

INSTALLATION INSTRUCTIONS

89401 Rev A



**For Rancho Suspension System RS66401B:
2013 - 2014 RAM 1500 4WD**



Fits OE 17" and up rims
ONLY WITH OE TIRES

 **WARNING**

Carefully read, understand and follow the instructions provided in this manual, and keep it in a safe place for future reference. If you have any doubt whatsoever regarding the installation or maintenance of your Rancho suspension system, please see your retailer for assistance or advice. Failure to follow the warnings and instructions provided herein can result in the failure of the suspension system, or can cause you to lose control of your vehicle, resulting in an accident, severe personal injury or death.

These instructions should remain in the vehicle glove box for future reference.

 **WARNING: READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION. Failure to follow the warnings and instructions provided herein can result in an accident, severe personal injury or death.**

I. PRELIMINARY


This manual presumes that all persons installing this suspension system have a high level of mechanical training and experience, and have available to them all necessary tools and safety equipment. This manual is not and should not be construed as an exhaustive list of all required safety measures. Personnel should rely primarily on their training and experience, as well as on their own common sense.

This Manual is to be read as a supplement to, and must not be construed as a substitute for, the owner's manual and/or shop manual that originally accompanied the vehicle. Refer to such use, operation, maintenance and safety manuals as necessary, and especially after installation is complete, to insure proper vehicle operation.


The following terminology has been used in this Manual:

ACCIDENT: Any event which could cause personal injury or death to anyone installing or using the suspension system, as well as to passengers and bystanders, or otherwise may result in property damage.

II. PRE-INSTALLATION WARNINGS and INSTRUCTIONS

 **WARNING: Only the following rim/tire sizes may be used with this suspension system: 295/60R20 tire, 20x9-in 0 offset wheel.**

Use of any other rim/tire combination increases the risk of a roll-over and/or accident, resulting in severe personal injury or death.

 **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. 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.**

1) Service and repair tasks require specialized knowledge, training, tools, and experience. General mechanical aptitude may not be sufficient to properly install this suspension system. If you have any doubt whatsoever regarding your ability to properly install the suspension system, please consult a qualified mechanic.

2) Your brake lines and fuel lines should remain undisturbed during and after installation. If you think you need to modify these components in any way, you are mistaken. You are installing the lift improperly and will be creating a significant risk of an accident. In case of any doubt, consult a qualified mechanic.

3) If any component does not fit properly, something is wrong. You are installing the lift kit improperly and will be creating a significant risk of an accident. Never modify any component of the vehicle or suspension system, except as instructed herein. Do not continue with installation until you have identified the problem.

4) Several of the procedures described herein require at least two (2) persons to safely complete the task. If you have any doubt about your ability to complete any operation by yourself, always ask for help from a qualified assistant.

5) Before starting any operation, confirm that all personal safety devices and safety equipment are in proper condition and position.

6) Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in an error in installation and/or serious injury.

7) Install only tires approved by the United States Department of Transportation ("DOT approved"). Make sure the rim and tire size are properly matched.

8) If any components of the vehicle or suspension system are damaged in any way during installation, immediately replace the component.

9) During installation, carefully inspect all parts of the vehicle and replace anything that is worn or damaged.

10) Nip points present the risk of the catching, lacerating, crushing and/or amputating fingers, hands, limbs and other body parts during operations. Always keep clear. Wear protective gloves.

11) Oil and hydraulic fluids are poisonous, dangerous to health and are known to the State of California to cause cancer, birth defects or other reproductive harm. Do not inhale vapors or swallow. Do not allow contact with the eyes or skin. Should any oil or fluids be swallowed or inhaled or come into contact with the eyes, immediately follow the safety precautions on the label or call a poison control center immediately. Should any of the oil or fluids contact your skin, immediately wash thoroughly.

12) Never install the suspension system if you are under the effects of alcohol, medications and/or drugs. If you are taking prescription or over the counter medication, you must consult a medical professional regarding any side effects of the medication that could hinder your ability to work safely.

III. WARNINGS AND INSTRUCTIONS AFTER INSTALLATION

13) After installation is complete, drive the vehicle slowly in an area free from heavy traffic for at least three (3) miles. Likewise, before traveling on any highways or at a high rate of speed, drive the vehicle for ten (ten) miles on side roads at moderate speed. If you hear any strange noise or feel unusual vibration, if a component of the suspension system is not operating properly, or if any warning lights illuminate or buzzers sound, stop the vehicle immediately. Identify the cause and take any necessary remedial action.

14) Confirm that all components of the vehicle, including all lights (headlights, turn signals, brake lights, etc.), linkages (accelerator, etc.), electrical switches and controls (windshield wipers and defoggers, etc.), and other warning devices (low tire pressure monitoring systems) are fully operational.

15) Your headlights will need to be readjusted before the vehicle is used on the roads. Consult the vehicle owners' manual.

16) The speedometer and odometer will need to be recalibrated after installation. See your dealer.

17) Confirm proper rear view and side view while seated in the driver seat. Install supplemental mirrors as necessary.

18) Your original low tire pressure monitoring system may be re-installed in your new wheels. However, if you choose to purchase a new system, see your dealer to have them properly calibrated. Proper tire pressure is critical to safe operation of the vehicle.

IV. OPERATION

19) Because it has been modified, the vehicle will not handle, turn, accelerate or stop in the same manner as an unmodified vehicle. In addition, the crash protection systems designed in the vehicle may operate differently from an unmodified vehicle. For example, turning and evasive maneuvers must be executed at a slower rate of speed. Further, there is a greater risk that the vehicle could roll over. These differences could result in an increased possibility of an accident, personal injury or death. Learn the vehicle's operations and handling characterizes and drive accordantly.

