



## D1401 Installation Instructions 2013 Ram 3500, 2014 Ram 2500 4.5" Radius Arm Suspension Lift

### Read and understand all instructions and warnings prior to installation of product and operation of vehicle.

Zone Offroad Products recommends this system be installed by a professional technician. In addition to these instructions, professional knowledge of disassembly/ reassembly procedures and post installation checks must be known. Minimum tool requirements include the following: Assorted metric and standard wrenches, hammer, hydraulic floor jack and a set of jack stands. See the "Special Tools Required" section for additional tools needed to complete this installation properly and safely.

#### » PRODUCT SAFETY WARNING

Certain Zone Suspension Products are intended to improve off-road performance. Modifying your vehicle for off-road use may result in the vehicle handling differently than a factory equipped vehicle. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. Zone Offroad Products does not recommend the combined use of suspension lifts, body lifts, or other lifting devices.

You should never operate your modified vehicle under the influence of alcohol or drugs. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions. Always wear your seat belt.

#### » TECHNICAL SUPPORT

*Live Chat* provides instant communication with Zone tech support. Anyone can access live chat through a link on [www.zoneoffroad.com](http://www.zoneoffroad.com).

[www.zoneoffroad.com](http://www.zoneoffroad.com) may have additional information about this product including the latest instructions, videos, photos, etc.

Send an e-mail to [tech-zone@sporttruckusainc.com](mailto:tech-zone@sporttruckusainc.com) detailing your issue for a quick response.

**888.998.ZONE** Call to speak directly with Zone tech support.

#### » PRE-INSTALLATION NOTES

1. Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.
2. Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.
3. Larger rim and tire combinations may increase leverage on suspension, steering, and related components. When selecting combinations larger than OE, consider the additional stress you could be inducing on the OE and related components.
4. Post suspension system vehicles may experience drive line vibrations. Angles may require tuning, slider on shaft may require replacement, shafts may need to be lengthened or trued, and U-joints may need to be replaced.
5. Secure and properly block vehicle prior to installation of Zone Offroad Products. Always wear safety glasses when using power tools.
6. If installation is to be performed without a hoist, Zone Offroad Products recommends rear alterations first.
7. Due to payload options and initial ride height variances, the amount of lift is a base figure. Final ride height dimensions may vary in accordance to original vehicle attitude. Always measure the attitude prior to beginning installation.

#### Difficulty Level

easy 1 2 3 **4** 5 difficult

Estimated installation: 6 hours

#### Special Tools Required

Pitman Arm Puller

Cutoff Wheel

#### Tire/Wheel Fitment

35x12.50 w/ 4-1/2" Backspacing

37x12.50 w/ 5-1/2" Backspacing

**\*Important\* Verify you have all of the kit components before beginning installation.**

### D1401 Kit Contents

**Qty Part**

1	DRV Coil	2	5/16"-18 x 1" self threading bolt - clear zinc - hex head
1	PASS Coil	1	Loctite
2	Bump Stop	2	Zip Tie
1	Pitman Arm	4	1/2" Bolt Tab (04 F-150 BOM)
1	4/6 Zone Track Bar Bracket	1	Rivet nut installation bolt pack
1	Fish Wire	1	Radius arm drop brkt - ZONE - DRV
1	1/2" Bolt Tab	1	Radius arm drop brkt - ZONE - PASS
1	1/4" Track Bar Spacer	5	1/2" Rivet nuts
1	Bolt Pack	2	Radius arm spacer sleeve
	1 1/2"-13 x 1-3/4" bolt - grade 8 - yellow zinc	1	Bolt Pack - Rad Arm Drop Brackets
	1 1/2"-13 Prevailing torque nut - yellow zinc	2	3/4"-10 x 5-1/2" bolt - grade 8 - yellow zinc
	1 1/2"-13 Nut (non locking) - yellow zinc	4	3/4" SAE Thru-hardened washer - yellow zinc
	3 1/2"-13 USS Washer - yellow zinc	2	3/4"-10 Prevailing torque nut - yellow zinc
	1 18mm-2.50 x 80mm bolt - class 10.9 clear zinc	4	1/2"-13 x 1-3/4" bolt - grade 8 - yellow zinc
	1 18mm-2.50 Prevailing torque nut - clear zinc	4	1/2"-13 Nut - non-locking - yellow zinc
	2 3/4" SAE Washers - Clear zinc	8	1/2" SAE Thru-hardened washer - yellow zinc
2	Brakeline L Bracket		

