

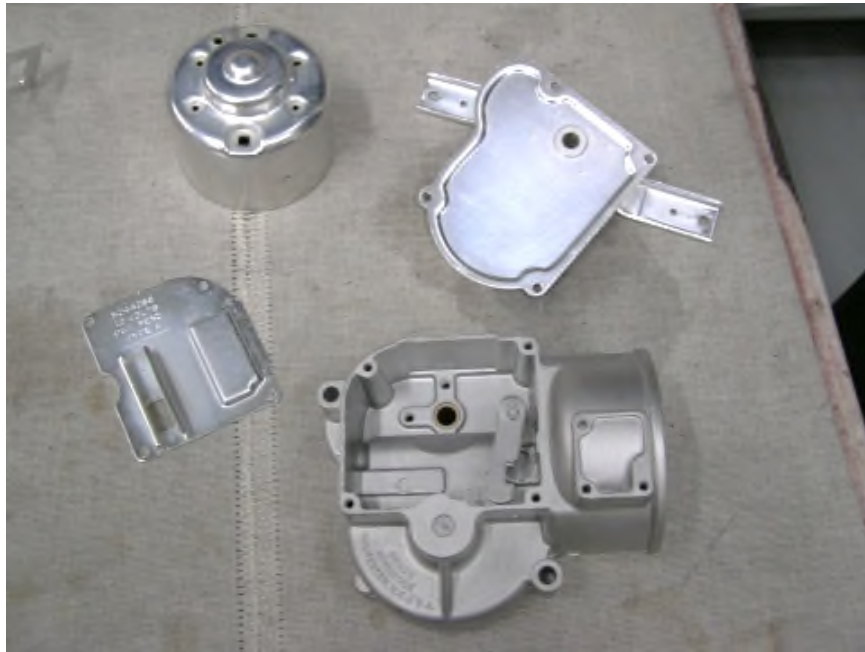
# 1956 to 1962 Corvette Windshield Wiper Rebuild - Assembly

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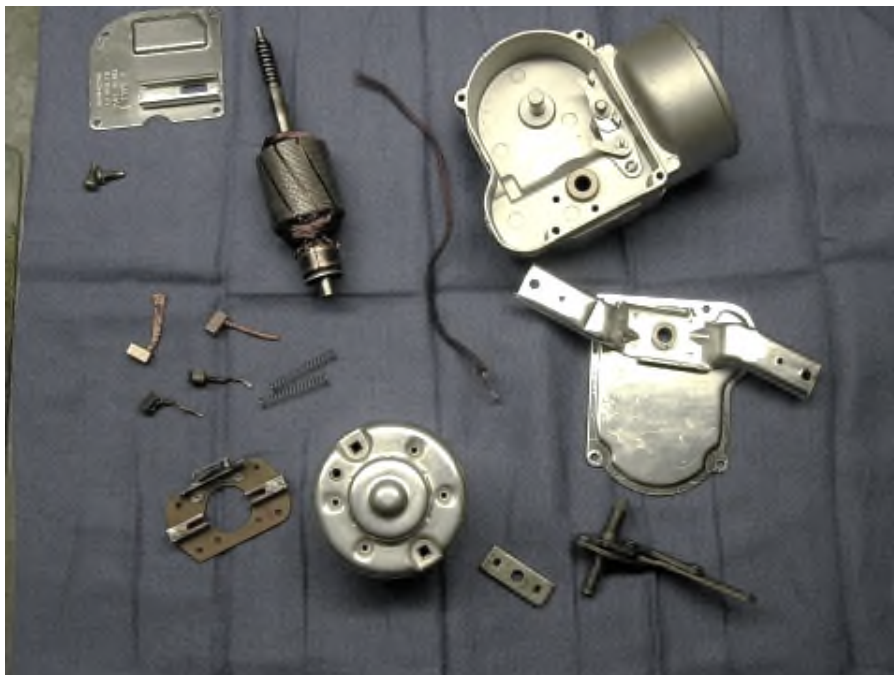
## Rich's Restoration Site

[http://home.comcast.net/~richmz/site/?/page/1956\\_to\\_1962\\_Corvette\\_Windshield\\_Wiper\\_Rebuild\\_-\\_Assembly/](http://home.comcast.net/~richmz/site/?/page/1956_to_1962_Corvette_Windshield_Wiper_Rebuild_-_Assembly/)

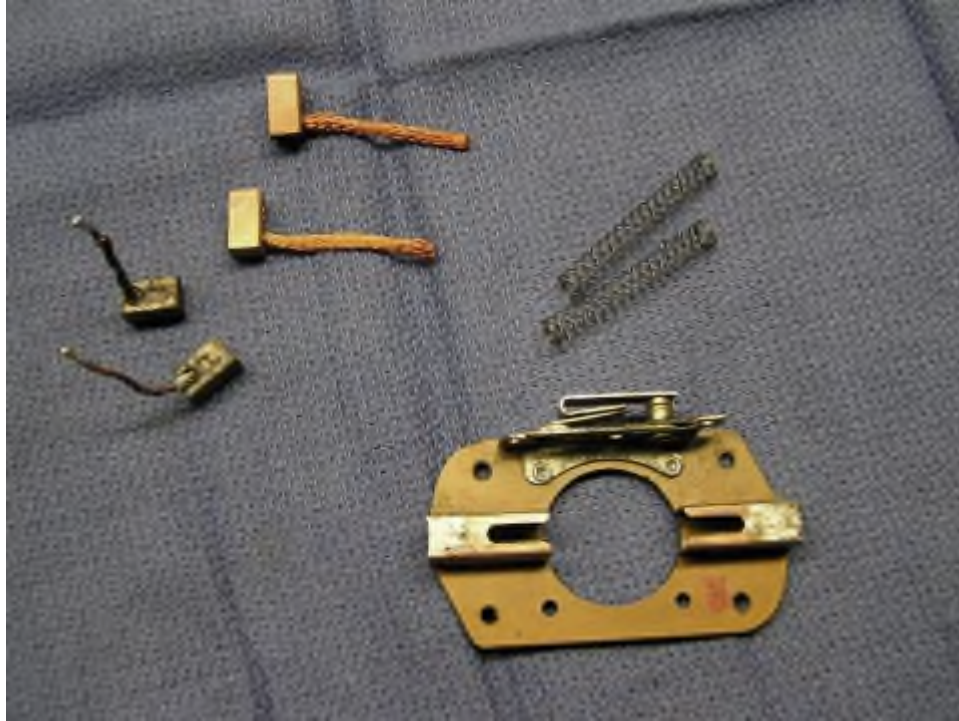
All parts have been refinished and ready for installation. The aluminum housing was sent to a professional metal refinishing shop for restoration. It's a 7 step process to return the finish to original condition. The steel parts were sent out to a shop for Cadmium plating. Cad lasts longer than Zinc plating, but is more costly due to strict environmental standards. I chose Cad for both longevity and a more original appearance.



Prepare all other pieces of the assembly by cleaning to remove dirt and old grease. Repair parts for these are difficult to find so use caution when cleaning. The brown input lead wire is available or you could make your own. Use a 14 gauge wire if you do.



