

# IRON ROCK OFF ROAD

XJ/MJ Front 3-Link Long Arm Upgrade

Installation Instructions

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

84-01 Jeep Cherokee XJ / 86-92 Jeep Comanche MJ

## Parts Checklist:

### \*BOX 1\*

- Instructions
- Invoice
- Logo decal 10001 (1)
- Rock-Link decal 13287 (2)
- Ironrockoffroad.com decal (1)
- Subframe center 91154 (1)
- Subframe left outer 91147 (1)
- Subframe right outer 91151 (1)
- T-Case drop spacer 99003 (2)
- #127 - 2 5/8" 6 Bolt IRO Flex End Hardware (2)**
  - Inner race 91118 (2)
  - Thrust washer 91119 (2)
  - 2-5/8" Flex End Ball 91117 (1)
  - 10-32 x 1-3/4" Socket Head Cap Screw (6)
  - 10-32 Nylock Nut (6)
  - 90 Degree 1/4"-28 Grease zerk Fitting (1)
- #168 - 2-3/8" Flex End Hardware (1)**
  - End cap 91138 (2)
  - Inner race 91139 (2)
  - Flex end ball 91140 (1)
  - 8-32 x 1-1/2" socket head cap screw (8)
  - 90° 1/4"-28 grease zerk fitting (1)
  - Straight 1/4"-28 grease zerk fitting (1)
- #181 - 3-Link Control Arm Clamping Hardware (1)**
  - 1/4"-28 x 1-1/8" socket head cap screw (4)
  - 3/8-16 x 1 1/4" hex bolt grade 8 (1)
  - 1/4"-28 hex nut, grade 8 (4)
  - 3/8-16 nylock flange nut (1)
  - 3/8 Mil Spec Hardened washer (1)
- #182 - XJ 3-Link Long Arm Subframe Hardware (1)**
  - M14 x 2.0 x 90 hex bolt cl10.9 (1)
  - M14 x 2.0 x 100 hex bolt cl10.9 (2)
  - M14 x 2.0 x 110 hex bolt cl10.9 (2)
  - M10 X 30 cl10.9 hex bolt (4)
  - M10 x 80 cl10.9 hex bolt (1)
  - M10 x 25 carriage bolt (4)
  - M10 X 50 carriage bolt (4)
  - M10-1.5 cl10.9 hex nut (4)
  - M10-1.5 cl10.9 nylock flange nut (1)
  - 7/16-14 X 1-1/4 gr8 hex bolt (2)
  - M14 Nylock flange nut cl10.9 (5)
  - 3/8 USS flat washer (12)
  - 9/16 F436 hardened washer (5)

### \*BOX 2\*

- XJ Long LCA Left 85107 (1)
- XJ Long LCA Right 85108 (1)
- XJ 3-Link Front UCA 91205 (1)
- Angled Long Arm Male End 91109 (2)
- 2 3/8 UCA Male End 91191 (1)



# Installation Instructions:

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

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

### Before you begin:

- Read all safety warnings.
- Read and understand installation instructions.
- \*2000 and 2001 models with automatic transmissions will require old style transmission mount such as Anchor 2625\*
- Check all steering and suspension components for wear and replace as needed.
- 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...).
  - Multi-purpose grease
  - Metal cutting tools such as a 4 1/2" angle grinder with thin metal cutting wheel, and a sandpaper flap wheel for an attractive finish. Possibly a sawzall with metal cutting blades.
  - Paint and primer (for uniframe - black or your choice of color).
  - Anti-seize compound
  - Hand Drill
  - 23/64" drill bit
  - 7/16-14 hand tap, tap holder and cutting oil
  - Angle finder
  - String level or laser level



Lower Control Arms

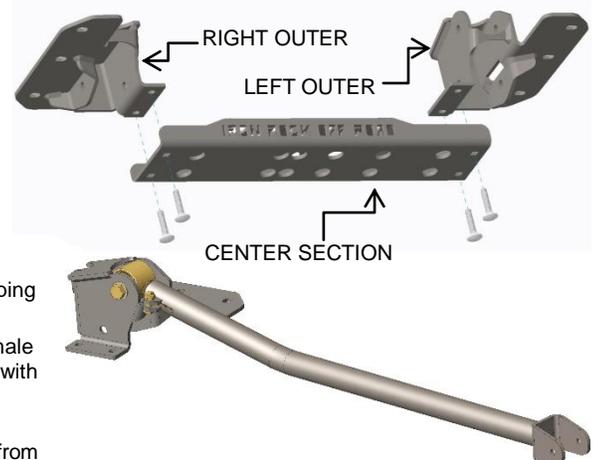
### Prepare the parts for Installation:

1. Locate the lower control arms (larger), male ends (larger, angled), hardware kit 127 and 181.
2. Assemble flex ends into male end. Use hardware kit 127 and attached instructions (2-5/8").
3. Locate the upper control arm (smaller), male end (smaller, straight), and hardware kit 168.
4. Assemble flex end into upper control arm. Use hardware kit 168 and attached instructions (2 3/8").
5. Apply a light coat of anti-seize compound to the threads and thread the male ends into control arms.
6. Adjust control arm lengths per the chart.
7. Install clamping bolts. Do not tighten at this time.

