

# VINTAGE RADIO

By JOHN HILL



## A new life for an old Hotpoint

**My first commercial radio was a 1940s 4-valve AWA Radiola. Recently, I had the chance to restore an almost identical model and that's what this month's story is about. So how did an old Hotpoint get into the act?**

I have mentioned before my early interest in radio and how my spare time as a lad was spent building crystal sets and simple regenerative receivers. This was an exciting time of my life and I have fond memories of those distant days. But although this period spanned many years, it came to a very abrupt end.

My tinkering with home-made radios finished the day my father bought me a new receiver for my bedroom.

Actually, I think my mother was the main instigator behind this move because she had tired of the perpetual mess that graced the top of a chest of drawers. For years, this area had been strewn with a variety of radios, mountains of batteries, including a smelly rechargeable lead-acid B battery, and other miscellaneous accessories such as headphones, with their long dangling cords.

From my mother's viewpoint, that

was untidiness of the worst kind and it had to go!

However, in order to remove the junk without fuss or ill feeling, there had to be a satisfactory replacement. Enter one new radio in the form of a late 1940s 4-valve AWA Radiola mantel model with a brown Bakelite cabinet.

It must have been Mum's idea because it wasn't even Christmas or my birthday – it just happened!

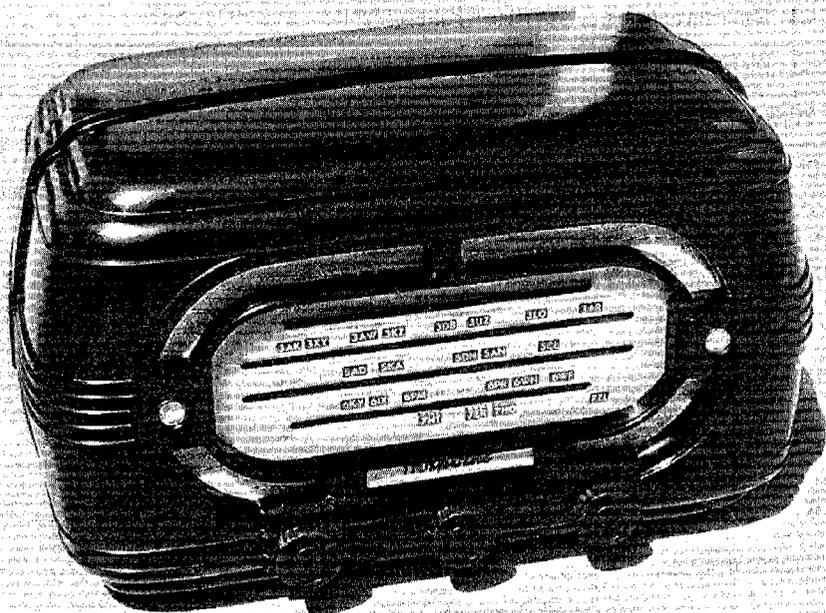
The little Radiola was in regular use for about 10 years up until the time I left home for the big smoke. Sometime after that it strangely disappeared. Presumably it developed some terminal complaint and was gently laid to rest. At the time I never bothered to ask what happened to it. Now that I would like to know, no-one can remember.

### Different styles

My old Radiola had a cabinet style that was not as common as a similar and slightly larger model of that era. As a result, I had, for quite a while, been looking for one to add to my collection – not that postwar 4-valve Radiolas are highly sought after collectables. I just wanted one the same as the one I had back in the 1950s for sentimental reasons.

Just why there were two distinct cabinet styles is something of a mystery. However, the smaller one had an oval shaped dial while the other had a rectangular dial. Otherwise they were much the same inside and the dial shape was about the only noticeable difference between models.

It was the oval version that I was seeking. This cabinet style is far more durable than the rectangular model. The reason for this difference is that the oval dial has a Bakelite escut-



**The Hotpoint receiver after restoration. This particular model with the oval-shaped Bakelite dial escutcheon (part of the cabinet moulding) survives better than the model with the separate moulded plastic escutcheon.**

cheon whereas the other is white plastic. The latter warps and cracks with age and, after 40 years or so, is inclined to fall to pieces.

Many other Radiolas of similar vintage have the same lousy plastic in their speaker grilles and these too can look terrible due to the distortion that takes place over the years. When it comes to plastics, some are far more stable than others.

