

IRON ROCK OFF ROAD

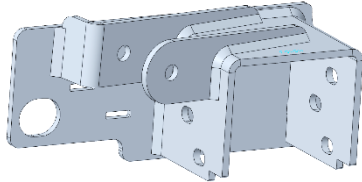
**JK Long Arm Upgrade
Rock-Link FRONT**

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

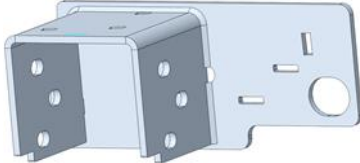
See our website product listing for full color instructions

Parts Checklist:

- Iron Rock Off Road Logo Decal 10001 (1)
- Ironrockoffroad.com decal (1)
- 3-Link Front Crossmember 80090 (1)
- Crossmember mount, passenger side 80099 (1)

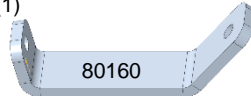


- Crossmember mount, driver side 80104 (1)



80149

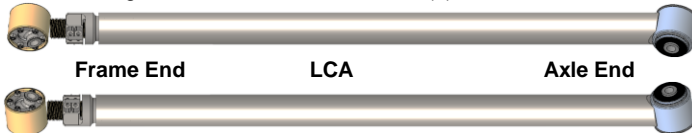
- Crossmember mount alignment block 80149 (1)
- Gas tank skid plate 80153 (1)
- Gas tank skid plate support bracket 80160 (1)
- Gas tank ramp 80168 (1)
- UCA Front axle mount bracket 80145 (1)
- Transmission mount, drivetrain specific



80160

- Automatic trans mount, bolt plate 80177 (1)
- Manual trans mount, bolt plate 80107 (1)
 - Manual trans bracket, left 80172 (1)
 - Manual trans bracket, right 80173 (1)
 - #241 - Manual Trans Mount Hardware (1)**
 - 3/8-16 x 1" serrated flange hex bolt, gr8 (6)
 - 3/8-16 nylock flange nut (6)
 - M10 x 80 hex bolt class 10.9 (2)
 - M10 nylock flange nuts (2)
 - 7/16 USS washer (2)

- LCA, bushing installed 80113 (2)
- LCA, Angled Threaded male end 91109 (2)



Frame End

LCA

Axle End

- UCA Front 80111 (1)
- UCA Front threaded male end 91191 (1)



Frame End

UCA

Axle End

- #65 - Adjustable LCA Clamping Hardware (2)**
 - 1/4"-28 x 1-1/8" socket head cap screw (4)
 - 1/4"-28 hex nut, gr8 (4)

- #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)
- 1/4"-28 90° Grease zerk Fitting (1)

- #168 - 2 3/8" 8 Bolt IRO Flex End Hardware (2)**

- Inner race 91139 (2)
- Thrust washer 91138 (2)
- 2-3/8" Flex End Ball 91140 (1)
- 8-32 x 1-1/2" Socket Head Cap Screw (8)
- 90 Degree 1/4"-28 Grease Zerk Fitting (1)

- #242 - Front 3-Link Crossmember Hardware (1)**

- 1/2"-13 x 6-1/2" hex bolt, gr8 (6)
- 1/2" USS washer (6)
- 1/2"-13 nylock flange nuts (6)
- M14 x 110 hex bolt cl 10.9 (2) LCA bolts
- 9/16" F436 hardened washer (4)
- M14 nylock flange nut class 10.9 (4)
- M14 x 100 hex bolt class 10.9 (2) UCA bolts

- #243 - Fuel Line Hardware (1)**

- DEI heat wrap 010457 (6 in. qty 2)
- Ladder clip 78049 (1)
- Zip tie, 6 in. (1)
- M6 hex nut, cl 10.9 (1)
- 1/4" USS washer (1)

- #244 - Skid Plate Hardware (1)**

- 3/8"-16 x 1" serrated flange hex bolt, gr8 (8)
- 3/8"-16 x 3/4" button head, S/S (4)
- 3/8"-16 rivet nut, steel (4)
- 5/16 x 3/4" Button head bolts (2)
- 5/16 x 1" Taptite flange bolt (2)
- 1/2"-13 x 1-1/2" Hex bolt, gr8 (1)
- 1/2" F436 washer (1)
- 1/2"-13 Nylock flange nut (1)