**Important—measure before starting!**

Measure from the center of the wheel up to the bottom edge of the wheel opening

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

## INSTALLATION INSTRUCTIONS

1. Park vehicle on clean, flat, and level surface. Block the rear wheels for safety.
2. Remove the front trackbar bolt from the frame rail. Retain all hardware. **Figure 1**



Figure 1

3. Raise the front of the vehicle and support the frame rails with jack stands. Do not support on the radius arms, they will be removed during the installation.
4. Support the front axle with a hydraulic jack.
5. Remove the factory wheels, remove the retaining clips that hold the rotor on and may interfere with aftermarket wheels.
6. Break the jam nuts loose on the adjusting collar of the drag link. **Figure 2**

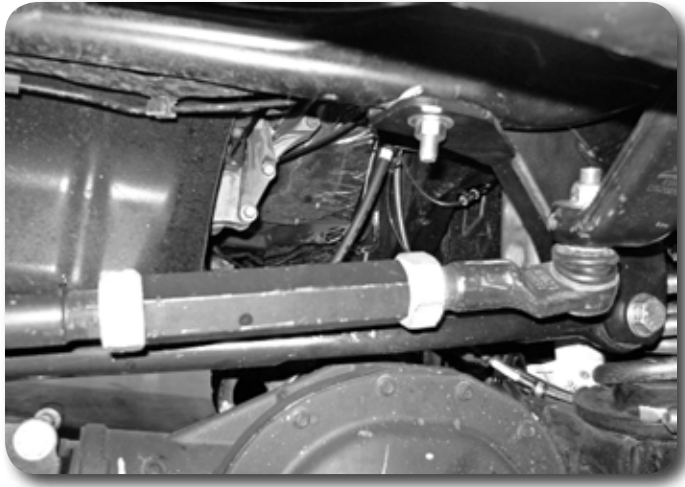


Figure 2

7. Disconnect the tie rod from the pitman arm, do not damage the tie rod boot. Mark the orientation of the pitman arm and remove the pitman arm from the sector shaft.  
Figure 3

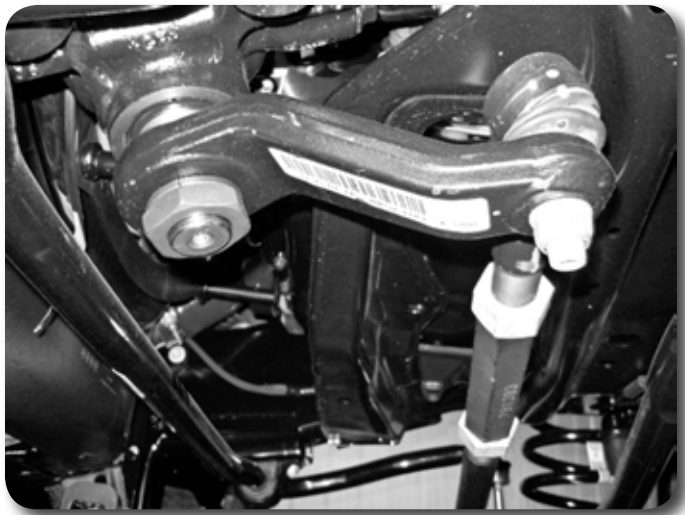


Figure 3

8. Disconnect the sway bar links from the sway bar. Keep the nuts. Figure 4



Figure 4

9. Disconnect the brake line bracket from the top of the radius arm mount on the axle, retain bolt, discard bracket. Figure 5



Figure 5

10. Disconnect the factory shock from the lower shock mount. Figure 6 Lower the front axle and remove the coil springs.



Figure 6

11. Raise the front axle and reattach stock shocks with factory bolt. It is not necessary to put the nut tab back on. The shocks will be there to keep the axle secure. Keep a jack under the axle for extra support.

