

Heathkit AR-3 Restoration

by

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My very first "real" shortwave receiver was a Heathkit AR-3 that was given to me for Christmas 1957. The receiver was purchased, used, by my parents, from Allied Radio Company, 100 North Western Avenue, in Chicago, Illinois. I used the AR-3 for shortwave listening until after taking my Novice Class license examination on my 15th birthday, 13 February 1959. Between that time, and when the license as KN9STH arrived at the end of May 1959 (dated 15 May 1959 but it did not actually come in the mail until the end of May), I traded it in, again at Allied Radio, for a brand new Hallicrafters S-107 which I used for my entire career as a Novice Class operator and then for about a year after getting my General Class license in October 1959.

A number of years ago, I acquired 2 AR-3 receivers. One of these I gave my middle daughter, who likes "old" radios, and the other receiver sat on a shelf. Finally, I decided to actually restore the receiver.



Receiver Before Restoration

As can be seen from the photograph, the receiver cabinet was badly in need of recovering and the front panel showed a number of stains and slight corrosion. After removing the receiver from the cabinet, all the old fabric was removed from the cabinet.



Finding a suitable covering for the cabinet proved daunting. The first attempt was made using gray colored leather grained fabric obtained from a local outlet. Unfortunately, that material proved way too thick and the front panel would not go back into the cabinet and fit properly. Also, the spray adhesive applied to the bare cabinet would not hold properly. Therefore, another solution had to be found.

I could not find any fabric with the marble finish of the original covering. Therefore, I went looking for a suitable pattern contact paper. The closest thing that was available was somewhat darker than the original. However, since nothing else was even close, a roll of that paper was ordered and came in several days later. The pattern chosen is called "gray marble".

After getting the cabinet recovered, the receiver itself was approached. The receiver did work somewhat. However, there were definitely problems! The chassis mounted electrolytic capacitor had, on some previous occasion, shorted and the electrolytic material had sprayed beneath the chassis. Then, instead of replacing this capacitor, someone had added a 2-section electrolytic capacitor below the chassis. The original capacitor was not even cut loose from the circuit! As such, new electrolytic capacitors were installed to replace the original capacitors.

Next, whoever built the kit had used solder that had a high content of rosin and most of the solder joints were full of rosin. Therefore, these solder joints had to be reheated and the rosin "boiled out". Of course, most had to have new solder applied.

Quite a few wires had burns from a soldering iron and others, because of the spray from the electrolytic capacitor, had problems with the insulation. As such, a number of wires were replaced. Then, the resistor between the filter capacitors had gone from a design value of 2700-ohms to almost 5000-ohms. Therefore, that resistor had to be replaced.

The contacts on the band-switch, and the wipers, were badly tarnished. This required several applications of Goddard's Silver Dip (applied with cotton swabs) to get the switch working again. Even after the initial cleaning, the second band, Band B, would not function properly with the tunable oscillator not working. After working on the contacts for a while, this band finally started working.

Then, the converter tube, a 12BE6, was weak. Fortunately, I had a brand new tube in my stock of tubes and the new one was installed in the receiver.

Next came alignment. Frankly, the AR-3 was never known for the accuracy of the dial and this receiver was no exception! But, after numerous attempts, the calibration was finally at a point where the actual frequency being received is at least near enough to find a specific station if one tunes carefully!

The front panel required complete repainting. Of course, this eliminated the lettering on the panel which, in turn, required creation of new artwork. Fortunately, I do have a couple of programs, on my computers, to generate reasonable reproductions of the layout of the panel. Using "cut and paste" methods, I was able to create a "master" which was then scanned. After scanning, various imperfections in the artwork were eliminated and, finally, a decal was printed to be applied to the panel.

In addition, the clear plastic covering the opening, in the panel, for the dial, was badly yellowed. This was removed and a new cover was made using the plastic from a "blister pack". The new cover was secured to the back of the panel using packing tape.

The panel was then reinserted into the cabinet.

Originally, the AR-3 used small rubber coated "tacks" for the feet. These were destroyed when removing the original covering from the cabinet. Instead of trying to find new "tacks", I decided to use "real" low profile gray colored rubber feet. The chassis is secured in the cabinet by 4-machine screws through the cabinet into the bottom the receiver. By using slightly longer machine screws, the new rubber feet were installed.

After installing the chassis, the knobs were replaced and the receiver "checked out". It works fine and the receiver definitely does not "look bad"!



The Restored Heathkit AR-3