- #173 - 3/8" Rivet Nut Install Tool (1)**

- 7/16" serrated flange hex nut (1)
- 3/8" MIL spec flat washer (2)
- 3/8"-16 x 1-1/4" hex bolt, gr8 (1)

- Optional: 3.6L Exhaust**

- Passenger Side Pipe 98025 (1)
- Driver Side Pipe 98026 (1)
- Y-Pipe SU4-3 (1)

- Optional: 3.8L Exhaust**

- Passenger Side Pipe 98028 (1)
- Driver Side Pipe 98029 (1)
- Y-Pipe SU4-3 (1)



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:

- ***Ensure that all parts are present and in good condition using above shipping checklist. ***
- Read and understand all installation instructions.
- Tools required:
 - Floor jack and jack stands
 - Basic hand tools
 - Torque wrench
 - Angle grinder, Sawzall
 - Anti-seize compound
 - Multipurpose grease
 - Welder
 - Angle finder (digital is preferred)
 - Tape measure
 - 17/32" drill bit and drill

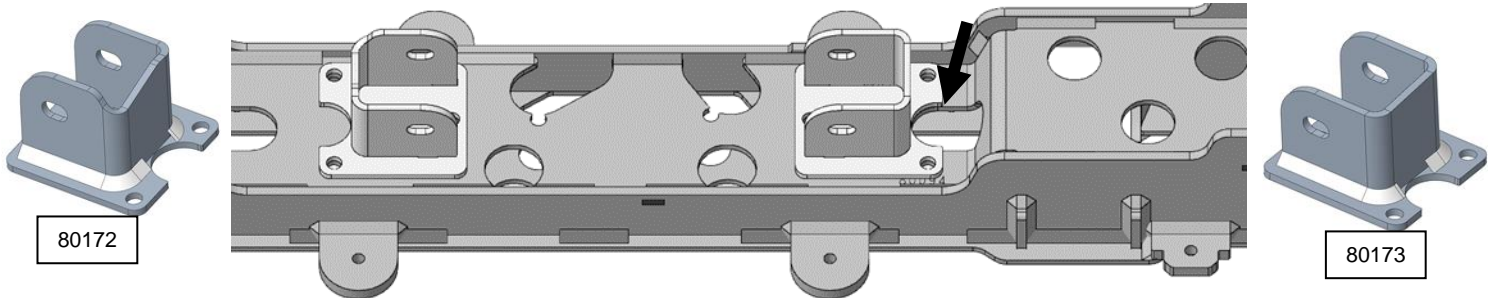
Notes:

- This kit requires cutting and removing of brackets off the frame, as well as welding in new frame brackets. It is highly recommended that this kit be installed by a professional shop with experience in frame modifications and structural welding.

Prepare the parts for installation:

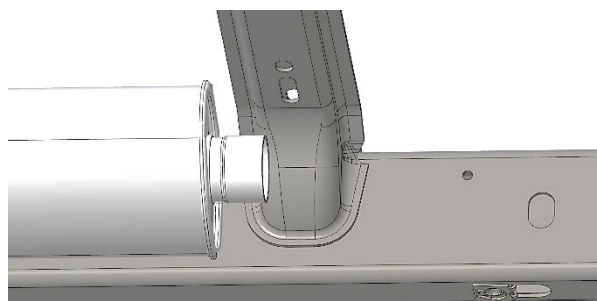
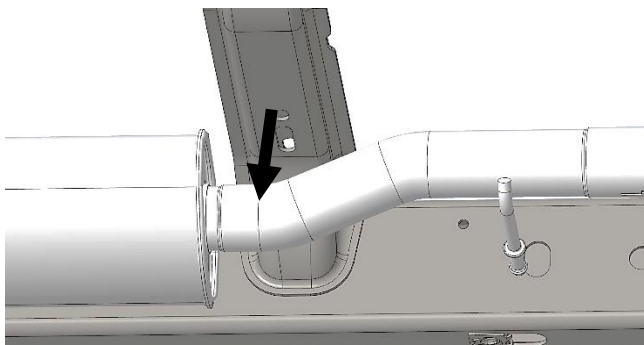
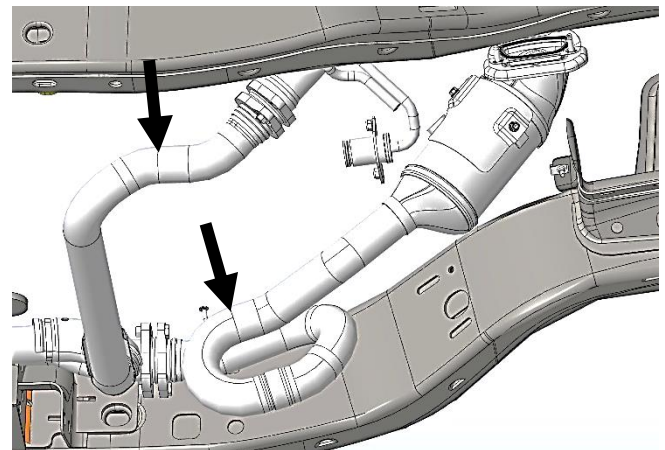
1. **Adjustable Control Arms:** Using the instructions on the last page assemble the flex ends into the threaded male ends for LCAs and UCAs.
2. Use a light coat of anti-seize then thread the male ends into the control arms and adjust to the lengths in the chart as a starting point.
3. Install the clamping hardware into the control arms, do not fully tighten at this time.
4. **Manual Transmission:** Locate the transmission mounting brackets 80172 and 80173. Bolt the brackets to the crossmember as shown using the 3/8 x 1" bolts in **HK #241**. Note: Match the cut-out section of bracket 80173 to the notch in the crossmember. (Arrow)

