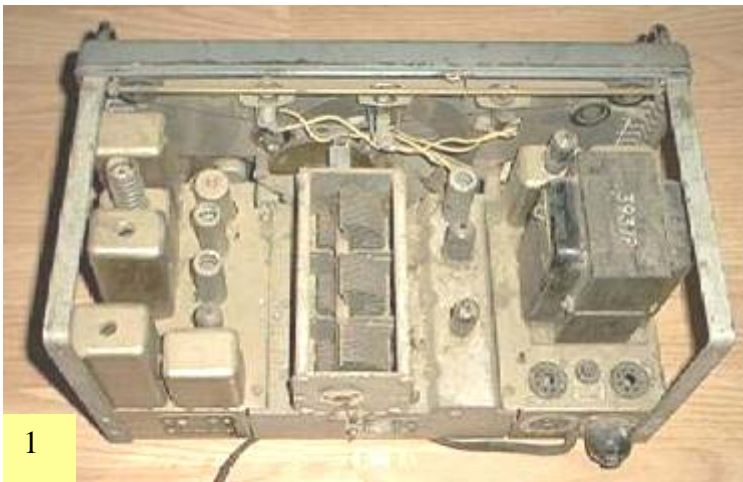


Restoration of an Eddystone S.750 – by Gerry O’Hara, G8GUH

An Eddystone Milestone (or was that Miles of Eddystone?)

Since re-kindling my interest in Eddystone radios, in particular their post-WWII valve sets, I have been keenly studying the history of the company, product lines and all related ephemera: the EUG site has been invaluable in this regard. During my ‘studies’, I concluded that the development and introduction of the Eddystone S.750 in late 1949 marked a milestone in receiver design for the company, both electronically and cosmetically. It was Eddystone’s first double-conversion superhet and was the first set with the distinctive and trademark ‘sliderule dial’ that lasted for over 30 years in one form or another (the last sets to sport this feature were the solid state 990 series produced into the 1980’s). I therefore decided that I must somehow try to acquire one of the 2054 number S.750’s that were made – not that easy out here in British Columbia I feared. Other classic sets I am constantly on the look out for are the S.640, S.680X, S.730 and S.888 – though it could be a while before I have my dream ‘set of sets’ ...

EBay and all that...



During the restoration of my S.770R, I entered into correspondence with Mike Cassidy in the UK, who was restoring an S.770UMkII (see various emails posted on the EUG Forum). One day he noted that he had spotted an S.750 for sale here in British Columbia (Winfield in the Okanagan area, about 5 hours drive inland from where I live), reportedly in very poor condition, less its outer case,

and suitable only as a ‘parts set’. Aghast at having missed this in my ‘web-trawling’ for Eddystone items, I was right on the case, found the said item and checked it out. Photos 1 and 2 show how the radio looked on the EBay listing: not such a pretty sight, but all the main bits seemed present and the seller’s description “*Eddystone S750 from an estate. This unit is for parts. No outer cover. I did not power it up, as the rectifier tubes were not in it. All other tubes are there. No smell or mess that would suggest there is anything wrong with the transformers. This is definitely an "as is" for donor parts. We live in a very dry climate so there is very minimal rust/corrosion*” was enough for me to decide I would ‘go for it’ as a restoration candidate. I thought I was doing well at ~\$40 or so with less than a day to go and no other apparent interest (apart from a few watchers) and then another bidder entered the fray: I ended up paying a trifle more in the end, at ~\$121, but as the set was ‘local’, the shipping was only ~\$20, so I was still pleased at ‘winning’ the auction (it turns out that I actually knew the other bidder but did not know at the time – but that’s another story – see Postscript).

So, once again, I thought the story of restoring this classic Eddystone radio to its former glory might be of some interest to EUG folks. As previously, I have kept the description in brief 'bullet' form as I find this is easier for folks to digest and have added plenty of photos to help visualize the process. In particular, I have included a very detailed description and several photos of the disassembly/reassembly of the front panel/drive mechanism, plus some tips on this process, such that I hope that it will assist others in tackling what could be a rather daunting task with those niggling questions in the back of your mind as to whether it will all go back together?, will it ever work again? and what on earth the left-over parts were needed for once the thing is re-assembled?...(!)

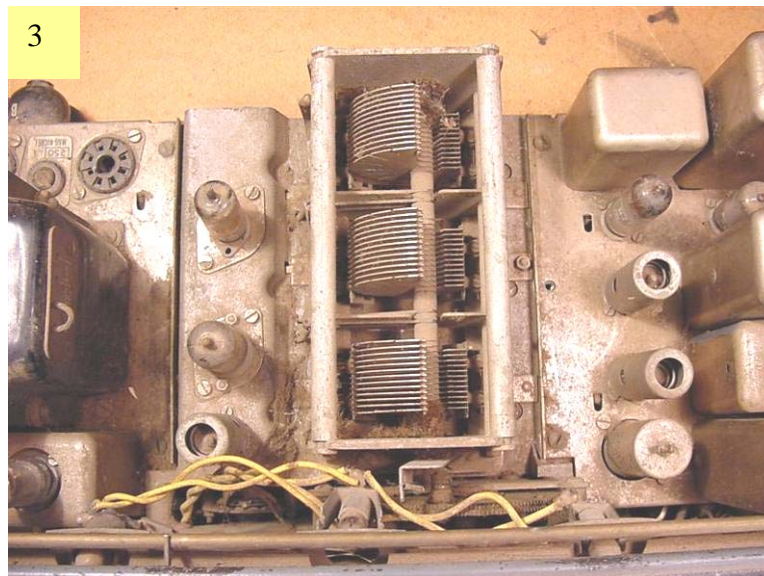
Preliminary Inspection and Basic Preparation



On arrival (very promptly may I add to the seller's credit), the radio had been well packed in bubble-wrap and a stout cardboard box and had traveled well, apart from the N78 output valve having come loose in the box and with badly bent pins. However, the radio actually looked worse 'in the flesh' than on the EBay listing (photos 3, 4

and 6), though a preliminary inspection revealed that with the exception of the rectifier and stabilizer valves (and obviously the case) all the main bits were indeed present and, apart from a dented 'inner handle' (the metal bars that wrap around from one front chrome-plated grab handle bolt to the other), possibly indicating it had been dropped or hit at some point in its 56 year history, no obvious mechanical damage (note: I have now concluded that

'dropping Eddystones' must be a world sport of some kind, with the contestants either simply curious as to what happens when +40lbs of British metal, glass and electronics hits the ground and/or whether the Eddystone reputation for robustness will stay intact even when hit by



a baseball bat). Worse, it was obvious that a former owner had sprayed the front panel a medium-grey colour (the original black crackle showing through in parts) and, unfortunately, had done this with the front panel still on the receiver with a minimal amount of masking: consequently most of the innards of the radio had been sprayed as well – wiring looms, chassis parts, front of the mains transformer, parts of the IF cans, resistors, capacitors etc, even the top of the trimmers in the coil box – what a mess! On closer inspection, I noticed that one of the dial bulb holders was an incorrect type (screw base) that had been ‘encouraged’ to fit with plenty of insulation tape and some ‘hockey tape’ for good measure (this being Canada, what else?), and it looked like it had shorted out to chassis a few times. The tuning mechanism, rather than having that silky smooth Eddystone feel, was almost totally stuck, and when it was turned (forced), I noticed that the tuning gang was not moving. Examination revealed that this was due to the ‘ratio arm’ mechanism being missing. This should comprise two small springs attached to a crank on the end of the tuning gang, holding a spring-wire loop in place that retains the crank against a small ‘boss’ located eccentrically on one of the tuning mechanism gears (photos 6 and 21). However, peering into the grime very closely in this area of the chassis revealed that the spring-wire loop was laying on the chassis, retained by fluff and dead spiders, but only one spring was found to be still affixed to the tuning capacitor crank arm. The ratio arm is a clever little device that ‘linearizes’ the otherwise non-linear readout on the sliderule dial – the ratio arm was one of Bill Cooke’s pet inventions, and rightly so – simple yet very effective (page 12 of ‘The Cooke Report’ on the EUG site).



The serial number of the set (photo 5), GB0355, indicated that the set was either made in July, 1950, according to my interpretation of the serial number information on Alan Clayton’s Eddystone website (www.qsl.net/eddystone, though this site is currently down and under revision), or February, 1955, according to

the EUG Quick Reference Guide (QRG), page 26 (always assuming the letters were stamped the correct way around in the first place! – apparently not always the case). I suspect it was the earlier of these two possible dates and my set was probably from one of

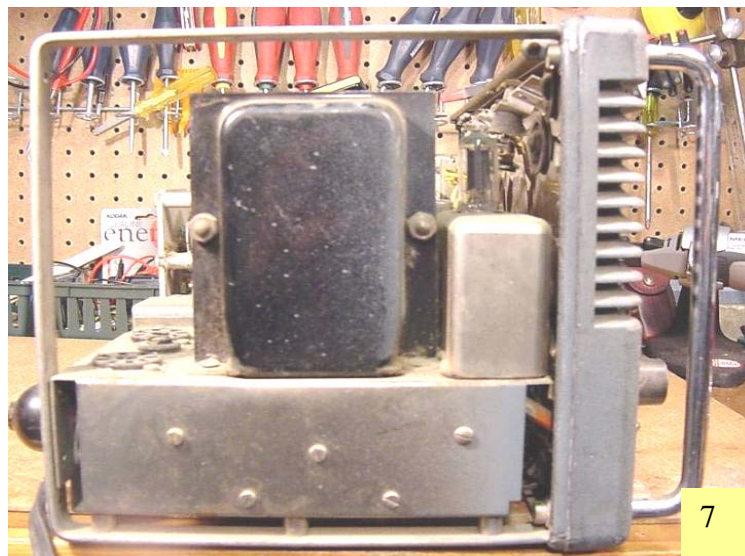
the first S.750 production runs at the Bath Tub. This conclusion is supported by a date of 'Nov. 1947' on the electrolytic capacitor cans as I would doubt that Eddystone were using eight year old stock? Also, C85 is present across the output transformer primary - noted to be so only on early models by Ted Moore in 'Lighthouse' - and there was no sign of the set having ever sported a cover over the tuning gang, a refinement that was likely introduced later in the production run (an illustration in a [1949?] 'preview' catalogue entry #T1315 shows an S.750 chassis without this cover, noting that "production commences early 1950").

So, I placed the S.750 on my workbench, found the vacuum cleaner, a digital camera, made a cup of tea (essential for human lubrication and brain function when dealing with radio equipment – a tip from Gordon many moons ago), rolled my sleeves up, took a deep breath and...



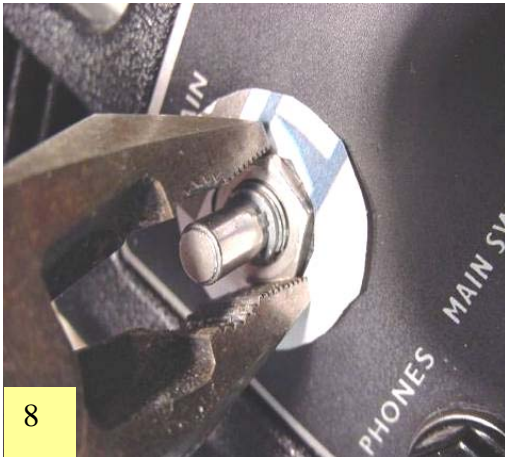
- Removed the valves, cleaned the glass and pins and stored them away. That was easy... then I thought I might as well test them while I was at it (see 'Valve Testing' sidebar on next page) – two bad 6BA6's and a bad 6AT6. Luckily I had replacements in stock, along with a VR150/30, but no 5Z4G - that was later obtained from the local 'club' (Society for the Preservation of Antique Radio in Canada, SPARC), well, almost, a 5Z4 – metal case variety – that would do for now anyway until I obtain a glass bottle version.

- Vacuum-cleaned the chassis and case, using the small paintbrush to penetrate nooks and crannies – it had been home to generations of spiders from the Okanagan, who had not bothered to bury their dead but instead hung them on component wires for show. A blast of air from my compressor cleaned out the tuning capacitor vanes. For now, I wiped the front panel with cotton wool wipes and warm soapy water and worked on the chassis with isopropyl alcohol (using Q-tips and cloths) to remove the



considerable grime, using lighter fluid to dissolve one or two areas of stubborn waxy deposits. The coilbox is the usual trademark Eddystone aluminium casting and the psu/RF and IF/AF sub-chassis flanking the coilbox appear to be nickel-plated brass – all cleaned up a treat. I removed as much of the grey paint overspray from the chassis and components as I could (photo 7) without risking damage, using a combination of a plastic scraper, fingernail, rubbing alcohol and Q-Tips and, for the transformer shroud, Brasso – the latter worked really well. However, the dial glass, pointer and scale plate cannot easily be cleaned without dismantling the front of the S.750, meaning separating the front panel casting from the main chassis was definitely on the cards. That was the next job... a bit of a task, but well worth the effort I thought. Besides, the tuning mechanism was almost totally jammed, with the tuning knob fiction drive just spinning against the drive plate, so it would have to come apart to sort that out anyway.

- Removed the knobs: the grub screws came out surprisingly easily (compared with my experiences on the S.740 and S.770R) – no corrosion on them at all – the ‘dry climate’ of the Okanagan valley was paying dividends (http://www.travel-british-columbia.com/thompson_okeanagan/thompson_okeanagan_information.aspx).



8

- Carefully removed all the retaining nuts from the controls (photo 8) and prized the fingerplate away from the front panel casting.

- Looking closely at the fingerplate, it was apparent that a former owner had decided to ‘freshen it up’ at some time by spraying it with a clear lacquer – unfortunately, the finish was like orange peel and was now discoloured with age (photo 9). I spent two hours carefully removing it with cloths, Q-Tips and rubbing alcohol. Underneath, the original finish

Valve Testing

...is a black art and mumbo jumbo (say some) – at least if you intend to check actual valve characteristics on ‘testers’ normally available to us mere mortals and that do not need a PhD in thermionic science to operate. However, simple valve ‘checking’ is another matter, and I have acquired both Heathkit and Precision checkers. The Precision unit is really well made and (so far at least) reliable.

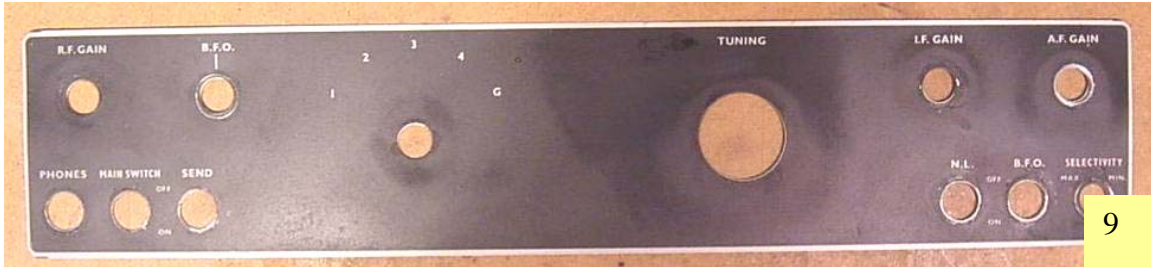


It tests by applying pre-set voltages to the various electrodes and measuring emission under these conditions (better than some cheaper models that simply strap all the grids to the anode, but not in the same league as a mutual conductance tester). Good enough for sorting the good ‘uns from the bad ‘uns though. Strangely, neither unit has a B8A socket, and I had to make an adapter (thanks to Graeme Wormald for the socket) to test the ECH42’s (and the EF42’s in my S.740) – you can see it at the top of the above photo. You cannot beat testing in the real circuit though and substituting for a known good valve is the best check of all.

