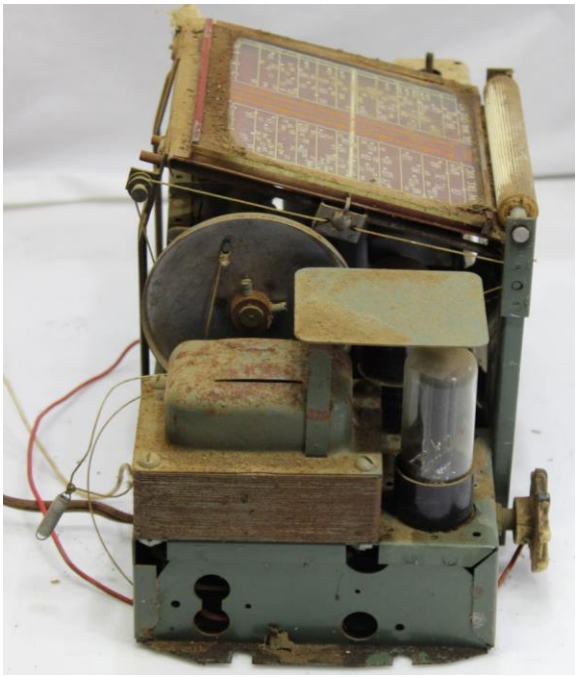
Tasma 1947-1950 model 1105

By Graham Parslow

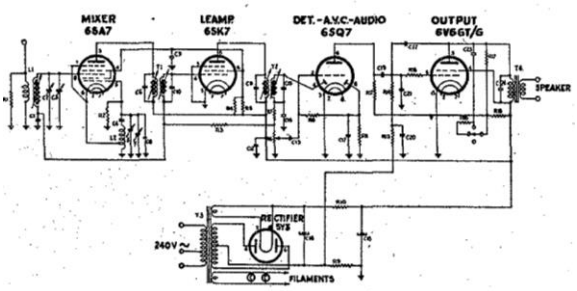
Tasma was a contraction of Thom and Smith Ltd, Mascot (NSW). The radios were mostly sold within NSW, although a complete network of national dealers was established. The radio in this article was acquired new by a farmer at Hay in NSW and it was the family radio for many years. The farmer's son Adrian acquired the radio. Adrian left the farm for a career in finance on the Gold Coast in Queensland. The author likewise resided on the Gold Coast for some years while working at Bond University. If you have lived in a Queensland coastal area then you will know about the rain storms that inundate the area. Sadly this radio was in a storeroom that was leaky and it suffered from immersion in muddy water. When removed from the case the chassis showed the mud and corrosion that was expected from this circumstance.

Adrian gifted the radio to me on the understanding that it would be restored and brought back to life. After collecting the radio on the Gold Coast and returning to my current hometown of Melbourne the challenge was overwhelmingly seductive. A couple of intensive days went into the restoration and Adrian commented "I nearly can't recognize the radio, you have done such a great job in such a short time!" The gratification of a successful project is even greater when it is shared with someone connected to the history of the radio. The radio was indeed a sad sight to begin with and pictures tell the story well enough.

This design has one enormous advantage. After removing the four screws securing the chassis at the base, the whole radio (knobs and all) separates cleanly from the case. Some other manufacturers (notably STC) also featured partly recessed knobs at the time.



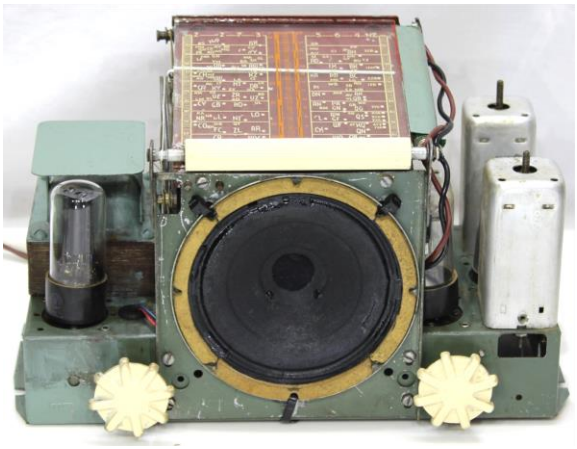
This was a Tasma type that I had not encountered before, although I soon found a photograph and some technical detail at http://www.radiomuseum.org/r/thomand_1103.html. The chassis was stamped with the model number 1105 and the circuit diagram is reproduced in the 1947 AORSM (Australian Official Radio Service Manual). Page 155 of Rod Smith's book "More Australian Radio" shows an advertisement for this model dated September 1950, so the case was in use7 for some years.



