How I fixed my duovalve (W210), got my heat back and saved myself $250!

01-13-2009, 11:32 AM #1

KarTek

Boy adventurer...

Join Date: Jun 2007
Location: Bahama/Eno Twp, NC
Posts: 2,327

View Photos By: KarTek

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Details, pictures/writeup at 11... Sorry, I can't upload pictures at work...

_____
-Evan

Last edited by KarTek; 01-13-2009 at 12:04 PM.

Quote

01-13-2009, 08:55 PM #2

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Update!

Now that Winter is here, having heat in the car is near and dear to most everyone. With the possible exception of our friends in Southern California... Heating season here began with an early cold snap in mid November but at that time, I discovered to my dismay, that the car was producing no heat to speak of.

The engine warmed up fine, ran great, the blower blew but alas, it was only lukewarm air. I went through the usual checks: Bubbles in the cooling system, duo-valve unplugged, aux water pump pumping... Everything seemed to check out fine. Then I started in on the next level of troubleshooting: Take it apart!

I took the hoses off, forced water through them and it flowed freely. I took the aux water pump apart and it was in perfect shape. I also found out that it's magnetically driven so it's not likely to fail. If you can hear it running, it's pumping! Next I moved on to the duovalve and upon close inspection, discovered that it was ultimately the source of my problems. The seals had completely rotted and swolen to the point that the valves would no longer flow anything more than a trickle.

A quick look through the Fastlane/All Parts Express revealed no replacement parts so I called Phil to see if there were any other options. Sadly no rebuild kit or seals seemed to be available and it was looking like I was facing the purchase of a $250 replacement valve. "OK" I said, "I'll see if I can do anything with it".

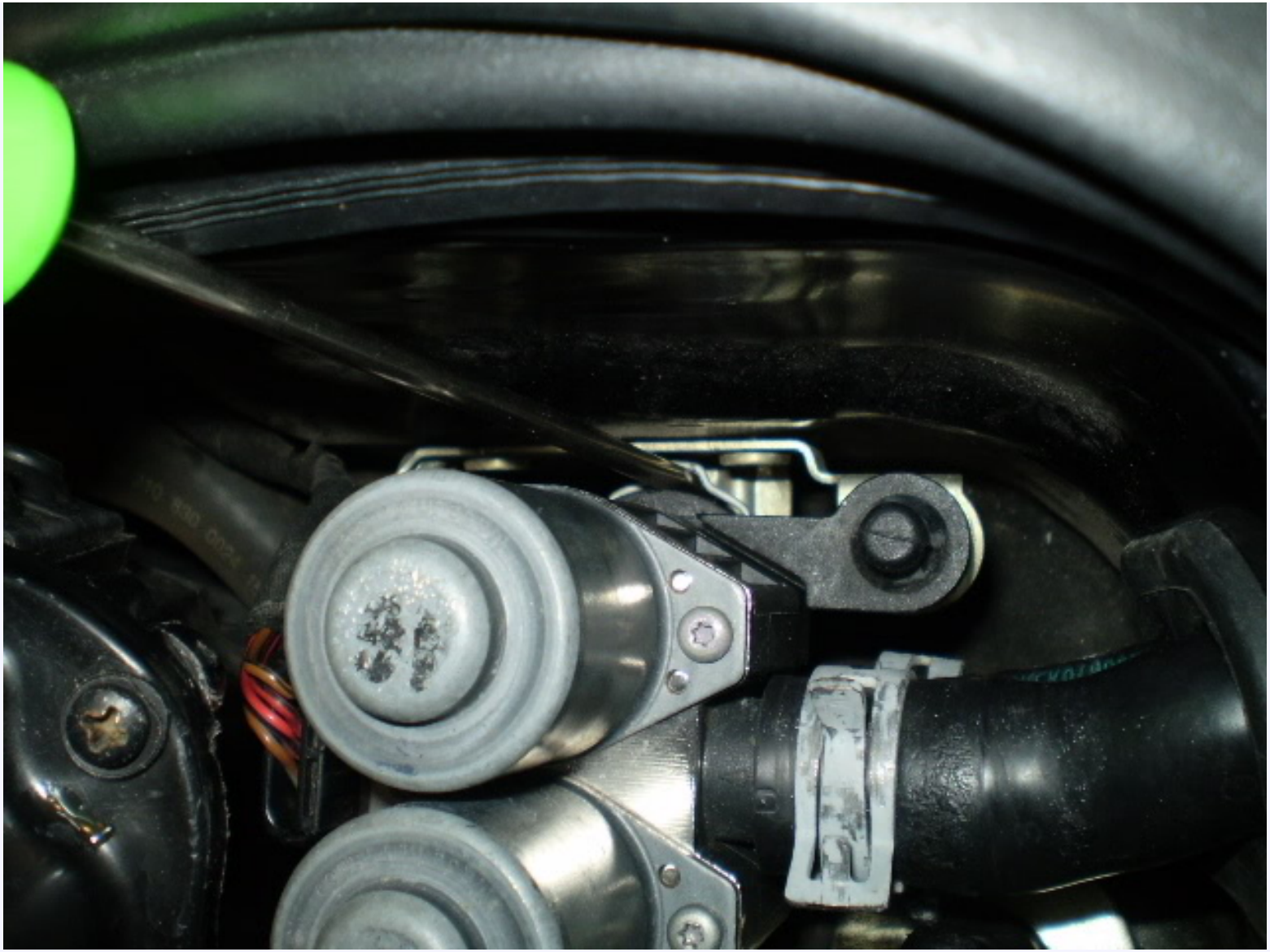
Happily, after some experimentation, I figured out that the repair can be done for about $2 worth of off the

