



# TRAIL-GEAR<sup>®</sup>

## Off Road Supply

### Rock Assault™ Hydro Assist Ram 130250-1-Kit

#### Kit Contents:

Ram w/ High Temp Inner and Outer Seals	1.0
5/8" Rod Ends w/ Jam Nuts	2.0
Ram Bracket for Axle Housing	1.0
Ram Bracket for Tie Rod	1.0
Hoses	2.0
JIC 90 Degree Elbows	2.0
Ram Mounting Hardware	1.0
Instructions	1.0



If you have questions about installing your Rock Assault™ Hydro Assist Ram Kit, please call us at 559-252-4950.

Before installing this steering ram kit you will need to have your steering box tapped with #6 JIC fittings or purchase a steering box that has already been tapped. This kit is designed for use on 1979-1985 Toyota 8" front solid axles with a high steer kit installed. For proper fit and strength, the tie rod should be 1.25" X .250" wall DOM tubing. These items are available from Trail-Gear Inc.

#### Step 1 – Housing Mount

Remove the paint around the top of the differential housing as shown in photo #1. Place the bracket on top of the housing and slide it toward the passenger side until it stops on the weld around the vent hole. Weld the housing mount to the top of the differential housing as shown.



Photo 1

## Step 2 – Install Ram

Install the male and female rod ends and two jam nuts onto the ram. Center the steering wheel so that the front wheels are straight. Remove the red ram caps and pull out the ram from the housing 3". It is important to have the wheels centered and the ram 1/2 way out when welding the mount onto the tie rod. This ensures that the ram and steering are synchronized through their range of motion.

Bolt the steering ram onto the housing mount using the provided 5/8" bolt and sleeves. The ram hydraulic inlet and outlet should face toward the rear of the truck, parallel to the ground. Place the tie rod bracket onto the tie rod, remove the paint and tack weld into position. Verify that the wheels are straight, the ram is out 3" and that the 5/8" ram bolts are installed. Remove the tie rod and finish the welding bracket to the rod (see photo #3). Re-install the tie rod on the truck.

## Step 3 - Ram/U-bolt Interference

A common problem with RAM assist steering is interference between the steering ram and the u-bolt flip kit on the driver side of the truck. This is resolved by rotating the driver side end of the ram upward by twisting the tie rod. Start by cutting off excess threads exposed above the nut on the front u-bolts. The taller the threaded section of these bolts is, the more likely they are to cause interference for the ram. Cutting off the unused threads helps reduce the problem.

It is further necessary to prevent the tie rod from rotating as the ram cycles left and right. If the tie rod is allowed to freely rotate, damage to the ram, ram mount, and u-bolt flip kit are all likely.

To prevent the tie rod from turning, each of the two tie rod ends are turned in the opposite direction (see photo #5). Start by loosening the jam nuts on each end of the tie rod. Rotate the tie rod so that the ram mount is as it appears in photo #4, just above the flip kit u-bolts. Now, while maintaining the tie rod position shown, turn one of the threaded rod ends as far forward as it will go and set the jam nut. Turn the other rod end the opposite way to the limit of its travel. Tighten the jam nut. Verify that the ram will not interfere with the u-bolts or flip plate by turning the steering wheel all the way to the left. Also verify that the tie rod cannot rotate forward or back to the point that it could allow the ram end to hit the flip kit. Place a small weld on each tie rod end jam nut to prevent the nuts from coming loose.

