KLM69027
KLM69727

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

Version 1.3

INSPECT CONTENTS OF KIT PRIOR TO INSTALL.

AIR SUSPENSION SYSTEMS

2686 Highway 92 - Oskaloosa, IA 52577
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www.kelderman.com

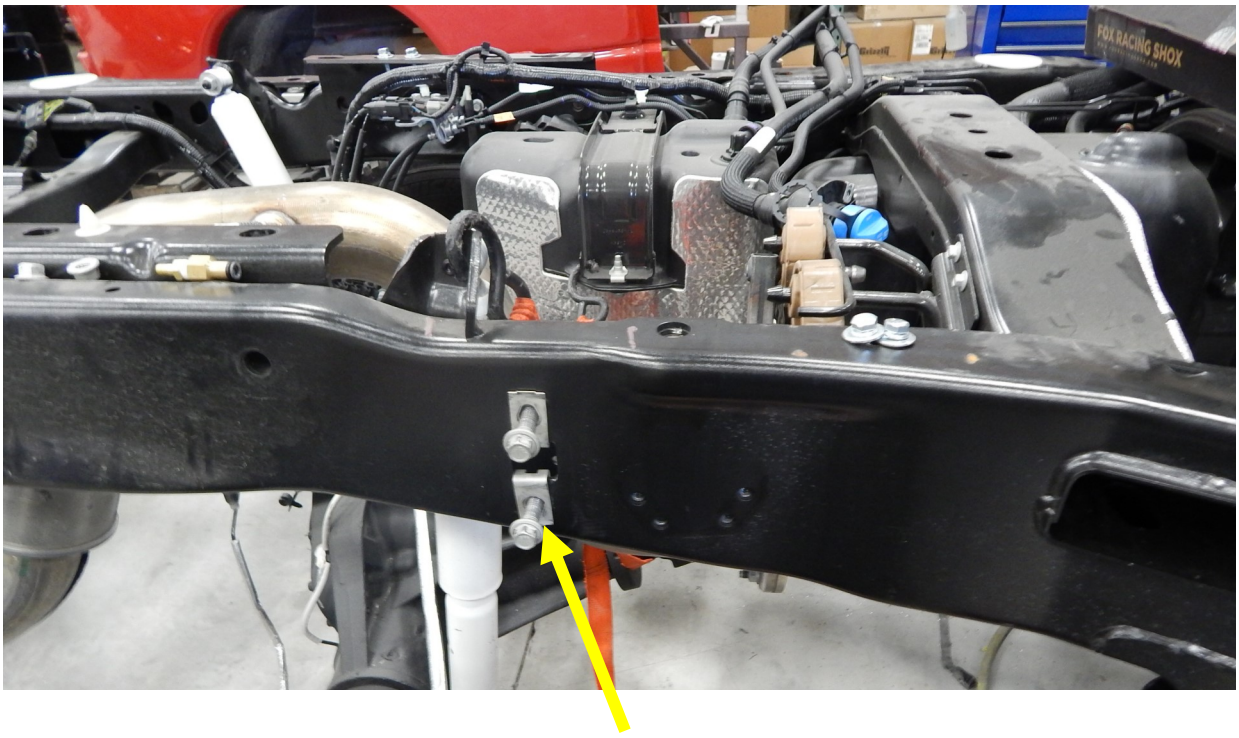
2017+ Ford F-450 Pickup 8-10” 4-Link Rear Install Instructions

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 does not rotate. Remove the leaf springs and shocks. Keep the factory rear shackle bolt as you will use it in step 10 when installing the accumulator tanks. Remove the bolts that hold the sway bar (if equipped) to the axle and let it hang from the end links. Remove the factory bump stops on the bottom of the frame.

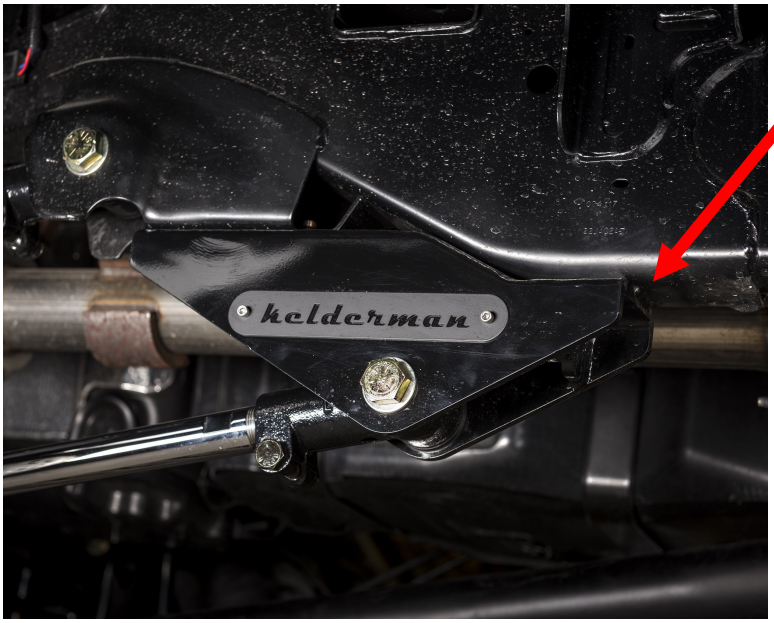
NOTE: THE FUEL TANK WILL NEED TO BE SLID TOWARDS THE CENTER OF THE VEHICLE TO GET THE DRIVERS SIDE FORWARD BOLT OUT OF THE LEAF SPRING PERCH



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

3. Locate the trailing arm mounts (Part # 69321). 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 bottom of the frame with (2) 1/2" bolts, as well as a stitch weld. You will drill two bolts for the 1/2" x 1-1/2" bolts that fasten into the bottom of the frame. Use the provided nut plate and slide it in into the frame. Torque the 1/2" bolts to 85 ft./lbs.

