



3651 N. Hwy. 89 • Chino Valley, AZ 86323  
(928) 636-7080

**‘07 - ‘11 JEEP  
WRANGLER / RUBICON (JK)  
4.5” LONG ARM SUSPENSION  
INSTALLATION INSTRUCTIONS  
FLEX JOINT CONTROL ARMS**

**J4618 (No Shocks)  
J4618FOX (FOX Shocks)  
J4618SSV (SSV Shocks)**

**REFER TO INSTRUCTIONS PACKAGED WITH  
DRIVESHAFTS FOR PROPER INSTALLATION**

**⚠ WARNING**  
This kit should only be installed on a vehicle that is in good working condition. Before you install the kit, thoroughly inspect the vehicle for corrosion or deformation of the sheet metal. If the vehicle is suspected to have been in a collision or misused, do not install this kit. Off-road use of your vehicle with this kit installed may increase the stress applied to the factory body mounts. Failure to observe this warning may result in serious personal injury and/or severe damage to your vehicle.

**⚠ WARNING**  
Many states and municipalities have laws restricting bumper heights and vehicle lifts. Consult state and local laws to determine if the changes you intend to make to the vehicle comply with the law.

**⚠ WARNING**  
The installation of larger tires may reduce the effectiveness of the braking system.

**⚠ WARNING**  
Before you install this kit, block the vehicle tires to prevent the vehicle from rolling.

**⚠ WARNING**  
We strongly recommend using the Performance Automotive Group shocks that were engineered to be used with this system. If you use other shocks, they must match the full extended and full collapsed lengths of the Performance Automotive Group units exactly. The use of longer or shorter shocks than recommended may cause damage to the vehicle suspension and could result in sudden loss of control of the vehicle and personal injury. Contact Performance Automotive Group for the lengths of the front and rear shocks that must be used with this suspension system.

**NOTE**  
Performance Automotive Group recommends using the Loctite® on the threads of all kit nuts and bolts unless specified otherwise in these instructions.

**NOTE**  
Installation of a suspension lift will change the driveline angles which may cause a noticeable vibration in the vehicle. See the troubleshooting section at the end of these instructions.

**⚠ WARNING**  
The suspension travel on the Jeep is limited by the shocks. The use of shocks other than those specified for this type of lift may allow for greater suspension travel causing adverse effects or vehicle component damage.

**⚠ WARNING**  
DO NOT combine suspension, body, or other lift devices. Use of vehicle with combined lifts may result in unsafe and/or unexpected handling characteristics.

**⚠ WARNING**  
Installation of a Performance Automotive Group suspension lift kit will change the vehicle’s center of gravity and handling characteristics both on- and off-road. You must drive the vehicle safely! Extreme care must be taken to prevent vehicle rollover or loss of control, which could result in serious injury or death. Avoid sudden sharp turns or abrupt maneuvers and always make sure all vehicle occupants have their seat belts fastened.

**⚠ WARNING**  
Before you install this kit, read and understand all instructions, warnings, cautions, and notes in this instruction sheet and in the vehicle owner’s manual.

**⚠ CAUTION**  
Proper installation of this kit requires knowledge of the factory recommended procedures for removal and installation of original equipment components. We recommend that the factory shop manual and any special tools needed to service your vehicle be on hand during the installation. Installation of this kit without proper knowledge of the factory recommended procedures may affect the performance of these components and the safety of the vehicle. We strongly recommend that a certified mechanic familiar with the installation of similar components install this kit.

**⚠ WARNING**  
Always wear eye protection when operating power tools.

# Before Starting Installation

**⚠ WARNING**  
**Factory wheels will no longer fit** with out 1.25" or larger wheel spacers. Trail master recommends that you use 4.5"-5" backspace wheels or less with this kit. This will allow extra clearance between the wheel & tire assembly and the control arms. **MAX TIRE SIZE: 37"**

**NOTE**  
 Due to position and location of *kit Dvr. Side FCA Mount*; some minor exhaust modifications may have to be done to clearance catalytic converter during or after installation of suspension system.

1. Carefully read all warnings and instructions completely before beginning.
2. Verify all parts have been received in this kit by checking the parts list at the end of this document.

**NOTE**  
 If parts are missing from kit, please be prepared to provide the following information:

1. **Name** of purchase location
2. **Bar Code** on side of box
3. **Date** above bar code
4. **Date** inside box cover
5. **Inspector #** from inside box cover

3. **Only install this kit on the vehicle for which it is specified.** If anytime during the installation you encounter something different from what is outlined in the instructions, call technical support at (928) 636-3175.

**NOTE**  
 Installation requires removal of only the lower factory control arm mounts from the frame. Installer may use any combination of cut-off wheel and plasma cutter, with a grinder to cleanup rough edges. New rear lower control arm brackets and rear axle truss must be welded in place as part of the installation of this kit. If you are not properly equipped to safely do this level of fabrication and welding, Please contact a local certified suspension installer to complete the following steps. Plan to spend 16 or more hours for installation.

4. Special tools and parts needed:
  - a. Standard & Metric Mechanics tool set.
  - b. 1/2" & 9/16" drill bit or (Unibit)
  - c. Plasma Torch / Cutting Wheel & Disc Grinder

d. Welder

5. Park vehicle on a clean, dry, flat, level surface and block tires so vehicle cannot roll in either direction. Set steering wheel and wheels straight ahead.

**NOTE**  
 Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the factory service manual. When re-assembling the vehicle it is recommended by the vehicle manufacturer that certain fasteners are replaced in order to maintain proper retention characteristics. This system may not include all replacement hardware as recommended by the factory service manual. Additional replacement hardware should be obtained prior to installation of this system to meet the requirements of the factory service manual.

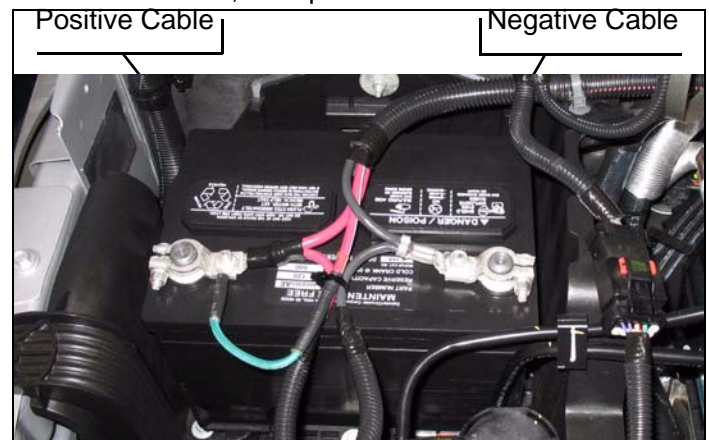
## Torque Specifications

See factory service manual for torque values when reusing OE fasteners.

<u>Bolt Size</u>	<u>Grade 5 (ft.-lbs.)</u>	<u>Grade 8 (ft.-lbs.)</u>
1/4"-20	10	10
1/4"-28	10	12.5
5/16"-18	17	22.5
5/16"-24	20	25
3/8"-16	30	40
3/8"-24	35	45
7/16"-14	50	65
7/16"-20	55	70
1/2"-13	75	100
1/2"-13 (Carriage Bolt)	38	(Grade 2 Only) N/A
1/2"-20	55	70
9/16"-12	105	135
9/16"-18	115	150

## Engine Compartment

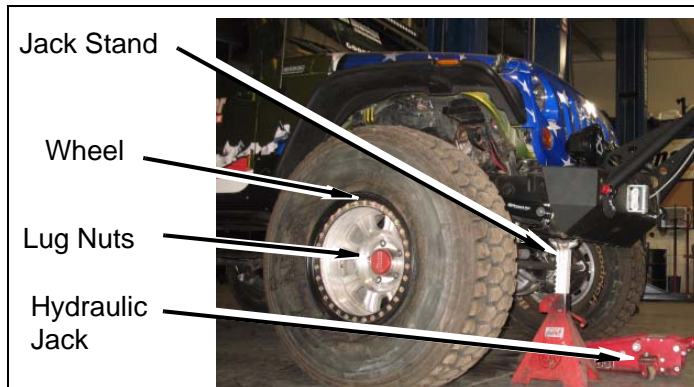
Disconnect both battery cables. Disconnect negative cable first, then positive cable.



# Prepare to Install Front Suspension

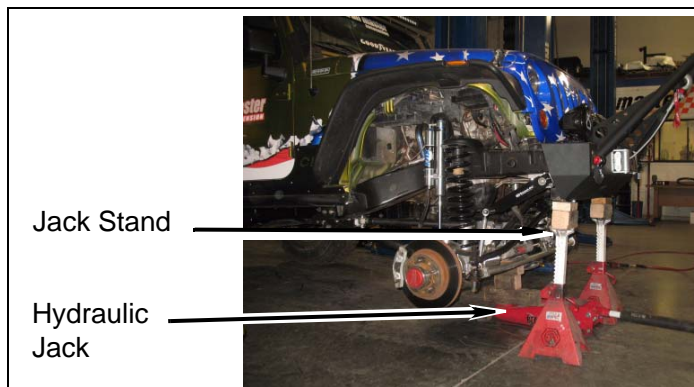
## Front Suspension

1. Loosen, but do not remove, lug nuts on each front wheel.
2. Using a hydraulic jack, slowly lift front axle until front tires are 3-5" off ground. Position jack stands under frame in front of axle near front and rear bumper mounts. Lower vehicle onto jack stands while maintaining hydraulic jack pressure underneath front axle.



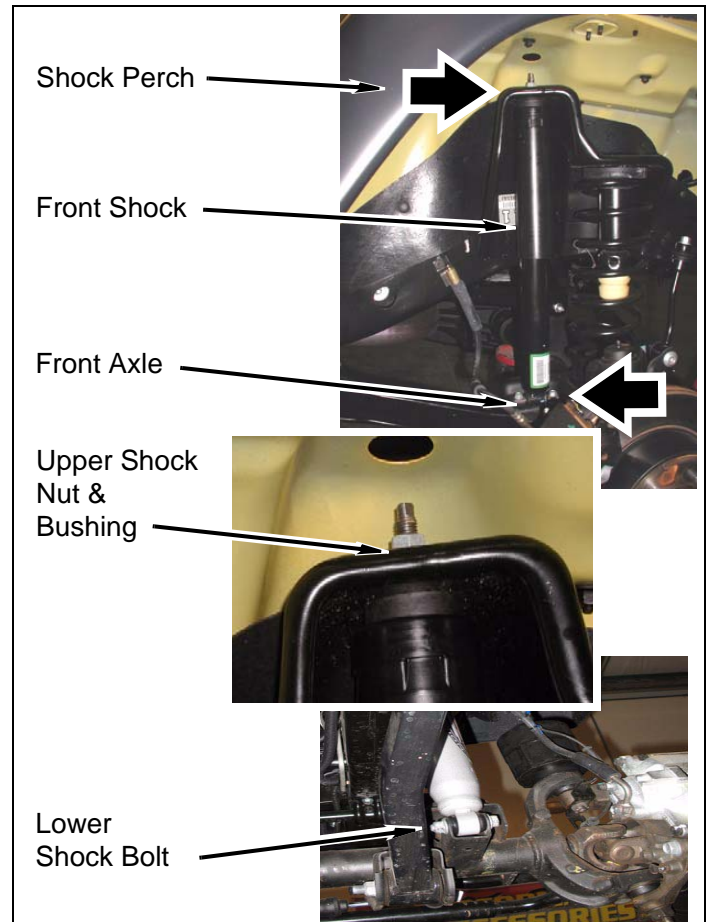
**⚠ WARNING**  
 Use extreme caution when lifting vehicle from ground. To prevent serious personal injury, ensure the lifting device is securely placed.

3. Remove lug nuts and front wheels from vehicle.



4. Front shock absorbers

- a. Remove lower shock mounting bolts.

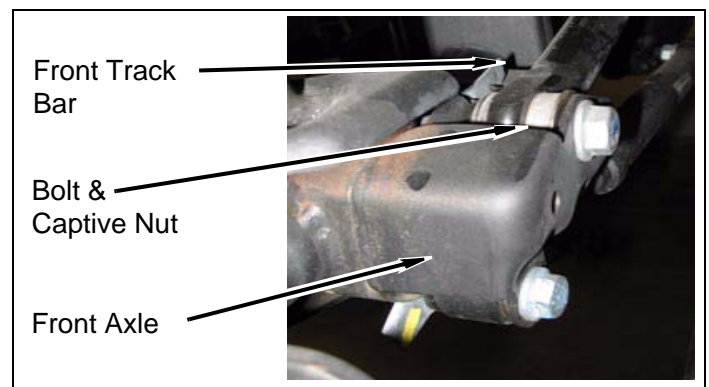


- b. Remove two upper shock nuts, four washers and two bushings from perch.

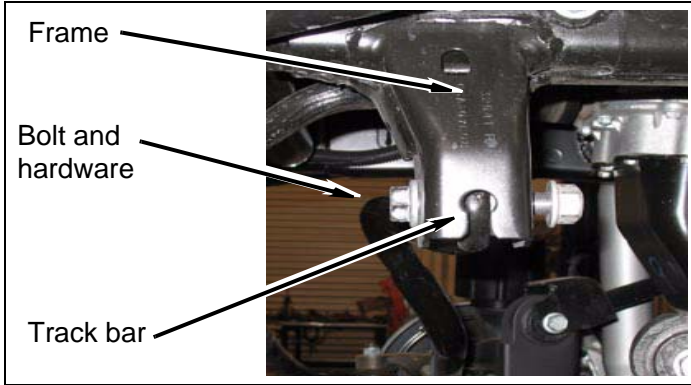
- c. Remove two shocks from perch and axle.

5. Remove track bar

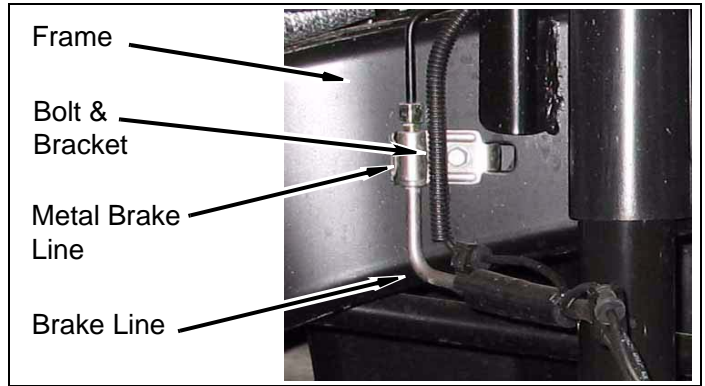
- a. Remove bolt and captive nut from front axle.



- b. Remove bolt and hardware securing track bar to frame mount on drivers side and remove track bar from vehicle.

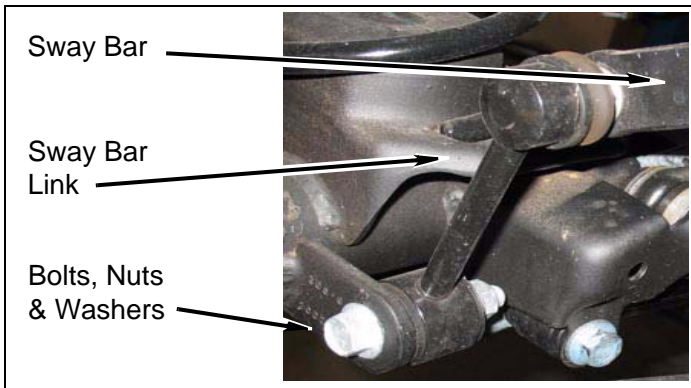


- c. Disconnect driver side metal brake line from bracket and brake line from frame rail.



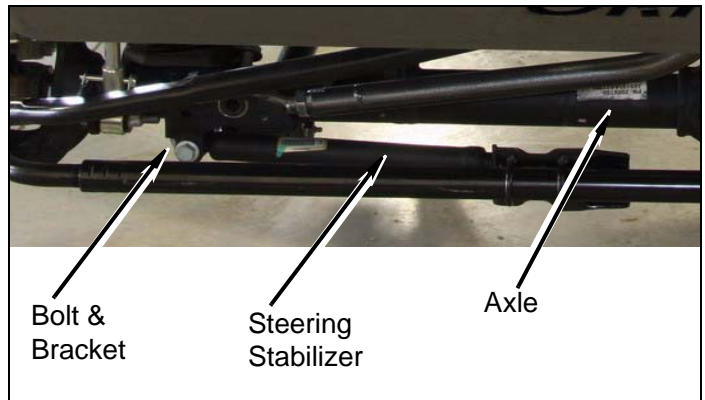
6. Sway bar links

- a. Remove lower nut & bolt from sway bar link.
- b. Remove nut securing upper joint of sway bar link to sway bar and remove link. Keep link to reinstall at rear of vehicle later.



