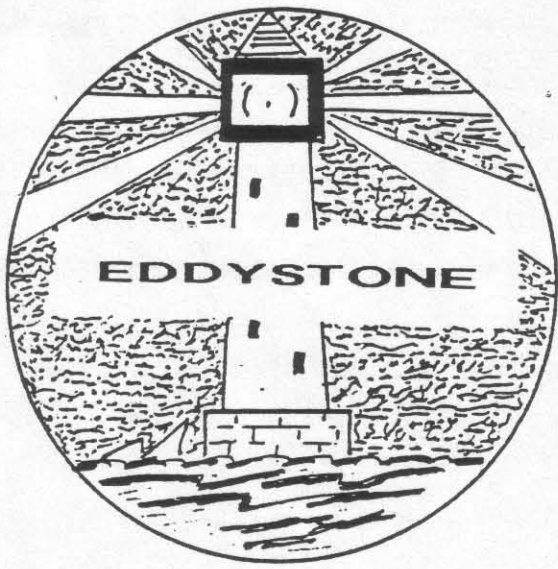


18

KILODYNE "4"

Eddystone User Group

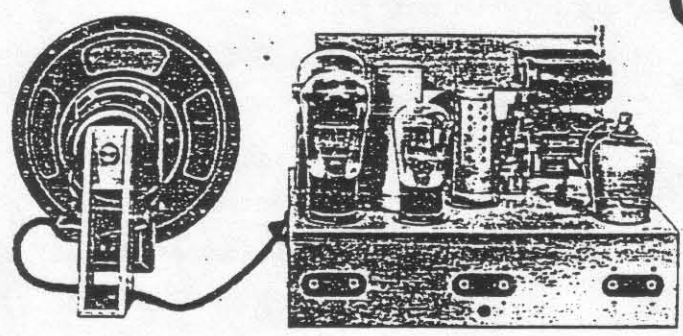
730/4-SSB - p.18



Newsletter

Issue No.,-18.

Featured Model,-Kilo- dyne "4"



- A NON PROFIT NEWSLETTER FOR EDDYSTONE USERS.
- INFORMATION QUOTED FROM EDDYSTONE LITERATURE BY KIND PERMISSION OF CHRIS PETTITT, MANAGING DIRECTOR OF EDDYSTONE RADIO LIMITED..
- PLEASE ADDRESS ALL MAIL:- W.E.Moore. Moore Cottage.
112 Edgeside Lane. Waterfoot.
ROSSENDALE. Lancs; BB4 9TR.

- Members Ads. - including late ads.

SELL. RETIRED ENGINEER. HAS RADIO AND T.V. NEW BOXED VALVES. (100 approx). SAE. F. PENNY, 78 A HERENVILLE ROAD LONDON SW12 8RR

WANTED. EDDYSTONE MODEL 1590, ALSO MODEL 1838 EDDYSTONE 4 OHMS SPEAKER. RING GEORGE

0772 704009.
WANTED. EDDYSTONE MODEL 170R MKII. RING PAUL 0813100371

WANTED - An EC10 Mark II in good working order please. Write to Ron Parker. G4MRH. 45 St. Leonards Gardens. Hove. E. Sussex. BN3 4QA.

WANTED - Does anybody know where loudspeakers can be repaired, that is reconed? Please write to Victor Mee. 205 Grimshaw Lane. Middleton. M24 2BW.

WANTED - for several members this, any address of the Marconi Archives Dept; so as to get info on older Marconi/MIMCO receivers? C/O EUG please and will forward to those interested.

WANTED - R.E. Strachan would be interested in purchasing an 880 model either /2 or /4. write to P.O. Box N4106. Nassau NP. Bahamas.

WANTED - an EC10 II in GWO, write to J. Thompson. GM8GUX. 2 Wilton Hill. Hawick. Roxburghshire. TD9 8BA.

WANTED - by several members, and EUG. List of Marconi Receivers made by Eddystone, Marconi model numbers and Eddystone model numbers, to EUG first and will send on.

Sale - Custom made Frame aerials for medium wave Dx-ing, cost £39.25 including p & p U.K. £47 rest of Europe. Also list of radio books for sale. Write Mike Evans. 120 Loughton Way. Buckhurst Hill. Essex.

Sell - EC1837/15, alias Marconi Pacific. All mode HF receiver in excellent condition, must be seen, £475 ONO, Buyer Must Collect from Cornwall. Ring 0736-330188. OR PART EXCHANGE FOR 990S.

Wanted URGENTLY, vernier dial for model 850, write to Tor Marthinsen, PO Box 2061, 3103 Tønsberg, Norway, or contact EUG.

Wanted - BFO coil and Q Multiplier coil assembly for Hammarlund HQ100, please write Ross Paton, 56 Glengarry Rd, Glen Eden, Auckland, NZ. or contact EUG.

Wanted, - Tool number 9057P, Eddystone part number, for tightening of front panel control nuts on type EC1837 receiver. Tony Edge C/O EUG.

Wanted for restoration project, T.1154 keying relay, any condition.

Keith Seddon, 17 Netherfield Rd, Chapel en le Frith, via Stockport, Cheshire, SK12 6PN.

Wanted 'S' meter to match my model 640 receiver, Keith Seddon, address as above.

Sell, - model 40A Eddystone receiver, good condx; Sam Rees, 51 Heol Capel Ifan, Pontyberem, Llanelly, SA15 5HF. 0269 871 332.

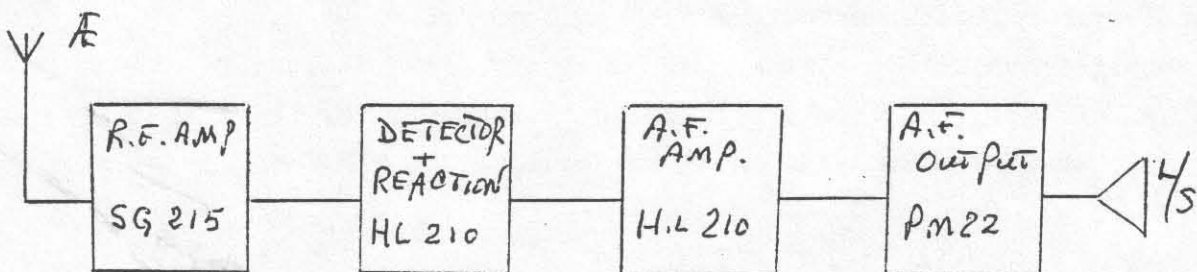
SELL. 8840C AND 8307, SERIAL NUMBERS FO2455 AND G M2013. TEL NO 0978 (WREXHAM) 262855 EVENINGS

