

My Eddystone S.640 Revisited – Gerry O’Hara VE7GUH

Having just revisited my Eddystone S.750, article [here](#), and while waiting for my next ‘customers’ radio restoration project to arrive, I was looking for another ‘distraction’ as I was holed-up in the house due to the Covid-19 virus like everyone else. Then I remembered that I had come across a reproduction fingerplate and scale plate for my S.640 in my box of Eddystone bits and pieces while I was retrieving the powder-coated front panel casting for the S.750. So here was a useful infill project...

It was almost a decade since I had worked on my S.640 (article [here](#)), and it had been several years since I had fired it up. It was now residing in my garage workshop along with several other Eddystone sets (this house down-sizing lark is not all its cracked-up to be – no basement to store radios in any more!).

The reason I had stopped using the S.640 was that the dial cord I had re-strung the tuning mechanism with back in 2010 had turned out to be of the incorrect type – likely too thick – and after using the set for a while it developed an annoying habit of snagging/sticking. Like the front panel casting of the S.750, I kept telling myself I would sort it out one day, as well as installing the repro parts: the original S.640 fingerplate was missing when I received the set, and I had fitted a paper overlay (artwork [here](#)) onto an aluminum template as a ‘temporary’ fix. Also, the original dial was discoloured, and when someone was selling reproductions of these parts a few years back (on the [EUG website](#) I think), I bought one of each of them. However, I must have been distracted with other projects, and these parts were placed in the spares box - and the rest is history as they say... (I think I also recalled assembly of the dial/front panel was a bit fiddly, and, if I am to be honest, this also kept putting me off doing the job!).

But, I figured that now was the time (‘now or never!’) – so, the S.640 (which sports the metal case off the S.750 by the way), along with the repro fingerplate and dial, was hauled off a shelf in the garage and into the upstairs workshop in the house (photo, below).

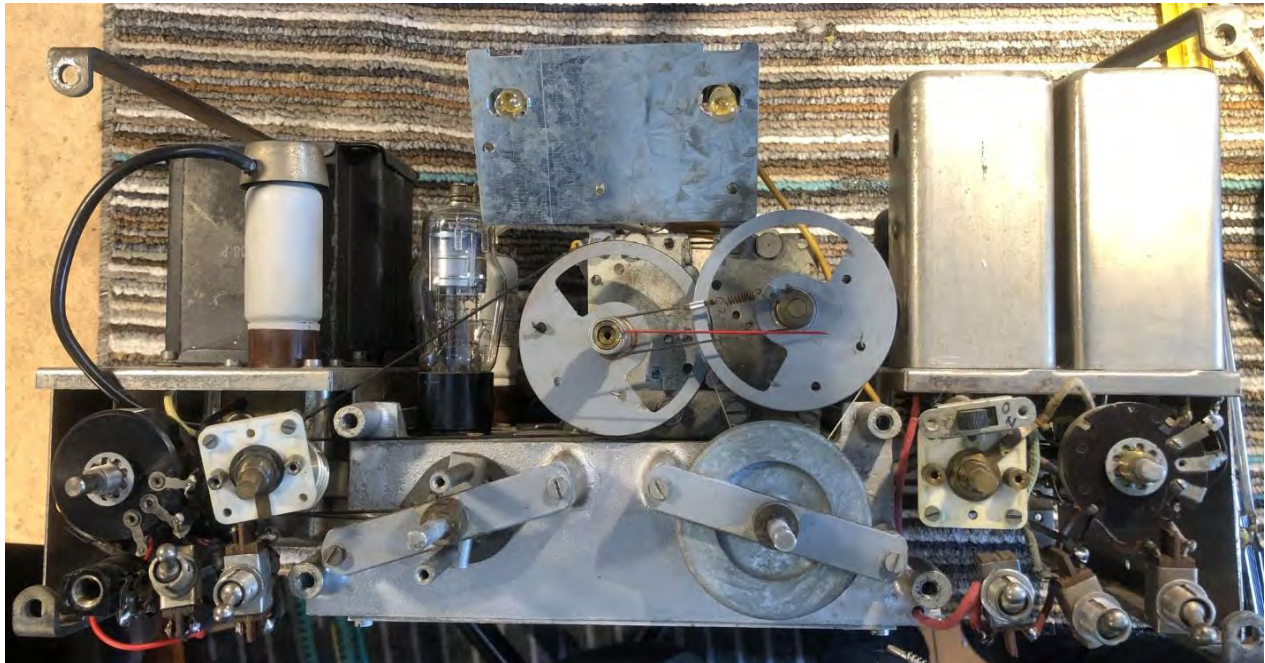


Front Panel Removal

Off came the knobs, the nuts loosened/removed from the switches and pots, and the band change switch lever screws removed. This allowed the paper-covered fingerplate to be removed. Next, the taper-head 6BA screws were removed from the BFO pitch and crystal phasing variable capacitors, and from the crystal in/out slide switch.