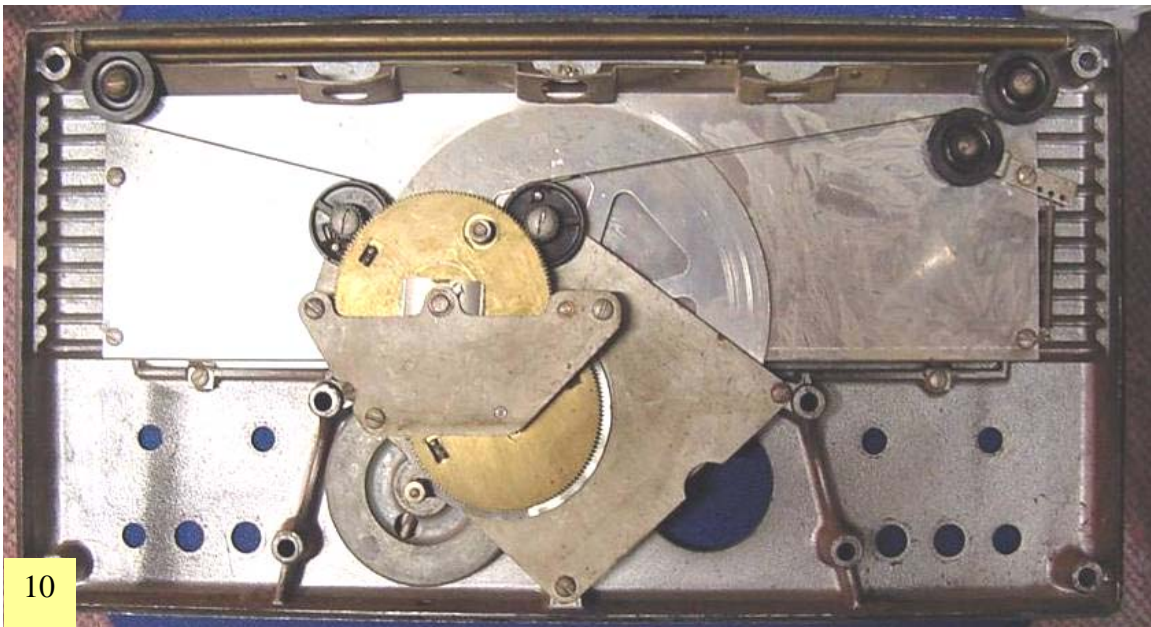
is not too bad, with only a slight area of wear to the top left of the tuning knob.

Removing and Replacing the Front Panel and Drive Mechanism

- I took several photos of the tuning drive mechanism from all angles for reference. The drive cord looked in reasonable condition, so I decided to leave it fixed to the spool pulleys at either end and remove them and the cord intact – hoping that I would not have to re-string the dial (see EUG Newsletter #25, p17 for tips on this if you have to do it).



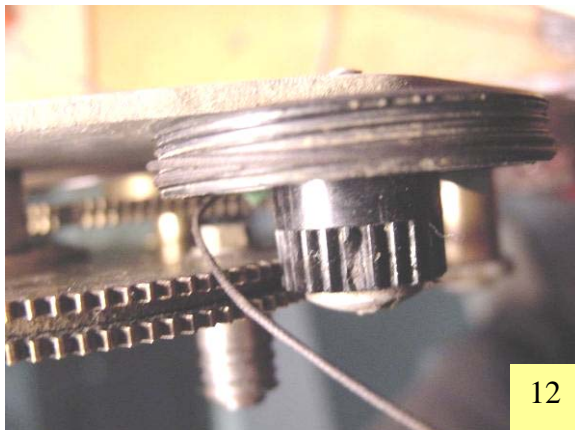
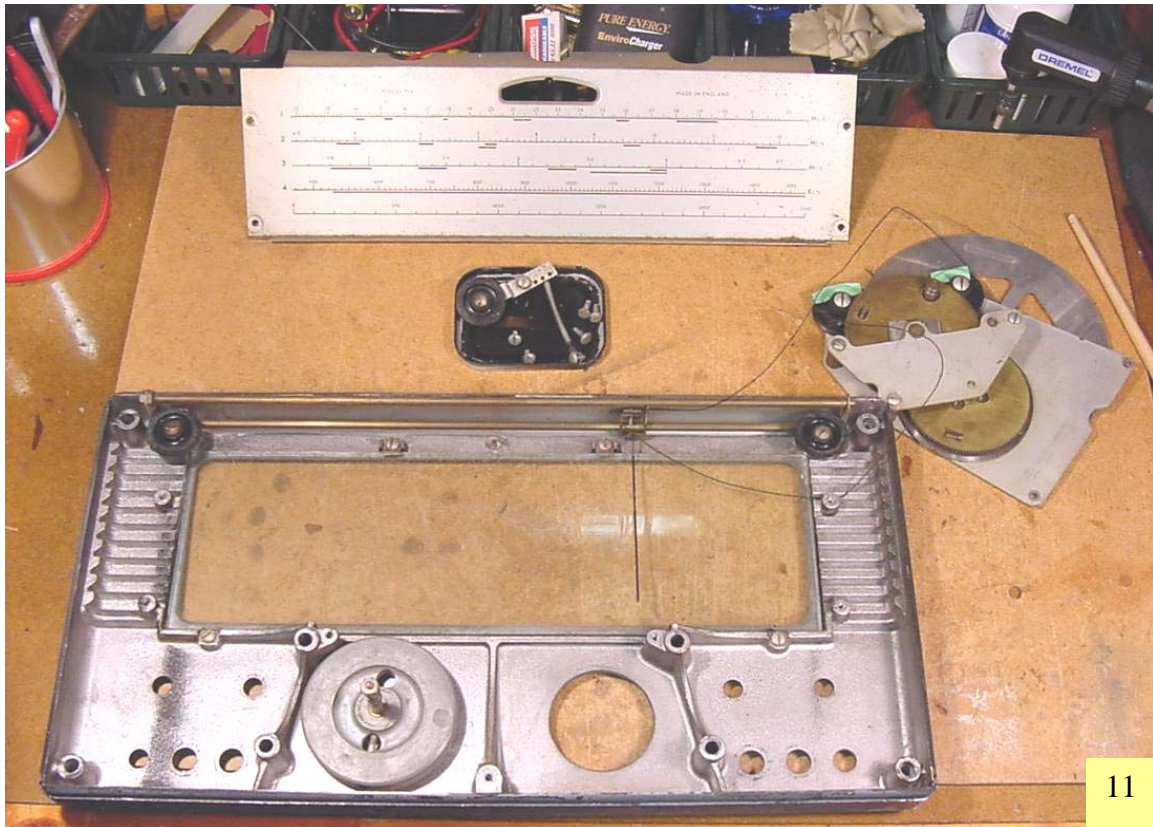
- Removed the front-most spacing bushings from between the side chassis members and the internal 'handles', allowing the lower outer front panel retaining bolts to be easily removed. Removed the upper outer front panel retaining bolts and took the chrome handles away. Removed the four inner front panel retaining bolts (these are removed from the front and are exposed once the finger plate is off). Pulled the front panel casting away, complete with the dial drive mechanism (photo 10). If the ratio arm mechanism was intact, care would need to be exercised at this point to extract the boss from the crank arm (probably pulling the springs and taking the spring wire loop off its hook).



- With some difficulty, due to the mechanism being very stiff, I approximately centered the drive and prevented the cord from leaving its grooves on the spool pulleys using two

small pieces of masking tape (photo 11). Careful inspection of the gearbox revealed that nothing was binding or blocking movement of the gears and that the stiffness was due to gummed-up bearings and teeth (age-solidified 3-in-One oil I would say) and, apart from some wear on the brass gears, the only damage noted was that a tooth on each of the spool pulley gears was damaged (photo 12).

- Removed the spring-loaded idler (cord tension) pulley by loosening the pivot screw fixing it to the front panel casting, loosened the three screws holding the gearbox to the front panel casting, tipped it forwards and upwards slightly and then eased the drive cord away from the upper two idler pulleys. The gearbox was then removed with the dial cord intact (photo 11).



- Removed the dial plate (four screws) and the dial glass (four screws). Pulled the tuning knob spindle out of its bushing.

- Removed the upper idler pulleys and rear pointer guide bar by removing their screws from the front panel casting. The front guide bar is retained by the rear bar brackets, but sits in a red mastic compound. Removed the all-important

Eddystone logo (photo 13) by unscrewing its small retaining plate and, finally removed the tuning drive bushing from the front panel casting. All the component parts are shown in photo 14.



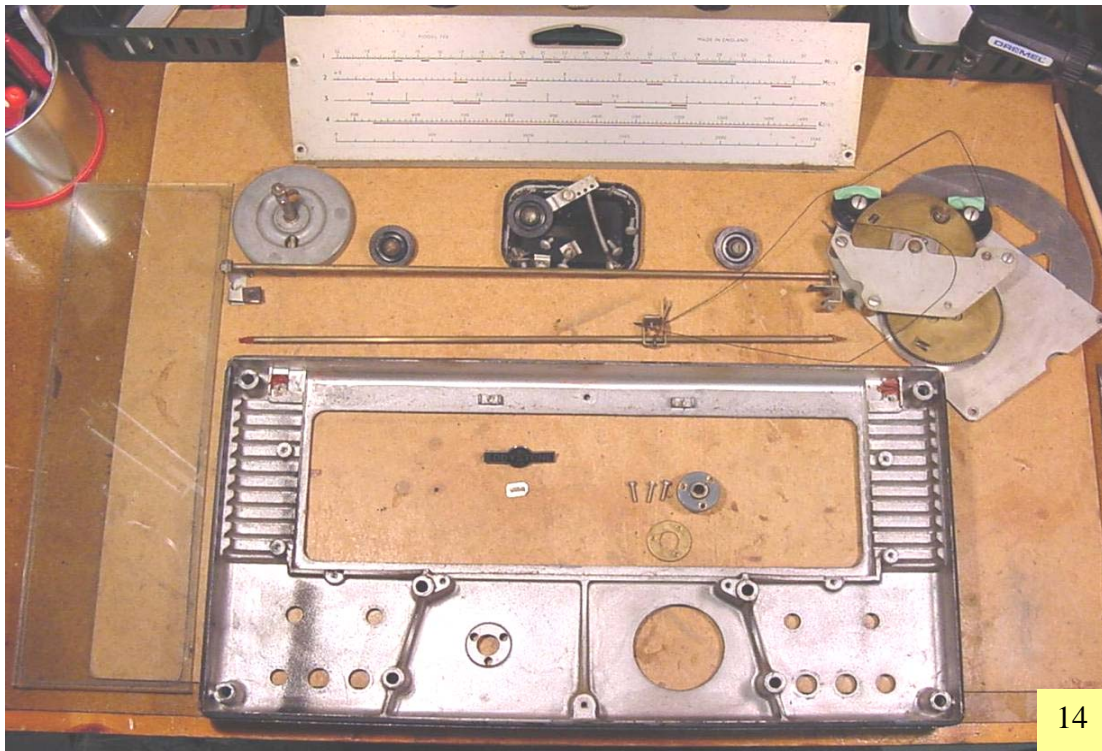
13

- I removed the logging scale (vernier) dial plate from the gearbox front spindle and placed the gearbox into a smooth-jawed bench vice and then painstakingly cleaned each tooth on each gear and pinion using isopropyl alcohol, a

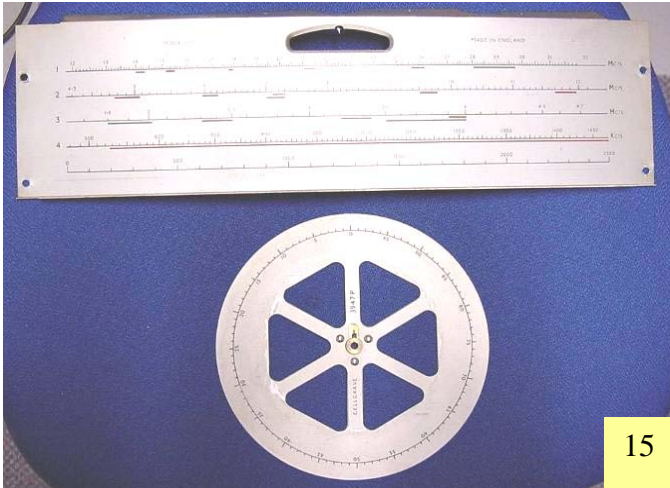
darning needle and Q-tips. I used lighter fluid to remove the stubborn 'gum' and clean out the bearings (bushings). I found that the gears were now freely-turning and I decided not to dismantle the gearbox totally, but to apply a light coating of high-quality light machine oil (not 3-in-One!) to each of the bearings and a smearing of molybdenum ('moly') grease to the parts of the brass gears that did not mesh with the plastic spool pulleys. Tried it out - smooth.... The friction drive plate was cleaned using lighter fluid to remove any stray oil or grease, as was its mating surface on the tuning spindle.

- Cleaned the dial plate and vernier dial plate using warm soapy water and cotton wool – these have very delicate silk screen markings (so be very gentle) – photo 15.

- I decided that the grey front panel should be re-finished in its original black crackle. One day I will probably have this stove enameled by a local paint shop, but for now I



14



15

remembered that I had some black crackle finish spray paint left over from the S.740 S-Meter/Speaker project. I cleaned up the front panel using alcohol and lightly buffed the surface and gave it three coats of the paint (photo 16).

- Cleaned-up all the remaining drive components (idler pulleys, dial glass etc) and re-assembled the drive mechanism to the front panel casting, simply reversing the disassembly order (photos 17 and

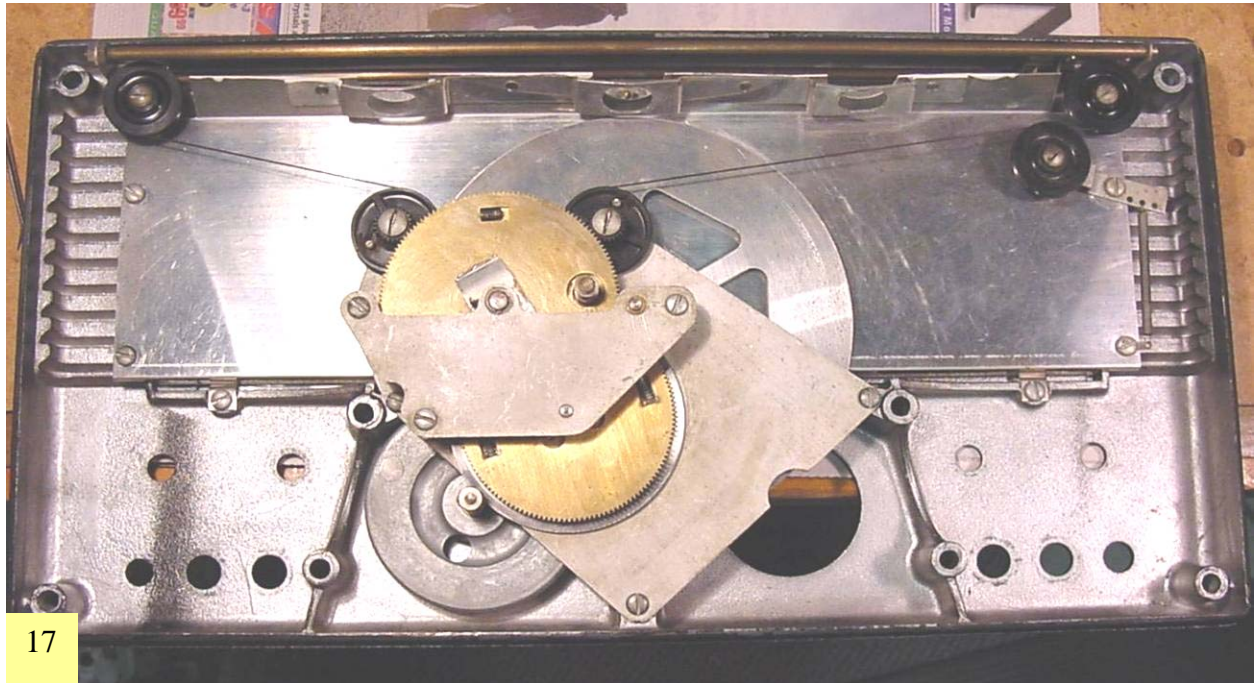
18) – the finger plate temporarily held in place with a couple of strips of double-sided sticky tape.