1

- Issue 18. -

- Last one of our third year, both Kathy & I are still surprised at the way that EUG has mushroomed. Lots of faithful members have stuck with us from issue 1, others who have joined since then have asked for all back issues. Many members have been sending in period adverts, Eddystone info and stories re their experience with every known model of Eddystone. This does mean we have plenty of stuff in the files for future newsletters, but don't let that stop you please ! Ross Paton has sent in some period ads from New Zealand, items that we in the UK would not normally get to see, in the sample you will find in this issue, for the S.504, I wonder how many of you recognise that the picture is not actually a 504 ? I recognise what it is, do you ? RE SUBS; back to that thorny subject, all are now due for Year 4, if you do not get issue 19 in June do check before writing us, to be sure your renewal was sent, have had a number of members write in some months later asking plaintively 'where is my EUG newsletter'- turns out that they have not renewed. It will have to be £10.00 for Uk members this year, copying costs have gone up, for those in faraway places, the antipodes for instance, then postage is quite iniquitous, not our fault but it will be £22.00. If you are not sure just write and ask Kathy, the EUG publisher, cum secretary, cum accountant and other minor roles. The featured model is the Kilodyne 4 of 1934, & yes there are seven known working sets in the hands of members. At over £9.00 it was an expensive choice in those days. A months wages for many workers, not to mention the added cost of HT batteries and LT accumulator charging each week.

- Block schematic of the Kilodyne 4.-



H.T. 148 VOLTS BATT^y.
L.T. 2 VOLTS ACC;
(1934 MODEL)

2

- Featured Model, KILODYNE 4.-

- This is a 4 valve TRF set for SW battery operation, a screen grid RF amplifier is followed by a triode detector with reaction. The LF stage is another triode which is transformer coupled into the output pentode stage. Loudspeaker was meant to be a high impedance type and was thus coupled directly into the anode circuit, no transformer required.

- Controls were main tuning with a 100 degree slow motion dial, the reaction was also fitted with a slow motion dial, an ON/OFF switch on the front panel cut the negative lead of the filament supply.

- Chassis was a solid aluminium casting, even back in 1934 Eddystone had solidity built into its designs, top of the chassis was kept uncluttered and had just the four valves, the plug-in coil, and tuning condenser plus dial mechanism.

- Rear panel contained three off two way sockets for wander plugs. One for the aerial and earth, a central one for pick-up use, and the other for the loudspeaker.

- Low noise on all ranges, stability with complete lack of hand capacity effects and good sensitivity are all immediately apparent when the Kilodyne 4 is fired up. Reaction - due to the slo-mo type control - is remarkably smooth. No dial calibrations are available except the zero to 100 degrees of the scale. This means that a first priority is to compile a log of known stations and their frequencies, once this is done on the three SW bands and the MW band then a curve can be drawn to allow of frequency setting as required. One help is that unlike with a superhet the TRF only produces signals in one place on the dial, no image problems here.

- Six of the decoupling condensers are all built into one 'block' for ease of mounting under the chassis, the RF amplifier valve is mounted sub-chassis so that only the upper half is above chassis, this to limit any tendency for feedback from anode to grid circuits.

- As supplied the Kilodyne 4 came as a kit of parts, including hardware and coils for 4 ranges, the LW coil is an optional extra, price in April 1934 was £9-1s-0d. An AC mains kit could be bought for £15-3s-0d.

- - - - -

- VALVE DATA SHEETS -

- Not everybody has at hand one of the Brimar or Mullard Valve Data Books, although they occasionally be picked up at Rallies. Thanks to some hard work by Doug Bishop, and the loan of a book by H.S Hartwell, EUG now has data on just about every valve used in the receivers made by Eddystone, if you need any such info just write to EUG.

REVISIONS.

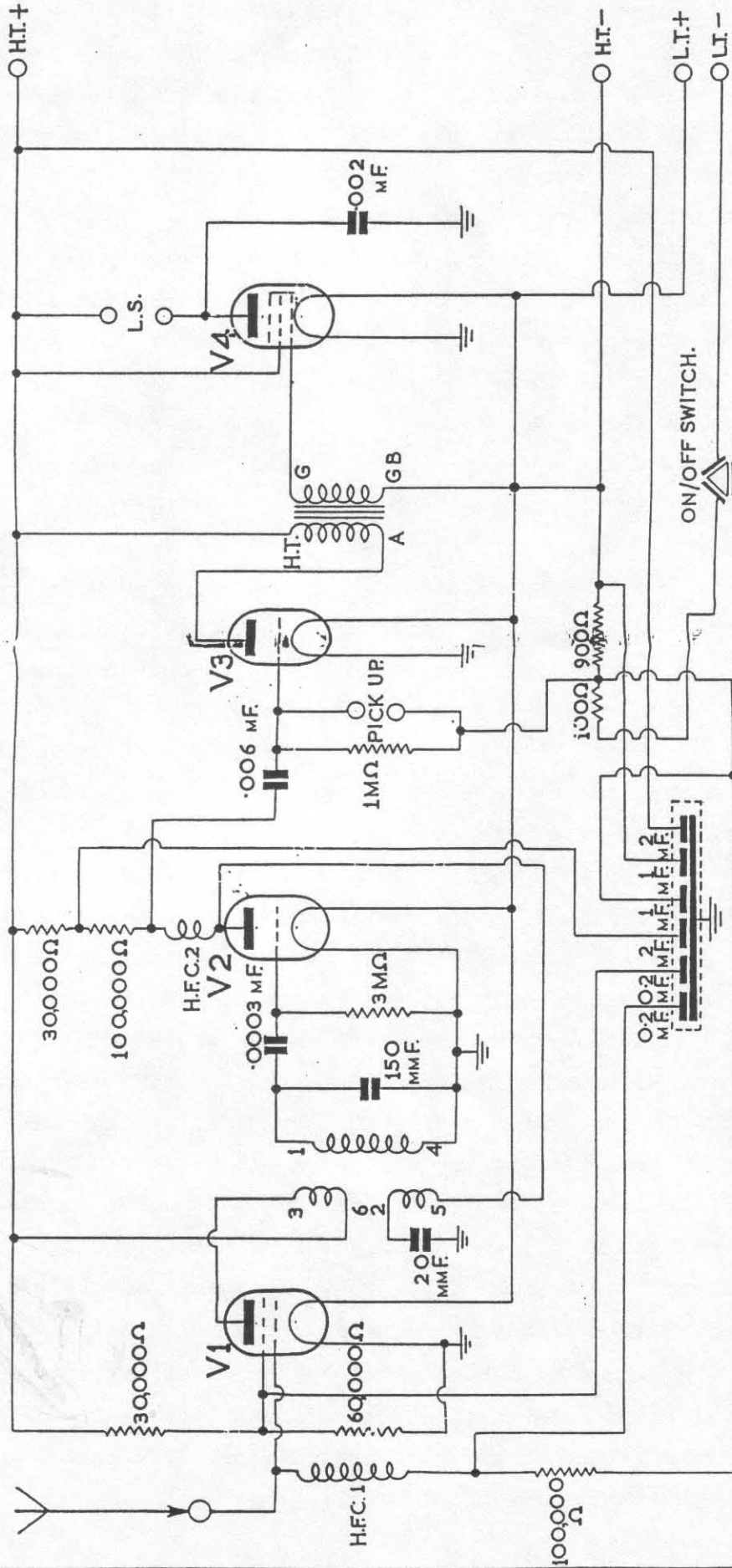
- V₁ - Sq 215
- V₂ - HL210
- V₃ - HL210
- V₄ - PM22

10

STRATTON & CO. LTD.
BIRMINGHAM
ENGLAND

DRAWING No. BP 167.