## Bakelite vs. plastic

Before going further, let's briefly digress and examine the differences between Bakelite and plastic, just to clarify that last paragraph.

Although they are both plastics, Bakelite is a thermosetting plastic which is very stable and holds its form extremely well, even over time spans exceeding 60 years. Thermoplastics, on the other hand, have quite different characteristics and many early thermoplastics virtually self-destruct after 40 years or so. However, thermoplastics can be re-melted and recycled, whereas thermosetting plastics cannot!

From a collector's point of view, I'm not particularly interested in restoring any receiver that has a badly deteriorated cabinet due to the use of poor quality plastics. A restoration job should result in a receiver that both looks and performs as new (or close to it).

If the cabinet or cabinet fittings have cracked or warped out of shape, then the set is not worth restoring. Well, that's how I see the situation!

## The Hotpoint substitute

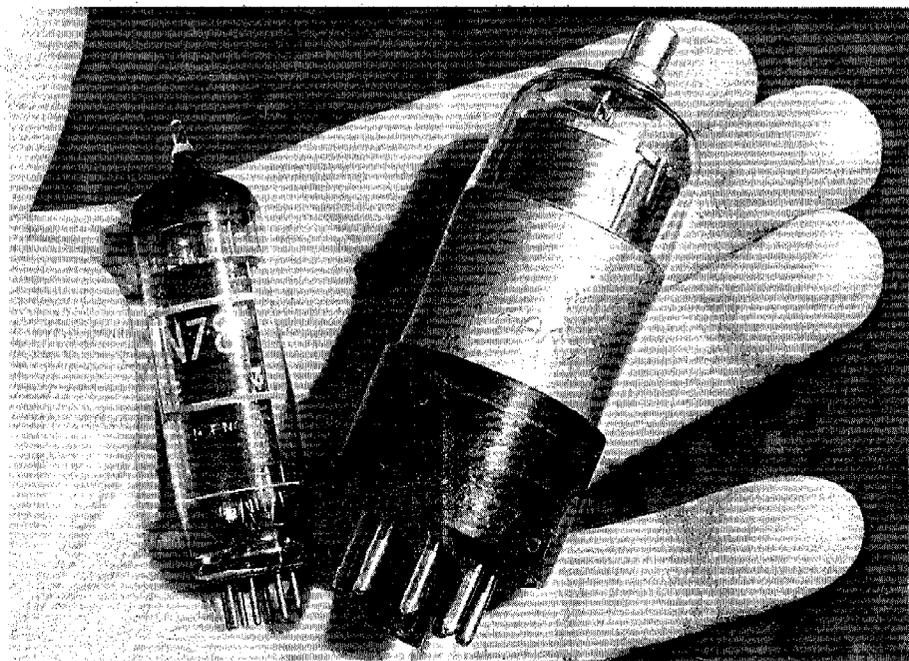
Anyway, the little 4-valve Radiola I was seeking finally came my way in the form of a Hotpoint! This was, in fact, exactly the same as a Radiola but marketed under another name. Both sets were made by AWA and there were sometimes minor cabinet differences to distinguish the two but not in this instance.

Unfortunately, the Hotpoint had a white cabinet with numerous cracks which showed up as black lines. Although the set was working, it was in terrible condition with an intermittent contact in the on/off switch and crackles in both the volume and tone controls. But for the miserable sum of \$10, it was worth buying, even if it wasn't a Radiola in a Bakelite cabinet.

What I didn't realise at the time



**A Radiola with the rectangular dial escutcheon. This 4-valve model is unusual in that it is a dual-wave receiver. Very few 4-valve sets have a shortwave band.**



**The old Hotpoint receiver used a couple of unusual valve types: an N78 (6BJ5) and a 6AR7 GT. Note the shield on the 6AR7, a peculiar characteristic of this Australian-designed and manufactured valve.**

