

For Rancho Suspension System **RS6579B:**
2008-2003 Dodge Ram 2500 4WD

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION



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. The RS6579B suspension system will fit more than one Dodge application. **To install this system, coil springs, rear U-bolts, shock absorbers, and a carrier bearing spacer (if applicable) must be purchased separately.** See application guide on page 11.

B. Before installing this system, have the vehicle's alignment and frame checked by a certified technician. The alignment must be within factory specifications and the frame of the vehicle must be sound (no cracks, damage or corrosion).

C. Do not install a body lift kit with this suspension system or interchange Rancho components with parts from another manufacturer. Use the appropriate Rancho shock absorbers.

D. Do not powdercoat or plate any of the components in this system. To change the appearance of components, automotive paint can be applied over the original coating.

E. Each hardware kit in this system contains fasteners of high strength and specific size. Do not mix hardware kits or substitute a fastener of lesser strength. See bolt identification table on page 2.

F. Compare the contents of this system with the parts list in these instructions. If any parts are missing, contact the Rancho Technical Department at 1-734-384-7804.

G. 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.

H. Apply a drop of thread locking compound to all bolts during installation. **CAUTION:** Thread locking compound may irritate sensitive skin. Read warning label on container before use.

I. Unless otherwise specified, tighten all nuts and bolts to the standard torque specifications shown in the table on page two. **USE A TORQUE WRENCH** for accurate measurements.

J. 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 system:

- ☒
- ☐ Dodge Service Manual
- ☐ Pitman Arm Puller
- ☐ Universal Gear Puller
- ☐ Coil Spring Compressor
- ☐ Bench Vise
- ☐ Drill motor
- ☐ Reciprocating Saw
- ☐ Assorted Drills: 1/8" through 1/2"
- ☐ Torque Wrench (250 FT-LB capacity)
- ☐ 1/2" Drive Ratchet and Sockets
- ☐ Assorted Combination Wrenches
- ☐ Heavy Duty Jack Stands
- ☐ Wheel Chocks (wooden blocks)
- ☐ Hydraulic Floor Jack
- ☐ Center punch
- ☐ File
- ☐ Hammer
- ☐ Wire Brush (to clean bracket mounting surfaces)
- ☐ Black Enamel Paint
- ☐ Silicone Spray Lubricant
- ☐ Tape Measure
- ☐ **Safety Glasses** (wear safety glasses at all times)

K. 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.

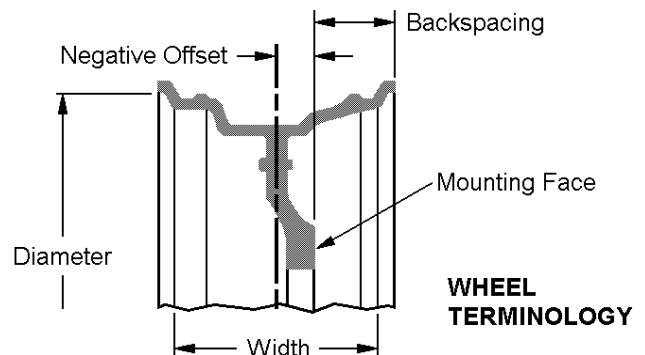
L. Suspension components that use rubber or urethane bushings should be tightened with the vehicle at normal ride height. This will prevent premature failure of the bushing and maintain ride comfort.

M. Welding on a car 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.

N. The required installation time for this system is approximately 6 to 8 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.

O. The recommended tire size for this suspension system is 37" x 12.5". The maximum wheel backspacing is 6 inches on 17" wheels. Before installing any other combination, consult your local tire and wheel specialist.



P. 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.

Q. 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 SUSPENSION IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM AN IMPROPER OR MODIFIED 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	165 FT-LB	210 FT-LB
3/4	185 FT-LB	280 FT-LB	M18	170 FT-LB	240 FT-LB	290 FT-LB

1/2-13x1.75 HHCS D T L X G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch)	 Grade 5 Grade 8 L = Length (inches) X = Description (hex head cap screw)	M12-1.25x50 HHCS D T L X P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm)
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RS6579B PARTS LIST