V. IMPORTANT NOTES

A. 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).

B. The components of Rancho's suspension system are designed as a single integrated system. To avoid compromises in terms of safety, performance, durability or function, do not substitute Rancho components with components manufactured by other companies. Use of other components will result in the forfeiture of any type of warranty on the vehicle/suspension system. New Rancho shock absorbers are required and must be purchased separately.

Front	Rear
RS5810	RS5369

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

D. 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.

E. 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.

F. 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.

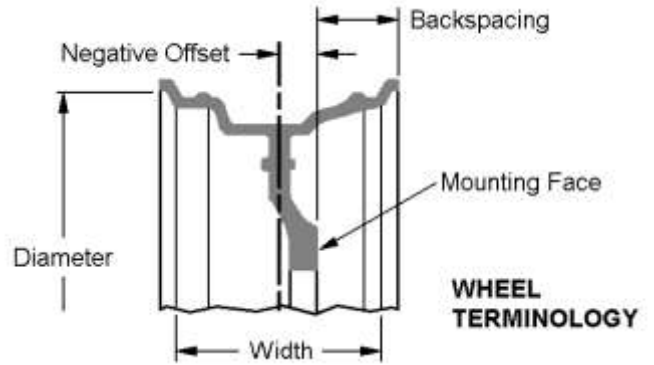
G. Apply a drop of thread locking compound to all bolts during installation. **⚠ CAUTION: Thread locking compound may irritate sensitive skin. Read warning label on container before use.**

H. Unless otherwise specified, tighten all nuts and bolts to the standard torque specifications shown in the table on page 4. USE A TORQUE WRENCH for accurate measurements.

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 system: If you do not know how to safely use any of these tools, stop the project and consult a qualified mechanic.

- Dodge Service Manual
- Coil Spring Compressor
- Removing Tools 8677 & 9360
- 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)
- Silicone Spray Lubricant
- Dot 3 Brake Fluid
- Enamel Paint
- Tape Measure
- Safety Glasses (wear safety glasses at all times)



J. It is extremely important to replace coil springs, 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 5 to 6 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. This suspension system was developed using the following wheel & tire combination: 20" x 9" wheel with 5 inches of backspacing and a 295/60R20 tire. Maximum total backspacing (rim and tire) is 6.5". Before installing any other combination, consult your local tire and wheel specialist. Fits OE 17" and up rims ONLY WITH OE TIRES

N. 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.

O. The lifespan of Rancho products depends on many factors. Improper use, abuse or harsh use in general may compromise the integrity of the suspension system and significantly reduce its lifespan. The suspension system is also subject to wear over time. Have the suspension system regularly inspected and maintained by qualified mechanics. If the inspection reveals any damage or excessive wear, no matter how slight, immediately replace or repair the component. The suspension system must be regularly maintained in order to optimize its safe and efficient use. The more severe the conditions under which the suspension system is operated, the more often it must be inspected and maintained.

P. Red Components are for illustration purposes only. Red components might not be available.

STANDARD BOLT TORQUE & IDENTIFICATION						
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

<p style="text-align: center;">1/2-13x1.75 HHCS</p> <p style="text-align: center;">D T L X</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Grade 5</p> </div> <div style="text-align: center;"> <p>Grade 8</p> </div> </div> <p>G = Grade Marking (bolt strength) L = Length (inches) D = Nominal Diameter (inches) X = Description (hex head cap screw) T = Thread Pitch (threads per inch)</p>	<p style="text-align: center;">M12-1.25x50 HHCS</p> <p style="text-align: center;">D T L X</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>10.9</p> </div> </div> <p>P = Property Class (bolt strength) L = Length (millimeters) D = Nominal Diameter (millimeters) X = Description (hex head cap screw) T = Thread Pitch (thread width, mm)</p>
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The driver of this suspension system recognizes and agrees that there are risks inherent in driving a vehicle with a lifted suspension system, including but not limited to the risk that you could be involved in an accident that would not occur in an unmodified vehicle. By his/her purchase and use of this suspension system, the user expressly, voluntarily and knowingly accepts and assumes these risks, and agrees to hold Tenneco, Inc. and its related companies harmless to the fullest extent permitted by law against any resulting damages.