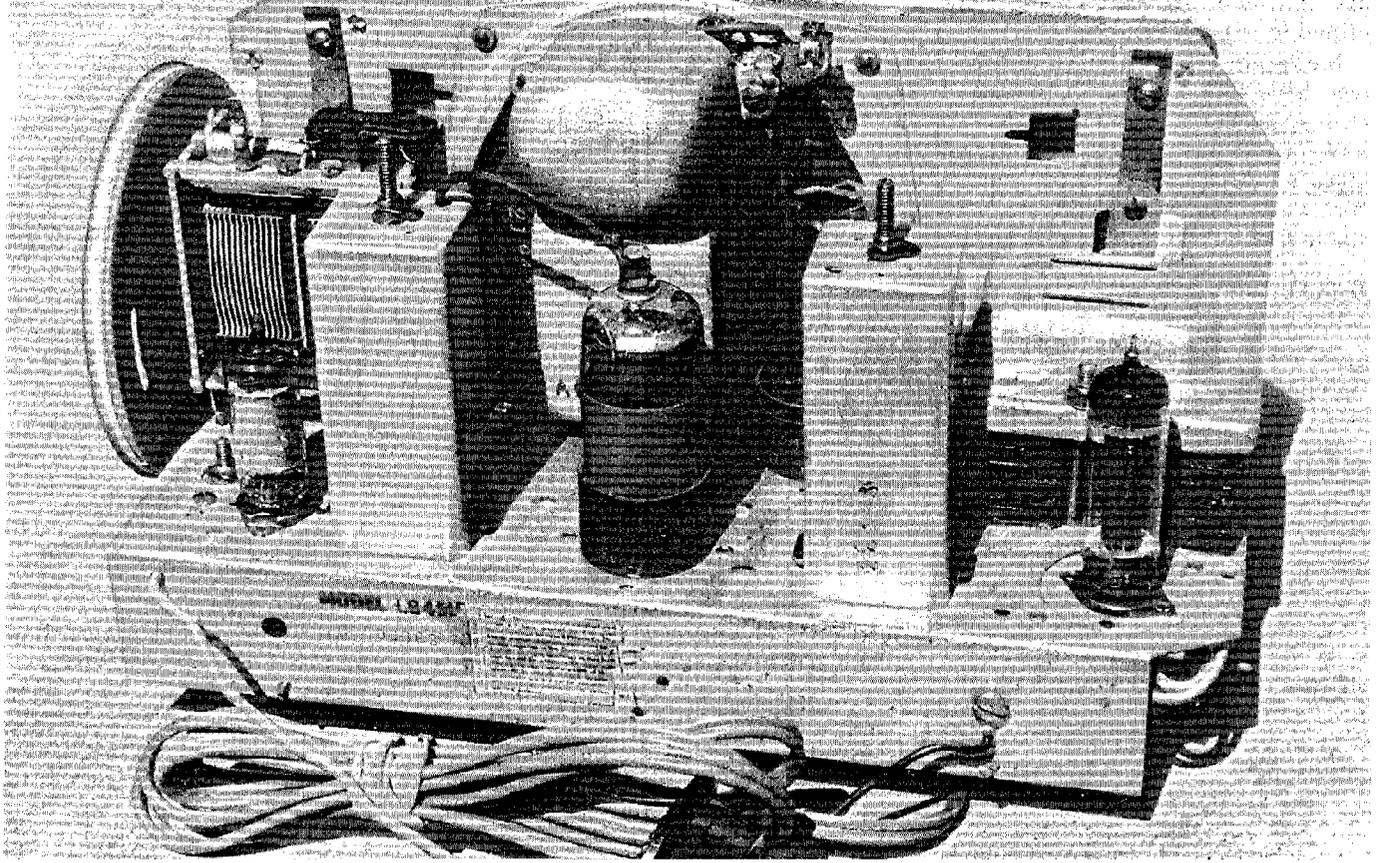
was that there was a suitable Bakelite cabinet stowed away in the shed, which I had completely forgotten about. I have no recollection as to where it came from or how it was acquired. The Radiola cabinet was discovered quite by accident while I was looking for a valve tester which, I might add, could not be found. No doubt it will be unearthed while I am

looking for something else some other time.

So it was only a matter of combining the Hotpoint chassis with the Radiola cabinet and I would have a working model of my original little 4-valve radio.

## Cleaning up

The Bakelite cabinet had seen bet-



**A rear view of Hotpoint chassis. This chassis uses a 5-inch (125mm) permag speaker whereas many radios of this era still used electrodynamic speakers. The chassis cleaned up quite well.**

ter days. The dirty front half looked so different to the reasonably clean back half that I initially assumed they may not have been a matched pair.

To explain, each batch of Bakelite

has its own colour characteristics and an unmatched pair of cabinet halves can stand out like a neon sign. Fortunately, this was not the case because when the cabinet was washed and

polished, the two pieces blended together perfectly.

