

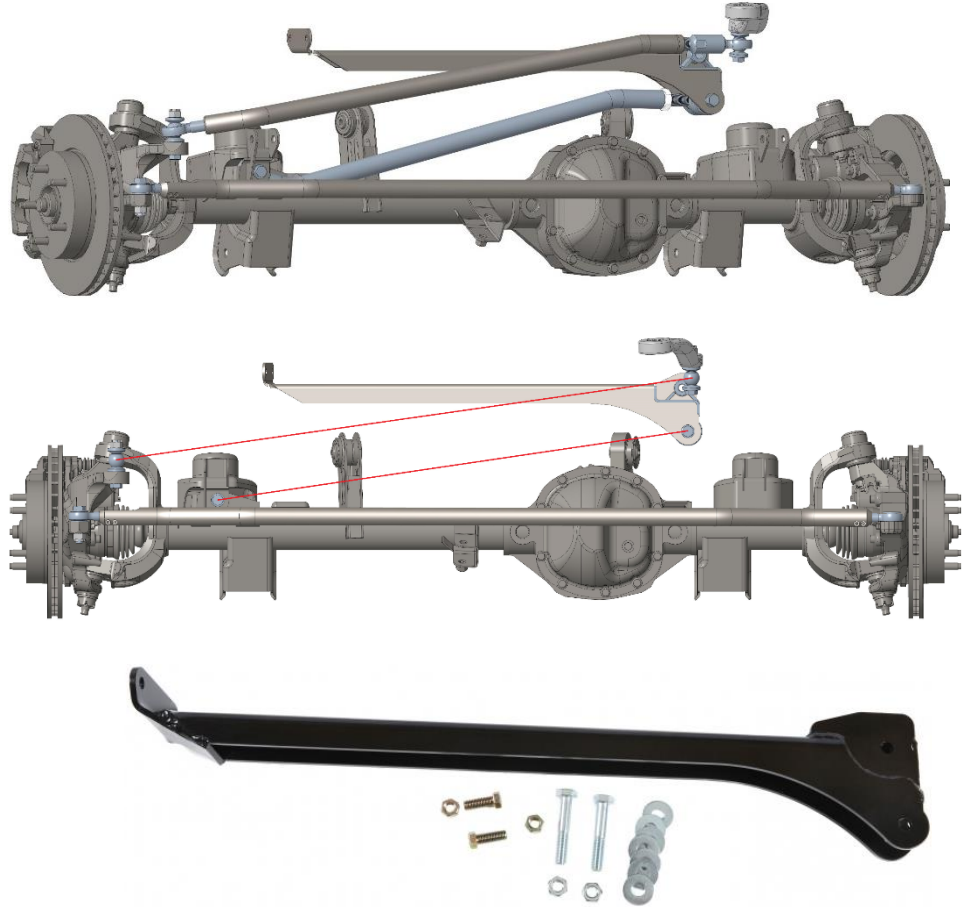
# IRON ROCK OFF ROAD

WJ Premium OTK  
Steering System  
Instructions

1-877-919-JEEP www.ironrockoffroad.com

## Parts List:

- Instructions
- Iron Rock Off Road logo decal (2)
- WJ Over the knuckle drag link 95046 (1)
- WJ Over the knuckle tie rod 95047 (1)
- XMR8-10 Spherical rod end (2)
- XMR8-12 Spherical rod end (2)
- Double adjuster 95017 (1)
- Track bar drop bracket 92207 (1)
- #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)
- #113 – WJ OTK Drag Link Hardware (1)**
  - 1/2-20 x 3-1/4" hex bolt, drilled 95167 (2)
  - 1/2" I.D. tapered sleeve 95043 (2)
  - 1/2-20 slotted hex nut, gr5 (2)
  - Steel cotter pin 1/8" x 1-1/2, zinc (2)
  - 1/2" high misalignment washer 95006 (4)
  - OTK steering clamp 95018 (3)
  - 7/16" USS washer (6)
  - M12-1.75 x 60 hex bolt, cl10.9 (3)
  - M12-1.75 nylock nut (3)
- #71 – WJ Steering Stabilizer Hardware (1)**
  - Steering Clamp 95018 (2)
  - 7/16 USS washer (4)
  - M12 x 90 cl10.9 hex bolt (2)
  - M12 cl10.9 hex nut (2)
- #80 – WJ Track Bar Drop Subframe Hardware (1)**
  - 7/16 x 1-1/4" gr8 hex bolt (2)
  - 7/16 gr8 hex nut (2)
  - 7/16 USS washer (8)
  - M12 x 70 cl10.9 hex bolt (2)
  - M12 cl10.9 hex nut (2)
- Optional:** WJ Steering Stabilizer
  - Steering Stabilizer (2962) (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 the 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.**
- 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
  - Hand drill and 7/16" drill bit
  - Anti-seize compound

**Fitment:** This steering system works from 4" to 8" suspension lift height. Factory offset wheels (OEM WJ & JK wheels) will require wheel spacers.