DRAWN	D.R.P.
TRACED	SMX 3.1.59.
CHECKED	<i>D. B. G.</i>
APPROVED	
DATE	31.7.33.



ALL CONNECTIONS MARKED \equiv ARE TAKEN TO METAL CHASSIS.

THE 1934 KILODYNE FOUR.

BP 167.

MATERIAL.	TOLERANCES
SUPPLIER.	FRACTIONAL \pm
OUR ORDER.	OTHERWISE AS STATED
FINISH	

- Out of the Attics.-

- Within the last year one model seems to have cropped up in EUG mail repeatedly. The 659/670, seems to have come 'out' as I have five instances of members writing to say that one has come their way, others asking for info on this model. One in Australia, one in Belgium, several in the UK.

- This did happen last year after I had heard little of the 850 for some time, and then a rush of mail about it. Probably just a coincidence, where people read about it, but I do sometimes like to fantasise about people reading in the newsletter of such and such a model, scratching their collective heads and saying 'got one of those up in the attic, or down in the cellar, must get it down, or up, and see if it still works. Not a problem really as even after many years of idleness they do still work to some extent. Maybe a few condensers gone low, or resistors gone high.

- If you do power up any mains model which has stood idle for any appreciable length of time then do so with caution. Stand well back as exploding electrolytics are DANGEROUS. I can remember a 1000 microfarad electrolytic on just a 24 volt supply which had been soldered in reverse polarity, after several seconds it went off with a loud bang and up to the ceiling where it was half embedded in the plaster, could have been somebodys eye. Another was a 2200 microfarad one on a 12 volts supply which again wrongly wired went up 25 feet to a metal factory roof where it left a nice dent for future engineers to contemplate. My method is not sure-fire but I usually put power on only after visual and meter checks of continuity and insulation, then only long enough to see a glow from the heaters. After a few more meter checks I apply power and monitor the HT - DC line for a rising DC supply. If the set has not been used for some time it may well be a bit low but should come up to normal within minutes, at first signs of smell or sizzle then power down immediately, and NEVER put your nose too close in an effort to locate the source of burning. Any signs of heat in places it should not be mean trouble, and should be investigated.

- On the AC/DC models always check that the original insulating washers do still exist between chassis and front panel/case. If the set has been stripped at any time they may not have been put back, ergo a potentially live front panel.

5/

RADIO SUPPLY COMPANY

(WELLINGTON) LIMITED

126 Featherston Street, Wellington

'EDDYSTONE' COMMUNICATIONS

RECEIVER TYPE 504

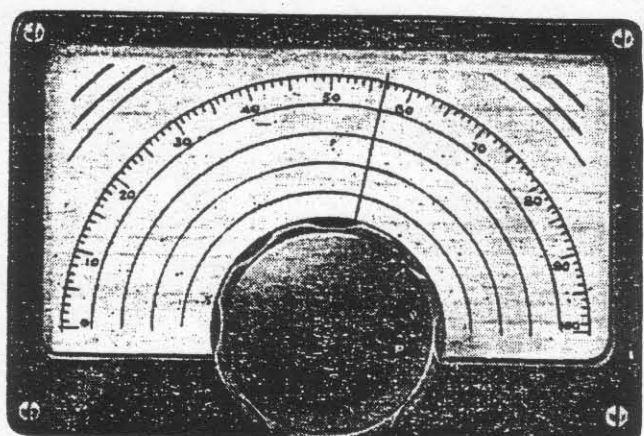


Our Thanks to Ross Paton for
This.

The first post-war All British Communications Receiver—an "Eddystone"—with refinements that long experience in short-wave manufacture and close contact with war-time research has produced. The 504 is a 9-valve superhetrodyne receiver with two R.F. stages, F.C., two I.F. stages with crystal filter, combined A.V.C. detector and first audio amplifier, noise limiter, B.F.O. and output valve plus the usual rectifier. All valves are international octal based. Continuous tuning from 30,000 Kc/s to 600 Kc/s in five overlapping switched bands. Single tuning control with vernier indicator. Tuning mechanism is beautifully made, noiseless, free from backlash, with gearing reduction of 140-1 and effective scale length of tuning dial of 36" per band. I.F. 450 Kc/s B.F.O. permeability tuned and capacity controlled. Sensitivity better than 2 microvolts. Selectivity 30 db. down at 5 Kc/s off resonance. Very effective noise limiter. Output 3,000 milliwatts. External speaker. Speaker and telephone jack plugs. "S" meter, illuminated dial. Finished battleship grey with blue front panel and chromium fittings. Size 16 $\frac{3}{4}$ " x 10 $\frac{1}{4}$ " x 9". For 110 volts and 200/240 volts, 40-60 cycles A.C. Consumption 65 watts

A small shipment just landing. Another following in about four weeks. Approximate New Zealand price £108-0-0. Early application is necessary to secure one of these outstanding Receivers. The performance on the higher frequencies is particularly good

BREAK-IN for



'EDDYSTONE' COMPONENTS

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	" 20	£3/2/-
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UNIVERSITY MULTIMETER KIT-SET £14/12/6

Complete in all details including a metal carrying case, to make a meter to read 0-1000 volt A.C. D.C. 0-250 M.A. 0-100,000 ohms

