A 1/4-20 tap is required and a 13/64” drill bit

Welding is required

Version 1.2

kelderman®

AIR SUSPENSION SYSTEMS

2686 Highway 92 - Oskaloosa, IA 52577
phone: 641.673.0468 - fax: 641.673.4168
www.kelderman.com

2017+ Ford F-250/350/450 Pickup Truck Stock Height 4-Link Rear Install Instructions

Installation

1. Before doing anything, 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, shocks and bump stops. Remove the bolts that hold the sway bar to the axle (if equipped) and let it hang from the sway bar end links. Keep the rear leaf spring shackle bolts as you will use it in step 8 when installing the accumulator tanks. Also keep the front leaf spring perch bolts and use them in step 3.

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

3. Locate the trailing arm mounts (Part # 69034). They fasten to the factory leaf spring perch with the original leaf spring bolts. You will also drill the forward hole for the 1/2 x 1 1/2" bolt that fastens into the bottom of the frame. It may require some grinding on the bottom edge of the frame where it is stamped to allow the trailing arm mount to sit flush. Torque the 1/2" bolt to 85 ft./lbs. and the factory bolt to 225 ft./lbs. You will also need to weld on the front side of the bracket. Welding the bracket will keep the bracket from creating any popping noises under acceleration and deceleration.

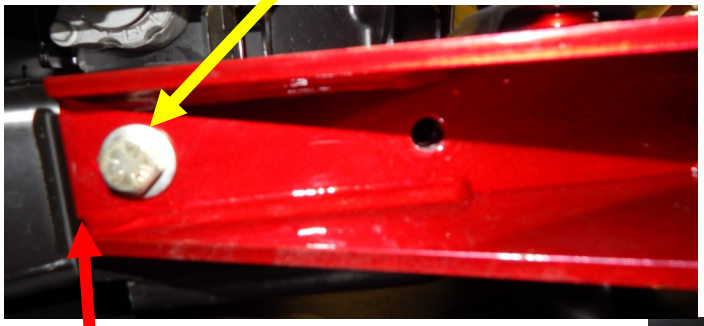
NOTE: THERE IS TWO HOLES IN THE BOTTOM OF THE PLATE.

YOU CAN ONLY GET A WRENCH ON ONE.

DRILL THE FORWARD HOLE.

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

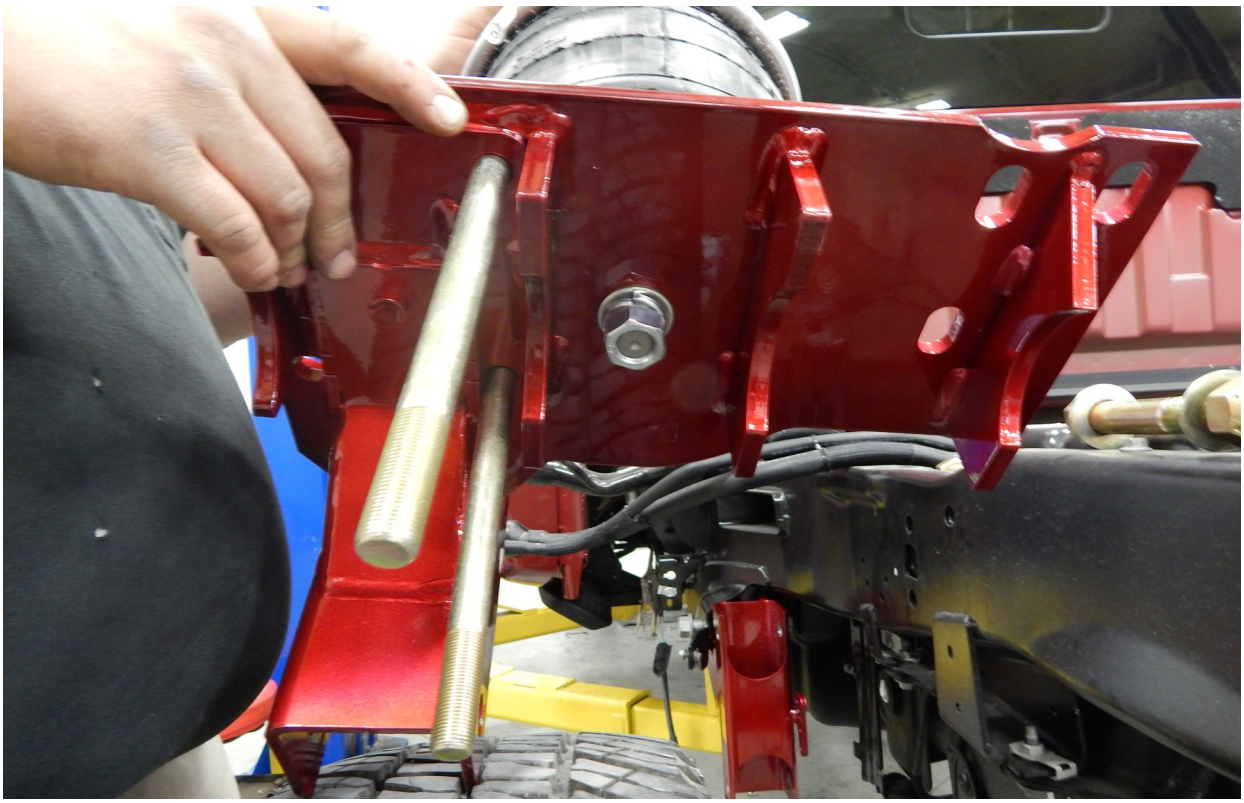
Drill the forward hole

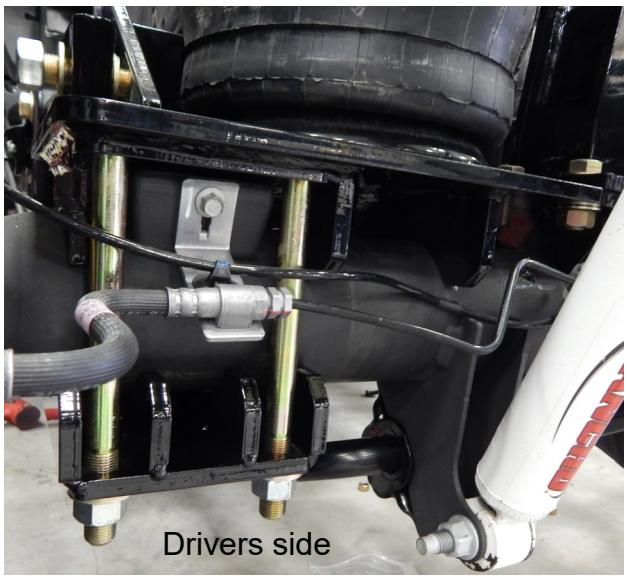


Weld the front side of the mounting bracket

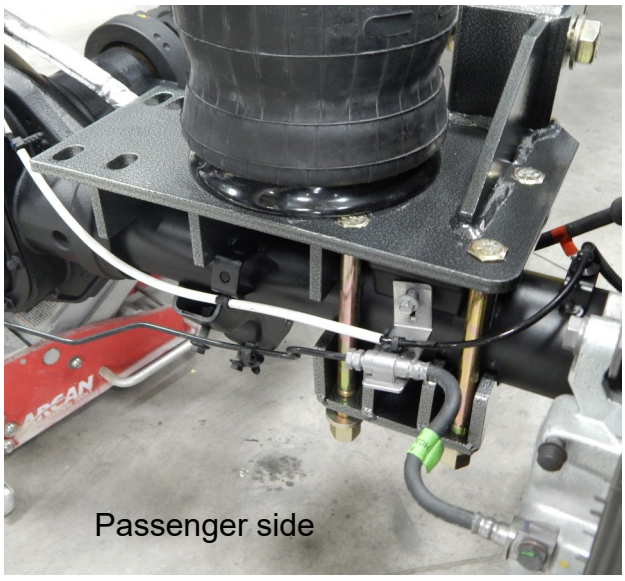
Grind this area where you are going to weld the bracket to the frame

4. Locate the lower airbag mounts (Part # 69061 DS and # 69062 PS), F5748 air bags and the lower axle clamps (Part # 69087). Use two of the provided 5/8 x 9” bolts and drop them into the outer holes of the lower air bag mounts. Place the air bag on the lower air bag mount and hand tighten using the 3/4” lock washer and nut to attach. You will torque this air bag later in step 8. The lower air bag will mount to the axle on top of the leaf spring perch and fasten to the axle clamp with the 5/8 x 8” bolts. *BEFORE MOUNTING THE LOWER AIR BAG MOUNT ON THE PASSENGER SIDE, MAKE SURE TO MOVE THE A.B.S. LINE OUT OF THE FACTORY LOCATION. FAILURE TO DO SO WILL CAUSE THE LINE TO BE DAMAGED.*