12. Remove the passenger's side radius arm. Retain all hardware. It will be necessary to remove the shock bolt and move the shock out of the way to get the upper hardware out. Reinsert the lower shock bolt when the arm is removed.
13. On the passenger's side only. Measure and mark as shown below. This small amount of material will need to be removed for clearance to the new radius arm drop bracket. The inside edge of the cut will be flush with the transmission crossmember. The outside edge will be flush with the radius arm mounting plate. Measure up 1/4" and remove this material for clearance. **Figure 7a**

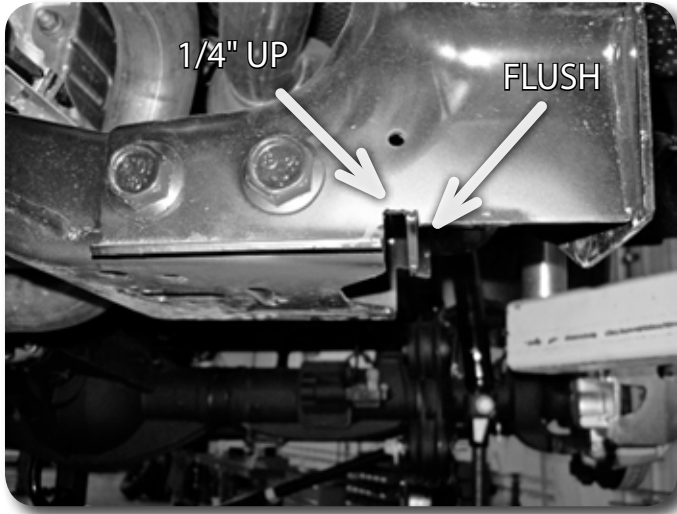


Figure 7a

14. Place the radius arm drop bracket up to the frame rail. Insert 3/4" bolt to locate the bracket. Mark the center of the slots on the bottom of the frame rail, mark the center of the holes on the side of the frame rail. **Figure 8a & 8b**



Figure 8a



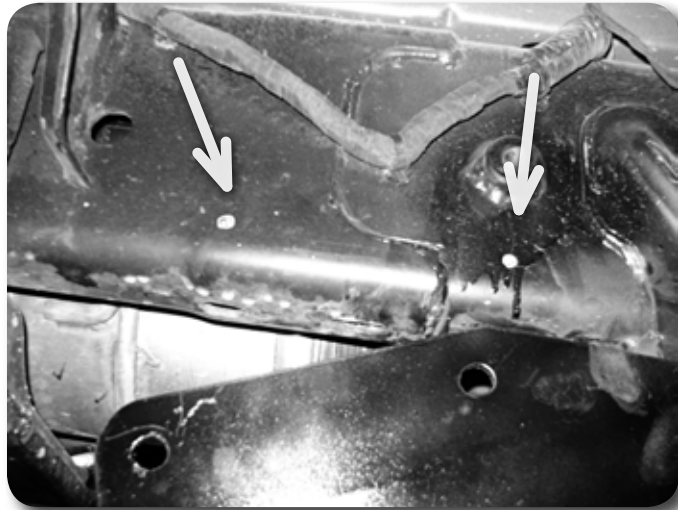


Figure 8b

15. Remove the bracket and drill the 2 holes in the SIDE of the frame rail to 11/16". Drill the 2 holes in the bottom of the frame rail to 9/16".
16. Install the rivet nuts into the side of the frame rail. See detailed instructions at the end of the instruction sheet for proper installation.
17. Reinstall bracket with spacer sleeve at the 3/4" bolt. Figure 9. 1/2"x1-3/4" bolts into the side of the frame Figure 10. Bolt tabs from the top down from the inside of the frame rail. Use the fish wire to pull the bolts through the frame rail Figure 11, 12, & 13

### Rivet Nut Installation:

See end of instruction sheet for detailed rivet nut installation. Use bolt pack #799 for installation.

