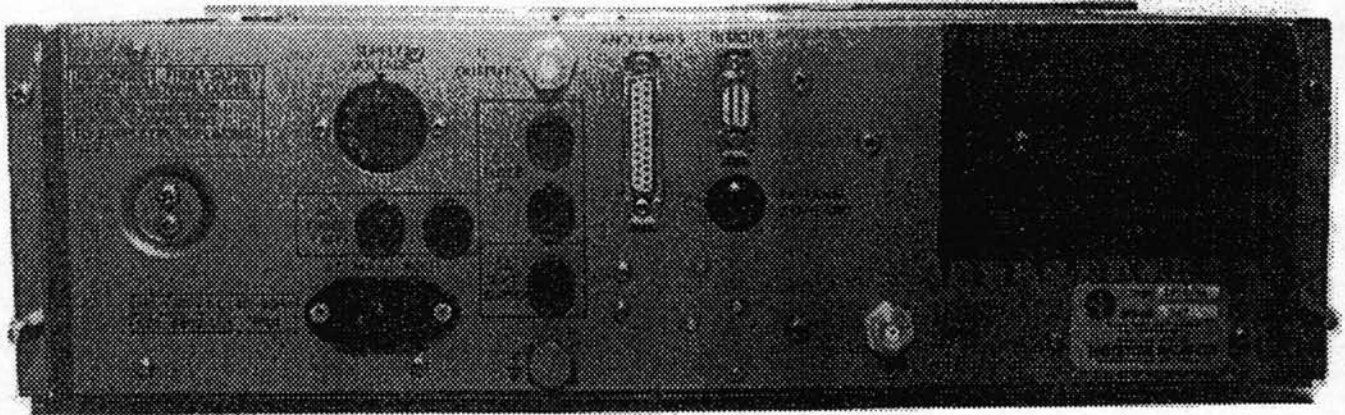
The receiver can be mounted in a standard 19 inch rack, or may be supplied in a case suitable for desk or benchtop use. The dimensions of the rackmount version (as supplied for review) are 133mm(H) \times 500mm(D) \times 483mm(W), the set weighs approximately 19kg. The benchtop version is 164mm(H) \times 560mm(D) \times 502mm(W) and

weighing in at around 23kg. A very comprehensive manual is supplied with the receiver, giving full operation and servicing information. Power requirements are standard mains AC or 24V DC, the latter being automatically enabled if the mains supply fails.

Remote Control

A rear panel mounted 9 pin D connector allows full remote control using serial asynchronous data at 1200 baud, which allows operation and interrogation of all functions apart from loudspeaker monitoring, display intensity, line output level and 'standby' switching. Manual IF gain/mute level and meter outputs are available as analogue levels. A 25 way D connector on the rear gives loudspeaker and 600 ohm audio outputs, and inputs for sidetone, RF and AF mute, IF desense, and ground connections. A large earth tag is used for RF earthing, and BNC sockets are used for aerial input and 1.4MHz receiver IF output.

The entire receiver could be remotely mounted and possibly a control unit built and linked to a



Rear panel connections on the 1650.

home computer, to provide greater flexibility if required. A complete matching remote control panel for the receiver is available from Eddystone if required.

Circuitry

The accompanying block diagram shows that a conventional approach has been used in the lineup, however it's the details that count of course and one can be confident in the knowledge that good design techniques have been used.

The aerial signal is passed via a 30MHz Low Pass Filter and switched attenuator to an optional narrow-band preselector, which was fitted to the review model. The preselector consists of eight bandpass tuned circuits used between 150kHz-30MHz, together with a fixed low pass filter below 150kHz. A novel feature is that the relevant circuit is automatically tuned, under synthesiser control, to precise resonance by using a motor driven airspaced variable capacitor gang! The output from the preselector (or attenuator if bypassed) is passed to a balanced RF amplifier using a pair of 'beefy' BFW30 transistors having a flat response from 100kHz to 30MHz, with negative feedback giving a gradual gain reduction below 100kHz. Differential outputs from this stage drive an SL6440C high level double-balanced mixer, where the resultant 46.205MHz IF signal is passed through a 16kHz roofing filter.

Up to 55dB of RF AGC is achieved from a double bridged 'T' pin diode attenuator, following which a BFX89 first IF Amp stage feeds a further SL6640C mixer to provide the second IF of 1.4MHz.

Here one of six crystals filters are used to provide narrow selectivity, however in the 'very wide' position the signal is diverted straight through and the resultant selectivity is determined by the 46MHz roofing filter. The IF signal is then amplified by a pair of MC1350P's and a BFR54, followed by an SL1625 envelope detector and SL1641 product detector.

Audio amplification follows, together with an audio CW filter peaking at 800-1000Hz placed in circuit whenever CW mode is selected, or when AM together with the three narrowest selectivity positions are used. 1W of loudspeaker audio is generated by a TBA810S IC, together with an SL1621 which controls audio AGC when selected.

Local oscillator injection is generated by a dual 40673 FET oscillator with reed relay switched tuned circuits, feeding an SP8690B prescaler and HEF4751 programmable divider. The HEF4750 phase comparator employs both analogue and digital phase comparators to give the best possible noise performance; an oven controlled crystal standard provides an accurate frequency reference for the synthesiser. A 6802P microprocessor and peripheral components perform all the 'housekeeping' functions and a lithium battery provides memory backup in the absence of power.

Impressions

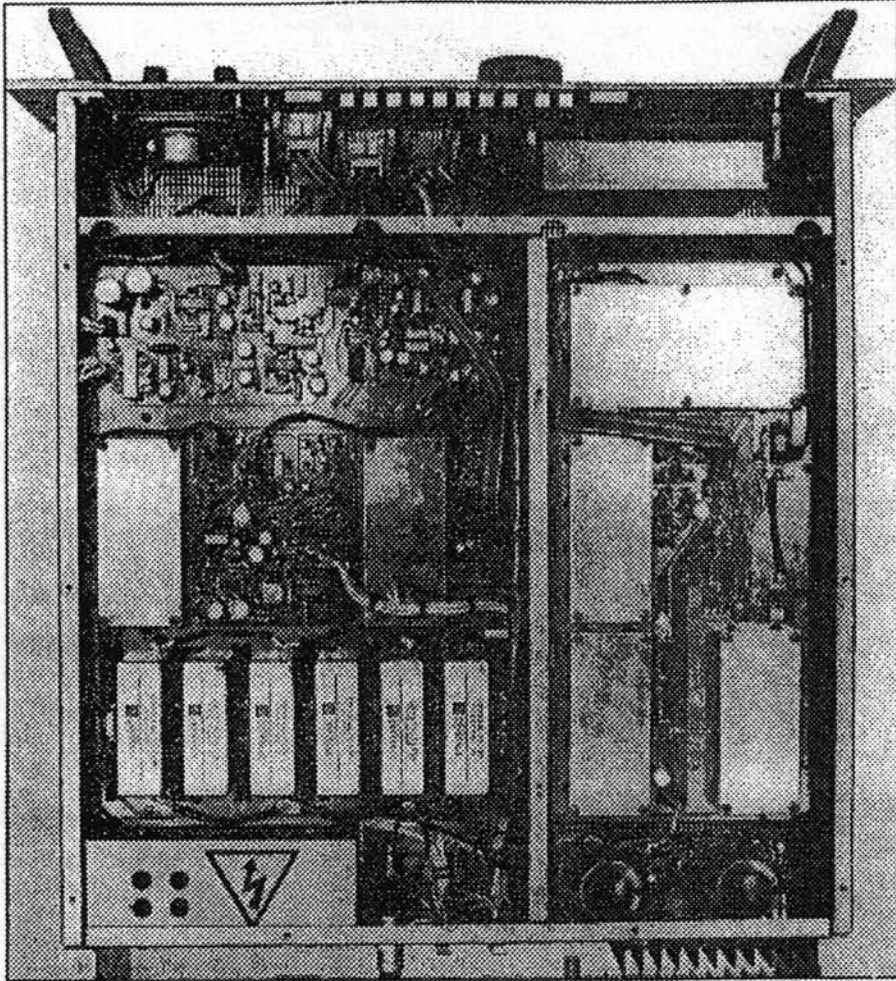
A common complaint of several modern receivers is the use of switched input tuned circuits with each one covering an octave or so of frequency rather than a continually tuned preselector control. Using varicap diodes in a receiver front end to perform a tuning function can