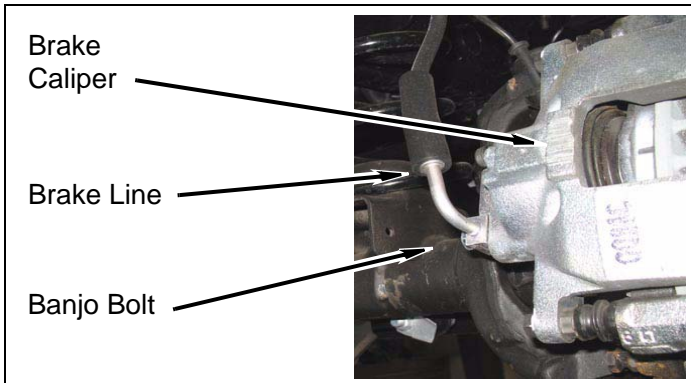
- d. Remove bolt, brake line and bracket from frame rail.

- e. Remove steering stabilizer from original mount on axle, also loosen both u-bolts securing stabilizer to tie rod..

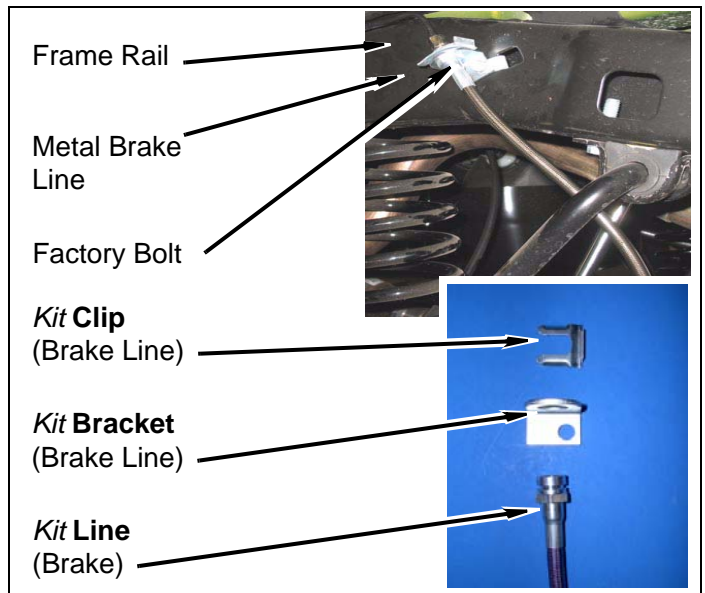


7. Front brake lines

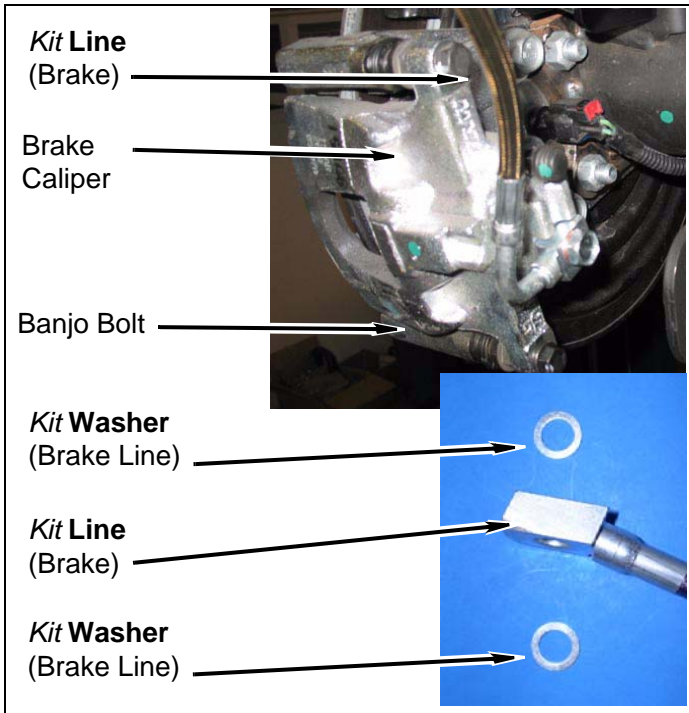
- a. Place drip pan beneath driver side front caliper.
- b. Remove banjo bolt from brake hose and brake caliper.



- f. Install *kit bracket* (Brake line **BHBAG903**) onto driver side frame rail with factory bolt. **(Note: Front** brake lines are 25.5" long. **Rear** brake lines are 22.5" long.)



- g. Install *kit line* (brake) onto metal brake line and *kit bracket* (brake line) with *kit clip* (brake line).
- h. Install banjo bolt, *kit line* (brake) and two *kit washers* (brake line) onto driver side brake caliper.



- i. Repeat steps above for passenger side brake line and caliper.
8. Remove transmission skid plate secured with three bolts under transmission located right behind front lower control arm mounts.
  9. Remove four bolts from transfer case skid plate located behind the transmission cross member and under drives side frame rail
  10. Using jack carefully lower front axle to remove front coil springs.

## Install Long Arm Suspension

### NOTE

Instructions show lower control arm brackets being removed and welded with fuel tank removed so there is no chance of damage occurring to your self or the fuel tank. You must remove fuel tank to gain access and install passenger side cross member gusset.

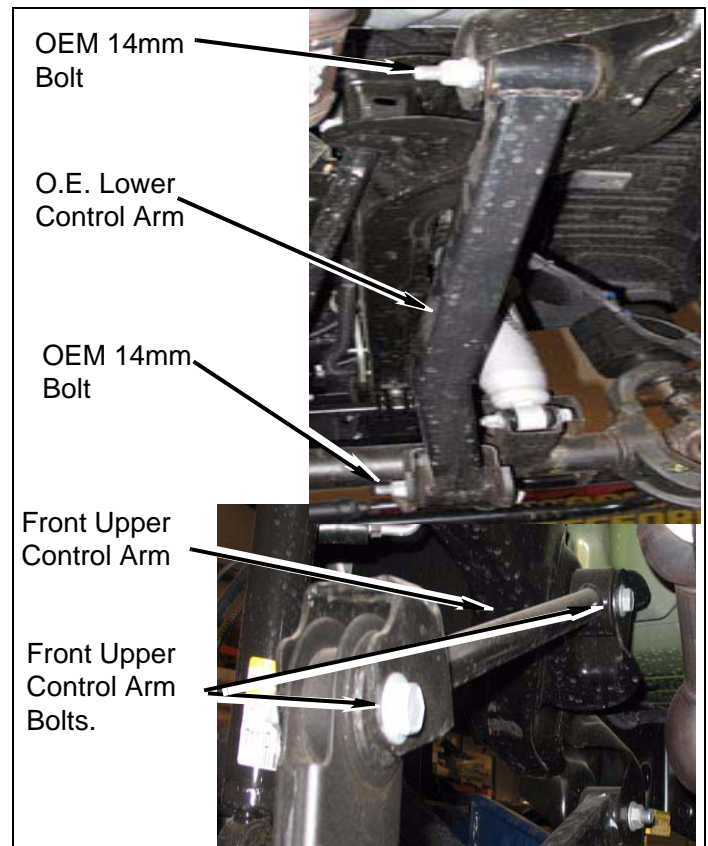
### ⚠ WARNING

**USE EXTREME CAUTION WHILE WORKING AROUND FUEL LINES & TANKS TO AVOID INJURY OR DEATH! PLEASE FOLLOW ALL APPROPRIATE MEASURES WHEN WORKING AROUND FUEL!**

### NOTE

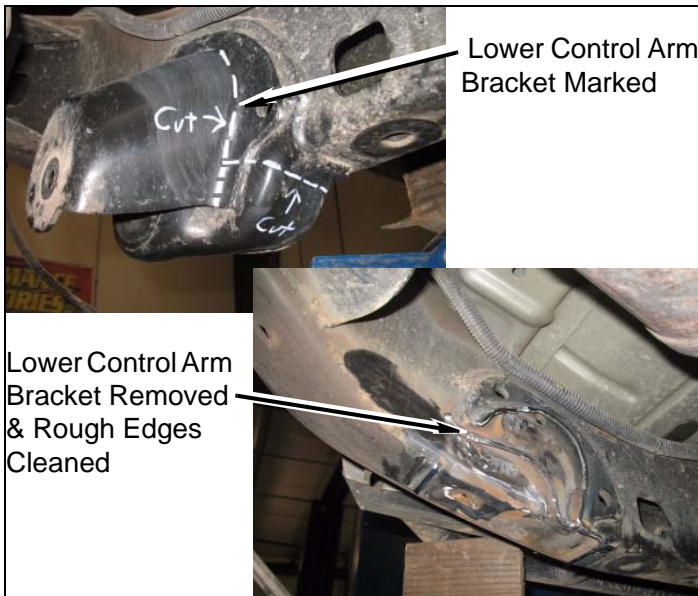
Use extreme caution when removing brackets. Be sure not to cut or damage the frame during removal process.

1. Support front axle assembly
2. Remove factory front upper and lower control arms



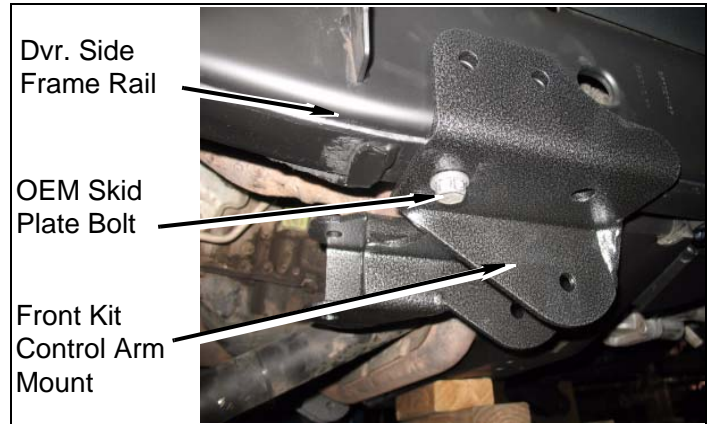
3. Prepare to remove factory lower control arm brackets

- a. Using a plasma cutter, torch, or cut-off wheel; remove all factory lower control arm brackets from frame. (**Note:** Be sure to grind and clean up all rough sheet metal edges & surfaces.)



- b. Use primer to paint all bare metal surfaces after metal has cooled.

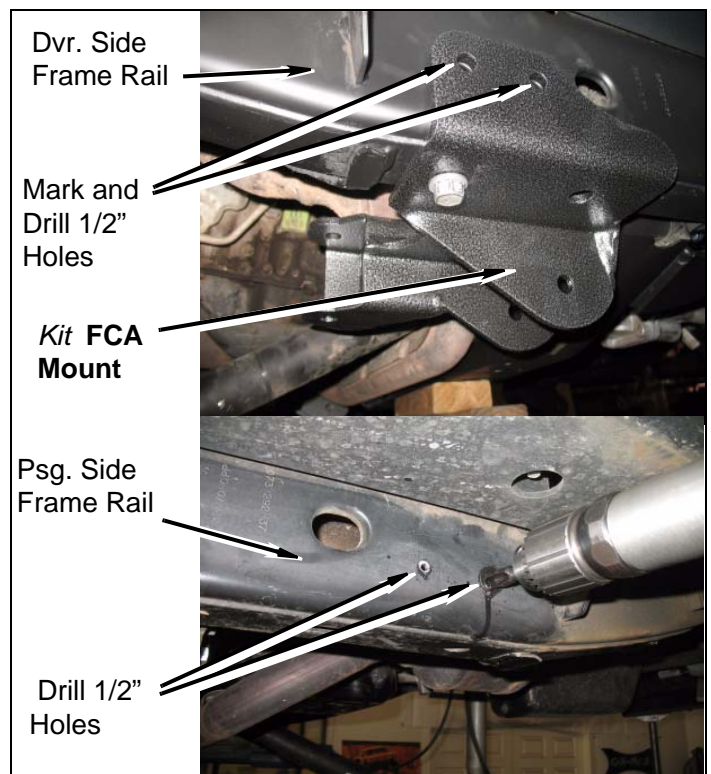
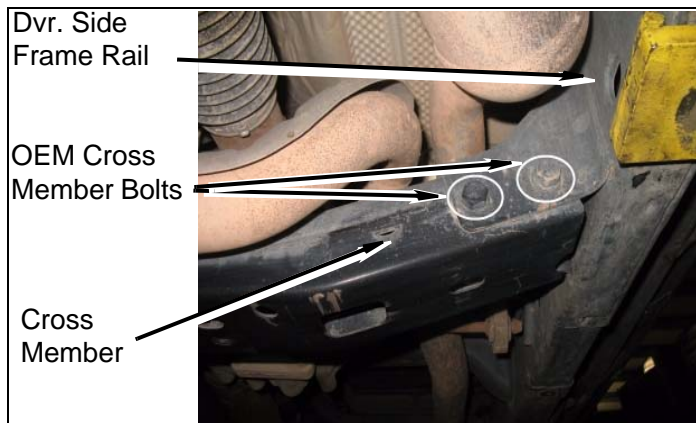
- b. Position provided *kit FCA mount* up to frame rail and against front face of transmission cross member frame mount. Fasten *kit FCA mount* to frame with OEM skid plate bolt and to cross member mount with the OEM 12mm cross member hardware.



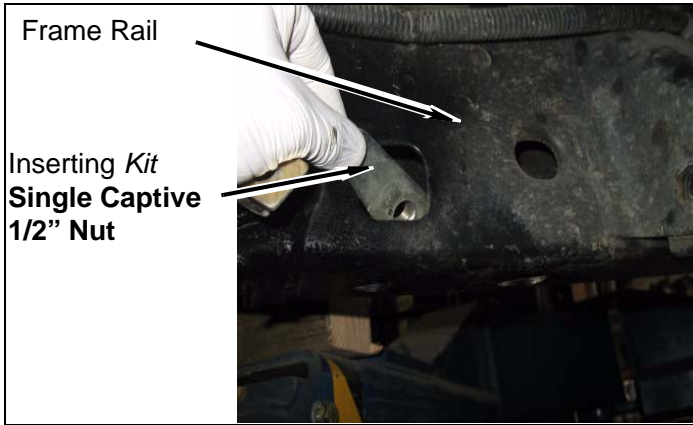
- c. With *kit FCA mount* positioned flush to all mounting surfaces, use *kit FCA mount* as a template and mark the outer mounting hole for drilling into frame. Remove *kit FCA mount* and drill a 1/2" hole through each mark.

#### 4. Installing *kit Front Control Arm (FCA) Mounts*

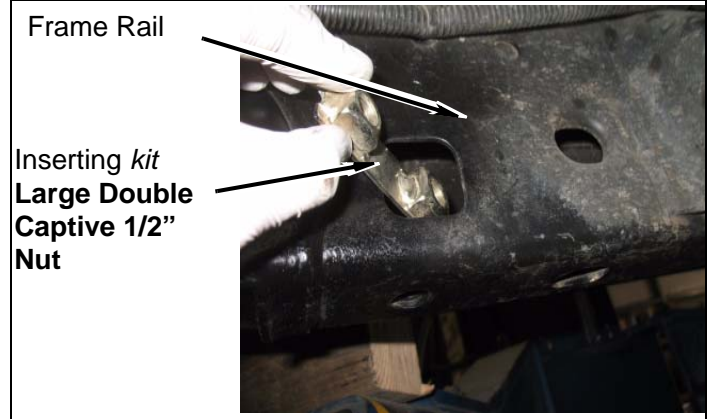
- a. Support transmission cross member and remove both OEM 12mm bolts and nuts from frame mount.



- d. Install *kit single captive 1/2" nut* into slot through inner side of frame rail, near cross member frame mount.



- f. Install *kit large double captive 1/2" nut* into slot through inner side of frame rail, near cross member frame mount.

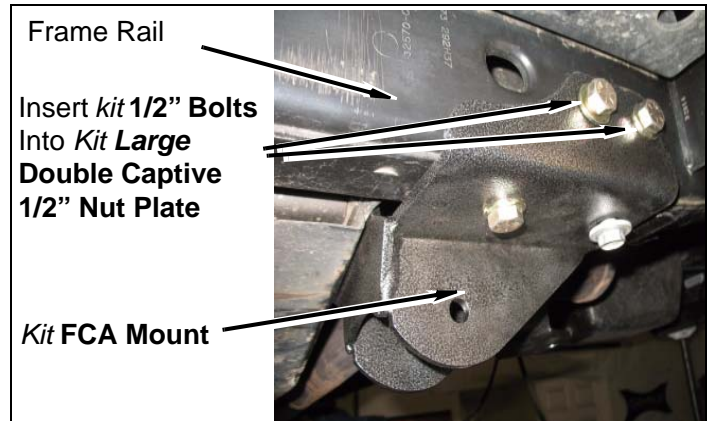
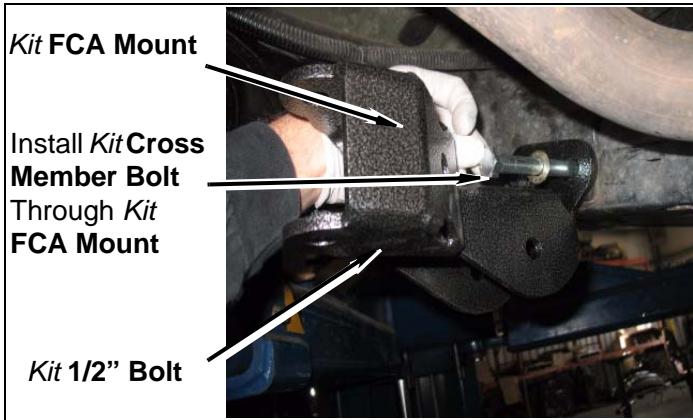


**NOTE**

Due to position and location of *kit Dvr. Side FCA Mount*; some minor exhaust modifications may have to be done to clearance catalytic converter during or after installation of suspension system.

