

# VINTAGE RADIO

By JOHN HILL



## Preventing trouble & making odd repairs to old receivers

**One problem that constantly confronts vintage radio restorers is the lack of suitable spare parts. Some valve radios are now 60 years old or more & so the vintage radio repairman must be prepared to improvise.**

Those rotten little furry rodents (commonly known as mice) can do more damage to an old radio set than one could possibly imagine. Most radio chassis have a few unused holes which give mice ready access to the underside where most of the vulnerable parts are housed. Any radio that has been stored in an outside shed will, most likely, have been home to mice at some stage.

I recently inspected some old radios that came from a retired radio-TV salesman. They were his trade-ins over a 40-year period and had been stored in "dry" sheds. One of these sheds consisted of a "U" shaped formation of old refrigerators (also trade-ins) with sheets of galvanised iron on top for a roof.

Many of these receivers were in a terrible condition, as one could well

imagine, but mice weren't the only rodents that called these sets home. No mouse could have caused that much damage.

Rats had torn the wiring to shreds. Power transformers, chokes and coils had had the windings ripped out of them – they were just about total write-offs as far as restoration was concerned. Any collector who stores his sets in outside sheds would be well advised to take a few precautions against rats and mice. A few traps and a packet of "Ratsack" are cheap insurance.

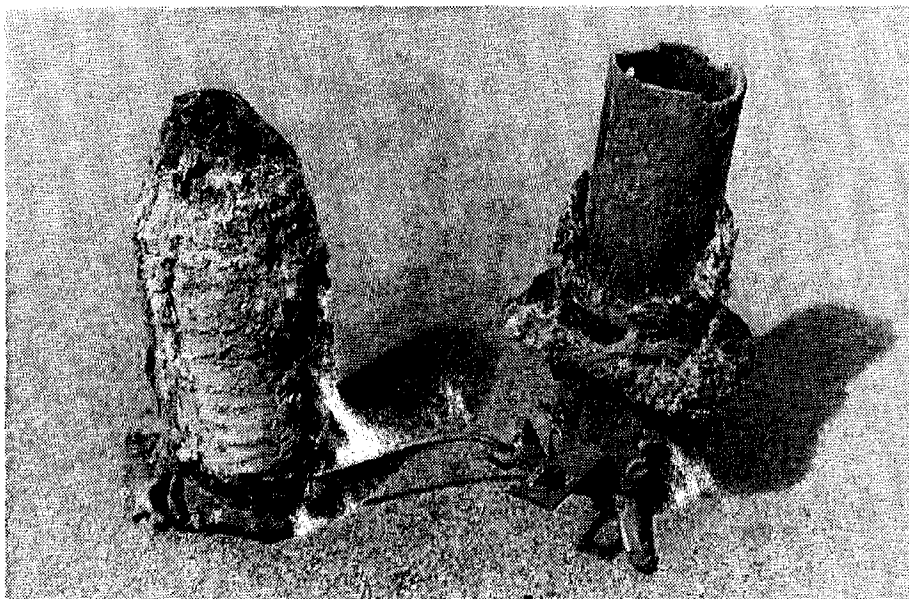
Mice cause two major problems in old radios: they nibble the wax coated components and their urine is highly corrosive. There is nothing quite like resoldering urine soaked joints – the stench is terrible!

One common mouse problem is chewed paper capacitors. Once those sharp little teeth start chomping into the foil layers, they short circuit the capacitor. It is not uncommon to find all of the capacitors ruined in a mouse infested receiver.

Capacitors are easily replaced and in most vintage radio restorations they should be replaced whether chewed or not. However, when little teeth start sampling aerial and oscillator coils, plus other tasty morsels, the damage is not so easily rectified.

I recently had a mouse damaged oscillator coil to contend with and, rather than look for a suitable replacement, I decided to have a go at repairing it. In this particular instance, urine had turned one of the coil leads green and the electrical continuity in that coil had vanished.

If the corroded wire had come from the outside of the coil winding it



Rodent damage to old sets can be quite extensive, as this photograph clearly shows. The component at left is a well-chewed capacitor, while at right is the remnants of a chewed aerial coil. Careful storage of old receivers can prevent this type of damage.

wouldn't have been difficult to pick up the outer strand of wire and rejoin it to the connection tag at the base of the coil former. But no. This mouse had to do it on the inside connection – didn't he!

