



A 1/4-20 tap and
13/64" drill bit is re-
quired

Version 1.1

kelderman

AIR SUSPENSION SYSTEMS

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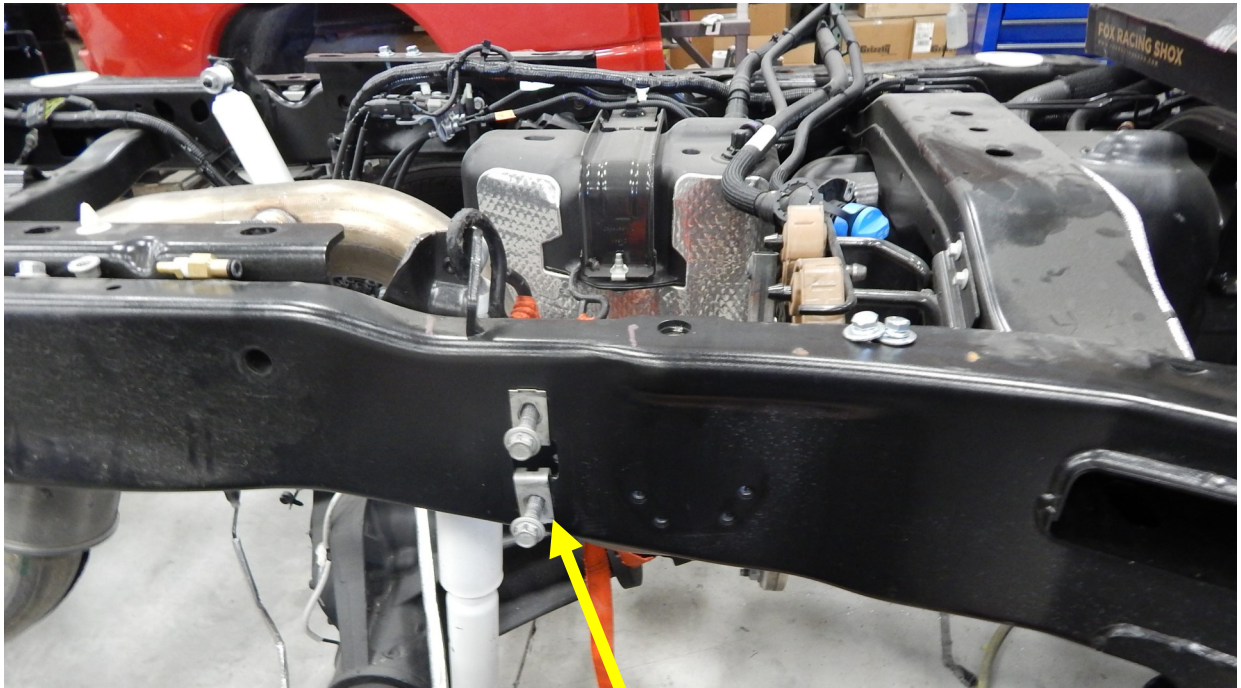
2017 Ford F-250/350/450 P/U 5-6" Rear Install Instructions Installation Instructions



Installation

1. Before removing anything off the truck, measure the pinion angle and write the angle down. This is important because you will need to put the axle back to this measurement after the installation. Also, take a measurement from the front of the axle to a location on each side of the frame. Write these measurements here. Pinion angle _____. Right side _____ Left side _____ **NOTE: All the bolts in this kit use a flat washer on each side of the bolt.** It is required to remove the bed.
2. Jack up the rear of the frame so that most of the tension is off the leaf springs. Place a set of jack stands under the frame and block the tires so the axle won't move. Place a jack stand under the pinion so it doesn't rotate. Remove the leaf springs and shocks. Keep the rear shackle bolt as you will use it in step 10 when installing the accumulator tanks. Remove the bolts that hold the sway bar to the axle (if equipped) and let it hang from the end links. Remove the bump stops on the bottom of the frame.

NOTE: THE FUEL TANK WILL NEED TO BE SLID TOWARDS THE CENTER OF THE VEHICLE TO GET THE DRIVERS SIDE FORWARD BOLT OUT OF THE LEAF SPRING PERCH



Passenger side pictured. This truck is equipped with factory sway bar. Not all trucks are equipped with sway bars.

3. Locate the trailing arm mounts (part# xxxxx). Use a sander or grinder to grind the powder coat off the front edge. You will be welding this front section to the frame. The trailing arm mounts fasten to the factory leaf spring perch with the original leaf spring bolt. You will also drill 2 bolts for the 1/2x1 1/2" bolts that fasten into the bottom of the frame. Torque the 1/2" bolts to 85 ft/lbs and the factory bolt to 225 ft/lbs.

Grind here Weld the bracket to the frame after the bolts are torqued.

Drill these holes for the 1/2" bolts



NOTE: WHEN WELDING USE AN ANTI SURGE PROTECTOR OR DISCONNECT THE BATTERIES TO REDUCE THE CHANCE OF DAMAGING ELECTRONICS.

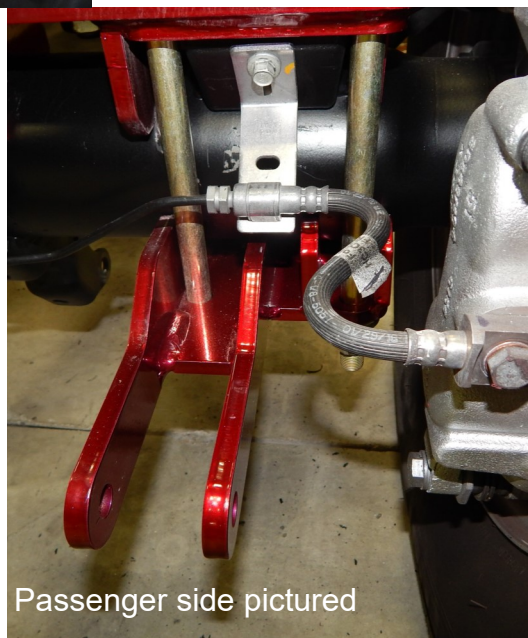
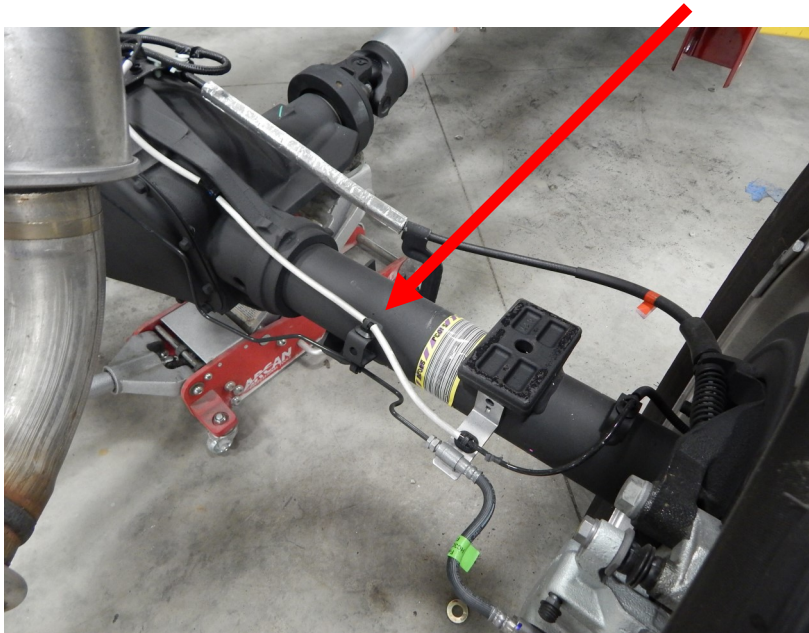


