



TRAIL-GEARTM

Off Road Supply

Trail-CreepTM Dual Transfer Case Adapter

Installation Instructions For Kits:

100001-1-KIT 21 Spline

100006-1-KIT 23 Spline

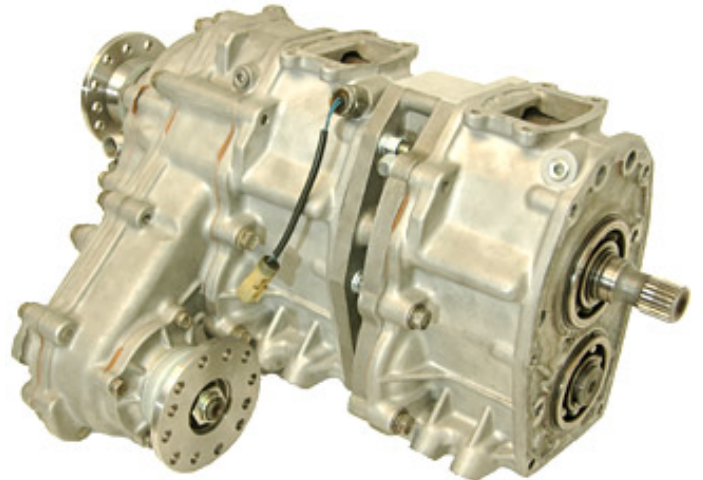


KIT Contents:

23 or 21 Spline Coupler	1.0
Adapter Plate w/ Bearings Installed	1.0
Bearing Spacer	1.0
Studs, Nuts and Washers	11.0 ea
Drain Plug w/ Aluminum Washer	1.0
Rear Transmission Output Seal	1.0
2.28 Shift Knob	1.0
Snap Ring	1.0
Shifter Keystock	1.0
Detent Plug	1.0
Paper Gaskets	3.0
Product Instructions	1.0

Suggested Tools:

Ratchet, 12mm, 14mm, and 30mm Sockets
Air Wrench
Needle Nose Pliers
Hammer
3/16" Diameter Pin Punch
Snap Ring Pliers
6mm Allen Wrench
10mm Allen Wrench
Gasket Scraper
Flat Blade Screwdriver
Adjustable Wrench
Blue Loctite®
Axle Grease



If you have questions about setting up your dual adapter, please call us at 559-252-4950.

What is the difference between 21 and 23 Spline Gears?

The transfer case input gear is the gear that slides into the transmission. V6 and turbo transmission use a 23 spline gear that is slightly larger than the 21 spline gear used on 4 cylinder transmissions. On a single transfer case you must use the gear type that matches the transmission.

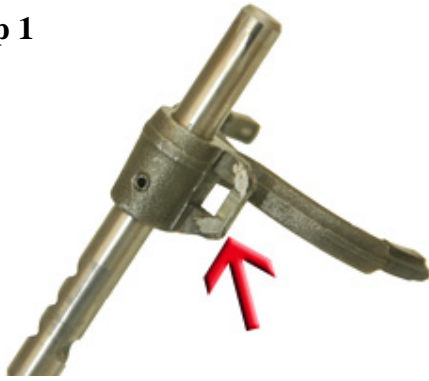
If you are building a dual transfer case assembly, the front case input gear must match the transmission output gear. The rear case of a dual transfer case can be set up with either 21 or 23 spline gears. When purchasing a dual transfer case adapter you can choose to purchase a 21 or 23 spline version. The only difference between a 21 and 23 spline dual adapter is the coupler that connects the front and rear case. It is important to match the dual adapter and rear gear set. If your rear case is going to run the stronger 23 spline gears you must also run a 23 dual adapter coupler. If your rear case is going to use 21 spline gears, then the dual adapter coupler must also be 21 spline.

In a dual transfer case with 21 spline gears in both cases the weak spot and most common failure point is the input gear to the rear case. A dual transfer case built with 21 spline gears in the front case and 23 spline gears in the rear case is stronger and now the most likely point of failure becomes the rear output shaft. If you're purchasing both a dual adapter and 4.70 gears for the rear case, order both in 23 spline. There is no cost difference building with 23 spline parts if you order both the dual adapter and gears in 23 spline configurations.