PARTS LIST

Item	P/N	Description	QTY	Item	P/N	Description	QTY
		Box 1 of 4					
1	RS176588B	Sub-frame	1		RS860572	Right Differential Drop Hardware Kit	1
		Box 2 of 4			RS770139	M12-1.75 x 80 HHCS	2
2	RS860354 RS176230	Knuckle, Left	1		RS77035	M12-1.75 x 70 HHCS	2
		Box 3 of 4			RS7911	M12-1.75 Stover Nut	4
3	RS860355 RS176231	Knuckle, Right	1		RS7915	M12 Washer	8
		Box 4 of 4			RS860562	Sub-frame Hardware Kit	1
4	RS170108	Brake Hose, Left	1		RS176421	Centering Plate	2
5	RS170109	Brake Hose, Right	1		RS770040	M16-2.0 x 140 HHCS	4
6	RS176654	Axle Tube Drop Bracket, Front Half	1		RS770030	M16-2.0 Stover Nut	4
7	RS176239	Axle Tube Drop Bracket, Back Half	1		RS7861	M16 Washer	8
8	RS176240	Differential Drop Bracket, Left Half	1	16	RS770151	USS Washer 5/8	6
9	RS176651	Differential Drop Bracket, Right Half	1		RS42702	Thread Lock	2
10	RS176653	Differential Drop Bracket, Aft	1		136763624	Tie Wrap	4
11	RS176419	End Link Extension	2		RS860460	Hub Spacer Kit	1
12	RS176422	Differential Bracket Spacer	1		RS176232	Axle Hub Spacer	2
13	RS176589	Rear Bump Stop	2		RS860670	Rear Bump Stop Hardware Kit	1
14	RS602614	Outer Tie Rod End	2		RS770106	M12-1.75 x 30 HHCS	2
15	RS602641	Inner Tie Rod With Jam Nut	2		RS7807	M12-1.75 Nylock	2
	RS860453	Left Differential Drop Hardware Kit	1		RS7915	M12 Washer	4
	RS770072	M12-1.75 x 60 HHCS	2		RS8860730	Rear Brake Line Drop Hardware Kit	1
	RS7914	M12 1.75 x 65 HHCS	2		RS176698	Rear Brake Line Drop Bracket	2
	RS7911	M12-1.75 Stover Nut	4		RS770127	M8-1.25 x 20 HHCS	2
	RS7915	M12 Washer	8		RS603112	M8-1.25 Nylock Nut	2
	RS860707	Aft Differential Drop Hardware Kit	1		RS770128	M8 Washer	4
	RS770247	M12-1.75 x 25 HHCS	1		136763624	Tie Wrap	2
	RS770107	M12-1.75 x 35 HHCS	2		RS860671	Sub Assembly- Coils	1
	RS7915	M12 Washer	3	17	RS821B	Rear Coils	2
					RS94180	Information Pack	1
					RS780281	Rancho Decal	1
					RS89401	Instructions	1
					RS94119	Consumer/Warranty Information	1

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.

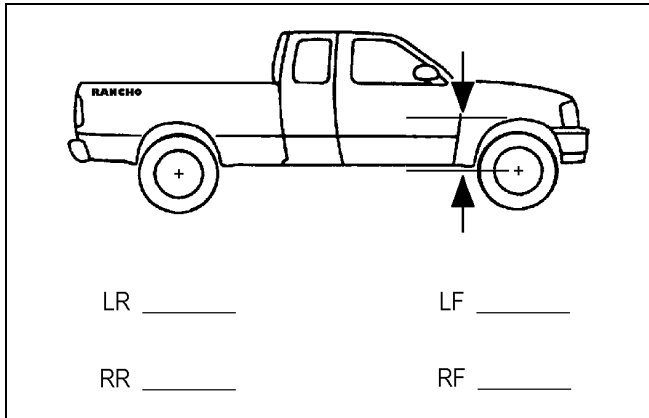


Illustration 1

- 2) Loosen the front lug and hub nuts before raising the vehicle.
- 3) Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.

SKID PLATE REMOVAL (IF APPLICABLE)

- 1) Remove the bolts holding the differential skid plate to the front crossmember. See Illustration 2. Slide the skid plate back and remove.

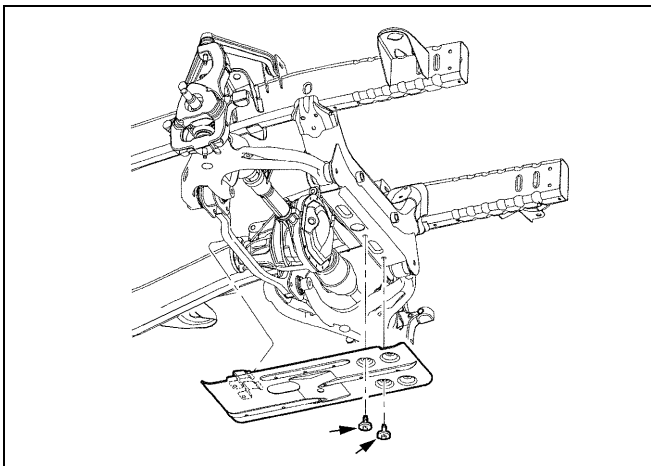


Illustration 2

STEERING KNUCKLE REMOVAL

- 1) Remove the brake caliper and its mounting bracket as an assembly. **Hang the caliper assembly with wire or a tie wrap.**

! WARNING: Do not allow the caliper to hang by the brake hose. You could damage the hose, without this damage being visible to you, resulting in sudden and unexpected brake failure and an accident.

- 2) Mark the brake rotor left or right. Remove the brake rotor. If applicable, disconnect the ABS speed sensor.
- 3) Remove the axle shaft hub nut.

! WARNING: Do not hammer the ball studs to separate them from components. You could damage the ball studs, without this damage being visible to you, resulting in sudden and unexpected failure of the ball studs and an accident.

- 4) Loosen the tie rod end jam nut. Remove the nut from the outer tie rod stud. Disconnect the outer tie rod end from the steering knuckle with removing tool 9360. See illustration 3.

