

**GruvenParts.com 2009-2018 RAM 2500/3500 Power Folding / Flip Up Towing Mirror Gear Replacement Instructions**



**This DIY covers the 4<sup>th</sup> Gen Rams with the power fold / manual flip up towing mirrors from 2009-2018. Please order the parts required to fix these towing mirrors here :**

**<https://www.gruvenparts.com/4th-gen-ram-towing-mirror-gear-set/>**

*Note : We also have parts available to fix the 4<sup>th</sup> and 5<sup>th</sup> gen non-towing mirrors as well, please visit <https://www.gruvenparts.com/shop-by-car/ram-trucks> for all Ram upgrade parts we sell.*

If you are reading this DIY article, you are like many others who have a 4<sup>th</sup> gen Ram truck with towing power folding flip up mirrors which no longer function due to a broken gear within the fold mechanism. This often occurs during normal operation, and especially with a light impact to the mirror housing. A broken folding mirror gear is evident when the mirror stops power folding. Sometimes you can hear the motor whirring but the mirror refuses to fold in or out. Other times, the broken gear just jams the motor and you hear nothing. You can still fold the mirror by hand but the mirror head may become floppy and loose. What's happened is a gear within the assembly was made from very brittle, weak plastic. Be advised that there are MANY aftermarket replacement mirrors out on the market – **READ THEIR REVIEWS**. The aftermarket mirrors are usually very poor quality and allow the mirror itself to vibrate so badly, you cannot even see out of the mirror glass while driving. Not to mention the replacement mirrors will also come with the same weak plastic gearing that that caused this dilemma in the 1<sup>st</sup> place. The best option is to fix the OEM mirror with the GruvenParts.com reinforced integral spur gear.

Tools Needed :

- Plastic pry wedge. I used a bicycle tire change lever in the pics shown below.
- T15 torx
- T20 torx
- Small Phillips head screw driver
- Small hammer and thin punch (can also use the Phillips screw driver)
- Vice or small arbor press
- Gear grease such as Permatex White Lithium Grease P/N 80345

For this repair, you can leave the mirror assy mounted to the vehicle and perform all work vehicle-side. You could also remove the mirror assy and bring it inside to work as shown in our pictures below, but this is not necessary. The vehicle itself provides for a nice fixture to hold the heavy towing mirror assy. Our pictures with mirror assy off the vehicle were more for convenience for us as we determined the best way to achieve this repair.

1. Start the repair by removing the interior door panel to access the mirror wiring harness which runs out to the mirror head. You will need to unplug the mirror wire harness behind the door panel and pull the harness back thru the mirror head and eventually out thru the mirror pivot tube (more on that later). Once the mirror wire harness has been pulled thru the mirror pivot tube, its out of the way and you don't need to mess with the fragile mirror glass or other fragile trim parts. For this step please reference a yotube video showing door panel removal, such as [THIS ONE](#).

The Passenger Side 4<sup>th</sup> Gen Ram Towing Power Fold Manual Flip Mirror Assy shown below in Figure 1 removed from vehicle (not necessary to remove mirror from vehicle). This view is looking aft with the manual flip mirror deployed.