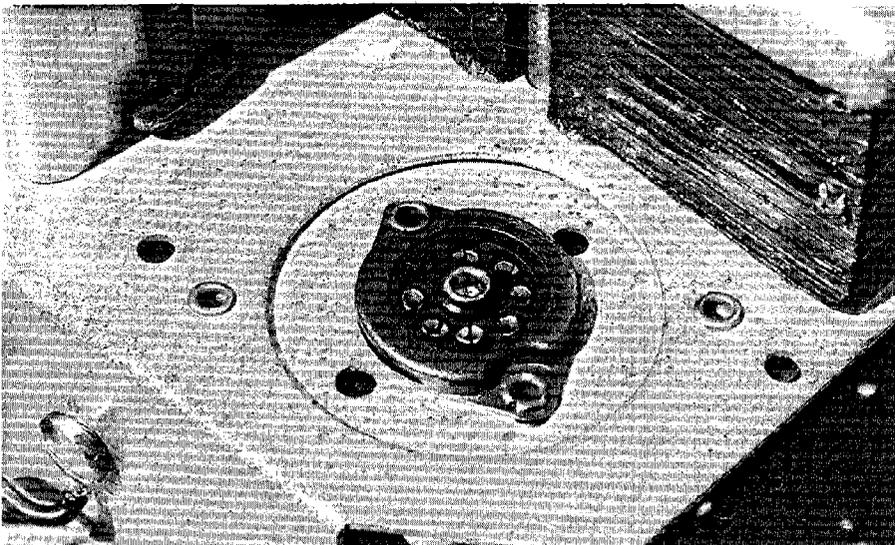
The Radiola dial had been cracked in two places and this meant that the Hotpoint dial had to be used. Because there appears to be no difference between the Radiola and the Hotpoint radios, I guess I can tolerate a name change.

## Valve types

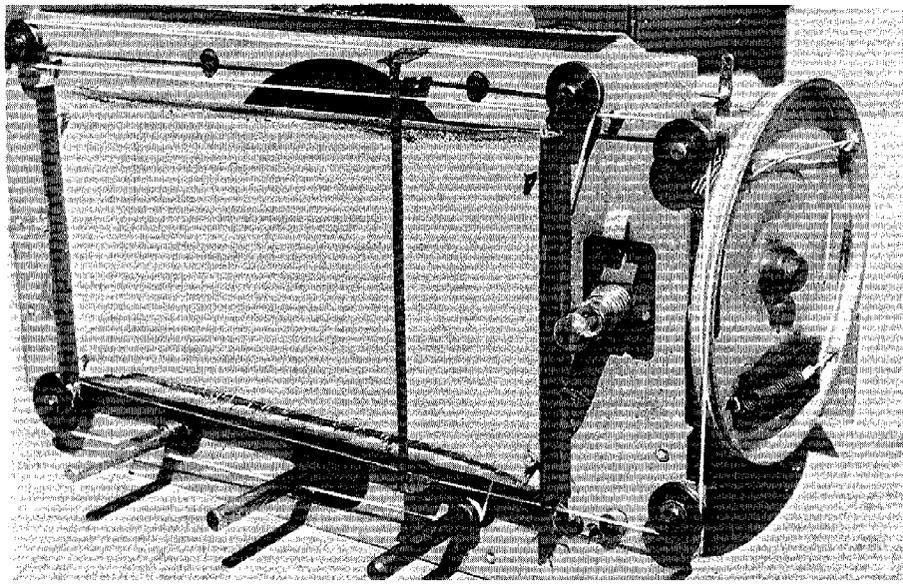
Repairs to the receiver were relatively straightforward and started off well when all four valves tested OK. The valves used were: 6BE6 frequency converter, 6AR7 IF amplifier and detector, N78 (6BJ5) audio output, and a 5Y3 rectifier.

The valve complement in the Radiola 4 varies quite a bit. The other receiver shown in one of the accompanying photographs uses a 6A8, 6AR7, 6V6 and 6X5. These receivers were made at a time when manufacturers often had to use whatever components were available, not necessarily what they wanted to use.

