

# VINTAGE RADIO

By JOHN HILL



## Back to “original” – the Radiola 34E

**A few weeks ago, I repaired an AWA Radiola model 34E TRF receiver with a C77 chassis. Part of my job was to restore it to “original” condition. It was an odd repair for an odd receiver.**

This particular model Radiola can be best described as a timber cabinet, table model, 4-valve TRF type receiver with long spindly legs. That's right – although the cabinet is basically a table model, it was originally sold with optional turned legs and can be converted into an odd looking console or “tallboy” simply by screwing in these legs. The 34E's vintage is 1930, give or take a year.

The 34E fits into a category that I have mentioned before; ie, a 4-valve TRF receiver with mediocre performance. These radios have only one radio frequency (RF) stage, a detector

and a single audio output. If they were anything less, they would require headphones to listen to.

Such a receiver is lacking in both sensitivity and selectivity. In other words, if the set is to operate with any degree of volume, then the aerial needs to be tightly coupled, which has the undesirable side effect of broadening the tuning. This, in turn, can cause serious interstation interference.

Loosening the aerial coupling improves selectivity but does so at the expense of overall operating volume. So these simple 4-valve receivers are very much a compromise and their

performance levels are only mediocre. While such a comment may sound rather harsh, it is nevertheless true.

This type of receiver, however, can give a reasonable account of itself in a capital city situation where about half a dozen local stations are spread approximately equidistant across the dial, as is often the case. Using an indoor aerial, the receiver would work fairly well on the strong locals but little else. In many instances, that was all a receiver was required to do anyway, regardless of the number of valves or type of circuit.

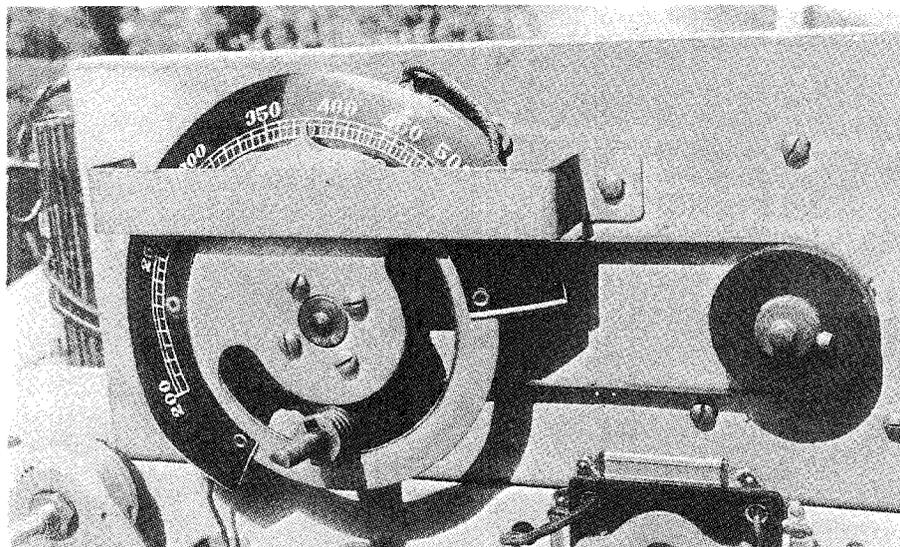
One could go on for quite some time about the good and bad aspects of these low-performance TRF receivers from the early 1930s but it has been said before so we will not dwell on it unnecessarily.

However, to prove the point about the lowly performance of these radios, it is interesting to note that the 34E Radiola in question has had an additional audio stage added to it. This addition was the reason for the owner's concern and it was my job to remove the extra stage and restore it to original condition, regardless of the poorer performance aspect of such a conversion.

