

Lighthouse

Founded 1990

The Magazine of the
Eddystone User Group

Issue 85, June 2004



Ted G7AIR & Graeme G3GGL
at the National Vintage
Communications Fair
2nd May 2004
See inside for the rest of the crew

EDDYSTONE USER GROUP
A non-profit-making Group for
Eddystone Radio Enthusiasts.
Founded in 1990 by Ted Moore
G7AIR
Issue 85, June 2004

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(see QRG p.34) Immaculate, original
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DRAKE R4B plus TR4C: all with manuals,
but all vfo were taken out; all are included;
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**Transistorised I.F. converter 10.7 MHz to
5.2 MHz.** (to use above with panadaptor)
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EDDYSTONE S.640 (QRG p.27) in good
working original condition £60.

EDDYSTONE 730/4 (QRG p.30) (s/n CL1403) in good original working condition with handbook £150. Buyers to inspect and collect, please. Phone Mike G3YGM (New Forest) 02380 848 268.

EDDYSTONE 830, (QRG p.37) nice condition, Good working order. £200. Buyer to inspect and collect. Call Robin Cole G8ZJK. 02393 466345 (Nr Portsmouth)

EDDYSTONE 1830, (QRG p.45) mint condx, perfect working order, offers c.£250.
KW Atlanta, AM/SSB valved Tx, 350 watts output; 80 to 10. Very Good Condition. Works well, offers c.£160. Buyers to inspect and collect (Watford) Call Chris G3XFE, g3xfe@btinternet.com

WANTED

Matching PSU for CODAR A.T.5 Transmitter. Would consider complete pair. Call Graeme G3GGL 01299 403372 or e-mail g3ggl@btinternet.com

EDDYSTONE 770U Mk I or Mk II. Will exchange for 770R Mk II if required. Call Stuart M1SAB 01434 681 469 (Northumberland)

ANY SMALL BOAT/YACHT receiver with DF, e.g. PYE, SAILOR, etc. Must be solid state. These were fitted to thousands of pleasure craft in the 60s and 70s and have been discarded en-masse with the advent of G.P.S. Details and price please to peter G4IXY, 01727 839908

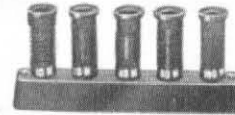
MAINS TRANSFORMER drop through chassis mount for an **Eddystone ECR** Receiver, will need to fit a 2½" square hole. All connections ideally below the chassis, secondary 250-0-250 V and two 6.3V windings. Also looking for a grey finger-plate for an Eddystone Model 870A. Does anyone have a model label (serial plate) for this set? Any help appreciated. Call Andrew Humphriss, 01789 262 872 or andrewhumphriss@tinyworld.co.uk

HEATHKIT DX100 or DX40 any condition considered, call Mike Osborne G3YGM, New Forest area 02380 848268

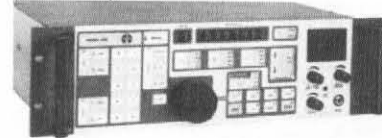
Manual or any information on the **ZENITH Model H503** Ser No J573859, Battery/mains 110v. Valves 1U5, 1U4, DK91, DF91. All expenses met. Call 0141-562-4571

EXCHANGE

I have a set of miniature Eddystone Type 706 coils, complete with 4-pin socket Cat 707 and 5-way coil stand Cat 775, plus two plain formers Cat 763. I would like to exchange the above for a set of standard size 6-pin coils type 6BB, 6LB, 6Y, 6R, and 6W, and a 6-pin socket Cat 964. call Vic G3IKN on 01344 485635 or e-mail vicg3ikn@aol.com QTHR



BRAND NEW EDDYSTONE 1650/9, one private owner since new (now SK). Exchange for Racal 1792 (ISB if Poss) or 1772 (preselector if poss.) call Tony Byrne (Dublin) 087 974 3775



KW2000E valve SSB transceiver with psu, good condx and working order. Exchange for Eddystone 750 – 958 – 1830 - EP961. Call Ted G7AIR:- 01945 467 356 mobile 07957 951 998

KW Vanguard AM/CW table-top TX, 1958. Good condx and working order. Top band to ten, 50 watts input, plate modulated. (about 100 lb). Handbook. Exchange for Eddystone 750 in similar condx. Call Graeme 01299 403372 (Worcs)



Chris's Column

Welcome to another excellent edition of Lighthouse. (I say this without knowing what is in it when I type these notes, but like riding in a Rolls Royce you don't have to experience it to know that it is going to excellent.) Since the last edition I have met many of you again at the Vintage Fair at the NEC. One member has suggested it would be a good idea if we could organise a meet somewhere convenient in the country to perhaps swap and discuss sets in a social occasion. Food for thought there; Alan Ainslie will be opening his museum of Eddystone Receivers this year so perhaps we could organise a meet there when the time arises. (Subject to Alan and June's agreement of course).



Ted G7AIR – Dave Simmons – Graeme G3GGL – Self GØEYO – James de la Mare

I shall not be filling these pages with lists of e-bay prices this issue, although I will probably make some kind of buyers' guide feature when I have a year's prices. However I have noticed a few interesting sales; a nice looking 960 (the first transistorised set)

going for £230 and a nice 870A going for £280. It was good to see that an FM transmitter went to a good home for around £255.

I guess it is a sign of getting older that the names of some of the silent keys are becoming increasingly familiar. But

it does remind me that we do have a responsibility to ensure that those that we leave behind will know what to do with our treasured radio bits. I am pleased say that generally in such situations the fraternity that is amateur radio will often help a family dispose of a SK's radio possessions in a dignified and fair manner.

Radio clubs often play a key role in this process. It is unlikely that a SK's family will have any idea of the worth of the equipment to be disposed. Sometimes the family's most pressing need is just to get rid of the stuff to "a good home".

I would like to think that any EUG member asked to put a value on any Eddystone equipment that might belong to a SK would give a fair valuation without wishing to profit significantly themselves from the transaction.

However it must be recognised that in any hobby of collectors, there have to be dealers. It is not unusual for collectors to be also dealers and this must give them a moral dilemma. Do they use their EUG side to give a SK's widow a fair price for the equipment or do they use their dealer's side to make as much profit as they can from the deal?

Some EUG members would classify themselves as specialist dealers, not so much interested in collecting the sets but knowledgeable about them and able to satisfy the collectors by finding sets that collectors cannot find themselves. How should they treat the SK widow?

I think in all these circumstances the buyer has a duty of care to pay the seller a fair price, which will give the buyer a reasonable profit at the end of

the day. Anything else is ripping people off and when they do it in the name of the EUG I get very concerned. I don't think we want these people as members. What do others think?

ECHO-LINK (?)

I have recently caught onto a new phenomena called EchoLink which is a means of allowing radio hams to talk to other hams around the world via the Internet. You can access EchoLink via a local 2m or 70cm repeater or direct via your PC. Of course it won't be real radio to some but the fun in having a mobile chat with someone in Australia or the States or India or Japan on your way to work takes a lot of beating I can tell you.

Our local repeater is GB3DX on 145712.5kHz. Repeaters have tended to fall from favour over the past 10 or so year through abuse and misuse. This repeater has got to be the most popular repeater in England; it is always in use and is very tightly controlled by its keepers. If you have access to the Internet look it up www.gb3dx.com. You will not be disappointed.

Finally we have a number of commemorative stations coming on for June 6th in celebration of the D-day landings 60th anniversary. By the time you have read this I hoped to have worked some of you using the call G6SL in commemoration of Eddystone's role in the landings with their VHF radio telephone equipment.

Best 73

Chris Pettitt

GØEYO

Patron Eddystone User Group

Letter from Illinois

by Joe LeKostaj, K9LY

We receive about two letters a year from Joe and they're always worth printing. Here is his latest epistle from Evanston, Illinois.

Hi Graeme,

At the bottom of this e-mail is my entry for EUG Crossword No. 19. I admit to resorting to the Internet to find answers fro 7 and 8 across as I had absolutely no first-hand knowledge of those!

(Note from Graeme:- 7 across was "Army technicians' unit (4, abr.)", which was "REME". Simple enough for us old National Service Brits but who would be acquainted with "Royal Electrical & Mechanical Engineers" in Illinois?

Likewise 8 across: "Irish radio station (3 abb.)" which may be well remembered as RTE in Britain. But who knows these are the initials of "Radio Telefis Eirann", which is Erse (Irish Gaelic) for "Irish Radio & Television"? Carry on Joe . . .)

I've been enjoying some favourite old movies since getting a DVD player recently. Did you know that an Eddystone receiver made an appearance in the 1962 James Bond film "Dr. No"? About five minutes into the story, an agent in Jamaica has to keep an on-air sked with the head office back in London.

His secretary opens the false front of a bookcase to reveal an Eddystone 840A alongside a KW Vanguard transmitter. No doubt the Eddystone was picked for the assignment because it could withstand Jamaica's tropical climate! At this point some

mayhem ensues, and the story cuts back to the radio room in London where operators sit in front of a dozen Racal RA-17s. I thought it interesting that the film-makers selected appropriate equipment for these scenes rather than using some fake-looking props.

One benefit of DVDs (amazing devices that they are) is that it's possible to listen to an audio track in which the actors, director or other people involved with the film provide a running commentary.

In the scene with the RA-17s, the man who was the production buyer said that he contacted "Racom" (*sic*) about borrowing some radio equipment for this scene. It turned out they were producing a batch of RA-17s for New Delhi airport at the time and could loan them to the film-makers as long as they paid for re-testing when the receivers were returned.

The production buyer recalled that apart from a couple of nice lunches, no payment was ever made to Racal for the loan of the equipment.

Unfortunately there were no anecdotes about the Eddystone equipment, but lack thereof did allow me to return my attention to Ursula Andress! There was one more EUG-related coincidence, though . . . would you believe that the director of photography was named Ted Moore? ♣

Stratton's Patent Neutraliser

Described by Graeme Wormald G3GGL

Those of us who bought the Eddystone ex-navy VHF radio-telephone transmitters, the S.440B, at the turn of the nineteen forties/fifties to use on the new two-metere band couldn't fail to be impressed by the build-quality. It was choc-full of Eddystone's latest catalogue items at a fraction of catalogue prices.

One item was new to us; namely the dinkey little neutralising condensers. Curiously, although the Company's Blue-Print Register (BP) shows the S.440B to have been drawn up in December 1942, the patent for this essential little item was not registered until September of the following year. Most remiss of Harold Cox, that very pernicky technical director. Or was it something to do with wartime conditions? Never mind, let's take a look at the Patent in our ongoing series of Stratton designs.

PATENT SPECIFICATION

564,970

Application Date: Sept. 20, 1943. No. 15380/43

Complete Specification Accepted: Oct 20, 1944



COMPLETE SPECIFICATION

Improvements relating to Radio Components such as Variable Condensers

We, STRATTON AND COMPANY LIMITED, a British Company, of Alvechurch Road, West Heath, Birmingham 31, and HAROLD NORMAN COX, a British Subject, of the Company's address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the flowing statement:-

The invention relates to variable radio components such as variable condensers in which one part has to be moved relative to another by a screwed part or carrier rod advancing or receding through an

internally screw-threaded part of a mounting bracket secured on an insulating base.

For example, a neutralising condenser for use in wireless sets often comprises an insulated base on which a metal bracket is secured by a screw entering an attachment and connecting foot from which foot an upright strip or plate projects and has eyeleted or riveted to it the closed end of a cylindrical condenser member, open at the other end. Into this open end the moveable member of the condenser projects more or less according to the position of a screwed

rod which supports it by passing through a secured metallic bracket similarly secured to the insulating base.

It is necessary to prevent the screwed rod working back from its set position, and known means of locking it such as nuts added to the bracket produce changes in the adjusted and set capacity that are difficult to allow for. They also require additional manipulation which adds to the operation of setting or tuning the components of the set.

In accordance with our invention we provide the attachment bracket for the variable member of the component with a second integral limb so sprung or set that it tends to exert spring pressure on the faces of the screw-threads of the screwed part or carrier rod which is screwed through this limb as well as through the bracket and is thereby held securely in adjusted position.

The bracket comprises the usual attachment and connection foot, an upstanding bracket which is bored and internally screw threaded to receive the screw threaded carrier rod of the movable element of the variable component, and a second limb supported by and spaced from the bracket which limb is also bored and internally screw threaded so that the carrier rod passes through it. There is a degree of springiness in the metal tending to separate the limb from the bracket or to cause it to approach the bracket, the two parts thereby exerting a pressure on oppositely directed faces of the screw thread.

The simplest and most convenient construction of the bracket and its spaced limb is to form the upstanding part of the bracket of extra length, to bend it over a radius and set it downwardly at an inclination so that it diverges to some extent from the bracket, the two spaced parts are brought temporarily into parallelism for the boring or punching and threading of the holes and then released.

The appended drawings illustrate this embodiment:

Figure 1 is an elevation thereof.

Figure 2 is a sectional elevation.

Figure 3 is a perspective view of the support bracket and resilient lock.