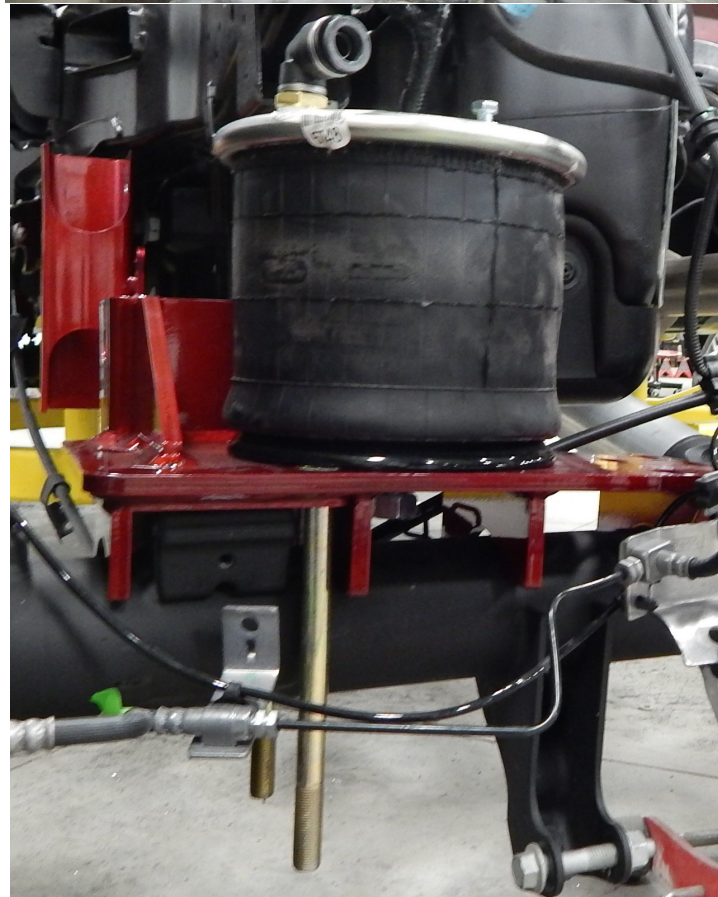
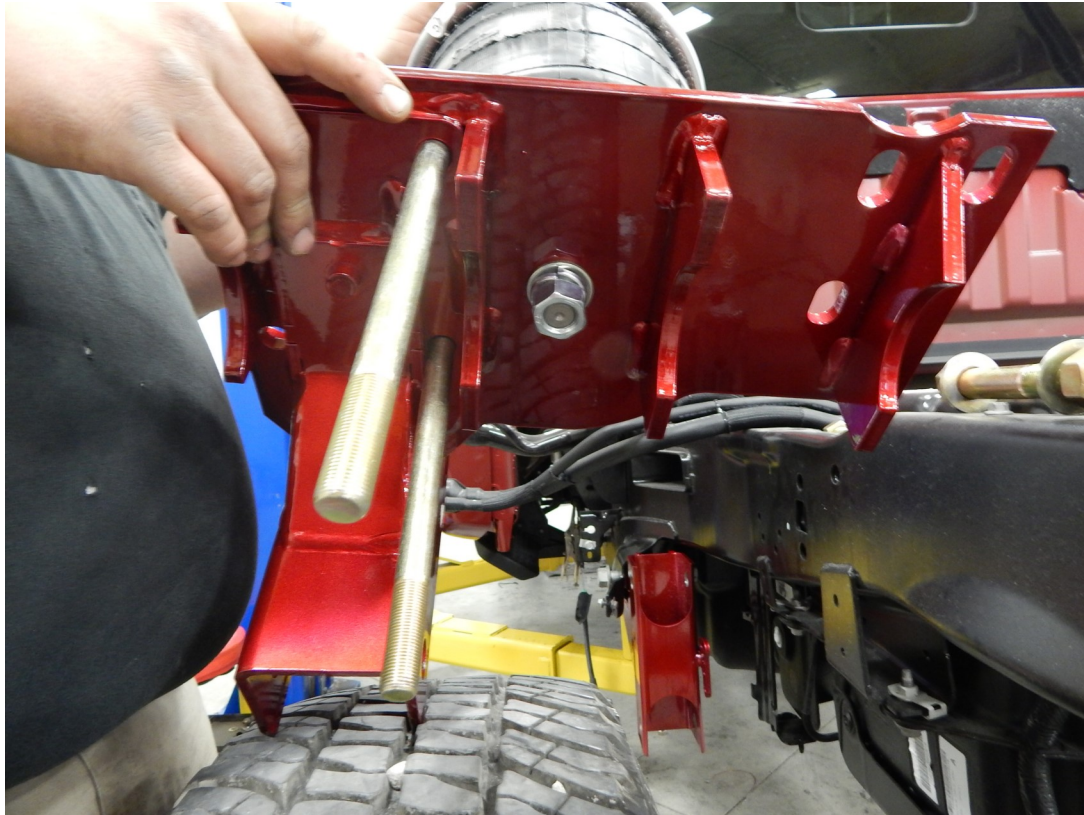
Weld the front side of the mounting bracket



4. Locate the lower air bag mounts (part# xxxx DS and xxxx PS), axle clamps (part# xxxx DS and xxxx PS) and 5748 air bags. Grab the drivers side lower bag mount and drop two of the 5/8x9" bolts in the outer holes of the mounts. Now place the air bag on the air bag mount and tighten the 3/4" nut finger tight. Now place the assembly on top of the axle leaf spring perch. Now locate drivers side lower axle clamp. The lower axle clamps fasten to the axle so the shock ears are towards the frame (away from the tire). Just snug these bolts up for now. They will be torqued in step 8. Repeat on the passenger side.

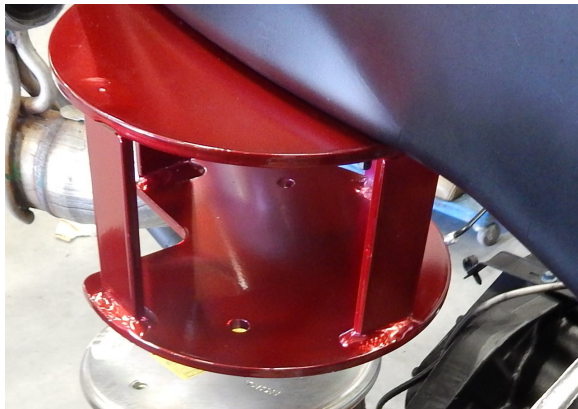
BEFORE MOUNTING THE LOWER AIR BAG MOUNT ON THE PASSENGER SIDE MAKE SURE TO MOVE THE ABS LINE OUT OF FACTORY LOCATION. FAILURE TO DO THIS WILL CAUSE THE LINE TO BE DAMAGED





Drivers side pictured

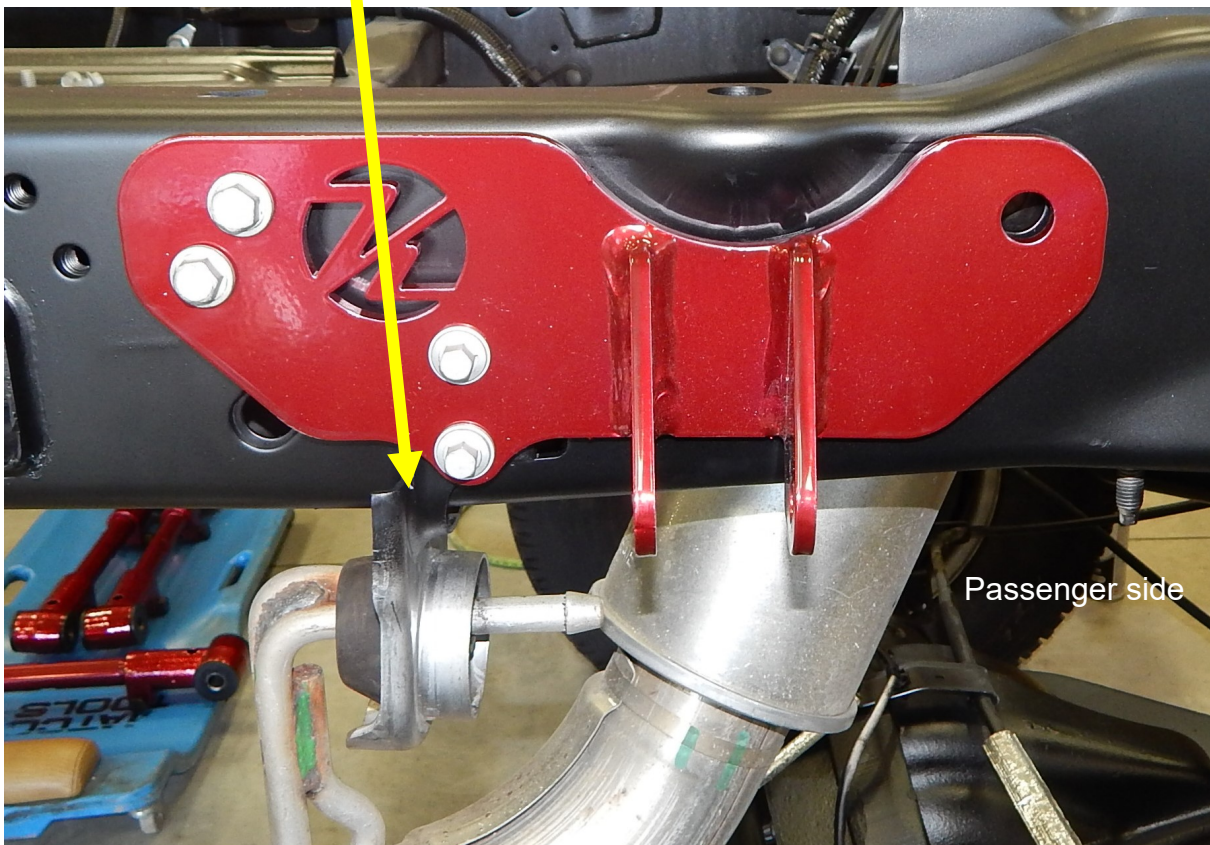
5. Locate the upper air bag mounts (part# xxxx DS and xxxx PS) and shock mounts (part# xxxx DS and XXXX PS). Fasten the shock mounts to the side of the frame with the OEM bolts. On the passenger side you will have to cut the outer bracket tab off that holds the tailpipe in place. DO NOT cut the inside mount, just the outside mount. The outside mount will be thrown out.