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WE SPECIALISE IN COMPONENTS FOR THE HAM AND HOME CONSTRUCTOR

For all your requirements write:—

RADIO SUPPLY COMPANY
(WELLINGTON) LIMITED
126 Featherston Street, Wellington

- Reminiscences of a 640. -

7

- This 640 came my way as the result of a birthday gift of cash from fond grandparents, it cost me £15 in 1960 and as I recall was in almost asnew condition, requiring no work on it to put it on the air except connection of mains and an aerial. No earth was used, not even to the mains, this was decided after experience had shown that QRM was coming up through the mains earth from various 405 line TVs in the same block of flats. The aerial was for some years a length of aerial wire bought in Woolworths for 5 shillings, this was when needed, thrown out of the room window to hang down and wave loosely in the breeze. No matter because my wall soon began to fill with QSL cards from both amateur and from broadcast stations. For more than six years the 640 was in use with no problems but I can remember that after a move to a new QTH problems were experienced with the wavechange switch mechanism, this was a major mechanical operation for me but I was lucky in having the help of a nearby amateur, G2DMS, as soon as I was back on the air with my 640 the rectifier bottle died on me, I got a second hand one for this from a local shop and was off again. It was in the mid 70s that I decided to re-valve the 640, this was a major financial task, the full complement of valves could not be bought at once and so I started with the front end and worked back to the output 6V6. At least two months to get the lot but a definite improvement was noticed. Next problem was the Kathode resistor of the 6V6 output valve, only a few pennies here and by now I knew enough to do the job myself. Nothing more of note in the way of faults until the mid 80s when the reservoir electrolytic went off with spectacular results, cost was minimal at a club rally and I again did the job myself. Now my 640 is again sick and I am about to delve into its guts in an effort to locate the reason for an abrupt drop in gain some time after switch on, it will sometimes drop in volume after 20 minutes, other times it will take several hours for this to happen. More on my 640 later when I have found and cured the problem.

*** Re the item in last issue for a SWM article on the Product detector for the model 730, it has been received from Victor Mee, G3PJK. Many thanks Victor on behalf of EUG members, find it elsewhere in this issue.

8
- SFERICS. -

- Since the comments in the Issue 8 , page 9, re the 6K8 as being marginally better than the ECH35 at HF and VHF, I have received very detailed data sheets from an Australian member , considering that they are so widely quoted as being exact plug in equivalents the data sheets do show some quite large differences in their characteristics, and seem to bear out my original contention. The 6K8 is recommended for VHF use. Quite a few letters came in after issue 8 on this matter and whilst some had come to the same conclusion as I had through practical experience , others disagreed for one reason or another with my comments. The only way was to try it out in practice decided Steve Bell. He has built up a wide range oscillator with plug in coils that will go from 20 Mc/s to 200 Mc/s & where the H.T volts can be varied during tests. No attempt was made to make the calibration accurate, in fact actual frequency was checked by an external DFM. With a similar configuration to that in the 640 local oscillator circuit he can quite easily get the 6K8 to oscillate at around 120 Mc/s ! The ECH35 gives up at under 100 Mc/s in the same circuit configuration and same HT volts.

- Microphony and frequency instability on Range 1 of an EB37 was traced to the rubber mountings of the variable condenser, it is a fiddling job to change them but this was a complete cure. On the same EB37 last year a complete lack of output was a puzzling fault until it was discovered that the audio input phono socket is of the 'break' type, although never used it had become corroded so that the break contacts were now open circuit. result no output !

- On a 940 microphonic symptoms on just range two caused a fair amount of head scratching but it was eventually traced to a loose slug in the local oscillator coil former. A few drops of wax from a candle kept handy in the shack for mains failures cured this.

- From a vintage magazine article , circa 1922, came this explanation of fading , or QSB. Variations of signal strength at night are caused by hot or cold winds which attenuate the signals passing across the winds paths.

- A sorry 750 receiver.-

- A moral in this, if you do not have the test gear then do not meddle with IF or RF alignment. This 750 was bought by Chris from a member of the local radio club. It worked after a fashion but was quite obviously not up to par. Noise level was high, signals were spread out on the scale, and some instability present when the gain pots were turned up full, birdies too at the HF end of range 1 & 2.

- Having opened it up on the bench Chris found that all the RF and IF cores and trimmers had been 'attacked' - no other word for it. In some cases the cores would have to be replaced, the slots were so badly damaged by use of the wrong trimmer tool, most likely here was a screwdriver.

- Borrowing a good sig; gene; and AF output meter, with the help of the 750 manual and a copy of Chas Millers book on servicing, he began the long laborious task of completely re-aligning the set, IFs were first and being a double superhet he began with the second IF. This at a mere 85 Kc/s needs a very accurate sig; gene; and needs much patience. The first IF came next, easier to do now he had gained some practice, it is at 1620 Kc/s and despite having to replace two of the cores it was easy to do. Some checks on overall IF gain were done before the RF stages were tackled, no problems apart one resistor which was high and had to be swopped. The 'demon twiddler' had so damaged some RF cores that four of these needed to be replaced, a good thing that Birketts had come up trumps with a handful of these cores at a recent rally. Several of those in situ had to be removed in bits, a strongly magnetised piece of piano wire came in useful for removing the smaller bits from the formers. With the completion of re-alignment, some thought was given to those 'orrible paper type condensers, a total of five were eventually replaced, whilst two more resistors needed to be swopped, out of spec; values. The 750 is now working and has pride of place on the operating table, by far the worst job was the 85 Kc/s IF transfos, the sig; gen; MUST be accurate here, check it with a signal generator, or if that is not available the digital readout of a comms receiver can be used to check a harmonic of the 85 Kc/s.

- The S.400. -

- A recent purchase by Tom was an S.400 version of the S.358, only two coil packs but in fair condition and for just £15.00 considered a bargain. This is the MF only version with four coil packs as the normal issue, a WW II set used for RN and MN ships. No power supply came with the set but it did have a full kit of valves, all heaters checked okay and after some checks of insulation and continuity an existing variable PSU was wired up to the S.400. When powered up & a pair of 'phones plugged in the set was found to be working okay, a 30 foot random wire aerial provided good signals on both ranges. No in-depth restoration work is contemplated just yet, lack of the test gear necessary being the main problem for Tom. This is the only receiver at present and whilst the HF limit of 2.2 Mc/s is a nuisance Tom is enjoying his return to hollow-state ownership. He has heard hams on top-band, some ship to shore traffic, and is now considering MW DX hunting, if the XYL will permit late night operation. A query he would like answering, will the S.358 HF coils work on his S.400 ? I can see no reason why not myself.