P/N	DESCRIPTION	QTY
RS88578	Instruction	1
RS94180	Information Pack	1
RS94177	Rollover Warning Label	1
RS94119	Warning Oper & Inspect	1
RS780281	6 Rancho Decal - Color	1
R-RM0082-1112	Warranty Tag	1
RS780294	Red Rancho Decal	1
RS780294B	Black Rancho Decal	1
RS176365B	Upper Control Arm	2
RS176366B	Lower Control Arm	2
RS860543*	Control Arm Bushing Kit*	1
RS524001-4	Bushing - Upper Control Arm	8
RS420048	Sleeve .875X.563X2.280	4
RS770088	Shim 5/8 X 2.4 X .040	16
RS528-4	Bushing - Lower Control Arm	8
RS420049	Sleeve 1.00X.640X2.51	4
RS176367B	Track Bar Bracket Aft	1
RS176377B	Track Bar Bracket, Forward	1
RS860538	Brake Line Hardware kit	1
RS176379	Front Brake Line Bracket	2
RS770127	HHCS M8-1.25X20MM	2
RS603112	Nut M8-1.25 Nylock	2
RS770128	Washer M8	4
RS176374	Brakeline Spacer	1
RS7755	Washer 3/8 USS	1
RS176381	Hanger Rear Park Cable	1
RS770056	HHTS 3/8-16X1.00	1

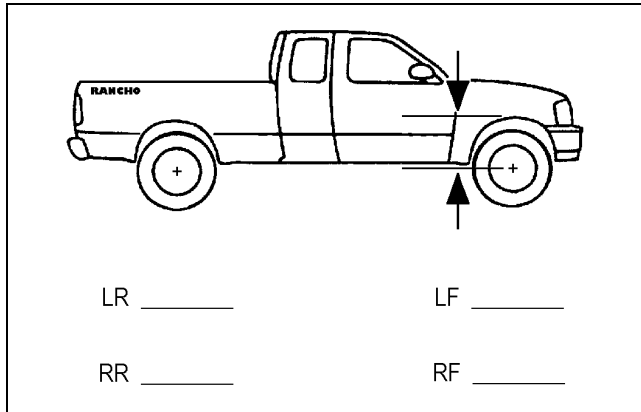
P/N	DESCRIPTION	QTY
RS7791	Pitman Arm	1
RS15106	Riser Block	2
RS860539	Hardware Sub Assy	1
RS860806	Ram Front Bumpstops	1
RS176764	Billet Bump Stop Spacer	2
RS176765*	Bump Stop*	2
RS860799	Sub Assy, Fwd Bump Stop Hdwr	1
RS7713	HHTS 3/8-16 X 1.50	4
RS770274	SHCS M8-1.25X35MM	2
RS860536	Track Bar Bracket Hardware Kit	1
RS176376	Track Bar Spacer Sleeve	1
RS770129	HHCS M14-2.00X80MM	3
RS770109	M14 Washer	4
RS7877	Nut M14-2.00 Toplock	3
RS770143	1/2 USS 'D' Washer	1
RS7719	Washer 1/2 USS	1
RS770107	HHCS M12-1.75X35MM GR 10.9	2
RS7915	Washer M12	4
RS7807	Nut M12-1.75 Nylock	2
RS42702	.5 cc Thread Lok	3
RS176419	Endlink Extension	2
RS860612	Sub Assy, Upper Link	1
RS770146	HHCS, M14-2.0X150MM	2
RS770109	Washer M14	4

*Service Part — contact the Rancho Technical Department at 1-734-384-7804 for replacement.

FRONT SUSPENSION

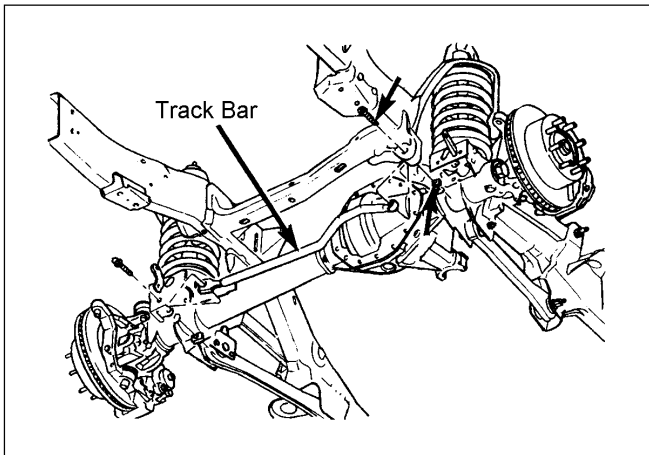
VEHICLE PREPARATION

- 1) ☐ Park the vehicle on a level surface. Set the parking brake and chock rear wheels. Measure and record the distance from the center of each wheel to the top of the fender opening. See illustration 1.



Illus. 1

- 2) ☐ If equipped, remove the front skid plate.
- 3) ☐ Disconnect the track bar from the frame bracket. See illustration 2.

