



Rancho Suspension Systems:

RS6519B — 2014-2010 Ford F150 4WD 4" Kit

Requires new Rancho shock absorbers to be purchased separately. See page 4

— FMVSS 126 Certified —



Pictured with:

Wheels: 18x9-in 0 offset

Tires: BFG 35 x 12.5 x 18 KM2

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.

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.

PRE-INSTALLATION WARNINGS and INSTRUCTIONS

⚠ WARNING: Only the following rim/tire sizes may be used with this suspension system:

4-inch lift - 35x12.5xR18LT tire, 18x9-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.

AFTER INSTALLATION WARNINGS AND INSTRUCTIONS

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 (10) 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.

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 accordingly.

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). Have all suspension, steering and driveline components inspected and replaced if worn or damaged
- 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 install a body lift kit with Rancho's suspension system or interchange parts from this system with components from another manufacturer. Use of other components will result in the forfeiture of any type of warranty on the vehicle/suspension system.
- C. Some components required for the installation of this kit may need to be purchased separately. See "SPECIFICATIONS & REQUIREMENTS" on next page of this manual.
- D. 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.
- E. 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.
- F. 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 at end of instruction.
- 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 at end of instruction. USE A TORQUE WRENCH for accurate measurements.
- J. Do not weld anything to these components, and do not weld any of these components to the vehicle unless specifically stated in the instructions
- K. It is extremely important to replace coil springs, axle flanges, and 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 unless otherwise specified. This will prevent premature failure of the bushing and maintain ride comfort.
- M. Some of the service procedures require the use of special tools designed for specific procedures. If you do not know how to safely use any of these tools, or do not have them, stop the project and consult a qualified mechanic. See "Tools and Supplies" on next page of this manual
- N. The required installation time for this system is approximately 8 hours for two people. 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. 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. 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.
- Q. If any component breaks or bends, contact your local Rancho dealer or Rancho for replacement parts or, contact the Rancho Technical Department at 1-734-384-7804.

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

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.

SPECIFICATIONS & REQUIREMENTS

Shock Absorbers

New Rancho shock absorbers must be used with this kit, and **must be purchased separately.**

⚠WARNING Use of the wrong shock absorbers can cause damage to vehicle without the damage being visible to you, resulting in loss of vehicle control and an accident

Required Rancho shock absorbers

Front	Rear
RS7806	RS7287
RS999806	RS999287
RS55806	RS55287
RS5806	RS5287

Wheels and Tires

This suspension system was developed and tested using the following tire & wheel combination:

Tire: BFG Mud-Terrain T/A KM2 35 x 12.5 x R18LT

Wheels: 18x9-in 0 offset

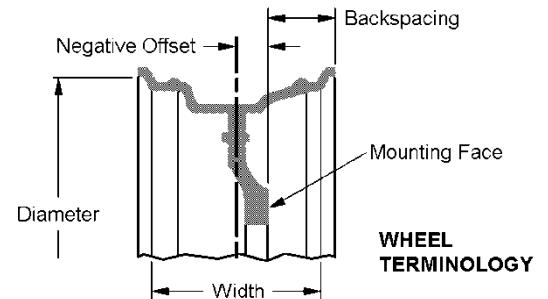
Maximum total backspacing is 6.5".

Before installing any other combination, consult your local tire and wheel specialist.

Compatible With OE Wheels	Development Tire Size (Actual)	Wheel Size (Backspacing)
Yes ¹ 18" wheel and up only	35 x 12.5 x R18LT ² (34.8 X 12.5)	18x9 +0 (5.0")

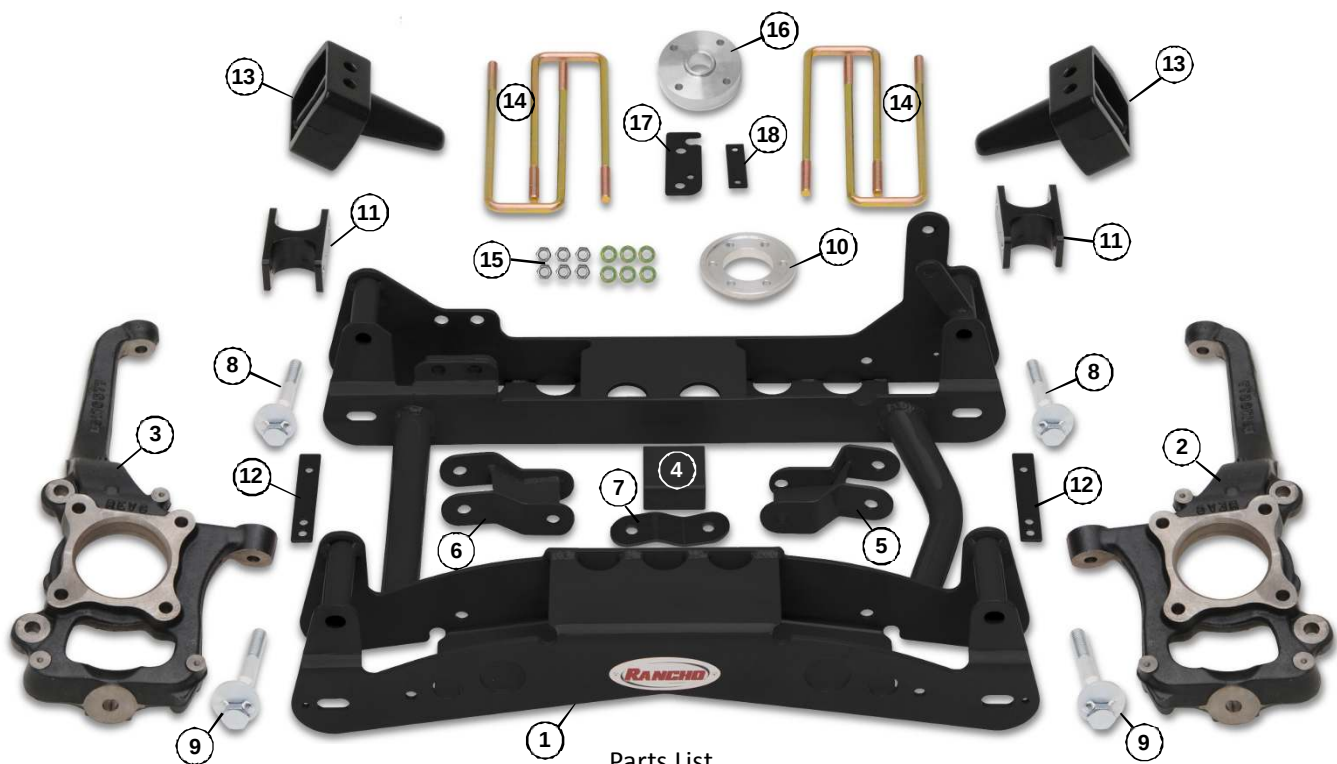
¹ OE wheels and spare compatible with stock size tires only.

