



Rancho Suspension System — RS66123B  
3 ½" Crawler Progressive Coil Short Arm System — Black  
Fits 2018 Jeep Wrangler JLU (4-Door ONLY) Rubicon

This suspension system was developed using 37x12.5xR17 tires. Before installing any other size tire, consult your local tire and wheel specialist. See page 4.



Pictured with:  
BFGoodrich Mud Terrain T/A KM2 37x12.5R17  
Vision Nemesis 17" x 9" -12 wheel (4.5" backspacing)

**⚠ 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 wheel / tire size may be used with this suspension system: BF Goodrich All-Terrain T/A KO2 37x12.50R17, 17" x 9" -12 wheel (4.5" backsparing).**

**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. Welding on a vehicle creates an electrical charge throughout the body and frame. Disconnect the vehicle's battery prior to any welding. Place welding ground clamps as near as possible to the weld. Never use a vehicle suspension component as a welding ground point.
- 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 4 to 5 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

### **Required Components and Modifications** (MUST BE PURCHASED SEPARATELY)

#### **Shock Absorbers:**

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

Do not reuse OE shock absorbers

**⚠️ 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     |
|----------|----------|
| RS55065  | RS55066  |
| RS55067* | RS55068* |

\*Requires replacement front driveshaft (see below)

#### **Front Drive Shaft:**

If using front shocks longer than RS55065 (25-1/4"), a Double Cardan CV front drive shaft is required due to limited travel of OE drive shaft's Rzeppa joint at the transfer case.

#### **Rear Drive Shaft:**

A smaller diameter rear driveshaft is recommended to prevent contact with fuel tank skid plate during maximum articulation.

Rancho recommends Powertrain Industries drive shafts: Powertrain Industries, Garden Grove, CA. 1-800-798-4585, powertrainindustries.com.  
Part Numbers — Front: 3194-2125, Rear: 3194-2687

### **Wheels and Tires**

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

Tire: BF Goodrich All-Terrain T/A KO2 37x12.50R17

Wheel: Vision Nemesis 17" x 9" -12 wheel (4.5" backspacing)

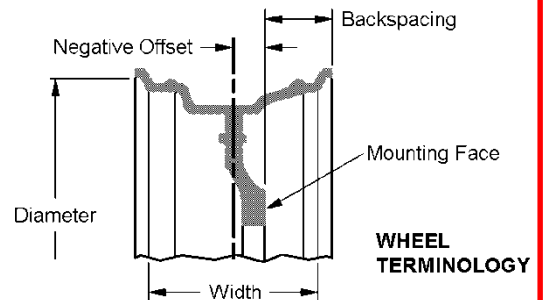
Total backspacing 5.8"

Maximum total backspacing is 6.8".

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

| Compatible With OE Wheels | Development Tire Size (Actual) | Wheel Size (Backspacing) |
|---------------------------|--------------------------------|--------------------------|
| Yes <sup>1</sup>          | 37x12.50R17<br>(36.5"x12.5")   | 17x9<br>(4.5")           |

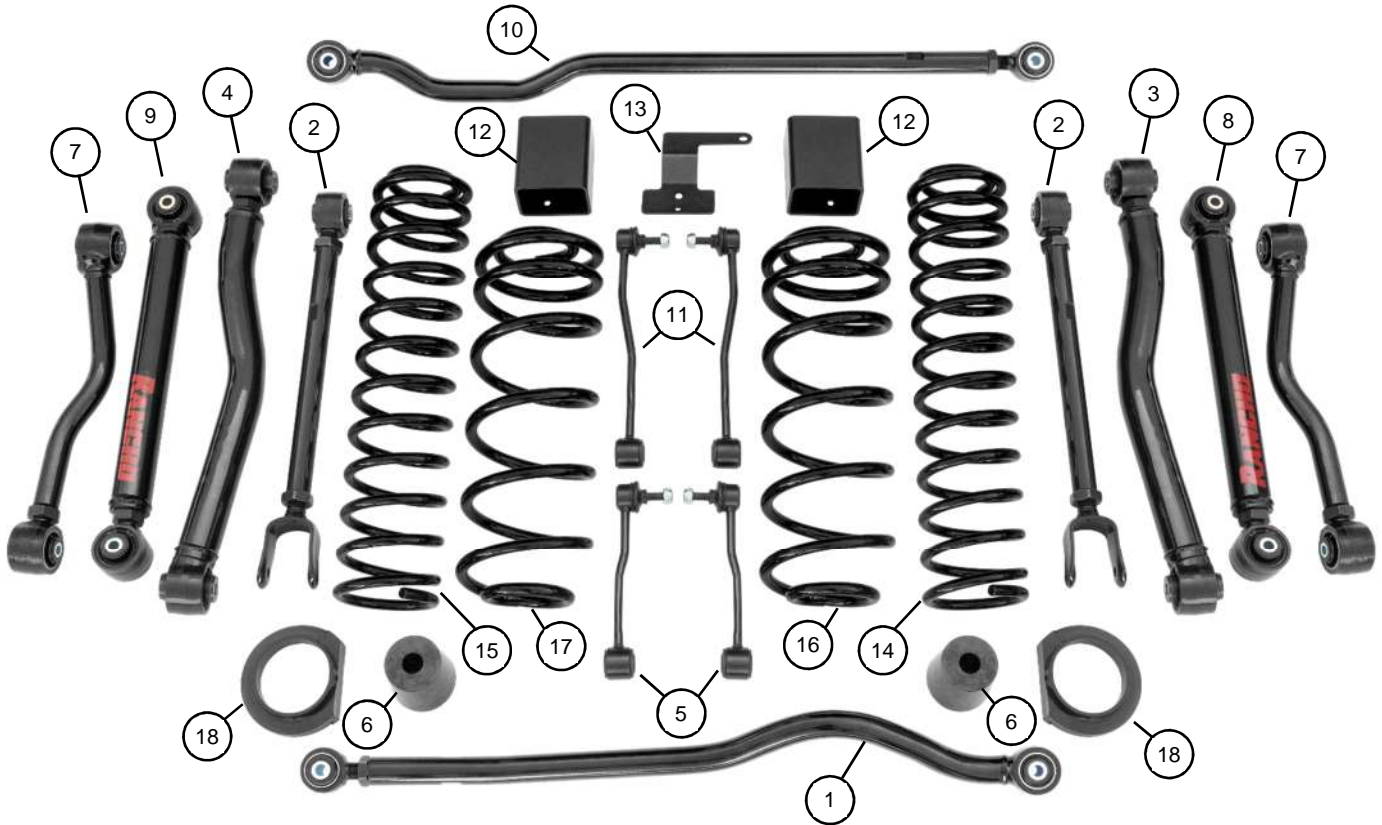
<sup>1</sup> OE wheels compatible with stock size tires only.