- e. Reattach *kit FCA mount* using two *kit cross member bolts (12M-1.75 x 140)* and one *kit bolt (1/2" x 1 1/2")* through frame & *kit single captive 1/2" nut*. (Note: Do not install *kit 12mm nuts & washers* at this time. They will be installed in a later step during *kit cross member gusset* installation.)

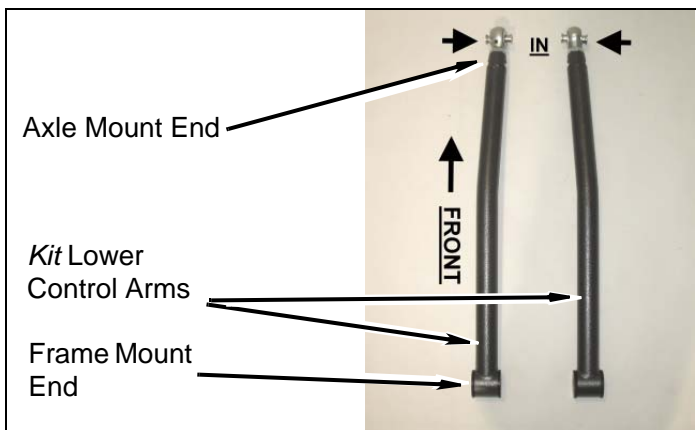
- g. Continue installation of *kit FCA mount* with two *kit bolts (1/2" x 1 1/2")* through newly drilled holes and into *kit large double captive 1/2" nut plate*.



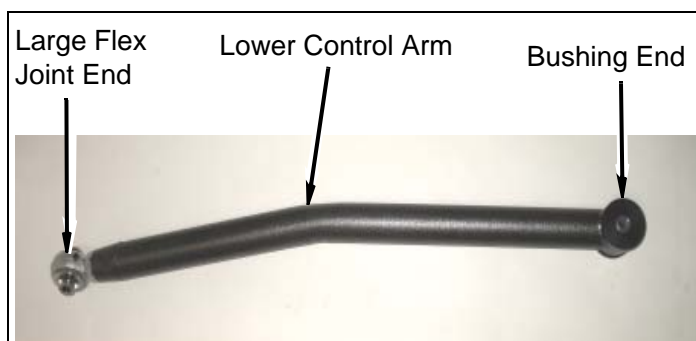
- h. You may now temporarily snug all of your *kit LCA mounting hardware* starting with the cross member bolts and moving on to the rest; insuring that the bracket is seated flush on the frame and cross member frame mount.

5. Install Front Control Arms

- a. Locate correct **kit front lower control arms**. **Kit lower control arms** are the larger diameter (2") in the kit. The **kit front lower control arms** are the two control arms that will have **kit large flex joints** facing toward each other when mounted on the **kit front control arm brackets** and axle mounts.



- b. Be sure that one **kit large flex joint** is threaded into the end of each **kit lower control arms** along with two **kit bushing** and **kit sleeve** at the other.



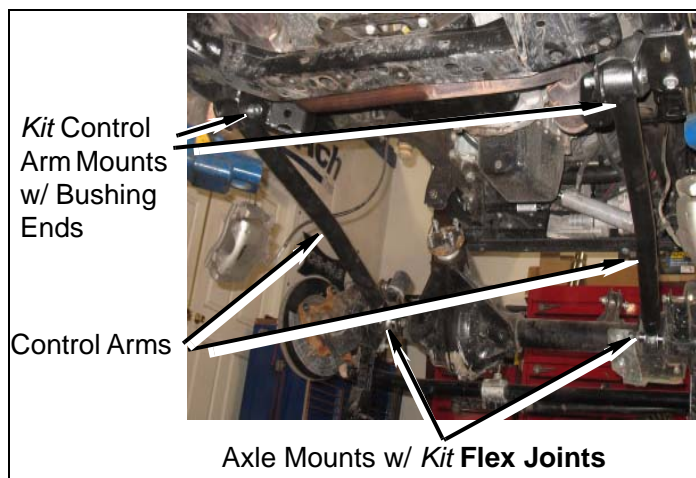
- c. Adjust each **kit front lower control arm** equally to **34"** from hole center to hole center.

- d. Locate **kit front upper control arms**. **Kit front upper control arms** are the smallest diameter (1.5") in the kit. The **kit front upper control arms** are the two **kit control arms** that will have one **kit medium flex joint**, which will mount on the **kit front control arm brackets** and one "C" shaped bracket at the axle end; which will face toward each other when mounted on the axle mounts.

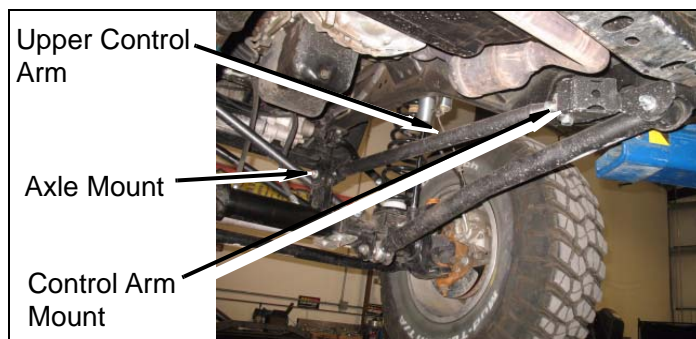
- e. Adjust each **kit front upper control arm** equally to 30.5" from hole center to hole center.

- f. Install **kit front lower control arms** with bushing end onto **kit front control arm bracket** using two **kit bolts (M14-2.0x110)**, **washers & lock nuts**. Install **kit front lower control arms** with

**kit large flex joint** end facing toward each other at each axle end using OEM hardware. (**Note:** **Kit arms** must be installed correctly to prevent binding or premature wear from occurring.)



- g. Install **kit front upper control arms** with **kit medium flex joint** end mounted at **kit front control arm mount** using two **kit bolts (M14-2.0x100)**, **washers & lock nuts**. Install "C" shaped brackets at the axle end with each bracket facing toward each other using OEM hardware. (**Note:** **Kit arms** must be installed correctly to prevent binding or premature wear from occurring.)



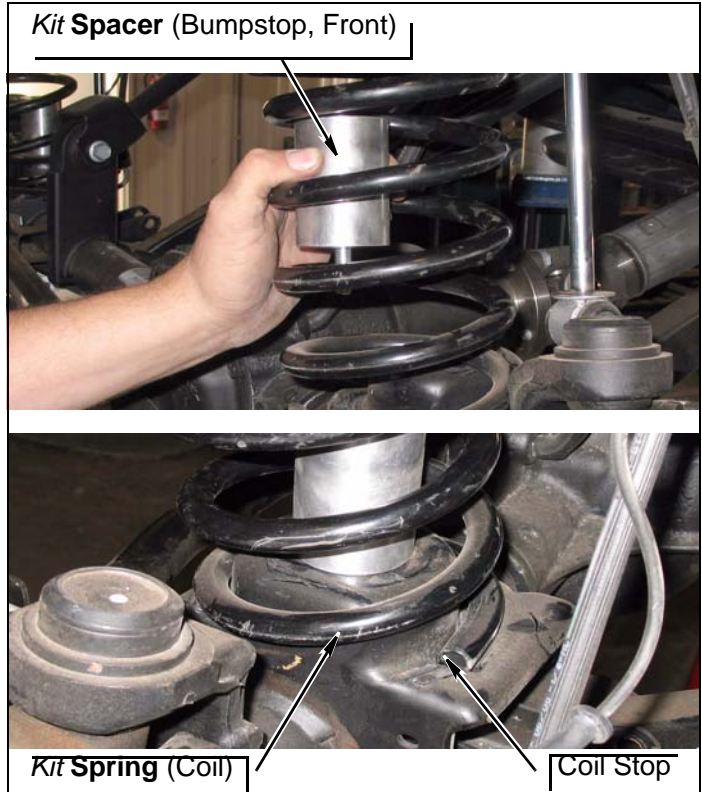
#### NOTE

Measurements are to be used as a starting point. Fine tuning of pinion angle and caster measurements should be done during alignment; after install is complete.\***MAKE SURE JAM NUT IS TIGHT AT FLEX JOINT ENDS AFTER ADJUSTMENTS ARE MADE\***

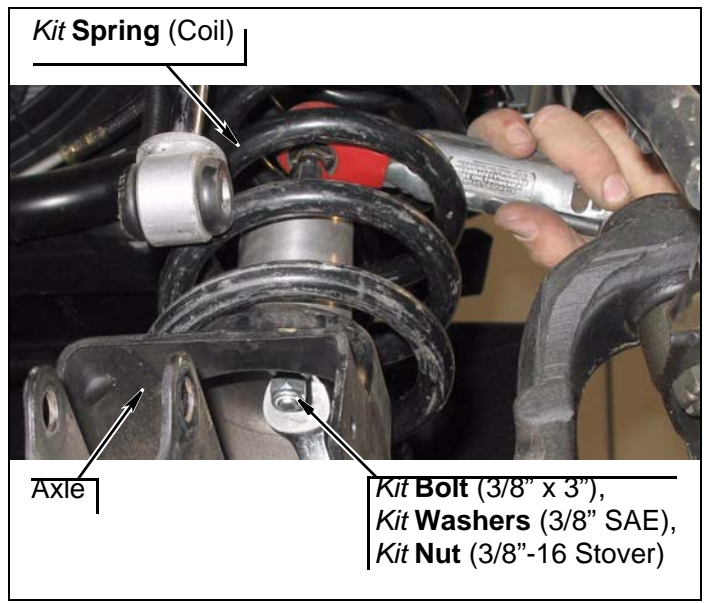
The **Flex Joints** are unique when it comes to service. We **do not** use or recommend grease! Grease attracts more dirt and debris than it is worth while doing more harm to the joint itself. Our **Flex Joints** are also too tight for grease which is designed to be used in flow through application. We simply recommend removing the service screw, putting in a few drops of 3 & 1 oil and then replacing the service screw everytime you perform an oil change.



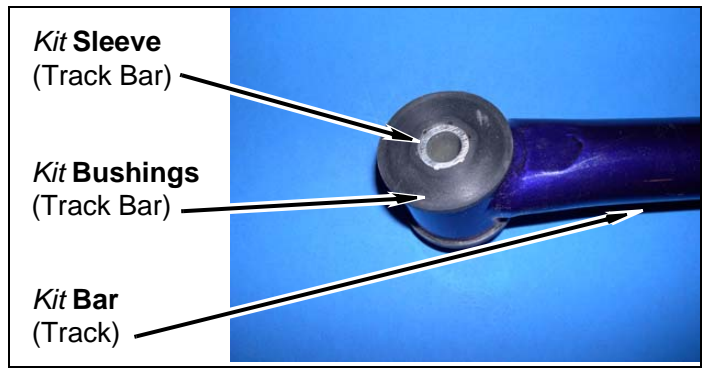
6. Remainder of all other front suspension components may be installed at this time.
7. Install *kit front bumpstop spacers*.
8. Drill 3/8" hole in center of raised lower spring perch on each side of front axle.
  - a. Position two *kit spacers* (bumpstop, front) into two *kit springs* (coil) and install two *kit springs* (coil) onto axle with ends of *kit springs* against stops.



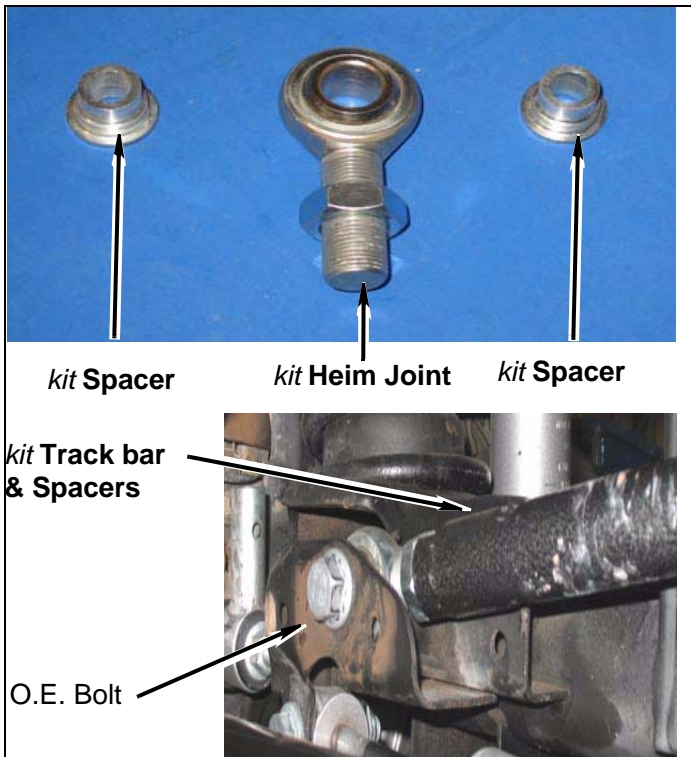
- b. Install two *kit spacers* (bumpstop, front) onto axle with two *kit bolts* (3/8" x 3"), four *kit washers* (3/8") and two *kit nuts* (3/8") (**J4614BAG1**).



9. Install *kit coil springs* into position and raise axle to hold them in place.
10. Front *kit track bar* installation.
  - a. Install two *kit bushings* (track bar) and *kit sleeve* (track bar) into *kit bar* (track). (**J4611BAG2**)



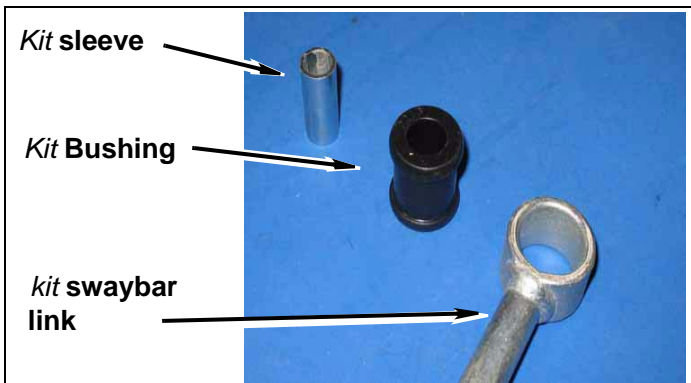
- b. Thread **kit joint** (heim) into track bar with **kit nut** (3/4" jam). Install Heim joint end of **kit track bar** into passenger side of front differential with two **kit spacer**. Use O.E. bolt to secure. (J4611BAG2)



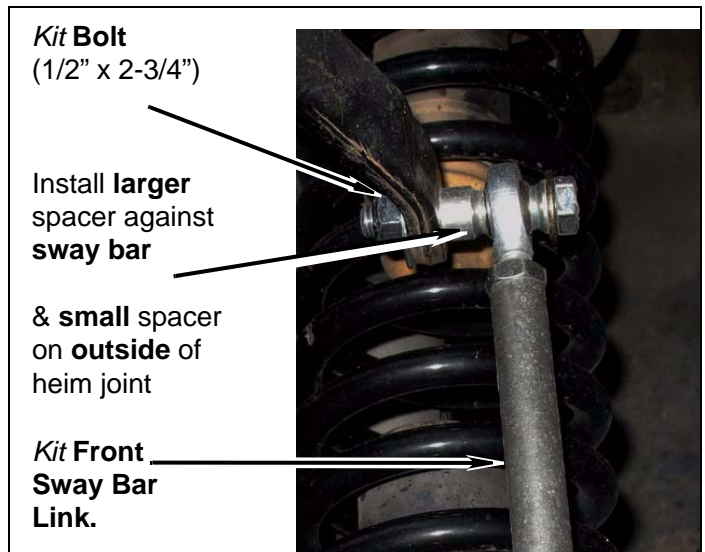
- c. Zip tie opposite end of **kit Track bar** to frame. It will be installed once vehicle is on the ground. (Note: Eye to eye length may be set to 32.75" as a starting point. Axle will have to be centered before alignment is completed.)