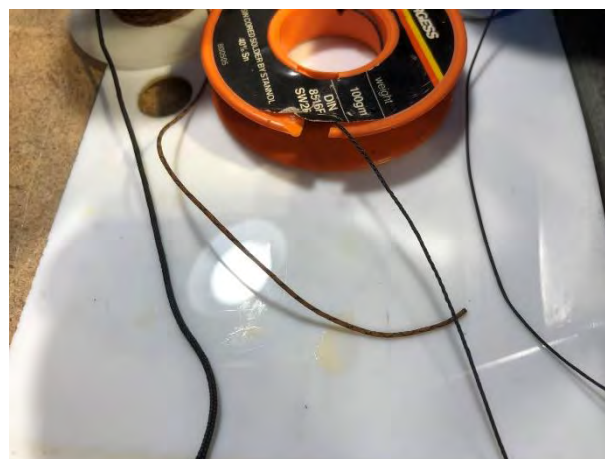
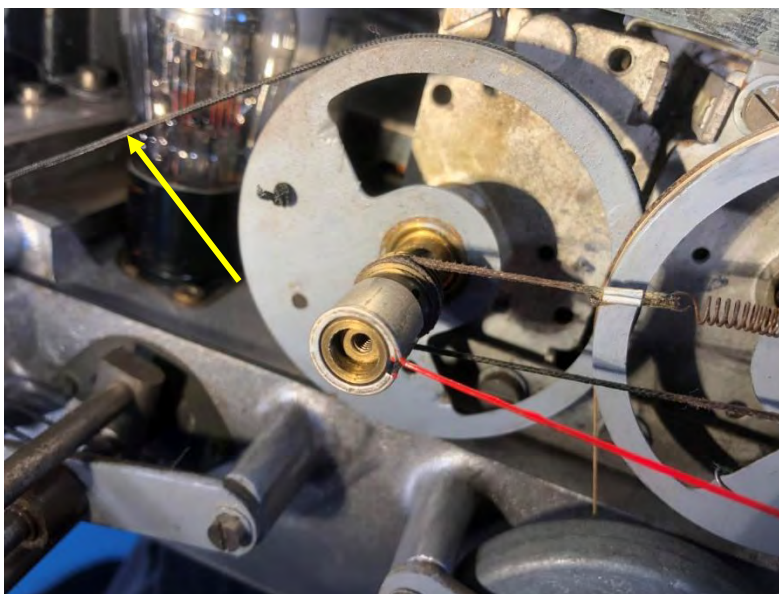
The four tapered screws securing the front panel to the coilbox casting were then loosened, along with the four screws holding the sides of the chassis/brackets to the front panel. The front panel was then tipped forward slightly and the screws securing the scale plate and side plates/bracing strips removed, the side plates/bracing strips lifted out, and the dial glass carefully extracted from above. The four tapered screws and the four side screws were then loosened completely, removed, and the front panel casting lifted away. The dial plate was then removed by aligning the two pointers together, rotated fully anti-clockwise and sliding the dial off them. The tuning mechanism was finally 'laid bare' (photo, below). The dial lights were removed next, along with their (home-made) mounting bracket.