Drivers side



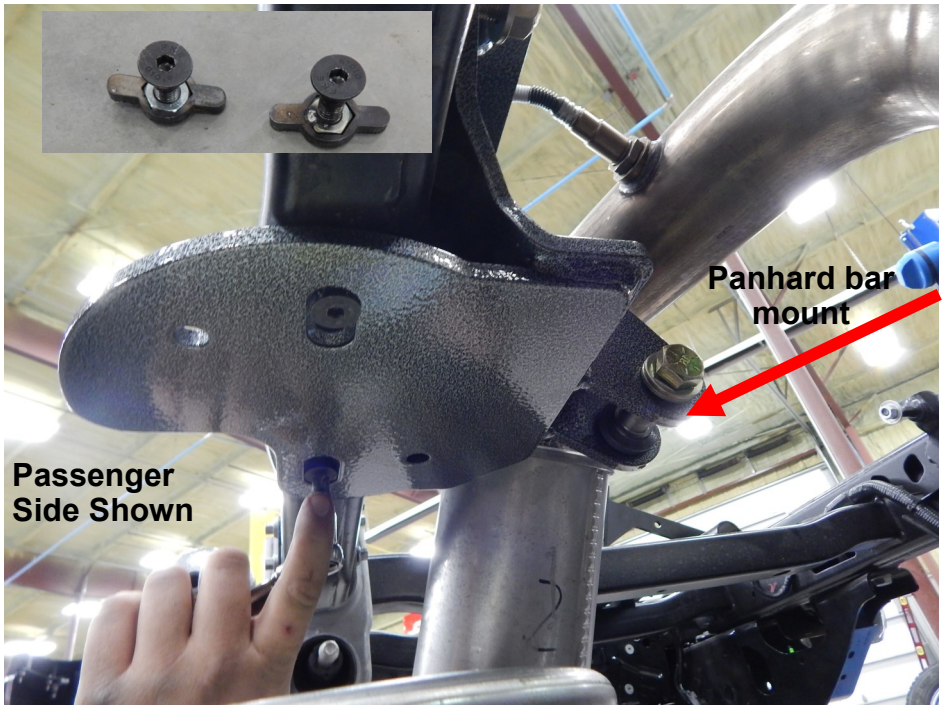
Passenger side

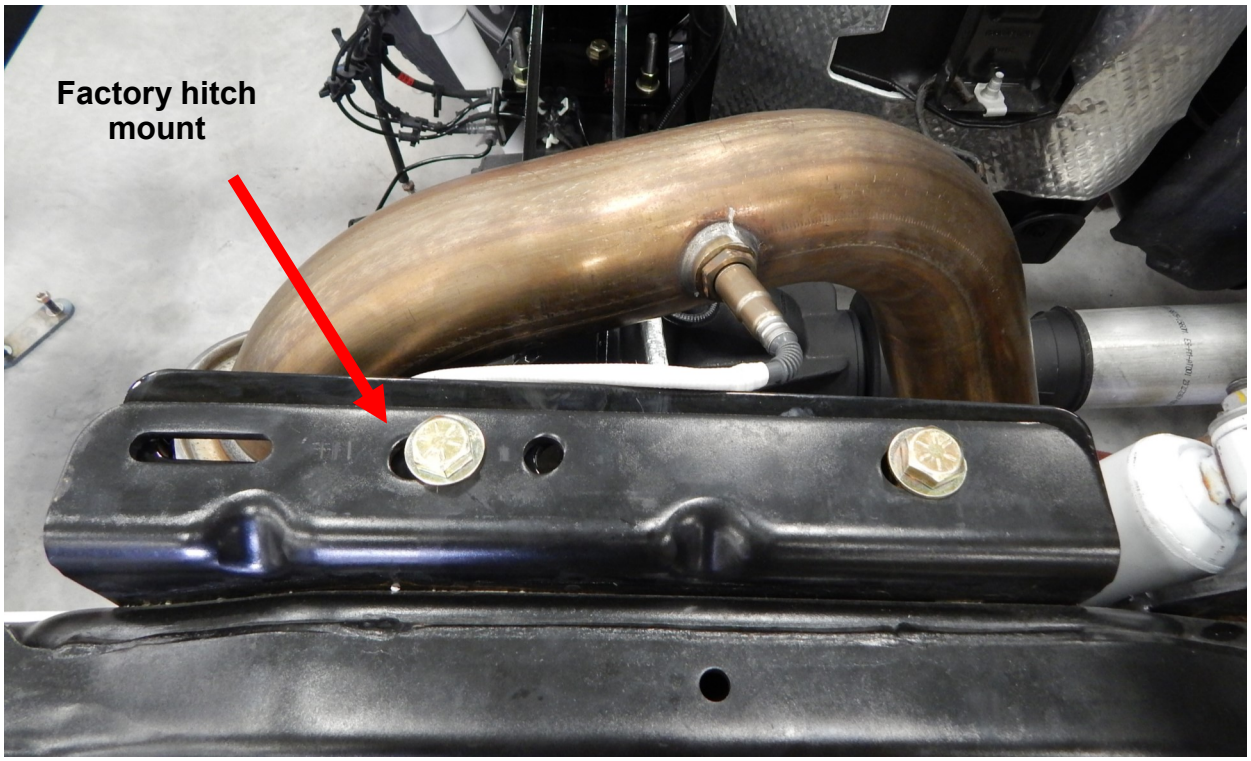
5. Locate the driver side upper air bag mount (Part # 69048). It fastens to the bottom of the frame with the 3/8 x 1” counter sunk bolts and nut tabs. Torque the 3/8” bolts into the bottom of the frame to 45 ft./lbs.

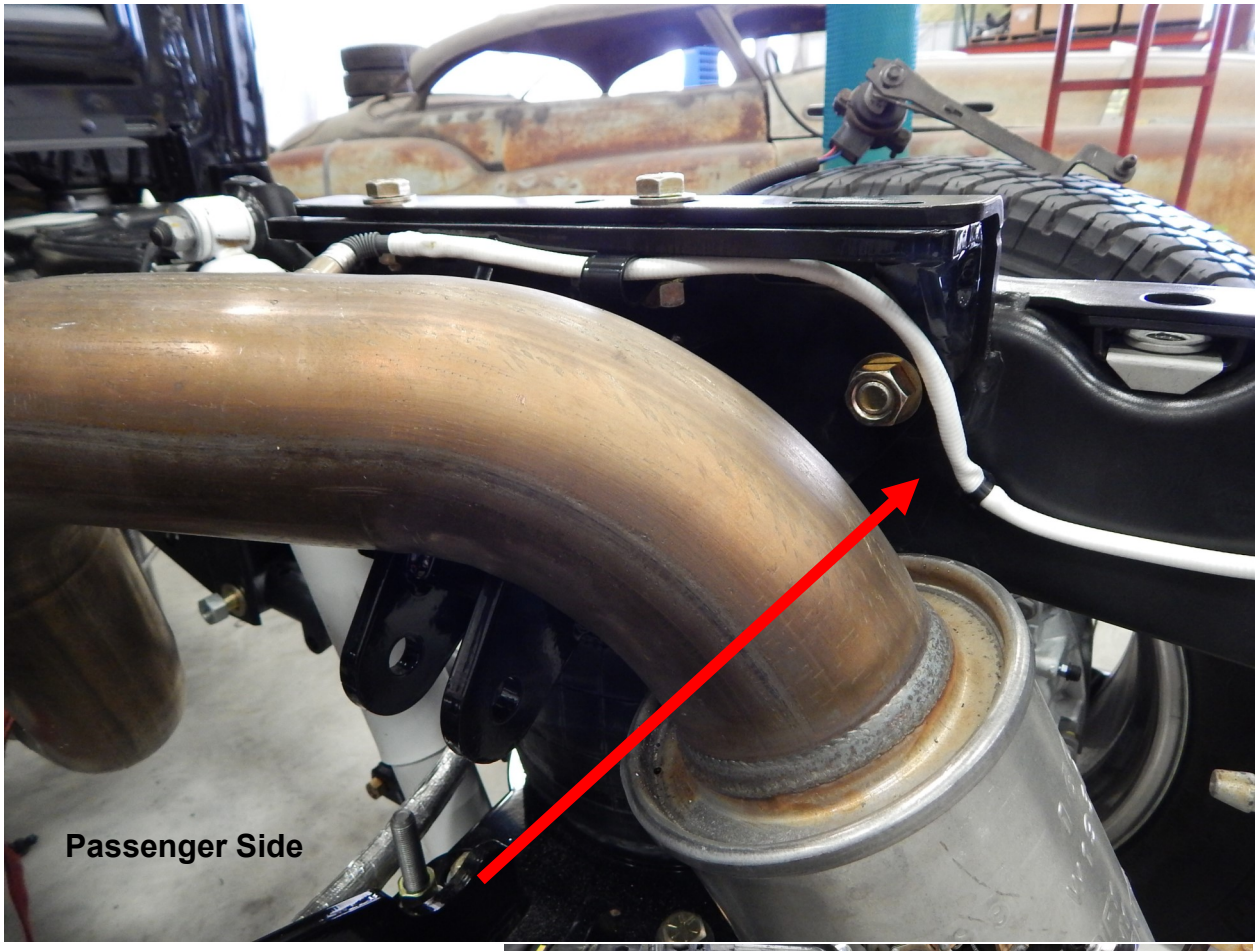
Drivers side upper air bag mounts fastens to the bottom of the frame with the provided tabs and counter sunk bolts.

6. Locate the passenger side upper air bag mount (Part # 69049). It fastens to the bottom of the frame with the 3/8 x 1” counter sunk bolts, factory hitch with the 5/8 x 2” bolts and side of the frame with two 5/8 x 4” bolts. Torque the 3/8” bolts to 45 ft./lbs. and the 5/8” bolts to 155 ft./lbs.

