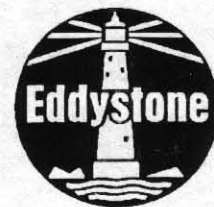
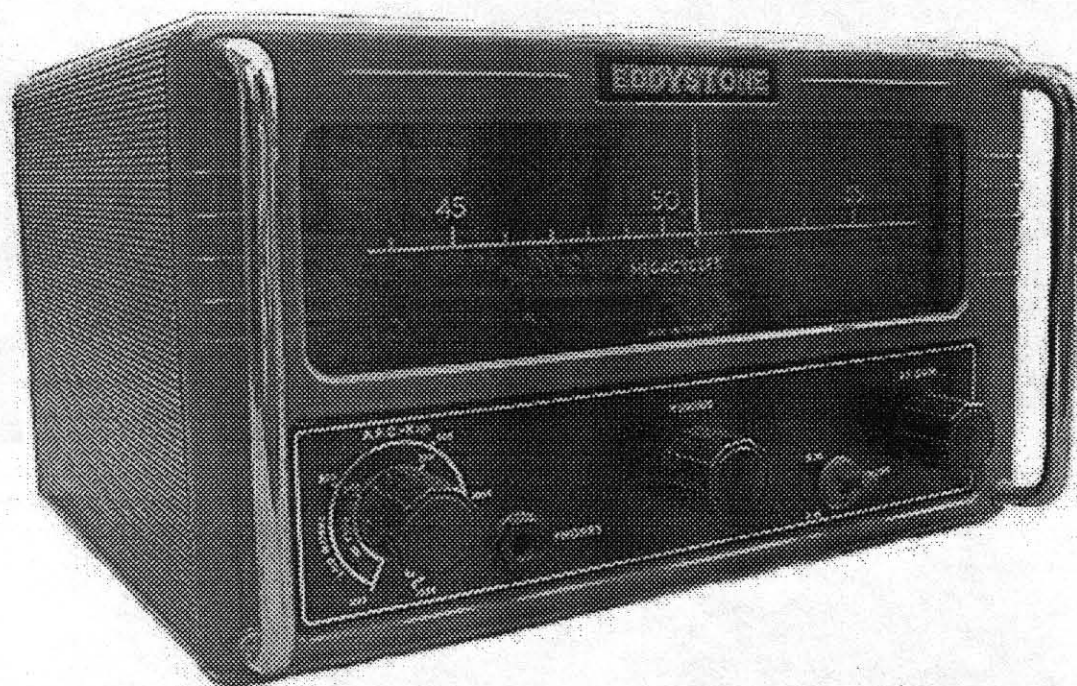


# Eddystone User Group Newsletter



Issue No: 51

October 1998



**Featured Model - Eddystone 930/12**

- A non profit newsletter for Eddystone Users
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- Information quoted from Eddystone Literature by kind permission of Duncan Whittle, Managing Director of Eddystone Radio Limited
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Again your EUG team has been very active and as we enter the second half of our 'Newsletter Century' it seems that our knowledge of Eddystone History is a never-ending process of education. No sooner is Graeme's 'Quick Reference Guide' published, than it is already out of date! Fortunately only in small details. See his 'Ramblings' column for amendments.

I think I'm right in saying that this issue sets another 'first' by containing a 'Featured Model' which is not only of a previously unrecorded set, but has been written, photographed, and processed by its owner, Simon, G8POO. The 930/12 is certainly a unique and interesting model, thank you, Simon. Has anyone else out there got a rare bird which they would like to describe? If so, Ted would be only too pleased to hear from you.

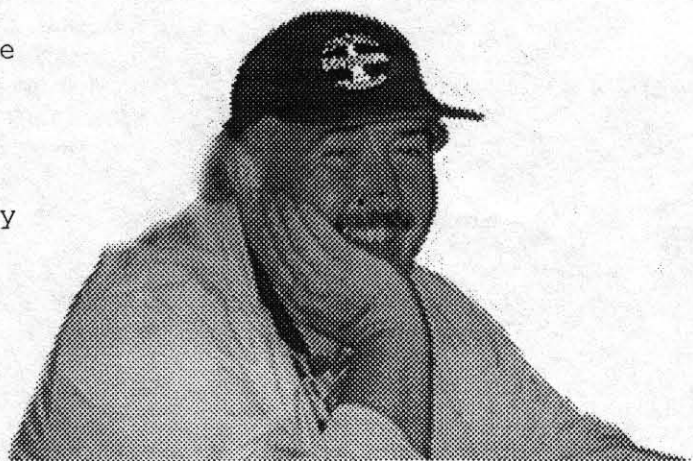
I was hoping to read about the survey of models which we ran last time, but Graeme tells me answers are still coming in and he feels we need more replies to get a reliable analysis. So if you didn't let him know last month, perhaps you would like to send him a note of what you have. No need to give a name; just the details.

This edition of the 'Cooke Report' tells us about Eddystone's 'anonymous' involvement with the Earth's first artificial satellite. Interesting to think that the nation which put the Sputnik into orbit needed to come to Birmingham for its VHF receiving equipment. This was news to me, although I do remember seeing an advert from an American company who were part of the early Gemini or Apollo programme and who showed a suite of equipment with a 770U in it.

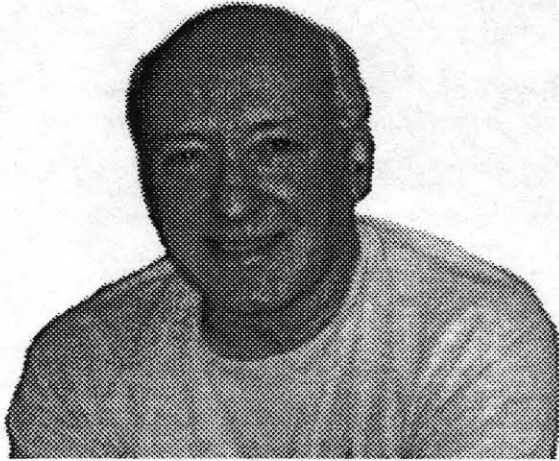
I had the chance to go to the Bletchley Park Museum in September. This was a journey of nostalgia for me as I was sent there as a 16 year old in 1963 to do my Radio Operator training for what was known then as the Composite Signals Organisation (now known as the people with 'big ears'). Not much evidence of Eddystone receivers ever being used at Bletchly Park during the war, but this is a fascinating place with displays covering the 'Enigma' cypher machine, the Bombe's and the 'Colossus' computer. There are also Museums for Communications, Radar and Computing. I could not resist going into the bar where I had my very first taste of alcohol and asking for a pint of beer for the same price I paid in 1963. Very worth a visit.

May I take this opportunity to thank all those members who have written in to say how much they enjoy reading our Newsletter; especially the overseas members (more than one) who say this is the best vintage radio read they ever see. Nice to be noticed.

Chris Pettitt - GOEYO  
Patron







## *Back to Normality*

By Ted

After the super ginormous issue last time maybe this is a return to normality, just an ordinary sized Newsletter, but

nonetheless one full of what you want - we hope. More stuff by Graeme, Bill Cooke's Report, and the computer wizardry of Simon for the cover and the Featured Model.

The mail about issue 50 has all been very favourable, so far not one voice of dissent! After the EB37 as featured model we have to do something 'different' - - but what? I would have liked to present to you the model 1940, or S.968 but there are practical reasons why this can not be done - - maybe later on this year, or early next year.

The choice therefore, because I have four requests for more info about this model, and because Simon has just obtained one, must be the model 930. It has been quite a successful product over the years for Eddystone, since the version which Simon has is a 930/12. Quantity-wise maybe not so many as other models but to get to a /12 version there must have been some demand for it.

Two letters re the item in the last issue about Zener Noise. Seemingly this is a well known phenomenon and attention should always be paid to the existence of a good filter/decoupler condenser directly across the zener diode itself. Some authorities suggest both an electrolytic for LF decoupling and a smaller value polystyrene type condenser for HF decoupling. One source suggests just a 10 muffs tantalum condenser will do as this type is known for its low HF impedance.

In another letter anent last issue and the Valves Listing by EUGer Peter we have a request for information on the EAA91. Well going by the Mullard nomenclature this is a 6.3 volt double signal diode on a glass B7G format, but it must surely be no more than a very early form of the EB91? Maybe Peter or some other erudite EUGer will let us know so that Terry can buy a suitable replacement. (for what model Terry? you omitted to say).

*\* (SEE BELOW; GRAEME)*

## RAF HF Traffic ?

Strange one this, whilst going up and down around the HF Utility stations recently there was a ground station calling itself "IN-FLIGHT CONTROL" and asking some stations (planes?) to contact. The stations were ID'd by three figure numbers only (tail number last three?)

Several stations did call in to ID but they were then told to QSY to 11175

*\* EAA91 IS IN THE 'AVO' DATA MANUAL BUT NOT IN THE 'LIFFE' VALVE DATA. PIN-OUT SAME EXCEPT PIN 6 IS 'K' INSTEAD OF 'S' (?)*

Kc/s. Now the original call was several hundred Kc/s lower than this and when I QSYd up all I could find around about that frequency was data transmissions.

The time was late evening, between 2300 and about 2345z so can anybody enlighten me? It was a pretty strong, almost local sounding signal for me in Bucks; - so I am left wondering if this was RAF traffic for the "middle europe" theatre?

## Only Seventeen Eddystones !

ONLY he says, well Jim I have to say that there are many EUGers who have just the one Eddystone receiver and they think that they are lucky. Still I am certain that those 17 Eddystone receivers in your collection receive all the necessary TLC and that they are well used too. Congrats on your newish call sign too, but don't let it tear you away from EUG. Your letters are always interesting and well received here as they contain so much detailed information. Keep it up. Ted.

## MIMCO Kestrel ?

I need help here myself. I have heard of this in the past, even thought that I had a reference to it somewhere, but so far I cannot trace anything.

This is a request for info from a non-EUGer who wants to know if this is a pseudonym for an Eddystone manufactured set? I too would dearly like to know, and also, if not by Eddystone then by whom was it manufactured?

Somewhere deep down in my biological data banks there is something telling me that I OUGHT to know this one, maybe I am getting old.

## The Mysterious 659/670

Graeme has now got his hands on one of these sets, courtesy of Simon, and he is busy trying to solve the mysteries of the 659/670 designation. This one has a rear model plate saying S.670., a dial plate saying 659/670, a printed glass scale saying model 659, Ron has a similar model which says on the dial plate '659/670 Marine Receiver'. Anyway the long and short of it all is that inside this one acquired by Graeme there is a rather mundane 670 with the usual push-pull output. Push pull output? well yes this set was used to drive a large 10 inch speaker in a very large speaker cabinet to provide reception facilities on board ship for passengers and/or crew. the 670 and speaker would have been located in a lounge or sitting- room type of environment.

The stated audio output of some TWO watts may seem derisory in these days where 'ghetto blasters' operated from 4 or 6 dry cells claim to give outputs of 40 to 80 watts but do remember these latter are the so-called 'music-power' or 'fantasy' watts and the Eddystone quoted power is REAL watts.

I remember quite clearly that the 670 I had simply had the figures 670 in



largish numerals in the indent on the left side of the scale plate where a meter usually resides.

## An S. 930/12 !

Seems that Simon 'POO' bought the recently advertised 930/12 and has taken possession. A conundrum for EUG this as we did not have records that the 930 had ever reached a /12 version ! Still we live and we learn - and what is more we at EUG are always happy to be proved wrong. Another 'new one' to be logged and researched for the Archives. This one covers from 45 to 55 megs in one band only and is in what we call the 'D' type case. As Graeme asks me, what then are we to think of the missing 930/7 to 930/11 versions ? If anybody out there can help us for our archives then please do write to me (Ted) c/o Graeme or Jim.

## Internal Speakers on a 640 ?

This must be a 'modified set' Stan. Nothing more to be said pal. No 640 was made with such speakers in the round spaces on the left and right hand sides of the front panel. Anyway the give away point is that in those days there simply were no such small 8 ohms speakers. These came in with the 'tranny' era around 1958-60.

I can recall an article in a magazine (SWM ?) where the fitting of two such speakers in parallel was advocated and can only suppose that these 'oriental' types fitted to your recent purchase are as a result of this article.

*(SEE EUG N/L N° 33 PAGE 23 - GRAEME)*

## More Valve Types ? !

A letter from an EUGer in France here, where he queries the use of valve type 8D5 as he found when he opened his 680X for the first time ever.

This is an equivalent to the 6BR7 and was made by Brimar, either type will work in this position (audio driver stages). They were chosen as a replacement for the type 6AU6s used in the previous model 680. (or 680/2 as I suppose we ought to get used to calling it). Ted.

## Why the figure of 85 Kc/s for the 750 IF ?

Davy asks me what prompted Eddystone to choose this unlikely figure for the second IF of the popular 750 receiver ? was there some international protocol for IF frequencies which led to the choice ?

I have heard a few comments in the past about this and whether or not there were any such international rules in force at the time I am very tempted by the tale told me by Geoff Woodburn.

In those days many Amateurs used a surplus comms receiver which had

pretty atrocious selectivity, certainly not up to the standards needed on the post-war amateur bands. The very cheap and easily obtainable BC453 was a 6 valve superhet of very compact design and it boasted two stages of IF at 85 Kc/s, with an RF coverage of 190 to 550 Kc/s it also covered the usual 450-470 Kc/s IF band. It became common practice for amateurs to use this ex Signal corps receiver as a 'Q - Fiver' after their usual station receiver. This gave, an effective second tunable IF channel when a signal was picked up from the IF of the first station receiver, fed into the aerial of the BC453, and then extracted as AF from the output of the said BC453. Having this in mind the figure of 85 Kc/s was chosen. Well - - - I guess it is as good as any explanation that we are likely to hear, and as all 750 owners will know, it DOES work.