Dial Cord Replacement

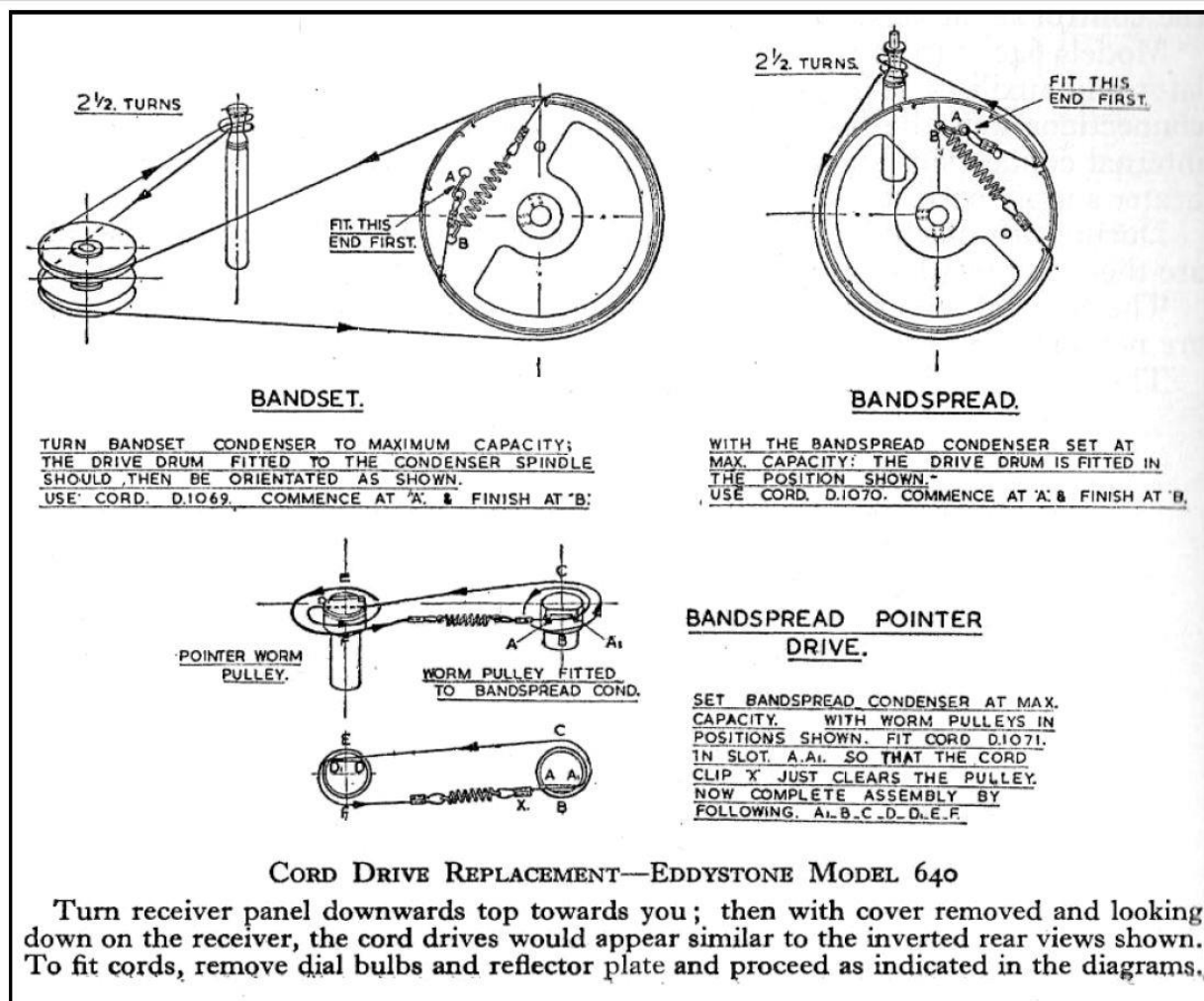
Before starting on the 'Bandset' dial cord replacement, I operated the mechanism several times (photo, right – arrow pointing to the thick dial cord on the Bandset mechanism) to see where the cord was binding. As I suspected, it was binding on the tuning shaft (arrow in photo, below): there are 2.5 turns of the cord around a thin dual-tapered section of the tuning shaft.

The cord I had used 10 years ago (as it was all I had in stock when I was working on the S.640) was creeping towards the ends of the taper on rotation of the tuning shaft, and, once there, the steepness of the taper combined with the thickness of the cord resulted in the end turn of the cord 'flipping' onto the previous turn, thus causing momentary binding/slippage until the next turn of the shaft. I surmised that the taper was designed to work with a much thinner dial cord – which I now had several thicknesses and types in stock (photo, right). I selected one of the thinnest I had, with a physical appearance similar to that on the 'Bandspread' mechanism, though I



noted that cord was a little thinner than any I had. Before I started on the work, I took several photos of the existing stringing arrangement, as, although I had the stringing diagram to work off (see page 4), it's always better to have photos to work from as well.

