

# VINTAGE RADIO

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## Restoring the butchered set

**Restoring a vintage radio that someone else has had a go at can be a difficult job. Sometimes the fault will be quite subtle but all too often, the previous restorer will have made a complete mess of things.**

It's not unusual to come across a set that has been really butchered. When you see such a set, it makes you think that the person who did the work on it should be granted the striped apron award and then hung, drawn and quartered.

Often, these sets are obtained for what appears to be a reasonable price and the seller often says that there

isn't much wrong with the radio. Sometimes however, the seller has tried to get the set going but has finished up with a mess that's bigger than when the work was started. This is a case where a little knowledge can be dangerous. Caution is needed in restoring sets that haven't been "got at" and an enormous amount of caution is needed where a set has obvi-

ously been "got at" and "butchered" into the bargain.

In some cases, the restorer has been very careful with the work but has been unsuccessful because they didn't understand how the circuit worked. In other cases, everything has been done correctly and the lack of success is due to a faulty new part. Yes, that happens occasionally and people with considerable experience get caught as well.

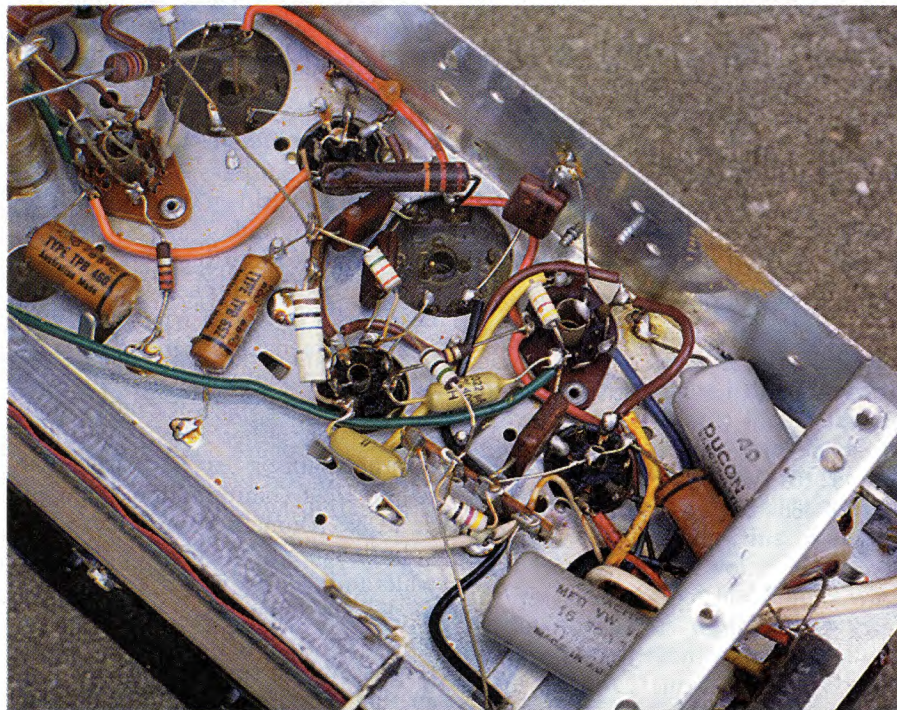
### A snap diagnosis

When I built my first radio in 1954 (a "Marconi" 1-valve kit), I couldn't get it to work. I then took the typical but totally useless approach of a novice and pulled it to pieces and rebuilt it – more than once, actually – and it still didn't go! It must be the 3V4 valve, I reckoned, so I sent it back to the supplier and they sent me another one and the set then worked.

For once, the diagnosis of "it must be the valve" was correct but it often isn't. I had no test gear, virtually no radio knowledge and no hope of finding out what was wrong. My so-called diagnosis was nothing more than a lucky guess.

Of course, once the set was operating, I became the local radio expert – at least, in my opinion. I was soon brought back to earth. A cousin and I tried to get his 1-valve (1D8GT) radio going a little later on and we had no success with it at all. Like mine, I wondered some years later if we had inadvertently put HT voltage on the filament of the valves! We'll never know.

