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Stewart Warner 240A Fuel Pump Switch Renewal

STOP !

There's a price to pay before you consume this information.
It's called Pay-it-forward. In other words - if you use this information, you're bound by agreement to help someone else.

The Stewart Warner 240-A-12 fuel pump has been out of production for probably 20 to 25 years at this writing (2009).
These pumps were manufactured to allow them to be serviced of literally all parts (some sub-assemblies) - but the parts supply has dried up along with that of the new pumps.

This thread is an instructional thread on the servicing of the Switch Assembly on the side of the 240-A pump.

Tools / Supplies needed;
* Drill motor
* Drill bits
* Razor blade / Xacto Blade
* Thin blade screwdriver
* Dremel tool with small cut-off disk
* 4/0 Emery - Polishing cloth
* Rosin Flux Remover or good Contact Cleaner
* Light machine oil

* Penetrating oil
* JB Weld Epoxy (original recipe - not the quick set)
* Brass Bristle brush (fine)

Here we go

The Switch assembly is on the side of the pump. It's secured with a hollow Aluminum retainer pin that fits through the side of the switch cover.

When I first tried to force the cover off by just turning it with a large wrench - I realized that it would not shear the lock pin. At least the adjustable wrench I was using did not have a good enough grip on the cover to turn it off.

I tried to pry the lock pin out but could not get a very good grip.

Never having seen one of these switches actually removed -
I thought of driving it through to the inside. I got very lucky here in that the lock pin is hollow and it essentially "compressed" up against the body of the switch itself. This allowed me to turn the cover off.

Here is what the lock pin looked like when I tapped it with a punch to drive it inside the cavity

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My advice would be to use a like-sized drill bit and carefully drill the top of the lock pin off.

Removal of switch assembly

Warning! - Don't just twist the cap off and yank the switch.

Once the lock-pin is removed, turn the cap counter clockwise to get the cap to release from the pump body.

Carefully push the wire into the cap as you pull the cap straight off the pump body.

Pull the cap off far enough where you can properly see the full switch.

Using a razor blade or thin knife - carefully work the blade between the gasket and pump body.
Once the gasket is released - insert a thin blade screwdriver to pry the switch straight out. Do NOT twist the switch as you are removing it.

There should be a black O-Ring/Gasket that fits around the toggle end of the switch. Usually it stays put in the pump. If not - don't worry - but just the same - don't lose it... Make sure you keep the same orientation (don't remove it and install it again facing the other direction)..

If the copper connector tubes came out with the switch - carefully remove them by using the Xacto blade or razor blade to help pry the tubes up and off of the brass conductors of the switch.

Protect these little copper connector tubes - they are very delicate and (like the other parts of the pump) no longer available.

You can see that there is a vent hole in the top section of the switch's cover.

Using the fine brass bristle detail brush - clean the outside of the switch body and toggle area.

From here we're going to carefully prepare the switch for removal of the switch's cover.
While I did this operation while holding the switch in my hand - I'd advise a small hobby vice or some other means to hold the switch in a steady position for work.

Not in my 30's any longer (for a long while now) I used a lighted magnifying glass to do the cutting work and some of the finer operations;

Using your Dremel or other high speed hobby tool and carbide wheel -

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Grind the crimps off carefully without cutting too deeply into the switch's cover plate (Switch Plate).

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Carefully insert your thin blade screwdriver under the Switch Plate at one of the 3 exposed openings on the side of the switch and pry just a little at each of the three points (sorry - no picture of this operation)...