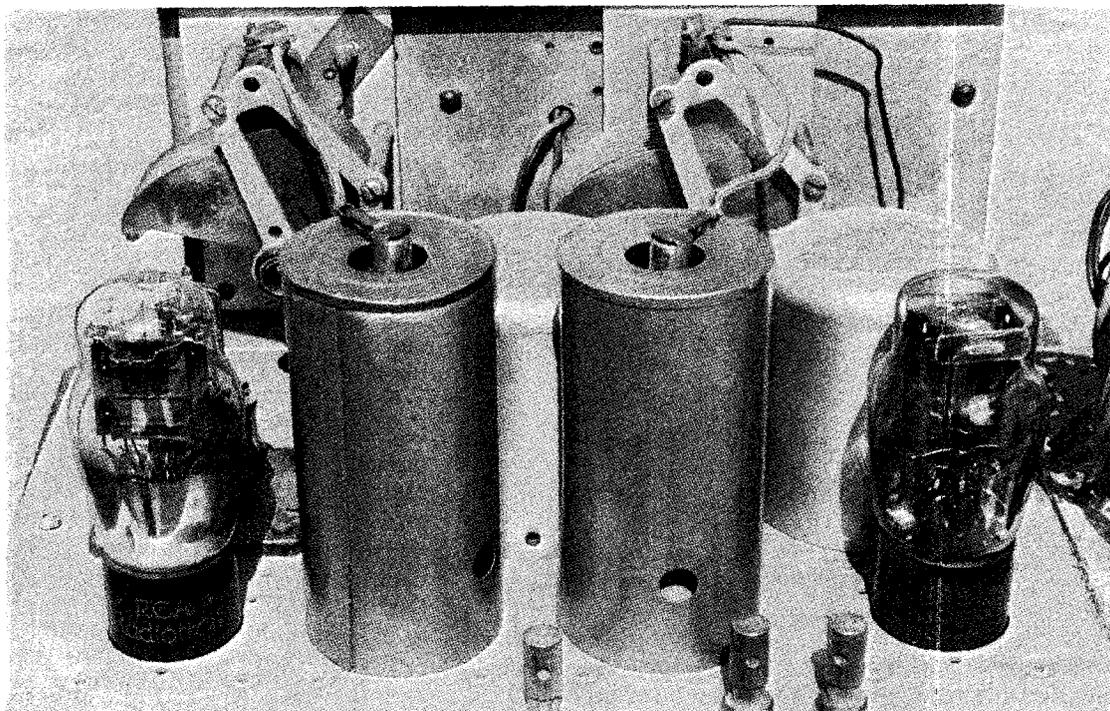
### Originality

This 34E repair seemed like my big chance to square off with those, who in the past, have criticised me for making non-standard modifications in order to restore a set to working condition. In this rare instance, I was going to remove a non-standard modification and restore the set back to “original”. That said, removing the extra audio stage would do little to restore this particular set's originality.

Apart from the extra audio stage, there were other unoriginal aspects with this 34E. These included a



This front view of chassis shows the dial and the connecting steel belt to the second tuning capacitor. AWA used this idea extensively for quite a few years, even though ganged tuning capacitors were in common use at the time.



Rear view of the Radiola model 34E C77 chassis. The valves, from left, are: 45, 24A, 24A and 80. Note the two single tuning capacitors on the front panel. These and other 4-valve TRF receivers were notoriously poor performers.

permag loudspeaker mounted inside the frame of the old electrodynamic unit and a home-wound power transformer with an additional 6.3V winding. This 6.3V winding was used to supply the heater in the 6AV6 in the extra audio stage. In addition, the original 24A detector plate load inductance (coupling choke) was missing, as were the HT (high tension) and RF chokes.

Another problem associated with the power supply was that the HT voltage was determined by a 750Ω wirewound filter resistor in place of the original electrodynamic speaker field coil. An electrodynamic speaker supplied by the owner to replace this setup had a 1500Ω field coil, which would reduce the high tension voltage to well below the nominal 250V.

I might add at this stage that the 6AV6 valve and its accompanying circuitry were all mounted inside the missing coupling choke's shield can. The choke had been replaced with a resistor and the whole wicked plot was all hidden from view.

In terms of restoring originality to such a receiver, well it's a bit unrealistic when you think about it, especially if one is to do the job properly.

If this receiver were to be made original again it would require the correct power transformer, loudspeaker, coupling choke and RF choke, as well as a few other incidentals.

What's more, these parts would be difficult to locate and, even if found, they could cost a sizable sum of money.