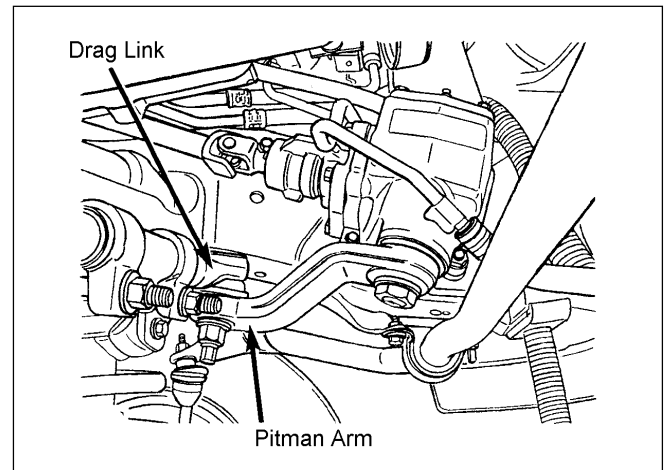


Illus. 2

- 4) ☐ Raise the front of the vehicle and support the frame with jackstands. Remove the front wheels and set them aside.

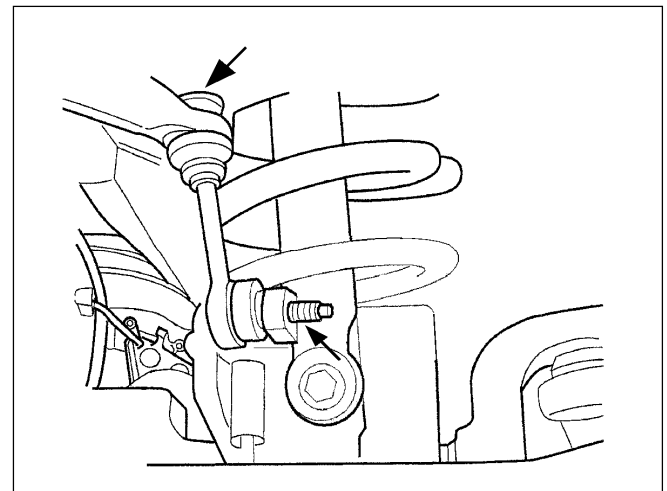
PITMAN ARM & SWAY BAR END LINK REMOVAL

- 1) ☐ Remove the drag link nut from the pitman arm.
- 2) ☐ Using a gear puller, separate the drag link from the pitman arm. See illustration 3.



Illus. 3

- 3) ☐ Mark the pitman arm and steering gear box shaft for installation reference. Remove the nut and washer from the pitman arm.
- 4) ☐ Using a pitman arm puller, remove the pitman arm.
- 5) ☐ Remove the sway bar end link nuts at the sway bar and axle brackets. See illustration 4.



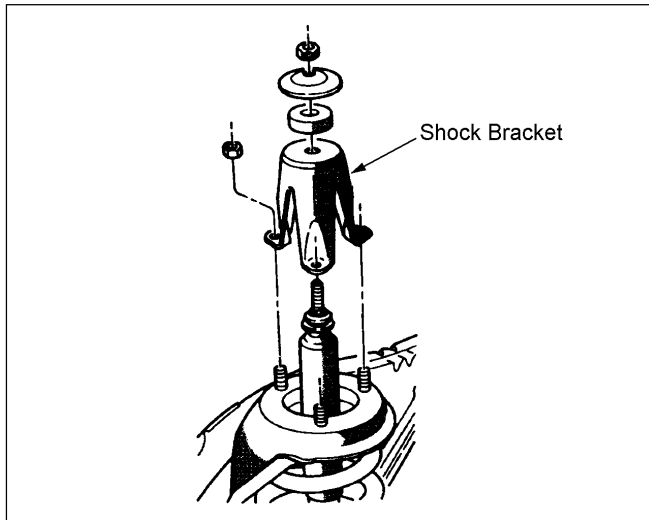
Illus. 4

- 6) ☐ Using a gear puller, separate the end links from the axle brackets. Remove end links.