Nut plate slides in here

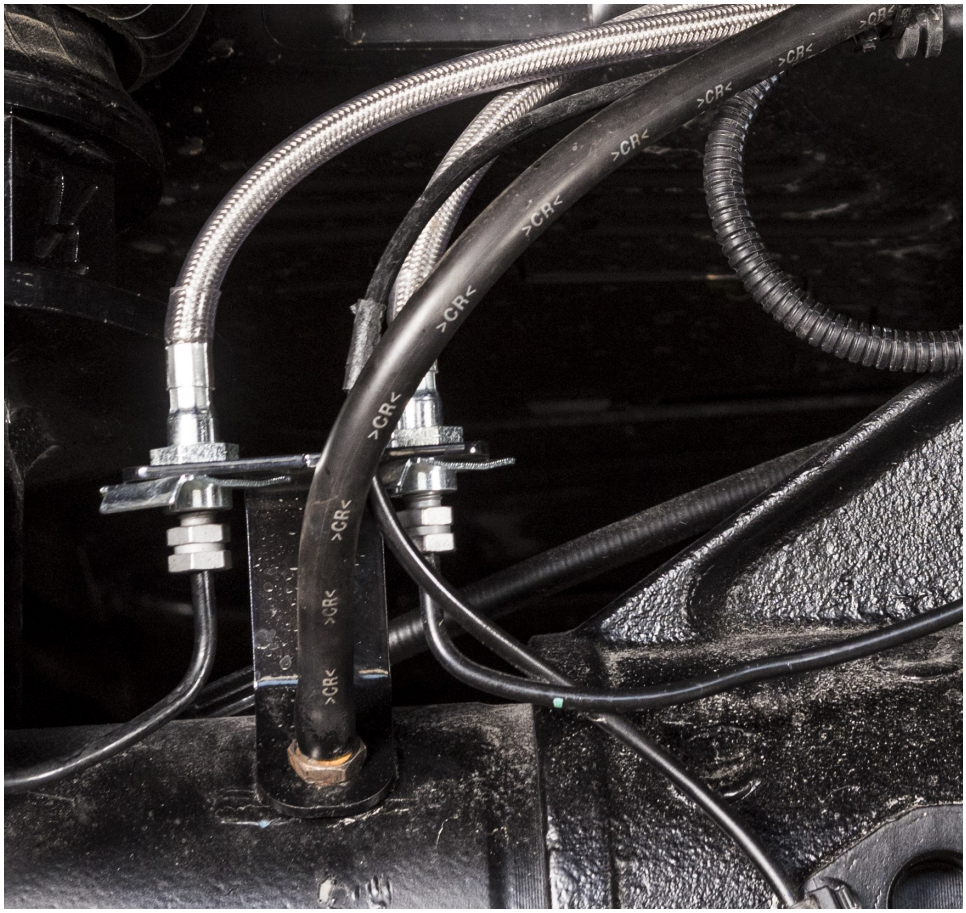


Grind here. Weld the bracket to the frame after the bolts are torqued.

Weld the front side of the mounting bracket.

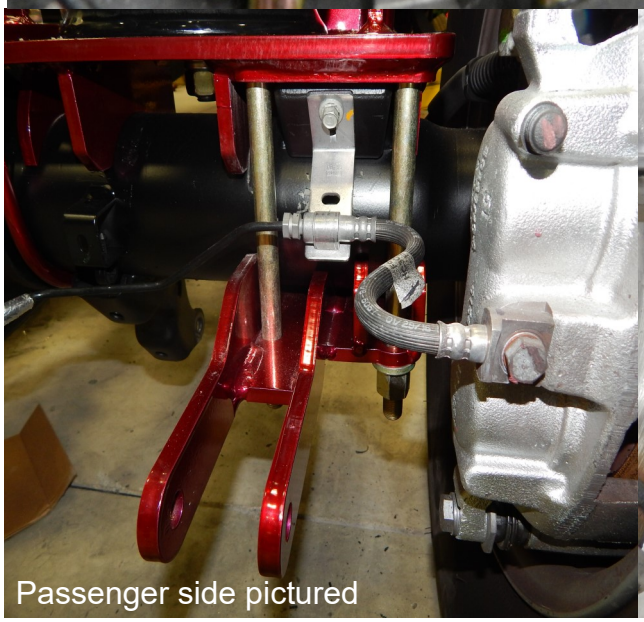
NOTE: WHEN WELDING, USE AN ANTI SURGE PROTECTOR OR DISCONNECT THE BATTERIES TO REDUCE THE CHANCE OF DAMAGING ELECTRONICS.

4. Locate the brake line relocation bracket (Part # 69444) and brake lines. Remove the factory bracket that holds the brake lines on the axle. Install the new brake line bracket. The breather will hold the part in place. Replace the factory brake lines with the longer braided lines. You will need to bend the hard lines on the axle up. Use caution not to kink the lines. *Bleed the brakes prior to all test drives*.

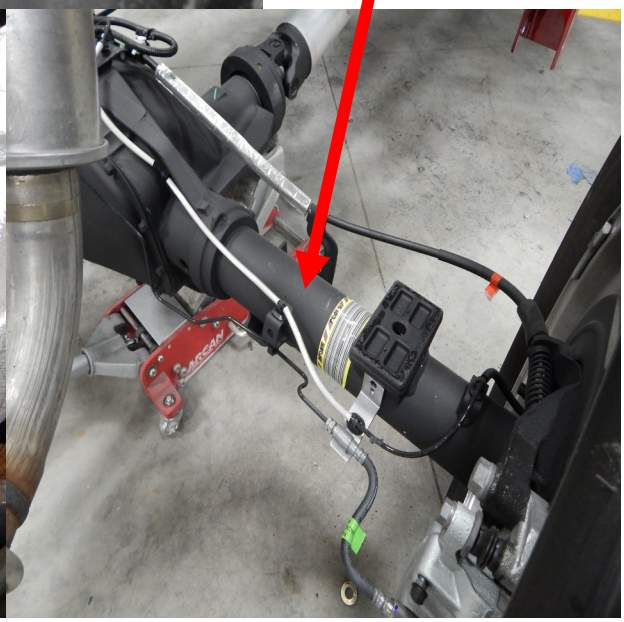


5. Locate the lower air bag mounts (Part # 69358-DS and 69362-PS), axle clamps (Part # 69164-DS and 69165-PS), (2) airbag spacers (Part # 69254) and F5748 air bags. Grab the drivers side lower bag mount and drop two of the 5/8” x 10” bolts in the inner holes of the mounts where the air bag and spacer will overlap. Attach the spacer to the bottom of the air bag with the lock washer and 3/4” nut. Torque to 35 ft./lbs. Place the air bag and spacer on top of the lower air bag mount. Use the 3/4” lock washer and nut to attach. Torque the spacer bolt to 85 ft./lbs. Place the assembly on top of the axle leaf spring perch. Locate the 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). Torque the 5/8” bolts to 175 ft./lbs. Repeat the steps for the passenger side. Make sure to move the ABS line out of the way before dropping the lower air bag assembly on the axle. Failure to do this may cause the ABS wire to be damaged.

