

TERAFLEX

INSTALLATION GUIDE

Instruction Guide for the 18 3.15:1 Low Range Gear Conversion Kit Part #002111018 (LOW18)

Tera Manufacturing, Inc.
5251 South Commerce Dr.
Murray, Utah 84107
Phone/801.288.2585
Fax/801.713.2313
www.teraflex.biz



Before installation make sure that your kit contains all of the proper parts and quantities.

Each LOW18 kit should include the following items:

- 1- TL20A- main drive gear (6 spline)
- 1- TL20B- intermediate gear
- 1- TL20C- front output gear (26 spline)
- 1- TL20D- sliding gear (12 spline)
- 1- 942115K- Intermediate shaft/needle bearings
- 1- D18GS- gasket kit

Special Instructions:

Shift Rod -

It is necessary to shorten the shift rod (#29) approximately 1/2" off the inside end so that it will clear the intermediate gear.

Case Requirements -

Because the Low18 conversion kit fits only the larger Model 18 cases, CJs older than 1965 will require a case from one of the following vehicles in order to use it:

1966-71 CJ

1963-79 Wagoneer or pickup 20

1972-79 CJ 20

The Dana 20 case will interchange with the 18 components and still allow output shaft locations to remain offset.

Disassembly

1. Drain transmission and transfer case and replace drain plugs.
2. Disconnect the brake cable.
3. Disconnect front and rear propeller shafts at the transfer case.
4. Disconnect speedometer cable at transfer case.
5. Disconnect the transfer case shift levers. Loosen set screw and remove pivot pin. Use a screw driver to pry shift lever springs away from shift levers. Lift levers from transfer case.
6. Remove cover plate on rear face of transfer case. Remove cotter key, nut and washer from transmission main shaft.
7. If possible, remove the transfer case main drive gear, from the transmission main shaft. If not possible, see step 10.
8. Remove transfer case mounting bracket bolt and nut.
9. Remove transmission to transfer case bolts.
10. Remove transfer case. If the transfer case main drive gear has not been removed in step 7 above, proceed as follows: Brace the end of the transmission main shaft so that it cannot move in the transmission, pull the transfer case to the rear to loosen the gear and remove the gear. When separating the two housings, use care that the transmission main shaft bearing, which bears in both housings, remains in the transmission.

Transfer Case Disassembly

1. Remove output shaft nuts and washers. Remove rear output shaft companion flange with brake drum (if so equipped) and front output shaft yoke.
2. Remove cover bolts, lock washers, and bottom cover.
3. Remove the lock plate screw, lock washer, and lock plate.
4. Use a brass punch to drive out the intermediate shaft to the rear of the case. Do not lose the thrust washers located at each end of the gear shaft.
5. Remove the intermediate gear, two thrust washers, needle bearings, and spacers, through the bottom of the case.
6. Remove the poppet plugs, springs, and balls on both sides of front bearing cap. Shift front wheel shift lever into engaged position.
7. Remove the screws, lock washers, holding the front bearing cap. Remove the cap as an assembly including the clutch shaft, bearing, clutch gear, fork, and shift rod. Use care not to lose the interlock which floats between the shift rods.
8. Remove the screws, lock washers holding the brake backing plate assembly (if so equipped) and rear output cap with speedometer gear assembly. Remove entire unit as an assembly.
9. Use a rubber mallet to drive against the front end of the output shaft to drive the rear bearing cup from the case. Wedge front bearing cone and roller assembly from its seat on the shaft. Use a rubber mallet to drive against the rear end of the output shaft to remove front bearing cup from the case. Remove snap ring and slide it forward on the shaft. Drive the shaft through the rear of the case. As the shaft is removed, gears, snap ring and thrust washer will remain in the case and can be removed from the bottom. Remove rear bearing cone and roller assembly from the shaft by striking the end of the shaft lightly against a wooden block.
10. Remove the set screw in sliding gear shift fork. Remove shift rod.

