INSTALLATION INSTRUCTION

89152 Rev B

RANCHO

Suspension Upgrade System RS66152
(Upper Adjustable Control Arms)

Fits 1997 - 2006 Jeep Wrangler (TJ / LJ).

IMPORTANT NOTES!

WARNING: This suspension system will enhance the off-road performance of your vehicle. It will handle differently, both on and off-road, from a factory equipped passenger car or truck. Extreme care must be used to prevent loss of control or vehicle rollover during abrupt maneuvers. Failure to drive this vehicle safely may result in serious injury or death to the driver and passengers. ALWAYS WEAR your seat belts, REDUCE your speed, and AVOID sharp turns and other abrupt maneuvers.

A. Before installing this system, have the vehicle's alignment and frame checked at a state approved facility. The alignment must be within factory specifications and the frame must be sound (no cracks, damage, or corrosion).

B. Do not install a body lift kit with Rancho's suspension system or interchange parts from this system with components from another manufacturer. To obtain maximum rock crawling performance/articulation, use the following Rancho shock absorbers with this kit: RS5255, RS9255, RS99255 or RS999255 for the front & RS5256, RS9256, RS99256 or RS999256 for the rear.

C. Compare the contents of this system with the parts list in these instructions. If any parts are missing, including fasteners, contact the Rancho Technical Department at 1-734-384-7804. Each hardware kit in this system contains fasteners of high strength and specific size. Do not substitute a fastener of lesser strength or mix one hardware kit with another.

D. Apply THREAD LOCKING COMPOUND to all bolts during installation. One drop on the exposed threads of each bolt before installing the nut is sufficient to provide an adequate bond. CAUTION: Thread locking compound may irritate sensitive skin. Read warning label on container before use.

E. Install all nuts and bolts with a flat washer. When both SAE (small OD) and USS (large OD) washers are used in a fastener assembly, place the USS washer against the slotted hole and the SAE washer against the round hole.

F. Unless otherwise specified, tighten all bolts to the standard torque specifications listed at the end of the note's section. Do not use an impact wrench to tighten any of these bolts. They tend to over tighten smaller bolts and under tighten larger bolts. USE A TORQUE WRENCH!!

G. Rancho parts come with a protective coating. Do not powder coat, chrome, cadmium, or zinc plate any of the components in this system. If you wish to change the appearance of components enamel paint can be applied over the original coating.

H. Do not weld anything to these components, and do not weld any of these components to the vehicle. If any component breaks or bends, contact your local Rancho dealer or Rancho for replacement parts.

I. Some of the service procedures require the use of special tools designed for specific procedures. The following tools and supplies are recommended for proper installation of this kit. ☑

- ☐ Jeep Service Manual
- ☐ Torque Wrench (150 FT-LB capacity)
- ☐ Hammer
- ☐ 1/2" Drive Ratchet and Sockets
- ☐ Combination Wrenches
- ☐ Allen Wrenches
- ☐ Torx Key Sockets
- ☐ Large "C" Clamps and/or Bench Vise
- ☐ Hydraulic Floor Jack
- ☐ Heavy Duty Jack stands
- ☐ Wheel Chocks (Wooden Blocks)
- ☐ Molybdenum Grease or Anti Seize Compound
- ☐ Synthetic Lithium Grease
- ☐ Silicone Spray
- ☐ **Safety Glasses**--Wear safety glasses at all times

J. It is extremely important to replace torsion bars, CV flanges, and front drive shaft/pinion relationships as original. Be sure to mark left/right, front/rear, and indexing of mating parts before disassembly. A paint marker or light colored nail polish is handy for this.

K. Suspension components that use rubber or urethane bushings should be tightened with the vehicle at normal ride height. This will prevent premature failure of the bushing and maintain ride comfort.

L. The required installation time for this system is approximately 1 to 2 hours. Check off the box (☑) at the beginning of each step when you finish it. Then when you stop during the installation, it will be easier to find where you need to continue from.

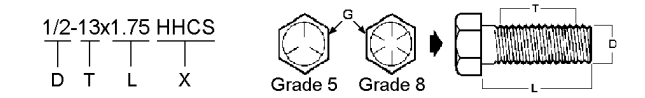
M. Important information for the end user is contained in the consumer/installer information pack. If you are installing this system for someone else, place the information pack on the driver's seat. Please include the installation instructions when you finish.

