

THE 1940-41 HEALING MODEL 401B BATTERY RADIO

By Graham Parslow



This radio was purchased at an auction of Ian Johnston's radios on September 23rd 2017 held at his house in Park Orchard Victoria. The weather was fine and the atmosphere was congenial as spirited bidding from HRSA members saw Ian Batty auction 108 radios from Ian Johnston's collection. Top price went to an outstanding white marbled Empire State radio. The range of radios filled the spectrum between neglected projects and pristine restorations. Ian's skill and professionalism with restorations and reproductions was showcased in the July 2017 Radio Waves article titled "It all began with a low-flying bomber" written by Richard Begbie. The article traced Ian's life from 1939. He grew up on Eyre Peninsula in SA then enjoyed fulfilling years in the air force followed by private industry. Sadly Ian's health has dictated that he move his collection on to others for preservation. I was glad to have some time chatting to Ian on the day of the auction. We established some parallels in our lives, in particular that we both

enjoyed growing up in SA country towns, on Yorke Peninsula in my case.

The Healing 401B was one of Ian's projects in waiting, so I am glad that I was able to undertake its restoration.



The otherwise intact Bakelite case was grubby with dust and photo-bleached to a light brown. A wash with detergent and treatment with Armor-All restored the deep chocolate original appearance. Unfortunately the photograph showing the case before and after provides an imperfect comparison due to different lighting conditions.

The physical restoration of the chassis involved a preparatory wash with mineral turpentine to remove grime (all valves removed). Then followed a scouring with garnet paper to



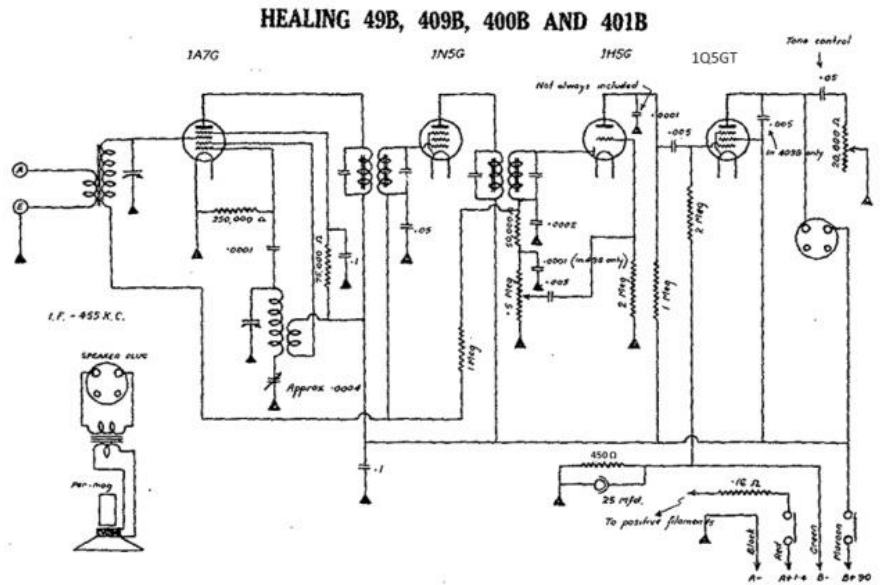
remove the extensive surface corrosion. The chassis was then silver painted with water based acrylic enamel.

The chassis photographs also illustrate the restringing that was needed. The degree of difficulty was more than average. It involved using the same string to make separate loops around the tuning shaft and the dial-pointer assembly.

This Healing model 401B was manufactured in 1940-41 as indicated by the alphabetic character "G" on the ARTS&P label. This radio would have been among the last war-time radios made by Healing before they become "Australia's largest wartime manufacturer of radar receivers." Healing made that claim in an advertisement in The Australian Women's Weekly, January 5 1946.

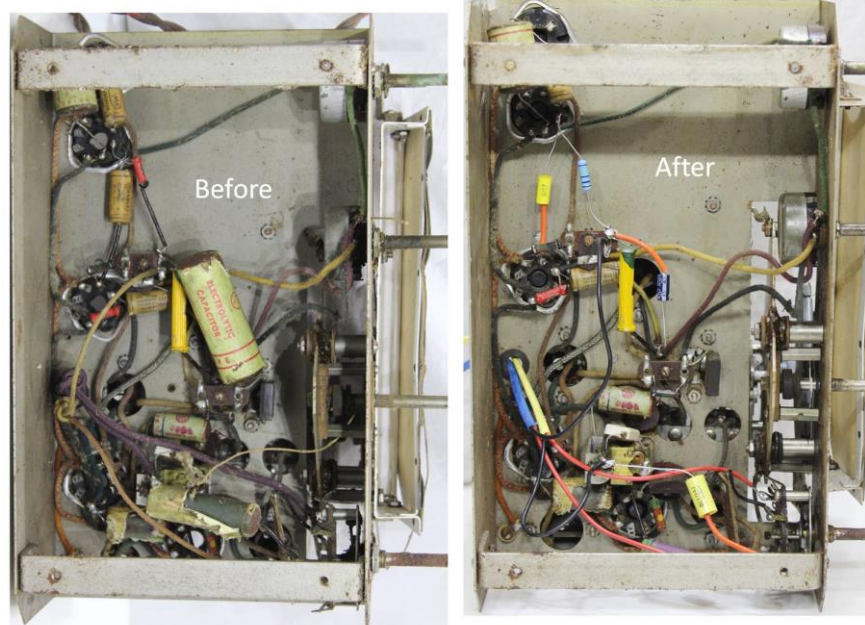


This 401B radio was supplied by Stott and Hoare, a W.A. company that operated for a limited time in Adelaide, but was unable to compete in the longer term with other radio marketers in SA.



