VINTAGE RADIO

By JOHN HILL

Restoring an AWA Radiolette receiver

In the mid 1930s, AWA produced a popular series of mantle radios under the tradename "Radiolette". The Radiolette appeared in various shapes and sizes and was still a popular receiver during the immediate post-war era.

The early versions were mainly in black or brown bakelite but some coloured cabinets were also made. These were mostly in "ivory" or "jade". The coloured models have not survived in the same numbers as the bakelite models – perhaps there were not as many made?

These early Radiolettes were nicknamed "Skyscraper" models because their shape was vaguely similar to that of the Empire State building in New York.

There was also another version of this little mid-1930s receiver. Although the chassis was virtually the same, it was housed in a timber cabinet (still with skyscraper lines) but with a small round dial instead of the square dial that characterised later models.

All of these mid-1930s Radiolettes are very collectable items and are much sought after by vintage radio collectors. For this reason, I was quite pleased when I recently obtained a 1934 timber cabinet version for a very reasonable price. Although the set was not working, it was all there, in excellent condition and completely original throughout.

Radiolettes were still being produced in the early post-war years. This 4-valve model has octal valves and is of late 1940s vintage.

This month's Vintage Radio story is about restoring the old Radiolette to working order. As with most early superhet receivers, there were plenty of things to check and replace, but that is fairly normal when working on a radio receiver that is nearly 60 years old.

Routine checks

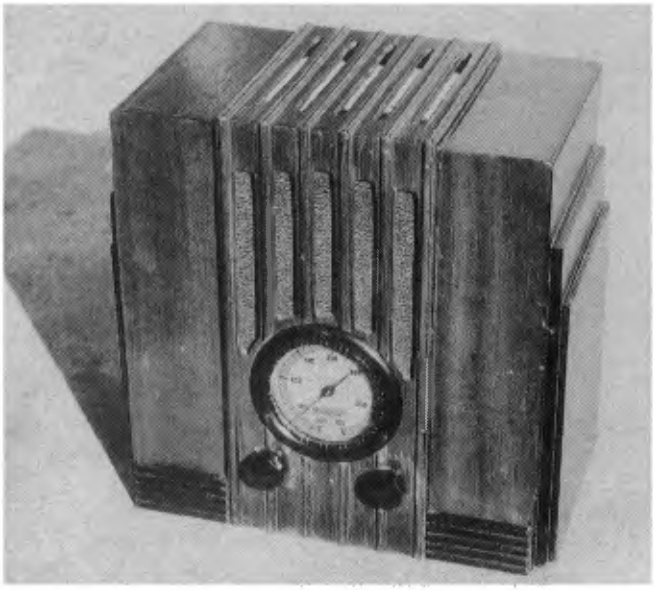
In keeping with my usual routine procedure, I started the job by checking out a number of vital components – the ones that often break down in a receiver of this age.

Continuity tests on the power transformer primary and high tension secondary windings showed that they were OK, as were the radio frequency (RF), oscillator and aerial coils. The intermediate frequency (IF) transformers also tested OK. Preliminary checks of this nature are very worthwhile, as they will quickly locate any trouble spots.

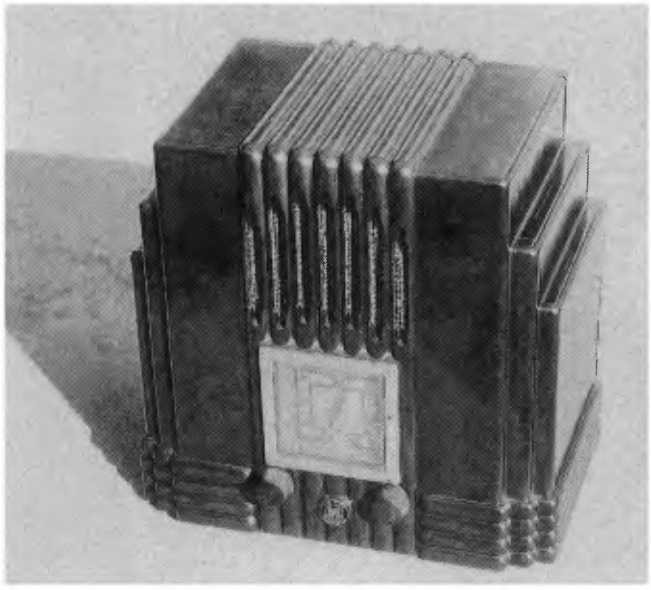
The loudspeaker was the first major component to fail the test. While the field coil checked out OK, the output transformer primary winding was open circuit. This is not an uncommon fault with valve radios and the output transformer should always be a suspect component until proven otherwise.