N. This suspension system was developed using the following tire and wheel combination: 33 x 12.50R-15 tire, 15" x 8" wheel with 3.75" of wheel backspacing. Before installing any other combination, consult your local tire and wheel specialist.

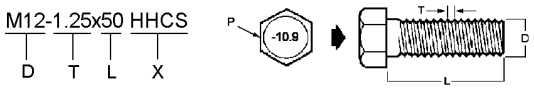
O. To reduce rear driveline vibration and/or to increase ground clearance, you may want to install a double-cardan driveshaft. A double-cardan driveshaft for the Rubicon (Part No. 3394-0100) is available from: Powertrain Industries 7532 Anthony Avenue, Garden Grove, CA 92841 (714) 893-4583. Consult your local 4X4 shop for more information.

P. Thank you for purchasing the best suspension system available. For the best installed system, follow these instructions. If you do not have the tools or are unsure of your abilities, have this system installed by a certified technician. RANCHO IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM AN IMPROPER INSTALLATION.

STANDARD BOLT TORQUE SPECIFICATIONS						
INCH SYSTEM			METRIC SYSTEM			
Bolt Size	Grade 5	Grade 8	Bolt Size	Class 9.8	Class 10.9	Class 12.9
5/16	15 FT-LB	20 FT-LB	M6	5 FT-LB	9 FT-LB	12 FT-LB
3/8	30 FT-LB	35 FT-LB	M8	18 FT-LB	23 FT-LB	27 FT-LB
7/16	45 FT-LB	60 FT-LB	M10	32 FT-LB	45 FT-LB	50 FT-LB
1/2	65 FT-LB	90 FT-LB	M12	55 FT-LB	75 FT-LB	90 FT-LB
9/16	95 FT-LB	130 FT-LB	M14	85 FT-LB	120 FT-LB	145 FT-LB
5/8	135 FT-LB	175 FT-LB	M16	130 FT-LB	165FT-LB	210 FT-LB
3/4	185 FT-LB	280 FT-LB	M18	170 FT-LB	240FT-LB	290 FT-LB
BOLT IDENTIFICATION						



G = Grade Marking (bolt strength)
D = Nominal Diameter (inches)
T = Thread Pitch (threads per inch)
L = Length (inches)
X = Description (hex head cap screw)



P = Property Class (bolt strength)
D = Nominal Diameter (millimeters)
T = Thread Pitch (thread width, mm)
L = Length (millimeters)
X = Description (hex head cap screw)

PARTS LIST

P/N	DESCRIPTION	QTY.
RS176695	Upper Suspension Arm, Front	2
RS860727	Articulation Bushing Kit	1
RS520094	Articulation Bushing	12
RS420103	Sleeve - 2.0"	6
RS860613	Shim Kit	1
RS7852	Shims	12
RS176647	Rod End W/ Articulation Bushing End	4
RS176696	Upper Suspension Arm, Left Rear	1

P/N	DESCRIPTION	QTY.
RS176699	Upper Suspension Arm, Right Rear	1
RS89152	Instructions RS66152	1
RS860705	Bearing Kit	1
RS770173	Jam Nut, 7/8-14	4
RS860728	Hardware Kit	1
RS770145	HHCS, 10MMX1.5X75M	8
RS770259	Nut, 10MM-1.50 Nylock	4
RS770064	Washer, M10	12

FRONT SUSPENSION ARM REPLACEMENT

1) ☐ Park vehicle on a level surface. Set the parking brake and chock rear wheels. Disconnect the negative ground cable from the battery.

2) ☐ Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.

NOTE: Suspension arms may be replaced without lifting vehicle. The suspension arms often align to the mounts better with vehicle on the ground, making it simpler to remove and install mounting bolts. IF WORKING WITH VEHICLE ON GROUND STEP ONE MUST STILL BE FOLLOWED!

3) ☐ Remove axle vent hose from driver side upper suspension arm. See illustration 1.

Illustration 1

4) ☐ Remove the driver side upper suspension arm flag nut and bolt from the axle bracket.

5) ☐ Remove the flag nut and bolt at the frame rail bracket. Remove the driver side upper suspension arm.