**WHEEL TERMINOLOGY**

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

|                                    |   |   |
|------------------------------------|---|---|
| Jeep Service Manual                | 3/8" and 1/2" Drive Ratchet and Socket Sets | File  |
| Hydraulic Floor Jack               | Combination Wrenches                        | Red LoCTite   |
| Heavy Duty Jack stands             | Wire Brush (to clean mounting surfaces)     | Penetrating Lube (to aid removal of corroded and frozen hardware) |
| Wheel Chocks (Wooden Blocks)       | Body Clip Removal Tool                      | <b>Safety Glasses--</b>   |
| Torque Wrench (250 FT-LB capacity) | Hammer                                      | Wear safety glasses at all times                                  |
| Heavy Duty Spring Compressor       | Pliers                                      |   |



Parts List

| ITEM | P/N               | DESCRIPTION                    | QTY      |
|------|-------------------|--------------------------------|----------|
|      | <b>RS66125B-1</b> | <b>Box 1, Front Components</b> | <b>1</b> |
| 1    | RS881030B         | Front Track Bar                | 1        |
| 2    | RS881031B         | Front Upper Control Arm        | 2        |
| 3    | RS881032BL        | Front Left Lower Control Arm   | 1        |
| 4    | RS881032BR        | Front Right Lower Control Arm  | 1        |
| 5    | RS176901          | Front Sway Bar End Link        | 2        |
| 6    | RS176802          | Front Bump Stop 3"             | 2        |
|      | RS860851          | Sub Assy, Front Bump Stop      | 1        |
|      | RS603602          | HHCS, 3/8-16 X 1.75            | 2        |
|      | RS7604            | Nut, 3/8-16 Nylock             | 2        |
|      | RS603508          | Washer, 3/8 SAE                | 4        |
|      | RS89125           | Instructions                   | 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 Cut Decal       | 1        |
|      | RS780294B         | Black Rancho Die Cut Decal     | 1        |

| ITEM | P/N               | DESCRIPTION                   | QTY      |
|------|-------------------|-------------------------------|----------|
|      | <b>RS66125B-2</b> | <b>Box 2, Rear Components</b> | <b>1</b> |
| 7    | RS881004B         | Rear Upper Control Arm        | 2        |
| 8    | RS881005BL        | Rear Left Lower Control Arm   | 1        |
| 9    | RS881005BR        | Rear Right Lower Control Arm  | 1        |
| 10   | RS881033B         | Rear Track Bar                | 1        |
| 11   | RS176902          | Rear Sway Bar End Link        | 2        |
| 12   | RS176918          | Rear Bump Stop 3"             | 2        |
|      | RS860830          | Sub Assy - Rear Bump Stop     | 1        |
|      | RS770127          | HHCS, M8-1.25 X 20mm Gr 10.9  | 4        |
|      | RS770128          | Washer, M8                    | 8        |
|      | RS603112          | Nut, M8-1.25 Nylock           | 4        |
|      | RS860850          | Sub Assy, E-Brake Bracket     | 1        |
| 13   | RS176905          | E-Brake Bracket               | 1        |
|      | RS770304          | HHCS, M12-1.50 X 25Mm Gr.10.9 | 1        |
|      | RS7915            | Washer, M12                   | 1        |
|      | RS603112          | Nut, M8-1.25 Nylock           | 1        |
|      | RS770128          | Washer, M8                    | 1        |
|      | <b>RS66125B-3</b> | <b>Box 3, Coil Springs</b>    | <b>1</b> |
| 14   | RS869B            | Left Front Coil Spring        | 1        |
| 15   | RS870B            | Right Front Coil Spring       | 1        |
| 16   | RS871B            | Left Rear Coil Spring         | 1        |
| 17   | RS872B            | Right Rear Coil Spring        | 1        |
| 18   | RS176922          | Front Coil Isolator           | 2        |

