

**AGILE
OFFROAD**
SMARTER THAN DIRT

**RIDE IMPROVEMENT PACKAGE
WITH AUXILIARY FRONT SHOCK KIT
SPRINTER 2500 4X4**

GENERAL INFORMATION

The installation process requires the vehicle to be securely lifted. It is recommended to complete the front installation before starting the rear. The RIP Kit can be installed on vehicles equipped with factory rear AC. However, the auxiliary shocks & brackets cannot be installed due to interference with the rear A/C lines. The installation process requires trimming of the plastic fender well liners. It is recommended to read all the instructions before starting the installation.

PARTS INCLUDED

2 x Auxiliary Shocks	4 x 1/2-13 X 1 1/4 Hex Bolt	2 x Black Countersunk Washers
2 x AO Rear Shocks	10 x 1/2 in. Flat Washer	
2 x Lower Shock Bracket	4 x 1/2 in. Split Lock Washer	4 x 3/8-16 Nylon Lock Nut
2 x Upper Shock Bracket		2 x 3/8 in. Split Lock Washer
2 x Leaf Springs	2 x 1/2-13 x 2 3/4 Hex Bolt	2 x 5/16-18 x 3/4 Flat Socket
2 x Sway bar Relocation Blocks	2 x 1/2-13 Stover Nut	2 x M10-1.5x75 Flange Bolt
	6 x 3/8-16 x 1 Hex Bolt	2 x M10 Flat Washer
4 x Ubolts / Nuts	10 x 3/8 in. Flat Washer	2 x M10-1.5 Lock Nut
	4 x M10-1.5 x 20 Flange Bolt	2 x 1/2-13 Nylon Lock Nut

TOOLS NEEDED

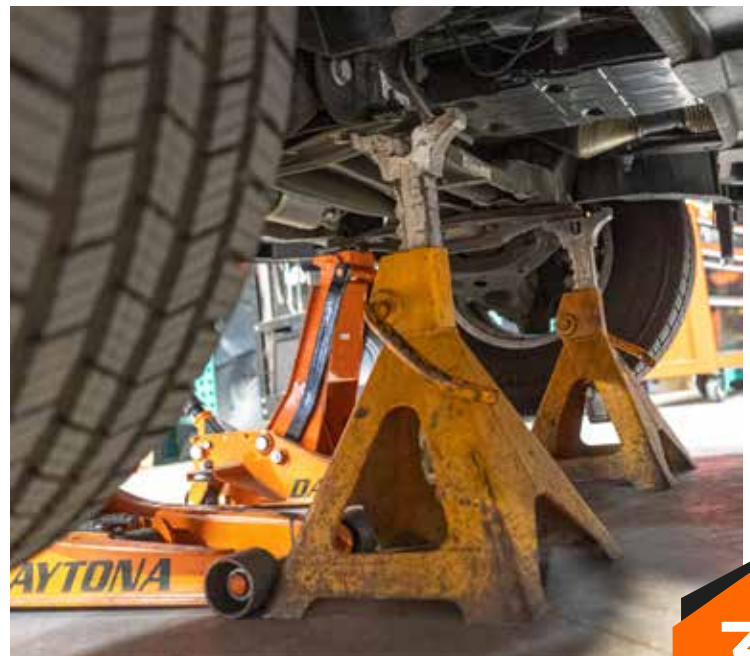
T25 Torx Driver	Wrench & Socket (3/8 in., 3/4 in.)
3/16 in. Allen Driver	Anti Seize lubricant
Wrench and Socket Set (10mm, 15mm, 16mm, 17mm, 18mm, 19mm, 21mm, 24mm, E8)	Thread Locking Compound
Scribe (or similar sharp object)	Pry bar
Panel Clip Removing Tool	Dead-blow Hammer
Drill Bit 3/8 in.	Floor Jack and Jack Stands
	Torque Wrench

INSTALLATION PROCESS

1. Measure the front and rear height of the van from the pinch weld to the ground. This will allow you to see the change of height after the AO Ride Improvement Package is installed.



2. Using two Floor Jacks, jack the front of the vehicle up and place two Jack Stands under the sub-frame (See pictures below for a reference). Once the vehicle is safely lifted on the Jack Stands, remove front wheels.



3. Remove the front floor mats to access the upper strut nuts.

- Driver's side: Using the T25 Torx Driver, remove the three screws holding the edges trip at the top of the foot well. Next, the rubber mat can be removed to expose the strut upper mounting nut.
- Passenger's side: Remove passenger side kick panel and pull back rubber floor mat. Remove tool storage tray to expose the strut upper mounting nut.

