

INSTALLATION INSTRUCTION



Suspension System **RS6507B** (Rubicon models require end link kit RS6753B for a complete installation)



Jeep Wrangler (JK)

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. Use the following Rancho shock absorbers with this system:

RS5000 / RS9000X

<u>Front</u>	<u>Rear</u>
RS5329	RS5330
RS99329	RS99330

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. **USE A TORQUE WRENCH** for accurate measurements.

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 unless specifically stated in the instructions. If any component breaks or bends, contact your local Rancho dealer or Rancho for replacement parts.

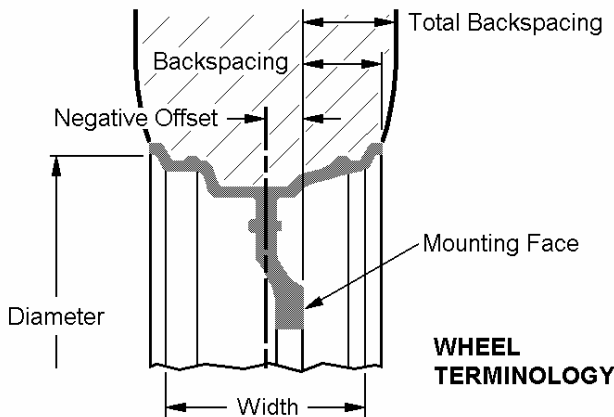
I. Some of the service procedures require the use of special tools designed for specific procedures. The following tools and supplies are recommended for proper installation of this kit.

- Jeep Service Manual
- Pitman Arm Puller C-4150-A
- Steering Linkage Puller C-3894-A
- Torque Wrench (250 FT-LB capacity)
- Hammer
- 1/2" Drive Ratchet and Sockets
- Combination Wrenches
- 3/8-16 Tap
- File
- Hydraulic Floor Jack
- Heavy Duty Jack stands
- Wheel Chocks (Wooden Blocks)
- 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. This suspension system was developed using a BF Goodrich® Mud-Terrain™ T/A® KM-35 x 12.50 x 18 D tire on a 18" x 9" wheel with 4.5" of backspacing. Total backspacing is 5.9". Before installing any other combination, consult your local tire and wheel specialist. **Actual tire size varies by manufacturer.**



WHEEL TERMINOLOGY

M. The required installation time for this system is approximately 4 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.

N. Welding on a vehicle creates an electrical charge throughout the body and frame. Disconnect the vehicle's battery prior to any welding. Place welding ground clamps as near as possible to the weld. Never use a vehicle suspension component as a welding ground point.

O. 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.

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.

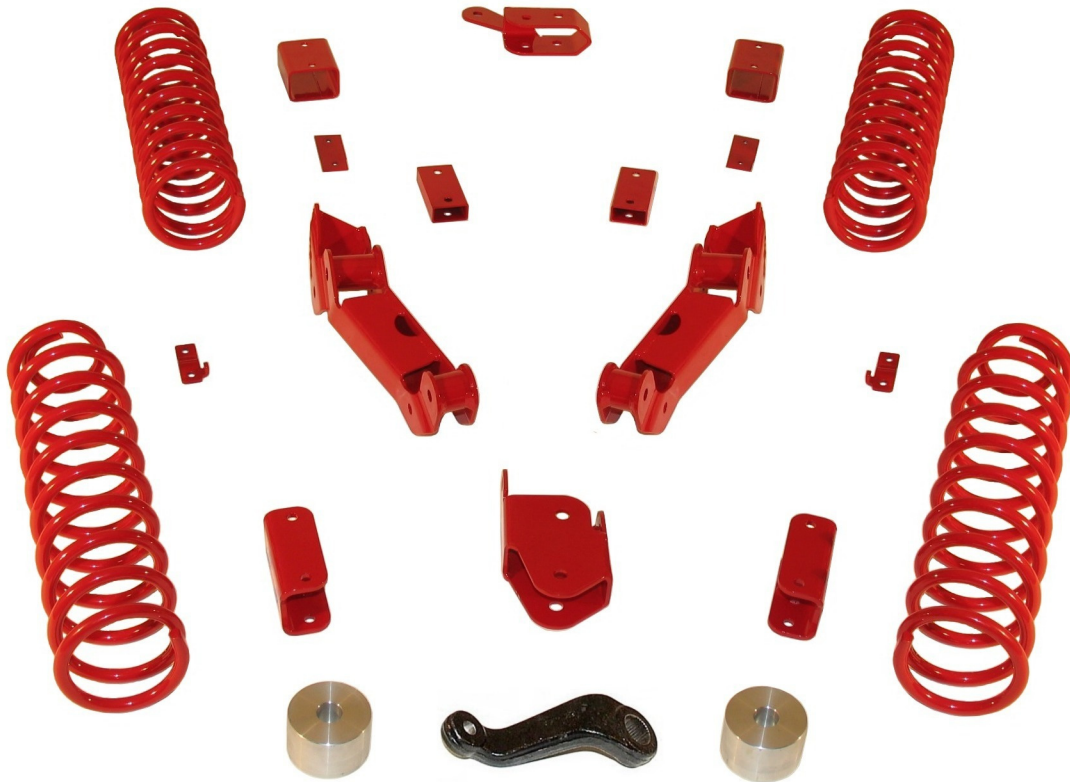
Compatible With OE Wheels	Development Tire Size (actual)	Optional Tire Size ² (actual)	Wheel Size (backspacing)
Yes ¹	35x12.5xR18 (34.8"x12.5")	37x12.5xR18 (36.3"x12.8")	18x9 (4.5")

¹ OE wheels compatible with stock size tires only.