16

- The tuning knob shaft was coated with moly grease prior to installation in its bushing. The tuning knob was then temporarily fitted and the completed assembly tested for that sensual 'Eddystone smoothness' – yep, it was there in spades, beautiful! - the two damaged spool pulley teeth did not seem to affect the movement – thank goodness. Now for the electronics... temporarily ignored in my eagerness to see if I could at least make

the set look ok and work mechanically. I suddenly had cold-flushes thinking negative thoughts like ‘what if the mains transformer is duff?’



17



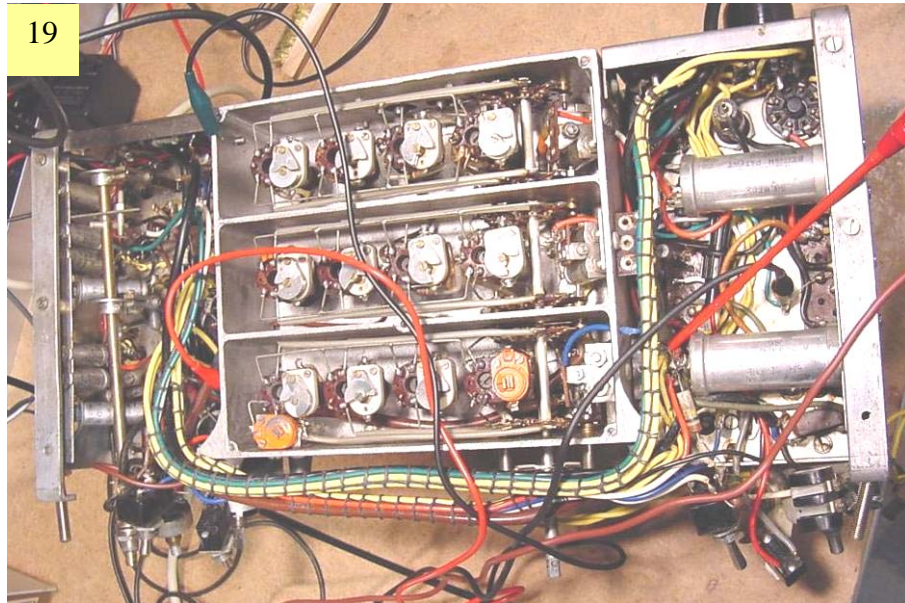
18

Safety Testing and Preliminary Electronic Restoration

- I decided to start work on the electronics with the front panel still removed from the chassis (photo 19) as this made access to underneath the chassis front much easier: useful

if one or more of the gain controls, BFO variable capacitor or switches needed to be replaced or serviced.

- On arrival, the mains transformer had a piece of bare wire shoved into the 110v tapping socket. I replaced this with the correct type of insulated jumper (for some reason I had one in my junk box).



- Installed a quick-blow in-line mains fuse in the psu compartment.

Also, installed a 250mA slow-blow fuse in a chassis-mounted fuseholder wired into the mains transformer secondary centre tap (it had a 3 amp fast blow installed on arrival).

- Checked the general electrical safety of the psu unit – checking for loose wires, poor insulation etc. Replaced a pair of wires who’s insulation had been heat-damaged by the stabilizer dropper resistor and re-dressed them to avoid it happening again.

- Installed a new mains lead and chassis grommet, using a plastic cable-tie to retain the lead.

- I made a replacement dial lamp holder to replace the bodged screw-thread one and replaced the long-bulb #47 dial lamps (pretty standard in US and Canada radios) with the correct small globe-type bulbs (the long-bulb #47 lamps interfered with the drive cord).



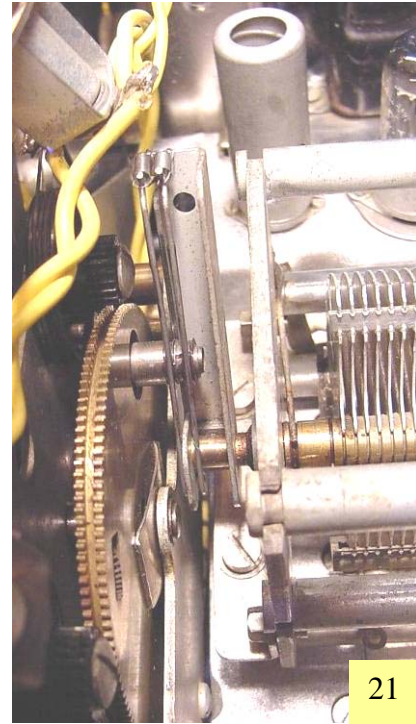
- I noticed that both the AF and IF gain pots were non-original components: the IF gain was a 10kohm linear carbon track unit and needed to be replaced with a wire wound (ww) unit as it carries a small DC current – carbon tracks don’t like that. A ‘period’ Colvern ww pot was found in my junk box (ex-Blue Streak I think) – it tested ok and was fitted (photo 20). The AF gain pot tested intermittent, as well as having a cracked front plate, so that was also replaced with another ‘period’ unit

(250kohm log pot), this time recovered from a defunct radio chassis and cleaned using 'De-oxit'. The RF gain pot looked original and tested ok after cleaning, and all the switches checked ok. The BFO variable capacitor bushings were cleaned with 'De-oxit'.

- Then I re-attached the front panel to the chassis. This is easier said than done, as getting all the switches and other controls into the correct holes at the same time takes some doing! Re-attach by reversing the disassembly routine, inserting the four centre bolts attaching the coilbox and then the four bolts attaching the chrome handles, followed by the spacers between the lower side chassis members and the 'internal handles'.

- I cleaned the main tuning capacitor contact 'fingers' using 'De-Oxit' on the rotor contacts and re-packed the ball bearings with moly grease. Re-assembled the ratio arm (photo 21), making two new retaining springs from junk box parts and applied a little moly grease to the sliding surface of the crank arm.

- Next, I re-fitted each of the control retaining nuts, taking care not to gouge the fingerplate. I used a small home-made 'washer' to do this with a regular pair of pliers (photo 8), but I believe that a purpose-made tool can be obtained (or made) for the round switch nuts, as can a large hex 'nut runner' for the pots and BFO capacitor nuts – though I do not possess either. The protective washer can be made out of paper (as shown) or plastic – a good choice is the thin, 'non-stick' and durable Teflon sheet sold for lining baking trays (my XYL is still wondering why 'mice' apparently chewed on it)... replaced the knobs and the set was ready for a few basic power-on checks.



- With all valves still removed, I applied power to the set, slowly increasing to 117v through a variac. Checked the transformer secondary voltages - all good – phew!

- Time to find out if the set will work...

Electronic Testing and Repairs

- Cleaned up each of the valve sockets in the set, including the two octal sockets on the rear, marked as 'Vibrator A/S-Meter' and 'Vibrator B' on my set, using 'De-Oxit'.

- Resistance checks on the psu filter capacitors (C81 and C83) indicated almost short-circuit, as did C60 (1st AF anode decoupler). I decided to try to re-form these rather than install replacements (for authenticity) as I had for my S.740. The capacitors were re-formed over a day by slowly increasing voltage from the variac, monitoring the HT current draw (all valves still removed except the 5Z4 rectifier) - increasing the voltage in

stages, holding for up to an hour and also switching off/on a couple of times at each stage. As current draw fell off at each voltage increment, I increase the applied voltage by 25v, up to the full HT volts of ~250v. Leakage current at the end of re-forming was acceptably low on all capacitors – quite amazing for 59 year old units.

- Undertook leakage checks on a few of the metal-can 0.01 and 0.1uf by-pass and AGC line capacitors - all appeared ok.

- Re-installed the remaining valves and attached a speaker. Slowly brought the set up on the variac over around 15 minutes, checking the HT current draw (transformer secondary fuse removed and the fuseholder bridged with a milliammeter) - about 100mA draw (the manual says 96mA) – seemed ok. Checked key voltages using the voltage table in the manual – all within acceptable ranges (I used a homebrew 1000ohm/volt meter adapter that allows quick switching-in of the correct range shunts – see sidebar). Audio was heard – though this was only a slight hum and a faint hiss. However, injecting an audio signal (finger) at the AF gain pot slider resulted in plenty of volume – a few voltage checks around the AF section revealed that all was in order AF-wise - time to check the detector and second IF stages.

- Whilst fiddling with my signal genny tuning dial, setting up for an IF test, I heard a click from the speaker. After a bit more fiddling I realized that the receiver was actually working, though with very low gain. I attached a piece of wire to the aerial connector and sure enough, genny signals were faintly audible on each band.

- I tried the BFO – it was not working. Found that no HT was present on the HT pin of the BFO unit. This was traced to an open-circuit R45 (1kohm) anode dropper resistor. Replacing this brought up the BFO.

Re-Alignment

- The set was very ‘deaf’ on all bands at this point, with only very faint signals from known local very strong

1000 ohms/volt Meter Switchbox

In my S.770R restoration article, I described a simple gadget to convert a ‘modern’ 20kohms/volt meter into a 1000ohms/volt unit as specified in many Eddystone manual voltage tables.



This has been improved to allow rapid switching between ranges – took about an hour to construct and works really well – every bench should have one!



All you need is a box, two banana plugs and sockets, a multi-pole switch and some resistors to suit your voltmeter ranges (eg. for my Triplet meter, I needed 600ohm, 3kohm, 12kohm, 60kohm, 300kohm and 1.2mohm resistors for its 0.6, 3, 12, 60, 300 and 1200 volt ranges). Arrange the switch to have the correct resistor shunt the voltmeter on each range. I also added a switch to allow the unit to be quickly switched out of circuit for all other measurements ranges.

stations, so I decided to attempt a full re-alignment. Inspection of the IF transformer and coilpack dust cores ('slugs') and trimmers showed signs that the 'mad twiddler' had probably been having a field day - oh dear... (photo 22).

- The re-alignment procedure as detailed in the manual was followed to the letter. Neither of my RF signal genny's go down to the second IF frequency of 85kHz, but I found that my Heathkit audio signal genny worked a treat. The second IF transformers peaked-up nicely injecting 85kHz into the grid of V4 (outer corner pin of the first IF transformer), as did the second oscillator (1535kHz) and the first IF, injecting 1620kHz into the same point as the 85kHz – they were all found to be 'miles' out of adjustment. I then tweaked the BFO to the new (proper) IF: zero beat with the BFO tuning capacitor vanes half mesh. Straightforward so far... now for the RF stages.



- First the oscillator section (nearest the front panel). Again, I followed the instructions in the manual to the letter, using a crystal calibration marker to supplement the 1950's valve RF genny and 1980's digital frequency meter combination I was using: I had no problems on Ranges 1, 3 and 4, but Range 2 proved impossible to track correctly. I concluded that I was probably tuning on an image or the

oscillator was tracking on the wrong side of the signal (or both). After listening for the S.750 first local oscillator (LO) signal on my 830/4 (the tuning of which is very accurate) I confirmed that this was the case. I understand that the LO on the S.750 should always track above the signal frequency (Radio and Television Servicing, Molloy and Poole, Vol. 1, p250). Radical tweaking of the Range 2 core and trimmer eventually allowed proper tracking to be obtained across this Range – phew. It is useful to remember that *'if the oscillator frequency is higher than the received signal'* [as in the S750], *'the lower-frequency position on the signal genny dial or the higher frequency position of the receiver dial is identified as the proper signal at which to align'* (Radio and Television Receiver Troubleshooting and Repair, Ghirardi & Johnson).

- During adjustment of the iron dust cores (for low-frequency settings), where these were found to be loose, I removed the core, cleaned it and the former and inserted a thin rubber filament extracted from a short piece of 'knicker elastic' to introduce some friction (works a treat). Unfortunately several of the cores were found to be damaged at their

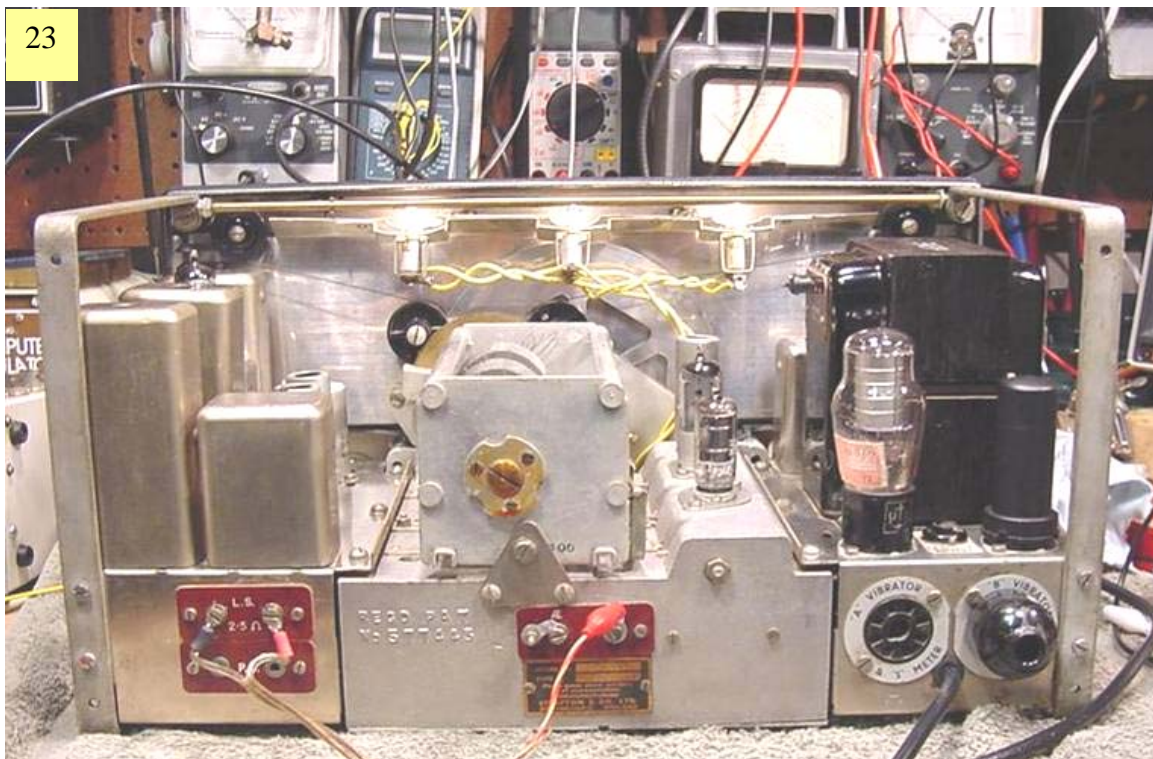
bottom end and/or gnarled at their top end due to the ‘mad twiddler’ screwing them down tight using a large screwdriver or similar ‘tool’ (please –use the correct trim tool – or at least obtain a plastic knitting needle and carve one! – it takes all of 5 minutes). I must locate some replacement cores some day, in the meantime, I recovered and cleaned up what I have.