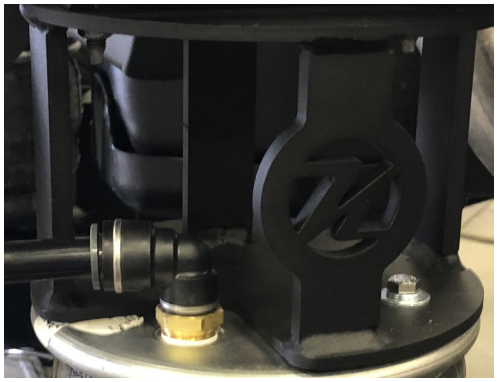
BEFORE MOUNTING THE LOWER AIR BAG MOUNT ON THE PASSENGER SIDE MAKE SURE TO MOVE THE ABS LINE OUT OF FACTORY LOCATION. FAILURE TO DO THIS WILL CAUSE THE LINE TO BE DAMAGED



Passenger side pictured



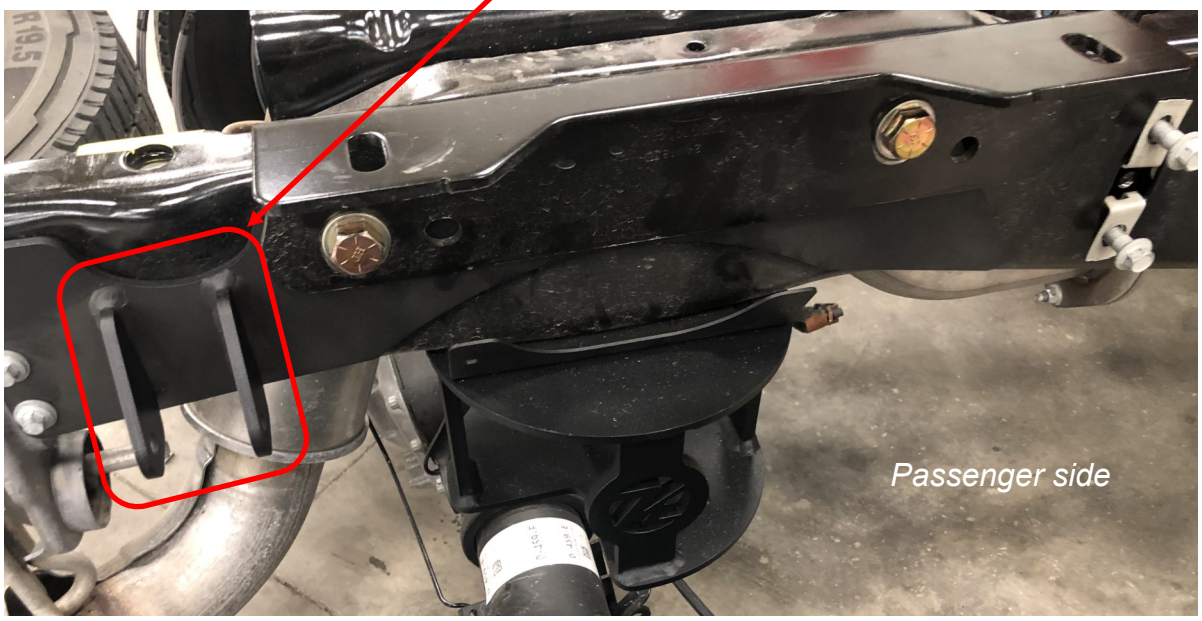
6. Locate the upper air bag mounts (Part # 69363-DS and 69364-PS), shock mounts (Part # 69316-DS and 69319-PS), shock reservoir mounts (Part # 69452), and rear crossmember (Part # 69311). Fasten the shock mounts to the side of the frame with the OEM bolts. The driver's side re-uses the bolts from the factory overload pads. The passenger side shock mount will use the bolts from the overload pas and the factory exhaust hanger mount. The passenger side upper bag mount has the pan hard bar and fastens to the factory hitch and to the frame with (1) 3/4" x 3-1/2" bolt, (2) 5/8" x 4-1/2" bolts, (3) 5/8" x 2" bolts and (2) 1/2" x 1-3/4" bolts. The drivers side upper bag mount attaches to the frame and hitch with the (2) 5/8" x 4" bolts, (2) 5/8" x 2" bolts and (2) 1/2" x 1-3/4" bolts. See step 7 for more details.



Upper Bag Mount

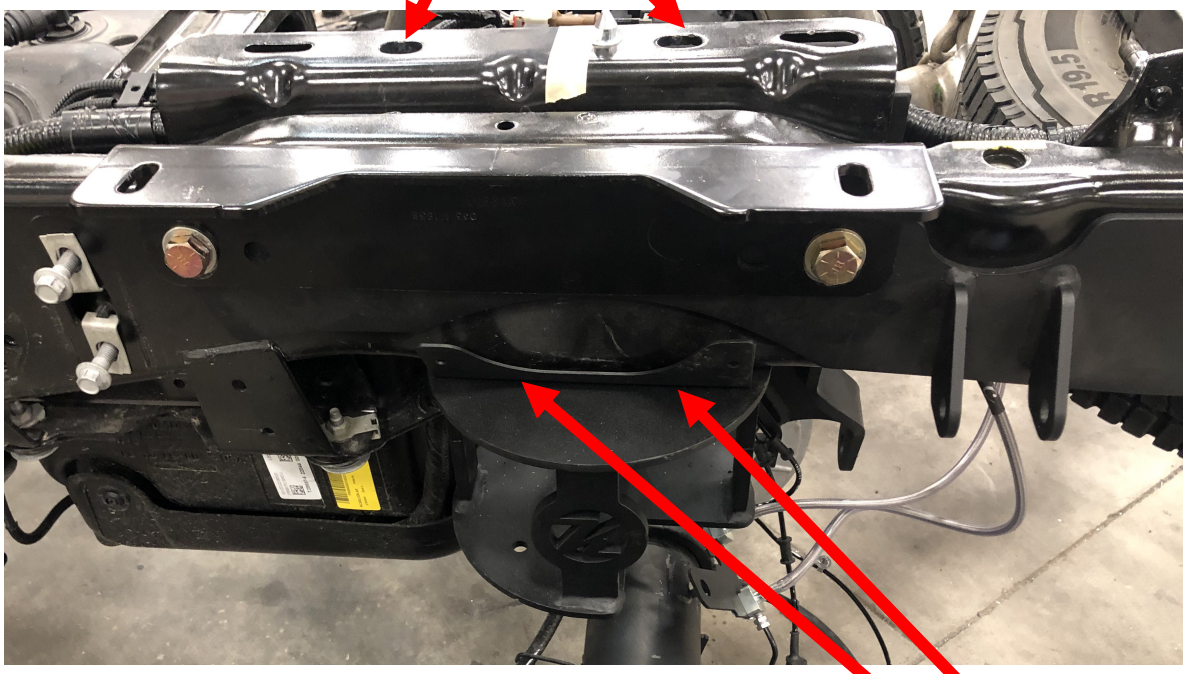
Driver side

Shock Mount



7. Once the passenger shock mount is in place, locate the passenger side upper bag mount/pan hard bar mount and attach it to the bottom of the frame with the studs that held the bump stop in place. You will put the shock reservoir mounts in between the frame and the upper bag mount. *Do not torque the bolts yet.* Locate the (2) 5/8" x 4-1/2" bolts and insert them from the outside of the frame inwards. Locate the (2) 5/8" x 2" bolts and run them top down from the hitch mount to the upper bag mount. *Do not fully tighten these bolts at this time.* If the truck features the factory gooseneck prep package, you do not have to use the provided bolts. The factory hardware will work in it's place.

