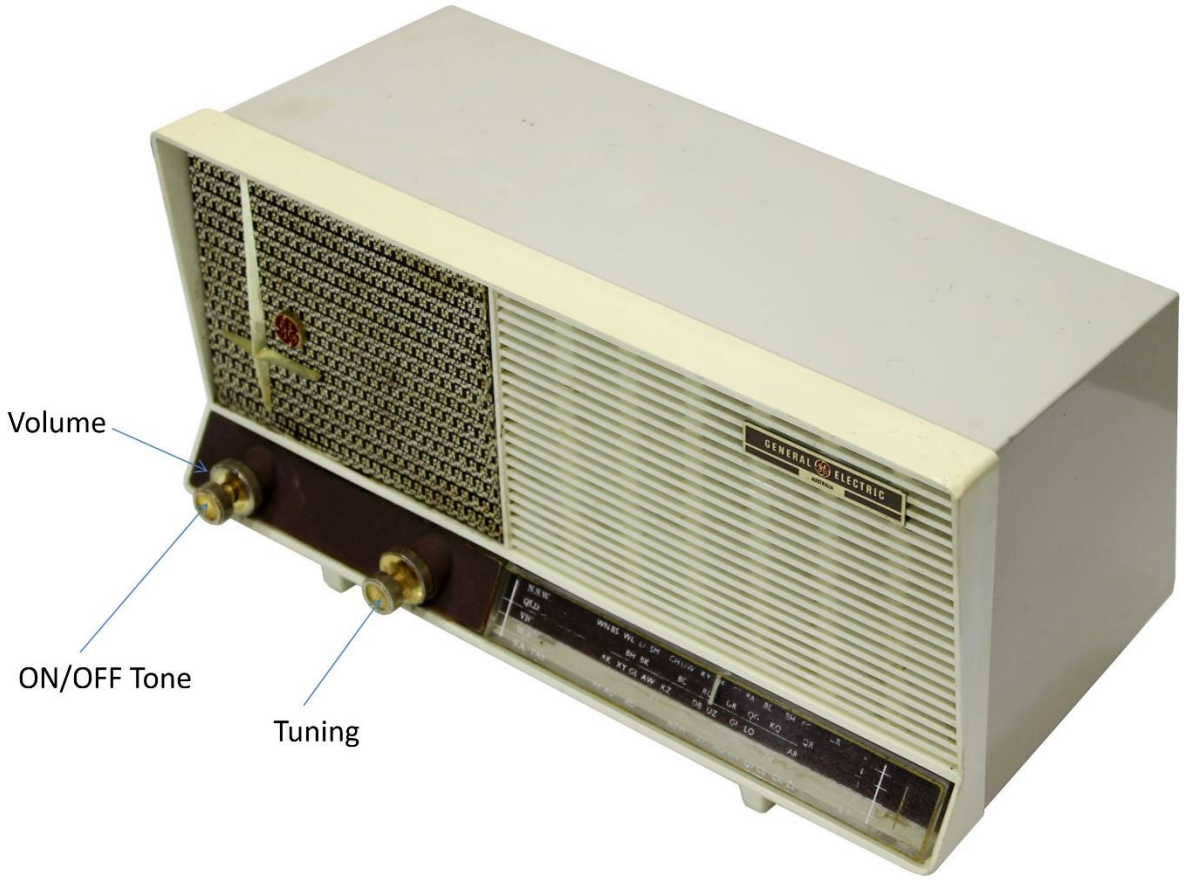


General Electric model MR1

By Graham Parslow

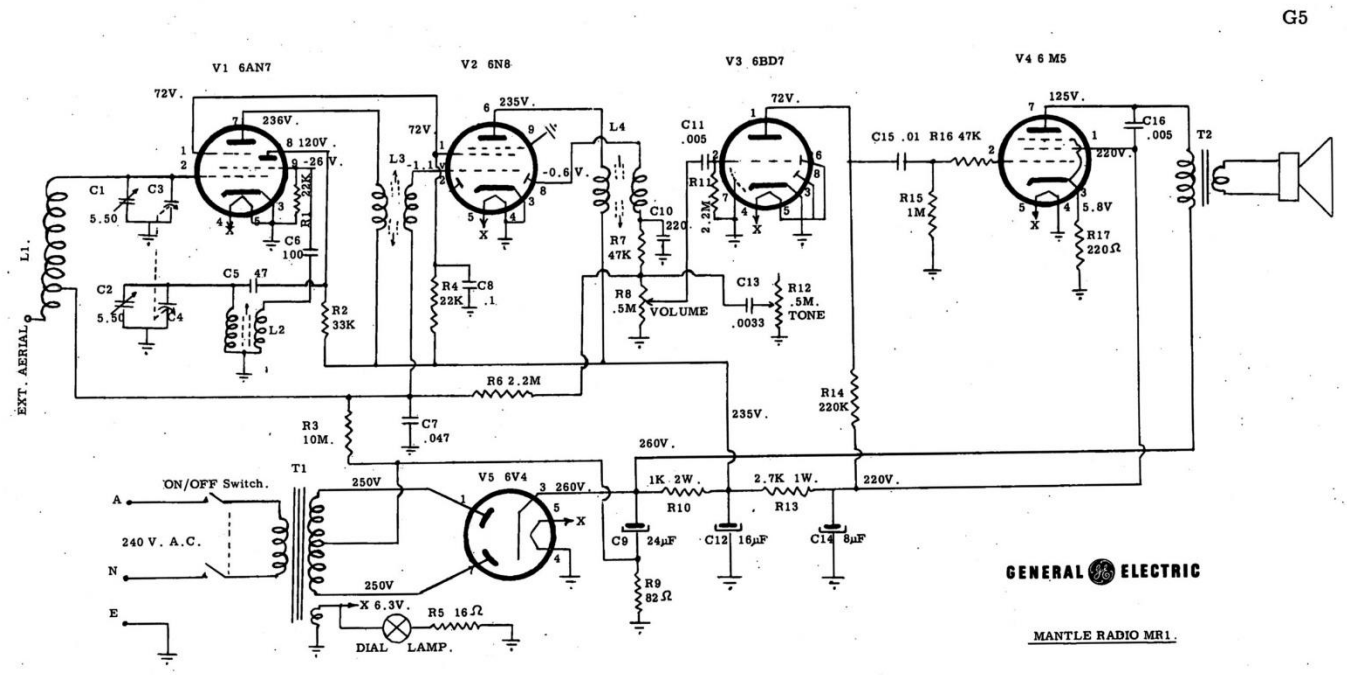
This radio comes from the end of the era of distinctive radios, probably 1962 as judged by the style and components. The rectangular shape has been called Swedish style and was influential internationally from the 1950s onward. Cases became uniformly rectangular, with few exceptions, as transistor radios displaced valve radios through the 1960s.

Cases also became bland through the 1960s. The era of colour choice, at a high point through the 1950s, had gone. The GE radio featured here is a beige-mushroom case, verging on grey, with a cream front panel. It can blend with any furniture because it makes so little impact. However, it does have some decorative features. The speaker grille fabric on the left of the face has gold fibres and hosts a GE logo and a decorative bronze cross.

The fabric has a solid panel behind it and the 4 inch Rola speaker is mounted behind the plastic grille occupying the rest of the face. There has been no attempt to baffle the speaker for better bass because the grille adjacent to the speaker is unblocked. Even so the sound is fair, probably better than a comparable transistor radio, due to the superior output power of a 6M5 pentode.