If motor brushes are needed try your local Auto Electric shop. These originals were worn so I hunted for new. I have a shop nearby that had them on the shelf. They're 0.23" square and approx. 0.50"(1/2") long. The replacements I got had thicker copper braid but will work fine. Because the brush holder board has been removed for cad plating of the motor case, now is the time to clean it up. Clean the inside of the brush holders by using a piece Scotch-Brite and small needle nose pliers. This removes old traces of carbon to keep the new brushes from sticking. Carefully open the thermal breaker and inspect it for corrosion. Wipe with a piece of thin cardboard, or if very dirty, use 1500 grit sand paper folded over then wipe clean with paper towel bits to remove any residue.



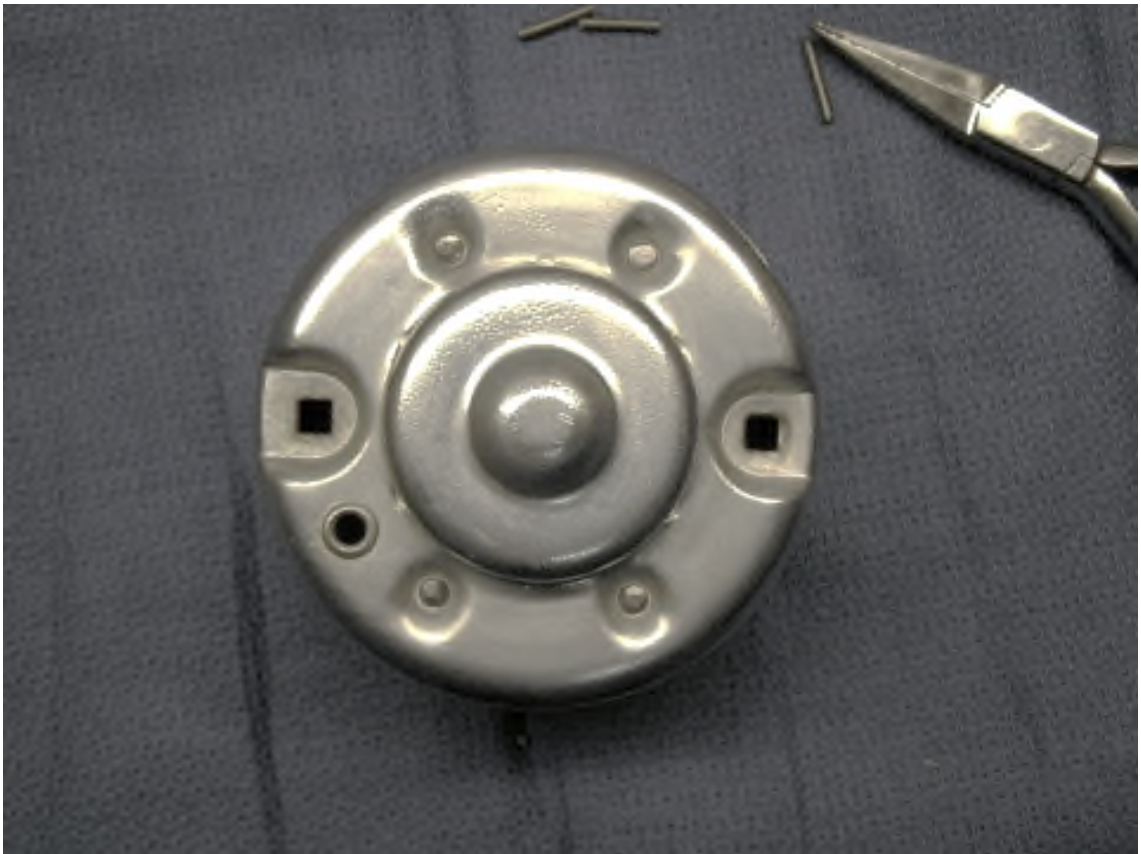
The case bronze armature shaft bushing should be cleaned. Using a light machine oil wick some into the surrounding felt and a few drops in the bushing. Test the armature in it to make sure it spins freely. You'll notice the bushing floats inside its holder, which allows the armature to self-locate when assembled.





I decided to attach the brush holder board to the motor case using home-made "rivet-studs". I used 4-40 round head machine screws. Using my grinder, I worked them to look like a rivet. Installed with lock washers and nuts on the inside, and heads on the outside gives an original appearance. A little dab of silver paint on the heads will keep them from oxidizing.





Prepare the brown lead wire for attachment. Tin the end with solder and make a 90° bend to fit. Attach the strain relief if the original was removed. This one was missing, so I used a tiny cable tie after inserting the wire through the hole in the case. Solder it to the thermal breaker as shown (white box).

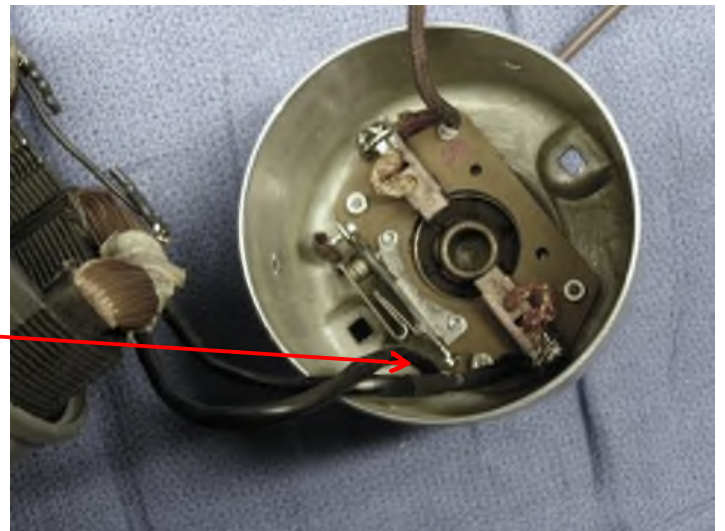
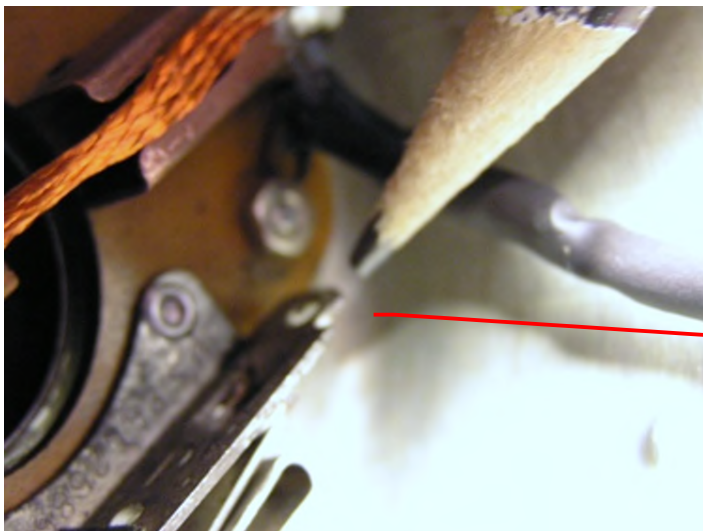
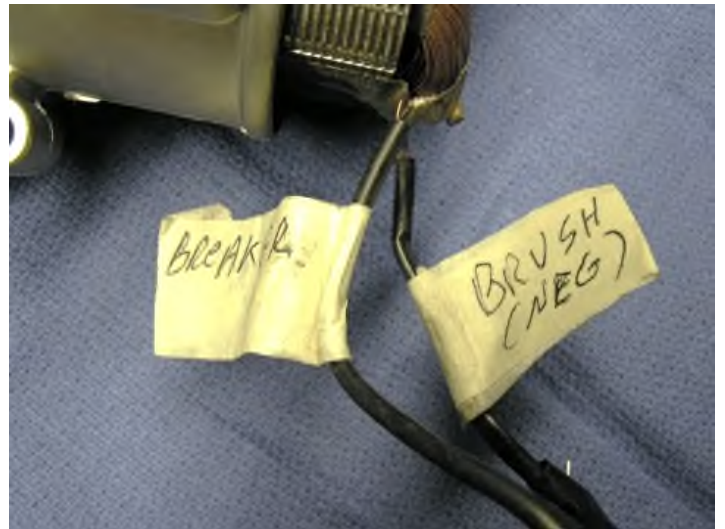




