



RS66450R9 – LEVEL IT System

Fits 2013–2003 Dodge Ram 2500 / 3500 4WD Diesel

Excludes Gasoline Engines.

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION

This suspension system was developed using LT315/75R17 tires on a 5"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.
RS80450B	Coil Spring - Boxed	1
RS824B	Coil Spring, Front Progressive	2
RS88450	Instructions RS80450	1
RS176692	Sway Bar Spacer	2
RS860699	Sway Bar Spacer Hardware	1
RS770080	HHCS, M10-1.50X30MM	4
RS7657	Nut, M10-1.50 Nylock	4
RS770064	Washer M10	8
RS999044	RS9000XL Shock	2
1376000141	Dirt Boot	1
136763624	Strap-Black	1
FORM01099	Inst Sheet - Unlock Procedure	1

P/N	DESCRIPTION	QTY.
P01356	Parts Pkg	1
117300006	Retainer	2
1063000452	Cushion - Red	2
113960705P	Nut	1
RS89450	Instructions RS66450R9	1
RS94180	Information Pack	1
RS94177	Rollover Warning Label	1
RS94119	Consumer/Warranty Information	1
R-RM0082-1112	Warranty Tag	1
RS780281	Rancho Decal - Color	1
RS780294	Red Rancho Die Cast Decal	1
RS780294B	Black Rancho Die Cast Decal	1

VEHICLE PREPARATION

- 1) Park the vehicle on a level surface. Set the parking brake and chock rear wheels. Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 1.

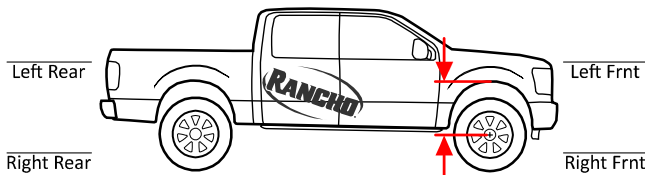


Illustration 1

- 2) If equipped, remove the front skid plate.
- 3) Disconnect the track bar from the frame bracket. See Illustration 2.
- 4) Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.

SHOCK ABSORBER REMOVAL

- 1) Support the front axle with a floor jack. Secure the axle to the jack to keep it from rotating.
- 2) Remove the sway bar upper nut, retainer and cushion as shown in Illustration 3.

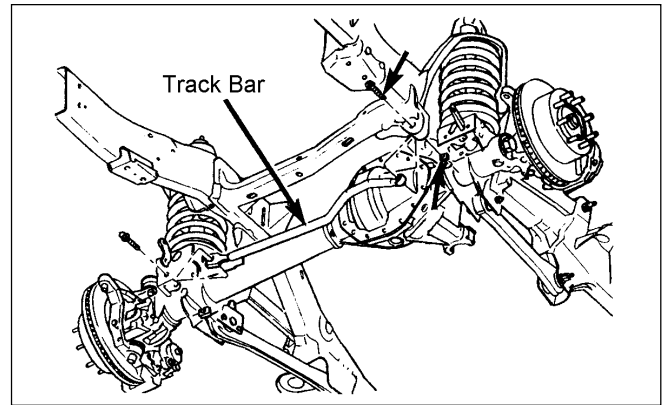


Illustration 2

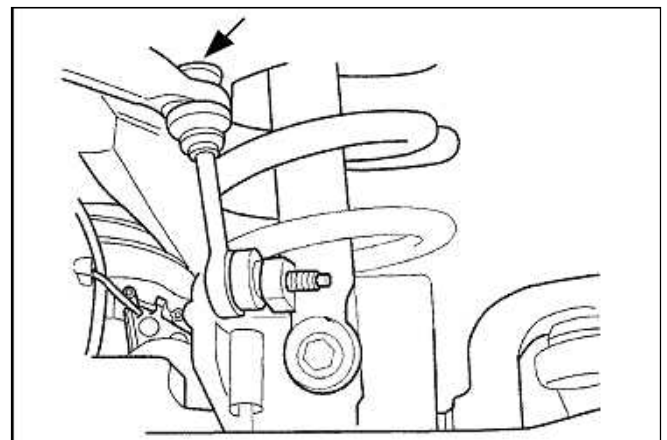


Illustration 3

- 3) Mark the front differential yoke and drive shaft for installation reference. Separate the drive shaft from the differential.
- 4) Remove the mounting bolts holding the front brake hoses to the axle brackets. Disconnect the front differential vent hose.
- 5) Remove the nut, retainer and bushing from the shock absorber stud in the engine compartment. Remove the three nuts from the shock bracket. See Illustration 4. Remove shock bracket.