Cut the outer tab off that holds the exhaust bracket off. Just the inside bracket will remain

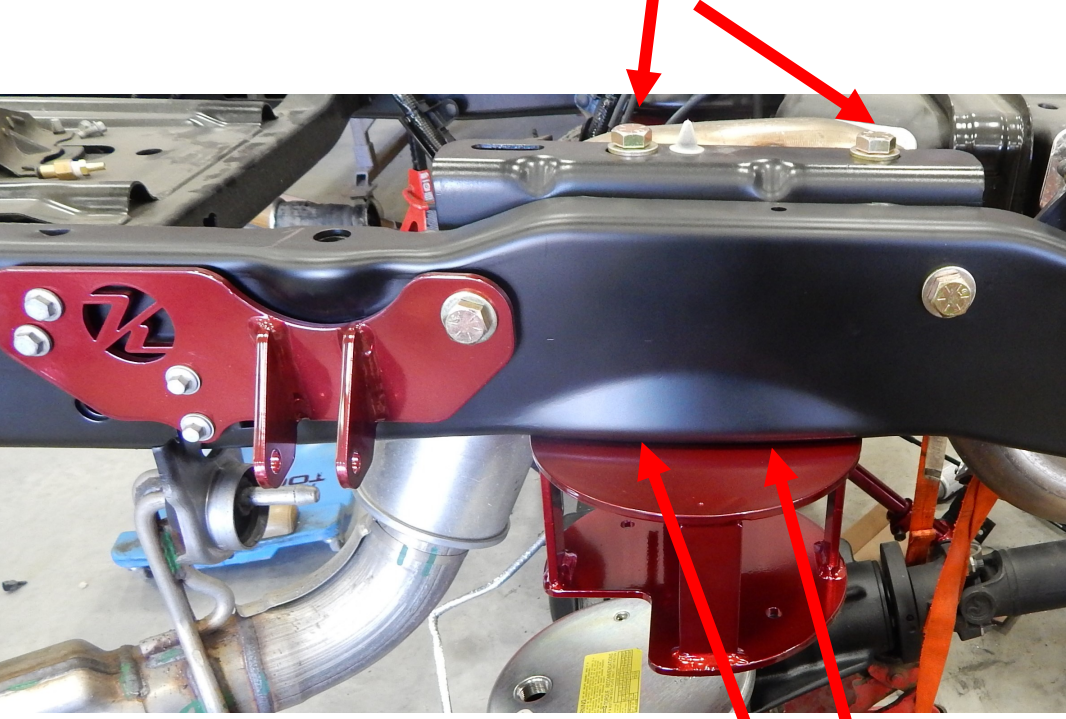


Use the two factory bolts on the drivers side and four bolts on the passenger side.



6. Once the passenger shock mount is in place, grab the passenger side upper bag mount/pan hard bar mount and attach to the bottom of the frame with the studs that held the bump stop in place. Do not torque the bolts yet. Locate the two 1/2x4" bolts and insert them from the outside of the frame inwards. Next locate the two 5/8x2" bolts and run them top down from the hitch mount to the upper bag mount. Torque the 1/2" bolts to 85 ft/lbs and the 5/8" bolts to 175 ft/lbs. Torque the factory studs in the bottom of the frame to 55 ft/lbs.

5/8x2" bolts on hitch mount

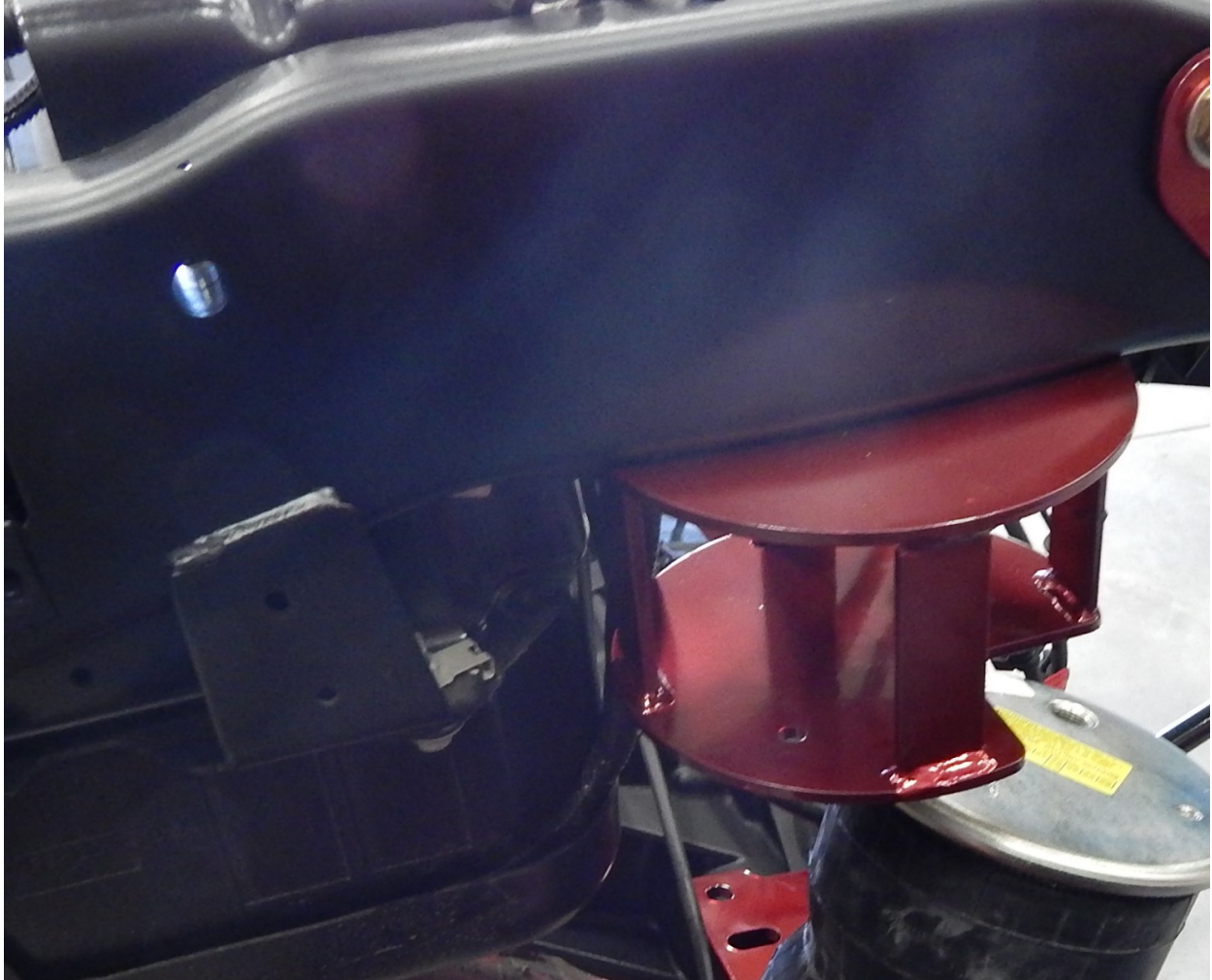


Passenger side shown

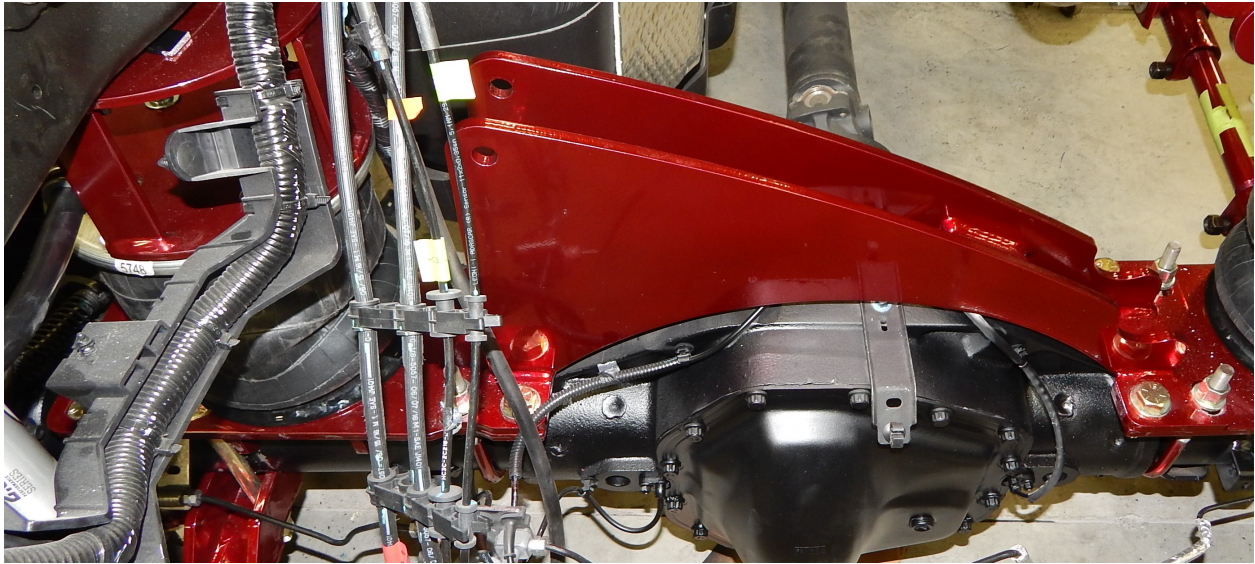
Use the factory bolts in the bottom of the frame to locate the upper air bag mount



7. The drivers side upper air bag mounts to the bottom of the frame where the OEM bump stops mounted. Torque these two bolts to 45 ft/lbs.



