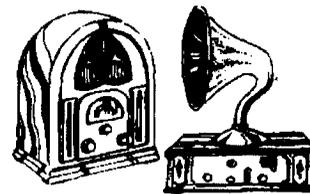


Vintage Radio

by ROGER JOHNSON



Multum in parvo — the Personal Portable

The advent of the corded and cordless headset type of radio and the euphemistic 'ghetto blaster' have largely seen the disappearance of the hand-held portable, or 'trannie' as they were so often called. In the valve radio days, the equivalent was known as the 'personal portable'.

There has always been a fascination for radios that can be moved — i.e. portables — firstly among enthusiasts, and subsequently the general public. Fig.1 shows an outing of Southern Suburbs Radio Club (S.A.), who took their radios on a train trip through the Adelaide Hills in 1925. Such an undertaking was strictly for the enthusiasts, though. Carrying a heavy accumulator, a loop aerial, a horn speaker, battery packs and skeins of connecting wires is not a particularly user friendly activity, nor an undertaking for only one person!

Peter Lankshear has already described an 'early transportable radio' in *EA* for April 1989. Mr Lankshear also noted that even the portables of the late 1930's weighed in at about 9kg (20 pounds), without batteries.

But things changed for the better with the arrival of 'peanut' valves — i.e., miniature valves in the familiar sin-

gle-ended guise. Released in 1940 by RCA in America, they did not appear in this country until at least 1946.

EA's forerunner *Radio and Hobbies* published details of a portable set using the new valves in October 1946. It was housed in what was a otherwise a standard portable cabinet and chassis, and using regular components.

The truly portable

In October 1947, *Radio and Hobbies* published what they claimed was the first truly personal portable in Australia, the 'Handie Talkie'. The cabinet measured a mere 7" high, 5" wide and 4-1/4" deep and was crammed full of the required components, leaving practically no free space.

One presumes that a 'personal' portable was of a size that could fit into the palm of one's hand and had a limited audio output, sufficient only for the listener at the time. The circuit

is produced in Fig.2, and a photograph of a disassembled version is shown at Fig.3.

Many pages were devoted to the construction, which called for a good deal of inventiveness, patience and dexterity — and dare to say, a small soldering iron with resin cored solder. As can be seen from the circuit, there are no short cuts. It is indeed a full five-valve superhet with simple AGC. The circuit uses a 1R5 as the converter, two 1T4 IF amplifiers, a 1S5 for detection and first audio amplifier and a 3V4 power amplifier.

The high tension or 'B' supply is via the newly released Eveready 'Minimax' 67.5V battery. The 'A' supply is via two D-size torch cells, and the rule of thumb was that the B-battery outlasted the A-batteries by a factor of four to one.

At 67.5V on plate and screen, the 3S4 has a staggering 160 milliwatts of unobtainable power. No wonder they were called 'personal' portables! Basically, such a radio whilst of a quite proper design, was not much more than a novelty. It would perform well enough only a few feet from one's ear, and so was suitable for amusement while doing the gardening or for listening to the cricket at the beach.

Estimating the output

As previously mentioned, the circuit is a full five valve superhet with simple AGC, a loop antenna, two IF stages and a 3" speaker. Back bias is applied to the output valve, thereby limiting the available HT to about 61 volts and reducing the power output still further by a few milliwatts.

A check with valve data books reveals that if all five valves were operated at maximum available voltage, the total current drain would be a hefty 20 or so milliamps. Screen



Fig.1: Taken from the *South Australian Wireless and Radio Weekly* for October 21st 1925, this picture was taken on the SSRC train picnic to the Adelaide Hills.

dropping resistors R4 and R5 would ensure that the 1R4's and the 1S5 would be tamed considerably, thereby limiting HT consumption to about 9mA — still more than enough for the small B-battery. The *Radio and Hobbies* article itself gave no information regarding the circuit's current consumption.

Commercial designs

Looking more like a fridge for a doll's house than a radio was the AWA 450P for 1948. This design uses four valves, with only one IF stage. By then newer high gain intermediate transformers were available. The AWA set used a non-miniature tuning gang! Current consumption was stated at 6.5mA, not including the 1R5 and 3S4 screen, which would amount to a further 2.5mA.