The insulating base is seen at *a*; the foot and bracket of an outer member of a neutralising condenser *d* are referred to as *b* and *c*, respectively; *e* is the usual attachment and connecting screw; *f* is the movable member of the condenser; *g* is the screwed rod supporting it and moving it to vary its position and *h* is the operating knob. The foot of the bracket for supporting the rod is marked *i*; the upright limb *j* and the spaced "locking" limb is marked *k*, while the attachment and lead screw is marked *m*.

While this arrangement is the most simple form of providing the combined bracket carrier for the movable member and the "locking" limb, it may be varied. For example the spaced limb may be formed when made in appropriate metal by bending the metal strip of the bracket down against itself, then moving laterally and upwardly at a slight angle to the doubled part and running the screw hole through the doubled strip and through the upwardly directed arm.

While the effect of the two spaced spring parts of the support bracket is to bind on the screw thread surfaces and prevent any possibility of movement under the vibrations set up in the metal parts of the set, or under external vibrations given to the set as a whole when it is mounted on a vehicle or aircraft, the resistance is such that it can be overcome when the screwed member is deliberately turned by hand for setting purposes.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:-

1. Variable radio component such as a variable condenser of the kind set forth in

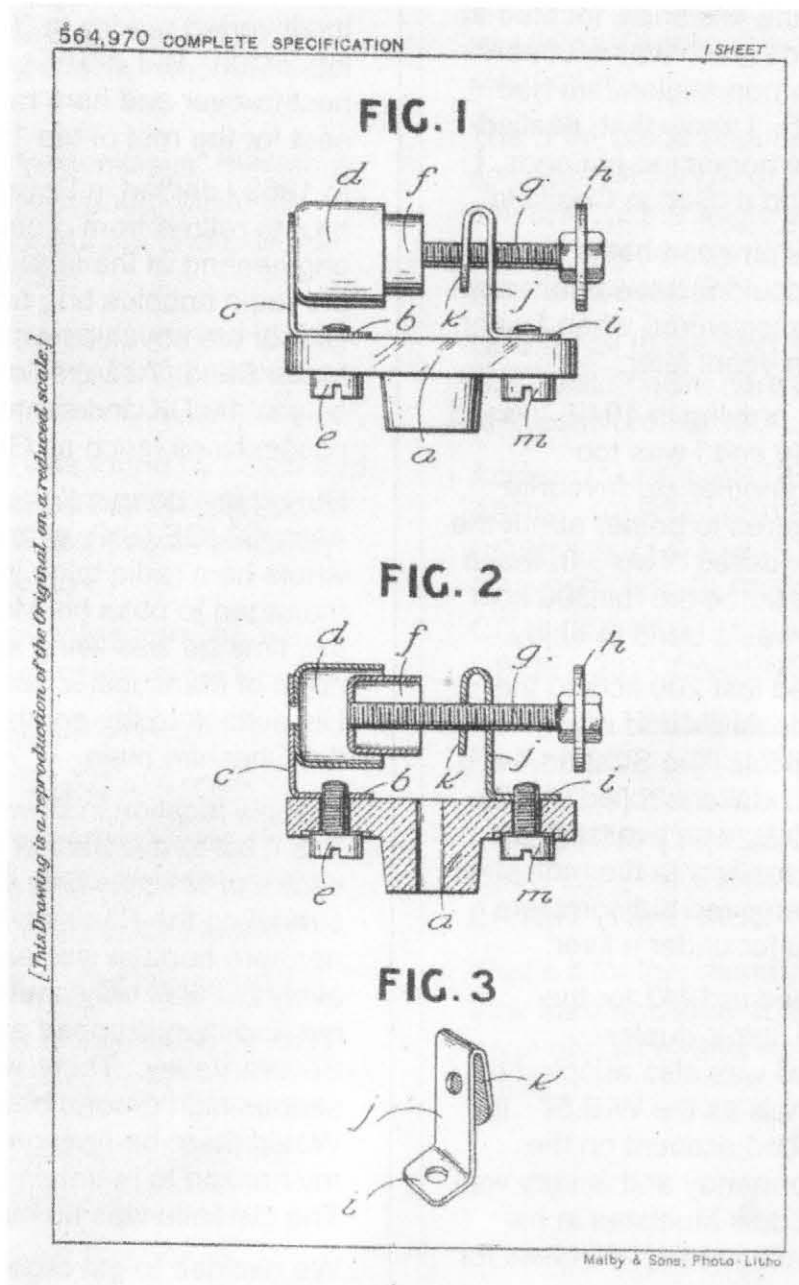
the opening lines of this specification wherein the bracket has a second limb integral with it and sprung or set so that it tends to exert spring pressure on the faces of the screw-threads of the screwed part or carrier rod which is screwed through this limb as well as through the bracket and is thereby held securely in adjusted position.

2. Variable condenser having a part moving into relationship with a fixed part, the moving part being secured to a mounting bracket projecting from an attachment foot secured to an insulating base, wherein the bracket has an integral

and downwardly bent limb spaced apart from it with a degree of springiness, both the bracket and the integral spring limb being bored and screwed for receiving the rod.

3. A neutralising condenser for radio constructed substantially as described herein with reference to and as illustrated by the drawings appended hereto.

Dated the 6th day of September, 1943.
BARKER, BRETTELL & DUNCAN,
Chartered Patent Agents,
75 & 77, Colmore Row, Birmingham, 3.



FOUR METRES with a STRATTON 440B

Graeme Wormald G3GGL

In 1948 Radio Amateurs the world over lost that pre-war VHF favourite, the Five Metre Band (56 Mc/s). It was hi-jacked to promote the onward march of television, that raucous child of radio which was to change the face of the world.

In England it was used by the BBC transmitter for the Midlands, located at Sutton Coldfield (which was probably the first time us non-Midlanders had ever heard of it). I know that, nestled in my Yorkshire homeland of Leeds, I mistakenly called it "Sutton Coalfield".

I had images of pit-head baths and slag-heaps. I couldn't have been more mistaken, as I discovered when I went to live there ten years later.

But my 'ticket', arriving in 1949, missed the old favourite and I was too enamoured of another old favourite called Forty Metres to bother about the little newcomer called "Two". In those days Europe still had the full 300 kc/s of Forty and it was a band to enjoy.

By 1952 we had lost 200 kc/s to the cold war broadcasters and my mind turned to 144mc/s. The Stratton 440B, single channel, xtal controlled, made for about 90 Mc/s, was available as war surplus, usually with the multiplier and PA coils removed but complete with mains psu for under a fiver.

It was developed in 1942 for the Admiralty as a ships' duplex radiophone and was also adopted by the Royal Signals as the W.S.57. It was used to good account on the beaches of Normandy and is very well described by Louis Muelstee in his excellent encyclopaedia, "Wireless for

the Warrior, Volume 1".

It converted readily to 'Two' and gave lots of fun. But in 1954 I left the family nest forever and ham radio took a back seat for the rest of the 1950s.

In 1963 I settled in Bewdley and, having retired from professional engineering at the tender age of 29, the radio hobbies bug had bitten again. One of the novelties was the Four Metre Band (70 Mc/s), available then only in the UK and some of its possessions (such as Gibraltar).

During my 'dormant' period, my father Alec, G3JQE (SK), who started the whole ham radio thing in 1946, finally managed to pass his Morse test. By this time he was living about six miles north of Manchester some 500 ft asl.. His outlook to the south was clear over the Cheshire plain.

My new location in Bewdley was about 275 ft asl to the west of the town, the centre of which is only 100 ft asl, straddling the River Severn. My northern horizon was about ¼ mile away but was only a few feet above me and then dropped away into the Severn Valley. There was no other serious high ground between us. Would there be enough refraction over my horizon to maintain VHF contact? The distance was 85 miles . . .

We decided to get organised. Two

Eddystone/Stratton S.440B's were pulled out of storage. The 144 Mc/s coils were replaced with 70 Mc/s inductors. They worked fine, a good 15 watts input and enough RF to burn out a 6-watt 12-volt lamp. Ex-RAF 4-element 70 Mc/s yagis were acquired together with a pair of 'new' Collins TCS receivers at £7 ** each.

Crystal-controlled cascode converters were constructed and the TCS tuned as a variable first IF from 4 to 4.5 Mc/s. Rock-steady and with an excellent calibrated band-spread they were re-settable to 1 kc/s after twenty minutes warm-up.

We had previously tried Top Band for working this north-south path, but it was very unreliable. On 9th November 1964 at 22.00 hrs a first sked was planned for Four Metres. The result? Five and Nine both ways on AM!

Well, that was a surprise. It was the start of over two years' continuous activity on the band. I had a sked with G3JQE on every available day – remember I was a shift worker and Alec G3JQE was still gainfully employed.

We NEVER failed to make a contact on over 500 skeds, although sometimes it was so dodgy that we had to turn to the key. Interesting to note that when the fone report was 1/3, (i.e. unreadable) the CW report was 559. The key will always fight through.

Curiously the most remarkable manifestation was the QSB. This could vary from S3 to S9 on a half-hour QSO. I made a continuous record of barometric pressure and tendency and, apart from sheer coincidence, the conditions never had much to do with each other. This is really very odd, because we all know that anti-cyclonic gloom means good condx on VHF!

On one occasion, during a May

evening in 1965, when the baro stood still at 1020 mB (medium-high), condx dropped from 5/9+ to 1/1 over a two hour period. We tend to think that VHF is either line-of-sight or high on an inversion, but in practice a marginal path is continually changing.

On another occasion, at 20.00 on a November evening the path north-going was giving 5/8 on AM whilst at the southern end signals were being received on CW at 539! Quite unreadable on AM.

Remember that these were identical sets and aerials at both ends. What price reciprocity this time (!)

One interesting event was finding the band blocked by wideband FM signals in what sounded like Polish. Accepting that WBFM on a 10 kc/s bandwidth AM detector doesn't resolve too well; it was only after extensive enquiries that I discovered Eastern Bloc broadcast FM goes down to the four metre band

At 09.00 on 22nd November 1964 I was able to tell Alec over the air that his second grandson, David, the future G7BMZ, had weighed in during the night at a healthy 8 lbs 10 ozs, thus proving that some things do run in families . . .

On the other hand, David's elder brother, Andrew, wouldn't know the difference between a dipole and a dishcloth . . .

Graeme G3GGL

*** Don't get too bleary-eyed at these prices. £7 would buy you about 700 cigarettes in 1963. These would cost you about £140 today. Inflation is a great deceiver.*

REFERENCES:-

QSB = fading. SK = Silent Key.

W.S. = Wireless Set.

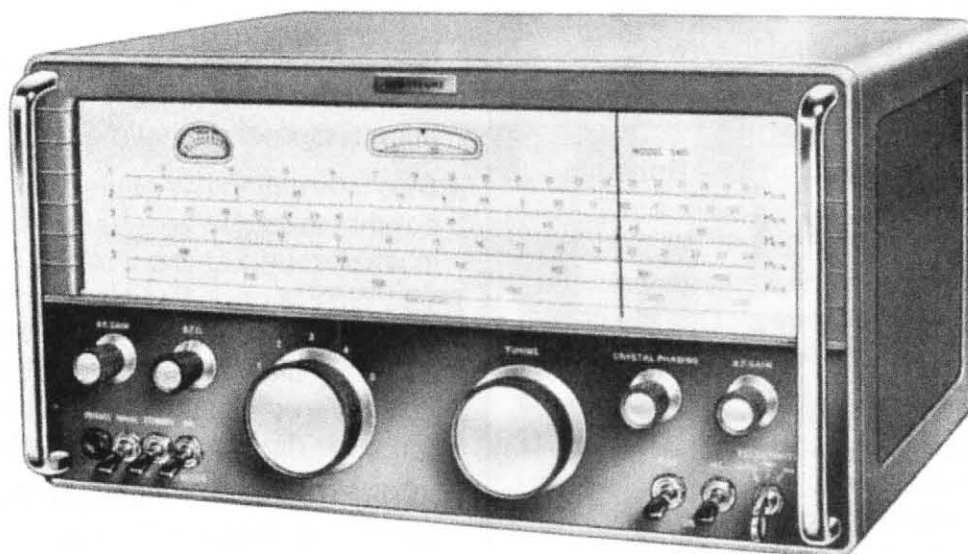
mB = milli-Bar, (1013.1 mB is standard atmospheric pressure). ♠

Eddystone

H.F. COMMUNICATIONS RECEIVER

MODEL 940

(The Model 940 was introduced in 1962 as a 'mid-priced filler' in the company's catalogue. It became very popular as a mid-range model and continued in production until 1970.)



The Eddystone "940" is a general purpose communications receiver covering from 480 kc/s to 30 Mc/s in five overlapping ranges. It is suitable for the reception of CW, AM and SSB signals, and, by reason of the two radio frequency and two intermediate frequency stages incorporated, a high performance is secured throughout the frequency ranges. The built-in power supply unit permits direct operation from standard AC mains supplies of 110/125 and 200/240 volts, 40/60 cycles.

The first RF amplifier is of the cascode type and, as a result, the figures for noise, cross-modulation and intermodulation are exceptionally good. There are three selectivity positions, the narrowest making use of a crystal filter with a panel-operated phasing control. The output stage is of the push-pull type and excellent quality of reproduction is available when required. Outputs are provided for speaker, line, and telephone headset.