## 11. Install **kit front sway bar links**

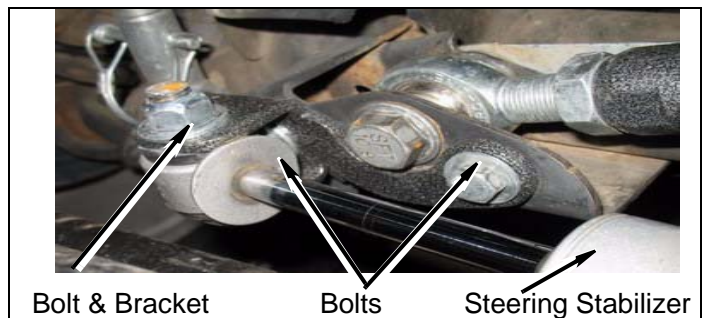
- a. Install four **kit bushings** onto four **kit front sway bar link** halves.
- b. Install two **kit sleeves** into four **kit front sway bar link** halves.



- c. Install short half of **kit front sway bar link** onto axle using OE hardware. (JKD4614)
- d. Install long half of **kit front sway bar link** onto sway bar end using **kit bolt** (1/2" x 2-3/4"), large and small spacers along with the **hardware**. (JKD4614). (Note: Sway bar may need to be drilled out with a 1/2" drill bit for proper fitment of hardware provided.)



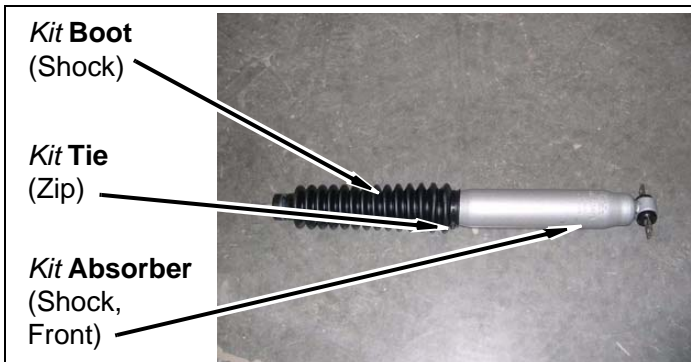
- e. Do not tighten hardware at this time.
- f. Install **kit steering stabilizer bracket** using **kit** (3/8") hardware. Install steering stabilizer using **kit** (1/2") hardware. **Flip** OE steering stabilizer bracket (On tie rod) so that the U-bolts are no longer under the steering stabilizer. (JKS4614)
- g. Adjust stabilizer to proper length and tighten kit hardware. (Note: Check for binding & adjust)
- h. **Note:** Torque **kit hardware** (1/2-13 2 1/2" Carriage Bolt) to 38 ft lbs.



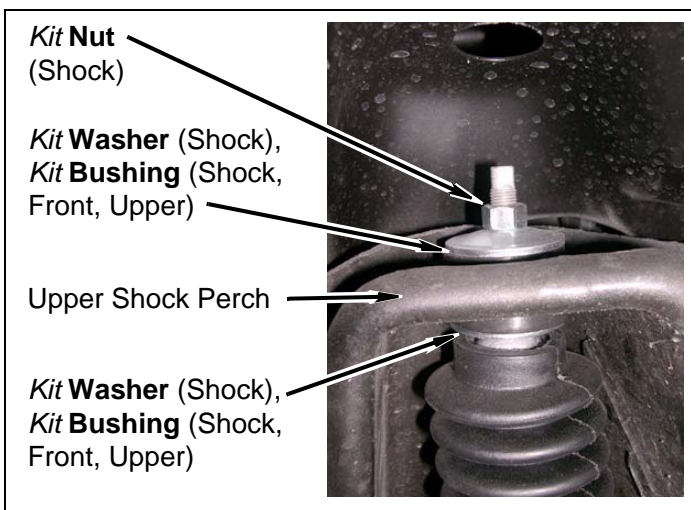
## 12. Install **kit front shocks**.

- a. Install two **kit bushings & sleeves** into **front shocks**.

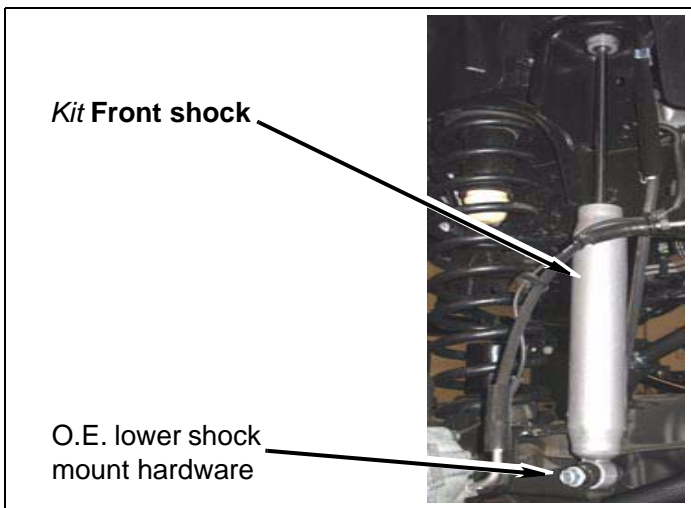
- b. Install two **kit boots** (shock) onto two **kit absorbers** (shock, front) with two **kit ties** (zip).



- c. Install two **kit absorbers** (shock, front) into upper shock perches with four **kit washers** (shock), four **kit bushings** (shock, front, upper) and two **kit nuts** (shock, front).



- d. Line up **kit front shock** with lower shock mount and raise differential till holes align. Secure using OE hardware.



13. Install front wheels and lug nuts.

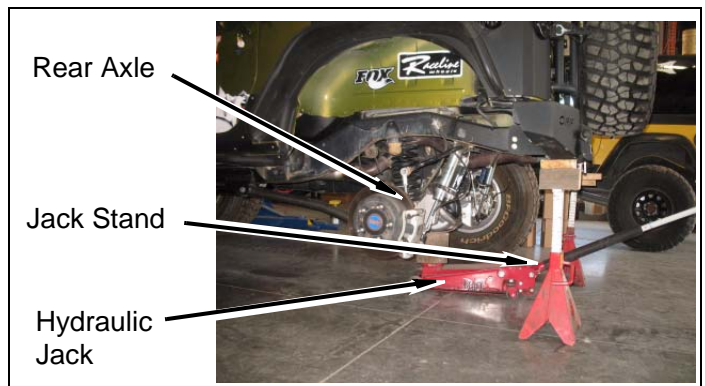
14. Install front drive shaft. Refer to instructions supplied with drive shaft if you have purchased a replacement shaft.

15. Using hydraulic jack, raise front of vehicle and remove jack stands. Lower front of vehicle onto ground and torque lug nuts to factory specification.

## Prepare to Install Rear Suspension

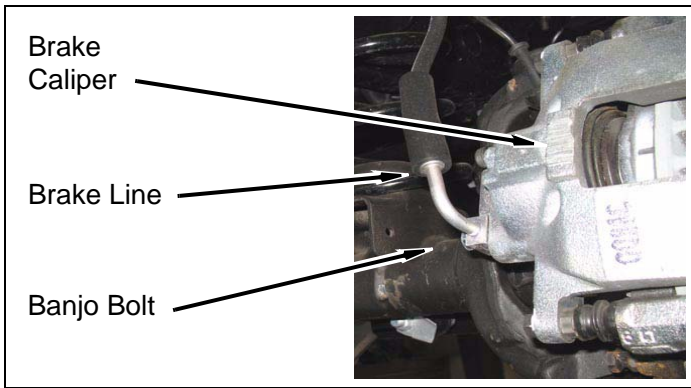
### Rear Suspension

- Loosen, but do not remove, lug nuts on each two rear wheels.
- Using a hydraulic jack under rear differential, slowly lift rear axle until rear tires are 3-5" off ground. Position jack stands under frame near end of bumper mounts. Lower vehicle onto jack stands while maintaining hydraulic jack pressure underneath rear axle.

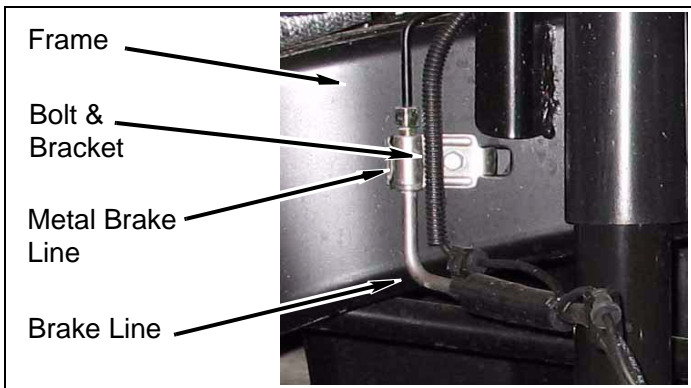


- Remove lug nuts and rear wheels.
- Rear brake lines
  - Place drip pan beneath driver side rear brake caliper.

- b. Remove banjo bolt from brake hose and brake caliper.

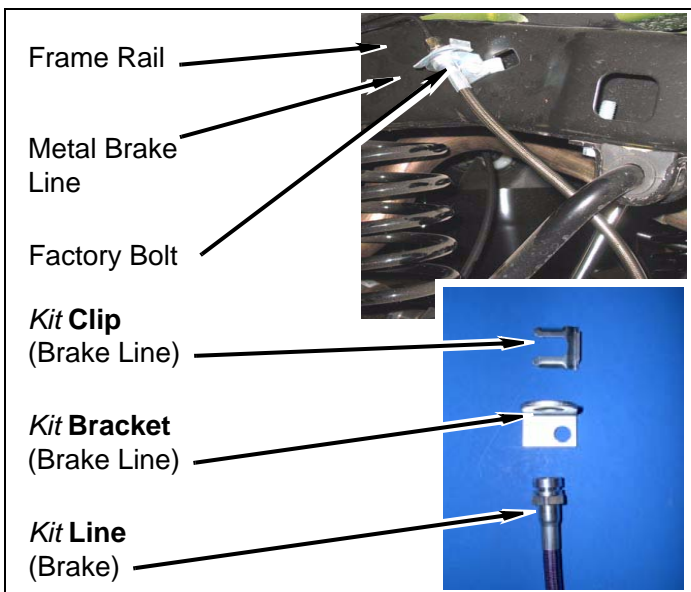


- c. Disconnect driver side metal brake line from bracket and brake line from frame rail.



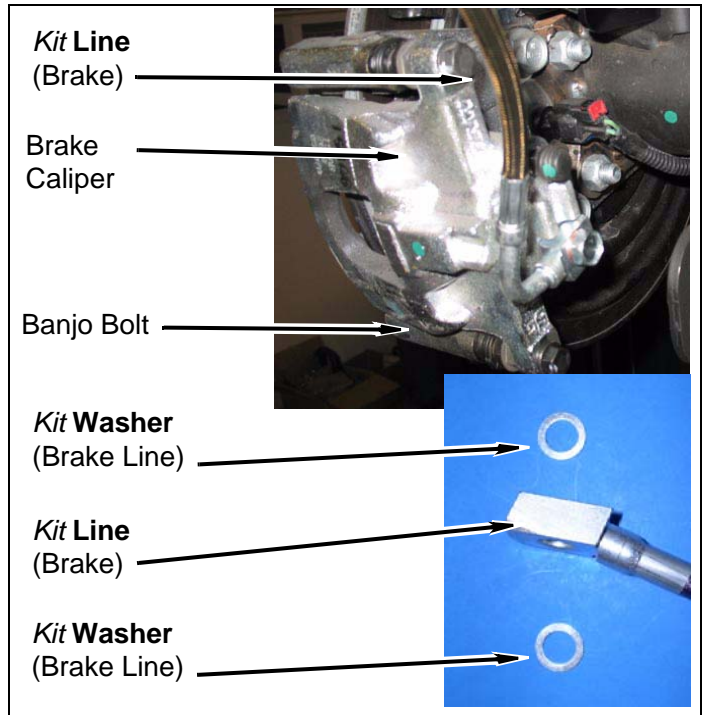
- d. Remove bolt, brake line and bracket from frame rail.

- e. Install *kit bracket* (Brake line **BHBAG903**) onto driver side frame rail with factory bolt. (**Note:** **Front** brake lines are 25.5" long. **Rear** brake lines are 22.5" long.)



- f. Install *kit line* (brake) onto metal brake line and *kit bracket* (brake line) with *kit clip* (brake line). (**Note:** You may also leave brake line disconnected from frame at this time. This will help you install the rear coils if you do not have a coil spring compressor to install the rear coils.)

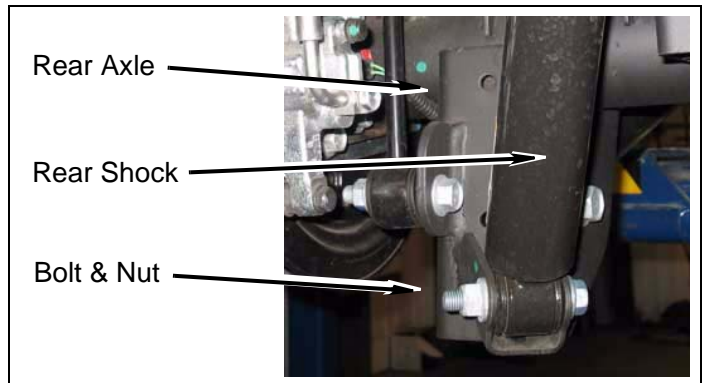
- g. Install banjo bolt, *kit line* (brake) and two *kit washers* (brake line) onto driver side brake caliper.



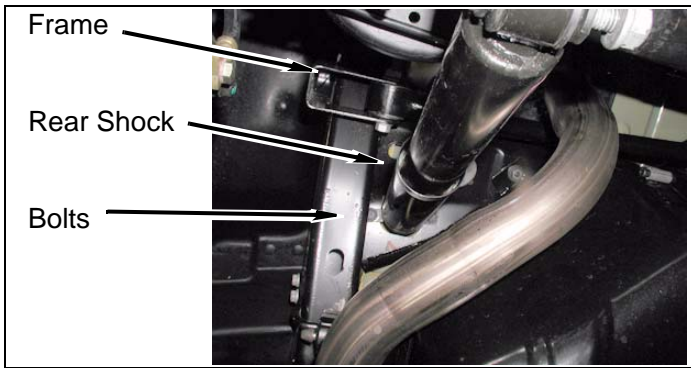
- 5. Repeat steps above for passenger side brake line and caliper.

- 6. Shock absorbers

- a. Remove lower mounting bolt on both rear shock at axle housing.

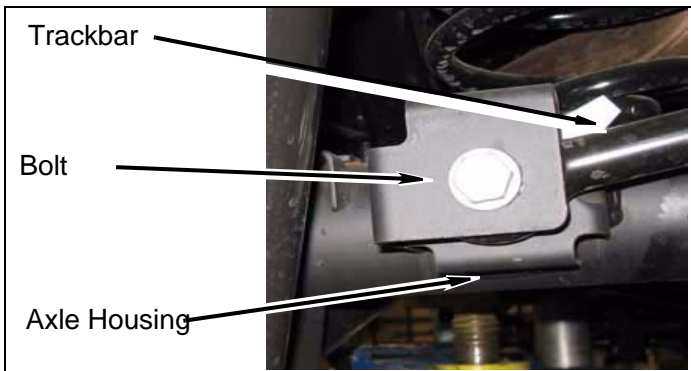


- b. Remove two upper bolts from both rear shocks and remove.



7. Remove rear track bar

- a. Remove bolt and captive nut securing track bar to axle. .



**⚠ WARNING**

Compressed coil springs can expand violently causing serious personal injury. Before removing the coil springs, lower the axle housing as far as possible to allow the coil springs to expand. Use caution when using coil spring compressors.

- 8. Carefully lower axle until rear coil springs are loose and remove from vehicle.

## Underside of Vehicle

**NOTE**

Instructions show rear lower control arm brackets being removed and welded with fuel tank removed so there is **NO** chance of damage occurring to your self or the fuel tank. You **must** remove fuel tank to gain access and install passenger side **kit cross member gusset**.

**⚠ WARNING**

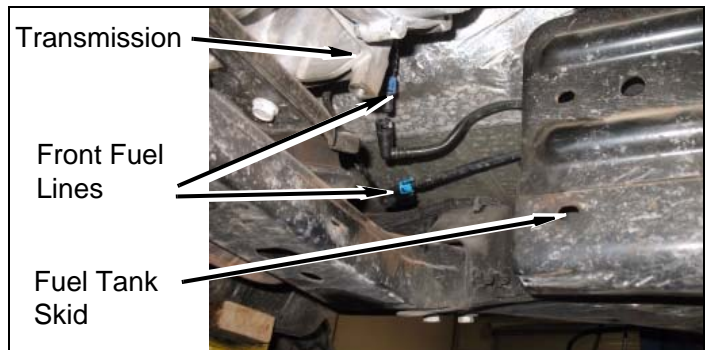
**USE EXTREME CAUTION WHILE WORKING AROUND FUEL LINES & TANKS TO AVOID INJURY OR DEATH! PLEASE FOLLOW ALL APPROPRIATE MEASURES WHEN WORKING AROUND FUEL!**

**NOTE**

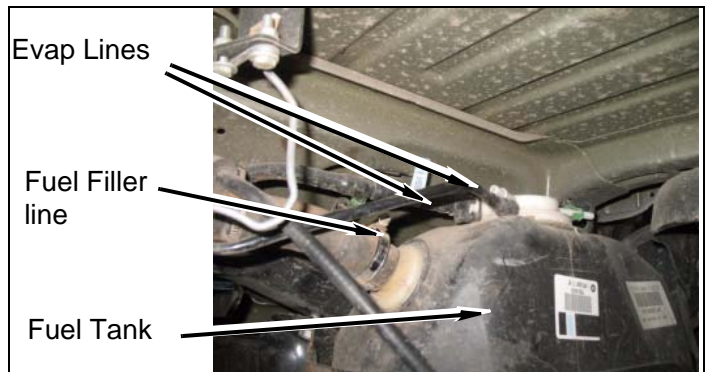
Use extreme caution when removing brackets. Be sure not to cut or damage the frame during removal process.

