

Vintage Radio

By RODNEY CHAMPNESS, VK3UG



The Fisk Radiola 50G battery receiver

Housed in an “Empire State” style Bakelite cabinet, the Fisk Radiola 50G battery-powered receiver is capable of both broadcast band and shortwave reception. It was first produced in 1939 and has a few unusual design “quirks”.

RADIO ENGINEER Sir Ernest Fisk played a vital role in founding Amalgamated Wireless Australasia (AWA) and later served as its Managing Director and Chairman. In practice then, the Fisk Radiola 50G was really an AWA receiver.

Produced in 1939, this battery-powered receiver used either a 2V wet cell or an air cell (via a resistor) to power the filaments. These had a total current drain of 0.6A but this increased when the dial lamps are switched on. However, this extra drain was only

short term, as a switch has to be held in to actuate the lights.

There's not a lot of information on the air cells that were used in this set, other than that a resistor was needed to drop their output voltage to 2V. What little information I can glean indicates that they have a terminal voltage of around 1.4V, so two would have been used in series in this receiver.

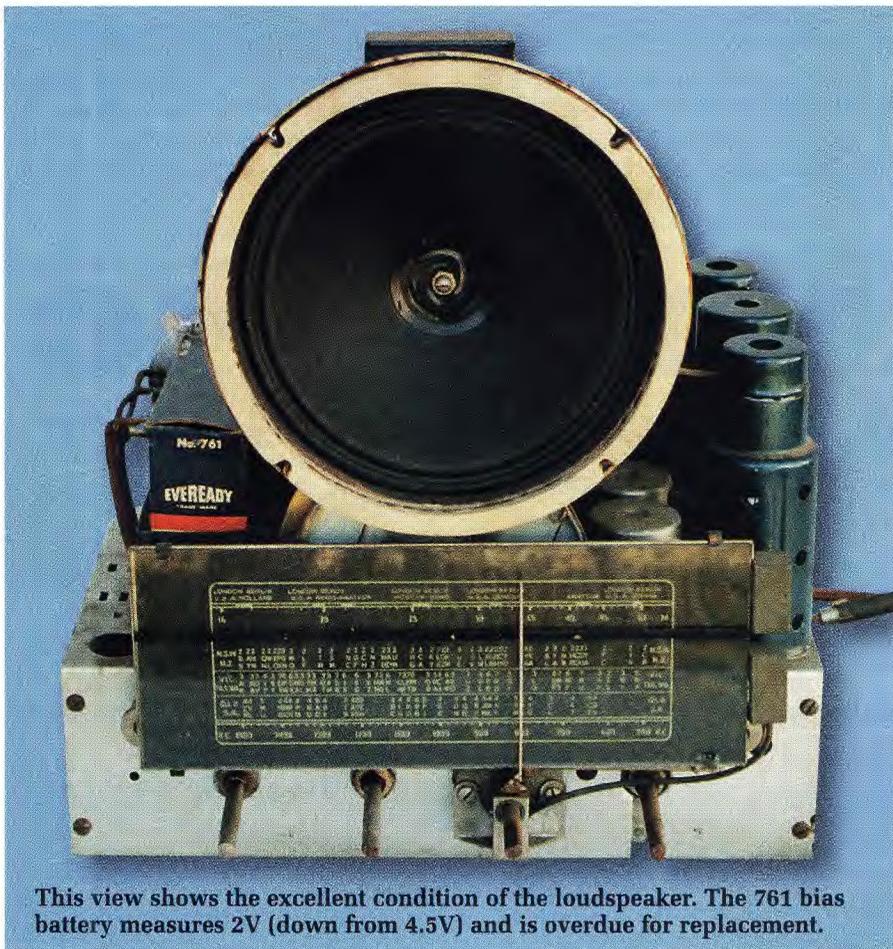
The high tension (HT) of 135V was taken care of by three 45V batteries connected in series, the current drain on this line being 13-15mA. In addition, there was a separate bias battery (type 761) which applied -1.5V, -3.0V and -4.5V to various sections of the receiver.

By the way, a variant of the model 50G, designated the 50GV, was also available. Its circuit was almost the same but was modified to use a 6V vibrator power pack.

