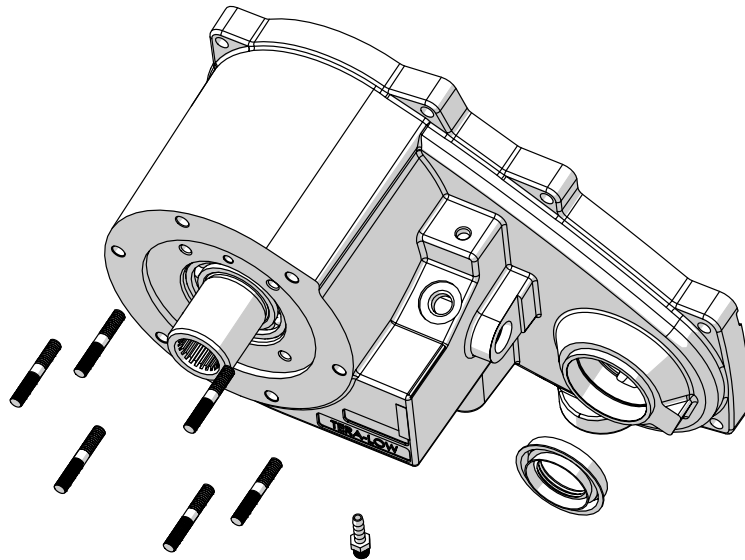




# 231-J Low231 4:1 Heavy Duty Transfer Case

www.teraflex.com

- Kit #2104200 –fits 6cyl manual Wranglers  
 Kit #2104400 –fits 4 & 6cyl automatic Wranglers 87-02  
 Kit #2104100 –fits 4cyl manual Wranglers and Cherokees  
 Kit #2104303 –fits 6cyl automatic Wranglers 2003+ and XJ  
 Cherokee automatic 23 spline



## Important Notes:

Prior to beginning this or any installation read these instructions to familiarize yourself with the required steps and evaluate if you are experienced and capable to personally perform these modifications. A factory service manual should be used in conjunction with these installation instructions.

This assembly is depicted with a TeraFlex 231 Heavy Duty Short Shaft Kit (4444401), personal disassembly and assembly may differ.

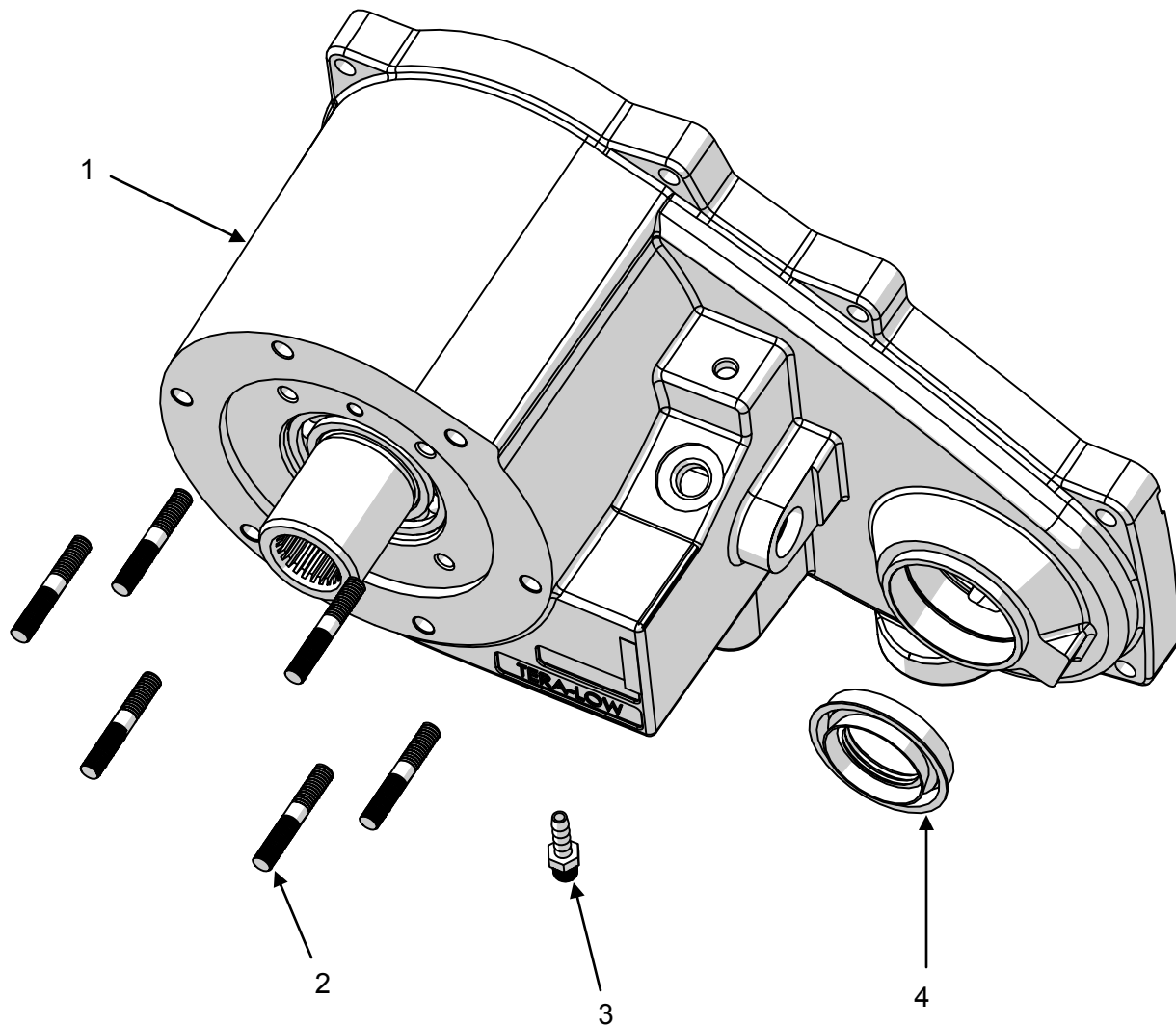
Refer to the parts list to ensure that all necessary components and hardware has been included. If any parts are missing please contact your local TeraFlex dealer for assistance.