## FRONT SUSPENSION

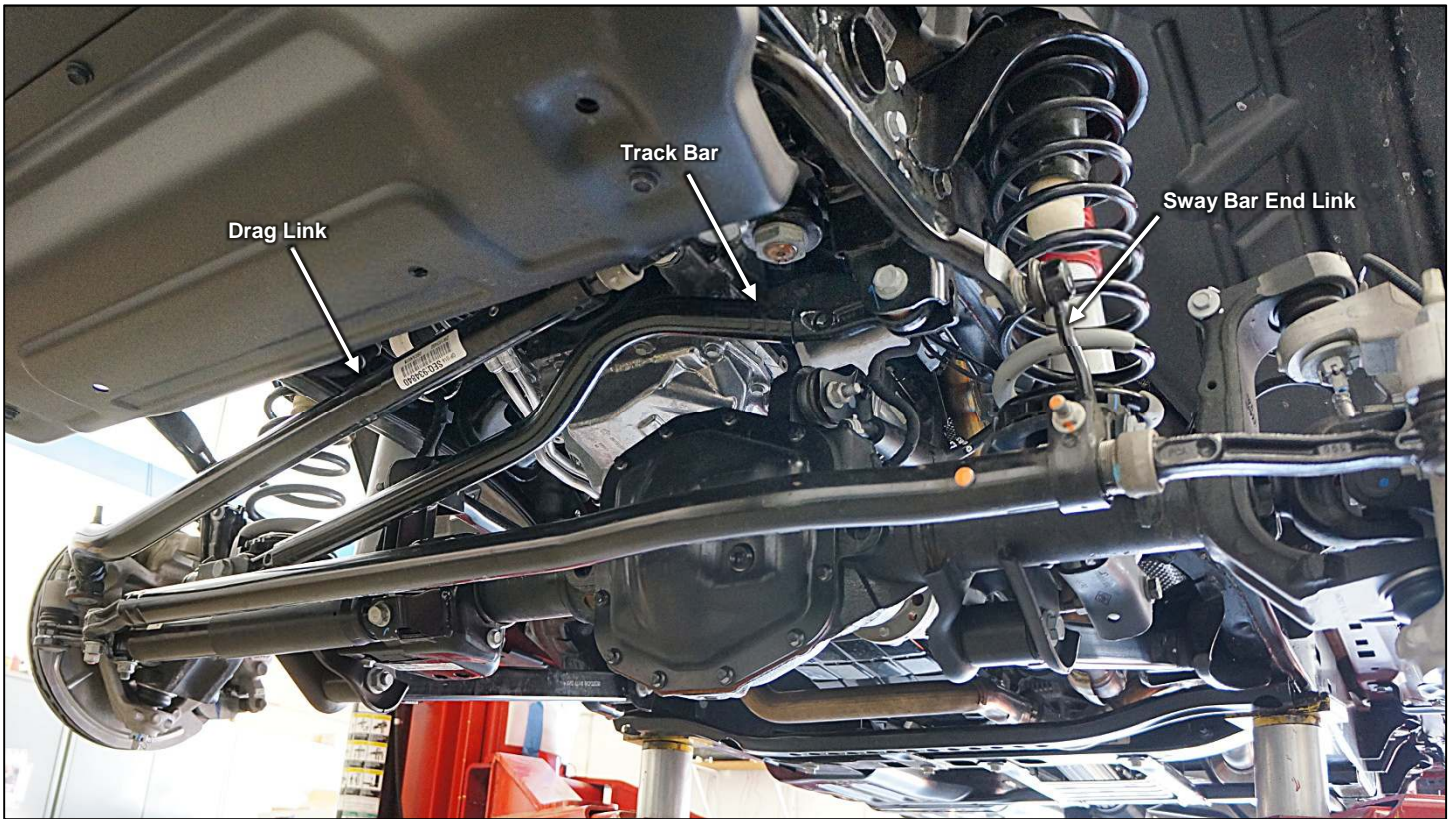


Illustration 1

### **SHOCK ABSORBER & COIL SPRING REMOVAL**

- 1)  Park vehicle on a level surface. Set the parking brake and chock rear wheels. Disconnect the negative ground cable from the battery.
- 2)  Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 2.

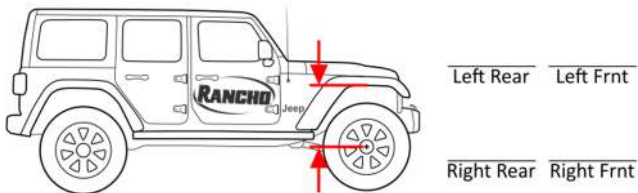


Illustration 2

- 3)  Remove the track bar to frame bracket nut and bolt. See Illustration 1.
- 4)  Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.
- 5)  Support the front axle with a floor jack.
- 6)  Remove the sway bar end links. To avoid mixing the different thread pitches used, thread nuts back onto ball stud and mounting bolt and save for later use.

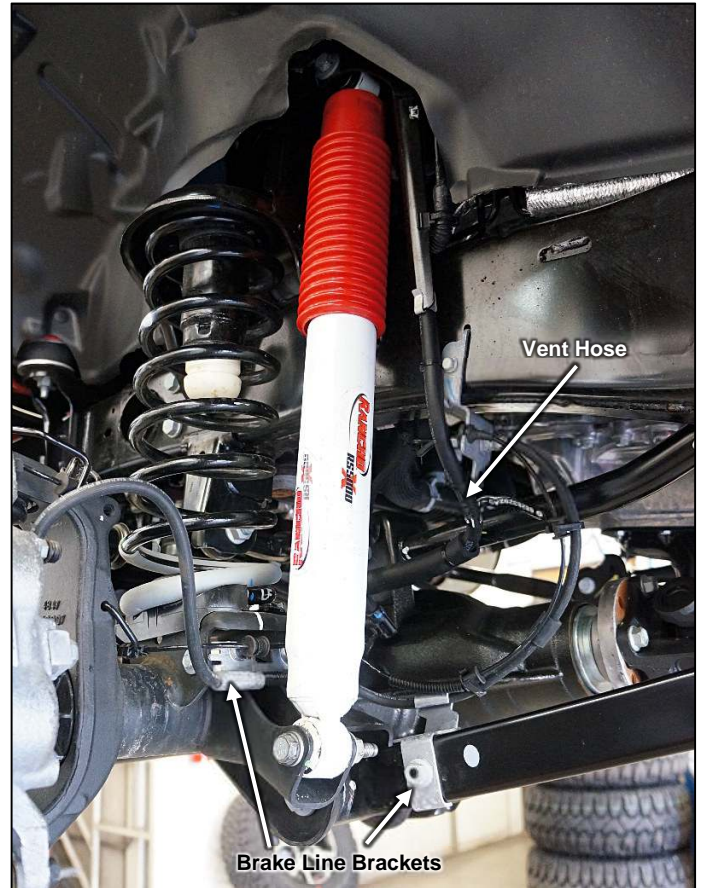


Illustration 3

- 7)  Remove the shock absorber lower nut and bolt.
- 8)  Remove the shock absorber upper bolt. Remove the front shock absorber.