1. Remove Fuel Tank

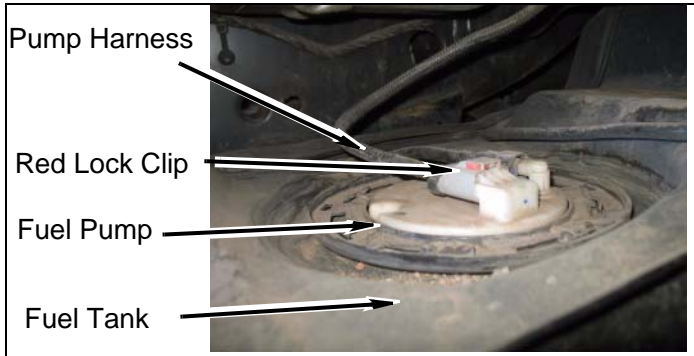
- a. Disconnect both front fuel lines located near passenger side of transmission above cross member.



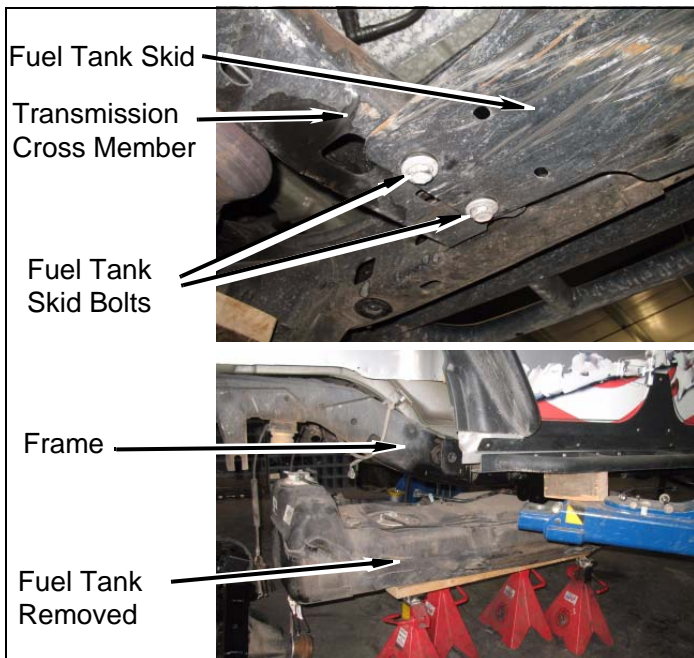
- b. Disconnect fuel filler and evap lines from fuel tank just in front of rear axle housing.



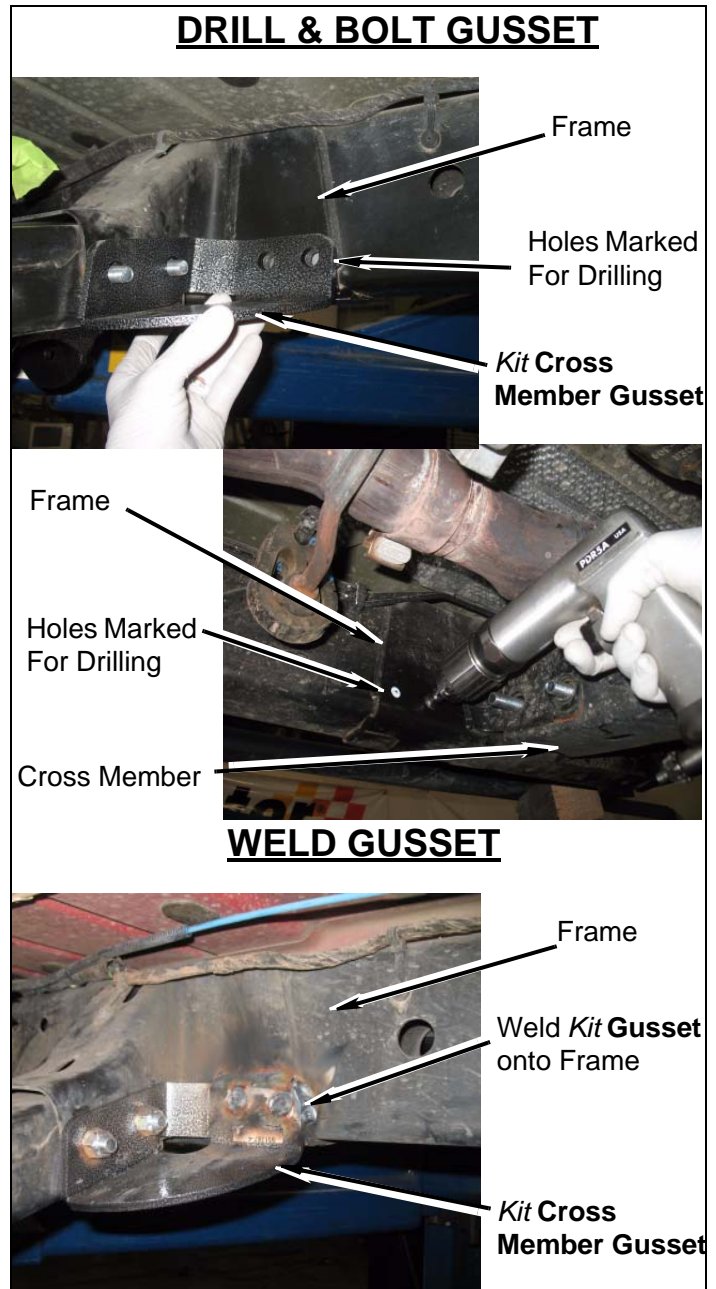
- c. Disconnect fuel pump harness from fuel tank located in the center of fuel tank. (**Note:** This step is much simpler to perform when tank has been dropped from frame mounts by 4 to 5 inches.)



- d. Support and disconnect fuel tank/skid plate from frame by removing all eight (4-Dr.) & six (2-Dr.) 12mm skid bolts located around the skid plate with three (two) on the passenger side, three (two) on the drivers side, and two on the transmission cross member.



- b. You may also chose to weld your **kit cross member gusset** onto inside frame rail. (**Note:** Be sure to weld **ONLY** frame side. **Do Not** weld cross member side of **kit gusset**.)

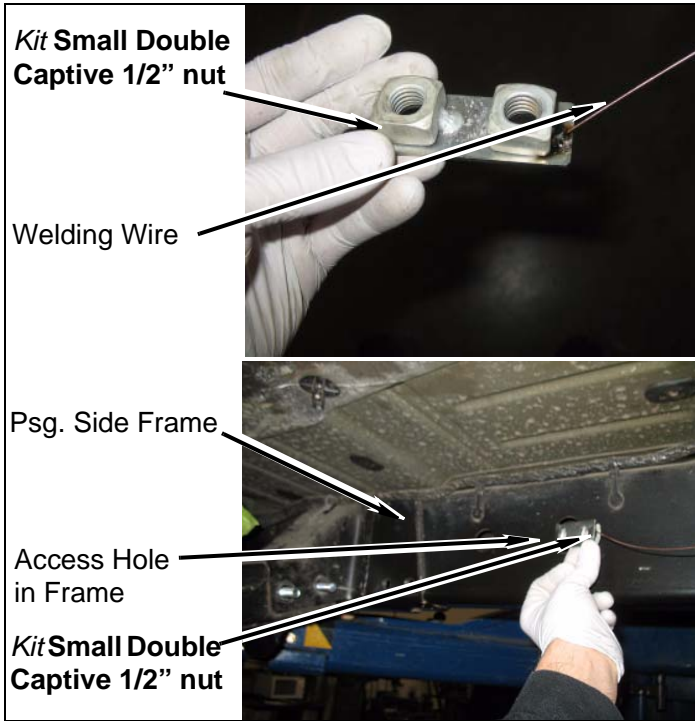


- c. (**Skip section d. & e. if you have selected to weld the kit gusset on to frame.**)

- a. Using **kit cross member gusset** as a template; mark your holes on inside of frame rail. Remove bracket from cross member bolts and drill through marked holes with a 9/16" drill bit. (**Note:** Use a good drilling fluid to prevent damage to drill bit.)

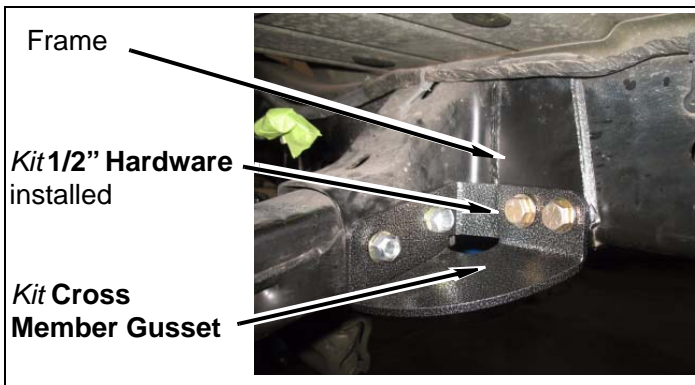
**\*\*Welding Kit Gusset Will Save Up to 30 minutes of Install Time\*\***

- d. Insert **kit small double captive 1/2" nut plate** into access hole in frame. (**Note:** Tacking a piece of welding wire to the **kit small double captive 1/2" nut** will help you position the nut plate into place during installation.)



**NOTE**  
Using a small magnetic rod through one of the drilled holes, through frame; this will help hold the **kit small double captive 1/2" nut** as you attempt to connect **kit 1/2" bolts** through frame rail to secure the **kit gusset**.

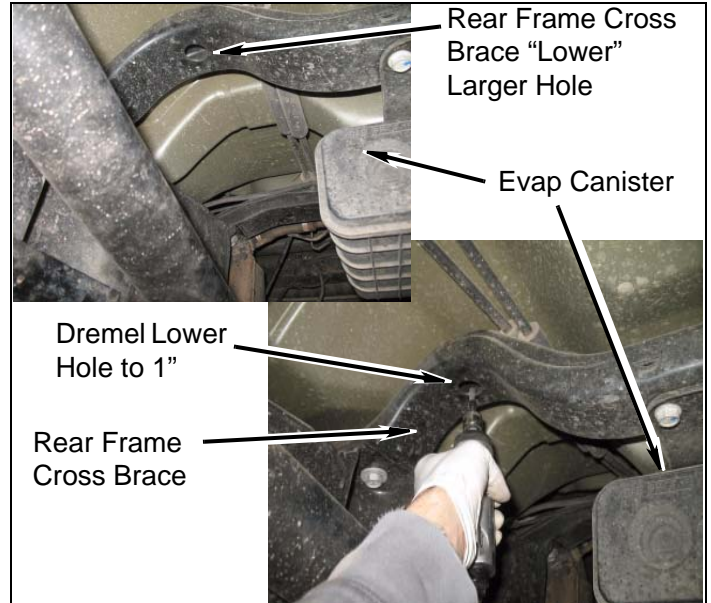
- e. Install **kit cross member gusset** onto cross member bolts using two **kit (12mm) washers & lock nuts**. Secure **kit cross member gusset** to frame using two **kit bolt (1/2"-1 1/2") & washers** through frame and into **kit small double captive 1/2" nut**. Torque all hardware.



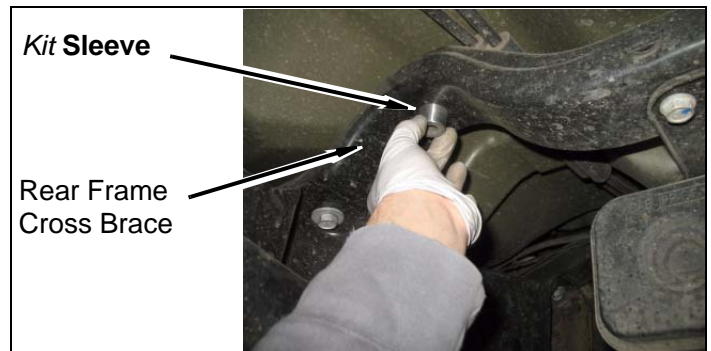
**NOTE**  
Removing rear drive line / drive shaft will improve access while installing **kit upper control arm mount**.

3. Install **kit Rear Upper Control Arm (UCA) Mount**

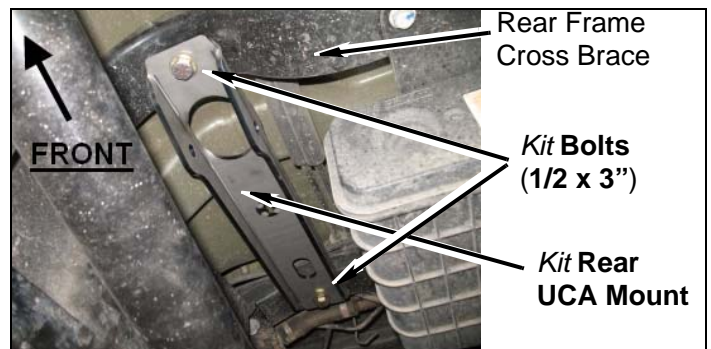
- a. Using a dremel or carbide tip to slightly deburr and enlarge the lower section of rear frame cross brace to 1", allowing **kit sleeve (1 x 1.6")** to fit into channel snug. (**Note:** Frame holes very in size; be sure to only open up the hole enough to fit the **kit sleeve (1 x 1.6")** in place.)



- b. Insert **kit sleeve (1" x 1.6")** into large hole in the rear frame cross brace.



- c. Install **kit rear UCA mount**, with the ears of the bracket facing the front of the vehicle. Use two **kit bolts (1/2" x 3")** with two **kit 1/2" lock nuts** and four **kit 1/2" washers**.



# Install Rear Suspension

## Rear Suspension

**NOTE**  
Reinstall rear driveline / driveshaft after you have finished installing *kit* upper control arm mount.

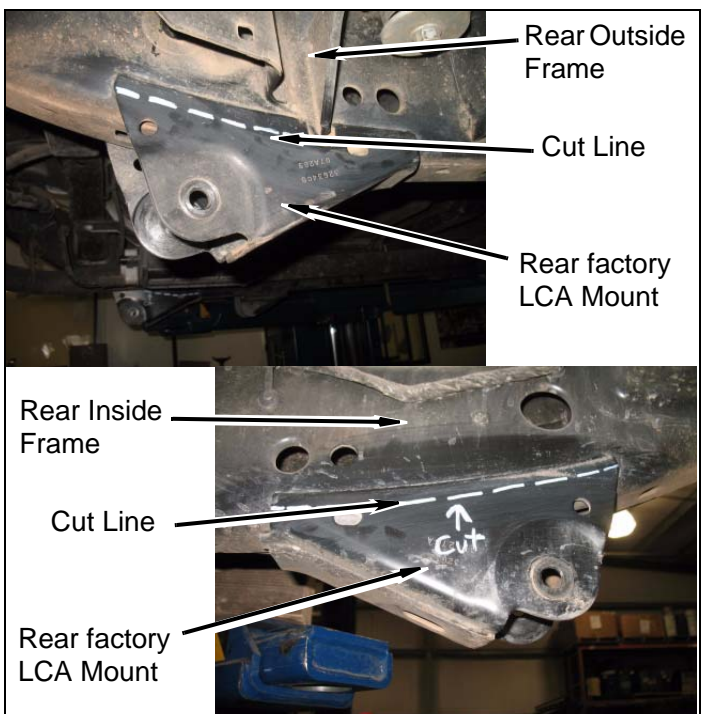
1. Support rear axle assembly
2. Prepare to remove OEM frame control arm mounts

**NOTE**  
Instructions show rear lower control arm brackets being removed and welded with fuel tank removed so there is **NO** chance of damage occurring to your self or the fuel tank. You **must** remove fuel tank to gain access and install passenger side *kit* cross member gusset.