Once the switch plate is loose - lift it straight up from the switch body - Here is what you should end up with;

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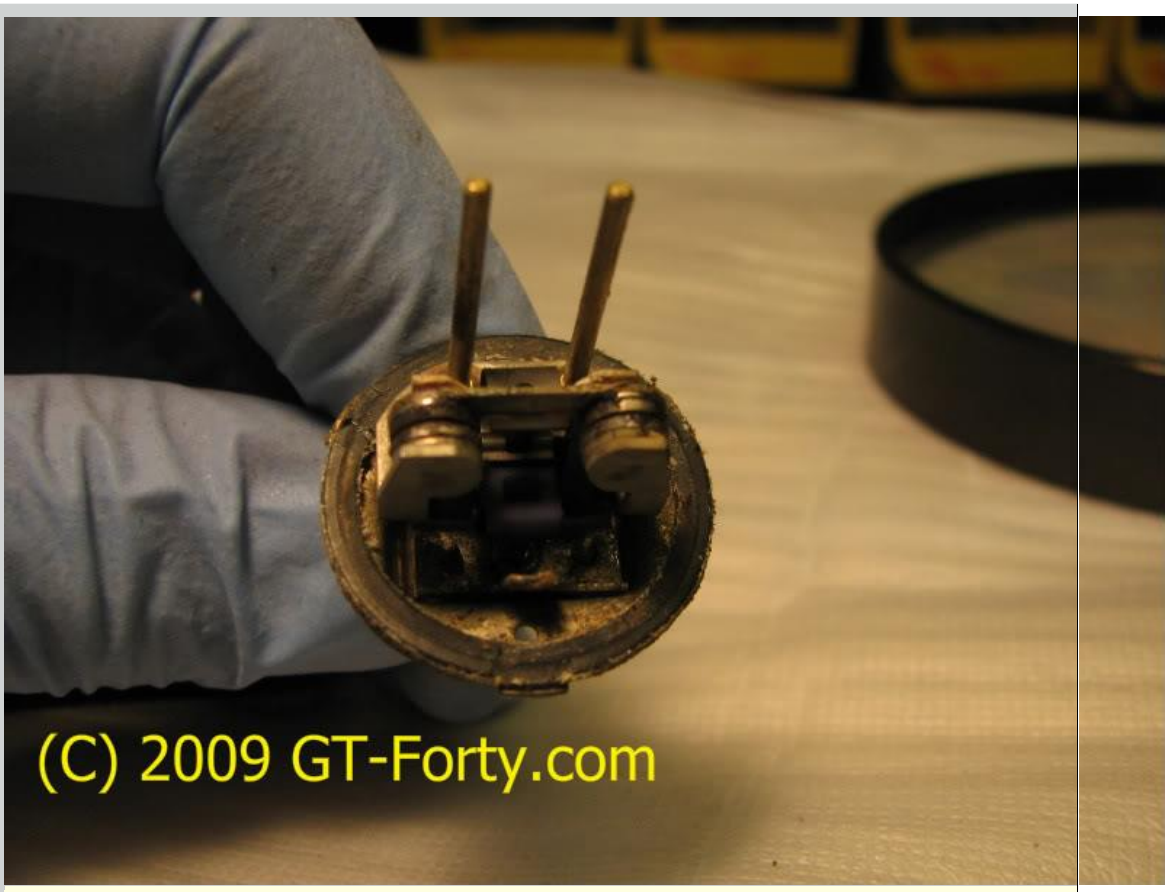

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A few more pics of the switch assembly..