² May require trimming to provide proper clearance.



Tools and Supplies (BECAUSE OF VEHICLE VARIATIONS, THIS MAY NOT BE A COMPLETE LIST)

Ford Service Manual	Heavy Duty Jack Stands	Silicone Spray Lubricant
Die Grinder with cut-off blade or sawzall	Wheel Chocks (wooden blocks)	Tape Measure
Vacuum Cap	Hydraulic Floor Jack	Grease Gun with NLGI 2 GC-LB Lithium Base Grease
Coil Spring Compressor	File	Tape Measure
Torque Wrench (406 FT-LB capacity)	Hammer	Safety Glasses--
Ford Ball Joint Tool- part number- 204-592	Wire Brush	Wear safety glasses at all times
1/2" Drive Ratchet and Sockets	(to clean bracket mounting surfaces)	
Assorted Combination Wrenches	Black Enamel Paint	



Parts List

ITEM	PART #	DESCRIPTION	QTY
	RS6519B-1	Box 1 Of 4	1
1	RS176575B	Subframe	1
	RS6519B-2	Box 2 Of 4	1
2	RS176590	Left Knuckle	1
	RS6519B-3	Box 3 Of 4	1
3	RS176591	Right Knuckle	1
	RS6519B-4	Box 4 Of 4	1
4	RS176585	Rear X-Member Spacer	1
5	RS176580	Front Driver Diff Drop	1
6	RS176581	Front Passenger Diff Drop	1
7	RS176582	Aft Driver Diff Support	1
	RS860666	Sub Assy, Front Diff Drop	1
	RS770041	HHCS, M14-2.00X90	1
	RS770129	HHCS, M14-2.00X80	1
	RS770109	Washer, M14	8
	RS7877	Nut, M14-2.00 Top Lock	3
	RS770128	Washer, M8	4
	RS603112	Nut, M8-1.25 Nylock	2
	RS770043	HHCS, M14-2.00X100	1
	RS770127	HHCS, M8-1.25X20	2
	RS770059	HHCS, M14-2.00X40	1
	RS860737	Sub Assy, Alignment Hardware	1
8	RS176311	Cam Bolt M18-2.5X150 (aft)	2
9	RS176578	Cam Bolt M18-2.5X160 (front)	2
	RS770123	Washer, M18 SAE	4
	RS770118	Nut, M18-2.5 Nylock	4
10	RS176586	Front Driveshaft Spacer	1
	RS860668	Sub Assy, Front Driveshaft	1
	RS770256	M10-1.5 12 Point	6
	RS770230	M10 Washer	6
	RS7912	HHCS, M12-1.75X130	2
	RS7911	Nut, M12-1.75 Top Lock	2
	RS7719	Washer, 1/2 USS	4
	RS42702	Thread Lock	2
11	RS176579	Sway Bar Drop Brkt	2

ITEM	PART #	DESCRIPTION	QTY
	RS860506	Sub Assy, Sway Bar Drop Brkt	1
	RS770080	HHCS, M10-1.50X30	4
	RS7657	Nut, M10-1.50 Nylock	4
	RS770064	Washer, M10	8
	RS860749	Sub Assy Vent Hose	1
	RS96327	Tube Fitting Straight	1
	RS96328	Black Rubber Tube	1
12	RS176587	Front Brake Line Bracket	2
13	RS15104	Winged Spacer Block	2
14	RS740017	U-Bolt, 9/16-18X3.16X12.0	4
15	RS860152	Sub Assy, U-Bolt	1
	RS770062	Washer, 9/16 USS	8
	RS7737	Nut, 9/16-18 Nylock	8
	RS860731	Sub Assy, Rear Drive Shaft Spacer	1
16	RS176691	Rear Drive Shaft Spacer	1
	RS860732	Sub-Assembly, Spacer Hardware	1
	RS77035	HHCS, M12-1.75X70	4
	RS7915	Washer, M12	4
	RS860665	Sub Assy, Rear Brake	1
17	RS176583	Parking Brake Cable Bracket	1
18	RS176314	Rear Brake Hose Drop Bracket	1
	RS7906	HHCS 1/4-20X1.00	1
	RS7710	Nut, 1/4-20 Nylock	1
	RS77841	Washer, 1/2" SAE	2
	RS770106	HHCS, M12-1.75X30	1
	RS7807	Nut, M12-1.75 Nylock	1
	RS7915	Washer, M12	2
	RS770081	HHCS, M8-1.25X10	1
	RS770128	Washer, M8	2
	RS603112	Nut, M8-1.25 Nylock	2
	RS770127	HHCS, M8-1.25X20	1
	RS94180	Information Pack	1
	RS94177	Roller Warning Label	1
	RS94119	Consumer / Warrantee Information	1
	RS780281	6" Rancho Decal	1
	R-RM0082-1112	Warranty Tag	1
	RS88519	Instructions	1

FRONT SUSPENSION

VEHICLE PREPARATION & SWAY BAR REMOVAL

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.

