STC 1941 model 831: Part 2, a story with a happy ending

By Graham Parslow

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Sadly this radio has only restricted station selection. The elegant dial with a pointer sweeping through 270 degrees is driven by a gearing system enclosed in a pot-metal dial drum. The pot metal is breaking up and the internal gears no longer mesh as freely as they should. The result is that the dial drum is hard to rotate. This can be done manually by directly turning the drum by reaching over the chassis. However, when using the tuning knob the high internal friction of the gears causes the dial cord to slip on the spindle connected to the tuning knob. Adding extra tension to the dial cord did not entirely rescue the situation. In warm weather the tuning knob is completely ineffective in rotating the drum. In colder weather some control of rotation returns, but never over the full bandwidth. The radio can at least be left tuned to a favourite station.

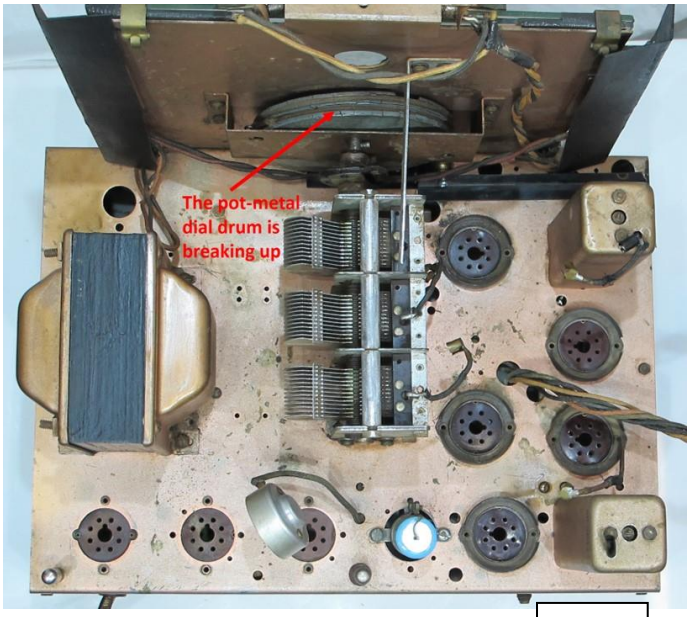


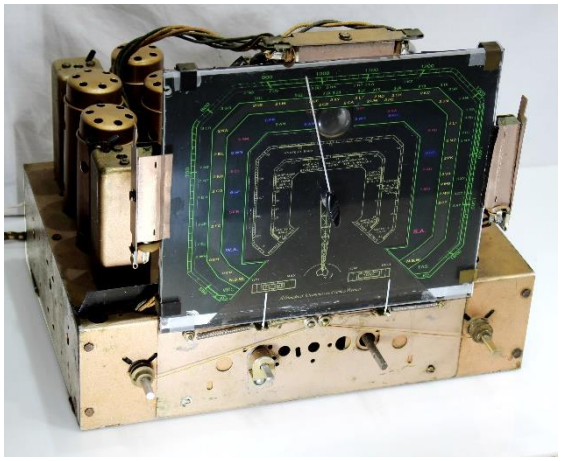
Fig. 2

Now for Part 2.

I was delighted by the outcome of the previous article when Ray Gillett gave me a replacement dial drum at a monthly HRSA meeting. He wanted no payment so the fellowship of the HRSA was pleasantly affirmed by this act of generosity. Ray can now be rewarded by knowing the outcome.

This was a replacement job that I anticipated to be close to a ten for difficulty, so I postponed getting started. The situation of Covid restrictions in Melbourne ended my membership of the procrastinator's club, although I am not sure that I ever made time to join that club. Surprisingly the upgrade was not nearly as fiendish as it seemed, it only required patient methodical disassembly and reassembly.

Fig. 3



The photo of the chassis with the dial attached (fig. 3) shows the final outcome of this session of restoration. There were two parts to the operation: (1) replace the dial drive and (2) replace a broken dial glass.

REPLACING THE DIAL DRIVE

This is a top-shelf radio with 8 valves and everything else needed to justify a high retail price. Relatively complex engineering was needed to provide the requisite bells and whistles.

