

# INSTALL INSTRUCTIONS



## UNIVERSAL FULL HYDRAULIC STEERING KIT

TGI-309376 (6" RAM)

TGI-309377 (8" RAM)

TGI-309378 (10" RAM)

### KIT CONTENTS

**1 ct.**

Double Ended Ram and Clevis Kit



**1 ct.**

Orbital (100ml)



**1 ct.**

Steering Pump Kit



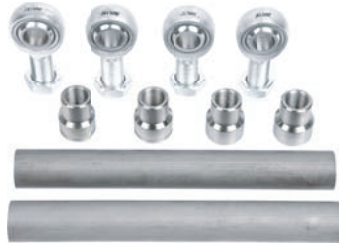
**1 ct.**

Steering Column Kit



**1 ct.**

Tie Rod Kit



**1 ct.**

Double Ended Ram Mounting Kit



**1 ct.**

Orbital Mounting Kit



**2 ct.**

Hose Clamps



**2 ct. (each)**

Steering Arms Nuts & Bolts



**2 ct.**

Hydro Hoses



**1 ct.**

Straight Barbed Fitting



**1 ct.**

#6 JIC Fitting



**WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**TGI-309380**

# INSTALL INSTRUCTIONS (CONT'D.)



## RECOMMENDED TOOLS

Flathead Screwdriver  
Side Cutters  
Grinder  
Torch  
Welder  
Hammer  
Jack  
Jack Stands  
3/8" Drive Ratchet  
1/2" Drive Ratchet  
Torque Wrench  
Tape Measure  
3/4" Drill Bit

### Wrenches

1/2"  
9/16"  
3/4"  
7/8"  
11/16"  
1"  
1 1/8"

### Sockets

1/2"  
9/16"  
3/4"  
1 1/8"  
12mm  
17mm  
19mm

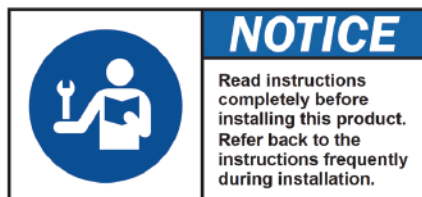
### Allens

7/32"  
5/8"

Power Steering Fluid (Standard Power Steering Fluid Only)

## CAUTION

1. Read all instructions completely and carefully before you begin.
2. Check to make sure the kit is complete and that no parts are missing (refer to the Kit Contents List on the first page of these instructions). If anything is missing, please contact Trail-Gear at 559.252.4950 or e-mail [sales@trail-gear.com](mailto:sales@trail-gear.com).
3. Park vehicle on a clean, dry, flat, level surface and block the tires so the vehicle can not roll in either direction.



# INSTALL INSTRUCTIONS (CONT'D.)



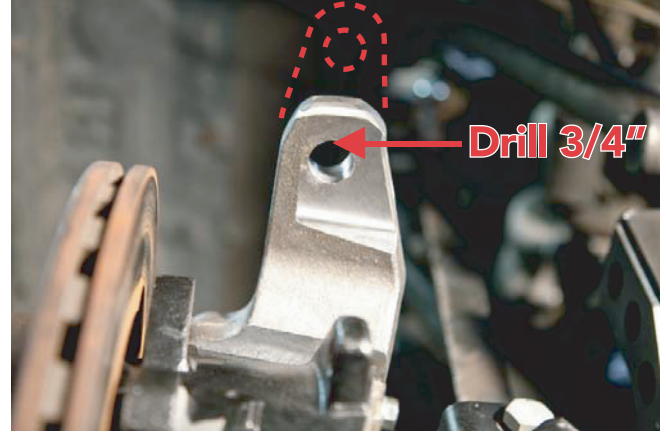
## STEP 1

Install clevis ends on cylinder and cut tie rod tubes to length. Locktite and tighten clevis end allen head bolts into ram. Tubes should be the same length if you are mounting the cylinder centered on the axle (recommended). Allow adjustments in and out.



## STEP 2

Drill steering arms using a 3/4" drill bit. Drill the 2 tapered tie rod holes only. Use a drill press if possible. Use the hole closest to the rear of the truck on the right side steering arm. Cut off front of arm if desired.