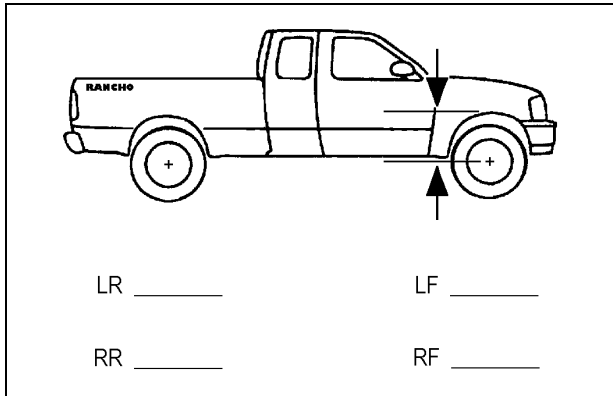


Illustration 1

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

3) ☐ If applicable, remove the front skid plate.

4) ☐ Hold the hex stud and remove the nut attaching the sway bar end link to the lower control arm. See Illustration 2. Repeat for other side.

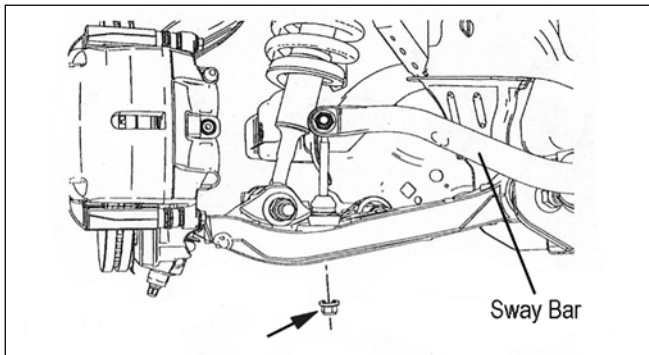


Illustration 2

5) ☐ Remove the four nuts holding the sway bar to the frame. Remove the sway bar assembly.

6) ☐ Loosen lower control arm pivot bolts.

STEERING KNUCKLE & SHOCK REMOVAL

1) ☐ Separate the ABS sensor line from the brake hose. Remove the brake caliper anchor bolts (illustration 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) ☐ Label the brake rotor left or right. Remove the brake rotor.

3) ☐ Disconnect the ABS sensor and vacuum line from the wheel hub. Remove the axle cap and nut. Remove the dust shield. See Illustration 3.

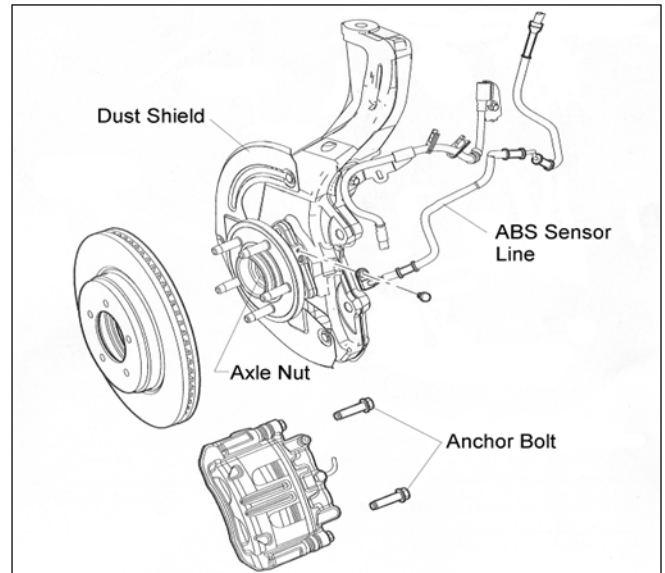


Illustration 3

⚠ 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) ☐ Remove the nut from the outer tie rod stud. Using Ford Service tool #204-592 separate tie rod stud from knuckle.

5) ☐ Loosen the nuts at the upper and lower ball joints. Using Ford Service tool #204-592 separate ball joints from knuckle.

6) ☐ Remove the shock absorber lower arm nut and bolt.

7) ☐ Remove the upper and lower ball joint nuts. Carefully remove the steering knuckle. Cover the exposed hub to prevent contamination.

8) ☐ Remove the three shock absorber upper mount to frame nuts. Remove the shock absorber and spring assembly. See Illustration 4.

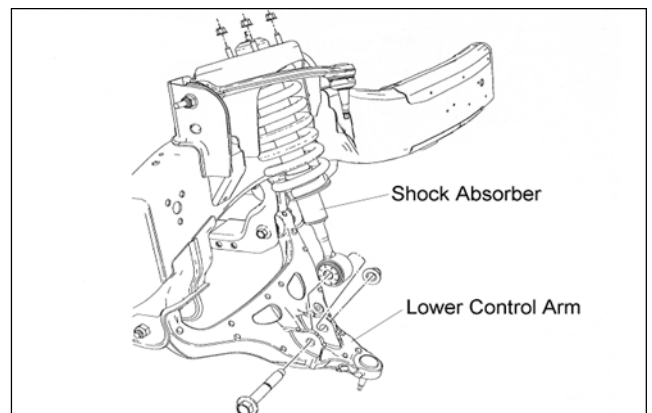


Illustration 4

9) ☐ Repeat for other side.

FRONT DIFFERENTIAL REMOVAL

- 1) ☐ Remove the lower control arm pivot bolts. Remove the lower control arm.
- 2) ☐ Repeat steps for the other side.
- 3) ☐ Remove the four bolts that attach the crossmember to the lower control arm pockets. Remove the crossmember. See Illustration 5.