SHOCK ABSORBER & COIL SPRING REMOVAL

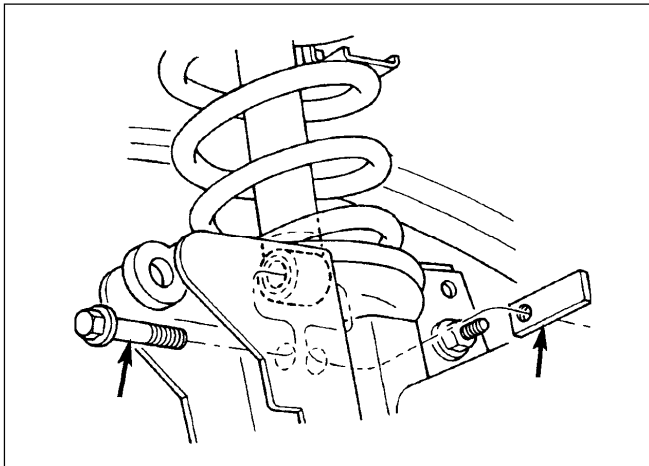
- 1) ☐ Support the front axle with a floor jack. Secure the axle to the jack to keep it from rotating.
- 2) ☐ Mark the front differential yoke and drive shaft for installation reference. Separate the drive shaft from the differential.

- 3) ☐ Remove the mounting bolts holding the front brake hoses to the axle brackets. Disconnect the front differential vent hose.
- 4) ☐ Remove the nut, retainer and bushing from the shock absorber stud in the engine compartment. Remove the three nuts from the shock bracket. See illustration 5. Remove shock bracket.



Illus. 5

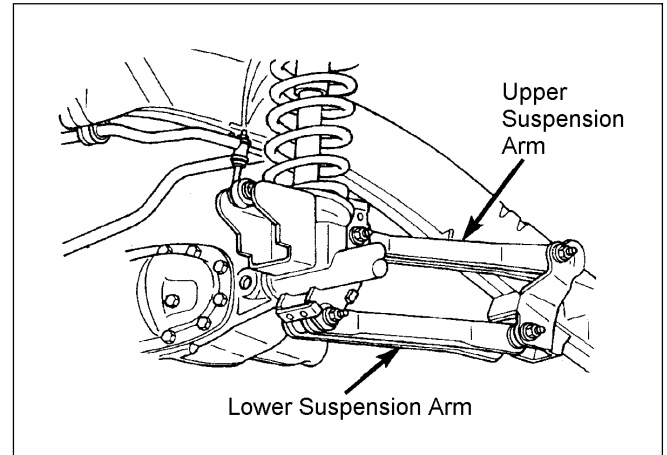
- 5) ☐ Remove the lower bolt from the axle bracket. See illustration 6. Remove the shock absorber from the engine compartment.



Illus. 6

- 6) ☐ Repeat steps 4 and 5 for the other side.
- 7) ☐ Mark the lower suspension arm cam adjusters and axle brackets for installation reference.
- 8) ☐ Loosen the lower suspension arm bolts. Remove the upper suspension arms. See illustration 7.

NOTE: The upper suspension arm bolt on the passenger side cannot be removed completely without removing the exhaust system. Sliding the bolt to one side or cutting off the bolt head may be an option. A new bolt and 2 spacer washers (for the OE nut) are provided in kit 860612.



Illus. 7

- 9) ☐ Mark the coil spring and axle pad for installation reference.
- 10) ☐ Carefully lower the axle until the coil springs are free from the upper mounts. Remove the coil springs.

CAUTION: Do not allow the front axle assembly to hang from the brake hoses.

UPPER & LOWER LINK INSTALLATION

- 1) ☐ Insert the larger bushings from kit 860543 into the lower links (176366).
- 2) ☐ Apply lithium grease to the outside of the larger sleeves from kit 860543. Using a bench vise, press the sleeves into the larger bushings.
- 3) ☐ Insert the smaller bushings into the upper links (176365).
- 4) ☐ Apply lithium grease to the outside of the smaller sleeves from kit 860543. Using a bench vise, press the sleeves into the smaller bushings.
- 5) ☐ Remove the lower suspension arms.

6) ☐ Apply lithium grease to the outside of the lower link bushings. Place a shim from kit 860543 on each side of the bushings.

7) ☐ Loosely attach lower links (176366) to the frame and axle brackets with the original hardware. See illustration 8.

NOTE: Clean bolts if grease inadvertently contacts threads. Do not apply grease to mounting hardware.

8) ☐ Apply lithium grease to the outside of the upper link bushings. Place a shim from kit 860543 on each side of the bushings.

9) ☐ Loosely attach upper links (176365) to the frame and axle brackets with the original hardware and supplied 14mm bolt if necessary.

NOTE: To provide nut exposure for tightening, install two washers on the new upper link bolt then install the original nut.

10) ☐ Align reference marks and reattach the front drive shaft with the original hardware. Apply thread lock and tighten bolts to 21 ft. lbs.

BUMP STOP BRACKET INSTALLATION

1) ☐ Remove bump stops from frame brackets.

