

VINTAGE RADIO

By JOHN HILL



Old Henry: one of my favorites

This month, I thought I would describe in detail one of my favorite old radio receivers. This nameless console model is of about 1933 vintage, is huge in size and is so ugly that the designer must have been totally inartistic. However, it performs very well for an old timer and is one of my most valued possessions.

My nameless set isn't really nameless — I call it Henry. This often prompts a question as to why not Henrietta? My standard reply is that no woman could be so shapeless — it just has to be Henry! Henry is all square corners and sharp edges with short thick legs. One could never think of such a form as "she".

There seems little doubt (in my

mind anyway) that as far as early radio was concerned, big was beautiful! Henry fits this description fairly well for nearly everything about him is big.

But while the cabinet is quite large and the chassis enormous, the dial goes in the opposite direction and is but a tiny circular spot on the front panel. In fact, the dial is greatly out of proportion to the

overall bulk of the set but that was pretty much the norm for the early 1930s.

Another thing that looks out of proportion is the size and spacing of the three control knobs. They are so close together there's hardly room for fingers. It seems so pointless when there is so much room to spread them out.

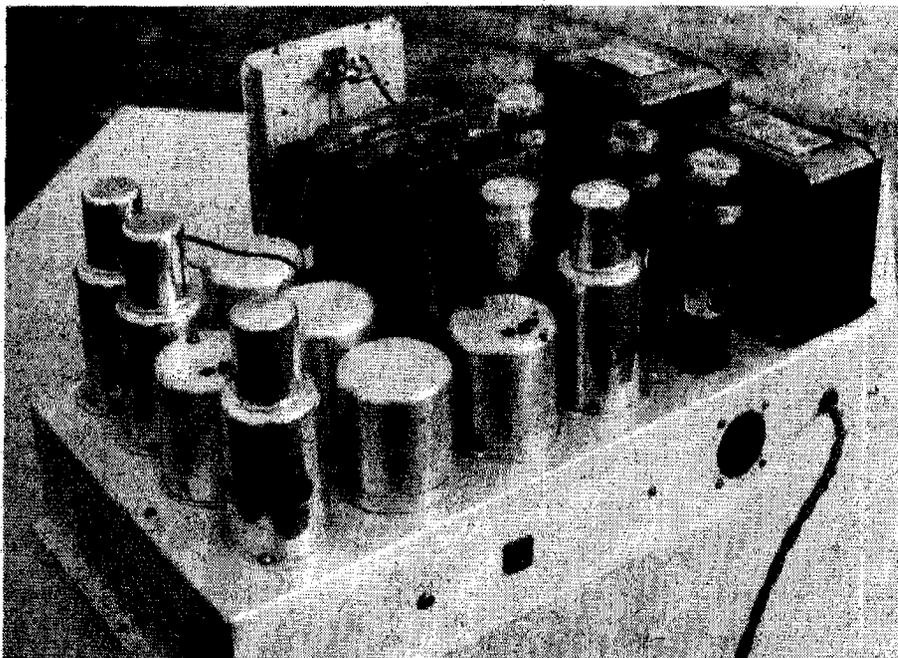
The circuitry

On the other hand, from an electronics point of view, Henry was ahead of his time. The circuit is unusual in many respects and differs considerably to what I consider normal. It is these differences I wish to discuss in this particular story.