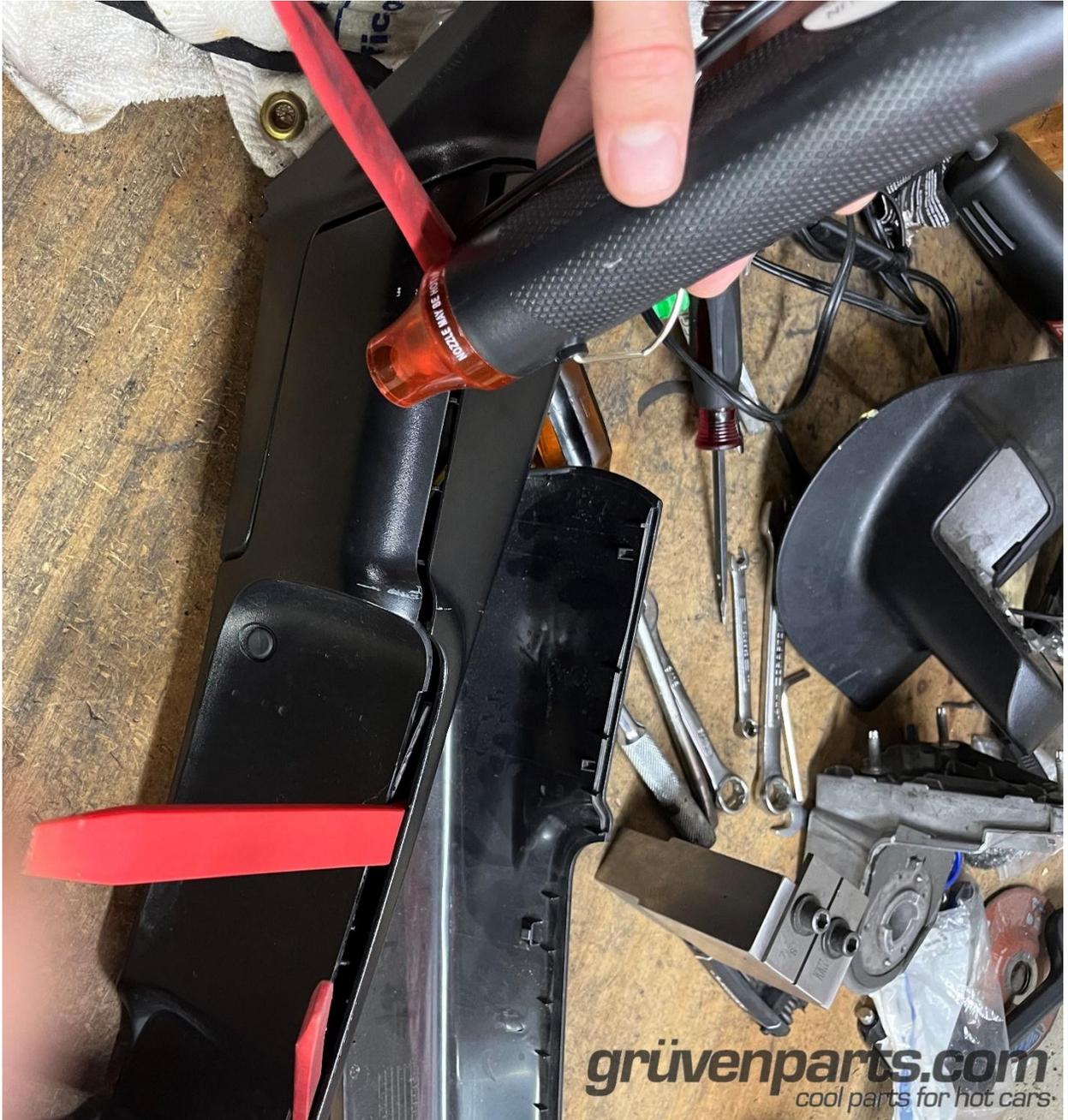
**Figure 1 – 4<sup>th</sup> Gen Ram Tow Flip Up Mirror, Passenger Side, Looking Aft**

Figure 2 shows the same mirror assembly looking forward. Please disregard the mirror glass being removed. That is **NOT** necessary.



**Figure 2 – 4<sup>th</sup> Gen Ram Tow Flip Up Mirror, Passenger Side, Looking Forward**

2. Apply soft heat from a hairdryer or other small air heating device to the forward trim piece that runs along the side of mirror from inboard to outboard along its top surface as shown. Figure 3 is looking forward. Use a PLASTIC (not metal) trim pry tool to gently loosen and remove the front trim panel.