2) ☐ If necessary, drill two 5/16" holes in frame using the holes in the OE bump stop bracket as a guide. See illustration 9.

TIP: Use a 5/16" drill bit or transfer punch to mark center of hole, drill a 1/4" hole then enlarge to 5/16"

3) ☐ To ease installation, tap holes to 3/8-16

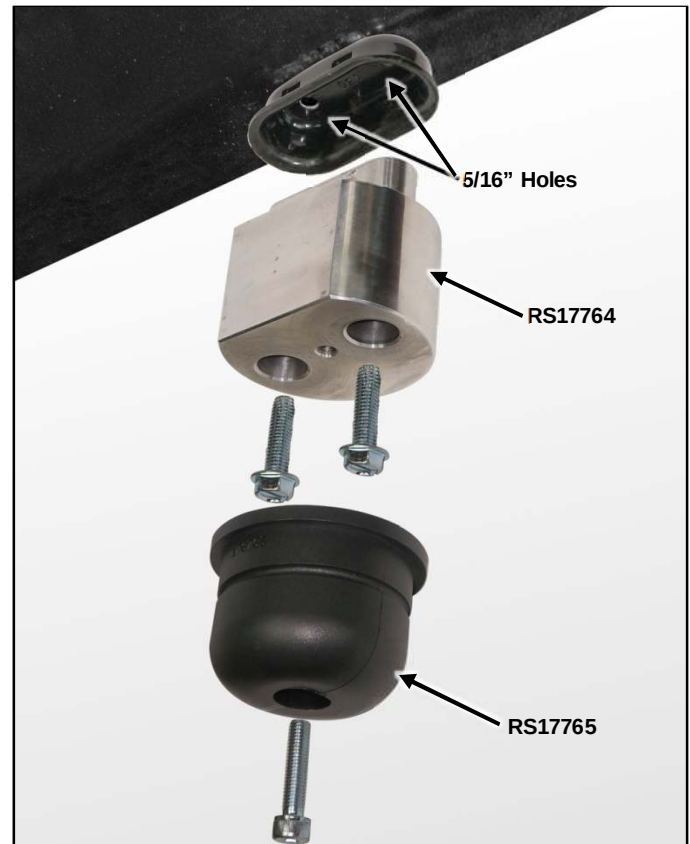
NOTE: If no tap is available, enlarge holes to 11/32 then pre-install supplied 3/8" self-tapping bolts using oil to form threads. Clean bolts and holes of oil.

4) ☐ Install bump stop spacer RS176764 with flat facing out using supplied 3/8" self-tapping bolt. Use red LocTite. Torque to 25 ft. lbs. See illustration 9 and illustration 10.

5) ☐ Attach bump stop RS176765 to spacer RS176764 with the 8mm hardware from kit RS860799. Use red Loctite. Tighten bolts to 15 ft. lbs. See illustration 9 and illustration 10.



Illus. 8



Illus. 9

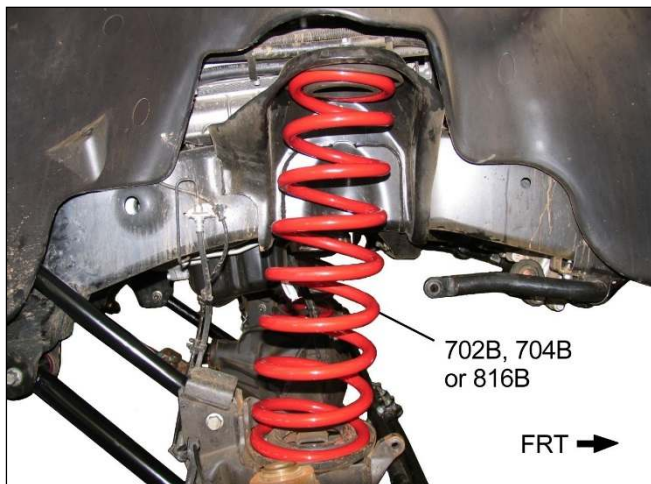


Illus. 10

COIL SPRING & SHOCK ABSORBER INSTALLATION

NOTE: The driver side coil spring may be taller than the passenger side on some applications. See application guide.

- 1) ☐ Using a quality spring compressor, compress left coil spring 702B, 708B or 815B.
- 2) ☐ Insert left coil spring between the driver side axle pad and upper mount. Align spring with reference marks. Remove spring compressor.
- 3) ☐ Compress right coil spring 702B, 704B or 816B.
- 4) ☐ Insert right coil spring between the passenger side axle pad and upper mount. Align spring with reference marks. Remove spring compressor. See illustration 11.