often introduce mixing problems between strong signals; in the 'old days' one had a mechanically tuned preselector control which overcame this — but at the expense of control flexibility. Eddystone have performed this function with a motor driven unit inside the receiver, all done automatically when you type the frequency in, very nice indeed!

The ability to store every required parameter in memory for manual selection, as well as the ability to control virtually everything remotely from a computer offers a great deal for those who want everything at their fingertips. However for manual use I took a great dislike to the membrane keypad which despite their advantages, I find difficult to use. In speaking with other amateurs and computer users I find that I'm certainly not alone in my thinking. The set was of course designed with professional users in mind and built to withstand tough treatment, so at least it should carry on working if I spill my coffee on it!

On the air

I coupled the receiver up to my LF/HF trap dipole and rotary HF beam system, using a multiway coax switch which also served my FRG7700M receiver and FT107M transceiver for comparison purposes. My thoughts about the membrane panel were confirmed when I started to use the receiver and I found it annoying when entering commands. This aside, I loaded the memories with my favourite frequencies and started listening. The result, pure bliss! Gone were the 'burbling' noises in the background of weak signals caused by internal mixing products. Tuning across strong broadcast stations in



Internal view from above.

particular showed a remarkable degree of rejection of unwanted adjacent signals and the stations literally came and went as I tuned, rather than sensing there was a strong signal coming up through limitations in receiver selectivity. Very nice indeed. Listening to 80m and 40m DX at night was limited only by splatter from other stations rather than blocking problems whilst switching between my general coverage RX and the Eddystone showed that there was no contest whatsoever. I could find no hint of reciprocal mixing caused by synthesiser phase noise, which is often the limiting factor in selectivity in modern receivers no matter how good their crystal filters are.

Operationally, I found the mute facility useful in monitoring a frequency, but I was rather annoyed at the scanning mode not being able to be quickly stopped on reception of a wanted signal even though it lifted the mute (see later). In the end, I set the scanning rate to 99 seconds and manually altered the scanned chan-

nel 'start' frequency with the main tuning knob, hence providing a more convenient memory search. I did notice that on scanning, there was sometimes a pause of a couple of seconds before full sensitivity occurred, no matter what delay time the AGC was set to. Full sensitivity then appeared following a quiet electrical 'crackle' from the speaker. At first I thought a fault was present, but upon further investigation I found this to be due to the pre-selector motor doing its job in tuning the variable capacitor bank! Searching for signals with the receiver switched to 'Wideband' mode allowed rapid operation of course. Using the main tuning knob provided a smooth tuning rate whilst spinning the knob quickly increased the tune rate, allowing a fast QSY as an alternative to the membrane keypad.

The small internal speaker was simply not man enough for main station use, being very inefficient and limited in frequency range, an external speaker is available of course and would normally be used.

I found the RF AGC sometimes showed a limited attack time, giving a slight burst of distortion at the beginning of SSB speech syllables or bursts of CW and I tended to prefer the audio derived AGC which did not suffer from this. The latter has a fixed 'hang' time of a few seconds, after which the sensitivity increases very quickly. Some operators prefer this while others detest it, but at least in this receiver you do have a choice between the two.

Laboratory Tests

In a single sentence, the lab results were excellent. Where the dynamic range exceeded 110dB (as it often did). I considered absolute measurements totally hypercritical, one must stop somewhere! In measuring the excellent selectivity, the receiver totally outperformed most modern signal generators. Transistor oscillators were useless for measurement sources so I eventually had to use a valve oscillator in a high-Q resonant cavity at 10.7MHz with a cavity attenuator and in-line matched crystal filter. Using this setup, I managed to measure a better skirt selectivity than Eddystone claims as typical in each case, due to the low level of generator induced noise apparently widening the real selectivity performance. Of note is the very good shape factor of 1.3 in the 'Wide' position, as would be used for AM reception, and 1.4 in the SSB positions. The crystal filter bank comprises a large part of the final cost of this receiver and it is good to see that sensible synthesiser design has been used to get the best out of it.

Forthcoming Facelift

In communication with Eddystone regarding the scanning limitations, it appears that a slightly improved version of this receiver in terms of operational flexibility will shortly be available. Apart from a built-in self-check facility, the scan will be automatically halted on occupied channels with variable 'hold' and 'dwell' times. The sweep tuning step rate, together with the manual rotary tuning step rate, will also be variable between 10Hz and 99.99kHz. Four independently selectable aerial connections are catered for and the memory channels also offer a storage facility for these. I'm

told there is little difference in price as well!

Conclusions

If all the above has left you drooling, then make sure you've got a sympathetic bank manager! It is not a cheap receiver for the average amateur. However, if you take a

typical Eddystone receiver from years gone by and translate its price into real terms today, you'll not find much difference. HF amateur transceivers can now cost over £2,000 so it makes you think doesn't it? For me, I'll stick to my inferior transceiver, not being such an HF devotee as many others, but it's nice to see what we're missing. For the enthus-

asts who can afford it, it'll mean those few extra DX contacts in their logs, and the realization that 'this is the best.'

My thanks go to Lowe Electronics, UK Eddystone Distributors, for the loan of the receiver and to Chris Pettitt and Roger Sutton of Eddystone Radio Ltd.

Laboratory Results

Overall Bandwidth: Measured at 10.7MHz.

Filter b/w	-3dB	-6dB	-60dB
V. Wide	15.99kHz	16.53kHz	29.21
Wide	8.14	8.62	11.24
USB	2.25	2.50	3.47
LSB	2.19	2.41	3.28
Intermed	3.22	3.49	5.08
Narrow	1.19	1.23	2.13
V. Narrow	0.54	0.60	2.06

Sensitivity: Input level in μV p.d. at 50 ohm 50239 connection giving 12dB SINAD.