**Some older automatics** require a transmission seal extension. Please check for this part in your kit prior to installation. If it is not included in your kit you can order it from your local distributor or from TeraFlex directly at (801)-288-2585

**Avoid high engine speeds** when using the Low231 in low range in 4th or 5th gear with manual transmissions or with high gear automatics. This is common when driving in snow, mud, or sand. Because the gears are turning 50% faster and with the higher ratio, it is possible to input speeds to reach 6500 RPM and cause damage to the transfer case. We recommend using a lower gear in high-range for higher speeds rather than running the Low231 at extreme RPM's.

## Tools needed:

- This installation guide
- Basic mechanics tool set
- Snap ring pliers
- Mallet or dead blow hammer
- RTV Gasket Maker
- Red thread locking compound
- Blue thread locking compound



## Parts List

Item Number	Part Number	Description	Quantity
1	6004631	231Low Transfer Case Half with planetary, bearing, and snap ring.	1
2	600017	Transfer Case Stud	6
3	600007	Vent 1/8" NPT x 1/4" Hose Male Pipe Brass	1
4	600004	Front Output Seal	1

**Check to make sure all parts and hardware are present before starting installation. If any parts are missing please contact you local TeraFlex dealer for assistance.**

Installation of the Low231 4:1 Heavy Duty Transfer Case requires that the transfer case be removed from the vehicle. After removal from the vehicle, check and compare the spline count and shaft length of you old case with the new case to verify that you have the correct case for the application.

1

Begin by draining the oil from the transfer case. Some will require a 15/16" socket or wrench, while others will require a 10 mm allen socket or wrench.



2

Remove the rear driveline completely, and disconnect the front driveline at the transfer case yoke. Tie the front driveline out of the way. Complete removal is not necessary.

Remove the front output yoke.

Four 8mm U Joint bolts



1-1/8 in Socket



3

4

Remove speedometer gear assembly by removing the 13 mm bolt and pulling the assembly out of the tail housing.

Remove the rear output dust shield and harmonic balancer if equipped.



5

6

Remove the rear output shaft seal.



7

Remove the rear output shaft snap ring.



8

Remove the 5 bolts holding the tail housing in place. Separate it from the transfer case.



9

Split the case by removing the 8 case half bolts. Note the location of the 10 mm 12 point bolt. Gently pry the case apart using the machined notches on either side of the case.



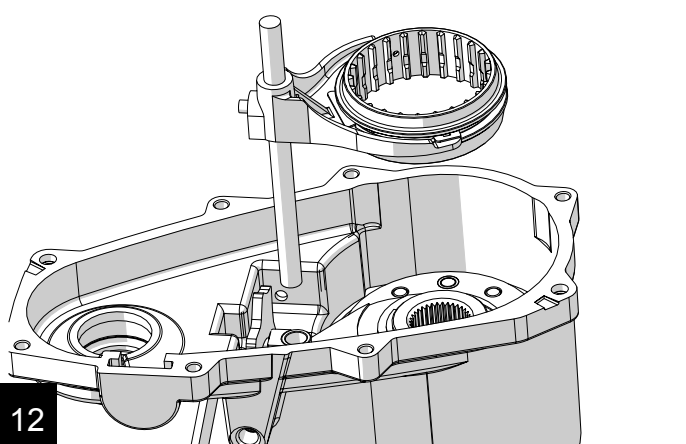
10

Remove the front and rear outputs together with the drive chain.



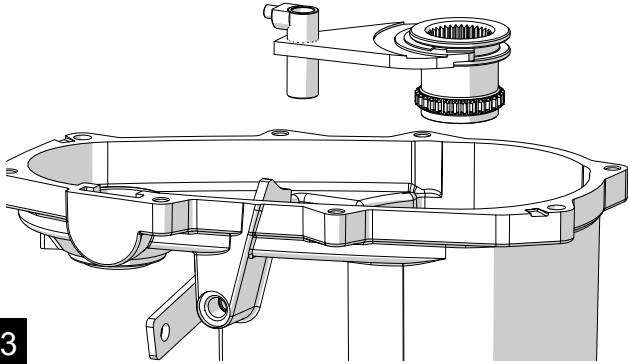
11

Remove the mode fork with shift rail and mode ring. **Note the orientation of the mode ring.**