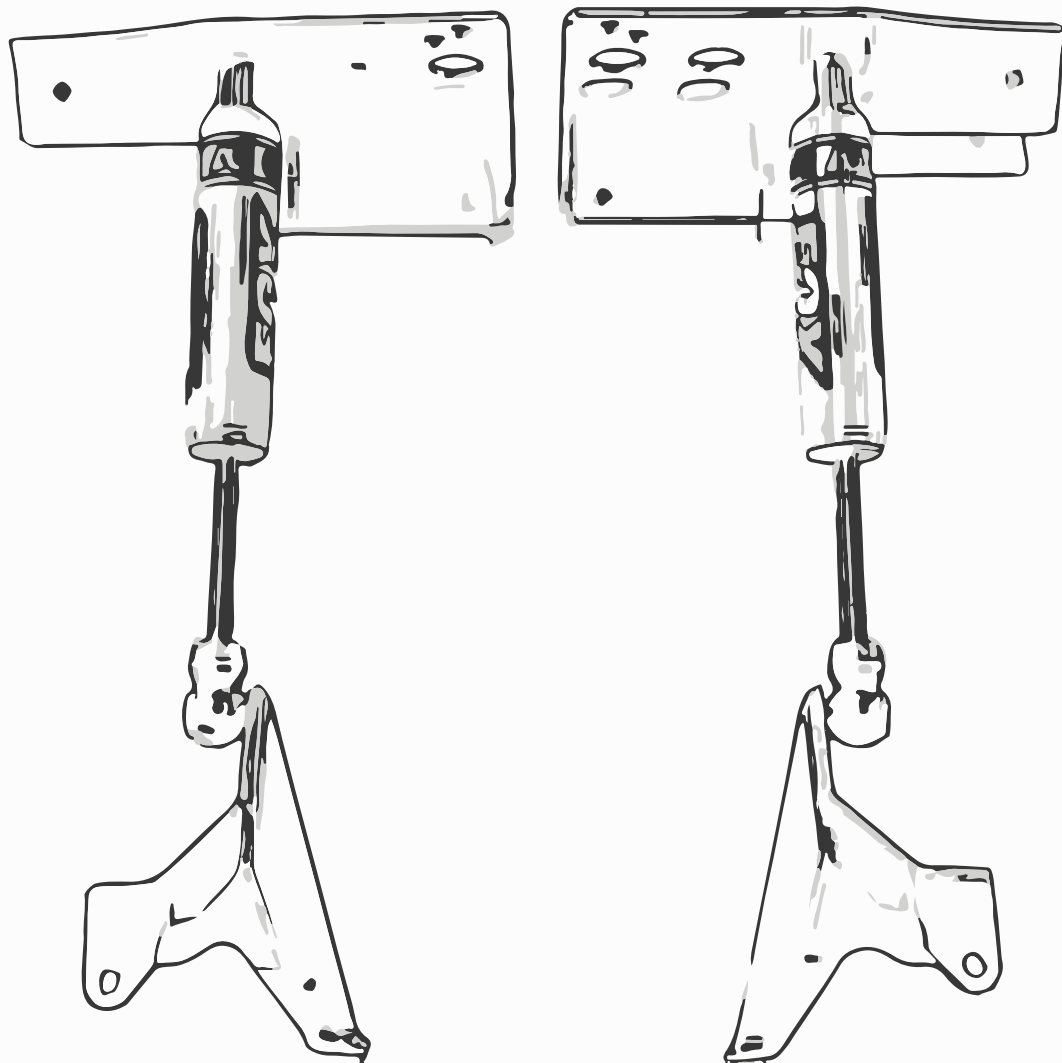


4. Remove the upper strut nut using a 24mm socket or 24mm open wrench and 7mm Allen Wrench to hold the strut shaft from spinning.



5. Use a scribe to mark the edge of the strut where it meets the upright. Use this mark when re-installing the strut assembly.





