GruvenParts.com 2020-Present GM Power Folding Towing Mirror Gear Replacement Instructions

This DIY covers 2020 – Present GM trucks with power fold towing mirrors. Please order the parts required to fix these towing mirrors here :

https://www.gruvenparts.com/2020-gm-towing-power-fold-fix/

Note : We also have parts available to fix other series GM trucks power folding mirrors – please visit this link for more information on other models we service :

https://www.gruvenparts.com/shop-by-car/gm-trucks/power-mirror-gears-motors

If you are reading this DIY article, you are like many others who have a 2020+ GM truck with towing power folding 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 1st 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 dismantling the mirror frame components enough to access the swaged mirror pivot tube (the main pivot point for the entire mirror).

   You can browse youtube for instructions on 2020 GM Tow mirror teardown as a lot of people take these frames apart to paint or wrap them.

   Here is one such video from Denny Diesel, he looks pretty wild so we are going to link to his channel and hopefully get him a bunch of views (subscribe to em and maybe we will convince him to help us with a complete DIY for this) :

   https://www.youtube.com/watch?v=Vnn36mOaccQ

2. The remaining steps of this DIY are going to show a different mirror assembly (until we, or Denny Diesel have time to make the complete DIY for the 2020+ GM trucks). While the mirror itself is different, the swaged main tube which the mirror head pivots on is identical. You will need to carefully cut the lip off the top of the swaged main mirror head pivot tube. To do this, 1st pull the wiring harness thru the tube to get it out of the way.

Figure 1 – Main Wiring Running Thru the Power Fold Pivot Tube

Figure 2 – Wiring Harness Pulled Back Thru Mirror Power Fold Pivot Tube

3. 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 the figure below 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 3 – Location of Small Cuts to the Return Flange on the Power Fold Pivot Tube

4. 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 our new 304 stainless version supplied in our installation kit.

   The figure below 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.