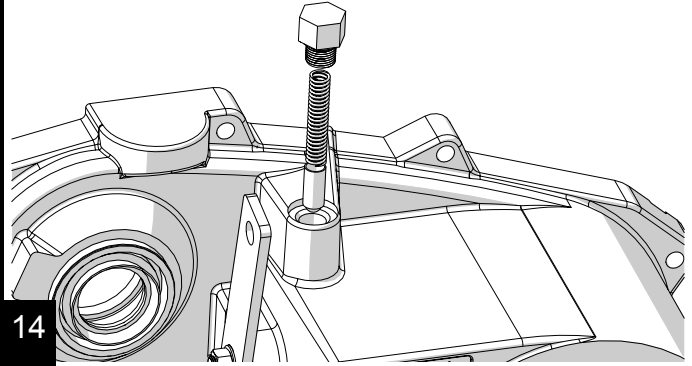
12

Remove the range fork and shift hub. Check the nylon pads on the range fork and the mode fork for wear, replace if necessary, Crown Automotive #15866



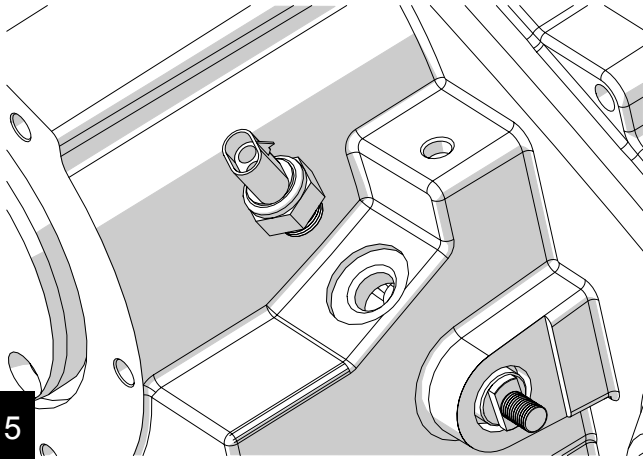
13

Remove the detent screw, spring and poppet. Note: if a 3/4" wrench fits the detent screw you will need to purchase the larger OEM detent parts. Detent Poppet (53008217), Spring (53008218), Plug (53008216), O-ring (4338956)



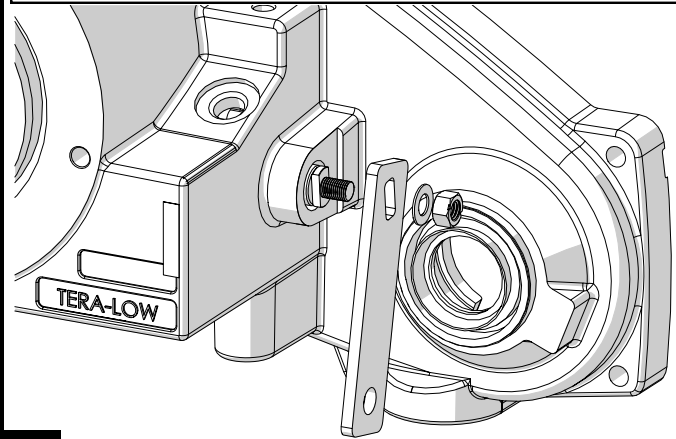
14

Remove shift indicator. This may be electric or vacuum depending on the year of your Jeep.



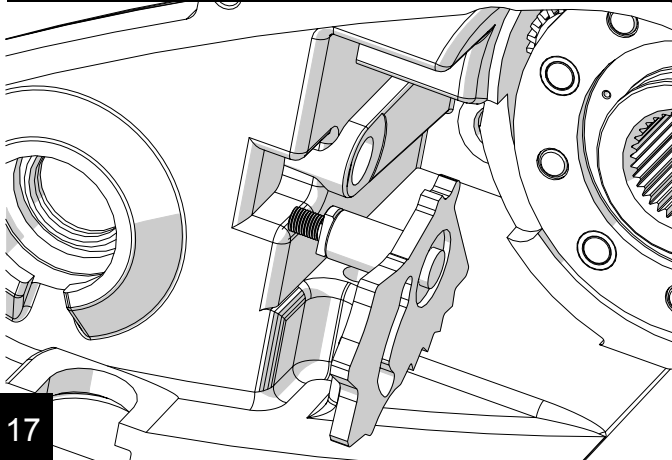
15

Remove range lever.



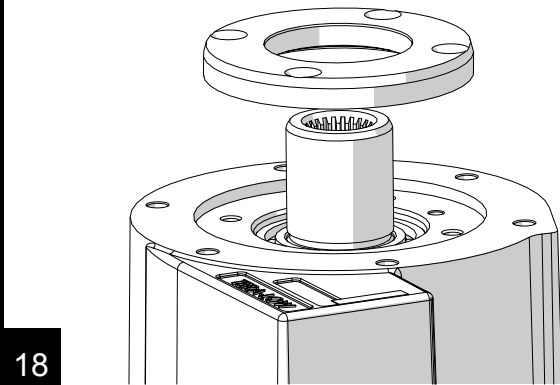
16

Remove the shift sector from the case. **Keep the O-ring and bushing from the outside of the case.**



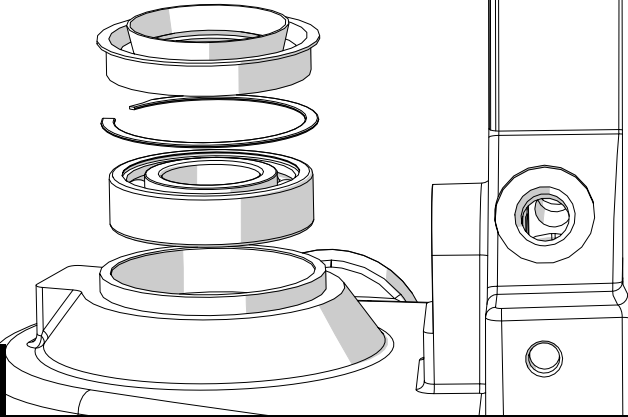
17

Turn the case over and carefully remove the bearing retainer and seal. Use the pry point that is cast into the retainer.



