



KLM16825  
D4RX-45-CC-13  
Revised 12/4/13

# 2008+ Dodge 4500/5500 HD Chassis Cab 4-Link Rear Installation Instructions



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# INTRODUCTION

## IMPORTANT!

It is important that the entire installation instructions be read thoroughly before proceeding with suspension installation.

## PRODUCT INSTALLER RESPONSIBILITIES

Installer is responsible for installing the product in accordance with Kelderman Mfg., Inc. specifications and installation instructions.

Installer is responsible for providing proper installation of vehicle components and attachments as well as required or necessary clearance for suspension components, axles, wheels, tires, and other vehicle components to ensure a safe and sound installation and operations.

Installer is responsible for advising the owner of proper use, service, and maintenance required by the product and for supplying maintenance and other instruction as readily available from Kelderman Mfg., Inc.

## WARNING!

A correct installation must result in the suspension and axle being “loaded” within the range specified by axle and suspension manufacturers. Please check vehicle specifications and intended usage to insure axle will be within Gross Weight Rating (GAWR). No alteration of any suspension component is permitted.

## DEFINITION OF TERMS

**WARNING** –indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

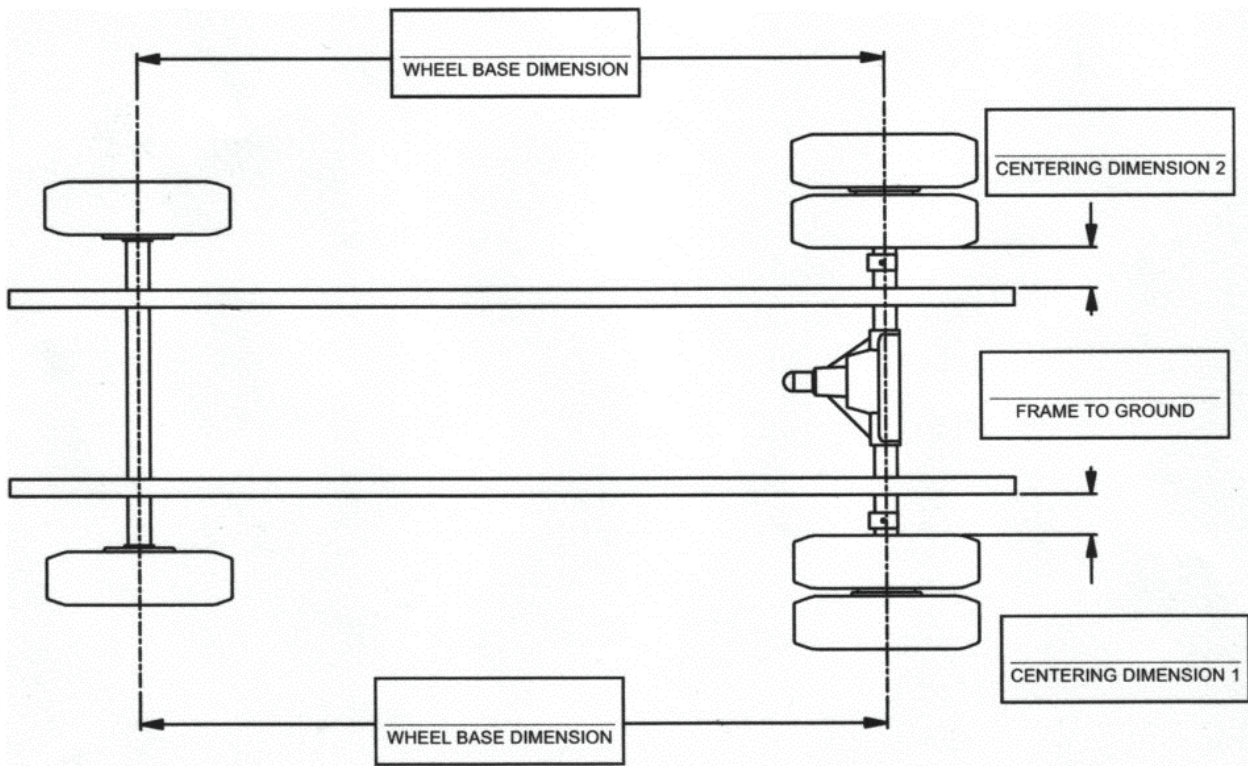
**CAUTION** –a potential hazardous situation may result in property damage.