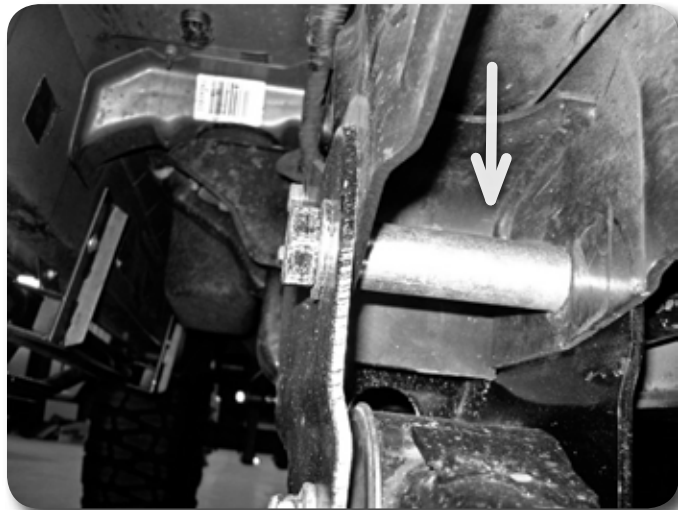


Figure 9

### Fig 9 Note:

Hardware for the radius arm relocation bracket is in #794



Figure 10

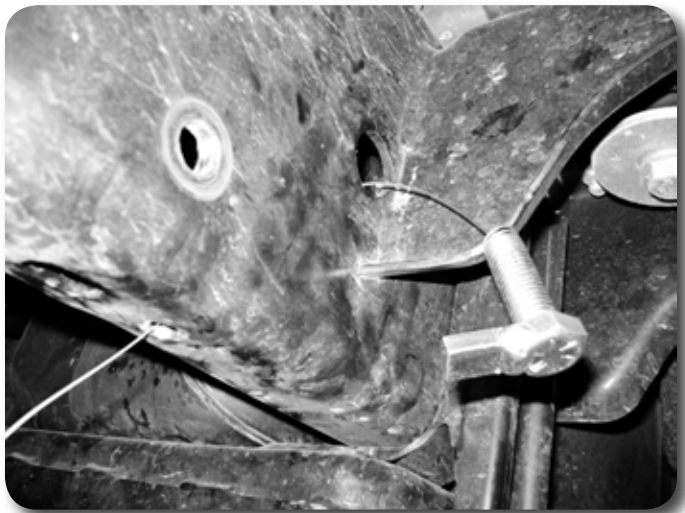


Figure 11



Figure 12



Figure 13

18. With a jack still under the axle, disconnect the radius arm from the driver's side frame bracket. Reinstall the passenger's side radius arm with factory hardware. Adjust the cam so the bolt head is as far forward as possible. Tighten the hardware at the axle to 150 ft-lbs. Figure 14

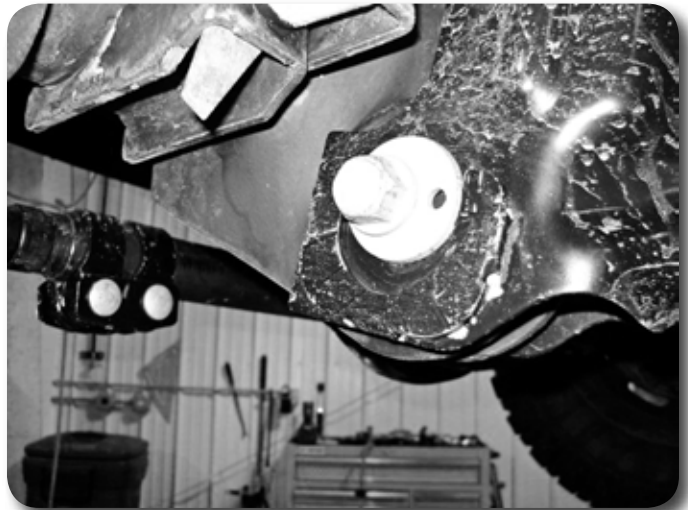


Figure 14

19. Repeat bracket installation procedure on the driver's side.
20. Reinstall the driver's side radius arm with factory hardware. Adjust the cam so the bolt head is as far forward as possible (same as Pass side). Tighten radius arm hardware at the axle to 150 ft-lbs. Leave radius arm pivot hardware loose at the relocation brackets.
21. Remove the factory bump stops, it is easiest to hit them from side with a hammer to pop them out. Figure 15





Figure 15

22. Grease new replacement bump stops and raise axle with hydraulic jack to press the bump stops into position. These will be a tight fit. Figure 16



Figure 16

23. Install the trackbar bracket with factory bolt through the original trackbar hole, do not tighten.
24. Clearance the factory hole on the frame crossmember where the trackbar bracket meets to 9/16".
25. The upper slot in the trackbar bracket will align with the hole in the factory trackbar bracket. These holes have variations in their position, and minor grinding

of the factory hole may be required. Clearance the hole so  $\frac{1}{2}$ " hardware will fit through it. Figure 17

**Fig 17 Note:**

$\frac{1}{4}$ " thick spacer washer needs to go between the trackbar and the frame bracket.