**Figure 3 – Using Plastic Pry Tool to Disassemble Mirror Trim**

3. Remove front trim panel as shown in Figure 4. Now the wiring harness is exposed and you can see it running down thru the hollow mirror power fold pivot tube. On the outboard side it runs thru another pivot tube for the manual flip up towing mirror - we will **NOT** be touching the outboard tube area.



Figure 4 – Front Trim Panel Removed

4. On the bottom of mirror frame, remove the access panel (which houses the puddle lamp on some models) as shown in Figures 5-7. The access panel pivots on 2 tabs located on the inboard end of the cover and should be removed using a small plastic pry tool on the outboard side of the panel. Disconnect the wiring to the puddle lamp if present, noting the wire locations for reassembly.



**Figure 5 – Lower Access Panel Removal**



**Figure 6 – Disconnect the puddle lamp wires (if puddle lamp is present)**

Pull the wiring harness connectors (disconnected from the interior) thru the main power fold pivot tube so that tube is free of any wiring. Figure 6 shows a close up view of the wire harness as it goes thru the inboard mirror pivot tube. It is this location where we must pull the wire harness back through.



**Figure 7 – Main Wiring Running Thru the Power Fold Pivot Tube**

5. Once the lower access panel has been removed, gently pull the unplugged wire harness thru from the inboard side of the mirror assy, or inside the vehicle if mirror was left attached to vehicle for repair process. You may need to stagger the wire plug connectors so they don't get stuck in the pivot tube. Figure 8 shows the wire harness pulled thru the pivot tube and safely out of the way.



**Figure 8 – Wiring Harness Pulled Back Thru Mirror Power Fold Pivot Tube**

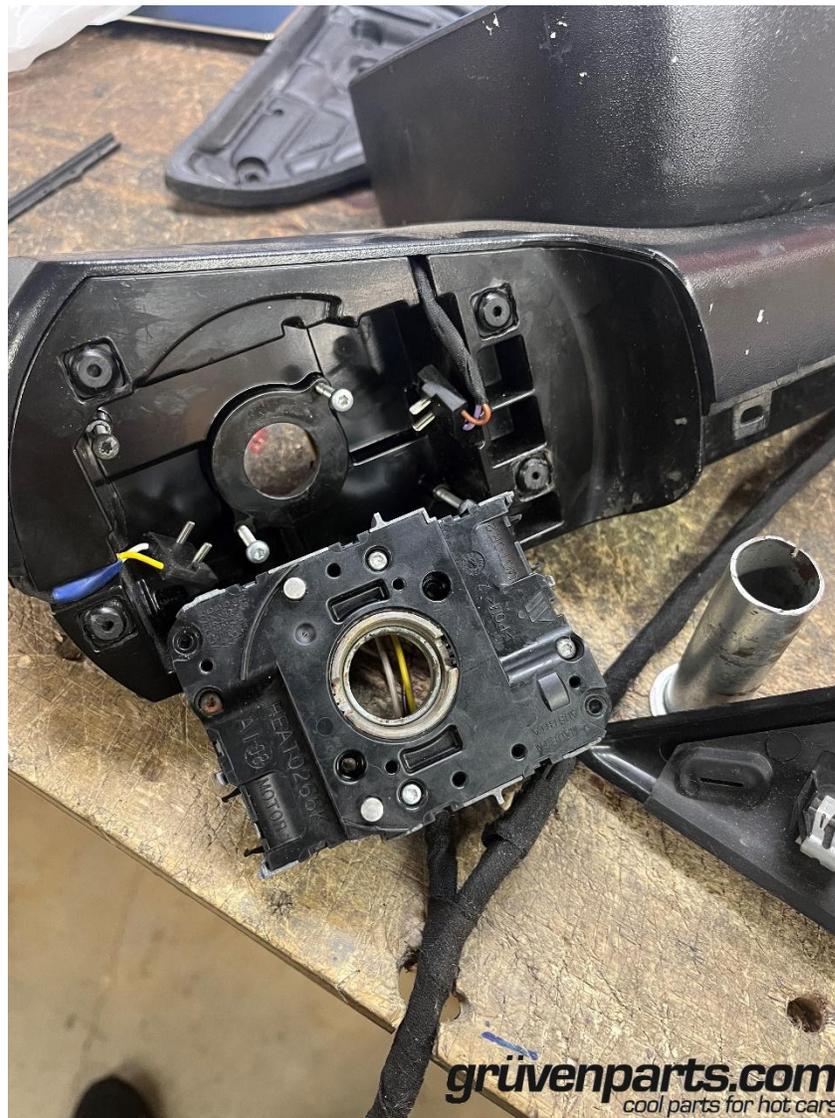
6. Once the main wire harness is pulled thru the pivot tube and safely out of the way, use a small cutting tool like a Dremel too to cut small incisions at the Red Arrow locations shown in Figure 9 in the return flange (swaged end) on the top side of the mirror power fold pivot tube. Don't worry about the plastic washer under the tube flange as that will get replaced. Once several cuts have been made, pry the swaged tube flange up to release the plastic black washer and spring under it. To prevent the spring below the flange from flying out, you can use a thin wire and tie it thru the tube to prevent the spring from flying out when the tension is released.