Other features include separate RF and AF gain controls ; a panel-

mounted carrier level meter ; separate detectors for AM and CW/SSB an efficient noise limiter ; gear-driven slow motion drive and vernier scale ; and a standby switch which can also be used to control auxiliary equipment.

The construction and workmanship are of a high standard. The receiver is attractively finished in modern styling and can be supplied in table and rack mounting patterns.

GENERAL INFORMATION

Frequency Coverage

The five positions of the wavechange switch give the following frequency ranges:-

- Band 1 12.7 Mc/s to 30 Mc/s.
- Band 2 5.4 Mc/s to 12.7 Mc/s.
- Band 3 2.4 Mc/s to 5.4 Mc/s.
- Band 4 1.03 Mc/s to 2.4 Mc/s.
- Band 5 480 kc/s to 1030 kc/s.

Circuit and Valve Sequence

Single conversion superheterodyne :
two RF stages : two IF stages on 450 kc/s and incorporating phased crystal filter : AM and CW/SSB detectors :
push-pull audio stages : power and stabiliser circuits.

- V1 ECC189 (CV5331) 1st RF Amplifier (cascode)
- V2 6BA6 (CV454) 2nd RF Amplifier
- V3 6AJ8 (CV2128) Mixer Stage
- V4 6C4 (CV133) Local Oscillator
- V5 6BA6 (CV454) 1st IF Amplifier
- V6 6BA6 (CV454) 2nd IF Amplifier
- V7 6AL5 (CV140) AM Detector/
AGC Rectifier
- V8 6BE6 (CV453) CW/SSB
Detector
- V9 12AU7 (CV491) Audio Amplifier/
Phase Splitter
- V10 6AM5 (CV136) Push-pull Audio
- V11 6AM5 (CV136) Output
- V12 GZ34* (CV1377) HT Rectifier
- V13 VR150/30 (CV216) HT
Stabiliser
- D1 2E1 Noise Limiter (silicon diode)
(* or 5Z4G)

Mounting Style

The receiver is normally supplied in table mounting style. When specified as "940/RM", a special cabinet is fitted to allow mounting in an international 19" size of rack.

Power Supply

The mains transformer has tapings

for 110 and 200/240 volts 40/60 cycles, the consumption being approximately 80 watts. The HT supply is well smoothed and derived from it is a stabilised voltage which is applied to the oscillator valves.

Tuning Drive and Scales

the geared tuning mechanism is made to precision limits and has a reduction ratio of 140 to 1. This, in conjunction with the flywheel loading, results in a smooth positive operation, free from backlash. The straight line tuning scales are clearly marked in frequency, the accuracy of calibration being within 0.5%. The vernier scale, which is read against the lowest scale on the main dial, confers an adequate degree of mechanical bandwidth, available throughout the tuning range, and permits accurate re-setting.

Signal Frequency Sections

The coils, which are housed in a robust diecasting, have adjustable powdered-iron cores and air dielectric trimmers, giving high efficiency and enabling each group of tuned circuits to be aligned to close limits. The separate oscillator valve is fed from a stabilised high tension supply. The input impedance is nominally 75 ohms balanced or unbalanced.

Intermediate Frequency Stages

The well-designed intermediate frequency transformers are permeability tuned to 450 kc/s. A vacuum-mounted crystal is used in the highly effective filter, which has variable phasing. A thermionics diode acts as detector on amplitude modulated telephony, including SSB, a mixer detector is used, incorporating a beat frequency oscillator, the pitch of which can be varied over the range +/- 3 kc/s.

Controls

The following controls are conveniently mounted on the front panel:-

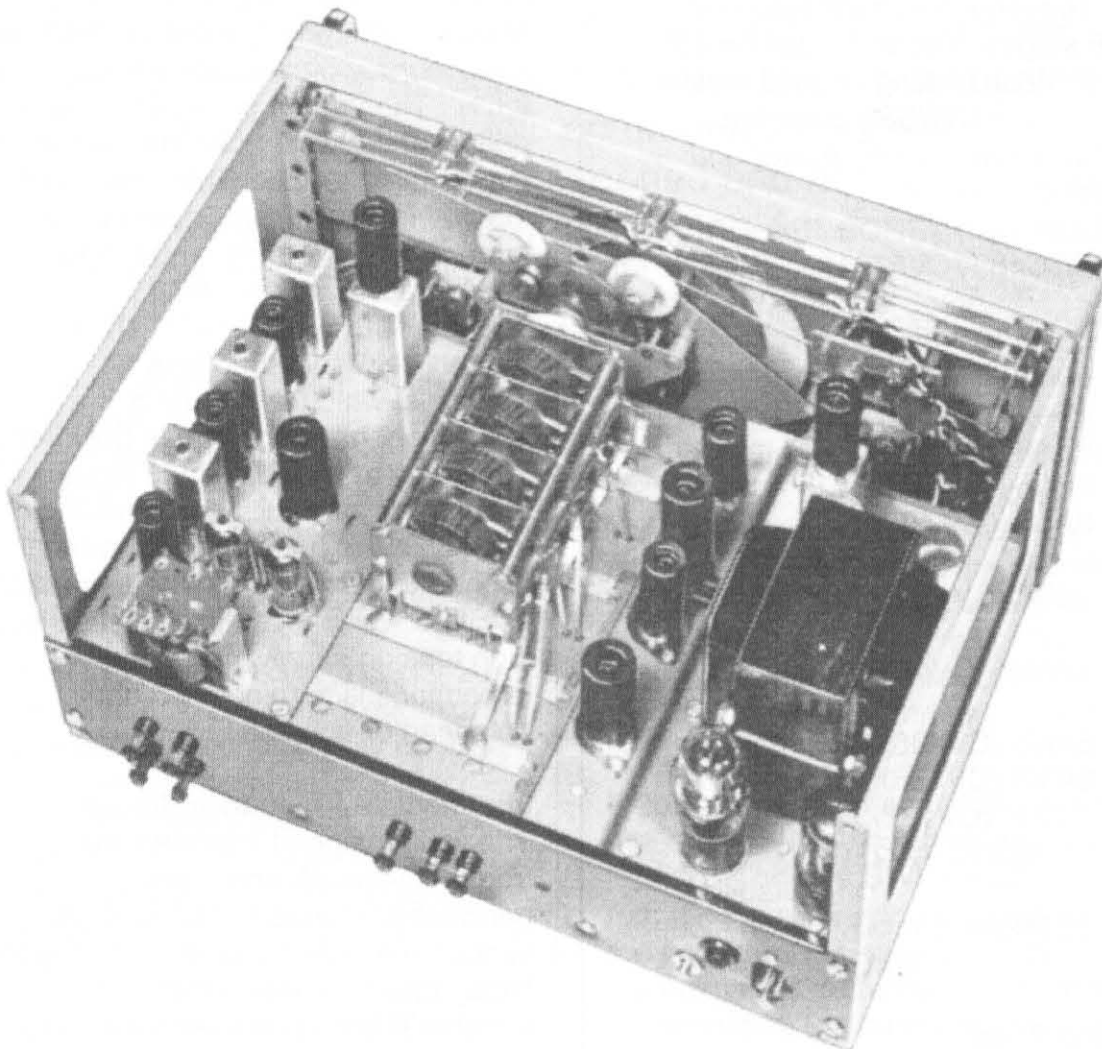
Tuning knob ; wavechange knob ; RF gain ; audio gain ; mode switch (AM – CW/SSB) ; AGC switch ; NL switch ; selectivity switch (minimum, maximum and crystal positions) ; crystal phasing ; BFO pitch ; stand-by switch ; mains switch.

At the rear is a pre-set potentiometer for setting the carrier level meter to zero.

Other Features

A fuse (rated at one ampere) is fitted on the primary side of the mains transformer. All connections at the rear are to spring type terminals which give positive contact and permit quick release. Excellent ventilation is provided.

An external signal can be fed into the audio stages if desired, terminals being fitted at the rear for this purpose.



Rear view of the "940" receiver illustrating the internal construction

General Construction and Finish

The front panel and tuner unit are robust aluminium diecastings and the other units of steel or brass. The cover is made of steel and is easily removed

by withdrawing four screws at the rear. The panel is fitted with chromium plated handles, which are useful both for lifting the receiver and as a protection when the receiver is placed

face downwards. Rigid side-plates protect the interior of the set. Component parts are of the highest quality and are suitable for tropical service. The exterior finish is in two-tone grey and the modern styling leads to a most attractive appearance.

Physical Details

Width 16¾ in. (42.5 cms) Depth 15 in. (38.1 cms) Height 18¾ in. (22.2 cms) Weight 44 lb. (20 kgs)

Accessories

Recommended accessories are Cat. No. LP.2921 or LP.2924 telephone headsets fitted with plug to match the jack on the receiver panel. The Cat. No.935 Speaker, or alternatively the Cat. No. 906 plinth speaker, which takes the form of a base to raise the front of the receiver.

AVERAGE TECHNICAL FIGURES

Sensitivity

A substantially constant sensitivity of 3 microvolts is maintained throughout, for a 15 dB signal-to-noise ratio, 30% modulation, 50 milliwatts output.

Selectivity

The following figures are indicative of the overall bandwidths provided:-

position	-6 dB	-20 dB	-40 dB
MINIMUM (broad)	10 kc/s	15 kc/s	22 kc/s
MAXIMUM (narrow)	4 kc/s	8 kc/s	12 kc/s
CRYSTAL*	400 c/s	2 kc/s	3.5 kc/s

* Phased for symmetrical response.

Stability

Negative temperature coefficient compensating capacitors are fitted to the oscillator circuits and adequate ventilation is provided to prevent undue temperature rise. As a result, an excellent degree of frequency stability is secured after the initial warm-up period.

Image Rejection

at 1 Mc/s 90 dB
at 8 Mc/s 75 dB
at 20 Mc/s 40 dB

AGC Characteristic

The audio output level does not change by more than 9 dB when the carrier level is increased by 100 dB above 5uV.

Audio Output

Connections are provided for 2.5 ohm speaker and for 600 ohm lines, balanced or unbalanced. When a telephone plug is inserted in the jack on the front panel, the speaker is muted. The audio response is level within 3 dB over the range 100 c/s to 8000 c/s. distortion does not exceed 5% at 1000 c/s when an output of 1.0 watt is fed into a 2.5 ohm load. hum level is 46 dB below 1 watt.

Input Impedance

Nominally 75 ohms, balanced or unbalanced, to terminals at the rear.

Instruction Manual

An instruction manual is supplied with each receiver.



Ted's MailBox

A Review of Mail and Happenings

By Ted Moore, G7AIR, Founder of EUG

Ted continues to find exotic new locations for his EUG-on-the-Air activities. The most recent was a visit to that Outpost of the Empire, the Isle of Man.

Port Erin - I.O.M

I guess that I need to get this down whilst I can remember it all, such an eventful 10 days it was. The ostensible reason behind our long - ten day - visit to the Isle of Man was for the wedding of Toni, a niece of my partner's. We were put up in luxurious style by the family at their farm near Port Erin and as they were to be hosting the local Pony Club Gymkana on the 4th April - EUGnet day - I had applied to Ofcom (who now regulate such matters), for use of the Special Event Club Station prefix, GT3, for the I.O.M.

Somebody had commented that skip conditions from the I.O.M to the mainland would not be compatible with our 80m net needs. Whomsoever it was, and I forget who, he was totally confounded. I had on a previous short visit smuggled my gear onto Ginny's boat and had arranged a sked with 'GGL.

After a few opportune contacts it was sked time and he came on. We had extremely good signals both ways even though my location was but a hundred odd feet ASL at Port Erin, then 'XFE joined us. Chris must monitor 3695 on a 24/7 basis I think! Anyway signals to him were ditto so I took it we had proven the link.

The Wednesday prior to the Sunday net I was 2000 ft ASL on the flanks of Snaefell Mountain with my gear and having made a few QSOs early on I sat on channel and QAPed a QSO with those Neanderthals who are

christened the 'Treacheminers' by Chris, usually on about 3693 Kc/s.

Just seconds after they had finished I called CQ on 3695 and lo & behold 'XFE comes back to me at 5 & 9+, just a bit of slow fading. Then came the Sunday net.

I had been on earlier and made a few contacts from the Port Erin location and it was a bit windy so my pole gave me a few worries. The usual gang came up but I had a few minutes with the keen G1EDP who had heard me and called me on OFAM (old-fashioned amplitude mod) well before 0930.

In the event we had a total of 8 EUGers on this April net, and I have since had two SWL reports - from Newcastle on Tyne and from Chester.

Was it Anthony - GW3RYK - who remarked that my signals were consistently good no matter from where I am transmitting? Well it ain't me, it may be the DX77 with it's DSP on Tx & Rx, but it is more than likely that the good signals are down to my having experimented so much with the aërials which I use when /P.

I have gone through a number of different types and recall that for the first net I joined in September last my aërial was nothing more than a non-resonant random wire thrown up into a tree, good signals with everybody but then I was about 700ft ASL on Wireless Hill in Rutland. Plenty of height and a central location.

I am now on my Mark V version of the

80 metres inverted 'V' dipole. The first was coax fed and the 'usual' 66ft legs with the centre feed at about 20ft up using most of my telescopic mast, and the ends drooping down to 6ft at each end.