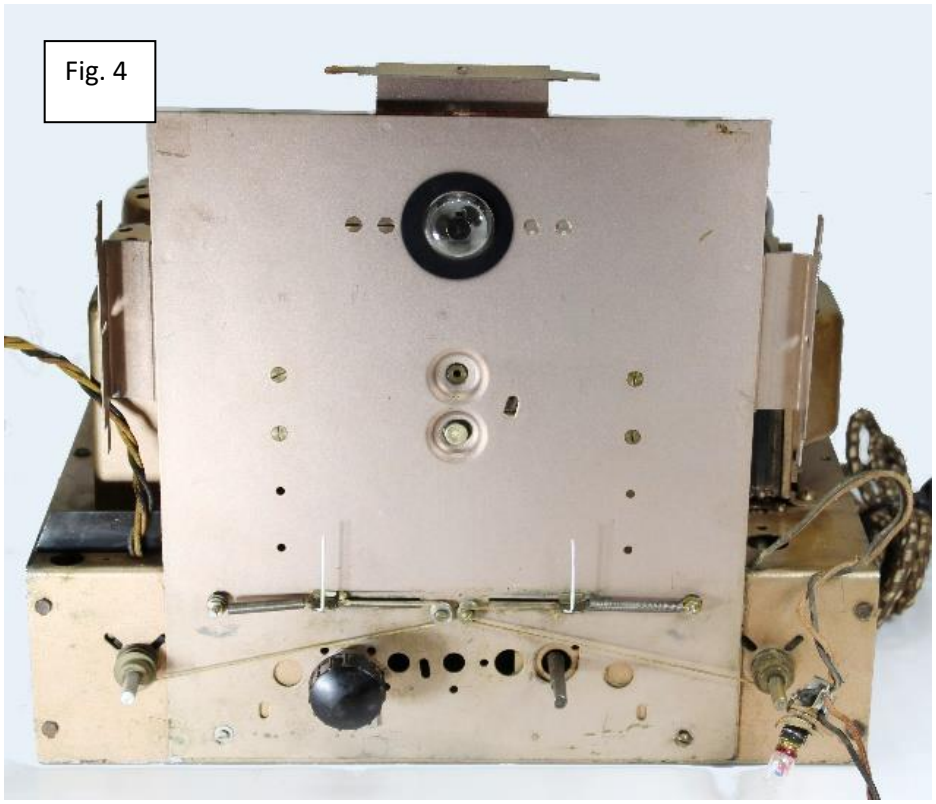
I was apprehensive that the metal face plate would be welded to the chassis (fig 4), but the plate-is retained on the chassis by four small bolts. The upper two of these threads also serve to anchor the springs that tension the pointers indicating the advancement of the volume and tone controls.

At the top of the face plate is the 6T5 magic eye for tuning. Directly below this is the dial pointer drive cog that sweeps through 270 degrees. The dial pointer has a shaft that inserts into the central hole in the drive cog. The pointer shaft is retained by a grub screw at the rear. Below the drive cog is the central shaft that couples to the three-gang tuning capacitor and rotates through 180 degrees.

At the sides of the middle section of the face plate are four screws that secure a plate at the rear (see figure 2). The rear plate has holes to bear the rear of the dial pointer cog and another for the shaft connecting to the tuning capacitor.

The tuning system is driven by the knob second from left on the radio. The spindle shaft from the tuning knob drives a dial chord that rotates the dial drum. When the face plate is free of the retaining screws the drive mechanism becomes apparent (figure 5). As for many better-class systems, the tuning spindle has a flywheel to make station changes smoother. The main dial drum has splines to drive the dial pointer cog.