The circuit for this radio appears in the 1939 AORSM compilation. The schematic reproduced here has been edited to show the circuit for the 401B with other variant information deleted. Healing were consistent with their suffixes in model names. "A" represented a vibrator power supply, "B" stood for battery and "E" was mains electricity.

The first impression when looking under the chassis was how few components were mounted there. This was to be expected considering there is no mains transformer and rectifier, no RF-amplifier stage and no band-change. A tired electrolytic acting as a cathode bypass to the 1Q5 and the 0.1 µF capacitor



connected across the HT were immediately replaced. The battery leads were unserviceable and also replaced.

A check of the speaker transformer showed all was well with the transformer and speaker. I do this check routinely because many radios on my bench have remained mute at switch on due to open circuit speaker transformers.

Testing with bench power supplies. First the A-Battery 1.5 V line was switched on and an encouraging 250 mA current was drawn, right on specification. However, moving onto the B-Battery and ramping up the HT showed 18mA current at only 70 V when the specified current is 11 mA at 90 V. Even at 70 V the radio should have been tuning stations, but it remained silent. No components under the chassis were warming up, which was a clue to the eventual outcome. Next I reached for my signal tracer and hooked it up to the volume control. Joy! Stations were tuning in and producing a reasonable output from the IF stages, so it looked like the 1Q5 was the problem. Using a digital multimeter with input resistance of 10 MΩ and HT set to 70 V the bias at the 1Q5 grid was measured at +2.5V. This positive bias explained the high HT current and the lack of function of the 1Q5. Both the leaky coupling capacitor between the 1H5 and 1Q5 and the open circuit 2 M resistor from the 1Q5 grid to earth were replaced. This restored the radio to normal function. The 1Q5 grid bias then measured an appropriate negative 5.6 V with 90 V HT. Although capacitor failure is common it still surprises me how many relatively-low-voltage battery radios present with failed coupling capacitors.

For the model 401B the sound is good due to the robust Rola 8 inch permanent magnet speaker. However the output is limited by the 1Q5 valve to 200mW before noticeable distortion. Healing claimed that their Golden Voiced radios were never surpassed for quality or clarity of tone. The front mounted badge on the 401B has the words “Golden Voiced” printed under the Healing Radio brand. That use of the description Golden Voice may have been an adaptation of a popular phrase describing singers as having golden voices. Motorola radios in the US also carried the same labelling.

The grille fabric had holes so new fabric was stapled in. As seen in the rear view



photographs the speaker transformer was re-installed at the opposite side of the baffle due to (1) more space there and (2) the evidence of a photograph in the European Radio Museum that showed the alternative mounting. The reassembled radio superficially looked as good as new.

The Radio museum created by Ernst Erb in Switzerland is a treasure trove for Australian enthusiasts. It provides photographs and circuits of a wide range of local radios. The

basis for this is that the museum operates as a wiki. Museum members can access all data, but are also obliged to contribute. I have made some modest contributions as required by membership, while other Australians have been fulsome in their contributions. Rather than provide the URL for the museum I will pass on my preferred way of getting to specific information. The internal search box at the museum has not always returned the information I wanted, even when the data is there. It may be the way I have used the site and another HRSA member may wish to contribute some advice on the matter. My current strategy is to use the Google search engine for the web. In this case I simply asked Google to search for "Radio museum Healing 401B" and I was immediately taken to the correct page in the museum.

A previous article I contributed to the April 2014 Radio Waves included much of the History of Healing radio. I trust that a summary can be

reiterated here to save back referencing.

Alfred George Healing was born in Richmond, Victoria, in 1868. In 1898 Healing obtained the Victorian agency for the English Haddon bicycle and operated as A G Healing and Co. in a small factory and shop in Bridge Road, Richmond. Healing imported the bicycle parts and made up the bicycles and catered to a large market for bicycles. In 1912 the firm became a proprietary company and Alfred Healing's son, Keith joined the firm as an apprentice bicycle maker in 1921. The factory was relocated to the corner of Queensbury and Elizabeth Streets, Melbourne. The staff grew to about 50 and 25,000 bicycles were made per year at the peak of production with sales to all states. Bicycles were the primary business and it was an act of diversification to make radios, learning as they went. The author has a Healing coffin radio that can be dated to 1928 and this is among the earliest radios from Healing (see the picture of a selected

1927 Healing coffin radio.



Healing 1946 compact mantel model 401E



Healing 1948 mantel model 502E



Healing 1948 Radio – gramophone model 501G



1949 Healing portable model 503



1965 Healing Golden voice valve mantel



Healing 1958 burgundy 5-valve model L410E



1965 Healing 5-transistor mantel 5007



1967 Healing Carousel radiogram



chronology of the author's Healing radios). Initially Healing simultaneously imported Atwater-Kent radios, but tariffs and limits on imports saw the company discontinue the US radios.

From 1946 Healing also marketed refrigerators and vacuum cleaners. A decade later in 1956 Healing formed an alliance with the American Dumont Company to manufacture televisions and washing machines under the brand name Thor and refrigerators under the name of Crosley. In 1959 bicycles were discontinued. In 1969 the company posted a loss of almost \$24 million and went into receivership, recovering to some degree until failing in 1975.

The end result of this project to restore the 401B was a radio that brought both aesthetic and personal pleasure because of the context of the acquisition.