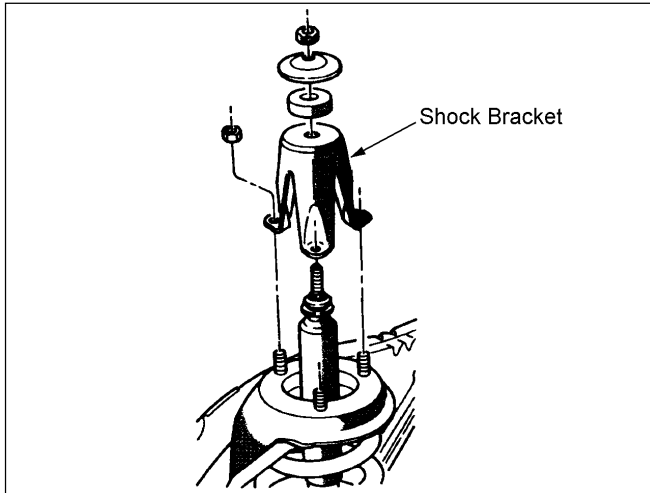


Illustration 4

- 6) Remove the lower bolt from the axle bracket. See Illustration 5. Remove the shock absorber from the engine compartment.

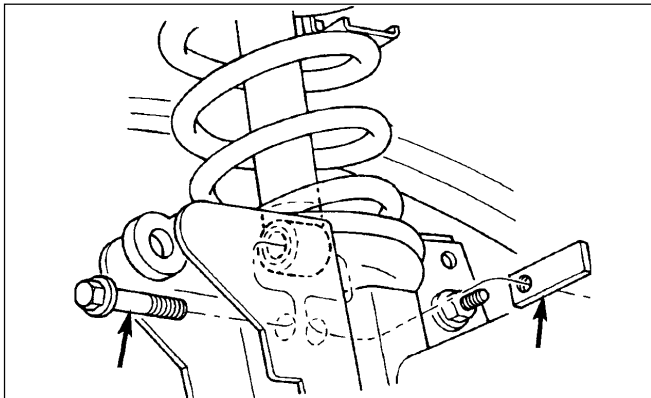


Illustration 5

NOTE: If a quality heavy duty spring compressor is available it may be used to remove OE and install Rancho springs. Otherwise the suspension arms must be removed to lower axle enough to complete installation.

COIL SPRING REMOVAL AND INSTALLATION

- 1) Mark the lower suspension arm cam adjusters and axle brackets for installation reference.
- 2) Loosen the upper suspension arm bolts.
- 3) Loosen lower suspension arm to frame mounting bolts

- 4) Confirm axle is securely supported by floor jack.
- 5) Remove the upper suspension arm to axle mounting bolts. See Illustration 6. Confirm axle is secure and will not flip or rotate.
- 6) Carefully remove lower suspension arm to frame mounting bolts, taking care that axle stays level and secure. See Illustration 6. If axle wants to rotate, use another jack under the differential yoke or lower suspension arm.

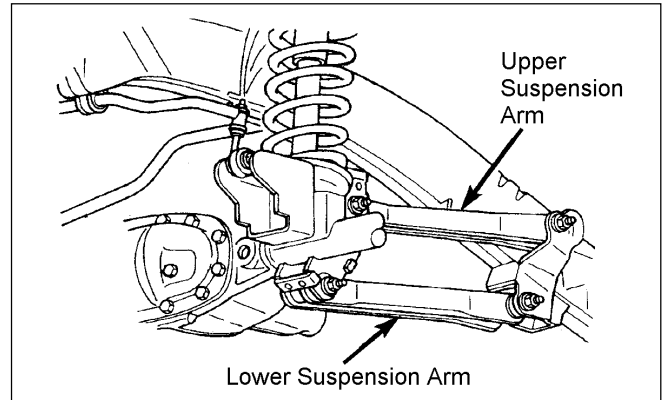


Illustration 6

- 7) Mark the coil spring and axle pad for installation reference.
- 8) Carefully lower the axle until the coil springs are free from the upper mounts. Remove the coil springs.

