

## My Eddystone S.750 Revisited – Gerry O'Hara VE7GUH

Way back in October 2006, I wrote an [article on 'restoring' an Eddystone S.750](#). In retrospect, it was more of a 'refurbishment' than a restoration. Since then, this set sat on my home-office desk (photo, right, taken in 2006) until a house move in 2017. It was used almost daily for about a decade prior to the move. At the new location, this set is one of six Eddystone sets that reside in my office-cum-radio workshop room (the others are an EC10, an S.870, an S.870A, an S.820 and a 1570/1), the rest reside in my garage workshop. The S.750 ended up on a shelf in a bookcase, along with its S-Meter and speaker, so has not been used as often since.



I had painted the original (silver hammer finish) front panel in 2006 using black wrinkle finish spray paint (can) as the original finish was in poor shape. Shortly after doing that, and putting the set back together, I was given an S.750 front panel by a friend at the SPARC Museum in Coquitlam, BC (from a parts set). I had this one sand-blasted and re-finished in black wrinkle powder coat (photo, below left), planning on changing it out for the re-painted one as the powder-coated one looked really great. Changing the front panel out on an Eddystone set of this style only takes about an hour or so (if you

know what your doing), but as I was a busy guy and the one that I had re-painted looked ok, albeit not as good as the powder coated one (and not as durable), I decided to pack it away and one day I would 'get around to it'. Of course, I never did...



Recently (2020), a friend had decided to work on his S.750 and needed some info about the pin-out of the power transformer. So, I took the cabinet off mine, took some photos and made a sketch of the transformer pin-out. While I had the set on the bench, I switched it on and noticed a couple of problems: the IF gain control was ineffective except at the very top end of its range, and it was erratic in operation. Also, the BFO was ‘temperamental’ – wiggling the valve (a 6BA6), located on the top of the BFO transformer can, would start it working, then it would stop again. I had never noticed this behaviour before. I thought while I had it on the bench I may as well change out the front panel, sort out the IF gain control and check what the problem with the BFO was.

Off came the front panel (photo, right) – this is a fairly straightforward operation – remove the knobs, remove the nuts and threaded rings from the control shafts, pry-off the metal fingerplate (its secured with double-sided sticky-tape),



remove the handles and four tapered bolts securing the front panel casting to the chassis, and pull the front panel away, taking care that the ratio arm frees itself from the spigot on the tuning drive mechanism. This exposes the front of the chassis, with all the controls hanging loose on their respective wires, so it looks a bit of a mess. However, this also gives good access to the BFO unit and the IF gain control.



First though, I needed to transfer the drive mechanism/gearbox and dial to the replacement front panel. This is a fairly straightforward process – the main thing to be aware of is to use some small pieces of masking tape to temporarily hold the dial cord onto the four pulleys (photo, left) - two spool pulleys and two idler pulleys – if this is not done, it means a lot of cursing and wasted time while you try to do this from scratch when re-assembling.

Next, I checked the IF gain control. This is a wire wound 10Kohm pot, used as a rheostat, which changes the bias, and hence gain, of the second (85KHz) IF stage. I am not sure about this pot, but the RF gain control pot on these sets is not a linear taper, rather it is anti-log taper – unusual for a wire wound pot. Eddystone used specially-wound pots to provide the required taper. Of course, these are ‘unobtainium’, so I had replaced this IF pot with a linear taper pot 14 years ago – a British-made military grade one

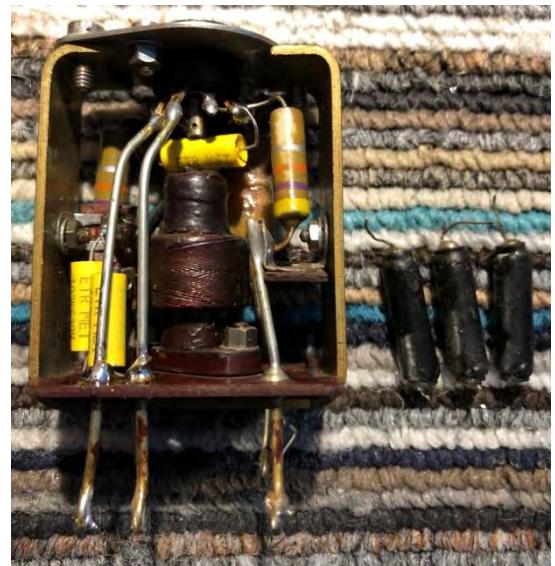
manufactured by 'Colvern' (photo, right). On testing this now, I found that it had become erratic in action over the first part of its travel – this, combined with it likely being of incorrect taper, was causing the control problem I had noticed. I found a new wire-wound linear taper pot in the 'junk box'. Connecting a fixed-value resistor between the slider and one end of a linear pot alters its taper depending on the ratio of the fixed resistor to the resistance value of the pot – it's a neat trick – see article [here](#). Of course, this also affects the overall value of the pot/resistor combination, so care needs to be taken when doing this to select the appropriate component values to best-suit the circuit. I decided to install the linear pot without a taper-compensating resistor as a first step, then, if the control proved too 'one-ended' (all the control action near one end of the track), I would experiment with different values of fixed resistor.