**Figure 9 – Location of Small Cuts to the Return Flange on the Power Fold Pivot Tube**

7. Once the plastic washer and spring are out of the way, tap the pivot tube down thru the bottom of the mirror head and out of the bottom of the mirror frame to completely free the mirror head from the mirror base. The pivot tube will get replaced with a new 304 stainless version supplied in our installation kit.

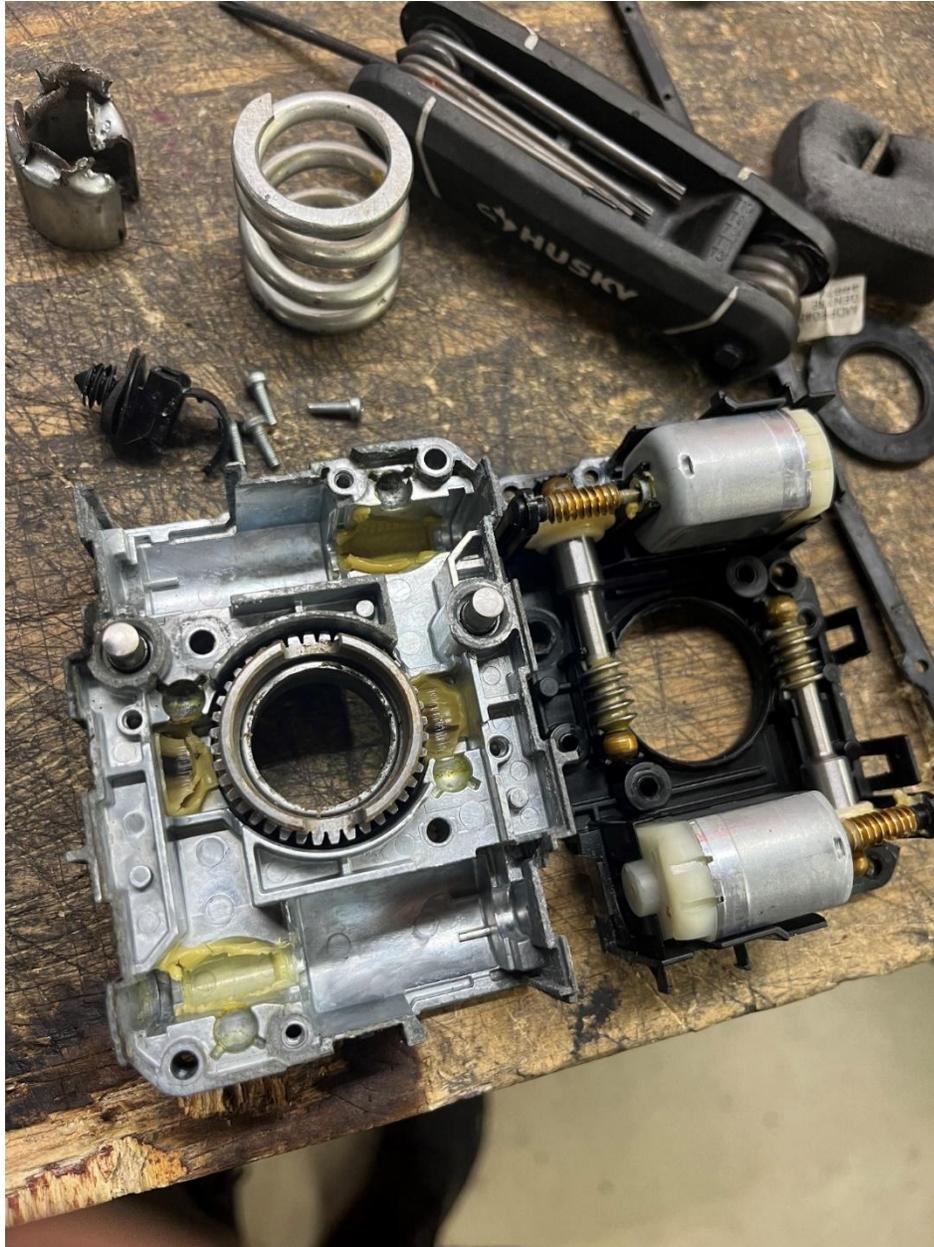
Figure 10 shows the mirror head assy and the gearbox we are after. Its bolted into the top of the mirror housing from the bottom side using 4 small torx screws. It has 2 plugs for the 2 motors within it. Once you unbolt the small 4 torx screws you can lift the drive box out of the mirror head and unplug the 2 motor connections.