FREQ (MHz)	SSB 'USB' b/w	AM (30% mod) 'Wide' b/w
0.500	0.48	2.9
1.0	0.53	2.7
2.0	0.57	3.5
4.0	0.97	5.3
6.0	0.68	4.3
8.0	0.67	4.2
10.0	0.58	3.1
12.0	0.49	3.0
14.0	0.52	2.9
16.0	0.57	3.2
18.0	0.65	4.1
20.0	0.65	3.9
22.0	0.71	3.6
24.0	0.66	4.1
26.0	0.65	4.7
28.0	0.72	4.8
30.0	0.86	4.9

5 Meter Readout: 'RF2' Measured at 14.25 MHz.

LED Segments	Signal Level
1	0.92 μV pd 0dB ref
2	0.98 +0.5dB
3	1.05 +1.1
4	1.29 +2.9
5	1.60 +4.8
6	2.28 +7.9
7	27.0 and above +29.3

Intermodulation Rejection: Level of two signals, separated by +100kHz and +200kHz, required to cause 12dB SINAD on-channel signal, measured using SSB and USB RX bandwidth.

RX Freq (MHz)	Interfering Signal Level
2.0	20.2mV pd 91.0dB
7.0	27.1 92.3
15.0	18.8 90.5
28.0	19.2 88.5

NB: 'RF1', when selected, commences strong signal display at signal levels above 500 μV pd.

Blocking Rejection: Level of unmodulated interfering carrier required to cause degradation of 12dB SINAD on-channel signal to 6dB SINAD, measured using SSB and USB RX bandwidth.

RX Freq (MHz)	Interfering signal separation		
	+100kHz	+1MHz	+10MHz
2.0	>0.3V pd >110dB	>0.3V pd >110dB	>0.3V pd >110dB
7.0	>0.3V pd >110dB	>0.3V pd >110dB	>0.3V pd >110dB
15.0	71mV pd 102dB	0.18V pd 110dB	>0.3V >110dB
28.0	0.16V pd 107dB	>0.3V pd >110dB	>0.3V pd >110dB

Image Rejection: Level of signal separated by (2 x 46 205MHz) to cause 12 dB SINAD on-channel signal, measured using SSB and USB RX bandwidth.

RX Freq (MHz)	Interfering Signal Level
2.0 MHz	>0.3V pd >110dB
7.0	>0.3V >110
15.0	>0.3V >110
28.0	160mV >107

Attenuator Performance: Measured at 14.25MHz.

Setting	Measured
10dB	10.5dB
20dB	20.5dB
Min	51.0dB



940 MYSTERY FAULT

This is a fault described by Peter, who had an annoying problem with his 940.

It would play happily for hours or even days without any manifestation of the fault condition and then, suddenly, the volume would increase for a period of several minutes, or sometimes longer. The problem appeared to be somewhere within the AVC circuitry and the one clue was that it was possible to simulate the fault condition by operating the AVC switch.

On several occasions the receiver was open on the bench, but of course Murphy's Law saw to it that the problem did not occur at these times. A thorough check was made of all of the components associated with the AVC circuit, however if you have ever had problems with intermittent faults you will recognise that this kind of checking rarely locates the culprit.

FINALLY, it was decided to leave the 940 running on the workbench until such time as the fault condition DID occur. After putting the 'beast' on the bench, and before firing it up, a further check was made of the AVC circuit with a test meter. BINGO ! This was Peter's lucky day. There was a definite short to ground, measured at the junction of R31 and R34 at both positions of the AVC switch. These two resistors and the ceramic bypass condenser, are terminated on a small stand-off insulator. Attention was now centered upon the fine co-axial cable connecting them to the 6AL5 wiring. The use of co-ax on a solidly by-passed DC lead is a bit over-cautious in Peter's opinion, but it does no harm. (Eddystone must have had their reasons for almost always doing this – Ted.) the soldering was a bit untidy, and he was looking for a mis-placed strand of shielding when he realised that there could well be another offender. Sure enough – there was.

As is frequently the case with Eddystone receivers, the connection between the mixer anode and the first IFT is by means of a heavy insulated co-axial cable. In this 940 the cable was hard up against the stand-off insulator and the sharp end of one of the resistor leads was sufficiently long to have penetrated the insulation and make occasional contact with the co-ax braid. The co-ax was slightly repositioned and the fault condition was cleared. Peter is confident that another Eddystone problem has been laid to rest. As he says, faults are always simple in retrospect.

WHAT?

FREQUENCY DRIFT

After several weeks of putting up with a steady drift on his EB37, eventually so bad that it was quite evident on Radio Four Long Wave transmissions, Alan got down to tracing the source of his receiver problem.

The first check was to try it running on batteries using the battery box in lieu of the PSU. No difference at all here, it still drifted badly. Then a DVM was used to measure the output from the mains PSU both on and off load. With the receiver switched off there was just 9.5 volts coming from the PSU, when the EB37 was turned on this went down to a steady, perfectly steady, 8 volts. But it is known that metal rectifiers such as this one do go high resistance with age. There was no change in this on-load voltage as the receiver signal drifted off frequency !

Having opened up the receiver, Alan's first job was to 'chop' the fourth leg of the 'tincan' type trannies, having been told that these became leaky and took more current as they grew those mysterious internal whiskers. This changed nothing as regards the drifting problem but the set was now noticeably more perky on all ranges. Where the volume control had formerly been about two-thirds up for listening on Radio 4 LW it was now down to less than half-way, about 11 o'clock in fact.

So where was the drift coming from ? Next stop was to check the 'zenered' 6 volts supplied to the oscillator stage.

This supposedly 6 volts supply was in fact just about 4.4 volts at switch-on and it slowly dropped down to 3.2 volts over a one hour listening period. The stable 6 volt supply is derived from a 6 volt zener diode fed by a series resistor, which measured only slightly above tolerance and maintained this resistance. What was changing then to cause the dropping voltage and the ensuing drift in frequency ?

The 6 volt zener diode was removed and a modern, replacement zener of 6 volts rating was soldered into place. The EB37 was powered up again and – Success, No More Drift !

A test circuit was made up from a series resistor and a bench PSU giving a steady 9 volts. The original zener was soldered in this test circuit and a DVM put directly across it; a 680 ohm resistor was also included across the DVM to act as a dummy load. Sure enough the voltage across the zener began to drift lower as soon as the bench supply was switched on. So what was happening here inside the old zener ? Checking it on the ohms range showed that after the first few seconds with an applied voltage the diode became leaky, losing not only its rectifying ability but also its zenering ability. Another one for the bin.

After several days of continuous running the EB37 was still spot on frequency on the 10 Mc/s Standard Frequency Transmission, so now for many more years of pleasurable listening.

Alan.



AF DRIVER STAGES

Ivor mentions that with a lower than usual audio output on his 840A he did a few checks and found that the anode load resistor in the audio driver stage had gone 'almost infinitely high' so that he now had less than 3.7 volts on the anode as measured on a DVM.

The set DID work but gain was way down. He replaced the resistor and signals came back to normal strength. Grame did once have such a driver stage working with an open circuit anode load resistor !



Poo's Ponderings

'Stray thoughts from an absent mind!'
by Simon Robinson G8POO

First the *Good News* – we've gone to full colour on the front page. Now the *Bad News* – this is a special for the Millennium Edition of the Newsletter. After all most Eddystones are not that colourful in two tone grey. Over the past few months we've started to receive excellent contributions from many members for inclusion in the Newsletter. Keep it up guys, that's what a user group is all about.