**NOTE** –provide information or suggestions that help you correctly perform a task.

***TORQUE*** –the italicized torque alerts you to tighten fasteners to a specified torque value.

## PRE-INSTALLATION CHECKLIST

- Check the vehicle wheel alignment prior to installation to ensure no precondition already exists; record the information for verification.
- Measure and record the wheelbase and centering dimensions before beginning installation.
- Measure and record the height from the ground up to the rear of the frame.
- Measure and record the pinion angle. *See page 5 for specific instructions.*
- Remove the attached body, if applicable. Remember to disconnect all electrical connections and fuel filler tube, before removing the body. The installation can also be completed using a lift to raise the vehicle. If using a lift, chassis body removal may not be necessary but removal of rear wheels will aid in installation.
- If not using a lift, block the front wheels so the vehicle cannot roll.
- Jack up the rear frame of the truck in order to unload the rear leaf springs. Do not lift the wheels off the ground (if not using a lift to install the suspension). Do not jack on the axle itself.



## DETERMINING PINION ANGLE

The pinion angle is critical in the correct installation of your Kelderman Air Suspension System. The pinion angle can be easily determined with the use of a magnetic angle gauge.

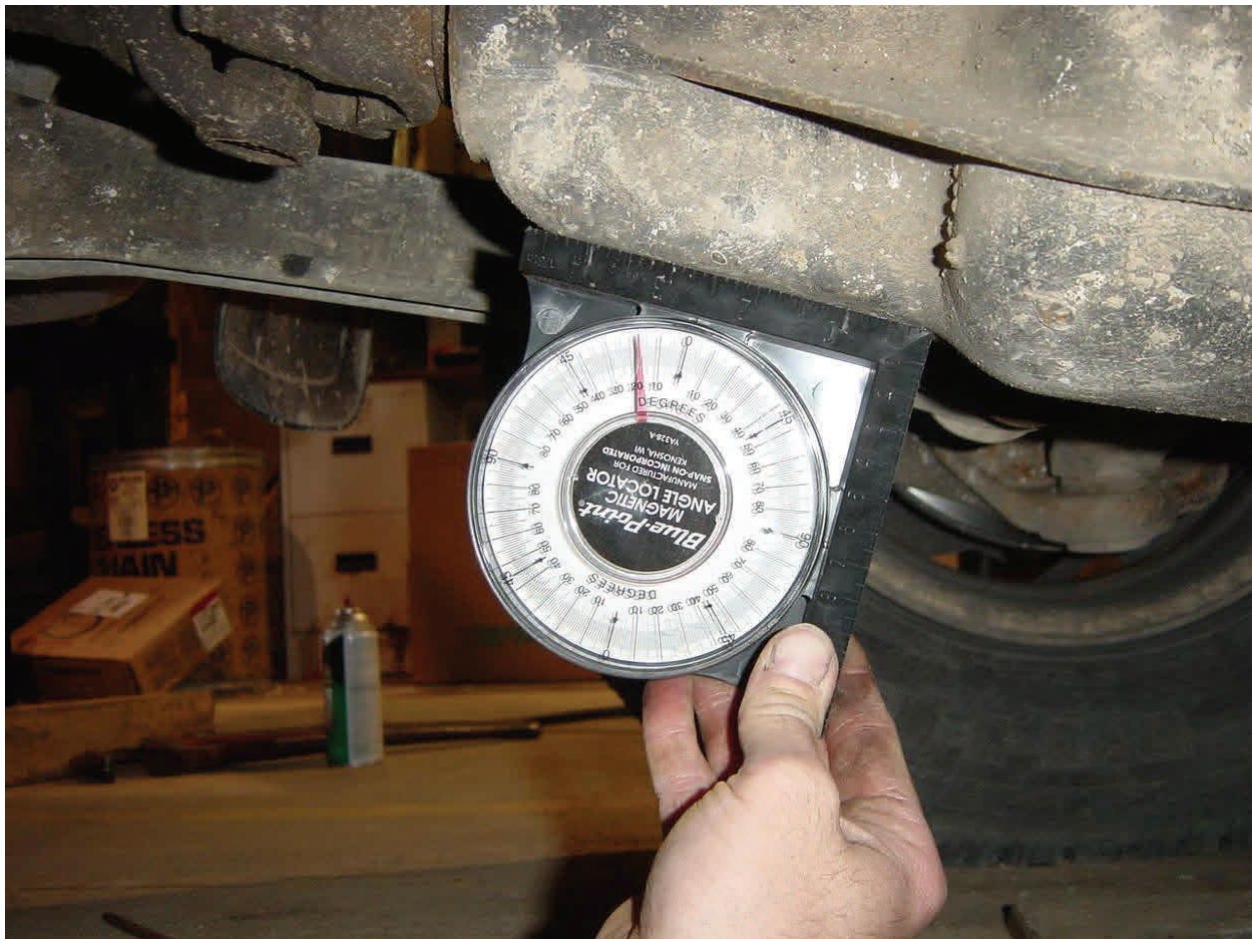
To measure the angle, find a flat surface to attach angle gauge. Mark the location of your gauge with a marking pen or scribe. Record the angle on the gauge for future reference.