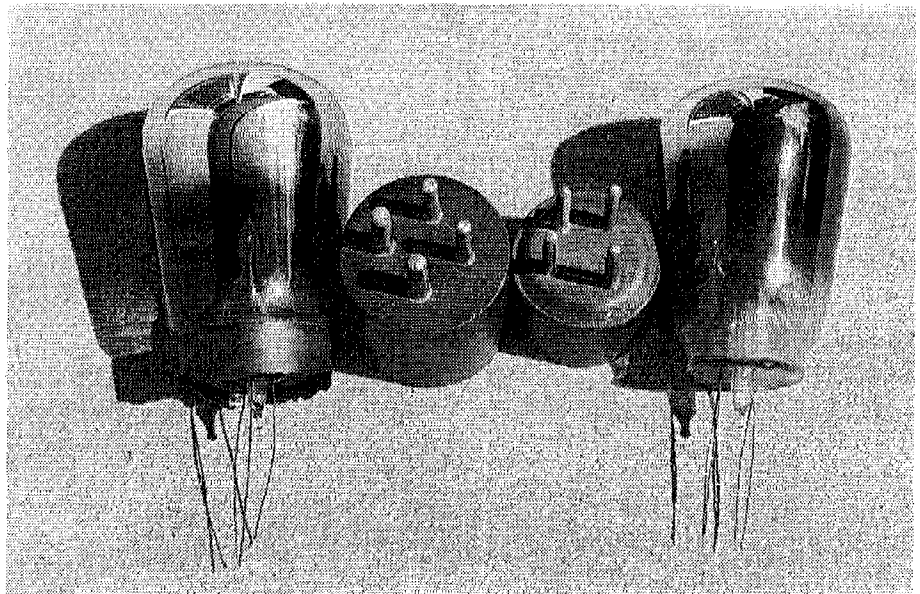
This meant unwinding the whole coil so that the inside lead could be reconnected. As it turned out, the job was surprisingly easy and the repaired oscillator coil worked as good as new.

My approach was to first unwind the faulty winding. I then made and attached two cardboard disks to the coil former, spaced the same distance apart as the width of the original coil. The original wire was then wound back on, with each end connected to the appropriate tags at the base of the coil former.

No doubt it would have been a good idea to have counted the turns but, because I was interrupted half way through the operation, I forgot where I was up to. The less scientific approach seemed the only alternative.

The fact of the matter is that the oscillator coil worked perfectly after the repair was completed. Because the coil had an adjustable iron core slug, it was easy to compensate for a few turns discrepancy in the winding.

I have performed similar repairs on intermediate frequency transformers and, once again, they worked quite satisfactorily. A few turns one way or the other makes little difference because IF transformers also have ad-



**Old radio valves, particularly those from the 1920s and 1930s, often have problems with loose bases & "crook" solder joints. Resoldering the base pin connections often restores an otherwise useless valve to full working order.**

justments, in the form of trimmer capacitors or iron cores, which can make up the difference providing it is not too great.

However, one should not approach these problems in a totally haphazard way. If the inductance of the replaced winding is somewhere near that of the original winding, then the repair will be successful. If the change in inductance is beyond the range of the adjustments, then the repair will not be successful. So while I have done a few tricky repairs of this nature and have got away with it, perhaps there

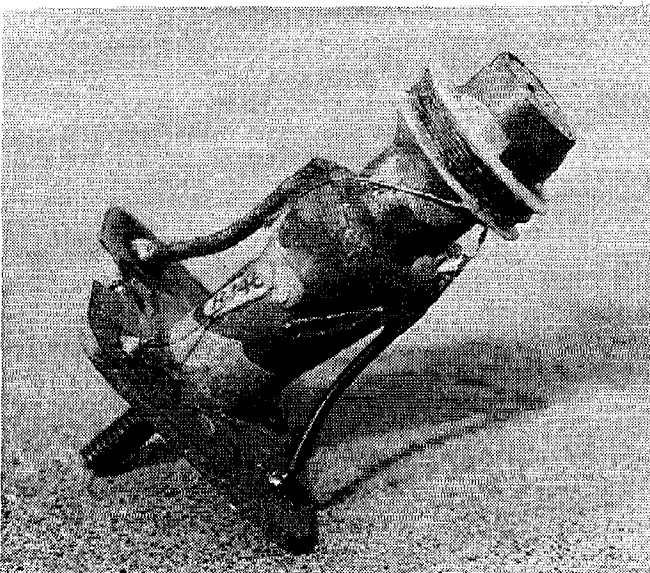
is an element of luck involved too.