² Fitment of the optional tire size may require trimming to provide proper clearance.

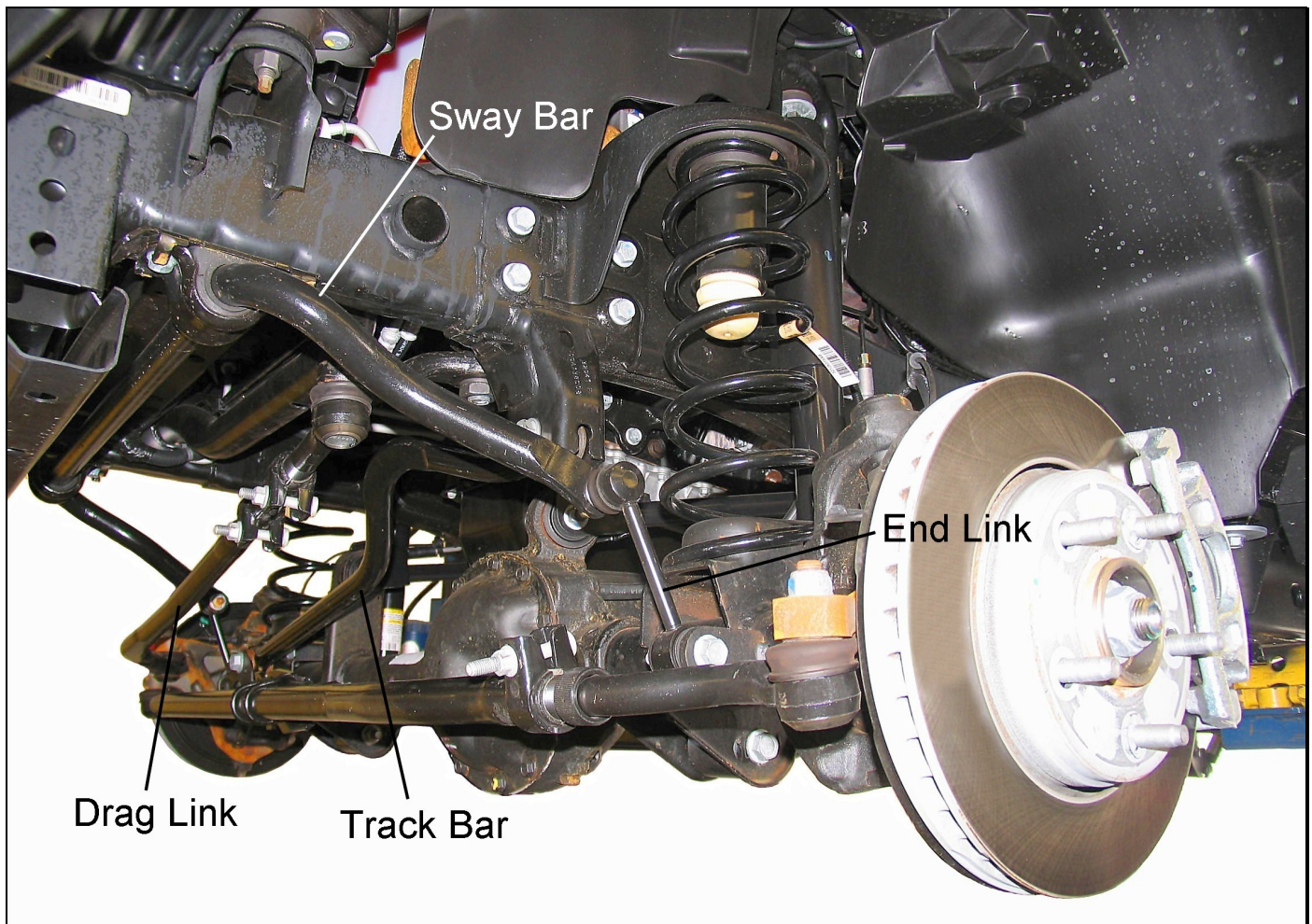
STANDARD BOLT TORQUE SPECIFICATIONS						
INCH SYSTEM			METRIC SYSTEM			
Bolt Size	Grade 5	Grade 8	Bolt Size	Class 9.8	Class 10.9	Class 12.9
5/16	15 FT-LB	20 FT-LB	M6	5 FT-LB	9 FT-LB	12 FT-LB
3/8	30 FT-LB	35 FT-LB	M8	18 FT-LB	23 FT-LB	27 FT-LB
7/16	45 FT-LB	60 FT-LB	M10	32 FT-LB	45 FT-LB	50 FT-LB
1/2	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	165 FT-LB	210 FT-LB
3/4	185 FT-LB	280 FT-LB	M18	170 FT-LB	240 FT-LB	290 FT-LB