- The mixer and RF stage coil/trimmer combinations were straightforward to align, although I noted that one or two of the dust cores are fully engaged at (or close to) their peak - this may warrant some investigation in the future.

- The set was now performing satisfactorily on all bands, receiving weak signals almost as well as my 830/4 (I am particularly impressed by the low noise level on the S.750). Also, the set is remarkably stable after warming up for an hour or so.

Conclusion (almost)

- I left the set on ‘soak’ test for a few hours and tuned around the bands – I was rather impressed, especially with the smooth tuning, the variable selectivity control and the amount of control the three stage gain pots give to winking out a weak signal. Then, out of the blue, it developed a loud crackling noise that I found was still present with the AF gain fully turned down. This was traced to a noisy anode load resistor on the triode



section of V5 (6AT6) - a 270kohm part. Replacing this fixed the problem. My next job will be to re-check all the key voltages as listed in the manual following some prolonged use of the set and then, unless I need to change out a component or two to mitigate any anomalous voltages, I will call it a day (for now).

- At this point I would have 'boxed the set up', except I do not have a case. I am currently toying with the idea of making a Perspex case so the innards can be seen while the set is working (they are so pretty now!) – this should not be too difficult to do: heated metal bar to bend the correct-radius corners and drill plenty of ventilation holes. Alternatively my S.740 could loan the S.750 its case for special occasions....

- Having no case, I settled for an external cosmetic job of simply cleaning all the knobs (with alcohol) and polishing them using "Armor-All" (plastic polish for car interiors), touched up the one or two small scratches and the tiny wear patch on the finger plate using a black permanent marker – looks ok, but if anyone knows how to re-finish finger



plates I would be very interested to hear. I also re-blackened the mains transformer core laminations and a couple of scuffs on the shroud using the permanent marker, carefully drawing around the part number stamped on top – looks much better (photo 25).

That's it really – a fairly straightforward, but very time-consuming, exercise in fault-finding and repair (mainly spent cleaning the chassis and gearbox, as well as re-aligning Range 2). The cost of restoring – except in terms of hours and tea – was effectively 'zero' (the pots and resistors were from my junk box – but would cost only a few dollars to buy) and some very enjoyable hours spent in my little workshop retreat. Photos 23 through 29 show the set post-restoration.

Once again, I hope this article was of some interest to EUG folks and that others will be encouraged to contribute to the ever-growing EUG website in this way (remember to always keep your camera handy when fixing stuff!). Of course, I am now on the look out for yet another challenge.... wonder when that S.640, S.680X, S.888 or other magical Eddystone classic will appear wanting some TLC?

I would be pleased to discuss this article or any other radio-related topics with EUG folks, either by email, the EUG forum or phone (I am on 'Skype').

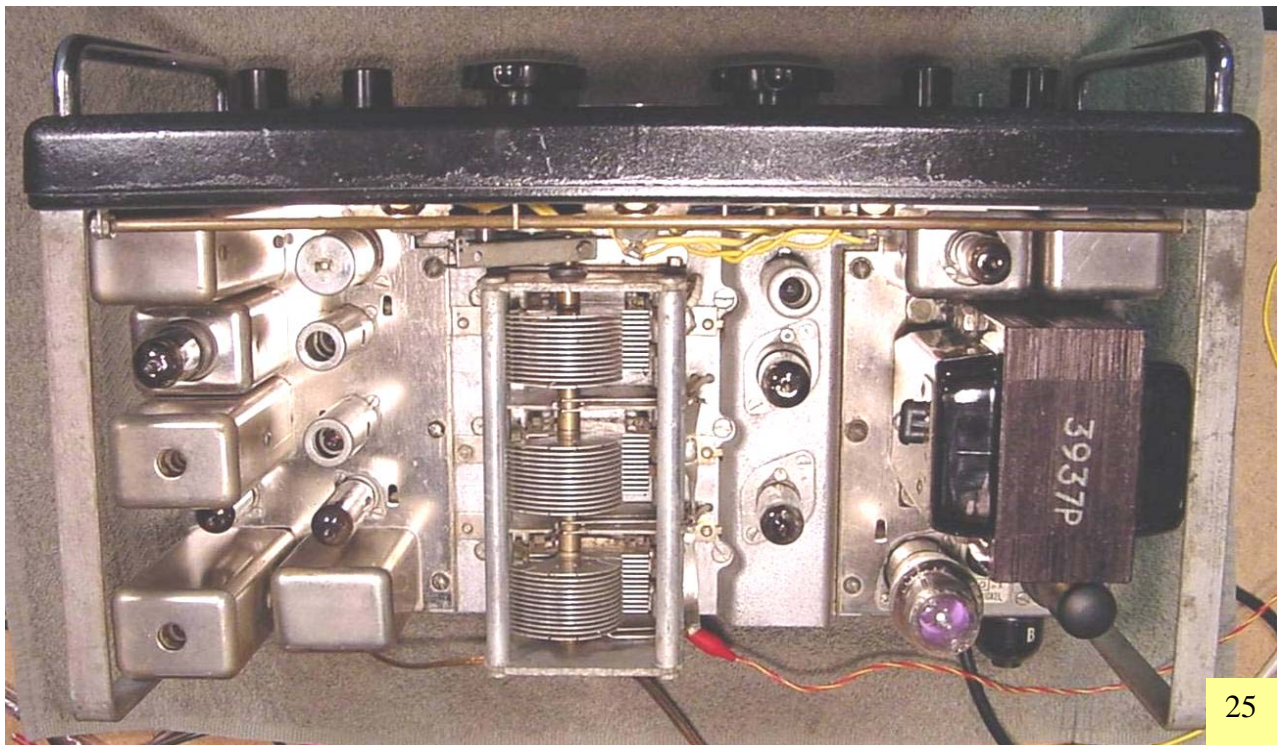
73's

Gerry O'Hara, G8GUH (gerryohara@telus.net), Vancouver, BC, Canada, October, 2006

Postscript

The other EBay bidder on the S.750 turned out to be one of the SPARC members who already owns an S.750 and who indeed wanted the one I bought to provide parts for his own, which has a 'foreign' mains transformer and a missing BFO unit (although it has a case and a matching Model 688 speaker!). The good news is that he has recently acquired an S.940 as a 'parts set' and this has the correct mains transformer (but alas, not the correct BFO) and even better news (for me) is that he donated a correct dial bulb holder from this set for my S.750 – now fitted and looking good, as well as a valve screening can – many thanks Pat (you're forgiven for driving the EBay price higher!).

It was interesting to compare the two sets side by side. Pat's set is serial number FC0839, indicating either a June, 1951 (Alan Clayton method) or a March, 1954 (EUG QRG method) manufacturing date, I think that it is most likely younger than my set, and I noted that it has the valve locations stamped into the chassis, screening cans fitted to V1 and V5 (my set only has screening can-type valve holders on V3, V6 and V7, and the others do not look like they have ever been replaced). Pat's set also has the cover fitted over the tuning capacitor gang. I noted that my set has circular identification labels around the octal 'vibrator' sockets and Pat's set does not.

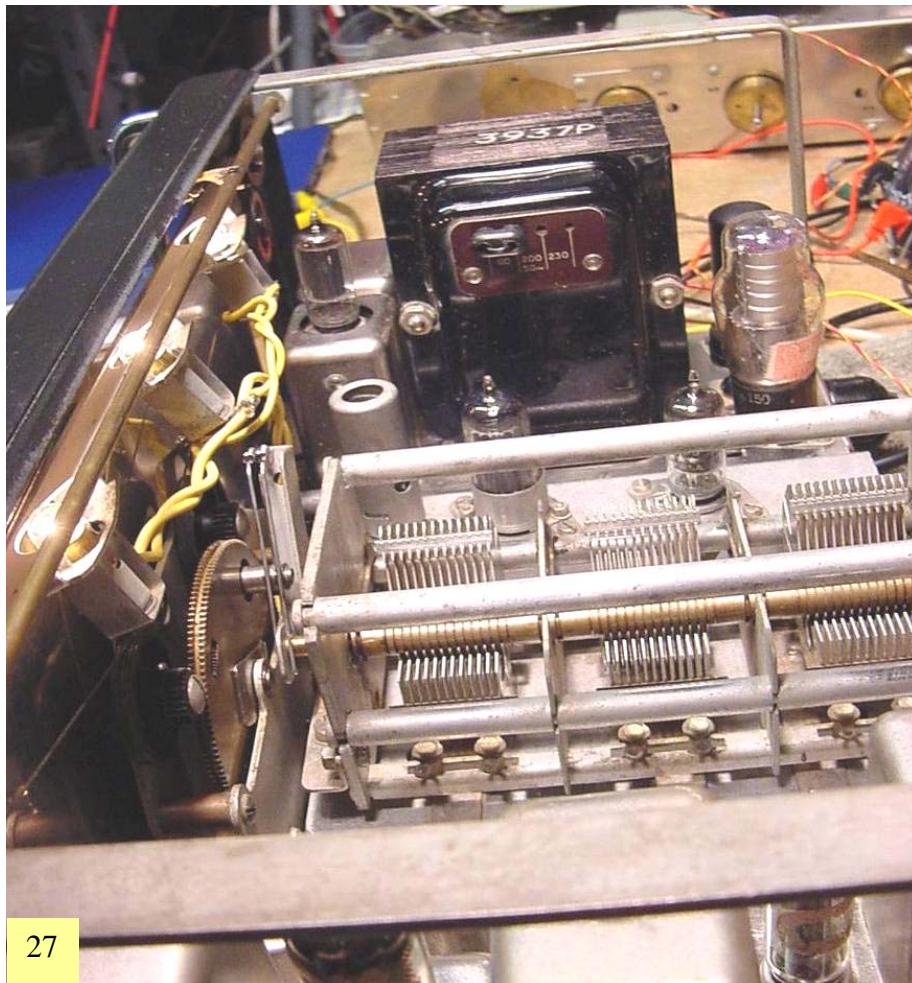




References

EUG Newsletter/Lighthouse (from 'Super Index')	Issue	Page
acquired by David Fletcher.....	86.....	28
advert, Norway	44.....	10
alignment frequencies	4.....	3
audio		
capacitor, faulty	55.....	20
output, loss of.....	53.....	2
bfo		
noisy	8.....	14
lack of.....	10.....	15
Buenos Aires owner	21.....	13
case renovation	9.....	11
circuit diagram incorrect	31.....	1
comments on (Chris Pettit).....	57.....	0
current feedback.....	26.....	14
design fault query	58.....	8
doublet aerial described in Marconi HR100 manual	79.....	32
earth connection problem.....	22.....	18
eBay	93.....	26
faults, common	6.....	10
favourite model (Terry Parker) details, test results	94.....	21
featured receiver	12.....	19
.....	57.....	21
gain, low	12.....	14
hum, curing	42.....	21
.....	76.....	17
i.f. frequency.....	51.....	3
explained.....	72.....	42
instability at full volume	7.....	6
launch date	16.....	17
Marconi HR100, equivalent of 750/2.....	19.....	18
microphony	12.....	14
mixer valve	61.....	7
modifications reversed	59.....	5
octal plug missing.....	65.....	7
output stage description.....	28.....	29
resistor (not!).....	90.....	25
valve.....	91.....	6
overhaul	8.....	17
overheating	8.....	3
product detector, fitting of.....	29.....	19
pulley replacement query	79.....	16
realignment	4.....	3
.....	18.....	9
tape recording outlet	22.....	17
restoration		
Pete Roberts	48.....	3
Roger Bebbington	72.....	42
review, 'The Radio Amateur', 1952	58.....	9
S meter		
fitted	49.....	27
to make	57.....	23

EUG Newsletter/Lighthouse (from 'Super Index')	Issue	Page
scale plate cleaning.....	79.....	23
testimonial	94.....	28
transformer, mains	8.....	2
tuning gangs, cleaning	52.....	20
tuning ratio	12.....	1
twin sets purchased by member	66.....	6
valves		
C85 fitted to early sets	62.....	32
substitution, 6AQ5 to replace N78	26.....	14
.....	34.....	28
vibrator psu	94.....	27
voltage stabiliser.....	10.....	16
750A de luxe model		
overhaul of	8.....	11
query as to existence of	16.....	13
.....	17.....	12
.....	20.....	3
750/2 version.....	19.....	18
.....	95.....	18
differences vis a vis Marconi HR100	49.....	31
MIMCO 2232 equivalent.....	50.....	39



Web:

<http://www.eddystoneusergroup.org.uk/> (the best – of course!)