Track Bar & Control Arm Length (Center to Center)	
Front UCA (Upper Control Arm)	39-1/2"
Front LCA (Lower Control Arm)	41-1/4"

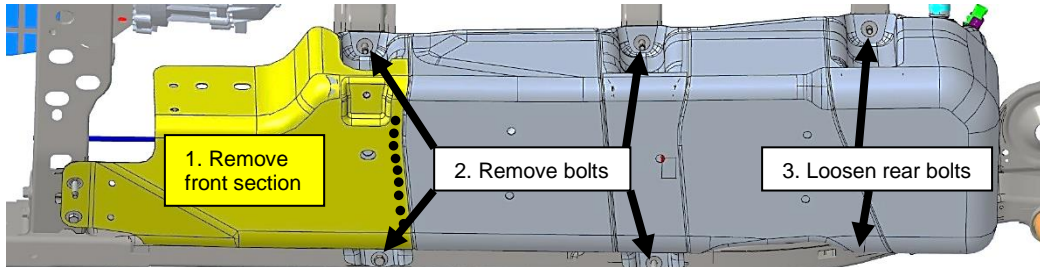


Front installation:

5. Lift front of vehicle and support with jack stands under frame rails.
**Tip: break lug nuts loose before lifting vehicle.
6. Remove front wheels
7. Remove front sway bar links.
8. Support the axle with jack stands and remove shocks.
9. Disconnect brake line from bracket on frame rail and cap the line.
10. Remove the front brake lines and brake hose brackets.
11. Remove coil springs.
12. Remove front track bar.
13. Disconnect drag link.
14. Remove the factory upper and lower control arms.
15. Remove front axle.
16. Cut the factory exhaust as shown in the pictures then remove the cut pipe. Look for the short straight section in the factory exhaust. When cutting, leave as much of the straight section as possible for the new pipes to slip onto.



17. Remove the front section of the OEM gas tank skid plate by drilling the spot welds with a 1/2" drill bit. Do not drill all the way through the skid plate.
 - a. Mark the center of the spot weld with a center punch then drill partially through to weaken the spot weld. While drilling, check progress frequently, looking for the different layers of sheet metal (Arrow).
 - b. With all spot welds drilled, use a pry bar to break each spot weld and separate the front section of the skid plate.



18. With the front section of the skid plate removed, remove the remaining front 4 mounting bolts from the gas tank then loosen the rear 2 bolts. Support the tank with a jack and lower the gas tank by hinging it downward on the rear 2 mounting bolts. This will give you enough room to safely remove the factory transmission crossmember and install the new transmission crossmember brackets.

19. Support the transfer case with a jack stand and remove transmission crossmember.

Automatic transmissions: Remove the rubber transmission mount and hardware, save for later.

20. Cut off the front upper and lower control arm mounts from the frame. Do not cut into the frame. Ensure the frame is completely smooth, clean, and ready for welding.