Illus. 11

- 5) ☐ Carefully raise front axle. Do not lift vehicle off frame supports.
- 6) ☐ Fully extend new Rancho front shock absorber RS99317. Insert shock into coil spring from engine compartment.
- 7) ☐ Attach shock to axle bracket with the original hardware. Tighten bolt to 100 ft. lbs.
- 8) ☐ Install lower retainer and bushing on shock. Install shock bracket and the three original nuts. Refer back to illustration 5. Tighten nuts to 55 ft. lbs.

- 9) ☐ Install upper bushing and retainer. Install shock absorber nut and tighten to 40 ft. lbs.

- 10) ☐ Repeat steps 6 through 9 for the other side.

PITMAN ARM & TRACK BAR BRACKET INSTALLATION

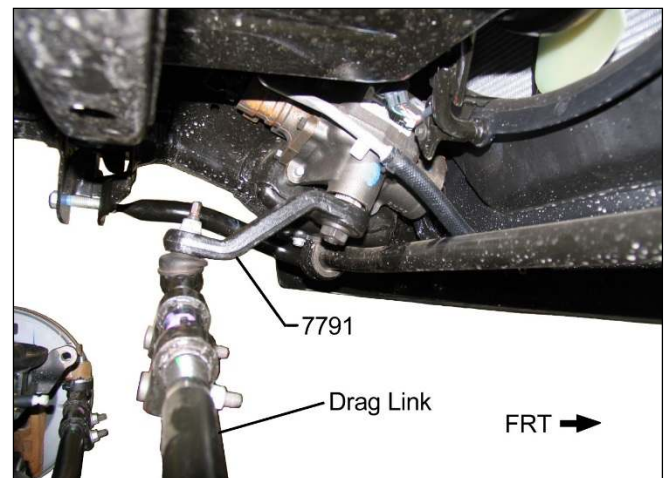
⚠ WARNING

PROPER INSTALLATION OF THE PITMAN ARM IS CRUCIAL

- 1. Use a calibrated torque wrench. Follow OEM torque requirement of 185 ft-lbs.**
- 2. Use of Red Loctite 271 or equivalent is required.**
- 3. Recheck the torque setting within 30 days.**
- 4. Do this procedure annually or after every off-road use.**

FAILURE TO FOLLOW ABOVE PROCEDURES WILL VOID ALL WARRANTIES.

- 1) ☐ Transfer reference marks from the original pitman arm to pitman arm 7791. Align marks and attach pitman arm 7791 to the steering shaft with the original hardware. Tighten nut to 185 ft. lbs.
- 2) ☐ Loosen clamp bolts on the drag link adjustment sleeve. Rotate the ball stud on the drag link upward. Insert the drag link into the pitman arm. See illustration 12.



Illus. 12

- 3) ☐ Attach the drag link to the pitman arm with the original nut. Tighten the nut to 40 ft. lbs. then an additional 1/4 turn.

4) ☐ Turn the adjustment sleeve two turns to increase the length of the drag link. Adjust the sleeve clamps until the retaining bolts are on the bottom. Tighten the bolts to 45 ft. lbs.

5) ☐ Using the 14mm hardware from kit 860536, temporally attach the forward (176377B) and aft (176367B) track bar brackets to the original bracket and crossmember. See illustration 13.



Illus. 13

6) ☐ Using the aft bracket as a template, mark the two mounting hole locations on the back of the crossmember. See illustration 14.



Illus. 14

7) ☐ Remove brackets. Drill a 31/64" hole through the crossmember at each location.

8) ☐ Attach track bar brackets to the original bracket and crossmember with the hardware from kit 860536. Apply thread lock and snug down the 14mm sleeve bolt first, the 14mm crossmember bolt second, and the 12mm bolts last.

9) ☐ Tighten the 14mm bolts to 150 ft. lbs., then the 12mm bolts to 75 ft. lbs.

END LINK EXTENDER & BRAKE HOSE BRACKET INSTALLATION

1) ☐ Apply thread lock to the original end link stud. Attach end link extender RS176419 to end link. See Illus. 15. Tighten extender securely.