Hardware for track bar is in #792

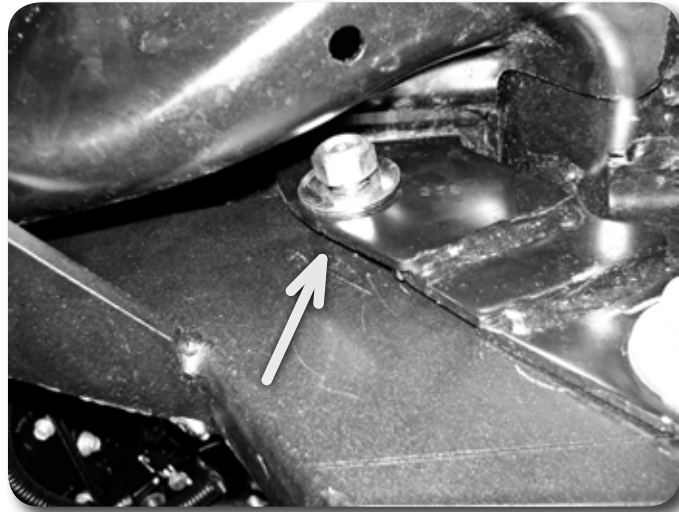


Figure 17

26. Fish the bolt tab through the frame rail with the included bolt wire and attach to the trackbar bracket with  $\frac{1}{2}$ " USS washer and regular nut. Attach the upper hole with  $\frac{1}{2}$ " x 1- $\frac{1}{2}$ " bolt with spacer washer as shown. Figure 18, 19, & 20



Figure 18



Figure 19

**Fig 19 Note:**

Use fish wire to thread the bolt tab through the frame



Figure 20

27. Tighten ½" trackbar hardware to 65 ft-lbs. Tighten 18mm factory bolt to 150 ft-lbs.
28. Support front axle and remove the stock shocks. Retain the lower hardware, discard shocks and upper hardware.

29. Diesel Kits Only:  
Lower the axle and install the new coils with factory isolator. The coils are side specific to reduce the amount of bow. There may be a slight amount of bow in the coils, this is due to the radius arm design and the caster change through wheel travel along with the offset coil mounts. Have an assistant help ensure the coils are seated properly.

Gas Kits Only:

Lower the axle and install the new coils with factory isolator. The passenger's side upper mount will need to be reindexed. There is a template at the end of the instruction sheet. Cut this out and place over the passenger's side upper mount, mark hole center, and drill to 1/2". The hole should now be directly to the 'REAR' of the vehicle. Install isolator with new coil spring. Ensure that coils are seated properly, have someone help if necessary. Figure 21a, 21b, & 21c

**Fig 21a, 21b, 21c Note:**

Index the Passenger's side coil only as shown - Gas models only.



Figure 21a



Figure 21b



Figure 21c

30. Grease and install bushings and sleeves into the shocks. Install new shocks with cup washers, bushings, and 1/2" nut at the top mount. Tighten the nut until the bushings begin to swell.
31. Attach the lower shock with factory hardware. Tighten hardware to 65 ft-lbs.
32. Disassemble the drag link. Trim the tab from the tie rod end flush with the end of the threads **Figure 22a, 22b**. Trim the end of the tab on the drag link flush with the threads as well **Figure 23**.

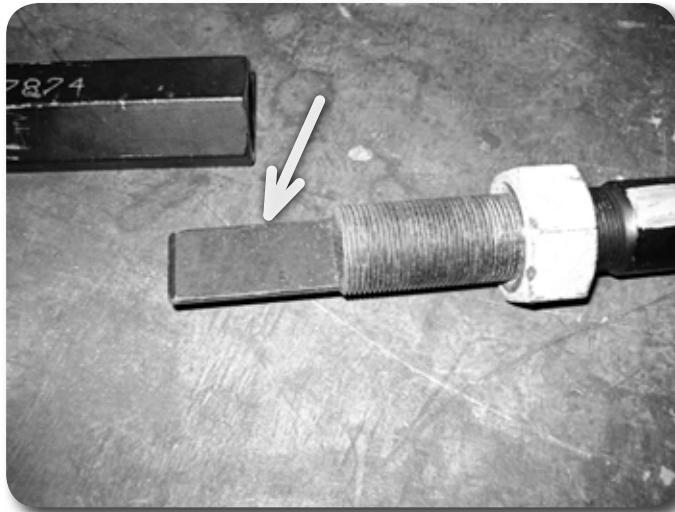


Figure 22a

**Fig 22-23 Note:**

Cut the tab from the tie rod and drag link





Figure 22b



Figure 23

33. Reassemble the drag link, adjust so that there is approximately  $\frac{3}{4}$ "~ $\frac{7}{8}$ " of thread exposed past the jam nuts and that the tie rod end faces up. This is a starting point and will need to be adjusted after the installation is complete. Figure 24