Also for 1948 was a Breville type 801 using five valves. This design had a tuned aerial stage and an untuned RF stage, because miniature three-gang tuning capacitors were not considered. Healing produced the 404B for the same year using four valves, and an equivalent Hotpoint Bandmaster was manufactured by AWA. From time to time other manufacturers made forays into the personal portable market, but the total numbers made are unknown.

Repairing a portable

Repairing one of these gems

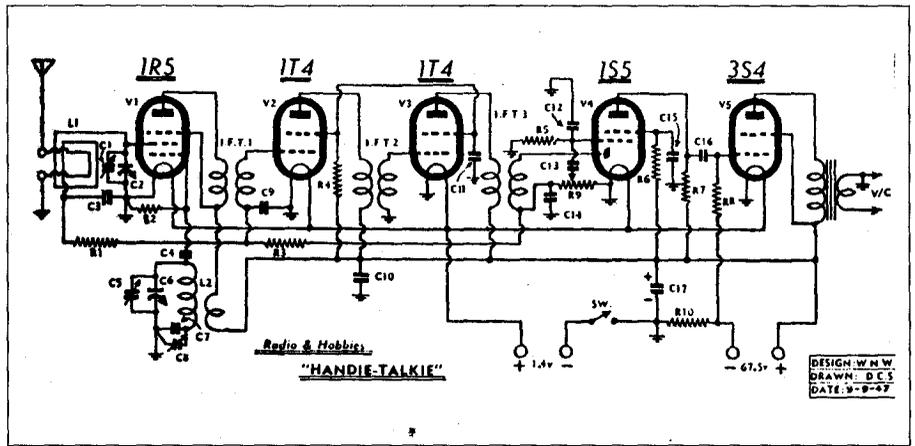


Fig.2: The circuit of the 'Handie Talkie' personal portable described in *Radio and Hobbies* for October 1947. It was designed by Neville Williams.

requires a few tricks of the trade. Firstly, the aerial coil is rarely a conventional coil. It is more likely to be a loop antenna, either fixed to the inside of the cabinet or wound around the outside of the cabinet and then covered with leatherette. In the event that extension wires are required once the chassis is removed, keep them as short and as widely spaced as possible for fear of alignment problems.

If access to a bench supply is convenient, about 70 volts will be required. The 'A' batteries can be conveniently replaced with modern counterparts, with alkaline types being preferred. Ensure that any residue from old leaking batteries

from former times is removed as thoroughly as possible, but DO NOT use steel wool. The fine dust produced as a result of using steel wool can cause havoc. A nylon type scourer is the only choice.

Because of the cramped underchassis, it may be necessary to remove the odd capacitor to gain access to valve bases, in order to measure voltages. Of course, they are replaced again afterwards.

The oscillator coil may be wound around the oscillator grid leak resistor, and is generally wound with very fine wire. In the event that it becomes open circuit, replacement can be difficult. You may have to find a more modern, small counterpart and try as



Fig.3 (left): The component parts for the R&H Handle Talkie portable. Not shown are the set's batteries.

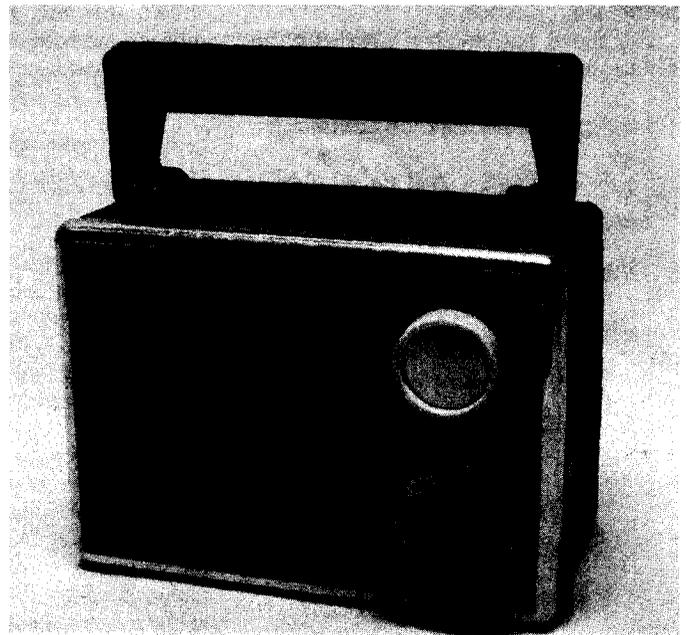


Fig.4 (right): This early valve portable is as yet unidentified. The loop antenna is contained in the handle, which must have made for interesting listening!