5/8" x 2" bolts on hitch mount

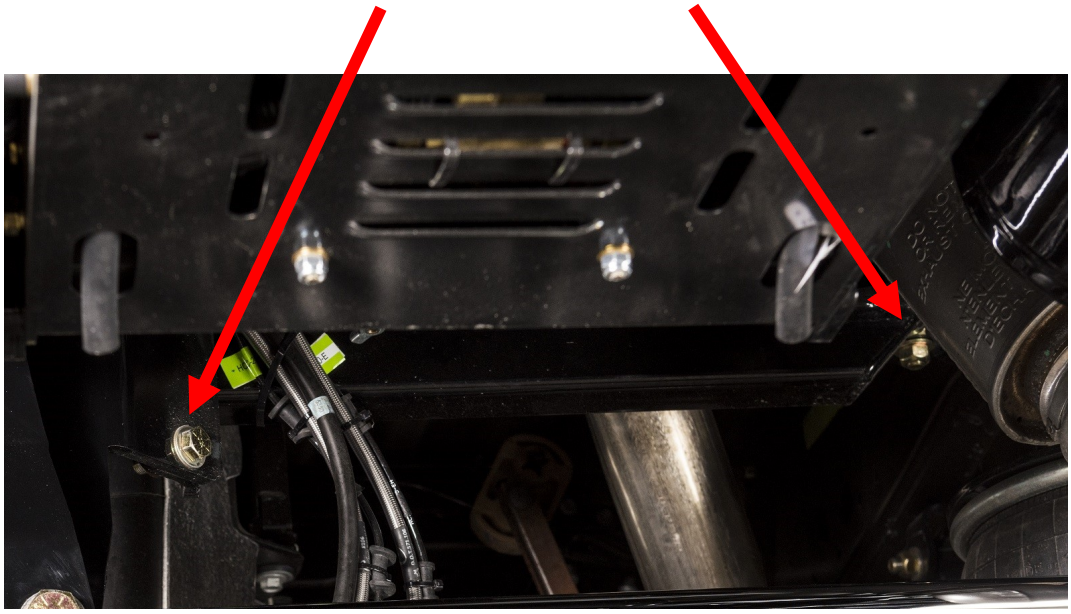


Passenger side shown

Use the factory bolts in the bottom of the frame to locate the upper air bag mount. NOTE: The reservoir mounts fasten in between the frame and upper bag mount.

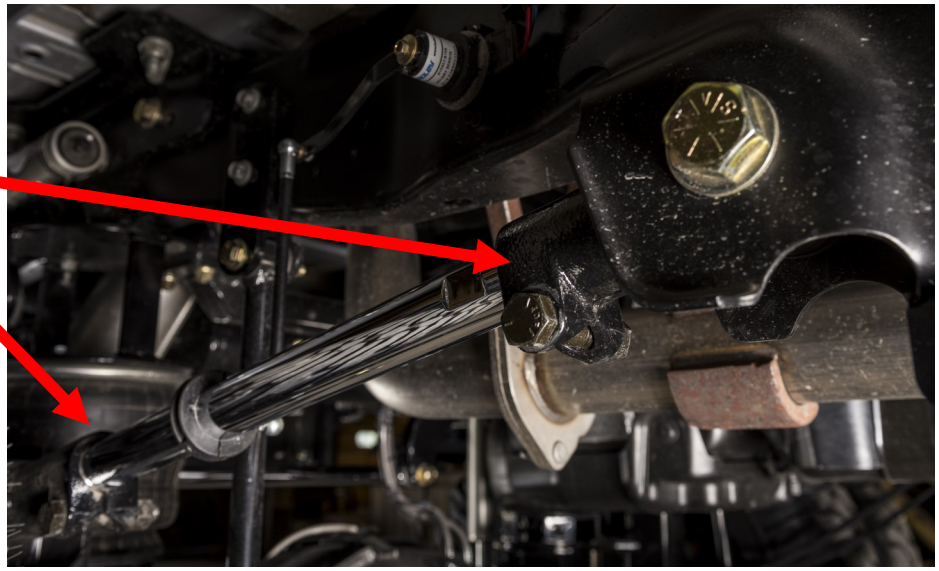
8. The drivers side upper air bag mounts attach to the bottom of the frame where the OEM bump stops were. Locate the crossmember and fasten it between the upper air bag mounts with the (6) 1/2” x 1-3/4” bolts. Attach the 5748 air bags to the upper air bag mounts with the 3/8” x 1” bolts. Torque the 3/8” bolts to 35 ft./lbs. Torque the 1/2” bolts to 85 ft./lbs., the 5/8” bolts to 175 ft./lbs., and 3/4” bolts to 200 ft./lbs. Torque the factory studs in the bottom of the frame to 55 ft./lbs.

Crossmember connects to the upper bag mounts with the 1/2” x 1-3/4” bolts



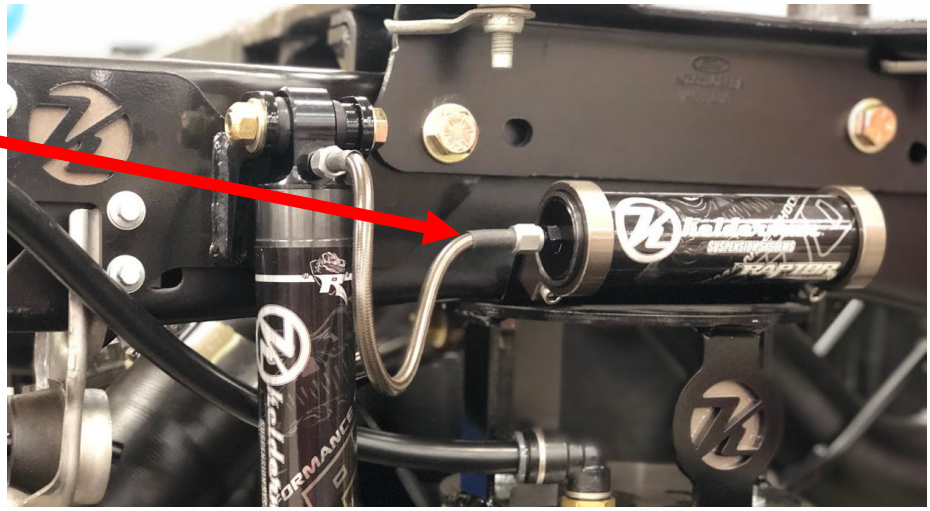
9.Locate the upper trailing arms (Part # 52124) and adjust the knuckles so there is 16-1/2” between the knuckles. The lower bars (Part # 52136) will measure roughly 29-1/2”.This is a good ***starting point*** that will get your axle close to centered and the pinion angle near the original measurement. Some adjustments to the bar lengths may be necessary. Insert the trailing arms into the lower bag mounts with the 7/8” x 5” bolts. Fasten the front of the upper trailing arms into the forward trailing arm mounts with the 7/8” x 5” bolts. On the drivers side, run the emergency brake cable between the two trailing arms. Use the clamp to fasten the brake cable to the upper rear knuckle.

