

# IRON ROCK OFF ROAD

## ZJ 3.5" Premium Short Arm Lift Kit Installation Instructions

ZJ 93-98 Jeep Grand Cherokee

### Parts Checklist:

#### \*BOX 1\* 24x12x12

- ZJ 3.5" front spring 96012 (2)
- ZJ 3.5" rear spring CC784 (2)

#### \*BOX 2\* 24x14x6

##### Standard: Fixed Length Control Arms

- Bent fixed length LCA 16.25" with bushings installed 11135 (2)
- Bent fixed length LCA 18.3125" with bushings installed 11136 (2)
- Fixed length UCA 15.25/15.5" with bushings installed 11130 (2)
- Fixed length UCA 14.875" with bushings installed 11131 (2)

##### Optional: Adjustable Length Control Arms

- Bent adjustable short LCA w/bushings installed 99071 (4)
  - LCA male end w/bushings installed 99070 (4)
- Adjustable front short UCA w/bushings installed 99068 (2)
  - Front UCA male end w/bushings installed 99067 (2)
- Adjustable rear short UCA w/bushings installed 99069 (2)
  - Rear UCA male end w/bushing installed 99063 (2)
- #57 - Adjustable Control Arm Jam Nuts (4 LCA, 4 UCA)**
  - 1-1/4"-12 hex jam nut, zinc (4)
  - 1"-14 hex jam nut, zinc (4)

#### \*BOX 3\* 36x8x8

- Instructions
- Invoice
- Iron Rock Off Road logo decal (1)
- ironrockoffroad.com decal (1)
- XJ/ZJ double shear adjustable track bar 92185 (1)
  - Track bar male threaded end 92004 (1)
- Double shear track bar bracket 91015 (1)
- ZJ adjustable rear track bar 99083 (1)
  - Track bar male threaded end 92004 (1)
- Rear sway bar link #007 (2)
- Front sway bar link 8.75" center to center 92145 (2)
- ZJ transfer case drop spacer 99003 (2)

### Shocks

- Standard: IRO Hydro**
  - Front shock SL2650F (2)
  - Rear shock LL2498F (2)
- Optional: Doetsch Upgrade**
  - Front shock DT 8386 (2)
  - Rear shock DT 8299 (2)
- #9 - DT front shocks**
  - 2.5" Front shock barpin 403876 (2)
- Optional: Bilstein Upgrade**

- Front shock 33-186542 (2)
- Rear shock 33-185552 (2)

##### **#17 - Bilstein Shocks**

- Front barpin 403876 (2)
- 12mm shock sleeve 404739 (6)
- SBL u-bracket 99000 (2)
- 1/2" x 1-1/2" hex bolt, gr8 (2)
- 1/2" hex nut, gr8 (2)
- 1/2" flat washer (2)
- 1/2" lock washer, gr8 (2)
- 7/16" USS flat washer (6)
- M12x60 hex bolt, cl10.9 (2)
- M12 hex nut, cl10.9 (2)

##### **#11 - Front Brake Line Relocation**

- 1/4" x 1" self-drilling sheet metal screw (2)

##### **#12 - Transfer Case Drop**

- M10x60 hex bolt, cl10.9 (4)
- 3/8" flat washer (4)

##### **#13 - ZJ/TJ Rear Adjustable Track Bar**

- Track bar bushing half M20919 (4)
- 12mm I.D. track bar bushing sleeve 92035 (2)
- M12x70 hex bolt, cl10.9 (2)
- M12 hex nut, cl10.9 (1)
- 7/8-14 jam nut (1)

##### **#20 - Front Track Bar**

- Track bar bushing half M20919 (4)
- 7/16" I.D. track bar bushing sleeve 92036 (1)
- 7/16" x 2-1/2" hex bolt, gr8 (1)
- 7/16" hex nut, gr8 (1)
- 12mm I.D. track bar bushing sleeve 92035 (1)
- 7/16" flat washer (2)
- M12x80 hex bolt, cl10.9 (1)
- M12 hex nut, cl10.9 (1)
- 7/8"-14 jam nut (1)

##### **#58 - Front Sway Bar Links**

- 3/4" I.D. hourglass shock bushing M00393(4)
- 12mm I.D. sway bar bolt sleeve 92038 (4)
- M12x60 hex bolt, cl10.9 (2)
- M12 hex nut, cl10.9 (2)
- M10x30 hex bolt, cl10.9 (2)
- 3/8" USS washer (2)
- M10 hex nut, cl10.9 (2)
- SBL U-bracket 99000 (2)

##### **#66 - Front Control Arm Spacers**

- Control arm spacer 90194 (2)