NOTE: ***YOU WILL HAVE TO REMOVE THE CLIP THAT HOLDS THE EXHAUST SENSOR WIRE. MAKE SURE TO ZIP TIE THE WIRING AWAY FROM THE EXHAUST SO IT DOES NOT DAMAGE THE WIRING/HARNESS.***



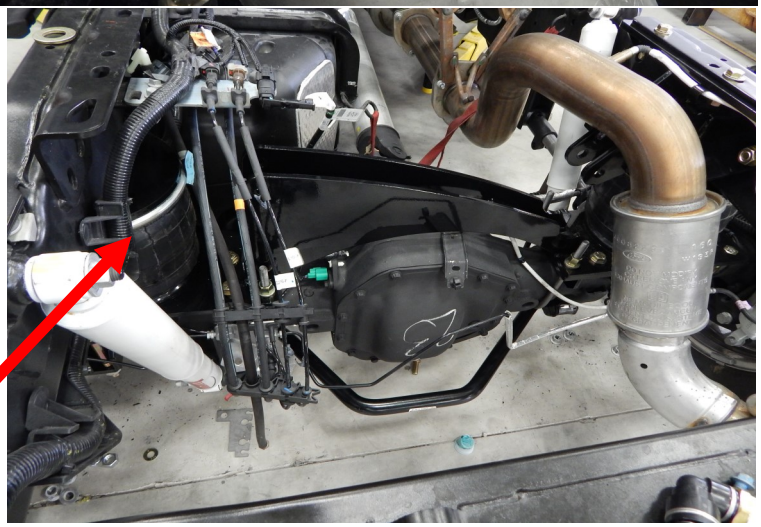




Zip tie the wiring harness for the sensor away from the exhaust so it does not get damaged from heat.

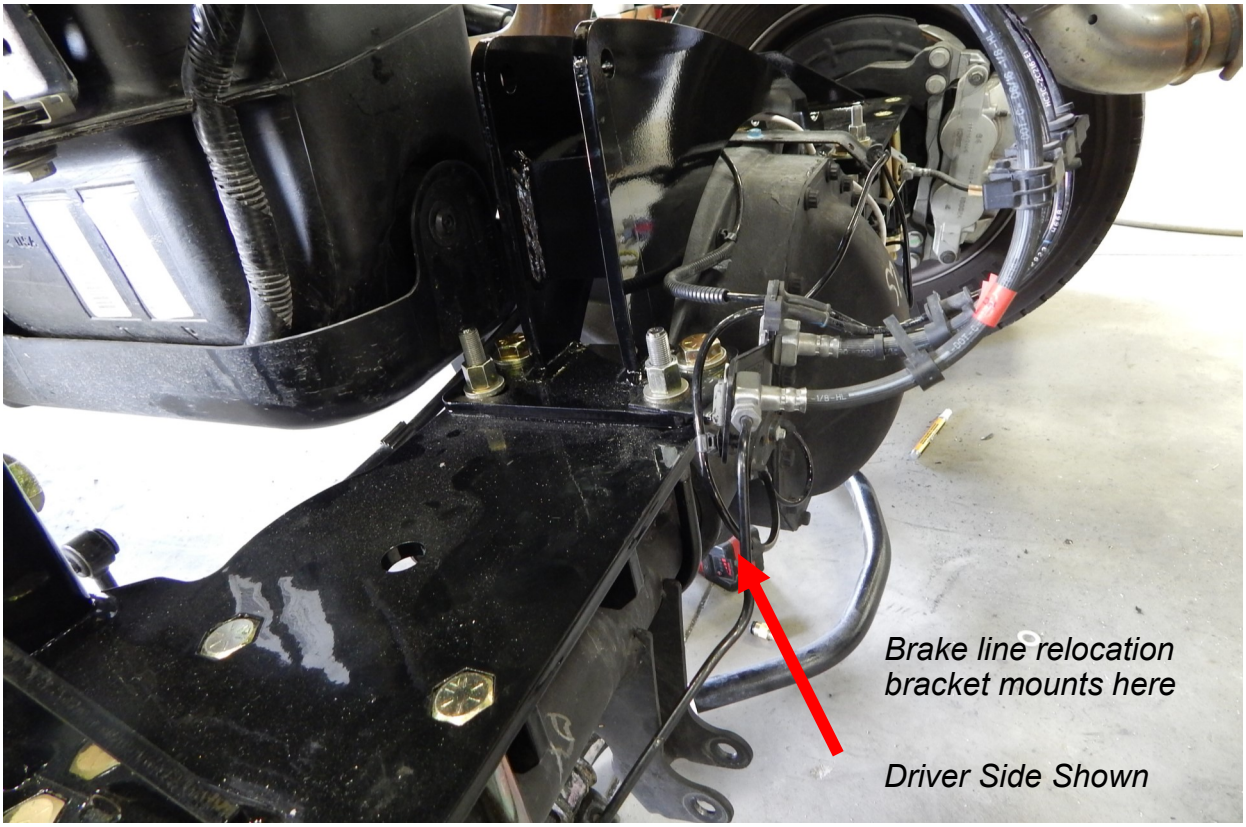
The passenger side upper air bag mount is also the upper pan hard bar mount. It fastens to the side of the frame with the 5/8x4" bolts. Torque the 5/8" bolt to 155 ft./lbs.

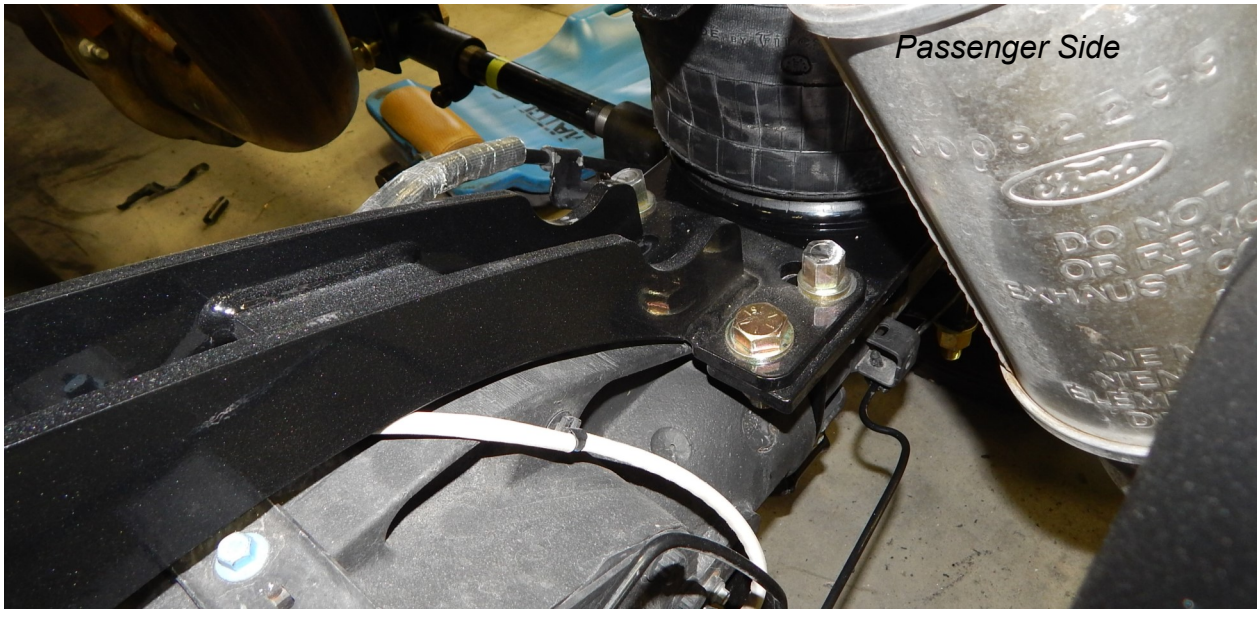
Rear crossmember and panhard bar mount shown.



7. Locate the lower pan hard bar mount (crossmember part # 69163) and brake line relocation bracket (Part # 69036). These parts fasten to the lower airbag mounts with the U bolt and the two 5/8 x 1 1/2” bolts. Torque the U-bolts to 55 ft./lbs. and the 5/8” bolts to 85 ft./lbs. The brake line relocation bracket mounts on the drivers side rear U-bolt. Fasten the bracket to the U bolt. Torque the lower air bag mounts to 175 ft./lbs. The relocation bracket will require bending as shown on the next page.

The brake line relocation bracket can also go under the nut & washer on the U-bolt.



