



Rancho **LEVEL IT** System RS66403R9

Fits 2020-2021 Ram 1500 DT Pickup

Excludes Air Suspension, Classic DS Models.

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION

This suspension system was developed using LT285/60R20 tires on a 5.75" backspacing wheel.

Before installing tires and wheels, consult your local tire and wheel specialist.

⚠ 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. |
|-------------|------------------------|------|
| RS999851UMM | Rancho quickLIFT Strut | 2 |
| RS89403 | Instruction | 1 |

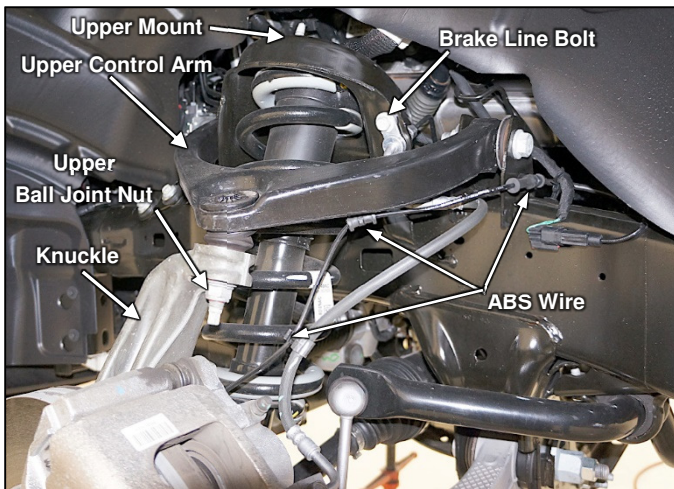


Illustration 1

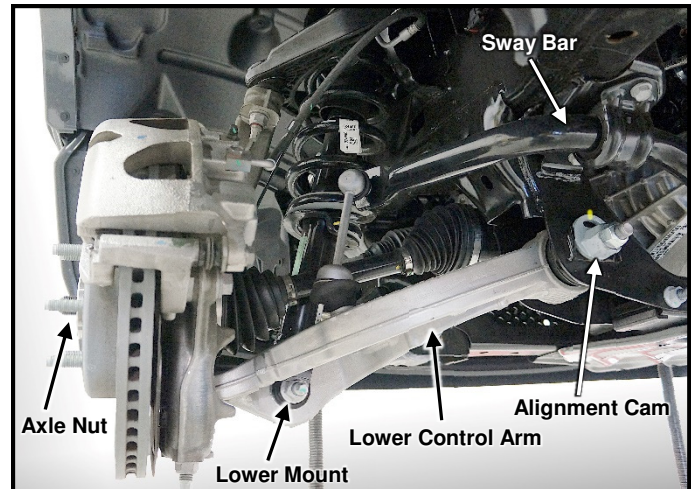


Illustration 2

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 3.

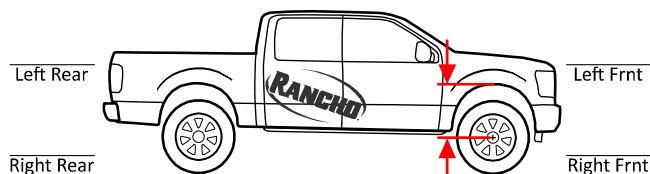


Illustration 3

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 2.

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 1.

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 2.

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

10) Loosen, but do not remove, outer tie rod stud nut and upper ball joint stud nut. See Illustration 1 and Illustration 5.

11) 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. USE PRY BAR TO HOLD DOWN AND SLOWLY LIFT BALL JOINT STUD OUT OF KNUCKLE. WHEN REMOVING BALL JOINT STUD NUT.

12) Pry down on upper control arm, remove ball joint nut, and remove ball joint stud from knuckle.

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

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

15) Remove upper strut mounting nuts.

CAUTION: Do not turn center strut rod nut!

16) Remove lower strut mounting bolt. See Illustration 2.

17) 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.

18) Loosen upper control arm until bolts move freely (Do not remove).

STRUT REPLACEMENT

1) Follow instructions supplied with strut to install supplied spring seat, isolator, and bump stop on new Rancho strut.