Several members expressed an interest in the **Capacitor Reformer** and '**S**' **Meter** circuits published recently. We would welcome any feedback on either project if you have built one. If you are serious about preserving your collection the Capacitor Reformer is an absolute must. Since building the prototype a number of benefits have come to light. When reforming HT capacitors on Eddystones they almost immediately reform up to the usual HT voltage say 250V. The capacitors however have a maximum working voltage of say 350 or 450V in the main. It often takes several hours to reform them to these voltages.

They have essentially retained a 'memory' of the working voltage, which means they are always working at their limit. I have noticed my 'reformed' radios run cooler and drift far less. In addition the HT capacitors are now working well within their limits. It's true, honestly it is, why not give it a try?

Many people use a neon and series resistor, run from the receiver HT line to 'reform' capacitors. This is NOT enough as explained above; the capacitors only reach a reformed state up to the HT voltage.

Coil Box Cover Screws are almost always missing and virtually impossible to replace – until now! Farnell Electronic Components in Leeds carry a range of self-tapping screws, some of which fit perfectly. They are order code **517-173** for the short standard screw and **517-185** for the longer screw used where p-clips are also secured.

Over the last few issues Graeme has reprinted several receiver designs using Eddystone components and EF50 valves. It is sometimes difficult to find such items but DO keep your eyes open. I recently bought an old and modified Indicator Unit Type 62. It is full of new looking EF50's and associated silver plated bases and securing covers. There was also an HT power unit with it. The whole lot was purchased for the princely sum of £5-00.

"EDDYSTONE SPECIFIED"

A Series of Articles featuring Constructional Projects
In which the use of Eddystone Components is specified.

EDDYSTONE SHORT WAVE MANUAL

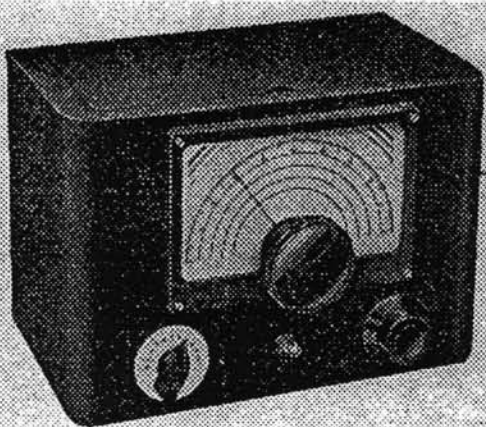
Short Wave Two Battery Receiver

This receiver has been designed to meet the need for a set of a moderately simple type, easy to build and relatively inexpensive. Excellent results are assured through the use of efficient circuits and modern valves, one acting as a sensitive detector and the other as high gain audio amplifier. The receiver is intended for battery operation from a 2 volt accumulator and a 120 volt H.T. battery, the current consumption, both L.T. and H.T. being low. It will bring in, on telephones, signals from all over the world and being physically small, it is equally suitable for use at home or for portable operation.

The use of plug-in coils enables a wide range of frequencies to be covered and the bandspread arrangement incorporated in the receiver will be found most effective, both for separating stations in the well occupied amateur bands, and for ease of tuning in weak short wave broadcast stations.

CIRCUIT.

The complete circuit diagram of the receiver is given in Fig. 1. The detector valve is an R.F. pentode, the Mullard KF35 being very suitable for the position. Two tuning condensers are used in parallel. The larger bandset condenser (C2) is mounted beneath the chassis, and indications of the setting of the condenser are read off the small dial. It is a simple matter to return to any given setting and frequency band. Above the chassis is the smaller bandspread condenser (C3). It is used in



conjunction with the open scale slow motion drive, a combination which is ideal for fine tuning. The ratio of the two condensers is such that adequate bandspread results on the amateur bands—and, of course, on other bands, such as short wave broadcast—without the possibility of stations being missed.

Reaction is obtained in the normal way from a coupling winding on the coil and is controlled by the potentiometer R2, which varies the screen potential.

Initial adjustment of the semi-variable reaction condenser C6 assists in securing smooth control.

The detector valve handles both radio and audio frequencies and, to ensure maximum efficiency and stability, as well as noiseless reaction control, two bypass condensers are connected between the screen grid and chassis. C7, a mica type, bypasses radio frequency currents and C8, a tubular paper condenser, looks after audio frequency currents.

The on-off switch should preferably be of the three point toggle type but difficulty may be experienced in obtaining one. A double pole switch will also be suitable, two of the contacts (one of each pole) being connected together to form one arm, the two remaining contacts forming the others, as shewn diagrammatically in Fig. 4.

The aerial coupling will require initial adjustment to arrive at adequate loading, elimination of blind spots and to give smooth reaction control, and a trimmer type condenser (C1) is therefore placed in series with the aerial terminal.

The detector valve is resistance/capacity coupled to the following stage and precautions are taken to ensure that no R.F. voltage reaches the grid of the audio amplifying valve, which is a Mullard KL35. The resistor in the screen circuit is inserted to prevent the screen voltage being higher than that applied to the anode. The anode current is low and the telephones are inserted directly in the anode circuit. As shewn, a telephone jack is used, this being the most convenient method of connecting the telephones but, if desired, a terminal strip may be fitted instead.

Grid bias for the output valve is obtained automatically from a resistor inserted in the H.T. negative lead.

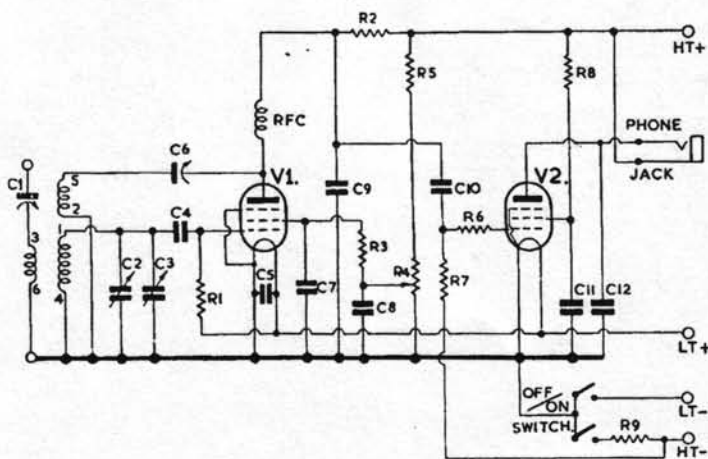


Fig. 1. Circuit diagram of the receiver.

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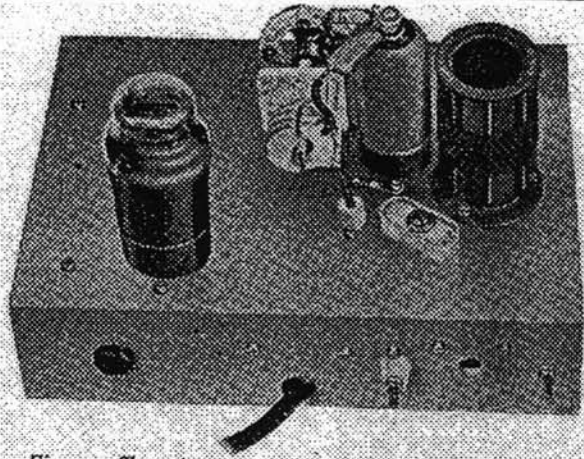


Fig. 2. Top view (from rear) of the receiver chassis, removed from its cabinet.