## AM/FM Tuner Problems, The 820.

Colin's 820 is in daily use in the shack, driving a homebrew amplifier nowadays, although in earlier times it was fed into the AF stages of his 670C receiver.

Recently performance has dropped right off, little more than noise sometimes and only faint signals at the best of times. Over the years several valves have been swapped when the unit has failed, this time valve changes did nothing to improve reception.

Since AM was not a problem, it was deduced that the fault lay somewhere in the first two valve stages of the FM receive line-up. V1 is an EF91/6AM6/8D3 and there are two other of this type in the set, swapping around the V1 and the V4 had done nothing and so a look at the circuit and some prods with a scope probe showed an almost total loss of signal between the anode of V1 and the signal grid of the first half of V2, a double triode (12AT7). Some more prods around and it seemed that the problem lay in the region of the coil and the parallel Philips type trimmer. Sure enough, just the slightest movement of the 'cap' of the trimmer with a trimmer tool brought normal signals back. Yet the trimmer had never been touched ???

The cap was completely unscrewed from the top of this trimmer and it was found that there were some white deposits of some corrosion product from the aluminium which were apparently causing leakage paths to form from stator to cap of the trimmer. All three were removed and were found to be the same. cleaned up and 'hot-air' dried the trimmers were re-assembled, re-aligned, and the 820 was chirping away merrily as it has always done.

The conclusion is that the liberal condensation in the outside shed 'shack' must have caused the corrosive products which gradually increased in volume until the point where they shorted out the cap to the stator. Colin.

## An Unusual Model 940

Not many seen around in this guise but the 940HF which Dougie has bought is mounted on cushioned blocks and it would appear to have been used in what are euphemistically known as 'Fighting Vehicles'.

The receiver is a standard 940 in every way with the exception of a multiway plug/socket on the rear panel at the extreme left hand lower corner. This socket brings out the power supplies on four pins and loops them back in on



the other four via links in the mating plug. Operation in the so-called Fighting Vehicle would thus have entailed power for HT and LT being brought into the 940 via this plug (minus the links).

The 940 has 3 separate HT supplies which would have meant undue complications if all were supplied separately. What has been done is to break the HT supply circuit at the point where the unsmoothed HT leaves the kathode of the GZ34 rectifier. This additionally means that the vehicle HT supply benefits from the extra smoothing and regulation built into the 940 circuitry.

I have never seen one of this version myself but have read Company bumf which mentions the supply of this set to the Armed Forces. Where did they all go to when they finally got demobbed ??

### A Shrunk S.700 !!!

Well not quite ! but what we have now got courtesy of Dave Simmons is a rather more manageable copy schematic of the S.700 receiver. The large sized schematics that Graeme and I have are more suitable for wall-papering a Ballroom than for table top repair work. ,

Now thanks to Dave and his super copier we have a schematic on paper which is about halfway between A2 and A3. Just nice for me to file in my archives and yet suitable to be dragged out put on the table and worked from.

Dave has begun some preliminary work on his 2 x S.700 sets. Beginnings are to strip the front panel off the best one, have it resprayed. From what I do hear we shall be getting updates on the progress of this refurbishment. Dave is presently looking for a components list with R and C values etc; - maybe his approaches to S.T & C will bear fruit. BUT - - Can YOU Help ???

This is becoming a problem with those models made by Eddystone and badged for other companies. Where the info does not exist in Eddystone files we seem to get very little help from those other companies.

My letters to such as Marconi, MIMCO etc have been largely ignored in the past, despite my having 'names' in the respective archives departments.

### Canadian 830 Problems

EUGer Brian Cauthery in Canada has bought what appears to be an almost unused 830/4, for peanuts.

It did not work, could not have worked, since there had been some rewiring in the region of T1 and T2. No room for the full article in this issue but it is being prepared for next issue. Thanks a lot Brian for your very informative letter, and your detailed exposé of the problems encountered.

Whilst reading the letter I have had thoughts on the much discussed AVC problems which Graeme has been coming up with recently. Shall have to discuss this with him (SEE 'RADIO RAMBLINGS')



This month's featured model:-

## Eddystone 930/12

BY

SIMON ROBINSON G8P00

Every so often a set turns up that proves to be a real gem. This was certainly the case with my little 930 Model 12. Initial checks with Graeme and Ted revealed that the model 12 was unheard of. Luckily a generic manual covering the 930 range was available and promptly procured from the User Group archives.

The most recent list of known Eddystone Receivers details the 930 range as being produced in the year 1958 and being housed in Case Style B i.e. as models 840A, 730, 750 etc... The serial number confirms the year of manufacture as 1958 but as I'm sure you've gathered by now the case is certainly not a type B. In actual fact the case is much more akin to type D as used in the 870 however as it only has one range I feel it should be classified in the same style as the little 820 FM/AM Tuner produced in 1955.

Eddystone's manual for the S930 series describes the set as a "compact AM/FM receiver with automatic frequency control, any single range between 50 and 130Mc/s with a ratio of 1.2 to 1 (viz 100 to 120Mc/s)". Reference to the User Group list details the following models:

- 930 AM/FM receiver, single band, 70 to 90Mc/s, BBC Model
- 930/1 as above, 100 to 120Mc/s
- 930/2 as above, 85 to 102Mc/s
- 930/3 as above, 110 to 130Mc/s
- 930/4 as above, 70 to 90Mc/s extra smoothing
- 930/5 as 930/4 but 100 to 120Mc/s
- 930/6 as 930 but 27 to 30Mc/s

(SEE ALSO EUG N/L N°49, P. 32 - GRAEME.)

The 930/12 covers 45 to 55Mc/s and presumably somewhere out there are models 7 through 11 which are not listed. It is not totally clear what the 930 range was used for but we suspect the BBC used them for monitoring purposes and possibly as receivers for early radio microphones. Does anyone else have more information?

As a receiver the 930/12 is totally self contained and includes a mains power supply incorporating a transformer; no AC/DC dangers here. It is also fitted with an internal loudspeaker. All it needs is a mains socket and aerial to get it up and running. The outer slip off case is made almost entirely from perforated steel to let out the considerable heat generated from such a compact little set. An overall flat Eddystone grey enamel has been applied to the case.

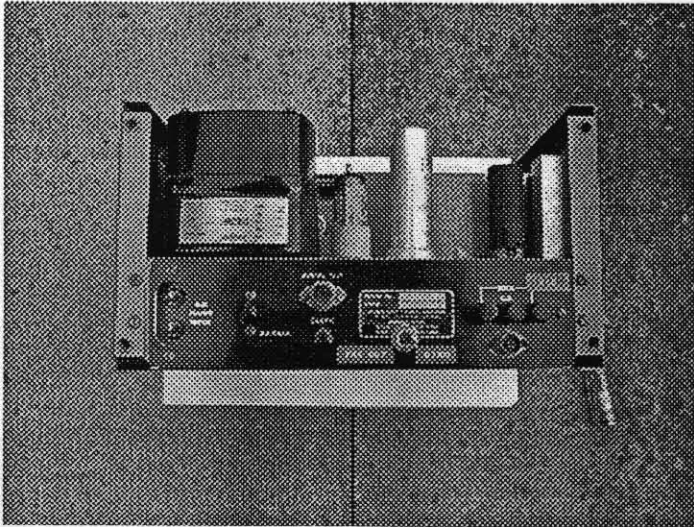
The circuit utilises a ten valve superheterodyne design with pentode R.F. stage, a triode pentode frequency changer and two stages of I.F. amplification. For A.M. reception rectification occurs at the limiter grid and is then amplified and fed to the triode output valve.

In the F.M. switch position the I.F. output is passed to a limiter and from thence to a Foster Seeley discriminator, the audio output is then arranged as in the A.M. position.

A high degree of automatic frequency control is available in both F.M. and A.M. modes utilising a "Ferrite" reactor with control valve in a novel circuit.

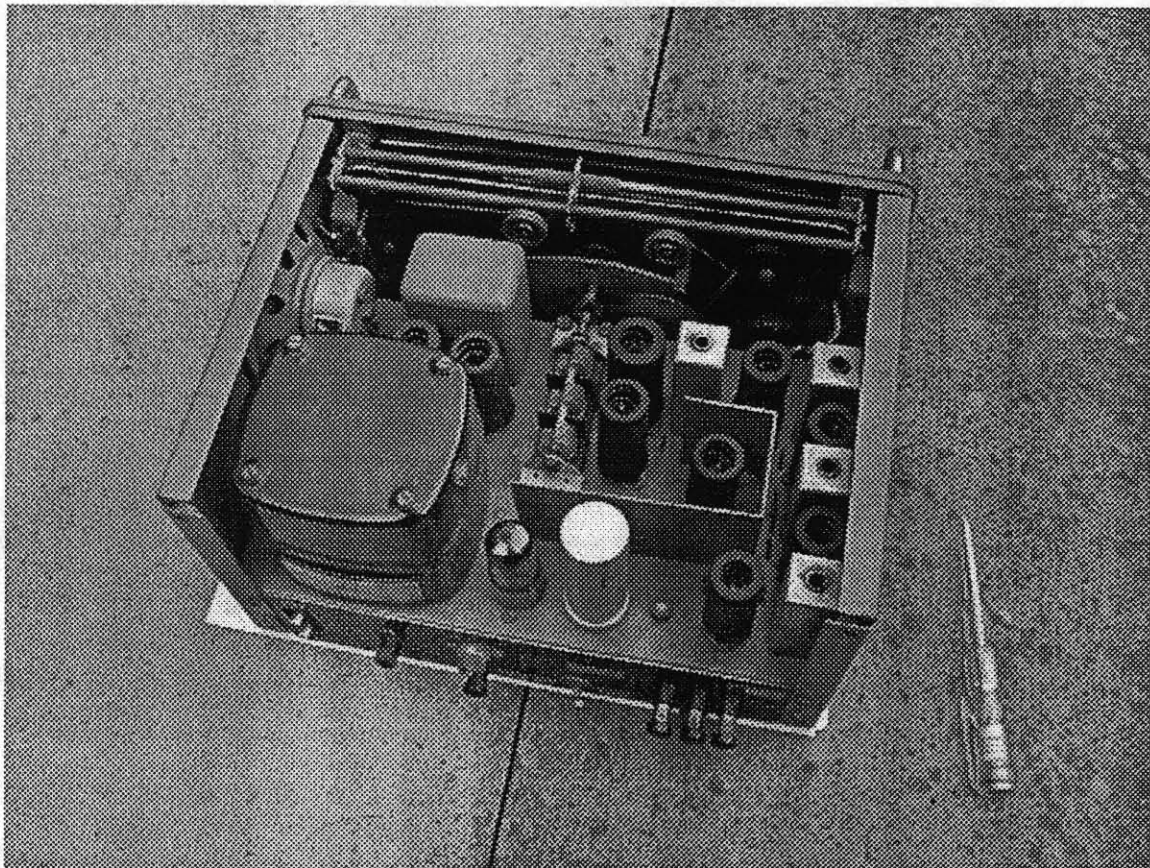


The receiver has a 600 ohm centre tapped output for line working in addition to the internal loudspeaker. A headphone socket is mounted to the left of the front panel. As you can see in the photograph on the front cover of this issue the A.G.C. control is situated on the left of the finger plate. At the centre resides the main tuning control with the A.F. gain control to the right. This latter control also includes the mains power switch. The headphone socket at the left is balance by the A.M./F.M. switch at the right hand side. A Belling Lee 75 ohm aerial socket is provided at the rear of the receiver along with an R.F. gain control. The receiver will run on either 110 - 120v or 200 - 250 volts A.C. mains.



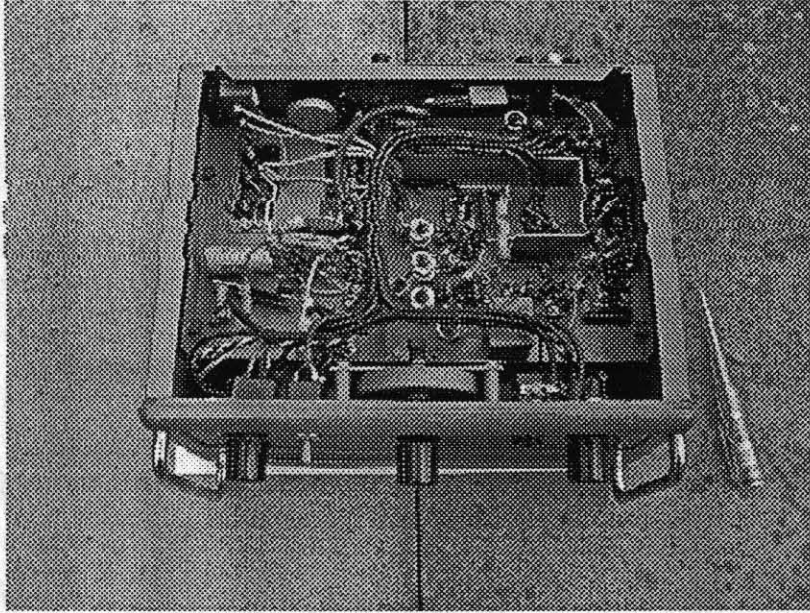
The rear view of the radio shows an additional 'Top Cut' switch which appears to be an original modification. This would normally be used to reduce hiss on an incoming transmission.