BOLT IDENTIFICATION	
<p>1/2-13x1.75 HHCS</p> <p>D T L X</p> <p>G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch)</p>	<p>Grade 5 Grade 8</p> <p>L = Length (inches) X = Description (hex head cap screw)</p>
<p>M12-1.25x50 HHCS</p> <p>D T L X</p> <p>P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm)</p>	<p>P -10.9</p> <p>L = Length (millimeters) X = Description (hex head cap screw)</p>



PARTS LIST

<u>P/N</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>P/N</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
	Box 1 of 2				
176435B	Suspension Arm Bracket, Right	1		M14-2.00 Stover Nut	1
176436B	Suspension Arm Bracket, Left	1		M14 Washer	2
176572B	Track Bar Bracket, Front	1		M10-1.5 x 30 HHCS	1
176438B	Sway Bar Bracket, Front	2		M10-1.5 Nylock Nut	1
176439	Brake Line Bracket, Left Front	1		M10 Washer	2
176440B	Track Bar Bracket, Rear	1	860575	Thread Lock	2
176441	Brake Line Bracket, Right Front	1	420067	Rear Track Bar Hardware Kit	1
176442	Brake Line Bracket, Rear	2		Sleeve	1
176443	Bump Stop Spacer, Front	2		M12-1.75 x 30 HHCS	1
176444	Bump Stop Spacer, Rear	2		M12-1.75 Stover Nut	1
176445	Sway Bar Bracket, Rear	2		M12 Washer	2
7789	Pitman Arm	1		M14-2.00 x 80 HHCS	1
860573	Front Suspension Arm Hardware Kit	1		M14-2.00 Stover Nut	1
	M12-1.75 x 80 HHCS	3		M14 Washer	2
	M12-1.75 Stover Nut	3		M14 Washer	2
	M12 Washer	6		1/4-20 x .75 HHCS	4
	M14-2.00 x 100 HHCS	2		1/4-20 Stover Nut	4
	M14-2.00 Stover Nut	2		1/4 Washer	8
	M14 Washer	4		M10-1.5 x 50 HHCS	4
	M10-1.50 x 30 HHCS	4		M10 Washer	4
	M10-1.50 Nylock Nut	4		M8-1.25 x 20 HHCS	4
	M10 Washer	8		M8-1.25 Nylock Nut	4
			94180	M8 Washer	8
860574	Front Track Bar Hardware Kit	1	780281	Information Pack	1
420067	Sleeve	1	88507	Rancho Decal	1
	3/8-16 x 1.5 HHTS	2	94119	Instructions	1
	M12-1.75 x 30 HHCS	1	94177	Consumer/Warranty Information	1
	M12-1.75 Stover Nut	1		Warning Sticker	1
	M12 Washer	2			
	M14-2.00 x 70 HHCS	1	694B	Box 2 of 2	
			817B	Front Coil Spring	2
				Rear Coil Spring	2



Front Suspension

FRONT SUSPENSION

SHOCK ABSORBER & COIL SPRING REMOVAL

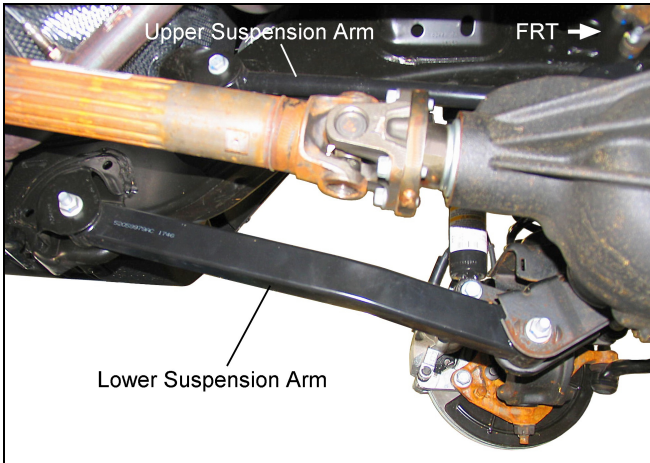
- 1) Park vehicle on a level surface. Set the parking brake and chock rear wheels. Disconnect the negative ground cable from the battery.
- 2) Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.
- 3) Support the front axle with a floor jack. Remove the track bar to frame bracket nut and bolt.
- 4) **(For non-Rubicon models)** Disconnect the end links from the axle brackets. Remove the sway bar to frame bolts. Remove the sway bar.
- 5) **(For Rubicon models)** Remove the end links.
- 6) Remove the nut from the drag link at the pitman arm. Separate the drag link ball stud from the pitman arm with a puller tool. Do not use a pickle fork.
- 7) Remove the shock absorber upper nut, retainer, and bushing.
- 8) Remove the shock absorber lower nut and bolt. Remove the front shock absorber.
- 9) Repeat steps 6 and 7 for the other side. **DO NOT REUSE ORIGINAL SHOCK ABSORBERS.**
- 10) Remove bolts and separate the brake hoses from the frame rails. If necessary, disconnect any vent hoses and electrical wiring from the axle.
- 11) Carefully lower the front axle and remove the coil springs. Push down on axle if necessary.

CAUTION: Do not allow the front axle to hang by any hoses or cables.

