



Rancho Upper Control Arm Upgrade Kit – RS64902

Fits 2016-2007 Toyota Tundra 4WD & 2WD

Excludes TRD PRO Models

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION



Parts List

P/N	DESCRIPTION	QTY.
RS89902-1	Instructions, RS64902	1
RS94180	Information Pack	1
RS176800B	Left Upper Control Arm	1
RS176801B	Right Upper Control Arm	1
RS602642	Upper Ball Joints (Preinstalled in Control Arm)	1
RS176759	Strut Spacer 5/16"	2
RS860813	Sub-Assy C-Arm Bushings	1
RS520053-4	Bushing	8
RS420112	Sleeve 1.00X.645X2.00	4
RS603515	Shim	8
RS860805	Sub Assy Ball Joint	1
RS770279	Ball Joint Mount Plug	2
RS860815	Sub Assembly, Bump Stop Spacer	1
RS176806	Bump Stop Spacer	4

P/N	DESCRIPTION	QTY.
RS860811	Sub Assembly, Hardware	1
RS42702	Thread Lock - .5cc	2
RS770281	Nut, M16-1.50 Nylock	2
RS7861	Washer M16	2
RS770095	1/2" Loop Strap	4
RS603615	HHCS, 1/4-20 X .75	4
RS7710	Nut, 1/4-20 Nylock	4
RS77841	Washer 1/4 SAE	8
RS7877	Nut, M14-2.00 Top Lock	2
RS770109	Washer M14	4
RS770146	HHCS, M14X2.0X150	2
RS176689	Diff Drop Spacer	3
RS7649	HHCS, M8X1.25X40	3
RS7733	Washer, 5/16 USS	3
RS603545	Spacer 5/8 X 3/8 X 1/2	1



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.

Required Modifications (MUST BE PURCHASED SEPARATELY)

Rancho Upper Control Arms RS176800B and RS176801B are designed to be used with Rancho Quick Lift front struts. These control arms will correct the caster and camber of a vehicle with 1.75-2.5" of lift, allowing for a range of adjustment to achieve desired handling.

Use on an OE height vehicle makes it difficult or impossible to achieve proper wheel alignment.

The following components must be installed with this kit and MUST BE PURCHASED SEPARATELY:

- Rancho QuickLift front struts RS999919 / RS999920 or RS66902R7.

Wheels and Tires

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

Tire: BF Goodrich® All-Terrain T/A® KO2 275/65R20

Wheel: 20" x 9" +25 offset wheel (6" backspacing)

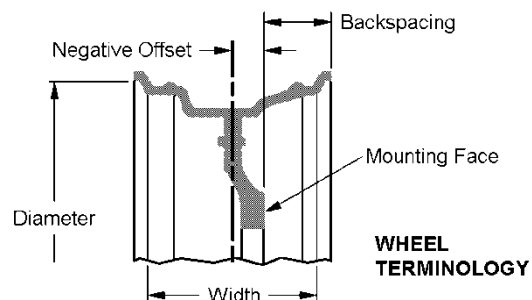
TRIMMING AND CASTER ADJUSTMENT IS REQUIRED FOR THIS TIRE SIZE

Compatible With OE Wheels	Development Tire Size ² (Actual)	Optional Tire Size ² (Actual)	Wheel Size (Backspacing)
Yes ¹	275/65R20 (34.0"x11.0")	285/70 R18 (33.7"x11.2)	9" wide +25 offset (6")

¹ OE wheel is compatible with stock and recommended size tires only.

² May require removal of mud flaps and trimming to provide proper clearance.

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



Optional Modifications MUST BE PURCHASED SEPARATELY

If you would like to keep the original stance of the vehicle (higher in the rear), Rancho Rear Upgrade Kit RS70902 can be installed to gain 1.5" lift in the rear of the vehicle.

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

Safety Glasses (wear safety glasses at all times)	Hydraulic Floor Jack	1/2" Drive Ratchet, Sockets, and Extensions
Ball Joint Puller	Wire Brush (to clean mounting surfaces)	Grease Gun with NLGI 2 GC-LB Lithium Complex Grease*
Heavy Duty Jack Stands	Torque Wrench (200 LB-FT capacity)	Assorted Combination Wrenches
Hammer	Red Loctite	Degrease/Cleaner or Solvent
Wheel Chocks	1/2" Breaker Bar	Assorted Metric Allen Wrenches
Rubber Mallet	Penetrating Lube	Cotter Pins
	(to aid removal of corroded and frozen hardware)	

*NOTE: Rancho components come lubed with lithium or lithium complex grease. Use of a different type (base) of grease can cause grease separation and breakdown of the grease and cause the component to fail.