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- Knock - on Effects. -

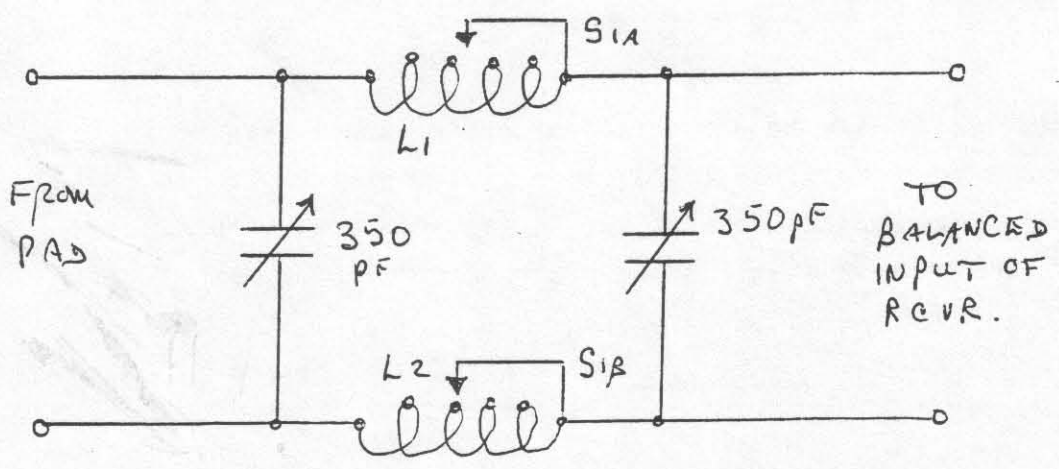
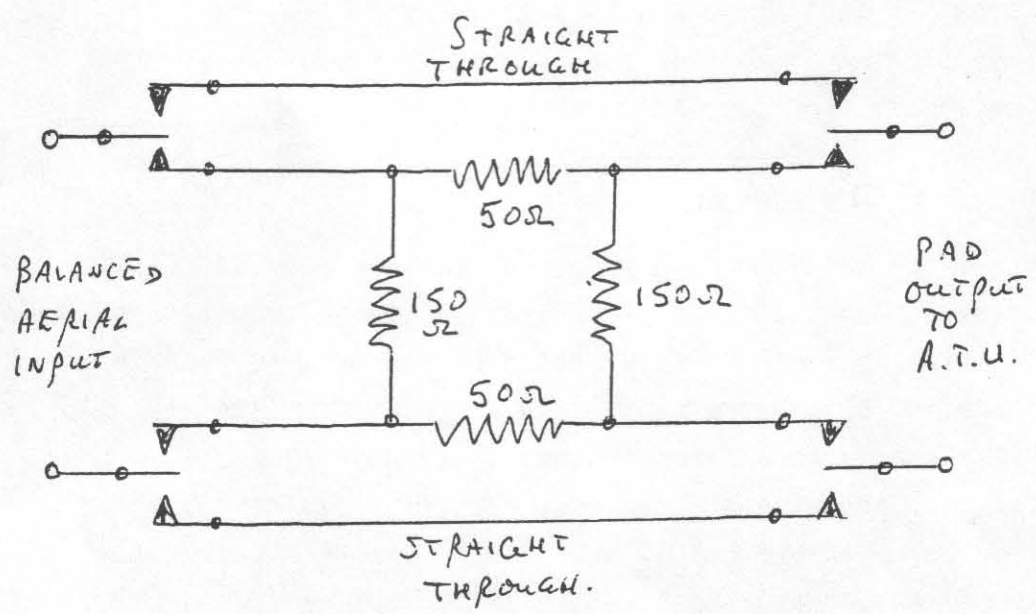
- Simon has just had a problem with his 940 that quicker reaction on his part might have avoided. Apparently the dual electrolytic C.108 in the plus HT smoothing went down, it manifested itself during a listening session as increasing hum and reduced audio out, then a more mechanical buzz from the over loaded mains transfo. He should have switched off then as he does now realise. Instead he left power on as he began unscrewing the four case retaining screws at the back. Luckily the mains transfo was hot but is still okay, the list of items to be replaced though is long. R73 a 10 Kilohm 1 watt, C108 the original cause, a dual 32 muf electrolytic, and both R74 and R75 which are wirewound 140 ohms, 6 watt types. Replacements have been bought and the set will be on the air by the time you read this.

- - - - -

... --- ... S.O.S can anybody identify Eddystone modules 10099A & 11112PA for Derek Lively, 9 Wilson Rd, Shurdington, Cheltenham, Glos; ??

- A.T.U & Attenuator for Balanced Feed. -

- One member has a balanced feed horizontal loop feeding his model 888A and feeds it via a home designed 10 db attenuator and Aerial Tuning Unit. Both of these 'add - ons' can be switched in or out of circuit as required, he does find the use of the 10 db pad to be helpful on reception of some broadcast signals both on the L.F and the H.F bands. Yes the 888A is a Ham band only but you try 7 Mc/s sometime ! Although shown here as two schematics they are in fact both mounted in the one box which sits tidily on top of the receiver. Harold says that he does not claim the attenuator to be an accurate 10 db but that is not important since it is not meant to be a calibrated item.



S1A & B = 2 POLE 4 WAY SWITCH
L1 & L2 = 20 turns, 1" diam; tapped 3, 3, 5, 9.

12

- The EB37. -

- A request from Ollie for some information on this model as he has the chance to buy one. Lucky him, they are not very often seen for sale. This is basically a simplified EB35 II, that is minus the F.M band but otherwise the same M.F and H.F coverage. In five bands it covers 0.55 to 22 Mc/s using a 10 transistor circuit. Essentially it is a refined broadcast receiver and so has neither B.F.O nor N.L. It bears no similarity to the normal run of broadcast model however since it is built like a comms; receiver and has a far more sensitive circuit than most.

- The versatility of the power supplies puts it in a class of its own compared with say the same vintage of Pye or H.M.V since it can run on six 'D' type cells in an internally fitted battery box, replace this with the optional mains P.S.U and it can run from 120 to 240 volts A.C. A third option is the 12/24 volt P.S.U which again fits in place of the battery box and permits use on shipboard or mobile.

- The 960. -

- Eric queries this model, having recently seen one in use at a club exhibition. The 960 is externally almost a twin for the 940. It was in fact the first solid state model put out by Eddystone and has the same coverage as the 940, 0.5 to 30 Mc/s in five bands. As a first generation transistor model the performance is not sparkling compared with some of the later semi-con receivers but it is still an adequate and capable performer, rarely seen on the market but well worth buying if seen.

- The 730/5. -

- This was one of the 730 series of professional receiver but it was apparently a special for marine use since it has a modified range 5, this covers from 150 to 300 Kc/s - the marine beacon band. I have seen but one of these in all the years that I have been an Eddystone fan.

- Use of an Earth. -

- Years ago it was common practice to spend as much money and time on the provision of a good and effective earth system as was spent on the aerial system. These days most people content themselves with the 'third-pin' earth of the mains socket or none at all. Both have disadvantages and yet the provision of a 'virtual' earth, or counterpoise, can bring signals up out of the 'mush' to the point where they become intelligible. If you are operating your receiver on the one band, say on 14 Mc/s then a single 1/2 wave counterpoise will suffice. A better system is to have several of these counterpoise earths in parallel they can be coiled up or run along the skirting boards, even under the edges of the carpet.