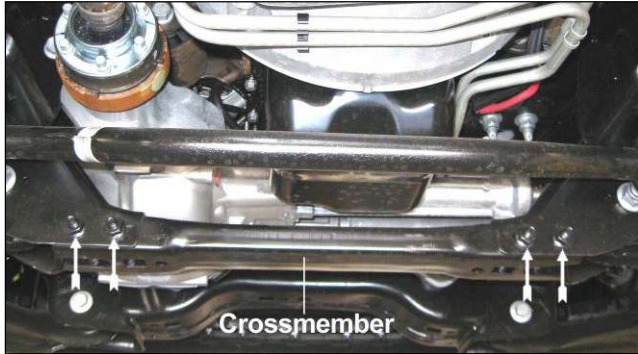


Illustration 5

- 4) ☐ Index-mark the front driveshaft flange to the front differential pinion flange. Refer to Illustration 13.
- 5) ☐ Remove the six bolts from the driveshaft flange. Disconnect and support the front driveshaft.
- 6) ☐ Disconnect the vent hose from the axle housing. Support the front differential assembly with a floor jack.
- 7) ☐ Remove the front differential assembly lower mounting bolt. See Illustration 6.

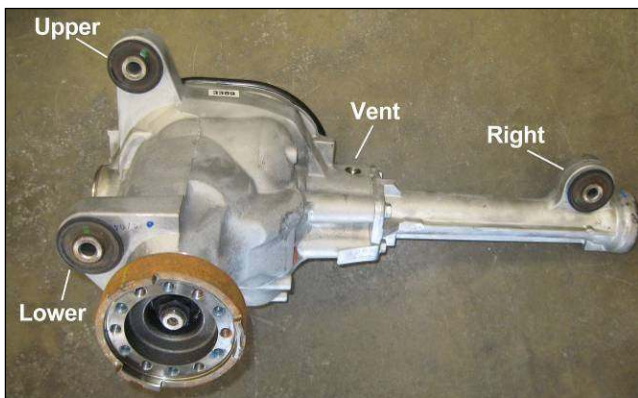


Illustration 6

- 8) ☐ Remove the right axle housing bolt, then pushing up on the right side of the differential, remove the upper carrier bolt. Remove the differential assembly from the vehicle.

FRONT DIFFERENTIAL & SUBFRAME INSTALLATION

- 1) ☐ Draw a line, perpendicular to the bottom edge and 1/2" from the edge of the slotted hole, on the front and back of the driver side crossmember bracket. Connect the lines on the top of the bracket providing a minimum of 7" clearance. See Illustration 7.

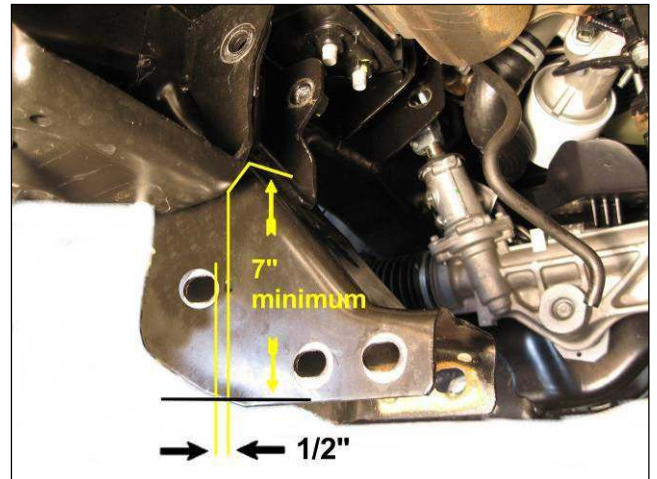


Illustration 7

- 2) ☐ Using a die grinder / sawzall follow the line and cut off the crossmember bracket rounding off any sharp corners. Paint bare metal to prevent rust. See Illustration 8.

⚠ 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.

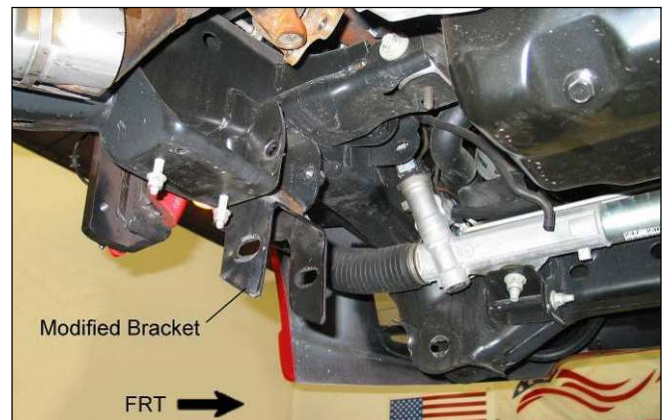


Illustration 8

- 3) ☐ Loosely attach left drop bracket RS176580 to the front differential upper frame bracket with the original hardware. See Illustration 9.



Illustration 9

NOTE: Differential drop brackets have an L & R laser cut into the metal for identification.

4) ☐ Loosely attach right drop bracket RS176581 to the right frame bracket with the original hardware. See Illustration 9.

5) ☐ On vehicles with electronic steering rack, the bracket on the right front side of the differential may need to be trimmed to keep it from interfering with the rack and pinion. See Illustration 10.