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. Some components required for the installation of this kit may need to be purchased separately.

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 at end of instruction.

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 at end of instruction. USE A TORQUE WRENCH for accurate measurements.

I. 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 tool list

J. 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.

K. 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.

L. The required installation time for this system is approximately 2 to 3 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.

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.

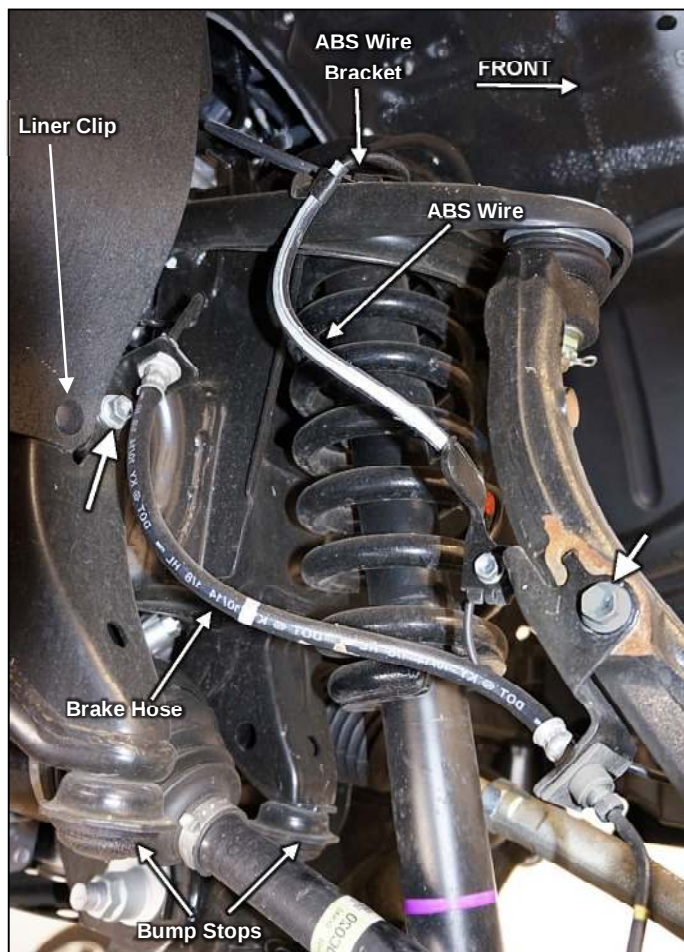


Illustration 1

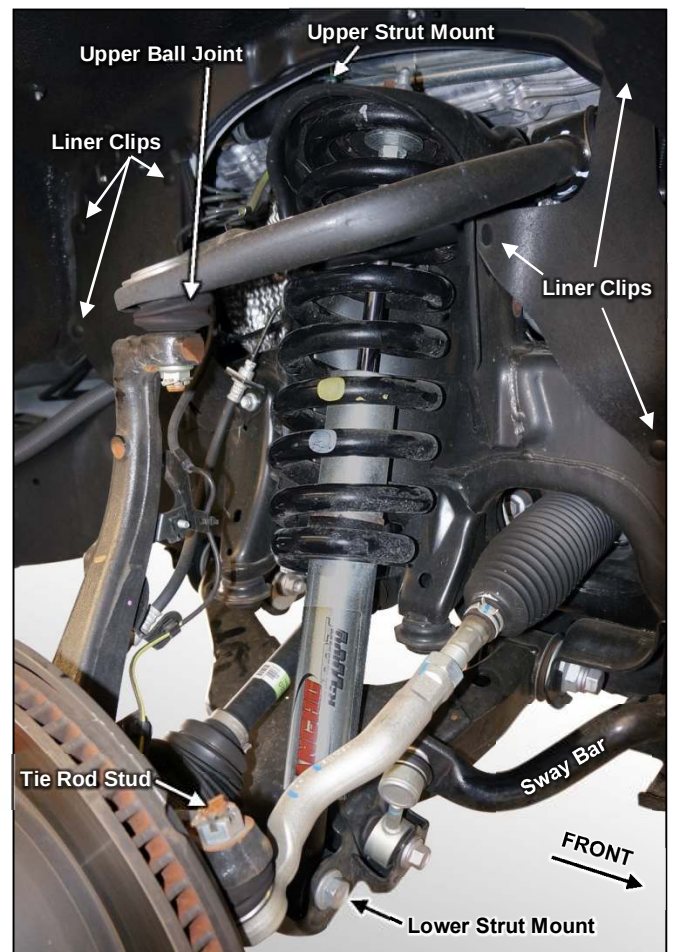
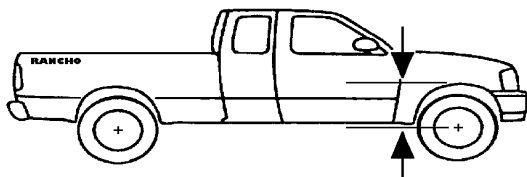