As I said earlier the 930/12 is a very compact little radio and the picture below demonstrates how neatly the components are arranged.



Eddystone must have had a large stock of 6AM6's when this set was designed as seven of it's ten valves are of this type. The valve line up is as follows:

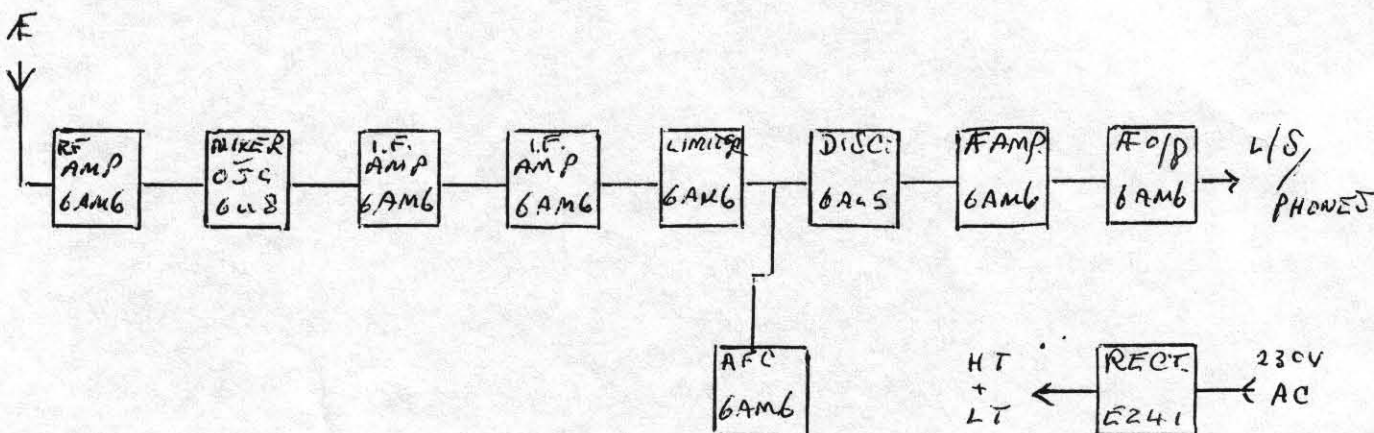
V1	6AM6	R.F. Amplifier	V6	6AL5	Discriminator
V2	6U8	Mixer	V7	6AM6	Voltage Amplifier
V3	6AM6	1 <sup>st</sup> I.F.	V8	6AM6	Audio Output
V4	6AM6	2 <sup>nd</sup> I.F.	V9	6AM6	A.F.C. Control
V5	6AM6	Limiter	V10	EZ41	Rectifier



Bottom view of the receiver

The underside of the 930/12 is very simple and everything is easy to get at. This is of course due to the fact that it is a single band set and no cumbersome band change switches are present.

Since 1958 the use of the VHF spectrum has changed considerably. These days the range covered by this radio includes the 6 meter amateur band and some foreign stations. In conclusion the 930 is an interesting and somewhat unique range of receivers. If you come across one you might be lucky enough to find it covers the current broadcast allocation. So as with all Eddystone Radios - USE IT - DON'T JUST LOOK AT IT ON A SHELF.



S.930 BLOCK SCHEMATIC.





## The Wondervalue from Eindhoven

BY GRAEME  
G3GQL

THE TRUE ORIGINS of the EF50 valve are obscured by the run-up to Hitler's War. Early in 1936 Professor Watson-Watt demonstrated that an aircraft flying through a high-frequency radio beam reflected a detectable proportion of the signal. High definition television, a science with certain factors in common with radar, took a massive step forward the same year. By autumn, BBC 405-line Television had become the world's first regular service in spite of the Director General's total lack of interest. Can it be coincidence that cathode-ray tubes, wide-band amplifiers, and VHF aerials were common to both, and without television it would have been difficult to create radar (and keep it a secret)?

Mullard, a British valve company, had been acquired in the 'twenties by the old-established Dutch electrical giant, Philips of Eindhoven. Mullard continued to manufacture and market valves in Britain, but using the research facilities of the parent company. In February 1939 there was a report in the *Wireless World* announcing the introduction of a new high-gain television valve using a glass-based 9-pin configuration. It had a sealed aluminium screening can and was called the EF50. This was normal Continental (Philips) nomenclature. (E=6.3v heater; F=RF pentode; 5=noval base; 0=sub-type). And it was painted red!

By September 1939 the Mullard factory at Mitcham had an EF50 pilot-plant up and running, using glass bases imported from Eindhoven. By the spring of 1940 Mullard were still not producing these bases. A dramatic rescue operation snatched a quarter of a million of them out of Holland under the nose of the advancing Wehrmacht. Before long the problem was solved and they were made by the million, in Britain, Canada, and the U.S.A. Could it be coincidence that in 1939 Pye Radio of Cambridge had developed a 45mc/s EF50 wide-band T/V "I.F. strip" (ostensibly a 'straight' single-channel Rx)? I think not, but be that as it may, when peace returned the EF50 was the first 'new' valve to become available to the ham radio experimenter.

In our last EUG Newsletter we saw Jerry Walker's (G5JU) 1949 Eddystone version of a 3 x EF50 receiver. This month we take a look at Jack Hum's (G5UM) 1946 design, a very different approach. Being realistic, Jack (only recently SK) suggests that no two constructors would follow the same format but would use whatever components were to hand. He also approaches the design from a curious standpoint, addressing decoupling far beyond the norm, and treating regeneration as a mere detail! But I think it's just possible that Jack has something here that would surprise us even today, especially on the LF bands. We reproduce the feature, together with the follow-up article of December 1946, with grateful acknowledgements to the *Short Wave Magazine*. Read on and wonder . . . (and spot the 'deliberate' mistake).

# High-Performance TRF Receiver

## *Using the EF-50 in a Straight Circuit*

By J. HUM (G5UM)

*(This is a design for a good straight receiver using the high-gain EF-50, which will be new to many readers, in all stages. A receiver built round these valves will give much better results than the same design using pre-war "standard" valves. There is still much to be said for the straight receiver if its signal frequency circuits can be made both sensitive and selective.—Ed.)*

TEN years ago few radio amateurs worthy of the name would have dreamed of buying and using commercially-made short-wave receivers in their stations. To-day exactly the opposite state of affairs seems to prevail.

Perhaps that is understandable. Ten years ago the TRF ("tuned radio frequency") receiver held sway. Then began the era of the manufactured superhet communications receiver. It achieved popularity largely because it was so much better than anything the average amateur could make—and it provided one knob, directly calibrated tuning, which made it the easiest thing in the world to master.

In passing, one might venture the opinion that the manufactured communications set had at least one unfortunate result—it removed much of the interest of Amateur Radio by discouraging people from building their own receivers.

"Superhet or straight" became a subject of discussion almost as interesting as "CW or 'phone"—though never as controversial, for there could be no questioning the advantage of the superhet over the average TRF receiver as built in pre-war years.

Nowadays, however, the TRF has good chances of a revival and for these reasons:

- (a) First-grade superhet communications receivers are hard to obtain just now;
- (b) They cost far more than they did;

(c) A TRF receiver can be built more quickly and needs far less in the way of tricky and tedious lining-up than does a home-built "super"—though the superhet design to be described in these pages in a few months' time may shed fresh light on those two bugbears of the amateur superhet builder.

(d) The advent of high-slope television-type pentodes—particularly some of those developed during the war—renders possible the construction of a TRF receiver having much higher gain than any that could be designed before the war.

Many constructors have tended in the past to stick to battery-type valves on account of their lower noise and hum level (and by the same token, lower signal level!). But the high-slope mains television pentode can be used in TRF designs nowadays at no increase in noise or hum level—and at a tremendous increase on signal level over anything ever known before in such designs. It is the purpose of this article to show how it can be turned to this use in an amateur-band receiver.

### The EF50

The valve that forms the basis of the design about to be described is the Mullard EF50 RF pentode, so widely used by the Services in wartime, and now becoming obtainable on the civilian market. It is perhaps one of the most ubiquitous valves ever developed, as will become apparent even from the modest but varied uses to which it is put in the present instance. Appreciable RF amplification can be obtained



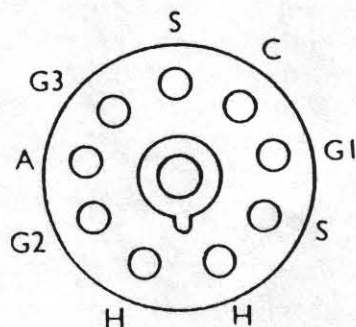


Fig. 1. Base connections of the EF-50. H, H, heater, C cathode, G1 control grid, G2 screen grid, G3 suppressor grid, A anode, S valve screen.

from it up to 150 mc, though the leaflets available from the manufacturers detail its characteristics at 50 mc. These leaflets (serial numbered 1340/1-15) give exceptionally complete information on its characteristics. Brief details of the valve are as follows :

Heater	6.3 volts at .3 amp.
Max. anode volts	300
Max. screen volts	300
Slope	6.5 mA/V
Dimensions	77 millimetres long by 37 millimetres diameter.

Base 9-pin pressed glass.

In the EF50 the lead-out wires constitute the valve pins—a contributory factor to low self-capacity. The bulb is of glass but is totally enclosed in an aluminium can. The base connections are shown in Fig. 1. As is well known, the valve has beam-forming plates which enhance its low-noise properties.

Now, it is not proposed to give point-by-point constructional details on how to make a TRF receiver using this valve. The writer believes that the majority of amateurs today are sufficiently advanced in their technical knowledge to prefer to work out their own *mechanical* designs, provided they can be offered a good *electrical* design on which to build. The circuit diagram shown in Fig. 2 is that of an "all-EF50" receiver which has been developed over the course of months. If closely adhered to electrically it will be found to be one of the most effective TRF designs anyone could want. Mechanically, most readers will prefer to use parts they have by them; probably no two translations of this circuit

into mechanical terms would end up by looking the same. A few points of mechanical design that enhance the performance will be mentioned as we go along.

The intention, then, is to analyse the circuit in detail, explaining its whys and wherefores.

### The Circuit Analysed

The circuit is so simple that the more obvious points about it hardly need mentioning here. The finer points require closer attention, however; they determine whether this shall be "just another TRF receiver" or whether it shall approach superhet performance, as it can do if well built.

The first question readers will ask is : Why the choice of choke coupling on the RF side? The answer is that it greatly simplifies the business of ganging RF and detector tuning controls by allowing circuit constants to be made identical; secondly, it greatly simplifies coil construction; thirdly, the additional complexity of transformer coupling provides no extra gain. So why worry about it?

Two important points must be observed with the system shown. The value of coupling condenser (C6) must be kept extremely small to provide good selectivity and to maintain detector grid loading at the same value as RF stage grid loading in the interests of accurate ganging. And the anode choke must be efficient on all bands to which the receiver will tune. An RF choke suitable for 10 metres will probably resonate on its fundamental on 160 metres! Therefore two chokes are used in this position (and in the detector anode, too); one for the higher frequencies and one for the lower (see table for constructional data)

Another point common to both RF and detector anode circuits is the use of very complete decoupling. Here again provision is made for decoupling to function on all frequencies—the reactance of a condenser of fixed value could not be suitable at wide extremes of frequency. Large and small values are therefore used in parallel. The careful by-passing of heaters to earth

will also be observed—a precaution against modulation hum on higher frequencies.

Variable resistance R4 may perhaps be regarded as a refinement. After all, is an RF gain control really essential in a TRF set? In the writer's experience it most decidedly is, especially when plenty of microvolts are coming in from a big aerial, and overloading of the detector can more easily occur.

In the published data on the EF50 the value of RF stage cathode bias resistor R1 is given as 32 ohms. This is rather critical, and if that particular value cannot be obtained, 50 ohms will suffice—but *it should be no higher, nor should it be of a wirewound type*. It is by-passed for RF, as shown.

### The Detector

Studying the detector stage in more detail we can anticipate three questions here. It is good practice to tap the RF output on to the top of the grid coil? Is the regeneration system the best that can be devised? And is triode connection as shown preferable to pentode connection? The answer to each is YES!

Remember that C6 is very small and the loading on the detector grid quite light. Remember that we want to keep our coil construction simple (4-pin type with no taps). Remember that we want to keep our gain, even at 30 mc, as high as possible. The connections as shown meet all these desiderata.

Now regeneration . . . well, you can ring the changes on this until the cows come home! Let us therefore eschew all systems except the good old-fashioned one illustrated. It is noiseless and smooth. What more is desired? (Go in for throttle control if you wish—it is merely a derivative of that shown.)

Triode connection . . . connect screen, suppressor and anode together as one large anode. The valve then acts as a medium impedance triode. Connect it as a pentode or SG and it will have an extremely high impedance which will be very difficult to match; the valve will probably be hopelessly unstable when set into oscillation, and

reaction will be fierce and "ploppy." Reduction of screen volts will assist—but not until they have been dropped so low that the valve is almost useless as an RF pentode. Triode connection is docility itself!

Turning next to the audio stage, we may rather surprise readers by telling them that the EF50 can be used as an LF amplifier. The secret is to keep its screen at a slightly higher potential than the plate; it goes direct to HT positive, but the anode voltage varies up and down by reason of the signal fluctuations in the audio choke.

Observe the higher value of bias resistor required in the audio service as compared with the valve as used in RF applications.