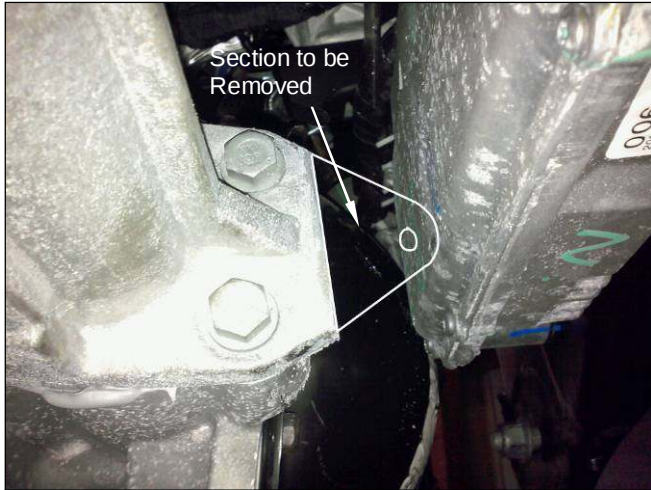


Illustration 10

6) ☐ With the help of an assistant, carefully raise the front differential assembly up into the left and right drop brackets. Loosely attach the differential assembly to the brackets with the hardware from kit RS860666. Use shorter 80mm bolt on driver's side.

7) ☐ Reattach vent hose. Use kit RS860749 if required.

8) ☐ With the help of an assistant, raise subframe RS176575 into the lower control arm frame brackets. Attach sub frame to the lower control arm brackets with original hardware.

9) ☐ Using 12mm hardware from kit RS860668 loosely attach crossmember crush spacer RS176585 to sub frame. See Illustration 11.

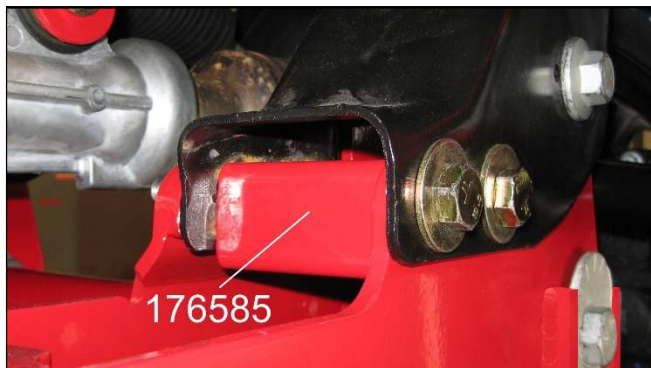


Illustration 11

CAUTION: With sub frame in place, verify that the differential lower mount does not contact the modified frame bracket. There must be a minimum of 1/4" clearance between frame and differential. Contact may cause vibration.



Illustration 12

10) ☐ Attach lower differential mount to support bracket RS176582 and sub frame with 14mm hardware from kit RS860666. Refer to Illustration 12.

11) ☐ Tighten the following bolts in order: Subframe RS176575 to frame bolts to 222 ft lbs; the differential lower mounting bolt to 85 ft lbs; aft differential support bracket to 85ft. lbs.; the differential drop bracket bolts to 85 ft. lbs. and the right crossmember bolts to 75 ft lbs.

12) ☐ Align index marks on front driveshaft, insert spacer RS176586 between driveshaft and pinion flange. Secure together with 12pt 10mm hardware from kit RS860668 using OE torque plates. Tighten bolts to 41 ft lbs. See Illustration 13. Use of blue thread lock is recommended but not included.

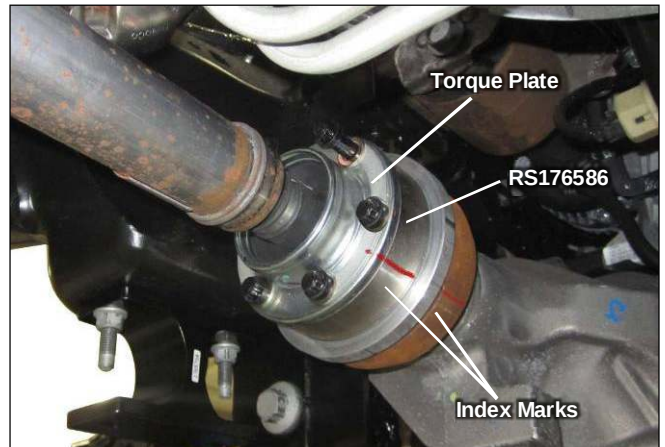


Illustration 13

SHOCK ABSORBER REPLACEMENT

- 1) ☐ Index-mark the shock absorber upper mount and coil spring with the lower mount. See Illustration 14.

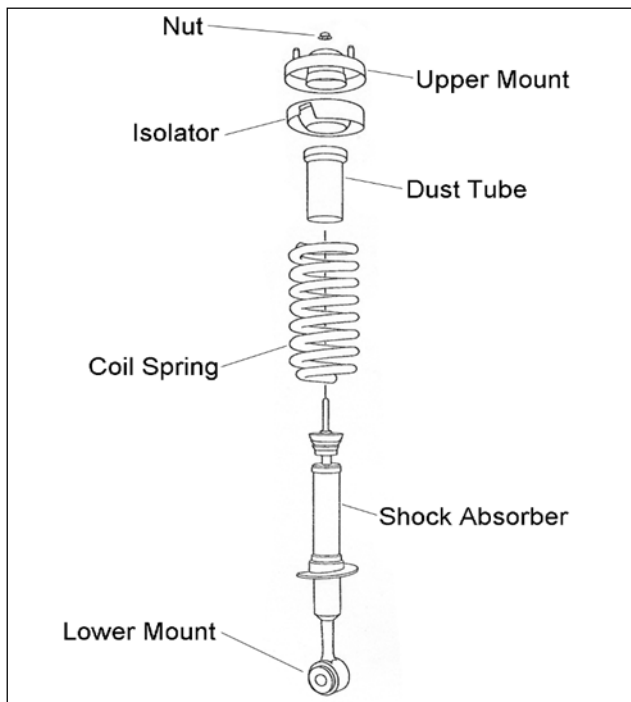


Illustration 14

- 2) ☐ Using a quality spring compressor, compress the coil spring until the tension is released from the shock absorber.
- 3) ☐ Hold the hex stud and remove the upper mounting nut. Slide the shock absorber out of the spring assembly.
- 4) ☐ Insert new Rancho shock absorber. Align the index marks and install with included flanged nut. Tighten the nut to 41 ft. lbs.
- 5) ☐ Remove the spring compressor.