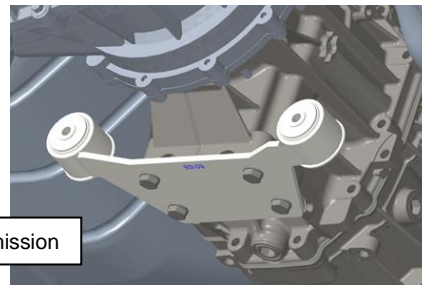
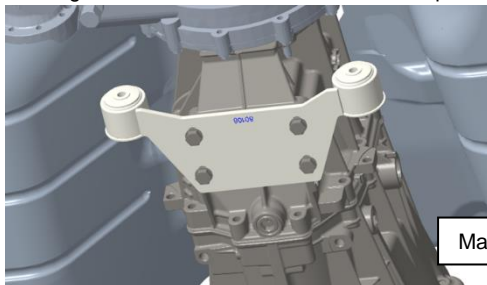
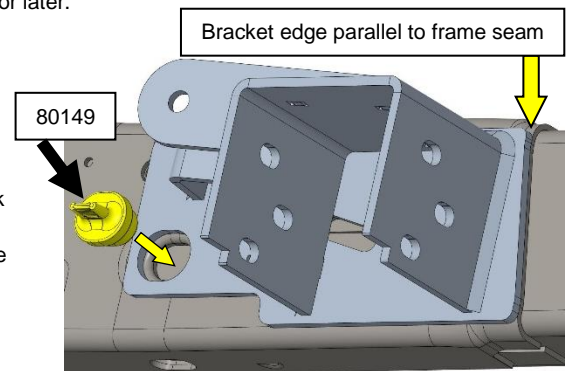
21. Cut the factory transmission crossmember mounts off of the frame. Do not cut into the frame. Ensure the frame is completely smooth, clean, and ready for welding.

22. **Crossmember Mounting Brackets:** Locate transmission crossmember mounts and the alignment block 80149.

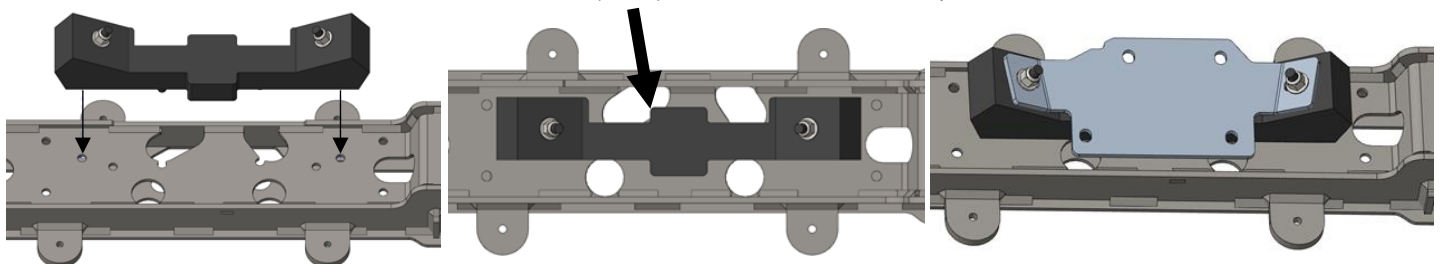
23. Align the crossmember mounting brackets on the frame by inserting the alignment block 80149 into the oval shaped hole in the bracket and the matching hole on the frame. The rear edge of the bracket should be parallel to the seam on the frame and to the bottom of the frame.

24. Tack weld the brackets in place. Make the tack welds large enough to support the transmission crossmember but small enough to cut off if needed.

25. Manual Transmission Only: Locate the transmission bracket and install with the factory hardware. Bushings are offset toward the rear of the Jeep.



26. Automatic Transmission Only: Locate the OEM rubber transmission mount and install it onto the new transmission crossmember with the original hardware. Note the orientation of the offset center section (Arrow). Install the transmission bolt plate onto the rubber mount with OEM hardware.