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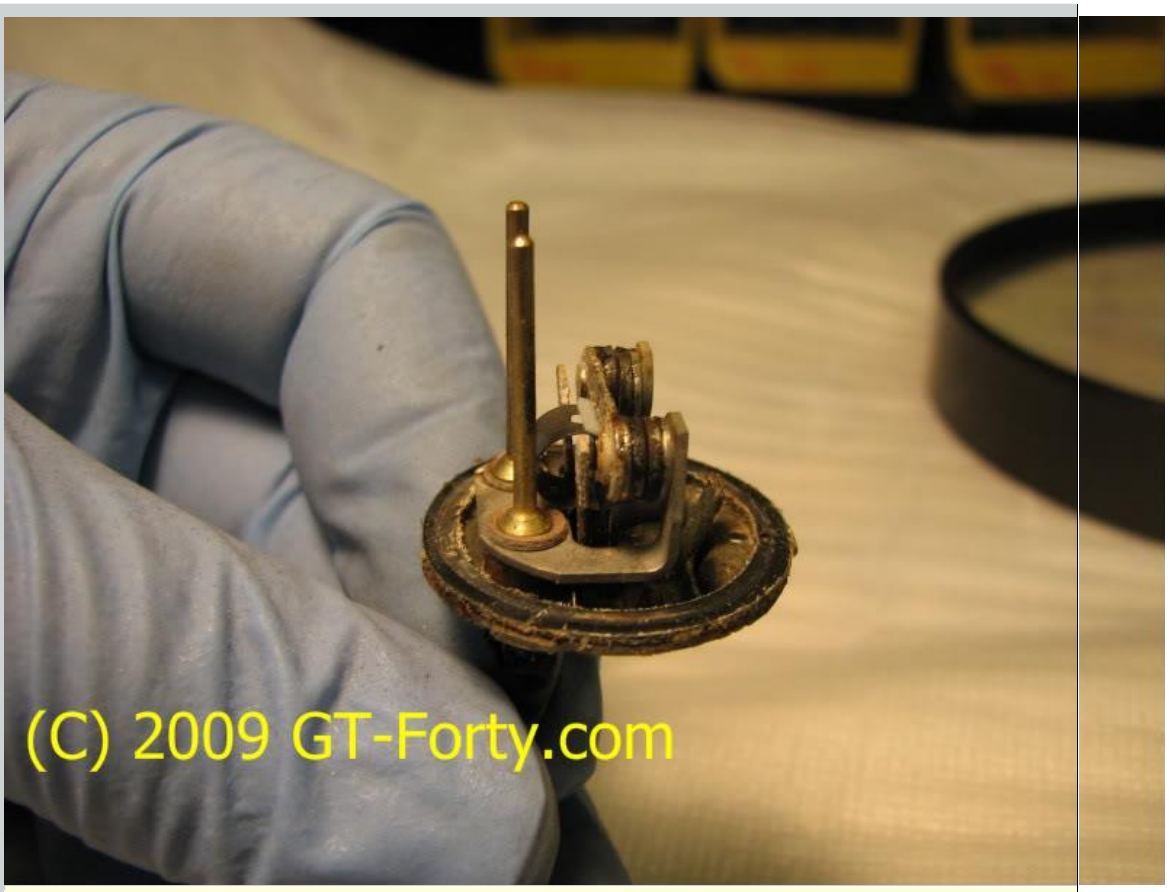