The choke RFC5 is provided to avoid hand capacity effects at HF. A speaker can be connected in place of the headphones shown—*via* a suitable step-down transformer—and 200-300 milliwatts of audio can be obtained.

### General Points

The EF50 itself—the heart of the set—being a good valve deserves a valve socket in keeping with its performance on high frequencies. A porcelain 9-pin socket is on the market and should be used in the RF and detector stages. A paxolin socket is adequate for the audio stage. It is of utmost importance in the interests of RF stability to earth not only the internal-screen pins marked "S" in Fig. 1 but to earth the spigot of the valve as well. A contact for this purpose is provided on the socket.

Equally important—in fact, probably the most important point of all in aiming at superhet performance with a TRF receiver—is not to be niggardly with the HT supply. The EF50 will take 300 volts or more on its plate without demur, and while this voltage is not proposed in the present design, the valves are not by any means under-run. In the writer's case a 250 volt pack is used, well separated from the receiver itself. The consumption totals 26 milliamperes.

With the large reserve of gain afforded by liberal operating voltages



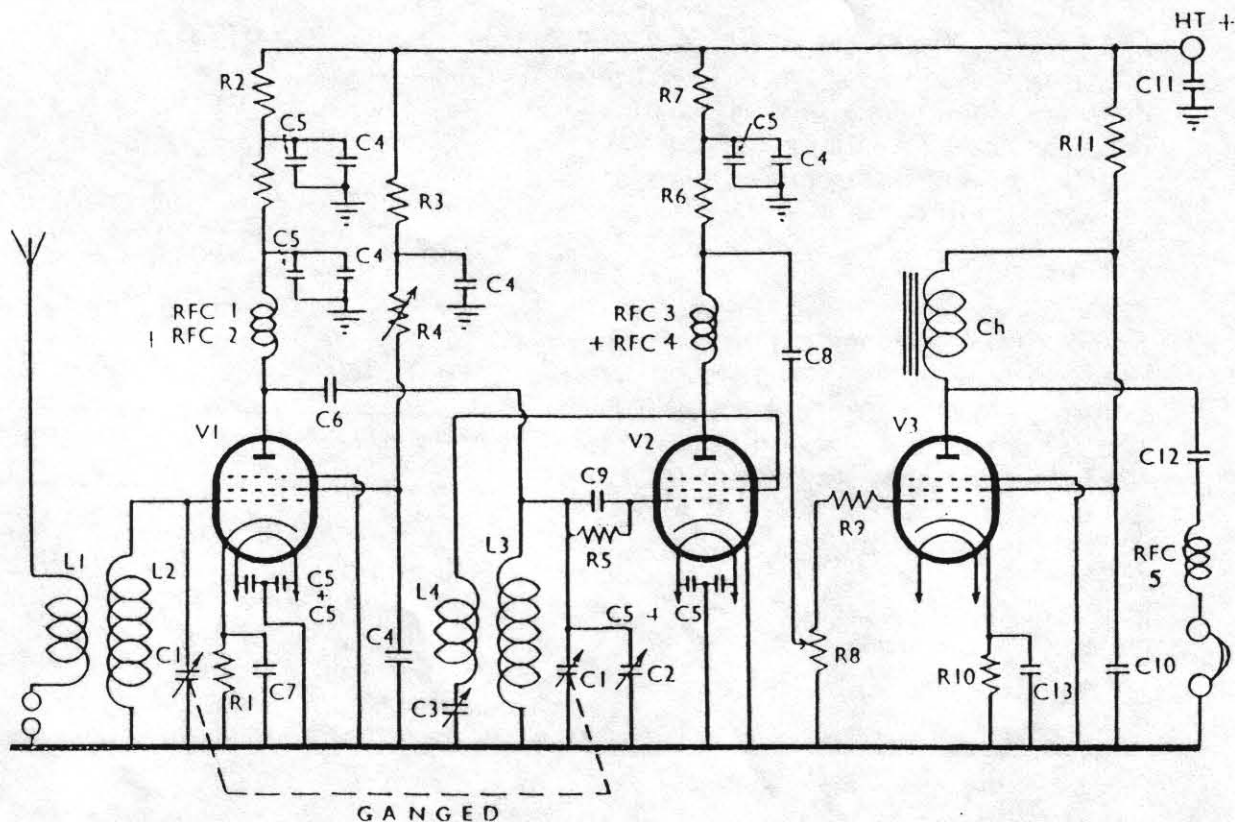


Fig. 2. Circuit of G5UM's straight receiver, fully discussed in the text. The use of the high-gain EF-50's, in a standard circuit with some refinements, ensures much improved performance over a similar receiver using ordinary valves. The form of construction adopted is a matter of taste, but a metal chassis and cabinet are desirable. Note that all components having the same values are numbered similarly.

the question may arise : why not use switched coils ? The answer is : why not !—but be prepared for some losses if you do. Best practice even in modern superhet design is to use separate coils (in a turret where cost is no consideration). Even more so in TRF design individual coils should be used.

In the present case plug-in coils are employed for the generally-accepted reason that they are less "lossy" than any other system ; but another feature must be mentioned in this respect. It is that the two coils for each band are wound to have exactly the same inductance. Identical lengths of wire were cut off first and wound close-spaced on identical formers. The aim was to achieve such a similarity of inductance values that the gang condenser would remain accurately tracked without recourse to trimming. This postulated identical values of stray capacity in both RF and detector stages. More "cutting to length" was involved here ; in other words, the "hot" leads to the gang condenser from RF and from

detector valves are exactly the same length, and at the same distance from chassis and other "capacity-making" obstructions. Success attended these efforts, so much so that the RF stage and the detector stage coils can be interchanged with no alteration in the calibration of the bandset scale. Needless to say, coils that will retain such accuracy must be rigidly built and turns shellac-ed permanently into position.

Coils are wound on 1¼ in. formers, L1 and L4 at the "earthy" ends in each case.

### Band-Spreading

The omission of band-spreading of the RF tuning will be observed. Experience showed that the slight extra complication and expense of providing it were not justified. Even at the extremes of the travel of the detector band-spread condenser no appreciable drop in gain is evident through theoretical variations of tracking. Incidentally, to spread the 28-30 mc

band over 120 degrees of a 180-degree "Utility" scale a 25  $\mu\mu\text{F}$  fixed condenser was connected in series with the detector band spreader. On 1.8 mc of course, the band-set condenser is used for main tuning.

**Performance**

As has already been suggested, the EF50 audio stage will deliver enough power to operate a speaker to full volume. With an output stage after it the results sound "just like a super-het"! American stations using 10 to 20 watts have been worked, as has a West African using *three* watts input (all on 10 metres CW). This perhaps proves nothing; good aerials may have done the trick.

But the fact remains that for the

Frequency Coverage	COIL DATA				SWG Gauge
	L1	L2	L3	L4	
15-32 Mc/s ..	2½	3	3	2	18
7-15 Mc/s ..	3	6	6	3	18
3-8 Mc/s ..	10	20	20	10	30
1.6-3 Mc/s ..	10	45	45	10	30

*Note:—All coils close wound on 1¼ in. formers, ½ in. between windings.*

man who wants a lively set mainly for headphone work, and costing but a few pounds to make, then this "All-EF50 TRF Receiver" will be found simple, reliable and most effective.

**Table of Values**

- C1 = 150  $\mu\mu\text{F}$  variable gang band-setter.
- C2 = 20  $\mu\mu\text{F}$  variable bandspread.
- C3 = 75  $\mu\mu\text{F}$  variable regeneration.
- C4 = .05  $\mu\text{F}$  decoupling.
- C5 = .001  $\mu\text{F}$  decoupling.
- C6 = 20  $\mu\mu\text{F}$  coupling RF to detector.
- C7 = .001  $\mu\text{F}$  cathode by-pass.
- C8 = .25  $\mu\text{F}$  coupling detector to audio.
- C9 = 100  $\mu\mu\text{F}$  grid condenser.
- C10 = .25  $\mu\text{F}$  screen decoupling.
- C11 = 2  $\mu\text{F}$  HT decoupling.
- C12 = .04  $\mu\text{F}$  audio output condenser.
- C13 = 25  $\mu\text{F}$  audio by-pass electrolytic condenser.
- R1 = 32 ohm RF cathode bias resistor.
- R2 = 10,000 ohm RF anode decoupling.
- R3 = 50,000 ohm RF screen decoupling.
- R4 = 50,000 ohm gain control.
- R5 = 2 megohm detector grid leak.
- R6 = 25,000 ohm detector anode load.
- R7 = 50,000 ohm detector anode decoupling.
- R8 = .5 megohm audio gain control.
- R9 = 5,000 ohm audio grid stopper.
- R10 = 300 ohm audio cathode bias.
- R11 = 10,000 ohm audio anode decoupling.
- RFC1 RFC3 } Short-wave choke in series with 200 turns  
 + RFC2 RFC4 } scramble wound on  
 + } IMO resistor or similar  
 + } suitable former  
 + } about ¼ in. diameter.
- RFC5 as RFC2, 4.
- Ch. small audio choke, value not critical.

*Mention the Magazine when writing to Advertisers—It Helps You, Helps Them and Helps Us.*



# More on the EF50 Receiver

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Notes Arising from Correspondence

By J. HUM (G5UM)

*(In the August issue, we featured a TRF receiver using EF50's in three stages. This is a design which has proved remarkably popular and has given rise to a good deal of correspondence. Our contributor discusses below the main points brought forward in readers' letters.—Ed.)*

Had the writer been able to visualise the great interest that his article on the EF50 TRF receiver was to arouse when it appeared last August he might have gone into the subject in greater detail. For in those ensuing months he has been kept busy answering a large number of letters. The heavy mail to which the article has given rise shows, first, the need for an inexpensive and simple receiver of this kind; and secondly, the great enthusiasm and perspicacity of to-day's Amateur Radio constructor.

Out of all the mail came two questions more frequently than any others. They were:

*What is the value of the resistor in the RF stage anode circuit? and*

*Could you give me a circuit of a simple audio stage?*

The answer to the first question is to apologise for the omission and to add that since the resistor concerned is used for decoupling, its value is not critical and may be anything from 5,000 to 30,000 ohms.

## Output Stage

The answer to the second will be found on page 610, where a simple output stage is shown. A 6V6G valve is specified as it gives "a lot for a little," is docile and, above all, is common with the EF50's used in the rest of the set by employing a 6.3 volt heater. The volume control shown is not essential since one is already incorporated ahead of the EF50 first audio stage. If the latter is used the output stage grid return resistor can be half-megohm fixed.

One correspondent remarked that the use of the EF50 as an audio valve represents "the waste of a really fine tube." It might therefore be explained that its employment in this service was recommended so that constructors need have only one replacement worry instead of three! If you use, say, 6J7, 6C5 and 6J5 valves that means three different types of which you have to carry spares. Now if you standardise on the EF50 you have but

one type to carry as spare—and it will cost you no more than American types (yet will work a lot better!).

It may be added here to intending constructors of an output stage that on all frequencies up to 15 mc the EF50 receiver will deliver as much power to a speaker as the average amateur station can stand—and that with only 150 volts HT. Therefore, try it without an output stage first, using as much HT as you have available. Then if you want still more noise button on that output stage.

## Construction

Many correspondents have asked for constructional details for the receiver. Here one must assume a certain minimum standard of practical knowledge on the constructor's part; indeed, one cannot reiterate too often the advice to "work it out for yourself and don't stick too closely to rule of thumb."

Obvious pieces of advice on construction are: Use sub-assemblies where possible, or at least anchor resistors and condensers to soldering tags; do not suspend them in the wiring. To prevent interaction of RF and AF sections run all AF leads—that is those from detector anode onwards—in screened wiring, and earth the screening. Twist heater leads together and run them in the angle of the chassis, keeping them well away from other wiring.

If modulation hum is experienced on the higher frequencies try a .001  $\mu$ F fixed condenser from each heater lead to chassis right at the point where the heaters enter the set. Also connect a .001  $\mu$ F condenser in parallel with the HT by-pass condenser C11.

Mount the RF and detector stage coils and cans hard up against the appropriate sections of the gang condenser to keep leads therefrom short and symmetrical.

## RF Cathode Resistor

Several correspondents have queried the use of the 32 ohm resistor specified for the RF stage. This value was advocated

because it appeared to minimise breakthrough of the BBC stations only four miles away from G5UM—an important factor on the 1.7 mc band.

To obtain maximum gain from the EF50 RF stage a much higher value of cathode resistor is preferable, a good average value being 250 ohms. Indeed G2YL has successfully used a value of 500 ohms in that position, with still further increased gain—which is another example of the desirability of "trying things for yourself"!

### RF Chokes

Several correspondents have asked if standard 2.5 mH RF chokes can be used in place of the scramble-wound types specified. The answer is, of course, "Yes." We advocated the other in the interests of economy!