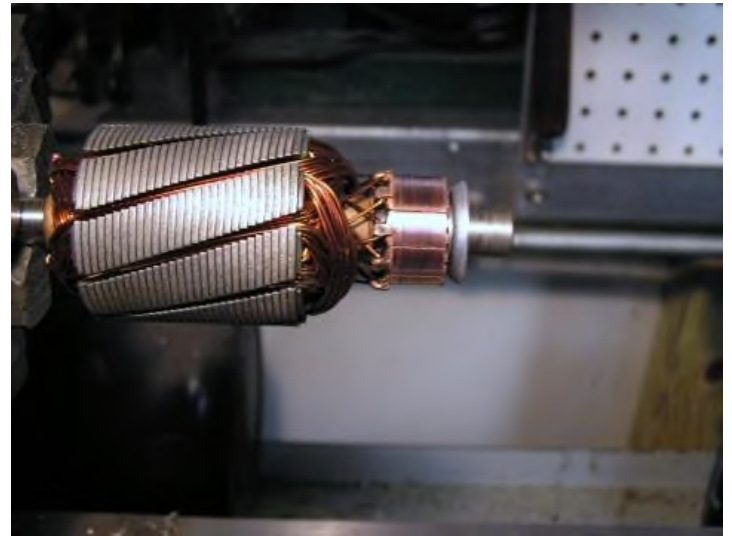
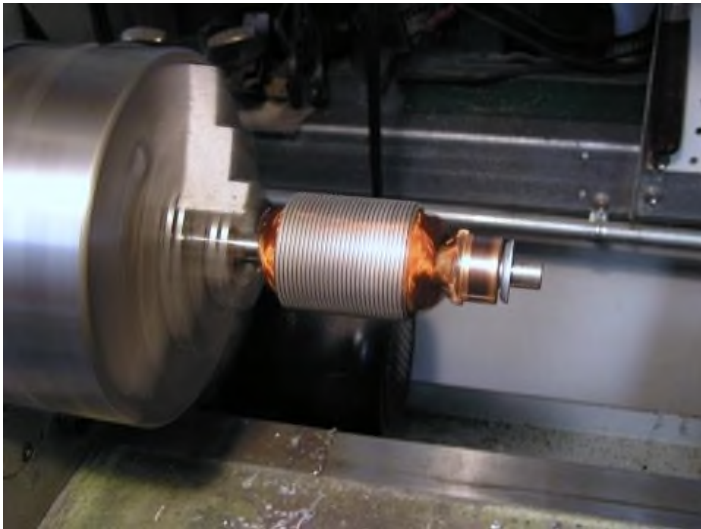
Install the red wire previously removed from the brush holder, along with the braided lead of one brush as shown. The red wire inserts through both holes to act as a stop for the brush spring. Solder them together ensuring good flow to the holder. Make sure the wires don't touch the motor case.



Next step is to re-install the field winding assembly into the wiper housing. Line up your reference marks and start it into the housing. It will be tight. Gently push it in to get it lined up. Carefully tap the opposite sides of the winding plates in a back and forth operation to drive it down into the case. Use a small plastic hammer and don't hit the winding wiring. It will be seated on the internal lip of the housing when down completely. Feed the cloth covered black wire into the hole in the housing near where the contact switch mounts. Now you can attach more wires. Be careful here as the wires are delicate. Attach one wire pair marked "Brush Neg" to the other brush holder through its 2 side holes, then the other brush braid lead wire. Solder together. Then solder the black field wire, marked "Breaker" to the other end of the thermal breaker (red arrow).



Clean the armature commutator to remove old carbon deposits. I use my lathe to spin the armature while holding a piece of 1500 grit paper against it tightly, Badly worn commutators can be shaved on the lathe to ensure roundness, but this one just needed a light cleanup. After cleaning the contact surface, use the backside of a utility knife to clean out any residual dirt from the spaces between the contacts. You can also use an ohmmeter or test light to check for shorts between each contact and leapfrog around each one. This one tested fine. Wipe clean with a towel.

