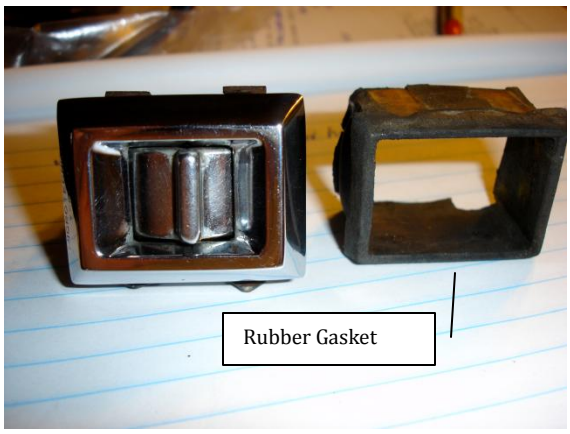
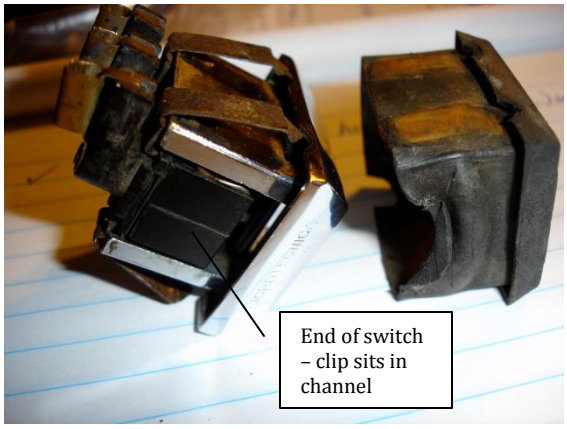
Cleaning a Microtecnica switch

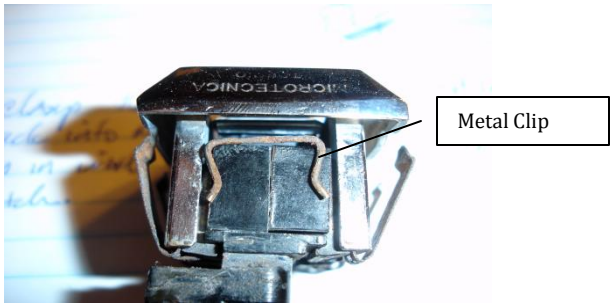
After spending hours unplugging and plugging wires to get the passenger window to work properly it occurred to me that perhaps it was a switch. I know, I should have checked it first!. But what was the likelihood that both passenger window switches were bad? Actually, in a 40+ year-old car the likelihood is quite high. I tested the switches using and Ohmmeter and found that the continuity readings were very erratic. So I called in an expert, Kerry Chesbro, the creator of the Ferrari 330gt website. Kerry is very gracious in sharing his knowledge of these magnificent cars with any enthusiast. He told me that the electric motors draw a huge amount of current when the switch is used. This can cause arching which overtime can cause pitting on the switch contacts and a buildup of carbon and corrosion that cause the switch to loose its effectiveness in transferring power via the switch to the window motor. Microtecnica switches are nearly impossible to find and when you do find them they are very, very expensive. Kerry convinced me to take the plunge and clean my switches. This document chronicles my experience in hopes that it can of help another enthusiast just as Kerry helped me.

The first step is to gently slide off the rubber gasket that surrounds the switch (gasket to the right of the metal switch). The gaskets are likely fragile but I found them reusable so take care. The head of the gasket fits up into the underside of the switch. I would guess that its purpose is principally to keep water from getting into the back of the switch.