The thicker dial cord was removed, along with the tensioning spring. A length of the thin dial cord was then cut, adding around six inches to the length (34"), i.e. an approx. 40" length was cut. There should be a small eyelet and hook on one



end of the dial cord – this eyelet is missing from this set, so, instead, I improvised, as I had before, by tying a large knot in one end such that the knot would not pass through the holes in the large pulley on the tuning gang shaft. With this knot made, I threaded the cord through the correct hole ('A' in upper left diagram, above), and then re-strung the dial as per the diagram. Holding the cord taught around the pulleys and temporarily holding this in place on the idler pulleys and large pulley with pieces of masking tape, I secured the tensioning spring to the end of the cord with a slip-knot so the final length of the cord could be 'fine-tuned' such that when the other end of the tensioning spring was secured in the correct hole in the pulley (photo, left, and 'B' in the upper left diagram, above), the spring imparted sufficient tension on the cord. The slip-knot was then secured by adding a couple of additional knots at that point and the pieces of masking tape removed. The ends of the cord were then



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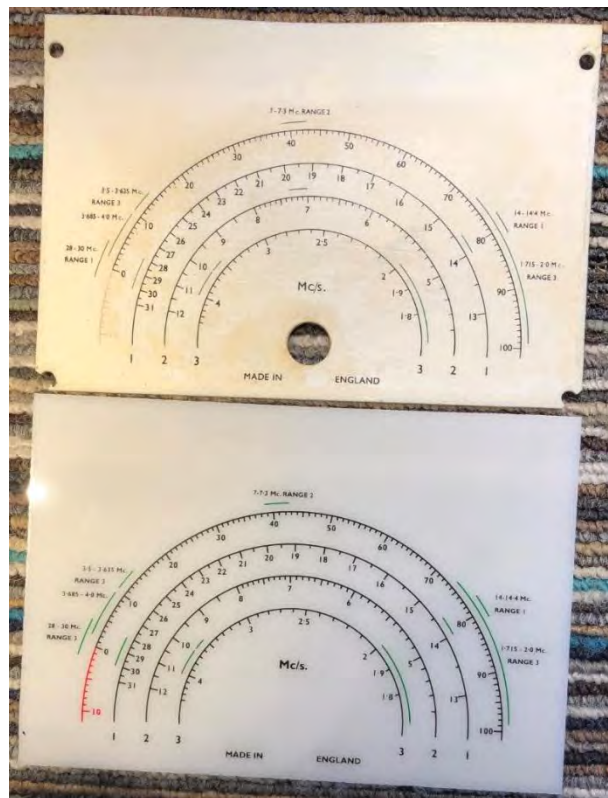
cut and fraying prevented by touching each with a hot soldering iron to melt the fibres. The knots at both ends of the cord were then given a spot of polystyrene cement for additional security.

The mechanism was checked for bind-free operation numerous times – all seemed well. A short video of this can be seen [here](#). I took the opportunity to add a small drop of light machine oil to the bushing the Bandsread dial pointer attaches to, where it sits over the main tuning gang shaft, and to the idler pulleys shaft. The re-strung dial mechanism is shown in the photo, above.

Dial Replacement

With the tuning mechanism now working well, I moved on to replacing the dial. The reproduction dial is silkscreen-printed onto what appears to be a piece of translucent nylon sheet (or similar plastic stock). This nylon sheet is significantly thicker than the original, which was possibly made from celluloid – this was considerably distorted with age/heat, discoloured by the remnants of the varnish someone had applied decades ago, and it was also faded in parts. The photo, right, shows the original dial at the top and the reproduction one below. I was a little concerned that the additional thickness may be an issue when fitting the new dial – it wasn't a 'show-stopper', but it made assembly a little more critical as it gave less room to maneuver.