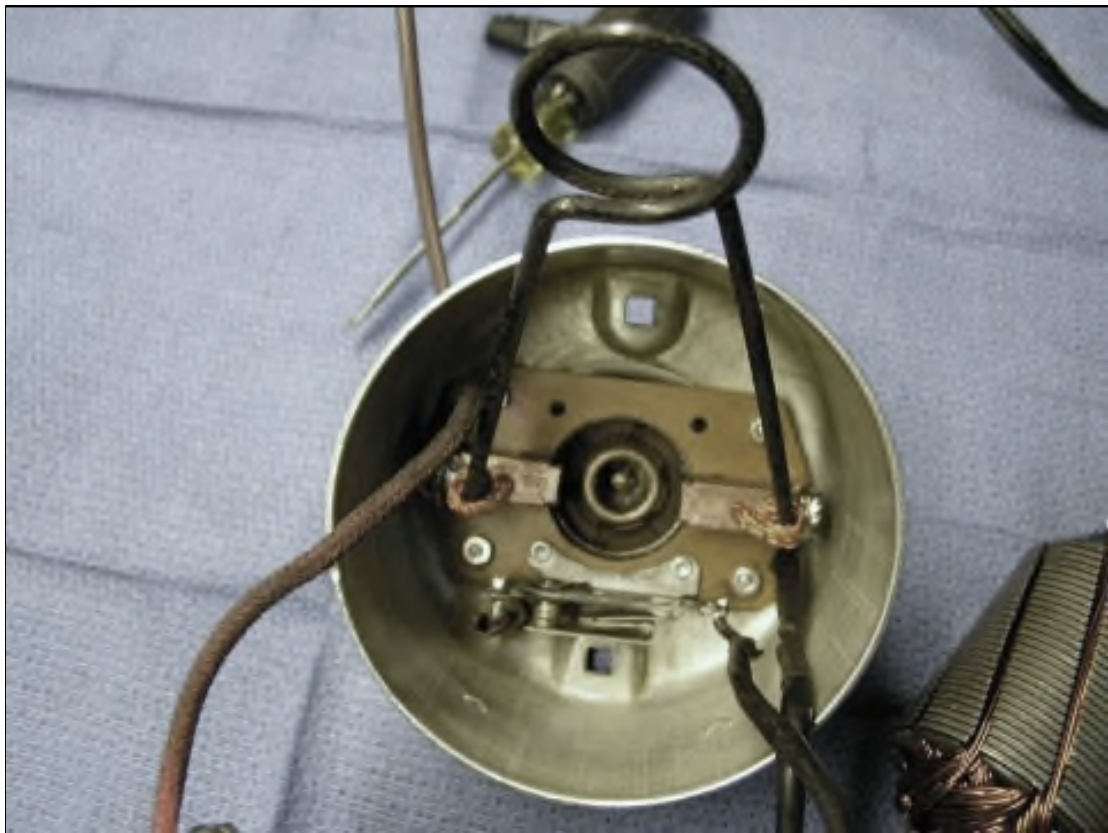




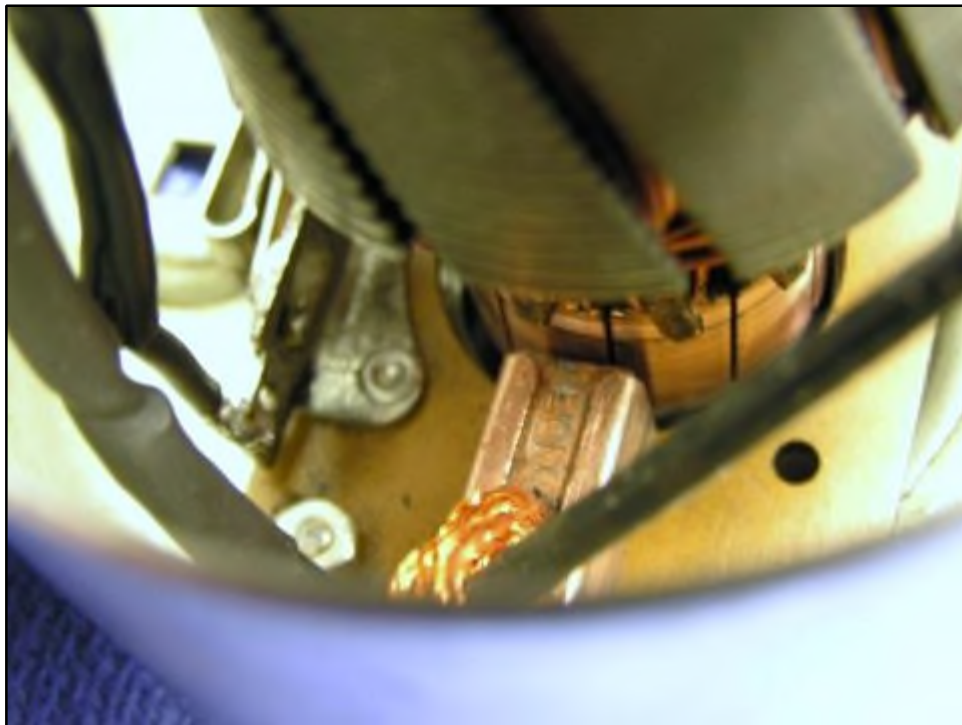
Clean the armature shaft surfaces. Install the thrust plate/disc, felt donut and bearing ball into the end case bushing hole. Lube the disc and ball with a little grease. The disc should lay flat to the bottom. Add a touch of grease to the end of the shaft. Use a few drops of light oil on the shaft and bushing.



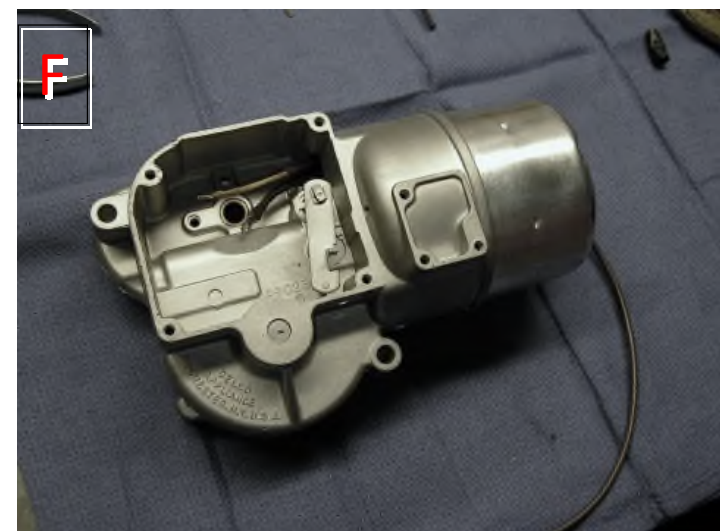
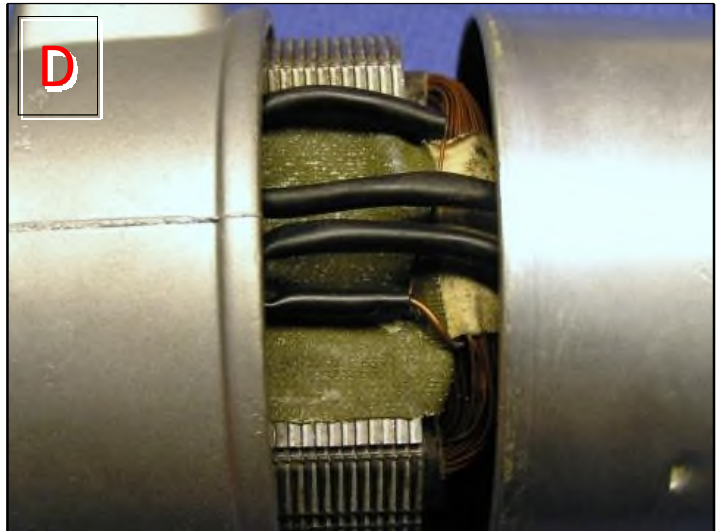
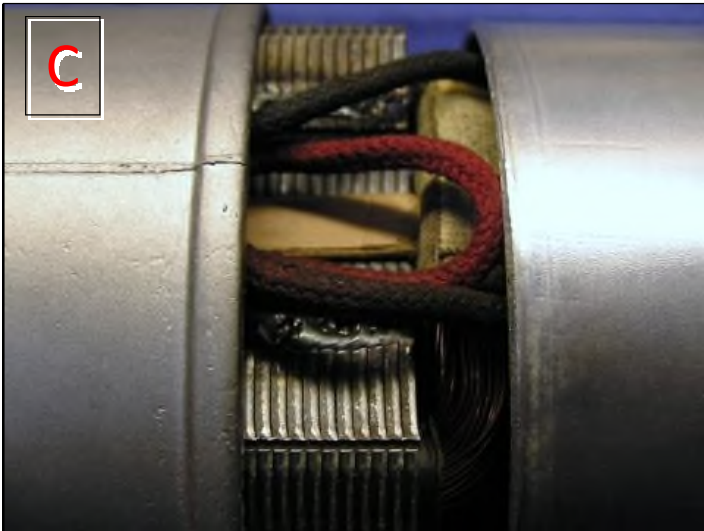
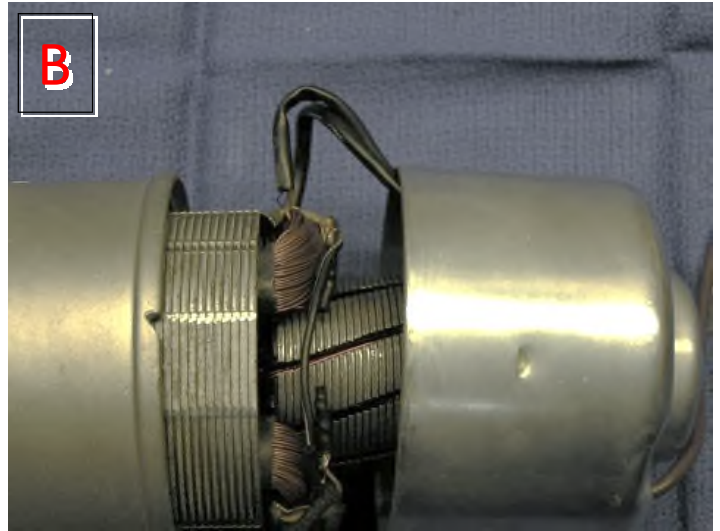
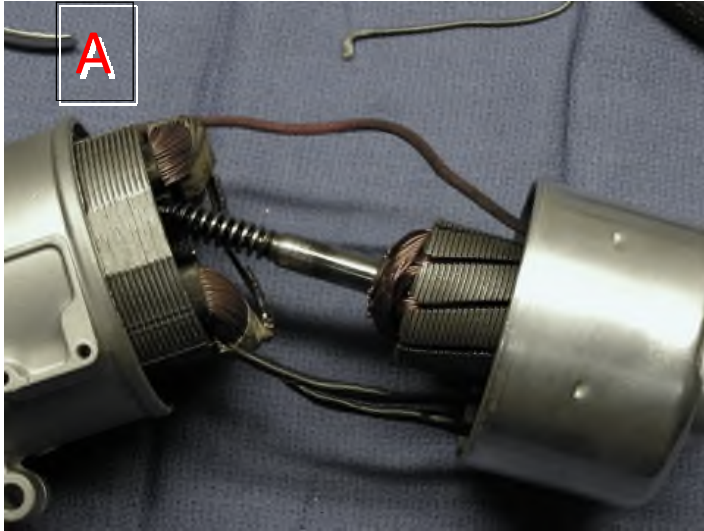
Prepare the motor brush springs for installation. Use a brush holder tool as shown to hold the brushes after inserting the springs behind the brushes. You can make a holder from a coat hanger.