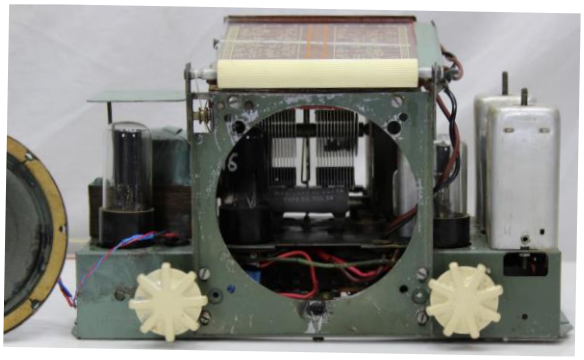
Unfortunately the digital scan I had of the AORSM circuit was barely legible, although diagrams of other Tasma radios with the same valve complement helped me to deduce component values. Many of the capacitors had their printed values washed away. Exceptions were the Tecnico HT electrolytics that were completely white, but had the values indented into the cases. A fruitless search for an output pentode cathode bypass electrolytic capacitor was resolved when checking the circuit revealed that the cathode was directly earthed. The 6V6 was biased by offsetting the HT filters from earth by a 200Ω resistor (R9).

Work on the electrical restoration and the case went in tandem to optimise the completion time. The Bakelite case was scrubbed with car degreaser and thoroughly washed until brown residue no longer came from the case. This also removed the patina of ceiling-white that had been splattered on from a paint roller. My guess is that half of my restored oldies have suffered this splatter when their kitchens were painted. The cleaned dull case was treated with applications of Armour All silicon surface spray. Unlike other restorations the case did not take up the Armour All in a uniform manner so a firm polishing was performed with Kitten car polish. After that a further application of Armour All did produce a uniform lustre and showed the mottled walnut pattern of the original Bakelite.
The grille cloth and knobs were sonicated with detergent for cleaning. The cloth leeched red dye and looked dull and faded. A spray can of Cherry Red paint transformed the cloth into an object of radiant scarlet beauty behind the grille. The cleaned knobs were spray painted. The dial glass was removed for cleaning and needed scraping to remove the mud from the front surface. Fortunately the rear was relatively clean and little damage had been done to the dial calibrations.

The speaker cone was in tatters so the speaker was removed and replaced with a same model 4" Rola from the spare parts shelf. The speaker transformer was OK and was mounted on the replacement speaker. The chassis was selectively washed by a wet cloth with degreaser to remove caked on mud. The white tuner roll-bar was particularly demanding to get clean. A scrubbing with mineral turpentine followed, then a compressed air blow-dry. The cleaned chassis was painted with a matching green to remedy the worst of the corrosion.



The unusual chassis layout had a downside. The 6V6 and HT ballast resistor are under the dial and only easily accessible when the speaker is removed.



The 6.3V lines to the dial globes had badly perished rubber insulation and were replaced. A number of rubber wires under the chassis were likewise perished, but many were impractical to replace due to bad layout of components stacked on each other. During restoration care was taken to minimise disturbance of any reasonably intact rubber insulated wires, because beads of rubber can fall off exposing bare wire. In the end the radio came back to life without any sparks.

The first electrical task was to check that the transformer had survived the inundation. A three core mains lead was installed to replace the original two core flex and the chassis was earthed. With all valves removed switching on 240V produced a power consumption of 5W and two illuminated dial globes. On sustained operation the transformer remained cool with constant 5W power consistent with operating the light globes. This was an encouraging first step.