Control Arm Length (Starting Lengths - Center to Center)		
Lift Height	LCA	UCA
3	36 1/4	37
4	36 3/8	37 1/8
5.5	36 1/2	37 1/4
6.5	36 5/8	37 3/8
8	37	37 3/4

### Control arm mounting subframe:

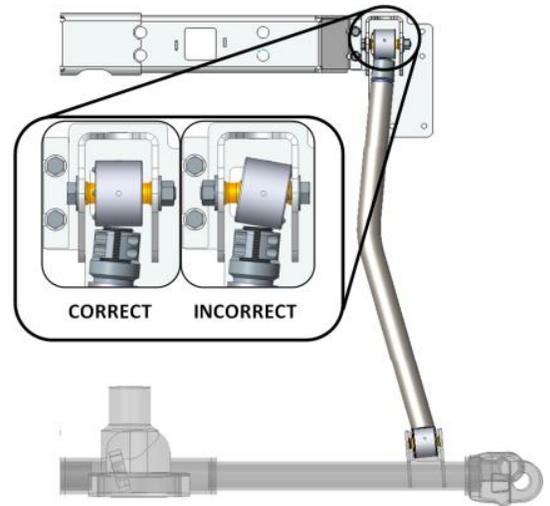
8. Lift front and rear of vehicle and support with jack stands under the uniframe. Leave room to cut off the stock lower control arm mounts.
9. Remove the four transmission mount nuts from the transmission.
10. Raise transfer case slightly and support with a jack stand.
11. Remove the factory transmission mounting crossmember.
12. Using a stud puller, remove the two crossmember mounting studs. If you do not have a stud puller, you can install 2 nuts and tighten one against the other then remove using a box end wrench on the inner nut.
13. Drill and tap the third mounting hole on each side (the next hole directly forward from the two crossmember mounting holes) using the 23/64 (.359" diameter) drill bit and 7/16-14 hand tap. Use plenty of oil during drilling and tapping and keep the drill bit and tap as straight as possible.
14. **Install upper control arm into left subframe outer.** Make sure the threaded male end is installed in the subframe using the M14 x 90 bolt and the arm is oriented with the bend hanging down to clear the floor. Bolt faces from center out so it can be removed later if needed.
15. Install subframe outer in vehicle using M10 flange and 7/16 bolts, and washers from hardware kit 182.
16. Install right subframe outer using the same hardware.
17. \*2000 and 2001 w/auto trans only\* Remove trans isolator mount. Grind off locating pin from mounting plate. Install older style trans mount. Torque to 78 foot-pounds.
18. Using M10 x 25 carriage bolts, 3/8" washers, and M10 nuts, loosely assemble the subframe center section to the outers (center section underneath the outers). **\*\*\*The text side of the center section face forward when installed in the vehicle.\*\*\***



19. If your transfer case will be dropped, install provided transfer case drop spacers between the subframe outers and center section using the longer 50mm carriage bolts.
20. Torque 7/16 bolts to 65 foot pounds. Torque M10 bolts to 50 foot pounds.
21. Torque subframe center section bolts to 45 foot pounds.
22. Torque upper control arm bolt to 135 foot pounds.
23. Lower the transfer case on to the subframe.
24. Install the four transmission mount nuts and torque to 15 foot pounds.