6) ☐ Lubricate two bushings RS520094 and a sleeve RS7852 from kit RS860727 with synthetic lithium grease. Insert bushings and sleeve into rod end RS176647. See illustration 2

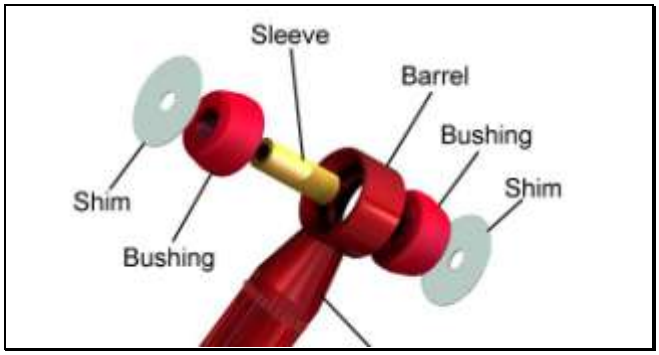


Illustration 2

7) ☐ Install jam nut on rod end RS176647 until 5-6 threads are left. Apply anti-seize compound and thread rod end into upper suspension arm RS176695.

8) ☐ With grease fitting pointing up, attach the adjustable end of the suspension arm assembly to the frame bracket with the supplied 10MM bolt and OE flag nut plus a greased shim from kit RS860613 between each bushing and frame bracket. See illustration 3

NOTE: It may be necessary to spread the frame and axle bracket open to compensate for the extra width of the new Rancho articulation bushings. An adjustable Crescent wrench, pry bar or pipe can be used. Spread the bracket from the mounting hole to the inside of the pocket to avoid bending the thinner metal from the hole out.

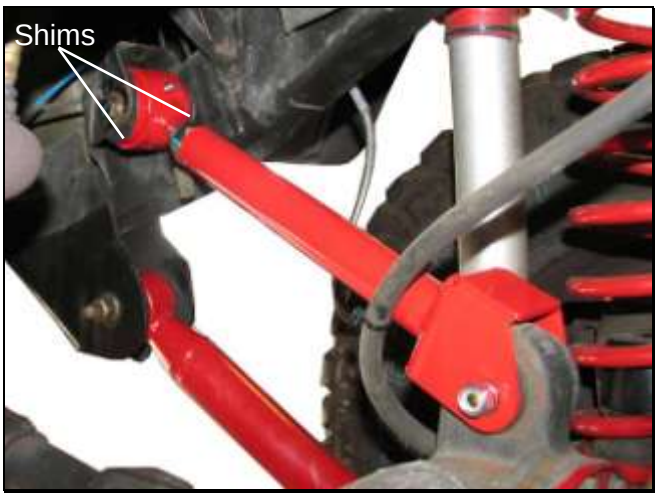


Illustration 3

9) ☐ Attach the clevis end to the axle bracket with the supplied 10MM hardware.

NOTE: If holes do not align with vehicle on jack stands, using a floor jack to lift axle may help align holes. Do not lift vehicle off jack stands.

10) ☐ Repeat steps 1 through 9 for the passenger side.

11) ☐ Torque only the upper suspension arm mounting hardware to 55 ft. lbs.

12) ☐ Center clevis with axle bracket and torque jam nut to 125 ft. lbs. DO NOT tighten axle side suspension arm bolts at this time.

13) ☐ Grease fittings with synthetic lithium grease until grease just starts to flow from bushing or bolt hole. Do not over grease.

14) ☐ Tie axle vent hose to driver side upper suspension arm with wire tie.

15) ☐ Install wheels and lower vehicle to the ground. Tighten lug nuts to 80-110 ft. lbs.

16) ☐ Torque suspension arm to axle mount hardware to 55 ft. lbs.

REAR SUSPENSION ARM REPLACEMENT

1) ☐ Park vehicle on a level surface. Set the parking brake and chock front wheels.

2) ☐ Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels and set them aside.

NOTE: Suspension arms may be replaced without lifting vehicle. The suspension arms often align to the mounts better with vehicle on the ground, making simpler to remove and install mounting bolts. IF WORKING WITH VEHICLE ON GROUND STEP ONE MUST STILL BE FOLLOWED!

3) ☐ Remove brake cable bracket from OE driver side upper suspension arm. See illustration 4.