SHOCK ABSORBER AND CONTROL ARM INSTALLATION

- 1) ☐ Loosely attach the driver side lower control arm to the subframe with the hardware from kit RS860737. Insert longer front alignment cam bolt RS176578 in from front and shorter rear cam bolt RS176311 in from rear. Apply grease or anti-seize to cam bolt threads and install washer and nut.
NOTE: Do not tighten the lower control arm bolts until the vehicle is at normal ride height.
- 2) ☐ Insert the new Rancho shock absorber and spring assembly into the upper frame mount. Loosely install the original nuts. See Illustration 15.
- 3) ☐ Loosely attach the shock absorber to the lower control arm with the original hardware. See Illustration 15.
- 4) ☐ Torque upper shock mount hardware to 30 ft. lbs.
- 5) ☐ Repeat steps 1 through 4 for the passenger side.



Illustration 15

STEERING KNUCKLE INSTALLATION

- 1) ☐ Remove the integrated wheel end and wheel hub from the passenger side steering knuckle. See Illustration 16.

CAUTION: Do not damage the O-ring on the wheel hub.

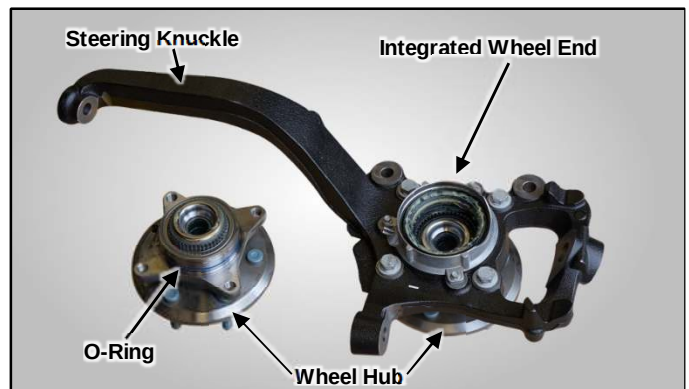


Illustration 16

- 2) ☐ Align the ABS sensor hole and attach the wheel hub to right Rancho knuckle RS176591 with the original bolts. Tighten the bolts to 129 ft. lbs.
- 3) ☐ Align vacuum port upward and attach the integrated wheel end to the knuckle with the original hardware. Tighten the bolts to 11 ft. lbs.
- 4) ☐ Install knuckle on vehicle:
 - ☐ Carefully insert the axle into the hub until the threads protrude from hub bearing. See Illustration 17.
 - ☐ Insert lower ball joint stud into steering knuckle and loosely attach with OE nut.
 - ☐ Insert upper ball joint stud into steering knuckle and loosely attach with OE nut.
 - ☐ Pull, wiggle and turn axle to seat fully in hub bearing. See Illustration 17.

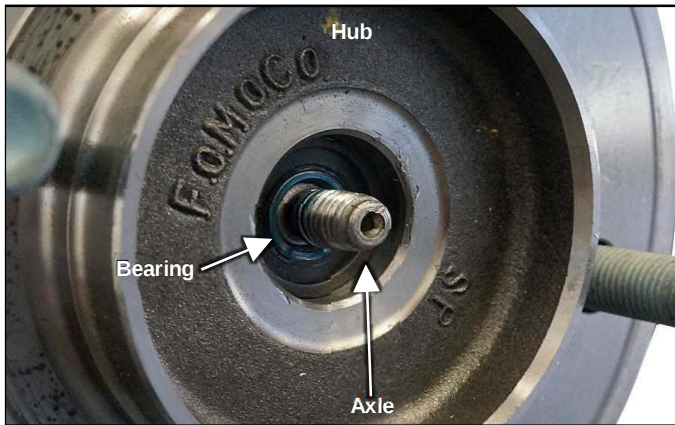


Illustration 17

Note: The axle splines must line up with the integrated wheel end. Do not force axle in. You may need to separate upper ball joint and turn axle or integrated wheel end, then repeat step 4.

Do not move on to next step until axle is seated in bearing.

- 5) ☐ Tighten the lower ball joint stud nut to 111 ft. lbs. and the upper nut to 85 ft. lbs.
- 6) ☐ Install the axle half shaft nut. Tighten the nut to 20 ft. lbs. Install the axle cap.
- 7) ☐ Loosen the jam nut on the tie rod and thread the tie rod end out approximately 3 turns. Insert the tie rod end from the top into the steering knuckle and install the original nut. Tighten the ball stud nut to 85 ft. lbs and the jam nut to 76 ft. lbs.
- 8) ☐ Attach the dust shield with the original hardware. Tighten the bolts to 12 ft. lbs.
- 9) ☐ Repeat steps 1 through 8 for the driver side.

CALIPER AND BRAKE HOSE DROP BRACKETS

- 1) ☐ Disconnect the retaining clips and lengthen the ABS and vacuum lines if applicable. Reattach the ABS sensor line to the wheel hub and the vacuum hose to the integrated wheel end.
- 2) ☐ Disconnect the passenger side brake line bracket from the frame. Install the right brake rotor on the passenger side wheel hub.
- 3) ☐ Install the brake caliper over the rotor. Attach the caliper to the knuckle with the original anchor bolts. Tighten the bolts to 175 ft. lbs.
- 4) ☐ Using the original bolt and location, attach brake hose drop bracket RS176587 to the frame rail. Tighten bolt securely.

- 5) ☐ Attach brake hose to drop bracket RS176587 with hardware from kit RS860666. See Illustration 18.