CONSTRUCTION.

The receiver is built on a diecast aluminium chassis and enclosed in a metal cabinet. An illustration of the receiver, removed from its cabinet, appears at Fig. 2, and a drawing of the chassis layout is given in Fig. 3. The bracket used for mounting the bandspread condenser is identical with the one used in the V.H.F. receiver and dimensions will be found on page 13.

The components mounted on the front of the chassis (the bandset condenser C2, the on/off switch and the reaction potentiometer) are fixed centrally, i.e., $1\frac{3}{16}$ inches from the lower edge. The same applies to the aerial trimmer condenser, the standoff insulator and the telephone jack mounted at the rear of the chassis.

To ensure that the holes in the front of the chassis match up with the holes made in the cabinet, the latter should be drilled first ($\frac{3}{8}$ -inch holes for the condenser and potentiometer, $\frac{1}{2}$ -inch hole for the switch). The cabinet is then used as a template to mark accurately the locations for the holes in the front of the chassis, the fixing nuts of the three components being used to bolt together the cabinet and chassis. The scale of the bandset condenser is secured beneath the fixing nut, ensuring that the condenser vanes are fully meshed. The pointer knob is then fixed with the white engraved line pointing to "10."

The location of the $\frac{1}{8}$ -inch hole required for the slow motion dial should be ascertained with the chassis bolted to the cabinet.

The reaction condenser (C6) is a compression type on a ceramic base, as generally used for oscillator padding in superheterodyne receivers but any other similar type may be employed provided it can be

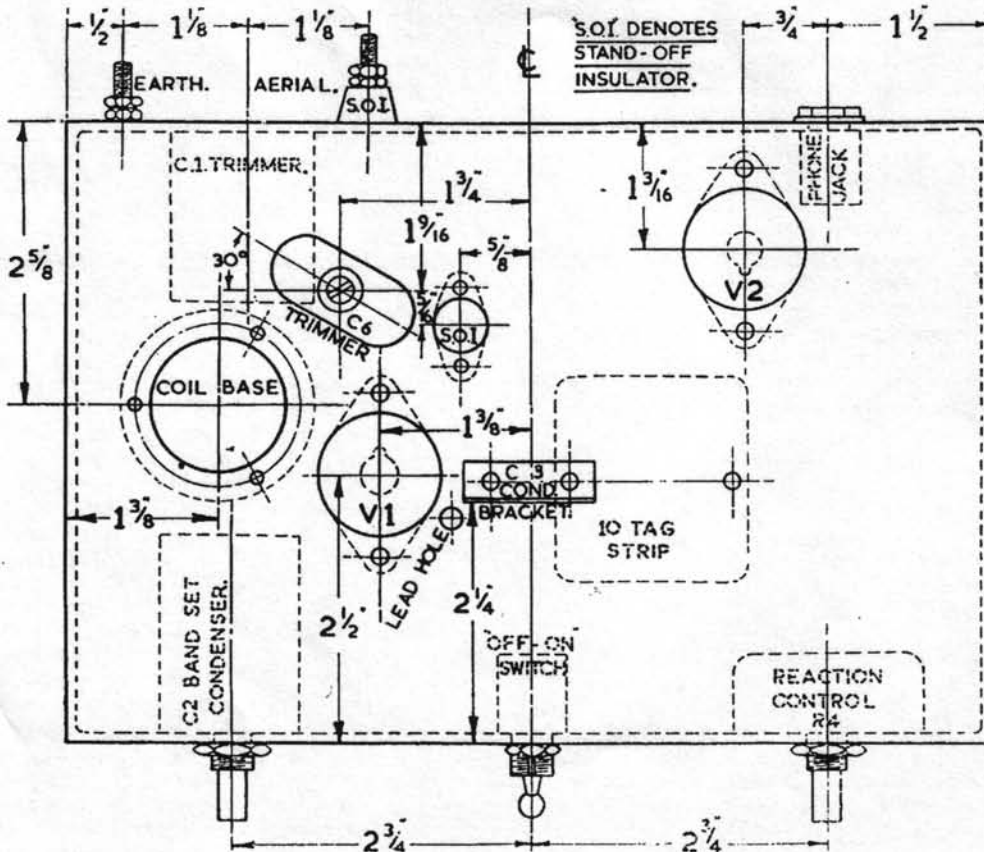


Fig. 3. Plan of receiver chassis.

EDDYSTONE SHORT WAVE MANUAL

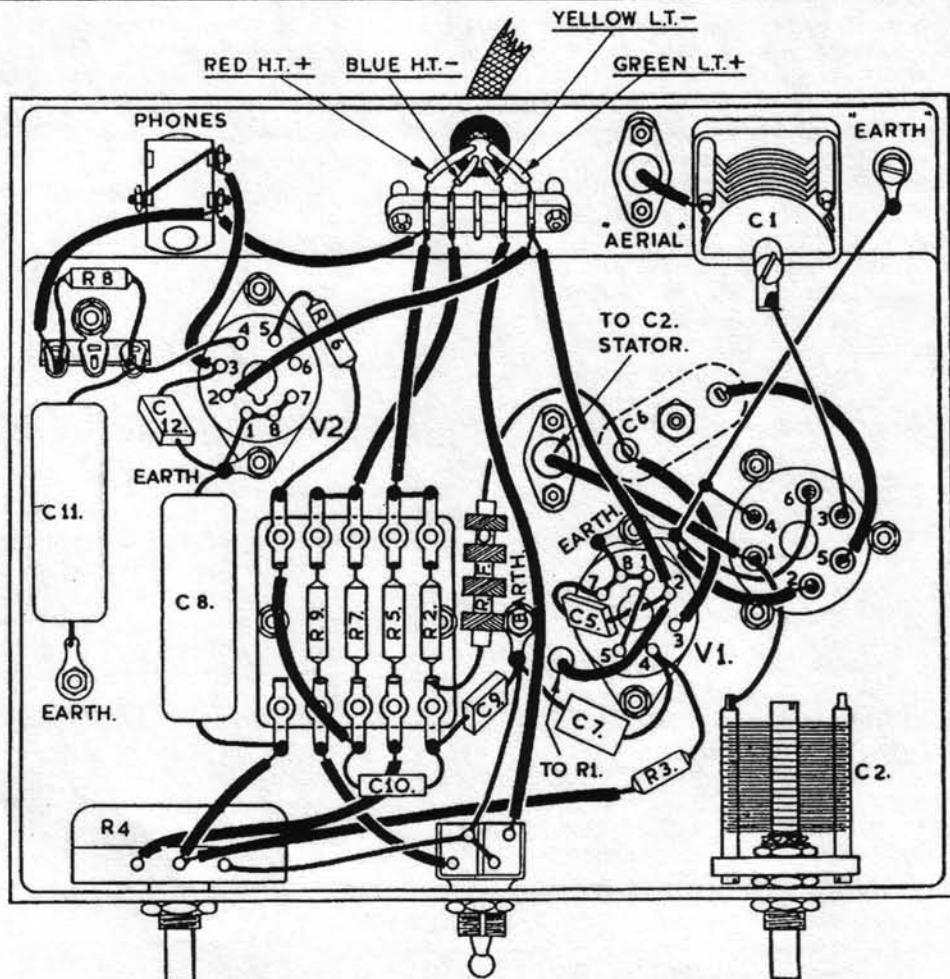


Fig. 4. Point-to-point wiring diagram of the receiver.

mounted to allow of adjustment from above the chassis, and has both ends insulated.