shelf plumming parts from Home Depot or Lowes.

If you're having the same troubles with your W210 car (or probably W208 or any car with a similar duovalve), here's how to get it back in working condition.

To remove the duovalve, first unlatch the top of the air filter housing and move it aside for better access to the hoses. Then remove the top spring clamp and hose. Next, push the top hose and the large rubber grommet out of the hole in front of the bulkhead.

Take a screwdriver and gently pry the lower retaining clips out until they make a small "snap" sound at which point, they'll stay in the out position. There's one on each side.



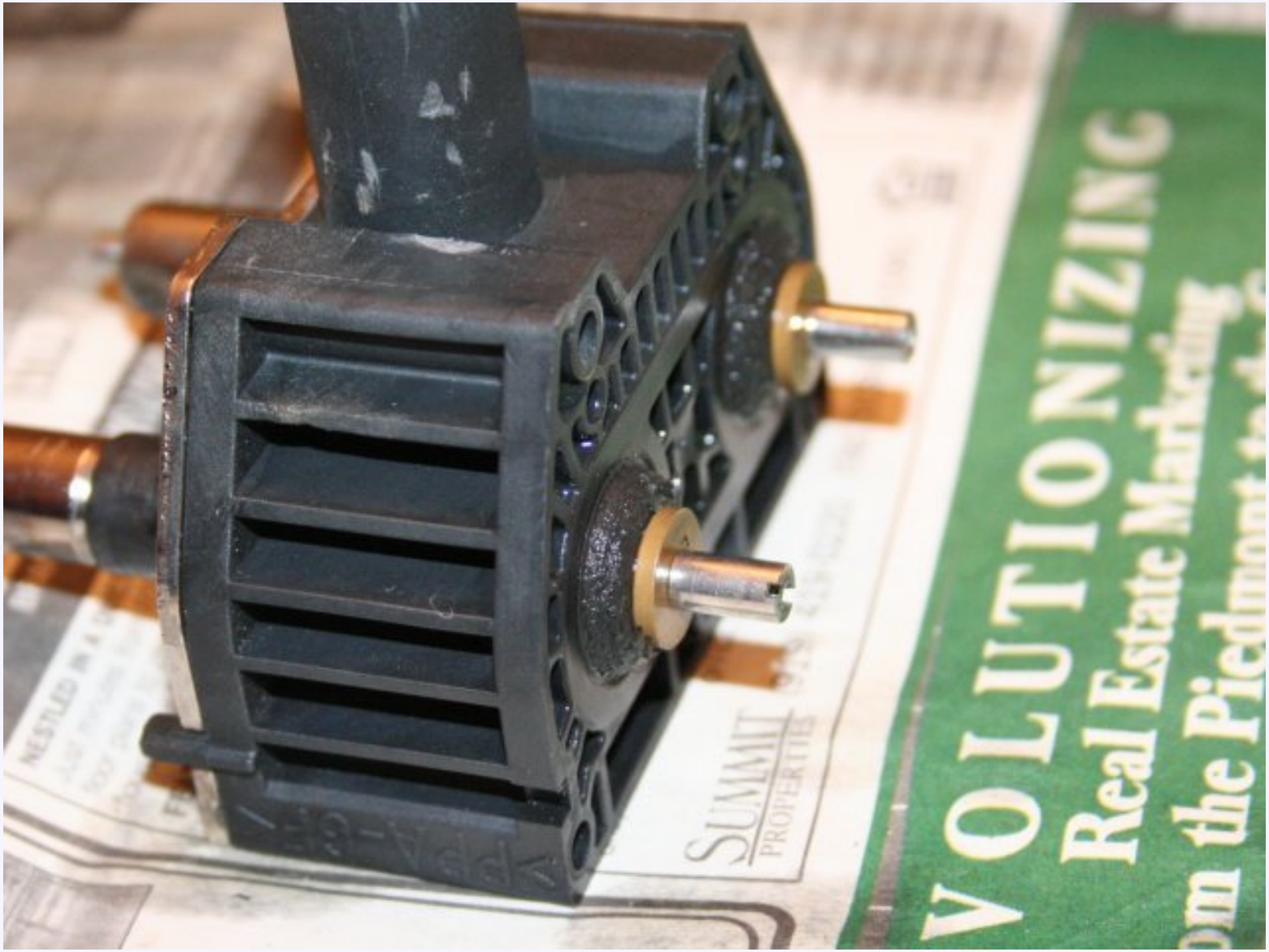
After the clips are opened, grasp the two metal coil housings and gently wiggle and pull them upward to free the upper assembly from the lower one. You may need to place the tip of the screwdriver on the flange of the bottom piece and gently press downward while pulling up to free the parts. Once the top part is free, unplug the electrical connection and then remove the bottom spring clamp and hose.