SUSPENSION ARM DROP BRACKET INSTALLATION

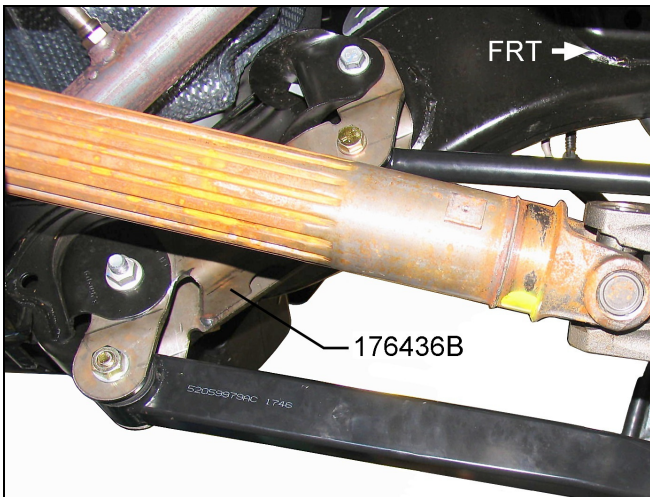
NOTE: To keep the front axle from tipping, disconnect the suspension arms one side at a time only.

- 1) Support the front axle with a floor jack.
- 2) Remove the driver side upper suspension arm from the frame and axle brackets. Remove the driver side lower suspension arm from the frame bracket only. See Illustration 1.



Illus. 1

- 3) Insert left suspension arm bracket 176436B into the frame brackets. See illustration 2. Attach bracket to frame with the original hardware. Tighten lower nut and bolt to 130 ft. lbs. Tighten the upper nut and bolt to 75 ft. lbs.



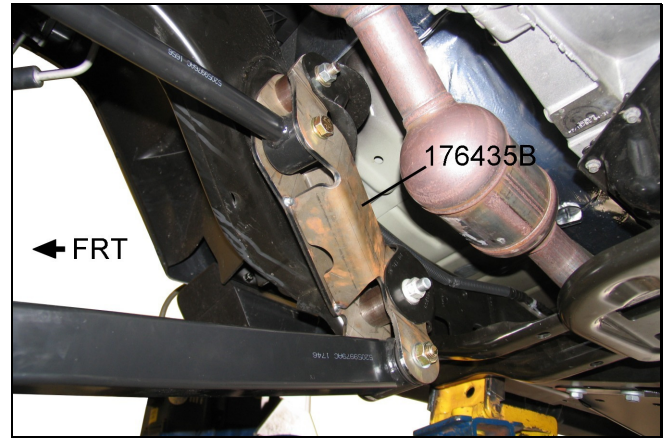
Illus. 2

- 4) Loosely attach the upper suspension arm to bracket 176436B with the 12mm hardware from kit 860573. Reattach the upper suspension arm to the axle bracket with the original hardware.

- 5) Attach the lower suspension arm to bracket 176436B with the 14mm hardware from kit 860573. Do not tighten until vehicle is at normal ride height.

- 6) Repeat steps 2 through 5 to install right suspension arm bracket 176435B on the passenger side.

NOTE: To disconnect the upper suspension arm from the passenger side frame bracket, the mounting bolt must be cutoff or the exhaust removed. An additional bolt is supplied for cutoff procedure.



Illus. 3

BUMP STOP SPACER, COIL SPRING & SHOCK ABSORBER INSTALLATION

- 1) Reference mark the drive shaft to the front differential. Disconnect the drive shaft from the differential. Support drive shaft with a tie wrap or wire.

- 2) Drill a 5/16" hole through the center of the coil spring axle pad. For ease of installation, tap the hole (3/8-16).

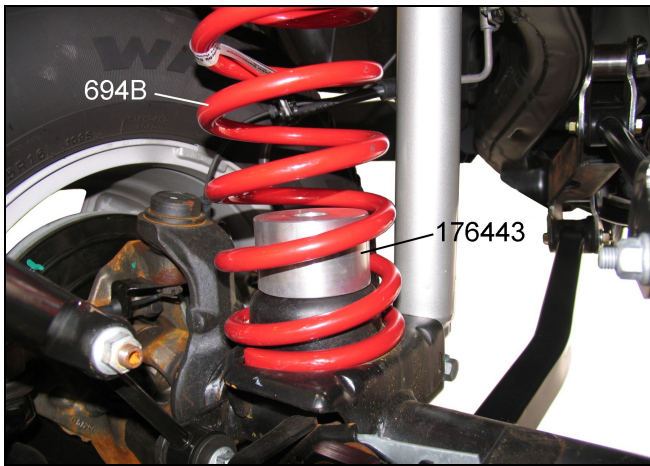
- 3) Install original insulator on top of coil spring 694B. Place bump stop spacer 176443 inside the coil spring.

- 4) Insert the spring assembly into the upper pocket and onto the axle pad. See illustration 4. Align pig tail with groove in axle pad.

- 5) Attach the bump stop spacer to the axle pad with the self-tapping screw from kit 860574.

- 6) Repeat steps 2 through 5 for the other side.

- 7) Install retaining washer and bushing on NEW shock absorber, insert shock into upper mounting hole. Install bushing, washer and nut. Tighten nut to 17 ft. lbs. Repeat for other side.