16-1/2” between knuckles on the upper trailing arm



10. Locate the large 90 degree air bag fitting, two accumulator air tanks (Part # 69150-DS and 69151-PS) 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 accumulator tanks mount to the rear factory leaf spring shackle perch with the factory bolt. Make sure to mount them so the large port faces forward. Insert the straight fitting in the tank. The rear tank port uses a 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.

Shock reservoir mount installed

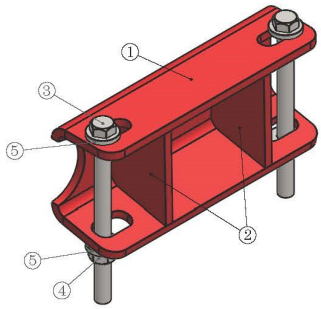


Accumulator tank installed to rear leaf spring mount using factory hardware. Tank needs to be mounted with a slight angle to avoid pinching wiring harness.

Slight angle keeps fitting from hitting crossmember and pinching the wiring harness shown.

11. Locate the rear track par (Part # 10007441). It fastens to the upper and lower pan hard bar mounts with the 3/4” x 4-1/2” bolts. Torque the 3/4” bolts to 175 ft./lbs.

12. Locate the carrier bearing drop bracket (part# 69531). Install between the carrier bearing and the crossmember that the carrier bearing mounts to with the 7/16” x 5” bolts.



13. Locate the rear shocks. They fasten the upper and lower shock mounts with the 1/2” x 3” bolts. The upper 1/4” spacer (part# 18769) goes towards the front of the vehicle. The bottom of the shock fastens into the lower axle clamp with the 1/2” x 3” bolt. Make sure the 1/4” spacer goes towards the outside of the mount (tire side). Torque the 1/2” bolt to 85 ft./lbs.

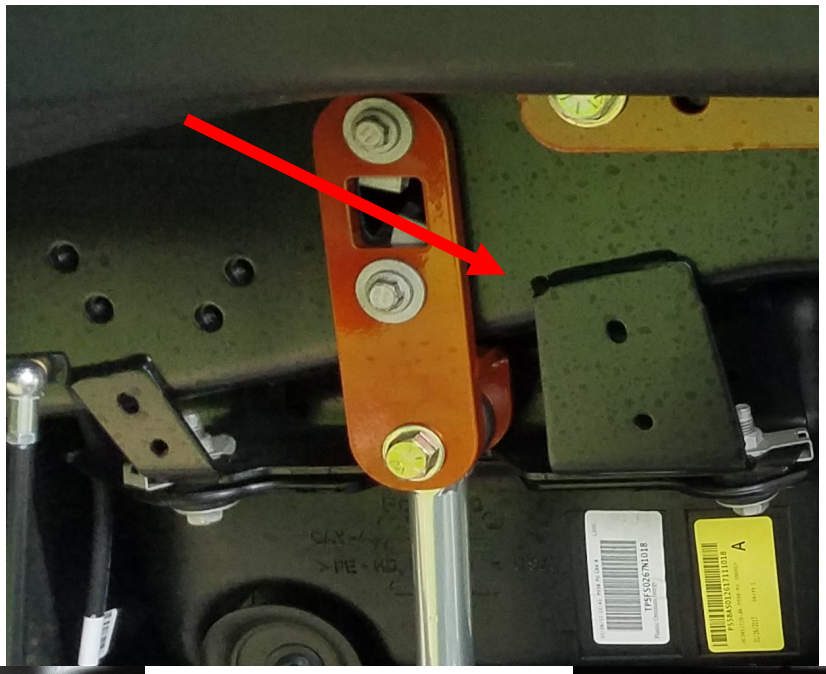
Upper spacer goes on front side of the shock

Lower shock spacer goes towards the tire side

14. Locate the sway bar (Part # 1139-182KLD) and mounting clamps (Part # 80046). The sway bar fastens to the axle in the factory location (see photo on next page). 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 on the on the bolt head.

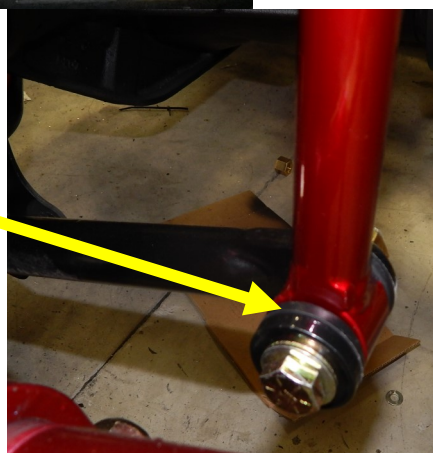
The upper end of the sway bar attaches to the sway bar mounting brackets (Part # 69335-DS and 69338-PS). The upper sway bar mounting brackets attach to the frame with either the factory bolts (if the truck was equipped with the optional sway bar) or the 1/2” x 1-1/2” bolts. Torque all the 1/2” bolts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

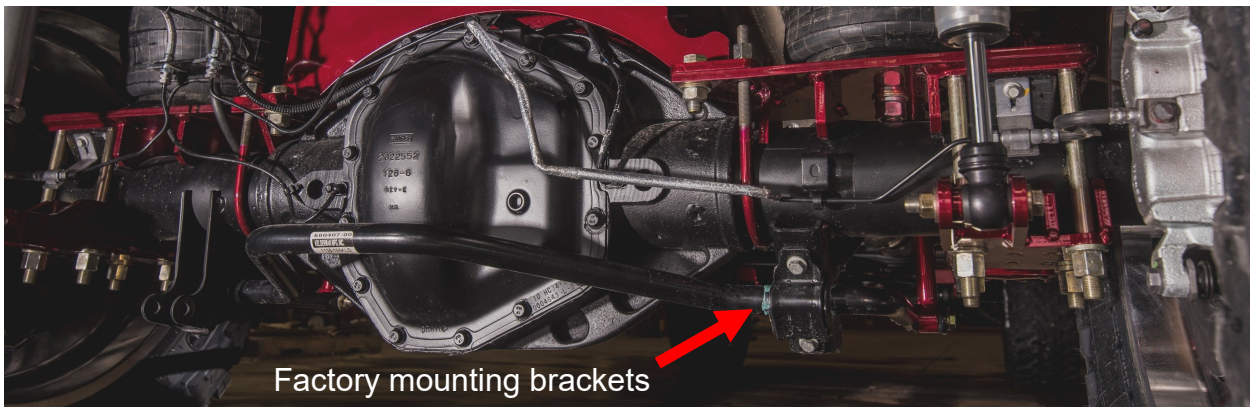
The threads on the inside of this bolt are ground down smooth so they don’t hit the DEF tank bracket.
Driver side only