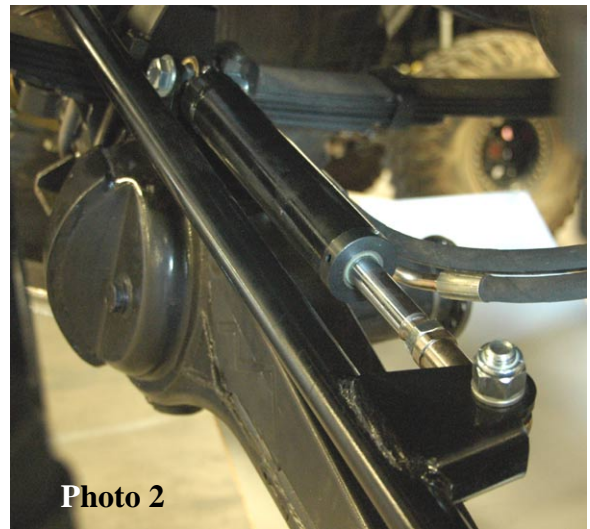


Photo 2



Photo 3

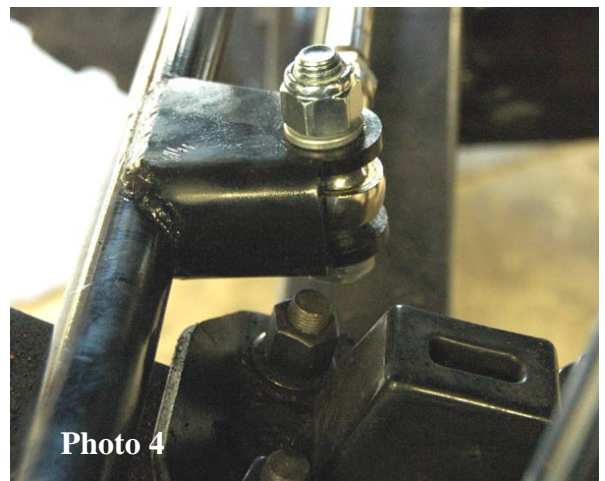


Photo 4

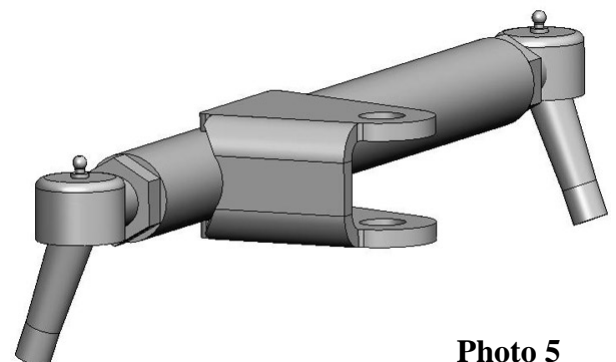


Photo 5

#### Step 4 - Route Hoses

Each hose has one end with a 90 fitting and the other end is straight. Remove the red safety caps from the ram. Take the end of each hose that has the 90 degree fitting and connect them to the ram. Route the hoses behind the driver side motor mount and up to the steering box. Use photo #6 for fitting locations on the ram and steering box. Use the two loose 90 degree fittings (included) to connect the ram to the box. Tighten the hose connections. Check that the ram bolts, rod ends and jam are tight. Verify all the steering parts have been reinstalled correctly and cotter pins have been properly installed.

#### Step 5 - Fluid & Testing

Drain the old fluid from the steering fluid reservoir and lines. Connect the factory lines to and from the steering box and reservoir. Fill the reservoir with high temp synthetic steering fluid.

Using a floor jack, lift the front of the truck off the ground. With the engine off, turn the steering wheel from lock to lock 20 times. Check and fill the steering fluid reservoir as needed. Use only high temp synthetic steering fluid. Start the truck and allow to idle. Turn the steering wheel another 20 times from lock to lock while keeping an eye on the fluid reservoir. Top off as necessary but do not overfill. If the ram hoses are connected backwards, the steering box and ram will fight each other and you will not be able to control the position of the wheels. If you feel major binding in the steering, check to see that the hoses are connected correctly.

Lower the vehicle to the ground. Check and maintain the fluid level as needed. We recommend flushing and replacing the steering fluid once each year. If you are combining this ram kit with a high volume/pressure pump, a fluid cooler should be installed in the low pressure return line that goes between the steering box and the reservoir.

This kit will work properly with the stock Toyota pump and reservoir. Due to the limited volume of the stock pump, the steering response time will be a little slower than stock. This kit works and drives well in both low and high speed driving applications. All products sold by Trail-Gear, Inc. are sold for off road/racing use only. Any other use or application is the responsibility of the purchaser and/or user.



Photo 6



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.

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