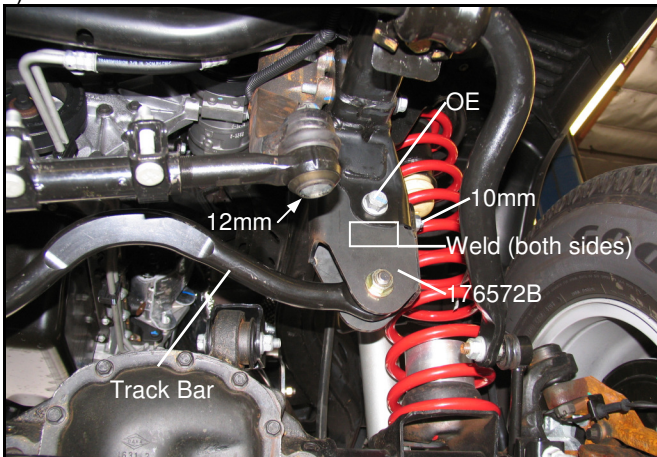


Illus. 4

- 8) Raise front axle and attach shock lower mounts to axle brackets with the original hardware. Tighten nuts and bolts to manufacturer's specifications.
- 9) Reattach drive shaft to front differential. Tighten bolts to manufacturer's specifications.
- 10) Reattach vent hose and electrical wiring if necessary.

PITMAN ARM & TRACK BAR BRACKET INSTALLATION

- 1) Center the steering wheel and mark the position of the original pitman arm. Remove the nut and washer from the steering gear shaft.
- 2) Remove the pitman arm from the steering gear with pitman arm puller C-4150-A.
- 3) Insert track bar bracket 176572B into the original track bar frame bracket. See illustration 5.
- 4)

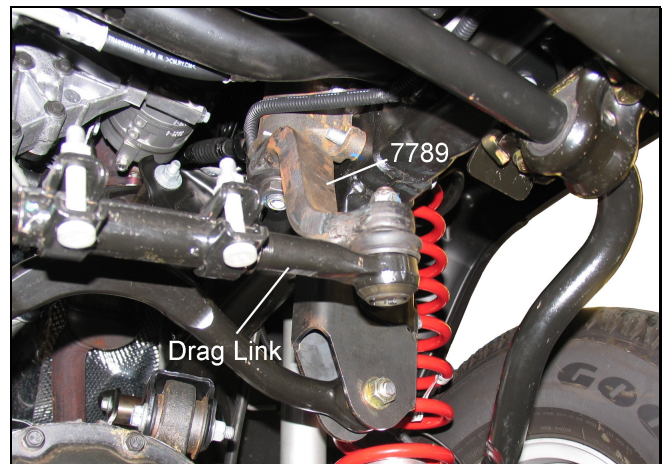


Illus. 5

- 5) Using an existing hole, loosely attach the inside edge of bracket 176572B with the 12mm hardware from kit 860574.
- 6) Using an existing hole, loosely attach the outside edge of bracket 176572B with the 10mm hardware from kit 860574.
- 7) Insert sleeve 420067 into the bracket at the original track bar location. Install the original hardware. Tighten OE bolt to 125 ft. lbs. Tighten the 12mm bolt to 75 ft. lbs. and the 10mm bolt to 45 ft. lbs.

NOTE: Periodically check track bar bracket mounting bolts for tightness. **Welding track bar bracket 176572B to the frame bracket (front and back) is recommended.** Refer to illustration 5. Welding should be performed by a trained professional. Clean area of all paint/coating. Repaint cleaned area after welding.

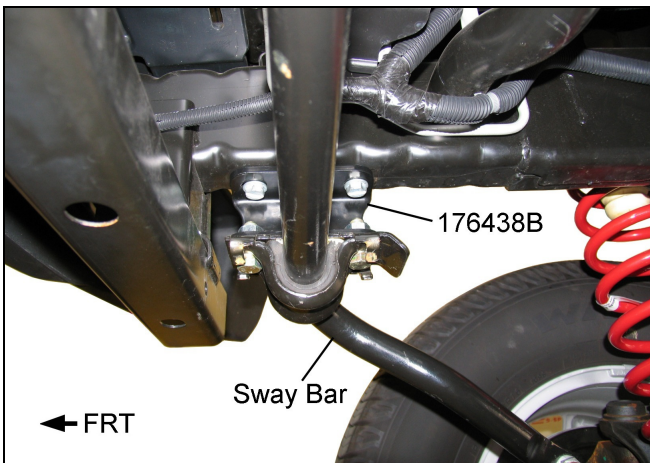
- 8) Attach track bar to bracket 176572B with the 14mm hardware from kit 860574. Insert bolt from rear and do not tighten until vehicle is at normal ride height.
- 9) Align and install new pitman arm 7789 on the steering gear shaft. Install the washer and nut. Tighten the nut to 185 ft. lbs.
- 10) Install the drag link ball stud to the pitman arm. Install the nut and tighten to 60 ft. lbs.
- 11) To reposition the front wheels, turn the drag link adjustment sleeve approximately eight turns in (shorten). Adjustment sleeve bolts must face forward. See illustration 6.