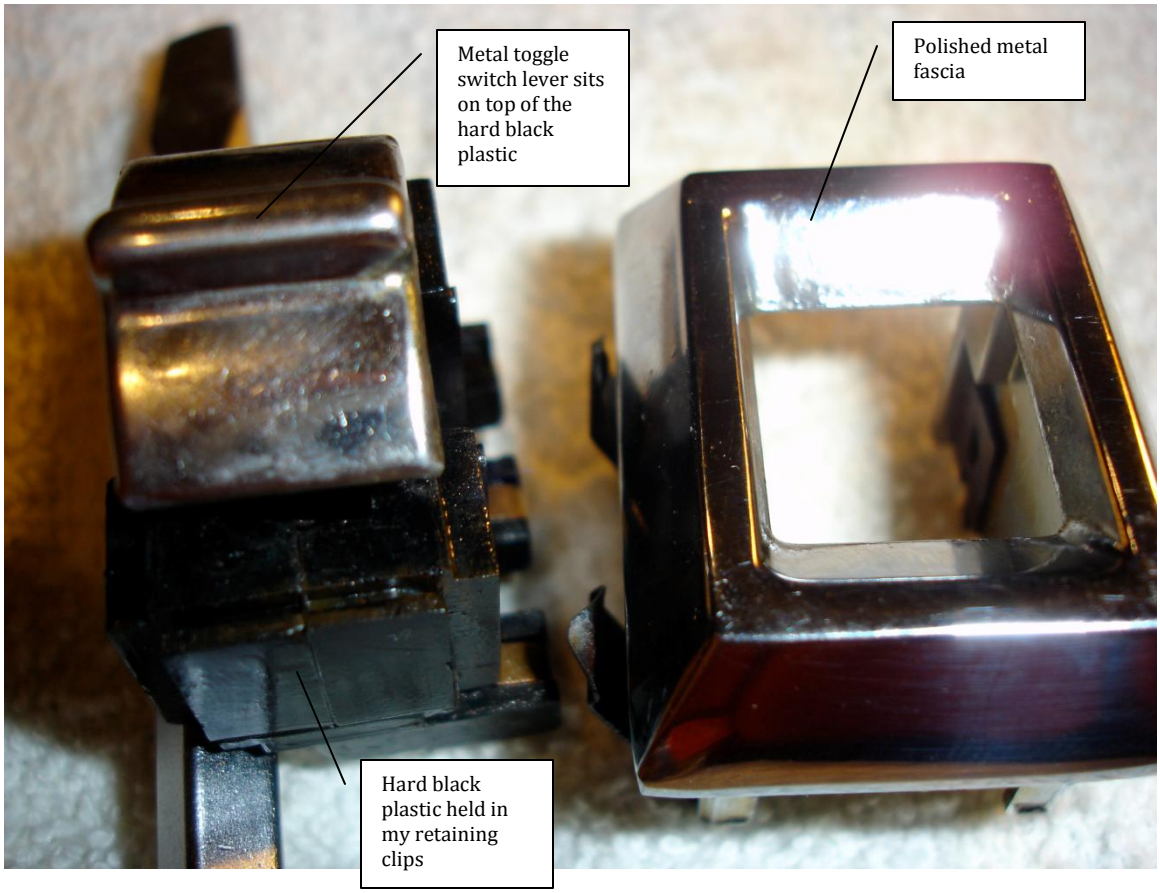




Next, looking at each end of the switch (right picture - see the black plastic portion of the switch) you will see a thin channel on each side. If you look close you will find on each side the end of a metal retaining clip that holds the plastic centerpiece of the switch into the polished metal switch plate. Using a small screwdriver push the clip out toward the underside of the switch metal plate. There is one on each end of the switch. Below is a picture of a clip shown after removal sitting on the end of the switch.

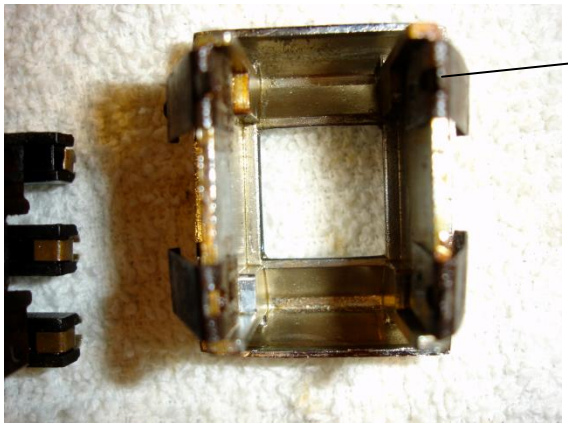


Once the clips are removed you may be able to gently pull the center black plastic portion of the switch out of the polished metal switch fascia. Unfortunately mine did not come out easily. Rust from the side retaining clamps and accumulated dirt had gummed up the black center of the switch; it was stuck in the metal fascia. I sprayed the entire unit with penetrating oil and after letting it sit I inserted a screwdriver between the metal fascia and the black center and gently pried the center up seesawing end to end.