The air dielectric condenser (C₁) conveniently permits a fine adjustment to be made of aerial loading but, if desired, a small mica dielectric type trimmer (3/30 pF) may be used in lieu. In the latter case, the condenser should be mounted externally, to allow of easy access, and a second standoff insulator will enable this to be done. The lead from pin 3 of the coil base will then go direct to one insulator and the trimmer condenser held in position across the two insulators.

When the Cat. No. 581 condenser is used, it should be spaced away from the chassis with $\frac{1}{2}$ -inch pillars and a $\frac{3}{8}$ -inch hole cut in the rear of the chassis to allow of adjustment by means of a screwdriver.

The group board should be mounted in place after the resistors fitted to it have been soldered in position. Spacing washers will be required to hold the group board off the chassis.

WIRING.

The layout has been designed to keep the R.F. wiring reasonably short and well separated from other wiring. The pictorial diagram Fig. 4 indicates

both the positions of the various components and the under-chassis wiring, which may be carried out with 20 S.W.G. tinned copper wire enclosed in insulating sleeving. The only wiring above the chassis is to the stator of the bandspread condenser and to the valve top cap. The grid condenser (C₄) and leak (R₁) should be connected as close as possible to the top cap of the detector valve. The grid leak is returned to L.T. positive, to secure better detector efficiency.

A length of four-way cable makes a convenient means of connecting the receiver to its associated batteries — alternatively, two separate pieces of twin flexible wire may be used, but, in either case, the colours should be easily distinguishable, to prevent any possibility of the H.T. and L.T. connections being reversed. A careful check should be made after completion of the wiring, to make quite sure that no errors have been made.

PRELIMINARY ADJUSTMENTS.

The results obtained from a receiver of this type will depend to a considerable extent on the efficiency of the aerial with which it is used. An indoor aerial is usually anything but efficient and

EDDYSTONE SHORT WAVE MANUAL

effort expended in erecting a good outdoor aerial will be well repaid in improved reception. The aerial need not necessarily be long but it should be as high as possible and well clear of other objects. A good average length for all round reception is sixty feet.

Two preliminary adjustments are necessary — one to the preset reaction condenser and one to the aerial trimming condenser — and, to some extent, these adjustments affect each other. The greater the aerial loading, the more the reaction capacity necessary, particularly on the higher frequencies and a certain amount of experiment with different settings will be desirable to achieve smooth control over a wide range of frequencies.

To begin with, the reaction potentiometer should be rotated somewhat beyond half its full travel, with the aerial connected and the aerial condenser partially meshed. The preset reaction condenser should then be adjusted to a point at which the detector valve is just oscillating, as indicated by a slight hissing noise in the telephones. On rotating the bandset condenser, signals should be heard, except possibly at certain positions of the tuning condenser where the receiver goes out of oscillation. If this occurs, the aerial trimmer capacity should be reduced until the blind spot disappears. The positions at which blind spots are found may also be shifted to a relatively unimportant part of the tuning range by altering the length of the aerial. The latter factor will have a marked effect on the amount of aerial trimmer capacity it is possible to employ — the condenser will be near maximum with a very short aerial and near minimum with a long aerial. The aim is to use as much aerial

trimmer capacity as possible whilst still maintaining freedom from blind spots.

It is desirable to connect the receiver to a good earth by as short a lead as possible. Other factors which will also affect performance include the use of really sensitive telephones and keeping the L.T. accumulator well charged.

FREQUENCY COVERAGE.

The following ranges may be expected from the coils specified:—

COIL TYPE.	MIN. FREQ.	MAX. FREQ.
	Mc/s.	Mc/s.
6BB	17.0	29.8
6LB	12.0	23.0
6Y	6.0	13.0
6R	3.2	6.5
6W	1.7	4.0

It will be seen that all the normal high frequency amateur bands are covered. The 28 Mc/s. band is just covered and to maintain oscillation on this frequency, it will probably be necessary to reduce the aerial loading. To avoid upsetting the adjustment of the aerial trimmer, it is advisable, on 28 Mc/s. only, to include a further small condenser in the aerial lead, near the terminal. The value of this condenser will depend on the aerial characteristics but a value of between 5 and 10 pF will usually prove effective.

From the figures given above, the constructor will be able to choose coils to suit his own particular requirements — for instance, if the 7 and 14 Mc/s. amateur bands are the main interest, coils type 6LB and 6Y will be suitable. The majority of the long distance short wave broadcast stations are receivable on the 6LB coil.

LIST OF COMPONENTS.

EDDYSTONE.		Cat. No.			
1	Diecast Chassis	643			
1	Metal Cabinet	644			
1	Bandset Condenser (C ₂)	586			
1	Variable Condenser (C ₃)	580			
1	Variable Condenser (C ₇)	581			
1	Full Vision Dial	598			
1	Coil type 6BB	959	(see text)		
1	Coil type 6LB				
1	Coil type 6Y				
1	6 pin Coil Base	964			
1	Flexible Coupler, large	50			
1	R.F. Choke	1010			
3	Miniature Insulators	1019			
1	Knob and Dial	425			
1	Skirt Knob	2416P			
MISCELLANEOUS					
1	Valve type KF35				Mullard
1	Valve type KL35				Mullard
2	Octal Valveholders.				
1	Telephone Jack (Insulated).				
1	Switch 3 point Toggle, type S287 (see text).				
1	Preset Trimmer Condenser, 250 pF (C ₆).				
2	Moulded Mica Condensers, .002 mF (C ₅ , 7).				
2	Moulded Mica Condensers, .0003 mF (C ₉ , 12).				
1	Condenser, 100 pF, Silvered Mica or Ceramic (C ₄).				
2	Tubular Paper Condensers, .5 mF (C ₈ , 11).				
1	Tubular Paper Condenser, .01 mF (C ₁₀).				
2	Resistors, 1000 ohms, $\frac{1}{2}$ watt (R ₃ , 9).				
1	Resistor, 10,000 ohms, $\frac{1}{2}$ watt (R ₈).				
1	Resistor, 30,000 ohms, $\frac{1}{2}$ watt (R ₂).				
2	Resistors, 47,000 ohms, $\frac{1}{2}$ watt (R ₅ , 6).				
1	Resistor, 470,000 ohms, $\frac{1}{2}$ watt (R ₇).				
1	Resistor, 2 megohms, $\frac{1}{2}$ watt (R ₁).				
1	Potentiometer, 100,000 ohms (R ₄).				

**Members' Free Adverts
are on Page 38**

RAMBLINGS POST-SCRIPT

By Graeme G3GGL

As I explained in 'Radio Ramblings', earlier on in the Newsletter, mine is the last hand to go over these sheets and sometimes I notice a comment by Ted (or anybody else!) to which I would like to make last minute additions. Previously I was inclined to scribble in the margin but I think I really should do better. Hence this column. Wherever you've seen a cross (X) beside a paragraph, here's the comment: and the first two are from page five . . .