### **Front Suspension:**

25. Remove upper and lower factory control arms.
26. Disconnect the driveshaft on the axle side and tape the u-joint so the caps do not fall off. Tie the driveshaft out of the way (use tape, zip tie, mechanic's wire, etc...) for easier access to the lower control arm mount.
27. Tie the upper control arm out of the way.
28. Cut off factory lower control arm mounts from the uniframe on the driver's and passenger's side.  
**\*\*\*Tip: Our favorite tool for this is a 4 1/2" angle grinder with a thin cutting wheel. Remove in pieces for ease of access.\*\*\***
29. Remove anything on the driver's side that extends inward (toward the transmission) beyond the uniframe. Do not remove any of the uniframe; just make it one continuous edge from front to rear.
30. Clean up any burrs or sharp edges and grind smooth for an attractive appearance.
31. Clean, prime, and paint any exposed metal.
32. Connect the upper control arm to the axle using M10 x 80 bolt with washer and nylock flange nut. Do not tighten at this time.
33. Install lower control arms with threaded adjusting end at the uniframe, and bends facing inward to clear the tires, thread clamping bolts facing down. Use provided M14 x 100 bolts (at axle), M14 x 110 bolts (at subframe), 9/16" washers, and nylock nuts. Do not tighten at this time.
34. Raise vehicle and reposition jack stands under the front and rear axles.
35. Temporarily install a tire on one side.
36. Verify that the axle is centered as desired front to rear. Check caster before adjusting.
37. Check caster angle. Using a laser level or string level, set the front axle level to the rear axle (left side and right) Bounce the Jeep up and down to ensure the suspension is in resting position (at exact ride height). Place the angle finder under the axle "C" (or on top of the upper ball joint). Ensure the angle finder is parallel to the Jeep front to rear. This is your caster angle. See chart for desired setting.
38. Adjust control arms to the desired position.
  - To adjust axle front to rear, adjust upper and lower control arms by the same amount. 12 turns equal one inch.
  - To adjust only caster, adjust only the upper control arm (3 turns equals roughly 2 degrees).
  - To adjust both, adjust both at the same time.
  - **\*\*\*Caster angle may need to be adjusted after a test drive to eliminate driveline vibrations.\*\*\***
39. Check axle position left to right. Adjust track bar length as needed.
40. Torque Lower control arm bolts to 135 foot pounds.
41. Torque Upper control arm nut at axle to 60 foot pounds.
42. Install tires and wheels. Torque lug nuts to spec. (Typical specification is 85-115 ft-lbs., depending on your wheels)
43. Recheck all fasteners and torque any remaining loose nuts or bolts to spec.



Caster Angle (Starting point)	
Lift Height	Caster
3.5	7 degrees
4.5	5.5 degrees
5.5	4.5 degrees
7	3.5 degrees



### **Adjustments and Final Inspection:**

44. Check all components for clearance for suspension to fully cycle up and down and wheels to turn lock to lock. Pay special attention to brake lines, axle vent hoses, and ABS wires. Reposition as needed by bending the brackets, relocating, or extending hoses and wiring.

**\* A professional front end alignment is required after installation.\*** Recommended alignment settings:

**Caster:** +3.75 to +7.5 See chart above.

**Toe-in:** +1/16" to +1/8"

### **Final Safety Warning:**

\* Re-torque all fasteners after 100 miles, and frequently inspect all safety critical suspension components. It is the responsibility of the installer to be sure 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.



# IRON ROCK OFF ROAD

2-5/8" IRO Flex End (6 bolt)

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

Assembly Instructions

*Fits All Iron Rock Off Road Long Arm Systems, WJ A-Arms, and Build Your Own Flex End Assemblies.*

## **Before you begin:**

- 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 per attached shipping checklist!**
- Have these tools handy:
  - 5/32" allen head socket
  - 3/8" open end wrench
  - Inch-lb. torque wrench
  - Multipurpose grease/grease gun

## **Parts Checklist:**

- Outer housing, weld on (may already be attached to your existing control arm)

### **#127 - 2-5/8" IRO Flex End (6 bolt)**

- 2-5/8" flex end race 91118 (2)
- Thrust washer 91119 (2)
- 2-5/8" flex end ball 91117 (1)
- #10-32 nylock nut (7)
- #10-32 x 1-3/4" socket head cap screw (6)
- 90° 1/4"-28 grease zerk fitting (1)



Figure 1

## **Assembly:**

1. Insert two #10-32 socket head cap screws into one thrust washer and one plastic race. Spherical bore of race facing away from thrust washer. (Figure 1)
2. Install this small assembly into the flex end housing. The races are a light press fit, use a wide punch and hammer to assist you if needed.
3. Apply a thin coating of multi-purpose grease to the mating surfaces of the ball and both races.
4. Place the ball in the race (inside the flex end). The ball should perfectly fit the contour of the race. (Figure 2)
5. Insert the other race onto the ball so that the spherical bore is contacting the ball. Once again, the races are a light press fit, use a hammer and wide punch if needed. (The two screws should be through one washer and both races at this point)
6. Insert the second thrust washer on top of the flex end housing, sliding the bolts through the holes. (Figure 3)
7. Start nylock nuts on the two bolts that are in the flex end assembly. Hold the nut and turn the bolt.
8. Insert the remaining four cap screws through the remaining holes and install nuts. (Figure 4)
9. Snug up all of the bolts fairly tight.
10. Torque bolts evenly, starting at one bolt and continuing using a crisscross pattern. Torque all six bolts to 70 in-lbs., then to 85 in-lbs.
11. Install 90° grease zerk fitting so that it is easily accessed in the vehicle.
12. Grease flex end until grease comes out of the races around the ball.
13. Re-torque bolts to 85 in-lbs. after 5 minutes.