Machined washer

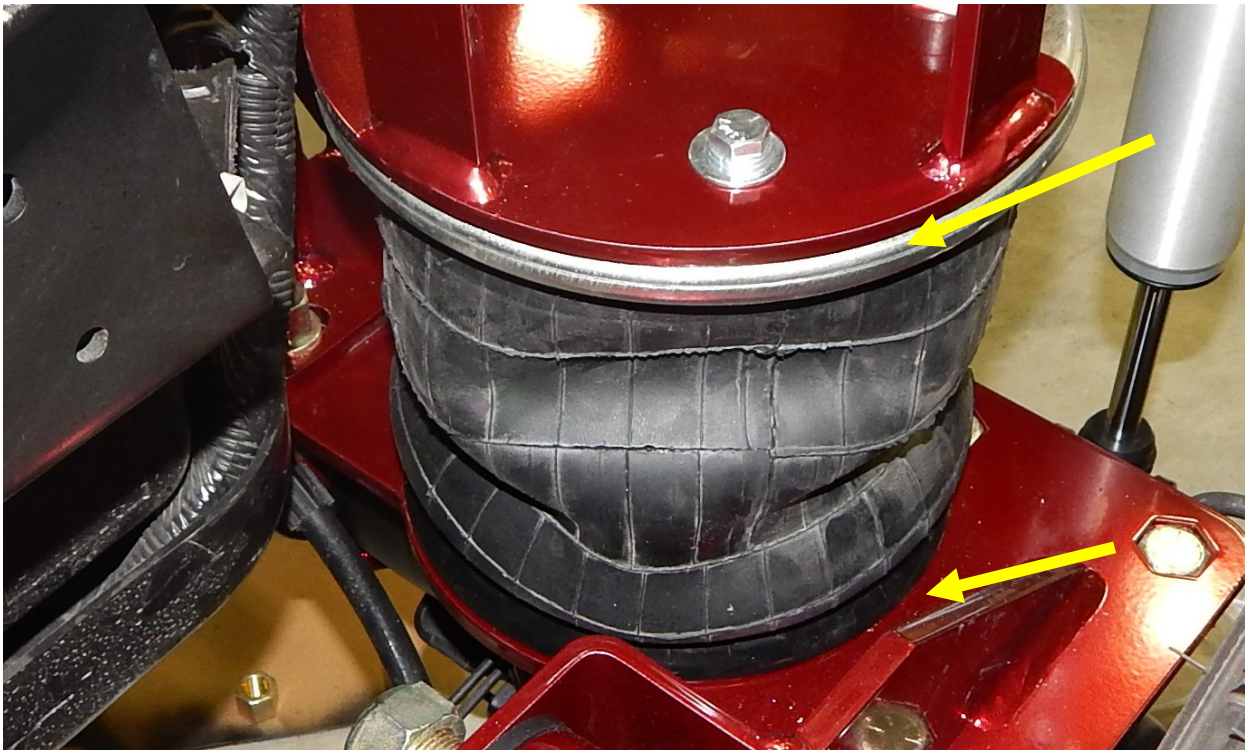
Passenger side





14. Once the install is complete, inflate the air bags to 8”. This is the middle range where the air bag rides the best. The bag can run as low as 7” and as high as 9”. Ride quality isn't as good at 9” as it is between 7-8”). To check the alignment of the rear axle, measure side to side with the front axle. It works best to use a tape measure against the rear axle housing and measure up to the front king pin. Both sides should be within 1/8”. When adjusting the axle to square it up, make sure to turn the upper and lower bars on that side the same amount. Also, when lifting these trucks, caster is very important on the front axle. You can use the 4 link bars to add caster. Alignment shops should be able to help the fine tuning process if the truck has a pull to one side after installation is complete.

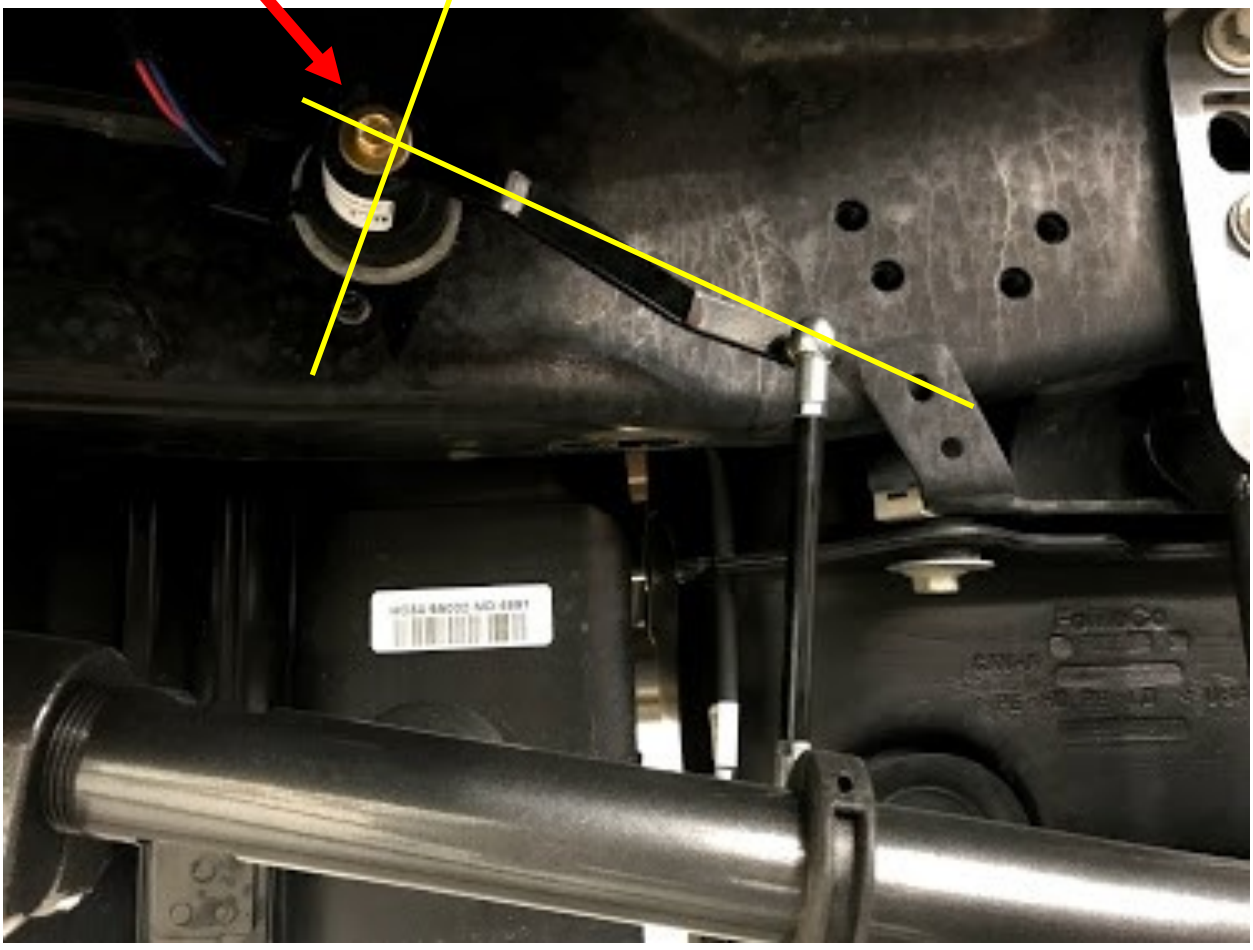
Measure between the air bag mounting plates when measuring the height on the air bag Recommended ride height is 8”.