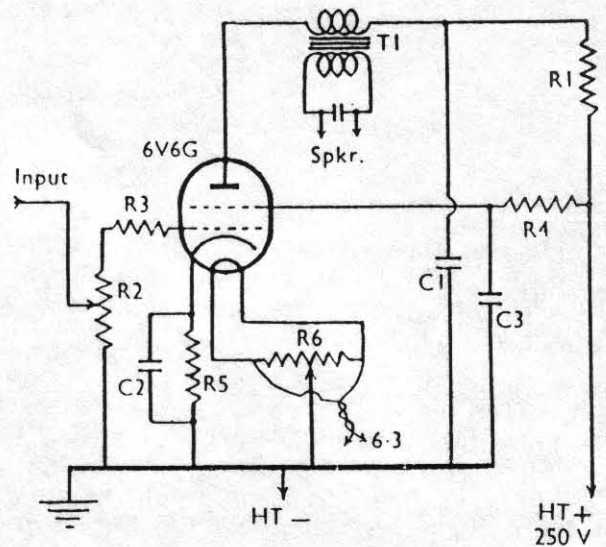
Here again one can only suggest "average values." A painstaking constructor by winding a number of different sizes of RF choke and trying them in turn would probably improve the efficiency of this receiver still further. The great thing is to ensure that the combination of RF chokes in series presents the necessary impedance at all frequencies to be used. Obviously a broadcast-type choke will suit the bill for 160 metres but will act more as a capacity on 10 metres than as a barrier to RF energy. Hence the need to connect in series with it a good short wave choke such as can be constructed by winding 100 turns on a half-inch former. But, as we say, "experiment"!

Another persistent one: "How do you get the all EF50 TRF receiver to work on 5 metres (we saw your list in 'Calls Heard')?" has already been answered by the article on this subject last month.

### In Conclusion

It is hoped thus to have disposed of most of the queries our various correspondents have raised—and thereby to be left in peace for a while! In conclusion, the remarks of a successful user of the receiver, F. Ambrose, of Shaftesbury, are quoted—a constructor, incidentally, who obviously thinks things out for himself, as the following extracts from his letter will show:

"I've built a replica of your receiver in a black crackle steel box, and the power pack with 100 kc crystal oscillator in another box of similar type. I had to modify your circuit slightly owing to reaction and coupling difficulties between RF and detector. I'm using tuned transformer and these two circuits are not ganged. Except for that and the use of Eddystone six-pin coils in both stages the



Circuit for an additional LF amplifier for the EF50 TRF receiver, described in the August issue. R6 is to balance the heater to ground for hum elimination.

### Table of Values

Audio Stage for EF50 Receiver	
R1	5,000 ohm anode decoupling resistor.
R2	500,000 grid resistor (or potentiometer).
R3	5,000 ohm grid stopper.
R4	10,000 ohm screen decoupling resistor.
R5	250 ohm bias resistor.
R6	50 ohm wirewound humbucking resistor.
C1	Anode decoupling condenser (2 to 8 $\mu$ F.)
C2	Cathode by-pass condenser (25 $\mu$ F.)
C3	Screen decoupling condenser (2 to 8 $\mu$ F.)
C4	Tone corrector (about .01 $\mu$ F.)
T1	Output transformer, to match 5,000 ohms to impedance of speaker in use,

values and design are the same and a fine receiver, too. Very sensitive, very selective and marvellously quiet. Reaction smooth as velvet. Signals are terrific and on a lot a speaker can be used on full volume. Signals on 28 mc are very good but I have a radio beacon near here on 29.5 which is pretty flat and blots out part of the band. My reaction troubles may have been due to too much voltage. I'm using a 5Z4G rectifier rated at 350v and by inserting an additional resistance in the HT lead I use 300 on RF and audio stages and 250 on detector. Even now some signals seem to overload the detector and punch the phones like a superhet with the BFO out. I've built many TRF receivers, all battery, but this is the best job I've ever had."



# THE COOKE REPORT

17

## Part Four

*In our last Report we read how Bill Cooke (GWØION), newly appointed Chief Engineer of Eddystone Radio, presided over the development of the successful 680/680X top-of-the-line professional receiver; the 750 double-superhet adopted by the Marconi Company and badged as the HR100; the popular marine cabin set 670; and the economy model 740 . . .*

*In this edition of the 'Report' Bill tells us more about developments at the Bath Tub in the early 'fifties.*



*United Nations negotiators arrive at Panmunjon.*

### DRUMS OF WAR . . .

"In the summer of 1950 the troops of North Korea (a Soviet satellite) invaded South Korea (an American ally). The Security Council of the United Nations, which was then being boycotted by the USSR, sent in a multinational force consisting mainly of American, British and Commonwealth servicemen. The outcome was the Korean War. In Britain National Service (conscriptio) was increased from 18 months to two years. The war lasted three years.

## VHF BACK IN THE FRAME . . .

"Not much to do with Eddystone, you may say. On the contrary: defence orders started to flow. The first took the form of a delegation from Government Communications Headquarters, Cheltenham (GCHQ), the centre of Britain's global intelligence network. They wanted to monitor, in particular, aeronautical VHF from 20 to 250 mc/s. The range of a high-flying aircraft at VHF is nearly 200 miles, which meant that few places in the world were outside the coverage of our agencies. Remember, those were still the days of Empire; our military presence was far-reaching, British bases ringed the globe.

## PROBLEMS, PROBLEMS . . .

"Work started on the first 770, known as the 770M. We developed turret bandswitching and it gave us hell! In spite of our successful wartime VHF radios (the S.440 transmitter and the S.450 receiver, alias the Wireless Set 57), and our police networks, we had no experience of VHF tunables and not much experience above 100mc/s (the WS57 was a single-channel outfit on 90mc/s). The problem was self-resonance of the three-gang tuning condenser at about 200mc/s. In the event we abandoned the 770M after exhibiting it at the 1951 Radio Show; it never went into production. Its successor was designated 770R, constructed by model maker Stan Margetts and developed by John Dingley (who later became Vice President of Racal USA). In view of the problems with the 770M the new set's upper frequency was 165mc/s and a different version was started for the higher frequencies.

Many ex-Eddystone people went on to find good places: Wal Lovening held the Chair of Radio Communication at Imperial College and a Professorship at Sydney University; George Brown (G5JB, see part one) became the Chief Engineer at Birmingham Police, taking along his assistant Vic Morse; David Parsons went as Chief Engineer to Redifon and Ken Barratt became President of Sony Europe. Alf Cox was Senior Engineer at Westinghouse Bloomfield, New Jersey, and Jim Roche became Sales Director at Imhof's. But I digress. . . .

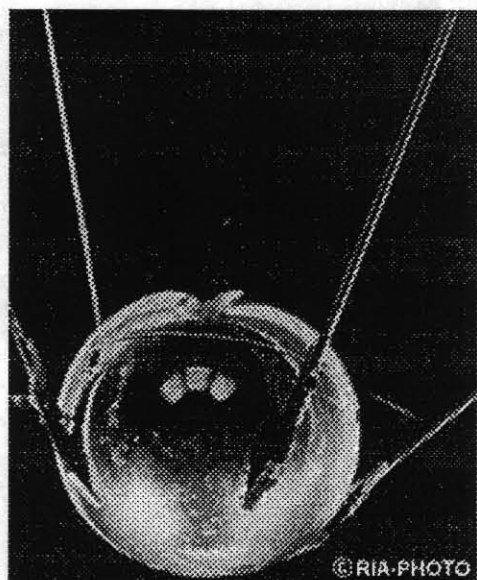
## THE BOSS TAKES A LOOK . . .

"The Stratton Company was formed in 1911 by George A. Laughton (known as 'Abe', to distinguish him from his eldest son, also named George). He manufactured fancy goods of every description and that



was Abe's real interest, but the firm was a genuine family concern and he made it his business to oversee all departments. One day early in 1953 he came into the Eddystone laboratory; he must have been nearing eighty, he never did retire. He stared long and hard at the 770R on the bench. It could have meant no more to him than the man in the moon. 'How's it going?' he finally asked. 'Much better,' I replied. 'How long to finish it?' 'About three months.' Long pause. 'Keep at it, lad.' he said, and stalked out.

"By this time work had started on the 770U, to cover the bands denied the 770R. It tuned 150 to 500mc/s in 6 ranges and was ready for the market in 1955. For many years these two sets were the only ones commercially available anywhere in the world covering those frequencies.



*Sputnik 1, launched 4 Oct 1957.*



*Laika, first dog in space, 3 Nov 1957.*

## A CHINK IN THE IRON CURTAIN . . .

"In preparation for their earth-shattering (but then unsuspected) Sputnik Launch programme, the USSR ordered two hundred 770Rs in 1956. Their inspection engineer, together with his assistant, a thinly-veiled political agent, stayed in the Midland Hotel, the best in Birmingham. They arrived at the Bath Tub every morning to see the acceptance tests carried out.

It was during this period that the Hungarian uprising took place, and Soviet tanks rolled into Budapest. They got a bad press in the West and

a copy of the Daily Express was lying on the table. The Russian visitors studied it, po-faced, without comment.

"The next day they returned in much brighter mood. 'Things are far better in Hungary this morning,' said the smiling engineer, 'You do all this to help people and look how they treat you! Just the same as you British in Cyprus.' Cyprus was a Crown Colony and had been under British rule since 1878. 1956 was the time of the guerrilla war with *Enosis*, the movement for union with Greece, led by Archbishop Makarios. The BBC and ITN were showing newsreels of British troops fighting in the streets... The political agent was earning his keep!

#### ANOTHER LITTLE EARNER . . .

"Which brings me to another Mediterranean link ... Our agent in Aden (a further outpost of Empire) was Said Ahmed O. Bazara & Bros. It sounds like something from a Humphrey Bogart movie, doesn't it! Well; they handled many of our successful model 670 cabin sets, and suggested that we make a universal AC/DC communications receiver for the overseas market. An economy set for what we would now call the third world. So, in 1953, the model 840 was born.

"It was a bit out of its time, really, because it was in a 'half-moon' cabinet when most other sets were well into the slide-rule dial. The reason, of course, was that production of the 740 was slowing up and we had stocks of half-moon cases in hand. In fact, if you study the circuits of these two sets you'll see that the 840 is an AC/DC version of the AC-only 740!

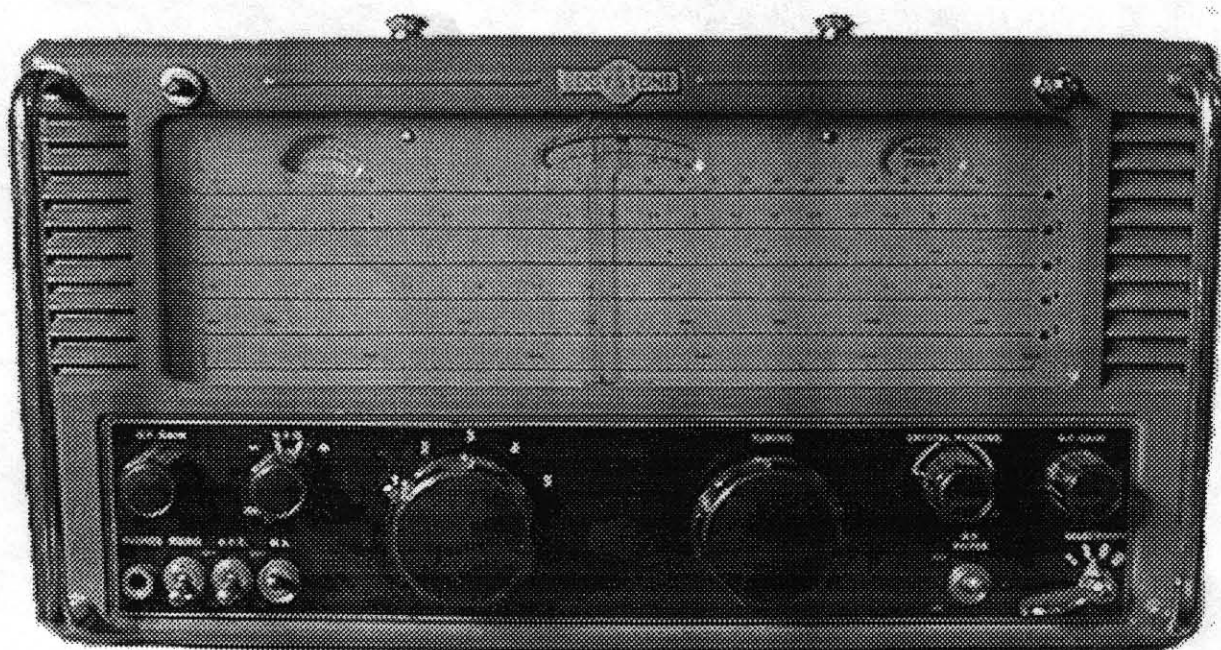
"The 840 only lasted for a year before it became the 840A with a slide-rule dial; same circuit. It sold very well and continued until 1961 when it changed over to the new cabinet and became the 840C. The circuit was still the same but we up-graded it with magic-eye tuning and fitted one of my pet inventions. This was a mechanical logarithmic tuning drive which gave a virtually linear frequency scale. It was so successful that we adopted it for the 830 and the EA12.

"Production continued until 1968, a run of 15 years. Sets such as the 670 and 840 series were the bread and butter of Eddystone. They kept us occupied when the high-flyers were in the doldrums but in their turn gave way to the transistorised EB35 and EC10.