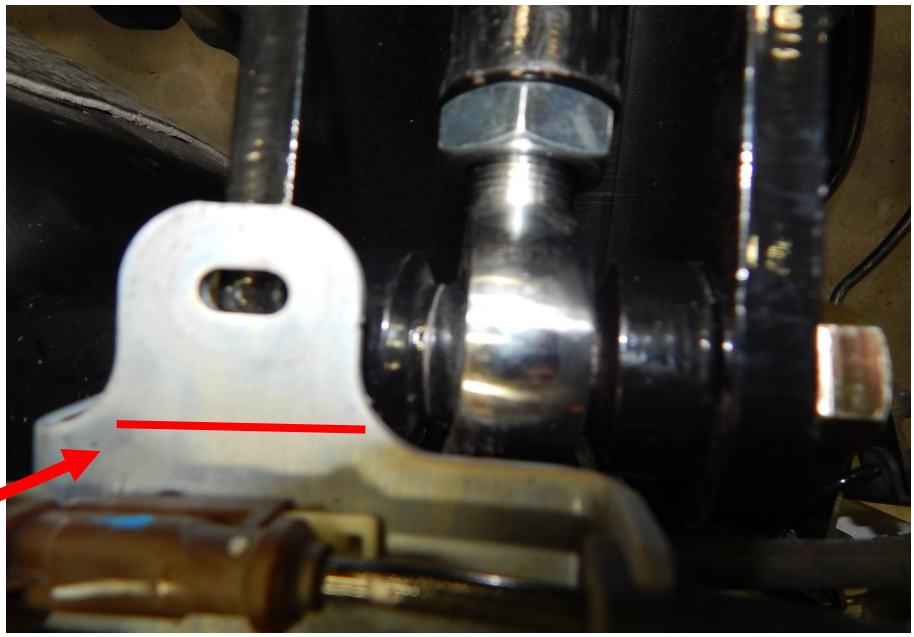


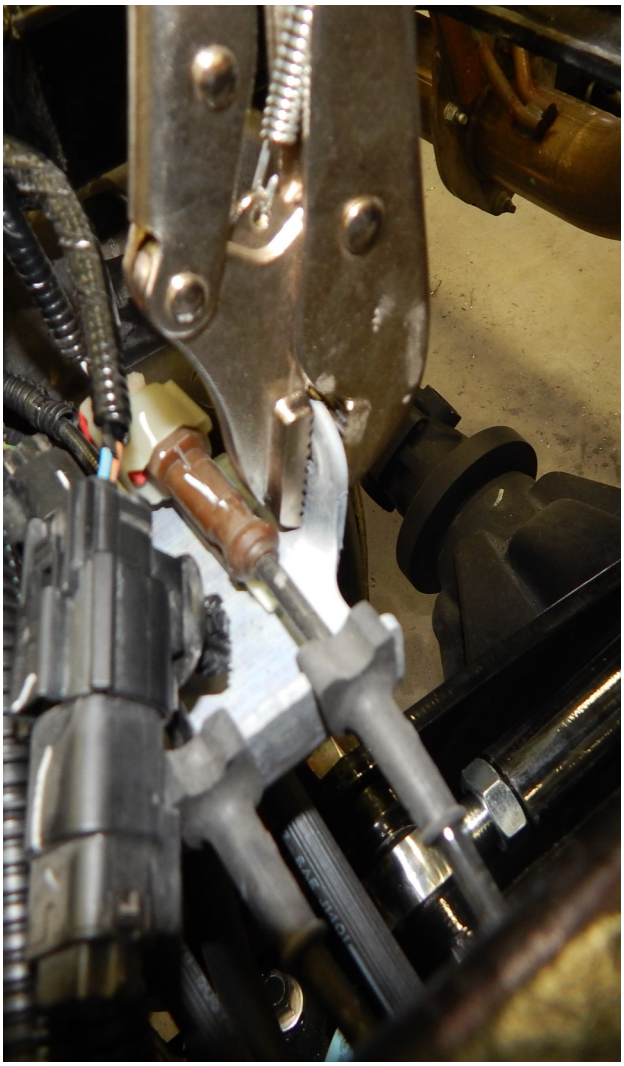
Pop the wiring out of this bracket.

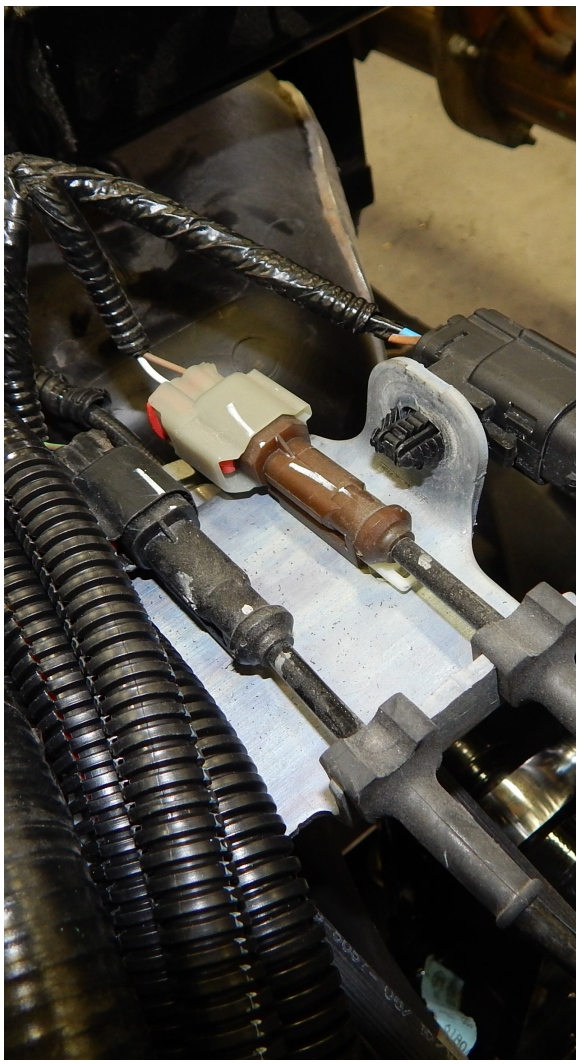
Bend this bracket up with a vice grip so it does NOT hit the panhard bar when the suspension is dumped.

Reinstall the wiring in the bracket

BEND HERE

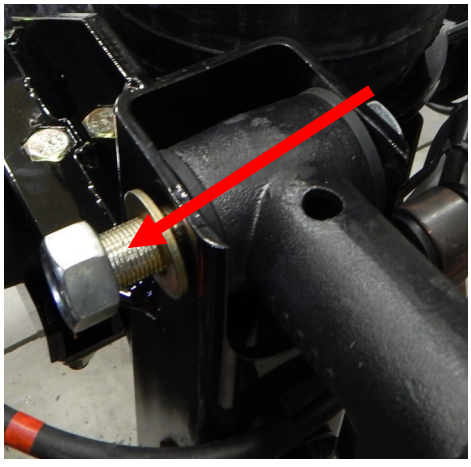


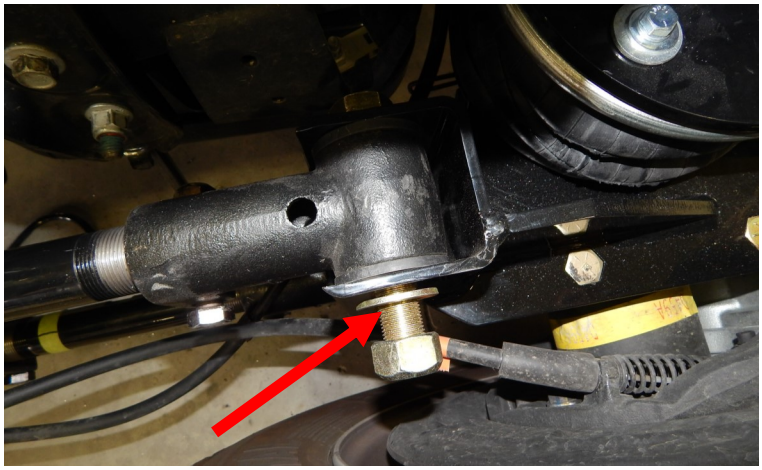




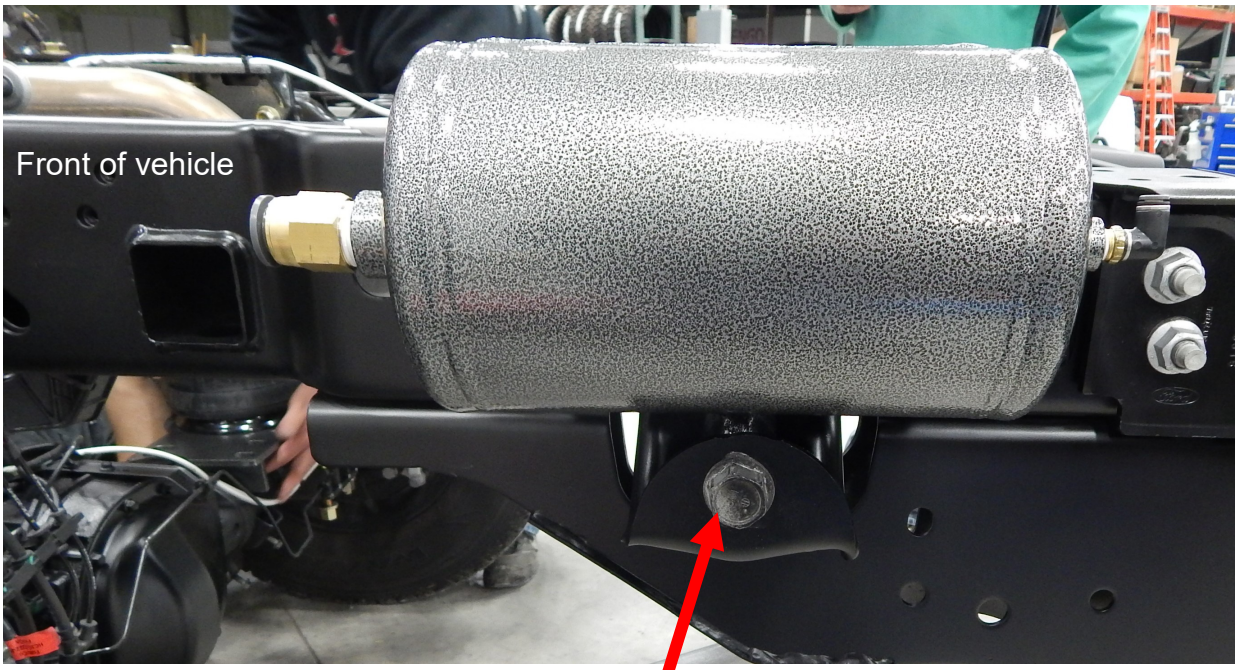
8. Locate the four trailing arms (Part # 52118). Adjust two of the trailing arms so there is 9 3/4” between the knuckles and set the other two trailing arms so there is 10” between the two knuckles. The 9 3/4” bars will be the top trailing arms and the 10” bars go on the on the bottom. The front bars attach to the forward trailing arm plate with the 7/8 x 5” bolts and the rear trailing arms attach with the 7/8 x 5” bolts. *Do not torque the bolts until the install is complete.* Once the air bags are set at ride height , you will torque the 7/8” bolts to 300 ft./lbs.

