

# Removing and Replacing Relay K1 in the SR-150

By Pete Juliano, N6QW, March 2009

In December 2008, I purchased a rather nice looking SR-150 and once I fired up the radio that is when I discovered why I had gotten "Such a Deal." There is no fault on the part of the seller because very plainly it was stated "as is."

One of the problems was a bad Crystal Filter. Through the list I was able to locate a replacement and after further component changes and replacements I was successful in having the SR-150 perk right along as if this were 1963.

I then decided I would like to use my homebrew 3CX1500A7 amp with the SR-150 and that is when I discovered that the auxiliary contacts on relay K1 which ultimately terminate on pins 10, 11 and 12 on the Jones Plug were completely burnt through. Some prior owner must have tried to switch a very large load and exceeded the contact rating.

Through one of the list members I located a used replacement relay which was really in excellent shape for being about 50 years old. The relay as sent to me had about a two-inch pigtail on each terminal, which was helpful in identifying which lead connected to the wiring harness. (Thanks Walt Cates!)

I then proceeded to document the terminals and the wire color-codes as shown in the hand sketch. Next I took a digital photo of the underside of the chassis so I would have a record of the before condition.

[To digress for a moment, one of the most critical issues in any repair or renovation is to have a trail of where and how things were before the task was initiated. I have found that what is on the schematic and the "as built" condition are in stark contrast. On the SR-150 for example the S Meter is part of a bridge circuit. The S Meter and tube V17B are located near the front of the chassis and other bridge components, R119, R120 and R 122 are located at the far rear of the chassis. So everything is not immediately in the same area. Hand sketches and digital photos are invaluable when you go back to hook things up. Often times a particular task may be done over several days and it is easy to forget what color or what wire went where.]



Moving on, start by removing the old relay. This is most easily done by loosening the two screws that fasten the relay to the chassis. Next gently push the relay through the chassis so that one edge of the relay rests on the bottom side of the chassis.

Next remove the shrink tubing from each of the wires. I used a pair of cuticle scissors to cut the tubing and then pulled it back from the terminals using a pair of needle nose pliers.

Use solder wick to de-solder each terminal, as you want to preserve the wire as much as possible for reconnection to the replacement relay. When all wires are de-soldered remove the original relay and mechanically install the replacement relay. Whoever engineered this didn't think too much about the solder lugs for the relay coil and the bolts that hold the relay to the chassis. They are in perfect alignment. The coil solder tabs are very fragile. Carefully bend them up and out of the way so that the bolts can be "snugged up" to the chassis. Once the relay is aligned give the bolts a final torque.

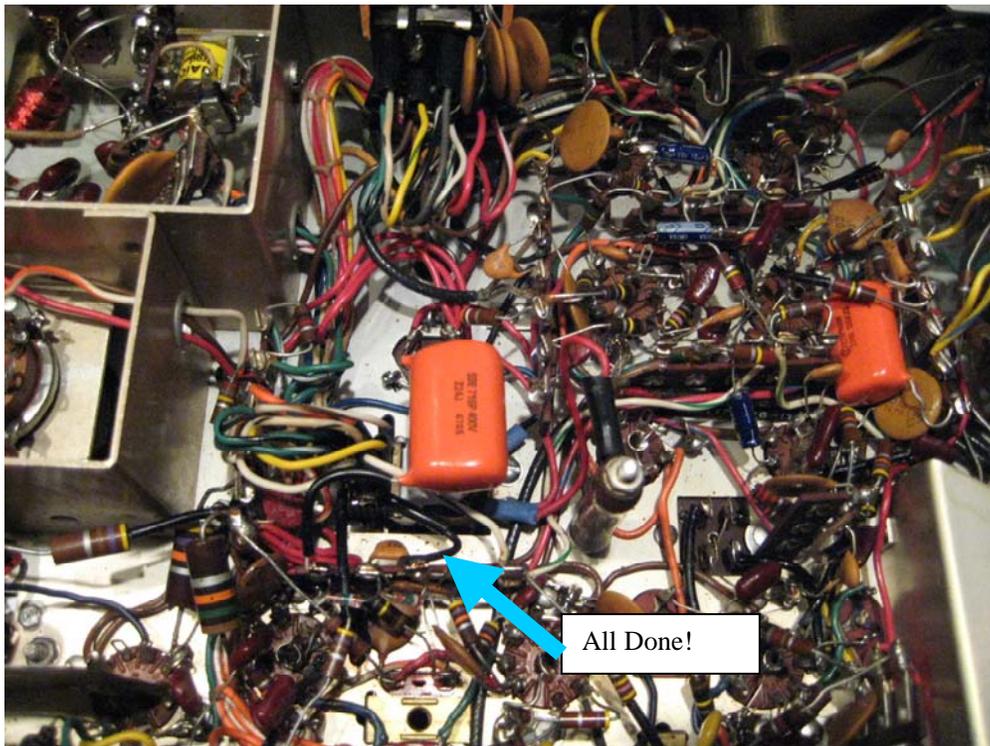
The next steps involve re-soldering the wires to the relay. I used the hand drawn sketch as a checklist of the wires and their location. Once a wire is soldered I placed a check mark on the drawing to indicate that wire had been reconnected. This is like Heathkit 101. But before starting the wiring I cut 10 pieces of 3/32 shrink tubing to about a one-inch length. I placed a piece of shrink tubing on each wire lead and moved the tubing as far back from the soldering area so it wouldn't be shrunk prematurely.