Front Bearing Cap Disassembly

1. Remove the output shaft yoke. Remove the poppet balls and move the front wheel drive shift rod forward.
2. Remove yoke oil seal. Remove shift rod oil seals.
3. Remove the front bearing cap assembly.
4. Remove the set screw from shifting fork and shifting rod. The clutch gear and shifting fork can be removed together.
5. Remove output clutch shaft assembly by carefully pressing it through the bearing.
6. Remove bearing retainer snap ring and the bearing.

Rear Bearing Cap Disassembly

1. Remove the output shaft rear end yoke or companion flange. Separate the brake drum and companion flange by removing bolts, lock washers, and nuts.
2. Remove the oil seal.
3. Remove speedometer driven gear assembly.
4. Remove the cap screws attaching the cap and brake backing plate to the case. Take precautions not to lose or damage bearing adjusting shims placed between the cap and the transfer case housing.
5. Separate the rear cap and brake backing plate assembly.
6. Remove speedometer driving gear.

Assembly

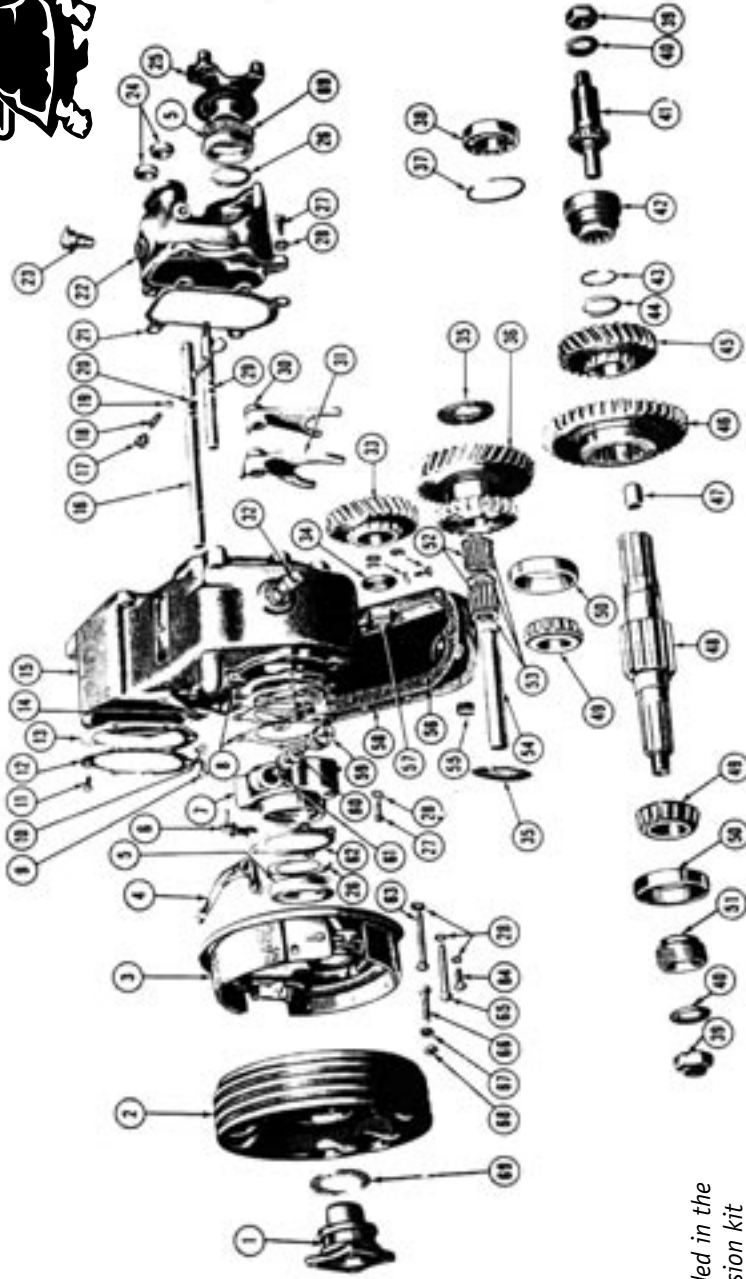
Reassembly of the transfer case is reverse of the order in which it was disassembled.