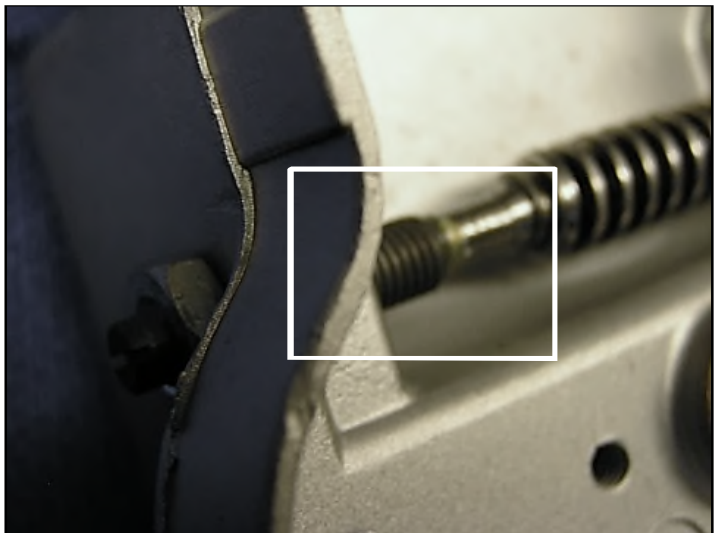
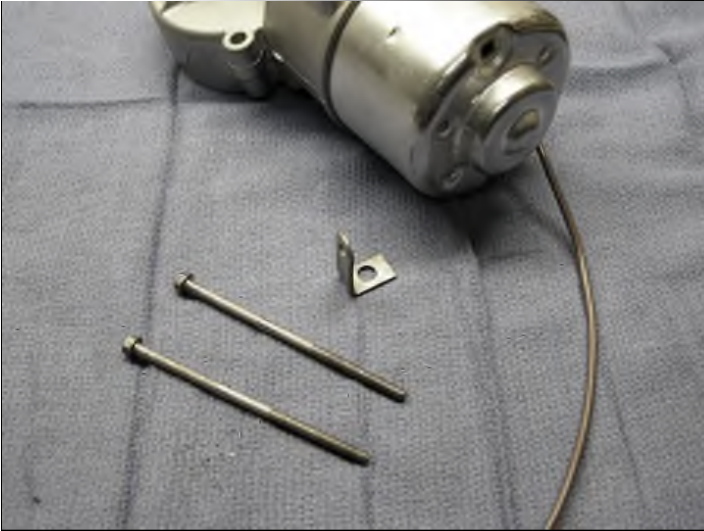
With the brushes held outward, install the armature shaft into the case bushing. You may have to wiggle the tool a bit to get it home. Once the shaft is seated remove the tool and spin the armature to ensure no hang-ups. Be careful not to pull the armature out or you get to do it again.



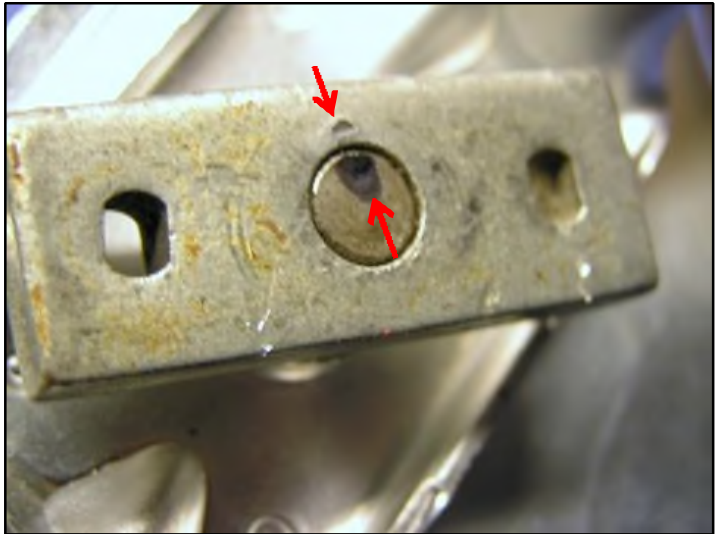
The armature and case is installed into the housing as an assembly. **The orientation requires the brown lead wire to be at the bottom/backside of the wiper assembly.** Feed the red wire into the housing. Insert into the hole where the contact switch is located, also where the black cloth covered wire was inserted previously. Oil the shaft bushing in the housing and shaft if you haven't done so. Hold on to the armature and case and slowly insert the armature into the field winding. Hold on as the armature may want to jump out of the brushes from the field magnets. Carefully loop the wires as shown to take up their slack as you go in. Remember the field winding wires are delicate so go slow. Keep an eye on the armature gear shaft as it comes through the housing bushing.



When the case is all the way in, line up the holes for the long attachment bolts and install and tighten. The lower bolt also holds the small L-bracket. You can leave that off for now and install later. Install the shaft end thrust stop screw and lock-nut into the housing and leave it loosely touching the end of the shaft.