Before connecting the wires I gave some careful thought about the sequence of what wires get connected first. Connect the coil power wiring first! I used a piece of 1/8 inch blue shrink tubing over each power connection. This is more than just a good idea for right below each power connection is the screw head holding the relay. This is Murphy waiting to happen

Now we move on to the wiring of the terminals. As you look down at the relay with the front panel toward you, start on your left with the inside connections and then proceed above and below the center connections and finally to the right. This allows for plenty of clearance and no burnt wires as you solder.

As I look at the SR-150 I have frequently wondered about the wiring sequences and if one person wired a whole radio or it was done sequentially on a production line. One thing for sure, many of the solder joints “suck”. There is no Mil Spec wiring on this job. I understand that late in production just before Hallicrafter’s folded there were many quality issues.

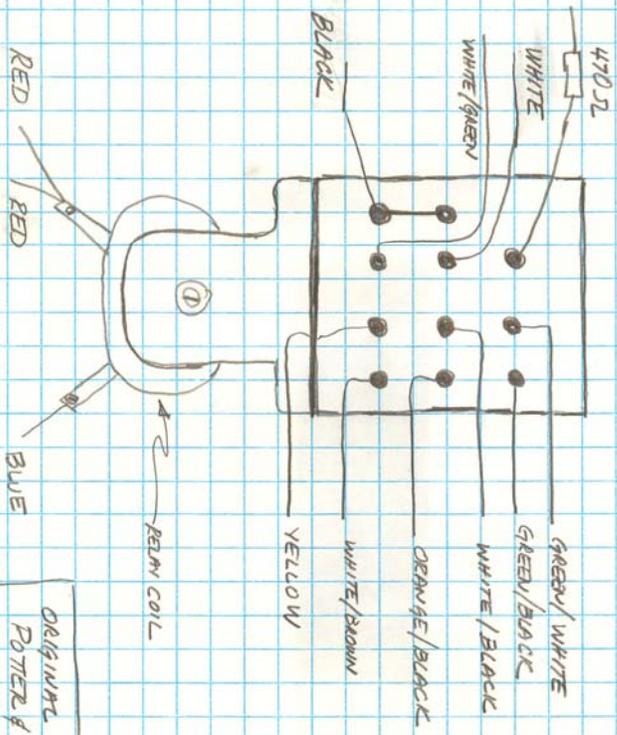
I want to reiterate the importance of using the check sheet before and after each wire is soldered. After all the wires are soldered slide the shrink tubing over each connection. Below is the finished job. It works properly!



# SR-150 RELAY REPLACEMENT

BOTTOM CHASSIS VIEW

RELAY K1



- NOTES:
1. AS A PART OF A SR-150 RESTORATION, I DISCOVERED THAT THE CONTACTS THAT ARE ON THE POWER PINS 10, 11 & 12 WERE BURNT.
  2. THIS REQUIRES A REPLACEMENT OF RELAY K1
  3. THIS IS TO DOCUMENT THE "AS IS" CONVENTION TO RELAY BASED ON THE WIRE COLOR CODE. THE CODE WHITE/BROWN MEANS A WHITE WIRE WITH A BROWN TRACER.
  4. REPLACEMENT SHOULD BE DONE ON A WIRE FOR WIRE BASIS, REMOVE ONE WIRE FROM THE EXISTING RELAY AND REPLACE IT ON THE NEW RELAY - DO IT ONE AT A TIME!

ORIGINAL RELAY INFORMATION: (NUMBER)  
 POTER & BEUMFIELD NH 3665.1  
 021-200442

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 MARCH 2009

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