? $\frac{\lambda}{4}$

- A real earth or ground to be effective must be of low resistance and this is easier said than done. Gone are the days when a rising water main could be used as nowadays they mains are in plastic piping, Some quite varied methods have been documented over the years, from burying a complete galvanised water tank several feet down in the garden, to the burying of long lengths of galvanised fencing wire under the lawn. This is not necessary as for receiving purposes it is possible to get good results from the more common three foot copper tube buried in the garden with the earth lead attached to this and taken by as short a route as possible to the receiver. NEVER, NEVER connect such a system to the mains earth as most of todays mains earth systems use the neutral line and any fault currents existing would take the shortest path to earth through YOUR earth rather than go all the way to the Sub-station. Not a recommended procedure. The practice of using a receiver with a long external wire aerial and NO earth is also a NO-NO ! If your longwire did get a lightening strike can you imagine it rushing down the lead-in finding no path to earth and jsut jumping around the room ? A direct hit would not be necessary for this to cause a lot of damage, induced currents would be sufficient to cause havoc.

- Valve Data Sheets.-

- Further to item on page 2, much more info has come from Doug Bishop and it is proposed to put all the info together into A4 size and offer it to any member who needs the data. Doug deserves special thanks for the time he spent collating the info, time that he could have spent on his Classic Cortina !

- Effective V.H.F /F.M Aerials. -

- Think for a moment, how many V.H.F /F.M aerials can you see in your neighbourhood ? not many I bet. And yet the majority of homes these days have an F.M stereo unit. These units retail at high price to give quality reception of the F.M transmissions and yet they are content to run them from a 'bit of wire'.

- The cost of a three element V.H.F aerial is probably less than £10, a fraction of the sum paid for the F.M radio so why not get one ? This item was sparked by a letter from a member who has an EB35 II - Stereo. He has for several years run this from a simple roof mounted whip. This was used on both M.W , S.W and F.M with fair results but he has now taken over the loft and a rotatable V.H.F three element aerial, turned by elbow power, is now giving him results that he calls 'fantastic' when compared to his previous operating on the whip. A common complaint in the E.U.G mail is of poor operation on various Eddystone models with aerials ranging from a 'bit of wire' hanging down the back of the set, to an inside mounted car aerial on a mag mount, even a 1/4 wave 2 metre whip used on M.W ? Space , a lack of, is often put forward as the reason for no good aerial system. But a little ingenuity will show ways of getting efficient receiving systems at little cost and in a small space. One member has a V.H.F/F.M broadcast aerial, costing pennies, rotatable at will from the operating position and giving good performance for his Tropo DX chasing. He has two maps a U.K and a Europe map mounted back to back in a 30 inch square picture frame, glass on both sides. the frame is mounted on hinges on the corner of the wall in his bedroom shack. It can thus be swung through 90 degrees by hand from his seat. A wire full wave loop for 100 Mc/s is taped around the wooden picture frame, and fed down to his EB35 or to his 770R, which ever is in use. Quite an effective system if his list of stations heard is anything to go by ! Another member has a three element wire 'quad' type aerial mounted in the loft space aimed due south from his Glasgow QTH. Although it actually is cut for the Air Band he finds that it gives quite good reception of a number of 2 metre repeaters and French/German F.M broadcast stations when there is a 'lift' on.

75

- Foreign Adverts for Eddystone.-

- Nice to get some examples of Eddystone advertising in overseas periodicals. Apart some mentioned elsewhere in this issue that we got from 'down under' there have been quite a few from Tor Marthinsen in Norway. Also a few just post W.W II from Brazil. If they are to be used in the newsletter though they do need to be a good photocopy and uncreased.

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- Mystery Condensers.-

- Like many other users of valve equipment I am always on the look out at rallies for high voltage working components, for use in my repairs and renovations. Perhaps the most needed items are the paper type, or later the polystyrene type condensers which are now notorious for going leaky with age, reducing gain, overloading the associated resistors or chokes thus causing burn outs. Many brands were on the market in the past, Dubilier, Hunts, TCC, BEC, BI, TMC and Plessey. At a Leicester Rally not so long ago ago I came across this box of such condensers, all 0.1 or 0.01 muffs at 350 v.w in green cases, the only identifying signs being the letters 'K.V.S' and a logo looking like a squirrel. They looked fairly recent as the end wires were still shiny, the tinned copper wire had not yet got that dull look that comes with age. This is a make I have not previously come across, however at £7 for 28 of the 0.1 and 30 of the 0.01 types I did not argue, about 12 pence each. Having got them home I decided to play safe and tested them all, using a bench power supply with a 47 Kohm in series with a milliammeter I ran them up to 450 volts and after 4 hours they were still okay, no signs of leakage current. The conclusion is that they are in fact good for use in my repair jobs. These are axial, tubular types but enquiries so far have not identified the maker, any clues out there ??

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- EB 35 mod - ? -

- This recently acquired EB 35 had a 100 Kohm pot mounted on the front panel midway between, and below, the Off/On switch and the volume control. Some models have the phone jack mounted here. The pot had two wires running from it to a hole in the chassis thence up to the top IF/AF PCB. One wire was soldered to the track pad for the collector of the last IF amplifier stage. The other went via

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cont;

a small unmarked ceramic condenser to the input, base, of the 1st IF stage trannie. The effect was to give some degree of controllable positive IF feedback - regeneration - variable by the pot; In the anti-clockwise position operation of the EB 35 was normal, turning the pot; 'up' produced some slight increase of signal strength, and noise of course. Past the '12' noon position the effect was that of a BFO and this enabled CW reception on the EB 35, not normally possible due to lack of a BFO. As a curiosity it has been left in situ, an attempt at reception of SSB showed that - with difficulty - the RAF Volmet could be resolved.

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- Issue 17 Queries answered. -

- The two Eddystone items sketched in last issue appear to have both been identified thanks to members with eagle eyes and long memories. In the first case the half circular diecast one, similar to the well known 'S' meter, proves to be a catalogue number 678 Modulation Level Indicator which could be used also as a 'phone monitor for AM transmissions, price new was £8-15-0d.

- The second item is identified as a 696/1 Absorption Wavemeter. The 696 had 6 coils and covered from 1.5 to 160 Mc/s, the 696/1 version had seven coils and gave coverage down to 350 Kc/s, price for the former was £5-17-6d, and for the latter £9-18-0d.

- Thanks to Victor Mee and several others for the above info.

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- Comments from the Mail.-

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- Tor Marthinsen has recently acquired a 909A to complement the 909A/3 which he has in his collection. Both have the same DC/DC convertor PSU using type OC28 transistors and Tor wonders whether the convertors are original supply or not ?? Can anybody help ??