After some experimentation with 'GGL he actually had strong signals from me with my Mark II simply laid on the short grass. I was at Gedney Drove End on the Wash, I went on to my Mark III where I fed it with DIY twin feeder, centre at 20ft up and the ends simply connected to polyester cords which were tethered to plastic milk jugs so the ends were about 12 inches off the ground.

This lasted for a few months with good enough results but I am never satisfied with the status quo and so came the Mark IV with commercial twin feeder. I trimmed this in situ so that it peaked at 3700 Kc/s - a bit tiring just chopping inches off at a time and re-checking but it worked well.

The latest is the Mark V, as in use now. It is from an idea suggested to me by an old timer over in the I.O.M who had used it on and off since the 1930s until chronic arthritis forced him to give up amateur radio in the 80s. He calls it an 'Umbrella Dipole' and I can see why. It is an inverted 'V' but with a difference. Each side of the dipole centre there are TWO legs with lengths varying from 63 to 67 feet, i.e. each length of wire is one foot longer or shorter than the others. On one side of the centre piece there is a wire 66 ft long and a wire 64 ft long. On the other side of the centre insulator there is a wire 65 ft long and a wire 67 ft long. Get it ? Two dipoles fed from the same feeder but all lengths of wire are different.

These ends are taken to insulators - mine are all made from strips of plastic such as window glaziers use for padding pieces and come from that

BarbeQue named company. The insulators go to polyester cord bought at a local haberdasher's shop and they are tethered with the aforesaid large 6 pint milk jugs so that the ends are about 12 inches off the ground and with the jugs about 6 feet apart at each end. I have since found a version of this in a 1930s booklet put out by Strattons, nothing new under the sun as they say.

A strange concoction ? Yes but don't knock it until you try it. Without even my DIY ATU it gives me almost 1.5:1 SWR from about 3.5 to about 3.85 Mc/s and according to my yardstick, the 40A noise measuring Rx, it certainly is radiating with little change in power over this range.

QSOs too give me consistently good reports on 80m. Again without the ATU it gives less than 2:1 on 21 Mc/s too. It would seem that the usual formulæ for dipoles don't work when you have the ends so close to the ground and the middle up in the air.

I probably haven't finished yet. There will almost certainly be a Mark VI in the future. It looks like being my inverted 'V' for 60 metres/5 Mc/s as 'GGL and I have now received our NOV's for our aerial experiments. What ? me BUY an aerial ? Never !

'GGL & 'XFE will be getting 3 different QSLs from my I.O.M trip. The first sked was using GD7AIR/P. The second was using GD3EUG/P and the net was using the S.E.S prefix with GT3EUG - no /P needed if you notify Ofcom in advance.

It was a lovely holiday in the I.O.M, especially liked was the complete lack of caravans on the roads - they are totally verboten, prohibido, defendu on the Island. The other good thing was the lack of a speed limit on the out of town roads, I borrowed a Merc 560 convertible from Ginny's sister to go

around the TT course, it was out of season !

It is certain I shall be back there long enough for another net later in the year, after the 'season' is over, be nice if I can take my 'dreamboat' Volvo 850 with me.

For the May EUGnet 'XFE had it all to himself! It coincided with the NVCF at the NEC, of course, and I think most of our 'first Sunday' members were in B'ham.

EUG Finances 2004

The audit of our EUG finances has been completed by 'GGL and Jesse our Honorary Accountant has checked it. Suffice to say that copies have been sent to myself and Chris Pettitt. Under 'GGL's capable stewardship we have entered into the current year with a healthy balance in the account. This is not easy with the manner in which Royal Mail introduces these stealthy postal rate increases.

The recent new suggestions for charging may mean that we shall be paying more because we have stuck with the A4 format, in deference to the less than 20-20 eyesight of so many of our members. So, Good work Graeme, and Jesse who also does our packing of the Lighthouse for each issue. On behalf of all EUGers my best thanks Jesse, it's very much appreciated.

NDBs

I have been an ardent 'beacon chaser' since back in the late 1940s when I used a BC453 'Command Receiver', the so-called 'Q-Fiver', and netted many from my home in Lancashire. It was back then that I learned that man-made noise is the biggest enemy down on these low frequencies.

If you are trying to hear NDB Dx tucked up in a warm room in your

home in the town centre then you can forget those REAL Dx hits like North Africa, Iceland, Portugal, Scandinavia etc; you won't hear them for the QRM. My choice these days is on the sea-dyke at Gedney Drove End or Sutton Bridge West Lighthouse where the nearest power lines or dwellings are miles away.

I have camped out there overnight using battery power and either my 40A or an Eddystone marine set. Another factor is the receiver used. I have settled on my 40A for convenience but have tried my 958, 1002, 1570, and the DX-340 by Radio Shack. Whilst this is a good rx in many ways it falls down on several points. I cannot even class it as a communications receiver really even though it fulfills the criteria of having a BFO.

It has a built-in ferrite rod aerial which cannot be disconnected when using external aërials and so this can feed local noise into the RF stages even if you have a good directional loop, which I sometimes do use for NDB chasing. It has too a very high impedance, very sensitive, whip input terminating in a screw mounted on the pcb, an omni-present RF pick up point, the casing is of plastic and hence there is NO screening - a recipe for disaster and maybe the reason why there are so many of this model on the second hand market.

Recent comments by several EUGers anent this side of the hobby have had me trying various combinations of aerial and receiver. Some folk forget that many of the later solid-state Eddystones can be used on a 12 volts supply.

It was a bit over the top to take my 958 out to Gedney Drove End and couple it to my 80 metres dipole but it certainly worked with some new ones heard, one in Iceland one in Lagos, Portugal. On a more prosaic attempt I used my

80m dipole with the 40A one morning. 0900 to 1100 and the high spring tide had the water actually lapping just a couple of feet from my pole.

In that daylight two hours I logged a total of 42 NDBs in all, six have proven to be new catches for me. There were four in France, two in Norway, two in Belgium, seven in Scotland, with the rest scattered around the UK. And remember that for this band night time is best !

Contrary to the rubbish printed in a recent magazine article a frame aerial needs but 14 turns for the tuned winding and one turn for the coupling winding. The several hundred turns they refer to is for a FERRITE cored coil.

My HulaHoop Loop works fine. Mounted vertically on a baseboard with two plastic (NOT metal) conduit fixing brackets and tuned by a 2 gang broadcast type variable condenser, this is a formidable NDB chasing aerial.

I have logged many of these beacons in Scandinavia, Europe, North Africa, the Irish Republic & Northern Ireland. I have a total of seven Icelandic beacons logged and identified.

The above mentioned magazine article gave a list of UK only beacons which is woefully out of date and contains many errors, such as the inclusion of some VHF VORs ! Proof Reading is a seemingly a lost art. It also listed one NDB which went off the air a couple of years back, so tough luck if you want to log that one (HG).

My list is 25 A4 pages long with many thousands of them listed and NO, they don't all inhabit that sub-band between about 280 and 450 Kc/s. The best example of this is LIC the Lichfield NDB which is in the MW broadcast band on 545 Kc/s and audible on your car radio throughout the West Midlands and beyond.

Others are scattered around the MW band and the highest up I have logged is CY on 960 Kc/s, using the loop to null out adjacent channel QRM. The elusive one I really want is on 1155 Kc/s - KA in the former USSR.

Power ? For the most part those in the UK and other nearby European countries use just enough to give them a 'stated' range of 10 or 25, sometimes 50 miles. Others in the Russian and Baltic States use up to ONE Kilowatt ! Some others in, e.g. India use up to TEN Kilowatts ! Honest, I have a list of them ! There is a U.S. NDB in mid-Pacific with a stated power output of 50 Kilowatts !

For DX try MLL at Melilla, the Spanish enclave in North Africa on 292 Kc/s, frequently heard with a path which is in darkness at both ends. Or try TAN on 374 Kc/s which is at the extreme North West point of Morocco, just outside Tangiers.

How about TR, the Ekofisk Oil platform off the coast of Norway but at sea ? This is usually audible in daylight if you live on the East Coast UK. A very interesting side of our radio hobby. The lowest frequency one I know of is on 211 Kc/s and it is in Bulgaria, LKW, never heard it despite many years of trying, but hope springs eternal (so they say).

The 730/4

I've had a few of this model through my hands recently but this one needs a mention. The owner had complained that the calibrator was not functioning. It wasn't either !

I did the usual checks, LT & HT to the valve, No HT ? Check the switch then. It appeared not to be making when the front panel chromed 'push' was operated. Then the penny dropped, I operated the standard type ebonite switch by using a small screwdriver

and it worked, HT appeared on the valve.

Now for some unknown reason, probably known only to some MoD mandarin of yesteryear, this ebonite push switch is not located on the front panel as with other models.



Oh no, this one is craftily concealed inside behind the front panel and on a sub-panel, it is operated by a mechanical linkage from the chrome push button plunger on the front panel. Somehow this had been turned through 90 degrees so that push as much as you liked it simply failed to make contact with the ebonite plunger.

When - with much finger twisting - the chromed plunger was rotated back by 90 degrees it once more made contact with the top of the ebonite switch and the calibrator obliged with the usual beep.

This was a very far from cost-effective way of doing things, when the usual Eddystone method of mounting it on the front panel would have served the purpose well, very complicated and time consuming too, still why worry, the MoD was paying.

Range Switches

The Yaxley family of range switches have a nasty habit of becoming intermittent and some twisting back and forth is occasionally necessary to get them 'spot on' with the contacts making properly.

It may at first appear like a classic

'dirty-contact' fault but no, it is more than that. Over the years, and with frequent use, the fixing nuts which hold the wafers in place either work loose or grind away the paxolin of the wafer. If just the former then okay, tighten them and all is hunky-dory. If the latter, with bits chewed off the wafer around the fixing hole, then TOUGH.

It may well be possible with a little dexterity to repair the wafer with Super Glue but otherwise you need a new, or second hand, wafer. This is like asking for the pot of gold at the end of the rainbow. And even if you buy a spares set, one no longer repairable but a source for many parts for your good set, it is not all plain sailing.

Over the years that a particular model was in production the factory may have had to swop over to a slightly different type (& size) of part. Viz; the EC10 which during it's production lifetime used THREE different types of Range switch wafers - different fixing hole locations for a start !

Of course the type YOU need will never be the type in the available spares set, that would be TOO easy.

Wrong Polarity

Do you know the 4-way plug socket combination as used with the Type 924 psu, & battery box, for the EC10 and EB35 series ? It is also the same as on the 40A receiver.

What a design mistake, and so unlike Eddystone. If you try and force it in, real brute force, then you will split the plastic moulding and if the on/off Switch is ON, you risk momentarily applying reverse polarity to the receiver which - of course, uses those "fastest fuses on 3 legs" trannies. The only indicator used by the manufacturer was a yellow paper stick-on blob to designate which end of the plug went to which end of the socket.

Yes I know that the ridges on the plug are supposed to prevent the thing going into the socket reversed but if you try, like REALLY being brutal, it is just possible to get a reverse 9 volts onto the pcb.



How do I know this ? No, I haven't done it myself but this EB35 owner must have - he admits that he tried plugging the battery box in without lights during a power failure, and fumbled around a bit ! The set never worked at all after that, and so it ended up with me.

The first ever repair that I get to do in my new North Wales playroom and it has to be this. Not only a set of new trannies but also new zeners. I guess that I am lucky that none of the electrolytics had popped - but then the power wasn't on long enough for that.

Still I had to replace a couple of them which had dried out and showed very low capacity. Luckily Birkett's of Lincoln had supplied me with a good stock of those Ge-pnp output transistors a few months back. Took me all of 5 hours to get the thing working again, a minimum of re-alignment and it was packed up for return.

Simple but Sure

The 870A, like it's ancestor the 870, is a basic 4 + 1 circuit but it has one great advantage over the ordinary domestic set - it has a metal case. An EUGer has written to me to say that the ordinary domestic trannie located

in the kitchen within a few feet of the appliances, has always been prone to pick up all manner of clicks, beeps etc; especially from the central-heating boiler.

After complaints from the XYL when her new electric mixer drowned out 'The Archers' on long wave Radio 4 it was decided that something needed to be done, for domestic tranquility.

The 870A was brought down and plugged in just where the Sony had previously been. This 870A is fed from a double-wound dropper-isolator transfo in a box and the set runs cool on about 118 volts.



The ærial was brought in via a length of screened cable advertised as having very low screen to inner capacity. The screening was not taken to the set's mains earth, but directly from the RF earth socket to an outside earth - in the ground.

With some forty feet of ærial wire led up to a bracket on the eaves the signal pick up was more than adequate and signals were almost without QRM. Yes, if you really tried because you knew it was there, then you could just hear the boiler igniter but it was so far down on the received signals as to be no longer an irritant. This system was not hit on immediately but was worked out over several days; he says that so far it seems fine.

Test Gear Prices

I'm sure that like me, many of you will have some items of test gear of

yesteryear, favourites which still work well and are preferred to modern flimsy gear. Mine include a BC221 which is often left on to provide the 1 Mc/s beeps for calibration when using sets without a built-in calibrator. I also have a couple of AVOs, big, heavy, but totally reliable and robust as a Sherman tank.