8. Locate the lower pan hard bar mount (crossmember part# XXXX) and brake line relocation bracket (part# XXXX) . The crossmember fastens to the lower air bag mounts with the four 5/8x2" bolts and two U bolts. Make sure to put the brake line relocation bracket on the rear stud of the U bolt on the passenger side before tightening. Torque the 1/2" bolts to 85 ft/lbs and the U bolts to 55 ft/lbs. Now go ahead and torque the 5/8" bolts on the lower bag mounts to 175 ft/lbs. SEE PIC ON NEXT PAGE

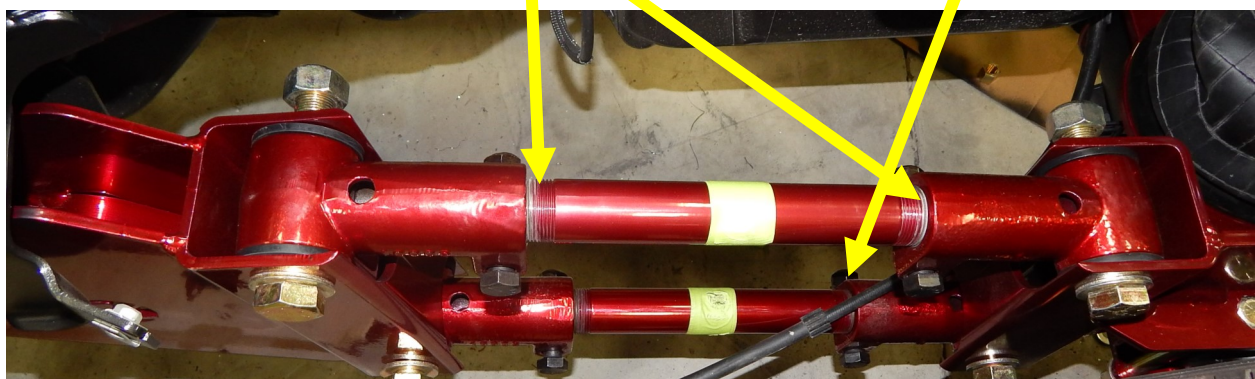


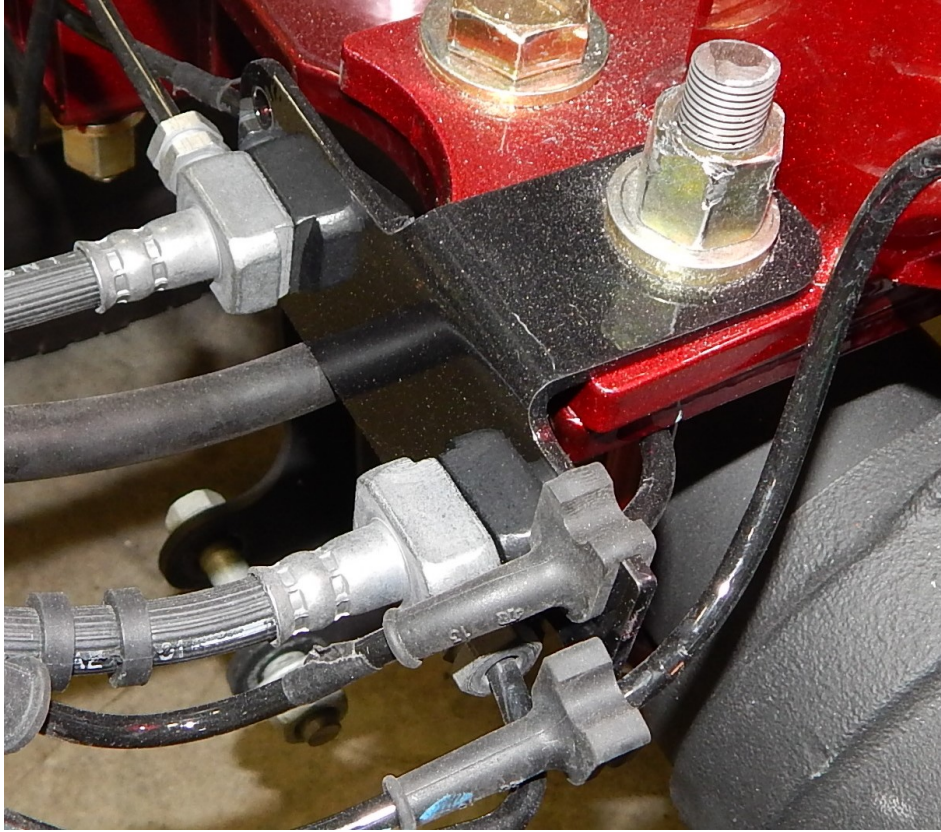
9. Locate the trailing arms and adjust so there is 9 1/2" between the knuckles. This is a good starting point that will get your axle close to centered and the pinion angle near original. Insert the trailing arms into the lower bag mounts with the 7/8x5" bolts. Fasten the front of the trailing arms into the forward trailing arm mounts with the 7/8x5" bolts. On the Drivers side, run the emergency brake cable through between the two trailing arms. Use the clamp to fasten the brake cable to the upper rear knuckle.

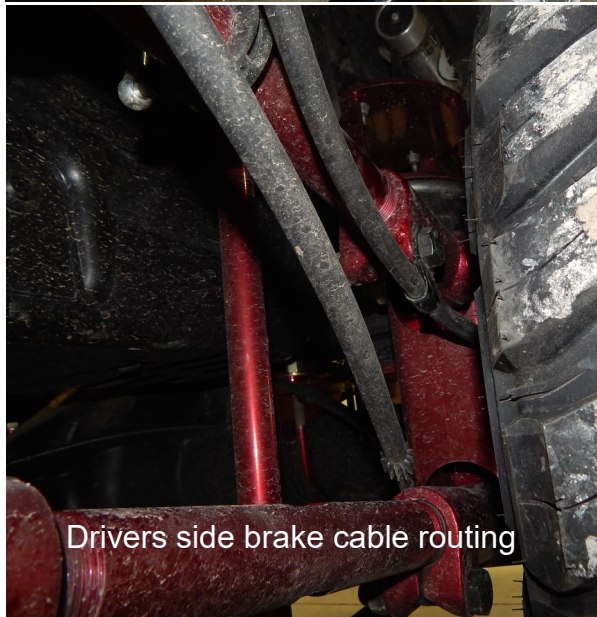
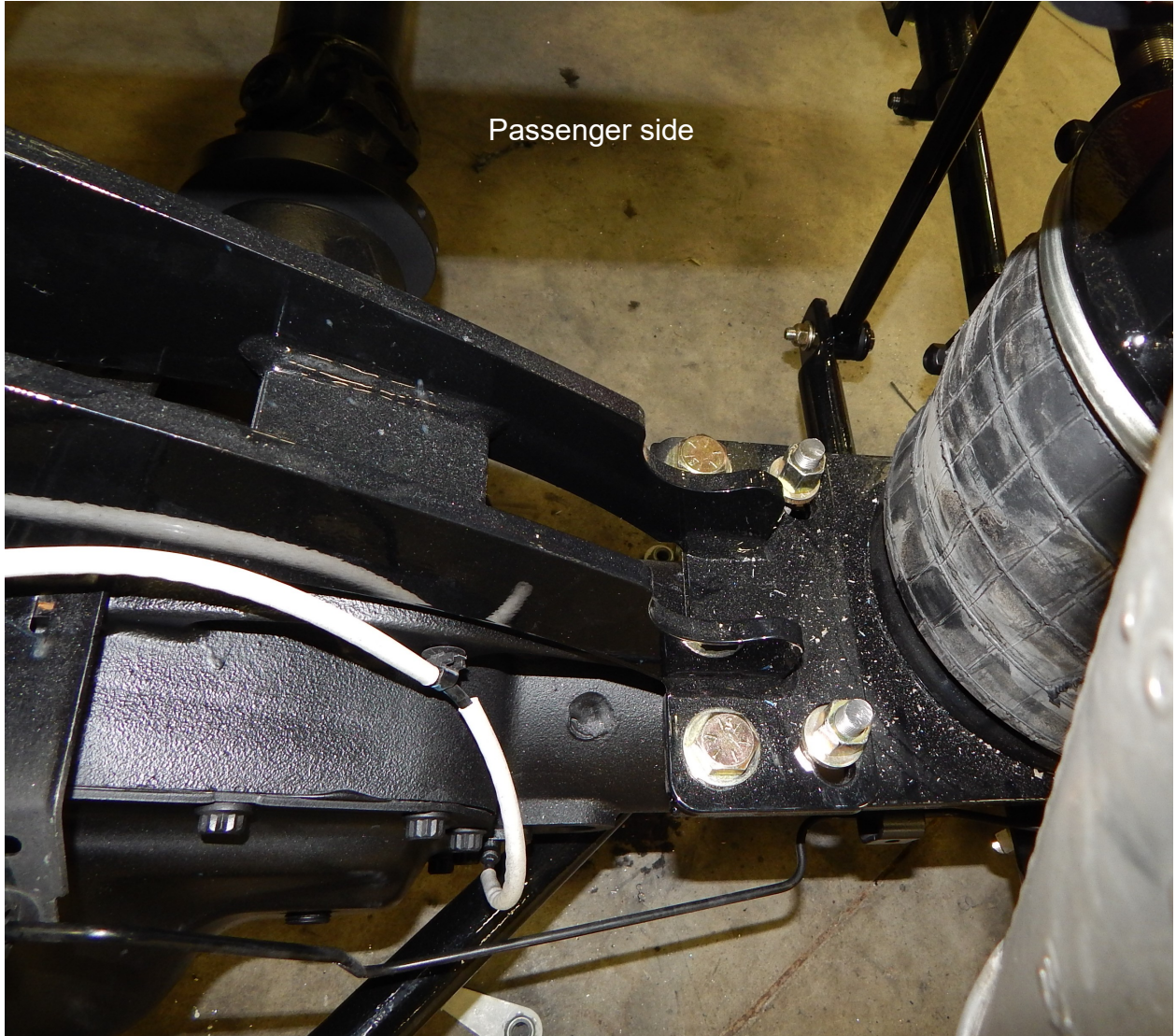
Drivers side pictured