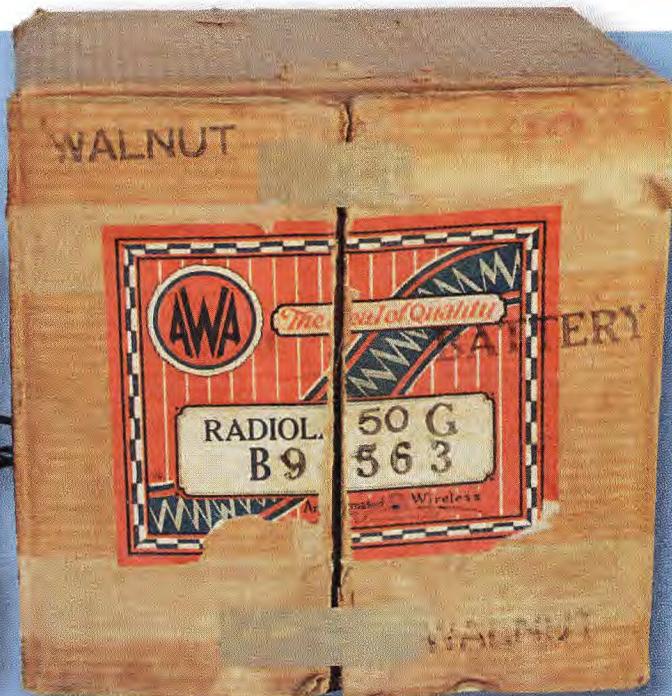
It's worth noting that radios at the start of the 20th century were almost exclusively battery powered. This was due mainly to a lack of suitable filtering components to produce the pure DC required for the filaments and plates of the valves.

However, as time progressed, valves with indirectly heated cathodes made it easier to design sets for AC mains operation. At the same time, valves with lower filament current and voltage requirements were developed specifically for use in battery-powered receivers. Eventually, the later dry battery valves that were developed led to portable receivers using the 1R5, 1T4, 1S5 and 3S4 valve line-up.

In the mid-1930s, valve manufacturers produced many valves that worked well from a single 2V lead-acid cell (battery) and three series-connected 45V dry batteries for the HT. In fact, valves were really coming of age at that time, with many of the octal-based



This view shows the excellent condition of the loudspeaker. The 761 bias battery measures 2V (down from 4.5V) and is overdue for replacement.



The Fisk Radiola alongside its shipping carton. It's quite rare to find the original packaging for old receivers.

types turning in quite good performance.

The Fisk Radiola 50G

The Fisk Radiola 50G described here is as complete as any set I have come across. It has the original shipping carton, ancillary items including an air-cell series resistor and a small aerial lead, and all the literature that came with the set. These items make this particular 50G all the more valuable and the literature makes interesting reading.

The 50G and the 50GV (vibrator version) sets used five valves and would have been quite sensitive receivers for the time. The valve line-up starts with a 1C7G converter, followed by two stages of intermediate frequency (IF) amplification on 460kHz using two 1D5G valves. This then feeds both a detector diode and an automatic volume control (AVC/AGC) diode within a 1K7G valve. Audio amplification is then achieved using the pentode section of the 1K7G valve which in turn feeds a 1L5G audio output valve.