15. There are two different types of height control devices used on lift kits: mechanical and electronic. The more common 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 two 13/64” holes and thread the hole with a 1/4-20 tap. These holes will be tilted. With the air bags at 8”, you will want to set the height control sensor so the arm is straight out when at ride height. This lets the “sweep” of the sensor be close to the middle range. When setting the linkage length, make sure the air bag is still at 8” and the sensor arm is 90 degrees with the sensor body. The collar will fasten to the top trailing arm straight down from the end of the linkage. Make sure the collar doesn't turn. If the collar doesn't fasten tight on the trailing arm, remove the collar and use a file or grinder to take a few thousands off the mating surfaces. There can be a small variance in the side of DOM of the tubing and thickness of the powder coat.

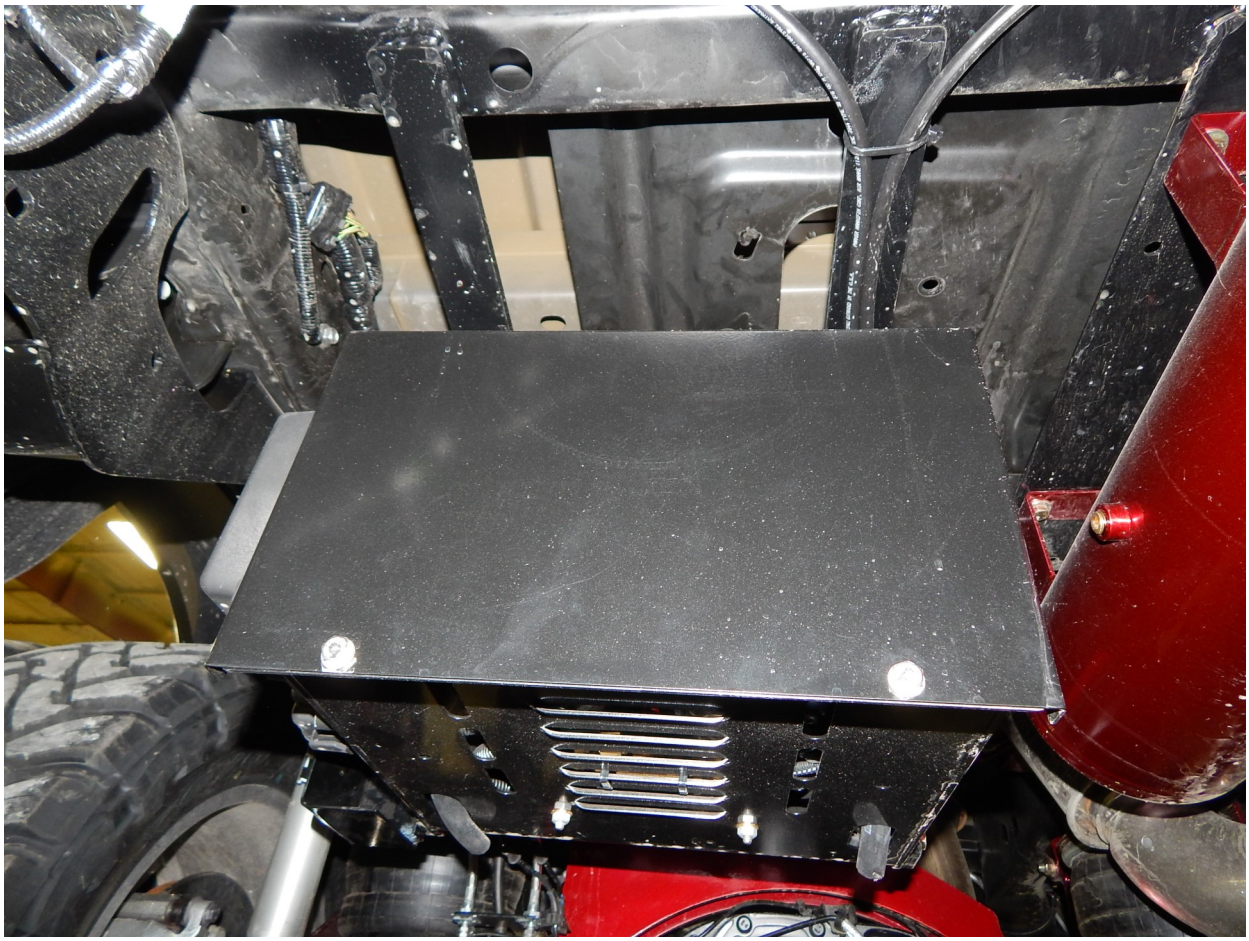
Sensor body is rotated slightly

Sensor arm is straight out of the sensor body 90 degrees



Air Control Box Mounting

16. The best place for the compressor 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!* There are very detailed videos on YouTube.com/Keldermantrucks that gives exact measurements for the air tanks and Air Lift box installation. Mount one air tank beside the compressor box and mount the other tank on the front side of the crossmember.



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.