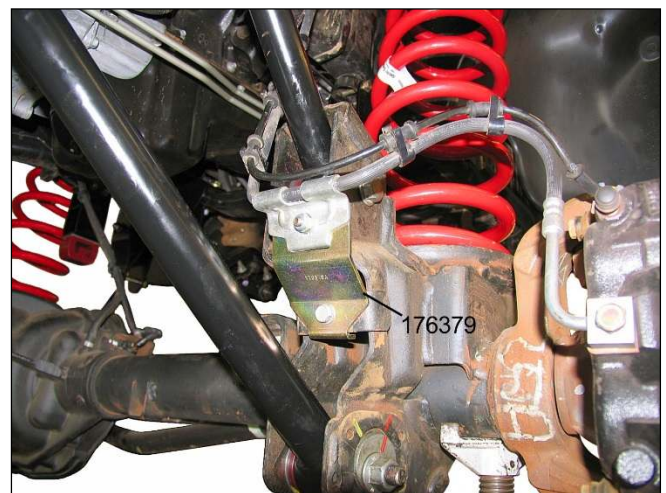
2) ☐ Attach the end link assembly to the sway bar with the original retainers, bushings, and nut. Tighten to 20 ft. lbs.

3) ☐ Repeat steps 1 and 2 for the other side.



Illus. 15

4) ☐ Attach brake hose bracket 176379 to the axle bracket with the original bolt. See illustration 16.



Illus. 16

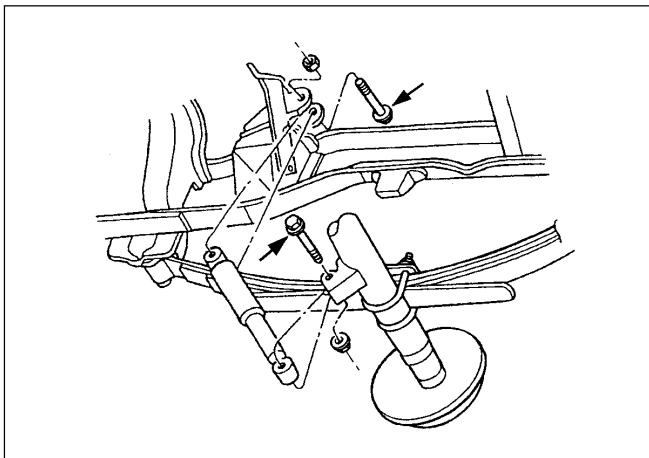
5) ☐ Attach the original brake hose bracket to bracket 176379 with the 8mm hardware from kit 860538.

- 6) ☐ Repeat steps 7 and 8 for the other side.
- 7) ☐ Install front wheels and lower vehicle to ground. Tighten the lug nuts to 145 ft. lbs.
- 8) ☐ Install thread lock and tighten the upper link bolts to 120 ft. lbs. Install thread lock, align reference marks and tighten the lower link bolts to 160 ft. lbs.
- 9) ☐ Install thread lock and attach track bar to forward and aft brackets with the 14mm hardware from kit 860536. Tighten the track bar bolts to 150 ft. lbs.

REAR SUSPENSION

RISER BLOCK INSTALLATION

- 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 assembly with a floor jack.
- 3) ☐ Remove the shock absorber upper and lower mounting bolts. See illustration 17. Remove the rear shock absorbers.



Illus. 17

- 4) ☐ Remove the u-bolts on one side only.

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

- 5) ☐ Lower the axle about five inches. Remove the plastic center pin from the bottom of the spring.

- 6) ☐ Place riser block 15106 on the axle pad. Align pins and raise the axle until block is seated against the spring.

- 7) Attach leaf spring to axle with new Rancho u-bolts. See illustration 18. Tighten u-bolt nuts evenly to 110 ft. lbs.



Illus. 18

- 8) ☐ Install new Rancho shock absorber. Tighten upper and lower mounting bolts to 100 ft. lbs.
- 9) ☐ Repeat steps 4 through 8 for the other side.

BRAKE LINE SPACER INSTALLATION

- 1) ☐ Disconnect the brake line junction block from the rear axle by removing the vent hose fitting.
- 2) ☐ Place the 3/8" washer from kit 860538 on brake line spacer 176374. Attach the spacer to the axle. See illustration 19.

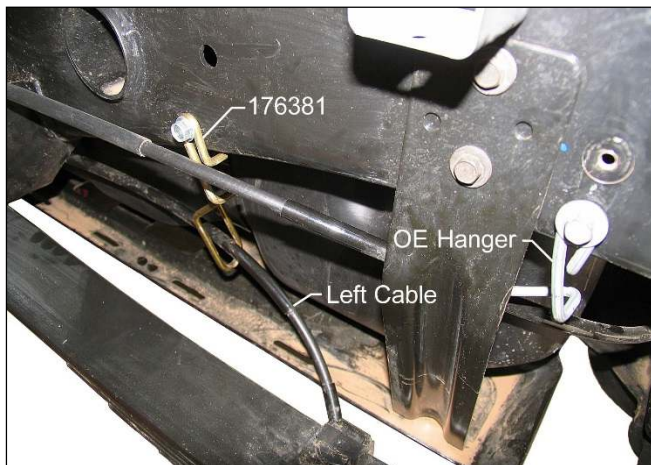


Illus. 19

- 3) ☐ Attach the junction block to the spacer with the vent hose fitting.

