INSTALLATION MANUAL

TORQ Locker TL-19035 GM 14 Bolt Installation Instructions

Made in USA By:

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INTRODUCTION

We suggest that you read these instructions before beginning your installation to familiarize yourself with the installation steps before you start.

Installation of your new locker is accomplished by removing the spider gears from the differential case and installing the TORQ Locker™ components in their place. They mate up with the existing side gears, which are re-used. This type of installation can be made by the weekend mechanic who is familiar with the operation of a differential and who is able to exercise appropriate care during the installation process. Normal installation takes about two hours when these instructions are followed. These instructions also assume that the installer has a shop manual covering the vehicle and is familiar with the procedures used in removing wheels, axle shafts, etc. Shortcuts should not be attempted unless the installer is very familiar with the shop manual procedures for the vehicle.

Great care has been taken in developing these instructions for the proper installation of the TORQ Locker™; however, the final results are the responsibility of the installer. After the locker is installed, the safe operation of the vehicle is the responsibility of the driver; anyone who drives it should read the Operator's Guide , included in your installation manual packet, for additional information on how to safely operate your new locker- equipped vehicle.

NOTE: TORQ Locker™ will only fit open differentials.

TORQ LOCKER™ PARTS for GM 14 Bolt

(2) Cam Gears

(4) Springs

Notes:
1. The TORQ Locker™ does not use spacers, as in the Aussie Locker.™
2. The TORQ Locker™ will re-use the stock side gears, thrust washers and spider (cross shafts).

ADDITIONAL PARTS & RECOMMENDED TOOLS

Only reuse the stock components if they are in excellent condition. We recommend replacing the stock spider if your differential has over 150,000 miles or if the surfaces of the individual shafts are scored. Visit www.TorqMasters.com for replacement stock components and custom thickness thrust washers if needed.

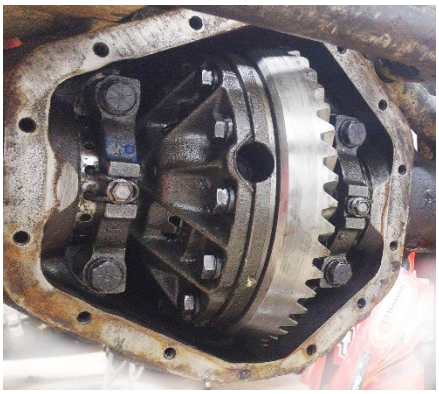
For your installation, you will need:

- **Stock or aftermarket side gears.**
- **Stock or aftermarket side gear thrust washers.**
- **Stock or aftermarket spider (cross pins)** -- Inspect for wear marks or polish marks, replace if wear is evident. Inspect for metal fatigue, scrape a metal file across the middle of one of the cross shafts. If the file creates a groove, the shaft hardness has fatigued and will need to be replaced. If the file slides and does not cut the metal, the cross shaft should be OK to re-use if it is not scored or discolored due to overheating.
- **Gear Oil** – Use OEM recommended oils, or to reduce locker audible 'click' use Conventional 85W-140
- **Gasket maker material.**
- **Shop manual for vehicle** – Haynes or Chilton Manuals are sufficient.
- **Dial caliper or feeler gauge** – for measuring center gap.
- **Paint pen or Sharpie Marker**

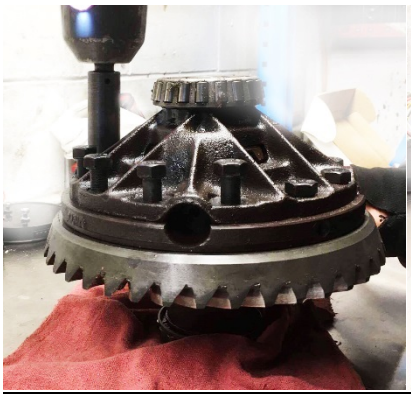
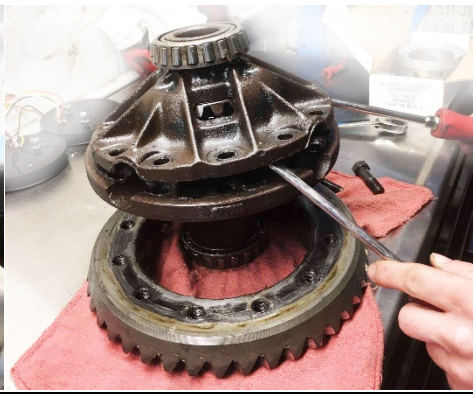
INSTALLATION

1.) **Prep vehicle for install.** Engage the parking brake. Place jack stands under your rear axle because the tires will need to be rotated for testing. Put the transfer case in NEUTRAL to free up the drive shaft so that the differential case can be rotated during assembly. Remove the differential cover and drain the oil. Remove axle shafts. Pull the axle shafts out by about four inches, be mindful of your axle seals. Consult your Shop Manual for vehicle specific instructions.