Illustration 2

STRUT SPACER AND BUMP STOP SPACER INSTALLATION

Strut Spacer will provide an additional 1/2 of lift

- 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. Record these measurements in the space provided.



LR _____ LF _____

RR _____ RF _____

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

- 3) ☐ Loosen the sway bar end links at the lower control arm. Remove nuts attaching sway bar end links to sway bar. Separate end link from sway bar.

If end link stud spins when removing nut, hold stud with Allen wrench.

- 4) ☐ Remove clips holding rubber fender well liners to body and frame See Illustration 1 and Illustration 2.

- 5) ☐ Remove brake hose brackets from steering knuckle and frame. Remove ABS wire bracket from upper control arm. See Illustration 1 and Illustration 2.

- 6) ☐ Remove cotter pin and loosen outer tie rod stud nut. Using appropriate puller, separate then remove tie rod stud from steering knuckle. See Illustration 2.

- 7) ☐ Remove cotter pin and loosen upper ball joint stud nut. Using appropriate puller, separate then remove upper ball joint stud from steering knuckle. See Illustration 2.

⚠ WARNING: CONTROL ARM WILL SPRING UP WITH GREAT FORCE WHEN BALL JOINT SEPARATES FROM KNUCKLE. USE PRY BAR TO HOLD DOWN AND SLOWLY LIFT BALL JOINT STUD OUT OF KNUCKLE WHEN REMOVING BALL JOINT STUD NUT.

- 8) ☐ Remove upper strut mounting nuts. See Illustration 2.

CAUTION: DO NOT TURN STRUT'S CENTER ROD NUT!

- 9) ☐ Remove lower strut mounting bolt. See Illustration 2.

- 10) ☐ Remove strut from vehicle

- 11) ☐ Remove bump stops with wrench or channel lock

pliers. See Illustration 3.

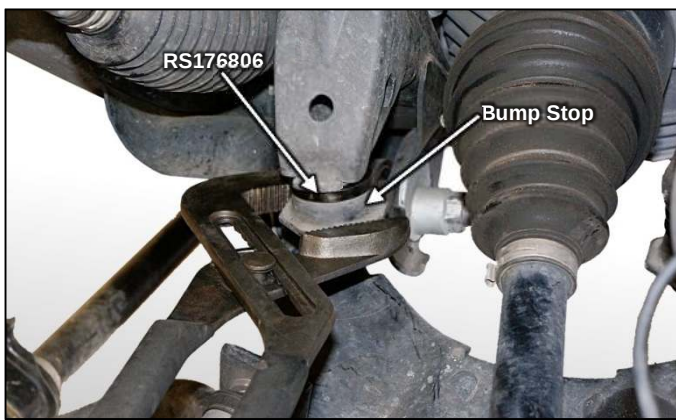


Illustration 3

12) ☐ Place bump stop spacer RS176806 over bump stop stud and reinstall using red LocTite. See Illustration 3.

13) ☐ Place strut spacer ring RS176759 on top of strut's upper mount. The notch in the spacer faces out. The spacer ring will only install in one direction. If it does not fit, flip ring over keeping notch to the outside. See Illustration 4.

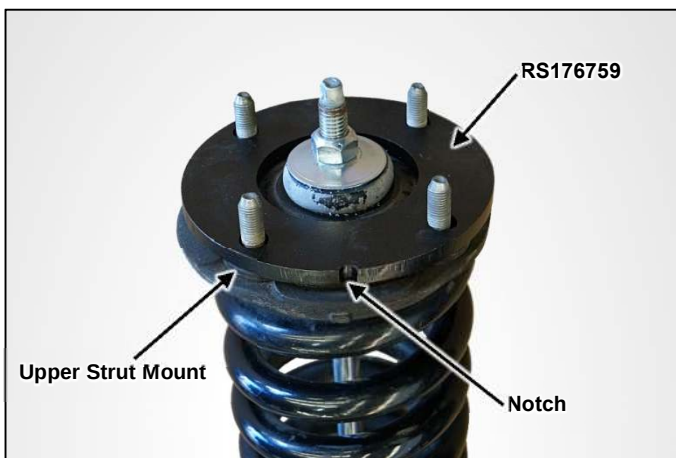


Illustration 4

14) ☐ Loosely install strut with spacer ring in upper mount using OE hardware.