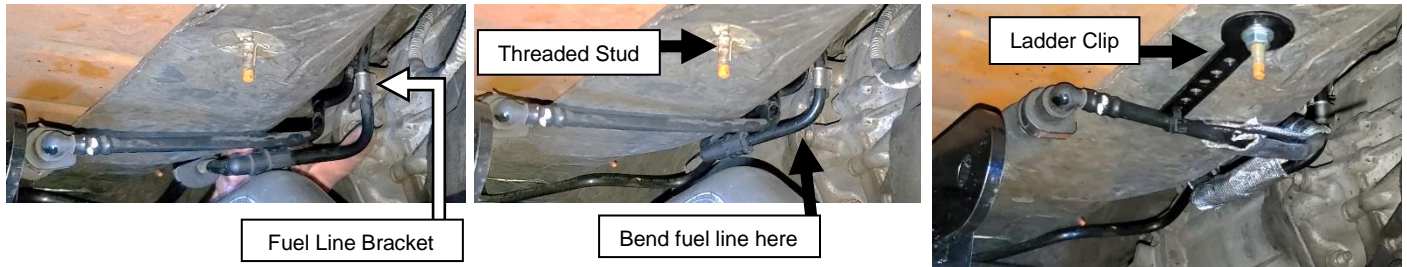
27. Temporarily install the transmission crossmember into the frame mounts with two 1/2 x 6-1/2" bolts. **HK #242** Check that the transmission aligns with the transmission mounts on the crossmember.

28. Fully weld the outside edge of the crossmember brackets as well as the two horizontal plug weld holes. Weld 1 to 2 inch stitches on each bracket to minimize heat build up and avoid warping.

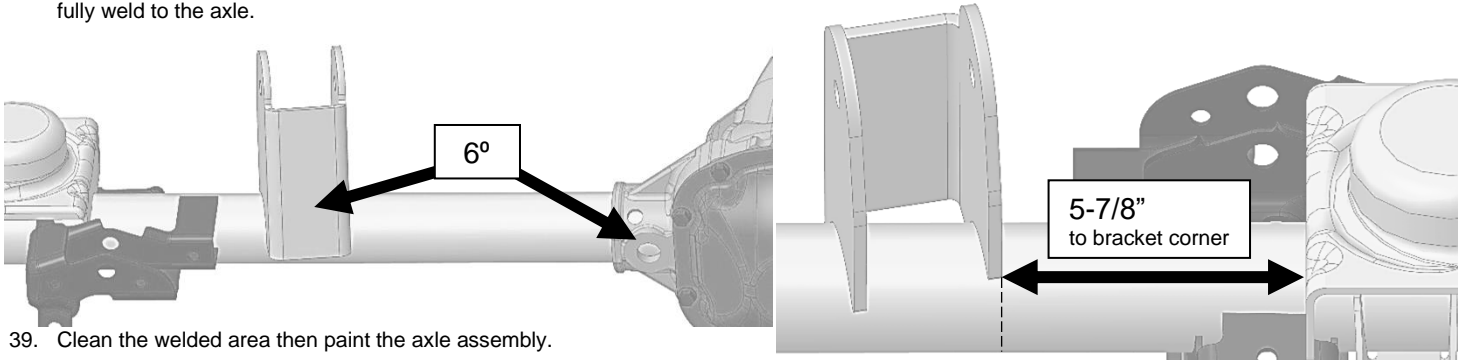
29. With the welds cool, remove the transmission crossmember and paint the crossmember mounting brackets and any bare sections of the frame.

30. Raise the gas tank up and secure it with the original bolts except for the two forward most bolts. They will be installed later with the new skid plate.