Fortunately, luck was on my side for a change as a search through my spare output transformers revealed a similar unit in working order. It was quickly fitted to the loudspeaker mounting and wired up accordingly. That was one problem taken care of.

The valves were next and they were cleaned and tested. All were in excellent condition with the exception of the 80 rectifier which was very sick



The 1934 Radiolette in unrestored condition. The set had been well cared for in its 57 years and was completely original throughout.



This 1936 bakelite Radiolette is a more common version of this popular range of mid-1930s receivers. Unlike the timber version, it carried a square dial.

indeed. This suggested that there could be a problem somewhere in the high tension circuit, a suspicion that proved correct later on.

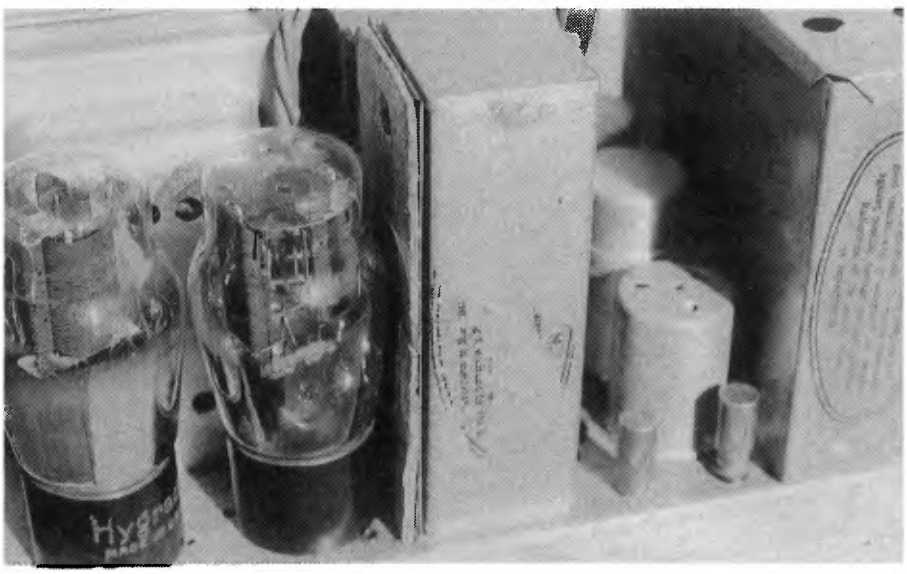
These early Radiolettes vary considerably in their under chassis construction. Some have little component boards with numerous capacitors and resistors attached, while others have a big bundle of parts which are taped together and attached to one endplate of the chassis. Neither arrangement is particularly easy to work on.

My little Radiolette was of the bundle type and if readers care to check with the appropriate photograph, the word "bundle" is about the only word one can use to describe this type of construction technique. Obviously, the printed circuit board hadn't been invented in the 1930s.

Replacing components in the bundle must be done carefully in order to maintain the existing circuit. Capacitors should be removed one at a time and appropriate replacements fitted in their place. With a receiver of this age it is advisable to replace all of the paper capacitors, whether they be in the bundle or elsewhere.

Now most old capacitors are well marked. If a capacitor has a value of 0.1µF, then it usually says so somewhere on the casing. Not so with the Radiolette's capacitors.

These particular paper capacitors are colour coded with three colours,



The high voltage electrolytics are installed in a square metal can on top of the chassis where the thin asbestos heatshield does little to protect them from the hot rectifier valve. The asbestos was made safe by sealing it with clear Estapol®.