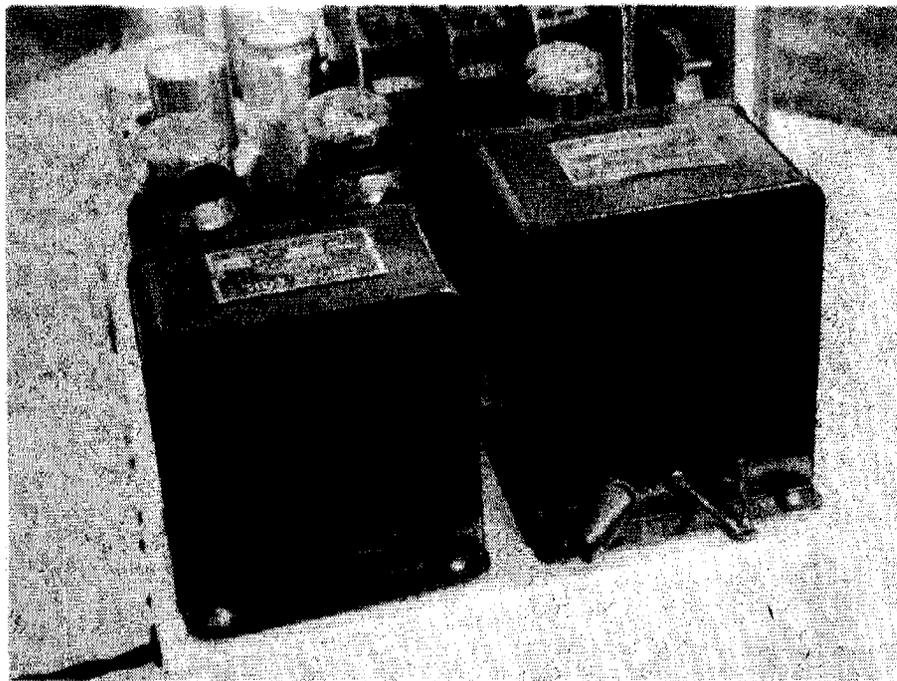
The power transformers and high tension chokes are worthy of note for old Henry has two of each. The larger of the two transformers is mounted on top of the chassis and is a huge affair enclosed in a pressed steel case. This "Clock" brand transformer is strictly for the high tension supply and provides the rectifier valve (an 80) with high voltage for its anodes and 5V for its filaments.

After the rectifier, the high tension DC is passed through a 30 Henries (no relation) choke to smooth out the ripple. This choke is in addition to the usual speaker field coil. As might be expected, when both chokes are combined with a couple of electrolytics, there is absolutely no mains hum in the loudspeaker.

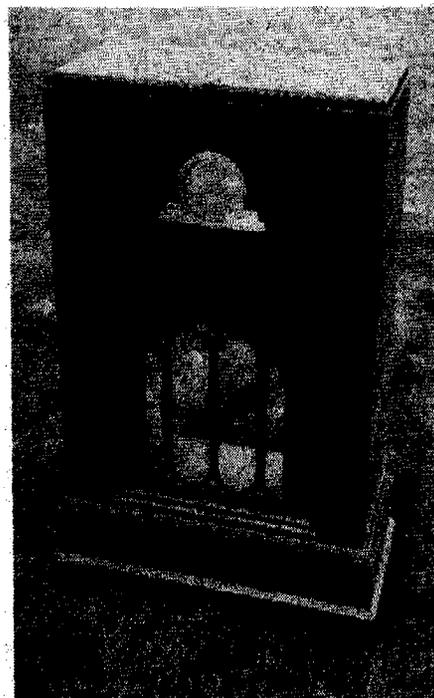
The rectifier socket is of the old 1920's style and sits on top of the chassis. Its external connections are not only bare but quite accessible to probing fingers. Receiving a