## Installation Instructions:

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

Installing a suspension lift kit raises the center of gravity of the vehicle. This increases the possibility of a rollover accident. Avoid sudden maneuvers at high speed and avoid all situations where a side rollover may occur. In addition larger tires decrease braking performance, please drive accordingly. We recommend a tire and wheel combination that makes the vehicle's track width wider (wheels with less backspacing). This will lower the center of gravity and add stability. We also recommend that 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:**

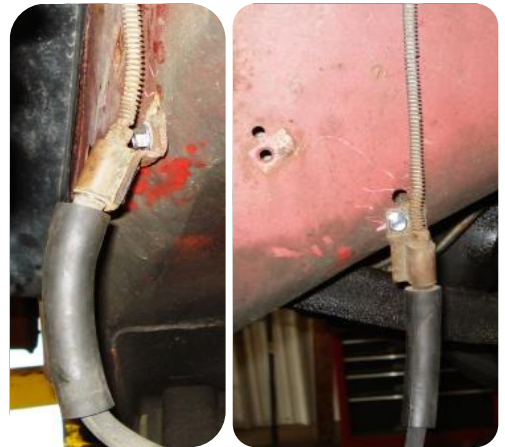
- Read all safety warnings.
- Read and understand installation instructions.
- A coil spring compressor will make installation easier, but is not required. You may wish to rent, or buy one if you don't have one.
- Check all steering and suspension components for wear and replace as needed.
- Ensure that all parts are present and in good condition per attached shipping checklist
- Contact Iron Rock Off Road with any questions before, during, or after installation.

## **Front suspension:**

1. Lift front of vehicle and support with tall jack stands under the unibody frame.

Tip: break lug nuts loose before lifting vehicle if necessary.

2. Ensure that vehicle is safely supported.
3. Remove front tires.
4. Support front axle with a floor jack (do not lift vehicle).
5. Remove front shocks.
6. Remove front sway bar links.
7. Remove front track bar and the bracket that attaches track bar to unibody.
8. Remove nuts from all upper and lower control arms (front suspension only).
9. Remove upper and lower control arm on one side.
10. Allow axle to droop as much as possible.
11. Remove front coil spring clamps.
12. Remove front coil spring and install new one on the side with no control arms.
13. Install new upper control arm. Use the outer (forward) hole at the axle side. For adjustable control arms: Install jam nuts then adjust Lower Control Arms to 16.25" center to center. Install jam nuts then adjust Upper Control Arms to 15.5" center to center. Orientation does not matter. Do not tighten bolts at this time.
14. Install new 16.25" lower control arm with the bend at the axle side hanging down (to clear shock mount at full droop). Place one control arm spacer from Hardware kit 66 at the unibody side to push the control arm in away from the tire. Do not tighten bolts at this time.
15. Repeat control arm and coil spring replacement process for the other side of the Jeep.
16. Locate front track bar, track bar mounting bracket, and hardware kit 20.
17. Install jam nut onto threaded end of track bar.
18. Adjust the length to 33-5/8" front center to center as a starting point. This may need to be adjusted after a short test drive. Do not tighten jam nut at this time.
19. Install the track bar bracket onto the unibody and torque bolts to 92 ft. lbs.
20. Lubricate track bar bushings and bushing sleeves with multi-purpose grease and install into track bar: smaller I.D. bushing sleeve is installed at axle end (without adjusting threads), and larger I.D. sleeve at unibody end (with adjusting thread).
21. Install the track bar and torque bolt at axle to 74 ft. lbs., and bolt at bracket to 80 ft. lbs.
22. Tighten jam nut very tight.
23. Locate front sway bar links (8.75" center to center), two u-brackets, and hardware kit 10.
24. Install sway bar link u-brackets to the sway bar using 1/2 x 1 1/2" grade 8 hex bolts, lock washers, and nuts. Brackets mount to the bottom of the sway bar with the bolt facing up and the lock washer and nut on top of the sway bar. Rotate brackets until offset toward outside of vehicle. Align brackets, torque bolts to 95 foot pounds
25. Lubricate sway bar link bushings and bushing sleeves with multi-purpose grease and install into sway bar links.
26. Install sway bar links driver's side first using provided M12 x 60mm hex bolt and nut through the u-bracket with the nuts toward the outside of the vehicle, and the original bolt, nut, and washer at the axle. Torque all nuts to 78 foot pounds.
27. Locate hardware kit 11.
28. On one side, remove the bolt that holds the brake hose to the unibody.
29. Pull brake line down as far as possible without over-stressing or causing a kink in the line. \*Note: Your brake line may appear different from the photo. Do not pull too far and damage the brake line.
30. Using two adjustable wrenches bend brake line bracket mounting surface so brake line points out toward the brake caliper. See photo.
31. Mark location and drill a 1/4" hole for the brake line locating tab.
32. Fasten brake line to unibody using provided self-drilling sheet metal screw.
33. Repeat for other side.
34. Locate front shocks, and hardware kit 9.
35. Install barpins into front shocks. Lubricate shock bushings and barpins with multi-purpose grease, clamp barpin vertically in a bench vise, and push shock onto barpin rotating the shock as you push down.
36. Install front shocks using original barpin bolts. Tighten upper stud mount nuts just enough to slightly compress the bushings. \*Note: Over compressing these bushings will result in damage to the bushings and premature bushing failure.
37. Torque shock barpin bolts to 17 foot pounds.
38. Any remaining loose bolts will be tightened after rear suspension is installed.