18

Using a flat head screwdriver, remove the front output oil seal and snap ring. With a plastic mallet remove the output bearing.



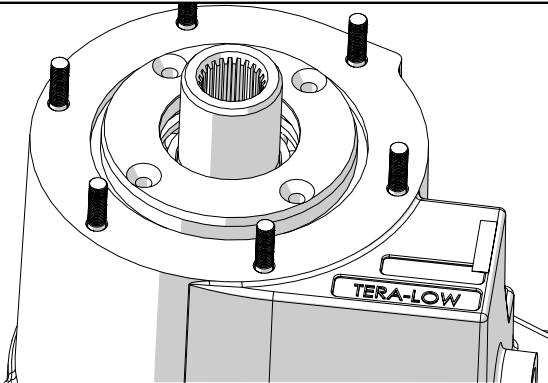
19

### Reassembly

Now that all the needed parts have been removed from the factory transfer case, take the new Heavy Duty Low231 case housing and prepare for assembly. Clean all parts that will be reused thoroughly and inspect for wear. Clean all mating surfaces with a brake parts cleaner. Grease all bearings, seals and O-rings to prevent a dry start. Follow all given torque specs.

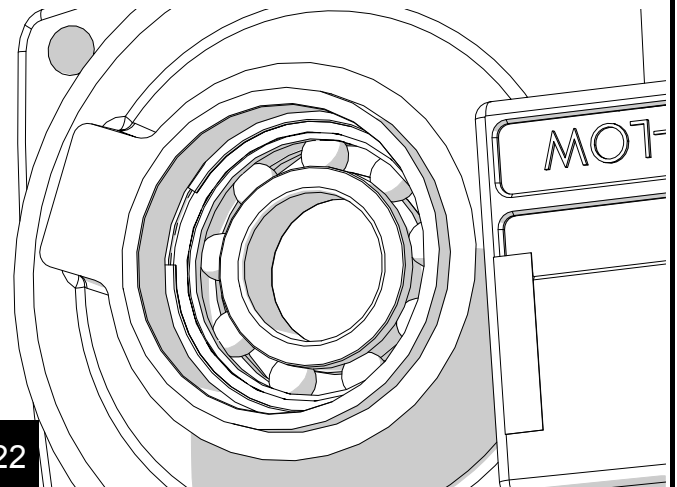
20

Reinstall the bearing retainer (Torque to 16 ft-lbs) and the provided studs into the new Low231 Case half using the double nut method. (Thread two nuts onto the stud and tighten them against each other with wrenches. Use them like the head of a bolt)



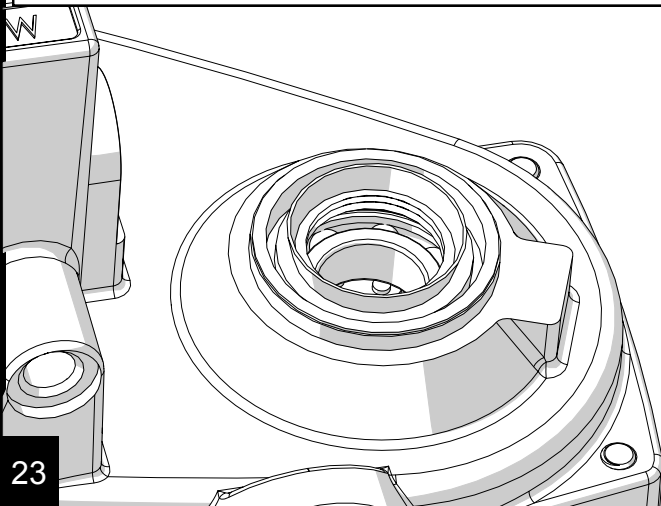
21

Install original front output bearing and snap ring.



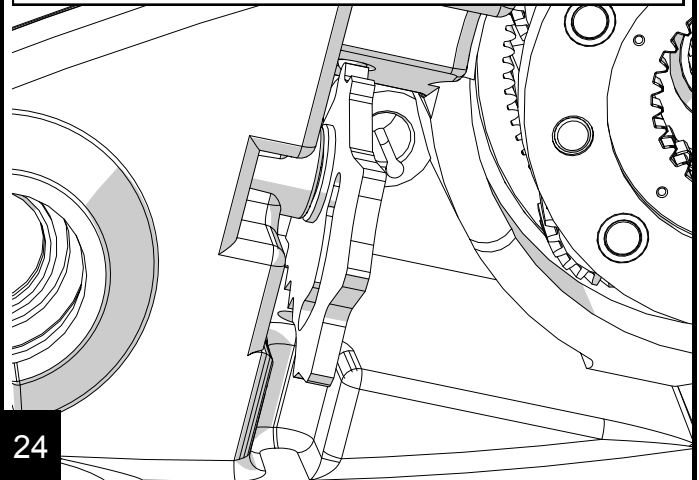
22

Install new front output seal.