A simple repair like rewinding an oscillator coil is usually better than replacing the damaged component with one that may not be an identical unit. Can you tell the difference between various oscillator coils simply by looking at them?

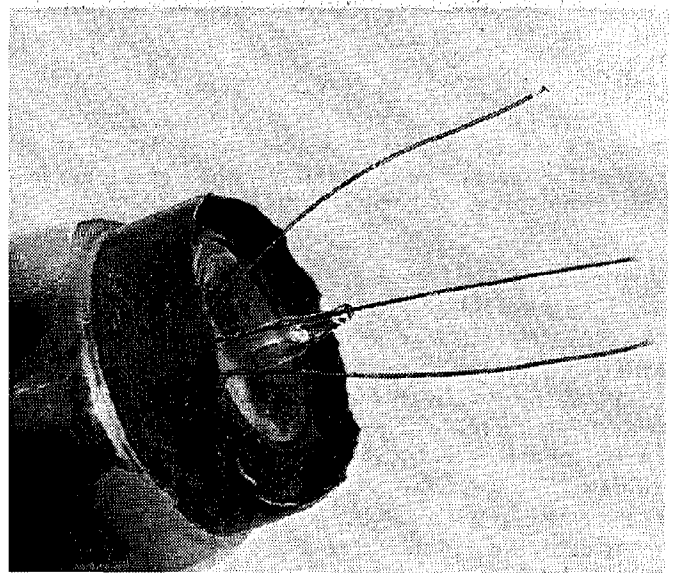
### Unusual repairs

Now let's move on to another type of repair, one that made a lot of junk quite serviceable, not to mention valuable.