Torque these bolts to 300 ft./lbs. once installation is complete.





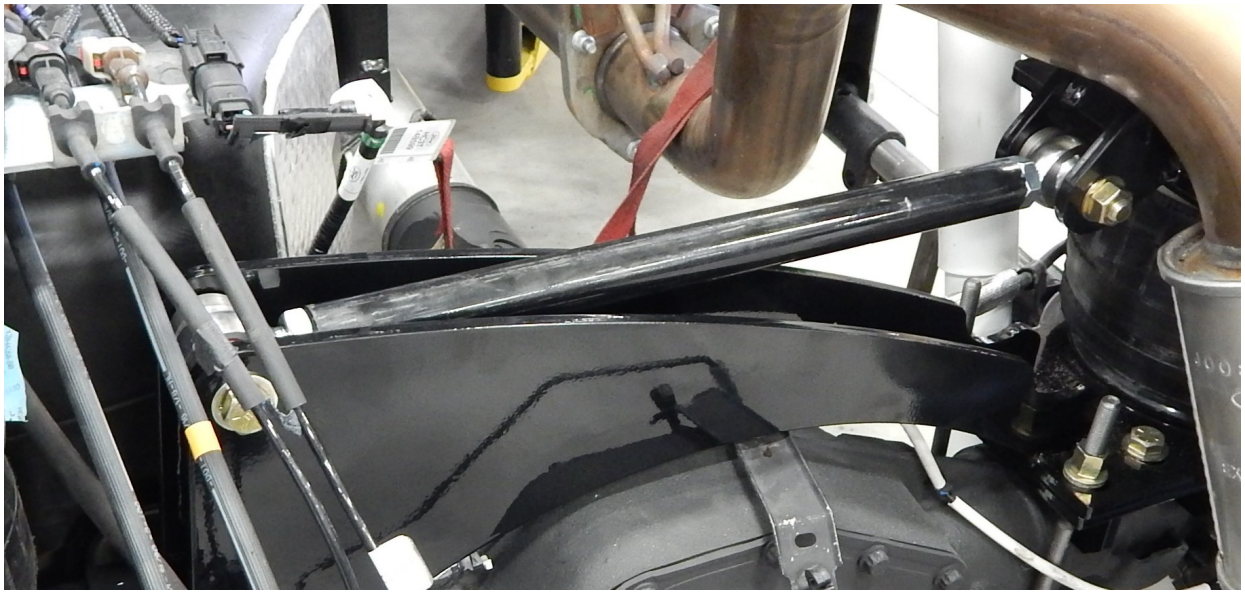
9. Locate the accumulator tanks (Part # 69150 & 69151). These tanks fasten into the original rear leaf spring shackle mounts with the factory bolts. Make sure the large port for the 3/4" air fitting is pointing forward. Torque the factory leaf spring bolt to 135 ft./ lbs. Once the air tank is secured within the mount, run the 3/4" air line from the large fitting in the air tank to the large fitting in the air bag. Torque the 3/4" nut on the bottom of the air bag to 35 ft./lbs.



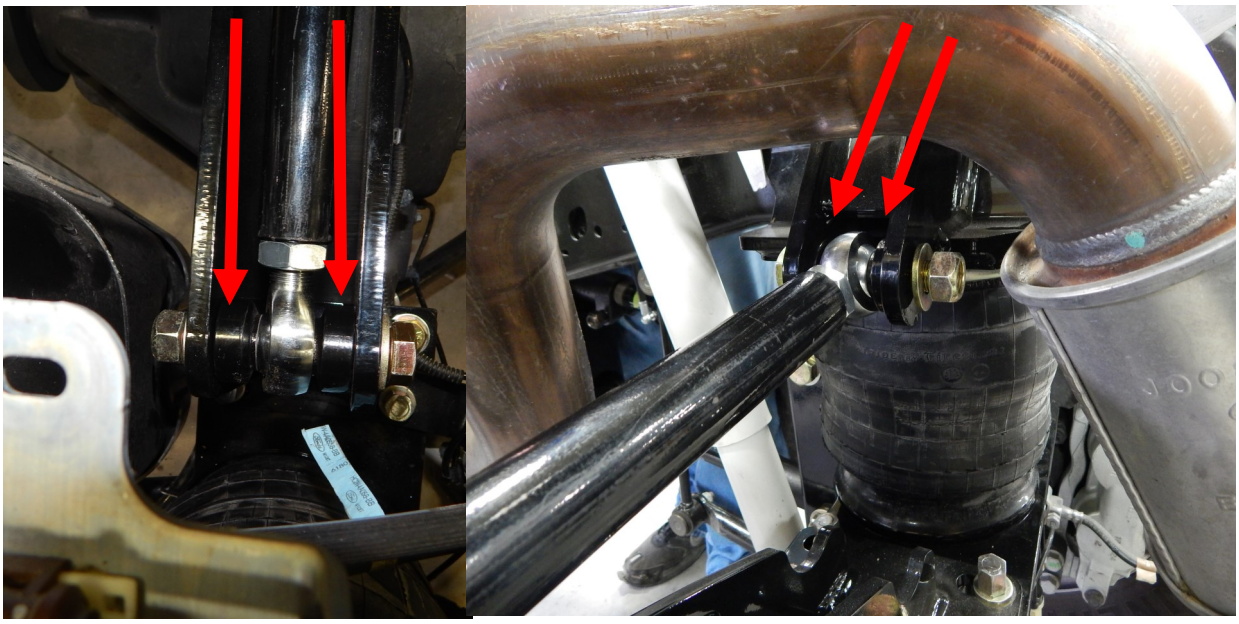
Torque this bolt to 135 ft./lbs.

Fitting will face towards the accumulator tank

10. Locate the track bar/panhard bar (Part # 69470). It fastens to the upper and lower pan hard bar mounts with the 3/4 x 4” bolts. Use the spacers (Part # 18785 & # 18786) to center the heim ends up in the mounting brackets. Torque the 3/4” bolts to 200 ft./ lbs.



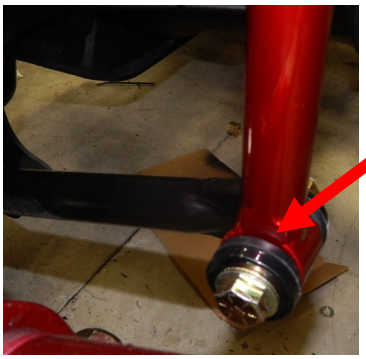
Spacer on each side of heim end



11. Locate the sway bar (Part # 1139-185KLD), mounting clamps (Part # 80046), Sway Bar Bushings (Part # 4139-185KLD) and sway bar end links (Part # 69529). The sway bar fastens to the axle in the factory location (on the shock mounts) with the M10 x 30 bolts. Once the sway bar is fastened in place, attach the end links to the sway bar with the 1/2 x 2 1/2" bolts. Make sure to use the large machined washer on the outside of the bolt head.

The upper end of the sway bar end link attaches to the sway bar mounting brackets (Part # Part # 69335DS and 69338PS). The sway bar end link mounts attach to the frame with either the factory bolts (if the truck was equipped with the optional sway bar) or the supplied 1/2 x 1 1/2" bolts. Torque all the 1/2" bolts to 85 ft./lbs.