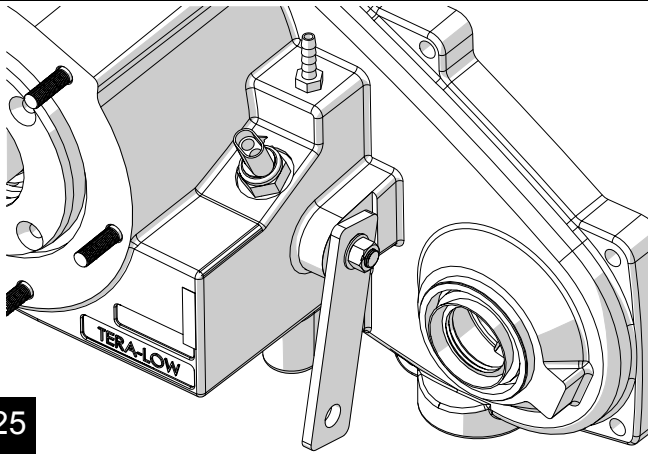
23

Place the shift sector into the case. Reinstall the outside O-ring and bushing.



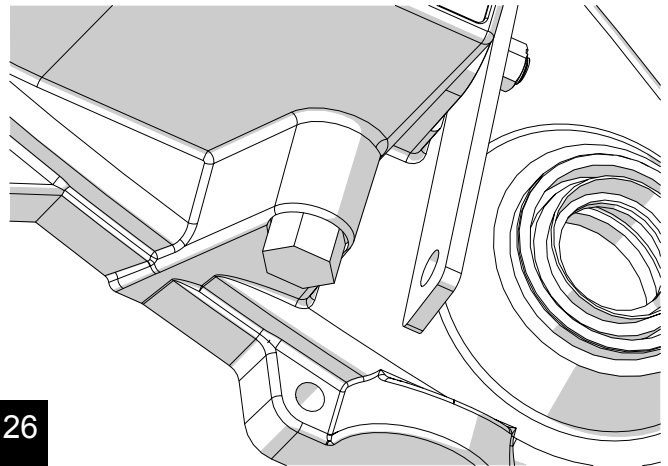
24

Reinstall the range lever (Torque to 22 ft-lbs), indicator switch (Torque 20 ft-lbs), and new vent.



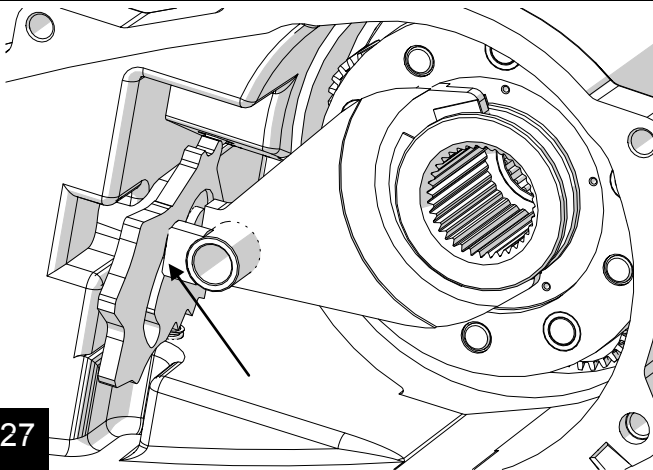
25

Reinstall detent screw, spring and poppet. (Torque 15 ft-lbs)



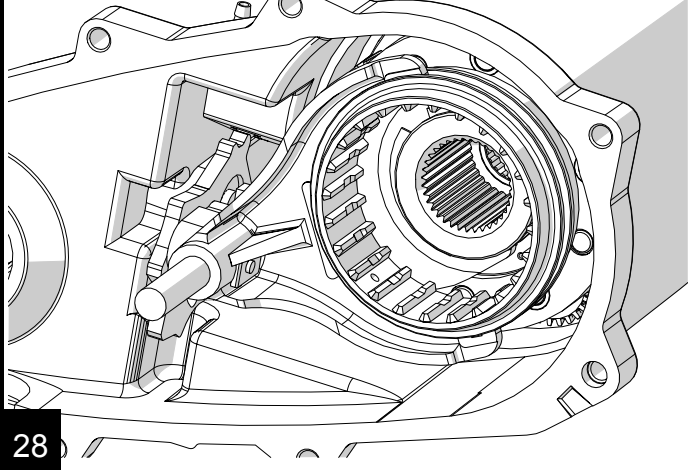
26

Reinstall the range fork, be sure to install the pin on the fork into the groove cut into the shift sector.



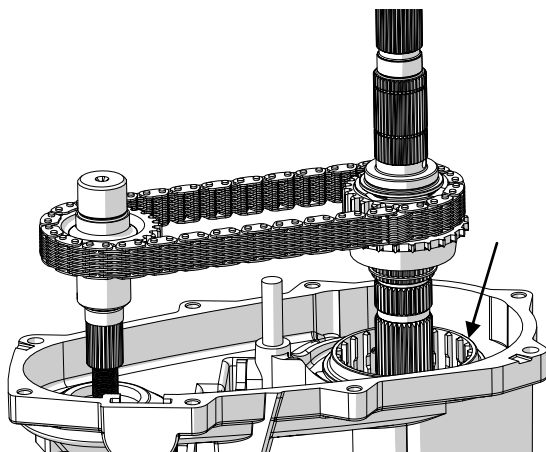
27

Reinstall the mode fork, shift rail and ring together. **Note the orientation of the synchro ring.**



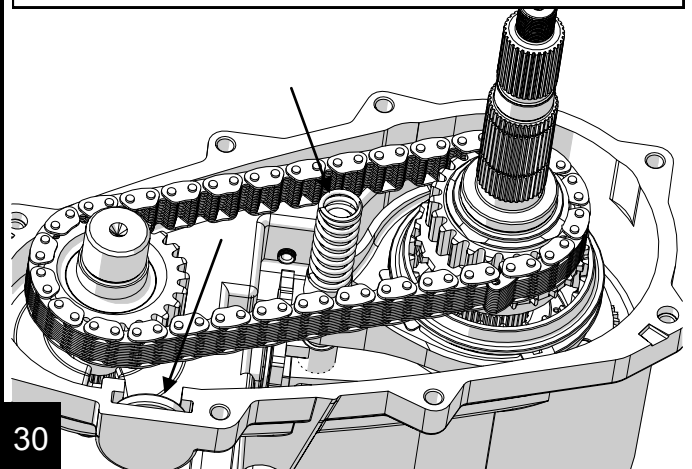
28

Reinstall the main shaft, chain and front output shaft.