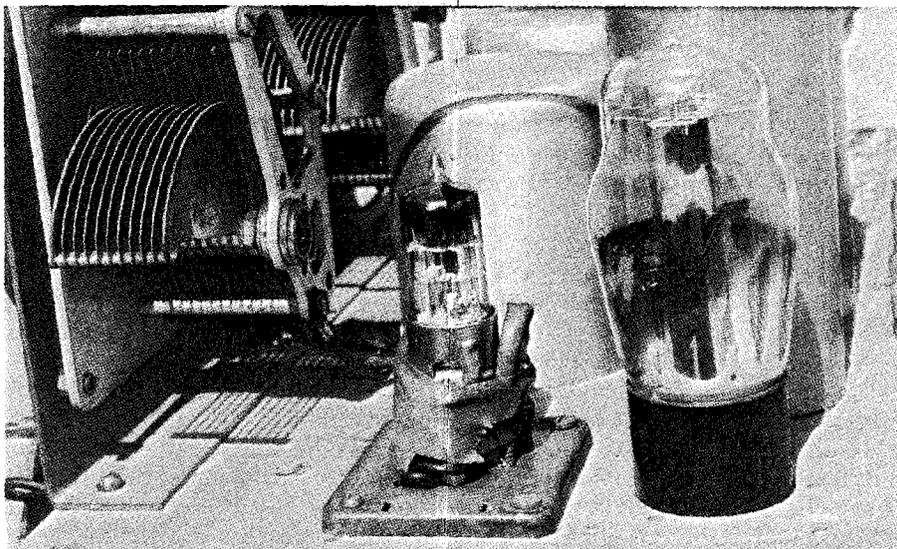
The cabinet, too, had some missing decorative mouldings and these have been replaced with something appropriate but certainly not original. So now you know why I used inverted commas a few paragraphs back. The word "original" simply could not apply to this particular receiver.

### An easy job

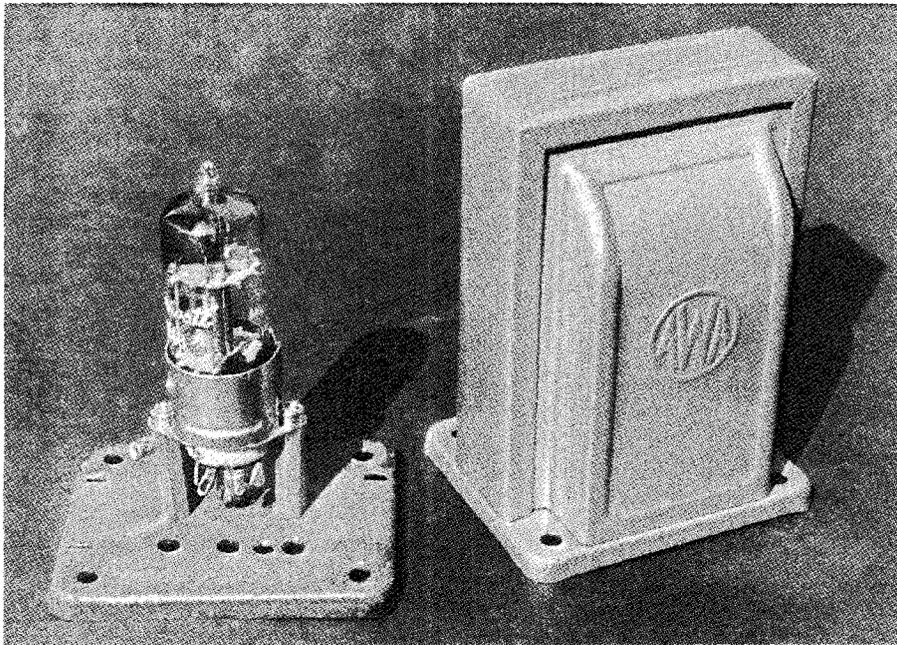
Actually, my job was relatively easy.

The 6AV6 audio stage was removed, which amounted to a few disconnections. The detector was then resistance/capacitor coupled to the output valve. Although originally choke/capacitor coupled, experience has shown that a resistor is at least a better-than-nothing substitute for a coupling choke. It worked this time too!