**Figure 10 – Gearbox Drive Unit Removed**

8. The drive box itself is bolted together with small torx screws and has some plastic clips. You will need to remove the screws and separate the plastic clips then gently separate the drive box halves. This exposes the 2 gears and motors in the drive unit that Ram never wanted you to find.

You will re-use the OEM motors and replace the plastic gears with the GruvenParts steel integral gears. Figure 11 below shows the drive unit disassembled.



**Figure 11 – Gearbox Drive Unit Disassembled**

9. Reassemble gearbox using the (2) GruvenParts high strength steel integral gear shafts and lightly lubricate all gears and internals with a plastic safe grease such as lithium grease. Once the gearbox is reassembled, plug in the unit and test the power fold cycle to ensure its working as it should. The drive unit case screws do not need to be super tight and that can cause jamming if over tightened. Hand tight, light tension is all that's needed on the drive box torx screws.
10. Reinstall the gearbox and bolt into place using the torx screws.
11. Install new pivot tube with flanged end at the bottom. You may need to gently persuade the replacement pivot tube thru the mirror frame with love taps from a mallet. Seat the bottom, flanged end of the replacement pivot tube fully into the bottom of the mirror frame.

Refer to Figures 12, 13, and 14 for the final steps using the installation kit provided.

Install threaded rod (A) thru the new mirror pivot tube and thru the internal locator tube (G) with nut (B) and washer (C) at either end. The top of the rod (A) should have the mandrel (D), lock ring (F) facing up, and plastic spacer (E) all residing above spring. Tighten the top nut until the mandrel forces the lock ring into the small groove in the new mirror pivot tube. There will be an audible click and you can view it thru the viewing cut out in the mandrel. Then Slowly release the nuts (B) and remove the installation hardware.