Recently I was asked to arrange the disposal of a whole car load of such gear. Not knowing what I was letting myself in for I agreed, and so began my FIRST lesson in selling prices for old, but working, testgear.

I hawked the load around several local dealers and got no interest, apart such comments as 'got a whole warehouse full of that stuff mate', or one offer of a few 'quid' for the whole car load.

When I pointed out the prices that some particular items were being offered for sale at in Wireless World I got told that 'Yes, and I've had them for seven years and only sold one out of the ten I bought'.

It shocked me to be offered £2 for a very good working Marconi sig; gene; - still as stable and accurate as much modern plastic stuff. An Advance switched decade square/sine oscillator brought £4. And so on.

I now look upon my cherished test gear in another light and have wondered whether I am on the wrong track. Could they possibly bring in more as scrap metal ?

Notwithstanding this I shall continue to use my own test gear, one lot of which has been ferried up to my new playroom together with over THREE tons of Eddystone receivers.

Here in Wisbech I have just about 30 odd sets which are either in the process of repair or are awaiting my attention, whenever time allows.

Help !!!

Yes indeed HELP, if not a Mayday then this is a Pan call to anybody out there with a manual of, or any knowledge of, the Eddystone channelised LF/MF receiver model 1560R, mine is a /2 version, rackmount and about the dimensions of a 958.

It contains myriads of ICs; µprocessors; has thirty switched channels plus variable tuning over 180-535 & 535-1600 Kc/s with an LED digital readout. I have been told it is aka the Marconi Marine Marlin, but even quoting that to the bods at Marconi got me nowhere. I do know of one EUGer who has another one ! So PLEASE help me get this beast working.

"R"

Yes, 'R'. I have always associated it's use as a suffix to designate a set as being for VHF, with 'U' as being for UHF and 'S' for Super High Frequency. As with 770R, 770U, 770S, or 990R, 990S, etc; - are you with me ?

Yet here I have this previously unheard of model on my hands which breaks all of the previously accepted usage. It is not even in the QRG ! It will be in the next one though as the label on the rear panel is very definite in saying Eddystone Radio Model 1560R/2. And if this is a /2 version where is the /1 ? Even my Model 1570s are /3 versions, and we know little about them.

Although I do have a stock of manuals for this 1570/3 model.

Incidentally I am still on the lookout for any of those Eddystone Channelised Marine Receivers such as the 964, 1670, 1680, or 1964, or even one of the early, crystalised 5000 series of the Orion. (STOP PRESS!! got one ! See later. Thanks Dave.)

Bonanza Time

Yes it was that, certainly ! A quick 200 mile dash up North after seeing the ad in RadCom as soon as the mag came through my letterbox. In exchange for £300 I became the owner of two panadaptors and two receivers ! Of course when one factors in 400 miles of petrol money things change a bit but I am still content with my day out.

I got a 1990R and its companion EP961 Panadaptor which is mounted on top of the Rx with the correct double-ended rubber pegs. I also got a 990S with its companion EP17R and the IF converter.

It is just possible that I was singing to myself on the return journey - lucky nobody heard me or they would have thought I was in dire need of medical

treatment ! All work well and are installed here.

Then of course I get a call from John in Colchester to come down as he had got me THREE of the coveted (by me) marine channelised rxs. So off I went and back I came with all three. Two are 964/7s i.e. single channel ssb rxs and the third is another one of those 1560R mystery sets. I now have a working one to compare with my non-worker whilst repairing it.

That same week I get an SOS from 'GGL to rescue a 730/4 from Yarmouth. I went whizzing off down there with the cash to collect it. That week I covered well over a THOUSAND miles on my Eddystone collecting trips - if only I had shares in BP.



Ted's display of 'First Sunday' exotic locations at the NEC

The NEC

This year was a real Blast, as Big Ears would have called it. We had FIVE

tables in all and from my observation we had the largest display of any in the Hall. There were several dealers with four tables, but our five made EUG the

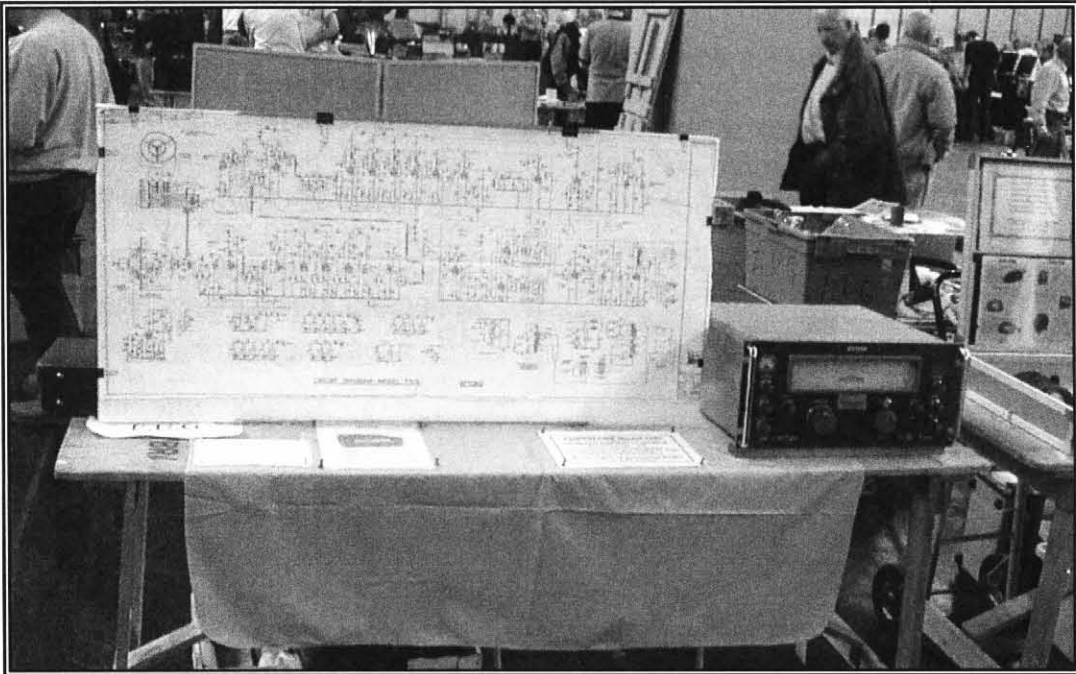
largest.

The usual 'gang of five' turned up. Chris Pettitt our Mr Moneybags, 'GGL, James de la Mare, Dave Simmons, et moi ! With loads of fodder and five tables to display our wares we all had a good day, but a tiring one for me.

I left home at around 0300, was second car into the Hall when they opened and had my stuff (the G3EUG

display) set up before the others arrived, this gave me time for a wander around.

During the day I did buy a fair amount of small stuff but no Eddystone Receivers (!) Then I spotted the prize of the day. No less than a Catalogue Number 1052 loudspeaker box with its original Celestion speaker still in good working order.



At the NEC James de la Mare displayed his rare 500 Mc/s – 1000 Mc/s Eddystone Model 770S and circuit showing all 30 valves

The Eddystone label on the back gave info for connecting it to a triode or pentode output stage, or even a push pull stage. The steel, spot welded enclosure needed much work to remove and neutralise the rust but using the stuff they sell in car parts dealers I dealt with that and then smoothed the surface down. A couple of coats of Hammerite from a spray can and the speaker is back together again and working, at this moment with the aforementioned 730/4 on prolonged test in the kitchen. The speaker sounds good too.

A departure from it's original styling is

that it now sports an EUG badge front-top-centre, looks good ! Finding the thing on the floor under a dealers table was just pure serendipity as I had gone there to look at a Marconi CR100.

This was priced at £75 when he first put it on display, had gone up to £85 by midday, had not sold and so by 1600 I got it for £65. When I got it home

I discovered that all of the fixed condensers and fixed resistors had been replaced, quite a pro job too. After the show I followed 'GGL home to the Bewdley Ranch to take delivery of his KW2000E which is now here and

working well. I discovered that it covers 2.0 to 2.3 Mc/s and 15.0 to 15.5 Mc/s as well as the Ham bands so this is a bonus.

I shall use it portable on the EUGnet working from batteries into an inverter, no harm in experimenting is there ? I now have the solid-state Alinco, the Yaesu (valve) FL50 + FV50, the KW and by the time you read this I hope to have my Orion 5000 on the air too (thanks Dave, I owe you).

This is crystallised of course but I am thinking of buying crystals for the channels I need OR operating from my Eddystone/Marconi Marine synthesiser Drive Unit. Help ! I need a bigger house !

Dunstable Downs

This was really a good show. One of the biggest of the year and I got there before even the organisers ! At just gone 0600. I was able to wander around as is my custom as the dealers were setting up and get a few odds and ends, but no Eddystones.

I did just miss a somewhat cannibalised 890/930 set by seconds but it was bought by one of us, an EUGer so that is okay by me. It was good to meet up with Chris, G3XFE and Dave, MW1DUJ plus several other EUGers.

Maybe I ought not to mention that 'XFE is also into those alien Command Receivers ! Still, I too have a number of such aliens here. I am shocked at the prices which some stuff such as 1154s, 1155s, HROs etc is bringing these last few months. Makes me wonder what my stuff is worth and is one reason I transferred most of it to a 'safe haven'.

There is always One, or Two

Yes well I have been told a few times recently that 'GGL and I are a bit

naïve, seems it might be so in my case. My habit of giving away freebies, both manuals and second-hand spares like knobs or trannies has back-fired in a couple of cases.

Of course I have always known that some of our members are also dealers but I have simply accepted that they will play fair. I know well that most do but two recent 'happenings' have upset me a bit.

One EUGer, only now found to be a dealer, has had both manuals and 'bits' from me for Eddystones and some domestic aliens - all free with me paying the postage as well.

Another was spotted offering an Eddystone for sale with the manual a 'tenner' extra. Since it was one of MY easily identifiable photocopied and bound manuals I did feel a bit irate. However I have learned to keep my cool these days (old age ?) and so made no comments to him.

One EUGer upon hearing of this suggested sending a couple of 'heavies' around to sort him out, sorry John can't do that these days. Anyway I shall have to re-think my previous generous policy over a bit.

Freebies

Sometimes my habits of giving freely of my knowledge and experience can bring rewards worth having.

My contacts in the RAF and in one case the army have meant that I have been asked for both manuals and museum type blurb cards for Eddystone gear used by these services over the past 60 years.

I quite enjoy these contacts as in many cases the museums concerned simply cannot get this info from 'official sources' - strange but true.

Anyway last year this brought me the offer of two 'freebie' tickets for the

RIAT, Royal International Air Tattoo, at RAF/USAF Fairford. You just don't say a polite 'No thanks' to an offer for £60 worth of such goodies, and so 'GGL and I had an enjoyable day at the Air Show for Nowt, except any goodies we decided to buy.

Overcoming the incompatibility of our mobile phones (they'll never catch on those devices, too unreliable !) we did eventually manage to meet up, only to lose each other again later in the day.

Well anyway coming up to the booking time, last month, I cheekily rang my benevolent contact of last year and enquired if there was any slight chance of a couple of his 'freeby' tickets for this year's show. 'Call you back' was the reply & he really did.

An hour later he was asking me how many I wanted, two or three ? Well I had to say the same - 'Call you back' ,I said. I first consulted with my two young ladies and got the expected looks of disdain and total disinterest as they are both of that ilk who just know that aeroplanes cannot possibly fly, and that if ever they do succeed in getting off the ground with the Almighty's help, then they will certainly plummet earthwards as soon as He turns His attention to some other cause. True sailors both of them.

I then had to consult with 'GGL. As each adult ticket allows the holder to take in an infinite number of under-16s I am left wondering what is three times infinity ?

So we decided to invite our accountant, Jesse, and her youngest, Tom, to come along for the day. Jesse is much more air-minded as her dad used to work for Boeing Aircraft in Seattle and her sister still does. A nice way for them to thank me and we are now looking forward to the Air Show. Always pays to keep in touch !

Future EUGnets

I am thinking seriously of another operation from the Great Orme - I like it up there, also on the cards is another from the IOM, - I like it there too ! The one from the Orme looks like being in September, the one from the I.O.M. (Snaefell maybe) is likely to be October.

A long way ahead I know but if any EUGer is interested enough in taking part, licence to operate or just as SWL helper, then please get in touch ASAP. You will need your own transport but as always I shall provide enough fodder to feed an army and the gear and 'helpers' always get a commemorative A4 sized customised QSL.

Wireless Telgraphy Act (1904)

None of us were around then, not even 'GGL, but what happened on August 15th 1904 still does affect all of us, licenced amateurs or not.

On that date the Wireless Telgraphy Act was put on the Statute Books and amongst other things it empowered the then Postmaster General and all of those succeeding him in the post (pun) to insist that anybody owning or operating wireless equipment - both sending and receiving - should obtain from his Department a Wireless Licence. Naturally one had to pay for this privilege, so paying yet another tax.

It is ONE HUNDRED YEARS from the above date in August this year and whilst few appear to know this I decided that I would apply, on behalf of EUG, to the successors of that early Postmaster General (Ofcom as they choose to call themselves) for a special event licence with the callsign GB4 WTA to be valid throughout the month of August 2004.