## **Rear Suspension:**

39. Lift rear of vehicle and support with tall jack stands under the unibody frame.  
Tip: break lug nuts loose before lifting vehicle if necessary.
40. Ensure that the vehicle is safely supported.
41. Remove rear tires.
42. Support rear axle with floor jack (do not lift vehicle).
43. Remove rear shocks.
44. Remove rear sway bar links.
45. Remove rear track bar (most ZJ's require a T55 torx socket for the track bar bolts).
46. Remove all rear upper and lower control arm nuts.
47. Remove upper and lower control arm on one side.
48. Remove coil spring clamps.
49. Remove rear coil spring and install the provided new spring.
50. Install new lower control arm with bend at axle side, hanging down. For adjustable control arms: Install jam nuts then adjust lower control arms to 18 5/16" center to center. Do not tighten bolts at this time.
51. Install new upper control arm. For adjustable control arms: Install jam nuts then adjust upper control arms to 14 7/8" center to center. Do not tighten bolts at this time.
52. Repeat the control arm and coil spring replacement process for the other side of the Jeep.
53. Locate rear track bar and hardware kit 13.
54. Lubricate track bar bushings and bushing sleeves with multi-purpose grease and install. If installing an adjustable rear track bar, install jam nut onto threaded end of track bar, adjust the length to 31-3/4" center to center.
55. Using provided new bolts and nut, install the track bar with the thread adjusting end on the axle side. The bend on the opposite side goes up and over the exhaust.
56. Torque track bar bolts to 78 foot pounds.
57. Install 12mm I.D. sleeves into lower (body) end of rear shocks (opposite end from shock shaft). Lubricate shock bushings and 12mm I.D. sleeves with multi-purpose grease and press the sleeves into the shock bushings.
58. Lubricate upper shock bushings and upper shock mounting studs on the vehicle with multi-purpose grease.
59. Install rear shocks with shock shafts facing up. Torque upper nuts to 46 foot pounds, and lower nuts to 80 ft. lbs.
60. Raise vehicle and relocate the jack stands under the front and rear axles so that the vehicle's weight is on the suspension system.
61. Ensure that the vehicle is safely supported.
62. Install rear sway bar links with nuts facing down. Tighten nut until snug but do not compress the bushings, the spacer sleeve in the center of the link should still be able to be rotated by hand after tightening.
63. Install front and rear coil spring clamps.
64. Torque front and rear upper control nuts to 60 foot pounds.
65. Torque front and rear lower control nuts to 120 foot pounds.
66. Tighten any jam nuts very tight.
67. Torque any remaining loose bolts to spec.
68. Install tires.
69. Remove vehicle from jack stands.
70. Torque wheel lug nuts to spec. (usually 85-115 foot-pounds, verify using factory service manual)

## **Transfer Case Drop Kit:**

71. Locate transfer case drop spacers and hardware kit 12.
72. Place a floor jack under the center of transfer case crossmember for support.
73. On one side remove the two bolts that hold the t-case crossmember to the unibody.
74. Lower t-case crossmember away from unibody.
75. Install spacer using new bolts and washers. Torque bolts to 50 foot pounds.
76. Repeat for the other side.

## **Adjustments and Safety Inspection:**

77. 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 line length and location of all brake lines, axle vent hoses, and ABS wires. Reposition as needed.
78. Check front and rear driveshafts for proper running length. Slight adjustments can be made by adjusting caster angle, otherwise different length control arms, or custom driveshafts may be required.
79. Go for a short test drive.
80. Check if front tires are centered side to side under vehicle. Adjust the length of the front track bar as needed.
81. A professional front end alignment is required after installation. Your toe-in will be affected and may cause unpredictable steering and accelerated tire wear.  
Recommended caster setting: +3.75 to +6.0 (+4.5 degrees is recommended unless a different setting is required for proper driveshaft running length)  
Recommended toe in setting: 0 degrees

\* Re-torque all fasteners, including lug nuts, after 100 miles, and frequently inspect all safety critical suspension components.