9.5" between knuckles

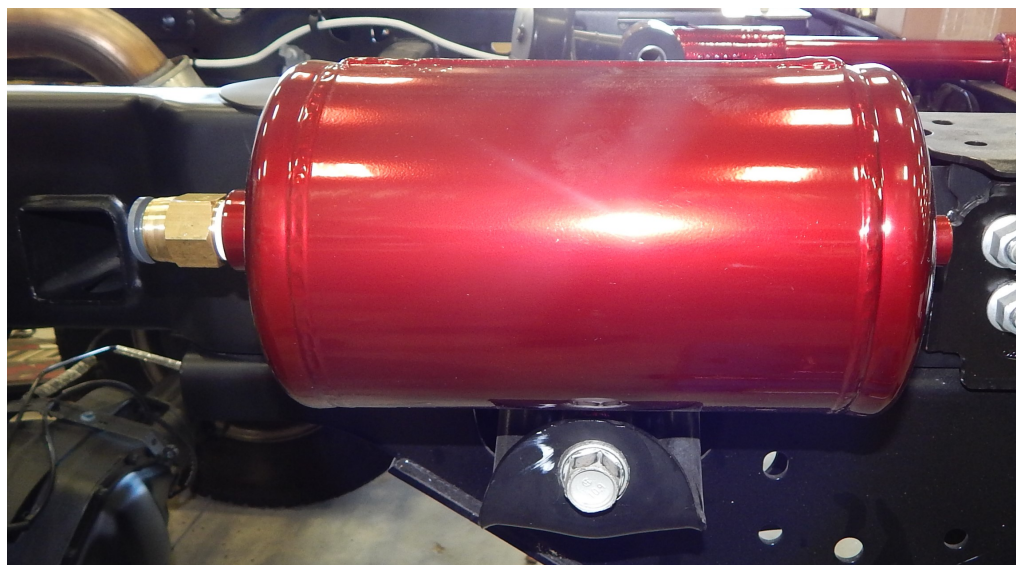
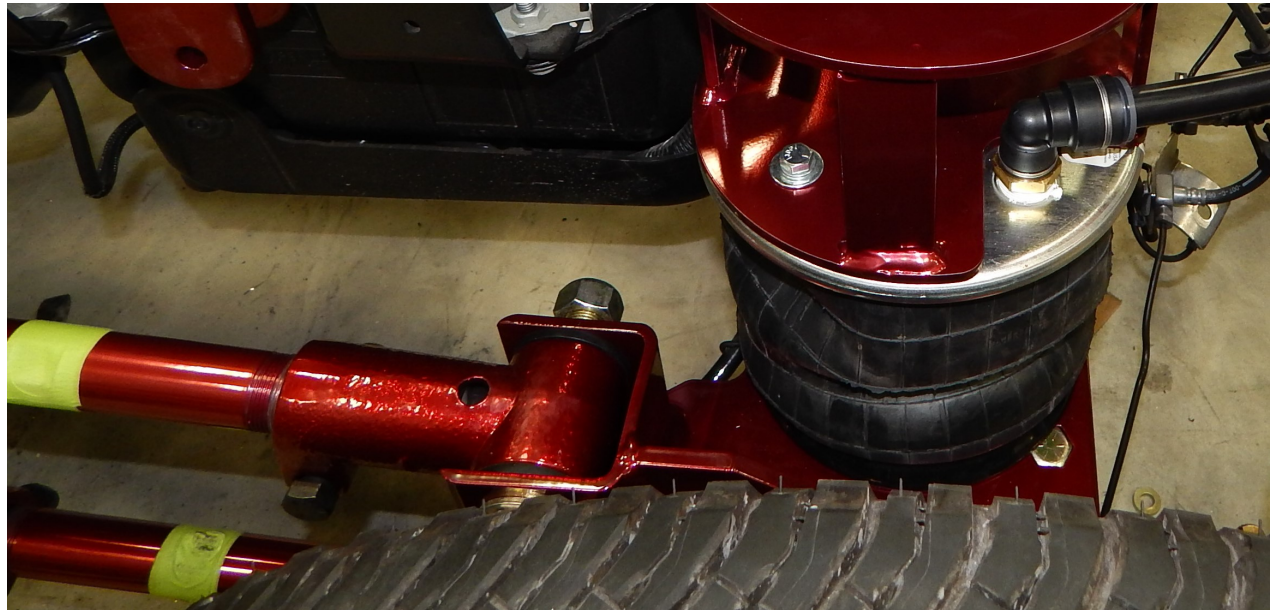
Clamp brake cable here see picture on page 8,10







10. Locate the large 90 degree air bag fitting, two accumulator air tanks (part# xxxx) and the 3/4" air line. . Insert the 90 degree air fitting and tighten into the top of the bag. Make sure it is facing towards the rear of the truck The air bags fastens to the upper air bag mount with the two 3/8x1" bolts, flat and lock washer. The accumulator tanks mount to the rear factory leaf spring shackle perch with the factory bolt. Make sure to mount so the large port faces forward. Insert the straight fitting in the tank. The rear tank port uses the 1/4" or 3/8" fitting, depending on what controls you are installing. Cut the 3/4" air line around 23" long and connect the tank to the air bag.