⚠ WARNING: Do not allow the front axle assembly to hang from the brake hoses.

- 9) Insert left coil spring between the driver side axle pad and upper mount. Carefully lower axle if required. Align spring with reference marks.
- 10) Insert right coil spring between the passenger side axle pad and upper mount. Align spring with reference marks. See Illustration 7.



Illustration 7

- 11) Carefully raise front axle. Do not lift vehicle off frame supports.
- 12) Reattach upper and lower suspension arms. Do not tighten until vehicle is on ground at ride height.

SHOCK ABSORBER INSTALLATION

- 1) Fully extend new Rancho front shock absorber. Insert shock into coil spring from engine compartment.
- 2) Attach shock to axle bracket with the original hardware. Tighten bolt to 100 lb-ft.
- 3) Install lower retainer and bushing on shock. Install shock bracket and the three original nuts. Refer back to illustrations 4 and 5. Tighten nuts to 55 lb-ft.
- 4) Install upper bushing and retainer. Install shock absorber nut and tighten to 40 lb-ft.
- 5) Align reference marks and reattach the front drive shaft with the original hardware. Apply thread lock and tighten bolts to 21 lb-ft.
- 6) Reattach the end links to the sway bar with the original retainers, bushings, and nut. Tighten to 20 lb-ft.
- 7) Reattach brake hose to the axle bracket with the original bolt.

SWAY BAR DROP BRACKET INSTALLATION

- 1) Remove sway bar to frame mounting bolts.
- 2) Install Rancho sway bar drop brackets RS176692 using OE hardware with logo facing out. See Illustration 8.
- 3) Attach sway bar to Rancho sway bar drop brackets RS176692 using supplied hardware from kit RS860699. Tighten to 40 lb-ft.



Illustration 8

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 145 lb-ft.
- 6) Apply thread lock and tighten the upper link bolts to 120 lb-ft. Install thread lock, and tighten the lower link bolts to 160 lb-ft.
- 7) Apply thread lock and attach track bar to frame bracket. If holes do not align, have assistant slowly turn wheel to left or right to align. Tighten the track bar bolt to 165 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

	Preferred	Range
Caster (degrees)	4.0°	+ .75°
Camber (not adjustable)	-0.25°	
Sum Toe In (degrees)	1°	±0.05°
Sum Toe In (inches)	.05" – .15"	

- 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 9.

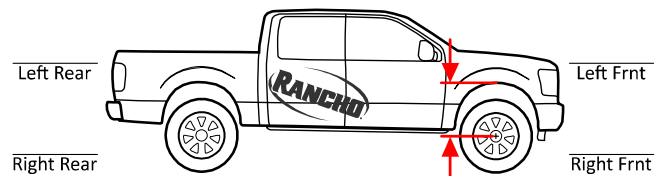


Illustration 9



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Rancho Technical Department 1-800-325-8886.

VEHICLE TORQUE SPECIFICATIONS

Upper Control Arm	120 LB-FT
Lower Control Arm	160 LB-FT
Upper Shock Mounting Nuts	40 LB-FT
Lower Shock Mounting Bolts	100 LB-FT
Upper Shock Mount Bracket	55 LB-FT
Front Drive Shaft	21 LB-FT
Sway Bar Mounting Bolts	40 LB-FT
End Links to Sway Bar	20 LB-FT
Track Bar	165 LB-FT
Wheel Lug Nuts	145 LB-FT

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

$\frac{1}{2}-13 \times 1.75 \text{ HHCS}$ $\frac{D}{D} \frac{TPI}{TPI} \frac{L}{L} \frac{X}{X}$	$M12-1.25 \times 50 \text{ HHCS}$ $\frac{D}{D} \frac{P}{P} \frac{L}{L} \frac{X}{X}$	<p>D = Nominal Diameter TPI = Threads Per Inch P = Pitch (Thread Width, mm) L = Length X = Description (Hex Head Cap Screw)</p>			
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⚠ 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.