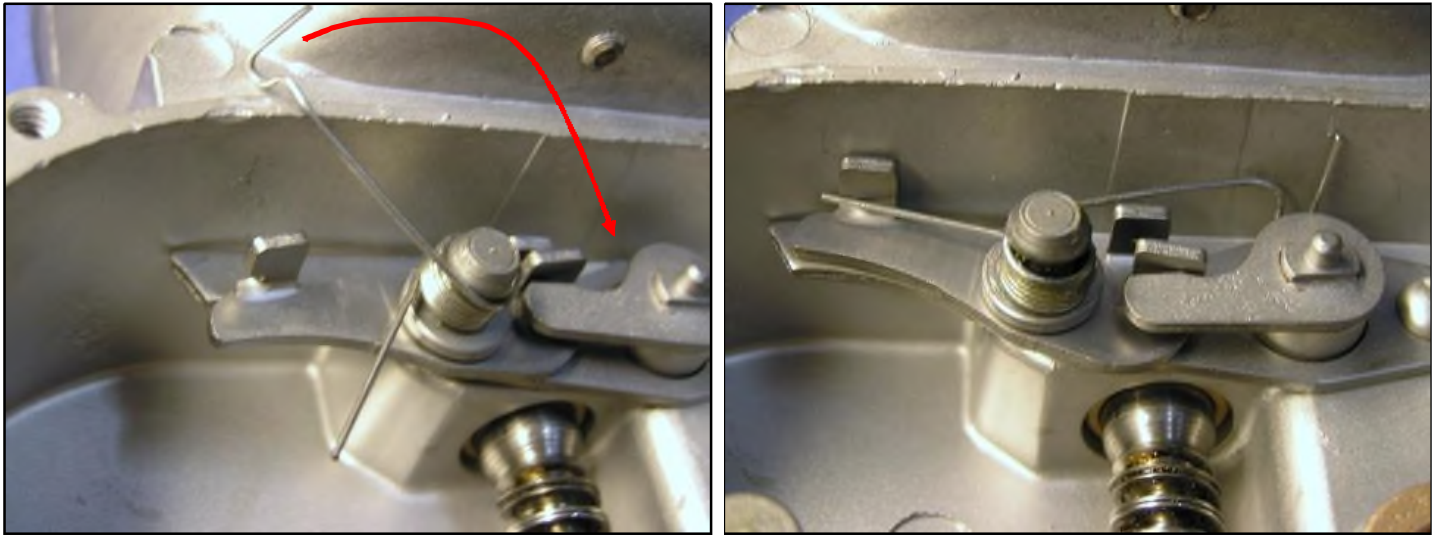
Prepare the rear plate for reassembly. Lube the shaft bushing with a bit of grease and install the linkage shaft through the bushing. Line up the drive plate to the splined shaft and ensuring your alignment marks are true, drive it onto the shaft. Lube the linkage with oil, and make sure it turns freely.



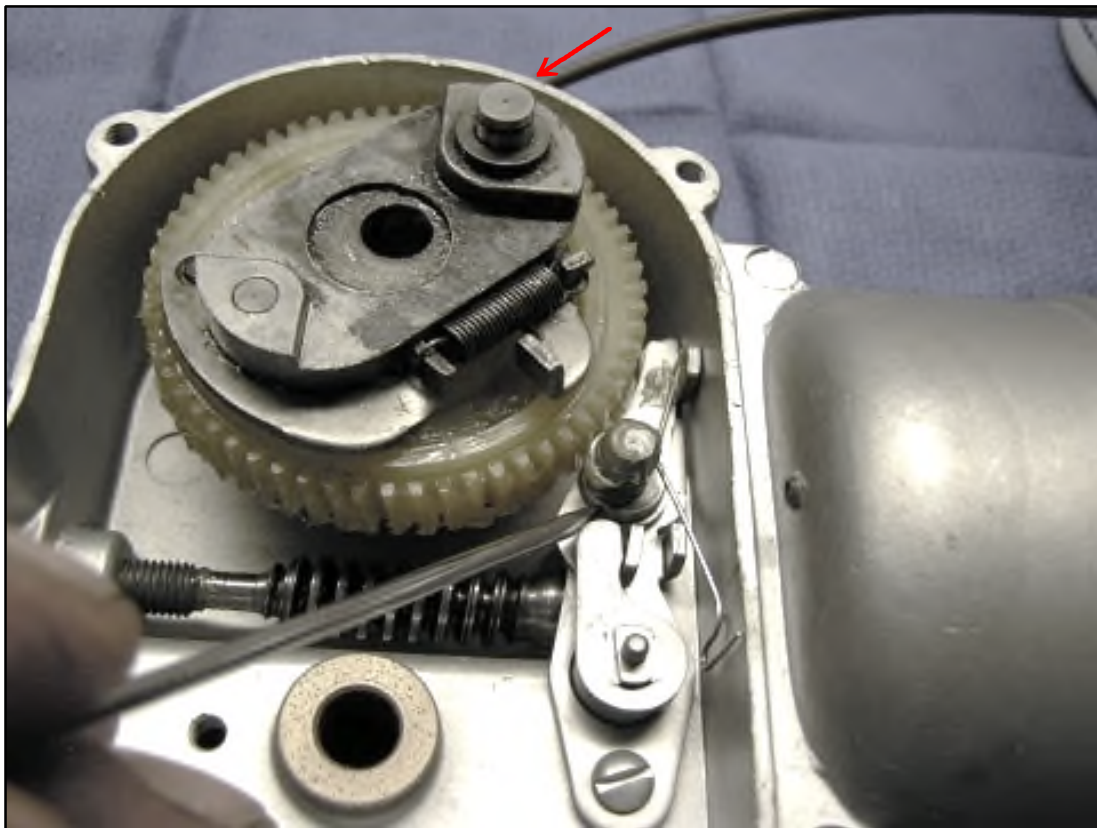
Grease and install the shim over the housing gear shaft. Clean and lubricate the main gear mechanism and note its parts assembly order. This is also the part that allows the wipers to park when shut off. The internal cam grooves have detents for the tabs of those links to latch into when the motor power is removed. It continues to rotate until the tabs stop at those detents, then trips the lever to the contact switch on the other side of the gear case. Apply a little grease to the links and gear channels as well as the outer gear teeth. Grease the armature gear shaft as well.



Install the lever spring as shown, starting it in loosely so it fits over the shaft, then swinging to the right and twisting into position. Then install the gear assembly onto the shaft. You may have to move the lever/link on the side of the housing to drop it in.

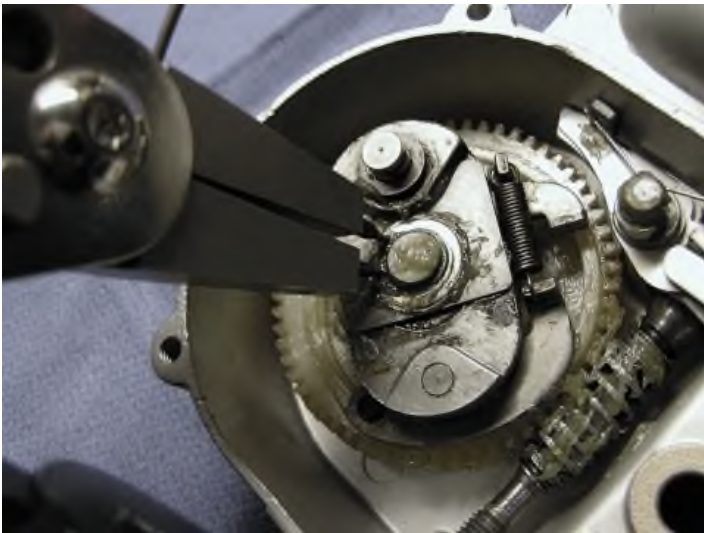
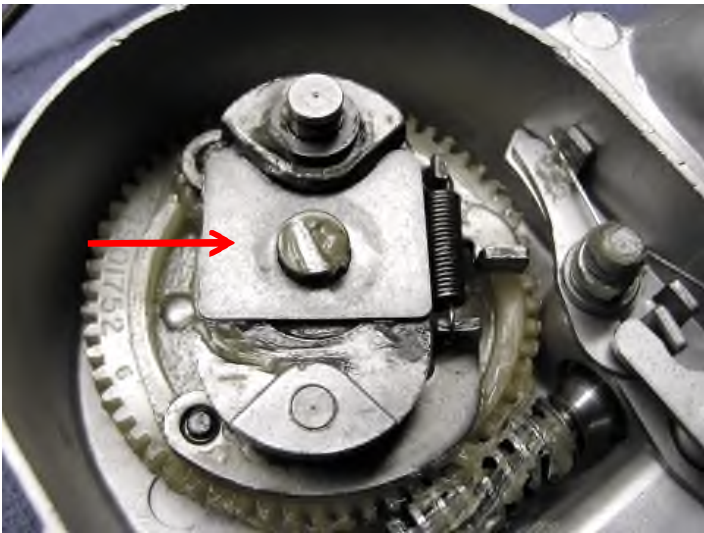


