

TERAFLEX

PRODUCT INSTALLATION GUIDE

Heavy Duty Short Shaft Kit

Part # 4444401



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.

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 retailer for assistance.

Required Tools:

- 10mm allen
- 13,14,15mm socket or wrench
- 10mm 12 point socket or wrench
- 1 1/8" socket
- Hammer
- Punch
- Flat head screw driver
- Snap ring pliers
- Pry bar
- Ft-lbs torque wrench
- Silicon
- Brake clean
- ATF dextron III

4444401 231 Short Shaft Kit

231100	Main Shaft	1
231101	Output Housing	1
231104	Rear Output Seal	1
231105	Housing Output Bearing	1
231106	External Snap Ring Used for Speedo Gear on Shaft	2
231107	External Snap Ring Used on Short Shaft for Synchro Hub	1
231110	Speedo Gear	1
231111	Internal Snap Ring Housing to retain bearing	1
231112	Nut 7/8"-20 UNEF Flanged Crimp Yoke Nut	1
3244404	Short Shaft Yoke	1
36	Washer 5/16" Lock Zinc Plated	4
93	Bolt 5/16"-24 UNF x 1.25" Long 12 Point Head	4

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Installation

1. Drain the transfer case using a 10mm allen.



2. Remove the speedometer gear drive using a 13mm socket.



3. Remove the front and rear drive shafts.
4. Remove the shift lever using a 14mm socket or wrench.
5. Remove the transfer case from the transmission using a 14mm socket or wrench and remove from the vehicle.



6. Remove the slip yoke boot using a flat head screwdriver to loosen the clamp.



7. Remove the harmonic balancer (if equipped) using a punch and hammer. Make sure that you rotate the balancer while driving it off to ease in removal.



8. Remove the rear output shaft seal.



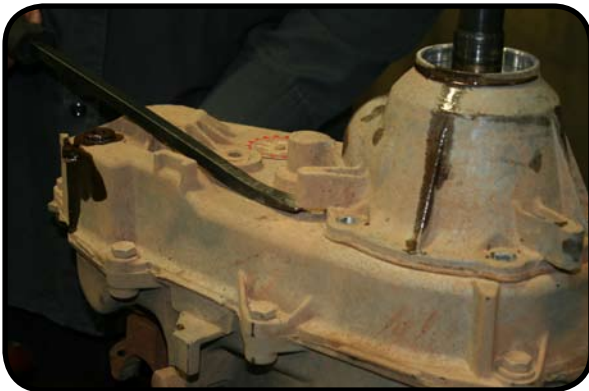
9. Remove the front output yoke using a 1 1/8" socket.



10. Place the transfer case onto the mounting studs. Remove the rear output shaft snap ring.



11. Remove the rear output housing using a 15mm socket and separate it from the transfer case.



12. You will need to remove eight bolts to separate the transfer case. On seven bolts use a 15mm socket and the last bolt is a 10mm 12point that also needs to be removed. Now separate the two half using the pry slots that are machined into the case.



13. Remove the front and rear output shafts together with the drive chain.



14. Remove the drive sprocket snap ring and remove the drive gear from the main shaft.



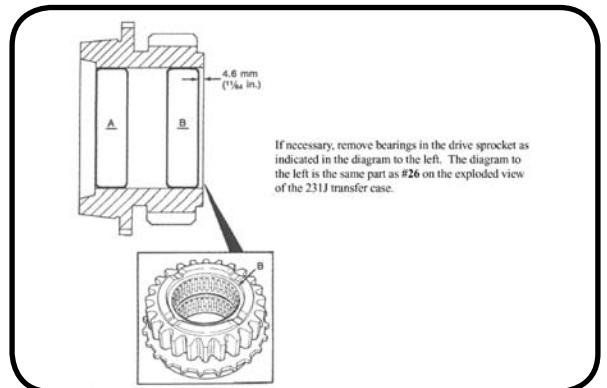
15. Check the mode fork inserts for damage. If they are worn replace them with factory replacement parts. Remember which way the synchro sleeve goes on the range fork. The short half of the splines should go down.