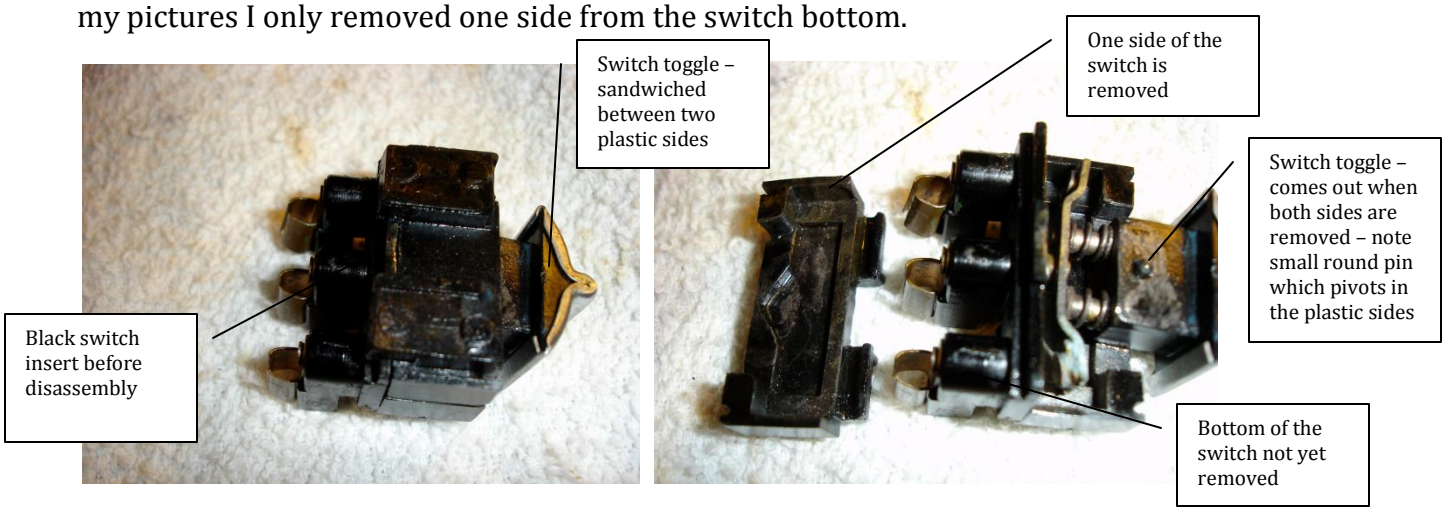


Once the center switch is separated from the polished metal fascia, lay the metal fascia upside down as depicted in the following picture. Note the position of the metal band clamps for reassembly. The metal band clamps are what holds the assembled switch in the door panel. They may be rusted and brittle so be careful

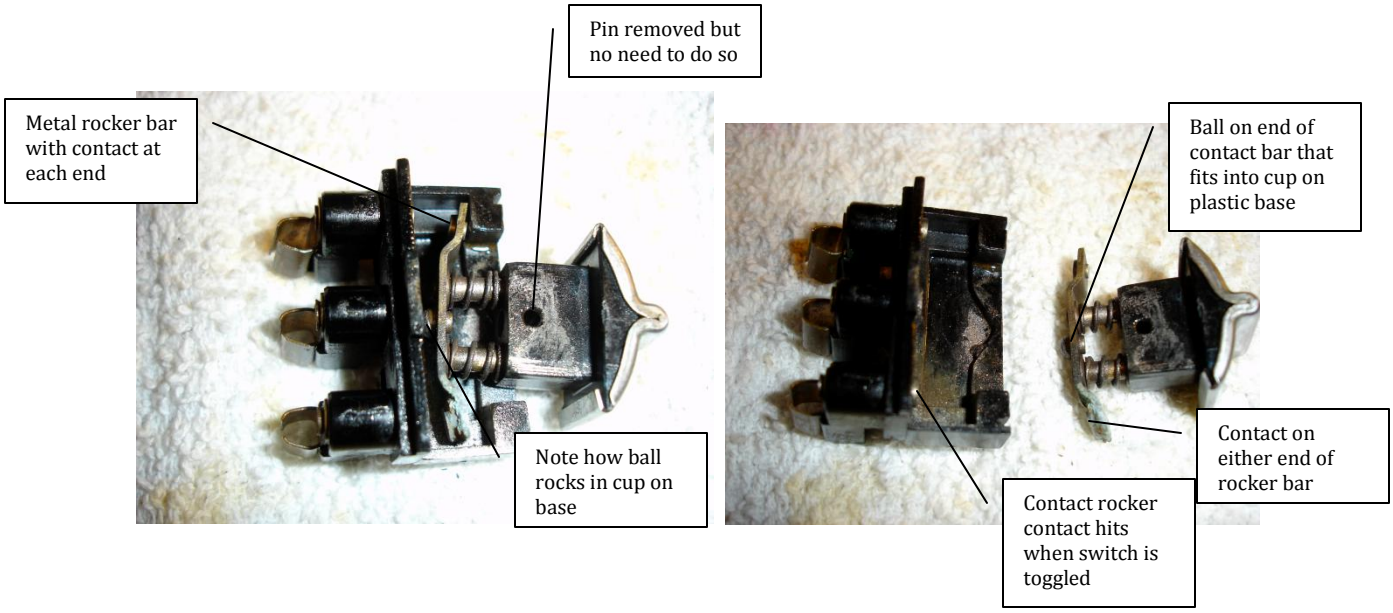
with them. Note that on reassemble these clamps are put on the polished metal fascia and held in the switch when the black plastic insert is slid back into the fascia.