The plastic dial is calibrated with the major stations of the six states with SA/TAS sharing one line. The dial globe is tethered to the dial-pointer assembly and presents the pointer in a circle of light by backlighting. The use of concentric tone and volume controls may be related to the development of car radios that were increasingly using concentric potentiometers. The brass knobs give a minor touch of class.

In discussing this radio with Michael Justin, the HRSA auction manager who previously ran

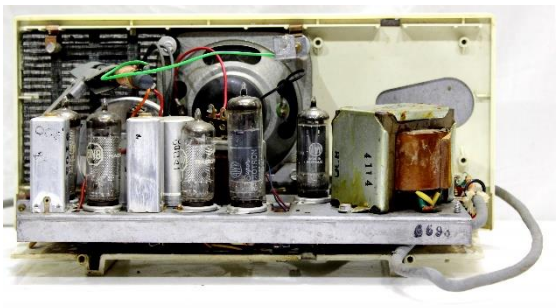


HRSA Book 5

a vintage radio shop he proclaimed “This is my favourite miniature superhet chassis. I have used it a couple of times to fill in for console cabinets where there was no chassis and once for a coffin radio.”

THE CIRCUIT

The circuit is reprinted from “HRSA Circuits 1956-1968 Book 5” edited by Philip Leahy in 2017 and available for purchase through the HRSA valve bank. The circuit diagram mirrors the conventional linear placement of components on the chassis. Most radios of this era featured a ferrite rod antenna, as does this one. The ferrite rod is a mere 4 inches long and mounted diagonally. Photographs show that the green wire from the ferrite links the aerial coupling coil to the bracket securing the rear case. The securing screw is labelled EXT ANT on the case. Not surprisingly the sensitivity of this radio was much improved by adding an external antenna, although this was not needed for local stations.