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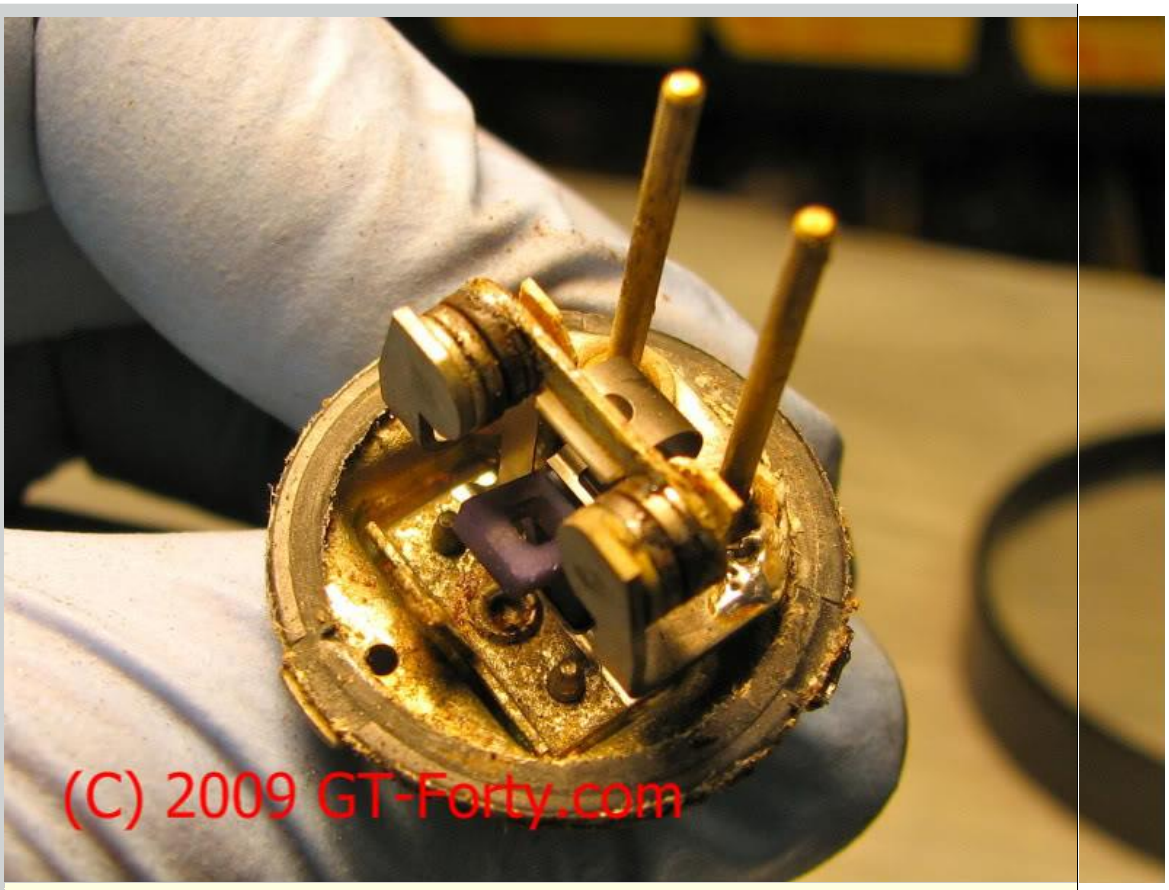

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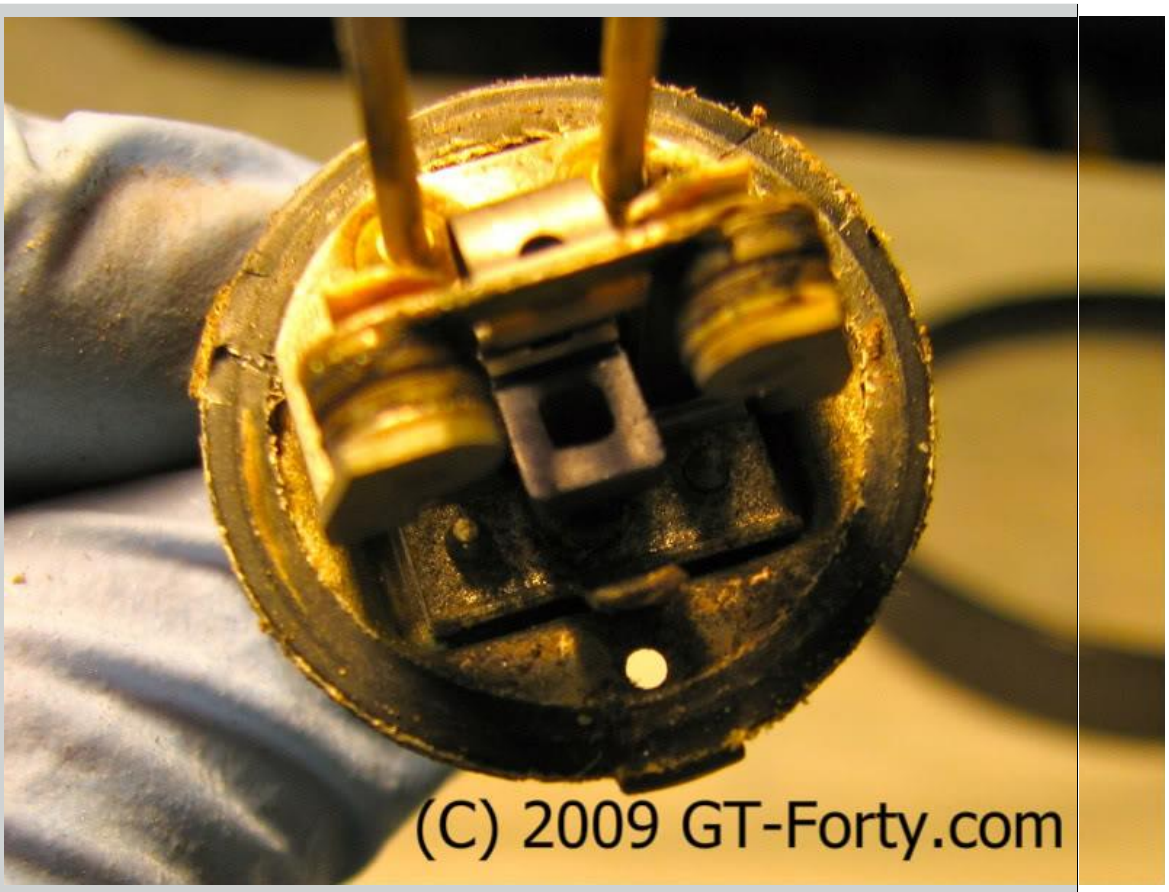