Passenger side sway bar end link mount shown using factory bolts

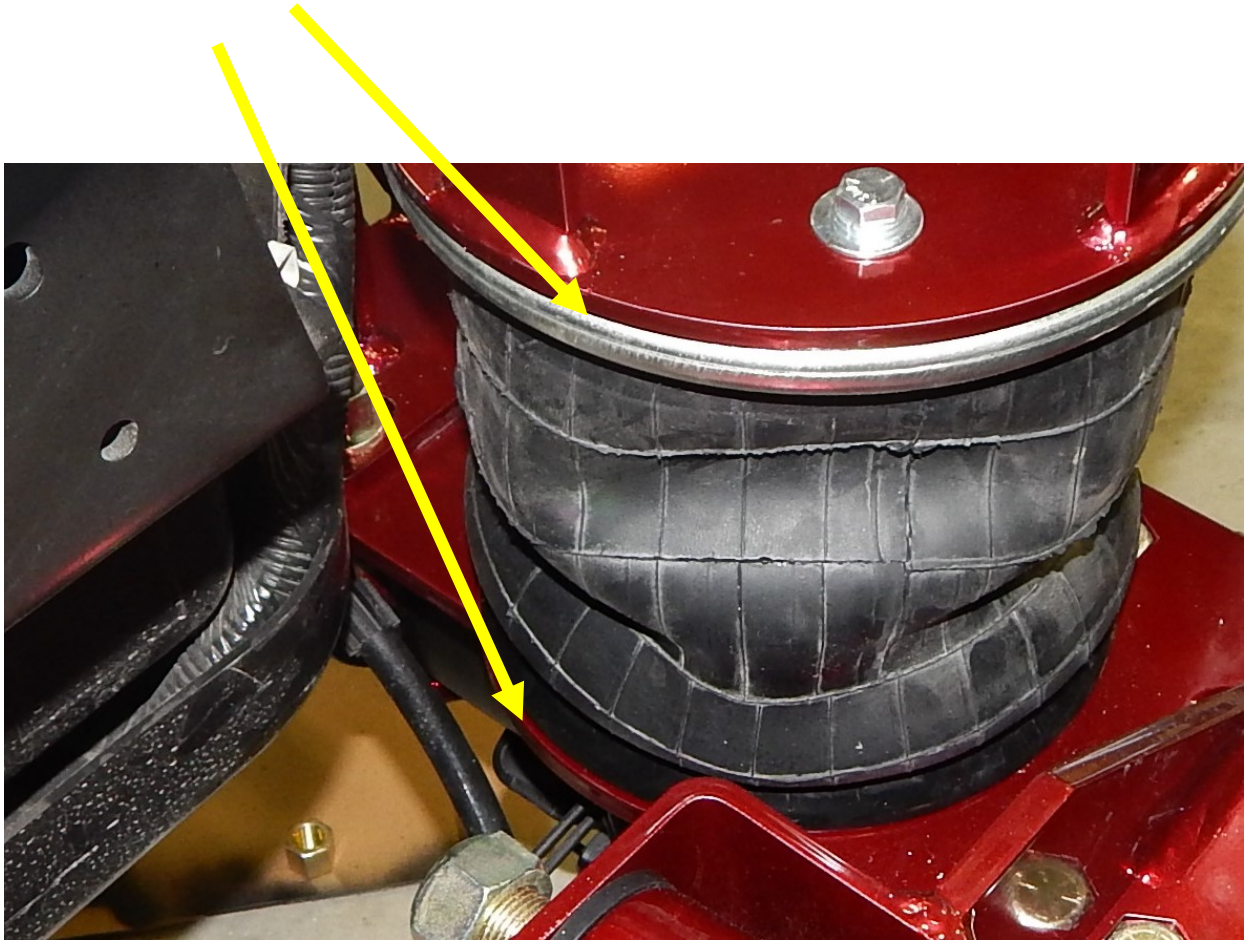


Flat washer shown

Use the supplied grease to prevent the sway bar from squeaking against the bushing

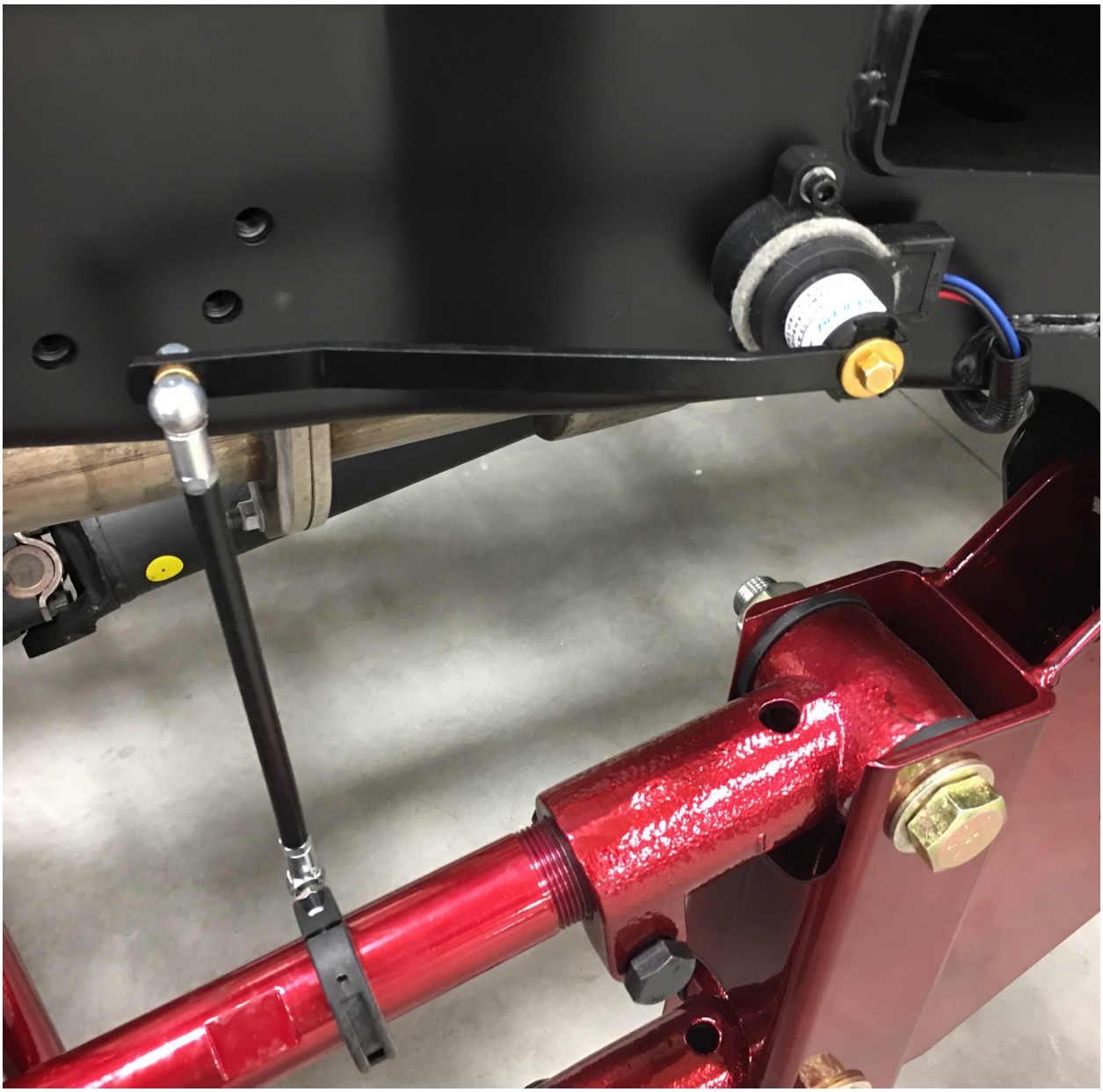
12. Once the kit is installed, inflate the airbags to 8”. This is the middle range where the airbag rides the best. It can run as low as 7” and as high as 9”. With the air bags at the ride height you choose, measure off the front axle ball joints to make sure the axle is square with the front. When you test drive the truck, if the truck pulls to the right you will shorten the drivers side trailing arms one turn. Just 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



Hadley Sensor Mounting

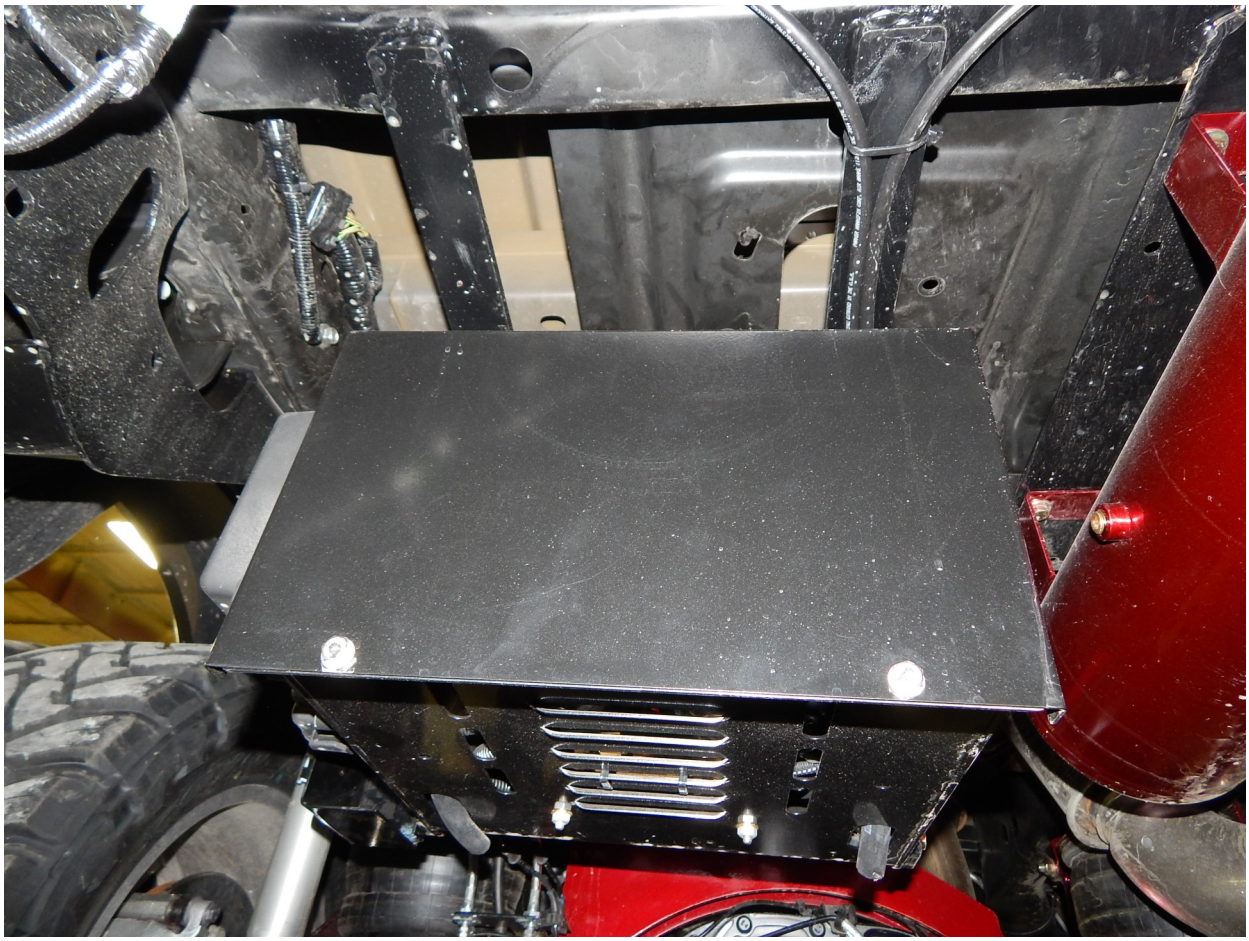
13. There are two different types of height control valves/sensors used, mechanical and electronic. The Hadley electronic sensor is shown below. It mounts to the side of the frame with the 1/4 x 20 bolts. You will have to drill a hole using a 13/64” drill bit and thread the hole with a 1/4-20 tap to mount the sensor to the frame. Make sure these holes are drilled straight up and down. When setting the linkage length, set the air bag at ride height and make sure sensor lever is straight out (parallel with the ground). The collar will fasten to the top trailing arm and be just in front of the notches in the trailing arms.