Figure 24

34. Install new pitman arm, use alignment mark made earlier. Loctite factory nut and install with lock washer tighten nut to 225 ft-lbs.
35. Attach drag link to pitman arm with factory nut. Tighten to 65 ft-lbs. Figure 25



Figure 25

36. Attach brake line relocation brackets to the top side of the axle with the factory bolt and 5/16" self threading bolt into the original locating tab hole. The brake lines will need to have the fittings loosened so they can be rotated and pointed up. Attach the brake line to the bracket with retaining clip. **Figure 26**



Figure 26

37. Install wheels and tighten lug nuts to factory specifications. Lower the vehicle to the ground.
38. Reattach the sway bar links to the sway bar with factory hardware. Tighten to 65 ft-lbs.
39. Tighten radius arm hardware to 150 ft-lbs.
40. Turn the steering wheel to get the trackbar to align with the bracket. Install new 18mm bolt, tighten to .150 ft-lbs

### **3500 Model Trucks w/ Leaf Springs**

#### **Rear Installation (2500 Trucks see separate instruction sheet):**

41. Raise the rear of the vehicle, block the front wheels for safety. Support the frame rails with jack stands.
42. Disconnect e-brake cable and reroute the line below the front leaf spring eye mount to give adequate slack in the cable at full droop, reattach once routed for extra slack. **Figure 27, 28**

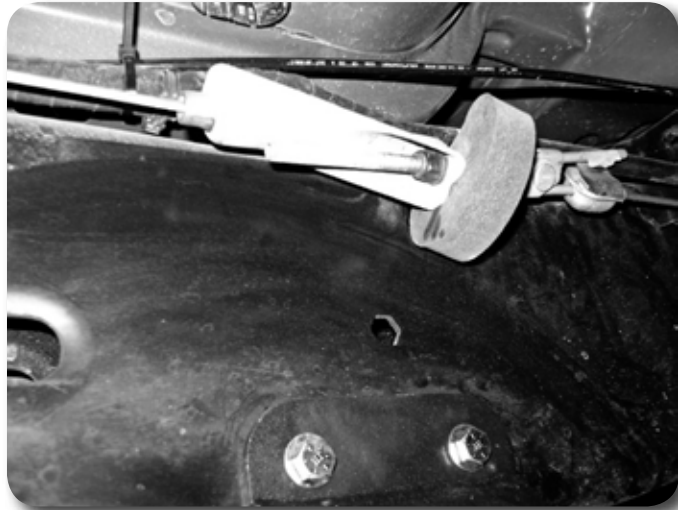


Figure 27

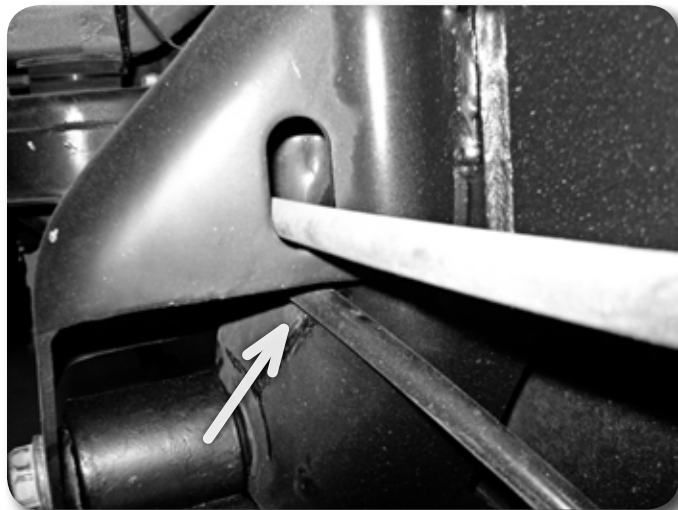


Figure 28

**Fig 28 Note:**

Route the e-brake cable below the factory bracket.