15) ☐ Pry lower strut bushing into position and attach to lower control arm using OE hardware. Tighten upper shock mounting nuts to 33 lb-ft. Tighten lower shock mounting bolt and nut to 144 lb-ft.

16) ☐ Reattach sway bar end links to sway bar using OE hardware. Torque end link nuts at sway bar to 111 lb-ft. Torque sway bar bolts at lower control arm to 89 lb-ft.

UPPER CONTROL ARM PREPARATION

1) ☐ Install ball joint mount plug RS770279 in ball joint mount of upper control arm. See Illustration 5.

2) ☐ Apply a thin coating of lithium grease to upper control arm bushings and sleeve from kit.

3) ☐ Press bushings into upper control arm. See Illustration 5.



Illustration 5

4) ☐ Press sleeves into control arm bushings using a rubber mallet, bench vise, or C-clamp. Ensure bushings are seated completely into control arm to ease installation of control arm.

UPPER CONTROL ARM REMOVAL

1) ☐ Remove control arm nut and washer. See Illustration 6.

NOTE: On driver side it may be necessary to remove the ABS/fuel line bracket at the upper strut mount and carefully pull on the metal lines to gain access for a breaker bar. See Illustration 6 and Illustration 10.

⚠ WARNING: Take care not to damage fuel lines or pull on ABS wire. ABS wires will pull out of plug in engine compartment very easily if pulled on.

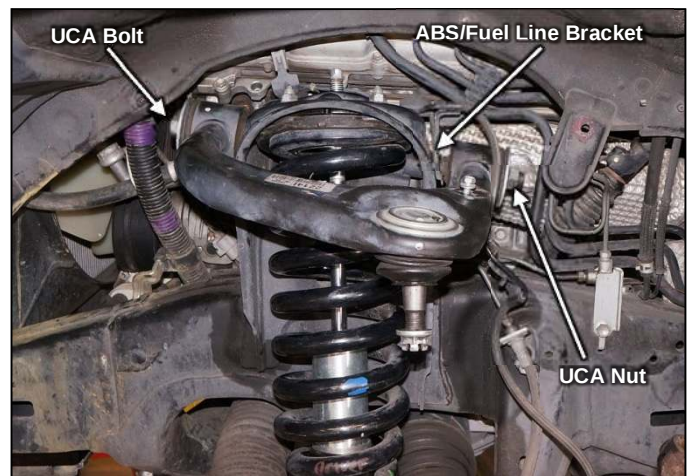


Illustration 6

2) ☐ Open engine compartment hood and note obstructions to upper control arm bolt.

3) ☐ Slowly push upper control arm bolt forward into engine compartment. Guide bolt through any obstructions in engine compartment. Unclip hoses or wiring harness from body if necessary. Use Illustration 7 and Illustration 8 as a guide. Because of variations in years and models, your vehicle may differ. A punch or 3/8" socket extension may be used to tap bolt out.