## A STAR IS BORN . . .

"Crown Agents supervised the production and despatch of goods manufactured for the British Colonies and Eddystone was seldom without one on the premises. One day in the early 'fifties one suggested that there might be a market for a super-receiver, based on the 680X but with full tropicalisation and circuit refinements, such as a built-in calibrator and scale adjuster. The result was the 730. It was an instant success, a first order of a thousand being placed for the British Army to replace its aging R107 and inadequate R209. It first appeared in 1954 at a price of £235, a small fortune in those days (the price of a Ford Popular). A generation of schoolboys had their first experience of short-wave radio when cadet units were equipped with 730s in the 1960's



## YOU SHOULD BE SO LUCKY!

"A special version was developed for the Diplomatic Wireless Service; it came apart and folded flat to fit in 'the Diplomatic Bag' (which was immune to search). The 730 was a great success and ran to about 10 variants, continuing in production until 1961. It also found its way into the service of many Commonwealth countries; they were stored in the basements of Canadian town halls as a safeguard against loss of landlines by nuclear attack. They still surface occasionally, brand new, packed in wooden transit cases! "

*(THE 'COOKE REPORT' CONTINUES IN YOUR NEXT NEWSLETTER)*

# RADIO RAMBLINGS

*Gettings from my Notebook*



by Graeme,  
G3GGL

## AMENDMENTS TO QRG . . .

The Quick Reference Guide which accompanied the last Newsletter seems to have been well-received by members, if the mail is anything to go by, and amendments have already started to arrive. One of the most interesting comes from Tor in Norway and is a page from a *Wireless World* of 1973 announcing the phasing out of the 830 series! This in spite of the Factory list which gives it as 1969. So please alter that and, of course, cross off the 940 as being the last valve set (by a long chalk!). Other details: the 670C only has 6 valves (not 7); the 960 has 12 transistors and 7 diodes; 880 was new in 1960, not '61; 880/3 was new in 1964, not '62; the 909A3 is omitted - it should be under Style "C" Receivers, c.1967, details unknown but presumably an updated (and equally rare) version of the 909A. An owner of the elusive 890 has been found and advises us that it is presented in a Style "D" enclosure. Other changes of fine detail I am ignoring for this Guide as they have little or no value to the general member for whom it is intended. Specific research to cover everything would take me so long that the Guide would never have been published this side of the Millennium (one such learned work has been in gestation for over four years now). Many thanks, everybody.

## SURVEY OF MEMBERS' RECEIVERS . . .

Lists are still being returned but so far not in sufficient quantity to warrant analysis. 29 members have made returns, which is slightly over one in ten. Good enough for a Gallup Poll but still a bit short for a specialised subject. Individual ownership varies between none (!) and 46 sets. Come on, you shy ones, see what you can do about it. Remember, no names, no pack drill, just a list of sets. Ready or not I'll put the results in the Christmas Edition.

## WHATEVER NEXT!

One of our West Country members saw a 680X advertised in the local Redruth Freesheet at a passable price. He wended his way to the vendor's QTH which turned out to be a remote hill farm. In the kitchen, hazy with smoke, sat granny and the family. On the table sat the Eddystone, looking like new. It seems the set was bought at a knock-down auction for granny to use as a CB! She couldn't find the 'press to talk' so it remained unused until word reached them that it might be worth a bob or two. Hence the advert. Ian said they were a cross between the Munsters and the Beverley Hill-Billies. He couldn't wait to do the deal and vamoose!



### AND STILL THEY COME . . .

We've all heard the apocryphal stories about car boot sales, but some are true . . . New EUGer Gordon was at his local boot sale last month when there he saw it: "Collectors Radio - Offers Please". It was a Navy B34 (alias Eddystone 358X) complete with speaker and full set of coils in original storage box. Gordon wrinkled his nose and offered a fiver. Result: one happy camper ordering the handbook from EUG.

### 830/4 OWNERS, (and others) PLEASE NOTE . . .

Brian, VE3DFC, reports from Ontario that, earlier this year, he acquired an ex-RCAF Eddystone 830/4 in immaculate condition for "next-to-nothing". The reason? It was as dead as the grave! I'm passing his letter on to Ted for a full report and the result will form the basis of a proper feature in the next EUG NewsLetter. Suffice to say at this stage that an error in the handbook is involved (among other things!), so keep watching.

Brian is a 'retired' Consulting Engineer (and licenced ham for 40 years) who is still active professionally. Among other operations he assesses Radio Interference from installations such as Pumping Stations and (guess what!), he uses Eddystones, 830/4, 770R MkII and 770U to cover the spectrum almost continuously from 120 kc/s to 500 mc/s. He gets some interesting comments from clients! (*They don't make them like they used to do . . .*) This particular 830/4 (not the one first-mentioned) started life with the Mounties using its crystal channels. The 770R II is ex-CBC; Brian thinks they used it to monitor the competition's FM broadcasts. And his 770U is ex-RCAF. He also drives around the countryside in an XK 140 and therefore qualifies as a true dyed-in-the-wool eccentric!

But you ain't heard the half of it yet: he uses two of the Eddystones regularly ON THE AIR! The 830/4, along with a Hammarlund HX50A Tx is the main vintage gear for SSB and AM. Yes, AM nets are on 80 metres in Canada but most of the AM is on Ten metres on 29.600 mc/s every Sunday morning, which, of course, is Sunday afternoon here in Europe. So if the band opens up (in this very jerky sunspot cycle), just keep taking a listen.

On Two metres AM Brian uses the 770R with a home-brew Tx and a twelve element beam. On NBFM he uses the 770R with an ICOM Tx/Rx and it pulls them in just as well as the ICOM's Rx (and is a lot easier to use!). So let's not hear any more about 770s being deaf . . . they just need a proper aerial - like anything else on VHF!

### CONGRATULATIONS . . .

To Dave Jones (another of our majority from the Principality) on achieving his new callsign MW1DUJ. Well done! Perhaps the morse will soon come along and we'll hear you on the EUG 'First Thursday' and 'First Sunday' nets (3695 +- QRM; 09.45> AM - 10.00> SSB, local time).

*DELIBERATE MISTAKE . . . ?? (EF50 Feature)*

Those of you with eagle eyes will have spotted Jack Hum's error in the EF50 Feature. He explains how the EF50 makes a perfect audio stage if you run the screen at full HT but drop it for the anode. The circuit then shows the screen connected to the bottom of the anode dropper!! And nobody queried it in the follow-up (like they did the lack of value on the RF anode decoupler).

*AGC PROBLEMS WITH AN 840C (and a 740)*

Ron, G8URU, (up there in Cumberland) bought a very nice 840C at a rally last year, but it suffered from the common problem of poor AGC and overloading on strong signals. Ron applied the standard cure of changing the AGC decoupling condenser. But it didn't help. So on his next visit to Worcestershire he brought it with him. To cut a long story short it ended up on my bench, running off a 110v isolation tranny, alongside my normally working 840C.

Aerial terminals were paralleled, outputs were put on a double-trace scope, and serious testing began. No differences could be found, EXCEPT that Ron's was clipping in the IF stage; the AGC voltage was -3v, but mine was -5v. Although all the valves had been tested on the AVO VCM, the full sets were exchanged; but the fault stayed with Ron's set . . . think of any test, and it was done. In the end I decided to CHEAT!

Some sets take the AGC from the primary of the last IFT (ie, the anode of the last IF amp) - such as the 730 and the 940, but the 840 takes it off the secondary, same as the detector diode. So I unhitched C53 (20pf AGC diode feed) and put it onto the V3 anode. Result? Instant cure. AGC voltage -6, better than mine, and no distortion. So what was the problem?

In my view it lay in the IFT. Although it was peaking OK on both cores I believe there was an extra loss. Unlikely to be in the fixed condensers (silvered mica). I've had that problem, but it makes the set very, very deaf. So what then? 450 kc/s IFTs are wound with Litzendraht, commonly called Litz wire. This consists of many strands of fine wire (finer than hair) separately insulated with varnish but paralleled in a silk covering. The value of this lies in the reduced RF impedance due to skin effect, resulting in a higher 'Q' and greater stage gain. If several of these fine wires were to become 'dry-joints', or fracture, the coils would still peak, but not pass on as much signal.

I'm suggesting this is the problem, on the basis of elimination of all other possibilities! To confirm this would need a Q-meter, not included in my otherwise reasonably equipped hamshack. It would also mean taking out both IFTs to compare like with like, as the Q is not stated in the service manual. The set has now gone back to Cumberland, so that is the end of the matter for the time being. THEN, a phone call was received from a member who had just completely rebuilt a 740, which to all intents and purposes is an AC-only version of the 840-series.

*(RADIO RAMBLINGS continued on page 37 . . . )*



\* \* A Century of Achievement \* \*

This was the title of the book written and published by Strattons on the occasion of their Diamond Anniversary - in 1960 !! Yes they had been operating continuously from 1860 to 1960 albeit with a few changes in the format of the Company name.

I used to have a copy of this book in my archives but at some point in the past five or six years it was loaned out and never returned. Be nice to get it back as that book had done a lot of world travelling with me and has quite a bit of nostalgia value.

In the hopes of getting another copy I wrote to the original printers in York, I wrote to Strattons in Warstock and I commissioned one of those 'Bookfinder' companies in Ross on Wye to locate a copy. The post today brought me a pristine, obviously unopened and read, copy from - guess who ? From the Managing Director of Strattons of Warstock, Birmingham, no less. Now don't all go bothering him for a copy as it is obvious that a book written almost forty years ago is very much out of print. The copy I received was apparently an office memento, all the more reason for EUG to be grateful to Mr Roy Weake the present M.D of Laughton Rainsfords Ltd.

I intend to use the book to inform EUGers of the salient points in the history of the Strattons branch of the Company. Incidentally the Laughton family no longer have any connection with the Company as the result of a Management Buy Out / Buy In during January 1997. For the first Newsletter item from this wonderfully evocative book, just read on.

"FROM PEACE AND BEAUTY - TO MUNITIONS OF WAR"

The total number of items produced by the Company for the War Effort in World War II exceeded 648,000,000. Yes, you read it correctly, SIX HUNDRED AND FORTY EIGHT MILLIONS !!!

Magazines	31,416,280	Magazine Liners	420,986
Cotter Pins	77,721,640	Tracers	1,342,000
Valve Pins	242,721,000	Ignition Cups	28,300
Washers	10,823,000	Copper Washers	1,607,000
Laminations	15,675,128	Pellets	509,120
Domes	46,018,400	Helmet Vents	174,000
Copper Plugs	95,156,900	Rifle Drill	653,000
Tracer Cups	7,376,000	Resistor Terminals	28,452,000
Washers	8,136,000	Nickel Screens	1,351,500
Fuse No 246 parts	1,458,000	Body Caps	146,820
Nose Caps	2,864,000	Box Catches	237,000
Disc Washers	1,586,000	Box Hinges	177,000
Rear Discs	903,100	Badges	857,000
Aluminium Tubes	689,000	Combs	347,000
Centrifugal Bolts	5,437,000	Studs	338,000
Shutter Blanks	428,000	Thimbles	45,000
Brass Caps	774,000	Mirrors	29,000
Anchor Plates	1,621,000	Tinplate Labels	307,900
Steel Sleeves	1,512,850	Tablet Pins	246,000
Brass Plugs	437,000	Wire Leaves	762,000
Striker Covers	1,803,000	Conversion Fuse	43,049
Septums	2,480,000	Cap Assembly Wires	5,457,000
Belt Slides	1,651,000	Bungs (bomb)	7,000

Plug Screws	2,028,000	Brass Sleeves	50,000
2¼" Hooks	515,000	Hinge Assembly	42,000
Brass Buttons	669,000	Con Rod Housings	287,000
Detonator Tubes	4,441,465	Brass Ferrules	3,574,600
Steel Primer Tubes	1,107,681	Shroud Rings	2,016,500
Copper Tubes	313,000	Closing Discs	7,982,982
Supporting Plates	1,678,000	Fuse Caps	317,468
Stop Pins	215,000	Wire Links	1,802,000
Top Discs	10,185,600	Belt Tips	2,595,000
Safety Clips	628,470	Buckles	1,715,000
Mine Exploders	386,876	Arming Sleeves	331,584
Demolition Primers	458,596	Explosion Bodies	22,000
Capsules	1,583	Creep Springs	655,626
Steel Slides	61,000	Haversack Slides	614,000
Screen Caps	1,498,000		

This comes to a grand total of 648,419,274 items !!! (no I have not checked the total out myself, I have taken the Author's word for it. By all means get out your calculators. - Ted).

The Author goes on to say "this approximates to 325 items produced per minute despite the delays of Bombing, Machine Converting, etc. In addition our Radio Factory supplied well over 500,000 Variable condensers, 1,000,000 High frequency chokes, over 500,000 Flexible couplings, 5,000 Short Wave Communications Receivers, over 4,000 VHF Radio Telephone Sets, and scores of thousands of other vital radio parts".

Even during the worst bombings of the War the Company was still producing other 'vital' items without which the ladies could not have coped. Other Departments carried on with smaller scale manufacture of powder compacts and lipstick holders as well as accessories necessary for the ladies 'hair-dos'.

A Lady friend of mine has in her possession a very nice enamelled metal powder compact dating from the 'fifties era'. It is a treasured possession. More next Issue from this treasure trove of information. Ted.

#### FREE MEMBER'S ADVERTS

WANTED - HELP, does anybody have a Parts List for the S.700 or IMR54 receiver ??? Or maybe the List for the ST & C version ??? Please contact EUG on behalf of Dave Simmons, or call him on 01869 - 347504. Thanks.

WANTED - urgently need a Panoramic display unit Type 1061B. Please contact Peter Mathews, Charnwood, West Chinnock, Crewkerne, Somerset, TA18 7QD. Thanks.

WANTED - Tuning Knob for Model 880/2. Please contact Cliff on phone 0181-656-3137. Thanks.

WANTED - EB36 or EB37 in nice condition, would accept mint EB35 but need is Urgent. Contact Ted via EUG or direct. Thanks.



## \* Valve substitutions \*

From a non-EUGer who read the N/L at a Clubmeet we have the following. Given the built-in resilience of the thermionic valve it is hardly surprising that so many differing types will function in a given socket. Just so long as the heater and possibly the kathode are correctly connected then the remainder of the grids or anodes will function sufficiently to produce some output.