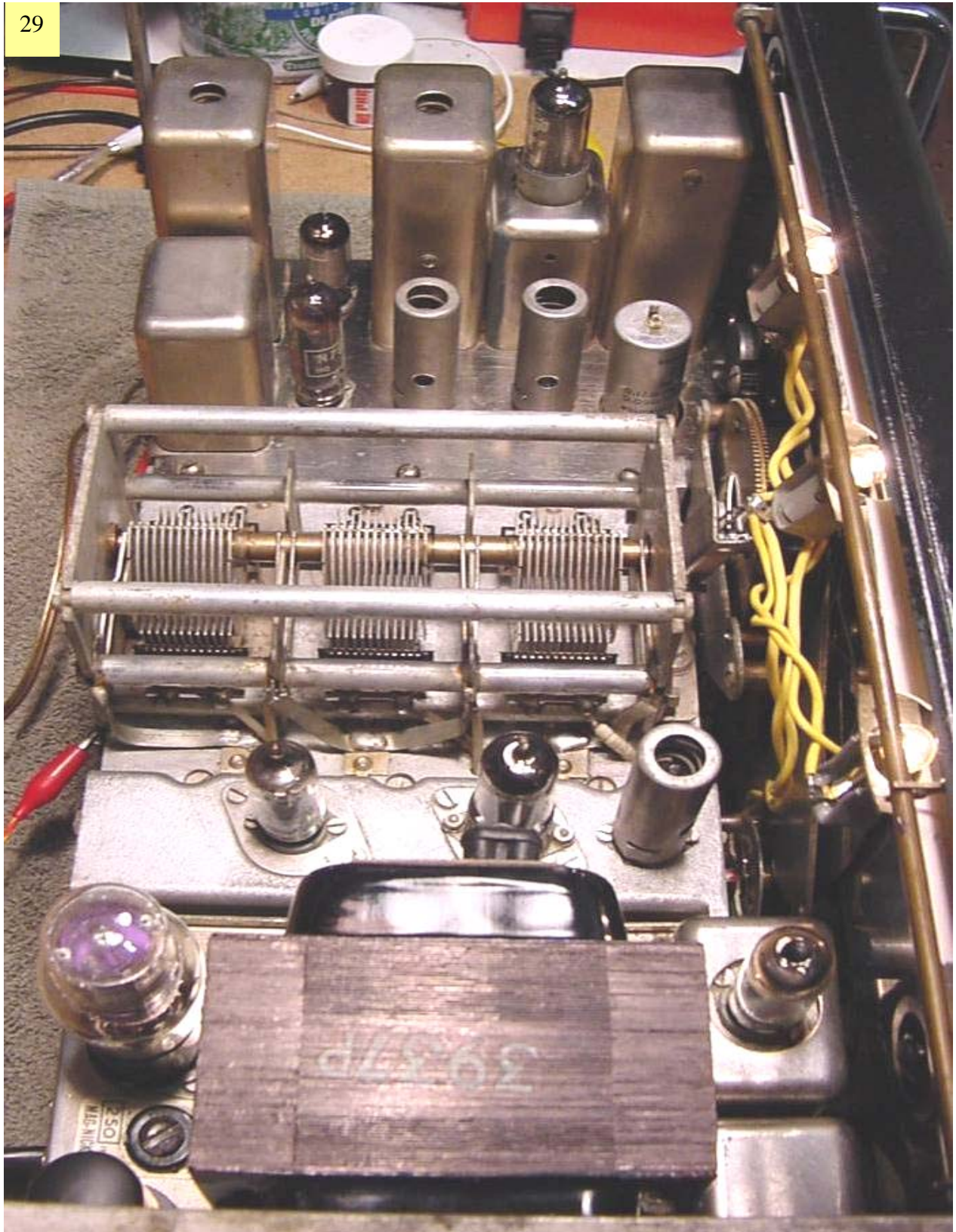
<http://bama.edebris.com/manuals/> (hereby acknowledged as the source of the one of the manuals attached to this article)

www.gsl.net/eddystone (hopefully back on line soon)

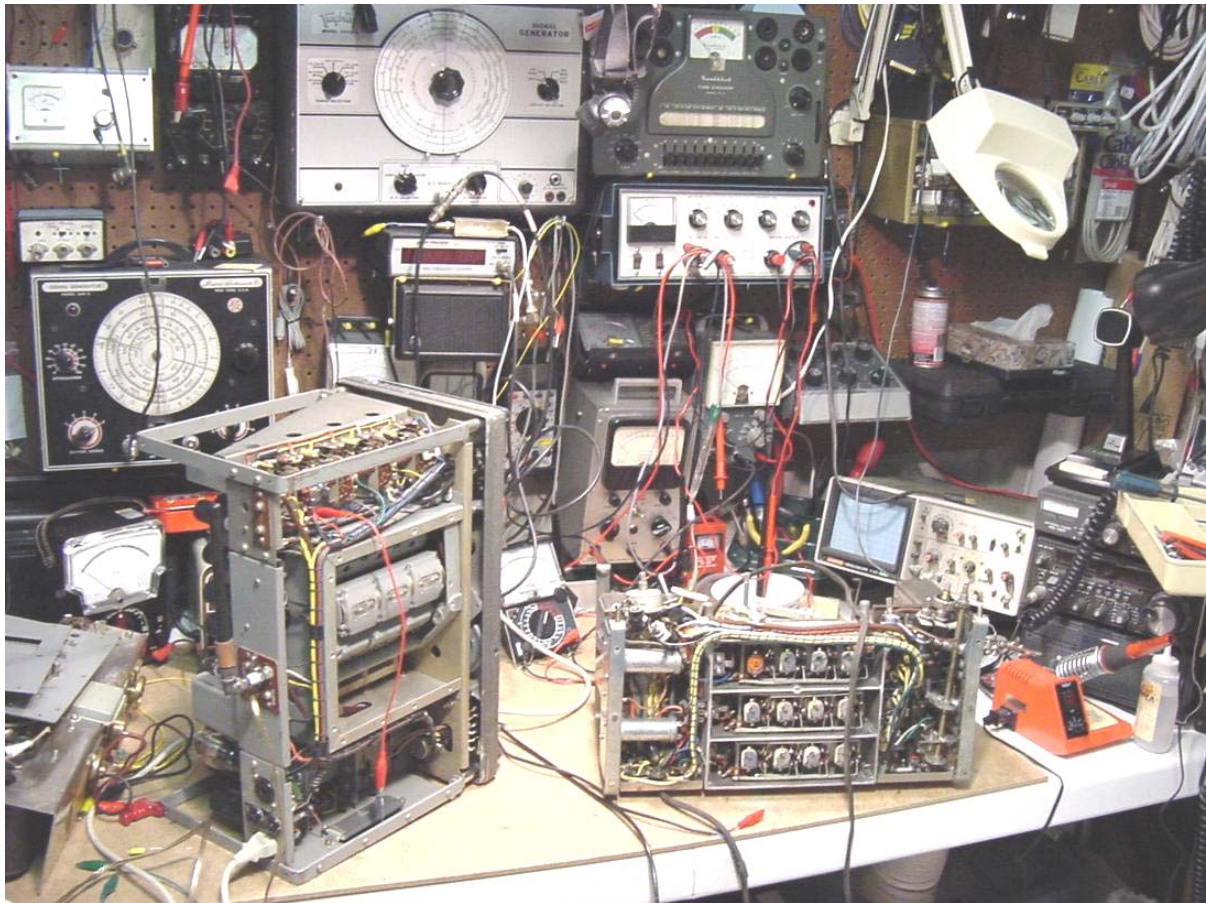
Some Useful Books on Radio Circuitry and Repairs:

- Radio and Television Receiver Circuitry and Operation, Ghirardi and Johnson, 1951
- Radio and Television Servicing, Molloy and Poole, Vol 1
- Radio and Television Receiver Troubleshooting and Repair, Ghirardi and Johnson, 1952
- Radio servicing: Theory and Practice, A Marcus, 1948
- Radio Receiver Servicing, JT Frye, 1955
- Servicing Superheterodynes, JF Rider, 1934
- Radio Servicing Manual, EINY
- Elements of Radio Servicing, Marcus and Levy, 2nd Ed. 1955, Ch 24 and 25 (the first edition of this book can be downloaded in pdf format from http://www.archive.org/details/Elements_Of_Radio_Servicing)

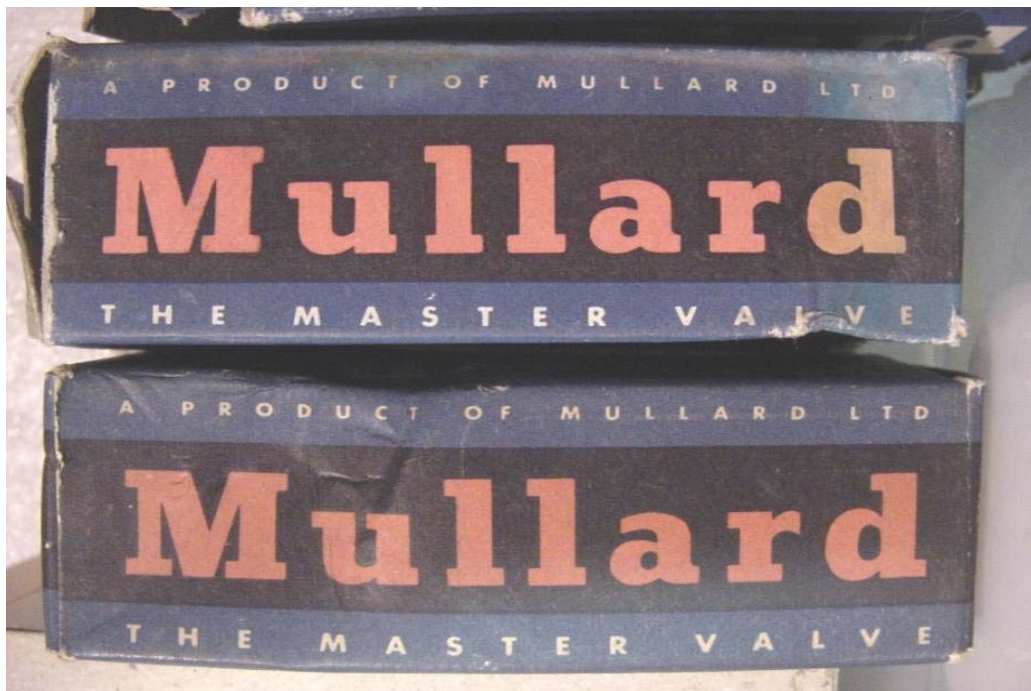




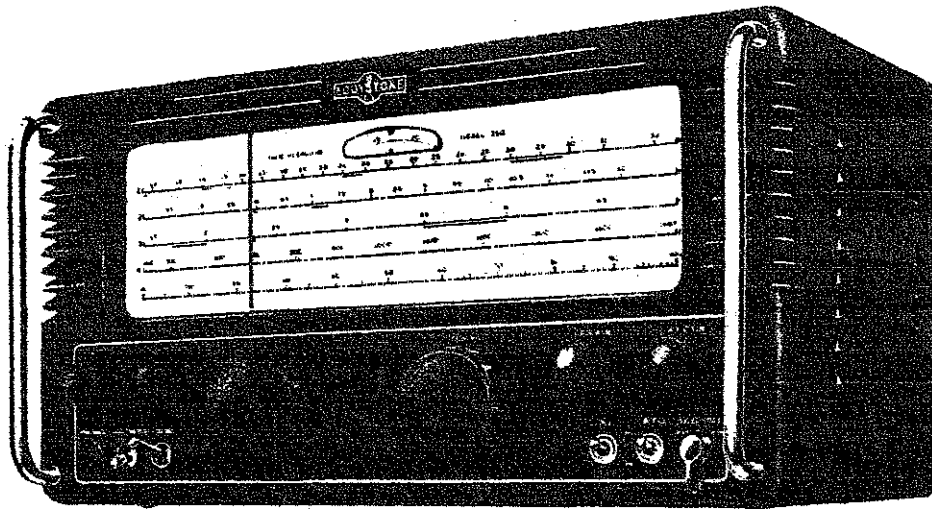
'Bath Tub fresh?' – almost...



‘Move over big guy’ – my S.770R and S.750 fight for bench time... and space



Only the best for my boys... ‘new old stock’ spare Mullard ECH42’s sourced from Argentina!



EDDYSTONE

COMMUNICATIONS RECEIVER

Model "750"

Instruction Manual

The Eddystone "750" receiver is of the double superhetrodyne type and combines high sensitivity with an unusually good signal-to-noise ratio. All but two of the eleven valves are of the miniature type, details being provided with the circuit diagram. The selectivity is continuously variable over wide limits and this feature, in conjunction with the separate RF, IF and AF gain controls, enables maximum results to be secured under varying conditions of operation.

The four ranges are as follows :

Band 1	32 Mc/s. to 12 Mc/s.
Band 2	12 Mc/s. to 4.5 Mc/s.
Band 3	4.5 Mc/s. to 1.7 Mc/s.
Band 4	...	1465 Kc/s. to 480 Kc/s.

The fifth position of the wavechange switch desensitises the RF section of the receiver to permit a pick-up to be used without break-through.

The Amateur Bands are distinctively marked in green, on the basis of the International allocations made at the Atlantic City Conference in 1947. The broadcast bands are shown in red. It should be noted that the scale markings (all in frequency) are linear and also that the International Distress frequency of 500 Kc/s. is covered.

INSTALLATION and OPERATION

The receiver has been carefully aligned and calibrated, and thoroughly tested before despatch. The only adjustment that may be necessary is the mains input voltage. The plug in the selector panel on the transformer is fitted normally in the 230 volt position, where it should remain for voltages between 220 and 250 volts. If the mains voltage is between 195 and 215 volts, the plug should be changed to the 200 volt position. The 110 volt tap is suitable for mains supplies between 100 and 125 volts.

D.C. mains supplies are entirely unsuitable and if connected will cause serious damage. **Ensure that the octal plug is in place in the octal socket "B" (nearest the side of the cabinet) as shown in the drawing, Fig. 2.**

A loudspeaker of 2.5 to 3 ohms impedance should be connected to the two upper terminals at the rear (the Eddystone Cat. No. 688 is especially recommended for use with this receiver), or alternatively high resistance (2,000 to 4,000 ohms) telephones plugged into the jack at the left of the front panel.

The fuse fitted between the H.T. secondary centre tap and chassis is a "Magnickel" delayed type. A standard type of fuse is liable to blow if the receiver is switched off (mains switch) and immediately switched on again without giving the rectifier valve time to cool.

AERIAL CONNECTIONS.

If a single long wire is used or any aerial with a single wire type of feeder, connection is made to the rear terminal marked "A," the other terminal marked "AE" remaining strapped to the chassis. A good earth connected by a short lead to the second terminal will improve results, particularly on the lower frequencies, but if there is any doubt about the efficiency of the earth, it may be better to leave it off.

For optimum performance, both as regards bringing in weak signals and for keeping noise down to a minimum, an aerial cut to resonate over the frequency band in which the user is mainly interested is strongly recommended. The lengths for dipole aerials to give optimum results at certain frequencies are tabulated below. For details of other types of aerials and feeder systems, the reader is advised to consult the various Handbooks which deal with these specialised subjects.

	Broadcast							Amateur		
Wavelength (Metres) ..	49	31	25	19	16	13	11	40	20	10
Frequency (Megacycles) ..	6.1	9.6	11.8	15.1	17.8	21.5	26	7	14	28
Length of each arm (feet)	40	26	20	15.5	13	10.5	9	33	16.5	8.25

RECEPTION OF TELEPHONY.

With the BFO switch in the "off" position, the automatic gain control circuits become operative and for full effectiveness, both RF and IF gain controls should be set at maximum (full clockwise rotation) and the volume controlled with the audio gain potentiometer on the extreme right. On very strong signals, particularly with a large aerial and on medium waves, it is possible for overloading to occur and it then becomes necessary to reduce the RF gain.

To begin with, the variable selectivity control should be to the extreme right, giving minimum selectivity. In this position, reasonably good quality of speech and music will be obtained but, as the selectivity is still considerably higher than that of an average receiver, a certain amount of side-band cutting occurs and high fidelity reproduction is not to be expected. A minor point to be noted is that the loudspeaker or telephones should be capable of responding to low audio frequencies (down to 100 or 150 cycles), otherwise the middle audio register is likely to be unduly emphasised.

When heterodyne interference is experienced, the selectivity should be increased by rotating the control to the left, thereby reducing the bandwidth and weakening the strength

of the interfering whistle. It is not advisable to operate on telephony with the selectivity control at maximum (except perhaps on a very crowded amateur band) because sideband cutting then becomes severe and speech quality deteriorates in consequence.

Because of the high selectivity, it is important to tune carefully to the centre of the received carrier. It should be remembered also that the AGC action results in the sensitivity increasing as the receiver is tuned slowly away from the centre of the carrier, giving rise to distortion and apparently reducing the actual selectivity. The Cat. No. 669 "S" Meter is a valuable adjunct when the main interest lies in telephony reception since it aids correct tuning and also gives a comparative idea of the strength of the received carrier.

RECEPTION OF CW SIGNALS.