DO NOT REUSE ORIGINAL SHOCK ABSORBERS.

- 9)  Remove nut and separate the brake hose bracket from the lower control arm. See Illustration 3.
- 10)  Remove bolt and separate the brake hose bracket from the axle.
- 11)  Disconnect any vent hoses.

- 12)  Disconnect any electrical wiring from the axle by sliding out the plug lock and pulling plug out. Detach wire clips from axle and upper control arms. See Illustration 4.

**CAUTION: DO NOT PULL BY WIRES!**

- 13)  Reference mark the drive shaft to the front pinion flange (at axle). Disconnect the drive shaft from the pinion flange. Support drive shaft with a tie wrap or wire. See Illustration 6.

- 14)  Carefully lower the front axle and remove the coil springs. Push down on axle if necessary.

**⚠ WARNING: Do not allow the axle to hang by any hoses or cables. You could damage the hose or cable, without this damage being visible to you, resulting in sudden and unexpected failure and an accident.**

#### **CONTROL ARM REPLACEMENT**

- 1)  Adjust Rancho upper control arms to 20.3" (20-5/16") from center to center of mounting holes.
- 2)  Adjust Rancho lower control arms to 24.35" (24-3/8") from center to center of mounting sleeves.

TIP: Measure from edge to edge of sleeve See Illustration 5.

- 3)  Remove heat shields on upper control arm frame mount. See Illustration 6.

- 4)  Raise axle up 4-5 inches.

**⚠ WARNING: Perform next steps slowly and carefully to make sure axle does not twist off jack!**

NOTE: Do not tighten control arm hardware until the end of the installation procedure. The upper front axle mount must be tightened with vehicle on the ground at ride height.

- 5)  Remove the driver side upper control arm from the frame and axle brackets. If bolts are too tight to remove, raise axle until bolts spin with only a few pounds of torque, then remove.

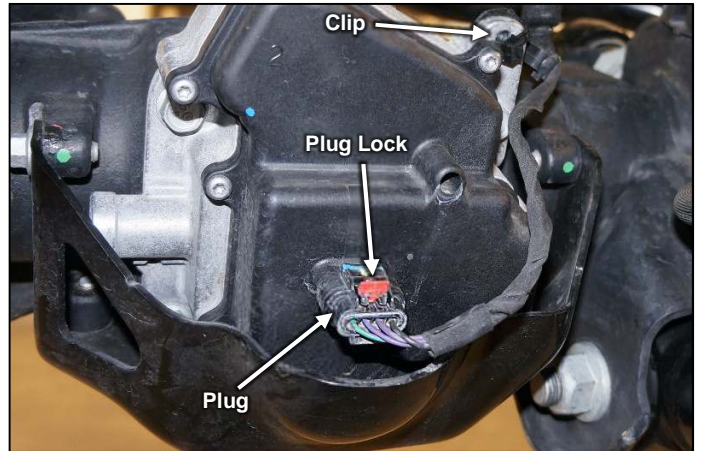


Illustration 4



Illustration 5

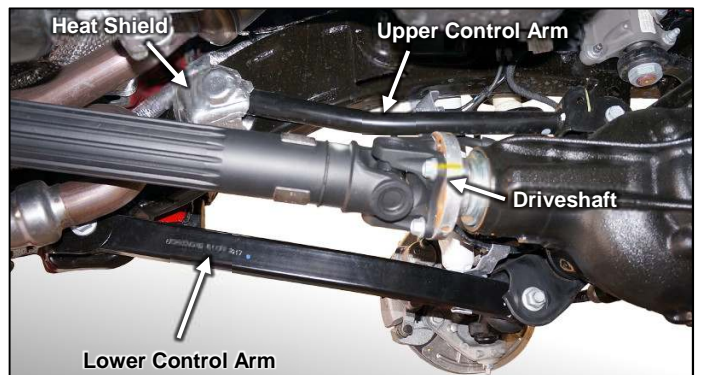


Illustration 6

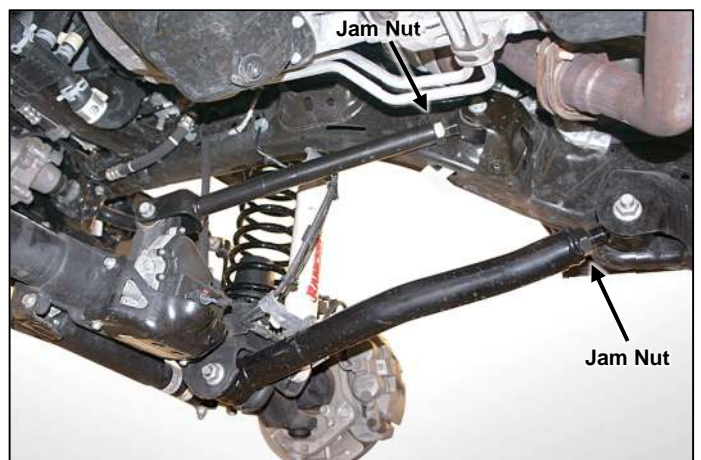


Illustration 7

- 6)  Remove the driver side lower control arm from the frame and axle brackets.
- 7)  Attach the adjustable end of the upper control arm to the frame bracket with original. Attach clevis end of upper control arm to the axle bracket with the original hardware. See Illustration 7.
- 8)  Attach the non-adjustable side of the lower control arm to the driver side axle bracket with the original hardware. The bend of the arm goes to the inside to provide clearance for tire. See Illustration 7.
- 9)  Attach the adjustable end of the lower control arm to the frame bracket with original hardware.
- 10)  If lower control arm cannot be lined up with mounting hole:

Support differential pinion with a jack and carefully disconnect the passenger side upper control arm from axle.