Compressor Box Mounting

14. The best mounting location for the Hadley box and air tank is where the spare tire originally went. Use the supplied mounting brackets 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!***

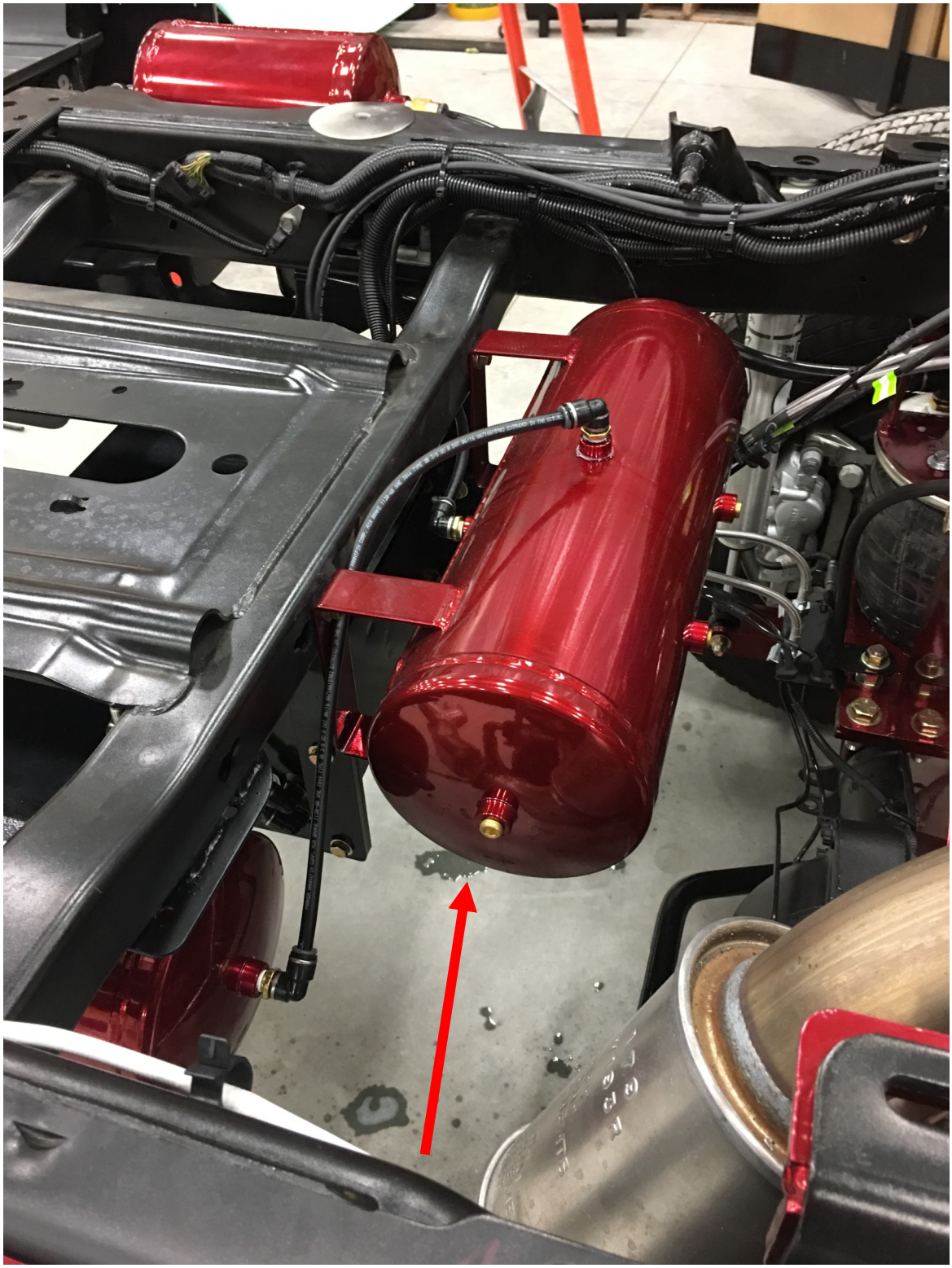
Mount one air tank beside the compressor box and mount the other tank on the front side of the crossmember. Refer to the picture on the next page.



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

These air control system mounting locations are merely suggestions. Controls can be mounted virtually anywhere on the truck, but these will be the most convenient and the recommended locations.

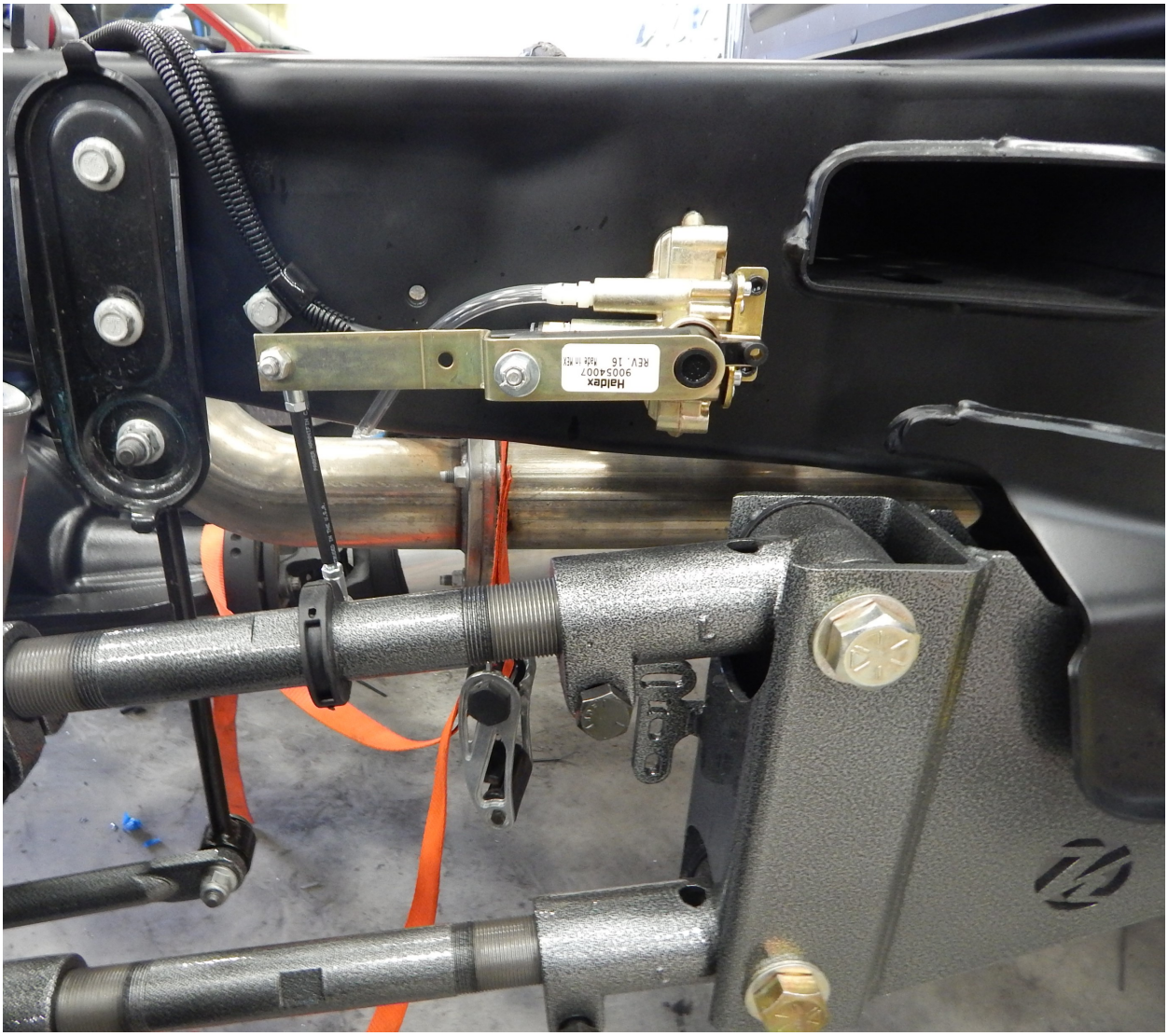
Compressor Box Mounting (continued)