First, I used the original dial as a template over the new dial to locate the four corner mounting holes and the larger hole to accommodate the pointer shaft. The larger hole was former by drilling a pilot

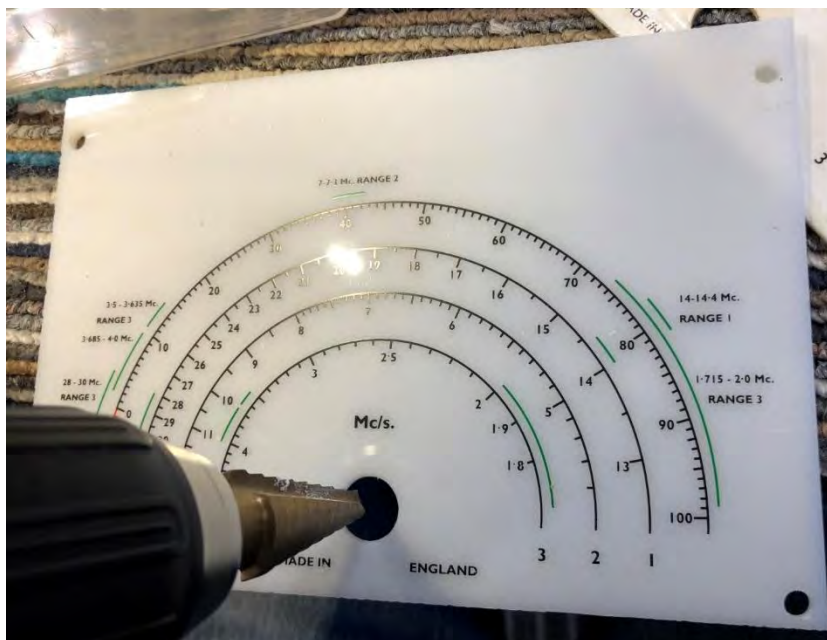


hole and then opening this out with a multi-step drill bit (photo, right). This method makes a much neater job than trying to drill it with a normal larger-diameter bit, which tends to result in more of a triangular than round hole.

With the new dial plate drilled, it was slid into place over the pointers and temporarily secured in place with masking tape while the front panel was re-attached.

Re-assembly

Replacing the front panel on an S.640 can be a bit of a time-consuming job. I have found it best to angle the receiver on the bench, roughly at a 45 degree angle, by placing a wood chock under the coilbox. This allows the serrated washers to be placed on the switch and pot threads without them falling off as the front panel is offered up to the chassis. The various switches and control shafts can then be maneuvered through their respective holes in the front panel. At this stage, as each is inserted, I temporarily secure it with its nut to prevent it popping out as the other controls are inserted. Next, the two variable capacitors and slide switch are secured using 6BA taper-head screws. Once all the controls are in place, and checking no wires have been nipped, the front panel can be held by partly inserting the lower two tapered screws.



This allows the top of the panel to be tilted forwards slightly, allowing access to install the dial glass, and then angling the front panel back into place, inserting the remaining tapered screws¹ and tightening these to fully secure the front panel to the coilbox. The four screws holding the sides of the chassis/brackets to the front panel are then installed. The dial is then carefully located into its correct orientation, the side plates/bracing strips installed, and secured with screws. The dial bulb



mounting bracket can then be installed and the dial bulb holders inserted. The installed reproduction dial is shown in the photo above, and comparison with the original dial in the photo at the bottom of page 6.

The reproduction fingerplate was then prepared for installation by adding three vertical strips of dual-sided sticky tape to its rear side. The nuts were then removed off the switches and pots, the fingerplate



placed over the control shafts/switches and secured by the tape with a gentle push on the fingerplate. All the nuts securing the controls were then replaced and tightened gently using correct-sized sockets, the band change lever installed, and, finally the knobs.

The photo, left, shows the reproduction fingerplate installed on the set and the paper 'temporary' one in the foreground – ten years had taken a bit of toll on its paper finish...

¹ I found that I needed to include a washer between the front panel and the threaded standoffs that the tapered screws install into to prevent binding of the front of the pointer shaft and the dial glass. The dial glass on my set seems very thick and may be a replacement(?) - this would not be an issue with slightly thinner dial glass

Closure

Once re-assembled, I checked the alignment – it was off a little on each of the bands, so the chassis was allowed to warm up for a couple of hours and the alignment tweaked. Following this, the chassis was re-installed in its cabinet and soak-tested for a few hours. It performed much as I remembered it from years ago (before I stopped using it due to the binding dial cord) – a brief demo can be viewed [here](#). I think it will be getting more regular use now that issue is fixed and as it now looks almost 'Bathtub fresh'...

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



Above left: Bandset end of the reproduction fingerplate. Right: Bandsread end of the reproduction fingerplate. Below, and pages 9 and 10: the S.640 with the reproduction dial and fingerplate installed – looking (and working) good!