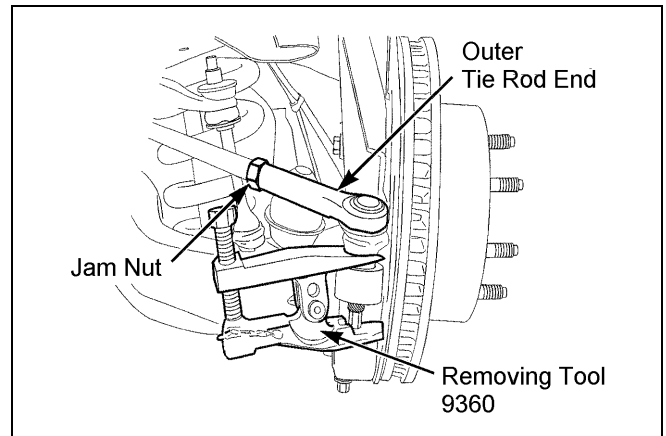


Illustration 3

- 5) Remove the nut at the upper ball joint. Using removing tool 9360, separate the ball joint from the steering knuckle. See illustration 4.

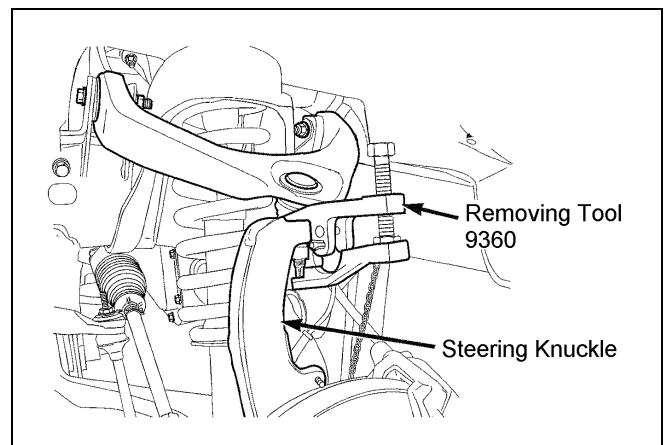


Illustration 4

- 6) Remove the nut at the lower ball joint. Using removing tool 8677, separate the ball joint from the steering knuckle. See illustration 5.

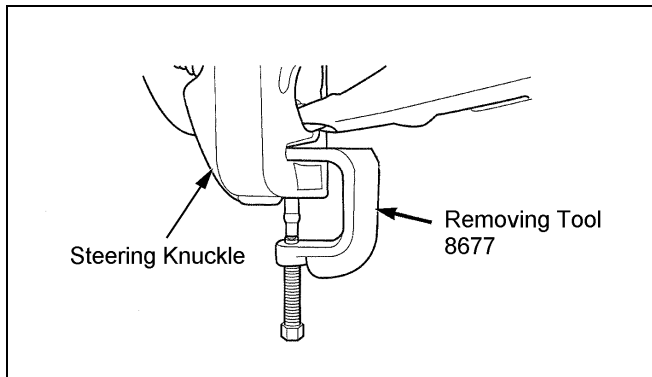


Illustration 5

- 7) Remove the steering knuckle. Hang the half shaft with wire or a tie wrap.

- 8) Repeat steps 1 through 7 for other side.

COIL-OVER & LOWER CONTROL ARM REMOVAL

- 1) Remove the upper nut from both end links. Remove the upper retainers and grommets. Separate the sway bar from the end links. See illustration 6.

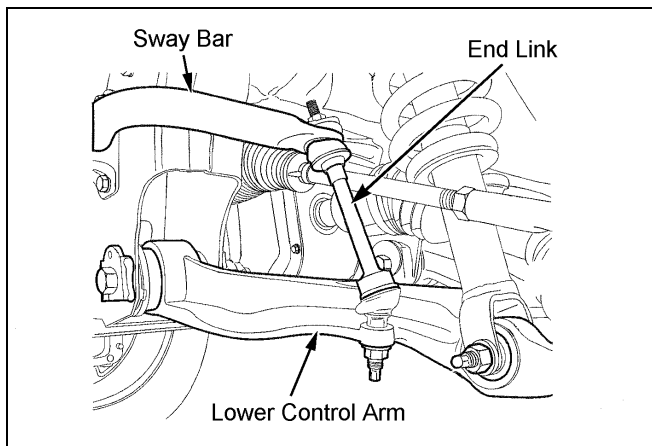


Illustration 6

- 2) Support the lower control arm with a jack.
 3) Remove the three upper coil-over nuts. See illustration 7. **Do not remove the center rod nut.**

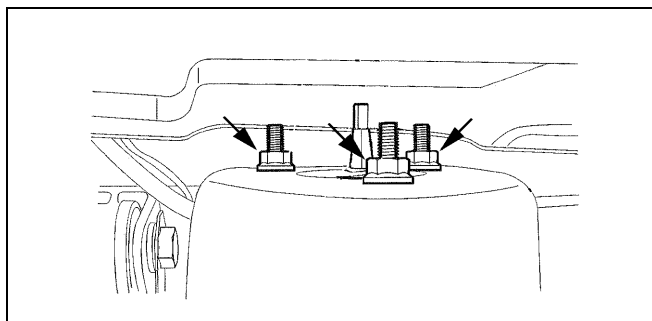


Illustration 7

- 4) Remove the lower coil-over nut and bolt. See illustration 8. Lower jack and remove the coil-over assembly.

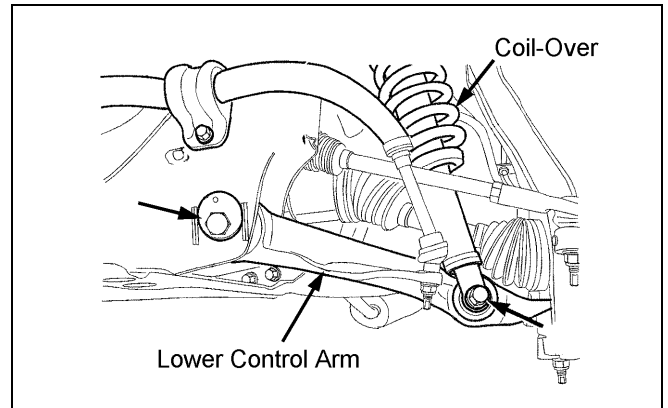


Illustration 8

- 5) Mark the lower control arm pivot bolts for installation reference. Remove the lower control arm pivot bolts. Refer to illustration 8. Remove the lower control arm.