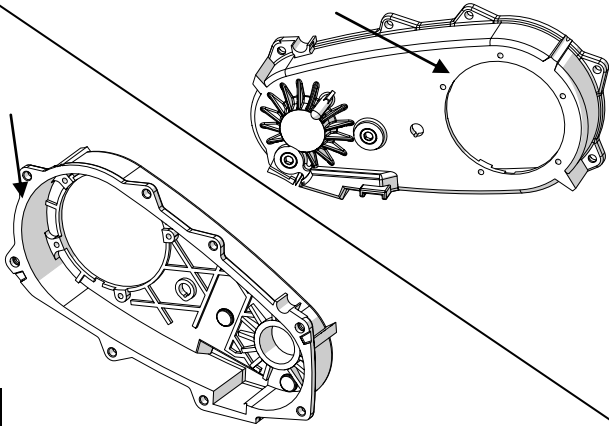
29

Be sure the mating surfaces are free of oily residue. Clean the magnet and reinstall along with the mode fork spring.



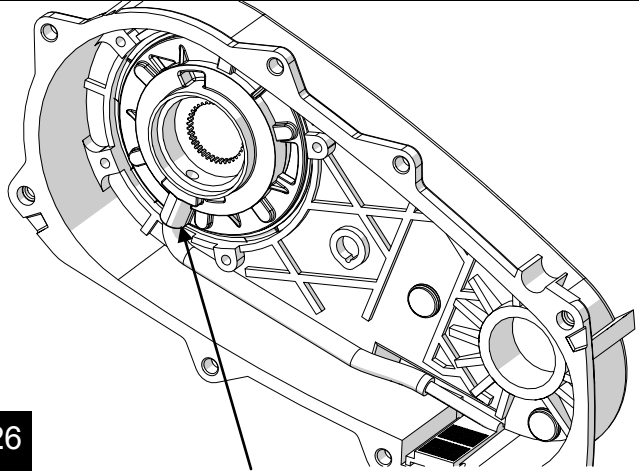
30

Clean the mating surfaces on the rear case half, both to the front case half and tail housing.



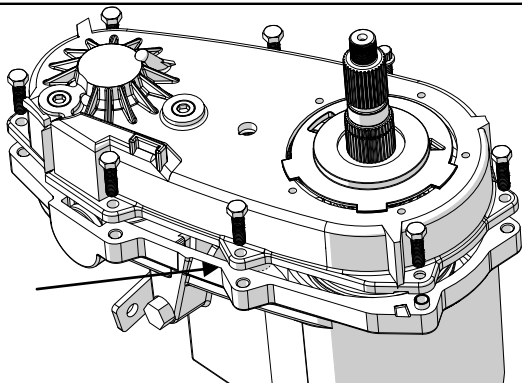
25

Reinstall the oil pick up in the rear half of the case along with the pump, be sure the pick up tube is seated in the pump.



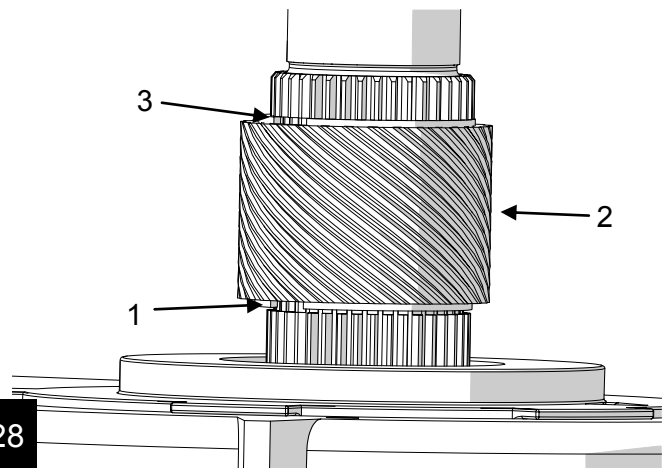
26

Apply a maximum of 3/16" bead of gasket maker to the mating surface of front case half and install the rear half of the case. Verify the shift rail and case alignment dowels are aligned. Apply blue thread locking compound to bolts and tighten in a crisscross pattern, torquing to 20-25 ft-lbs.



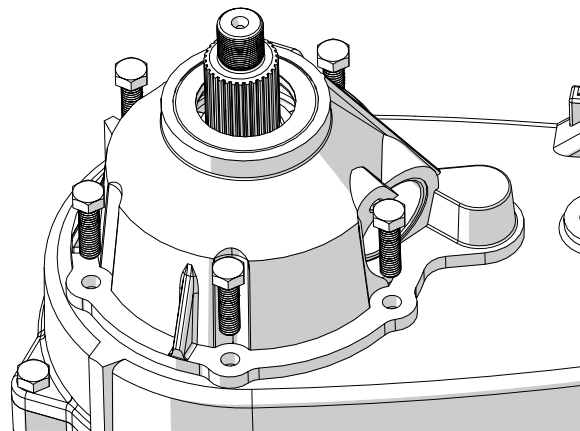
27

Install a snap ring (1), followed by the speedometer gear (2), install the final snap ring (3) to retain the gear.