Optional second tank shown mounted to the front of the cross member

Height Control Valve Mounting

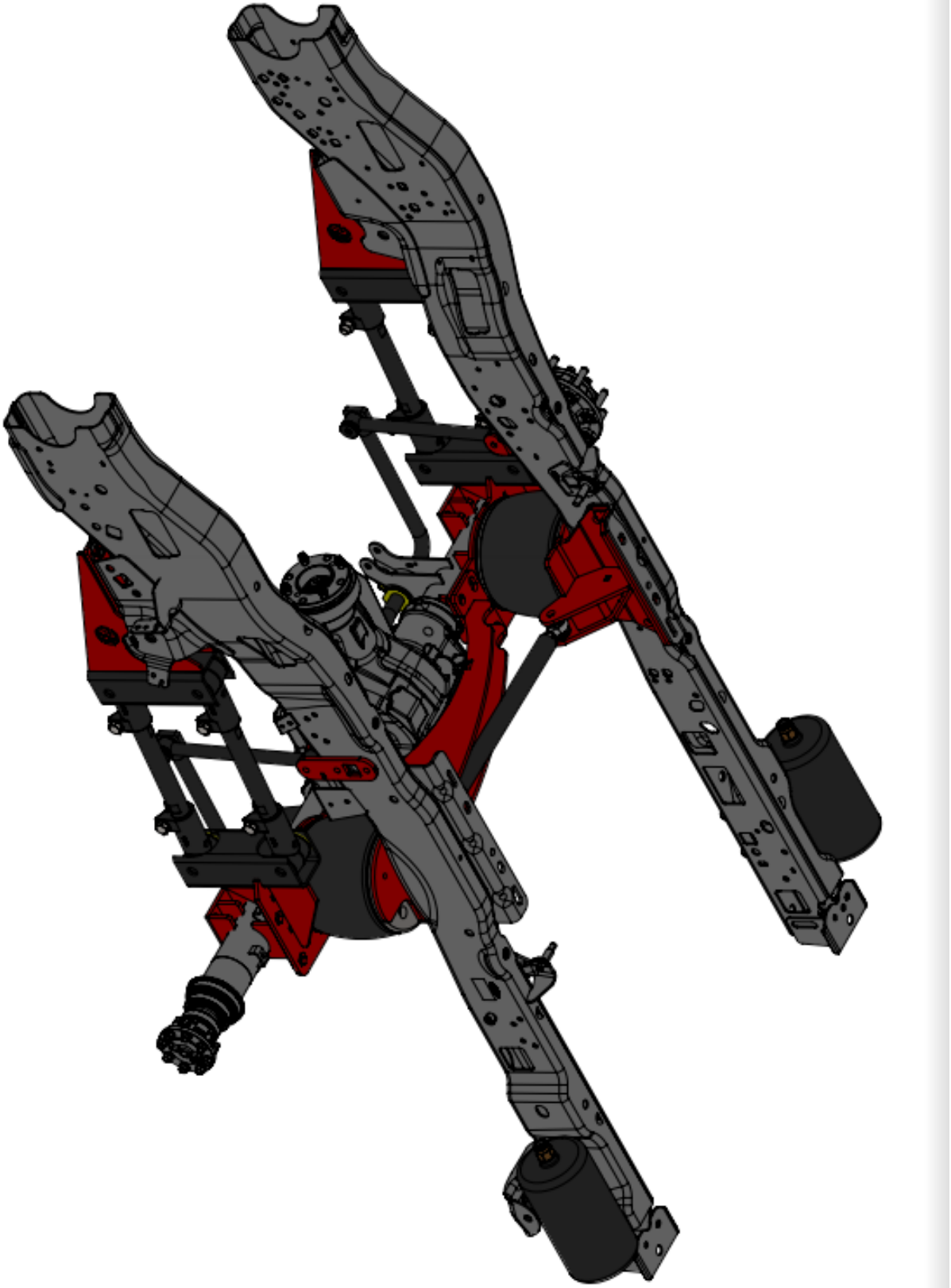
The mechanical height control valve mounts to the frame just like the electronic sensor. It needs to be straight up and down when bolted to the frame and the arm is straight out at ride height. **NOTE**: *Before installing the mechanical valve, rotate the arm clockwise and counter clockwise 4-5 times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



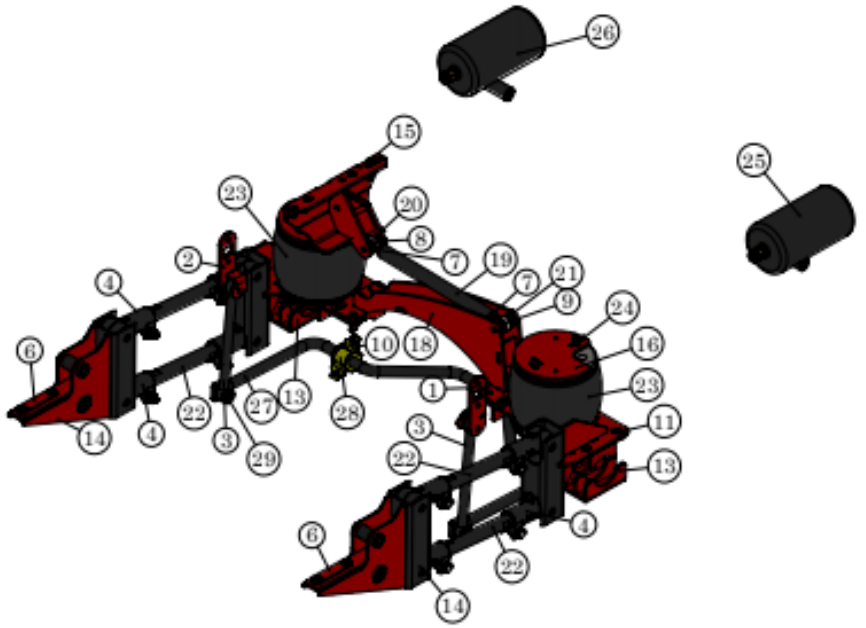
Mechanical Valve Mounting Tips

-the height control valves have an 8 second delay

-before installing the height control valves, rotate them 360 degrees each direction about 6 times



1	69335	(DS) End-Link Bracket	1
2	69338	(PS) End-Link Bracket	1
3	69529	13.5" End-Link	2
4	18498	Trailing Arm Knuckle 10006	4
5	18499	Trailing Arm Knuckle 10005	4
6	69446	Perch Mounting Tab	2
7	13208	Jam Nut - 3/4"	2
8	80109	(RH) Ball Joint Rod End 3/4-16 x 3/4"	1
9	80110	(LH) Ball Joint Rod End 3/4-16 x 3/4"	1
10	80046	Retainer (D-Ring)	2
11	69061	(DS) 3.5" Lower Bag Mount	1
12	69062	(PS) 3.5" Lower Bag Mount	1
13	69087	3.5" Lower Axle Clamp	2
14	69034	(DS) Perch Mount	2
15	69049	(PS) Upper Frame/Bag Mount	1
16	69048	(DS) Upper Frame/Bag Mounting Plate	1
17	69036	Rear Axle Brake Line Bracket	1
18	69163	(PHB) Crossmember	1
19	69470	16.5" Panhard Bar	1
20	18786	Narrow Pan Hard Bar Reducer/Spacer 3/4" To 5/8" Bolt	2
21	18785	Wide Pan Hard Bar Reducer/Spacer 5/8" To 3/4" Bolt	2
22	52118	18.50" Trailing Arm Bar	4
23	5748	5748 Firestone Air Bag	2
24	69528	10mm Wingnut	4
25	69150	(DS) Accumulator Tank	1
26	69151	(PS) Accumulator Tank	1
27	1139-185KLD	Sway Bar	1
28	4139-185KLD	Sway Bar Bushing	2
29	11551	1.5"OD x .53" ID x 1/4"	2



UNLESS OTHERWISE SPECIFIED:	DESIGN BY	ZPB		Friday, May 19, 2017 1:18:33 PM
DIMENSIONS ARE IN INCHES TOLERANCES, Unless Specified FRACTIONAL ± 1/32" ANGULAR: MACH ± .5° TWO PLACE DECIMAL ± .03 THREE PLACE DECIMAL ± .010	Shelf #/ QTY			Project: 2017 F250 Pickup
	NEW DXF			TITLE: 3.5" Axle, Stock Height (Rear)
	Run QTY			
MATERIAL	PROPRIETARY AND CONFIDENTIAL			DWG. NO. KLM-69005 SCALE: 1:32
FINISH	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF KELDERMAN MFG. INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF			DO NOT SCALE DRAWING

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.

Kelderman's obligation under this warranty is limited to the replacement of the defective parts only. Freight charges, incidental or consequential damages are expressly excluded from this warranty. Kelderman is not responsible for damages and/or warranty of other vehicle parts related or non-related to the installed Kelderman Air Suspension System. This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been subject to accident, negligence, alteration, abuse or misuse as determined by Kelderman.

Kelderman Air Suspension Systems are designed to be installed, and run at the recommended ride heights provided by Kelderman. All warranties will become void if Kelderman systems are run outside the recommended ride heights, or if the systems are combined/substituted with other suspension kits. Combination and/or substitution of other components may cause premature wear and inhibit the Kelderman Air Suspension from operating as designed, which may cause severe injury or death. Kelderman does not warrant parts not manufactured by Kelderman.

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

Kelderman reserves the right to supersede, discontinue, change designs, finishes, part numbers and/or applications of parts deemed necessary without written notice. Kelderman is not responsible for misprints, or typographical errors within the catalog or price sheets.

December, 2011