



RS64404 – Upper Control Arm Upgrade Kit
 Fits 2021 – 2019 Ram 1500 DT Pickup 4WD & 2WD
 Excludes Air Suspension, TRX.

RS66404R9-2 – 3" Suspension System
 Fits 2021 – 2019 Ram 1500 DT Pickup 4WD & 2WD
 Excludes Air Suspension, TRX, Rebel, Off Road Group

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION
 — IF INSTALLING RS66404R9K OR RS66403R9 READ ALL INSTRUCTION BEFORE BEGINNING INSTALLATION —

⚠ 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.



PARTS LIST

P/N	DESCRIPTION	QTY.
RS176969B	UCA Left	1
RS602643	Upper Ball Joint (pre-installed), K80014	1
RS520115	Bushing (pre-installed), K200186	2
RS176970B	UCA Right	1
RS602643	Upper Ball Joint (pre-installed), K80014	1
RS520115	Bushing (pre-installed), K200186	2
RS176959	Coil Spring Spacer, 1/2"	2
136763624	Cable Tie	2

P/N	DESCRIPTION	QTY.
RS84404	Instruction	1
RS94180	Information Pack	1
RS94177	Rollover Warning Label	1
RS94119	Consumer/Warranty Information	1
RS780281	6" Rancho Decal - Color	1
RS780294	Red Rancho Die cut Decal	1
RS780294B	Black Rancho Die cut Decal	1

Required Modifications MUST BE PURCHASED SEPARATELY

Rancho® Upper Control Arms RS176969B and RS176970B are designed to be used with Rancho® quickLIFT and Level It front struts. These control arms will correct the caster and camber of a vehicle with 2-3.5" of lift, allowing for a range of adjustment to achieve desired handling. When using larger tires, it is recommended to adjust caster to the higher end of the spec, or a little over the specification.

For use with Rancho quickLIFT loaded RS999953 & RS999954, Level It RS66403R9, and 3" kit front RS66404R9-1,

Use on an OE height vehicle may damage upper ball joints, and make it difficult or impossible to achieve proper wheel alignment.

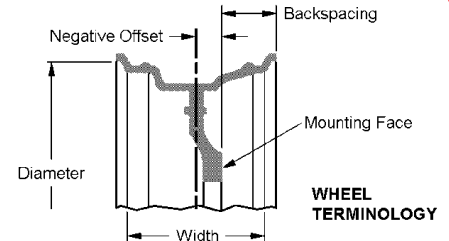
Wheels and Tires

Fits 285x65x20 tires on a 5"-5.5" backspacing wheel with RS66404R9K (3" lift).

May require slight trimming of fender liner or plastic trim

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

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



Optional Modifications MUST BE PURCHASED SEPARATELY

Rancho® Rear Shocks – Improves ride and performance.

Rear Shock Absorber RS55072

Rancho® Rear Upgrade Kit RS70404 – If you would like to keep some of the original rake of the vehicle (higher in the rear), Rancho® Rear Upgrade Kit RS70304 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)

Chevy / GM Service Manual
Torque Wrench (184 FT-LB capacity)
Ball Joint Puller
1/2" Drive Ratchet and Sockets
Assorted Combination Wrenches

Assorted Metric Allen Wrenches
Rubber Mallet
File
Hammer
Heavy Duty Jack Stands
Wheel Chocks (wooden blocks)
Hydraulic Floor Jack

Wire Brush (to clean bracket mounting surfaces)
Spray Penetrating Lubricant
Tape Measure
Safety Glasses--
Wear safety glasses at all times
Red LocTite
Grease Gun with NLGI 2 GC-LB Lithium Complex Grease*

*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.

Included Coil Spacers

1/2" coil spacer RS176959 is only for use with Rancho® quickLIFT, quickLIFT LOADED, and LEVEL IT systems. Coil spacer RS176959 provides an additional .66" of lift. Use of RS176959 is optional.

STRUT 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.

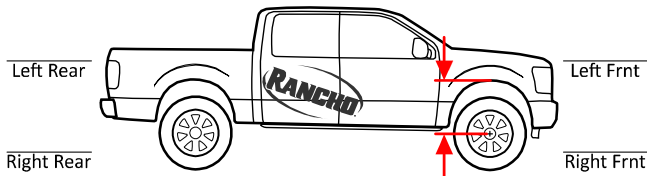


Illustration 1

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

3) Remove sway bar at frame mount. Allow sway bar to hang from end links. See Illustration 3.