INSTALLING THE AUXILIARY SHOCK

6. Use a E8 socket to remove the wheel speed sensor.

**Note: Be careful not to damage the sensors when removing them.

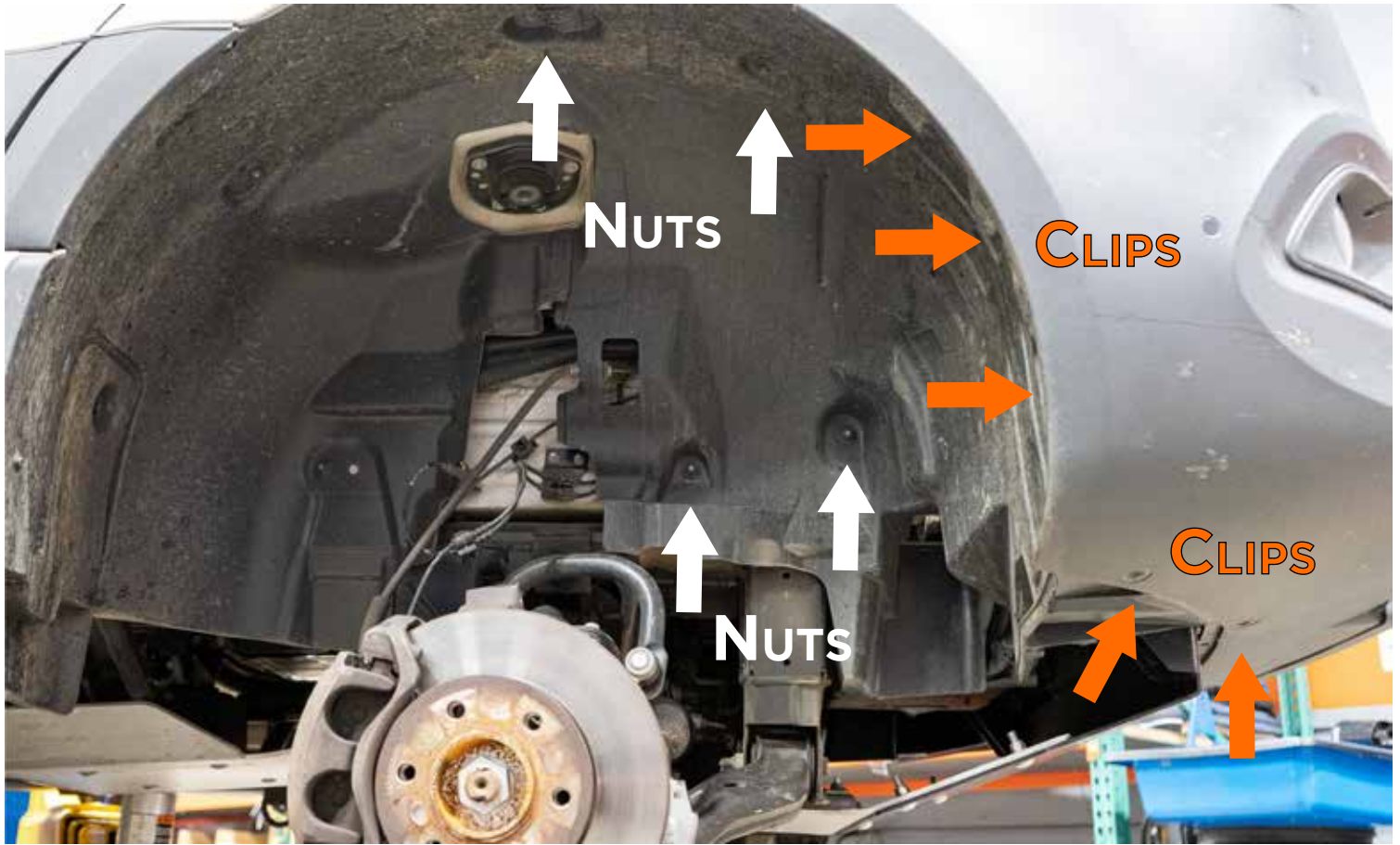


7. Use the 21mm socket and a wrench to remove two strut bolts holding the strut to the upright. Now you will be able to remove the strut from the vehicle.

**Note: When removing strut from the vehicle, do not let the strut contact the CV Boot (4x4) as it can cause the damage to the boot resulting in the CV failure).



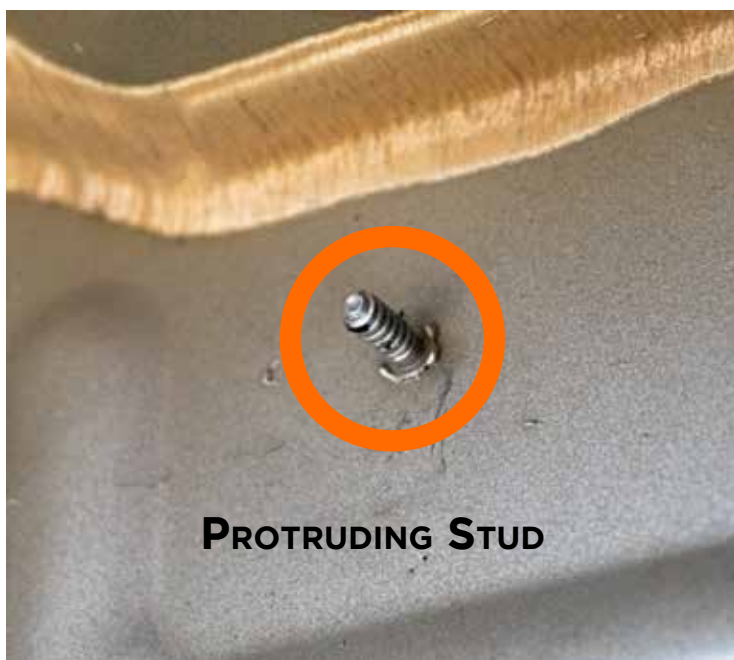
8. Use a panel clip removing tool and a 10mm wrench to remove the 5 clips and the 4 nuts holding the front inner fender liner. Remove the front inner panel.