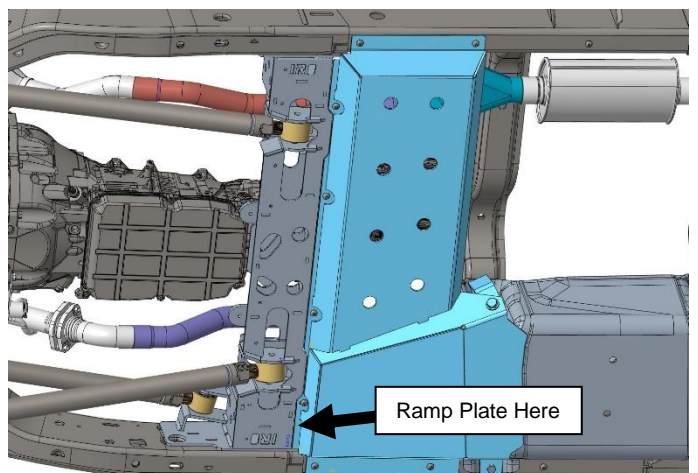
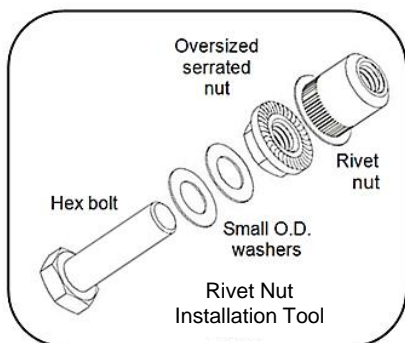
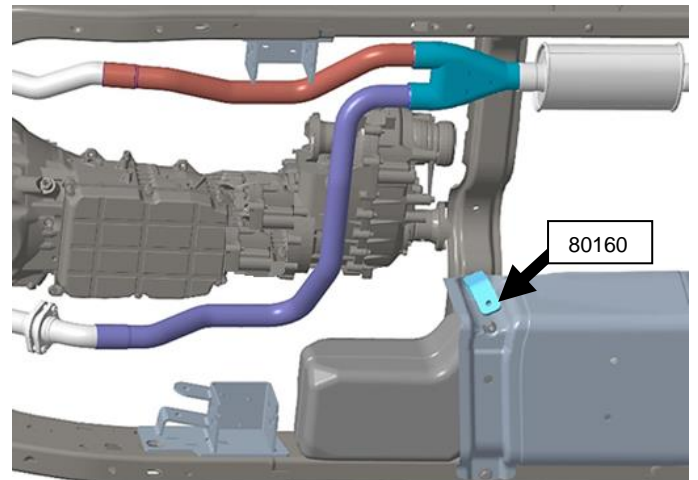
31. **Fuel Lines:** Unclip the fuel line from the bracket on the passenger side of the transmission and bend it rearward approximately 45°
32. Clip the fuel line back into the bracket then locate **HK #243**.



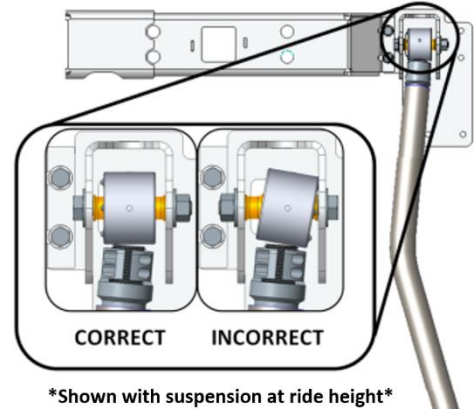
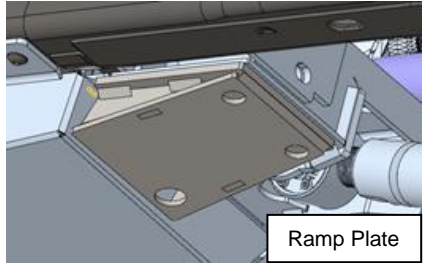
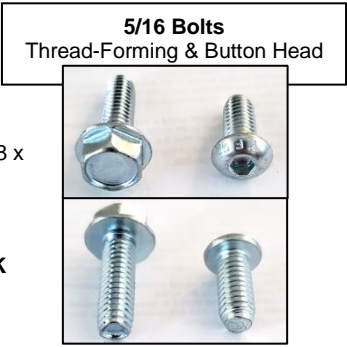
33. Attach the fabric heat shield to the fuel lines as shown in the picture.
34. Remove the clip from the threaded stud on the floor and install the ladder clip with hardware in **HK #243**. Secure the fuel line with a zip tie.
*For ease of assembly: Insert the zip tie into the last hole of the ladder clip before tightening the nut.
35. **Upper Control Arm Bracket:** Cut the upper control arm mount off of the passenger side of the front axle. Be sure not to cut into the axle tube.
36. Measure 5-7/8" from the flat surface of the spring mount and make a mark on the axle tube. (dotted line in picture)
37. Measure 6° difference from the differential cover mounting surface (circle area) to the front of the UCA bracket. Use the witness marks on the UCA bracket to make sure that the angle finder is parallel to the bracket.
38. Align the corner of the UCA bracket to the mark then tack weld the new upper control arm mount to the axle. Double check measurements then fully weld to the axle.