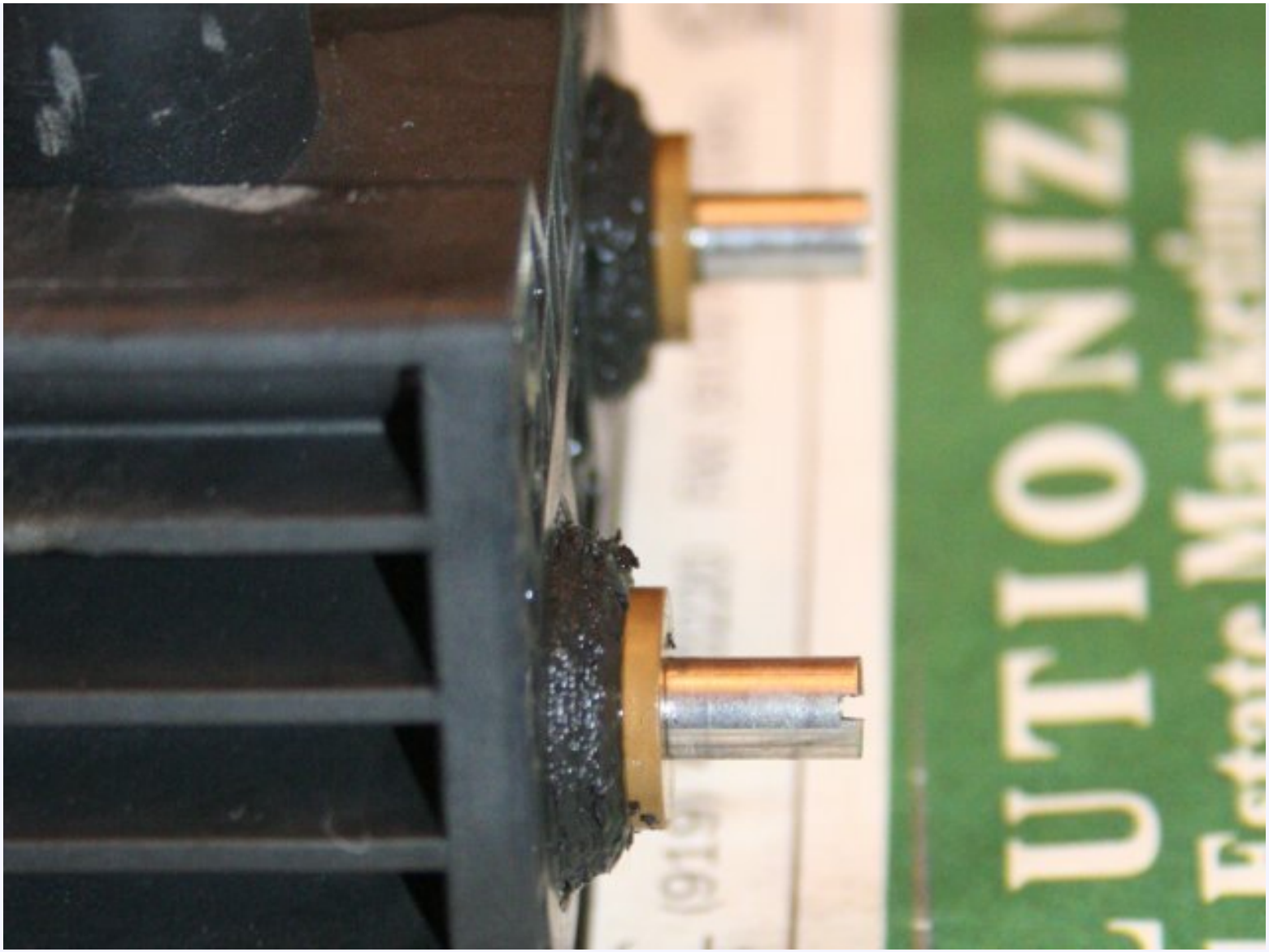
Now that you have the valve free, set yourself up a clean work area to do the disassembly.

First, take a Torx T-10 driver and carefully remove the 5 screws holding the valve assembly together. Then, carefully remove the silver coil assembly. Finally, you can pull the two lower halves apart. Take care to

