

IRON ROCK OFF ROAD

WJ OTK Tie Rod
I-877-919-JEEP www.ironrockoffroad.com Installation Instructions

Parts List:

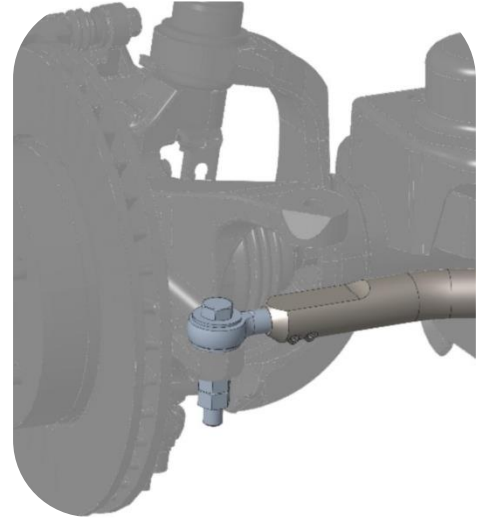
- ☐ Instructions
- ☐ Iron Rock Off Road logo decal (1)
- ☐ WJ Over the Knuckle Tie Rod 95047 (1)
- ☐ XMR8-10 Spherical rod end (2)

#43 – WJ OTK Tie Rod Hardware (1)

- ☐ 10-32 x 3/4" Torx head screw (4)
- ☐ 10-32 nylock nut (4)
- ☐ 1/2-20 x 3" hex bolt, gr8 (2)
- ☐ WJ OTK tie rod washer 95016 (2)
- ☐ 1/2" USS washer (2)
- ☐ 1/2" I.D. tapered sleeve 95043 (2)
- ☐ 1/2-20 hex nut, fine thread, gr8 (2)
- ☐ 1/2-20 nylock nut, fine thread, gr8 (2)

#37 – WJ Steering Stabilizer Hardware (1) (for use with IRO and most track bars)

- ☐ M12 x 60 cl10.9 hex bolt (1)
- ☐ M12 x 80 cl10.9 hex bolt (1)
- ☐ M12 hex nut, CL10.9 (2)
- ☐ 7/16 USS washer (2)
- ☐ 3/8 USS washer (3)
- ☐ SBL U-Bracket (1)
- ☐ OTK steering clamp (1)



Installation Instructions:

Safety Warning: ***Important! Read before installation. ***

We recommend this system be installed by a qualified professional. Knowledge of steering component function is necessary for safe installation and post installation inspections. Be sure to re-torque all steering components after the first 100 miles of use, and frequently inspect all safety critical steering components.

Before you begin:

- ☐ Read all safety warnings.
- ☐ Read and understand installation instructions.
- ☐ Contact Iron Rock Off Road with any questions before, during, or after installation.
- ☐ **Ensure that all parts are present and in good condition using the included shipping checklist PRIOR to scheduling installation.**
- ☐ Be sure you have the following tools and supplies:
 - ☐ Floor jack and jack stands.
 - ☐ Basic hand tools (wrenches, sockets, etc.).
 - ☐ Torque wrench (ft-lb and in-lb)
 - ☐ Tape measure
 - ☐ Medium to large size flat file, fine tooth
 - ☐ Anti-seize compound
 - ☐ Torx screw driver or driver bit, **size T27**

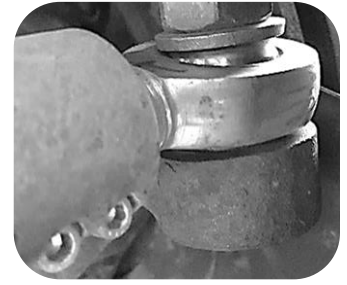
Removal of existing tie rod:

1. Raise the front end of the vehicle and secure on jack stands.
2. Remove tires.
3. Measure from center of stud to center of stud on your existing tie rod. Record that length here _____
*You will need this measurement later when adjusting the new tie rod.
4. Remove the factory tie rod, including tie rod ends and steering stabilizer.

Tie rod installation:

5. Apply anti-seize compound to heim joint threads and thread them into the tie rod.
6. Using the measurement you took in step 3 above, adjust the new tie rod to the same length, taking care to adjust both heims equally out of the tie rod and that your measurement is from center of bolt hole to center of bolt hole.
7. Using a **T27** screw driver install 10-32 Torx head screws and nuts onto tie rod. Do not tighten at this time.
8. File top and bottom of the knuckles until they are flat where the tie rod mounts. This important step will help prevent loosening of the bolts.
9. Install the passenger side (the end with material removed for drag link clearance) of the new tie rod using the following procedure:
 - a) Insert tapered adapter sleeve into knuckle (bottom side).
 - b) Locate (1) 1/2 x 3" bolt, (1) flat washer, (1) custom thin washer, (1) 1/2" nut and, (1) 1/2" nylock nut.
 - c) Onto bolt, first add one flat washer.