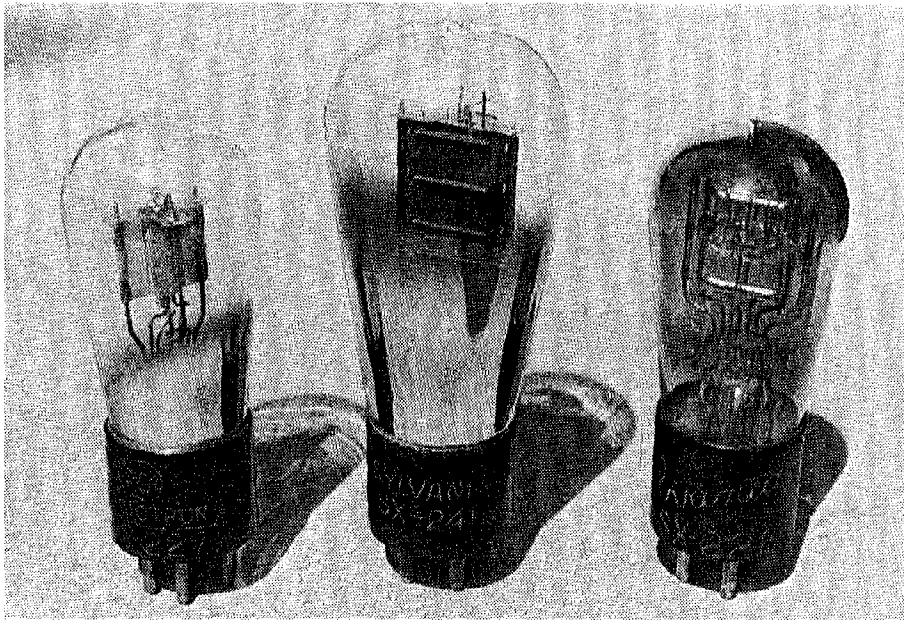
I have a good arrangement with



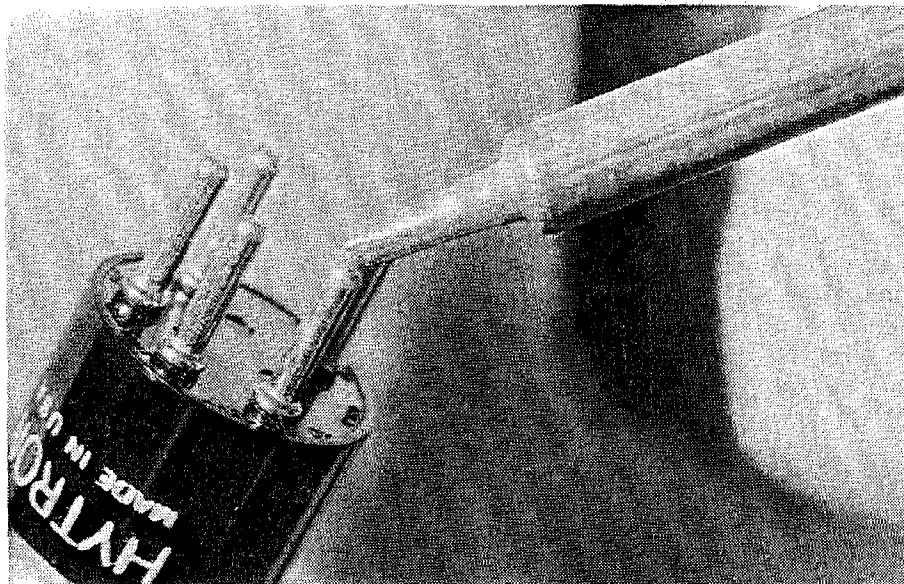
**This oscillator coil was repaired by undoing the top winding, re-attaching a corroded lead and then rewinding the coil between two cardboard washers. The rewind was completely successful.**



**Unfortunately, there was no reprieve for this old triode, as one of the lead-out wires had broken off inside the glass stem. Corrosion of the wire due to damp storage conditions was the probable cause.**



They might look like new but these old valves were salvaged in poor condition from the local tip. They are, from left: a 27, a 45 & a 26. None of these valves showed any signs of life until their base pin connections were resoldered.



Base pin connections are always suspect and many were never soldered properly at the factory. Cleanliness (bright shiny metal) is an essential factor when resoldering old connections.

young Peter, the lad next door. He spends some of his time scrounging at the local tip (you can do that when you live in a country town) and anything of interest in the way of old radios, etc, he brings home and sells to me for whatever I think is a fair price.

Peter also strips high voltage polyester capacitors from old valve TV sets and keeps me fairly well supplied. Over a period of a couple of years, he has extracted quite a few hundred dollars from my wallet.

Pete's latest find at the tip was a box of old valves and they were passed over the fence for inspection. There were about 40 valves in the box, the most modern one being an old 47 output pentode. The others consisted of 4V and 6V battery triodes (B406, A609, etc), plus a number of early AC valves (24, 26, 27, 35, 45, etc).

Unfortunately the valves appeared to have been stored for many years in a shed with a leaky roof. As a result, their outward appearance was most uninspiring.

Most of these valves seemed to be totally dead but a few of them tested quite OK. I gained the impression that they may have been put aside because they were in "good" condition, even though that may have been 50 years ago when the roof didn't leak. So I investigated them more closely.

Age and moisture can have a strange effect on a soldered connection. The solder loses its bonding (probably due to electrolysis) and although it looks reasonable on the outside, there is little or no electrical contact between the parts the solder is supposedly joining.

No doubt there is some highly scientific metallurgical name to describe this ageing process but "cruddy solder joint" will have to suffice in its absence.