I shall on several occasions be

operating this station from the top of Wireless Hill, a suitably named location near Halstead in Rutland and would welcome any offers from

EUGers willing to turn up and assist, operate (if licensed) or just generally help clear up. This location is @ 700 feet asl. Operation is envisaged on 80 metres only.

Dates are tentatively set for August 1st, 8th, 15th, 22nd, with operating times to be from about 0800 local time. Further details available from me by phone nearer the date.

A Note here from Chris GØEYO. He suggests that all those members with E-mail register their mail-address with Graeme G3GGL who can then send out bulletins of Ted's latest special activities. Don't forget to use Graeme's new address: g3ggl@btinternet.com

The first date is also the EUGnet day so operation will be as a net, other dates will be treated as normal QSOs with contacts passing relevant data (callsign, operators name, QTH, Signal report and then letting the next caller-in to have his turn, no long 'rag-chews'!

If there is interest enough, and if time allows me to get there, then I may operate on other dates between the 1st & 28th. As usual there will be customised QSL cards sent out from my end both to participating amateurs and to SWLs sending in reports, direct posting to EUGers but via the Bureau for others not in the Call Book. Call me if you need more info. (*Mobile 07957 951 998*)

Editorial Foot Stamping !

I have been told by 'GGL that I have to do away with my paragraph indents, something which I was taught to be essential at school. This may be something to do with infernal computer layout I think.

I just hope that he does not extend this ban to my use of diphthongs, as in ærial, etc; if this happens I shall feel the need to increase my chocolate intake to compensate ! Only joking !

(Note from 'GGL, it's all very technical, but sometimes Ted's indents manage to go where they shouldn't, so it's best not to have them in the first place. I use half line spacing instead.)

A Truly Sorry Happening!

And it is too. When somebody goes to the widow of a Silent Key and claims to be representing EUG then buys the offered Eddystones for peanuts, really junk item prices, then I get in a really bad temper. My temper is well known by my friends to be something to be avoided. Well, after the so-called EUG Secretary found out at the Horncastle Rally we now have been told of this Imposter by an absolutely impeccably reliable source.

We don't have a Secretary or any other 'club officers' in EUG, and thank heavens we don't, I say ! The only persons likely to call on you or anybody as being 'from EUG' will be myself, Ted Moore, or possibly Graeme Wormald if near his QTH. We can both produce ID too if necessary. Anybody else will be a fake. I guess both 'GGL and Chris will have their say on this matter. We do know his identity.

The Orion 5000

Yes, I finally got one ! Thanks to the generosity of one of our keen, long time members. Thanks Dave, you are a pal.

The day began with an early a.m trip to one of our keen members not far away from Wisbech, to drop off some 'bumf' as he is playing with a nicely resurrected 830/7. He still needs a case for it so if anybody can offer one please let me know.

(Okay Graham ? promise kept).

Then came the journey down to Llanelli, some miles beyond Swansea. After the deal and a gossip I set off northwards to Bewdley as I had promised to show it off to 'GGL. I had incidentally to deliver a large crocodile to his XYL Eda, just don't ask for details !

A couple of hours there examining the 5000 and then off I go on the last leg of my latest marathon, overnight to Deganwy. I had left home at 0600 and finally got to Deganwy by 0300 next a.m. A mere 21 hours of driving and talking which left me 'doggo', after more than 600 miles.

It is a pretty set, 'looks really cute' was Ginny's comment, coming from her that is praise indeed. I am over the moon about finally getting one for my collection and promise to have it at the



next NEC.

However, and here I shall be upsetting some folk ! I am no longer surprised that it was never a commercial success, sorry Chris & others. I do know the restraints under which you operated in those years. In the 1980s when this was being made and marketed I was working for a Thorn-

EMI company and comparing the modern, up to date processor-controlled electronic equipment we were designing and selling then, the 5000 looks very dated. It uses 1970s generation semiconductors, hardly an I.C in it bar the AF module which uses by then 'old hat' versions of the 4001 and LM324 plus the AF chip.

All of the crystal oscillator stages and IF stages use such as BFR54 type bipolar trannies with a couple of mosfets thrown in. After having spent much time perusing the manual and examining the set itself I honestly believe that it had no chance of becoming a 'good-seller'.

The pcbs in mine are dated 1988 so it is one of the last made and when I think back to compare the stuff that was by then flooding in from the Far East, no wonder prospective customers chose other more 'user-friendly' sets.

Mine is in almost pristine condition, still in the original packing, even the power leads look unused as the ends did not have the insulation stripped for use. When I came to power it up however the really chunky looking hand microphone had a duff Tx/Rx push switch. Upon examination I found that the internal moulding which held both normal mike insert, noise cancelling mike insert, Tx/Rx switch and NC On/Off switch was simply not up to the job, not for continued commercial use.

I discovered that the problem lay with a single thin rib of polythene of about 0.15 inch cross-section which was expected to hold the push switch in place. It was simply not strong enough and had broken at one end. This allowed the whole push switch to move out of place when the Tx button was pressed in.

Poor design indeed, but easily remedied by using superglue to hold in

place a bracket of thin paxolin.

The next problem was almost nil output from both transmitter and receiver on 5 channels, a bit more on the sixth channel.

It proved to be a duff BFR54 buffer amplifier on the crystal oscillator board. Now did I have one of that ilk? No way! But then I recalled a recent repair done to a nice domestic type Telefunken owned by Ginny. There were several BFR54s in that set and as she rarely used it at home could I maybe surreptitiously 'borrow' one until I could go shopping for spares?

Without asking - as I knew what the answer would be - I borrowed a BFR 54 to replace the dud in my 5000. It worked too!

I got the set working on its six channels into a dummy load. Now here comes another matter where one could feel let down over this model. Mine is a 5000/2 which has provision for 13.6 volts battery use as a mobile set or AC mains use from a built in psu.

Fine but in the manual it quite clearly tells you that the 5000 will never produce its rated 120-150 watts of sideband when used on AC mains as the built in psu is not beefy enough! What a let down.

The 5000 is just not 'user-friendly'; not for an unskilled commercial operator nor for such as myself. Fine, it does have extensive RF output 'padding' so that it can operate continuously with a poor Aerial SWR but to discover that it incorporated a derated mains psu was a real 'downer' for me.

Then I went on to investigate the crystal changing methods. Not a case of just taking out the old crystal and plugging in the new one. That would be too easy. It would be necessary to send the whole set back to the Bath

Tub for new coils to be fitted in FIVE pcbs to match the one of five bands covering the 2-16 Mc/s range. What exactly would the poor trawler captain do whilst this was going on?

Definitely not one of Eddystones best sets. You all know me by now, not one to decry Eddystone products but in this case, well ... The only thing about it which says 'Eddystone' is the one centimetre high logo on the panel. Even the knobs are of the type sold by Maplin et al;

It came channelled with all six crystals for the following frequencies, - 2526.8, 2817, 3371.5, 5100, 6831, 6900 Kc/s and try as I can I am unable to locate them in my frequency listings, bar 2817 which has in the past been used by Ostende Radio but appears no longer to be in use.

None of these are of use to me and so I am investigating the idea of buying in crystals for +/- our 3695 EUGnet channel, or using an outboard vfo.

At £18 per crystal the vfo seems a more likely route to take. More later on this when I get it on 80m. The filter fitted appears to be for lower sideband too, marine use always favours upper sideband so who was this one for?

West Heath ?

*Now I do NOT usually say in advance where I shall be for the coming EUGnets but I have plans to operate from West Heath in a couple of months time -HONEST !!

All arrangements are in place, be nice if I had the 5000 ready by then !!! Be nicer still if Chris could air G6SL too for that net. It will hopefully be in JULY, CU then if you can get onto 80 metres for the July EUGnet, special QSLs as always.

All the best from TED. ♠



WIRELESS TELEGRAPHY ACTS, 1904—1926

LICENCE TO ESTABLISH AN AMATEUR WIRELESS STATION

Mr. Alec Wormald on behalf of Mr. Anthony W.S. Wormald as his agent of Little Gables End, Oteley Rd, Bramhope, Leeds, Yorks. hereinafter called "the Licensee" is hereby authorized to establish a wireless sending and receiving station (hereinafter called the station) at the above address

subject to the conditions overleaf and to the payment of a fee of £1-0-0 on the grant hereof (the receipt of which the Postmaster General hereby acknowledges) and a fee of £1-0-0 on the anniversary of the date hereof in each year.

This licence is subject to withdrawal or modification at any time, either by specific notice in writing sent to the Licensee by post at the address shown above, or by means of a general notice in the London Gazette addressed to all holders of amateur wireless licences.

Any breach of the conditions or non-payment of fee will render this licence liable to cancellation. In event of cancellation no part of any fee paid in respect of the current year will be returned.

Issued on behalf of the Postmaster General } J. Cohen 16 DEC 1949 Date

All communications should be addressed to the Engineer-in-Chief, Radio Branch, General Post Office, London, E.C.1, quoting Reference W5/5.F.A. 2109

N.B.—Any change of address should be notified immediately (Prior authority must be obtained before the station is established at a new address)

E-in-C 435 (Rev. 29/11/45)

I may not have actually been around when the Wireless Telegraphy Act of 1904 was enacted, but my first licence was produced under its provisions in the first half of the Twentieth Century. It was issued in the name of my father, Alec (later to become G3JQE) because I was under-age. (I was, of course, a child prodigy!) Graeme G3GGL



The Other Man's Station(s), Barry Jackson ZS2H

Some of our members may recall the SOS made in PW earlier this year when Barry, ZS2H in South Africa was looking for details of the Eddystone 888 hambander.

It didn't take long to get him enrolled as a full-time EUGer and he was recently thrilled to acquire a mint-condx 680X to join it.

Here we see them at the 'vintage' end of his bench with a Swan

500C and psu of 1974 vintage which runs 500 watts of SSB. Below it is a Johnson Viking Ranger of 1952/4 which runs 80/100 watts of AM/CW.

Barry is located at Port Elizabeth on the southern seaboard of Cape Province and at the other end of his bench (below) is his main rig, an Icom IC-738 plus IC-2KL 500 watt linear. This is coupled up to a 4-ele tribander on a 15m crank-mast.



His newly-studied QRG has already led him to an Eddystone AW4 of the early thirties, just up the road at Port Arthur. Barry plans to investigate it shortly.

And doesn't he keep a tidy shack? I have to crop heavily any snaps taken in my radio den! ♠

The Sixty Metre Experiment.

Aerials, Matching Units and Rigs

Graeme Wormald G3GGL

In September 2002 the Radio Communications Agency (*now re-named 'Ofcom'*) initiated a concession whereby UK licensed amateurs are allowed to make propagation experiments on specified military channels in the 5 MHz band. In particular, near vertical incidence reflection (NVIR) is to be investigated to overcome the problems of radio communications over undulating land, where VHF is screened and normal HF skip distance is too far. With a view to carrying out controlled tests under varying conditions Ted, G7AIR, and I decided to apply to 'Ofcom' for the necessary "Notice of Variation" to our licences.

These have recently arrived and it might be appropriate here to summarise the regulations before delving further.

The spot frequencies are 5260, 5280, 5290, 5400 and 5405 kHz. Upper sideband is to be used for SSB.

Morse, RTTY, data, Fax and SSTV are also permitted. The facility expires on 31st July 2006. Operation may be fixed or temporary (i.e. portable). Contact may also be established with military or military cadet stations such as the Air Training Corps, Combined Cadet Force, Army Cadet Force and Sea Cadet Corps.

As a former signals corporal in the CCF at school in Leeds I operated regularly on the old "Queen Easy" net on 6400 kc/s before I became a licensed ham. In fact, I recall that one of our early (pre-war) training manuals made reference to the old Wireless Set No 11 (the predecessor of the W.S. 19 and 22) covering what was vaguely

called "the Army Band". Some time later I discovered that this referred to the old 40-metre amateur band (7.0-7.3 Mc/s). The inference is clear; the band was kept quite free from commercial use and in time of crisis the closure of amateur stations gave the army a clear 300 kc/s in what was a prime section of the spectrum for medium distance communication on low power.

Among other recommendations is the use of the SINPO code for exchanging reports. This is a SWL Broadcast reporting system and not used previously by the ham fraternity. It has the advantage of being a subjective system using the numbers one to five for 'goodness' reporting. The initials represent the following:-

S = Signal strength (QRA)
I = Interference (QRM)
N = Noise (QRN)
P = Propagation disturbance (QSB)
O = Overall readability (QRK)

A 'perfect' transmission would rate SINPO 55555 (*unlikely!*) and a terrible report would be SINPO 11111.

Ted is in possession of a modern Alinco SSB transceiver which covers the 60-metre band by internal adjustment, no hassle. But I'm still quite happy with my Trio TS-530S of 1982 vintage. It's a cracking piece of kit and I would have nothing said against it. BUT, and it is a big but, short of a near complete re-build it's never going to cover 60 metres! It's choc-full of tuned circuits . . .