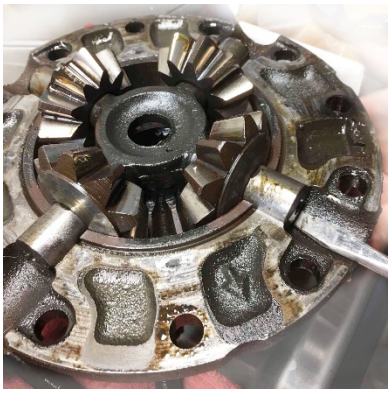
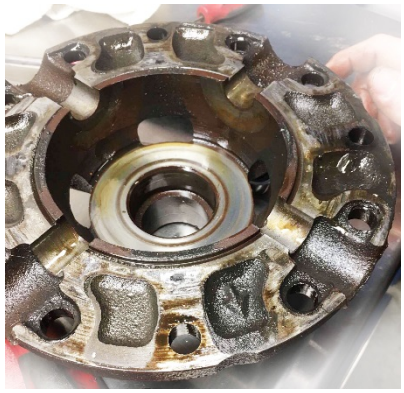
2.) **Remove the differential case and ring gear assembly.** Remove the differential case from the carrier (axle assembly). VERY IMPORTANT: Before removal, mark the bearing cap and bearing adjuster on the left side with one paint mark each and the cap and adjuster on the right side with two paint marks each. It is VERY important to get the caps and adjusters back on their original sides and the adjusters rotated to the exact same position as when removed so that the ring and pinion does not have to be set up again. Also put one and two small paint marks somewhere on the O.D. of the bearing races as they MUST be re-installed on their original sides. Place the paint marks right next to each other so that when the differential is reassembled the marks will be in exactly the same location as when you started. With the caps and adjusters matched to each other and on the correct sides, you can't get re-assembly wrong. If you skip this step and just put it back together, your ring and pinion will need to be set up again. It won't hurt to also put paint marks on the pedestal where the bearing caps sit in the event that at re-assembly you aren't sure which side had the single paint mark.



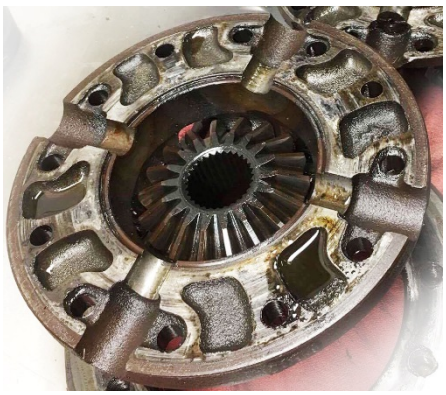
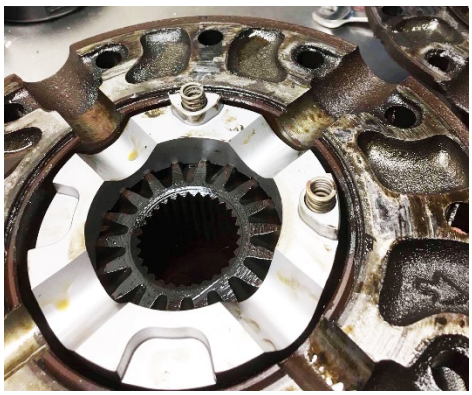
3.) **Remove the ring gear, and split the case.** Mark the ring gear and differential case with a paint pen or Sharpie marker so that the ring gear can be re-installed in the same rotational position.

4.) **Remove the spider, spider gears and spider gear thrust washers.** The spider gears (small gears) and their thrust washers will not be reused. The stock side gears (large gears with internal splines) and thrust washers are being re-used. Inspect the side gears. If the teeth are quite worn or "rolled over" at the tops, they will need to be replaced because the tops of the teeth interface with the cam gear and they must be in good condition. Inspect the thrust washers for excessive wear; replace if gouged or worn.