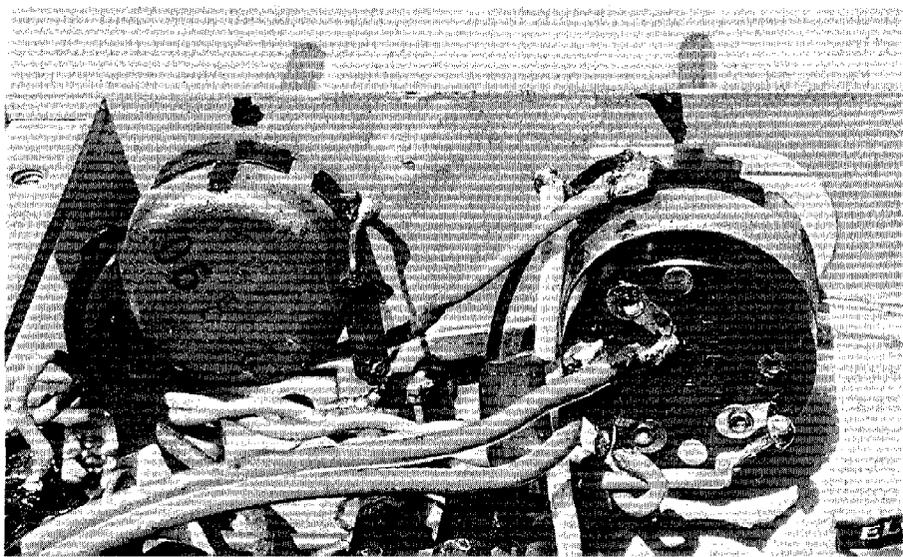
Getting back to the Hotpoint valve line up, the 6AR7 is an odd type in that it is an Australian-designed and made valve used only in locally made



**This 7-pin miniature valve socket is fitted to a chassis that has obviously been designed for octal valves. The other 4-valve chassis uses an octal 6V6GT in this position.**



**Front view of Hotpoint chassis. The loudspeaker sits directly behind the dial. Note that the dial setup uses approximately two metres of dial cord.**



**Shown here are the volume control (left) and the combined tone control and on/off switch (right). Both potentiometers were repaired by cleaning the resistance track and repositioning the wiper arm. The switch responded to a flush-out with a non-lubricating cleaning fluid.**

equipment. It usually tests poorly for some reason or other but this one was OK. An EBF35 will work in its place if a 6AR7 is unobtainable.

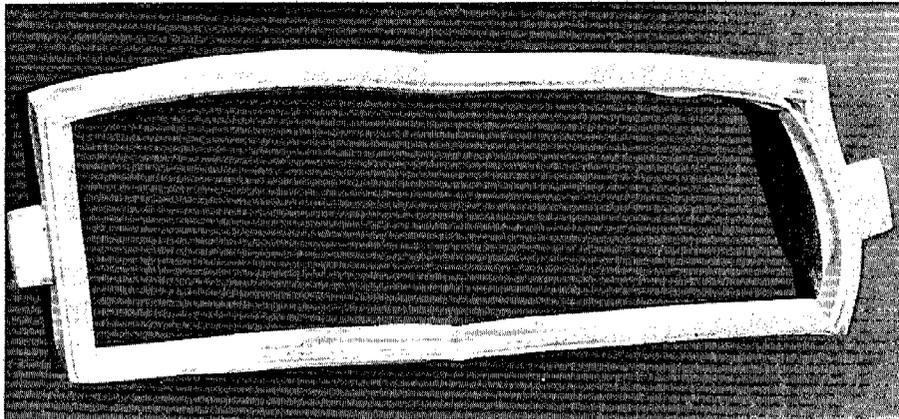
The N78 is also an unusual output valve as far as domestic radio receivers are concerned. The only receivers I have encountered that use this valve have been these early postwar Radiolas. Should a substitute valve be required, a 6AQ5 with a rewired socket and grid bias modification should do the trick.

### **Grid bias**

Speaking of grid bias, it is worth

noting that many 4-valve receivers are under biased. In fact, the output valve's bias voltage is often at about half the recommended value, even taking into account the lower plate voltages at which some of these small receivers work. If the bias is changed in order to produce the correct voltage, there is a noticeable drop in output volume.

Presumably, the output valve is deliberately under biased to raise the output level of the receiver. One must remember that a 4-valve receiver is really only a 3-valve receiver (plus rectifier) and needs every bit of encouragement in the performance de-



**When the text refers to poor quality thermoplastics, it really means poor quality. Shown here is a Radiola plastic escutcheon that has badly distorted with age. A Bakelite escutcheon, on the other hand, would have held its shape, even over a long period of time.**

partment it can get. Under-biasing the output valve helps to give a bit more gain on those weaker signals—even at the expense of valve life and sound fidelity, which apparently doesn't amount to much anyway.