- I think Jed's "smallish airborne GEE receiver (two valve)" is an airborne marker beacon receiver (blind landing) - GEE-boxes were much more formidable.
- Turkish 770R:- Bill Cooke (former Chief Engineer) tells me that a small batch of 770Rs were prepared with Turkish writing on the finger-plates for the Turkish Police Special Branch. Apparently they wanted them for surveillance; just of what remained confidential. There were no repeat orders in spite of high hopes.
- The next item is from page six: Concerning the co-ax shorting plugs for the 770 Mk II series. These shorting plugs, **MUST** be used in the 'I.F. OUTPUT' socket on the sets when a Panadaptor is not in use. I examined one closely and although it resembles a standard Belling-Lee type 72-ohm British T/V connector, it is in fact turned from the solid metal; a dead short. I had a phone call last week from Brian Cauthery (VE3DFC) in Ontario. "What a hell of a difference it makes!" he said.
- The next item comes from page 11 and refers to the list of receivers, including Eddystone sets which were sold by auction, with bids listed on the Internet. The star of the list was the Eddystone Scientific Four, which went for a modest £420. I don't know its condition, of course, but it must be an exceedingly rare model. Produced in 1927, it used a neutralised triode RF stage for medium and long waves. It was nearly 2 feet wide and had a black ebonite control panel (using the same Eddystone slow motion drives as the Short Wave (Atlantic Two), along with a polished mahogany case. I'm pleased to say it was acquired by EUGer Alan.
- On page 16 there is worry about faulty coupling condensers, and quite right too. I must admit that, as an old hand, I tend to get blasé about it. It has been mentioned so much in the past I tend to think everybody knows. I always keep a stock of NEW high voltage 0.1 and 0.01 mfd condensers to hand (Maplin, high voltage metalised polyester film polyester, 630 volts DC, code DS86T and DS81C respectively, about ten for a pound). I automatically change the grid condenser of a newly acquired set and if the AGC is at all 'iffy', I change the decoupler in it. Never be tempted to use 'new' old stock just because they look 'period'. You'll pay less for real new ones!
- On page 17 Alan uses stick-on feet about a centimetre high for his cabinets. I find stick-on feet rather shallower than that and use the Maplin Large Rubber Foot, Cat no FP02C, 40p each. They are 38 mm dia by 10.6 mm thick, round, black, with metal insert and fixed with a 2 BA screw into the hole just made for that on most Eddystone cabinets.

INSTABILITY PROBLEMS IN A '504'

The '504' is not often mentioned in Newsletters, simply because there do not appear to be many of them extant. It was one of the early postwar sets and whilst no figures are available for the production runs there seems little doubt but that only limited numbers were manufactured. A shortage of materials lasting well into the '50s was one possible reason. *(According to Bill Cooke the sets were only manufactured for a period of eight months, in 1946 – Graeme)*

David has written in about problems which began with his S.504 early last year. The shack had just been relocated from a garden shed to a box-room which had been evacuated by a now university-bound teenager. All this had meant an interruption to listening hours, much man-handling of all the 'hollow-state' equipment, and complete relocation of aerial and earth wires.

The '504' was the first item to be reconnected when some semblance of normality had been restored, since it was thought that some listening could be done whilst the rest of the shack equipment was

installed. This was not to be, however, as a first application of 'ergs' to the '504' brought forth nothing but 'motor-boating', the audio level of which was not varied by any of the front panel controls except the tone control. There was nothing to be done but open up the receiver and do a few checks.

The '504' is not blessed with the top-opening lid as with the 640 so it was necessary to unscrew and remove the case to inspect the 'innards'. That done it was seen that the first job would have to be the removal of the thick layer of dust. Seemingly untouched since the set was new!

This done, by Hoovering, the valves were carefully removed for testing. At this point it was discovered that the metallic coating was coming off the EF39 in V2 position. This could not have caused the instability since the fault was evidently much later in the circuit, after the AF gain pot; or else turning this pot would have varied the level of the 'mo-boating'. The loose plaque was carefully glued back on using UHU glue.

After thorough cleaning both above and below the chassis, the decision was made to go ahead and do some lubricating of the switching mechanism and the tuning drive gears. Switch cleaner was also squirted into the various pots; before they were given a few twirls to spread it about inside.

All valves tested okay, some only just 'in the green' but good enough to make the set work. They were replaced in their correct sockets and power was once more applied. The fault was exactly as before, same frequency and output level. This decided David to do some more thorough checks on the circuitry.

You must all know the idea. Start at the speaker and gradually work backwards until you reach a part of the circuit where your checks make some difference to the 'noise'. Shorting out R90, the tone control pot; which is in the output circuit of the 6V6 output 'bottle' made little difference, except for the change in tone as the pot; was rotated.

Next stop was the input (grid) circuit of the 6V6, this is resistance capacity fed from the previous stage and so R7,

the grid resistor was shorted to chassis. This brought a complete cessation of the annoying output signal leaving just a very faint mains hum in the phones. Normal, that is, so the problem must be further back. V6, an EBC33, is a double diode triode with the triode acting as a voltage amplifier driver stage, fed from the AF gain pot; which is in turn fed from the diode detector. Only one of the two diodes is in use here.

Shorting the AF gain pot; R62, to chassis completely eliminated the 'mo-boating' leaving the normal low-level mains hum.

In checking around the underside of the chassis wiring adjacent to the V6 socket David had used a non-conducting rod made from perspex which had been ground down to a point. This pointed end was poked about and it was discovered that poking at pin 8 of the EBC33 caused variations and breaks in the motor-boating, but not a complete cessation. Nothing could be seen but as a first step to eliminate the possibility of the valve being at fault it was replaced with a spare from the junk box, a bit low in emission but a 'worker'. Powered up again, the problem had gone; replacing

the original valve brought it back..

It had to be admitted that despite testing okay on the AVO valve tester the Red Mullard EBC33 must be faulty in some way, and so it was carefully examined. Some correspondence with Ted had indicated previous problems with octal type valves where the pinout wires became intermittent within the hollow base, or pin. Using a hot iron some solder was dribbled into each hollow pin, keeping the heat on just long enough for the solder to flow down inside the pin.

The valve was allowed to cool and then re-inserted into its socket. Result after power up? A once more fully working '504', well in so far as the motor-boating was concerned. However, it was now noticed that when tuning into and through signals on the HF ranges (1 & 2), there was a constant whistle which was not so noticeable on a strong signal but was definitely there on a weak signal. It appeared as the RF gain pot; was turned past 12 o' clock.

Valve swapping was again resorted to and the whistle was missing when V2 was swapped for a spare EF39.

Remember V2? The one which had a loose plaque of metallic screening? The valve was refitted and a temporary wrapper of cooking foil was wrapped around the it, held in place with a rubber band. This cured the whistle and so the valve was removed and a length of tinned copper wire, about 22 SWG, was wound round the valve so as to ensure the glued-on plaque was properly earthed to the rest of the metallic screening. Some solder was run along the wire to hold it in place. The valve was refitted and the problem had gone. As a spare 'good' EF39 was not to hand V2 was swapped over with V10, the BFO valve. New valves were then ordered but in the meantime the '504' was serviceable. At this stage the calibration was checked using the BC221 crystal harmonics.