17. The mechanical height control valve mounts to the frame just like the Hadley sensor, but it does not need to be slightly angled on the frame like the electronic sensor. Make sure the arm is straight out at ride height. *NOTE: Before installing the mechanical valve, rotate the arm clockwise and counter clockwise 5-6 times each way. This will get the internals ready for operation.*

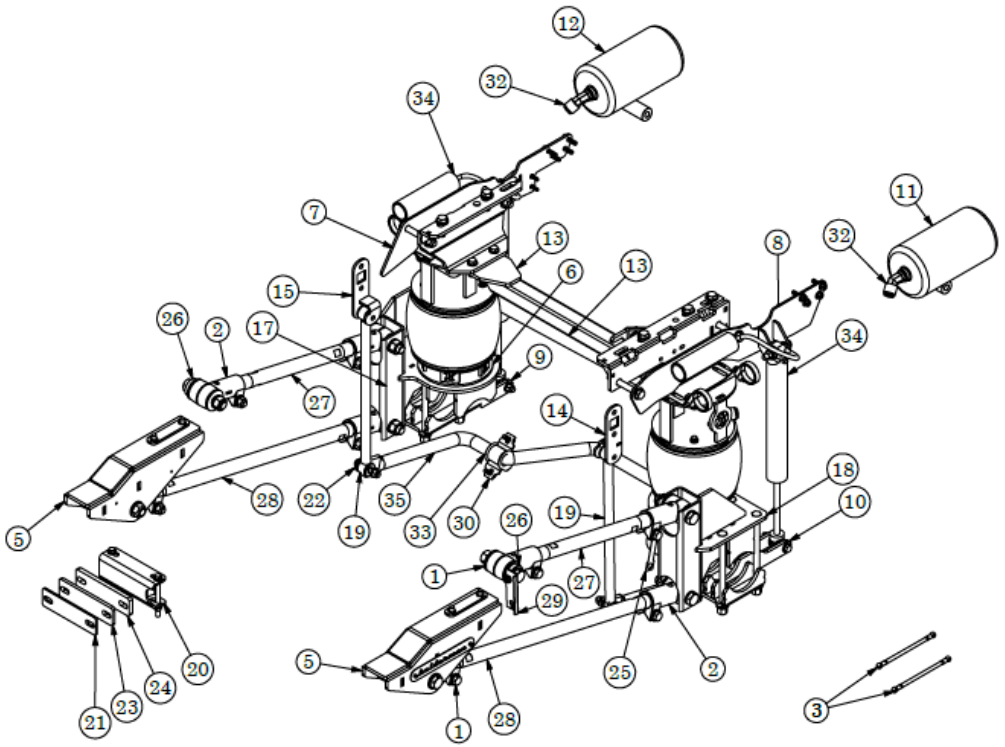
Mechanical Valve Mounting Tips

-the height control valves have an approximate 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 sensors

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
		Assemblies	
1	18498	Assembly - Cast Knuckle 10006	4
2	18499	Assembly - Cast Knuckle 10005 - 1" ID	4
3	51743	Assembly - 8" CTC Height Control Ball End Linkage Rod	2
4	10007441	Assembly - Panhard Bar - 28.5" Bar Length - 3/4" Bolt	1
5	10008052	Assembly - Forward Trailing Arm Mount	2
6	10008202	Assembly - 2" Bag Riser (5748)	2
7	10008798	Assembly - Upper Bag Plate (PS) - 8-10" Lift	1
8	10008803	Assembly - Upper Bag Plate & PHB Mount (DS) - 8-10" Lift Kit	1
9	10008807	Assembly - (PS) 4.5" Axle/Shock Bracket	1
10	10008808	Assembly - (PS) 4.5" Axle/Shock Bracket	1
		Weldments	
11	69150	(DS) Accumulator Tank	1
12	69151	(PS) Accumulator Tank	1
13	69311	Crossmember	1
14	69335	(DS) End-Link Bracket	1
15	69338	(PS) End-Link Bracket	1
16	69341	Brake Line Relocation Bracket	1
17	69362	(PS) Lower Bag Mount (4.5" Axle)	1
18	69358	(DS) Lower Bag Mount (4.5" Axle)	1
19	69449	20" End-Link	2
20	69531	Carrier Bearing Drop (11.70")	1
		Parts	
21	10579	Plate - Carrier Bearing Shim - 1/4"	1
22	11551	Plate - 1/4" - 1.5"OD x .53" ID x 1/4"	2
23	11927	Plate - Carrier Bearing Shim - 3/8"	1
24	11928	Plate - Carrier Bearing Shim - 1/2"	1
25	17551	Plate - 18ga - Wire/Hose/E-brake Cable Retainer	1
26	18768	CRR - 2.00" OD x .875" ID x .5625" - Trailing Arm Spacer	2
27	52122	22" Trailing Arm Bar	2
28	52136	36" Trailing Arm Bar	2
29	69444	Brake Relocation Bracket	1
		Purchased Parts	
30	80046	Retainer (D-Ring)	2
31	80094	90° Male Elbow Tube 1/4" x 1/4-18 NPT	2
32	80261	45° Male Male Elbow, 3/4" x 3/4" -14 NPT - Brass Fitting, Swivel	2
33	80311	2017+ Ford OE Style Rear Sway Bar Bushing - 1-3/8" ID	2
34	10003384	Shock - Rear - Kelderman 2.0 RMT	2
35	10009282	1.375" Sway Bar - (Roadmaster 580591-00)	1
		Hardware	
36	12211	Bolt - 3/8"-24 X 1" Gr.8	1
37	12629	Hex Bolt - 7/8"-14 X 5" GR.8	2
38	13008	Flat Washer USS - 3/4" - GR5 - Z	4
39	13022	3/8" Flat Washer	2
40	13122	3/8"-24 Lock Nut	1
41	13170	7/8"-14 Hex Nut Gr.8	2
42	13893	M10 Lock Washer	4
43	13949	Flange Hex Bolt: M10-1.5 X 35mm - 10.9 - BO	4



REV	ECN	CHANGE DESCRIPTION	CHANGE BY	DATE
B		Johnny Joint PHB	TA	2/3/21
C		1-1/2" Dia to 1-3/8" Sway Bar	TA	6/18/21
D		Shock Moved Rearward 1/2"	TA	9/3/21

3RD ANGLE PROJECTION

UNLESS OTHERWISE SPEC. DIMNS. IN INCHES

STD. TOLERANCES X.X ±.060 X.XX ±.030 X.XXX ±.010 FRAC.DIM. ±1/32" Deg. ± .5°

A DO NOT SCALE DRAWING

Approximate Weight = lbs

MATL SPECS:

DESCRIPTION: $PRPSHEET:{Description}

PROJECT: $PRPSHEET:{Project}

PART NUMBER: KLM-69027

DESIGN BY: DATE: 6/13/2022

SHEET 1 OF 3

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