## STEP 3

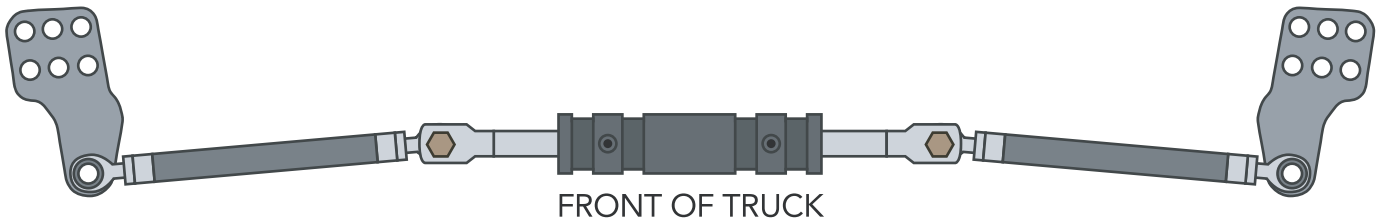
Install all cylinder clamps and bolts through cylinder mounting plates. Then, with truck suspension at full compression, position cylinder assembly in front of the axle where it will be mounted. Mount the ram level (when looking from the front) and slightly behind the steering arm attachment (ideal). See diagram 1.1.



## 1.1

This positioning will depend on many variables on your vehicle.

## Best

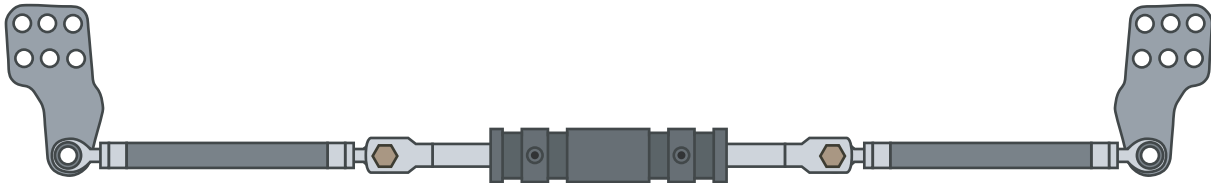




# INSTALL INSTRUCTIONS (CONT'D.)



OK



FRONT OF TRUCK

OK



FRONT OF TRUCK

## STEP 4

Cope cylinder mounting hoop and straight tube to fit up to the axle. Tack weld in place.



## STEP 5

Manually cycle steering lock to lock and make sure tie rods are adjusted and cylinder bottoms out at full lock left and right.



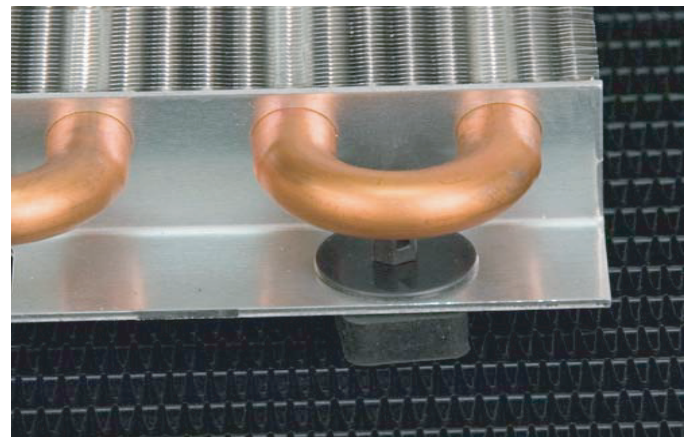
## STEP 6

Install the pulley onto the pump (pulley not included). Install the pump, bracket, and power steering belt (bracket and belt not included). Note: When installing the pump, only use a 3/8-16 x 1" bolt (provided) to install the pulley onto the pump. DO NOT press or hammer the pulley on to the pump. Doing so will damage the pump internals and void the warranty on the pump.



## STEP 7

The cooler can be mounted in two different ways. It can be mounted with the ties going through the radiator using the parts provided in the kit, or a custom bracket can be fabricated.