Calibration on all ranges was still well within the tolerance advertised by Eddystone and so the '504' was boxed up and put back into use, whilst waiting for the new valves.

ENDIT-----ENDIT-----ENDIT
That is IT! A jointly produce Christmas Issue with the usual Supplement. My thanks to all who have contributed, enjoy your read. TED. ●

The Stratton

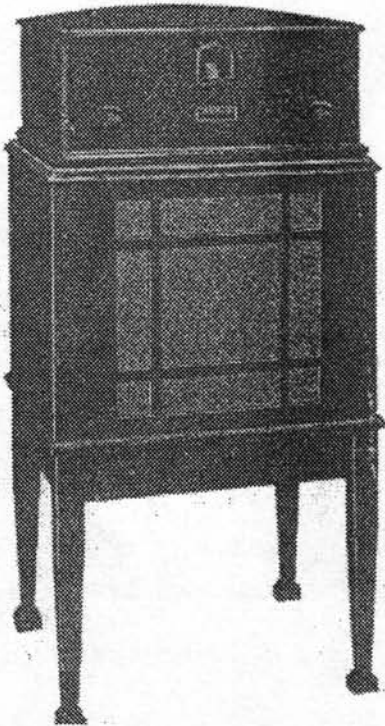
EDDYSTONE ALL WORLD FOUR

In 1927 Gerald Marcuse, (G)2NM, a leading member of the RSGB, was granted consent by the Post Office to carry out experimental short wave entertainment transmissions to the Empire, and even relay the BBC service from 2LO. This undoubtedly provided the trigger for Stratton to enter the short wave market with their Atlantic Two (also known, probably incorrectly, as the Short Wave Two).

The success of these broadcasts encouraged the BBC to experiment with short waves from G5SW at Chelmsford. A regular service began in 1928 and then, in 1932, two high power Empire Service transmitters were built at Daventry, in the heart of England. In 1930 Stratton had introduced their first All World Four, a short wave set of remarkably advanced design, fully tropicalised in a sealed diecast aluminium case.

This was aimed at the expatriate Briton, of whom countless thousands were working in the four corners of the world. Remember the sun never set on the British Empire. Each year the model was updated with new features. 1932 saw the inception of ganged tuning and an example of this model, previously unseen, has recently come to light. Remember that all the paperwork of these pre-war models was destroyed in the 1940 blitz, and that we are reliant upon our members' detective work to find copies which have managed to survive.

It's interesting to note that as well as being offered in mains and battery versions the AW4 was available with a table speaker, or a console speaker to sit it on. This is reminiscent of the 1947 Type 659 Export Model, also a very rare bird!



Annotated on the leaflet are details of the purchaser's order: One battery model plus a spare set of valves, LT accumulator, three HT batteries, table speaker and aerial kit, price £40:8:0d. (A new Ford Eight Saloon cost £99 in 1932).

Although the brochure is stamped by Webb's London store, it is counter-stamped by Griffiths, McAlister Ltd., tropical outfitters of London & Liverpool, presumably acting as agents when the buyer was preparing to travel abroad.

Included in the operational handbook is an Instrument Test Report, signed by Fred Addis, Head of Assembly, and Harold Cox, Technical Director. It's undated, although described as a 1933 model, but it was almost certainly produced in 1932.

MEMBERS' FREE ADVERTS

FOR SALE: 770U, refurbished, repainted, looks new. £80. Pete GW6AYMQTHR, 01792 232782.

HELP - HELP: Would like conformation of I.F. Transformer pin-out for the 940 Receiver Ser No JN0017, trans.- D2924, D2902, D2902, D2829, as selectivity switch does not function right! Bill, GM0KMG, (Glasgow) 0141 562 4571. Thanks.

WANTED: MECCANO Crystal set model RS1 or RS2 please, or large old collection of Meccano so I can re-produce one! If possible in cabinet. Peter Lepino, 01372 454381 or 0374 128170.

FOR SALE: 888A, nice condition, £125. R1475 with matching psu, good condition but faulty (no signals but audio OK). £65. Anthony 01686 630 255.

WANTED: 960, 910 (Marconi HR101), EM34 (Marconi 3873 Elettra). 01686 630 255.

WANTED: 830/7 or 958/7. Your price paid for good specimen. Also wanted handbook for Racal RA1792. Phone anytime 0141 649 2328.

WANTED: 770R MkII in G.W.O. Collect 200 miles. Tom (GW3LJS) Carmarthen 01267 202321 anytime.

FOR SALE: Eddystone 940, £80 collect. In good condx: resprayed cabinet in correct colour. NOTE: this Rx is modified - IF strip only - by the author of articles in 1988 SWM, Tim Wright. This results in the sel. sw. providing either Xtal, max and max operation only ie NO wide (in 'min' ie wide it merely offers 'max' - that is narrow again). RF/IF realigned and excellent performance. This model was orig sold to a local group (suspect Southampton Dock Board) by Southern Marine Radio, the S'ton Eddystone dealer (in the 50s and 60s). With circuit, manual and mod. articles - note the IF mods are NOT reversible without new IFTs fitted!! Roger Bunney 35 Grayling Mead, Romsey, Hants, SO51 7RU Tel: 01794 517497.

WANTED: DESPERATELY, the following Eddystone items. A nice clean front panel, or just the plastic speaker trim, or both, for a 1837/2. Also the two circuit boards containing the coils for a preselector unit for a 1650/2. Your price paid within reason. Dave, tel 01554 775790, or E-mail MW1DUJ@AOL.COM.

FOR SALE: 750, £120 ono. 730/4, £150 ono. 990R, £60 ono. All working and nice condx. Fingerplate on 750 is a bit grubby and the 990R has a slight crackle on output. Sale: case and f/panel for 990R, £15. Call Jim McGowan M1CUC, (Romford) 01708 340304.

WANTED: 670A (or MIMCO 2232A) and 770U Mk II receivers. Cash, or swap/part X for 680X, 888A, both GWO, and 640 (for restoration). Richard Tel: 01789-293375 or e-mail: G00GN@aol.com

WANTED: 670C, must be V.G. externally but need not work; Graeme G3GGL (Worcs) 01299 403372.

FOR SALE: 730/4 as new condx inside & out. Fully refurbished & working beautifully. It's amazing how much better it works than most others I've seen. This radio is absolutely beautiful £350.00. EDDYSTONE 840C as above-a real gem. £195.00. KW2000B in nice condx & working order. £185. YAESU FT200 as above KW in black. £165.00

Why not get on the air with some truly classic gear this Christmas?

I will shortly have the following models available once they are working to my satisfaction: - 640, 770U/II, EC10/1, EC10/2, and 940. Please let me know if you are interested. *Once they are gone I will have no more to pass on!* Due to space restrictions I do not have room to list them but I also have a selection of test equipment including RF/AF generators, Oscilloscopes, Digital Test Meters etc. . . Call me if you would like to know more. (Simon, below).

I would like a 770S and a Technical Manual GPR90 or GPR92. I'm keen on swaps and part exchange - can you help??? Call Simon G8POO on 01434-633913 or e-mail simon@nomis.co.uk

WANTED: Eddystone 960 transistor Rx. FOR SALE: 770R gwo £80; 730/4 needs attention, hence only £60. Phone Dave, 01869 347504. (Bicester, Oxford).