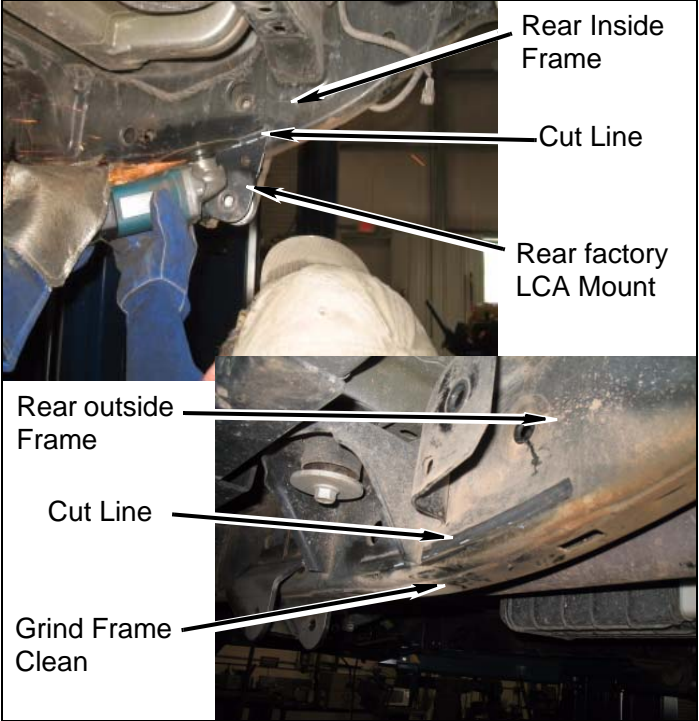
**⚠ WARNING**  
**USE EXTREME CAUTION WHILE WORKING AROUND FUEL LINES & TANKS TO AVOID INJURY OR DEATH! PLEASE FOLLOW ALL APPROPRIATE MEASURES WHEN WORKING AROUND FUEL!**

**NOTE**  
Use extreme caution when removing brackets. Be sure not to cut or damage the frame during removal process.

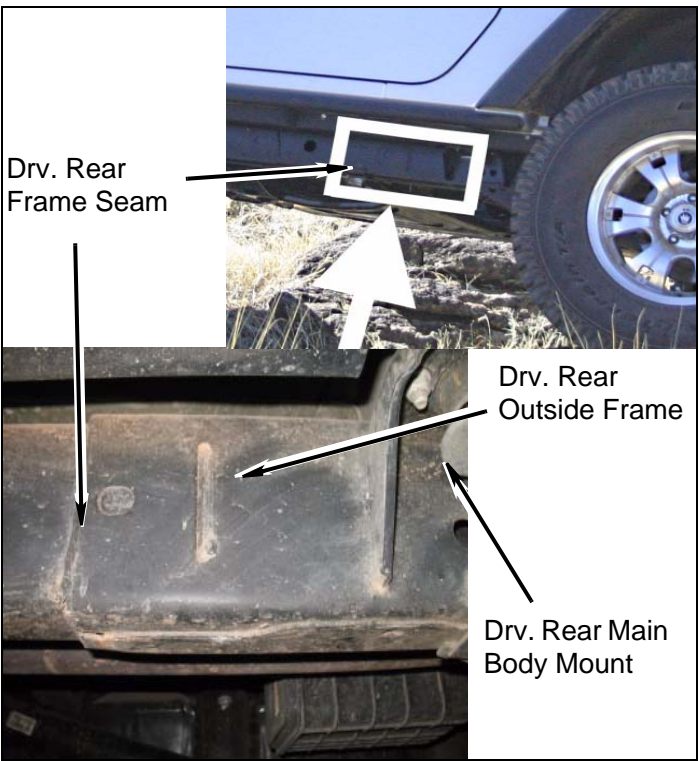
- a. Mark rear lower control arm (LCA) mounts and prepare to cut and remove each mount from frame.



- b. Cut OEM rear frame lower control arm (LCA) mounts from frame using a cut off wheel or plasma cutter. Use a grinder to clean up all ruff edges and surfaces. (**Note:** Be sure not to cut into frame rail with cutting tool.)



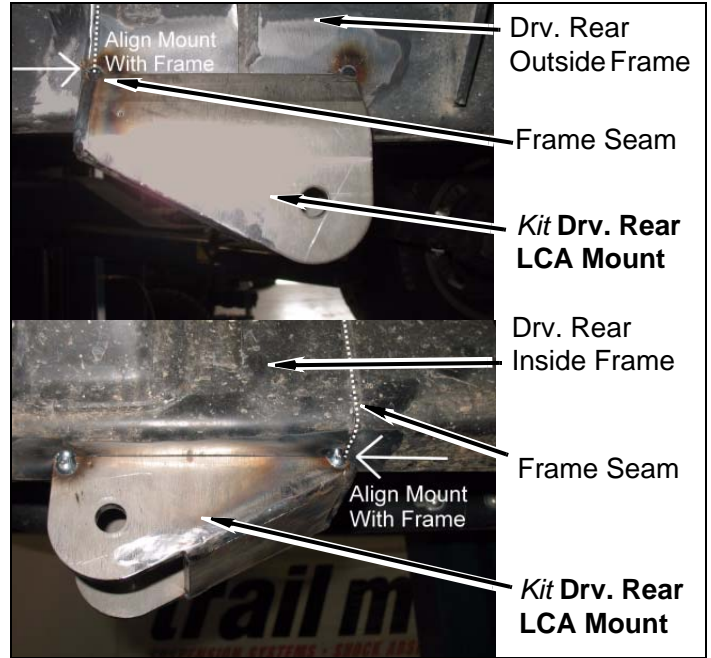
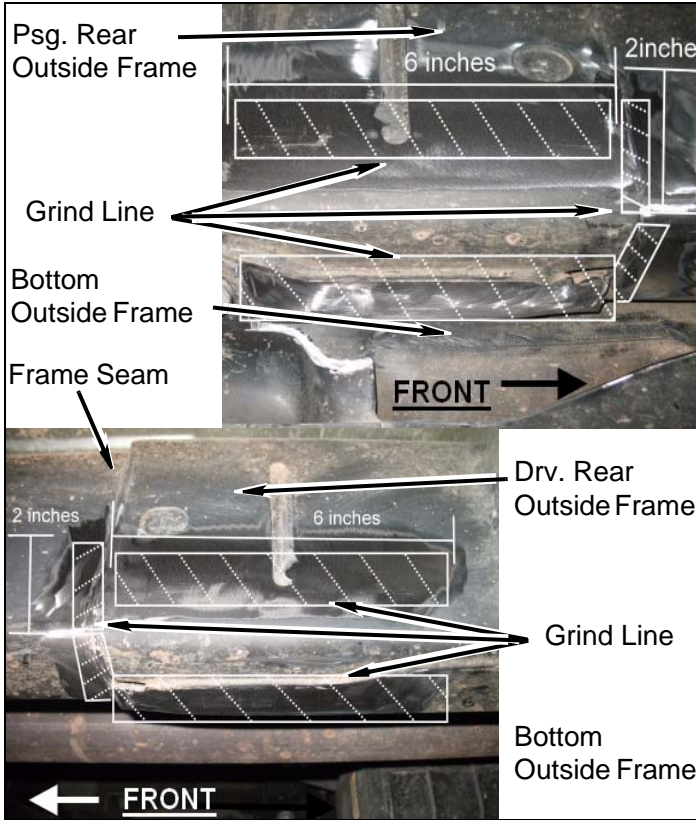
3. Installing *kit* Rear Lower Control Arm Mounts
  - a. Locate frame section where *kit* rear lower control arm mounts will be mounted & welded.





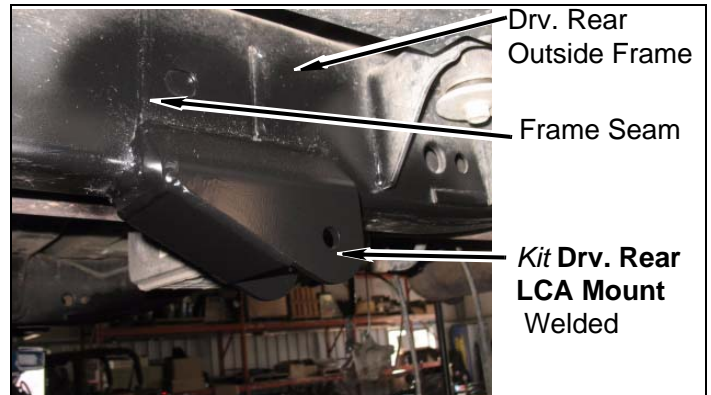
- b. Use a grinder to clean & even the welding surface for both *kit rear LCA mounts*. Location of *kit control arm mounts* are in front of rear main body mounting frame brackets; where rear frame seam starts and center frame section sleeves into the rear section of frame.

- c. Install *kit rear LCA mounts*. Position and align *kit rear LCA mount* with rear frame seam. Once you have aligned *kit mount*, tack (small weld) and verify that the *kit mount* is positioned correctly on frame rail and seam. (**Note:** Be sure each *kit LCA mount*).



**⚠ WARNING**  
**!USE EXTREME CAUTION WHEN WELDING TO PREVENT INJURY FROM OCCURING!**

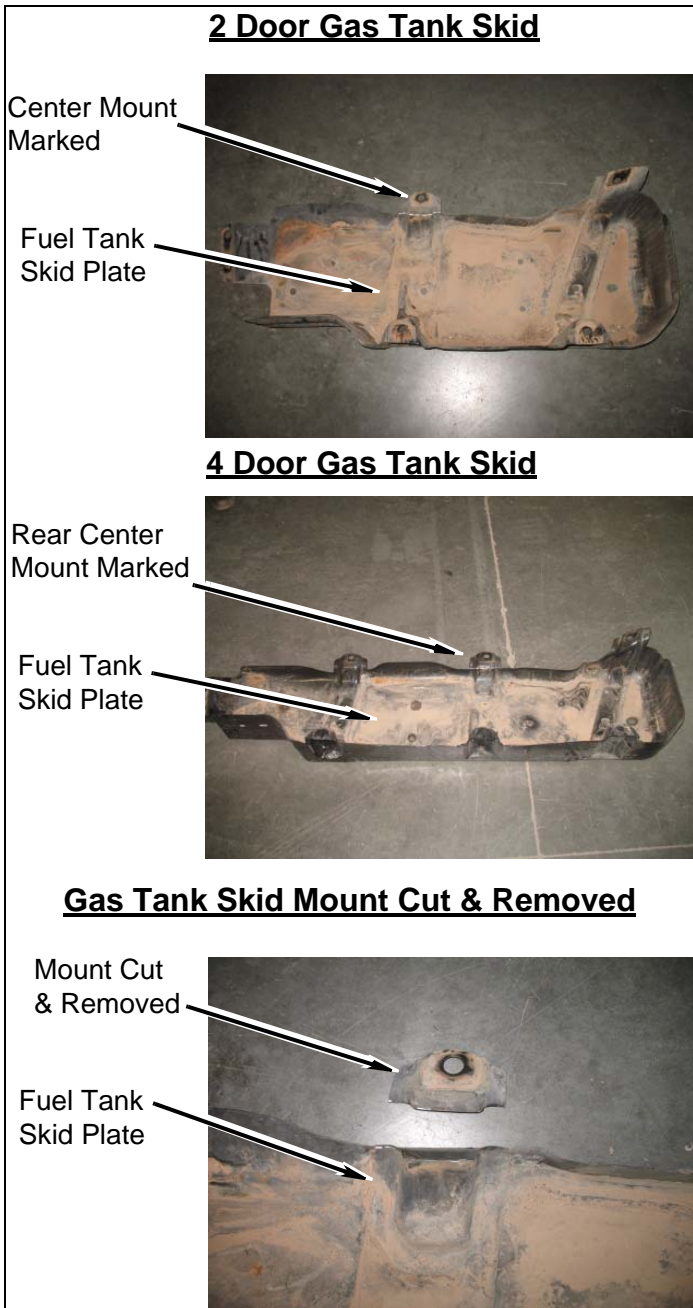
- d. After *kit rear LCA mounts* are positioned & tacked; weld remainder of *kit mounts* into place. After *kit mount* has cooled, be sure to coat frame with primer paint to prevent any rust.



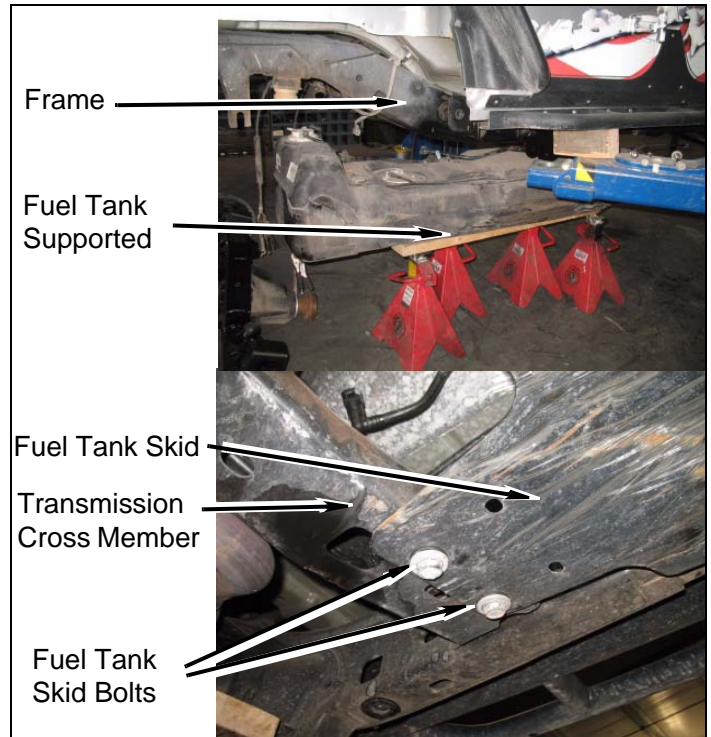
4. Reinstall Fuel Tank

- a. Remove fuel tank from skid plate. Mark and cut passenger side center skid plate mount. On 4dr. models this mount will be located near the “rear center mount” of the vehicle.

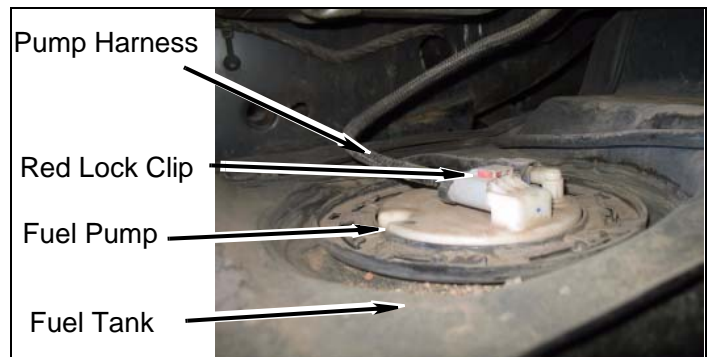
- c. Support and reconnect fuel tank/skid plate onto frame by installing all eight(4dr.) or six(2dr.) skid bolts located around the skid plate with three(two) on the passenger side, three(two) on the drivers side, and two on the transmission cross member. **(Note:** Be sure to reconnect fuel pump harness prior to final positioning.)



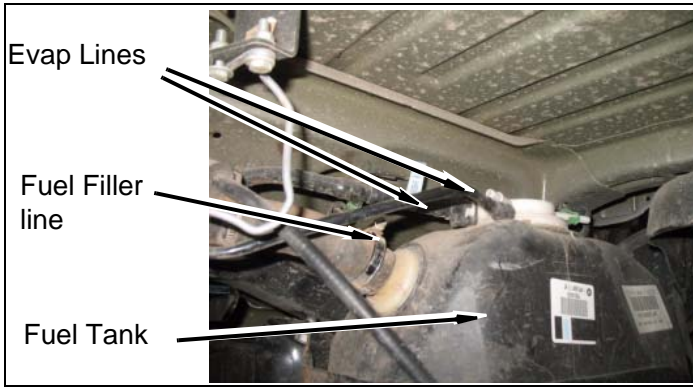
- b. Place fuel tank back into skid plate.



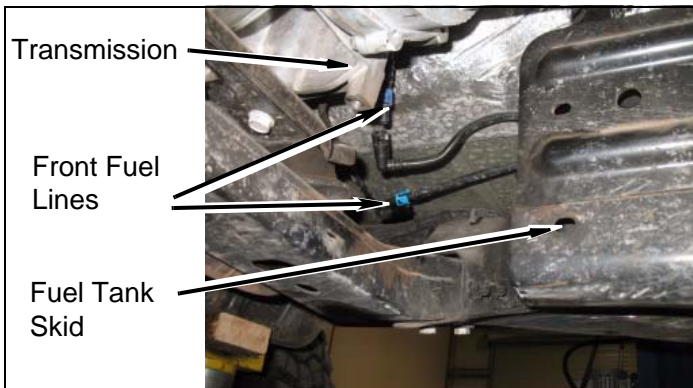
- d. Reconnect fuel pump harness onto fuel tank located in the middle of the fuel tank. **(Note:** This step is much easier to perform when you have the fuel tank only a few inches from it's final position in the frame pocket.)



- e. Reconnect fuel filler and evap lines onto fuel tank, just in front of rear axle housing.