43. Remove the factory shocks, retain all mounting hardware.
44. Support the rear axle with a hydraulic jack. Remove the u-bolts and plates from one side of the vehicle only. Loosen the u-bolts, but do not remove the opposite side.
45. Lower the axle and remove the stock plastic center pin. Replace the center pin with new metal pin. It will be a tight fit. It may be necessary to clearance the hole in the factory leaf pack to get the pin to press in. It must be a tight fit to keep the pin in place. **Figure 29**



Figure 29

46. Install new 3" lift block, with the small end of the block towards the front of the vehicle. Install new u-bolts and install the nuts/washers, but do not tighten at this time.
47. Repeat block and u-bolt installation on opposite side of the vehicle.
48. Tighten u-bolts snugly at this time, do not torque until the vehicle is on the ground.
49. Grease bushings and sleeves, install them into both ends of the shocks. Install new shocks with factory hardware. Tighten to 65 ft-lbs.
50. Reinstall wheels, torque lug nuts to specification. Lower vehicle to the ground, tighten u-bolts to 120 ft-lbs.
51. Recheck all hardware, check again at 500 miles, and again at regularly scheduled maintenance intervals.
52. Straighten the wheels, adjust the steering wheel to center. Do not drive the vehicle with the wheel off center or adverse traction control events may occur. An alignment is recommended at this time.
53. It is recommended to run the caster setting to the highest position to minimize coil bow and give the best overall driveability.

## Rivet Nut Installation Instructions

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### » HOLE PREPARATION

1. Drill hole to appropriate size for rivet nut installation. 1/2" Rivet nuts require an 11/16" hole and 3/8" Rivet nuts require a 7/32" drill. It is critical that this hole is drilled to the correct size. Remove any burrs that could keep the rivet nut from seating flat against either side of the hole surface. **Figure 1A/B.**

### Step 1 Note

If the correct drill size is not available, it is possible to drill the hole to an available smaller size and slowly grind it out to until the rivet-nut fits tight.

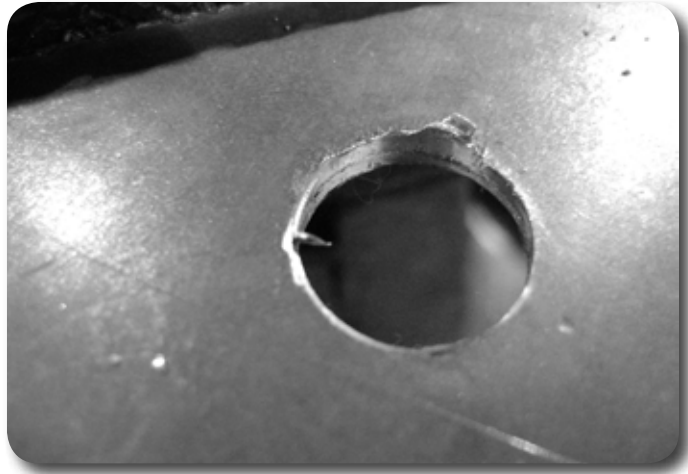


Figure 1A

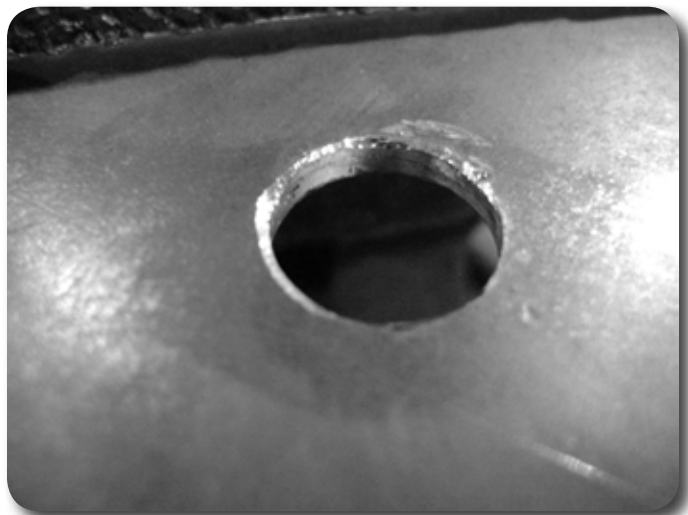


Figure 1B

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### » RIVET NUT INSTALLATION TOOL ASSEMBLY

2. For a 3/8" rivet nut, place the provided 3/8" SAE flat washer on the 3/8" x 1-1/2" bolt, followed by 7/16" hex nut and then a 3/8" serrated washer. **Figure 2** Thread this tool assembly into the rivet nut.
3. For a 1/2" rivet nut, place the provided 1/2" SAE washer on a 1/2" x 2" bolt followed by a 9/16" high nut and 1/2" serrated edge lock washer. Thread this tool assembly into the rivet nut as shown. **Figure 3**.