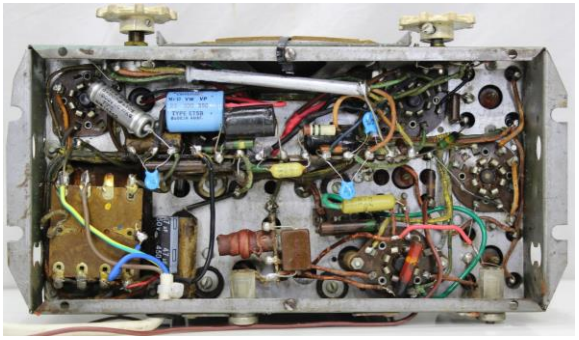
The HT filter electrolytics were replaced and although many paper capacitors looked to be in poor condition the set was tried with this minimum of replacements. Switch on produced a reasonable consumption of 39W of power (nothing disastrously wrong), but absolute silence from the replacement speaker. The 6V6 plate measured 225V as did the input to the output transformer i.e. the transformer primary was intact, but no current was flowing through the 6V6. Hooking an external amplifier to the volume-pot slider produced a much happier outcome; the RF section was working and tuning stations. The 6V6 remained cold. This may have been a dead valve or a bad socket. Jiggling made no difference. The 6V6 was extracted and inserted into another working radio that then ceased working. A continuity test of heater pins 2 and 7 showed open circuit so it was straight into the bin for that 6V6. A replacement 6V6 brought the set to life, albeit with low audio fidelity.

The volume control worked as expected, but the 3 position tone switch had no audible effect. C23 (0.01µF) is meant to act as a top-cut filter. In the spirit of experiment a blue ceramic of 0.1µF was soldered across C23 and somewhat surprisingly, due to the high capacitor value, the tone switch then functioned acceptably.

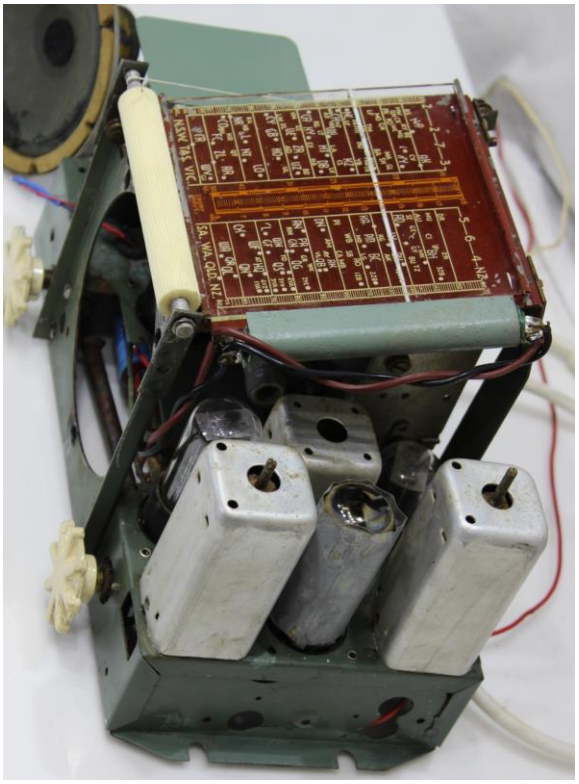
A check of the 6V6 grid bias showed +10V and provided a ready explanation for the poor audio quality. Replacing the leaky coupling capacitor between the 6SQ7 and 6V6 restored the grid bias to -10V, right on specification. At this stage the radio developed an odd symptom, it would only work at low volume settings and any increase of the volume control produced no audio output. Using an external amplifier showed that the problem was local to the 6SQ7 and measuring the 6SQ7 grid bias showed that it varied up to +35V as the volume control slider was moved. Around +10V of bias the valve stopped functioning and this explained the odd effect of failure when advancing the volume control. C13, a paper capacitor of .01µF had become more leaky as it was loaded under voltage and was allowing HT from the second IF transformer to pass to the 6SQ7 grid via the volume control. Replacement of C13 solved the problem.

At this stage I decided to take my own advice that I had published in the January 2015 Silicon Chip (restoration of a Stromberg-Carlson model 5A26) and that was that there is value in replacing all paper capacitors to avoid progressive failures. In this Tasma radio the paper capacitors appeared to be progressively

failing so I replaced all that I could reasonably access.



Rodney Champness wrote in the January 2015 edition of Radio Waves p39 (letter to the editor) that his policy is not universal replacement. Rather he routinely replaces AGC bypasses, audio coupling capacitors to the output valve and the output valve plate-bypass capacitors. These are the ones under greatest stress from DC voltage so this conservative approach has its merit by way of being frugal with replacements and maintaining originality. I effectively tried that approach with this restoration, but it was not the way to go.



With the radio electrically functional all that remained was to restring the tuning drive. The refurbished case was added and the restoration was complete. The rear view is not the radio's best angle, but it makes a fitting end to the narrative.