To build a dual transfer case crawler, you will need most of the parts that make up high/low section of a gear-driven Toyota transfer case. Below is a photo showing the factory parts that you will need from a stock



Step 1



Weld the provided key stock to the side of the shift fork as shown above. This prevents the front transfer case shifter from going side to side and only allows it to shift front and rear.



If you have a forward shift transfer case, this is what your shift rail will look like with the keystock welded in place.



If your rear case has this hi-lo shift rail, follow step 3, otherwise, move on to step 5.

Step 3



Perform this step only after reviewing step 2. Cut 3/8" off of the flat side of the hi-lo shift rail.

Step 4



After cutting, your shift rail should look like the bottom one in the image above.

Step 5

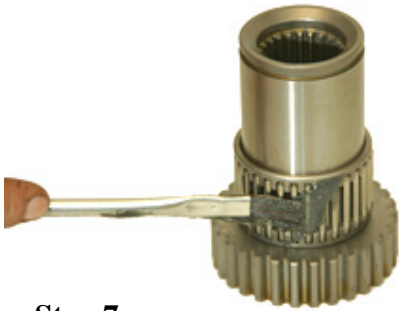


Using a brush, apply axle grease to the base of the coupler.

Step 6



Slide the coupler bearing over the coupler.



Step 7

Grease the coupler bearing.



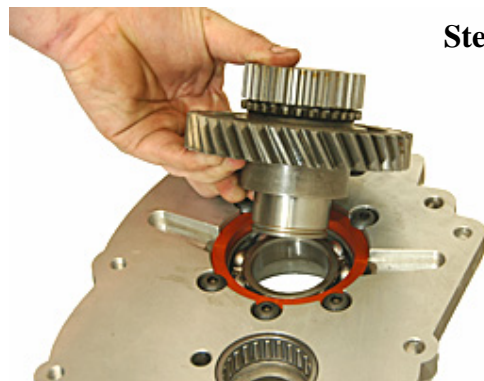
Step 8

Slide the 2.28 low speed gear over the coupler bearing.



Step 9

Slide the provided bearing spacer onto the coupler, above the low speed gear.



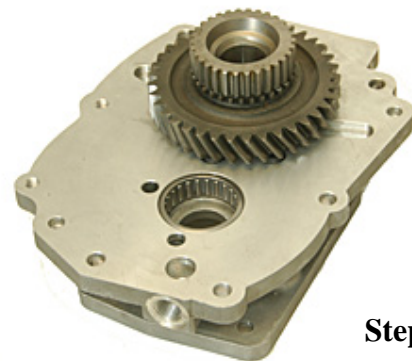
Step 10

Hold the bearing spacer with one finger and flip the assembly upside down. Slide the coupler (with spacer, bearing and low speed gear) into place on the dual adapter as shown above.

Step 11



Turn the adapter over so that the coupler is under the adapter. Apply the provided snap ring to the coupler.



Step 12

Turn the dual case adapter over so that the low speed gear previously installed is again facing up.



Step 13

Place the collar into the shift fork groove.



Step 14

Slide the high/low shift rail, fork and collar onto coupler. Note the position of the shift rail going into the dual adapter.



Step 15

Fully seat the shift fork assembly onto the low speed gear. This may require turning the shift hub slightly.



Step 16

Apply grease to the dual case needle bearing.



Step 17

Install the counter shaft into the adapter plate needle bearing.



Step 18

Grease the pocket bearing from the original transfer case.



Step 19

Install the pocket bearing into the coupler.



Step 20

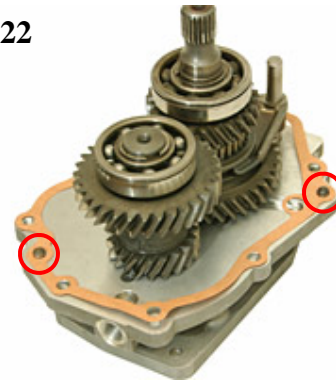
Slide the input gear into the coupler pocket bearing.



Step 21

Seat the input gear all the way down so that it meshes with the counter shaft gear.

Step 22



Insert dowel pins into holes.

Step 23



Place the gasket onto the face of dual adapter as shown.