NOTE: It is best to work on only one side of the vehicle until you get to "SWAY BAR INSTALLATION". This way you can refer to the other side if questions arise about the way it was assembled.

4) Remove ABS wire from brake hose clips, steering knuckle, upper control arm and upper control arm mount. See Illustration 2.

5) Remove brake hose mounting bolt from frame.

6) Remove axle nut. Push on end of axle to make sure it slides freely in hub.

7) Support lower control arm with jack.

8) Mark location of the eight lower control arm alignment cams. See Illustration 3.

9) Loosen lower control arm mounting nuts until bolts move freely (do not remove).

10) Mark the shock so you know which side faces out.

11) Loosen, but do not remove, outer tie rod stud nut and upper ball joint stud nut. See Illustration 2 and Illustration 6.

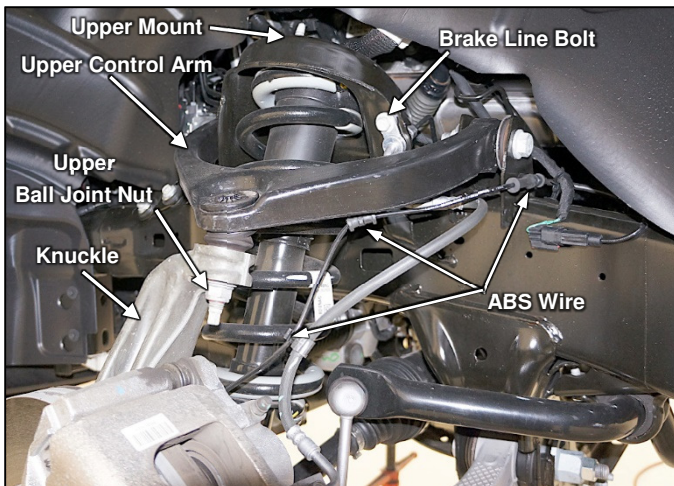


Illustration 2

12) Using appropriate puller, separate tie rod stud then the upper ball joint stud from steering knuckle.

⚠ WARNING: CONTROL ARM WILL SPRING UP WITH GREAT FORCE WHEN BALL JOINT SEPARATES FROM KNUCKLE. DO NOT REMOVE UPPER BALL JOINT STUD NUT UNTIL UPPER CONTROL ARM NUTS ARE LOOSE. IF TENSION CANNOT BE RELEASED FROM CONTROL ARM BUSHINGS, USE PRY BAR TO HOLD DOWN AND SLOWLY LIFT BALL JOINT STUD OUT OF KNUCKLE. WHEN REMOVING BALL JOINT STUD NUT.

13) Loosen upper control arm nuts until bolts move freely and tension is removed from control arm bushings. See Illustration 2.

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

CAUTION: Take care not to damage CV boot, or pull CV out of housing. Push in on axle to take pressure off boot. Use strap to tie up or support knuckle if needed.

14) Remove upper ball joint stud nut, and remove upper ball joint stud from knuckle.

15) Remove upper control arm mounting hardware at frame brackets, and remove upper control arm.

16) Remove tie rod stud nut, and remove tie rod stud from knuckle.

17) Remove upper strut mounting nuts.

CAUTION: Do not turn center strut rod nut!

18) Remove lower strut mounting bolt. See Illustration 3.

19) Lower jack until strut lower mounting clevis can be removed from lower control arm and remove strut from vehicle.

CAUTION: Take care not to damage CV boot, or pull CV out of housing.