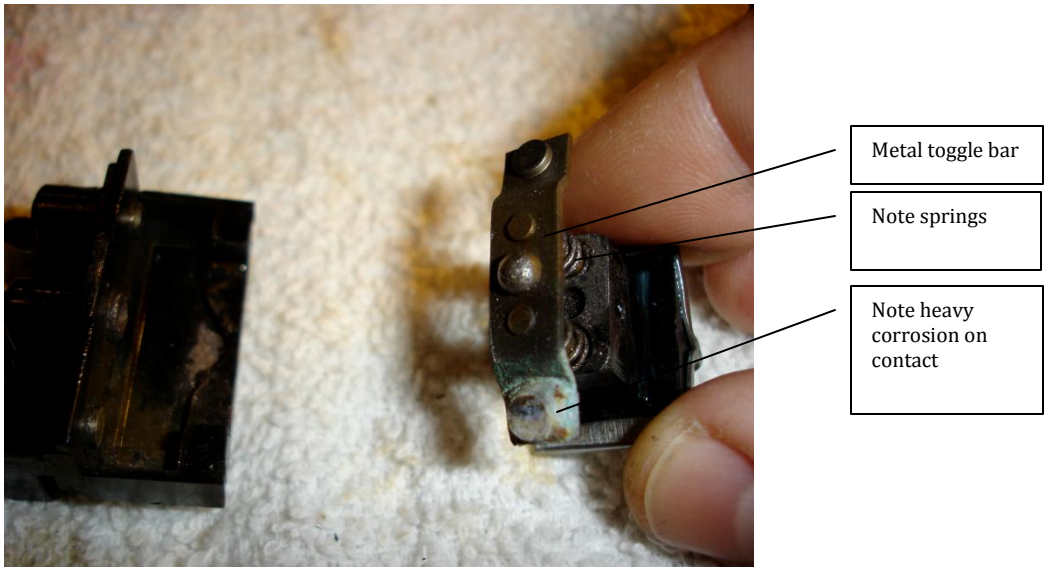
The hard black portion of the switch is comprised of two sides and a bottom which can be taken apart. The switch toggle is sandwiched into the switch sides as they are assembled. Separate the two removable sides from the bottom of the switch. In my pictures I only removed one side from the switch bottom.