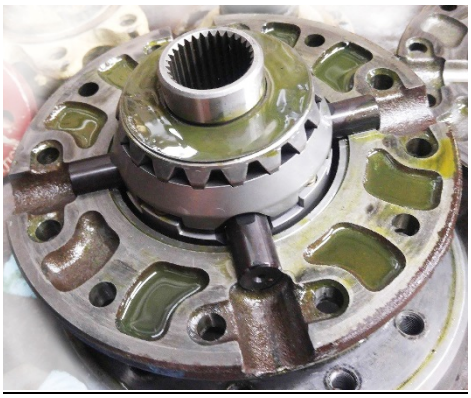
5.) **Install a side gear and thrust washer, then a cam gear, then two springs.** Don't forget the thrust washers! Drop a thrust washer into the case and then put in a side gear, then place a cam gear on the side gear, being sure that the teeth are meshed. Place a spring into each of the two spring holes.

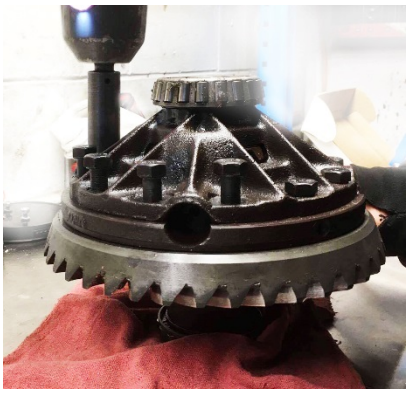
6.) **Install the spider, then the second cam gear with two springs.** Use a little bit of grease to hold each spring in the hole. Place the springs in the holes and then turn the cam gear over. Locate it so that the springs will fit into the pockets on the opposite cam gear, and gently set it down.



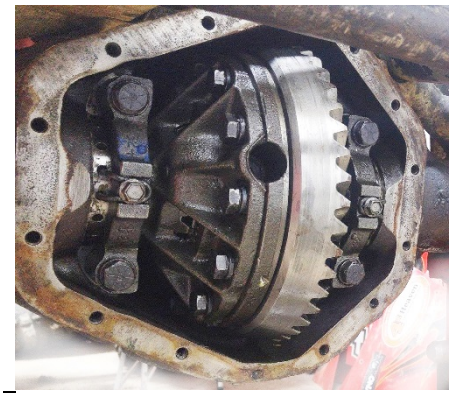
7.) **Install the second side gear.** Place the second thrust washer on the second side gear and carefully set them on the second cam gear with the teeth meshed.



8.) **Bolt the case and ring gear back together.** Carefully place the top of the case onto the assembly and place the assembly inside the ring gear. Lift the ring gear up and hold it with a couple of bolts. Be sure to line up index marks on the ring gear and differential case when installing the bolts. Install the remainder of the bolts and torque them to the proper amount.



9.) **Reinstall the differential case and ring gear assembly into the carrier (axle housing center section).** Place the bearing races on the correct sides and hold each bearing adjuster on its corresponding bearing. Place this assembly into the carrier with the ring gear pushed to the right (against the drive pinion gear). It is not important at this point where the alignment paint marks are located, just that all the parts are on the correct side. Place the bearing caps on the correct sides, being careful to mesh with the threads in the adjusters. Install the cap bolts and fasten them in just finger tight. Back the RIGHT adjuster off (out) about one turn. Rotate the LEFT adjuster inward until it won't turn any more. This pushes the ring gear into the drive pinion with zero clearance. The index paint mark on the adjuster should have moved slightly beyond the corresponding mark on the carrier. Rotate the left cap back slightly until the marks line up. This is the exact position where it was located in the beginning. Rotate the right adjuster inward until it stops. This position should be almost to the corresponding index mark, but no quite. Rotate the right adjuster inward with a flat punch and screwdriver or other tool of choice until the index marks line up. This process adds the bearing pre-load with pressure from the adjusters. To check your work, rock the ring gear back and forth. It should move very slightly, which is the backlash setting. If it doesn't move at all or if it moves a lot, something happened and the gears will need to be set up again. Now tighten the bearing cap bolts to the correct torque as shown in the applicable service manual.