**⚠ WARNING: Work slowly and carefully to make sure axle does not twist off jacks!**

Use jack under pinion to align driver side upper lower arm with mount.

- 11)  Repeat steps 5 through 9 to install control arms on the passenger side.
  - 12)  Torque lower arm mounting hardware to 190 lb-ft. Torque jam nut to 150 lb-ft.
  - 13)  Torque upper arm to frame bracket mounting hardware to 80 lb-ft. Torque jam nut to 150 lb-ft.
- Do not tighten upper arm to axle mount bolts until vehicle is at normal ride height.
- 14)  Re-install heat shields to upper control arm frame mounts.

#### **BUMP STOP SPACER, COIL SPRING & SHOCK ABSORBER INSTALLATION**

Front coils springs will need to be compressed to install. Use a quality spring compressor and follow manufacturer's instructions and warnings.

**⚠ WARNING: a compressed coil spring is very dangerous. Be extremely careful; never stick your fingers, hands or other body parts anywhere that they may be pinched or smashed.**

**A sudden release of a compressed coil spring can result in injury or death!**

- 1)  Remove plastic OE lower coil isolator from axle.
- 2)  Install new lower isolator RS176922 on the axle. See Illustration 8.

- 3)  Install original rubber isolator in driver side upper coil mount. Align and insert the isolator's alignment pins in the holes in the upper mount.
- 4)  Place 3" bump stop spacer inside the coil spring 869B-LF.
- 5)  Compress coil spring 4"
- 6)  Lower axle if required and insert the compressed spring with bump stop spacer into the upper pocket and onto the axle pad. Align pigtail with groove in axle pad. See Illustration 8.

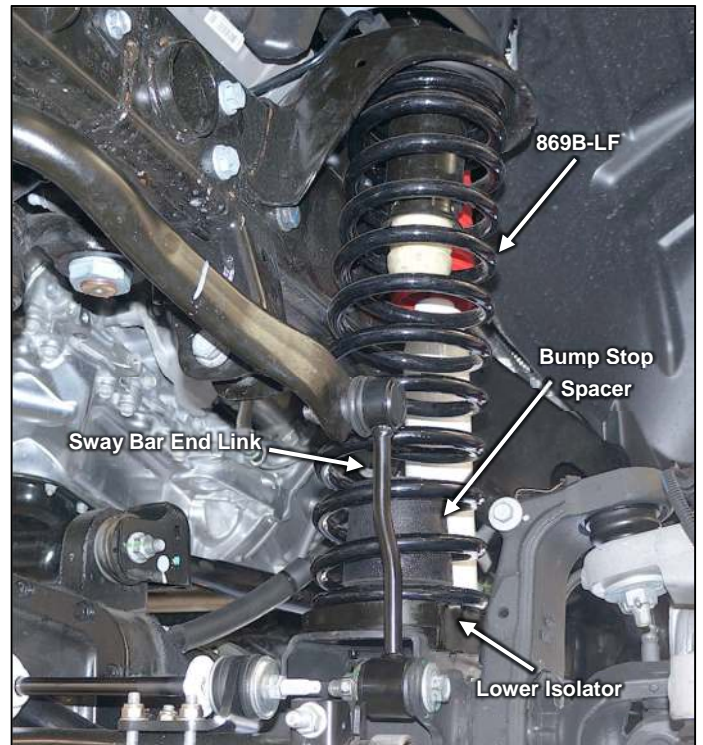


Illustration 8

- 7)  Slowly release spring compressor and check for proper coil alignment.
- ⚠ WARNING: Do not allow the axle to hang by any hoses or cables. You could damage the hose or cable, without this damage being visible to you, resulting in sudden and unexpected failure and an accident.**
- 8)  Attach the bump stop spacer to the axle pad with supplied 9/16" hardware. Torque to 20 lb-ft.
  - 9)  Repeat steps 1 through 8 for the passenger side using spring 870B-RF.
  - 10)  Install NEW Rancho shock absorber on the upper mount using OE bolt. Torque to 80 lb-ft.

NOTE: Front shocks are the shorter shocks.



- 11)  Raise front axle and re-attach the brake line bracket to the axle using original hardware.
- 12)  Attach shock lower mounts to axle brackets with the original hardware. Torque to 75 lb-ft.
- 13)  Reattach drive shaft to pinion flange using OE hardware and blue Loctite. Torque to 81 lb-ft.
- 14)  Reattach vent hose and electrical wiring if necessary.
- 15)  Attach brake line bracket to control arms using two zip-ties. Bend brackets up slightly if needed to create slack in hose. See Illustration 9.

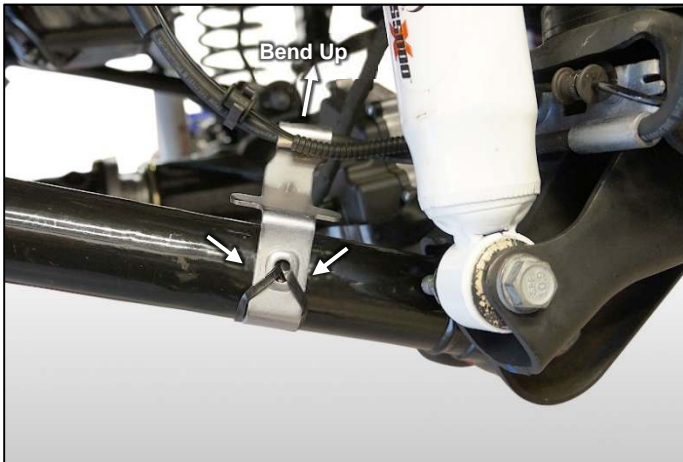


Illustration 9

#### **ADJUSTABLE TRACK BAR INSTALLATION.**

- 1)  Remove track bar axle mount nut & bolt, remove OE track bar.
- 2)  Adjust Rancho track bar to 34.4 in. from center to center of mounting sleeves.