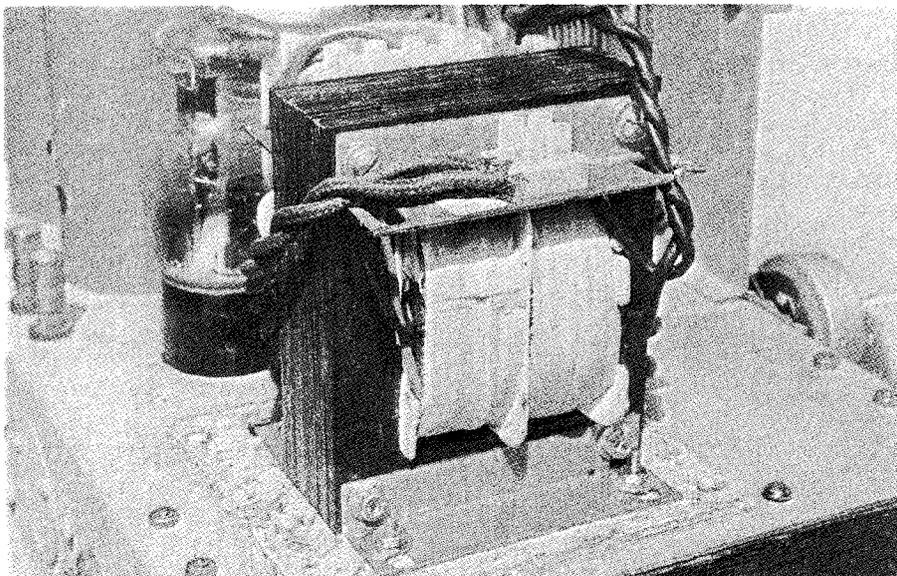
Wiring in the speaker with the 1500-ohm field was next and the speaker socket was required to once again operate with an electrodynamic loudspeaker. This required the removal of



The additional audio stage used a 6AV6 which is dwarfed by comparison with the old 45 output valve. This extra audio stage was added to help boost the set's performance.



The 6AV6 addition was tucked away inside the missing coupling choke's shield can. As the owner did not like this arrangement, the first audio stage was removed, thus converting the receiver back to "original".



This power transformer is not exactly an original looking component for an early 1930s receiver. The twisted wires at the right are the 6.3V heater supply for the 6AV6.

the 750Ω wirewound resistor which acted as a HT filter with the permag speaker setup.

The replacement loudspeaker needed an output transformer and this unit was attached to the speaker frame. It should have been chassis mounted but it really didn't make much difference where it went. Not in this set!

The 1500Ω field resistance reduced the HT voltage considerably. The plate voltage on the output valve was down to 180V, which is a bit low for good

results. A new 80 rectifier valve lifted the voltage to about 200V, although no significant difference in performance was noted.

Radiolas of this vintage have their speaker socket mounted about 12mm in from the back edge of the chassis with access to the socket being through a 30mm hole. As most standard 4-pin speaker plugs are larger than 30mm, the speaker plug had to be changed.

The conversion back to four valves did little to help the set's limited per-

formance. The old 34E needs to be operated with a good aerial and earth and with the volume control full on for most stations. It's not my idea of an interesting collectible radio and is a dismal affair to say the least. Its unusual cabinet style is about all it has going for it – that is if you happen to like that sort of thing.

Another problem with the 34E is that its fidelity left much to be desired and the level of audio distortion is quite obvious.

Many of these early TRF receivers had noticeable distortion and this was mostly caused by the detection method used. Anode bend and leaky grid detectors produce distortion and this distortion is quite noticeable when compared to the clarity of diode detection. As a result, diode detection became the preferred method by the mid-1930s.

(Editorial note: the need to use a resistor for the detector plate load could also have contributed some distortion. This would reduce the voltage on the 24A valve plate and thus reduce its signal voltage swing before overload. The type 45 valve requires a grid swing of over 100V p-p to deliver a maximum output of 2W. There would appear to be no way that the 24A could deliver such a signal with a resistor as a plate load).