11. Locate the rear track par (pan hard bar part# xxxx). It fastens to the upper and lower pan hard bar mounts with the 3/4x 4" bolts. Use one spacer on each side of the hiem end (part# XXXX) to center the hiem ends up in the mounting brackets. Torque the 3/4" bolts to 175 ft/lbs. See additional pictures on page 14

Spacers here

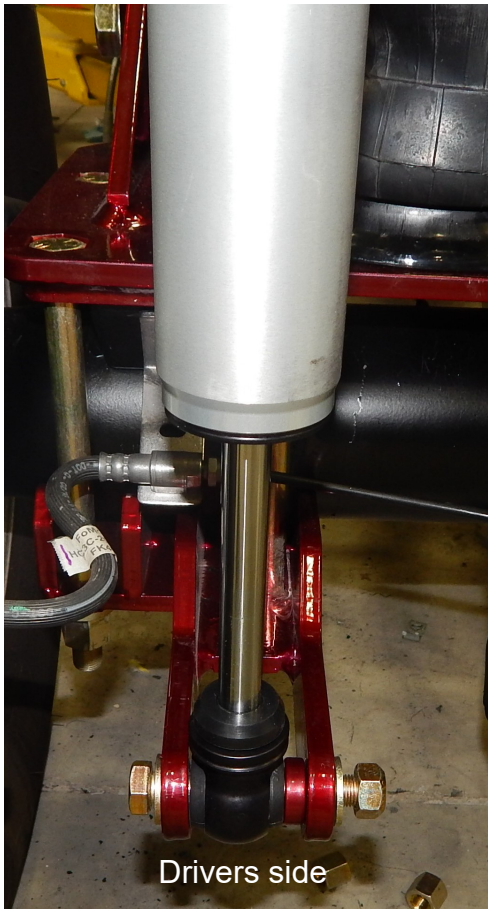
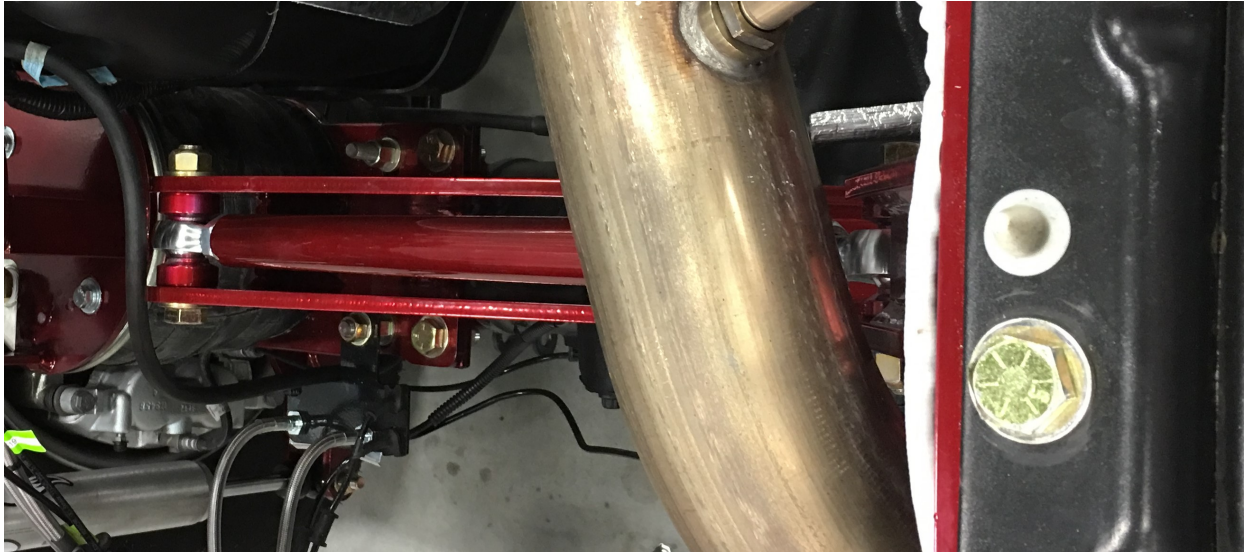


12. Long box trucks require dropping the carrier bearing on the two piece drive shaft. Locate the carrier bearing shims. Select the number of shims that give a 1" stack. Install these between the carrier bearing and the crossmember that the carrier bearing mounts to.



13. Locate the rear shocks. They fasten the upper and lower shock mounts with the 1/2x3" bolts. Depending on if the shocks are heim end or bushing mount, use the provided spacers or flat washers to center up the shock in the shock mount. Torque the 1/2" bolt to 85 ft/lbs. More pictures on page 14

Drivers side



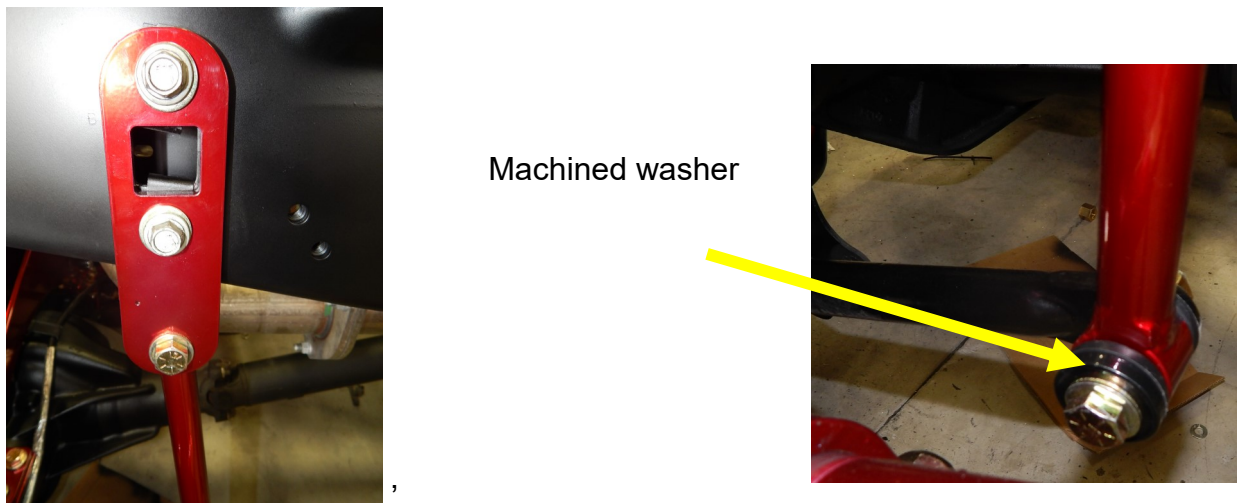
Drivers side

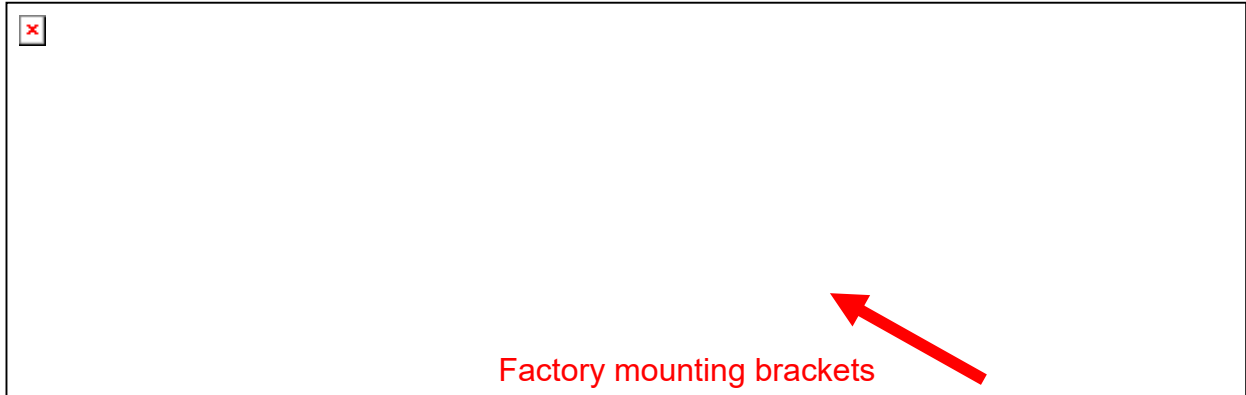


Passenger side

13. Locate the provided sway bar (part# xxxx) and mounting clamps (part# xxxx). The sway bar fastens to the axle in the factory location (see photo on following page). Once the sway bar is fastened in place, attach the end links to the sway bar with the 1/2x2 1/2" bolts. Make sure to use the large machined washer on the outside on the on the bolt head.