Fig. 4



After making a drawing of the dial stringing arrangement before disassembly, it

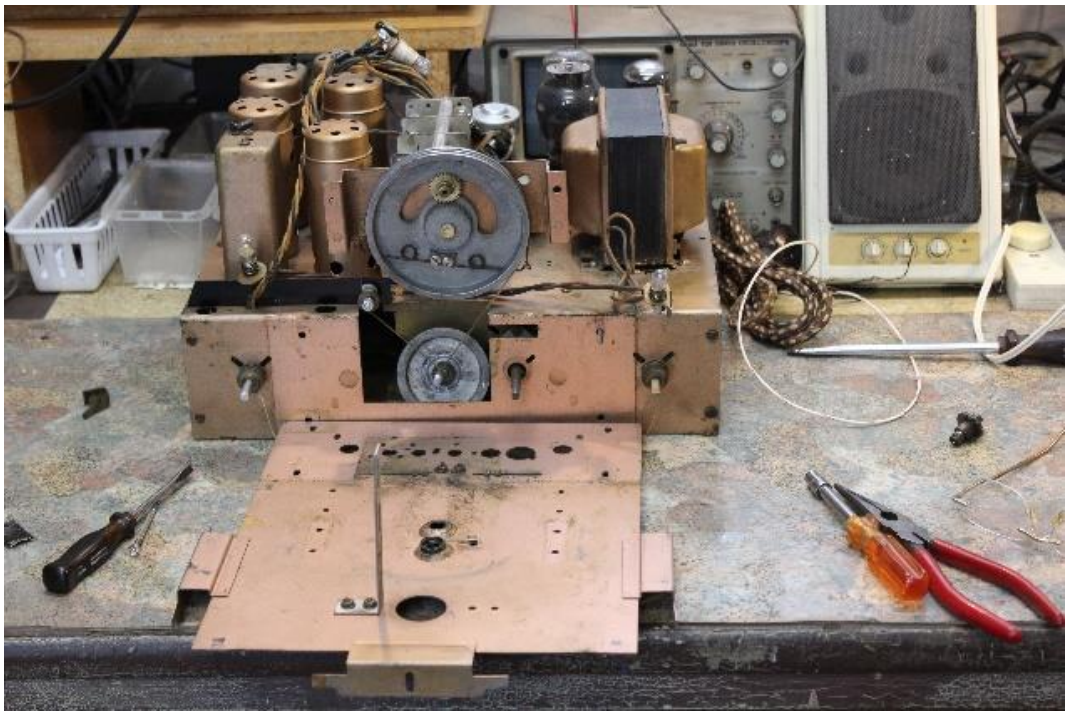


Fig. 5

proved relatively easy to install the replacement drum and cog.

When the original drum was removed it was immediately evident why it had failed. Figure 6 shows the tops and bottoms of the original and replacement drums and demonstrates the poor condition of the original with multiple cracks. Most telling is the side view of the original showing stripped splines that were destroyed by the harder brass dial cog. Only the top half of the dial drum cog engages with the dial pointer cog so the bottom half of the cog remained in pristine condition. The drum was cast as a single unit so there is no way to bring the intact teeth from the bottom to the top. The old unit was shown the bin.

Fig. 6

The string tensioning is not done with a spiral spring, but with a torsion spring wire. The result is two hooks projecting from the drum that are bent back when the string is tensioned. The reassembled dial worked as expected.

REPLACING A BROKEN DIAL GLASS

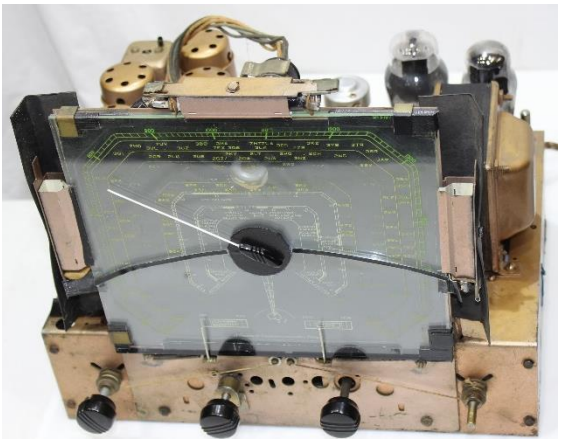


Fig. 7

The dial assembly is a lamination of layers that clamp onto the metal backing sheet. Starting at the rear they are

- A carboard sheet with punch holes for the magic eye and dial spindle.
- A black plastic sheet over layering the brown cardboard.
- The glass shortwave dial that is screen printed with all the central artwork. This glass is illuminated by edge lighting from the top-mounted globes with metal shrouds that selectively direct light only to this glass. When short wave bands are selected only the top globes remain illuminated so the MW stations are blacked out.
- The front glass dial that is screen printed with the Australian MW stations. This glass is edge illuminated by the globes at the side.

Figure 7 shows black tape over the crack that split the front glass. Left uncovered the crack was brilliantly illuminated by the edge lighting. The tape cover-up was put in place over a decade earlier after various glues proved unsatisfactory. The time had come to apply more recent skills to the restoration.