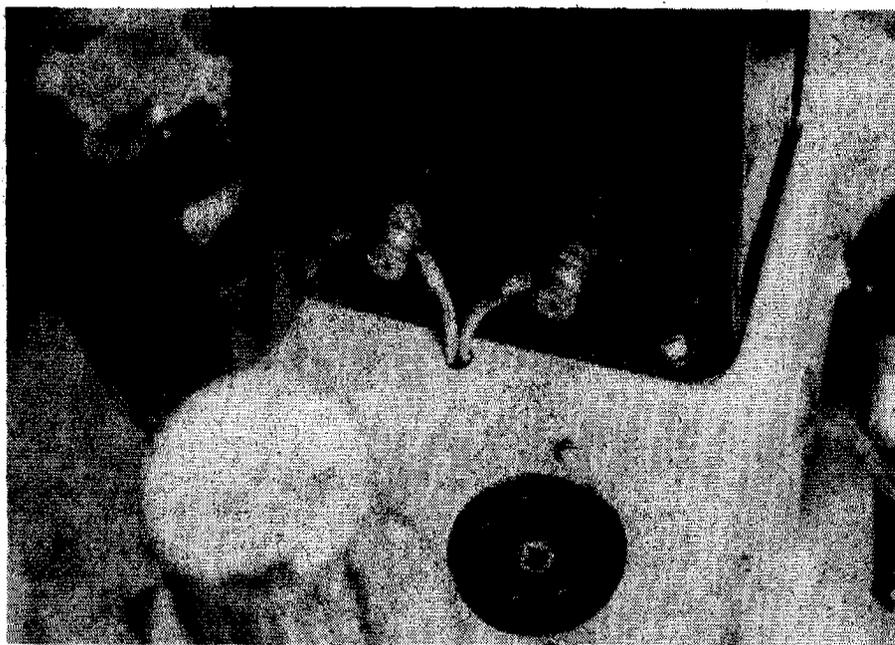
The all-aluminium chassis is an impressive sight to say the least. The aerial, oscillator and IF coils are housed in unpainted aluminium cans while the four valve shields are of polished aluminium. They don't make radios like this anymore.



The large high tension transformer (right) and the 30 Henry choke are mounted side-by-side at one end of the chassis. The transformer's job is to provide the necessary voltages to the rectifier valve (an 80) for the high tension supply.



Henry's cabinet is hardly a thing of great beauty but is pretty much the norm for the early 1930s. The cabinet stands 42 inches (that's over 1 metre) high.



Bare external terminals with a potential exceeding 300 volts DC protrude from the side of the 30 Henry choke. Don't touch — they can deliver an almighty wallop!

high voltage boot from the rectifier socket is as easy as poking a finger onto the hot connections.

There are other nasties beside the rectifier socket. The chassis mounted choke is also connected into the circuit with bare external terminals. These terminals are at the rear of the set and are so positioned that 300 volts plus is well within reach if one wished to check

the high tension with a finger. One slightly incinerated hand would certainly mean that there's nothing wrong with the HT!

While we're on the subject of all these electrical booby traps, I should also mention that one of the power transformer's three primary taps (the one not connected to the mains) was just tied up in a knot with the bare wire protruding. This