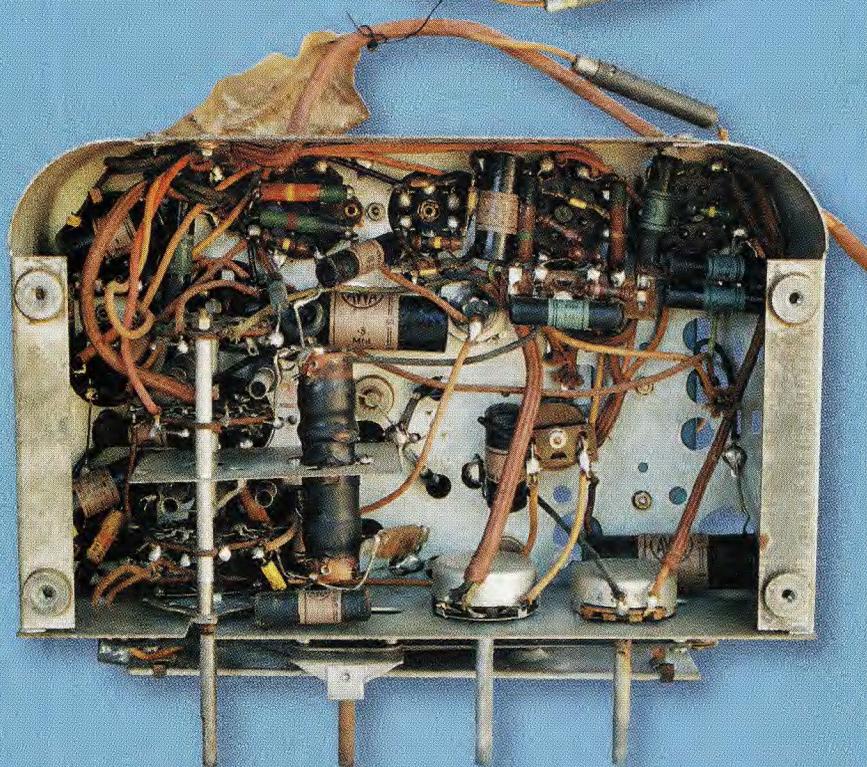
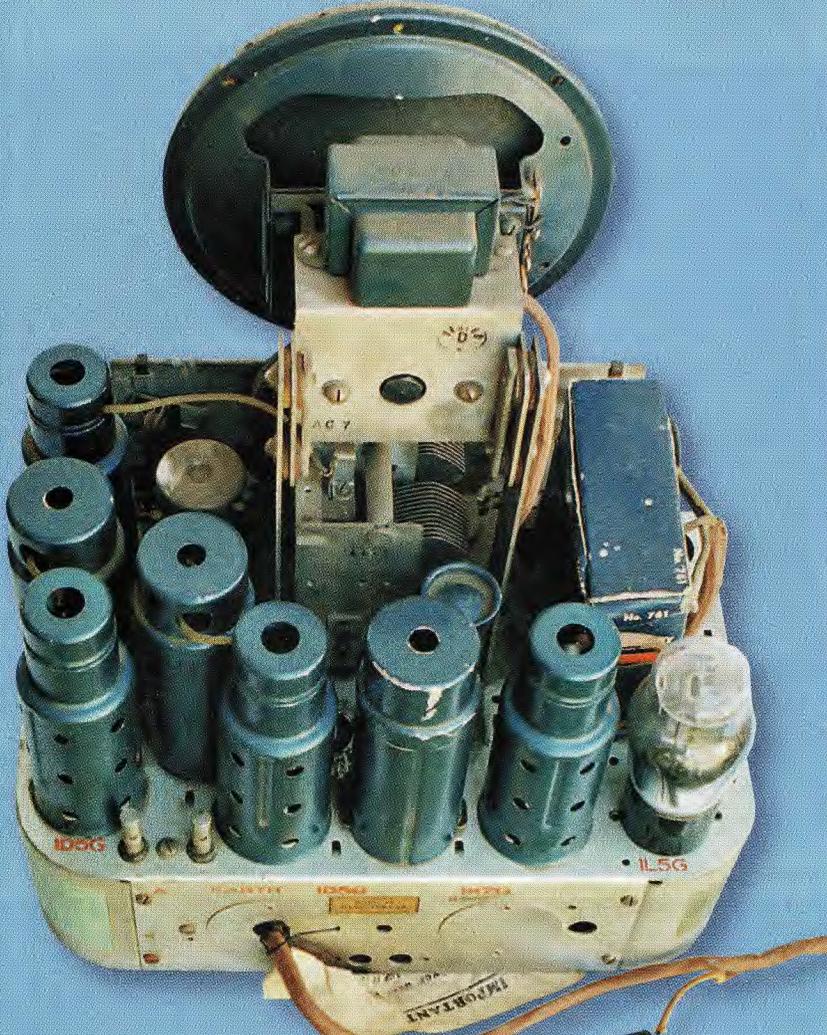
These were all octal-based battery valves, used from the late 1930s through to the early 1950s.

Dual-wave operation

An interesting feature of the 50G is that it is a dual-wave radio. The origi-



The chassis easily fits into the tall cabinet and is still in good condition.



The above chassis (top) and under chassis views. No components appear to have been replaced in the set.

nal versions covered 550-1500kHz on the broadcast band and 6-18MHz on the shortwave band but the broadcast band was later extended to cover 530-1600kHz.

Dual-wave operation was quite popular in those times, with many Australians interested in listening to radio stations in Europe and to the BBC – especially when the test cricket was on.

Battery sets were mostly used in areas where a mains electricity supply was unavailable and that usually meant on farms and on remote stations well away from towns and cities. Receivers like the 50G were quite reasonably sensitive although they would have been a little noisy due to the noise generated by the 1C7G.

Pentagrid converter valves generate more noise internally than triode hexode valves such as the 6AN7. To overcome this problem, a substantial outside antenna would have been required. However, large outside antennas were installed as a matter of course in those days, so the noise generated by the 1C7G would usually have been swamped by strong radio signals.