socket (circled yellow in photo, above). It had been like that for the last 70 years... and working ok, up to now. The grid pin was cleaned, some liquid flux applied and the joint made good. I guess it must have been Friday afternoon in the Bathtubs' BFO assembly department back in July 1950...

While I had the BFO unit apart, I tested the resistors – these were both within 5% of nominal, so were left in place. However, I decided to replace the three tubular paper caps as a precautionary measure (photo, right), though left the silver mica caps alone as these were likely ok. I re-assembled the BFO unit, re-installed it on the chassis and connected it back into the circuit. I also

With the new pot fitted, I moved on to the BFO unit. The can includes all the BFO components, not just the BFO coil, ie. a couple of resistors, three tubular paper caps and two silver mica caps. The various connections to the can were unsoldered, the can removed from the chassis and the frame removed from the can. I found the cause of the intermittent during a close visual inspection – an un-made joint. The grid pin (1) of the tube socket had never been soldered to the grid leak resistor and the silver mica grid cap: the resistor and the cap were soldered together, but this joint was just resting against pin 1 of the tube



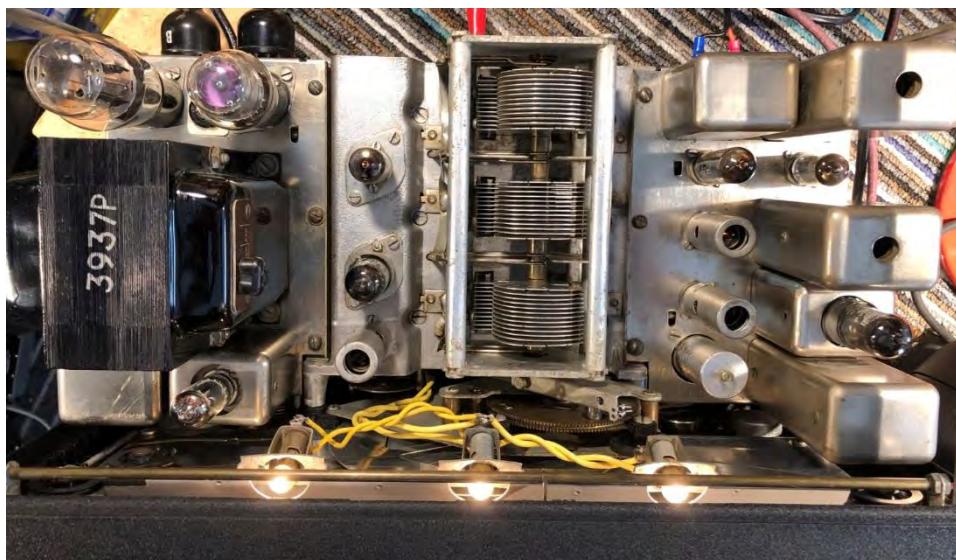
took the opportunity to replace another two tubular paper caps located near the front of the chassis.

The front panel was then re-installed onto the chassis – a bit more of a fiddly job than its removal, as the various controls must be teased through the corresponding holes in the front panel, the screw-holes lined-up and care taken not to nip any of the wiring between the front panel and the chassis. This done, I gave the receiver a try out – short video [here](#), then ‘boxed it up’ in my home-brew Plexiglas cabinet (I have the metal cabinet, but its fitted to another Eddystone set, an S.640).

Wonder if that's good for another 14 years or so now?

73

Gerry O'Hara VE7GUH, Victoria, BC, April 2020



Left: Top view of chassis with the replacement front panel installed. Below: Replacement (powder-coated) front panel with scale plate and tuning mechanism/gearbox installed





Above: The powder-coated front panel fitted to the S.750. The fingerplate was given a polish with Novus #1 and the knobs with Novus #2 to complete the 'spruce-up'. Below: Sitting on the bench with its matching S-Meter and speaker