Illus. 6

SWAY BAR DROP BRACKET INSTALLATION (NON-RUBICON MODELS)

- 1) Attach sway bar drop brackets (176438B) to the frame rails with the original hardware. Face open side of bracket inward.
- 2) Flip sway bar. Rotate bushings and end links 180 degrees.
- 3) Attach the sway bar to drop brackets with the 10mm hardware from kit 860573. See illustration 7. Tighten nuts and bolts securely.
- 4) Attach end links to axle brackets. Tighten nuts and bolts to 70 ft. lbs.

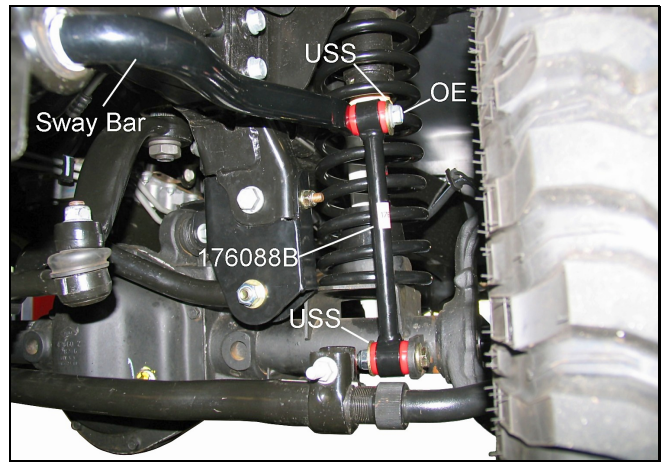


Illus. 7

SWAY BAR END LINK INSTALLATION (RUBICON MODELS ONLY)

NOTE: End link installation requires kit RS6753B and must be purchased separately. Do not install sway bar drop brackets (176438B).

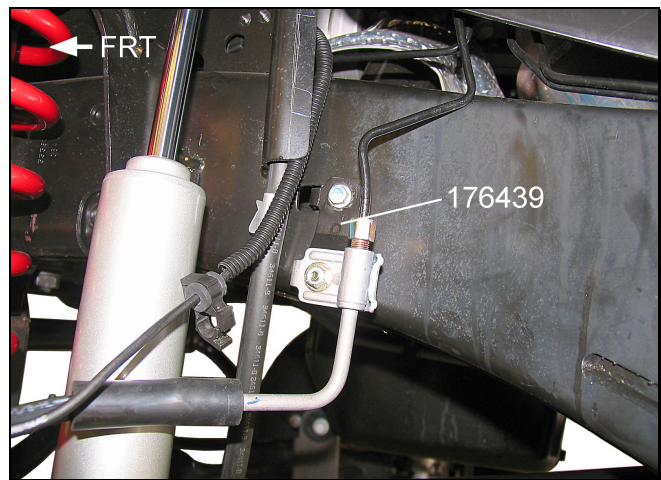
- 1) Using a silicone spray, insert the supplied bushings and sleeves into new end links (176088b).
- 2) Attach end links to sway bar with the original bolts and large USS washers from hardware kit 860412. See illustration 8.
- 3) Attach end links to axle brackets with the hardware from kit 860412. Tighten nuts and bolts to specifications.