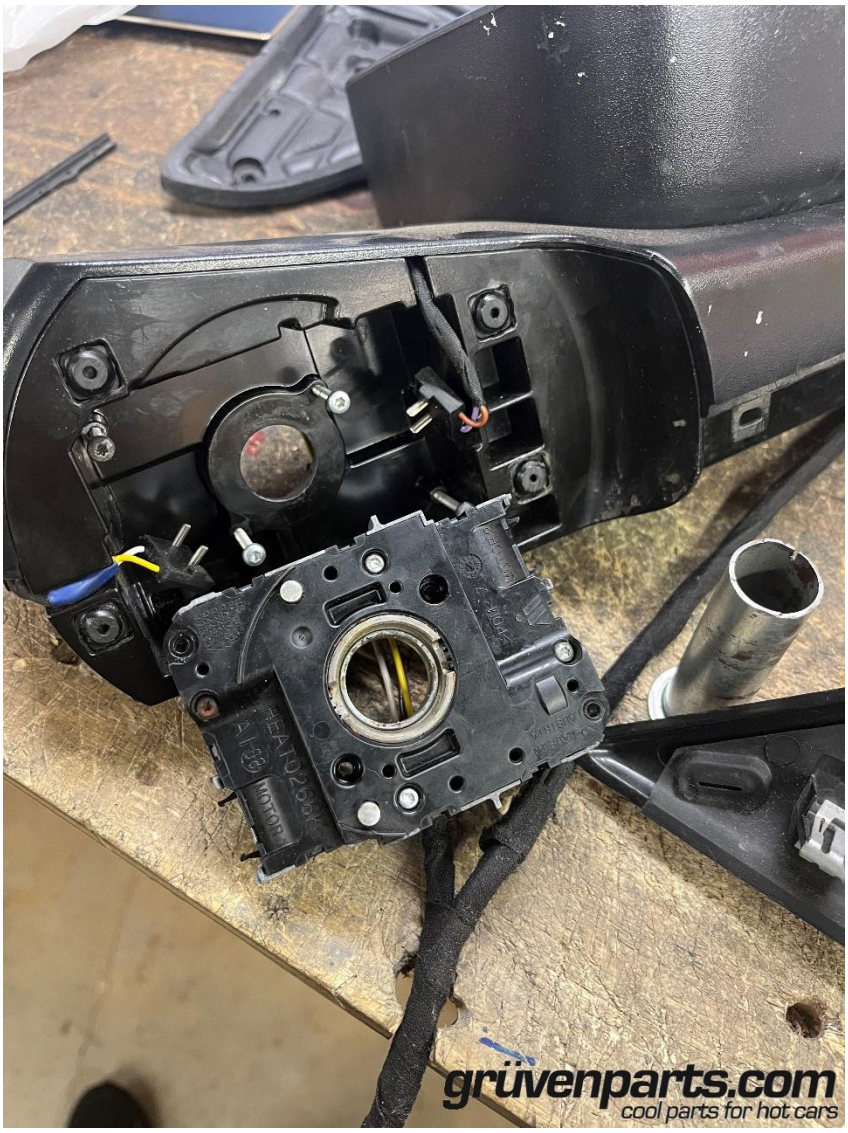

Figure 4 – Gearbox Drive Unit Removed

5. 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 plastic gears and motors in the drive unit that GM never wanted you to find.

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

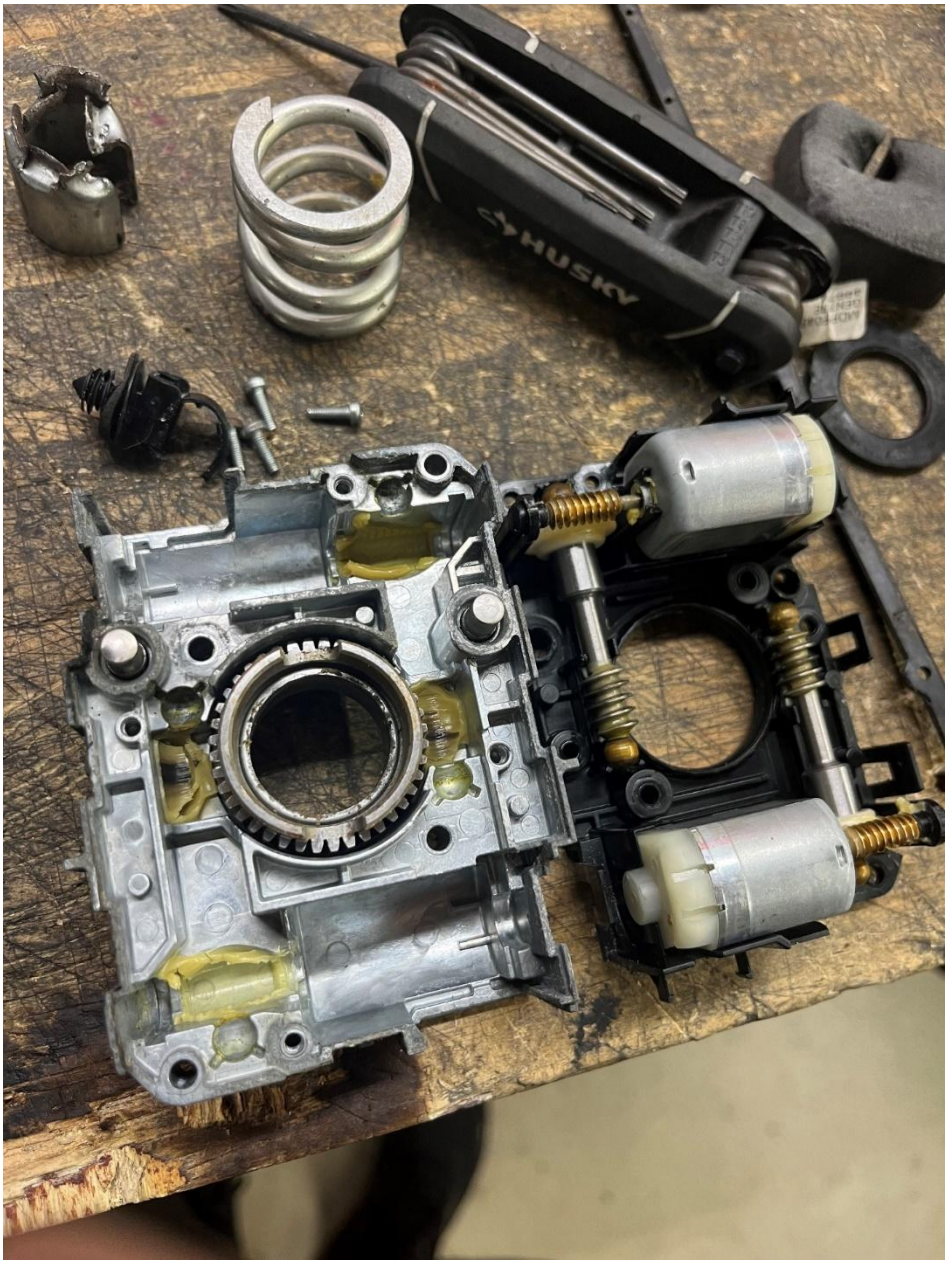

Figure 5 – Gearbox Drive Unit Disassembled

6. 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.