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

INNER & OUTER TIE ROD REPLACEMENT

- 1) Remove clamps from rack and pinion boot. See illustration 9. Slide boot to expose rack and inner tie rod.

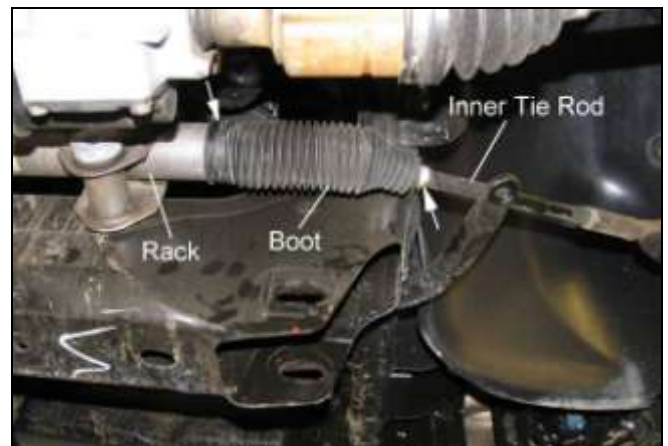


Illustration 9

NOTE: Keep rack clean while exposed.

- 2) Unthread inner tie rod from rack. Remove the tie rod assembly.

- 3) Remove outer tie rod end and jam nut. Remove OE clamp and boot.

- 4) Install OE boot, OE clamp and new jam nut on inner tie rod RS602641. Install jam nut to end of threads and attach outer tie rod end RS602614. See illustration 10. As reference leave a .45 gap between jam nut and tie rod end.

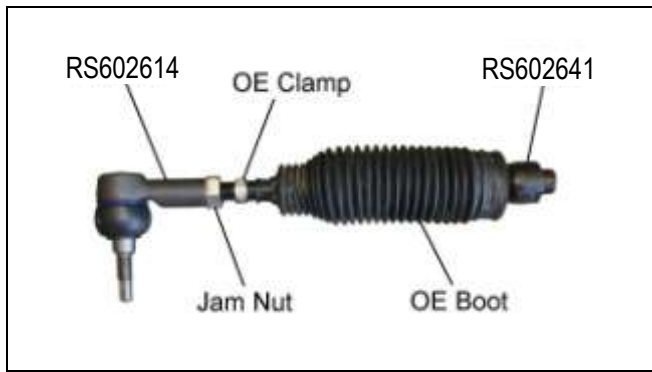


Illustration 10

- 5) Apply a small amount of thread lock to inner tie rod RS602641. Attach new tie rod assembly to rack. Tighten inner tie rod securely. **Do not over tighten.**
- 6) Install boot in original location on rack and inner tie rod. Secure boot to rack with a tie wrap from hardware kit RS860562. Secure boot to inner tie rod with the OE clamp.
- 7) Repeat steps 1 through 6 for the other side.

SUB-FRAME INSTALLATION

- 1) Remove the bolts attaching the cross member to the rear frame brackets of the lower control arms. See illustration 11. Remove the cross member.

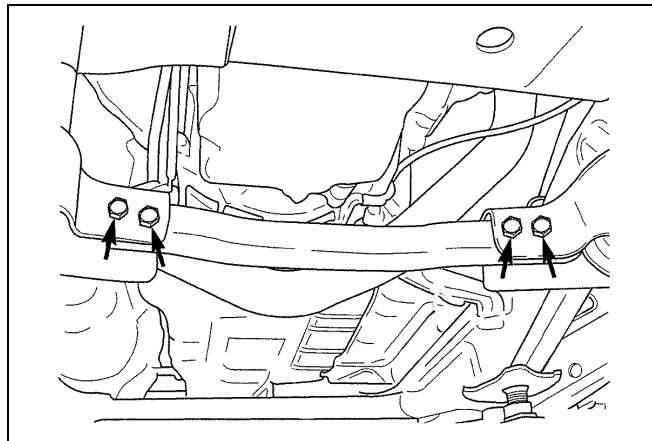


Illustration 11

- 2) To provide clearance for the differential, cut off the driver side frame bracket 2.0 inches from the edge of the alignment tab. See Illustration 12. File sharp edges and paint exposed metal.

⚠ WARNING: Do not use a flame cutter or torch to remove bracket. You could warp, weaken or damage the bracket without the damage being visible to you, resulting in loss of vehicle control and an accident.

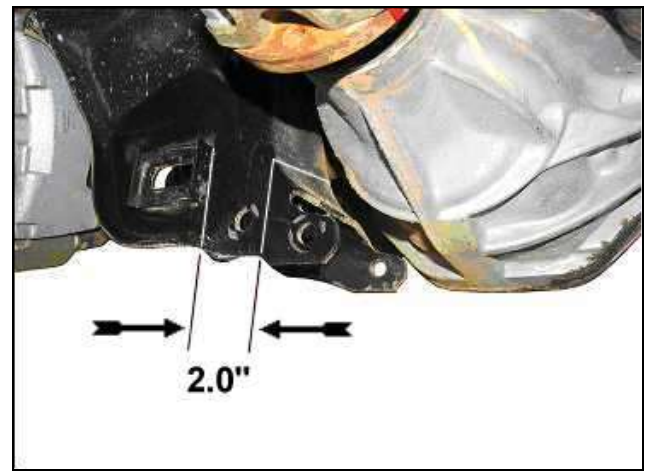


Illustration 12

- 3) With an assistant's help, raise sub-frame RS176588B up into the lower control arm frame brackets. See illustration 13.