Illus. 8

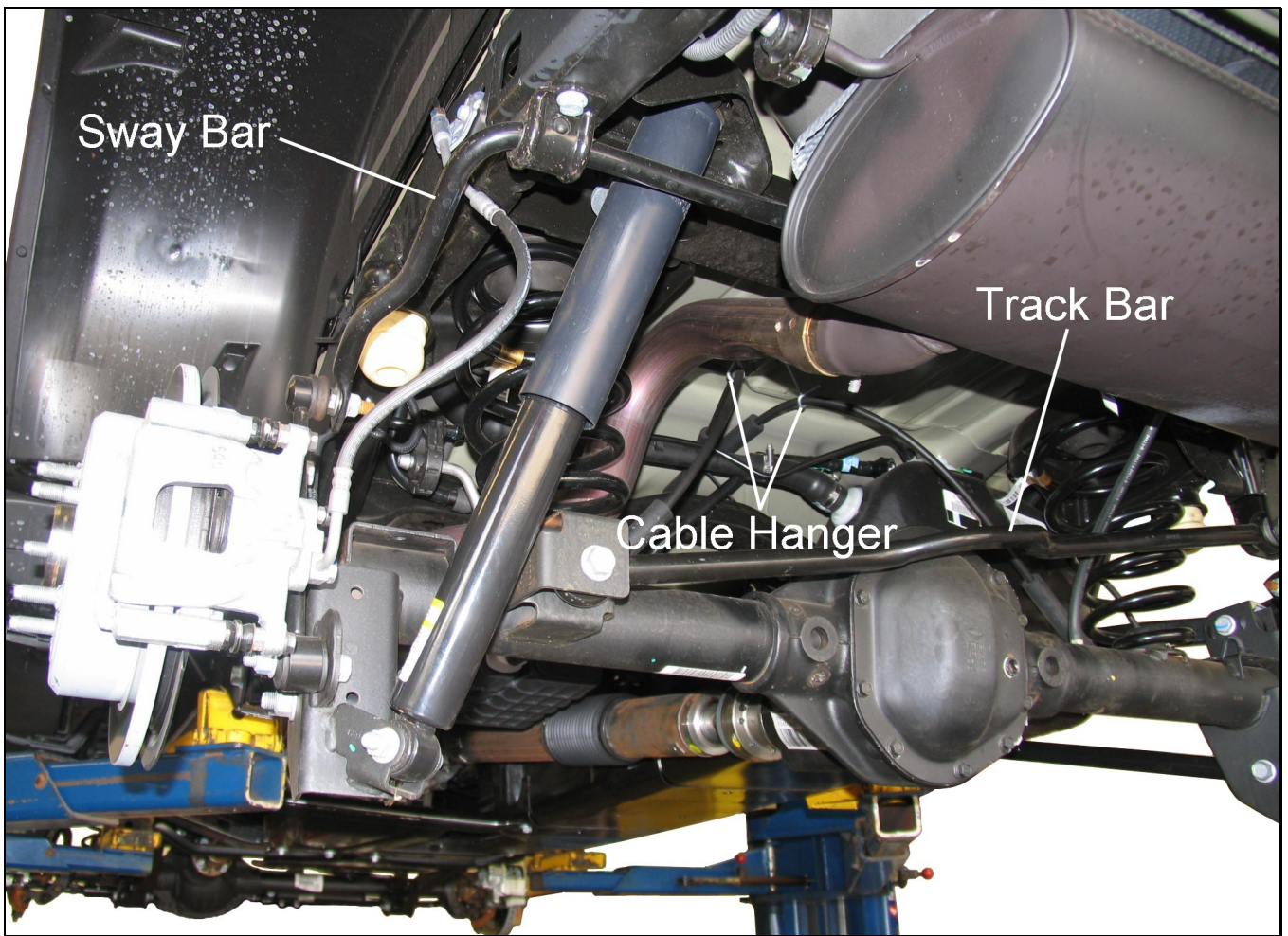
BRAKE HOSE BRACKET INSTALLATION

- 1) Attach left brake line bracket 176439 to the brake hose with the 1/4" hardware from kit 860575. Attach bracket to frame with the original bolt. See illustration 9. Tighten nuts and bolts securely.



Illus. 9

- 2) Repeat step 1 to install right brake line bracket 176441 on the passenger side.
- 3) Slide grommets on ABS wire to provide slack for full suspension/turning movement. Reattach ABS wires to brake lines.
- 4) Install front wheels and lower vehicle to the ground. Tighten lug nuts to 80--110 ft. lbs.
- 5) Tighten the Track bar nut and bolt to 120 ft. lbs.
- 6) Tighten the upper and lower suspension arm bolts to manufacturer's specifications.



Rear Suspension

REAR SUSPENSION

SHOCK ABSORBER & COIL SPRING REMOVAL

- 1) Chock front wheels. Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 2) Support the rear axle with a floor jack. Disconnect the track bar from the frame bracket. Disconnect the end links from the sway bar.
- 3) Remove bolts and separate the brake hoses from the frame rails. If necessary, disconnect any vent hoses and electrical wiring from the axle.
- 4) Remove the bolts from the brake cable hanger above the rear axle. Remove the hanger from the cables.
- 5) Remove the shock absorber upper mounting bolts. Remove the lower nut and bolt from the axle bracket. Remove the shock absorber. Repeat for other side.

- 6) Carefully lower the rear axle until the coil springs are free from the upper mount seat. Remove the coil springs.

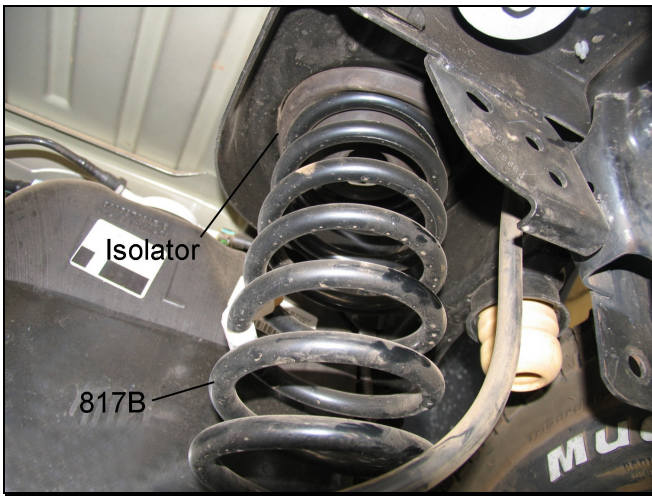
CAUTION: Do not allow the axle to hang by any hoses or cables.

COIL SPRING & SHOCK ABSORBER INSTALLATION

- 1) Place the new coil springs (817B) onto the axle pads. Align upper pigtails towards the front of the vehicle. Raise the axle until the coil springs seat on the upper isolators. See illustration 10.

NOTE: When installing coil springs, make sure that the rubber isolator is positioned in the upper mount and the small egg-shaped coil end is at the bottom.

- 2) Attach new Rancho rear shocks to the upper mounting brackets with the original bolts. Tighten bolts to 23 FT-LBS.