Contacts open

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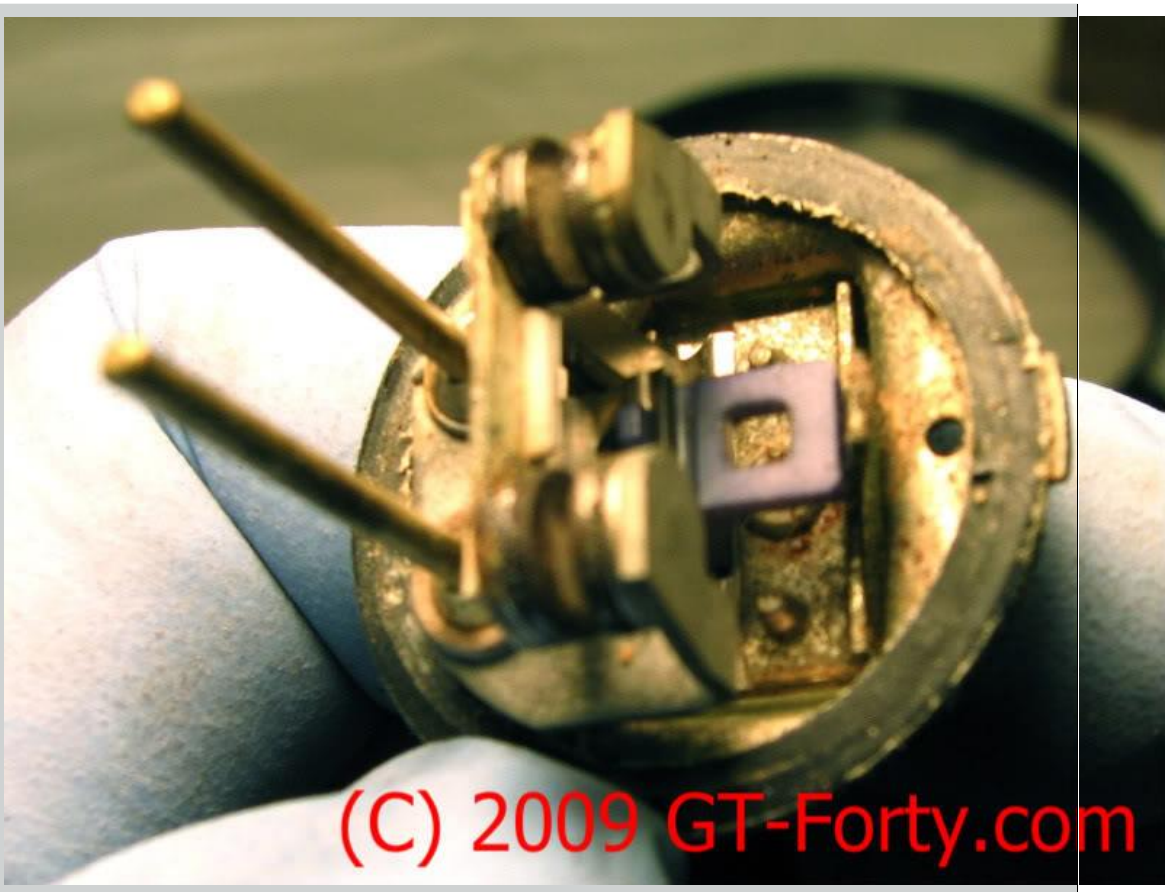