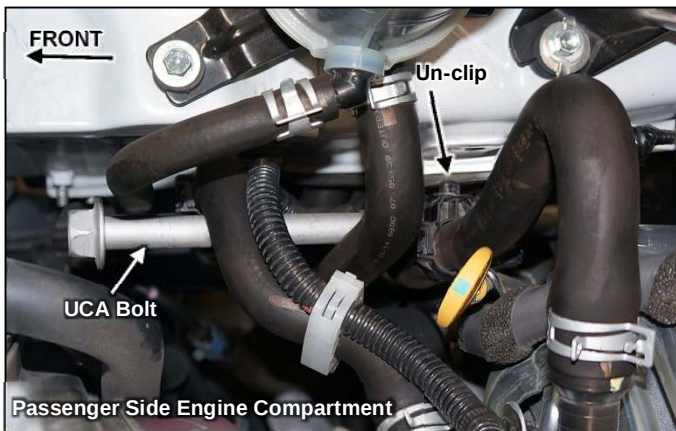


Illustration 7

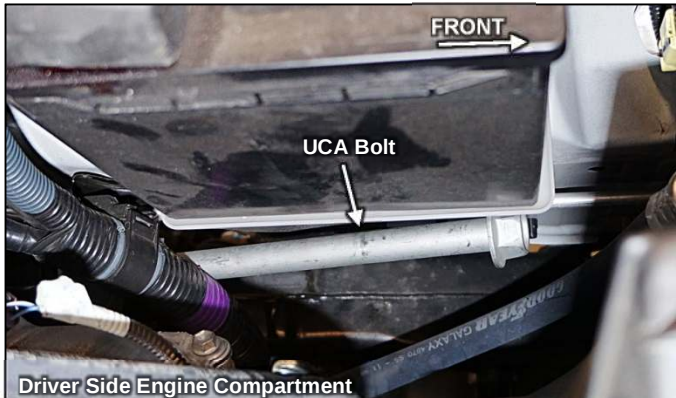


Illustration 8

- 4) ☐ Remove upper control arm and remaining washer. Bolt does not have to be removed from engine compartment.

UPPER CONTROL ARM INSTALLATION

- 1) ☐ Install one shim from kit RS860813 on upper control arm bolt.
- 2) ☐ Hold Rancho upper control arm in position over mount and slide bolt into control arm sleeve. When bolt comes through sleeve, install another shim on bolt. See Illustration 9.

NOTE: The bent tube of the control arm goes to the front of the mount; the straight tube goes to the rear.



Illustration 9

- 3) ☐ Slide bolt through control arm mount. When bolt comes through mount, install another shim on bolt. Shim may need to be tapped in place between control arm mount and bushing.

- 4) ☐ Slide bolt into aft control arm sleeve and continue until bolt is completely through control arm mount and both sleeves.

- 5) ☐ Install another shim on bolt.

- 6) ☐ Clean bolt of any grease or contamination and loosely install M16-1.5 nylock nut from kit RS860811 using thread-lock.

- 7) ☐ Grease control arm bushings at grease fittings. Stop as soon as any grease is visible or bushings start to push out against shims. **DO NOT OVER GREASE!**

- 8) ☐ Apply red Loctite to upper control arm mounting bolt and torque nut to 176 lb-ft.

NOTE: On driver side it may be necessary to remove the ABS/fuel line bracket at the upper strut mount and carefully pull on the metal lines to gain access for the torque wrench. See Illustration 10. Re attach bracket after torquing control arm.

⚠ WARNING: Take care not to damage fuel lines or pull on ABS wire. ABS wires will pull out of plug in engine compartment very easily if pulled on.



Illustration 10

- 9) ☐ Insert upper ball joint into steering knuckle and install nut. Tighten to 81 lb-ft. Install NEW cotter pins, tightening ball joint nuts as needed to align castle nut with hole.

DO NOT LOOSEN BALL JOINT NUT TO INSTALL COTTER PIN!

- 10) ☐ Install tie rod end into steering knuckle. Install nut and tighten to 67 lb-ft. Install NEW cotter pins, tightening ball joint nuts as needed to align castle nut with hole.

DO NOT LOOSEN BALL JOINT NUT TO INSTALL COTTER PIN!

- 11) ☐ Install brake hose and ABS wire brackets to frame and steering knuckle.
- 12) ☐ Install ABS wire bracket to new Rancho upper control arm using supplied 1/4" hardware. See Illustration 9.
- 13) ☐ Reattach rubber fender well liners.

DIFFERENTIAL DROP SPACER INSTALLATION

- 1) Remove front skid plate if equipped. See Illustration 11.

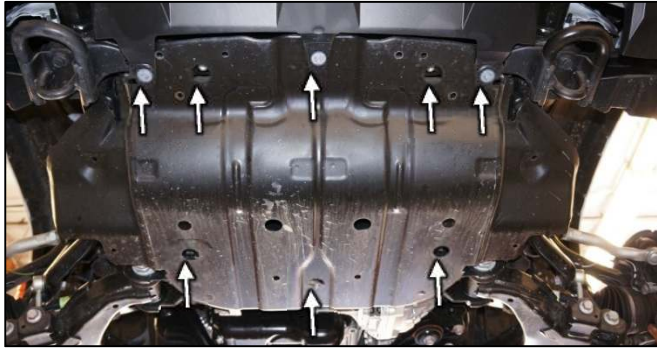


Illustration 11

- 2) ☐ Support front differential with floor jack.
- 3) ☐ Remove the two forward front differential mounting bracket to cross member mounting bolts. See Illustration 12.