The screen-printed ink on the broken glass was pale and I was unable to get a good photograph or flat-bed scan that was capable

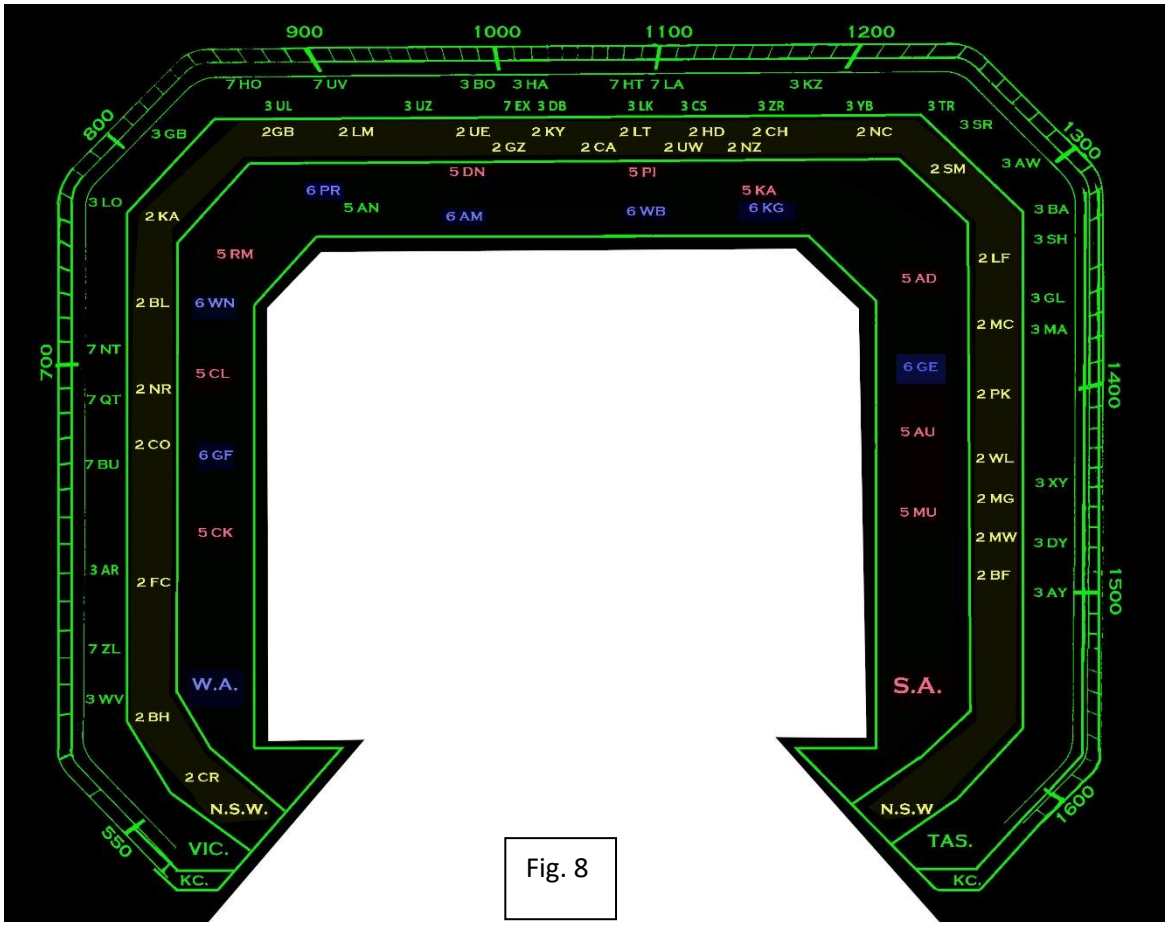


Fig. 8

of being edited to an acceptable standard. Covid lockdown thrust upon me the luxury of time to create new artwork that replicated the station information. The new artwork was jointly created between PowerPoint (to type in station call signs) and the GIMP image editing software. The final result (figure 8) was printed onto glossy photo paper. The centre section was cut out to reveal the shortwave information. This printed sheet was placed directly over the shortwave glass to be sandwiched by the next layer.

Due to the need for a hole to accommodate the dial pointer shaft, fabricating a glass sheet as the top cover was a more challenging job than I wished to take on. However, I had a suitable sheet of Perspex and this was cut to size and a hole drilled for the pointer. The dial-hole was drilled slowly with tape fixed to both faces of the Perspex to minimise chipping around the entry and exit. Happily, the Perspex proved as good as glass for distributing the edge illumination.

CONCLUSION

One more touch was available for this restoration. Carl Taller had given me some plastic screen-printed sheets to label volume, tone, tuning and wave change. You may find Carl a useful contact for reproductions of commonly needed, but hard to get badges and art work (see advert on inside back cover of this issue). And in the end, my favourite console radio was complete and functional. It had left the queue of radios waiting for me to get back to someday.

Fig. 9