Illustration 18

- 6) ☐ Repeat for other side.

SWAY BAR INSTALLATION

- 1) ☐ Attach sway bar drop brackets RS176579 to the frame with the original hardware. Tighten the nuts to 35 ft. lbs.
- 2) ☐ Attach the sway bar to the drop brackets with hardware from kit RS860506 torque to 35 ft. lbs. See Illustration 19.



Illustration 19

- 3) ☐ Attach the sway bar end links to the lower control arms. Tighten the nuts to 59 ft. lbs.
- 4) ☐ Install front wheels and lower vehicle to ground. Tighten the lug nuts to 150 ft. lbs.
- 5) ☐ Align the cam bolts in the center and tighten the lower control arm pivot nuts to 258 ft. lbs. Tighten the lower shock nut and bolt to 406 ft. lbs.

REAR SUSPENSION

BRAKE CABLE & HOSE BRACKET INSTALLATION

- 1) ☐ Chock front wheels. Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 2) ☐ On the driver side, separate the left parking brake cable from the right cable at the union. See Illustration 20.
- 3) ☐ Compress the retainer and remove the left and right cables from the frame bracket.
- 4) ☐ Attach parking brake cable drop bracket RS176583 to the frame with the 12mm and 8mm hardware from kit RS860665. Do not use washers for 8mm anti-rotation bolt. See Illustration 20.

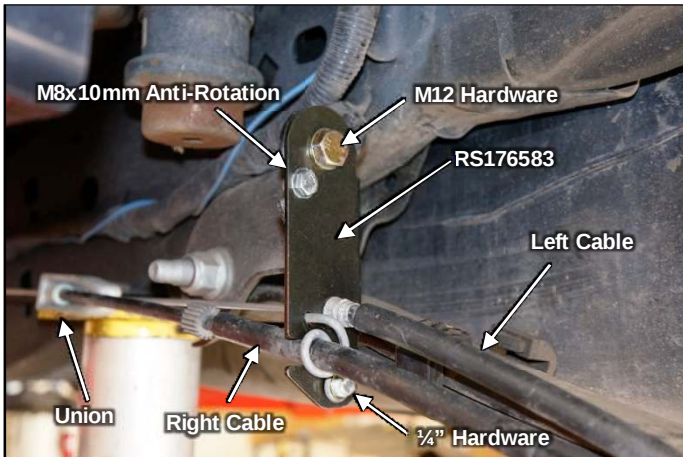


Illustration 20

- 5) ☐ Insert the left brake cable through bracket RS176583. Attach right cable to bracket as shown with original retainer. Reattach the left brake cable to the right at the union.

Note: Earlier models do not use the wire retainer on the right side cable. The plastic retainer on these models will snap into the lower slot of RS176583.

- 6) ☐ Remove the brake hose bracket from the inside of the driver side frame rail.
- 7) ☐ Attach drop bracket RS176314 to the frame with the original bolt. Tighten the bolt to 12 ft. lbs. See Illustration 21.

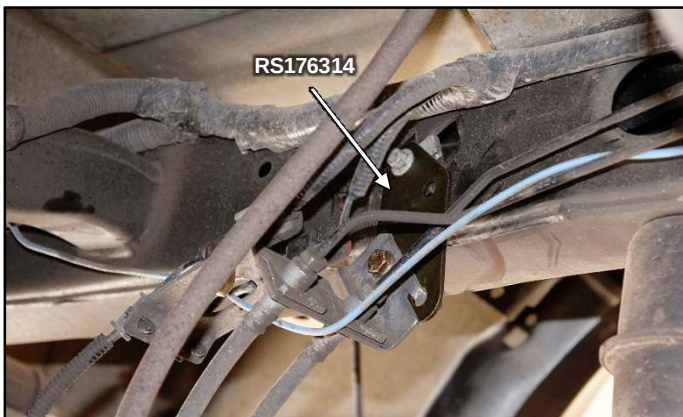


Illustration 21

- 8) ☐ Attach the original brake hose bracket to drop bracket RS176314 with the 8mm hardware from kit RS860665

RISER BLOCK INSTALLATION

- 1) ☐ Support the rear axle assembly with a floor jack.
- 2) ☐ Remove both rear shock absorbers. Do not reuse OEM shock absorbers.
- 3) ☐ Loosen the U-bolt nuts on both sides of the vehicle.
- 4) ☐ Remove the passenger side U-bolts only. Carefully lower the rear axle and remove the original riser block.

⚠ 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.

- 5) ☐ Place riser block RS15104 on the axle pad as shown in Illustration 22. Loosely attach the leaf spring to the axle with U-bolts (RS740017) and the hardware from kit RS860152. See Illustration 22.

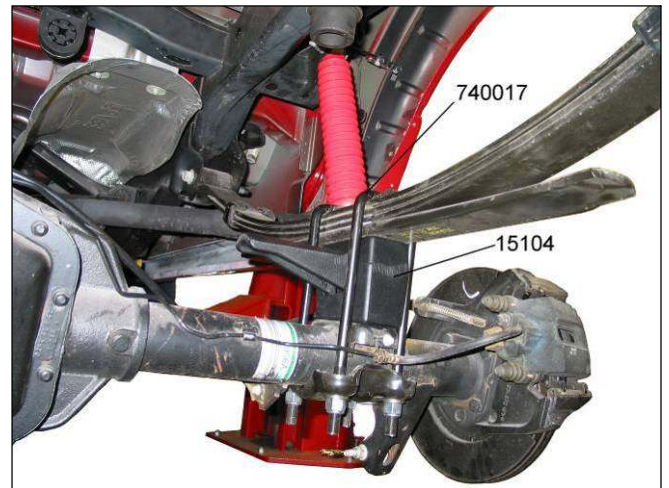


Illustration 22

- 6) ☐ Repeat steps 4 and 5 for the driver side.
- 7) ☐ Cross tighten all U-bolt nuts evenly to 85 ft.
- 8) ☐ Install new Rancho shock absorbers.