### Problem areas

The worst problem areas of the receiver were the volume control and the combined tone control and on/off switch. These components were very worn and highly suspect, especially the on/off switch which was making such poor contact the dial lights were flickering in unison. None of these controls was replaced. Instead, they were all repaired and they came up quite OK.

Many volume and tone control potentiometers can be restored to good working order simply by cleaning the resistance track. However, this can be a fairly temporary repair if the track is worn.

▲ Better repair results if the wiper

arm is bent away from its original contact path and is placed on a previously unused part of the track. Such a simple modification can give a worn potentiometer a completely new lease of life.

Faulty on/off switches also respond well to a cleanup and a flush-out with a non-lubricating contact solvent is a good starting point. An ohmmeter set to the 1-ohm range will quickly indicate the condition of the switch contacts. Any measurable resistance in a switch must eventually cause trouble.

It is also a good idea to turn old receivers on and off at the power point, as a 40-50 year old switch deserves a rest. One cannot expect them to keep working forever. Any potentiometer combined with an on/off switch will also benefit from switching at the power point, as this will reduce the wear on the track that would otherwise occur each time the switch was used.

In the case of the little Hotpoint, a hollow had been worn through the resistance track on the tone control. This control was combined with an on/off switch and had turned the set on and off many thousands of times during its 45-year life span. This problem was eliminated by simply bending the wiper arm away from the damaged area and onto an unused portion of the track.

### New capacitors

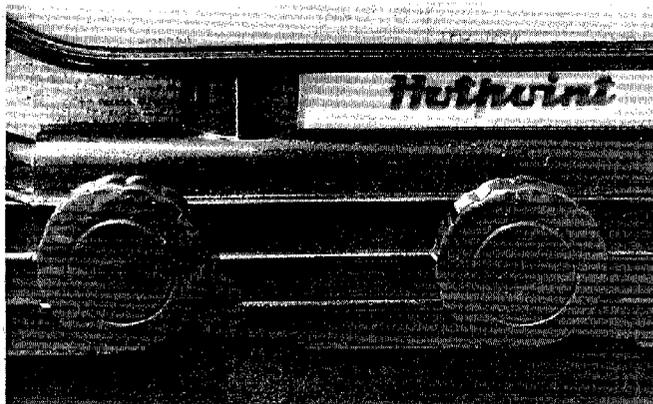
Replacing all of the paper capacitors with more modern varieties raised the high tension voltage by 20V. The electrolytics were the originals and seemed OK but they were replaced anyway.

After applying some Silastic® silicone rubber compound to the thin outer rim of the loudspeaker, it was time to find three control knobs. Finding them was not a problem but getting them to fit the control shafts was another matter. They were so tight that breaking them was a distinct possibility.

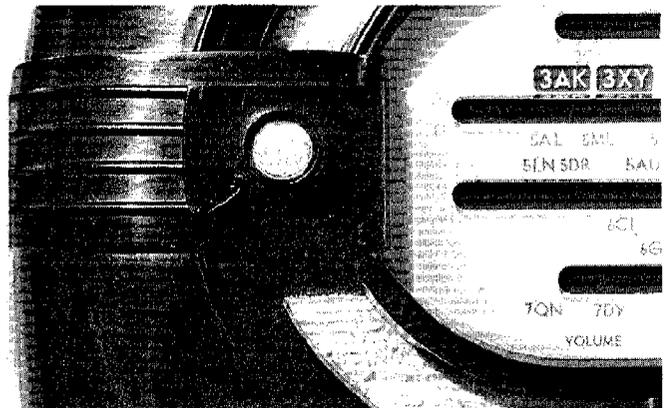
This problem was solved by filing the flats on the control shafts. They can now be fitted and removed without risk of breaking.

So there it is: a quick and relatively easy restoration of a humble 4-valve receiver, with a few repair hints thrown in for good measure.

From my point of view, it was a satisfying project because I could relate to that particular model receiver. Of course, it would have been better if the set had been 100% Radiola. But I guess a mix of Radiola and Hotpoint isn't a bad compromise, especially when they were both made in the same factory. **SC**



**These replacement control knobs were so tight that the flats on the control shafts had to be filed down so that they could be fitted.**



**This view shows the replacement loudspeaker cloth around the dial escutcheon. Even the dial light windows were removed and cleaned during the restoration process.**