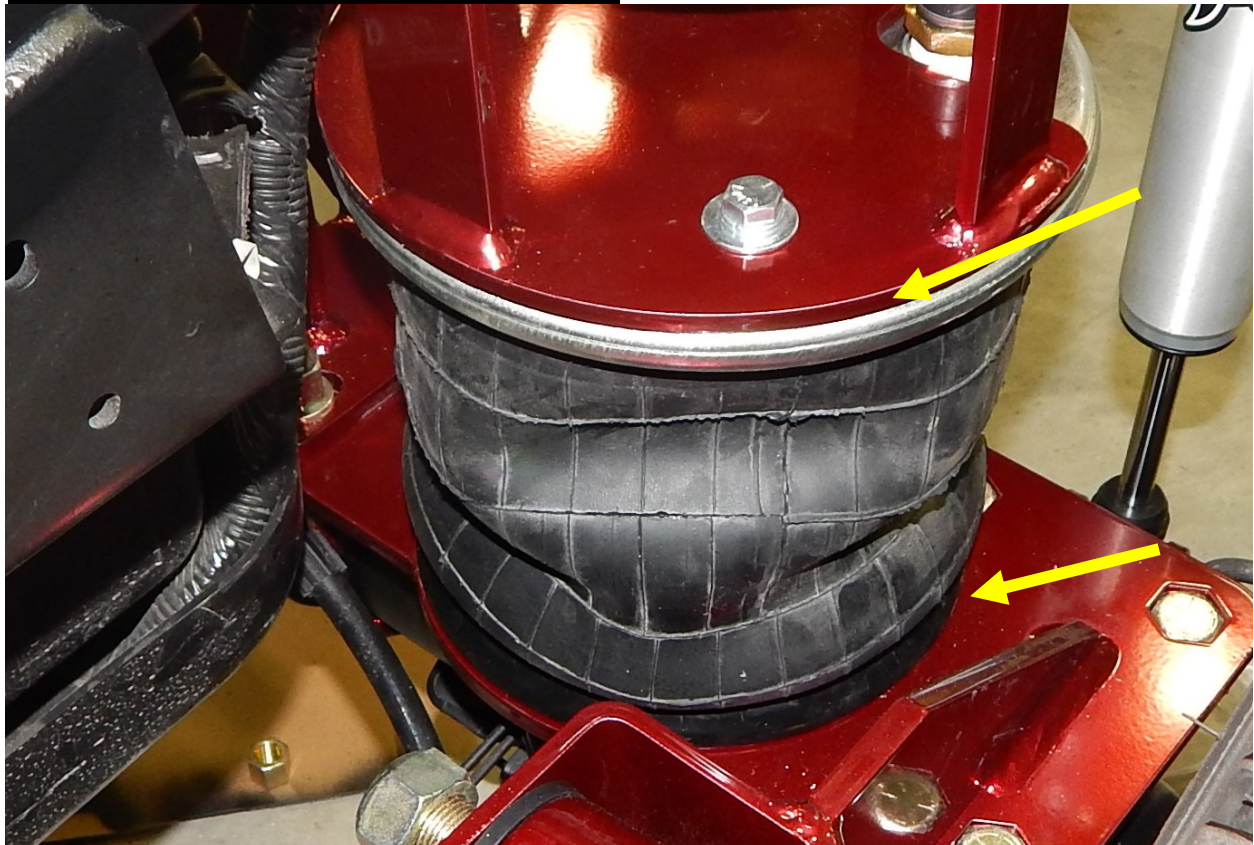
The upper end of the sway bar attaches to the sway bar mounting brackets (part# xxxx DS and XXXX PS). The upper sway bar mounting brackets attach to the frame with either the factory bolts (if the truck was equipped with the optional sway bar) or the 1/2x 1 1/2" bolts. Torque all the 1/2" bolts to 85 ft./lbs. The upper portion of the sway bar end link mounting bracket will attach with the supplied bolts. This bolt can come into contact with the DEF tank on some trucks. You will need to install the end link to the bracket and grind off the remaining threads to avoid the bolt coming into contact with the tank.



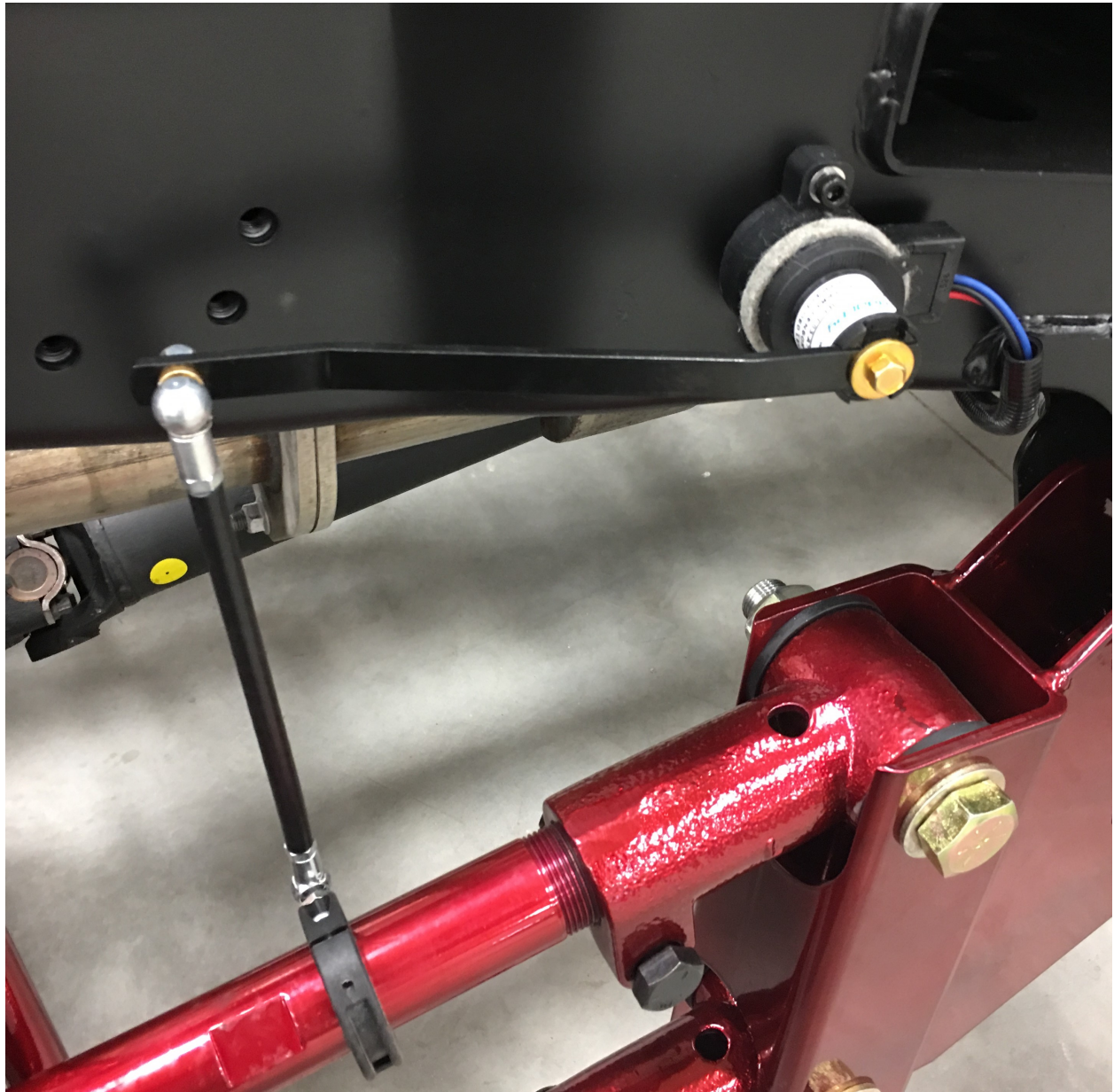


14. Inflate the air bags to 8". This is the middle range where the air bag rides the best. It can run as low as 7" and as high as 9". With the air bags at the chosen ride height, measure off the front axle ball joints to make sure the axle is square with the front. When you test drive the truck, if the truck pulls to the right you will shorten the drivers side trailing arms one turn. A good way to figure out which side trailing arms to lengthen for shorten is to imagine how a skateboard works. This is how you decide which side of the axle needs shortened or lengthened when trying to eliminate the pull or drift of the vehicle.

Measure between the air bag mounting plates when measuring the height on the air bag Recommended ride height is 8".