### **Removal of existing parts:**

1. Raise the front end of the vehicle and secure on jack stands under the frame.
2. Remove front tires.
3. Place a floor jack under the front axle for support, do not lift vehicle.
4. Measure from center of stud to center of stud on your existing tie rod.

Record that length here: \_\_\_\_\_

**\*\*NOTE\*\*** You will need this measurement later when adjusting the new tie rod.

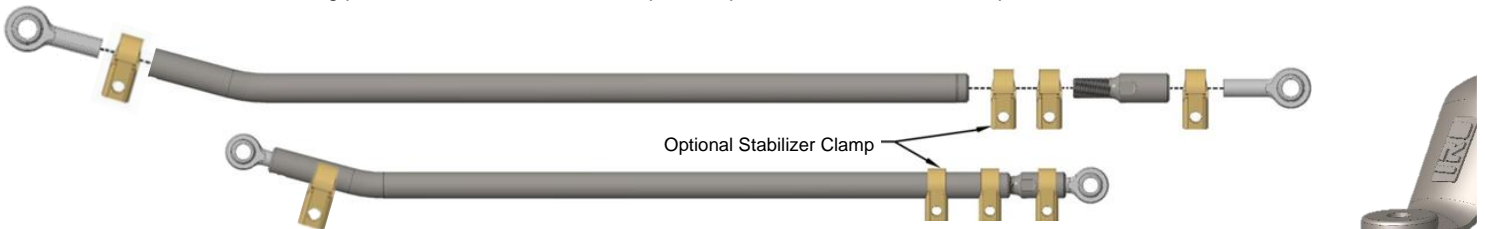
5. Remove the factory tie rod, including tie rod ends and steering stabilizer.
6. Remove the factory drag link.
7. Remove the track bar from frame mount.

### **Track Bar Subframe Installation:**

8. Insert track bar drop subframe into track bar mount using M12 bolt and washers. Do not tighten at this time.
9. Swing subframe up until it makes contact with underside of frame rail. (Passenger side)
10. Mark 2 holes on pinch seam for drilling.
11. Drill these holes with 7/16" drill bit.
12. Apply touch up paint to drilled holes to prevent rust.
13. Swing subframe back up into place and install the two 7/16 bolts using washers.
14. Torque bolts to 65 ft-lbs.
15. Reinstall track bar into drop bracket. Do not tighten at this time.
16. Torque track bar bracket bolt to 80 ft-lbs.

### **Drag Link Installation:**

**\*\*Safety Warning:** Rotation of the steering clamps is very important. Improperly placed steering clamps can contact a tire or the sway bar mount. Carefully check for interference in all steering positions lock to lock and all suspension positions full stuff to full droop.

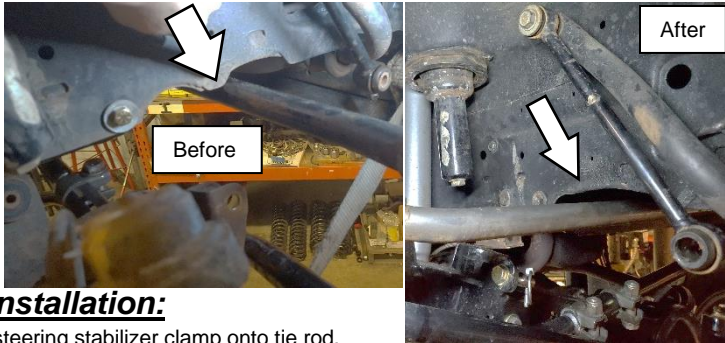


17. File **top** and bottom mounting surfaces of the knuckles where the tie rod and drag link mount until they are flat. This important step will help prevent loosening of the bolts.
18. Slide a clamp onto knuckle end of drag link (right-hand threads). Install a bolt and nut loosely.
19. Thread one XMR 8-12 rod end fully into the end of the drag link until it stops. Thread it back out 2 full turns. Tighten clamp bolt.
20. Slide a clamp onto the opposite end of the drag link then thread double adjuster (left-hand threads) into the end of the drag link.
21. Slide a clamp onto the double adjuster then thread the XMR 8-12 rod end into the double adjuster.
22. Install M12 x 60mm bolts, nylock nuts, and washers into drag link clamps. Do not tighten at this time. The optional stabilizer will be installed in the empty clamp after the steering wheel is centered.
23. Install tapered sleeve into the bottom of the pitman arm then install the drag link to the pitman arm using two 1/2" high misalignment spacers, and 1/2-20 x 3-1/4" drilled bolt, castle nut, and cotter pin.