- 3)  Attach adjustable end of track bar to axle mount using OE hardware. Torque bolt to 110 lb-ft.

NOTE: Frame end of track bar will be attached after lowering vehicle to ground.

#### **SWAY BAR END LINK INSTALLATION.**

End link ball stud and lower mounting bolt each use a different thread pitch. Be careful not to mix them!

- 1)  Attach ball stud of new front end links to sway bar with the supplied nut. Torque to 60 lb-ft. See Illustration 8.
- 2)  Attach end links to axle brackets with OE hardware. Torque to 60 lb-ft.

#### **LOWER VEHICLE**

- 1)  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.
- 2)  Install front wheels and lower vehicle to the ground. Torque lug nuts to 130 lb-ft.
- 3)  Torque upper control arm at axle mount to 80 lb-ft.
- 4)  Attach track bar to frame mount using OE hardware.

Note: If track bar does not align with bracket, have an assistant slowly turn steering wheel to align holes.

- 5)  Torque upper track bar bolt to 110 lb-ft. Torque Jam nut to 150 lb-ft.

Periodically check track bar mounting bolts and jam nut for tightness.

## REAR SUSPENSION

### SHOCK ABSORBER & COIL SPRING REMOVAL

- 1)  Disconnect the track bar from the axle bracket.
- 2)  Chock front wheels. Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 3)  Support the rear axle with a floor jack.
- 4)  Remove bolts and separate the brake hose brackets from the axle. See Illustration 10.

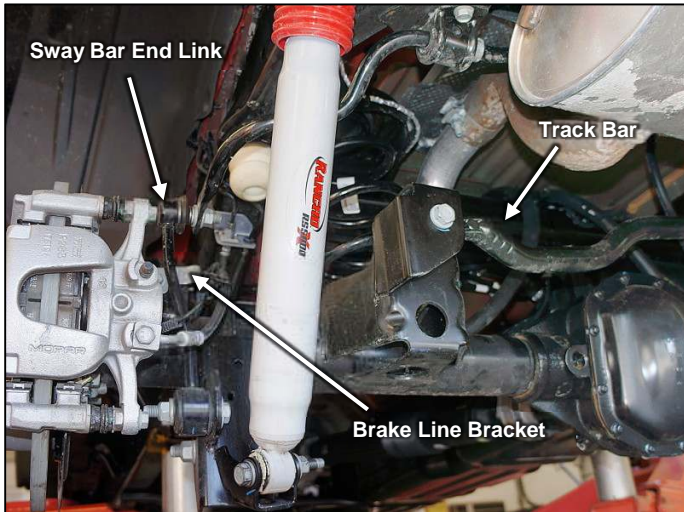


Illustration 10

- 5)  If necessary, disconnect any vent hoses and electrical wiring from the axle. Unclip wiring harness from frame cross member.
- 6)  Remove the bolt attaching the brake parking cable bracket to the body. Bracket is located above the fuel filler and evap lines. See Illustration 11.



Illustration 11

- 7)  Remove the parking brake cable hook from brake lever, and cable housing from the axle. See Illustration 12.



Illustration 12

- 8)  Re-route the parking brake cables under the fuel filler and evap lines, and under the frame cross member.
- 9)  Reattach the parking brake cable housing to the axle, then the cable hook to the brake lever.
- 10)  Remove plastic cover at rear of fender well to gain access to upper shock mount. See Illustration 13.

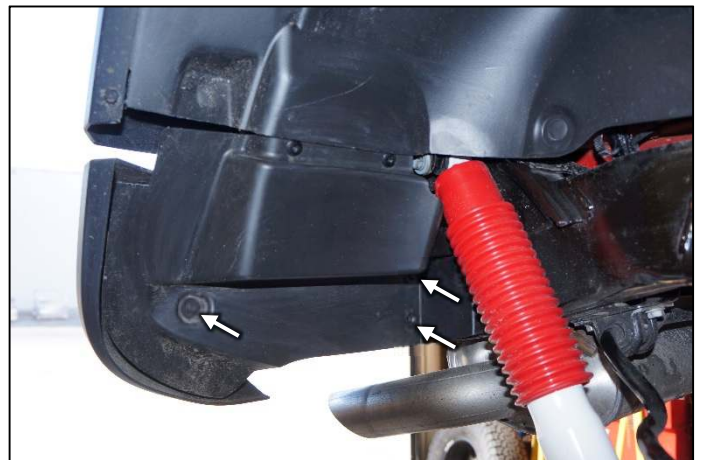


Illustration 13

- 11)  Remove the lower shock mounting nut and bolt from the axle bracket. Remove the shock absorber upper mounting bolt and remove the shock absorber.
- 12)  Remove the sway bar end links. To avoid mixing the different thread pitches used, thread nuts back onto ball stud and mounting bolt and save for later use.
- 13)  Carefully lower the rear axle until the coil springs are free from the upper mount seat. Remove the coil springs.

**⚠ WARNING:** Do not allow the axle to hang by any hoses or cables. You could damage the hose or cable, without this damage being visible to you, resulting in sudden and unexpected failure and an accident.

## CONTROL ARM REPLACEMENT

- 1)  Adjust Rancho upper control arms to 17.7" (17-3/4") from center to center of mounting sleeves.
- 2)  Adjust Rancho lower control arms to 20.0" from center to center of mounting sleeves. See Illustration 5.
- 3)  Raise axle up 4-5 inches.