## Socket connections

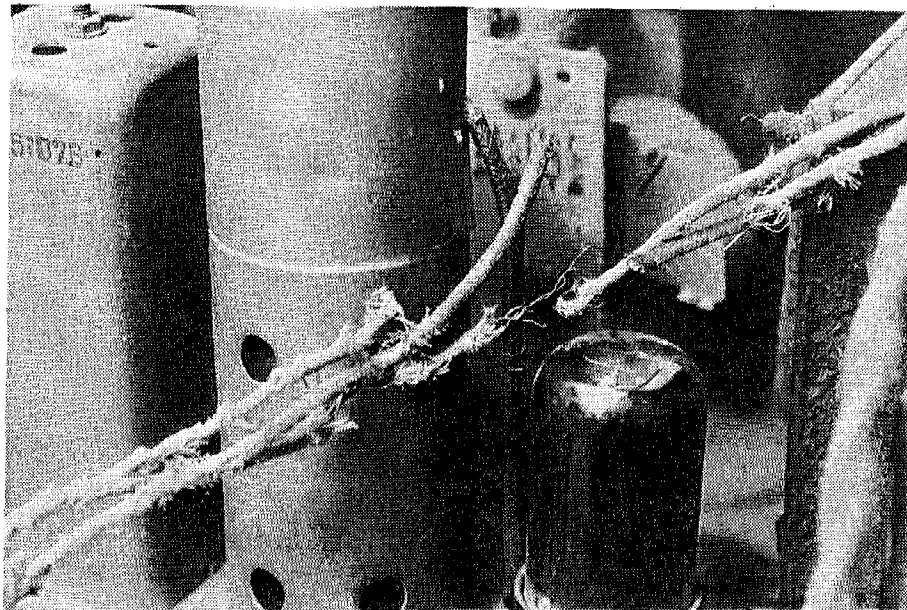
I also understand that the lead-out wires used in valves presented their own soldering problem and that faulty base connections were not uncommon in new valves. These leads are not simple copper wire as they might appear, but a special alloy designed to have a similar temperature coefficient to glass, so as to preserve the vacuum seal at varying temperatures.

This soldering problem was evident with these old valves and the base pin connections of one in particular looked very suspect indeed. When the solder was melted out of the pin connections, there was absolutely no tinning on either the wire or the pin. Both parts were dull and dirty looking.

Because the valve had a loose base, it was removed so that the internal wiring could be inspected. The connecting wires were tarnished but otherwise OK.

The ends of the wires were cleaned and retinned. Likewise the ends of the base pins. The base was then cleaned and refitted to the valve and the pin connections resoldered. Super glue was used to secure the base to the glass envelope of the valve. The end result was most pleasing—a B406 in excellent working order!

It took many hours to check out those grubby old valves and most of them responded favourably to these repairs. Even the valves that tested OK were resoldered because, although they were working, some of those pin connections looked highly suspect.



**This speaker wiring was chewed through by a rat. Storing old radios in a safe place, away from rodents, can save a lot of headaches. Rats are very destructive animals.**

What I have suggested here is nothing new or revolutionary. It is something I have done many times in the past, with mixed degrees of success. I never discard a valve without trying to salvage it first.

Quite often, a badly soldered pin connection (usually a heater pin) is all that prevents the valve from working. I have even found it necessary to resolder the pin connections on new valves. By "new", I mean unused – the valve can actually be 40-50 years old.

### **The Stromberg-Carlson**

Most of my vintage radio writings are directed at readers of limited experience and the next item illustrates the trouble some people get into when they do not know what they are doing. The saying, "a little knowledge is a dangerous thing," does have an element of truth in it.

I was asked by a new radio collector to have a look at his 1939 Stromberg-Carlson, a console model with pushbutton tuning. He had bought it at a country auction for the bargain price of \$6.00 and wanted to have it restored so that he could use it.

Now this guy didn't know what he had bought. The set was a 6V vibrator model and it no longer had the two alligator clips attached to the power cord. What did he do? That's right! He put a 3-pin plug on the end of the tattered cord and plugged it into the 240V mains!

Despite the fact that the set had a fuse, the result was five burnt-out valves and possibly other damage that I did not bother to check out. To quote his own words: "it smoked a bit at the time, so it's only fair that I tell you what happened!"

Another small problem with this set was the tuning mechanism. The drive from the control knob to the tuning capacitor shaft went via a worm and wormwheel reduction to a friction drive mounted on the capacitor shaft. The fibre wormwheel was all chopped out and the friction drive (a rubber-tyred affair) was perished and useless. What was wrong with using a simple dial cord and a couple of idler pulleys?

The somewhat disheartened radio collector departed with his wreckage. His farewell comment was, "I have learnt quite a lot for \$6.00"! He was lucky: his lesson could have cost him his life.

A colleague reports a similar incident. The set was a 6V valve-type car radio that had been imported from the US from an era when American cars used 6V electrical systems. It was connected to a 12V battery and it too smoked a bit. The vibrator power supply components took quite a beating and he is still trying to salvage it.

So be warned about such things. Take a close look first before doing something that you may regret later on. If you have any doubts, ask someone who knows! **SC**