- d) Place bolt through the top side of the heim joint.
 - e) Add the thin washer to the bolt.
 - f) Make sure clearance flat is facing up and is parallel to the ground.
 - g) Insert bolt into the knuckle from the top with the tapered sleeve installed.
 - h) Apply high strength thread locker to bolt, on the bottom side of the knuckle, install 1/2" nut.
 - i) Torque to 95 ft/lbs.
 - j) Install 1/2" nylock nut to prevent loosening of your steering system. Torque to 95 ft/lbs.
10. Repeat step 10 for the driver's side.
 11. Tighten 10-32 Torx head clamping bolts to 110 in/lbs. Be sure to go back and forth between both bolts several times to ensure even clamping.
- **Orient the heim joints so that the flat top of the tie rod is parallel to the knuckle when the tie rod is at rest. See picture.



Steering stabilizer installation:

12. Using two adjustable wrenches open the steering clamp enough to slip over the drag link (this is the bar that runs from the steering gearbox pitman arm to the passenger side knuckle). Put the clamp on the drag link.
13. Close the clamp as much as possible using the two adjustable wrenches.
14. Remove the track bar mounting bolt at the unibody.
15. Install u-bracket onto the track bar mounting bolt.
16. Reinstall track bar mounting bolt with u-bracket. With the u-bracket in its approximate rotational position, tighten the bolt until snug so that the u-bracket will not rotate freely but can be forced to rotate.
17. Ensure that the steering is pointed straight ahead and not turned either direction.
18. Measure and record the extended length of the steering stabilizer, then measure and record the collapsed length. Calculate and record the average length (or the middle of the travel range).
19. Position the steering stabilizer at its average length.
20. Loosely assemble steering stabilizer (body end) into u-bracket using the M12 x 60 bolt, 2 washers and M12 nut.
21. Loosely assemble steering stabilizer (shaft end) onto new drag link clamp using provided hardware from the steering stabilizer box and hardware kit 37. Use the long M10 bolt and nut with a washer on each side. Use the thick spacer washer between the stabilizer and the clamp.
22. Position the clamp so the steering stabilizer is as close to parallel as possible to the drag link. Be sure to check from several directions. Position the clamp bolt so that it will not interfere with any other parts during its rotation.
23. Tighten the clamp bolt, but not the u-bracket bolt.
24. Hold the assembly in place and mark the rotational position of the u-bracket with a pencil.
25. Remove the steering stabilizer from the u-bracket and torque the track bar bolt to spec. Hold the u-bracket in position with an adjustable wrench if necessary.
26. Install the steering stabilizer into the u-bracket and tighten bolt.
27. Use the existing bolt, nut, and washers through the new clamp. Adjust length of stabilizer to be centered with the tires pointed straight ahead. Cycle steering both directions to ensure stabilizer does not contact any other parts or bottom out or extend too far.

Alignment Procedure:

28. A professional alignment is recommended and will result in the safest handling and minimized tire wear. As a temporary solution, with careful measurements you can set your toe-in fairly accurately using a tape measure.
29. Make sure the vehicle is on a level surface and the front tires are raised slightly off the ground with jack stands under the axle and the vehicles weight on the suspension.
30. Make a mark anywhere on the tread area of each front tire. The marks do not have to be in the same spot on each tire. This method insures that your measurements are accurate regardless of rim and tire runout, even bent rims or untrue tires will not affect the measurement.
31. Measure from one mark to the other making sure your measurement is parallel to the axle housing and your marks are facing exactly forward. This is your front measurement.
32. Rotate tires so the marks are facing exactly backward. Measure from one mark to the other making sure your measurement is parallel to the front axle housing. This is your rear measurement.

For 29-32" tire diameter (measured): adjust your tie rod until the front measurement is 1/16" less than your rear measurement.

For 33-36" tire diameter (measured): adjust your tie rod until the front measurement is 1/8" less than your rear measurement.

33. Re-check your measurements.
34. Lower your vehicle from the jack stands.
35. Double check to ensure that all threads are tight.
36. Re-torque all fasteners frequently.

Final Safety Warning:

* Re-torque all fasteners after 100 miles, and frequently inspect all safety critical steering components. It is the responsibility of the installer to ensure all fasteners are properly tightened after installation and to ensure the owner knows his/her ongoing responsibility. It is the responsibility of the owner of the vehicle to be sure all safety critical components are inspected frequently, especially after off road or other demanding use.