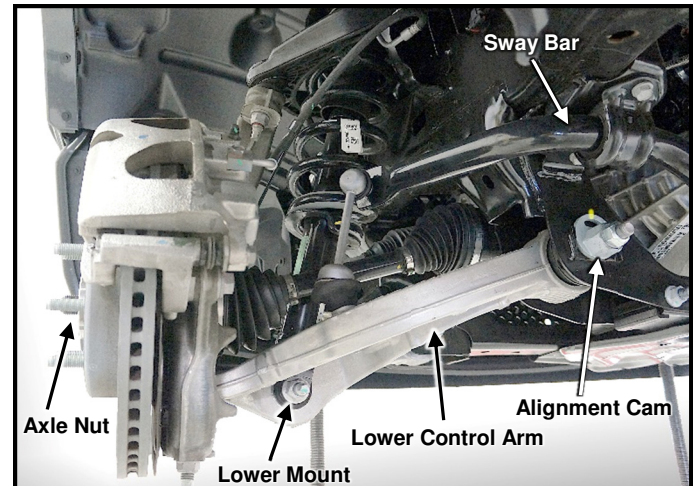


Illustration 3

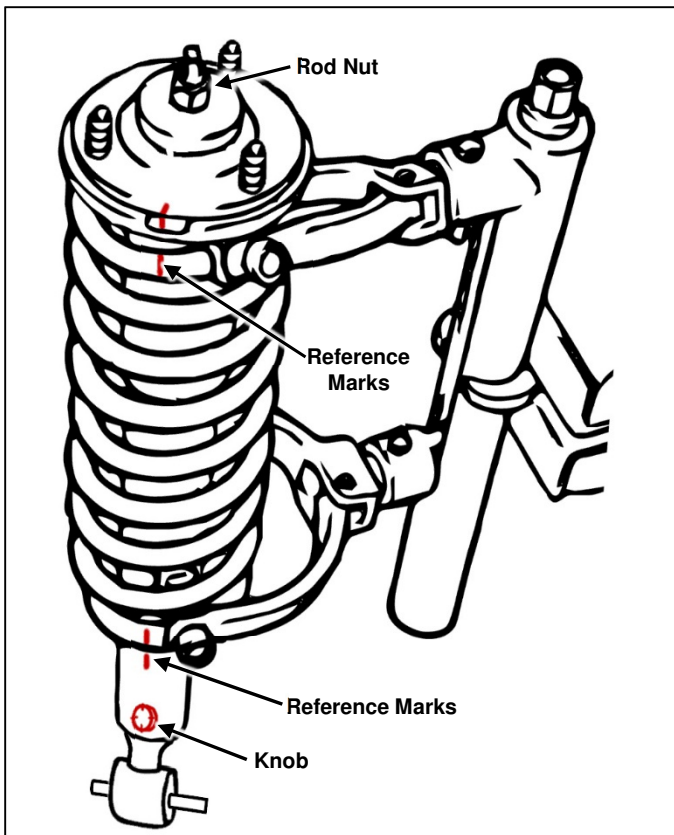


Illustration 4

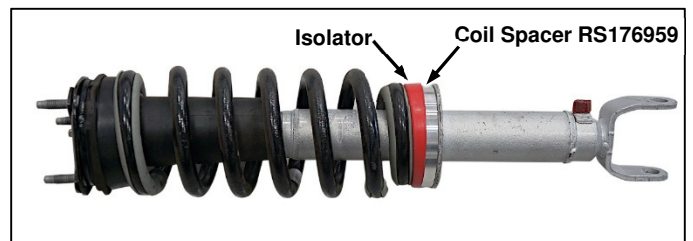


Illustration 5

COIL SPACER INSTALLATION

⚠ WARNING: If installing new strut, follow instructions and warnings supplied with strut.

1) Reference mark top mount, coil spring and strut. See Illustration 4.

⚠ WARNING: SPRING IS UNDER COMPRESSION LOAD WHEN INSTALLED. ATTEMPTS TO REMOVE SPRING WITHOUT PROPERLY RESTRAINING THIS LOAD MAY RESULT IN INJURY. NEVER REMOVE THE CENTRAL LOCK NUT OF THE UPPER MOUNTING PARTS BEFORE THE SPRING IS COMPRESSED.

IF A SUITABLE SPRING COMPRESSOR TOOL IS NOT AVAILABLE, OR A QUALIFIED OPERATOR IS NOT AVAILABLE, MOST REPAIR SHOPS CAN SWAP THE COIL FOR A SMALL CHARGE.

2) Using a suitable spring compressor tool, compress spring slightly to relieve initial tension.