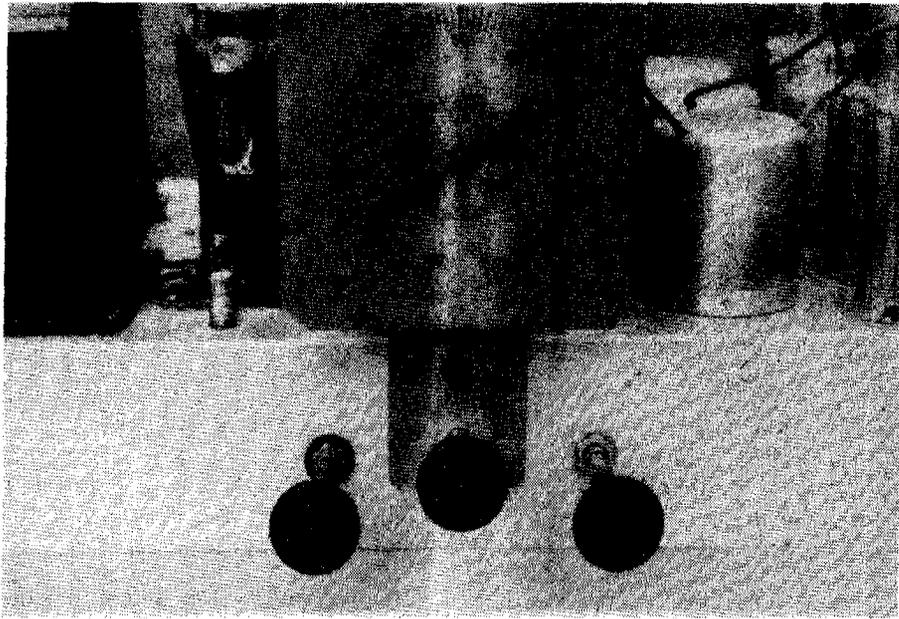


The rectifier socket (with bare connections) is mounted on top of the chassis. The small globe connects the transformer centre tap to earth.

didn't appeal to me very much so I taped it up.

The foregoing should be sufficient warning about the hazards of tinkering around with old radios. Some of the early manufacturers made very little effort (none at all really) to insulate dangerous voltages from the user or serviceman as the case may be.

Even so, I don't consider the set to be particularly dangerous, but I do treat it with the respect it deserves. I guess it's a bit like playing Russian Roulette, but in this



The small dial and the closeness of the controls are out of proportion to the overall bulk of the set but pretty much the norm for the 1930s. In fact, the controls are so close that there's barely enough room for one's fingers.

case the player knows which chamber the cartridge is in. That makes the odds a good deal better.

The second power transformer is about half the size of the main transformer and is mounted under the chassis. This smaller unit has only one secondary winding of 2.5 volts and naturally supplies the heaters of the other valves.

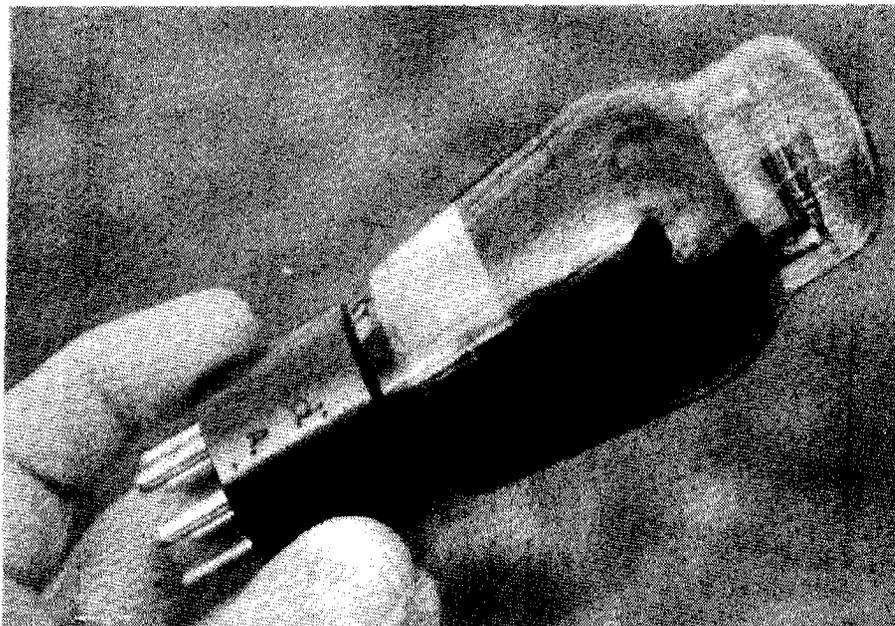
Both the transformers and the chassis mounted choke are particularly large and heavy and are more than adequate for the job. An hour's use will see the 2.5 volt

transformer rise in temperature to slightly warm, while the main transformer and the high tension choke remain cold.

Parallel pentodes

Another unusual aspect of this particular radio is its output stage which consists of two 59 pentodes in parallel. That's right — parallel, not push-pull!