7. Reinstall the gearbox and bolt into place using the torx screws.

8. 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 remaining figures 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 6 – New Pivot Tube Installation Hardware

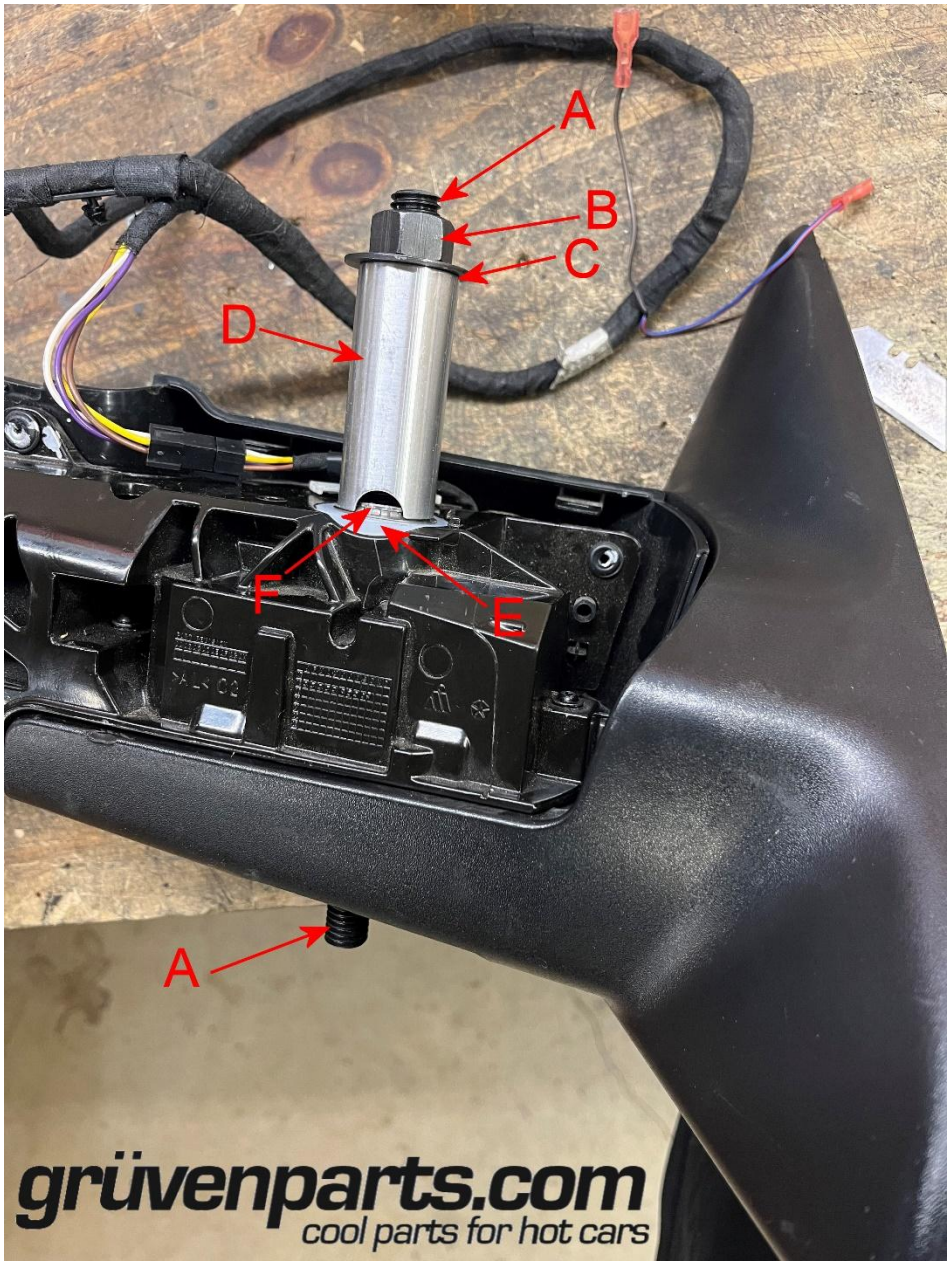

Figure 7 – New Pivot Tube Installation Hardware Installed on Mirror

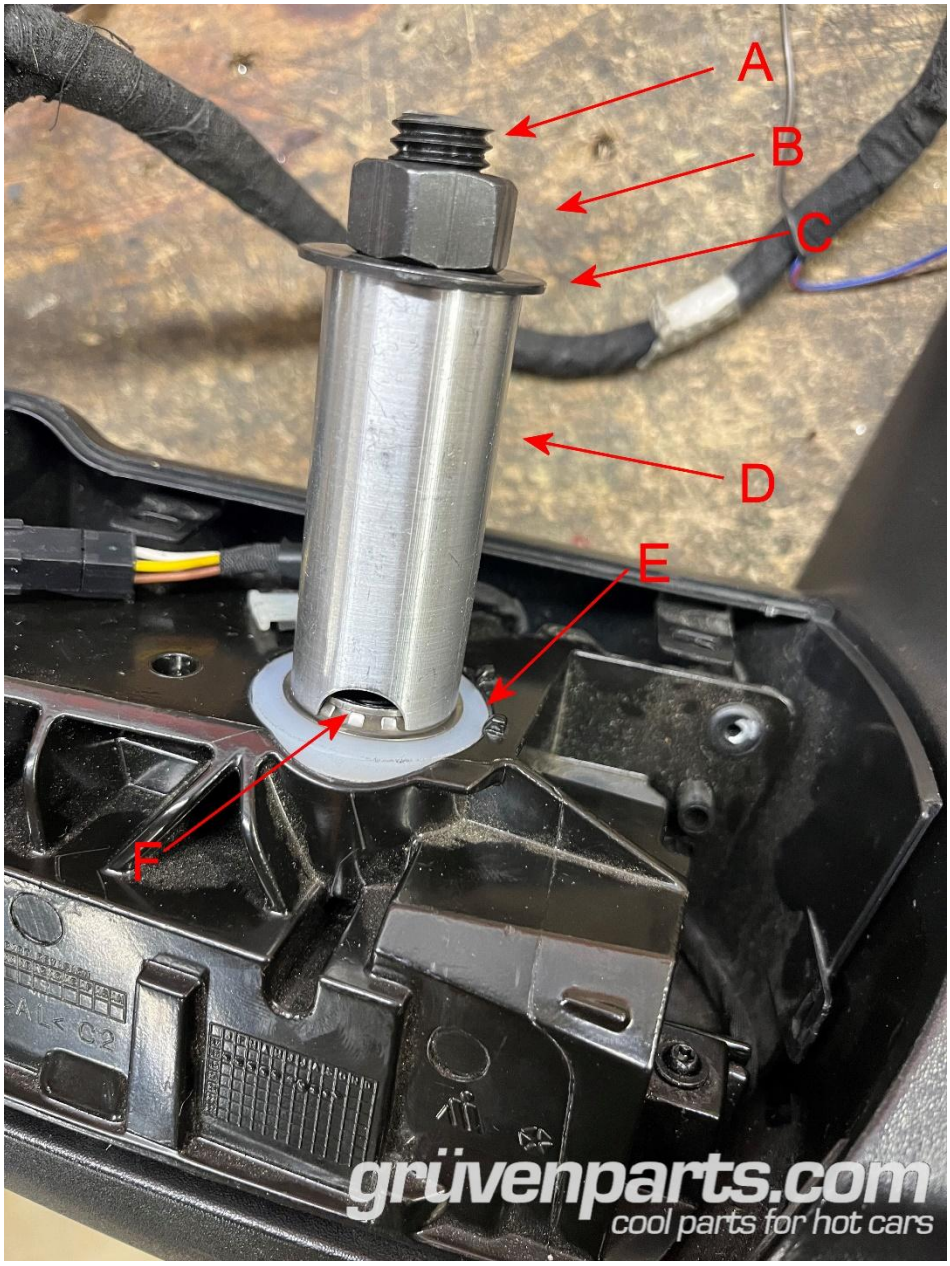

Figure 8 – New Pivot Tube Installation Hardware Installed on Mirror with lock ring fully seated into the pivot tube groove