**⚠ WARNING: Perform next steps slowly and carefully to make sure axle does not twist off jack!**

- 4)  Remove the driver side upper control arm from the frame and axle brackets. If bolts are too tight to remove, raise axle until bolts will spin with only a few pounds of torque, and then remove.
- 5)  Remove the driver side lower control arm from the frame and axle brackets.
- 6)  Attach adjustable end of lower control arm to the frame bracket with the original hardware. See Illustration 14.

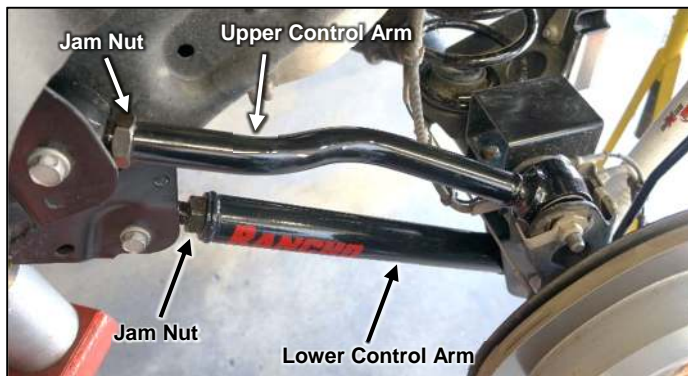


Illustration 14

- 7)  Attach lower control arm to the axle bracket with the original hardware.
- 8)  Attach the adjustable end of the upper control arm to the frame bracket with the original hardware. The bend of the arm goes to the inside to provide clearance for tire.
- 9)  Attach the upper control arm to the axle bracket with the original hardware. See Illustration 14.
- 10)  If upper control arm cannot be lined up with mounting hole:

Support differential pinion with a jack and carefully disconnect the passenger side upper control arm from axle.

**⚠ Work slowly and carefully to make sure axle does not twist off jacks!**

Use jack under pinion to align driver side upper control arm with axle mount.

- 11)  Repeat steps 4 through 9 for the passenger side.
- 12)  Torque the lower control arm bolts to 90 lb-ft. Torque jam nuts to 150 lb-ft.
- 13)  Torque the upper control arm bolts at frame to 120 lb-ft. and the axle mount to 95lb-ft. Torque jam nuts to 150 lb-ft.

## ADJUSTABLE TRACK BAR INSTALLATION.

- 1)  Remove track bar frame mount nut & bolt, remove OE track bar.
- 2)  Adjust Rancho track bar to 37.6 in from center to center of mounting sleeves.
- 3)  Attach adjustable end of track bar to frame mount using OE hardware. Torque track bar hardware at frame bracket to 90 lb-ft.

NOTE: Axle end of track bar will be attached after lowering vehicle to ground.

## COIL SPRING & SHOCK ABSORBER INSTALLATION

- 1)  Lower axle enough to fit coils into mounts.
- 2)  Place driver side OE isolator in upper mount with alignment pin inserted in hole of upper mount.
- 3)  Align pigtail with groove in isolator and push coil RS871B-LR up into upper isolator. While still pushing up on coil, align bottom of coil over lower mount and raise axle to hold coil in place. Make sure coil is seated on upper isolator and upper isolator is aligned and seated in upper mount.
- 4)  Repeat steps 2-3 for passenger side coil RS872B-RR.
- 5)  Attach new Rancho rear shocks to the upper mounting brackets with the original bolts. Torque bolts to 80 lb-ft.
- 6)  Raise axle and attach shocks to the axle brackets with the original hardware. Torque the shock absorber lower mounting bolts to 75 lb-ft.

## PARKING BRAKE CABLE BRACKET INSTALLATION

- 1)  Attach parking brake cable drop bracket frame cross member using supplied bolt and washer. See Illustration 15.
- 2)  Attach parking brake cable drop bracket RS176905 to frame cross member using supplied M12 bolt and washer.
- 3)  Reattach the brake hose brackets to the upper control arm mount. Bend brackets up slightly if needed to create slack in hose.

### **SWAY BAR END LINK INSTALLATION.**

End link ball stud and lower mounting bolt each use a different thread pitch. Be careful not to mix them!

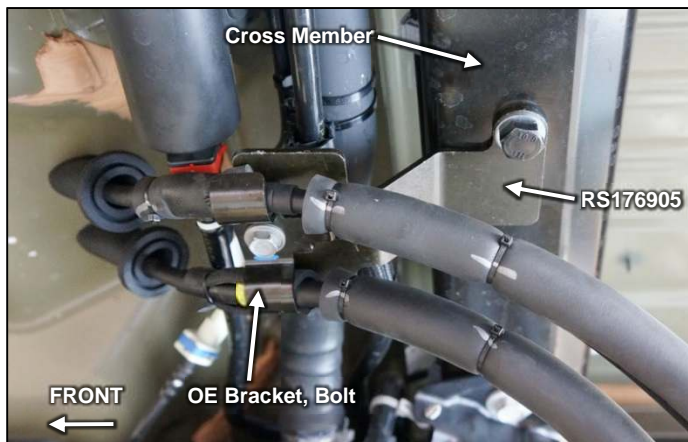


Illustration 15

- 1)  Attach ball stud of end links to sway bar with the supplied nut. Torque to 60 lb-ft.
- 2)  Attach end links to axle brackets with OE hardware. Torque to 60 lb-ft.

### **BUMP STOP BRACKET INSTALLATION**

- 1)  Using the original holes on the axle pad, attach bump stop bracket to the axle with supplied 8mm hardware. Torque to 20 lb-ft. See Illustration 16.

The holes in the bracket are offset to match the offset holes in the axle pad.