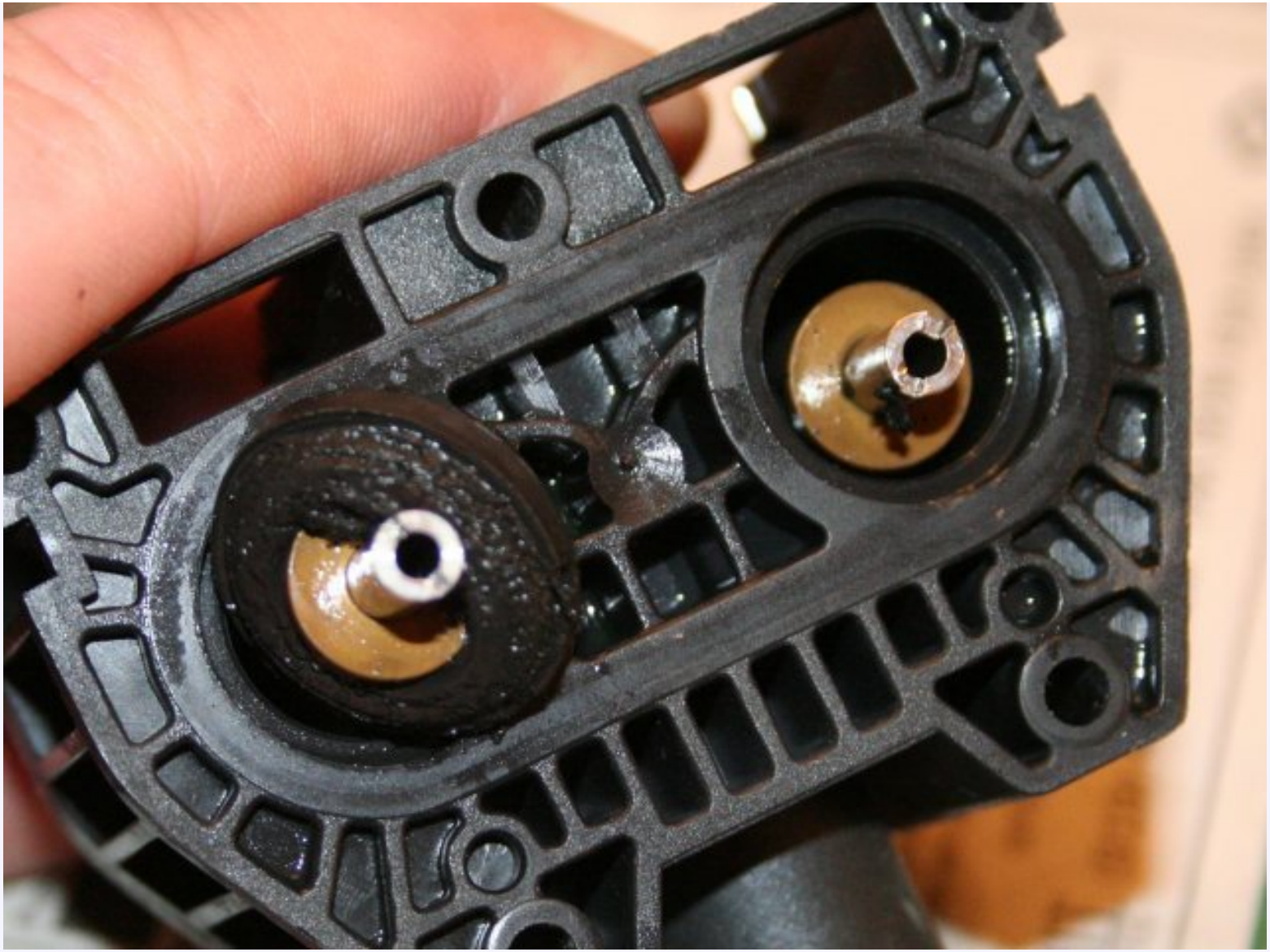
not lose or damage the two small brass "umbrella" shaped valve poppets.

These pictures show why the valve quit working. The seal had swolen to such an extent that it prevented the valve from opening and allowing water through. You can see valves pushed out by the swolen rubber. They should actually stick out a little but not nearly that far.





Press the valve control rods down and this will allow you to slip a screwdriver under them and pry out the seals.



Once the seals are out, the silver plate with the valve control rods will slide out of the top of the assembly.

This is a closeup of the valve seal showing the poor shape it's in:

There are two more identical seals in the lower half of the valve. Take a screwdriver, inserted through the lower hole and press against each of the two seals and the brown plastic retaining cylinders. A little bit of force is needed to dislodge them. Once free, you can pull them out by hand and then pry out the rubber seals.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There will also be 2 O-ring seals, one between each section. Depending on the condition of the parts, you may need to do some trimming to make them usable again. I took a pair of scissors and carefully trimmed the excess rubber of in order to re-use them. The two pieces on the right were discarded.

Now for the fun part. Go to the store and pick up a box of 1/2L faucet washers.