CAUTION: Follow instructions and warnings supplied with strut.

2) 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.

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

4) With initial spring tension relieved, loosen rod nut slightly. Compress spring until loose from lower spring seat and then completely remove nut.

5) 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.

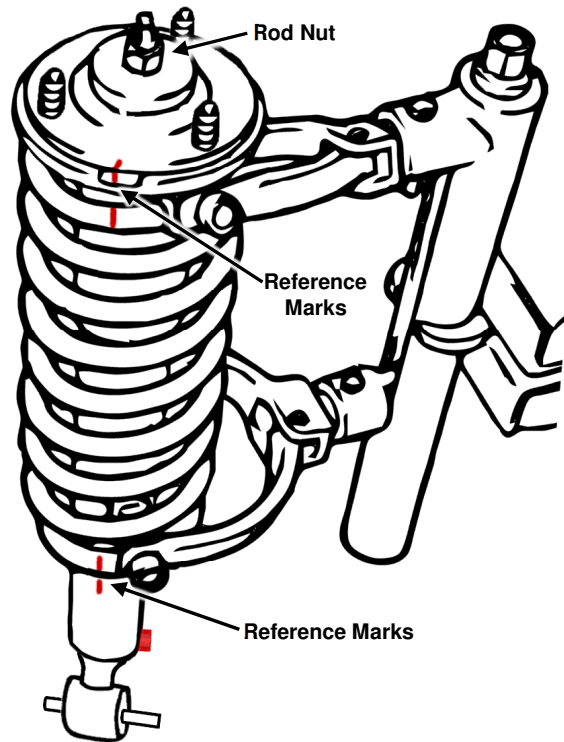


Illustration 4

6) Install new strut on spring and upper mount assembly using reference marks to align components. Spring may need to be compressed more to fit new Rancho strut. See Illustration 4 and Illustration 5. Torque center rod nut to 37 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.

8) Install strut in upper and lower mount on vehicle using OE hardware. Lower jack if required. Torque upper hardware to OE specifications. Do not tighten lower hardware at this time.

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

9) Attach upper ball joint stud to steering knuckle using OE hardware. Tighten hardware to OE specifications.

10) Attach outer tie rod end to steering knuckle with OE hardware. Tighten hardware to OE specifications.

11) Re-install brake hose and ABS wire brackets in original locations.

12) Install axle nut and torque to OE specifications.



Illustration 5

SWAY BAR SPACER INSTALLATION

- 1) Loosely install driver side sway bar mount to frame. Install passenger side sway bar mount with to frame.
- 2) Torque hardware to OE specifications.

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 OE specifications.
- 7) Torque upper control arms to OE specifications
- 8) Torque Lower strut mounting nut to OE specifications.

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 | 4.35° | 4.65° | ± 0.65° |
| Camber | 0.15° | -0.15° | ± 0.65° |
| Toe | 0.10° (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 6.

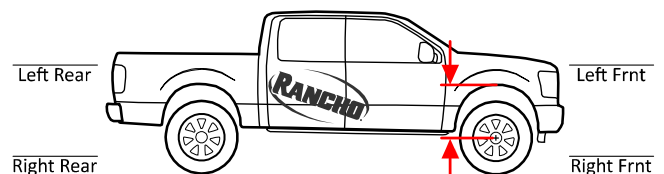
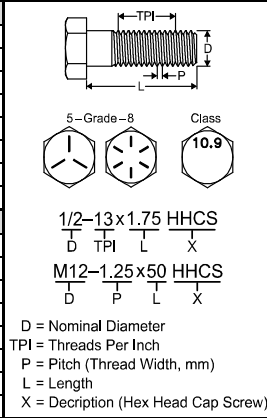


Illustration 6

Fastener Torque Specifications

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



D = Nominal Diameter
 TPI = Threads Per Inch
 P = Pitch (Thread Width, mm)
 L = Length
 X = Description (Hex Head Cap Screw)

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 | 26 Lb-Ft.+180°* |
| 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. |
| Wheel Lug Nuts | 140 Lb-Ft. |

* Torque fastener to specification, then turn nut specified amount

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

⚠️ 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.



www.gorancho.com

Rancho Technical Department 1-800-325-8886.