DRIVESHAFT SPACER INSTALLATION

- 1) ☐ Measure pull-out of rear output shaft slip joint. If pull-out exceeds 1.5" follow steps 2-5 to install rear driveshaft spacer RS176691. See Illustration 23.

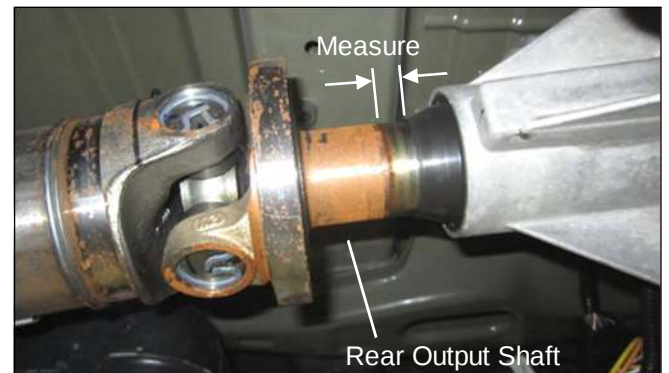


Illustration 23

- 2) ☐ Index-mark the rear driveshaft flange to the rear differential pinion flange.
- 3) ☐ Support rear driveshaft with floor jack.
- 4) ☐ Remove rear driveshaft flange to the rear differential pinion flange mounting bolts
- 5) ☐ Align index marks on rear driveshaft, insert rear driveshaft spacer RS176691 between driveshaft and pinion flange. Secure together with 12mm hardware from kit RS860732. Tighten bolts to 75 ft lbs. See Illustration 24. Use of blue thread lock is recommended but not included.



Illustration 24

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 steering and brake systems operate correctly.
- 4) ☐ Readjust headlamps. Have vehicle Aligned at a certified alignment facility.
- 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 25.

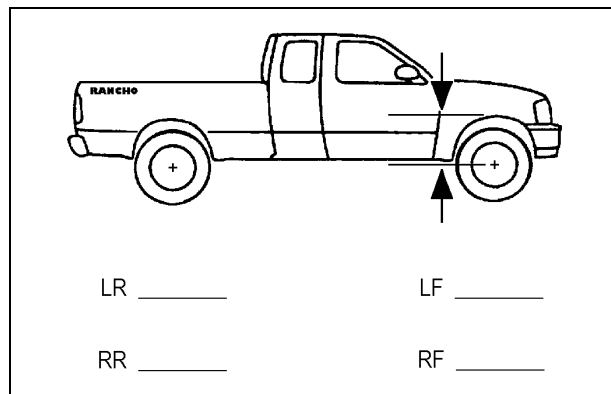


Illustration 25

Front Components

Subframe RS176575B to Frame	222 ft. lbs.
Differential Drop Brackets	85 ft. lbs.
Differential Aft Mount and Bracket	85 ft. lbs.
Frame Crossmember Bolts	75 ft. lbs.
Driveshaft to Pinion Flange	41 ft. lbs.
Shock Rod Nut	41 ft. lbs.
Shock Mount, Upper	30 ft. lbs.
Shock Mount, Lower	406 ft. lbs.
Wheel Hub to Steering Knuckle	129 ft. lbs.
Integrated Wheel End to Hub	11 ft. lbs.
Lower Ball Joint	111 ft. lbs.

Torque Specs

Front Components - continued

Upper Ball Joint	85 ft. lbs.
Tie Rod End Ball Stud	85 ft. lbs.
Tie Rod Jam Nut	75 ft. lbs.
Axle Shaft Nut	20 ft. lbs.
Dust Shield to Steering Knuckle	12 ft. lbs.
Brake Caliper to Steering Knuckle	175 ft. lbs.
Brake Line Bracket	12 ft. lbs.
Sway Bar Drop Bracket RS176579	35 ft. lbs.
Sway Bar End Link	59 ft. lbs.
Lower Control Arm to Subframe RS176575B	258 ft. lbs.
Wheel Lug Nuts	150 ft. lbs.

Rear Components

Brake Hose Drop Bracket RS176314	12 ft. lbs.
Parking-Brake Cable Drop Bracket RS176748	12 ft. lbs.
Driveshaft to Pinion Flange	75 ft. lbs.
Leaf Spring Center Bolts	65 ft. lbs.
Leaf Spring U-bolt	85 ft. lbs.
Shock Absorbers	66 ft. lbs.
Wheel Lug Nuts	150 ft. lbs.

STANDARD BOLT TORQUE & IDENTIFICATION

INCH SYSTEM			METRIC SYSTEM			
Bolt Size	Grade 5	Grade 8	Bolt Size	Class 8.8	Class 10.9	Class 12.9
5/16	15 LB-FT	20 LB-FT	M6	5 LB-FT	9 LB-FT	12 LB-FT
3/8	30 LB-FT	35 LB-FT	M8	18 LB-FT	23 LB-FT	27 LB-FT
7/16	45 LB-FT	60 LB-FT	M10	32 LB-FT	45 LB-FT	50 LB-FT
1/2	65 LB-FT	90 LB-FT	M12	55 LB-FT	75 LB-FT	90 LB-FT
9/16	95 LB-FT	130 LB-FT	M14	85 LB-FT	120 LB-FT	145 LB-FT
5/8	135 LB-FT	175 LB-FT	M16	130 LB-FT	165 LB-FT	210 LB-FT
3/4	185 LB-FT	280 LB-FT	M18	170 LB-FT	240 LB-FT	290 LB-FT

1/2-13x1.75 HHCS 			M12-1.25x50 HHCS 			
G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch)			P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm)			



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