10.) **Perform the "Spin Test".** While the vehicle is still on jack stands, put the transfer case lever into the 4WD position to lock the drive shaft. Rotate one tire until it stops and hold it firmly. It is now locked to the locker teeth and to the drive shaft (you may need to chock the tire to hold it). Rotate the other tire in the opposite direction. It should release and go "click click click" as it rotates. Repeat for both tires in both directions. Note that the "click" will be less noticeable when the cover is installed and the housing is filled with oil.

11.) **Complete your installation.** Replace the differential cover, using gasket sealant as appropriate, and add gear oil. Fill with your OEM recommended oil or 85W-140 conventional gear oil to reduce the 'click'. Leave the vehicle in gear, apply the emergency brake, remove the jack stands and lower the vehicle to the ground.

TEST DRIVE

1.) After your installation is complete and you've passed the 'Spin Test,' it's time to take your vehicle out for a test drive. Consult the Operator's Guide for detailed information on how to operate your vehicle on and off road.
2.) During your initial testing, take it easy the first few miles. Remember that a new rear locker-equipped vehicle will have some different handling characteristics to which you will quickly adapt. Take turns slowly and coast through the turn in rear-locker applications. Front locker applications should see no change in handling characteristics while in 2WD. It is not recommended to test a front locker in 4WD on dry pavement.
3.) Try your locker on a low-traction surface like a gravel parking lot to feel how the added traction feels.
4.) Note that there is a break-in period for your locker of about 600 miles, after which the 'click' noise should be slightly less noticeable. The occasional 'clunk' or pop may be heard with this type of locker and is not cause for concern.

NOTES & HELPFUL HINTS

- **Axle Seals:** Inspect while you are installing your locker. Replace them if worn or leaking.
- **Differential case and bearings**: If there are any chips or cracks in the case and/or if the differential bearings are worn or pitted, replace them—but remember that the ring and pinion backlash and bearing pre-load will need to be set up again.

WARRANTY

TORQ Locker™ FOUR YEAR LIMITED WARRANTY

Torq-Masters Industries warrants each new TORQ Locker™ to be free from defects in material and workmanship under normal use and service for a period of four years following the date of purchase. This warranty is limited to our repair or replacement of the defective parts only, providing the product, including all components and parts, is returned to the manufacturer or its authorized representative, together with proof of purchase and all relevant documentation, transportation charges prepaid. This warranty excludes labor or consequential damages or injury. The decision as to whether the defective parts are to be repaired or replaced will rest solely with Torq-Masters Industries, Inc.

Any failure of the product must be reported to the manufacturer within fifteen (15) days of failure and a return authorization code number obtained for return of the product to us or to our authorized representative. Proper proof of purchase must be furnished in order to obtain an authorization code, and this code number must be included with the relevant paperwork. Please contact us to obtain a return authorization code.

Notes:
This warranty is in lieu of all other warranties express or implied and all other obligations or liabilities on our part. We neither assume nor authorize any other entity or person to assume any other liability for us in connection with and sale of TORQ Lockers™

This warranty covers the original purchaser only. This warranty does not cover defects caused by any of the following: modification, alteration, repair or service of the product by anyone other than by us or our authorized representative, physical abuse to or misuse of the product, improper diagnosis, installation or operation thereof in a manner contrary to the installation manual accompanying the product, and road, offroad or accident damage.

No repair or replacement of any part made under this warranty shall be deemed to alter or extend the term of the warranty in any way.

Torq-Masters Industries Inc. disclaims any implied warranties of merchantability of the goods or fitness of the goods for any purpose. We have no liability for incidental, consequential or special damages including, but not limited to, claims of personal injury or property damage and claims of liabilities by third parties not the original purchaser to the product. While this warranty gives specific legal rights, some States have special laws regarding warranties which regulate limitation and time periods. These rights vary from state to state and purchaser is urged to review laws of his jurisdiction in the event of a warranty question.

If the purchaser disagrees with any of the terms of this warranty, please return the purchased product to Torq-Masters Industries, Inc. within three (5) business days of notification of shipment. Buyer is responsible for all shipping charges for receipt and return of product. A decision by the purchaser to retain the item purchased will be deemed acceptance of the specific terms of this warranty.

TORQ Locker™ is 100% made in the USA.
Please direct any questions to: **info@torqmasters.com**