Illustration 13

- 4) Attach the sub-frame with the hardware from kit RS860562. Install a small washer and centering plate RS176421 on each rear bolt. Insert all bolts from front to back. See illustration 14.

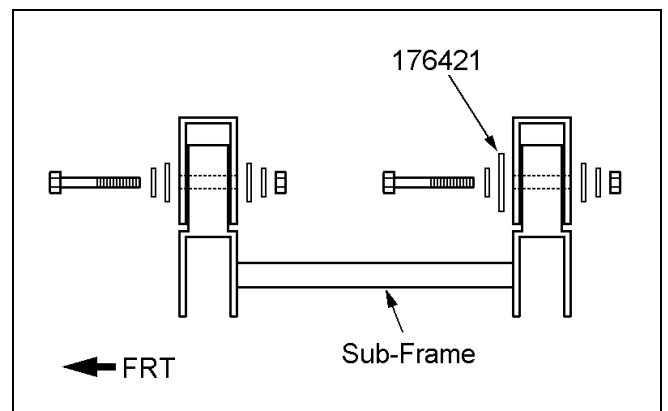


Illustration 14

- 5) Install one of the original cross member bolts as shown in illustration 13. Tighten the OE bolt to 75 ft. lbs. Tighten the sub-frame nuts and bolts to 150 ft. lbs.

FRONT DIFFERENTIAL DROP BRACKET INSTALLATION

⚠ WARNING: DO NOT allow differential to be supported only by the right/passenger side axle tube mount. DO NOT allow any twisting or side loading of the right/passenger side axle tube mount. Damage to the differential axle tube can result without the damage being visible to you, resulting in loss of vehicle control and an accident.

- 1) Support the front differential assembly with a jack.
- 2) Remove the differential housing rear mounting bolts. See illustration 15.



Illustration 15

- 3) Remove the right/passenger axle tube mounting bolts.
- 4) Remove the differential left/driver side housing upper mounting bolts. Carefully lower the differential assembly about 4 inches.

WARNING: Failure to follow differential drop bracket installation and torque sequence can result in damage to the differential axle tube!

- 5) Using the hardware from kit RS860453, loosely attach differential drop brackets RS176240 (left/driver half) and RS176651 (right/passenger half) to the differential left/driver side upper mount and frame bracket. See illustrations 16 and 17. Use the longer bolts on the bottom.



Illustration 16



Illustration 17

- 6) Using the hardware from kit RS860707, loosely attach drop bracket RS176653 to the differential rear mount and frame bracket. See illustration 17.
- 7) Loosely attach spacer bracket RS176422 and the axle tube drop brackets RS176654 and RS176239 with the original bolts on the upper and 12mm hardware from kit 860572 on lower mount. **The wider end of each bracket is attached to the top.** Use included 12mm washers and nuts for upper bolts. See illustration 18.

DO NOT TIGHTEN! BRACKETS MUST BE LOOSE!



Illustration 18

- 8) **FIRST** - Snug the differential housing rear mounting bolts until it sits flush with the frame bracket and differential.
- 9) **SECOND** - Snug the differential left/driver side housing upper mounting bolts until they sit flush with the frame bracket and differential.
- 10) **THIRD** - Tighten the differential housing rear mounting bolts to 70 ft. lbs.
- 11) **FOURTH** - Tighten the differential left/driver side housing upper mounting bolts to 70 ft. lbs.

12) **FIFTH** – Slowly snug the right/passenger axle tube mounting and spacer brackets while confirming that are installed correctly.

The brackets must align properly with the mounts. If there is more than 1/16" (.063") gap in any location, shimming will be required to prevent excessive side loads being applied to the differential axle tube.

If the brackets and mount are not parallel to each other, loosen and re-torque the Tighten the differential housing rear mounting bolts.

WARNING: Do not tighten the right/ passenger axle tube mounting brackets if step 12 cannot be successfully completed!

13) **SIXTH** - When the right/passenger axle tube mounting and spacer brackets are installed and aligned properly, Tighten mounting bolts to 70 ft. lbs.

LOWER CONTROL ARM & SHOCK ABSORBER INSTALLATION

1) Insert the left lower control arm into the sub-frame pockets on the driver side. Loosely attach the control arm with the original hardware. Align Cam Bolts if so equipped.

NOTE: Do not tighten pivot bolts until vehicle is at normal ride height.

2) Insert the right lower control arm into the sub-frame pockets on the passenger side. Loosely attach the control arm with the original hardware. See illustration 19.



Illustration 19

3) Install the driver side coil over assembly into a quality spring compressor. Mark coil, shock and upper mount for installation reference. Carefully compress the coil spring.

4) Hold the shock shaft and remove the upper shock nut. Remove the shock.

5) Assemble new shock absorber RS5810.

6) Insert shock assembly into coil spring. Install OE isolator, OE jounce bumper and mounting plate. See illustration 20. Align reference marks and install upper nut. Tighten nut to 45 ft. lbs.