16. Verify the length of your mode fork shift rod as shown. If your shift rod measures 10.2", it will need to be cut down to a length of 9.380". This is typical of 1988 and 1989 model YJ's & XJ's



17. If your vehicle is a 1996 and older you will have to remove the bearings from the drive sprocket. You can use a big socket and hammer or equivalent to remove them.



18. Install the drive gear onto the new short shaft and install the new snap ring.



19. Install the new short shaft with the front output shaft and the drive chain.



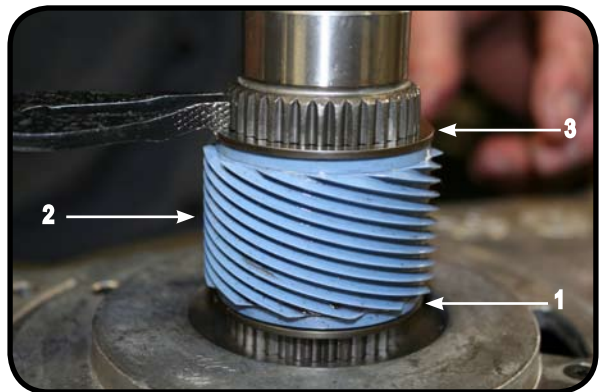
20. Clean the seal surface and use silicone adhesive to seal the front and rear half of the case.



21. Install the rear half of the case. Make sure that the oil pick up is installed into the pump and the magnet is installed in the case. While installing the rear case slide the oil pump onto the shaft. Torque the bolts to 25 ft-lbs.



22. To install the speed sensor, install a new snap ring (1), followed by the speedometer gear (2), then the final snap ring (3) to hold the gear in place.



23. Install the new rear housing. Use silicone adhesive on the seal surface and torque to 20 ft-lbs.



24. Install the new yoke. Use silicone adhesive on the splines of the yoke to create the seal. Use red thread locker on the yoke nut and torque to 100 ft-lbs.



25. Reinstall the speed sensor into the transfer case. To make sure that the gears are engaged by rotating the yoke and putting your hand on the speed sensor. You will be able to feel the speed sensor gear turn. Install the speed sensor clamp and bolt and torque to 8 Ft-lbs.