**A = Threaded Rod**

**B = Nut (x2)**

**C = Washer (x2)**

**D = Mandrel** – Position cut out so you can witness the lock ring position relative to the groove it will seat in

**E = Plastic Spring Spacer**

**F = Lock Ring** – Position so the 14 tabs face upwards

**G = Internal Locator Tube**



Figure 12 – New Pivot Tube Installation Hardware

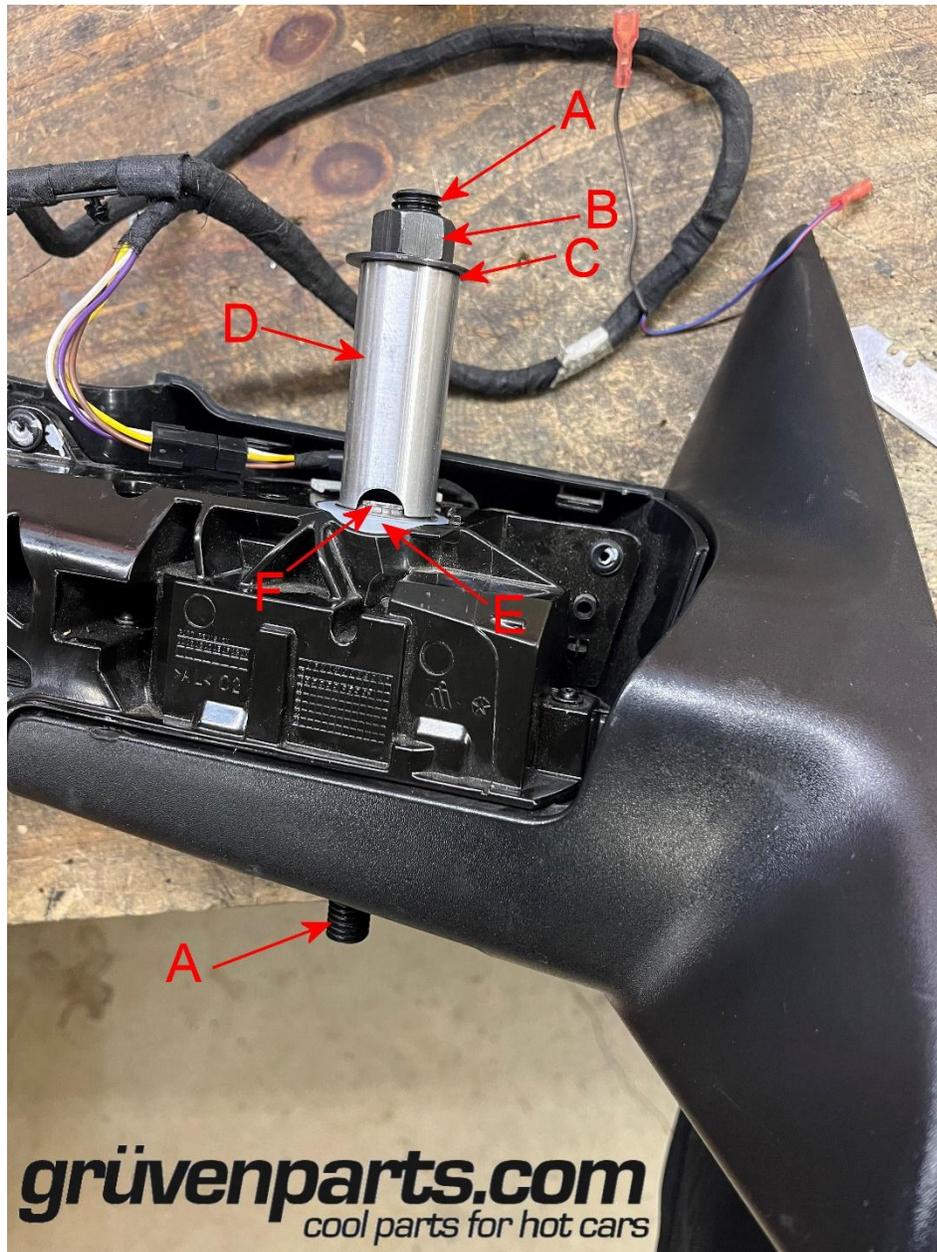
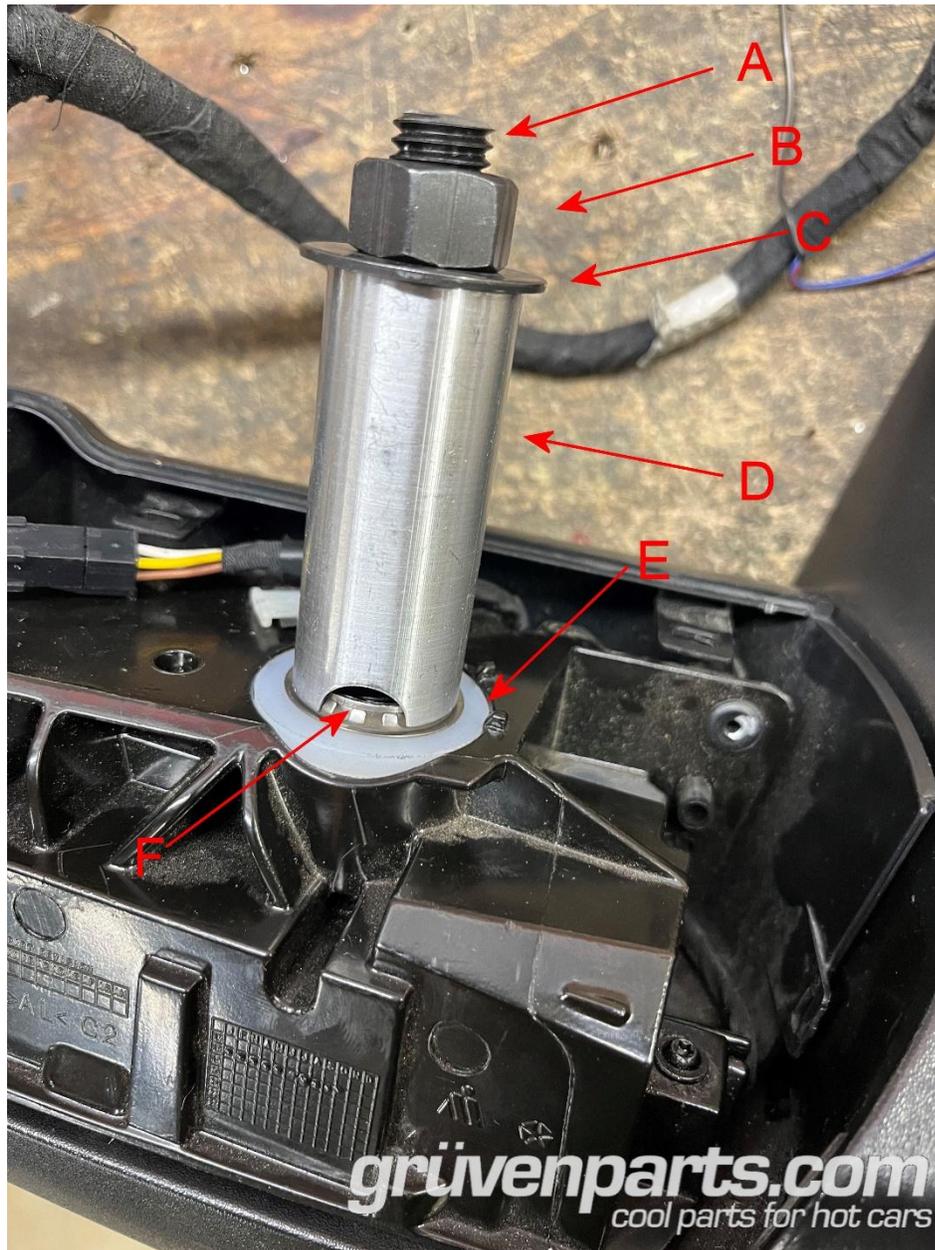


Figure 13 – New Pivot Tube Installation Hardware Installed on Mirror



**Figure 14 – New Pivot Tube Installation Hardware Installed on Mirror with lock ring fully seated into the pivot tube groove**