Step 24

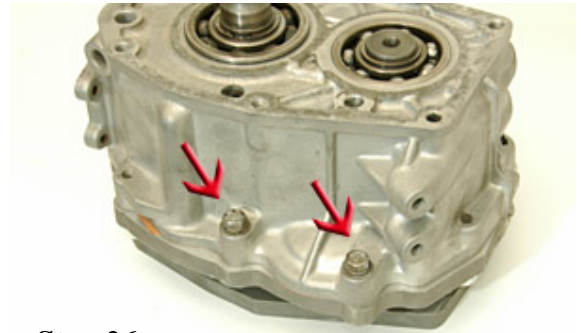


Install five of the new studs into the empty reduction housing.



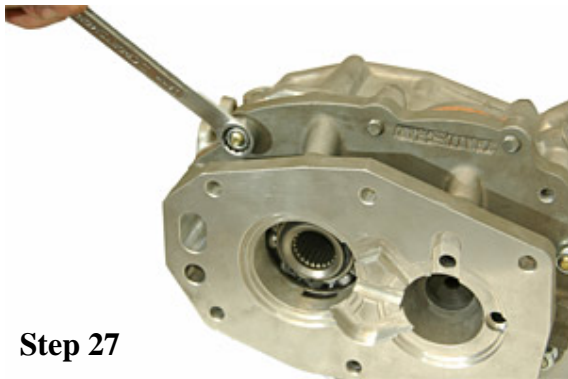
Step 25

Place housing on adapter.



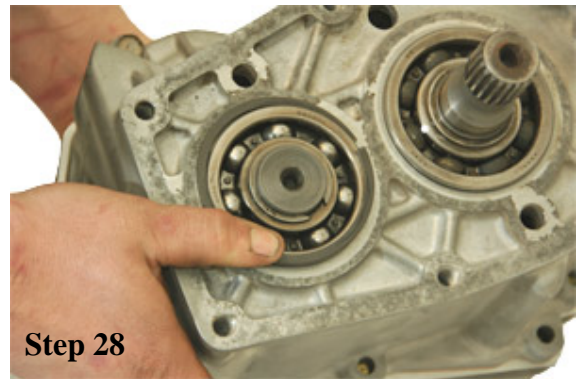
Step 26

Install two stock bolts in the passenger side of the dual adapter.



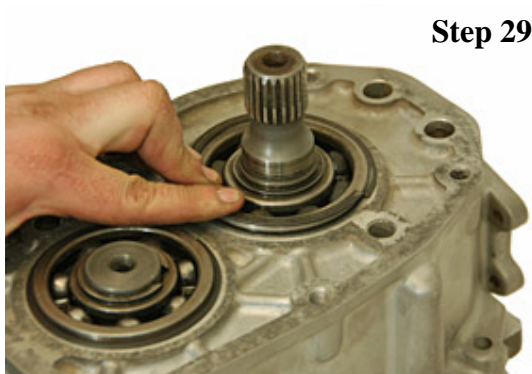
Step 27

Install the nuts and tighten.



Step 28

Slide the snap ring into place over the counter shaft bearing.



Install the snap ring over the input gear bearing.



Place the original detent ball into the hole on the passenger side of the dual adapter.



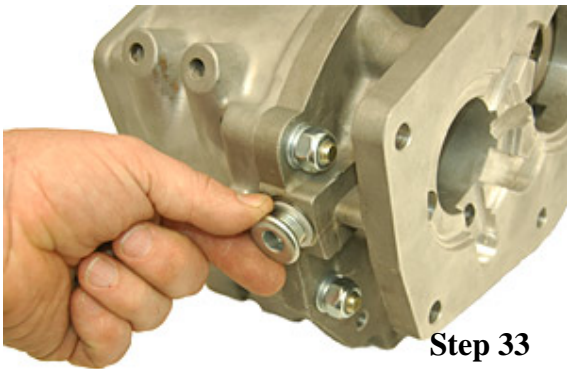
Step 31

Place the original detent spring into the hole on the passenger side of the dual adapter.