9. Vehicles equipped with a dual alternator may have the battery cables routed behind the inner fender liner. These cables will have to be re-routed below the brake line mounting bracket and will require the removal, re-installation, and bleeding of the brake system. Secure cables using zip ties and/or cable clamps.



10. Cut off the passenger side protruding stud that is used to hold the factory wire harness.



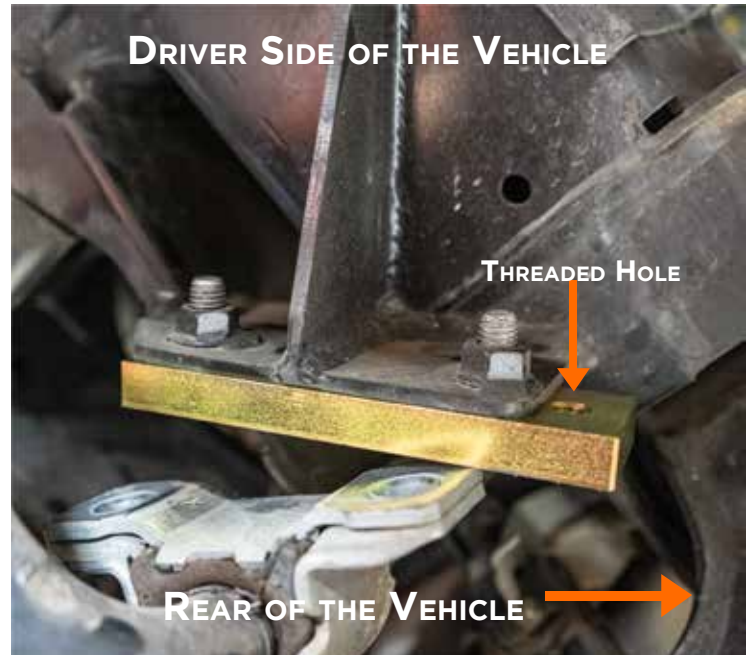
11. Use an Impact Gun with swivel socket and 18mm socket to remove the lower sway bar link attached to the lower a-arm. Repeat this step on the other side of the vehicle.



12. Use a 16mm socket to remove both the driver and passenger side sway bar pillows.



13. Use the factory sway bar bolts (with red thread locking compound applied) to install the sway bar relocating spacer. Install the sway bar relocating spacer with the open threaded hole towards the rear of the vehicle (as shown below). Repeat on the opposite side.



14. Use supplied black 10mm Flange Bolt (with red thread locking compound applied) to re-install sway bar pillow blocks. Torque to 44 ft. lbs. Repeat on the opposite side.



M10-1.5 x 20 Flange Bolt



15. Use supplied 1/2 in. bolt, washer and nut plate to install the front of the upper mount on the passenger's side bracket. Do not tighten the bolt yet. Using the supplied 3/8 in. bolt with nut plate, install the rear of the bracket. Now the bolts can be tightened. Driver's side uses 2 half inch bolts with nuts through the body.