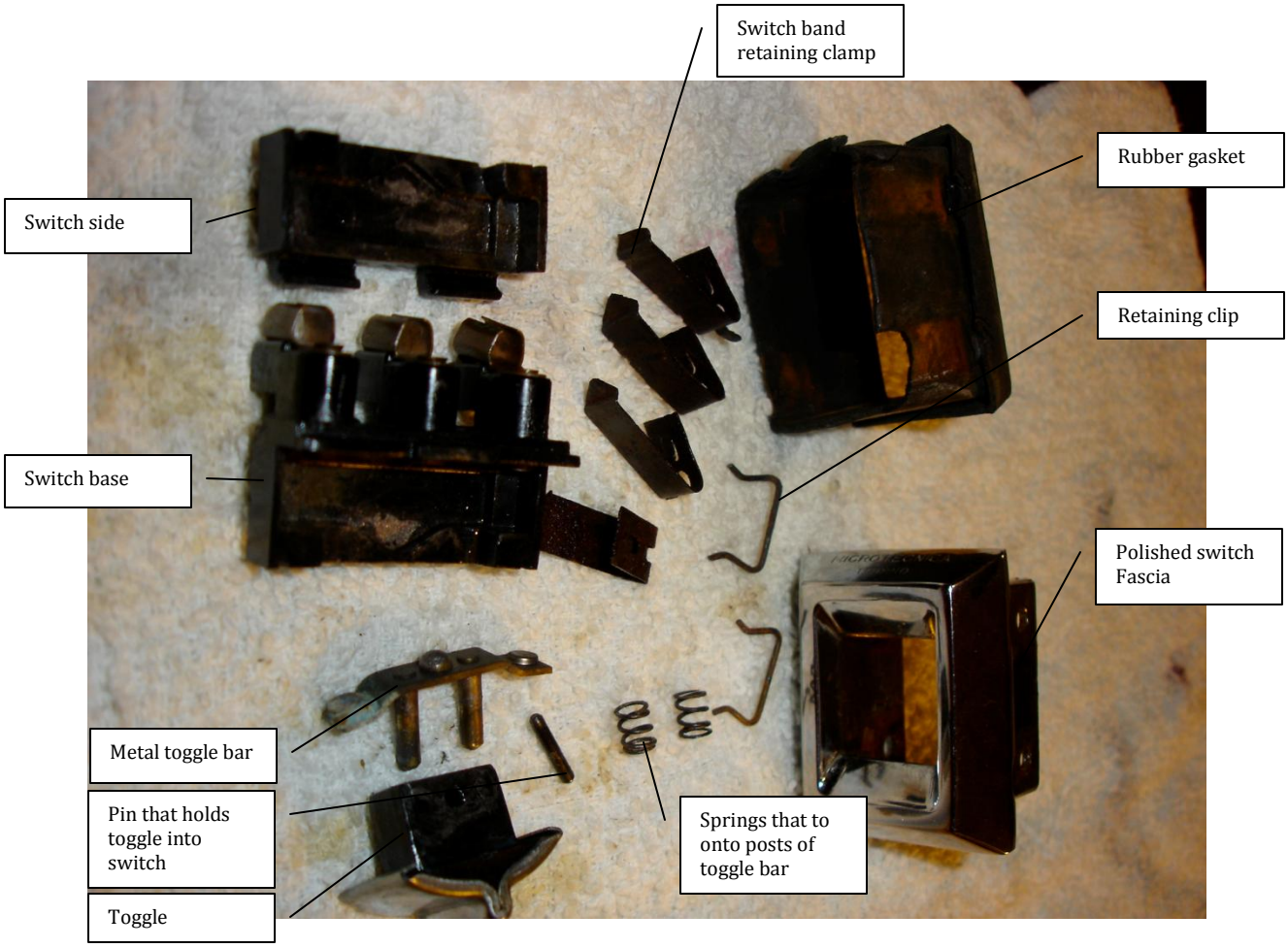
Note the small round pin that might appear to hold the chrome head of the switch to the plastic switch (above right picture). It actually does not hold the switch in but rather acts as a pivot bar for the switch to swing on when the switch is assembled. You can pull the pin out to release it from the plastic switch or better yet simply pull out the entire switch head assembly. Note that the bottom of the metal toggle bar has a ball that fits into a cup and allows the bar to rock back and forth. The center cup is energized with current coming into the switch. The metal bar has a contact at each end. When the contact on the metal bar is rocked it makes contact to a contact on either side of the switch base and sends power out to the connected wire. Therefore, the center wire connected to the switch is always the power lead into the switch and the other two wires are always power coming out of the switch.



Corrosion can build up between the contacts on the rocker bar and the contacts in the base of the switch. Note the heavy corrosion on one end of the switch toggle. This must be clean for the switch to work correctly. No wonder my switch didn't work!



Pull the metal toggle bar out of the head and remove the two springs. Here is a picture of all the parts from the switch.



Now it is time to get cleaning. Because the metal band retaining clamps that hold the assembled switch into the door panel I had caused rust to get into my switch I decided to get rid of all the rust by soaking all of the parts in Evapo-Rust. I threw everything, including the rubber gasket, into the solution over night to be sure I got rid of all of the rust particles. I have found Evapo-Rust to be great at dissolving even the heaviest of rust and it doesn't harm plastic, rubber or any metal…it eats only the rust and doesn't harm anything else.

After soaking over night I cleaned every piece with CRC contact cleaner (the plastic safe version) using fine steel wool and 1000 grit sandpaper. I reassembled the switch in reverse order of disassembly. I found the black plastic parts to be somewhat fragile so be careful. The assembled switch looked new after reassembly and my Ohmmeter says it works like new too!

The entire process was not difficult but it was tedious and time consuming because I knew I was working with a switch that was very tough to replace if I destroyed it. Therefore, after I had completed the first switch I decided to try another approach. I found that the Evapo-Rust cleaned the corroded contact on its own so well that before tearing down another switch I decided to try soaking the entire dirty but assembled switch in Evapo-Rust overnight. On removal of the switch I did the final cleaning with CRC flooding the interior of the switch with it. I then squirted a small

about of dry lubricant around the sides of the toggle portion of the switch just to be sure it moved easily. I found that the switch cleaned using this method tested just as good as the one completely disassembled. Therefore, I elected to clean the remaining two switches using the assembled method and they too now work just fine!

Six month update

The switches that cleaned using the assembled method continue to work every bit as good as the switch that I disassembled to clean. Therefore, if you think your switch problem is corrosion you should consider trying the assembled method of cleaning before taking anything apart.

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