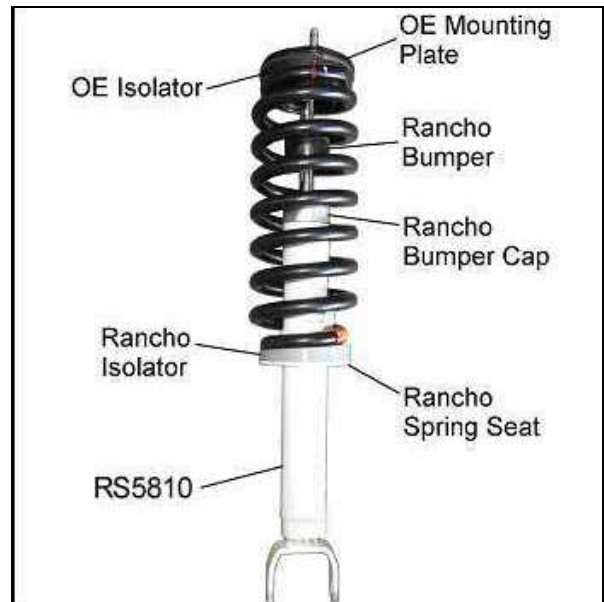


Illustration 20

7) Carefully release tension on coil spring. Remove coil over from spring compressor.

8) Repeat steps 3 through 7 for the passenger side.

FRONT SHOCK & STEERING KNUCKLE INSTALLATION

1) Insert the top of the right coil over assembly into the passenger side frame bracket. Attach coil over to bracket with the original nuts. Tighten nuts to 45 ft. lbs.

2) Loosely attach the bottom of the coil over to the lower control arm with the original hardware. Insert bolt from back to front.

3) Remove the three hub mounting bolts from the passenger side steering knuckle. Separate the hub, dust shield and ABS clip (if applicable), from the knuckle. See illustration 21.

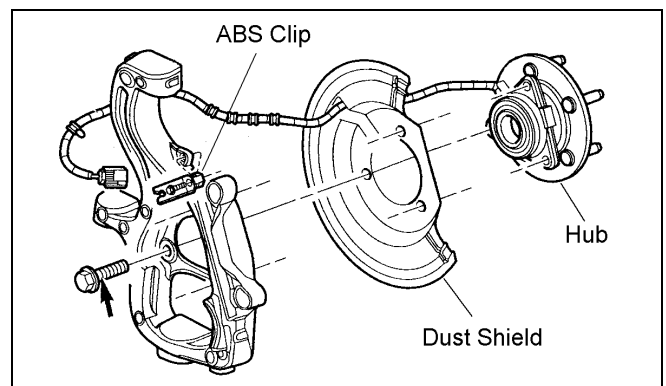


Illustration 21

4) Attach dust shield, hub and ABS line (use tie-wrap) to right steering knuckle RS176231. Tighten hub bolts to 120 ft. lbs.

NOTE: If equipped with ABS brakes, position the speed sensor opening on the hub toward the front of the vehicle.

5) Install axle hub spacer RS176232 on the passenger side axle shaft. See illustration 22.

6) Support the lower control arm with a jack. Insert axle shaft through hub and install steering knuckle RS176231 onto the lower ball joint. Install lower ball joint nut.

CAUTION: The ball joint studs must be free from residue (nylon) prior to installing new knuckle.

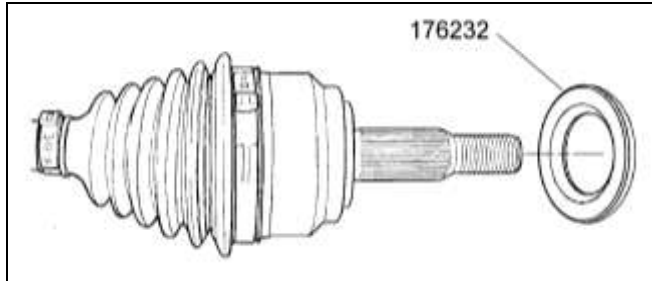


Illustration 22

7) Insert the upper ball joint into the knuckle. Install upper ball joint nut. See illustration 23.



Illustration 23

8) Tighten the upper ball joint nut to 40 ft. lbs. Tighten the lower ball joint nut to 38 ft. lbs. An additional 90 degree turn is required for both nuts.

9) Install the axle shaft hub nut and tighten to 185 ft. lbs.

10) Attach outer tie rod end to steering knuckle with the original nut. Tighten ball stud nut to 45 ft. lbs. Tighten the jam nut to 94 ft. lbs.

11) Repeat steps 1 through 10 to install the left coil over and steering knuckle RS176230 on the driver side.

BRAKE HOSE REPLACEMENT

1) Separate the passenger side brake line from the brake hose at the frame rail. Plug line to prevent brake fluid seepage.

NOTE: If the master cylinder becomes empty, then the entire brake system must be bled. Follow manufacturer's recommendations for bleeding the entire system.

2) Remove the bolt holding the brake hose to the frame. See illustration 24.

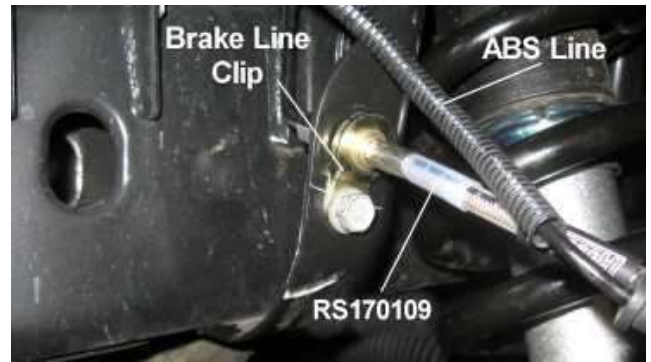


Illustration 24

3) Install the brake rotor. Attach the front caliper to the steering knuckle with the original mounting bolts. Tighten the caliper mounting bolts to 130 ft. lbs.