# INSTALL INSTRUCTIONS (CONT'D.)



## STEP 8

Always mount reservoir so that the bottom of the reservoir is above the inlet on the power steering pump, or you will not be able to properly bleed the system.



## STEP 9

Mount orbital and steering column to orbital mounting plate.



## STEP 10

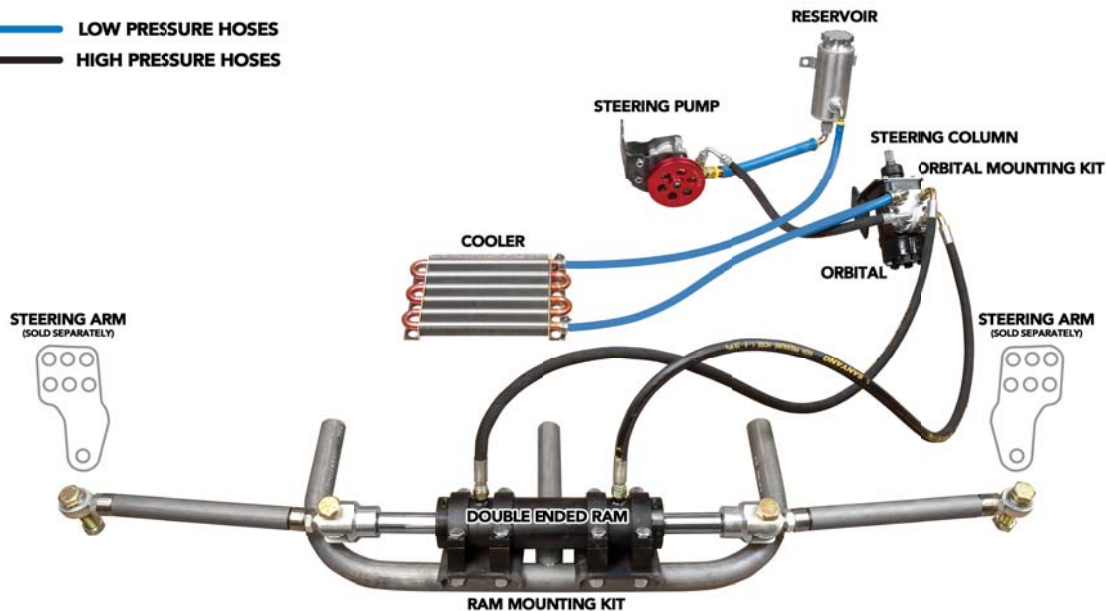
Position orbital assembly on frame rail. Install OEM steering shaft/U-joint on end of supplied steering column. Install gussets inside and outside frame rails.



## STEP 11

Install hoses per diagram 1.2. Do not overtighten hoses as this can damage the fitting.

**1.2**  LOW PRESSURE HOSES  
 HIGH PRESSURE HOSES



# INSTALL INSTRUCTIONS (CONT'D.)



## STEP 12 (BLEEDING PROCESS)

Fill the power steering system with power steering fluid. We recommend Standard synthetic fluid. When filling the reservoir, do not fill to the top, allow about 1/2" for fluid expansion due to heat. It will take some time to fully bleed the system the first time.

With the vehicle on jack stands and tires completely off the ground, engine not running, turn steering wheel from lock to lock several times and then refill the power steering reservoir with fluid. Note, this is done so that the power steering pump does not get started dry, which can cause damage to the pump.

Now you're ready to start the engine and turn the steering wheel from lock to lock, we recommend that you run the motor for about 5 minutes at a time during the bleeding. Allow the oil to set until all the bubbles have separated out of the oil, then run the motor again for 5 minutes. Repeat this procedure until the oil runs without foam or bubbles.

## STEP 13

Start engine and cycle steering to verify that steering cylinder bottoms at full lock in both directions. Check for leaks.

## STEP 14

Finish welding all brackets. Check fluid level and tension on power steering belt. Take a short test drive and verify steering is working properly.

**Note:** Use only standard power steering fluid with this product. The use of ATF fluid, semi-synthetic fluid, or full synthetic fluid is not recommended and will void the warranty.