As with many other receivers, there was no RF amplifier stage in this set. This meant that the band-change switching could be kept simple and that in turn meant lower cost.

Main features

As shown in the photos, the receiver is installed in a brown bakelite cabinet, with Empire State styling. This cabinet was made using three separate pressings. The front plate of the set is one pressing, the back is another and the main pressing (body of the cabinet) holds the chassis.

The cabinet is in extremely good condition and will need little if any work done on it (the reflection off the front panel gives a false impression of its condition). In fact, the set's owner, Brian Lackie, is in two minds as to whether he will restore this set, as it has had so little work. It is so complete that it may be best to leave it in its original state.

The front-panel controls, from left to right, are "Tone", "Volume", "Tuning and Dial Lamp" (concentric knobs), and "Off-On and Wave Change". The idea of the wave change and on/off control being on a 3-way switch has me wondering why AWA did this, as there are nine sections to the switch.

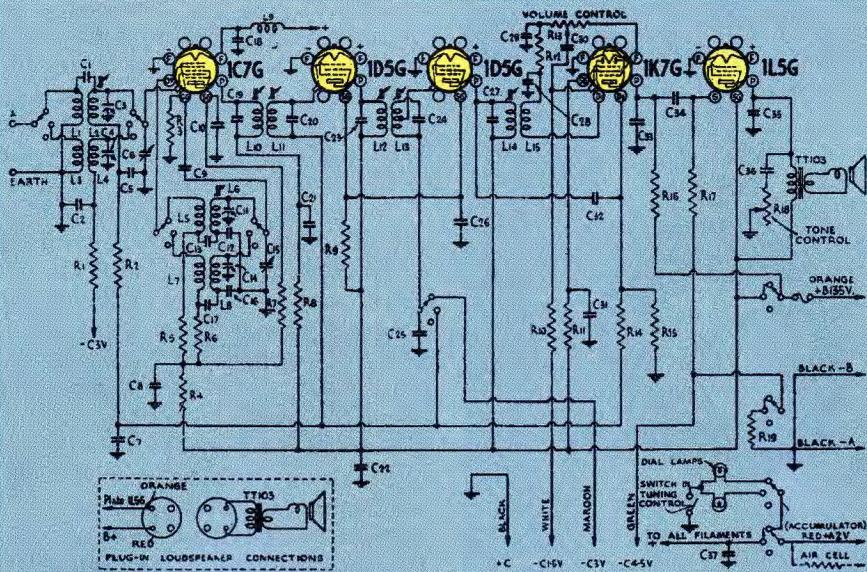


Fig.1: the circuit of the Fisk Radiola 50G. This battery-powered set used five valves and was capable of both broadcast band and shortwave reception.



As well as its original shipping carton, the Fisk Radiola 50G also came with all its supplied literature.

However, one advantage of this switch mechanism is that in the off position, the antenna was isolated from the aerial coils. This meant that with a big high antenna, there was less likelihood of damage to the aerial-coil due to nearby electrical storms. The only error they made here was that the aerial was not earthed when the set was switched off (there is a spare contact that could have achieved this).

The dial lamps were actuated by pressing the concentric knob on the tuning shaft. This illuminated the sec-

tion of the dial that related to the band in use. In practice, however, pressing this control and tuning at the same time is quite awkward.

The 50G, like most battery sets of the era, used a "C" bias battery to provide the necessary operating conditions for the valves. In this receiver, a 4.5V 761 battery is used with taps at -3V and -1.5V. The -4.5V rail is used to bias the 1L5G only.

For some strange reason, when the set is switched on, a 600Ω resistor is placed across the battery, giving a cur-

rent drain of 7.5mA for no good reason that I can think of. By contrast, the vibrator-powered version (the 50GV) does not have a resistor loading the bias battery.

In fact, bias batteries usually have no load placed on them and are simply there to provide the bias voltages. They will last for years when used that way but not in this receiver.

A bias of -1.5V is applied to the grid of the 1K7G, while the -3V line is connected to the 1C7G's signal input grid via a resistor when the set is on shortwave (instead of the AGC control voltage that's applied on the broadcast band).

Conversely, the second IF stage has -3V applied to it when the set is tuned to the broadcast band but has AGC applied to it when on shortwave.

Dismantling the receiver

This set is easy to dismantle. First, the five knobs are removed, followed by five screws which hold the back on and four screws that attach the chassis to the cabinet. Fortunately, the speaker and dial-scale are all attached to the chassis, which makes the job simple

