

# Trail Defense

## TDSTR

### HD Steering Kit with Tie Rod Ends

#### Parts List

- 1) One 4' x 1.5" x .25" wall DOM tubing
- 2) One 3' x 1.5" x .25" wall DOM tubing
- 3) Two TA78L left hand weld in tube adapters (left hand tube adapters are identified by a line machined around the main body of the tube adapter)
- 4) Two TA78R right hand tube adapters
- 5) Two 7/8-18 left hand jam nuts (left hand nuts are identified by a groove machined around the body of the nut)
- 6) Two 7/8-18 right hand jam nuts
- 7) One 2026R right hand tie rod end



- 8) One 2234R right hand tie rod end



- 9) One 2027L left hand tie rod end



- 10) One 2233L left hand tie rod end



#### Assembly Instructions

The 2233L tie rod end will need to be reamed out to accept the 2027L tie rod end. Tie rod over the knuckle, such as with high steer arms, and Tie rod under the knuckle, which is

the most common stock set up, will need to be reamed out from different sides. That is why this tie rod end is not reamed already.

Both set ups will have the 2027L tie rod end on the bottom of the drag link, coming down from the steering box, to enter the 2233L from the front of the vehicle.

Once you figure out your orientation ream the 2233L tie rod end just enough that when you insert the 2027L into the 2233L that the castle nut aligns with the cotter pin hole. If you ream out the hole too large you will not have enough thread on the 2027L to tighten the nut and the tie rod and drag link tubes may contact each other as the suspension cycles.

You will also need to ream out the knuckles and pitman arm on D30, D44 and GM 8.5 applications to accept the larger D60 tie rod ends in the kit.

NOTE: Keep the reamer well lubricated with cutting or tapping oil to eliminate chatter and prolong the life of the reamer.

It is possible to build and install this kit while the vehicle is on the ground, but it is easier if the tires are removed.

Start by securing the vehicle and then jack it up support the vehicle with jack stands under the axle, NOT the frame. This will prevent the suspension from drooping and giving you a false measurement later on the drag link length.

Remove the tires.

Make sure both knuckles are facing forward and measure from the center of the tie rod hole in the right knuckle to the center of the tie rod hole in the left knuckle and make note of this measurement. This will be the assembled length of the tie rod.

ASSEMBLED LENGTH OF TIE ROD \_\_\_\_\_

Remove the old steering linkage.

For mocking up the system it helps to thread the jam nuts and tube adapters half way on to all the tie rod ends.

Measure the assembled lengths from the center of the tie rod end grease zerk to the step on the tube adapters (where the tube seats against the tube adapter) and mark your measurements.

2026R ASSEMBLED LENGTH \_\_\_\_\_

2234R ASSEMBLED LENGTH \_\_\_\_\_

2027L ASSEMBLED LENGTH \_\_\_\_\_

2233L ASSEMBLED LENGTH \_\_\_\_\_

Take the ASSEMBLED LENGTH OF TIE ROD measurement from earlier and subtract the 2233L ASSEMBLED LENGTH and the 2026R ASSEMBLED LENGTH. This will give you the length that you will need to cut the long tube down to.

NOTE: On some applications with deep back spacing and smaller diameter wheels, such as stock early Bronco, it may be necessary to use the smaller 2234R at the knuckle instead of the 2026R.

LONG TUBE CUT LENGTH \_\_\_\_\_

Tack weld the tie rod tube to the end assemblies and temporarily install it on the vehicle.  
**(DO NOT FINAL WELD THE ASSEMBLY AT THIS TIME)**

With the steering wheel centered, measure from the center of the pitman arm hole to the center of the hole reamed in the 2233L and mark the measurement.

ASSEMBLED LENGTH OF DRAG LINK \_\_\_\_\_

Take the ASSEMBLED LENGTH OF DRAG LINK and subtract the 2027L ASSEMBLED LENGTH and 2234R ASSEMBLED LENGTH. This will give you the length that you will need to cut the short tube down to.

NOTE: If you used the 2234R at the knuckle previously, use the 2026R length when determining the length of the drag link tube.

SHORT TUBE CUT LENGTH \_\_\_\_\_

Tack weld the short drag link tube to the final two end assemblies and mock up the system on the vehicle and check for any clearance issues.  
**(DO NOT FINAL WELD THE ASSEMBLY AT THIS TIME)**

Remove the assembly from the vehicle. Remove all of the tie rod ends from the tube adapters and final weld all the tube adapters to the tubes.

If you do not remove the tie rod ends from the tube adapters prior to welding, the tube adapters and tie rod ends can arc and weld themselves together.

Be careful to lay down a good weld but do not use too much heat as you could warp the threads inside the tube adapters and then you would need to run a tap through the threads to install the tie rod ends.

TIG welding works best but this can also be MIG welded. Stick welding is NOT recommended for this application.

Reassemble the system and install in the vehicle. Tighten all tie rod nuts to vehicle specs, install the cotter pins and be sure to grease the tie rod ends prior to use.

Your vehicle WILL need to be realigned after installation.

## DISCLAIMER

This steering system is designed to strengthen and enhance your off road vehicle. Although it uses some OEM components it is not designed for or recommended for street use. This item carries no warranty and no liability coverage for its use. Purchaser is responsible for safe fabrication and use of this product.