1. Use a thimble and driver type tool when installing the snap ring on the output shaft.
2. To prevent damage to the assemblies, use a piece of tubing when installing the cone and roller assemblies on the output shaft.
3. Late production transfer cases were equipped with a 1 1/4" diameter intermediate shaft, and bearings consisting of individual rollers and spacers. A dummy shaft is required to install the intermediate shaft. The dummy shaft should be smaller in diameter than the intermediate shaft and a little shorter than the width of the intermediate gear. To install the intermediate gear, first load the bearing rollers and spacers in the gear using the dummy shaft. Then supporting the front thrust washer with your fingers, install the intermediate shaft, driving out the dummy shaft.
4. Check the end movement of the main shaft when the rear bearing cap is installed. This will determine the adjustment of the tapered roller bearings. The shaft end play must be within the specified range for the bearing to be properly adjusted. The shaft should have .004" to .008" of end play. Adjustment is made by selective shim installation between the cap and the case. Do not install the rear cap oil seal until the bearings are correctly adjusted.
5. Install both front and rear oil seals.
6. When installing the end yokes on the output shafts make sure that the felt seals are installed in the oil seal guards.
7. When installing the shift rail oil seals in the front bearing cap, it is necessary to protect the seals against damage when passing over the shift rail notches. Protect them with a thimble tool.

Exploded view of the Dana 18 transfer case



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Items circled are included in the Tera Low18 gear conversion kit

- 1. Companion Flange and Oil Seal Guard
- 2. Emergency Brake Drum
- 3. Emergency Brake
- 4. Brake Operating Lever
- 5. **Bearing Cap Oil Seal - J0923896, #450185, CR#15635**
- 6. Brake Operating Lever Stud
- 7. Rear Bearing Cap
- 8. Rear Bearing Cap Shim Set - A6753
- 9. Bolt
- 10. Lockwasher
- 11. Bolt
- 12. Transfer Case Rear Cover
- 13. **Rear Gasket Cover - A1509**
- 14. Intermediate Shaft Lock Plate
- 15. Transfer Case
- 16. Shift Rod
- 17. Poppet Plug

- 18. Poppet Spring
- 19. Poppet Ball
- 20. Shift Rod Interlock
- 21. **Bearing Cap Gasket - A957**
- 22. Front Bearing Shaft Cup
- 23. Breather
- 24. **Shift Rod Oil Seal - B131674 #4500095**
- 25. End Yoke
- 26. **Oil Gasket Seal**
- 27. Bolt
- 28. Lockwasher
- 29. Shift Rod
- 30. Front Wheel Drive Shift Fork
- 31. Underdrive and Direct Shift Fork
- 32. Filler Plug
- 33. **Main drive gear (TL20A)**
- 34. Mainshaft Washer
- 35. **Thrust Washer - 8121813**

- 36. **Intermediate Gear (TL20B)**
- 37. **Bearing Shaft Snap Ring**
- 38. Output Clutch Shaft Bearing
- 39. Companion Flange Nut
- 40. Plain Washer
- 41. Output Clutch Shaft
- 42. Output Clutch Shaft Gear
- 43. Output Shaft Gear Snap Ring
- 44. Thrust Washer
- 45. **Front Output Gear (TL20C)**
- 46. **Output Shaft Sliding Gear (TL20D)**
- 47. Pilot Bushing
- 48. Output Shaft
- 49. Cone and Rollers
- 50. Output Shaft Bearing Cup
- 51. Speedometer Drive Gear (6-T)
- 52. **Needle Bearing - 809294**
- 53. **Bearing Spacer**

- 54. **Intermediate Shaft**
- 55. Drain Plug
- 56. **Bottom Cover Gasket**
- 57. Mainshaft Nut
- 58. Transfer Case Bottom Cover
- 59. Speedometer Driven Gear Sleeve
- 60. Speedometer Driven Gear (15-T)
- 61. Speedometer Driven Gear Bushing
- 62. Backing Plate Gasket
- 63. Bolt
- 64. Bolt
- 65. Bolt
- 66. Bolt
- 67. Lockwasher
- 68. Nut
- 69. **Output Shaft Felt Seal**