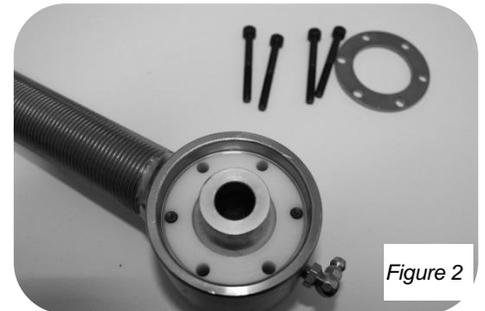


Figure 2

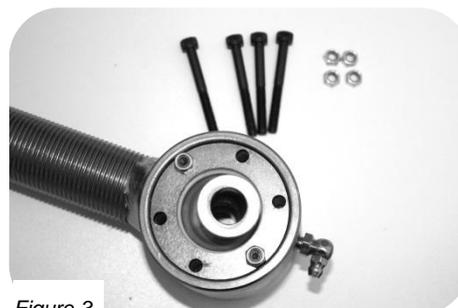


Figure 3



Figure 4

*\*Reference Only\* Complete joint shown fully assembled without housing*

# IRON ROCK OFF ROAD

2-3/8" IRO Flex End (8 bolt)  
Assembly Instructions

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## Before you begin:

- 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 per attached shipping checklist!**
- Have these tools handy:
  - 9/64" allen head socket
  - 3/8" open end wrench
  - Inch-lb. torque wrench
  - Multipurpose grease/grease gun

## Parts Checklist:

- Outer housing, weld on (may already be attached to your existing control arm)

### #168 - 2-3/8" IRO Flex End (8 bolt)

- Inner race 91139 (2)
- Thrust washer 91138 (2)
- Ball 91140 (1)
- #8-32 x 1-1/2" socket head cap screw (8)
- 90° 1/4"-28 grease zerk fitting (1)

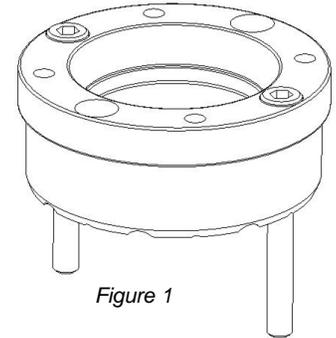
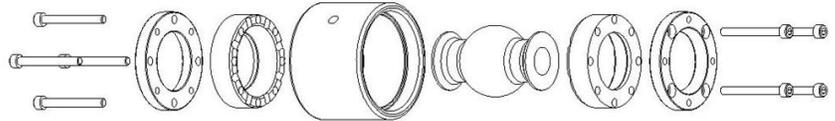
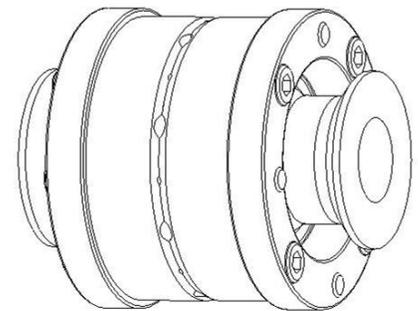


Figure 1

## Assembly:

1. Insert two #8-32 socket head cap screws into one thrust washer and one plastic race. Spherical bore of race facing away from thrust washer. (Figure 1)
2. Install this small assembly into the flex end housing. The races are a light press fit, use a wide punch and hammer to assist you if needed.
3. Apply a thin coating of multi-purpose grease to the mating surfaces of the ball and both races.
4. Place the ball in the race (inside the flex end). The ball should perfectly fit the contour of the race.
5. Insert the other race onto the ball so that the spherical bore is contacting the ball. Once again, the races are a light press fit, use a hammer and wide punch if needed. (The two screws should be through one washer and both races at this point)
6. Insert the second thrust washer on top of the flex end housing, sliding the bolts through the holes.
7. Start nylock nuts on the two bolts that are in the flex end assembly. Hold the nut and turn the bolt.
8. Insert the remaining four cap screws through the remaining holes and install nuts.
9. Snug up all of the bolts fairly tight.
10. Torque bolts evenly, starting at one bolt using a crisscross pattern, like torquing lug nuts. Torque all eight bolts to 50 in-lbs., then to 65 in-lbs.
11. Install 90° grease zerk fitting so that it is easily accessed in the vehicle.
12. Grease flex end until grease comes out of the races around the ball.
13. Re-torque bolts to 65 in-lbs. after 5 minutes.



*\*Reference Only\* Complete joint shown fully assembled without housing*