These two valves are connected grid to grid, anode to anode etc and work in parallel. Withdrawing either of the output valves has no



The output stage uses two 59 power pentodes in parallel for increased audio output. Withdrawing either of the output valves has no effect on the set's operation apart from a slight drop in volume.

affect on the operation of the receiver apart from a slight drop in volume.

The old 2.5 volt 59 is an unusual pentode in that the suppressor grid is lead out to a separate base pin. In any normal pentode the grid is earthed internally through the cathode. Such a set up gives the 59 an additional base connection and also allows it to be referred to as a "triple grid" valve. How the three grids are connected is entirely up to the set's designer.

Another different aspect of the 59 is that it has two separate heaters with two separate cathodes. This type of construction is almost exclusive to the 59 valve. Most other AC valves have cylindrical anodes surrounding a single central cathode.

I'm quite keen on the 59's odd construction characteristic because a valve with one blown heater will still work reasonably well on the remaining cathode. Henry has one such valve and it tests at 75%. Even with the so-called good valve removed, the set will still function on the remaining 59 with its blown heater.

At one stage I was inclined to scrap this half defunct valve, but it can stay in service for a while yet. There is every chance that it will keep on going for years.

The other valves are also of the 2.5 volt variety and include the fairly common types of 57, 58 and 2A6. The 2A6 is a duo diode triode which will immediately suggest to many readers that the set has AVC (automatic volume control) or, to use the more correct term, AGC (automatic gain control).

Henry's AGC is of the delayed type and the delay can be noticed when one crashes onto a particularly strong station. The sound is momentarily louder before the volume adjusts itself.

The set has no tone control but the circuit is such that it produces a particularly mellow sound and there really is little need for an additional tone control. Whilst on the subject of controls, Henry is equipped with an on/off switch which is fairly unusual for a radio of that vintage.

The chassis itself with its attach-



Old Henry is truly a gutless wonder. Note the small power transformer on the left. This supplies 2.5V AC for the valve heaters.

ed cans and valve shields is also worth a mention because everything is made of aluminium. Both the aerial and oscillator coils and the IF transformers are all housed in unpainted aluminium cans, while the four valve shields are of polished aluminium.

Small dial

With all this hardware, the chassis is an impressive sight when laid out on the work bench. Unfortunately, the effect is spoilt by the small and somewhat unimpressive dial but I guess that that was the way they made them back in the early 1930s.

The miserable looking dial unit drives the biggest 3-gang tuning capacitor I have seen. The tuner has built in mica trimmers on each gang and these are conveniently placed on top for easy access.

Henry, like many other vintage radios of the early superhet era, has an intermediate frequency of 175kHz. While this frequency may sound strange by modern standards (455kHz), it was common in Henry's day.

Up-ending the chassis is a bit of a struggle due to the weight of the transformer and choke at one end. However, once up-ended, the underneath view is somewhat disappointing. There is so much space for so few components it looks as though someone has left out most of the parts. This,

however, is only an illusion for everything that should be there is there, even if it looks a bit to the contrary.

The tapped, wirewound voltage dropping resistor and the large size of the one watt carbon resistors are about all one could comment on as far as the under-chassis parts are concerned. It looks pretty untidy really, due to the point-to-point wiring technique employed.

Henry is fitted with a 10-inch Jensen electrodynamic loudspeaker and this functions reasonably well for its age. Undoubtedly a more modern speaker would sound a little better but Henry is one set that I want to keep original. The fact of the matter is that the original Jensen speaker really does work OK and produces quite a good sound.

In many ways, old Henry is a bit of a strange beast. But as I said earlier, he's one of my favorites.

Really, he's quite outstanding in a number of ways. He is the only receiver in my collection with seven valves, the only one with a twin output stage and the only one with an aluminium chassis. Henry is also the largest set I have and possibly the most horrible to look at. But he does perform well and for only \$40 I reckon he was a bit of a bargain as well.

Perhaps at some other time in the future I will write about another of my favorites, but not many could hold a candle to old Henry. 