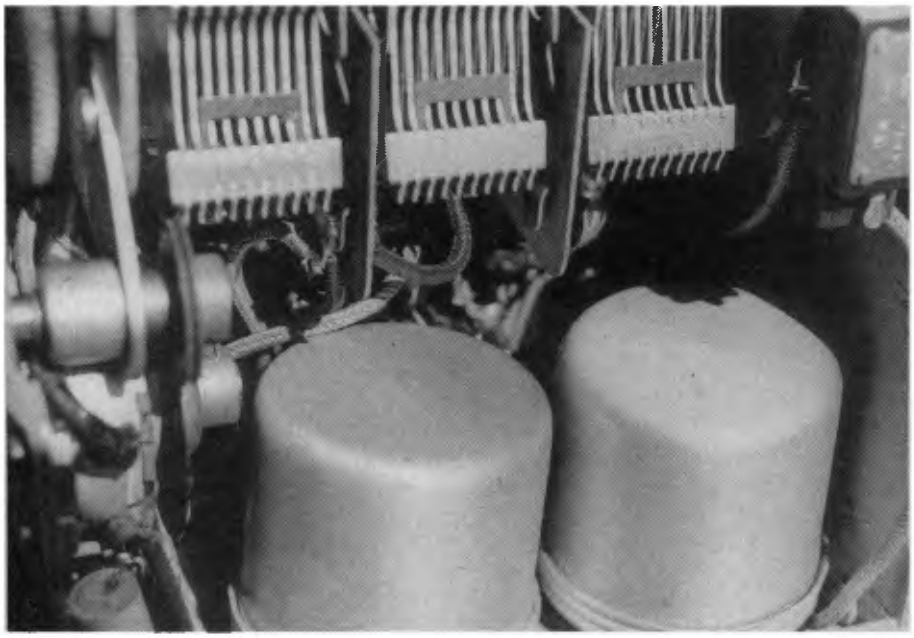
similar to the way a resistor is marked. In this case the colours have the values of the standard colour code and the capacitance is in picofarads.

For example, consider a capacitor that is marked red, green and yellow. The capacitance is worked out as if it were a resistor; ie, the first colour represents the first digit, the second colour the second digit and the third colour the multiplier in tens. Thus, red is 2, green is 5, yellow is 4 = 250,000pF or 0.25µF.

I hadn't come across this system before and, initially, I could only assume it was similar to that used for resistors. After checking some of the capacitors with a capacitance meter, my assumption was confirmed.

Electrolytic capacitors

The paper capacitors weren't the only capacitors in need of replacement – the electrolytics were also on the sick list. Time treats old electrolytics most unkindly and as these particular capacitors were approximately 57 years old, it seemed logical to re-



There's not much room underneath the chassis of a mid-1930s Radiolette. Taking up most of the available space are the IF coils and the 3-gang tuning capacitor. The inaccessible volume control potentiometer is to the left of the IF cans. It has a somewhat unnecessary friction drive reduction connecting it to the control knob shaft.

place them all without question.

There were two 25V cathode bypass electrolytics in the bundle which needed to be replaced. One carried a value of 25µF, the other 5µF. Both were totally inoperative and judging by the cracks in the ends of them, they had dried out many years ago.

The replacement electrolytics were modern types rated at 22µF 63VW and 4.7µF 63VW.

As all the replacement capacitors were small modern types, the bundle looked a bit gutless when the change over was completed. That's one good point about replacing old capacitors with new units – the modern varieties take up much less room.

The two 8µF high tension electros were next on the list. These are housed in a steel can which is bolted to the chassis next to the rectifier valve. This would be about the worst possible place to mount the electrolytics, since it subjects them to a considerable amount of heat. The thin asbestos heatshield becomes quite ineffective after the set has been operating for several hours.

Removing the top of the can revealed that the original capacitors were sealed in a mass of black wax. They were quickly released by gently heating the can, so they were not as difficult to remove as first thought.

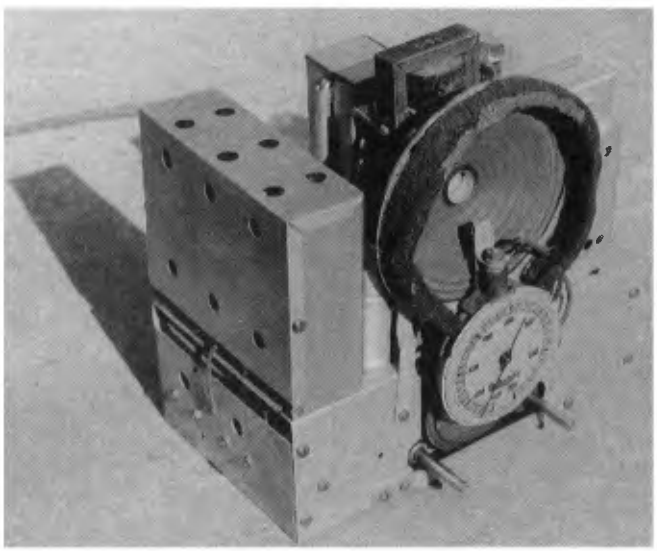
One of the electrolytics was completely short circuit, which could have been the reason for the almost defunct rectifier valve. Any short circuit or high leakage situation in the high tension line will over-work the rectifier.

The high tension electrolytics were replaced with modern 450VW units. They were reluctantly installed inside the chassis mounted can and the hot working conditions ignored. There is little room under the chassis for additional parts.