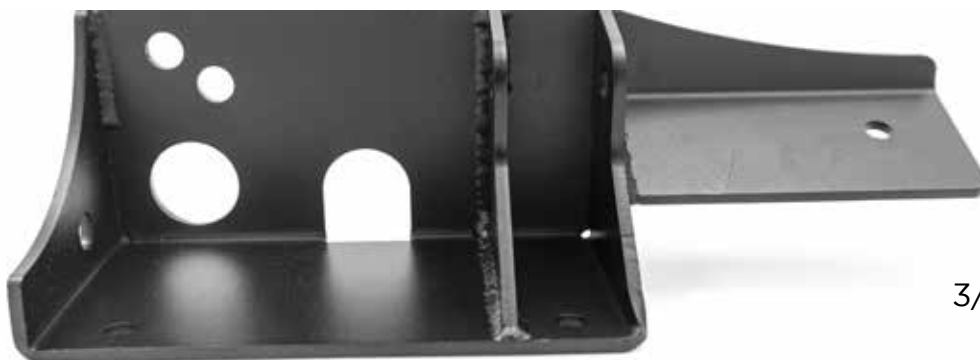
1/2 in. Bolts, washers and nut plate



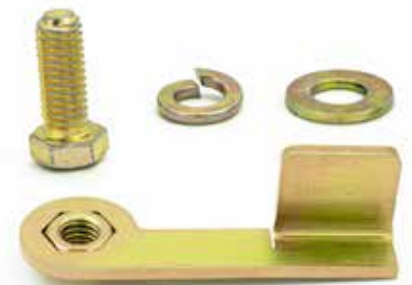
Passenger's side upper shock bracket



3/8 in. Bolt, washers and nut plate



Driver's side upper shock bracket



3/8 in. Bolt, washers and nut plate

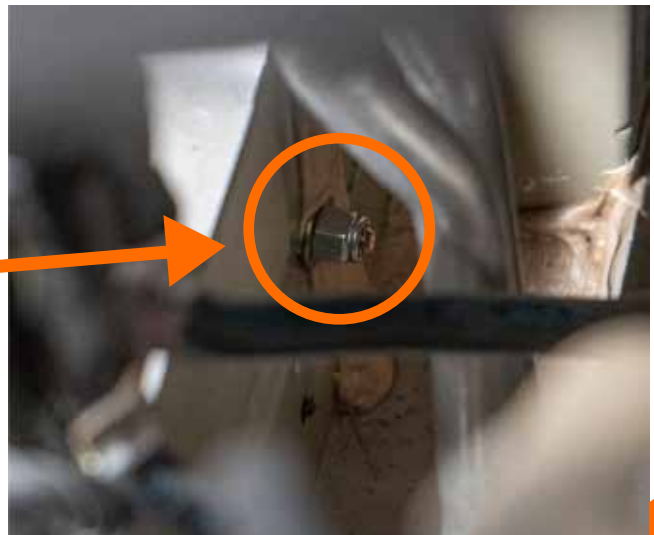


1/2 in. Bolts and washers



16. Use a 3/8" drill bit to drill through the bottom holes in the upper shock bracket. Use caution when drilling holes to avoid drilling through the wire harness.

**Note: Driver's side does not use the 1/2 in. nut plate.



17. Check for any loose wires and hoses before re-installing the inner fender liner.



18. Use the template on page 16 as a guide to cut the opening for the upper shock brackets. Use the factory clips and 10mm nuts to re-install inner fender liner. Repeat on opposite side.



6.5in

Fender liner cut template - Passenger's side
(reverse template for driver's side)

8.5in

4.5in

19. Use a 16mm socket to remove the bump stop bracket bolts.



** INSTALLING THE AUXILIARY SHOCK BRACKET AND AO MAX AUXILIARY FRONT SHOCK.



Driver's side lower shock bracket



Passenger's side lower shock bracket

20. Apply anti-seize to the lower bracket shock mounting pin. Use supplied lower shock hardware to install the auxiliary shock to the lower bracket as shown below.



21. Use the factory bump stop bolts to bolt the lower shock bracket to the factory bump stop bracket. Leave bolts loose.



22. Use the supplied 10mm bolts to install the lower shock bracket to the front of the lower a-arm using the existing factory hole as shown below. Leave the bolt loose.



M10-1.5x75 Flange Bolt, washer and nut



23. Push down on sway bar with a pry bar to align the sway bar link to the lower a-arm mount and the lower shock bracket. Use the factory sway bar link nuts to re-install links.

23b. Torque down the lower shock mount bolts to 44 ft. lbs.