Cleaning of the switch and contacts..
I used a Rosin Flux Remover to loosen the corrosion in the switch as well as knocking down some of the varnish on the switch's contacts. While I did spray it liberally inside the switch, I remained cognizant of the plastic toggle (blue plastic with square window) and did not leave it submerged or wet for long. A Q-Tip swab was used in areas I had good access to. Compressed air was used to spray the loosened corrosion free from the switch.

Now to clean the contacts - There was a pretty fair degree of carbonized varnish on the contacts. I figure at some point in time, this pump was submerged in water and also had traces of oil inside. It was the burned oil (I think) on the contact surfaces that finally caused the demise of the switch. To clean the contacts, I cut a strip of 4/0 Emery Polishing paper and inserted it between the contacts and drew it back and forth a couple dozen strokes - then carefully flipped the paper over to clean the other side of the contacts.

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A couple more shots of the Rosin Flux Remover and some compressed air and the contact faces were once again in very nice condition.

Then I decided to instill just a couple of small droplets of oil on the fulcrum of the Blue Plastic Toggle using a syringe.

After cleaning the switch body inside and out -
I put a couple droplets of oil on the pivot of the brass switch arm and worked it in good.

Now comes the interesting part - the re-assembly of the switch;
The blue toggle was moved to it's outside position (Contacts open) -
Carefully slide the switch body down over the top of the switch cover - being careful to insert the brass switch arm into the center of the blue toggle.

Now we need to re-attach the switch plate to the switch body.
You may need a small pliers to squeeze the two back together again once you have found the precise orientation that the two parts once shared.

I used a little bit of the cleaner - again - on a cotton swab to make sure that all oils were removed from the surfaces I was about to bond together.

Using JB Weld epoxy - I put a few dabs around the same crimped area that we just cut free with the Dremel tool.

Let the switch sit for 24 hours for the epoxy to fully cure.

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The Switch Cover (the part that has the Hex Head) needs to ground against the top of the switch itself.
Once the epoxy is cured, you will need to cut the excess epoxy that might interfere with the contact needing to be made between the cover and the switch. I used an Exacto blade for this task.

Now comes the tough part

Installing the switch back into the pump

The two thin copper conductor tubes that we rescued earlier are about to be put back to work. Ultimately these tubes are the conductors between the switch and the pump's solenoid coils. As you can see - they fit rather snugly over the brass conductors.

BUT this is not where they shall remain.

These tubes will be removed from the brass conductor pins and inserted into the two holders inside the pump body's switch cavity as the one shown below;

Next - make sure that the switch has it's gaskets installed
If the black O-Ring gasket is not on the switch or still stuck in it's well in the pump body - install it now on the switch as shown;

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Suddenly it all makes sense and comes together

When installing the switch in the pump body - Carefully insert the two brass conductors inside the two copper conductor tubes and gently push the switch inside the pump body until it's fully seated.

Rotate the Switch's locking cover over the 3 pins - making sure that the retainer pin hole and hole in the locking cover will align once turned into position.

Install a new locking pin - the one used below was a piece of plastic golf tee with a dab of Hot-Glue to hold it in place.

There you have it.. Now - if you ground the pump and connect the switch wire to your 12v battery, you should be rewarded with a very rapid "THUMP-THUMP-THUMP-THUMP".....

I hope this is of some help to all you gear-heads out there...

REMEMBER - PAY IT FORWARD.....

_____
Regards - Randy
GT40 RCR40 #45 G50-331-Weber IDAs
My build site: http://www.gt-forty.com/