Many triodes will work happily in tetrode/pentode configured sockets and vice-versa. Many grids will function as anodes in the same way. It has been proven in practice that any of the following will happily provide some, limited, output if substituted in a socket meant for one of them, 6SG7, 6SK7, 6SH7, 6J5, 6C5, 6V6, 6F6, 6L6. In the same way many of the 'top-cap' types such as 6K7 and 6J7 will substitute.

Fair enough, long term effects on circuit components or on the valve itself may be detrimental but THEY DO WORK. One wonderful example that comes to mind is where the 6H6 signal diode can be used as an HT rectifier for low voltage and current applications. I have one working as such in a BC221 psu that was made in the 1950s era and it shows no sign of failure - as yet. Gerry.

## \* Those 6K8 and ECH35 Details \*

A letter from Tim who has been doing research on these two valves says that he is astounded that anybody could ever have considered them to be in any way equivalents. Not only are the pinouts and grid connections different but the actual quoted voltage, current, interelectrode capacities etc; are very different.

And yet, Tim says, work they do in many situations where the one is quoted but the other utilised. (see the above article by Gerry).

The manufacturers data sheets give the following info;

Data	No.1	6K8	ECH35
Base pins - - - - -		NC	metallic coat'g
	2	Htr	Htr
	3	Anode Hexode	Anode Hexode
	4	G2G4	G2G4
	5	GTG1	GTG3
	6	Anode Triode	Anode Triode
	7	Htr	Htr
	8	Kathode	Kathode
	TC	G3	G1
Heater volts/current		6.3/0.3	6.3/0.3
Hexode Anode volts		300 max	300 max
Hexode Anode dissipation		0.75 watt	1.2 watt
Hexode Screen volts		150 max	200 max
Hexode Grid volts		6.2	4.5
Hexode Kathode resistor		-3	-1.3
Hexode Anode impedance		300ohms	215ohms
Triode Anode volts/current		0.6Mohms	1.3Mohms
Triode Anode Dissipation		100/3.8mA	150/8mA
Conversion Conductance		0.75watts	1.5watts
		350uA/volt	650uA/volt

Tim says that whereas the 6K8 is failing at about 50-60 Mc/s an ECH35 can still operate at circa 100 Mc/s given the correct choice of circuit parameters.

## The Idiots Reference Guide

I must be one of the above mentioned myself ! I find myself turning frequently to this recent product of 'The EUG Office'. It seems to save me endless pawing through many ring binders and does contain most of the oft needed info on the popular sets. I had cause to look up the EB36 in this booklet yesterday and began wondering about the EC/EB range of sets in the Type 'E' case.

Who was it who made the decision as to whether the particular model had those nice 'grab handles' fitted ? I used to think that they came on 'real' comms; models and not on 'cabin' sets. But that just does not work out if you check on the various models. So what is the deciding factor, or was it just a matter of serendipity whether the model got them fitted ??

If you have ideas on this subject then please let me know, I lost some sleep over this last night !! Ted.

## 730 Series Coax Plugs

Steve is asking for a source for the 'fat' coax plugs which fit the sockets on the rear of his 730/4. Alternatively he would like a source for coax adaptors to enable him to use his normal Belling-Lee aerial plug.

There is a company called Methodical Engineers who advertise in the Radio Bygones Mag; and profess to have several warehouses full of these WWII type components. Try them Steve, if a call to Birketts does not get you one.

## Octal Plugs/Sockets à la S.750

Another query as to the availability of these hooded plugs/sockets with an Octal pinout, such as are used on the model 750 and others for external supplies, 'S' meters, etc; Can anybody help Bryan with this gen please ??

In extreme circumstances the base of an old octal valve can be used as the plug. After wiring up the base can be filled in with some kind of epoxy filler for strength and for safety.

One problem is that many octal valves simply did not have all of the pins fitted, just those used by that type of valve. So check first before you 'bash' the valve to bits. Oh yes, and don't do as one EUGer did a couple of months back, check you have an International Octal valve type before you wire it up and seal it. He had used a Mazda Octal and they just will not-mate together no matter how hard you try to push the Mazda type plug into the International type socket. Jeremy's XYL is still nagging him about that one !!



## The EB36A, a Post Office Model

Terry has an EB36A which unlike others of it's ilk is fitted with a crystal filter giving additional IF selectivity. No other differences really from the original EB36 model. At a recent rally he was told that this set had been produced for the then Post Office. Now of course, his curiosity has been aroused and he wants to know more about his set, and the uses to which the Post Office put this model.

I have heard of this version being used elsewhere, by the BBC for broadcast monitoring for instance. How about some knowledgeable EUGer sending in the relevant info for inclusion in the N/L. there must be others out there who are wondering just what their EB36A was used for.

The same might go for other models, if YOU have had experience of, or know of, Eddystones being used under circumstances other than the normal everyday Amateur or SWL shack environment, then please write and tell us so that all may be given the info. Ted.

## 840A Valve bases.

From Charles we get a query, his 840A is in apparently complete and unmodified condition, works perfectly well, BUT,---

Those valve sockets look as though they were meant to have been fitted with metal screening cans but none of them are, so should they be? Were they fitted when the set was new at the factory and have they simply gone walkies?

Its simple really, they never were fitted and for the simple reason that the range of valves used, 'U' series (and their equivalent 'E' series) have internal screening. This renders the screening cans superfluous.

## Diodes for Noise Limiting

Some time back there was an item about the use of copper oxide type rectifiers for noise limiting in Eddystone receivers. There have been two letters since then on this subject. One writer asked why the 'radar type' of diodes so plentiful after WWII had not been used, another asked about the choice of copper oxide types when the GEX series were already on the market.

I took this up with a well educated chappie who professes to know about these things (recognise yourself Tommy?) and the response was that the CuO<sub>2</sub> type of rectifier has 'better front to back emf characteristics'. Honest that is all he said, not another word. This guy is a University professor, teaches electronics, so I would have expected a long treatise in response to my question. Bet I would have got more if he was paid by the word!

How about it? Anybody willing to be a bit more verbose on this matter? To share with us the logic behind the use of these -30s devices in lieu of modern silicon types? Could it be the lower volts drop per element?

## Not ONE but TWO S.700s !

Dave has - as mentioned elsewhere - acquired not just one of this rare breed, but two of them. Two quite different sets externally but apparently the same inside.

Both are in dire need of attention and both are minus bits but he has hopes of getting a complete S.700 or the STC equivalent from the two.

One or two points that he mentioned are that one set has white/ivory coloured knobs of the Strattons/Eddystone type, one set has a pressed steel front panel and the other has a cast 'B' times 1.5 front panel. This latter as per the one shown at the NEC show on our EUG stand in May, courtesy of Eddystone.

Strange that these should be coming out of the woodwork just now, could it be that the NEC example reminded people of the existence of the S.700 ?

## S.740 with 'S' meter.

Tony has recently obtained this 740 in exchange for one of his two S.640s and he is now into the extensive refurbishment, meaning new paper type condensers, resistors, full valve set, re-alignment, etc; etc;

One immediate matter was to investigate an anomaly which differentiates this 740 from any others which Tony has seen or handled. Nothing less than a built-in S.meter, as per - say - the 680 series.

The 740 sets usually have a blank in the top left hand corner of the scale plate which bears the model number '740' and has no utilitarian purpose at all. On this 740 the blank had been removed and an Eddystone type of 'S' meter had been fitted, wired up to the built-in 'S' meter circuitry which normally terminates on the rear panel.

This is no botched, kitchen-table, type of 'mod', no way. The work has been done so professionally that Tony is of the opinion that it must have been done 'in-house', or 'in-factory'. The removal of the blank appears to have been done as on the production line with the correct meter movement and factory style wiring. This all leads Tony to suspect that the set was done at the Bath Tub and was either a special one-off for somebody or was a display or exhibition model that never made it to the production line.

Apart a few blemishes on top of the case (no lift up lid here !) where something has been stood on top, the set is in extremely good nick and Tony intends that it should stay that way.

Tests showed that whilst only a few of the paper decoupling condensers were leaky, most of the higher value of resistor showed values way up out of the accepted tolerance ranges. Polystyrene condensers have been fitted with no attempt to disguise these as 'oldies'. For the resistors, new manufacture low noise 1 watt types have been fitted, okay the originals were mostly  $\frac{1}{2}$  watters but the new ones are about the same size for twice the power rating.

A full set of new valves have been tested and are awaiting completion of the overhaul



## 830/12 or Hagenuk E81

This receiver bears the serial number of FU2061 and has come to the UK via Germany, in fact all front panel lettering is in German and English. This immediately sets the 830/12 apart from the ordinary run of the mill set.

Another difference is that there is a dual calibrator, both 500 and 100 Kc/s pips are available as required by circumstances. The IF output socket for use with either a panadaptor or FSK unit is by BNC socket.

The rear panel of the set bears a plate stating 'Hagenuk, Kiel' but there is also a white paint stamp on the rear chassis panel and case which states S.T.C. in somewhat stylised letters inside of an oval.

The owner has just been given a copy of the schematic by myself, somewhat different to that of the normal /7 or /8 set but all the specification details are otherwise similar. It is in good working order and the present owner is having the valves tested, any low on emission or otherwise 'duff' will be replaced before the set is integrated into the all valve shack line-up. Ted.

## Another Oddity

Mike has been given a 730/4 which is an exact duplicate of his already owned 730/4 excepting for the colour. Both front panel and case are in that polychromatic brown which Strattons used for some of their early cabin models. This is original colouring and not a DIY paint job as is evidenced by the brown-ish tint to the fingerplate. Some of these sets may have gone to users other than the armed forces, maybe diplomatic sources. this could account for the non-standard (for the 730/4) colourscheme. Can anybody help out here, please ?

Tests on the set show that it is in good condition with all stages meeting the manual specs easily, just one minor defect is a broken clip which is meant to hold the missing (as always) trimming tool.

What Mike is now looking for is one of those matching round diecast speakers in - - wait for it - - Polychromatic Brown. Not a black one spray painted but one of the originals. If you have one for sale, or swop, then write c/o Ted, and Thanks in advance.

## Those Small Ads for EUGers

It has to be said - AGAIN - that if you want your ad to go in the current issue of the Newsletter then it needs to get to me, Ted, or Graeme, before the end of the month prior to publication. That means basically for next issue due out in mid December we must have your ad before the end of November. GOT IT ??

First thing that happens is if the ad gets here after I have posted the N/L to Graeme, then I have to post it to him for inclusion. He may already have sent off the N/L for printing. Second possibility here is that if it comes late then it will be put aside for next issue, and in those two months it could get lost. It is your choice. Get it here on time or miss having it in the N/L. Ted

## What Happened ???

According to recent press reports there are now more than 25 radio stations broadcasting in the London area using the 'new' Digital Audio Broadcasting, or DAB, format. Some of these stations have been on the air now for almost two years !

The big question in my mind is just who are they broadcasting to and for, given that there are no commercially produced DAB receivers available as yet. Okay, there are a couple of hundred of them handed out to various individuals for trials and we know that the Queen was presented with one by the Beeb but what about the much hyped advent of domestic models ?

More than 18 months ago we heard that these domestic variety of DAB receiver which would offer a multitude of 'added' functions, would be available in the shops SOON. Where are they ? Have any EUGers seen them on sale ? If you have them do please let me know as I am curious. Ted.

## Valves from The East

Some time back on short wave I was listening to a Ham Radio programme and there was this item that one of the electronics companies owned by the Skoda combine would be starting production of a complete range of those replacement valves that were in popular demand, still. It seems that in that part of what used to be the Eastern bloc there are still many valve type radios and Tvs in use.

This a.m. I hear an update on this on the same station - my breakfast time listening usually. The production of those more common types using B9A and B7G bases has actually begun. How soon before we see them offered for sale over here ?

By and large there are still adequate stocks of most types available in the UK, although some are increasing in price as they become scarce - viz; the UL41 which we use in AC/DC Eddystones. If these new production valves do come onto the market, and they prove to be of good quality, then maybe we ought to look to buying ourselves those which we shall some day need for our cherished receivers. Ted.

## Ærials for NDB Chasing

This is a favourite sport of mine and I use several models of Eddsytone for the job. Both the 1002 and the EB35 are okay up to about 380 Kc/s if you can make up a 'dedicated' aerial for the NDB band.

My circumstances are such that my outside aerial is limited to about 34 feet of vertical wire, fed through a home-brew ATU. Fair but not brilliant for the NDB band.

Over the past two years I have experimented with a number of other types of aerial, anything from single turn wire loops to tuned multi-turn loops of up to 75 cms a side. Lately my experiments have tended towards optimising ferrite rod



aerials for the NDB band. I keep calling it a 'band' but in my case I am talking about the range from about 260 Kc/s up to the limit of my receiver range @ 380 Kc/s.

Looking through a copy of the ARRL Handbook I came across a bit about DIY receivers, and aerials, for what they term 'Fox-Hunting', where a hidden transmitter on Top-Band has to be located by the 'hounds' using basic home-brew receivers with DF aerials.

One point that I pounced upon is that for added output from the ferrite rod aerial they advocate a maximum amount of ferrite material - seems only logical I guess. In the example given two identical rods are taped together and the winding is then wound onto the double rod. If it works for Top-Band then why not for the LW/NDB band ?