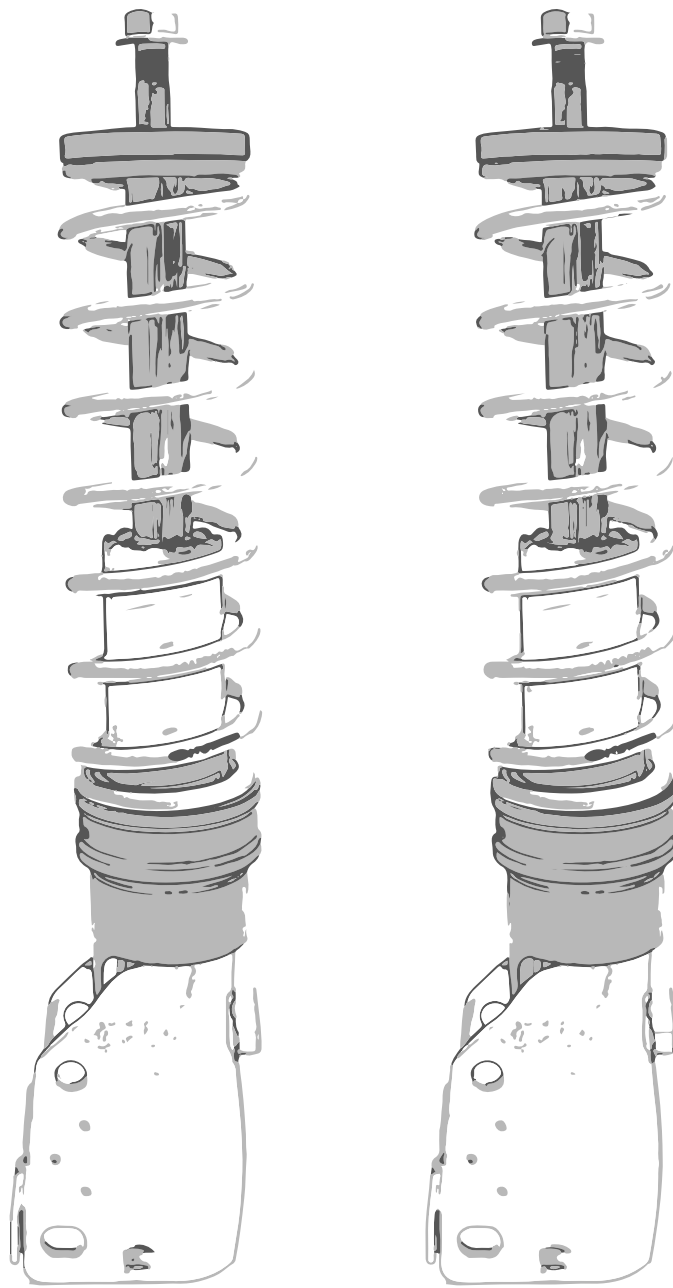


24. Use a floor jack to lift the lower a-arm assembly. Use the supplied upper shock bolt, washers, and lock nut to install the upper auxiliary shock to the upper shock bracket. Torque to 70 ft. lbs. Repeat on the opposite side.



2 x 1/2-13 x 2 3/4 Hex Bolt





INSTALLING THE COIL ASSIST

25. Remove the factory strut boot & washer assembly from the strut. These parts can be discarded. They will not be re-used.



26. Install the spring over the strut following the instruction below.



27. Lubricate the top threads of the strut assembly with anti-seize and install into the upper strut body mount. Align the strut onto the upright and use the factory strut bolts (with red thread locking compound applied) to install the lower strut mount. Line up the lower strut mount to the upright scribe mark left during strut removal. Use a 21mm socket and wrench to tighten strut assembly. Torque to 140 ft lbs.



28. Use a floor jack to lift the front suspension and help get the strut shaft completely through the upper strut body mount. Tap the upper strut body mount from the inside of the vehicle to get the strut shaft through the mount hole. Install the upper strut washer and nut (with red thread locking compound applied) and tighten the nut using a 24mm socket. Toque to 100 ft. lbs.