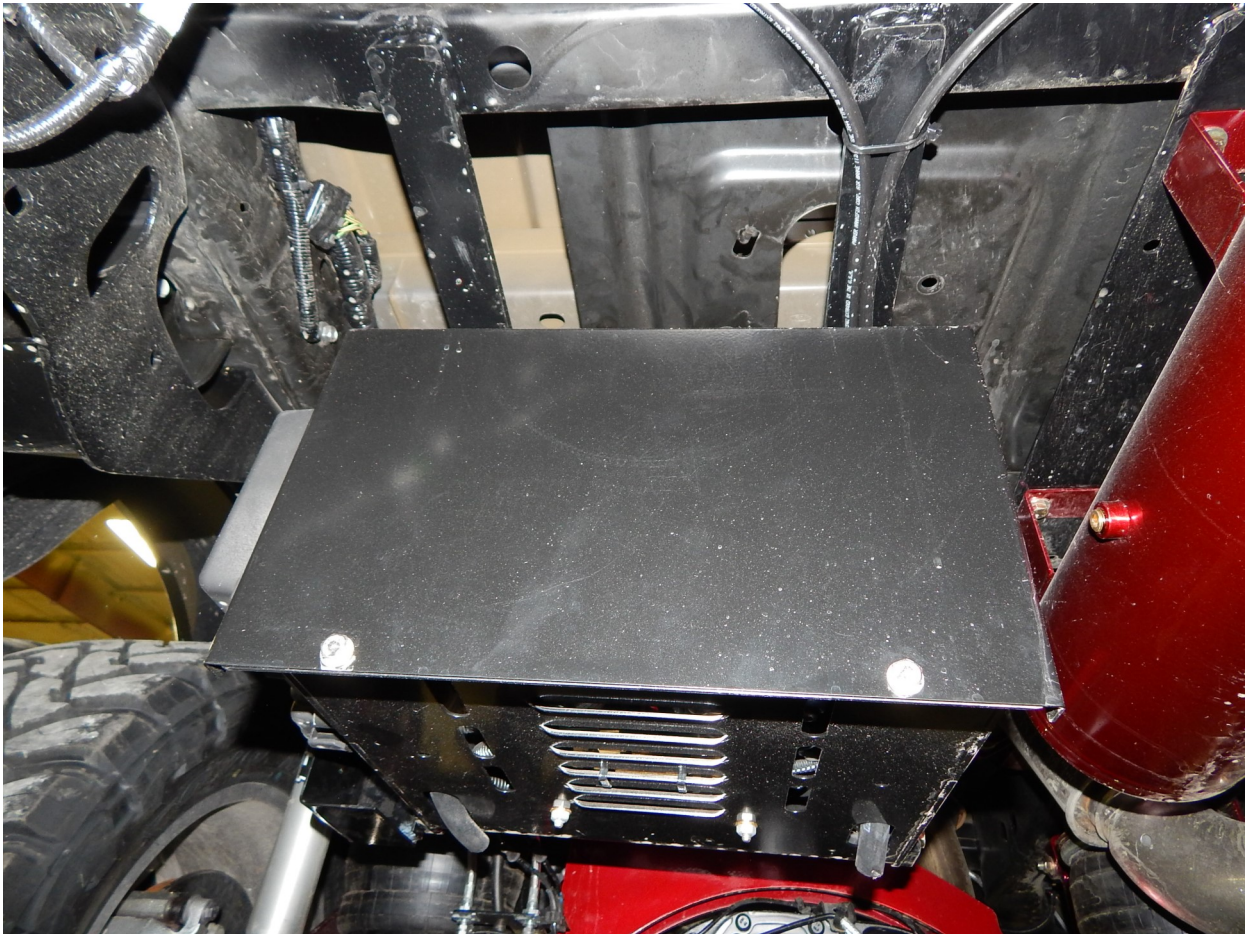
15. There are two different types of height control devices used, mechanical and electronic. The Hadley electronic sensor is shown below. It mounts to the side of the frame with the 1/4x20 bolts. You will have to drill two 13/64" holes and thread the hole with a 1/4-20 tap. Make sure these holes are straight up and down. When setting the linkage length, set the air bag at 8" and make sure sensor arm is straight out. The collar will fasten to the top trailing arm and be just in front of the machined spots.



Hadley Box Mounting

16. The best place for the Hadley box and air tank is where the spare tire originally went. Use the supplied mounting tabs and weld them to the spare tire carrier. Make sure to use a battery protection device on the batteries or unhook the batteries before welding!

Mount one air tank beside the Hadley box and mount the other tank on the front side of the crossmember. Refer to the picture on the next page.

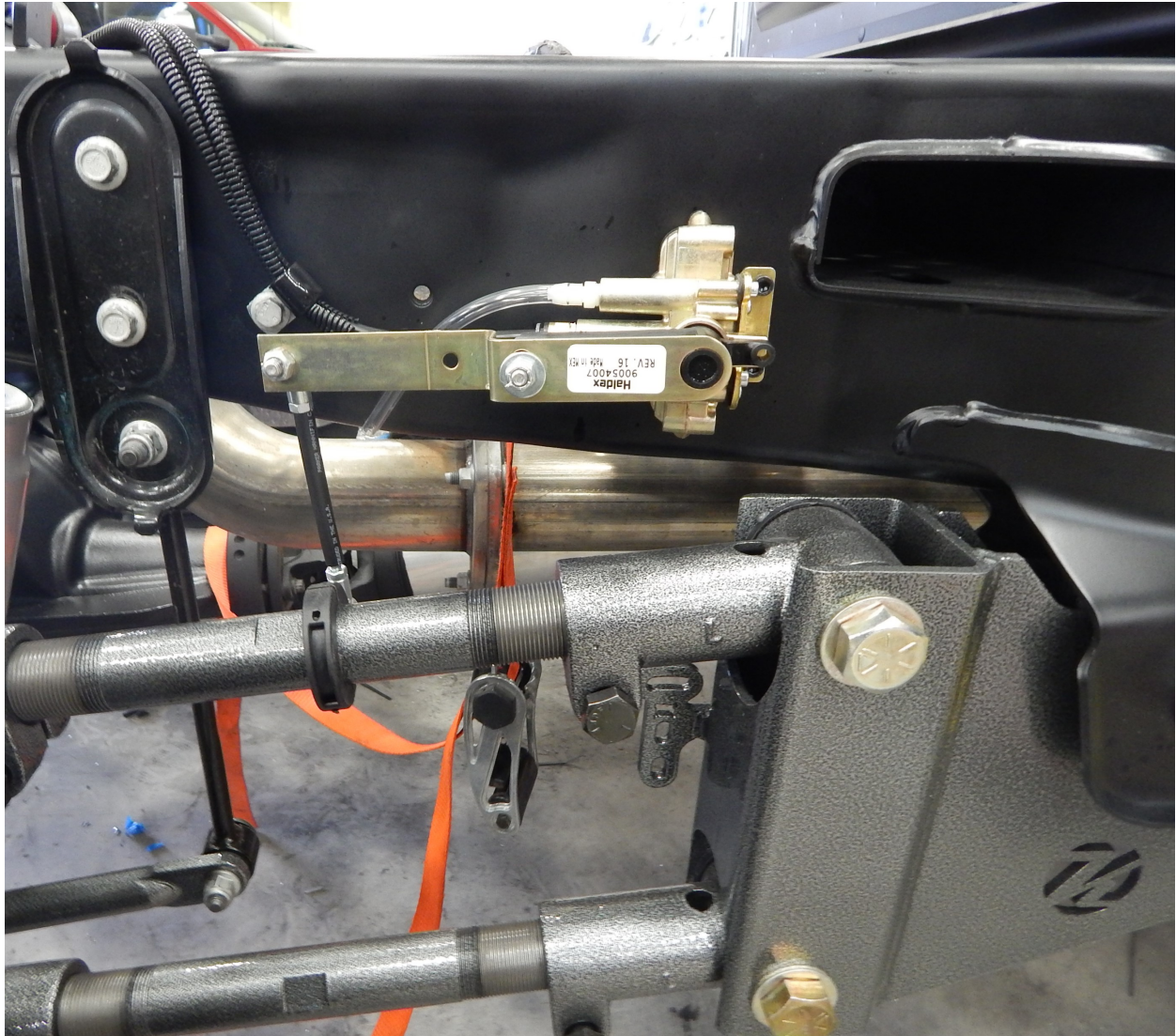


The air compressor box for the mechanical system will also mount where the spare tire normally is. The mechanical system only uses one tank, so you can mount it right beside the box.



Air tanks plumbed together

17. The mechanical height control valve mounts to the frame just like the Hadley electronic sensor. It needs to be straight up and down when bolted to the frame and the arm is straight out at ride height. NOTE: Before installing the mechanical valve, rotate the arm clockwise and counter clockwise 4-5 times each way. This will get the internals ready for operation.



Top Port - Exhaust
Middle Port - Air Spring
Bottom Port - Supply

Mechanical Valve Mounting Tips

- the height control valves have an 8 second delay
- before installing the height control valves rotate them 360 degrees each direction about 6 times
- the mechanical valves will mount the same direction as the Hadley



Completed install



Commercial Product Warranty, Disclaimers and Warnings
Kelderman techs are available at 641-673-0468 M-F 7:00-4:00 CST

Kelderman Air Suspension Systems offer a 3 year/ 100,000 mile Limited Warranty, parts and labor, to the original retail purchaser who owns the vehicle on which the unit was installed, for defects in materials and workmanship related to the fabricated parts. Non fabricated parts such as air bags, air compressors, gauges, solenoid kits, and electronic or mechanical air ride control systems are covered for 1 year/ 50,000 miles for parts and labor. In cases where ride control systems manufactured by The Air Lift Company or Hadley Products are provided, the ride control warranty in this document will not apply. Instead, the warranty will be that of Hadley and Air Lift.

Kelderman Air Suspension Systems must be contacted for warranty authorization before any diagnostic work or repairs are performed. At that time, Kelderman will provide diagnostic assistance and authorization for the repairs if warrantable. Any unauthorized diagnostic work performed before contacting Kelderman will not be covered under the warranty program if deemed unreasonable.

Kelderman Air Suspension System does not warrant any product for finish, alterations, modifications and/or installation different from Kelderman's instructions. Alterations / modifications to the final product include, but are not limited to powder coating, plating, and/or welding which will void the warranty. Some damage may occur to the finish of the parts during shipping. This is considered normal and is not covered under warranty.

Kelderman tries to ensure that the suspension parts fit the vehicles they were designed for, but due to unknown vehicle manufacturer's production changes and/or inconsistencies by the vehicle manufacture, Kelderman cannot be responsible for 100% fitment.

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It is the installer and sellers reasonability to review all these warranties, warnings and disclaimers with the consumer prior to installation.

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December, 2011