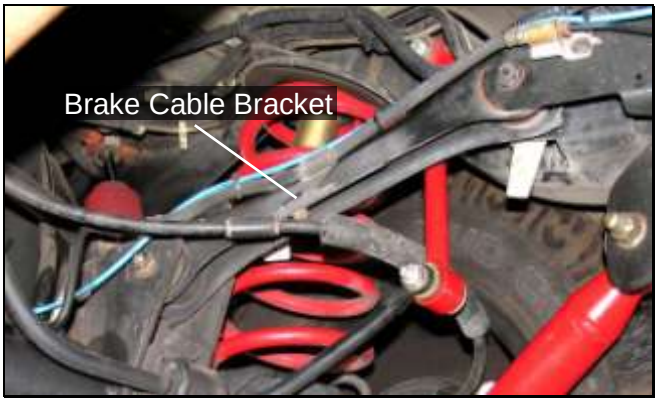


Illustration 4

4) ☐ Remove the driver side upper suspension arm nut and bolt from the axle bracket.

5) ☐ Remove the flag nut and bolt at the frame rail bracket. Remove the driver side upper suspension arm.

6) ☐ Lubricate four bushings RS520094 and two sleeves RS7852 from kit RS860727 with synthetic lithium grease. Insert bushings and sleeve into upper suspension arm RS176696 and rod end RS176647. Refer back to illustration 2

7) ☐ Install jam nut on rod end RS176647 until 5-6 threads are left. Apply anti-seize compound and thread rod end into upper suspension arm RS176696.

8) ☐ With both grease fitting pointing down, attach the adjustable end of the suspension arm assembly to the frame bracket with the supplied 10MM bolt and OE flag nut plus a greased shim from kit RS860613 between each bushing and frame bracket. See Illustration 5.

NOTE: It may be necessary to spread the frame and axle bracket open to compensate for the extra width of the new Rancho articulation bushings. An adjustable Crescent wrench, pry bar or pipe can be used. Spread the bracket from the mounting hole to the inside of the pocket to avoid bending the thinner metal from the hole out.

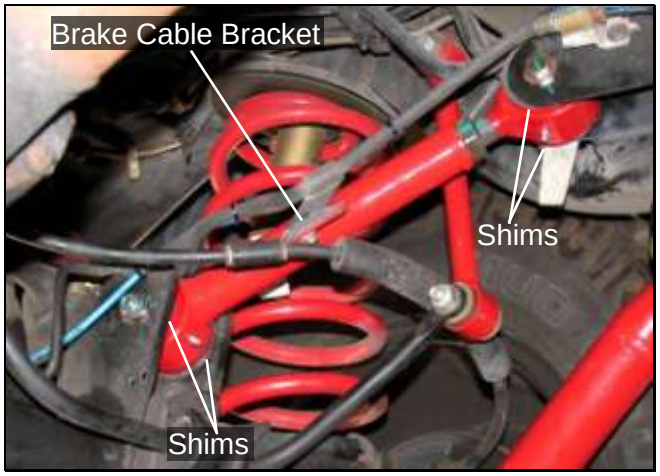


Illustration 5

9) ☐ With grease fitting and brake cable bracket tab pointing down, attach the bushing end to the axle bracket with the supplied 10MM hardware and two greased shims from kit RS860613.

NOTE: If holes do not align with vehicle on jack stands, using a floor jack to lift axle may help align holes. Do not lift vehicle off jack stands.

10) ☐ Attach brake cable bracket to tab on upper suspension arm. Torque to 17 ft. lbs.

11) ☐ Repeat steps 1 through 11 for the passenger side using Rancho upper suspension arm RS176699.

12) ☐ Torque suspension arm mounting hardware to 55 ft. lbs. and jam nut on rod ends to 125 ft. lbs.

13) ☐ Grease fittings with synthetic lithium grease until grease just starts to flow from bushing or bolt hole. Do not over grease

14) ☐ Install wheels and lower vehicle to the ground. Tighten lug nuts to 80-110 ft. lbs.

15) ☐ Reconnect the battery ground cable.

FINAL CHECKS & ADJUSTMENTS

1) ☐ Turn the front wheels completely left then right. Verify adequate tire, wheel, and brake hose clearance. Inspect steering and suspension for tightness and proper operation.

2) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke should be inserted a minimum of one inch into the transfer case and/or transmission.

3) ☐ Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.

4) ☐ Readjust headlamps. Have vehicle Aligned to manufacturer's specifications.

ALIGNMENT SPECIFICATIONS

Adjustment	Preferred	Range
Caster	7°	±1.0°
Camber (fixed angle)	-0.25°	±0.63°
Toe-In (each wheel)	0.15°	±0.15°
Thrust Angle	0	±0.15°

Please retain this publication for future reference. See Important Note M.