White-Rogers Solenoid Problems

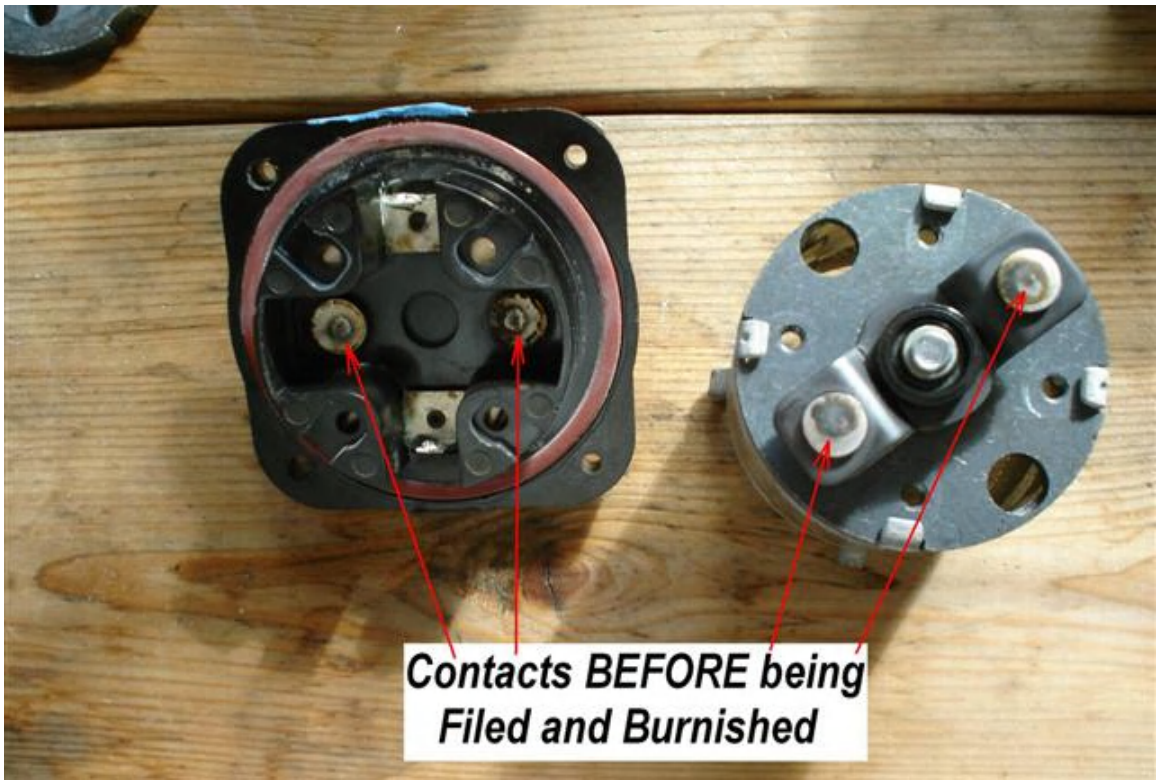
Do you have problems getting your coach engine alternator to charge your coach/house batteries while driving? If so you are not alone, Tiffin Motorhomes has caused some of the problem with its mounting of the solenoid. This solenoid is used by Tiffin to control two different functions it is used as the "Charging Solenoid" and also as the "Slide Control Solenoid". In both cases Tiffin Motorhomes is mounting the solenoid contrary to the designer's (White-Rogers) guidelines. The White-Rogers Specs on this solenoid state the "Recommended mounting position is a vertical plane with coil terminals pointed UP". Tiffin mounts the "Charging Solenoid" in a horizontal plane rotated 90 degrees to the right, and mounts the "Slide Control Solenoid" in an inverted position, with the coil terminals pointed DOWN. I expect more problems result from the horizontal position mounting then from the inverted mounting.