24. Install tapered sleeve into the bottom of the knuckle then install the drag link using two 1/2" high misalignment spacers, and 1/2-13 x 3-1/4" drilled bolt, castle nut, and cotter pin.
25. Orient the drag link with the bend forward and both heim joints resting as shown in the picture. The clamps should be pointing straight down when oriented properly. Tighten 1/2" bolts to 100 ft-lb, clamps to 55 ft-lb.

\*To maximize flex and up-travel clearance: fold over the section of the pinch seam shown in the photos below.



### **Tie Rod Installation:**

26. Install steering stabilizer clamp onto tie rod.
27. Using the measurement from step 4 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.
28. Using a **T27** screwdriver install 10-32 Torx head screws and nuts onto tie rod. Do not tighten at this time.
29. File the 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.
30. 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 from the bottom side.
  - b) Locate (1) 1/2 x 3" bolt, (1) flat washer, (1) custom thin washer.
  - 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 the 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) Install a 1/2" nut on the bottom side of the knuckle, torque to 95 ft/lbs.
  - i) Install 1/2" nylock nut to prevent loosening of your steering system. Torque to 95 ft/lbs.
31. Repeat for the driver's side.
32. With the tie rod flat and both heims resting at their forward most angle as shown in the picture, tighten socket head clamping bolts to 140 in/lbs. \*Be sure to check torque on each clamping bolt a few times to ensure even clamping.

### **Alignment Procedure:**

33. 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.
34. 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.
35. 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.
36. 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.
37. 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.
38. Re-check your measurements.
39. Lower your vehicle from the jack stands.
40. Double check to ensure that all fasteners.

### **Steering wheel alignment:**

41. Ensure all fasteners are torqued to spec and cotter pins are installed.
42. Go for a short test drive.
43. Note steering wheel angle when driving straight and steady.
44. Drive straight into your working area making sure steering wheel angle matches angle during test drive.
45. Loosen only the double adjuster clamps on drag link.
46. Turn only the double adjuster until steering wheel is straight.
47. Tighten clamps. Ensure the clamps point down.
48. Test drive again, recheck steering wheel angle.
49. Repeat steps if necessary.



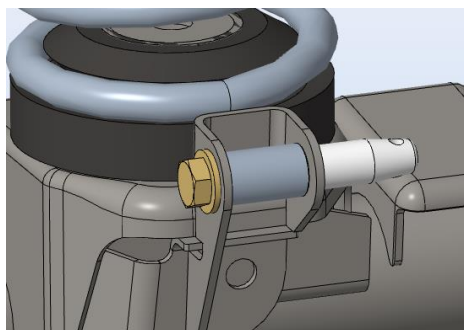
## **Optional - Steering Stabilizer:**

50. With the steering wheel centered and the Jeep at ride height, turn the steering wheel to the right until full lock is reached. This should be the point where the steering stabilizer would be fully collapsed: its shortest length.
51. The steering stabilizer runs from the drag link to the track bar itself.
52. Install a steering clamp onto the track bar. Use the provided M12 x 90 bolt from hardware kit #71 to attach the stabilizer to the steering clamp. Place a 7/16 washer on each side and between the stabilizer and the steering clamp.
53. Install a steering clamp onto the drag link.
54. Attach the other end of the stabilizer to the clamp on the drag link using the M12 x 90 bolt, nut, and washers.
55. Ensure the stabilizer is fully collapsed by compressing it by hand.
56. Note the location of the stabilizer clamp on the drag link.
57. Extend the stabilizer slightly (approx. 1/8") and tighten the clamp.
58. Torque the stabilizer clamp to 65 ft-lb at the bracket.
59. The stabilizer should now be centered with the tires pointed straight ahead.
60. Double check by cycling the steering both directions to ensure stabilizer does not limit your steering angle.



## **Sway Bar Disconnects:**

If your Jeep is equipped with sway bar disconnects: On the passenger side the disconnect mounting studs need to be oriented like the picture, with both mounting studs pointing toward the inside of the Jeep. (Away from the tire). Switch both the top mounting stud on the sway bar and bottom one at the axle.



## **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.