- From the same source, Tor categorises the EC10 models as follows, saying some pictures in ads are mixed up.-

1. EC10 - 0.55 to 30 Mc/s, 5 bands.
2. EC10A - 0.3 to 0.55 and 1.5 to 30 Mc/s, 5 bands, table model.
3. EC10A/2 - as EC10A but with switched 2182 position.
4. EC10A/2/RM - as EC10A/2 but rack mount.
5. EC10 IIO.55 to 30 Mc/s with fine tuning.
6. EC10A2/1 - as EC10A2 with fine tune, table model.
7. EC10A2/2 - as EC10A2, rack model, one speaker.
8. EC10A2/3 - as EC10A2, rack model with two speakers.
9. EC10M - 0.15 to 22 Mc/s, five bands, MIMCO version.

- A query from P Trembath re the 1950s model R74 (ex MOD ?) SW receiver, does anybody know if it is an Eddystone ?? write EUG if you can help.

- Ross Paton mentions mechanical backlash in the tuning mechanism of his 670, this is usually wear on the gears or friction drive. He also suggests that a 6G6GT would be a more suitable substitute for the 6V6GT in the 640 if you want economy of heater current.

- A very nice EC1837/15 for sale in this issue, I wonder who will snap it up ? sure to go as these semiconductor models are pretty hard to find.

LATE, LATE, ADS.

WANTED : 1930s/1940s HALLICRAFTERS/ NATIONAL/
RCA ART T L. S. WILL PURCHASE OR
PART SWAP FOR ANY BITS I HAVE,
INCLUDING EDDYSTONE. IF YOU CAN HELP.
PLEASE WRITE GIVING PRICE PLUS YOUR
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18

PRODUCT DETECTOR FOR THE EDDYSTONE 730/4

EFFECTIVE ADD-ON UNIT

THE Eddystone receiver type 730/4—and its military equivalent coded ZA.51262—is a good, general-purpose valve HF receiver but it suffers from the deficiencies of most receivers in this category when single-sideband reception is attempted. This stems mainly from the design of the diode second detector, the inputs of which are adjusted in level to suit AM and CW detection. The signal (IF) input level is high and the BFO level is fairly low. Other parameters, such as local oscillator and BFO frequency stability are good and so it seems worthwhile to fit a detector more suitable for the SSB signals which now predominate in the amateur HF bands.

As is usual with Eddystone designs, the 730/4 presents a clean top layout of the main deck and so it was thought best to fit the new unit underneath, in the IF box. Space here is not great and this restricted the choice of product detector to those using low-volume components. The final choice was of a cross-coupled transistor mixer as shown in the diagram above.

It was felt that the existing switching on the front panel of the 730/4 should be left untouched as far as possible and so it was decided to use the "narrow" IF bandwidth position for product detection. This position could still be used for CW and the IF crystal filter could still be switched in, if required. The IF bandwidth selection switch has two wafers for miscellaneous switching and this was re-arranged to allow the

audio to be taken either from the diode detector, via the limiter if switched in, or from the product detector. Further changes were made to switch in a longer time-constant capacitor in the product detector case across the AGC line, which can be left on or cut off by a panel switch.

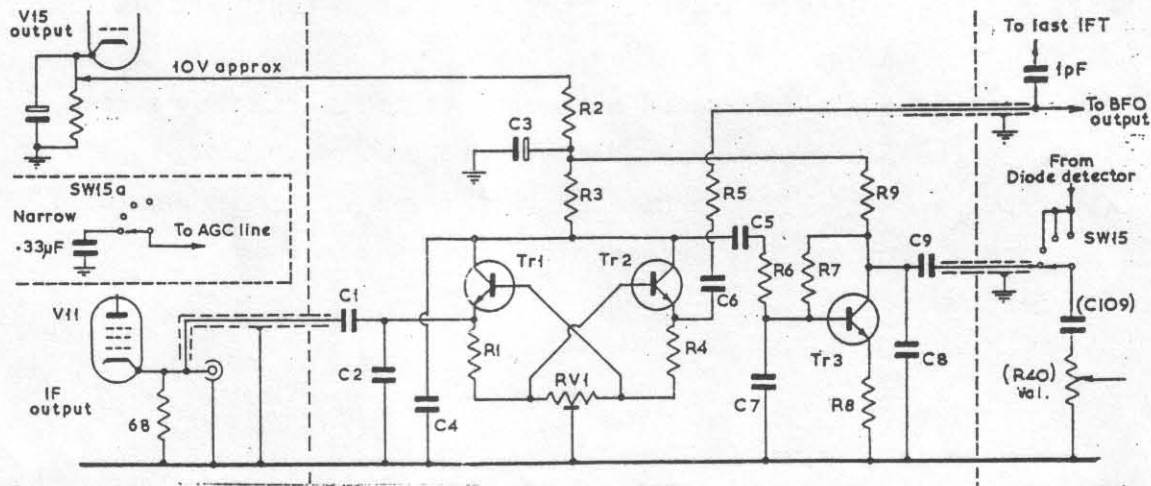
The problem of feeding the rather low input impedance of the product detector, without extra switching, was solved by connecting it across the very low impedance IF output socket. This works well except for a tendency to limit for very high input signal levels (presumably it was intended for an FSK output where this would be no problem). The level had still to be adjusted downward a little and this is done by the capacitive input potentiometer. The BFO input was intended for a high-impedance load but it was found that the inclusion of a series resistor between the existing output and the product detector gave sufficient voltage at the product detector for adequate mixing and did not load the oscillator too much. It was found that feed-through of the BFO output via the original capacitor coupling to the diode detector was rather high and distortion on

Table of Values

Product Detector for 730/4 Receiver

C1, C6,	R1, R8 = 1,000 ohms
C9 = .01 μ F	R3 = 56,000 ohms
C2, C7 = .005 μ F	R5 = 1,100 ohms
C3 = 40 μ F, elect.	R6 = 47,000 ohms
C4 = .022 μ F,	R7 = 20,000 ohms
polyester	R9 = 1,000 ohms
C5 = 0.33 μ F,	VR1 = 5K potentiometer
polyester	Tr1,
C8 = .001 μ F, ceramic	Tr2,
R1, R4 = 560 ohms	Tr3 = 3C-107, or equiv.

Note: All resistors $\frac{1}{2}$ -w. size. Capacitors can be met. paper, except where stated. Layout on Veroboard not critical if normal practices are followed.



SSB reception was minimised by reducing that capacitor from 5pF to 1pF.

Construction

The unit was built up on a piece of Veroboard approximately $5\frac{1}{2}$ by 2 $\frac{1}{2}$ ins. which was inserted vertically in the IF box and held by a bracket fixed by one of the screws holding the cover of the RF box, moving a cable cleat forward to free the necessary fixing point. Connections were made by screened cable except for the DC power connection which was made to the cathode of the output valve. Residual audio at this point was removed by an R/C filter in this lead.