The horizontal mounting causes the contacts to bounce and arc each time the motor home hits a large bump, where when mounted in the vertical position the loss of electrical contact would be less likely to occur.
While traveling to Red Bay last year, our motor home intermittently stopped charging the house/coach batteries while underway. I reported the problem to Tiffin who told me it was the "Charging Solenoid" and gave me another solenoid to replace the intermittent one with. I replaced the old solenoid and everything was OK until last weekend, when the charging solenoid began to once again intermittently charge and not charge while on the road. I resorted to hitting the solenoid with my rubber mallet to get its attention a couple of times until we were able to get back home. Once home I decide to disassemble my old spare solenoid in hopes of finding a repairable problem.

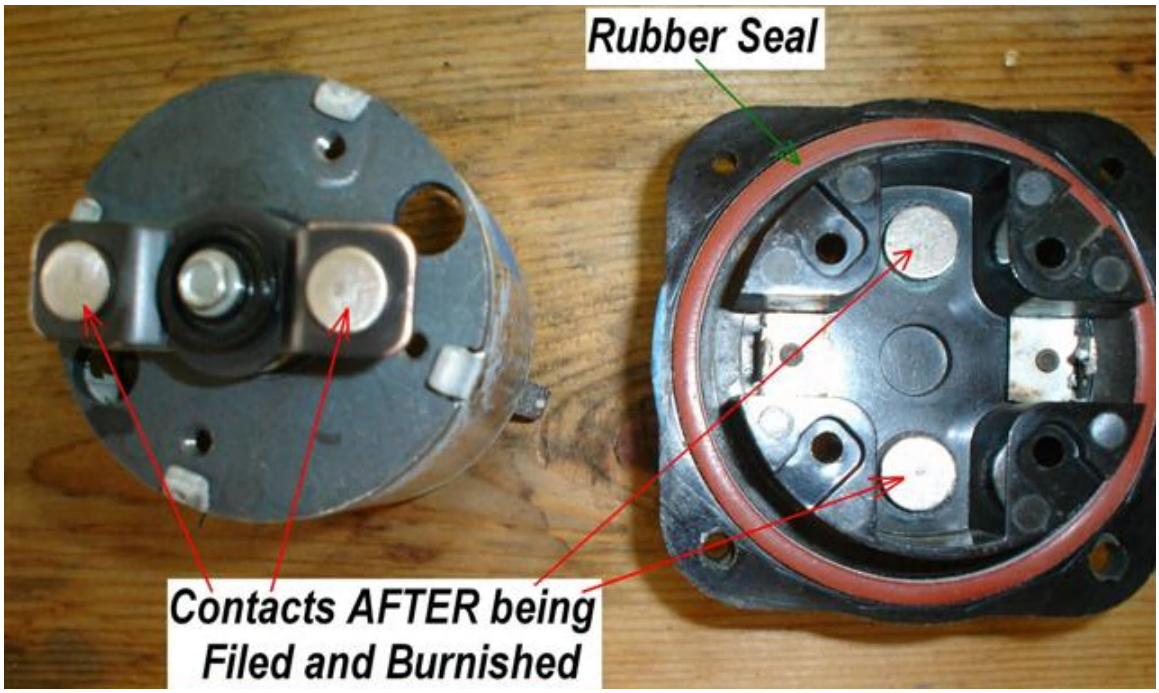
Disassembly of the two part Bakelite sealed container requires the removal of four pop rivets holding the solenoid together. I drilled the four pop rivets out with a drill bit sized to allow re-assembly of the solenoid with # 8 x 32 stainless steel screws with Nylock nuts.
The following picture shows the amount of corrosion and debris removed from the SEALED assembly, the debris looked more like fine sawdust or