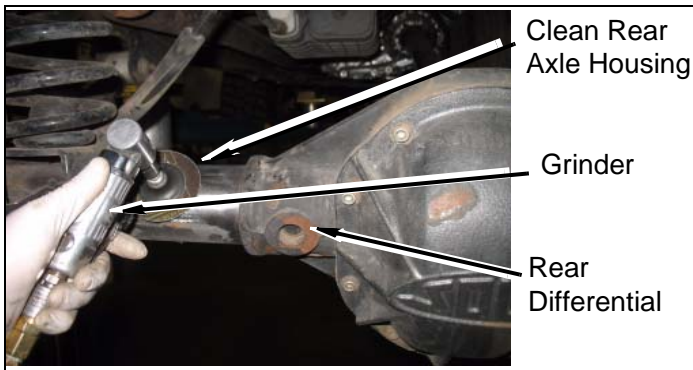


- f. Reconnect both front fuel lines, located near passenger side of transmission above cross member.



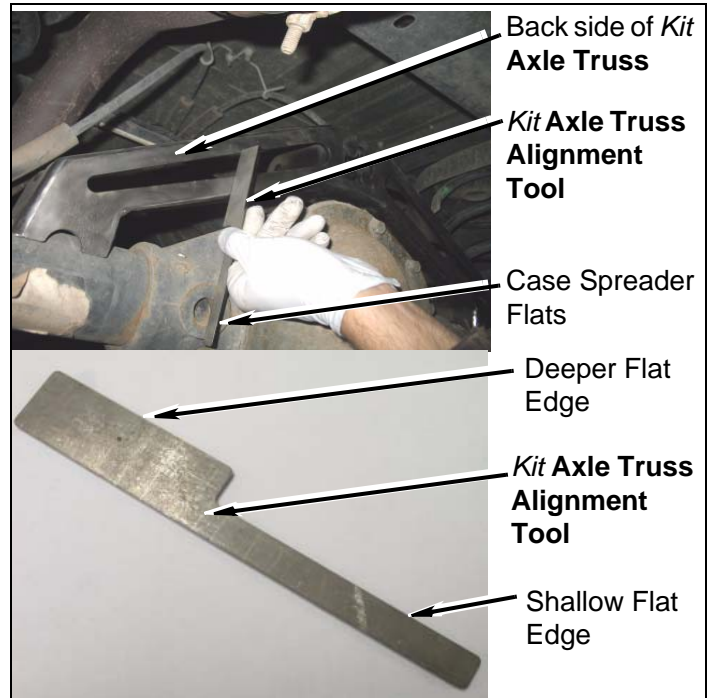
5. Install **Kit Rear Axle Truss**

- a. Prepare rear axle housing for installation of **kit rear axle truss** with a grinder or sanding disk. Using **kit rear axle truss** as a reference and position it over differential; continue by clean all paint off of axle housing for a clean welding surface. (**Note:** Be sure to “tape” vent hole to protect any foreign material from entering inside the axle housing.)



- b. Install **kit rear axle truss** over rear differential housing and center **kit rear axle truss** by measuring from inside edge of axle flange to outside edge of kit axle truss.

- c. Use **kit axle truss alignment tool** to center the forward position of the **kit axle truss** into place by placing the flat shallow edge against the differential case spreader flats and the deeper flat edge against the back side of the **kit axle truss**.

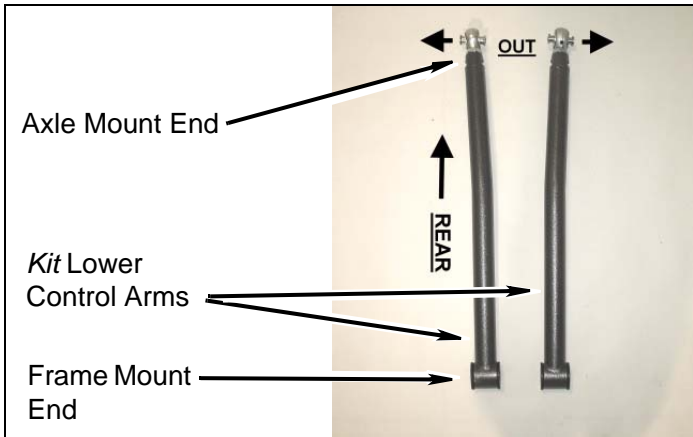


- d. Once you have achieved correct axle truss position, tack and welded the **kit rear axle truss** onto rear differential axle tube housing. Once kit truss cools, be sure to coat axle housing with primer paint to prevent any rust from damaging axle housing.

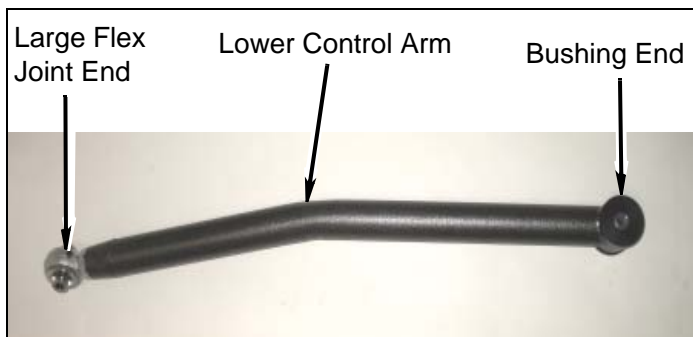


6. Install **Kit Rear Control Arms**

- a. Locate correct *kit rear lower control arms*. *Kit lower control arms* are the larger diameter (2") in the kit. The *kit rear lower control arms* are the two control arms that will have *kit large flex joints* facing away from each other when mounted on the *kit rear control arm brackets* and axle mounts.

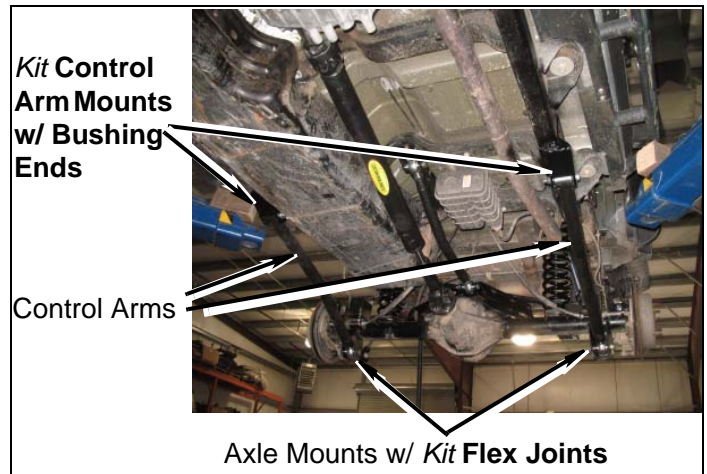


- b. Be sure that one *kit large flex joint* is threaded into the end of each *kit lower control arms* along with two *kit bushing* and *kit sleeve* at the other.

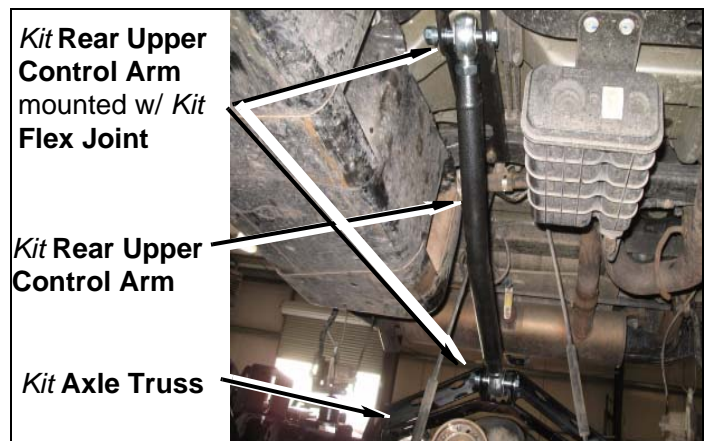


- c. Adjust each *kit rear lower control arm* equally to **33 7/8"** from hole center to hole center.
- d. Locate *kit rear upper control arm*. *Kit rear upper control arm* is the (1.75") diameter arm in the kit. The *kit rear upper control arm* is the control arm that will have two *kit large flex joints* which will mount on the *kit upper control arm bracket* and the other end on the *kit rear axle truss*.
- e. Adjust the *kit rear upper control arm* equally to **28.5"** from hole center to hole center.
- f. Install *kit rear lower control arms* with the bushing end onto *kit rear control arm bracket* using two *kit bolts (M14-2.0x110)*, *washers* & *lock nuts*. Install *kit rear lower control arms* with *kit large flex joint* end facing toward each

other at each axle end using OEM hardware. (**Note:** *Kit arms* must be installed correctly to prevent binding or premature wear from occurring.)



7. Install *kit rear upper control arm* with *kit large flex joint* end mounted at *kit rear upper control arm mount* using one *kit bolt (M14-2.0x110)*, *washers* & *lock nuts*. Install other *kit large flex joint* end onto *kit rear axle truss* using one *kit bolt (M14-2.0x110)*, *washers* & *lock nuts*. (**Note:** *Kit arms* must be installed correctly to prevent binding or premature wear from occurring.)



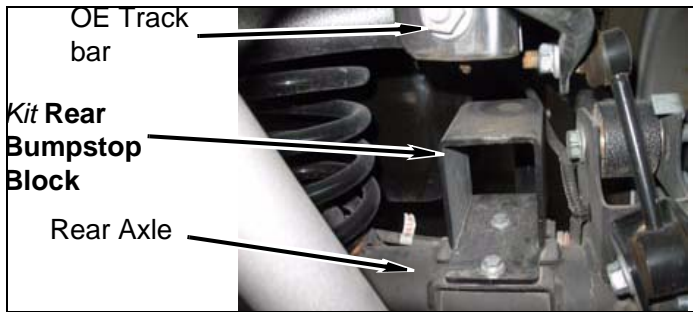
#### NOTE

Measurements are to be used as a starting point. Fine tuning of pinion angle and caster measurements should be done during alignment; after install is complete.\***MAKE SURE JAM NUT IS TIGHT AT FLEX JOINT ENDS AFTER ADJUSTMENTS ARE MADE\***

The **Flex Joints** are unique when it comes to service. We **do not** use or recommend grease! Grease attracts more dirt and debris then it is worth while doing more harm to the joint itself. Our **Flex Joints** are also too tight for grease which is designed to be used in flow through application. We simply recommend removing the service screw, putting in a few drops of 3 & 1 oil and then replacing the service screw everytime you perform an oil change.

8. Install *kit* rear bumpstop blocks.

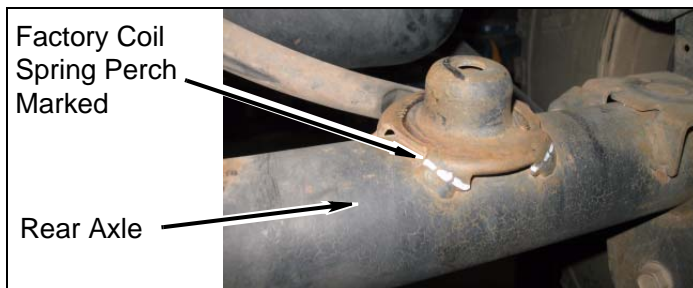
- a. Install *kit* rear bumpstop blocks onto rear bumpstop contact pad located on axle next to spring. Tab on *kit* rear bumpstop blocks faces rearward on vehicle. Secure using *kit* bolt (5/16 x 3/4) & hardware. (J4614BAG1)



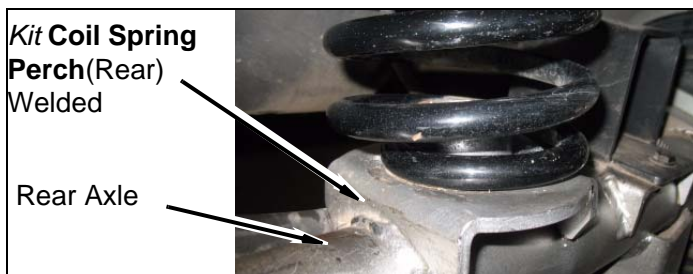
- b. Repeat on opposite side of vehicle.

**NOTE**  
*trail master* recommends using rear JK coil spring perch SP0400 (\*Welding required\*) for proper spring perch clocking after your pinion angle is adjusted to the proper degree. Replacing your coil spring perches will eliminate common rear spring arching.

- c. Record center location of factory spring perches for future reference. (Note: Use backing plate for center reference of perch location.)
- d. Remove factory coil spring perches from axle housing with cut off wheel. Grind axle surface for clean & smooth installation surface.



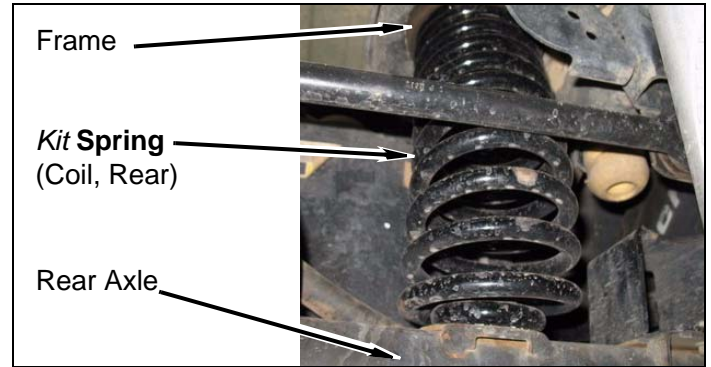
- e. Install two *kit* coil spring perches onto rear axle housing. Position & center *kit* coil spring perch onto OEM location; kit perch should be position about 15-20deg. "forward" compared to OEM position/clocking to eliminate rear coil arching.



- f. Tack & weld each *kit* coil spring perch once you have achieved the correct angle and position.

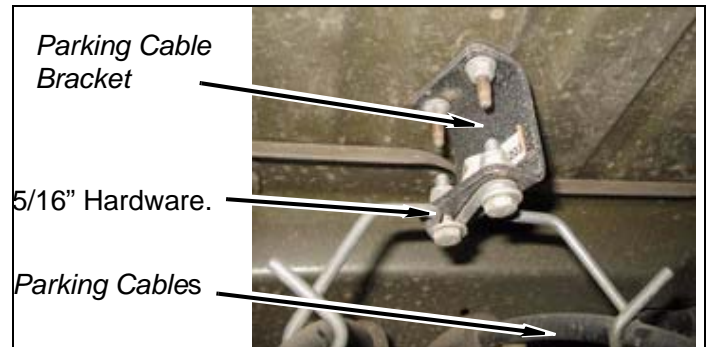
- g. Install two *kit* urethain coil spring perch end caps into center of *kit* coil spring perches; after coil spring perches have cooled.

9. Install two *kit* springs (coil, rear) small pig tail wrap goes to bottom (axle end).



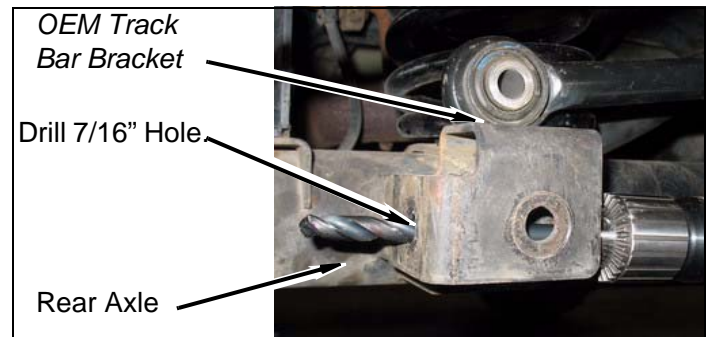
10. Install *kit* Rear park cable bracket

- a. Use *OE* hardware to bolt the kit bracket to the body. Use *kit* hardware (5/16") to bolt parking cables to kit bracket. (J4614BAG1)



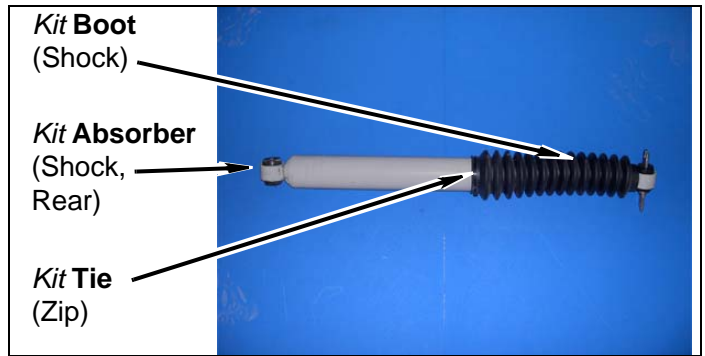
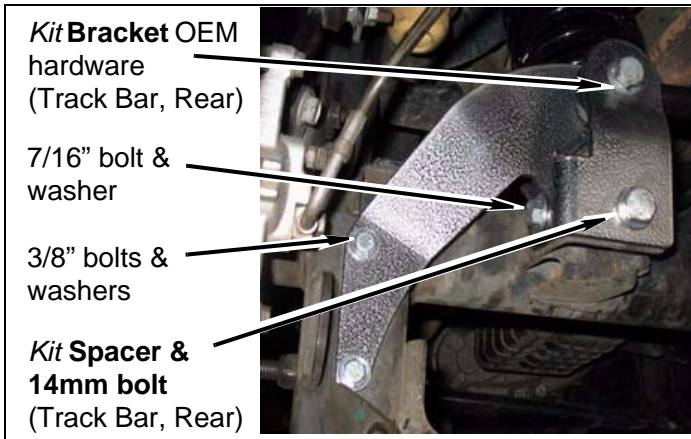
11. Install *kit* Rear track bar bracket

- a. Using *kit* track bar bracket as template, drill a 7/16" hole into factory track bar mount.