Set the gear orientation so that the protruding shaft at the top of the gear assembly is in that approximate position for a later step.

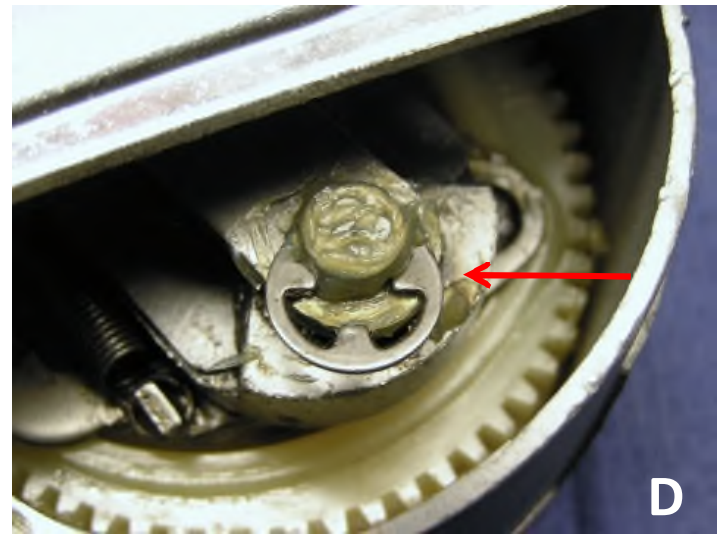
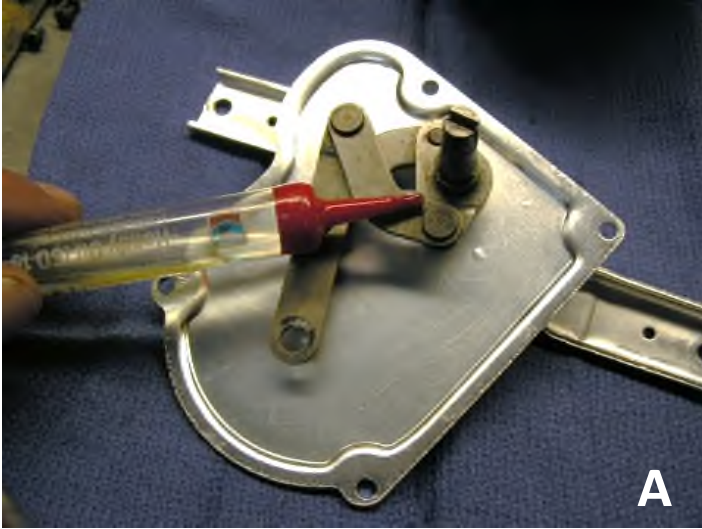




Install the flat "V" plate over the gear assembly shaft as shown, then the 2 shim washers and attach the C-clip to hold it permanent. Lube up all contact areas with a little grease.



Now prepare the rear drive plate assembly. Oil the linkage and shaft, and on the housing bushing. Grease the end of the link. Insert the shaft as shown with the plate slightly raised above the housing and aligning the link lever end over the shaft of the gear assembly mechanism. If it doesn't line up to the shaft you can rotate the upper mechanism in the gear slots to a better position. Slowly turn the rear plate above the edge of the rounded part of the motor housing and down to allow the link to drop onto the shaft (C). Attach the E-clip to the shaft (D). Rotate the plate and drop down flat to the housing and attach using 4 Phillips screws.

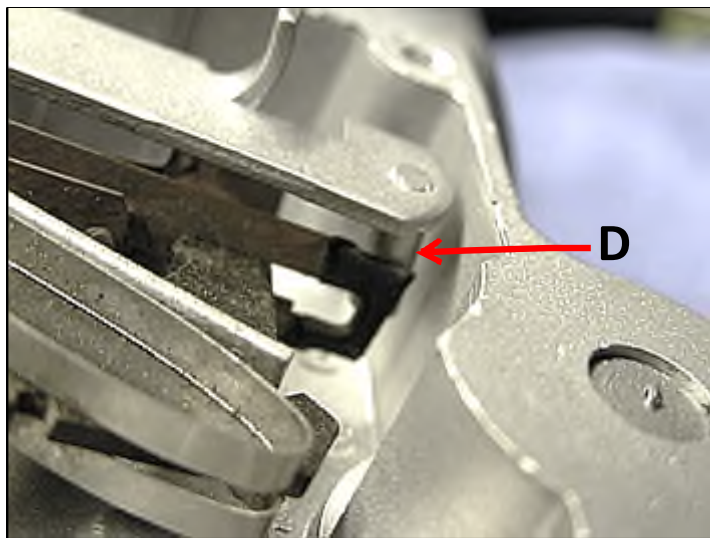
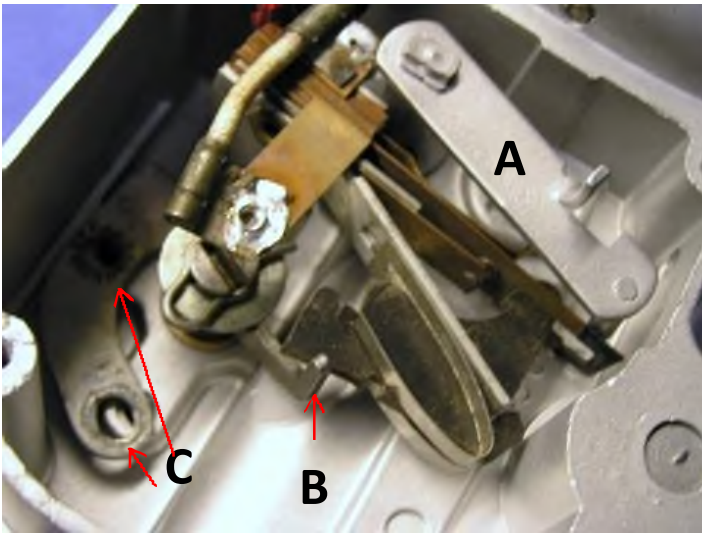


Get your switch assembly and lever parts ready for assembly. **The switch must be installed after the lever.** On the opposite side of the wiper assembly, install the switch park-trip lever. Drive the lever down square using the end of a small screwdriver and light hammer. Install the washer and spring clip.