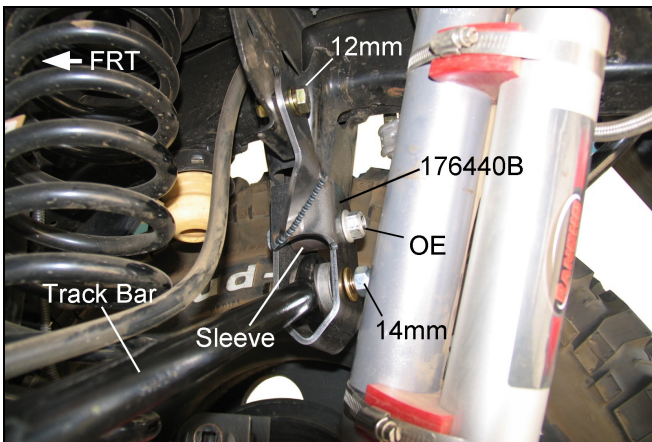


Illus. 10

- 3) Loosely attach shocks to the axle brackets with the original hardware.

TRACK BAR BRACKET INSTALLATION

- 1) Loosely attach track bar bracket 176440B to the track bar with the 14mm hardware from kit 860575. See illustration 11.



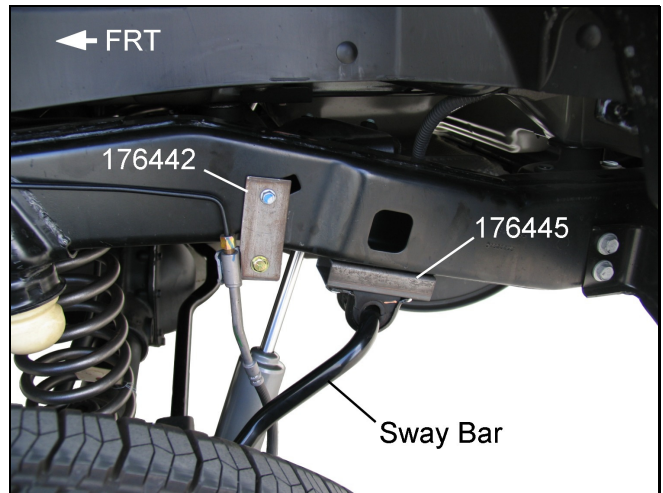
Illus. 11

- 2) Place track bar bracket 176440B over the original frame bracket. The front edge of the new bracket should fit inside the original bracket.
- 3) Insert the sleeve from kit 860575 and attach track bar bracket 176440B to the frame bracket with the original hardware. See illustration 11.
- 4) Using an existing hole, attach the top of bracket 176440B to the frame bracket with the 12mm hardware from kit 860575. Tighten the 12mm and OE bracket hardware to specifications.

NOTE: Do not tighten the track bar to bracket bolt until the vehicle is at normal ride height.

SWAY BAR & BRAKE LINE BRACKET INSTALLATION

- 1) Disconnect the sway bar from the frame rail.
- 2) Insert sway bar bracket 176445 between the sway bar and the frame rail. See illustration 12.

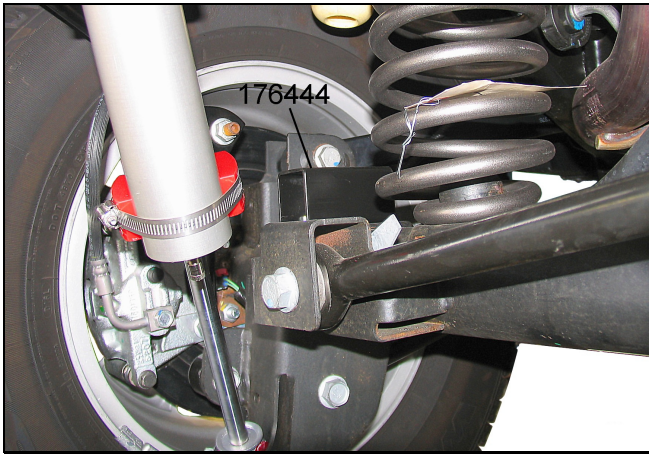


Illus. 12

- 3) Attach sway bar to frame rail with the 10mm hardware from kit 860575. Tighten bolts to 35 ft. lbs.
- 4) Attach brake line bracket 176442 to the frame rail with the original brake line bolt. See illustration 12.
- 5) Attach brake line to the inside of bracket 176442 with the 1/4" hardware from kit 860575. Tighten nuts and bolts to 12 ft. lbs.
- 6) Repeat steps 1 through 5 for other side.
- 7) Reattach end links to sway bar. Tighten nuts to 40 ft. lbs.

BUMP STOP BRACKET INSTALLATION

- 1) Using the original holes on the axle pad, attach bump stop bracket 176444 to the axle with the 8mm hardware from kit 860575. See illustration 13.
- 2) Repeat for other side.



Illus. 13

- 3) Install rear wheels and lower vehicle to the ground. Tighten lug nuts to 80-110 FT-LBS.
- 4) Tighten the track bar bolts to 120 ft. lbs. Tighten the shock absorber lower mounting bolts to 74 ft. lbs.
- 5) Reconnect the battery ground cable.

FINAL CHECKS & ADJUSTMENTS

- 1) Turn the front wheels completely left then right. Verify adequate tire, wheel, brake hose and ABS wire 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

<u>Adjustment</u>	<u>Preferred</u>	<u>Range</u>
Caster	4.6°	±1.0°
Camber (fixed angle)	-0.25°	±0.63°
Toe-In (each wheel)	0.15°	±0.15°
Thrust Angle	0	±0.15°

NOTE: Castor alignment cams are recommended.

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