39. Clean the welded area then paint the axle assembly.
40. **Exhaust System and Transmission Crossmember:** Locate the two exhaust pipes and y-pipe.
41. Insert the y-pipe onto the factory muffler and slide the two pipes over the factory exhaust pipes as shown. Leave the pipes loose for now.
42. Install the new transmission crossmember and secure it with 1/2 x 6-1/2" bolts, 1/2 washers, and 1/2 nylock flange nuts. **HK #242**
43. Secure the transmission to the crossmember with M10 x 80 bolts from **HK #241** (Manual trans) or OEM bolts (Auto trans).
44. Lower the transmission down onto the crossmember.
45. Rotate and adjust the exhaust pipes and Y-pipe for maximum clearance around the drivetrain, crossmember, and frame.
46. Tack weld the exhaust in place, double check clearances then fully weld the exhaust in place.
47. **Gas Tank Skid Plate:** Locate the skid plate support 80160.
48. Install the skid plate support loosely with factory gas tank skid plate bolt on the frame. The sharp, short bend of 80160 goes on the frame side.
49. Raise the gas tank skid into position and install 3/8 x 1" bolts from **HK #244** into the crossmember and the last remaining mounting bolt from the factory gas tank skid plate.
50. Using the new skid plate as a template, mark the frame where the 4 mounting holes need to be drilled to mount the skid plate to the frame. Make sure the skid plate is centered left-to-right; adjust the crossmember left-to-right if necessary.
51. Lower the skid plate and drill the mounting holes with a 17/32" drill bit and install the 4 rivet nuts, **HK #244** using the rivet nut install tool, **HK #173**.
52. Torque the 6 crossmember mounting bolts to 90 lb-ft.
53. Torque the 4 transmission adapter bracket bolts to 40 lb-ft.



54. Install the new gas tank skid plate using 3/8 x 1" serrated bolts and one 1/2" x 1-1/2" bolt in the skid plate support from **HK #244**. 3/8" bolts torque to 30 lb-ft., 1/2" torque to 90 lb-ft. *Extra 3/8" stainless steel button head bolts are provided if you prefer a lower-profile fastener along the frame.
55. Using the provided 5/16" Taptite flange bolts, thread the two forward holes on the passenger side of the crossmember. Install the gas tank ramp plate onto the crossmember with the 5/16" button head bolts and one 3/8 x 1" serrated bolt **HK #244**.
56. Install the new upper control arm using M14 x 100 bolts **HK #242**. The threaded male end installs on the axle. Do not tighten bolts at this time.
57. Install the new lower control arms using the factory hardware at the axle, M14 x 110 bolts at the crossmember **HK #242**. Do not tighten bolts at this time. The rubber bushing goes to the axle and the flex end at the frame.
58. Reinstall coil springs.
59. Reinstall shocks.
60. Reinstall front track bar.
61. Reconnect drag link.
62. Reinstall front sway bar links.
63. Reconnect brake line to bracket on frame rail and bleed brakes.
64. Reinstall front wheels.
65. Lower vehicle onto ground.



Final Torque and Adjustments:

66. Raise vehicle and reposition jack stands under the front and rear axles.
67. Temporarily install a tire on one side.
68. Verify that the axle is centered as desired front to rear. Check caster before adjusting.
69. 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.
70. Adjust control arms to the desired position.
71. To adjust axle front to rear, adjust upper and lower control arms by the same amount. 12 turns equal one inch.
72. To adjust only caster, adjust only the upper control arm (3 turns equals roughly 2 degrees).
73. To adjust both, adjust both at the same time.
74. *****Caster angle may need to be adjusted after a test drive to eliminate driveline vibrations.*****
75. Check axle position left to right. Adjust track bar length as needed.
76. With the vehicle weight on the suspension, tighten the upper and lower control arm bolts to 130 lb-ft.
77. Torque the upper and lower control arm clamping bolts to 140 in-lb. Be sure to go back and forth between both bolts several times to ensure even clamping.
78. Install tires and wheels. Torque lug nuts to spec. (Typical specification is 85-115 ft-lbs., depending on your wheels)
79. Recheck all fasteners and torque any remaining loose nuts or bolts to spec.