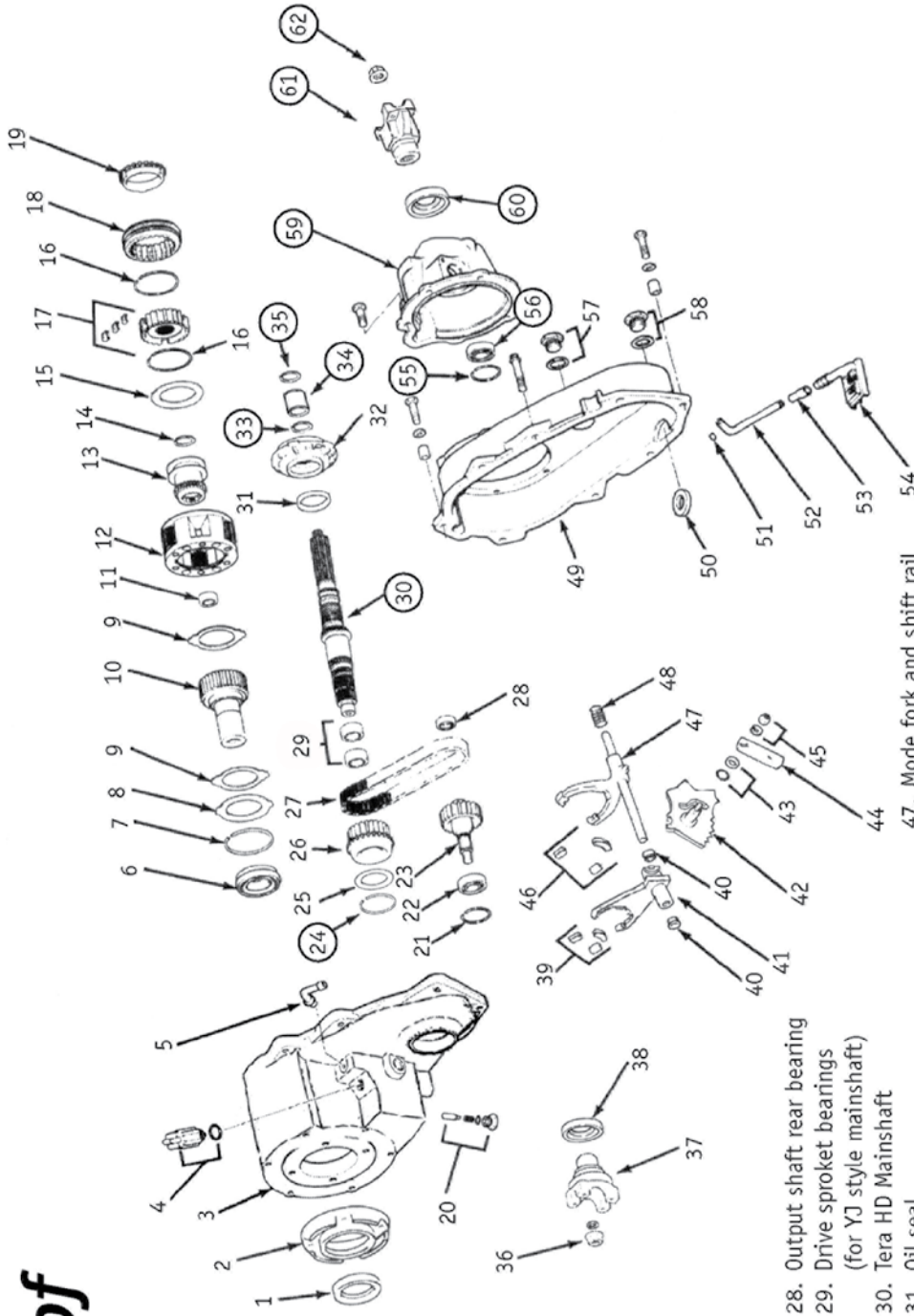


26. Reinstall the transfer case into the vehicle. Torque the mounting nuts to 30 Ft-lbs.
27. Reinstall the shift lever.
28. For best sealing results do not fill the transfer case for 24 hours. The longer you wait the better the silicon will set up and seal the transfer case. Use recommend ATF Dextron III oil.

Exploded View of the 231J Transfer Case

○ Included in the Tera Low231 Heavy Duty Short Shaft kit

Note: This diagram shows the Tera Low231 Heavy Duty Short Shaft kit, Tera Low231 4.0:1 case, and the Tera Low2WD kit. A stock setup will appear different than pictured.



1. Front input seal
2. Front bearing retainer and seal
3. Tera HD Low231 case
4. Vacuum switch and seal
5. Vent assembly
6. Input gear bearing and snap ring
7. Low-range gear snap ring
8. Input gear retainer
9. Low-range gear thrust washer
10. Input gear
11. Input gear pilot bearing
12. Planetary gear assembly
13. Range fork shift hub
14. Synchro hub snap ring
15. Shim
16. Synchro hub springs
17. Synchro hub and inserts
18. Synchro sleeve
19. Stop ring
20. Shift detent plug, spring, and pin
21. Snap ring
22. Front output shaft bearing
23. Front output shaft
24. Large snap ring
25. Shim
26. Drive sprocket
27. Drive chain
28. Output shaft rear bearing
29. Drive sprocket bearings (for YJ style mainshaft)
30. Tera HD Mainshaft
31. Oil seal
32. Oil pump assembly
33. Snap ring
34. Speedometer drive gear
35. Snap ring
36. Front yoke nut
37. Front yoke
38. Front output seal
39. Range fork inserts
40. Range fork bushings
41. Range fork
42. Sector
43. O-ring and seal
44. Range lever
45. Range lever nut and washer
46. Mode fork inserts
47. Mode fork and shift rail
48. Mode spring
49. Rear case
50. Magnet
51. Pickup tube oil ring
52. Mode fork inserts
53. Tube connector
54. Oil pickup screen
55. Snap ring
56. Rear bearing
57. Fill plug and gasket
58. Drain plug and gasket
59. Rear housing
60. Rear output seal
61. Rear yoke
62. Rear yoke nut



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PRODUCT INFORMATION & WARRANTY

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:

Tera Manufacturing 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 TeraFlex's two (2) year warranty to be free of defects in material and workmanship for two years from date purchased.

Tera 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. Tera Manufacturing 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.

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