VINTAGE RADIO

best as one can to find a spare cubic centimeter under the chassis to accommodate the replacement coil.

As there were rarely fully calibrated dials, any problems with dial alignment can be largely ignored.

Be careful, too, of attempting to peak the intermediate frequency transformers. Some types are unlikely to match standard alignment tools. Others again have an impression moulded directly into the ferrite slug which resembles a narrow yet thick screwdriver slot. A suitable tool can be fashioned from a knitting needle.

Do not try and force a sticking slug; apply gentle pressure. Otherwise the slug may crack, thereby seriously affecting alignment and performance. Chances are that the IF transformers won't be too far out, and it is better to err on the side of caution.

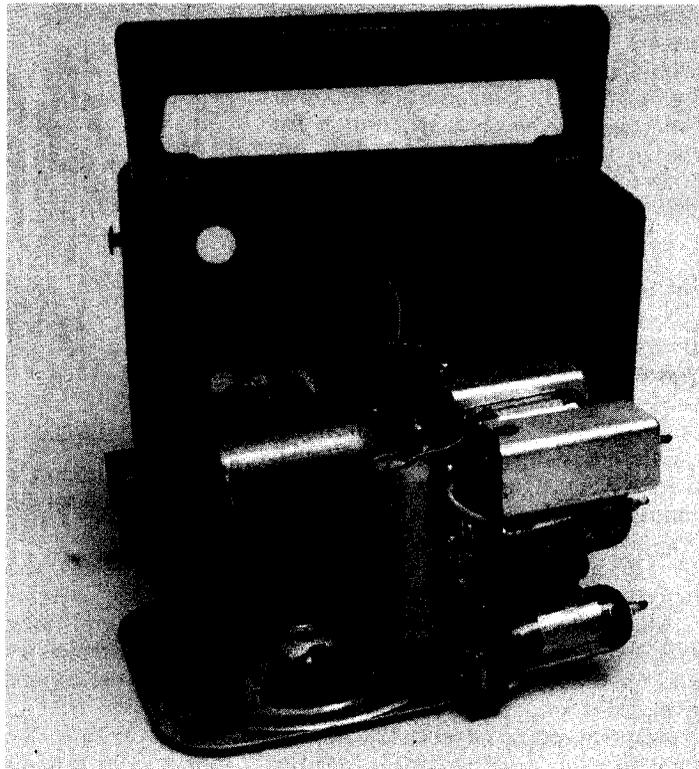
Basically, alignment consists of a tweak of the padder or oscillator slug, and a peak of the aerial trimmer. There may or may not be an oscillator trimmer to worry about!

Spare parts

In the event of a dud valve, a replacement can be easily obtained from one of the vintage radio specialists who advertise in this magazine. Resistors and capacitors, if needing replacement can be done so with more modern equivalents which are usually physically smaller, and hence the under-chassis will become a little less crowded.

For the B battery, try a series combination of eight 9V miniature (216)

Fig.5:
The unknown portable set removed from its pressed metal cabinet. the oscillator slug is just visible at the top of the output transformer, and the space beneath the transformer housed the B battery.



types. These can be connected using snap-on connectors and with a little ingenuity, taped together to fit into the space previously occupied by the old 67.5 volt type. The 'A' batteries can be modern D size alkaline types.

Modern 9V batteries have a nominal rating of 0.11Ah. This means that at 8 or 9mA consumption, the batteries will last 14 to 15 hours. However experience has shown that this figure is conservative indeed, and battery life depends as much upon judicious use as anything else. If

the radio is used for no more than one to two hours at a time, and an equivalent recovery time is allowed, the battery life could easily be doubled. The better quality the battery, the longer the life.

Finally, anyone fortunate to have one of these little gems will know what a great conversational piece they can be, even amongst non-technical folk. A small 'vintage portable' radio will be a great hit at a barbecue or dinner party, and they are worth the trouble of restoring. ♦