The local oscillator circuit feeding into the 6AN7 is an Armstrong configuration using a coil tuned by one gang of the tuning capacitor coupled to a “tickler” coil providing positive feedback for oscillation.

The IF amplification stage with a 6N8 is conventional. The 6N8 has two diodes although only one is used as both the source of demodulated audio and automatic gain control (AGC). The output voltage from pin 8 of the 6N8 is negatively fed back to the grids of the 6AN7 and 6N8 via a 2.2M resistor. The voltage is modified (delayed) by subtracting

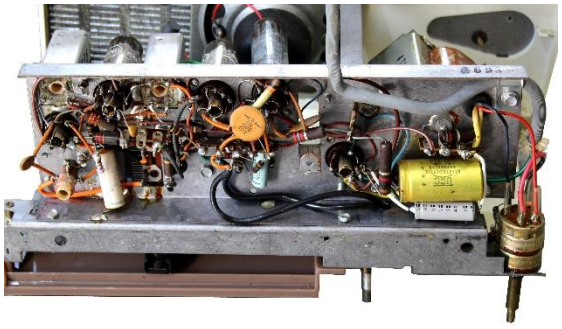
the reverse polarity voltage generated across the 82Ω resistor drawn at the bottom of the circuit. This voltage feeds into the AGC line via a 10M resistor and also provides the no-signal grid bias to the first two valves. The voltage offset "delays" the onset of AGC until a sufficiently strong signal warrants reducing amplification in the first stages. Weak signals receive maximum amplification.

Concentric 500K potentiometers provide a simple divider for volume control and a basic top-cut for tone by reducing higher audio frequencies. The shafts of the potentiometers were immobilised by grime and needed WD40 to clean and lubricate them.

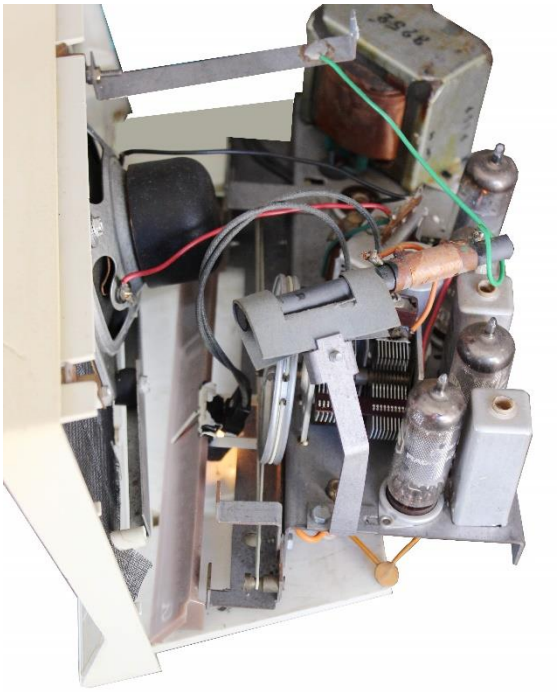
The 6BD7 audio preamplifier triode has redundant diodes that are earthed.

The output circuitry around the 6M5 pentode driven in class A mode is minimalist with no negative feedback. Grid bias is provided by a 220Ω cathode resistor that has no audio bypass electrolytic in parallel. Higher efficiency of amplification is irrelevant here due to the power handling limitations imposed by the 4 inch speaker.

HT is provided by an indirectly heated 6V4 valve and filtered by two stages of electrolytics separated by resistors. Mains hum is negligible.



A look under the chassis shows a tangle of components wired point to point. Circuit boards were quickly taken up for transistor radios, but old ways of construction and wiring died hard for valve radios. A relatively small tuning capacitor is among the few "modern" components.



At the circuit level this radio has much in common with the Kriesler model 11-81, one of the few contemporary valve radios competing with this GE radio. A small difference is that the Kriesler still offered a pick-up input.

The three core mains lead is clamped to the chassis in accord with current regulations (no knot). The DPDT power switch is nicely sleeved with clear tubing to prevent accidental contact with the mains.