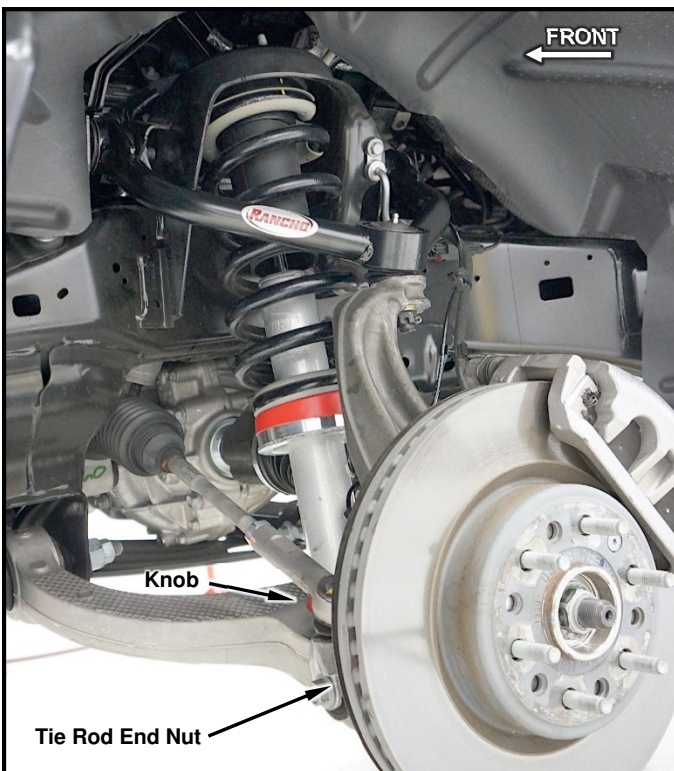


Illustration 6

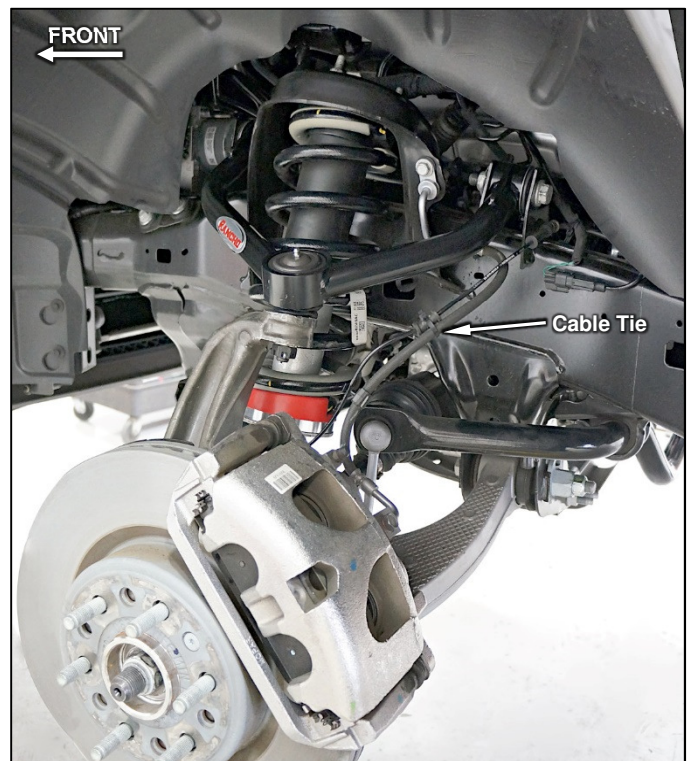


Illustration 7

4) Remove all upper mounting parts and spring from strut assembly; save for reuse. Note position of all parts as removed to ensure proper installation of replacement parts. Inspect all original parts as removed for wear and damage. Obtain replacements when necessary.

5) Install coil spring spacer RS176959 between spring seat and isolator with bevel/chamfer down. See Illustration 5 and Illustration 6.

6) Install strut on spring and upper mount assembly using reference marks to align components. Spring may need to be compressed more to fit strut. See Illustration 4 and Illustration 6. Torque center rod nut to 41 lb-ft.

NOTE: Knob faces to front of vehicle.

⚠ WARNING: DO NOT OVER TIGHTEN ROD NUT. EXCESSIVE TORQUE CAN DAMAGE THE THREADS ON THE NUT OR PISTON ROD. USE TORQUE VALUE FROM OE MANUFACTURER.

7) Slowly release spring compressor checking for proper alignment of components.

CONTROL ARM INSTALLATION

1) Install grease fittings in upper ball joint of new rancho control arms.

2) Loosely install new Rancho upper control arm to frame brackets using OE hardware.

RS176969B is the driver side arm, and RS176970B is the passenger side. The ball joint is offset toward the rear of the vehicle and the RANCHO nameplate will be to the front when installed correctly.