The only setting-up necessary was the adjustment of the pre-set potentiometer and this is quite uncritical. The best point was found by looking, on an oscilloscope, for least distortion on the audio output from the product

detector but it would be good enough just to listen for the best-sounding signals.

Operation

In use for SSB reception, the bandwidth switch is set to "Narrow," AGC is left at "On," RF gain is set at maximum and the BFO is switched on and its tuning knob set about $\pm 15^\circ$ of centre according to the RF band in use (i.e., the sideband to be received). Signals are then tuned in and optimised for sound, resetting the BFO knob if necessary to get best results. In conditions of heavy QRM the crystal filter can be switched in and tuning re-adjusted to clean up the wanted signal but some sensitivity is then lost.

The suggested modification provides much-enhanced SSB reception with a minimum of disturbance to the receiver.

- Scrap 640 Restoration.-

- The seller of this was quite frank, it was faulty, time had been spent on it, but he did not know enough to complete the repair.

- When checked out on the bench a fair amount of botched work was visible, large blobbed on solder joints, several obviously wrong value resistors - apparently where the colour codes had been misinterpreted.

- First job was to correct all these anomalies, putting the circuit back to original in so far as was possible. This produced a 640 which did, just about, work with low gain and poor selectivity on both LF ranges - the HF range was still 'dead' though. Just a lot of noise up at the HF end of the range. From the visible signs in the coil box this looked to be an alignment job, definite signs of tampering on all cores and trimmers.

- Both valve sig; gen; and the 640 had been left on for a full hour so as to reach thermal stability, the IF output of the sig; gen was checked against my DFM and then the 640 IF strip was re-aligned, taking care to have the crystal gate in circuit when doing so, only a slight touch was needed to get the sig; gen; onto the crystal frequency pass band. Not a lot was needed as the IF transformers appeared to have been missed by the 'twiddler'.

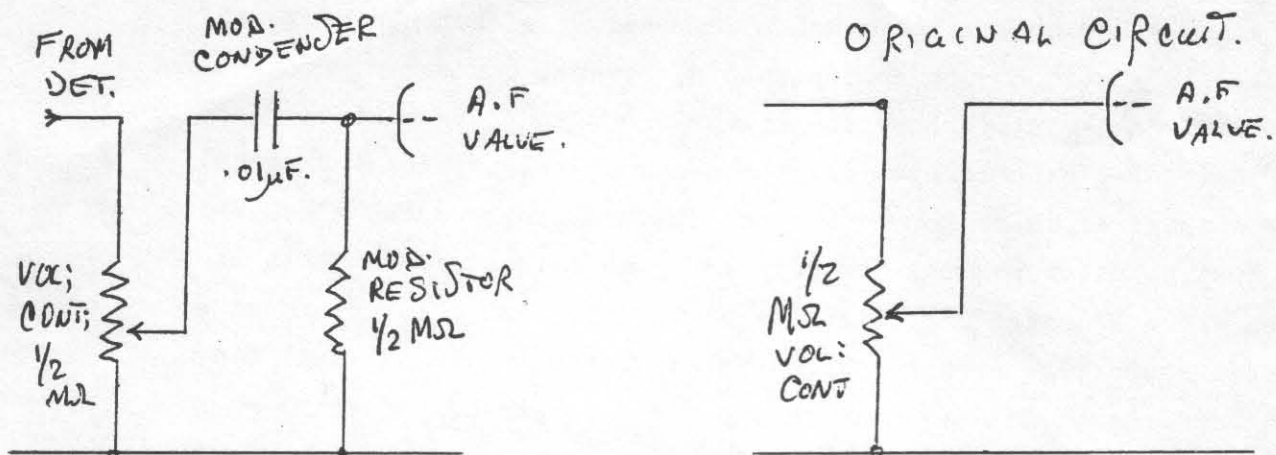
- Before tackling the RF alignment it was thought best to replace the two cord drives, a fiddly job this. The info was got from EUG & did make things easier, not easy ! The smaller bandspread one was done first with little trouble apart some bad language. Not so easy to get the main bandset drive done, three attempts were needed and the job was finally completed only when the XYLS tweezers were pressed into use, a good tip if you are brave enough. There should be $2\frac{1}{2}$ turns on both the large 'wheel' and the small spindle pulley. (Surely James it should be $2\frac{1}{2}$ on the spindle only, on the large 'wheel' each end of the cord should go around slightly more than a $\frac{1}{2}$ turn ? Ted.)

- The RF alignment was a different matter to the IF, several cores had to be replaced as they had been damaged, all needed adjustment. The oscillator core was missing for range 1 coil, the coil had evidently been removed and incorrectly refitted, this was corrected and after some 6 hours of work the tracking on all 3 ranges was correct.

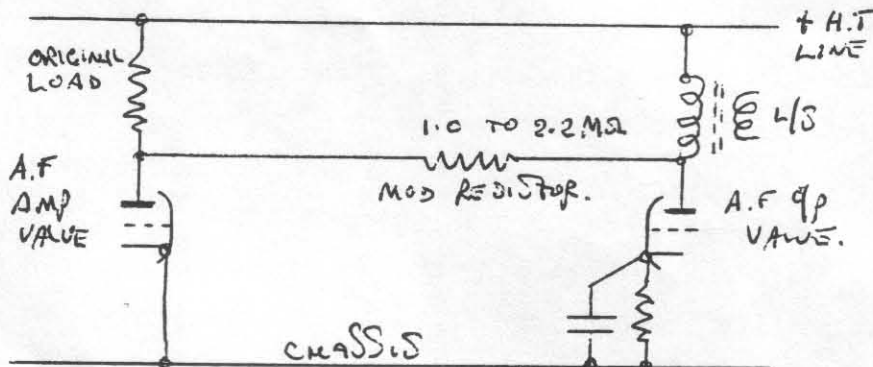
- Last job was a complete clean up of the 640 cabinet, done with black boot polish and soft cloths, it is now in lovely condition and a delight to use. James Scott.

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- Mods to AF coupling to remove DC from the Gain Pot;



- Hum bucking mod for those AC/DC models, start with a 2.2 Mohm and if necessary reduce to a minimum of 1 Mohm.



- That is IT for issue 18, amazing how long the Kilodyne 4 has been around yet having listened to one recently the reproduction is surprising. Better than many modern sets. Until next issue, first of Year 4 from Kathy and I - Good Listening, or Happy Fixing, whichever the case may be. Keep your letters coming in, EUG is here to help YOU. Adverts or personal experiences of an Eddystone are welcome, SUBS are due now if you want your next issue. CU.

73,

Kath & Ted.