Illustration 16

### **LOWER VEHICLE**

- 1)  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.
- 2)  Install rear wheels and lower vehicle to the ground. Torque lug nuts to 130 lb-ft.
- 3)  Attach rear track bar to axle bracket using OE hardware. Torque track bar hardware at axle bracket to 90 lb-ft. Tighten jam nut to 150 lb-ft.

Note: If track bar does not align with bracket, have an assistant push on the vehicle to align holes.

Periodically check track bar mounting bolts and jam nut for tightness.

## FINAL CHECKS & ADJUSTMENTS

- 1)  Turn the front wheels completely left then right. Verify adequate tire, wheel, brake hose and ABS wire clearance. Inspect steering and suspension for tightness and proper operation.
- 2)  Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.
- 3)  Readjust headlamps.
- 4)  Center steering wheel and axle.

Whenever track bar length is adjusted, the steering wheel must be centered to ensure that the ESP system operates correctly.

- Slowly (under 15 mph) drive vehicle 50-100 ft to settle suspension.
- If front axle needs to be centered, remove track bar adjustable end and adjust length by HALF the amount axle is off center.
- Reattach track bar and torque to 110 lb-ft. Torque Jam nut to 150 lb-ft.
- To center the steering wheel, loosen drag link adjuster clamp and turn the drag link adjuster in desired direction. Torque clamp bolt to 26 lb-ft. See Illustration 17.

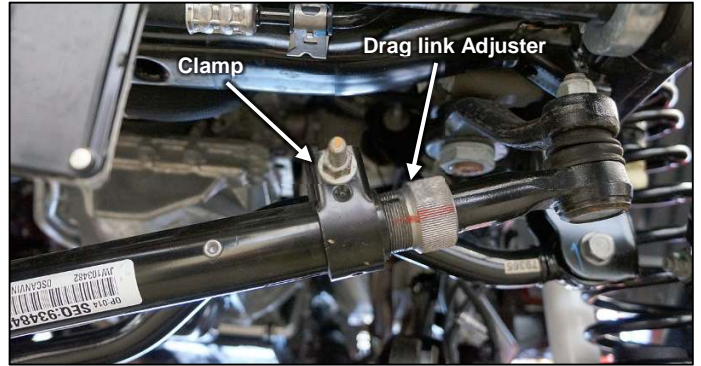


Illustration 17

- 5)  Have vehicle aligned to manufacturer's specifications.

### Alignment Specifications:

|                      |                                  |
|----------------------|----------------------------------|
| Caster               | $4.8^{\circ} \pm 1.0^{\circ}$    |
| Camber (fixed angle) | $-0.25^{\circ} \pm 0.37^{\circ}$ |
| Toe-In, Each Wheel   | $0.0^{\circ} - 0.12^{\circ}$     |
| Toe-In, Total        | $0.0^{\circ} - 0.20^{\circ}$     |
| Thrust Angle         | $0^{\circ} - 0.20^{\circ}$       |

- 6)  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 18.

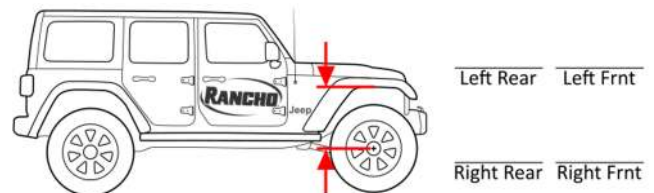


Illustration 18

## Torque Specs

### Front Components

|                                    |            |
|------------------------------------|------------|
| Upper Control Arm                  | 80 lb-ft   |
| Lower Control Arm                  | 190 lb-ft  |
| Control Arm Adjuster Jam Nut       | 150 lb-ft  |
| Front Bump Stop Spacer             | 20 lb-ft   |
| Shock Absorber Upper Mount         | 80 lb-ft   |
| Shock Absorber Lower Mount         | 75 lb-ft   |
| Front Drive Shaft to Pinion Flange | 81 lb-ft   |
| Sway Bar End Link                  | 60 lb-ft   |
| Track Bar                          | 110 lb-ft  |
| Track Bar Jam Nut                  | 150 lb-ft  |
| Drag Link Adjustment Sleeve Clamp  | 26 lb-ft   |
| Wheels (Lug Nuts)                  | 130 lb-ft. |

### Rear Components

|                              |           |
|------------------------------|-----------|
| Upper Control Arm to Axle    | 95 lb-ft  |
| Upper Control Arm to Frame   | 120 lb-ft |
| Lower Control Arm            | 90 lb-ft  |
| Control Arm Adjuster Jam Nut | 150 lb-ft |
| Rear Bump Stop Spacer        | 20 lb-ft  |
| Shock Absorber Upper Mount   | 80 lb-ft  |
| Shock Absorber Lower Mount   | 75 lb-ft  |
| Track Bar                    | 90 lb-ft  |
| Track Bar Jam Nut            | 150 lb-ft |
| Sway Bar End Link            | 60 lb-ft  |
| Wheels (Lug Nuts)            | 130 lb-ft |

### 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  |

|  |   |
|--|---|
| <p><b>1/2-13x1.75 HHCS</b></p> <p style="text-align: center;">D    T    L    X</p> <p>G = Grade Marking (bolt strength)    L = Length (inches)<br/> D = Nominal Diameter (inches)        X = Description (hex head cap screw)<br/> T = Thread Pitch (threads per inch)</p> | <p><b>M12-1.25x50 HHCS</b></p> <p style="text-align: center;">D    T    L    X</p> <p>P = Property Class (bolt strength)    L = Length (millimeters)<br/> D = Nominal Diameter (millimeters)    X = Description (hex head cap screw)<br/> T = Thread Pitch (thread width, mm)</p> |
|--|---|



www.gorancho.com

Rancho Technical Department 1-734-384-7804.