In circumstances like this, it is better to get some advice from a restorer more experienced than you are. When we lack the experience of years in the trade, it's easy to overlook things that



This view shows the wiring around the 6M5 valve socket of the Little Nipper radio that I was given to service. Before removing any parts, it's a good idea to make a drawing of the connections so that it can be easily reassembled later on.

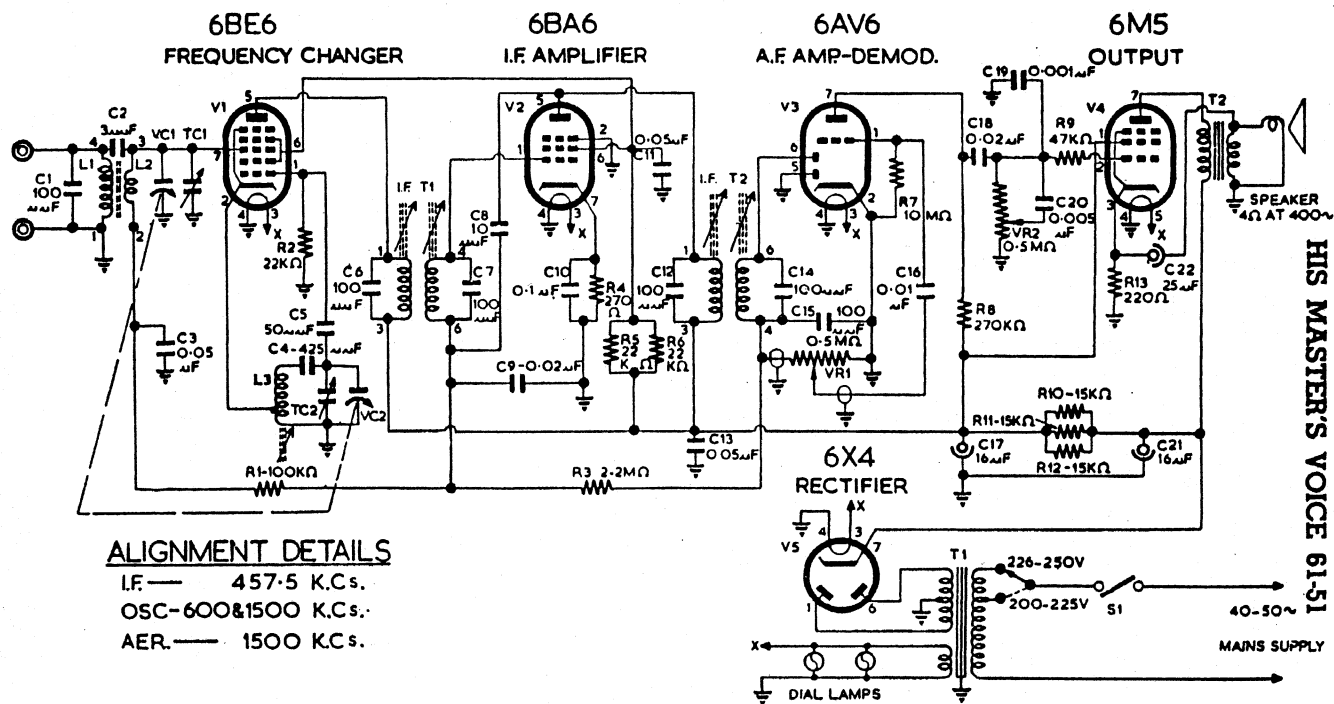


Fig.1: the circuit of a late-model HMV "Little Nipper". Substituting incorrect component values can really upset the performance of a circuit like this.

a more knowledgeable person would detect quickly.

For example, I got bogged down trying to get my VHF amateur radio station going on the 144-148MHz band soon after I got my licence. I literally didn't have a clue and so a friend and I bundled all our amateur radio gear into the car and travelled 100km to the nearest VHF amateur radio operator. He helped both of us get the equipment going, explained to us what he was doing and encouraged us in various ways.

We never looked back from that time onwards. And so it is with new restorers. A little help at the right time and you'll really start to have a satisfying time restoring your radio gems.

## The things people do

What people manage to do to the sets they are restoring could fill a book. My first story concerns a friend's brother-in-law. He acquired a 6V vibrator mantle set which he asked my friend about and was told that it was a battery operated set. Obviously, this advice didn't sink into the "smart-alec" brother-in-law's head, as he promptly removed the 50A battery

clips and substituted a 3-pin mains plug. He then plugged the set into the 240V mains supply.