PARKING BRAKE HANGER INSTALLATION

- 1) ☐ Release parking brake. Mark the location of the left cable adjuster nut. Loosen nut and disconnect the left rear parking brake cable.
- 2) ☐ Compress tabs and remove the left cable from the frame bracket and the brake hanger.
- 3) ☐ Remove the parking brake hanger from the driver side frame rail. Reattach the hanger using the lower hole and the original screw. See illustration 20.

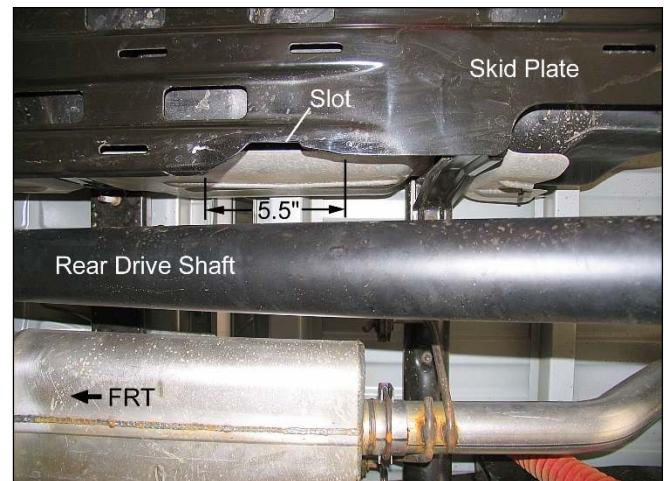


Illus. 20

- 4) ☐ Using brake hanger 176381 as a template, mark the mounting hole location on the frame rail as shown in illustration 20. Drill a 11/32" hole.
- 5) ☐ Attach new brake hanger 176381 to the frame rail with the self-tapping screw from kit 860538.
- 6) ☐ Insert left brake cable through the new hanger, under the frame and through the original bracket hole. Lock the fitting tabs into the hole.
- 7) ☐ Reattach the brake cable. Set the adjuster nut to its original location.

GAS TANK SKID PLATE MODIFICATION

- 1) ☐ To prevent contact with the drive shaft, cut off a 5.5 inch long section from the gas tank skid plate with a reciprocating saw. See illustration 21.



Illus. 21

WARNING: Do not use a torch or grinding wheel when cutting near the gas tank.

- 2) ☐ File sharp edges and paint exposed metal.
- 3) ☐ Install rear wheels and lower vehicle to ground. Tighten lug nuts to 145 ft. lbs.

CARRIER BEARING DROP BRACKET INSTALLATION (IF APPLICABLE)

NOTE: See application guide for vehicles requiring carrier bearing drop bracket kit RS6608.

- 1) ☐ Support the drive shaft with a jackstand. Remove the bracket mounting bolts.
- 2) ☐ Lower drive shaft and place drop bracket 176223 between the carrier bearing and the original bracket. Raise drive shaft and align mounting holes. See illustration 22.



Illus. 22

- 3) ☐ Place sleeves from kit 6608 inside drop bracket 176223 over the mounting holes.
- 4) ☐ Attach carrier bearing to original bracket with the supplied 10mm hardware. Tighten bolts to 40 ft. lbs.

Application Guide

Must be purchased separately

Kit Description	Part Number
Front Coil Spring Kit	RS80121B
U-Bolt Kit	RS747
Carrier Bearing Kit*	RS6608*

*Vehicles equipped with two-piece rear driveshaft may need Carrier Bearing Spacer Kit RS6608 to prevent driveline vibration.

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) ☐ Check for adequate clearance (1/8" minimum) between the front drive shaft and the exhaust crossover pipe. If necessary, dimple the pipe.
- 3) ☐ Readjust headlamps. Have vehicle aligned at a certified alignment facility.

Recommended Alignment Specifications

Caster (degrees): 4.0° min, +.75° max

Camber (degrees): .25° (not adjustable)

Sum Toe In (degrees): .1° ± .05°

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

Shock Absorbers

Must be purchased separately

Front	Rear
RS55317	RS55056
RS5317	RS5056
RS7317	RS7056
RS999317	RS999056



www.gorancho.com

Rancho Technical Department 1-734-384-7804.