I eventually was able to cannibalise two old trannies that were being junked. This produced two nice long ferrite rods of 8 inches each, with a common diameter of about one centimeter. These were taped together with ordinary masking tape and the old LW coil from one was unwound and used to make a full length, single layer, winding. The idea being that starting from about 180 turns this could be pruned down until the necessary range could be covered using one of the 'varicon' tuning condensers from one of the old trannies. The whole thing was mounted in a plastic pencil box.

Well, it took a bit of patient experimentation and eventually needed a padder condenser across the varicon tuning condenser but the range now goes from a low of 245 kc/s to just above the 380 Kc/s end of range of my two Eddystones. This gives me Atlantic 252 for checking purposes !

I tried a length of mini coax for coupling to the receiver but have settled on a length of flat twin such as is supplied with extension speakers. Some 5 feet long this enables me to have the aerial unit outside of my window - this lessens some of the domestic QRM but does entail sticking my arm out to trim the tuning. Tuning, well it IS quite sharp, very selective indeed, and very directional too ! Having said that my results are outstanding, given the limitations of my QTH.

How about PH in France on 294, or RR in the Scilly Isles on 298.5 ? Not bad considering my QTH and equipment. I did then cheat a little and 'tweak' the receiver RF trimmers for that high end of the range. This brought me VI in Spain on 290.5, but this was in the early hours of the a.m. when domestic QRM had died down a bit.

What I consider my locals such as BZ at Brize Norton, CT at Coventry, EPM at Epsom, HEN at Hendon, and even FB at Flamborough Head, are receivable on a regular basis. WCO at Westcott can be seen from my window and so this on 335 serves as my 'calibration' guide. It can be received at good strength on either Eddystone by just touching the aerial socket with a finger tip.

I believe that this is as far as my limited means for experiment can take me along the NDB / Ferrite trail - unless I can, from some place, cannibalise a nice 18 inch long by one inch diameter ferrite rod. It was worth all the work and my NDB hunting will continue, but how I wish I had an 850 here to do it with.

Ted.

## This month's Featured Rx

The front cover for this issue and the featured receiver article have been provided by Simon, G8 POO. He has recently obtained the 930 which he features here and Simon is becoming increasingly active in EUG. A lot of the computer fancy work that we are seeing is being done by Simon - remember the digital photos of the NEC stand ???

NOW, this is the sort of thing we want for the Newsletter. If you are able to provide articles with or without photos, then please do let us have them. You can send them to Graeme for onwards transmission to me, or you can send them via Simon using his E-mail address which was in the last issue. If you mark it for Ted it will get to me.

The article in last issue, the Bumper 50th Newsletter, written by Peter Lankshear has elicited some mail. The valves listing for Eddystone Receivers seems to have gone down well with EUGers so anything similar will be gratefully received.

How about somebody coming up with a 'Parts Interchangeability List'. Telling us which IFTs from one model can go in other models ? Ditto for transformers, audio and mains type. How about those impossible to obtain switch wafers ??

Remember this is YOUR Newsletter and if the article is well produced and ready for use it will probably go in the very next issue, if it needs retyping it may have to wait a while.

To Simon, and Peter, thanks a zillion for your articles and for lightening my load here.

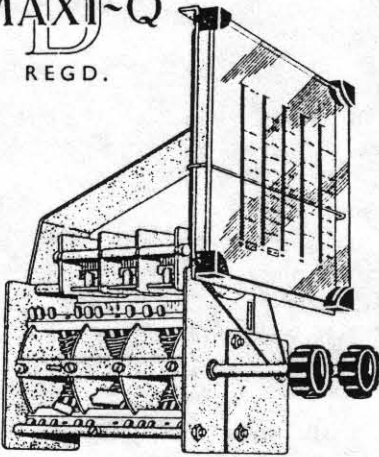
## CENTRE ELECTRONICS

345 Stockfield Rd, Yardley, Birmingham, Phone.- 0121-706-0261

Howard Turner of centre Electronics welcomes enquiries from EUGers for spares for Eddystone Radios. Apart from many Eddystone specific parts it is possible to supply valves for Eddystone and other makes, from stock. A service of Rechroming of parts such as handles can be provided on an exchange only basis. If you have any queries then why not give Howard a call, if he can help you he certainly will.



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Chassis, front panel, printed dial plate and drive mechanism, 37/6  
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2/- 1st, 2nd and 3rd IFTs, IFT 11/10/7, 6/- each. Ratio Discriminator Transformer O/T2 (T5), complete with crystals, 19/6. Variable 2 Gang Condenser 6-17.5 pF, 17/6.

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I.F. Rejectors, Ref. 510/IFF, 2/6. Aerial Coil L1/L2, Ref. 510/AE, 4/6. Choke L3, Ref. 510/RFC, 2/- R.F. Coil L4, Ref. 510/RF, 2/6. Oscillator Coil L5/L6, Ref. 510/OSC., 4/6. 1st IFT L7/L8, Ref. 510/IFT1, 7/6. 2nd IFT L9/10, Ref. 510/IFT2, 7/6. Ratio Detector Transformer L11/12/13, Ref. 510/RDT, 12/6. Aluminium Chassis, completely punched, 12/-.

*The* **EDDYSTONE '820'**

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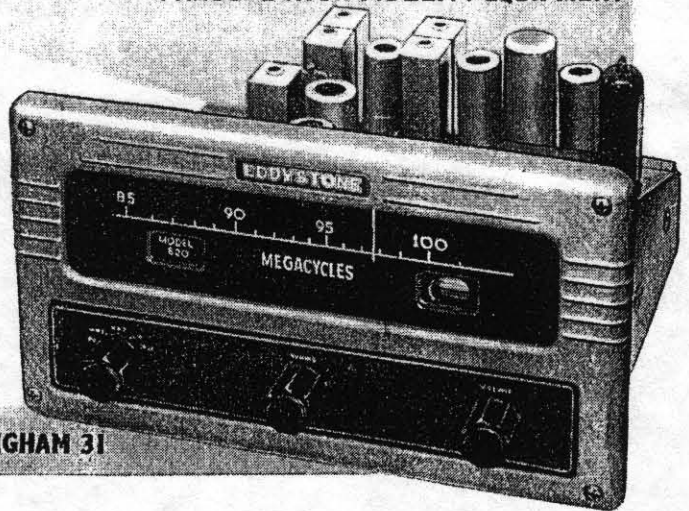
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## Re Issue 50 - Again.

A letter in the mail from EUGer Peter Watson who congratulates all those concerned with the super Issue 50. Thanks Peter, congrats go all to Graeme and Simon who did the computer stuff.

Some points for mention from Peter's letter are, the address of Birkett's. We do often publish it but to do so every time is a bit space consuming, however here goes again - Birkett's, 25 The Strait, Lincoln, LN2 1JF - phone is Lincoln 520767. If they ever want to send us an ad for FREE then they can do so, we appreciate service from such as Birkett's.

The partial catalogues and Price List sent by Peter, the Price List is one I have not got, so Thanks and into the Archives it goes, but for use in a later N/L.

Power Free Droppers, my own preference is always for NO MODS, but if absolutely necessary then to be reversible. The use of a condenser dropper fulfils this latter criterium but I have feelings about the safety of it. Turning off a set with such a mod, opening up, and OW !! I guess it is just me being overly conservative. This use of a condenser as power (hence heat) free dropper is a very good idea otherwise.

Energy Saving Bulbs, Peter has one which does cause QRM when first switched on but this diminishes after some 5 minutes of use, to a bearable level. Seems that some do and some just go on giving earache. I guess that model and maker will depend.

The Aussie SFT on 16 Mc/s, is still listed in WRTHBK for 1998 so it may be there, if recent cash cuts have not made it go QRT. I shall carry on looking for it and report. If anybody has a recent QAP of this please advise me. Ted.

- - - - -  
END IT END IT END IT

Guess that is IT once more, as usual far too much stuff available and not enough space to print it all ! Next issue will be the CHRISTMAS one and I believe that Santa Graeme already has a super SURPRISE lined up for EUGers everywhere. I hope that you enjoy this issue, the contributors certainly put in a lot of hard work. 73 Ted.

*(Sorry, Ted, I had to  
put an extra page to  
finish off Graeme)*



*(RADIO RAMBLINGS continued from page 24)*

He had replaced every active component except for the coils and tuning condensers. It was working fine but was distorting on strong signals. He double-checked the AGC circuit but all was in order. I suggested he did the same as I had done with Ron's set and move the AGC feed condenser (C45 in the case of the 740) to the anode of the IF amp. Result: complete cure of problem. But had the Litz wire been disturbed during the rebuild? We are still waiting to hear!

*THIS MONTH'S EDDYSTONE EPHEMERA . . .*

Enclosed with this Newsletter is the last colour brochure for the Eddystone Series 1706 One Kilowatt FM Transmitter of 1988. It was produced for the BBC and licensed for sale throughout the world.

*USER GROUP E-MAIL . . .*

Many thanks to members who used our new E-Mail facility. Many of you used it for sending your Receiver Survey replies as well as nuggets of information. Please feel free to use it, especially the overseas members who tell me the financial saving is considerable, to say nothing of the speed! Don't forget our Callsign; *Callsign???* What can I be thinking of? I mean Address (and that sounds just as silly):-

**eddystone@nomis.co.uk**

*EUG AT RALLIES AND FAIRS . . .*

Several members have enquired if we will be attending rallies this year or next, and are even assuming that we shall be at the Autumn Vintage Fair at the NEC. Regretfully the answer is none. As a Group we only attend the May Vintage Communication Fair at the NEC, Birmingham. And that costs an arm and a leg! We are a very small group of helpers, scattered around the country, and the one big effort is all we can reasonably maintain. We shall confirm the date in our February Newsletter, so put it in your diary (usually the first Sunday in May).

*NEW PLUG-IN SHORT-WAVE COIL FORMERS*

I have just received information from ISOPLETHICS that a new Low-Loss polyester-resin coil-former (type I37) has been introduced into their range of 'Real Radio Resources'. These are the same size as the Eddystone 1½" four and six pin formers but are on the readily obtainable octal bases (as opposed to the six-pin sockets which are virtually non-existent). Full technical details and application report are obtainable by sending a stamped addressed envelope to:-

ISOPLETHICS, 13, Greenway Close, North Walsham,  
Norfolk, NR28 0DE, England, Tel (UK) 01692 403230 .

Prices: (black or brown) £3.75 each or 4 for £12.90, incl UK vat & p&p within EU.

*END*

## MEMBERS' FREE ADVERTS

WANTED: Case for 840 Rx without added ventilation holes! 770S Rx any condition but must be complete. L11/L12 coil assy for EP17. I have scrap unit for spares less F.M. coil.  
Digital Synchroniser for 1990R - need not be working. Phone Dave 01869 347504 (Oxford area)

FOR SALE: Eddystone 1990S UHF (440-1000mc/s) in Desk-top case, £250. Marconi Apollo, mint, with desk cabinet, LF/HF, £225. Eddystone EC958/12, digital, with Independent Sideband, £350. All in excellent order. Very close offers considered.  
Call David on 01788 574099 (Rugby). Buyers to inspect and collect.

WANTED: Model 830/9, must be complete and in fair condition with original knobs and other hardware. Need not be in GWO, TLC/realignment no problem provided this is reflected in price.  
Possible trade with RA17. Call Neil G8LIU on 01895 230006 or leave message. (Uxbridge).

## EDDYSTONE USERS' BOOKSHOP

Handbooks for most Eddystone valve sets and early solid state are available from £2 to £10 (incl p&p) depending on size. Write to Graeme G3GGL (see front page) and you will be invoiced when your order is delivered. Some later sets are available at £15-£80 but not after about 1980.

From 1932 to 1947 Stratton's published six Short Wave Manuals and one USW Handbook. These contain constructional projects for Receivers, Transmitters, and Test Gear, using Eddystone Components of the period. Bound photocopies of these are available post free at £5 each in the United Kingdom, or £6 overseas.

E.U.G. BADGES are made from chromium plated metal and enamelled in blue and white. They are 3/4 inch in diameter and show the Lighthouse logo. They cost £2 post paid U.K., £3 overseas (or two for a £5 note). Order from Graeme G3GGL (see front page).

AN INDEX for EUG Newsletters for the first seven years (1990-97) is available, plastic bound, for £4 inc P&P (UK) or £5 (Overseas). Back numbers are available at £2 each incl P&P (£2.50 Overseas). (The Index for 1997-8 was issued as a supplement with Newsletter #50, August 1998)

Construction Manuals are available (facsimile, plastic bound) for the following early models: "Scientific Short Wave Three" (1928); "Homeland Four" (1932); "Eddystone 1934 Kilodyne 4" (Battery & AC versions): price £4 each inc P&P UK, (£5 Overseas)

Unbound leaflets are available for "Better Radio Reception", a handbook issued with all post-war valve sets; "A list of known Eddystone Receivers 1923-1983"; and "Common Faults in Early Valve Receivers". These are priced £2 each incl P&P UK, (£2.50 Overseas)

To avoid confusion, orders are preferred by letter or E-mail. OVERSEAS members may like to know that (in view of the high cost of Bankers' Cheques) Sterling banknotes are quite acceptable. These are issued in multiples of £5 upwards. Just wrap them up in your order.

All cheques, postal orders, etc., to be made payable to 'Eddystone User Group'.

IF YOU HAVE A FRIEND who is interested in joining EUG tell him to write, phone, or E-MAIL for an Introductory Pack which will give the history of the Company, a sample Newsletter plus Application Form.

ALL ORDERS TO BE SENT TO GRAEME, G3GGL, ADDRESS ON FRONT COVER.