Switching on the BFO (also thereby cutting out AGC) applies H.T. to the beat oscillator valve (V9) and reception of CW Morse signals is then possible.

The adjustment of the controls depends on a number of factors including the strength of incoming signals, amount of interference present and the efficiency of the aerial. If the latter is poor, it will be advisable to use maximum RF gain at all times but, if good, often the RF gain can be reduced somewhat with advantage, particularly on strong signals.

A certain amount of skill will be called for in adjusting the IF gain and selectivity controls. When receiving telephony, the IF gain is automatically controlled according to the strength of the signal but, with CW, manual control of IF is important.

The IF gain varies to some extent with the setting of the selectivity control and is greatest when selectivity is minimum. It will rarely be desirable to employ full IF gain with minimum selectivity. As the degree of selectivity is increased, gain should be maintained by advancement of the IF gain control.

It is advantageous to employ a high degree of selectivity because the noise output from the receiver is partly dependent on the IF bandwidth and the narrower this is made, the less the noise for the same amount of gain. When the receiver is operated with the selectivity control at maximum, signals very close to one another can be separated and weak signals made to stand out clearly against the extraordinarily quiet background. Naturally the tuning control must be handled gently under such conditions.

Another control which calls for attention is the BFO pitch. This gives a swing of 3 Kc/s. each side of the centre point (white spot at the top). Normally it will be set to give a beat note of 1,000 cycles (or near) but careful handling of this control will often enable a desired signal to be separated from an interfering one. Also, it is sometimes of benefit to rotate the knob from one side of zero beat to the other when interference comes up on a signal.

BANDSPREAD.

The mechanical bandspread device is available over the whole range covered by the receiver. The vernier logging scale gives an effective length per range of approximately 32 feet. This scale is graduated from 0 to 100 divisions and is read in conjunction with the lowest scale on the main dial, the latter being marked off with 25 major divisions, each representing 100 divisions of the vernier scale (i.e., one complete revolution).

The actual amount of bandspread on the amateur bands depends of course on the width of each individual band. The following details apply :

Band (Mc/s.)	Vernier Scale Length (inches)	Number of Vernier Divisions
29.7 — 28	34.375	208
21.45 — 21	7.5	45.5
14.35 — 14	6.45	39
7.3 — 7	15	91
4.0 — 3.5	61	364
2.0 — 1.8	30	182

NOISE LIMITER.

In a quiet situation, it will not be necessary to make use of the noise limiter but when electrical interference of a staccato nature is experienced (on telephony or CW), switching on the noise limiter will effectively remove a high percentage of the interfering noise, with little effect on the strength of the signal and without introducing distortion. The noise limiter must not be expected to act effectively with noise of a mushy type, as generated by vacuum cleaners and other electrical equipment incorporating motors — these should be filtered with suppressors at the source.

In a noisy location, it is well to erect an aerial well in the clear and as far as possible from electric light wiring. The stronger the incoming signal, the more the gain of the receiver can be reduced (automatically on telephony, manually on CW) thereby reducing also the effect of any interference being picked up.

USE OF THE STANDBY SWITCH.

The Standby switch, in the "off" position, desensitises the receiver very considerably. This system is considered preferable to cutting the H.T. supply, for several reasons. The oscillator valves continue to operate under normal conditions, thereby preventing any change of frequency during standby periods and, since the audio stages remain "alive," a monitor signal can be fed into the pick-up terminals and become audible on the loudspeaker or telephones.

The receiver itself also becomes available as a monitor of the outgoing signal. It is necessary to prevent excessive RF voltage reaching the receiver aerial terminals during transmission and the wires to these terminals should be kept as short as possible. If a separate aerial is used for reception, arrangements should be made for disconnecting or earthing it during periods of transmission.

CONNECTION OF "S" METER.

The Eddystone Cat. No. 669 "S" Meter is recommended for use with the "750" Receiver. It incorporates a sensitive moving-coil meter of 200 microamperes full scale deflection.

The flexible lead from the meter terminates in an octal plug which should be inserted in the socket marked "A" in Fig. 2 at the rear of the receiver.

Reference to the circuit diagram of the receiver will show that one half of the double-diode V7 is in series with the meter movement. This prevents reverse current flowing through the meter when the balance is disturbed and the meter can be left in circuit under all conditions of operation without likelihood of damage. The bottom bend characteristic of the diode results in sluggish action at low signal strengths and, to overcome this, the needle of the meter is purposely offset below the zero mark on the scale by means of the mechanical adjuster.

With the receiver controls set for reception of telephony, the aerial and earth terminals (or doublet terminals) should be shorted and the "S" Meter needle made to coincide with zero by adjustment of the electrical balance control at the rear of the meter. On removing the short, the meter will indicate comparative carrier strength.

OPERATION FROM 6 VOLT ACCUMULATOR.

The "750" receiver may be operated from a 6 volt accumulator in conjunction with a special Vibrator Power Unit, Cat. No. 687/1, which is fitted with leads and plugs ready for immediate use. Installation details are provided with the Power Unit.

STRATTON & Co., Ltd., West Heath, Birmingham, 31

Cables : "STRATNOID" Birmingham

Telephone : PRlory 2231-2-3-4

EDDYSTONE '750'

ALIGNMENT INSTRUCTIONS

It is assumed that test instruments are available --- in particular, a Signal Generator covering 85 Kc/s. to 32 Mc/s. and provided with internal modulation (30%) and a calibrated attenuator; and an audio output meter, calibrated in milliwatts and decibels and adjustable to match an impedance of 25 ohms. Trimming should be carried out with a non-metallic tool such as the Eddystone Cat. No. 122T.

IF STAGES.

The controls should be set as follows :

- | | |
|----------------------|------------------------|
| RF Gain minimum | Band Selector Range 1. |
| IF Gain maximum | BFO Off. |
| AF Gain maximum | Noise Limiter Off |
| Selectivity maximum. | |

A 30% modulated input, at 85 Kc/s., is applied between chassis and the grid of V4* (the second frequency changer), and the four cores in the IF transformers marked "2nd" and "3rd" in Fig. 1 adjusted to give maximum output, as indicated on the output meter. The attenuator of the S.G. should be adjusted as necessary to prevent the needle of the output meter going off the scale. An input of about 280 microvolts will normally be required to give 50 milliwatts at the speaker terminals.

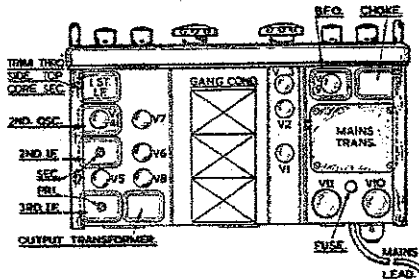


Fig. 1

Leaving the controls and connections undisturbed, the input frequency should be changed to 1620 Kc/s. and the second oscillator adjusted, by moving the core in the V4 screening can (see Fig. 3), until output is maximum. Because of the slight loss in conversion, a greater input (by some 2 or 3 db) will be required to give 50 milliwatts output. The change to 85 Kc/s. can be obtained with the oscillator on either the high or the low side of 1620 Kc/s. and two positions of oscillator core will give output --- the lower frequency position, with the core furthest in, is the correct one.

The band selector switch should now be moved to "G" and the 1620 Kc/s. input applied between chassis and the stator of the centre section of the gang condenser. The primary and secondary cores in the first IF transformer (see Fig. 1) are then adjusted to give maximum output and a further very slight and very careful adjustment of the V4 oscillator core may give an improvement. The final IF sensitivity should be such that 50 milliwatts output is produced for an input (at 1620 Kc/s.) of between 5 and 10 microvolts.

BFO ADJUSTMENT.

With the BFO switch at "off," a modulated signal should be applied and tuned in accurately on the receiver. The modulation is switched off, the BFO switched on and, with the pitch control at half-mesh (white spot at top), the core in the BFO unit (see Fig. 3) is set to give zero beat.

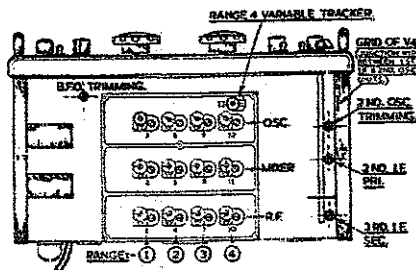


Fig. 3

RF ALIGNMENT.

The controls remain as before but with the RF gain also turned to maximum. Should it be found necessary to correct discrepancies in the scale calibration, the output from a Crystal Frequency Standard should be applied to the aerial terminals (the calibration of most Signal Generators is not accurate enough). Adjustment is then made to the cores and trimmers appropriate to each range, in the oscillator section of the coil box (see Fig. 3). Checks and adjustments should be made at the frequencies given below, using the TRIMMER CONDENSER at the higher frequency end of the scale and the CORE at the lower frequency end. The BFO should be switched on for these tests, with the pitch control at "12 o'clock." The

ceramic tracker condenser shown in Fig. 3 has been very carefully adjusted for proper tracking on Range 4 and it is not advisable to touch it.

- | | | |
|----------|---------------|------------|
| Range 1. | 13 Mc/s. and | 31 Mc/s. |
| Range 2. | 5 Mc/s. and | 11 Mc/s. |
| Range 3. | 2 Mc/s. and | 4 Mc/s. |
| Range 4. | 500 Kc/s. and | 1400 Kc/s. |

To proceed with the alignment of the RF and Mixer stages, the BFO is switched off, the crystal oscillator removed and the modulated output from the Signal Generator connected to the aerial and earth terminals, via the dummy aerial. The attenuator is set to give an output of between 10 and 20 microvolts.

A signal on 13 Mc/s. should be injected and tuned in on Range 1 of the receiver. The CORES in the RF and Mixer stages are then adjusted for maximum output as indicated by the output meter. Next, the S.G. is set to 30 Mc/s. and the output peaked by adjustment of the TRIMMER CONDENSERS. Adjustment is again made at 13 Mc/s. and the procedure repeated until no further improvement is possible.

The other ranges are aligned in the same way, using the following high and low frequency alignment points on each range :

Range	Trimmer Frequency	Core Frequency	RF Coil	Mixer Coil
1	30 Mc/s.	13 Mc/s.	1	2
2	11 Mc/s.	4.7 Mc/s.	4	5
3	4.2 Mc/s.	2 Mc/s.	7	8
4	1350 Kc/s.	550 Kc/s.	10	11

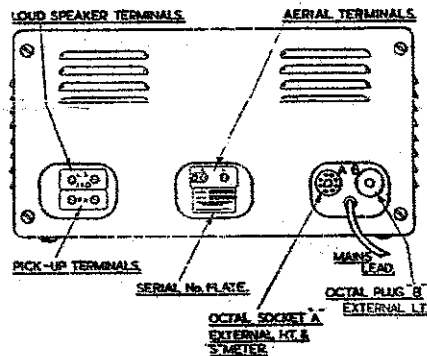


Fig. 2

VOLTAGE VALUES.

The voltages are between the point indicated and the chassis. Set the receiver at 28 Mc/s. on Range 1 with the aerial shorted out, IF and RF controls set at maximum. AF gain control set at minimum with BFO on. Two sets of values are given using different meters as shown. It will be evident that the actual voltage indicated depends on the meter employed. A tolerance of plus or minus 5% should be allowed on the values given.

Circuit Reference	Weston 1,000 ohms/Volt	Avo Model 40
A	225 volts	225 volts
B	98	90
C	1.0	.95
D	82	80
E	235	236
F	1.6	1.5
G	98	73
H	78	75
J	232	230
K	1.4	1.2
L	85	80
M	235	235
N	85	80
P	0.9	0.9
Q	65	13
R	1.0	0.7
S	235	235
T	227	225
U	4.2	4.1
V	150	150
W	235	235
X	275	272
Y	75	70
Z	2.0	0.9
A—	250	A.C. 250
B—	250	A.C. 250

* As specified under the chassis (see Fig. 2)

EDDYSTONE "750" RECEIVER

The following alterations to the circuit should be noted:-

A resistor of 100,000 ohms ($\frac{1}{2}$ watt) has been inserted between the HT line and the junction of R18/R19, to give greater control of RF gain.

The range 4 oscillator circuit is modified. C37 becomes ^{2.40PF}~~80PF~~ + 5%, silvered mica, and C39 a 3/23 pF air trimmer. The primary winding on the coil no longer exists, the lead from the switch wafers (oscillator grid) being connected to the point where C37/C39 join the tuned winding.

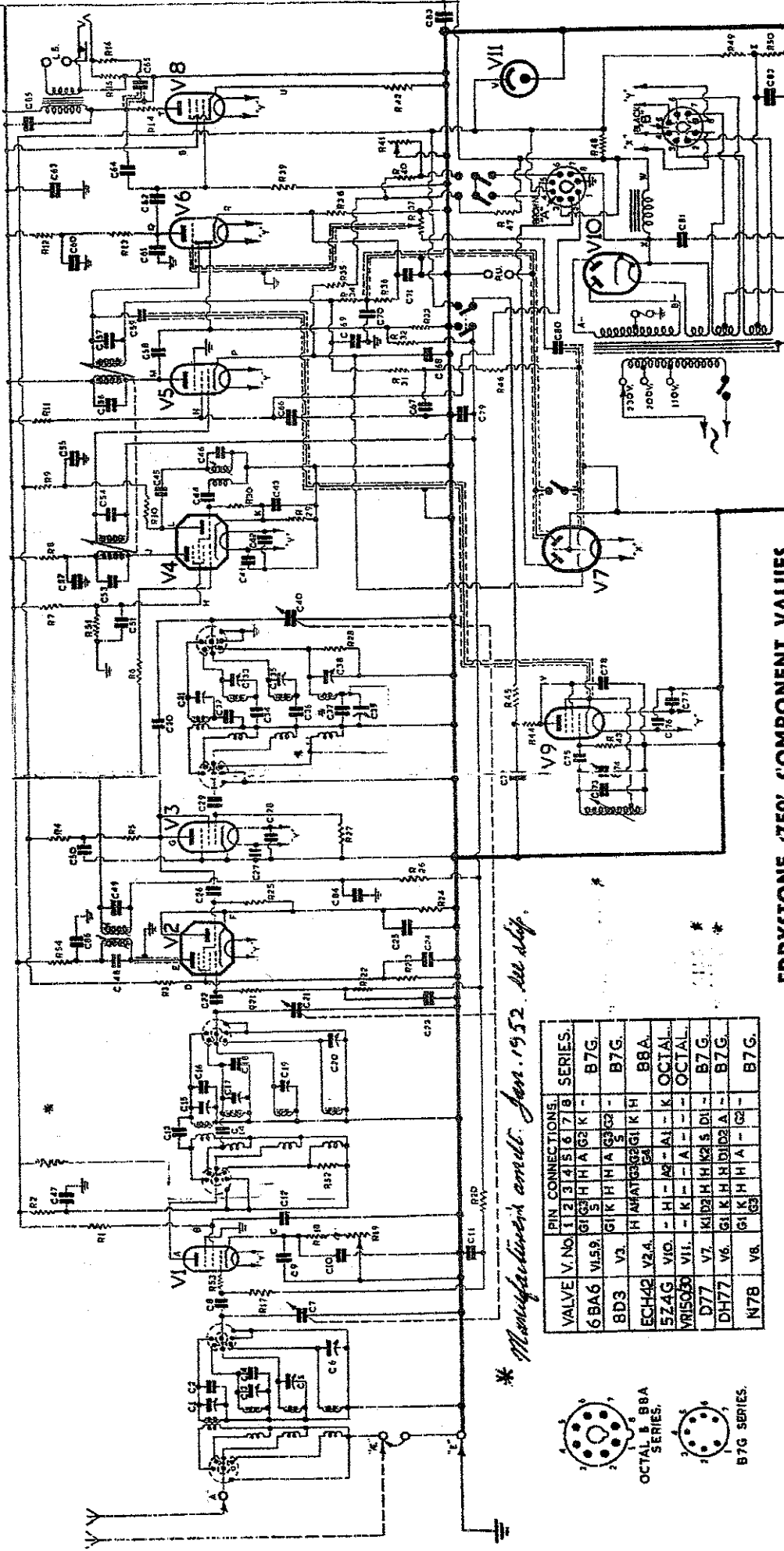
Owing to variations in the valve supply position, equivalents to the valves specified in the Instruction Manual may be fitted, as follows:-

V3	Oscillator	6AM6(8D3)	or	Brimar
		Z77		Osram
V6	Audio Amplifier etc.	DH77	or	Osram
		6AT6		Brimar
V7	Noise Limiter etc.	D77	or	Osram
		6AL5		Brimar

The performance is not in any way affected by the use of these equivalents.