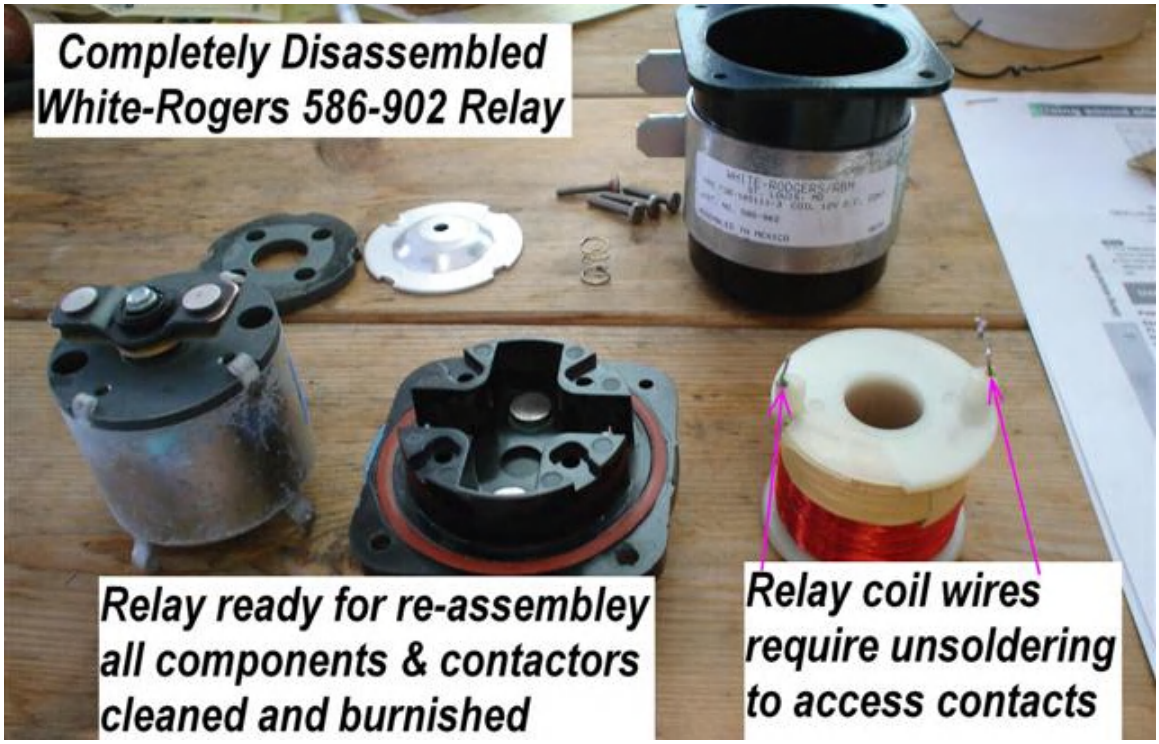
sand than anything else. After dumping most of the residue only a little effort was needed to wipe the inside of the Bakelite case clean.

After rivet removal the two halves are easily separated. Unsoldering the two coil wires will allow further disassembly, care must be taken else the coil wires will be destroyed. Use a solder sucker to remove the molten solder. Remove four screws in the terminal top to remove the electromagnet.



Looking at the above picture should be enough evidence as why the charging solenoid was intermittently charging the house/coach batteries. A little careful filing to clean the contacts then burnishing the contacts to remove any file marks while leaving a smooth surface as seen below.





Everything has been cleaned, burnished and is ready to reassembled. Make sure to re-install the SPRING shown in the above picture between the two contact sets during reassembly. Slide the coil into place making sure to place the two coil wires so they can be re-soldered to the terminals. Install the four screws used to hold the electromagnet assembly to the terminal top portion. Now solder the two electromagnet coil wires to the terminal post set. Reinstall the bottom Bakelite case over the electromagnet, line up the four screw holes. Install the four # 8 x 32 stainless steel screws and Nylock nuts to complete the solenoid reassembly.

Both solenoids were tested with a 12 volt power source applied across the coil terminals and a resistance test across the two large contact posts.
As already reported the solenoid was designed by White-Rogers to be mounted with the terminals pointed UP.
After rebuilding both White-Rogers 586-902 solenoids, I installed one as a "Charging Solenoid" re-mounted in the vertical UP position on PS rear electrical panel my 2007 Phaeton, the second solenoid is stored onboard as a ready spare for use as either a Charging Solenoid or a Slide Solenoid.

Written on 11/22/2010 by TAB