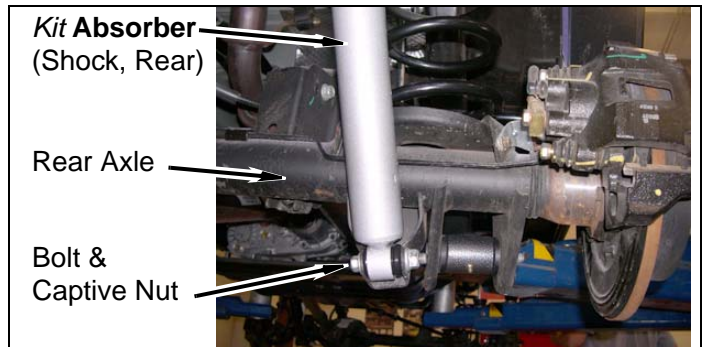
- b. Install **kit Rear track bar bracket** using supplies hardware and spacer into stock track bar & control arm mount location. (**J4611BAG2**)
- c. Install OEM **track bar** into **kit** bracket on rear axle using OE hardware to secure it.

- c. Install two **kit boots** (shock) onto two **kit absorbers** (shock, rear) with two **kit ties** (zip).



- d. Install two **kit absorbers** (shock, rear) onto axle with two factory bolts and captive nuts.

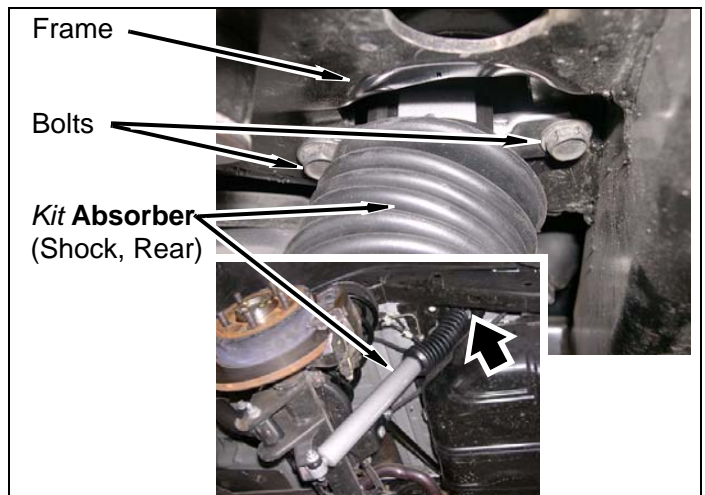
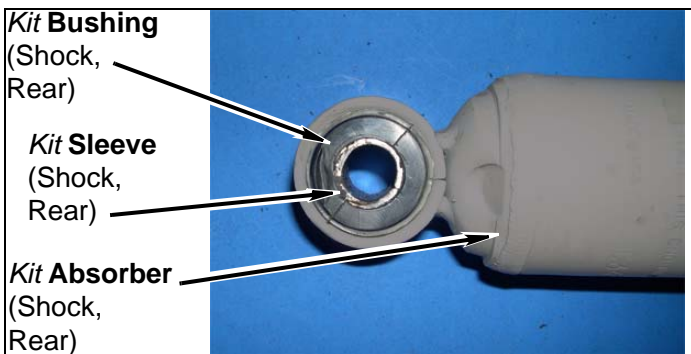
- d. Zip tie frame end of **kit rear track bar** to frame mount for now. Track bar will be installed once vehicle is lowered to ground.



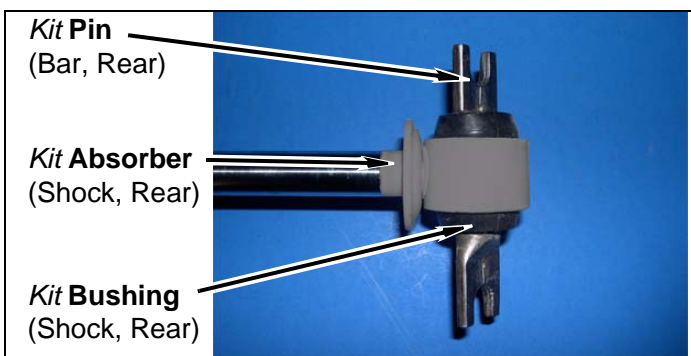
12. Install **kit rear shocks**.

- a. Install two **kit bushings** (shock, rear) and two **kit sleeves** (shock, rear) into body end of two **kit absorbers** (shock, rear).

- e. Install two **kit absorbers** (shock, rear) onto frame rails with four factory bolts.



- b. Install two **kit bushings** (shock, rear) and two **kit pins** (bar, rear) into piston eyelet of two **kit absorbers** (shock, rear).



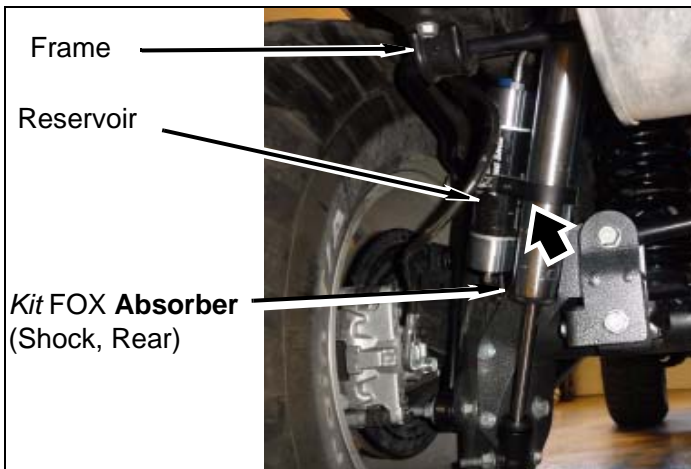
13. Installing **FOX Adjustable Reservoir Shocks**

- a. **Front** shocks should be tuned to **3 (Soft)** on the adjuster.
- b. **Rear** shocks should be tuned to **7 (Firm)** on the adjuster.

**△ NOTE**

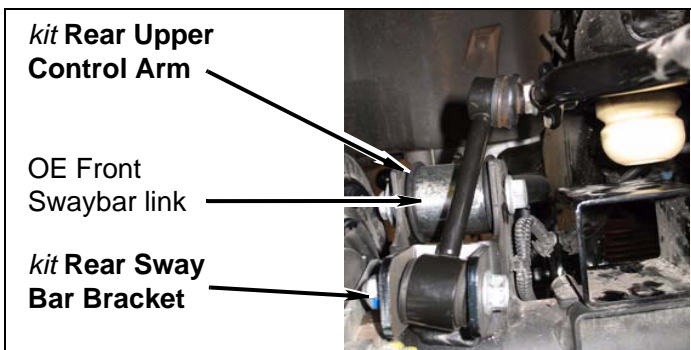
**trail master** recommends using these setting as a starting point on your **FOX** Shocks. Fine tuning may be performed after install is completed. (1=Soft / 8= Firm)

- c. Install two **kit FOX shocks** (shock, front) onto front shock mount with reservoir facing toward the rear of the Jeep.
- d. Install two **kit FOX shocks** (shock, rear) onto rear shock mount with reservoir facing toward the inside of frame rail. (**Note:** Be sure to mount reservoir clamp near center of body to avoid contact with **kit track bar bracket**.)
- e. Adjust reservoir and be sure to cycle suspension to insure the shock has plenty of clearance.



14. Rear sway bar

- a. Install **kit rear swaybar brackets** to flat plate located just below and behind the rear upper control arm axle mount. Secure using **kit bolt** (7/16" x 1") and **hardware. (J4614BAG1)**
- b. Install **OE front sway bar link** in place of rear sway bar link with lower going through **kit bracket** just installed.



15. Install rear wheels and lug nuts.

16. Using hydraulic jack, raise rear of vehicle and remove jack stands. Lower rear of vehicle onto ground and torque lug nuts to factory specification.

## Finish Track Bar Installation Front and Rear

- 1. Thread front track bar in or out as needed until bolt hole at frame lines up. Secure using OE hardware.
- 2. Use tape measure to ensure that front axle is centered under vehicle.
- 3. Repeat at rear of vehicle and tighten.
- 4. Have vehicle aligned. Shop should center axles during alignment process.

## After Completing Installation

### Bleed brake system

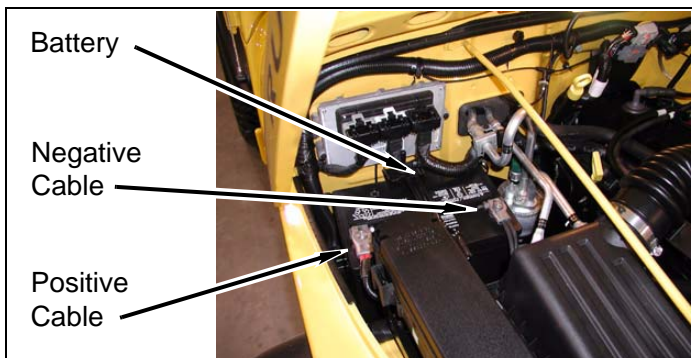
**△ WARNING**

Before driving the vehicle, pump the brakes several times. If the pedal is soft or mushy, refer to the vehicle service manual and verify the brake bleeding procedures. Failure to do so may cause the brakes to malfunction, resulting in property damage or serious personal injury.

- 1. Verify brake fluid reservoir is full.
- 2. Bleed rear passenger side brake caliper at brake bleeder fitting.
- 3. Bleed rear driver side brake caliper at brake bleeder fitting.
- 4. Bleed front passenger side brake caliper at brake bleeder fitting.
- 5. Bleed front driver side brake caliper at bleeder fitting.
- 6. Verify brake fluid reservoir is full. Add brake fluid according to manufacturer's specifications.

## Engine Compartment

1. Connect both battery cables. Connect positive cable first, then negative cable.



## Miscellaneous

1. Apply **kit label** (warning) onto dashboard in plain sight of all vehicle occupants.
2. Adjust headlights.
3. Check all fasteners to ensure they are tight.
4. Ensure all wires, hoses, cables, etc. are properly connected and there is ample slack.
5. Align vehicle to OE specifications. Retain alignment results.

## Dynamic Vehicle Check

1. Check steering and suspension in all positions to ensure that there is no bind and adequate clearance between all moving, fixed, and heated members. Check operation of clutch, brake system, and parking brake. Check operation of transmission and transfer case. Ensure there is full engagement in all gears and 4WD ranges. Check battery connections and electrical component operations. Test-drive vehicle.

### **⚠WARNING**

Retorque all fasteners after 500 miles and after off road use. All suspension lift components should be visually inspected and fasteners retorqued during routine vehicle servicing.

### **⚠CAUTION**

Performance Automotive Group does not recommend any particular wheel and tire combinations for use with its suspension lifts and cannot assume responsibility for the customer's choice of wheels and tires. Refer to your owner's manual for recommended tire sizes and warnings related to the use of oversized tires. Larger wheel and tire combinations increase stress and wear on steering and suspension components, which leads to increased maintenance and higher risk for component failure. Larger wheel and tire combinations also alter speedometer calibration, braking effectiveness, center of gravity, and handling characteristics. Consult an experienced local off road shop to find what wheel and tire combinations work best with your vehicle.

### **NOTE**

All warranty information, instruction sheets, and other documents regarding the installation of this product must be retained by the vehicle owner. Information contained in the instructions and on the warranty card will be required for any warranty claims. The vehicle owner needs to understand the modifications made to the vehicle and how they affect vehicle handling and performance. Failure to provide the customer with this information can result in damage to the vehicle and severe personal injury.

## Troubleshooting

1. Once the vehicle has been lifted, some vehicle vibration may become more apparent to the driver. The reason for the vibration may be due to the angle at which the driveline operates. A suspension lift increases the operating angle of the driveline and normal vehicle vibration is amplified. Some vibration characteristics are as follows:
  - a. Acceleration vibration: vibration felt during acceleration of the vehicle and caused by the rear axle pinion angle being too high.
  - b. Deceleration vibration: vibration felt during deceleration of the vehicle and caused by the rear axle pinion angle being too low.
  - c. General vibration: vibration caused by rear pinion angle in relation to the transfer case output shaft.
  - d. High speed shakes or shimmies may be caused by worn steering components.



# Accessories:

The following accessories are available:

## Kit# 7108: SSV Steering Stabilizer

### Qty. Description

#### Kit# J4618

- 2 Springs (front)
- 2 Springs (rear)
- 2 Shocks (front)
- 2 Shocks (rear)
- 2 Control Arm (Front Upper)
- 2 Control Arm (Front Lower)
- 1 Control Arm (Rear Upper)
- 2 Control Arm (Rear Lower)
- 2 Bracket (Front Control Arm)
- 2 Bracket (Cross Member Gusset)
- 2 Bracket (Rear Lower Control Arm)(Raw)
- 1 Bracket (Rear Upper Control Arm)
- 1 Bracket (Rear Axle Truss)(Raw)
- 1 Track Bar (Front)
- 1 Bracket (Rear Track Bar)
- 2 Bumpstop (Front)
- 2 Bumpstop (Rear)
- 2 Bracket (Rear Swaybar)
- 1 Bracket (Park Brake Cable)
  
- 1 SP0400 (Rear Coil Spring Perch Kit)(Plated)

#### 1 JKD4614 (Sway Bar Hardware Bag)

- 2 Bolt (12mm x 70mm)
- 4 Washer (12mm Flat)
- 2 Nut (12mm Stover)
- 4 Bushing
- 2 Sleeve
- 2 Wire Clip
- 2 Swaybar Link (Front Disconnect)
- 2 Mis-Alignment Spacer (Small)
- 2 Mis-Alignment Spacer (Large)
- 2 Heim Joint
- 2 Jam Nut
- 2 Pin

#### 1 J4618BAG2 (Hardware Bag)

- 2 Bolt (7/16 x 1)
- 4 Bolt (5/16 x 3/4)
- 2 Bolt (1/4 x 1)
- 4 Washer (7/16 Flat)
- 2 Washer (3/8 Flat)
- 8 Washer (5/16 Flat)

- 4 Washer (1/4 Flat)
- 2 Nut (7/16 Stover)
- 2 Nut (3/8" Flange)
- 4 Nut (5/16 Stover)
- 2 Nut (1/4" Stover)

#### 1 J4611BAG2 Hardware Bag. (Trackbar)

- 1 Bolt (M14-2.0 x 90mm)
- 1 Nut, (M14)
- 2 Washer, (M14)
- 1 Bolt, (7/16" x 1")
- 2 Bolt, (3/8" x 1")
- 1 Nut, (7/16")
- 2 Nut, (3/8")
- 2 Washer, (7/16")
- 4 Washer, (3/8")
- 1 Heim Joint
- 1 Jam Nut, 3/4"
- 2 Mis-Alignment Spacer
- 2 Bushing
- 1 Sleeve (3/4" x 1 656")
- 1 Sleeve (3/4" x 1.620")
- 1 Grease Fitting

#### 1 JKS4614 (Steering Stabilizer Hardware bag)

- 2 Bracket (Front Steering Stabilizer)
- 1 Bolt (1/2 x 2 1/2 Carriage bolt) Grade 2
- 1 Washer (1/2" Flat)
- 1 Nut (1/2" Stover)
- 2 Bolt, (3/8" x 1")
- 2 Nut, (3/8")
- 4 Washer, (3/8")

#### 1 J4618BAG1 (Long Arm Hardware Bag)

- 6 Bolt (14mm-2.0 x 110mm)
- 2 Bolt (14mm-2.0 x 100mm)
- 4 Bolt (12mm-1.75 x 140mm)
- 2 Bolt (1/2 x 3)
- 6 Bolt (1/2 x 1 1/2)
- 16 Washer (14mm Flat)
- 14 Washer (1/2" Flat)
- 8 Washer (7/16" Flat)
- 8 Nut (14mm Stover)
- 4 Nut, (12mm Stover)
- 2 Nut, (1/2" Stover)
- 2 Nut Plate (1/2" Stover) Large, Double
- 2 Nut Plate (1/2" Stover) Small, Double
- 2 Nut Plate (1/2" Stover) Single
- 1 Sleeve (1"x1.6")