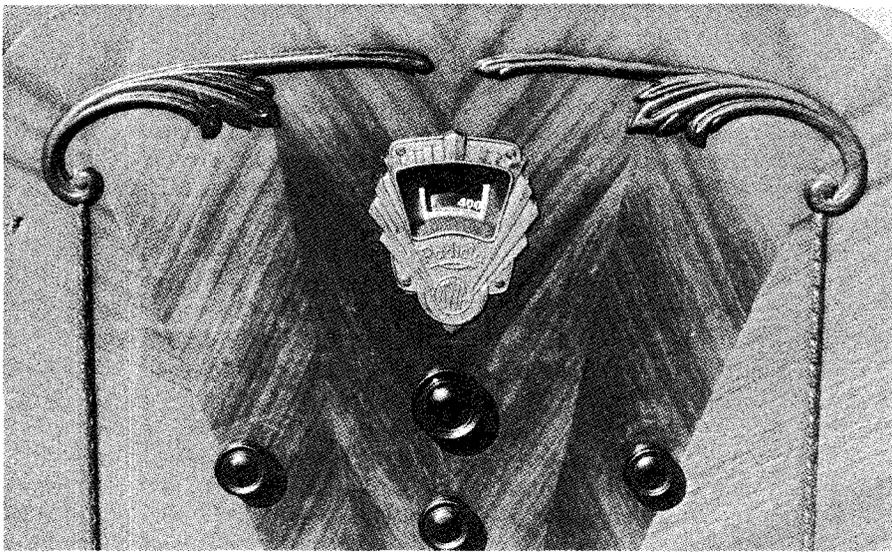
Although the AWA sales brochure referred to the detector as a "linear power detector", it seems to be nothing exceptional in the fidelity department and there is not much power associated with it either! Tinkering with a few component values did little to help the distortion problem.

So the 34E was eventually returned to its owner and he intends to sell or trade it to someone who might love it more than he does.

## Big dollars

The incredible part of this story is that someone will pay or trade to the value of \$600 or more for this particular old radio. Personally, I just cannot see big dollars in old radio receivers and I only collect those radios that happen to appeal to me and come my way at reasonable prices.

Anyway, the 34E is a good example of just how unoriginal some old radios can become. This one has been modified extensively and while the finished "restoration" looks OK at a casual glance, it is the sort of receiver



**This close-up view shows the controls. Despite the number of control knobs, the set is a mediocre performer at best, with noticeable distortion and poor volume.**

that would hold little interest for the serious radio collector.

While I often make light of the originality aspect of repairs, when one is confronted with such a hot-rodded piece of equipment as this 34E, then

there is a good point to be made for keeping a set as original as possible.

On the other hand, I sympathise with the previous repairer who had to face a repair with immense problems, including an open power transformer and field coil. In the absence of the necessary spare parts he did the best he could in the circumstances and he did get the set going again.

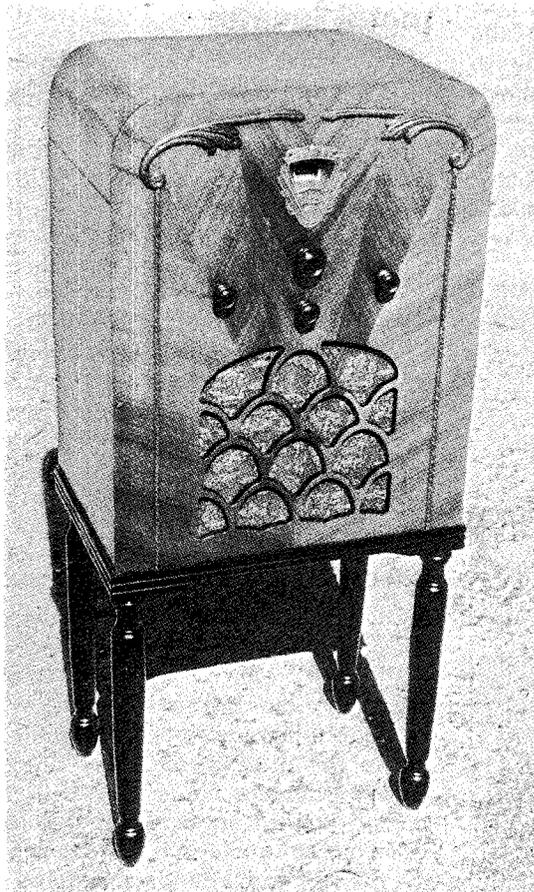
### **No spares**

As a vintage radio repairer, I must confess that I'm not particularly thrilled at the prospect of restoring some of these ancient receivers. I have few suitable spares to repair them in a way that even closely resembles original condition. It is bad enough working on some of these things without the added worry of genuine replacements.

When repairing such sets for other people, I simply stipulate that they find the required parts. Often, after a fruitless search, some compromise has to be accepted. The necessary bits and pieces are not always available.

While originality is a nice ideal, in some instances it is a near impossible dream. The 34E is testimony to that!

**SC**



**Despite the many unoriginal aspects of the old 34E, it scrubbed up fairly well. It's not hard to see that it is a close relative to the 45E.**