So the decision was made to update. I started to read the adverts for the first time in years and after the greatest deliberation picked on the Icom IC-718. This is a neat and compact (9" x 9" x 3") 1.8 – 30 MHz, 1-100 watt rig with general coverage Rx (30kHz – 30 MHz) needing 13.8 volts at up to 30 amps. It's a quite unassuming model listed as "entry level" but the facilities are far more than I shall ever require! And at a QRK of £449 plus £89 for the psu I reckon it's jolly good value. The main agents set it up on 60 metres for me at no extra cost.

Yesterday (22 May) Ted, G7AIR, made an expedition to North Wales with his well-known EUG First Sunday Special Event station with the addition of a 5 meg dipole. I prepared to work him on the new band.

Not having a 60 metre aerial I tried to load up my 285 ft loop using the Trio AT-230 atu from the TS-520S rig. I thought with a bit of luck it would tune up on either the 80 or 40 metre range; but no. So I got down my old KW E-ZEE Match from the late 1960's This is a classic all-band balanced feeder tuner, highly sought after these days. As my big horizontal loop is, in fact, a balanced aerial (even though I do load it – quite naughtily – with unbalanced co-ax) I constructed a little adaptor and

coupled it up to the E-ZEE match. The immediate positive reaction proved two things: the 80-metre loop will tune-up on any frequency and the E-ZEE match will cope with anything.

I had tentatively arranged with Ted to call him at 13.00 local (ie Saturday lunchtime). I warned him about picnickers but he said he had no fear!

At ten-past twelve I was checking the set-up before lunching when I heard Ted's voice booming through on the channel. He was just finishing a QSO!

I called him and he came straight back with a five and nine (old habits die hard!). There was a little QSB but nothing to get upset about and condx were equal to the best on our 80 metre nets.

Having established our presence on the new band I asked Ted what power he was running. Five watts. Not bad! Hastily opening the IC-718 handbook I reduced my power from 100 watts to 1 watt. "Hardly notice the difference" reported Ted.

I notice that the new ICOM-7800 has now arrived in the High Street. Nice rig; nice price (if you can get it!) £6k+. Believe me, if you're Mr Average Ham, you'll be quite happy with the IC-718 and will save yourself £5.5k.

New projects at this end for the new band (as well as the EUG Net) take the form of a massive six-plus-six-way rig-and-aerial change-over switchbox (diecast Eddystone, of course). Plus a raft of new doublet aerials to feed from a covey of E-ZEE matches.

We shall be able to make instant comparisons with any power and any aerial. The ultimate target is to find the smallest aerial which will give a decent sky-wave the other side of Clee Hill (1800 ft above sea level; Bewdley 100 ft). Watch this space for more reports.



E.U.G. PRIZE CROSSWORD No 20

COMPILED by COLIN CRABB G4HNNH

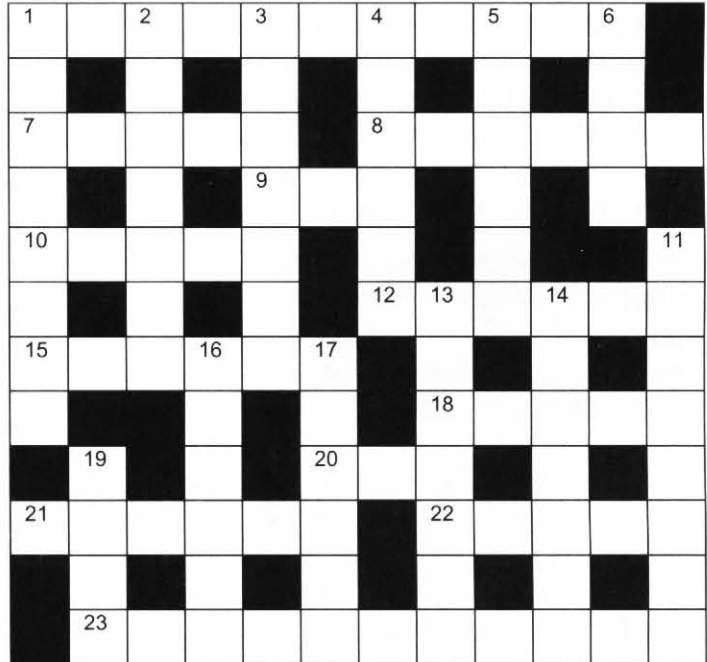
Photocopy or write out the answers so as not to spoil your copy. Send to Graeme Wormald at 15, Sabrina Drive, Bewdley, Worcestershire DY12 2RJ, England, to arrive not later than 25th July. See next page for further details. Don't forget to include your name!!

ACROSS

- 1) Linear amplifier (11, colloq.)
- 7) Negative ion in an electrolyte (5)
- 8) The SI unit of plane angular measure (3)
- 9) Screw thread cutter (3)
- 10) Valve category for the following: EAB1, DA90, UB41, EA40, etc. (5)
- 12) Member of a famous female television dance troupe of the 405 line era (6)
- 15) Autos supplied by an Arthur Daly type could reveal a gamble (4, 2)
- 18) Placed bets at 20 to 1, named a stake and saw winnings made of £200 (3, 2)
- 20) QSL currency (3, abb.)
- 21 & 23) Official description of the Eddystone Orion 5700 (6, 11)
- 22) Railwaymen's union (5, abb.)

DOWN

- 1) Later aid perhaps, for valve base and coil former repairs etc. (8)
- 2) Supporters for picture taking (7)
- 3) French poem (7)
- 4) Political revolt (6)
- 5) Describes lack of voltage across a faulty component (2, 4)
- 6) Bass boost and treble attenuation



for vinyl recording playback is known as --- equalisation (4, abb.)

11) A graph plotting I_c against I_b for a transistor in common emitter mode shows the - characteristic (8)

*13) Scottish teatime delicacy (7)

14) Reference to a member of a group of peoples in central and E. Europe inc. Russians, Poles, Czechs, Bulgarians, Serbo-croats etc. (7)

16) Raw material used in the manufacture of semiconductors (6)

17) Indispensable chassis bashers' tool (6)

19) Components (4)



E.U.G. CROSSWORD NEWS

Most Winners of the Year

13 correct entries; 4 near misses.

"You are quite right, we all do it for fun, don't worry about prizes. Those who need prizes do those (x-words) in the national press; we just want to see our names in the club mag."

Well said, Mike, because we really have run out of "prizes" for all our entries. But if any entrants are bursting for a special handbook, Ted Moore will try and accommodate you. Try him.

Of all the odd "near misses" this month was the aforementioned "Mike", because he thought the cricketer was "INRAN". Mmmm.

Barry and Gary both managed to get "Au Pot" for Volume control. Now whoever heard of an AU Gain, chaps?

The other trap was found by David and Barry who decided that RTE (short for *Radio Telefís Éirann*) could be RFE and RNE respectively.

Those were the only errors, so here's this month's Roll of Honour:-

Brian Blake G3JOS of Rugby

Roger Bracey G4BZI of Crewe

Elizabeth, xyl of Richard Gaskell
GØREL (*who beat him to it!*)

Dave Jones MW1DUJ of Llanelli

Joe LeKostaj K9LY of Illinois USA

Tor Marthinsen of Tønsberg (N'way)

Ian Morgan GM3OZJ of Fife

Mr G Oakes G3WRU of Cheshire

Jack Read of Cheshire

Dr Roger Roycroft G1NXV of

Cheshire

Richard Steed G3YUJ of Suffolk

John St Leger G3VDL of Devon

Fred Woods of Liverpool

I can't recall when I typed out such a formidable list of correct entries. I suspect that No 20 may stop some of you in your tracks; it's certainly stopped me.

The only "plane angular measure" (8 across) that I know of is the angle of dihedral (or the angle of attack if we're getting into aerodynamics). I'd better get the books out.

Now for all those who 'have a go' but don't quite finish, here are the answers to Crossword No 19:-

Across: (1) HEAVISIDE (7) REME (8) ASPEL (9) RTE (10) EMIT (11) COSINES (14) ENLIST (15) GADGET (16) ELEKTOR (19) CITY (20) HOT (21) AF POT (22) OBOE (23) CONDENSER

Down: (1) TERMINAL (2) HEAT SINK (3) ASPECT (4) ISLES (5) IMRAN (6) EVENS (12) INDUCTOR (13) ELECTRON (15) GRAPES (16) ETHIC (17) EATEN (18) TRACE

That's it for this month, puzzlers, just look hard and long at the previous page and let's have some real good goes.

Graeme G3GGL



The Wormald Anomaly

By Peter Lankshear (former Transmission Superintendent, NZBC)

It was with much interest that I read in Lighthouse 84 (p. 32), Graeme's slightly tongue in cheek questioning of the Reciprocity Theorem. I don't think he is really setting out to rewrite the basics of network theory, but clearly he has uncovered some apparently anomalous behaviour.

Pondering upon the problem, I realised that I was rather rusty on some aerial theory so I first dusted off several classic textbooks to see what they had to say about the theorem, the work of Lord Rayleigh in the late 19th Century. Everet in "Communication Engineering" deals with its application to networks. A classic example would be the use of a simple resistive pad. It is fairly obvious that provided it is symmetrical it can be used either way round. The Radiotron Designer's Handbook says much the same thing. Not much mention of aerials here, so I turned to F.E.Terman's "Fundamentals of Radio" for a more appropriate treatment. He says, by the way, that John R.Carson in 1929 wrote a paper for the proceedings of the I.R.E. showing that the Reciprocity Theorem applies to aerials. Therefore the radio application is correctly known as the Rayleigh Carson Theorem.

Terman quotes Carson's theorem in full. *"If an electromotive force E inserted in antenna 1 causes a current I to flow at a certain point in a second antenna 2, then the voltage E applied at this point in the second antenna will produce the same current (both in magnitude and phase) at the point in the antenna 1 where the voltage E was originally applied"*.

Terman goes on to say "The Rayleigh Carson Theorem fails to be true only when the propagation of the radio wave is appreciably affected by an ionised medium in the presence of a magnetic field, and so holds for all conditions except shortwave transmission over long distances. Even then, it is expected that on the average the

theorem will still apply, even when it cannot be depended upon to be correct at every instant."

I would hesitate to challenge Terman so let us look for an additional factor in Graeme's experiments. He does mention one; - his loop has nearly 4 times the length of wire that is in the end fed aerial. Although the receiving and transmitting characteristics of an aerial are generally reciprocal there is one major aspect where they differ. A correctly matched dipole will radiate all the energy fed to it, and all that making it bigger does is to alter its directional characteristics. Increasing its size will not increase its efficiency.

Conversely, when receiving, a long aerial will extract more signals than a short one. Graeme's loop, being much larger than the 97 footer, will deliver more energy than the end fed from a given passing signal. Furthermore, the loop is essentially a horizontal aerial whereas the other has a vertical component, and it has long been known that vertical aerials tend to pick up more noise than horizontal types. It seems to me that Graeme should continue with separate transmitting and receiving aerials for best results.

Full reciprocity tests would be a bit impractical for Amateurs. It would entail identical aerials at each site, but even so, Graeme's experiments are a classic example of what Ham Radio is all about. No other communication discipline can provide the same scope for experimentation or modification.



Daily Mercury

Mackay, Queensland

The following 'Letter to the Editor', published in the Mackay, Queensland (Australia) Daily Mercury has been circulating the E-mail of the antipodes recently and was forwarded by EUGer Peter Lankshear. He offers the explanation that as the city of Mackay is half-way up the coast of Victoria in the middle of the Tropic of Capricorn, maybe it's affected by the heat!

TV just too popular

SO, we are told (DM 27/04/04 On the blink), damage to an antenna and a burnt-out cable at Mt Blackwood has given us poor TV reception lately.

One theory about the burning out of the cable is that some time a few weeks ago, nearly all people in the district watched the same program.

The resultant high demand on just one of the transmitters overloaded the cable.

It is not fair to blame the channel most affected by snow, SBS,

for while many excellent shows are on that channel, only a minority of our residents would watch it simultaneously.

I had noticed that recently some channels, and not always the same ones, showed varying amounts of snow from night to night.

One question: If a TV is left on, and there is nobody in the room, or nobody actually watching, does the receiver draw very little signal, almost nothing, from the transmitter? — AN BROOKS, North Mackay.

RADIO RAMBLINGS

Jottings from my Notebook



By
Graeme
Wormald
G3GGL

Bewdley, June 2004.

Greetings to all EUGers and may summer bring you the happy days you desire. (Apologies to those south of the equator and may their winter solstice soon be past.)

Error crep' in

First of all may I make an apology and a correction to David G3TVM who gave us his Eddystone 4-valve Clone in our last edition. I managed to address him as G3 in the by-line and G7 in the sign-off! Sorry David. Secondly, I managed a graphical error in the circuit diagram of the said Clone. I omitted the .05 mfd decoupling condenser from the junction of the RFC and the 22K dropper in the anode circuit of the 6SG7 RF stage. It would probably work without it but, as David says "... an excess of decoupling is better than having to add it later". Everybody please draw it in now for posterity.

There; now we've got the grovelling over and done with, let's have a look at our jottings.

EUGer Hits Jackpot

EUGer Terry Robinson VK3DWZ writes from Victoria in the Land of Oz to tell us that he's been a regular SWLer of China Radio International since the 1960s. Imagine his surprise last month to receive a phone call from Beijing telling him that he'd won FIRST PRIZE in their Station Quiz! This involves a journey to the magic

metropolis to visit the studios. We shall expect at least a page for 'Lighthouse' when you return, Terry, as well as a picture!