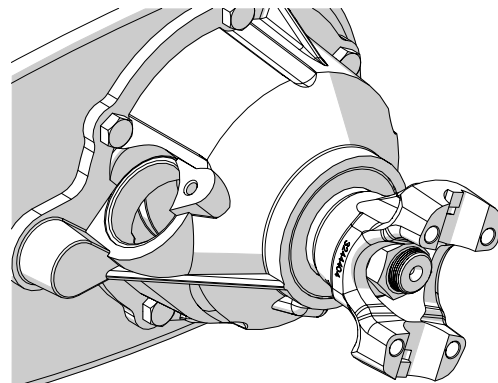
28

Apply a maximum 3/16" bead of gasket maker to the new tail housing, install and torque bolts in a crisscross pattern to 15-20 ft-lbs.



29

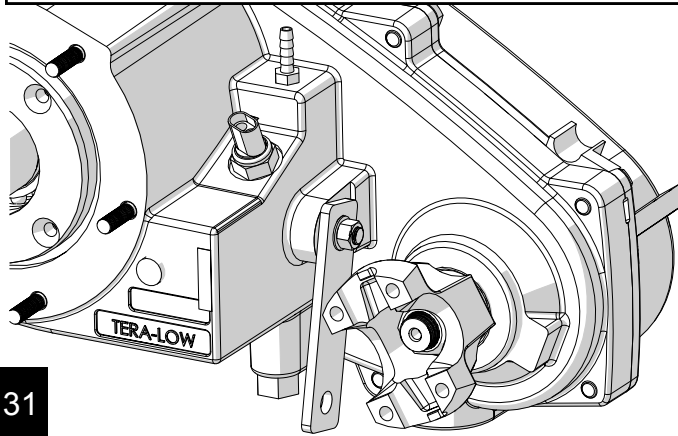
Apply a small amount of silicone to seal the spline and yoke interface under the yoke nut. Apply red thread locking compound to the yoke nut and torque to 90-130 ft-lbs.



30

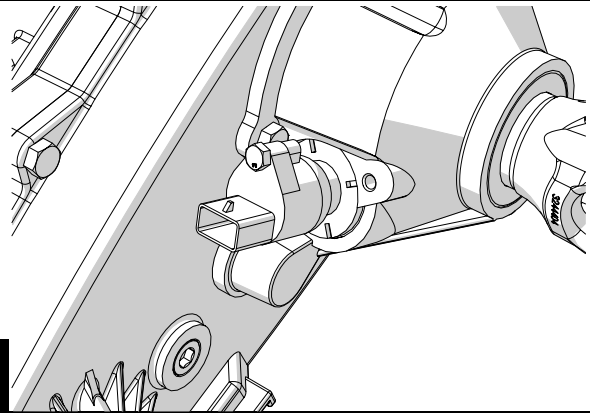


Install seal washer on front output shaft, install yoke. Apply red thread locking compound to nut and torque to 90-130 ft-lbs



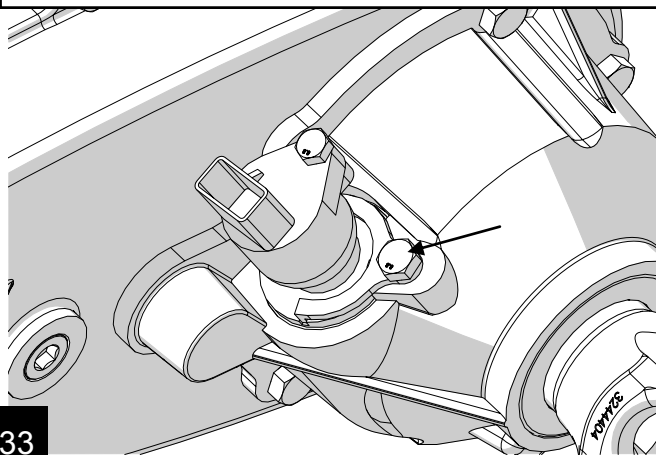
31

Apply a thin film of oil to the sensor o-ring to aid in sensor installation. To be sure that the gears are engaged, rotate the yoke with your hand on the sensor, you should be able to feel the sensor turn.



32

Install speedometer retainer fork, tighten sensor bolt 8-12 ft-lbs.



33

Fill transfer case with 2.2 pints (1.0L) of ATF+4 and reinstall into vehicle if transfer case was removed.

**Break-in Procedure for the Tera Low231**

**Drain and replace oil after 1000 and before 3000 miles.**

One characteristic of a compound planetary unit, such as the Tera Low231, is the associated gear noise. Following installation of the Low231, you will likely hear noise caused by the gear configuration. This is to be expected of the new gear system and can be reduced by following some simple break-in or adjustment guidelines. Run the vehicle in low-range. A good day on the trail should be sufficient for the gears to quiet down. Running the vehicle in low-range in a parking lot while accelerating and decelerating will also help quiet the gears. The planetary gears are idle in all positions except low-range. The more low-range use the gears experience, the quieter they become in all positions.