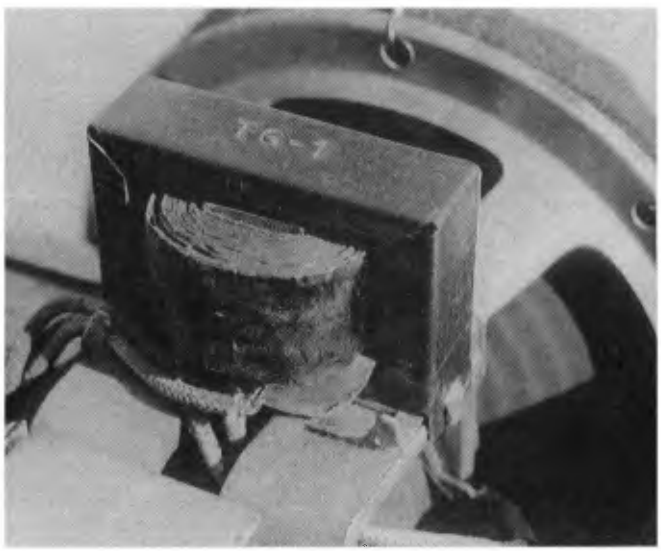
Getting it going

A quick check of the resistors with an ohmmeter showed that they were all OK and within tolerance. The end was near; all that remained was to clean and lubricate the dial mechanism, and fit a new power cord. The set was now ready for a trial run.

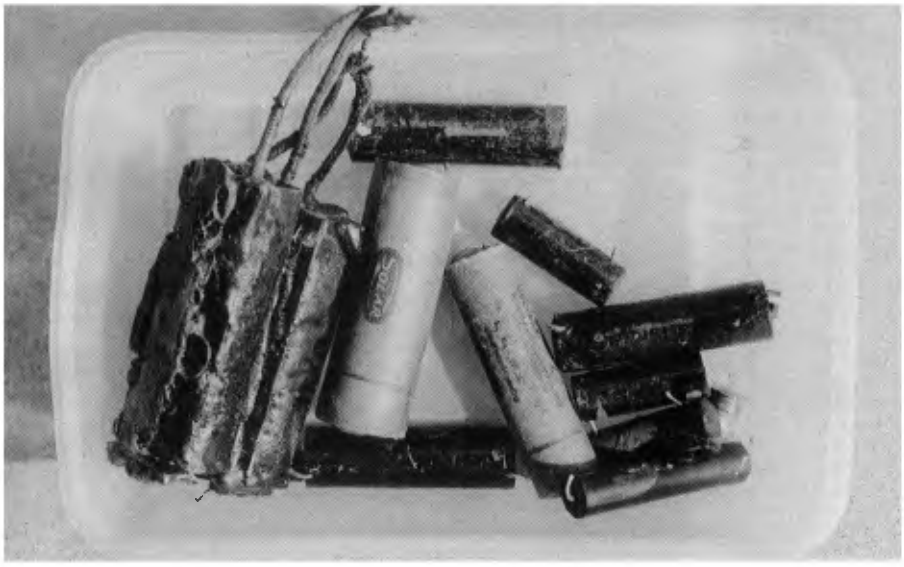
The little receiver worked surprisingly well and required very little in the way of re-alignment to bring it to peak performance. Even the loudspeaker sounded OK which isn't always the case with an old Radiolette.



A front view of chassis. The large metal container at the near end houses three of the five valves. The loudspeaker is an electrodynamic type and was still in working order.



The little AWA's output transformer was in need of replacement (primary open circuit). Fortunately a spare transformer was discovered lying in my junkbox.



All of the original paper and electrolytic capacitors were replaced. This procedure can solve a multitude of problems and is a must if a trouble-free restoration is required.

The infamous bundle: this mass (mess) of components consists of paper and electrolytic capacitors, carbon and wirewound resistors, and insulating pieces of cardboard. The bundle need not be removed from the receiver and is best left hanging on its many connecting wires while individual components are replaced.

These small electrodynamic speakers frequently have a buzz or rattle in them and often sound every bit their age.

I was very pleased to note that the volume control was smooth and quiet in its operation. Replacing a volume control in one of these radios is one "helluva" job. In fact, when it comes to servicing, there are few sets worse to work on than a mid-1930s Radiolette.

Running the set continually for a number of hours proved that everything was working well. No overheating of the power transformer or the loudspeaker field coil was evident, which is a good indication that nothing is being overloaded or working abnormally.

The mid-1930s Radiolettes are very collectable radios and have an appeal that many other receivers of that era lacked. I'm quite sure that most collectors would consider them, as I do, to be "classic radios" of their era. **SC**