Illustration 12

- 4) ☐ Lower differential enough to insert spacers between cross member and mounting bracket.
- 5) ☐ Install Rancho front differential drop spacers RS176689 between cross member and differential mounting bracket using M14-2.0X150mm bolts, washers and toplock nuts from kit RS860811. Torque to 116 lb-ft. See Illustration 12.
- 6) ☐ Install the skid plate using the OE hardware on the front, and supplied M8-1.25X40mm bolts, 5/16" USS washers and round spacers from kit RS860722 on the rear 3 holes. Install spacers between the frame and skid plate. See Illustration 11 and Illustration 13.

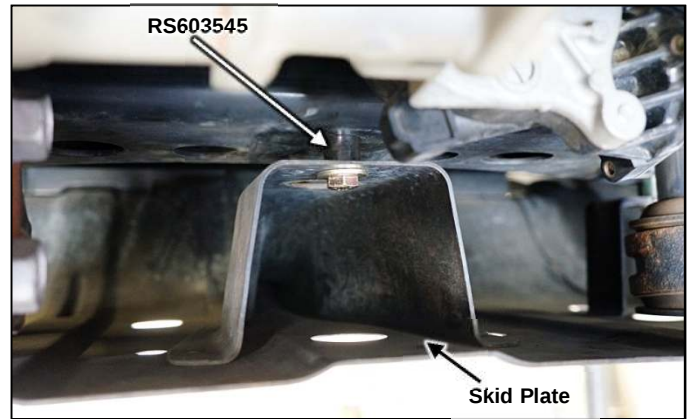


Illustration 13

- 7) ☐ Install front wheels and lower vehicle to the ground. Tighten lug nuts to 95 lb-ft.

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.
- 3) ☐ Ensure that the vehicle brake system operates correctly.
- 4) ☐ Readjust headlamps and have vehicle aligned at a certified alignment facility.

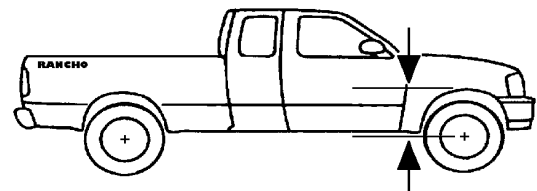
Recommended Alignment Specifications

Caster (degrees): $2.70^{\circ} \pm .75^{\circ}$

Camber (degrees): $0.23^{\circ} \pm 0.75^{\circ}$

Sum Toe In (degrees): $0.2^{\circ} \pm 0.2^{\circ}$ or $0.10" \pm 0.10"$

- 5) ☐ Measure and record the distance from the center of each wheel to the top of the fender opening. Record these measurements in the space provided.



LR _____

LF _____

RR _____

RF _____

Torque Specs

Upper Strut Mounting Nuts	33 lb-ft.
Lower Strut Mounting Bolt	144 lb-ft.
Tie Rod End Ball Stud Nut	67 lb-ft.
Upper Ball Joint Nut	81 lb-ft.
Sway Bar Mounting Bolts	51 lb-ft.
Sway Bar End Link to Control Arm	89 lb-ft.
Sway Bar End Link to Sway Bar	111 lb-ft.
Upper Control Arm	176 lb-ft.
Brake Line Bracket to Steering Knuckle	21 lb-ft.
ABS Wire Bracket to Steering Knuckle	9 lb-ft.
Differential Mount to Cross Member	116 lb-ft.
Skid Plate	20 lb-ft.
Wheel Lug Nuts Aluminum Wheel	97 lb-ft.
Wheel Lug Nuts Steel Wheel	154 lb-ft.

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 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 DTLX G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch)	L = Length (inches) X = Description (hex head cap screw)	M12-1.25x50 HHCS DTLX P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm)
	L = Length (millimeters) X = Description (hex head cap screw)	



Rancho Technical Department at 1-734-384-7804.

⚠ 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: 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.

6) 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.

7) 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 kit improperly and will be creating a significant risk of an accident. In case of any doubt, consult a qualified mechanic.

8) If any component does not fit properly, something is wrong. You are installing the 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.

9) 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.

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

11) 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.

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

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

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

15) 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.

16) 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.

17) 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

18) 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.

19) 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.

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

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

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

23) 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

24) 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.

The driver of this suspension system recognizes and agrees that there are risks inherent in driving a vehicle with a modified 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.