3) Lower jack and install strut in upper and lower mount on vehicle using OE hardware. Torque hardware to OE specifications.

CAUTION: Take care not to damage CV boot with end of strut, or pull CV boot off of housing. Push the end of the CV axle partly through the hub to relieve tension on boot.

4) Attach upper ball joint stud to steering knuckle using OE hardware. Install cotter pin. If required TIGHTEN nut to align cotter pin hole.

DO NOT LOOSEN NUT TO INSERT COTTER PIN!

5) Attach outer tie rod end to steering knuckle with OE hardware. Torque hardware to 41 Lb-Ft.+180°.

6) Pull out on end of CV axle and re-install CV axle nut. Torque to 184 Lb-Ft.

7) Re-install brake hose and ABS wire brackets in original locations at knuckle and frame.

8) Use wire tie to attach ABS wire to brake hose. See Illustration 7.

9) Re-install sway bar to frame. Torque hardware to 33 Lb-Ft.

10) Grease ball joint just until boot starts to swell. Do not over-grease.

LOWER VEHICLE

1) Install front wheels.

2) Turn the front wheels completely left then right. Verify adequate tire, wheel, brake hose clearance. Check for proper CV axle operation and clearance. Inspect steering and suspension for tightness and proper operation.

3) Inspect and rotate all axles and drive shafts.

4) Lower vehicle to ground.

5) Torque lug nuts to 140 ft. lbs.

6) Align lower control arm alignment cams with marks and torque lower control arms to 74 Lb-Ft.+145°.

7) Torque upper control arms to 128 Lb-Ft.

8) Torque lower strut mounting nut to 124 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) Ensure that the vehicle brake system operates correctly.

3) Readjust headlamps and have vehicle aligned at a certified alignment facility.

Recommended Alignment Specifications

	LEFT	RIGHT	TOLERANCE
Caster	4.85°	5.15°	± 0.65°
Camber	0.15°	-0.15°	± 0.65°
Toe	0.10° (toe in)		± 0.25°

4) Park the vehicle on a level surface. Set the parking. Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 8.

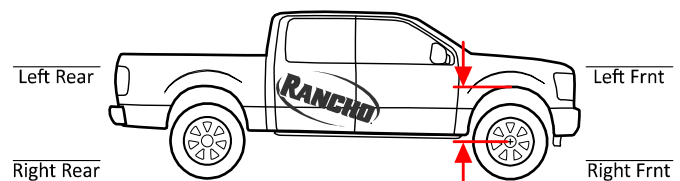


Illustration 8

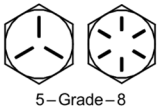
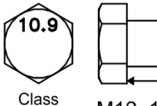
Vehicle Torque Specifications

Strut Rod Nut	35 Lb-Ft.
Upper Strut Mounting Nuts	52 Lb-Ft.
Lower Strut Mounting Nut	124 Lb-Ft.
Upper Ball Joint Nut (Rancho Control Arm)	80 Lb-Ft
Tie Rod End Ball Stud Nut	41 Lb-Ft.+180°*
Sway Bar Mounting Bolts	33 Lb-Ft
Lower Control Arm Nuts	74 Lb-Ft.+145°*
Upper Control Arm Nuts	128 Lb-Ft
CV Axle Nut	184 Lb-Ft
Wheel Lug Nuts	140 Lb-Ft

* Torque fastener to specification, then turn nut specified amount

STANDARD BOLT TORQUE AND 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

 5-Grade-8 1/2-13x1.75 HHCS			D = Nominal Diameter TPI = Threads Per Inch P = Pitch (Thread Width, mm) L = Length X = Description (Hex Head Cap Screw)			 Class 10.9 M12-1.25x50 HHCS	
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IMPORTANT NOTES

- 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).
- 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.
- 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.
- 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.
- Compare the contents of this system with the parts list in these instructions. If any parts are missing, contact the Rancho Technical Department at 1-800-325-8886.
- 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.
- 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.
- 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.

- 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
- 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.
- 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.
- The required installation time for this system is approximately 2 to 4 hours for two people. Check off the number 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.
- 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.
- 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.

⚠ 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.

- 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 kit 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 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.

⚠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 DRiV, Inc. and its related companies harmless to the fullest extent permitted by law against any resulting damages.



Rancho® Technical Department 1-800-325-8886
www.gorancho.com