Sixty Metres

Elsewhere in this month's 'Lighthouse' you will read (or may have read) my featurette about Ted and I getting ready to research Near Vertical Incidence Reflection (NVIR) . . .

No longer being a member of ARRL I am not quite up-to-date with our trans-Atlantic cousins' latest arrangements. I do know that they have always kept the old 7.0 – 7.3 forty-metre band throughout thick and thin and I never cease to envy them.

I started my ham radio life when we in Europe still had the full band; before the broadcasters stole it in the cold war. It was a super band and I used it a lot, but for the past fifty years it just hasn't been wide enough to accommodate all the would-be users in Europe.

The 5-meg (60 metres) privilege (which was announced two years ago) seemed like a possible chink of light. More recently noises have been made about increasing forty to 7.2 in 2009 (*we should live so long!*). A bit marginal, if you ask me.

However, what I'm getting round to saying is this: The other day I was trawling the www, not a common activity at G3GGL but we have now acquired the new BT Broadband Basic

facility (el cheapo version; not for music and film downloaders).

I was searching a U.S. site offering flip-cards for vintage users (i.e. me) of modern microprocessor controlled rigs. The idea being that a proper analysis of the handbook makes easy-to-follow cards. Unfortunately my new rig (the Icom IC-718) doesn't seem to be covered. I E-mailed the proprietor (N6FN in Escondido CA) to double check and the pesky system told me he didn't exist! (Any advice from our North American members gratefully received!)

However, I did see flip cards for the ARRL bandplans and there, as large as life, was a page for the **60 meter band!** Not only do they have five spot 5 meg channels but one of them is shared with us in the UK, to wit 5405 kHz. This was pointed out, inferring that DX was possible.

Could it be the start of a whole new hamband?

Coincidence or What?

Last month we ran an article entitled "A Pause for Thought". In it I philosophised about the Eddystone S.888A hambander of 1959 and reproduced an advertisement from the R.S.G.B. Bulletin that featured a letter from Herb Bartlett G5QA. He referred to his regular sked across the world with ZL2OU.

Would you believe that one of our ZL members, Peter le Quesne ZL4TCC, who collects ham radio ephemera, holds the actual log book of ZL2OU recording this (and many other) contacts with Herb! Worth noting that they were all on CW . . .

D-Day Communications

One of Stratton's wartime winners was the duplex radio telephone developed from the pre-war police network set up to cope with the loss of landline

infrastructure due to enemy bombing. This in itself was a remarkable piece of foresight when you consider that all the stations of the London Metropolitan Police remained in duplex contact throughout the bombing.

Remember that Balloon Command. (barrage balloons, that is) were using the 2-valve super-regenerative transceiver type W.S.17 on 50 megs.

The Eddystone outfit was fully crystal controlled on send and receive on separate channels in the 90 megs band using a standard GPO telephone as the terminal. It was used by non-technical personnel without knowing anything about the lack of landlines.

It was the answer to the Admiralty's prayer for the captains of warships to converse without being overheard by the enemy. It was adopted by the Royal Signals and re-named the W.S.57. The only negative thing about it is that it was totally un-photogenic! It was a collection of grey wrinkle-finish boxes without a knob in sight. That's why you never see a picture of it.

It is, however, splendidly described in "Wireless for the Warrior" Volume One, by Louis Muelstee. I commend it.

It was used across the English Channel on and after D-Day as a 'control line' duplex phone when operating the W.S.26 multi-channel carrier telephone system, essential to the successful prosecution of the invasion of Europe.

The Other Man's Station

Many of us will recall the above-named feature in the old Short Wave Magazine in the 1950s where Eddystone receivers were proudly placed on the operating desk. We have managed several such pictures in the past year or so but David Fletcher G3TVM has asked if we could keep it up and sends us a picture of his

compact station setup. Having already featured this month the station of Barry Jackson ZS2H I shall hold David's picture over to next month. But in the meantime let the rest of you load up the camera (film or digital) and give us a snapshot, together with a thumb-nail sketch of yourself.

A Matter of Layout

I wonder if any of you have noticed that this month's "Ramblings" (and most other features in this "Lighthouse") are typeset in 'Align Left' as opposed to my more usual 'Justified'.

Recent studies have declared that text is easier to read like this. My own view is that it looks neater 'Justified' – like a newspaper column, but many magazines have changed over to this 'align left' style.

For certain technical reasons there are also some advantages but I would be pleased to hear anybody's views. If you have any feelings one way or another a note via e-mail or Royal Mail would be well received.

E-mail Changes

This brings me to another little problem of recent times. A few weeks ago the computer-world was hit by a very nasty virus called "Mydoom". It caused absolute havoc with many Service Providers, including mine.

For a period of six days it would accept no outgoing mail from me and the only messages it would deliver were very old ones which it repeated *ad nauseum* up to forty times.

When it seemed to settle down I found that it still was failing to deliver many messages. It also started to chop me off in mid-flow. To cut a long story short I decided to change providers and after a few false starts I can now be found at g3ggl@btinternet.com

If anybody has sent me a message in the past couple of months or so which seems to have been ignored perhaps they would be kind enough to try again.

I should mention that some mails recently sent to my old provider have been fielded by the new one and sent on. But that won't last forever, so alter my entry in your address book now.

g3ggl@btinternet.com

There now, you can't say it isn't big enough!

I do know that I had a bit of a hiatus with David Oakden, G3VFO, who supplies our CD-ROMs and CD-DVDs. I ordered several disks from him but our mails failed to meet.

If you can recall ordering one or the other but have received nothing please give me another call or note and I will start things moving again.

More Thoughts on Reciprocity

Peter Lankshear's response (*The Wormald Anomaly*) to my April article about the apparent breaking of the rules of reciprocity has set my little grey cells buzzing. I had never really thought deeply about radiation patterns of aerials for the LF bands. By LF (in this context) I mean 160/80/60/40/30 metres.

The vast majority of UK hams live in suburbia. The chances of getting a wire or wires more than a wavelength away from metal objects (ie house wiring, telephone lines, central heating) is absolutely nil. The ubiquitous '5RV will be fortunate indeed if its ends aren't bent to get it in.

So what's all this getting to?, you may ask. Well, Peter makes the point, blindingly obvious, that a matched dipole (i.e. ½ wave, centre fed) can only radiate the power you put into it. No matter how fancy you make the

aerial it will only favour one direction at the expense of another. And on the LF bands we have no idea whatever of the radiation pattern! There are far too many imponderables. The best you can do is try to send it straight up, hence the current interest in NVIR.

On the other hand, a receiving aerial can benefit from lots of wire, so long as it doesn't turn it into a beam (i.e. a Beveridge, etc).

I must admit that it's easier to become paranoid about aerials than practically any other aspect of short-wave radio. Experiments continue . . .

A new E-ZEE Match on the Street

Our more perceptive aerial buffs may have noticed that MFJ, the American manufacturers of ATUs (AMUs for the

picky), have made available a truly balanced-line ATU for the first time in over 25 years. Although some other units have balanced feeder terminals these have only been for properly matched transmission lines.

To put it another way, the widespread ferrite balun is quite unsuited to use in a standing wave condition. It saturates and gets hot. The last real doublet tuner was the K.W. (E-ZEE) MATCH which hasn't been around since the 1970s.

I have acquired both an old K.W. and a new MFJ and shall be reporting next month on their efficacy with various aerials and wavebands. Keep watching.

Vy 73,

Graeme G3GGL ♠



Visitors to the E.U.G. stand at the National Vintage Communications Fair in May were delighted to see this display of brand new Eddystone accessories from the Forties and Fifties presented by EUGer James de la Mare

PRODUCT REPORT

Auto-Ranging Pocket-Sized Digital Multimeter

by Graeme Wormald G3GGL

Hundreds of moons ago a multi-meter of some description was high on my “must have” list, but my pocket money wouldn’t run to a store-bought item. I bought an ex-aircraft instrument 0-1 milliammeter in which the original temperature scale (or whatever) had been covered with a 0-100 scale by an enterprising surplus dealer. I mounted it in an Eddystone 3”x4”x2” diecast box with suitable circuitry and a range-switch. It did sterling service for 25 years until an inexpensive Japanese rival instrument replaced it.

This has been joined, over the years, by a miscellany of analogue meters, mainly 20k ohms per volt and quite suitable for general servicing.

Then the magic digital meter appeared, very expensive at first then creeping down until the first one I bought cost £2 in a Tandy’s sale. But, quite frankly, I never took to it. I found myself fidgeting about which range to set it on (and trying to read whether or not I should go up or down).

You never have that problem on the old “AVO” (or whatever) because the scale soon tells you without reading anything. One other problem with the digital is its tendency to go into “fruit machine” mode at the slightest variation in reading.

For this reason alone any serious collector of valve radios should always keep an analogue multimeter in the shack.

The first improvement in the digital meters came with the self-ranging variety which appeared a few years

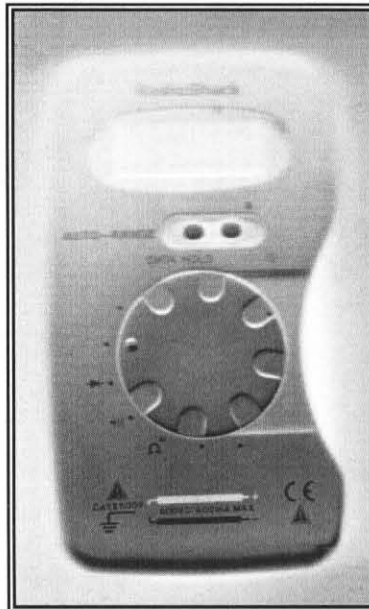
back, but for the average penny-pinching amateur they were far too pricey. Then, in recent years they started to come within our budgets and I bought one, this time in Tandy’s final closing down sale. I acquired a slim-line auto ranging digital meter knocked down from £20-odd to £6. A veritable bargain.

It is, of course, incredibly accurate when compared to an analogue, but its star-feature is resistance measurement. This is an area where the old analogues are at their weakest. Even the venerable AVO Model 8 was dodgy in this area.

OK, you may say, so why tell us about an item which is no longer available?

Well, browsing through the current “Maplin” catalogue I saw the identical instrument on page 873. Listed as a

Star Buy at £14.99 I commend it to all members. Order code N49AB. Telephone 08870 429 6000 with your plastic ready. P&P £2.50 ♣



POST OFFICE CHOOSE EDDYSTONE

Issue Number 14 (1971) of the "Marconi Communication Systems" news release carries the above front page spread. The item continues:-

The British Post Office have (*sic*) ordered more than fifty Eddystone high stability h.f. receivers for use in eleven medium-range coastal radio stations around the shores of Britain. The order, worth more than £50,000 has already started to be filled and the new receivers are handling ship-to-shore radio at several stations.

These receivers will be playing an important part carrying the increasing telephone traffic between ships and the shore. In order to contend with interference experienced on h.f. the Post Office are using Lincompex on this service.

Lincompex, which was originally developed by the British Post Office, dramatically improves the speech quality on h.f. circuits. However, Lincompex requires very stringent stability standards in the receiver, and the Post Office carried out full operational evaluation of the Eddystone receiver, Type EC958/1 to establish that it achieved the required stability and also met their requirements for single sideband working.

The EC958 series is a very successful equipment of which more than 700 have been sold, mainly for export. First introduced two years ago, it has achieved widespread approval from

Post and Telegraph authorities for maritime and other applications throughout the world.

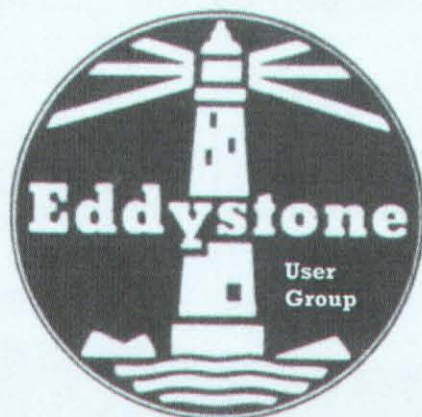
The EC958 covers in one compact equipment the full range of



maritime frequency bands from high frequency down to the very low frequencies which are used for very long distance naval working.

The EC958/1, developed for Post Office requirement, includes a module which replaces the f.s.k. facility, normally incorporated in the series, and enables an operator to maintain very accurate tuning at all times, using a beat frequency technique. A tuning indicator, driven from a carrier signal amplifier, presents an indication of any frequency variation in the incoming signal.

This is important in s.s.b. operation and provides the accurate frequency control necessary for operation on Lincompex services. Radio and Space Communications Division offer a very advanced Lincompex as part of their radio telephone terminal range of equipment which is among the most complete in the world. ♠



“EUG on the Air”

The next “First Sunday” net will take place on 4th July at 09.30 (local time) for AM reports and 10.00 for LSB, both on 3695+/- QRM.

August sees the special EUG Wireless Telegraphy Centenary Station using the callsign GB4WTA. See this month’s “Ted’s MailBox” pages 26/27 for further details.

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