29. Reattach the wheel speed sensor wire clip to the strut and install the sensor in the upright and tighten.



30. Re-install tool storage tray, floor mats, and plastic floor trim.

31. Clean brake hub surface and remove rust with a wire wheel before installing studs and wheel spacers.



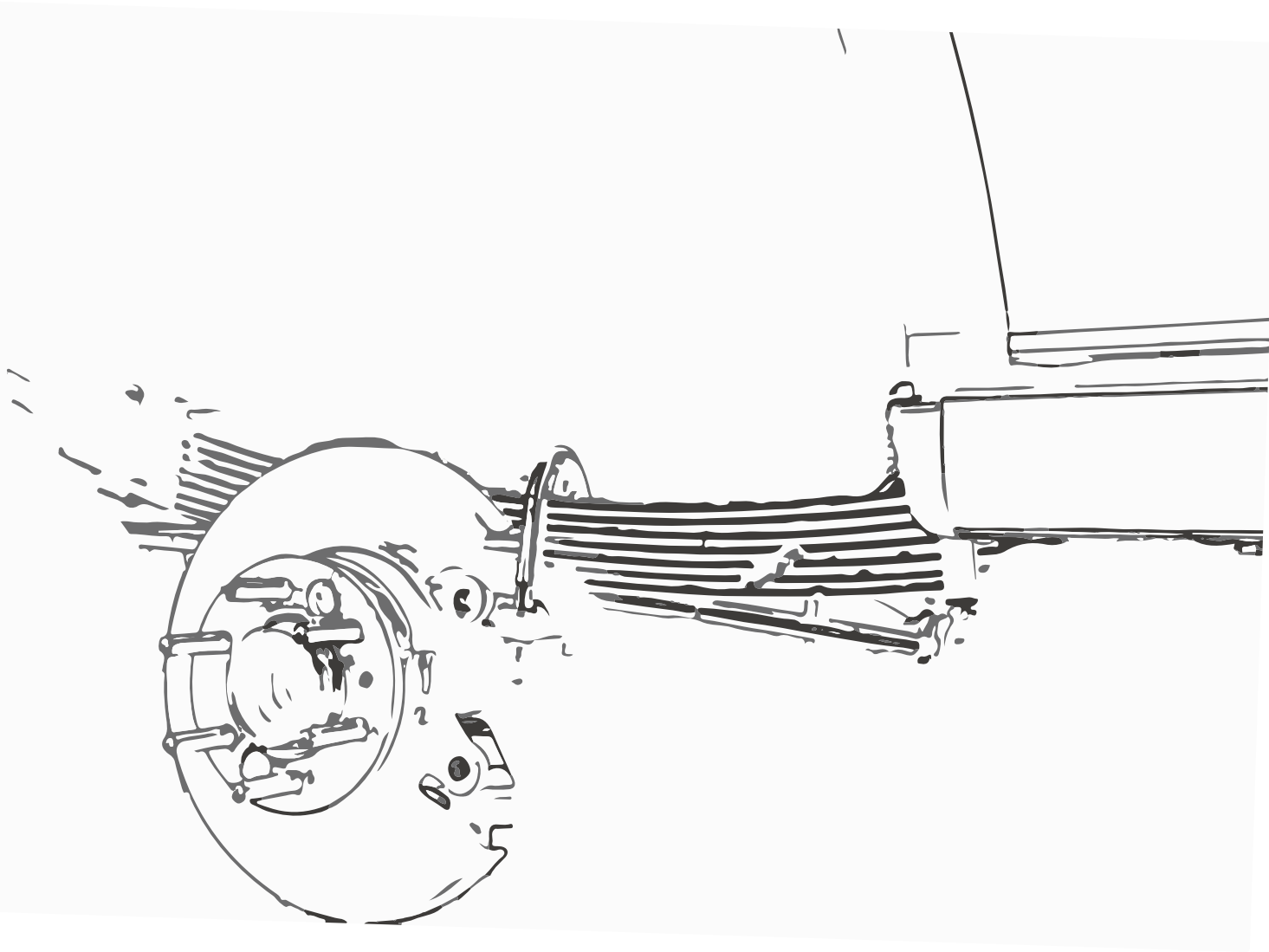
32. Install supplied wheel studs (with red thread locking compound applied) into the hub. Torque down to 30 ft. lbs.



33. Apply a small amount of anti-seize to the back of the wheel spacers and install it to the hub.



34. Re-install the front wheels using the appropriate lug nuts. Tighten the lug nuts. Use two floor jacks to lift the front end of the vehicle and remove the jack stands. Torque wheels to 125 ft. lbs.



INSTALLING THE LEAF SPRINGS

35. Use a floor jack placed under the rear end housing to lift the rear of the vehicle. Place two jack stands under the receiver hitch. Once the vehicle is safely on the stands, remove the back wheels. leave the floor jack under the rear end housing for support when removing leaf springs.



36. Use a 10mm socket to remove parking brake cables from both sides of rear end housing.



37. Use a 18mm socket and wrench to remove the lower shock bolts. Use a 21mm socket to remove the upper shock bolt.



38. Use a 18 mm socket to remove both lower sway bar link bolts.



39. Use a 19mm socket to loosen u-bolts on both sides. DO NOT REMOVE ALL U-BOLTS AT THE SAME TIME. Completely remove u-bolts from one side only and then lower the floor jack to separate leaf spring from the housing.



40. Use an 18mm socket and wrench to loosen and remove the bolts from both ends of leaf spring. Remove the leaf spring.



41. Transfer the factory spring shackle to the new leaf spring, reusing factory bolt and nut (apply thread locking compound). Re-tighten and torque to 62 ft. lbs when installing the factory shackle on to the aftermarket leaf spring. To facilitate installation, position the shackle slightly towards the rear of the vehicle.



42. Position spring assembly so that the brake line runs over the spring assembly.



43. Install the factory bolts on both ends. Spring bolts and nut should be left hand tight.



44. Seat the leaf spring on the rear housing without the factory lift block, making sure the center pin is through the hole on the spring seat. Install the u-bolt saddle and new u-bolts with nuts, (lubricate the threads with the anti-seize compound). Do not tighten them yet.