34

**NP 231 TORQUE SPECIFICATIONS**

DESCRIPTION	N·m	Ft. Lbs.
Plug, Detent	16-24	12-18
Plug, Drain/Fill	20-34	15-25
Bolt, Front Brg. Retainer	21	16
Bolt, Case Half	27-34	20-25
Nut, Front Yoke	122-176	90-130
Nut, Range Lever	27-34	20-25
Bolt, Rear Retainer	35-46	26-34
Nuts, Mounting	35-47	26-35
Switch, Indicator	20-34	15-25

## PRODUCT INFORMATION

### MAINTENANCE INFORMATION:

It is the buyer's responsibility to have all suspension, drivetrain, steering, and other components checked for proper tightness and torque after the first 100 miles and every 3000 miles after that.

### NOTICE TO INSTALLER:

The enclosed "Warning to Driver" sticker must be installed in the vehicle in driver's view. This sticker is to act as a constant safety reminder when operating the vehicle. It is your responsibility as the equipment installer to install the provided sticker and to forward the product instructions to the vehicle's owner for review. If a "Warning to Driver" sticker or product installation guide were not included in the kit, FREE replacement stickers and instructions are available by request. It is the installer's duty to ensure a safe and controllable vehicle after the modifications have been performed.

### WARNING:

Neither the seller nor the manufacturer will be liable for any loss, damage, or injury directly or indirectly arising from the use of or inability to determine the use of these products. Before using, the user shall determine the suitability of the products for its intended use, and the user shall assume all responsibility and risk in connection therewith.

### WARNING TO DRIVER:

This vehicle has been modified to enhance off road performance and has unique handling characteristics. Use in harsh environments can cause extreme stress on the components. Vehicle should be inspected after being off road to make sure that all the components are in working order and safe to travel on the highway. All fasteners should be checked so that they are at the correct torque specifications as the vibration and stresses from off roading may cause critical fasteners to work loose. Extra care should be taken to inspect the critical components, steering, and brake systems. During each oil change components such as arms, tie rod ends, etc should be greased and checked for excessive wear. Any worn components should be replaced. When returning to the pavement always set or restore tire air pressure to the factory recommendation and connect or engage any disabled sway bar mechanisms. Because of the higher center of gravity and larger tires, this vehicle handles and reacts differently than many passenger cars, both on and off road. You must drive it safely! Extreme care should be taken to prevent vehicle rollover or loss of control, which can result in serious injury or death. Avoid sudden sharp turns or abrupt maneuvers. Generally, braking performance and capabilities are decreased when significantly larger/heavier tires are used, especially when used in combination with transfer case low-range reduction kits. Take this into consideration while driving. Do not add, alter or fabricate any factory or aftermarket parts to increase vehicle height over the intended height of the TeraFlex product purchased. Mixing component brand is not recommended. TeraFlex Inc. will not be responsible for any altered product or any improper installation or use of our products. We will be happy to answer any questions concerning the design, function, and correct use of our products. It is ultimately the buyer's responsibility to have all bolts/nuts checked for tightness after the first 100 miles and then every 3000 miles. Wheel alignment, steering system, suspension and drive line systems must be inspected by a qualified professional mechanic at least every 3000 miles.

### TERAFLEX PRODUCT WARRANTY:

TeraFlex Inc. warrants TeraFlex Suspension products to the original retail purchaser to be free of defects in material and workmanship for as long as the original purchaser owns the vehicle on which products were originally installed.

Failure to complete regular maintenance (grease every 3000 miles) on TeraFlex FlexArms will void this warranty. All other conditions of the standard TeraFlex product warranty apply.

All TeraLow products are covered by the TeraFlex two (2) year warranty to be free of defects in material and workmanship for two years from date purchased.

TeraFlex axles are covered by a 12-month warranty to be free of defects in materials and workmanship.

This warranty does not cover or include product finish, improperly installed or applied products, improperly maintained products, products or components used for racing or competition or damage due to abuse or neglect, products that fail due to the use of larger tire and wheel combinations.

All returns must be accompanied by an original invoice. It is the customer's responsibility to remove the product from the vehicle. Shipping charges are the responsibility of the customer. TeraFlex Inc. will pay the return freight if the product meets the terms of warranty.

This warranty is for the replacement or repair of defective TeraFlex products only and does not include freight charges, labor charges for removal of or installation of TeraFlex or related products or components, costs incurred due to down time of the vehicle, or lost profits due to vehicle down time.

A returned goods authorization number (RGA#) must accompany any returned products. For more information please contact a TeraFlex customer service representative.

### COPYRIGHT

©Copyright 2014. All rights reserved, TeraFlex Inc. Reproduction of this catalog and/or any of its contents without written permission is strictly prohibited.

TeraFlex® is a registered trademark of TeraFlex Inc. All trade names and logos including but not limited to TeraFlex, FlexArms, RockGuard, Monster, and LCG are protected by law and duplication of trade names and/or logos are strictly prohibited.

TeraFlex Inc. reserves the right to update, discontinue, redesign, modify finish, part number or component build parts if deemed necessary without written notice.

TeraFlex Inc., and any associated dealers are not responsible for misprints or typographical errors that may have inadvertently been made within this instruction sheet.

Jeep® and the Jeep® grill are registered trademarks of Fiat Chrysler Automobiles N.V., and have no affiliation with TeraFlex Inc.

**TERAFLEX, Inc.**  
5680 West Dannon Way  
West Jordan, Utah 84081  
Phone/801.713.3314  
Fax/801.713.2313  
[www.teraflex.com](http://www.teraflex.com)