Caster Angle (Starting point)	
Lift Height	Caster
2.5"	7°
3.5"	6.5°
4" or more	5°



80. 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.

Final Safety Warning:

81. * 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)
Assembly Instructions**

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

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 zerker fitting (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 zerker 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 1

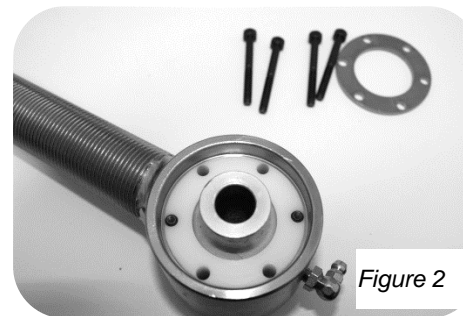
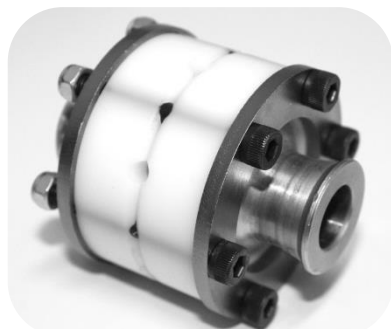


Figure 2



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

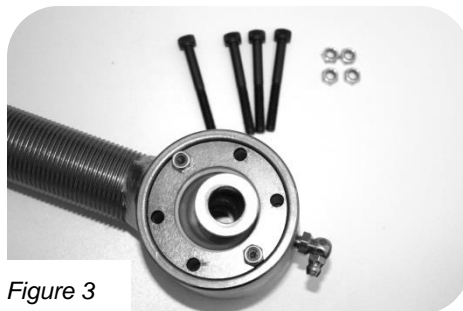


Figure 3

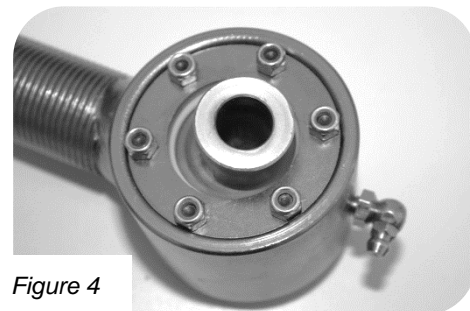


Figure 4

IRON ROCK OFF ROAD

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

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

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)
- 1/4"-28 90° grease zerk fitting (1)
- 1/4"-28 straight grease zerk fitting (1)

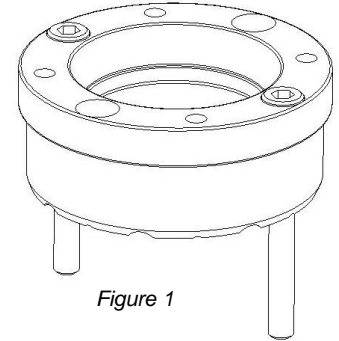
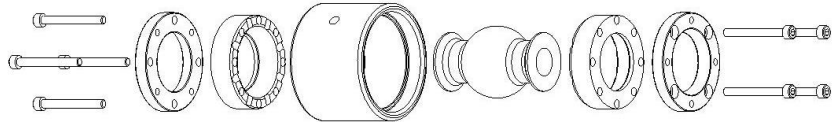
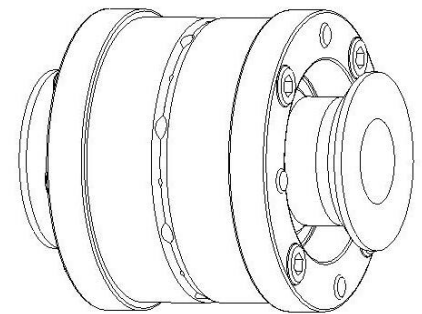


Figure 1

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, aligning the bolts with the threaded holes.
7. Start threading the two bolts into the threaded holes of the thrust washer. Do not fully tighten at this time.
8. Insert the remaining cap screws through the remaining holes and get them started in the threaded washer.
9. Snug up all of the bolts fairly tight. Go back and forth, rechecking each bolt several times to ensure even clamping
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. Use a grease gun to grease the flex end through the zerk fitting. This will be difficult due to the tight tolerances in the flex joint assembly.
13. Re-torque bolts to 65 in-lbs.



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