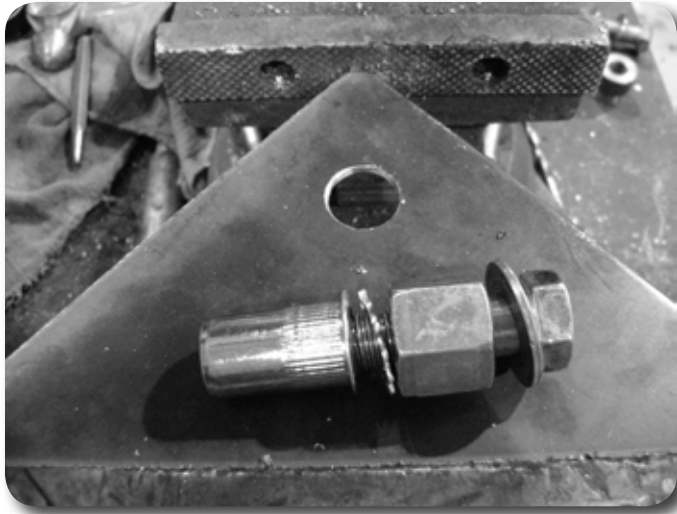


Figure 3 - 1/2" Rivet Nut Shown

## » RIVET NUT INSTALLATION

- Verify the correct size rivet nut for the application based on the thickness of material where the rivet nut is to be installed using the following chart.

Part Number	Thread Size	Body Length (in)	Material Thickness (in)		Drill Size (in)
			Min.	Max.	
95105A159	3/8-16	.690	.027	.150	17/32
95105A168	3/8-16	.805	.150	.312	17/32
95105A169	1/2-13	1.150	.063	.200	11/16
95105A170	1/2-13	1.300	.200	.350	11/16

- Place the installation tool with the rivet nut threaded on the end into the appropriately sized hole.
- For a 3/8" rivet nut, hold the nut closest to the rivet nut still with an 5/8" wrench and tighten the 3/8" bolt with a 9/16 wrench to set the rivet nut. Be sure to hold the rivet nut flush to the surface and square to the hole as it is tightened. **Figure 4**
- For a 1/2" rivet nut, hold the nut closest to the rivet nut still with an 7/8" wrench and tighten the 1/2" bolt with a 3/4" wrench to set the rivet nut. Be sure to hold the rivet nut flush to the surface and square to the hole as it is tightened. **Figure 4**

### Step 6 & 7 Note

If available, an impact gun is recommended for tightening the bolt to ensure the rivet nut remains square to the hole and to ease holding the nut from spinning.

### Step 8 & 9 Note

If using the recommended impact gun, use caution to not exceed the recommended torque specifications.

### Step 10 \*IMPORTANT\*

It is very important to hold the nut as the bolt is loosened because the grip of the star washer will try to spin the rivet nut and ruin the installation.

### Post-Installation Warnings

1. Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake system.
2. Perform steering sweep to ensure front brake hoses have adequate slack and do not contact any rotating, mobile or heated members. Inspect rear brake hoses at full extension for adequate slack. Failure to perform hose check/ replacement may result in component failure.
3. Perform head light check and adjustment.
4. Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.



Figure 4 - 1/2" Rivet Nut shown

### » TORQUE SPECIFICATIONS

8. 3/8" rivet nuts will approach 40 ft. lbs for maximum grip strength. Do not exceed 45 ft-lbs when setting the rivet nut.
9. 1/2" rivet nuts will approach 90 ft lbs for maximum grip strength. Do not exceed 100 ft-lbs when setting the rivet nut.

### » RIVET NUT TOOL REMOVAL

10. Once the center bolt is tightened, remain holding the nut from spinning with the wrench and loosen the center bolt to remove the installation tool.
11. Verify proper installation by checking for consistent rivet nut deformation to see the threads are square and centered to the rivet nut. Figure 5.



Figure 5