4) Remove the brake hose banjo bolt at the caliper. Remove brake hose.

5) Attach right brake hose RS170109 to the caliper with new washers and the original banjo bolt. See illustration 25. Tighten the bolt to 20 ft. lbs.



Illustration 25

6) Attach brake hose RS170109 to the brake line and frame. Tighten the original frame bolt to 7.5 ft. lbs. and the brake line fitting to 14 ft. lbs.

7) Repeat steps 1 through 6 to install left brake hose RS170108 on the driver side.

- 8) Bleed the front brakes as follows:

Fill master cylinder reservoir with approved brake fluid.

Attach a clear hose to bleeder valve of right front caliper. Immerse other end of hose into glass container partially filled with brake fluid.

Open bleeder valve, and then have a helper press down on the brake pedal.

Close bleeder valve and repeat process until fluid is clear and free of bubbles.

Repeat steps for left front caliper.

END LINK EXTENDER INSTALLATION

- 1) Apply thread lock to the original end link. Attach end link extender RS176419 to end link. See illustration 26. Tighten extender securely.



Illustration 26

- 2) Attach the end link assembly to the sway bar with the original retainers, bushings and nut. Tighten nut to 20 ft. lbs.
- 3) Repeat steps 1 and 2 for the other side.
- 4) Install front wheels and lower vehicle to ground. Tighten the lug nuts to 130 ft. lbs.
- 5) Align reference marks and tighten the lower control arm pivot bolts to 150 ft. lbs. Tighten the lower shock mounting bolts to 155 ft. lbs.

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 rear wheels.
- 2) Support the rear axle assembly with a floor jack.
- 3) Remove the bolt and nut holding the track bar to the rear axle.
- 4) Remove the upper and lower shock mounting bolts. Remove shock absorber. It may be necessary to remove fender well liner screws and pull liner out to remove upper

shock mounting bolt.

- 5) Remove upper end link mounting bolt, brake line wire hanger, and ABS lines from holders.

- 6) Repeat step 4 and 5 for other side.

- 7) Carefully lower the rear axle. Do not allow the axle to hang by any hoses or ABS cables.

⚠ WARNING: Do not allow the axle to hang by any hoses or ABS cables. You could damage the hoses or ABS cables, without this damage being visible to you, resulting in sudden and unexpected failure of a hose or ABS system, and an accident.

- 8) Remove both coil springs and insulators from vehicle.

BUMP STOP & COIL SPRING INSTALLATION

- 1) On driver's side, place bump stop spacer RS176589 on top of lower link axle pad. Align the hole in the spacer with the existing hole on the axle pad.

- 2) Attach bump stop spacer to axle pad with 12mm hardware from kit RS860670. Tighten to 50 ft. lbs. See Illustration 27.

- 3) Repeat steps 1 & 2 for passenger side.



Illustration 27

- 4) On driver side place coil spring RS821B onto the rear axle pigtail end down. Attach original insulator to top of coil, then raise the axle guiding the springs into the frame pockets. See Illustration 28.



Illustration 28

5) Attach new Rancho shock absorbers (RS5369 only) to the upper and lower mounts. Tighten securely.

Note: Failure to use Rancho rear shocks RS5369 could lead to coil spring damage.

6) Repeat steps 4 and 5 for passenger side.

7) Install brake line drop bracket RS176698 and Re-attach upper end links using OE end link and brake-line hanger hardware. Attach brake-line wire hanger to drop bracket using supplied 8mm hardware from kit RS860730. Reattach ABS lines using supplied tie wraps. See illustration 29.



Illustration 29

8) Install rear wheels and lower vehicle to ground. Tighten lug nuts to 140 ft. lbs.

9) Reinsert original track bar bolt into axle bracket. Tighten to 110 ft. lbs. See illustration 30.



Illustration 30

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 at a certified alignment facility.

Recommended Alignment Specifications

Caster (degrees): $3.75^{\circ} \pm .75^{\circ}$

Camber (degrees): $0^{\circ} - .3^{\circ}$

Sum Toe In (degrees): $.1^{\circ} \pm .1^{\circ}$

5) Park the vehicle on a level surface Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 31. **Record these measurements in the space provided below.**

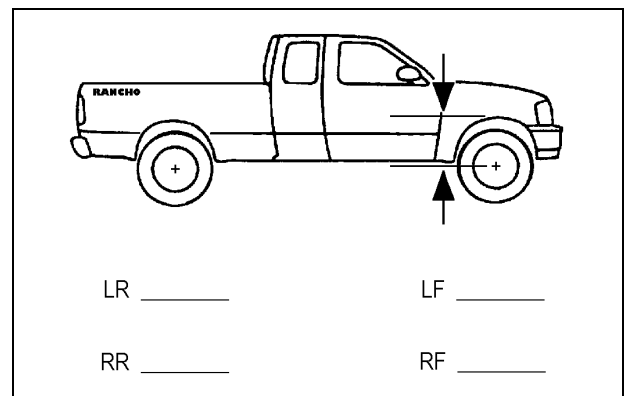


Illustration 31

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