Fortunately, no components needed replacing and the radio worked first time. Power consumption is 40W with 240V on the mains. The circuit diagram indicates the 6M5 plate at 125V. Radios with low plate voltages on the output pentode generally only need around 30W. Using a DMM on the 6M5 (10M input impedance) gave results of grid 0.005V, cathode +7.45V, screen 258V and plate 276V. The plate voltage is higher than the screen because the primary of the output transformer is not used to couple the screen to the plate with a voltage drop. The high

plate voltage comes from the first HT filter electrolytic. Why are the lower GE values on the circuit so at odds with measured values? An analogue meter would have loaded the circuits and reduced the voltage, but this is not credible for the magnitude of the discrepancy. Even the argument for analogue loading does not work because the 6BD7 plate measured exactly 72V as per the circuit value. Is this a different radio to the circuit? No, all the components match the circuit. The printed voltages seem to be due to a drafting error (i.e. a mistake). Although we are generally reluctant to question manufacturers data sometimes we need to.

HISTORY OF GE

There are two companies laying claim to the General Electric name. One is the UK company that produced radios in Australia under the brands Gecophone, Genalex and BGE (see Radio Waves issue 148 p37).

In 1892 Edison's company merged with the Thomson-Houston Electric Company to form General Electric. The radio featured here is attributable to the US conglomerate.

Prior to 1956 radios sold in Australia for GE (US) were branded AGE/Hotpoint/Bandmaster and were made by AWA. The Hotpoint brand had an interesting origin in the US, starting as a niche electrical product.

Before internal electrical heating, clothes-irons were heated on a stove-top or similar heat source. With electrical heating it became possible to raise the tip to a higher temperature than the general mass of the iron. This “Hotpoint” was avidly welcomed by house wives. Eventually Hotpoint became part of the General Electric conglomerate.

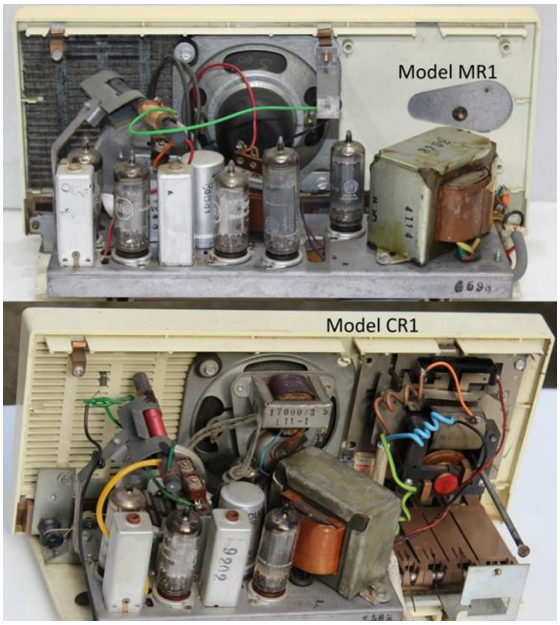
The 1931 AGE (Australian General Electric) model 44A pictured here from my collection shows the early association of GE with Australia. The GE products were always slightly modified to give market choice between GE and AWA. The AWA alternative to the model 44A was the AWA 45E featured on the cover of Radio Waves issue 109 July 2009.

In 1956 GE partnered with Ekco radios from the UK and the venture produced the iconic Gondola radios.

The rear panel of the Gondola radio proclaims “Manufactured by EDISWAN-EKCO (AUST) PTY LTD, distributed by AUSTRALIAN ELECTRICAL INDUSTRIES PTY LTD”. As proclaimed in their advertising, the Gondola radio was from AEI “the makers of famous Hotpoint appliances”.

Australian General Electric (AGE) withdrew from Australian Electrical Industries because American anti-trust legislation required GE in the US to divest itself of its Australian operations.

Obviously GE re-entered the Australian market because of the radio featured here. The model MR1 has no labels or mouldings beyond the two badges on the front; one “GE” and the other “General Electric Australia”. However, a clock radio variant model CR1 was also made with a different chassis to fit the clock. The clock radio pictured here was lent to me by Michael Justin.



The clock radio has a smaller chassis facilitated by using a 6DX8 triode-pentode to reduce the valve count to four.

The rear of the clock radio states “Manufactured by James N. Kirby Manufacturing Pty Ltd under licence from General Electric Company U.S.A.” So GE found a different alliance for its last radios made in Australia.

General Electric (US)realised that electronic manufacturing was barely profitable in the 1980s. They reinvented themselves taking on finance and health care as major segments of operation. A visit to the current GE site in Australia https://www.ge.com/au/ will show that current products do not include any GE radios or low-end consumer products.