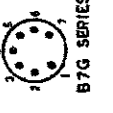
January, 1952.

Stratton & Co. Ltd.
27



* Manufacturer's cond. Jan. 1952. See slip.

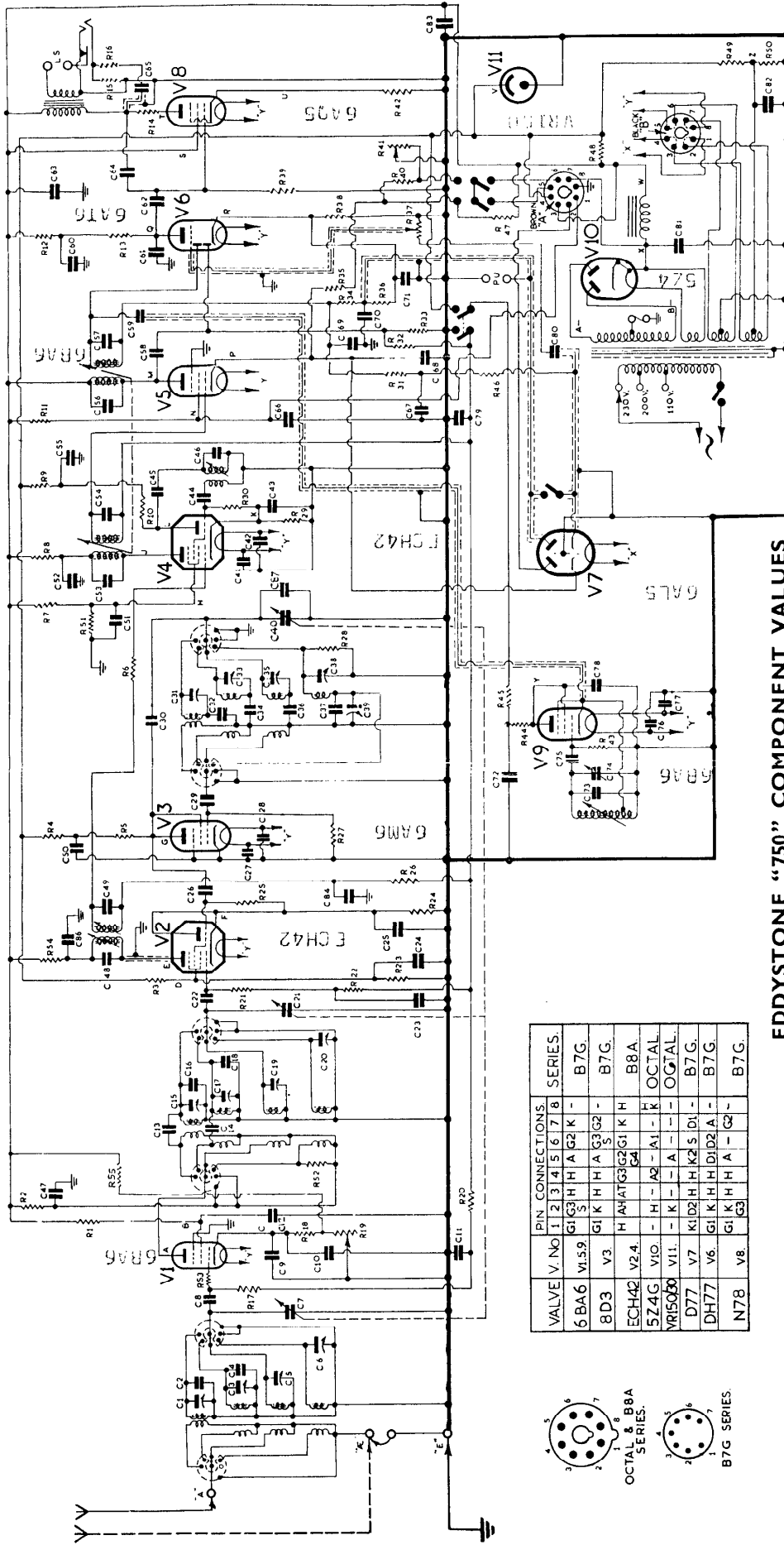
VALVE	V. No.	PIN CONNECTIONS	SERIES
6BA6	V1, V2, V3, V4, V5, V6, V7, V8	G1 G2 H A G2 K -	B7G
8D3	V9	G1 K H A G2 K -	B7G
ECH42	V12	H A G2 G1 K H	B8A
5Z4G	V10	- H - A1 - K	OCTAL
VR150B5	V11	- K - A -	OCTAL
D77	V7	K1 D2 H H K2 S D1 -	B7G
DH77	V6	G1 K H H D1 D2 A -	B7G
N7B	V8	G1 K H H A - G2 -	B7G



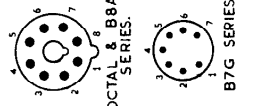
EDDYSTONE 750' COMPONENT VALUES

- RESISTORS.**
- R1 31,000 ohms. Type 16.
 - R2 1,000 ohms. Type 16.
 - R3 10,000 ohms. Type 16.
 - R4 10,000 ohms. Type 16.
 - R5 10,000 ohms. Type 16.
 - R6 10,000 ohms. Type 16.
 - R7 10,000 ohms. Type 16.
 - R8 10,000 ohms. Type 16.
 - R9 10,000 ohms. Type 16.
 - R10 10,000 ohms. Type 16.
 - R11 33,000 ohms. Type 16.
 - R12 470,000 ohms. Type 16.
 - R13 10,000 ohms. Type 16.
 - R14 1,000 ohms. Type 16.
 - R15 33,000 ohms. Type 16.
 - R16 470,000 ohms. Type 16.
 - R17 10,000 ohms. Type 16.
 - R18 10,000 ohms. Type 16.
 - R19 10,000 ohms. Type 16.
 - R20 470,000 ohms. Type 16.
 - R21 10,000 ohms. Type 16.
 - R22 10,000 ohms. Type 16.
 - R23 10,000 ohms. Type 16.
 - R24 10,000 ohms. Type 16.
 - R25 10,000 ohms. Type 16.
 - R26 10,000 ohms. Type 16.
 - R27 10,000 ohms. Type 16.
 - R28 10,000 ohms. Type 16.
 - R29 10,000 ohms. Type 16.
 - R30 10,000 ohms. Type 16.
 - R31 10,000 ohms. Type 16.
 - R32 10,000 ohms. Type 16.
 - R33 10,000 ohms. Type 16.
 - R34 10,000 ohms. Type 16.
 - R35 10,000 ohms. Type 16.
 - R36 10,000 ohms. Type 16.
 - R37 10,000 ohms. Type 16.
 - R38 10,000 ohms. Type 16.
 - R39 10,000 ohms. Type 16.
 - R40 10,000 ohms. Type 16.
 - R41 10,000 ohms. Type 16.
 - R42 150 ohms.
 - R43 47,000 ohms.
 - R44 47,000 ohms.
 - R45 2,000,000 ohms.
 - R46 100,000 ohms.
 - R47 2,700 ohms.
 - R48 100,000 ohms.
 - R49 100,000 ohms.
 - R50 6,800 ohms.
 - R51 27,000 ohms.
 - R52 3,300 ohms.
 - R53 1,400 ohms.
 - R54 1,400 ohms.
 - R55 10,000 ohms.
 - R56 10,000 ohms.
 - R57 10,000 ohms.
 - R58 10,000 ohms.
 - R59 10,000 ohms.
 - R60 10,000 ohms.
 - R61 10,000 ohms.
 - R62 10,000 ohms.
 - R63 10,000 ohms.
 - R64 10,000 ohms.
 - R65 10,000 ohms.
 - R66 10,000 ohms.
 - R67 10,000 ohms.
 - R68 10,000 ohms.
 - R69 10,000 ohms.
 - R70 10,000 ohms.
 - R71 10,000 ohms.
 - R72 10,000 ohms.
 - R73 10,000 ohms.
 - R74 10,000 ohms.
 - R75 10,000 ohms.
 - R76 10,000 ohms.
 - R77 10,000 ohms.
 - R78 10,000 ohms.
 - R79 10,000 ohms.
 - R80 10,000 ohms.
 - R81 10,000 ohms.
 - R82 10,000 ohms.
 - R83 10,000 ohms.
 - R84 10,000 ohms.
 - R85 10,000 ohms.
 - R86 10,000 ohms.
 - R87 10,000 ohms.
 - R88 10,000 ohms.
 - R89 10,000 ohms.
 - R90 10,000 ohms.
 - R91 10,000 ohms.
 - R92 10,000 ohms.
 - R93 10,000 ohms.
 - R94 10,000 ohms.
 - R95 10,000 ohms.
 - R96 10,000 ohms.
 - R97 10,000 ohms.
 - R98 10,000 ohms.
 - R99 10,000 ohms.
 - R100 10,000 ohms.
- CONDENSERS.**
- C1 10,000 pF.
 - C2 10,000 pF.
 - C3 10,000 pF.
 - C4 10,000 pF.
 - C5 10,000 pF.
 - C6 10,000 pF.
 - C7 10,000 pF.
 - C8 10,000 pF.
 - C9 10,000 pF.
 - C10 10,000 pF.
 - C11 10,000 pF.
 - C12 10,000 pF.
 - C13 10,000 pF.
 - C14 10,000 pF.
 - C15 10,000 pF.
 - C16 10,000 pF.
 - C17 10,000 pF.
 - C18 10,000 pF.
 - C19 10,000 pF.
 - C20 10,000 pF.
 - C21 10,000 pF.
 - C22 10,000 pF.
 - C23 10,000 pF.
 - C24 10,000 pF.
 - C25 10,000 pF.
 - C26 10,000 pF.
 - C27 10,000 pF.
 - C28 10,000 pF.
 - C29 10,000 pF.
 - C30 10,000 pF.
 - C31 10,000 pF.
 - C32 10,000 pF.
 - C33 10,000 pF.
 - C34 10,000 pF.
 - C35 10,000 pF.
 - C36 10,000 pF.
 - C37 10,000 pF.
 - C38 10,000 pF.
 - C39 10,000 pF.
 - C40 10,000 pF.
 - C41 10,000 pF.
 - C42 10,000 pF.
 - C43 10,000 pF.
 - C44 10,000 pF.
 - C45 10,000 pF.
 - C46 10,000 pF.
 - C47 10,000 pF.
 - C48 10,000 pF.
 - C49 10,000 pF.
 - C50 10,000 pF.
- TRIMMERS.**
- T1 10,000 pF.
 - T2 10,000 pF.
 - T3 10,000 pF.
 - T4 10,000 pF.
 - T5 10,000 pF.
 - T6 10,000 pF.
 - T7 10,000 pF.
 - T8 10,000 pF.
 - T9 10,000 pF.
 - T10 10,000 pF.
 - T11 10,000 pF.
 - T12 10,000 pF.
 - T13 10,000 pF.
 - T14 10,000 pF.
 - T15 10,000 pF.
 - T16 10,000 pF.
 - T17 10,000 pF.
 - T18 10,000 pF.
 - T19 10,000 pF.
 - T20 10,000 pF.
- VALVES.**
- V1 6BA6
 - V2 6BA6
 - V3 6BA6
 - V4 6BA6
 - V5 6BA6
 - V6 DH77
 - V7 D77
 - V8 N7B
 - V9 8D3
 - V10 5Z4G
 - V11 VR150B5
 - V12 ECH42
 - V13 6BA6
 - V14 6BA6
 - V15 6BA6
 - V16 6BA6
 - V17 6BA6
 - V18 6BA6
 - V19 6BA6
 - V20 6BA6
 - V21 6BA6
 - V22 6BA6
 - V23 6BA6
 - V24 6BA6
 - V25 6BA6
 - V26 6BA6
 - V27 6BA6
 - V28 6BA6
 - V29 6BA6
 - V30 6BA6
 - V31 6BA6
 - V32 6BA6
 - V33 6BA6
 - V34 6BA6
 - V35 6BA6
 - V36 6BA6
 - V37 6BA6
 - V38 6BA6
 - V39 6BA6
 - V40 6BA6
 - V41 6BA6
 - V42 6BA6
 - V43 6BA6
 - V44 6BA6
 - V45 6BA6
 - V46 6BA6
 - V47 6BA6
 - V48 6BA6
 - V49 6BA6
 - V50 6BA6
 - V51 6BA6
 - V52 6BA6
 - V53 6BA6
 - V54 6BA6
 - V55 6BA6
 - V56 6BA6
 - V57 6BA6
 - V58 6BA6
 - V59 6BA6
 - V60 6BA6
 - V61 6BA6
 - V62 6BA6
 - V63 6BA6
 - V64 6BA6
 - V65 6BA6
 - V66 6BA6
 - V67 6BA6
 - V68 6BA6
 - V69 6BA6
 - V70 6BA6
 - V71 6BA6
 - V72 6BA6
 - V73 6BA6
 - V74 6BA6
 - V75 6BA6
 - V76 6BA6
 - V77 6BA6
 - V78 6BA6
 - V79 6BA6
 - V80 6BA6
 - V81 6BA6
 - V82 6BA6
 - V83 6BA6
 - V84 6BA6
 - V85 6BA6
 - V86 6BA6
 - V87 6BA6
 - V88 6BA6
 - V89 6BA6
 - V90 6BA6
 - V91 6BA6
 - V92 6BA6
 - V93 6BA6
 - V94 6BA6
 - V95 6BA6
 - V96 6BA6
 - V97 6BA6
 - V98 6BA6
 - V99 6BA6
 - V100 6BA6
- OTHER COMPONENTS.**
- W1 10,000 ohms.
 - W2 10,000 ohms.
 - W3 10,000 ohms.
 - W4 10,000 ohms.
 - W5 10,000 ohms.
 - W6 10,000 ohms.
 - W7 10,000 ohms.
 - W8 10,000 ohms.
 - W9 10,000 ohms.
 - W10 10,000 ohms.
 - W11 10,000 ohms.
 - W12 10,000 ohms.
 - W13 10,000 ohms.
 - W14 10,000 ohms.
 - W15 10,000 ohms.
 - W16 10,000 ohms.
 - W17 10,000 ohms.
 - W18 10,000 ohms.
 - W19 10,000 ohms.
 - W20 10,000 ohms.
 - W21 10,000 ohms.
 - W22 10,000 ohms.
 - W23 10,000 ohms.
 - W24 10,000 ohms.
 - W25 10,000 ohms.
 - W26 10,000 ohms.
 - W27 10,000 ohms.
 - W28 10,000 ohms.
 - W29 10,000 ohms.
 - W30 10,000 ohms.
 - W31 10,000 ohms.
 - W32 10,000 ohms.
 - W33 10,000 ohms.
 - W34 10,000 ohms.
 - W35 10,000 ohms.
 - W36 10,000 ohms.
 - W37 10,000 ohms.
 - W38 10,000 ohms.
 - W39 10,000 ohms.
 - W40 10,000 ohms.
 - W41 10,000 ohms.
 - W42 10,000 ohms.
 - W43 10,000 ohms.
 - W44 10,000 ohms.
 - W45 10,000 ohms.
 - W46 10,000 ohms.
 - W47 10,000 ohms.
 - W48 10,000 ohms.
 - W49 10,000 ohms.
 - W50 10,000 ohms.
 - W51 10,000 ohms.
 - W52 10,000 ohms.
 - W53 10,000 ohms.
 - W54 10,000 ohms.
 - W55 10,000 ohms.
 - W56 10,000 ohms.
 - W57 10,000 ohms.
 - W58 10,000 ohms.
 - W59 10,000 ohms.
 - W60 10,000 ohms.
 - W61 10,000 ohms.
 - W62 10,000 ohms.
 - W63 10,000 ohms.
 - W64 10,000 ohms.
 - W65 10,000 ohms.
 - W66 10,000 ohms.
 - W67 10,000 ohms.
 - W68 10,000 ohms.
 - W69 10,000 ohms.
 - W70 10,000 ohms.
 - W71 10,000 ohms.
 - W72 10,000 ohms.
 - W73 10,000 ohms.
 - W74 10,000 ohms.
 - W75 10,000 ohms.
 - W76 10,000 ohms.
 - W77 10,000 ohms.
 - W78 10,000 ohms.
 - W79 10,000 ohms.
 - W80 10,000 ohms.
 - W81 10,000 ohms.
 - W82 10,000 ohms.
 - W83 10,000 ohms.
 - W84 10,000 ohms.
 - W85 10,000 ohms.
 - W86 10,000 ohms.
 - W87 10,000 ohms.
 - W88 10,000 ohms.
 - W89 10,000 ohms.
 - W90 10,000 ohms.
 - W91 10,000 ohms.
 - W92 10,000 ohms.
 - W93 10,000 ohms.
 - W94 10,000 ohms.
 - W95 10,000 ohms.
 - W96 10,000 ohms.
 - W97 10,000 ohms.
 - W98 10,000 ohms.
 - W99 10,000 ohms.
 - W100 10,000 ohms.