There are no prizes for guessing what happened next. All the valves now have no filaments, while the fate of the vibrator is unknown. As for the rest of the set, heaven knows what damage has been done. A perfectly good set was instantly turned into junk and it's now a very doubtful proposition for restoration.

This same scenario often occurs when 32V sets are bought or sold to the local secondhand/antiques shop. Unfortunately, 32V sets look like their 240V AC cousins and usually have 3-pin plugs on their power cords. Plugged into 240V, things light up brilliantly for a fraction of a second until the fuses in the set blow – that is, if they haven't been replaced with a 2-inch nail (the original 300A slow-blow fuse). Remarkably, many 32V sets survive such harsh treatment but be aware that all may not be well in such a set.

Then there are the sets that someone has actually got into and "serviced". These are the real worry and before even switching them on, it's advisable to obtain a circuit diagram from the Historical Radio Society of



## Fixing the butchered set – continued

Australia or the New Zealand Vintage Radio Society. Alternatively, you may know a fellow enthusiast who can supply a copy.

If in doubt, trace the circuit out to determine whether it is as it should be. If not, a rewiring job lies ahead before the set can be turned on. Sometimes, the exact circuit diagram will be difficult to obtain. If this happens, select a circuit that's similar (eg, for a slightly different model) and use this as a starting point for the restoration. Naturally, different valves require slightly different operating conditions and the Miniwatt Technical Data book can help you here.

### The Little Nipper

I once had a late model Little Nipper HMV radio to service. These sets are quite reliable and, as shown in Fig.1, the circuit is quite straightforward. This particular set suffered from instability in the IF amplifier.

In this circuit, the AGC bypass/filter capacitor (C9) not only filters the AGC line but also acts as part of a neutralising circuit with C8 (this just goes to show that pentodes, as well as triodes, can benefit from neutralising in RF circuits). I found that the restorer had installed the wrong value for C9 (about 10 times the correct value). This in turn upset the neutralisation and caused the instability. As soon as the correct value was installed for C9, the set performed quite nicely.

In another case, the restorer replaced the diode detector RF filter capacitor (C15) with another capacitor that he thought was of the same value. Apparently, it wasn't easy to read the value on the original and not having a circuit to refer to, he used a .01 $\mu$ F capacitor when the correct value was 100pF. As a result, the set was very "bassy" and had little audio gain. Once again, changing the capacitor fixed the problem.

Capacitor values are not usually critical except in tuned circuits. Gross deviations from the correct values can create problems but one step up or down from the nominal value is rarely a problem. Note also that some of the nominal values that have been used for years through force of habit are not necessarily the optimum values.

On the other hand, resistors tend to be more critical and so the correct values should be used in that part of that particular set's circuit. By following the general component values, as shown in Fig.1, the performance should be quite reasonable.

### The worst sets

The worst sets to get back into operation are those where the restorer has decided to replace things "willy-nilly", in an effort to get the set going. In some cases, all the paper capacitors are taken out and then a new batch is put back in.

Unfortunately, many people forget to draw diagrams of where things come

from and often end up fitting the new parts in the wrong places. The result is a unique circuit that doesn't work.

I make it a policy to replace one component at a time so that I don't forget where it came from. And if I have large component such as a valve socket to replace, I draw a diagram on a piece of paper that shows all the connections, so that I know what goes where.

Sets that have been abused in various ways are not good choices for first-time restorers to cut their teeth on. Experienced restorers are not keen on them either and for good reason – they can be more trouble than they're worth.

If you do have a set that falls into this category it's best to seek advice from an experienced vintage radio restorer. That way, you won't spend a lot of time on a set that's not worth restoring or that's beyond your capabilities.

### Manufacturing faults

Finally, note that some sets had faults built into them right from when they were manufactured. If you can detect the errors made (and they may not be easy to find), you may well be able to say "it goes better than new". I've encountered a few stinkers like that over the years and they generally become first class sets once the problems have been ironed out. Of course, the faults are usually very subtle and take some hunting down.

That said, restoring a vintage radio set that someone else has given up on is a very satisfying experience. Have fun.

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