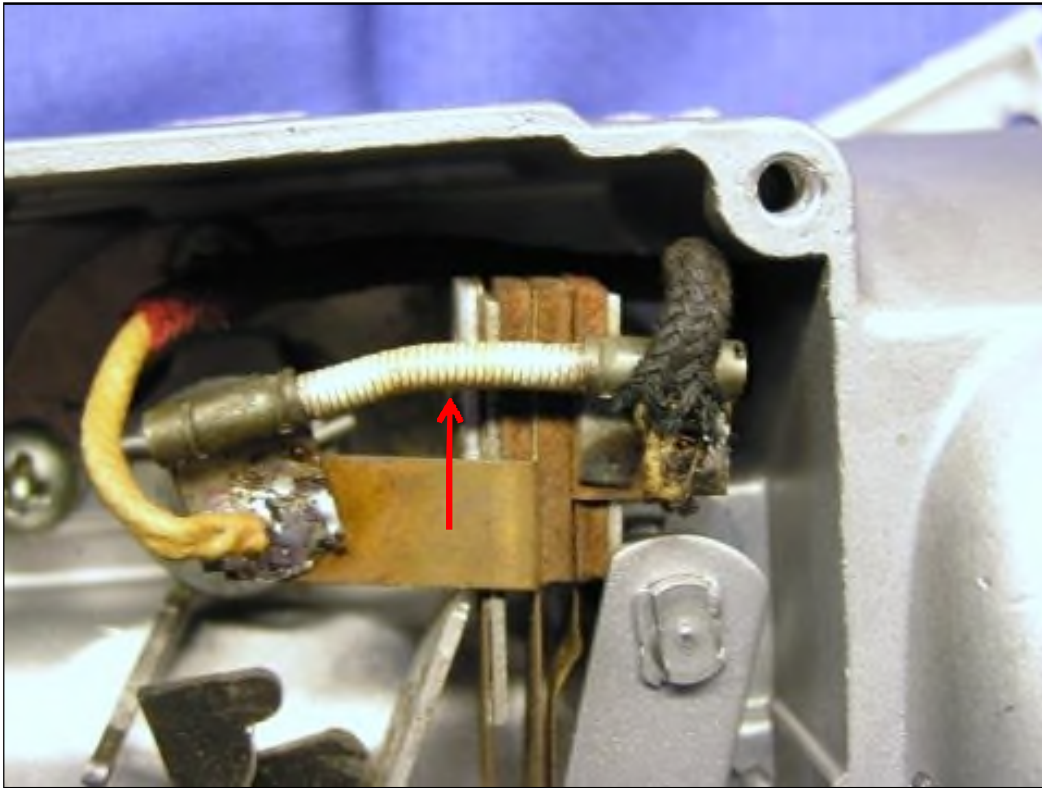


Install the switch by carefully locating it into position, bring it under the link lever (A), over the trip lever (B) and down into position over the mount holes (C). **Be very careful of the delicate wire-wound resistor.**

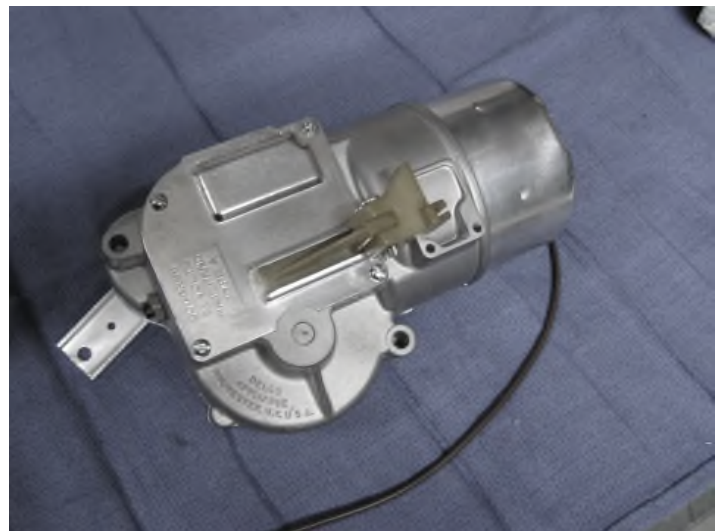
Ensure it's **mounted on the outside (left in view) of the link lever lower pin (D)** as shown below. Install the 2 Phillips mounting screws.



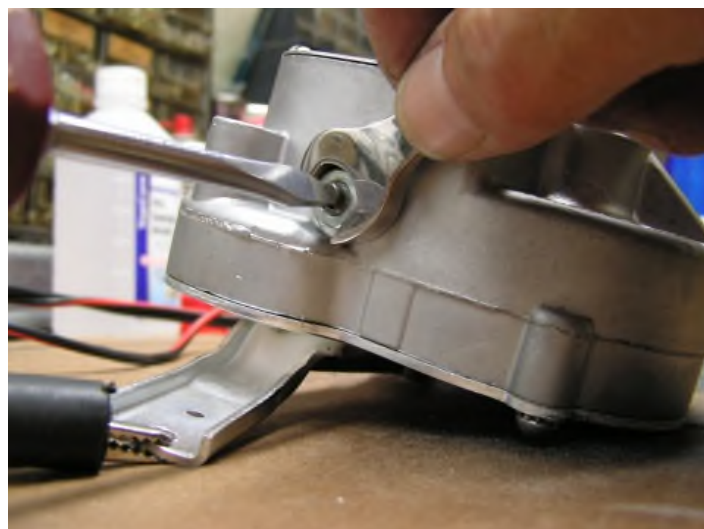
Attach the 2 switch wires as shown, red to the left, black to the right, Solder in place through the rivet holes in the resistor tabs. **Caution: Not too much iron heat here to prevent damage to the resistor.**



Attach the top cover with its 4 screws after installing the plastic actuator lever. The levers are different if using windshield washers or not. Add a little white lithium grease to the actuator slide.



Now you can do a test of the unit. Get a flat-bladed screwdriver and 7/16" wrench ready for the motor-endplay adjustment also. Hook up the motor to a battery, ground to case and attach positive lead to the brown wire. Activate the motor by moving the switch lever slightly left. When the motor runs, slowly adjust the endplay screw clockwise. Do this until you hear a bind in the motor, then back off slightly until speed increases. Once set, hold the screw in position while tightening the locknut. It may take a few tries to get it right.



After the endplay is set, with the motor running in slow speed, move the lever to the right/off position. The motor will continue to run for a few seconds, then park and shut down. Then test hi-speed operation with the lever all the way to the left. Note you will have to hold the lever in that position for high speed.

When testing is satisfactory you are now done and ready to install the assembly in the car, but..... It is best to test the motor on the bench again, **but this time with the dash switch cable attached.** If it's out of the car it's easier, but if the cable is installed, ask a helper to test it with you. By design, it is very tricky to get at the installation mount screws for these motors. Once it's in you don't want to remove it again to readjust the contact switch if it was not adjusted properly or if it had a prior problem before rebuild. The motor may work fine on the bench but occasionally the tolerance of the cable to switch mechanism may cause a no park or no high speed function. Keep this in mind when testing on the car for the first time using the dash cable connected.

If you remember, this is what this motor looked like before...



Now it looks and runs much better.



If you need further information feel free to contact me via my CONTACT page.

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Rich