Early Model Circuit



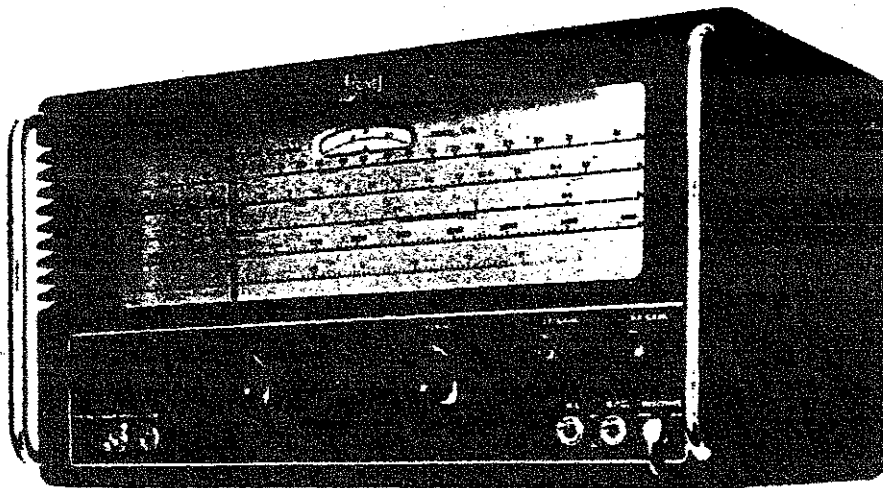
VALVE	V. NO	PIN CONNECTIONS	SERIES
6BA6	V1,5,9	G1,3,4,5,6,7,8	B7G
8D3	V3	G1,2,3,4,5,6,7,8	B7G
ECHA2	V2,4	H, A1, G1, G2, K, H	B8A
5Z4G	V4	- H - A2 - A1 - K	OCTAL
VR150	V5	- K - A - - -	OCTAL
D77	V6	K1,2,3,4,5,6,7,8	B7G
DH77	V7	G1,2,3,4,5,6,7,8	B7G
N78	V8	G1,2,3,4,5,6,7,8	B7G



EDDYSTONE "750" COMPONENT VALUES

- RESISTORS.**
- R1 33,000 ohms. Type 16.
 - R2 1,000 ohms. Type 16.
 - R3 10,000 ohms. Type 16.
 - R4 10,000 ohms. Type 16.
 - R5 10,000 ohms. Type 16.
 - R6 12 ohms. Type 16.
 - R7 27,000 ohms. Type 16.
 - R8 1,000 ohms. Type 16.
 - R9 1,000 ohms. Type 16.
 - R10 1,000 ohms. Type 16.
 - R11 33,000 ohms. Type 16.
 - R12 27,000 ohms. Type 16.
 - R13 27,000 ohms. Type 16.
 - R14 47 ohms. Type 16.
 - R15 1,000 ohms. Type 16.
 - R16 470,000 ohms. Type 16.
 - R17 470,000 ohms. Type 16.
 - R18 10,000 ohms. Type 16.
 - R19 10,000 ohms. Type 16.
 - R20 470,000 ohms. Type 16.
 - R21 470,000 ohms. Type 16.
 - R22 470,000 ohms. Type 16.
 - R23 15,000 ohms. Type 16.
 - R24 100 ohms. Type 16.
 - R25 470,000 ohms. Type 16.
 - R26 470,000 ohms. Type 16.
 - R27 22,000 ohms. Type 16.
 - R28 10,000 ohms. Type 16.
 - R29 220 ohms. Type 16.
 - R30 47,000 ohms. Type 16.
 - R31 1,000 ohms. Type 16.
 - R32 1,000 ohms. Type 16.
 - R33 470,000 ohms. Type 16.
 - R34 100,000 ohms. Type 16.
 - R35 68 ohms. Type 16.
 - R36 500,000 ohms. Type 16.
 - R37 1,000 ohms. Type 16.
 - R38 470,000 ohms. Type 16.
 - R39 470,000 ohms. Type 16.
 - R40 51,000 ohms. Type 16.
 - R41 10,000 ohms. Type 16.
 - R42 150 ohms. Type 16.
 - R43 470,000 ohms. Type 16.
 - R44 47,000 ohms. Type 16.
 - R45 2,000,000 ohms. Type 16.
 - R46 100,000 ohms. Type 16.
 - R47 100,000 ohms. Type 16.
 - R48 100,000 ohms. Type 16.
 - R49 100,000 ohms. Type 16.
 - R50 10,000 ohms. Type 16.
 - R51 27,000 ohms. Type 16.
 - R52 3,900 ohms. Type 16.
 - R53 1,500 ohms. Type 16.
 - R54 1,500 ohms. Type 16.
 - R55 100,000 ohms. Type 16.
 - R56 323 pF. Type 16.
 - R57 323 pF. Type 16.
 - R58 323 pF. Type 16.
 - R59 323 pF. Type 16.
 - R60 323 pF. Type 16.
 - R61 323 pF. Type 16.
 - R62 323 pF. Type 16.
 - R63 323 pF. Type 16.
 - R64 323 pF. Type 16.
 - R65 323 pF. Type 16.
 - R66 323 pF. Type 16.
 - R67 323 pF. Type 16.
 - R68 323 pF. Type 16.
 - R69 323 pF. Type 16.
 - R70 323 pF. Type 16.
 - R71 323 pF. Type 16.
 - R72 323 pF. Type 16.
 - R73 323 pF. Type 16.
 - R74 323 pF. Type 16.
 - R75 323 pF. Type 16.
 - R76 323 pF. Type 16.
 - R77 323 pF. Type 16.
 - R78 323 pF. Type 16.
 - R79 323 pF. Type 16.
 - R80 323 pF. Type 16.
 - R81 323 pF. Type 16.
 - R82 323 pF. Type 16.
 - R83 323 pF. Type 16.
 - R84 323 pF. Type 16.
 - R85 323 pF. Type 16.
 - R86 323 pF. Type 16.
 - R87 323 pF. Type 16.
 - R88 323 pF. Type 16.
 - R89 323 pF. Type 16.
 - R90 323 pF. Type 16.
 - R91 323 pF. Type 16.
 - R92 323 pF. Type 16.
 - R93 323 pF. Type 16.
 - R94 323 pF. Type 16.
 - R95 323 pF. Type 16.
 - R96 323 pF. Type 16.
 - R97 323 pF. Type 16.
 - R98 323 pF. Type 16.
 - R99 323 pF. Type 16.
 - R100 323 pF. Type 16.
- CONDENSERS.**
- C1 100 pF. Type 16.
 - C2 100 pF. Type 16.
 - C3 100 pF. Type 16.
 - C4 100 pF. Type 16.
 - C5 100 pF. Type 16.
 - C6 100 pF. Type 16.
 - C7 100 pF. Type 16.
 - C8 100 pF. Type 16.
 - C9 100 pF. Type 16.
 - C10 100 pF. Type 16.
 - C11 100 pF. Type 16.
 - C12 100 pF. Type 16.
 - C13 100 pF. Type 16.
 - C14 100 pF. Type 16.
 - C15 100 pF. Type 16.
 - C16 100 pF. Type 16.
 - C17 100 pF. Type 16.
 - C18 100 pF. Type 16.
 - C19 100 pF. Type 16.
 - C20 100 pF. Type 16.
 - C21 100 pF. Type 16.
 - C22 100 pF. Type 16.
 - C23 100 pF. Type 16.
 - C24 100 pF. Type 16.
 - C25 100 pF. Type 16.
 - C26 100 pF. Type 16.
 - C27 100 pF. Type 16.
 - C28 100 pF. Type 16.
 - C29 100 pF. Type 16.
 - C30 100 pF. Type 16.
 - C31 35-20 pF. Type 16.
 - C32 100 pF. Type 16.
 - C33 100 pF. Type 16.
 - C34 100 pF. Type 16.
 - C35 100 pF. Type 16.
 - C36 100 pF. Type 16.
 - C37 100 pF. Type 16.
 - C38 100 pF. Type 16.
 - C39 100 pF. Type 16.
 - C40 10-386 pF. Type 16.
 - C41 100 pF. Type 16.
 - C42 100 pF. Type 16.
 - C43 100 pF. Type 16.
 - C44 100 pF. Type 16.
 - C45 100 pF. Type 16.
 - C46 100 pF. Type 16.
 - C47 100 pF. Type 16.
 - C48 100 pF. Type 16.
 - C49 100 pF. Type 16.
 - C50 100 pF. Type 16.
 - C51 100 pF. Type 16.
 - C52 100 pF. Type 16.
 - C53 100 pF. Type 16.
 - C54 100 pF. Type 16.
 - C55 100 pF. Type 16.
 - C56 100 pF. Type 16.
 - C57 100 pF. Type 16.
 - C58 100 pF. Type 16.
 - C59 100 pF. Type 16.
 - C60 100 pF. Type 16.
 - C61 100 pF. Type 16.
 - C62 100 pF. Type 16.
 - C63 100 pF. Type 16.
 - C64 100 pF. Type 16.
 - C65 100 pF. Type 16.
 - C66 100 pF. Type 16.
 - C67 100 pF. Type 16.
 - C68 100 pF. Type 16.
 - C69 100 pF. Type 16.
 - C70 100 pF. Type 16.
 - C71 100 pF. Type 16.
 - C72 100 pF. Type 16.
 - C73 100 pF. Type 16.
 - C74 100 pF. Type 16.
 - C75 100 pF. Type 16.
 - C76 100 pF. Type 16.
 - C77 100 pF. Type 16.
 - C78 100 pF. Type 16.
 - C79 100 pF. Type 16.
 - C80 100 pF. Type 16.
 - C81 100 pF. Type 16.
 - C82 100 pF. Type 16.
 - C83 100 pF. Type 16.
 - C84 100 pF. Type 16.
 - C85 100 pF. Type 16.
 - C86 100 pF. Type 16.
 - C87 100 pF. Type 16.
 - C88 100 pF. Type 16.
 - C89 100 pF. Type 16.
 - C90 100 pF. Type 16.
 - C91 100 pF. Type 16.
 - C92 100 pF. Type 16.
 - C93 100 pF. Type 16.
 - C94 100 pF. Type 16.
 - C95 100 pF. Type 16.
 - C96 100 pF. Type 16.
 - C97 100 pF. Type 16.
 - C98 100 pF. Type 16.
 - C99 100 pF. Type 16.
 - C100 100 pF. Type 16.
- Notes:**
- * The 80 pF. may be silvered-mica or a ceramic condenser or a combination of both connected in parallel to obtain the correct temperature co-efficient for drift compensation.
 - † The 100 pF. may be silvered-mica or a ceramic condenser or a combination of both connected in parallel to obtain the correct temperature co-efficient for drift compensation.

EDDYSTONE '750' COMMUNICATIONS RECEIVER



Cat. No. T1315. Eddystone "750" 10 valve (including rectifier) Double Superhet Communications Receiver. Illustrated. A large full vision dial is employed with 5 scales (1) 12 to 32 Mc/s., (2) 4.5 to 12 Mc/s., (3) 1.7 to 4.5 Mc/s., (4) 480 Kc/s. to 1460 Kcs. (broadcast band) and the sixth scale is for logging purposes and when used with the bandsread indicator extremely accurate logging ensures, and as there is only one tuning control once a station has been logged the dial setting can be secured with precision.

A gear driven (flywheel loaded) tuning mechanism is incorporated with a high reduction ratio—about 200 to 1. There is an auxiliary bandsread indicator, which gives the equivalent of ninety tuning inches per range which is considered adequate on all bands—for example, the scale indication at 30 Mc/s. is equivalent to 240 Kc/s. per inch and six rotations of the tuning knob are required to tune through one megacycle.

The circuit is a double superhet with one RF. stage and the first IF. is set at 1600 Kc/s. and the second at 85 Kc/s. A good image ratio is secured, combined with a high degree of selectivity which is variable to cover telephony and CW. operation. Modern miniature valves are used (except the rectifier and voltage stabiliser) A socket is provided at the rear to enable external units (e.g. a convertor or preselector) to draw power from the "750" power supply, which is provided with a generous margin for this purpose.

Other features include BFO, effective noise limiter, provision for external "S" meter, carefully designed A.G.C. circuits, provision for headphones, separate RF, IF and AF gain controls, provision for single wire or doublet aerial, stabilised HT supply, provision for operation from external HT and LT supplies. The output is over 3 watts audio £45.0.0

PRODUCTION COMMENCES EARLY 1950. ORDERS ARE BEING ACCEPTED NOW FOR DELIVERY IN ROTATION.