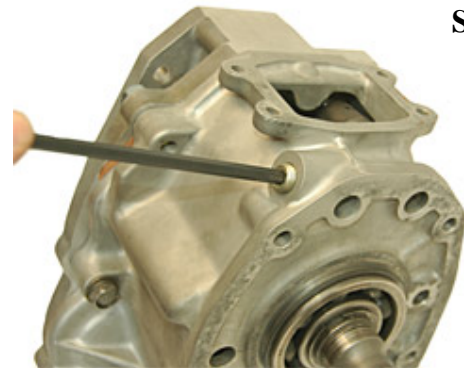
Step 32

Place a drop of LocTite® onto the detent ball plug and install into the adapter using a 6mm allen wrench.



Step 33

Install the drain plug and the gasket (provided with the kit) in to bottom of the dual adapter. Tighten using 10mm Allen wrench.



Step 34

The shift rail that was located on the passenger side of the reduction housing is no longer used. Install the provided plug into the driver side 4WD indicator hole. Apply LocTite™ to the threads to prevent the plug from coming out.

Step 35



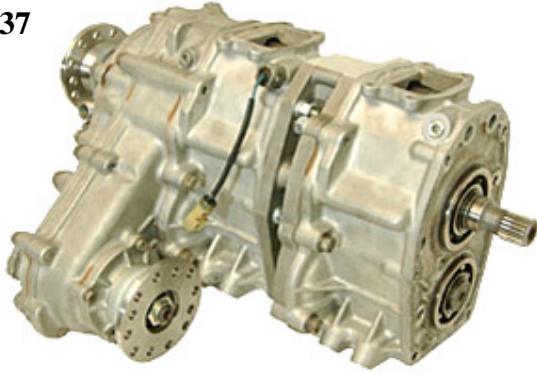
Your crawl box is now ready for installation on your transfer case.

Step 36



Install six studs (provided with the kit) into the face of the rear transfer case.

Step 37



Two gaskets are provided for mating the front and rear units together. Choose the gasket that best fits your model of t-case. Slide the gasket over the studs previously installed into the rear case. Slide the front dual case onto the studs in the rear case until the mating surfaces contact. Install the nuts to connect the cases together.

Gasket Warning: Please use only Trail-Gear provided or factory Toyota gaskets. You can easily identify the Toyota gaskets as they have green lines on one side. Some aftermarket gaskets do not have the proper oiling holes. Use of these gaskets in any dual adapter will result in failure, sometimes in as little as 5 miles. The result of this failure is that the bearing melts down and the drive train suddenly locks up after just a few miles of driving. This could easily cause an accident. Please don't use gaskets you have hanging around your shop or gaskets from other brand kits, unless you see the factory green stripes.

Transfer Case Oil:

After installing the transfer case, remove the rear fill plug and fill with 80/90W GL5 gear oil. Once oil starts leaking out of the fill hole, the transfer case is full. The transfer case oil level should be checked after 10 miles of driving and topped off as necessary. Conventional or synthetic oil may be used.

Transfer Case Oil Service Recommendations:

After any major internal work to the transfer case, we recommend that the oil be changed after the first 1,000 miles or after the first trail ride (which ever comes first) to remove debris suspended in the oil. After the initial change, the oil should be change once each year or each 10,000 miles which ever comes first. The fluid level in the case should also be checked each time the engine oil is changed. The fluid level should be checked after a roll-over as it is possible for fluid to leak out of the transfer case when the truck is on its side or is inverted.



These instructions are designed as a general installation guide. Installation of many Trail-Gear Products require specialized skills such as metal fabrication, welding and mechanical trouble shooting. If you have any questions or are unsure about how to proceed, please contact our shop at 559-252-4950 or seek help from a competent fabricator. Using fabrication tools such as welders, torches and grinders can cause serious bodily harm and death. Please operate equipment carefully and observe proper safety procedures.

Rock crawling and off-road driving are inherently dangerous activities. Some modifications will adversely affect the on-road handling characteristics of your vehicle. All products sold by Trail-Gear Inc are sold for off road use only. Any other use or application is the responsibility of the purchaser and/or user. Some modifications and installation of certain aftermarket parts may under certain circumstances void your original dealer warranty. Modification of your vehicle may create dangerous conditions, which could cause roll-overs resulting in serious bodily injury or death. Buyers and users of these products hereby expressly assume all risks associated with any such modifications and use.