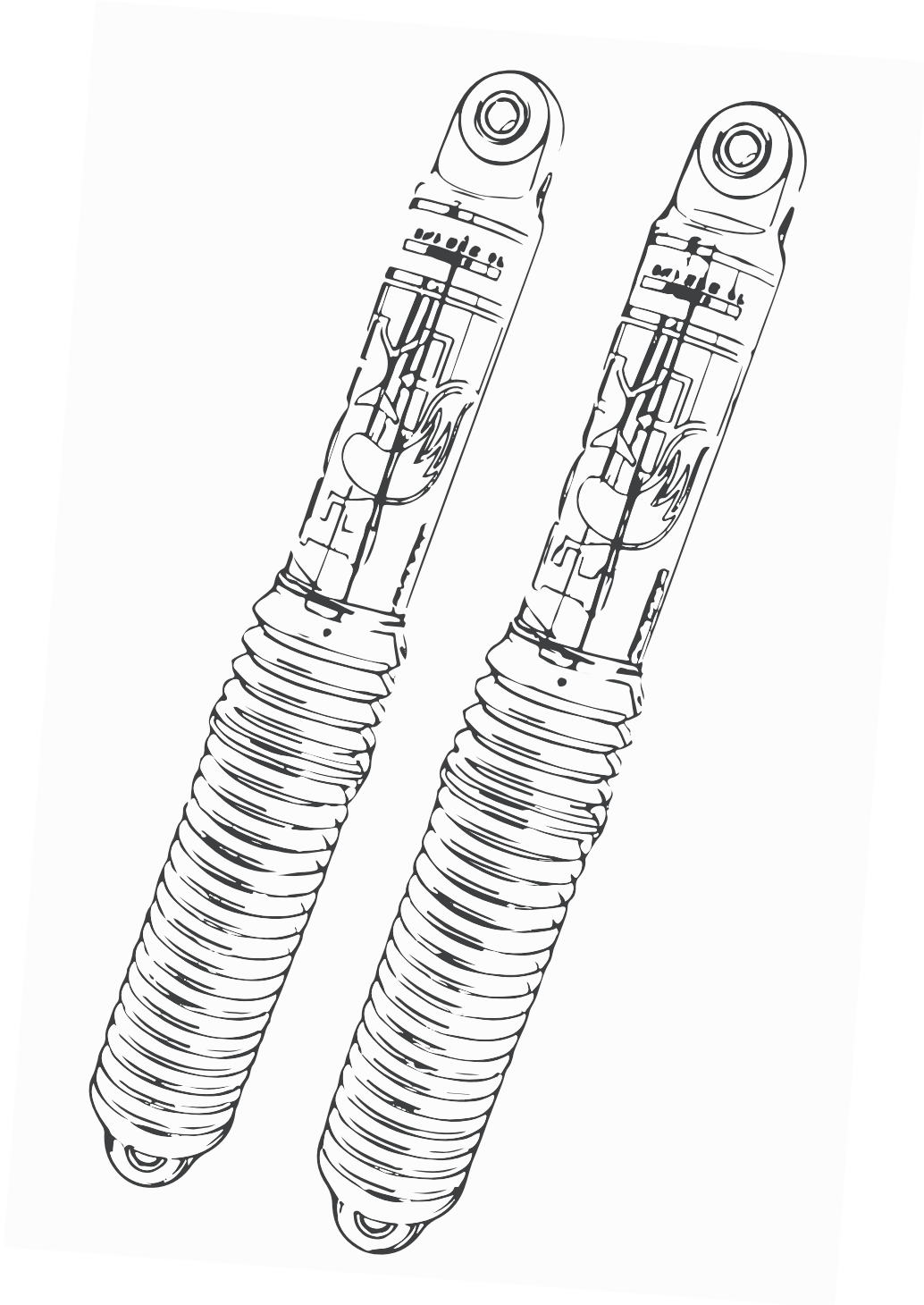
45. Repeat the steps 40-45 on the other side of the vehicle.

46. Raise the floor jack under the housing, to add weight on the leaf springs.

Now tighten and torque u-bolts to 140 foot pounds. Tighten the front and rear leaf springs hanger bolts to 70 ft. pounds. Use thread locking compound on the nuts.

****Note:** when tightening the u-bolt nuts, ensure that the nuts are tighten equally, (same amount of thread showing). This keeps equal force on leaf springs and prevent twisting and u-bolt failure.





INSTALLING THE REAR SHOCKS

47. Starting with the top bolt, install the supplied washer between the shock body and the frame of the vehicle. Use thread locking compound on the upper shock bolts and torque to 110 ft-lbs. Install the lower shock bolt using thread locking compound and torque to 75 ft-lbs.



48. Reinstall the sway bar end links using thread locking compound and factory hardware. Torque to 62 ft. lbs.



49. Install supplied brake hose cover over the the brake line. Secure it with the supplied safety wire.



50. Reinstall the parking brake cables and level sensor.



51. Clean brake hub surface and remove rust with a wire wheel before installing studs and wheel spacers.



52. Lock tight the wheel studs into the hub, tighten to 30-foot pounds. Install the spacer over the studs, lube inside for corrosion resistance. Apply anti-seize to new studs before installing the wheel.



53. Reinstall the tires and torque the lug nuts to 125 foot-pounds.

54. After the installation is complete, and wheels have been reinstalled, remeasure the height of the vehicle from the bottom of the pinch weld to the floor front and rear of the vehicle, to ensure that the rear of the vehicle is higher than the front.