Note: It may be necessary to remove gauge.

Marking the position of the gauge is critical to ensure accurate angle readings during adjustment steps of the assembly of your Kelderman Air Suspension System.

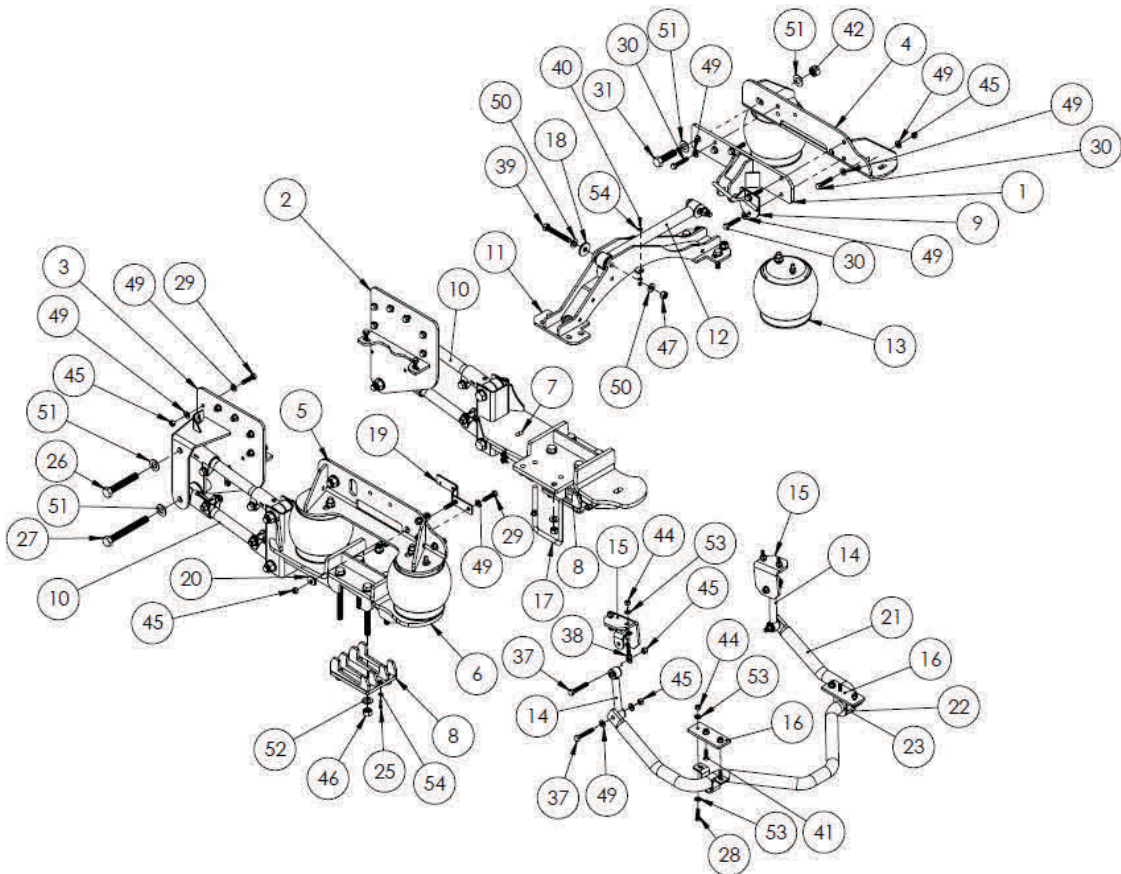
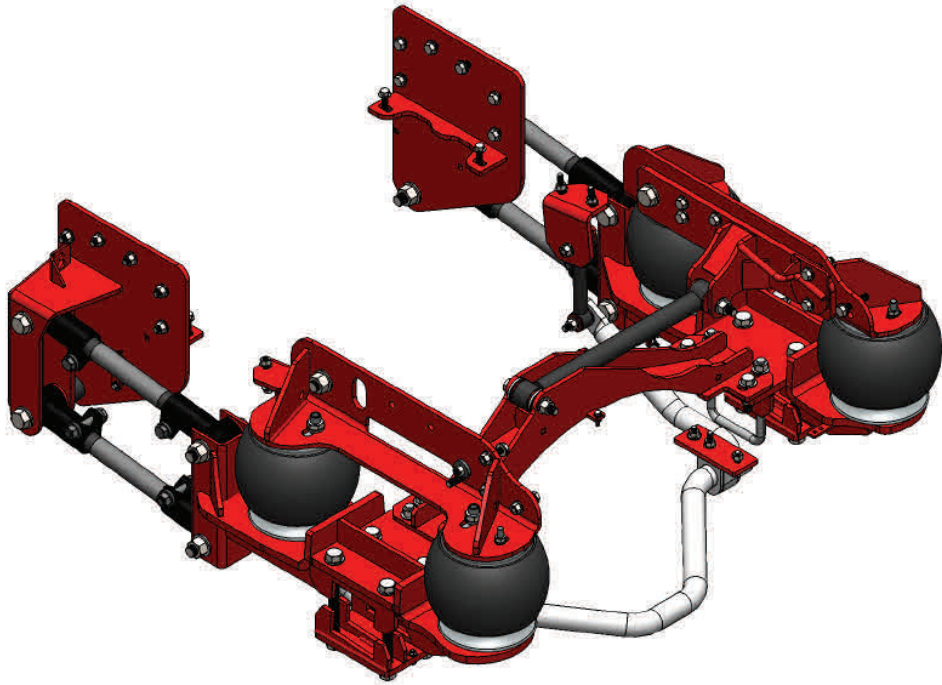


Pinion Angle: \_\_\_\_\_°



2013+ RAM 4500/5500 4-Link Rear (D4RX-45-CC-13)

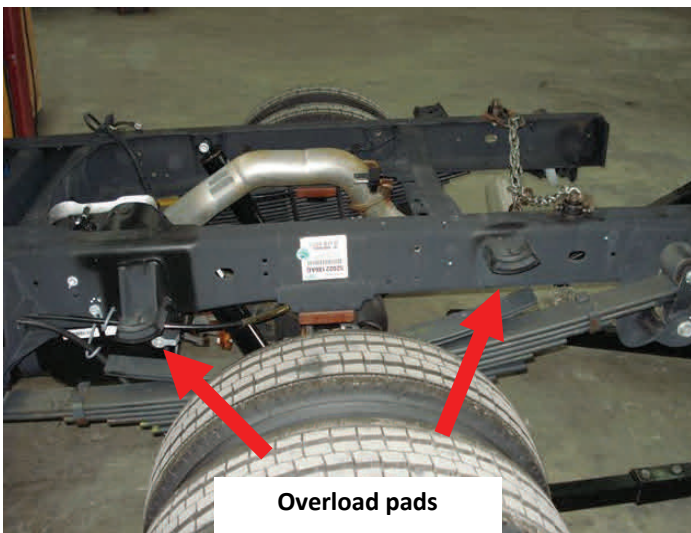
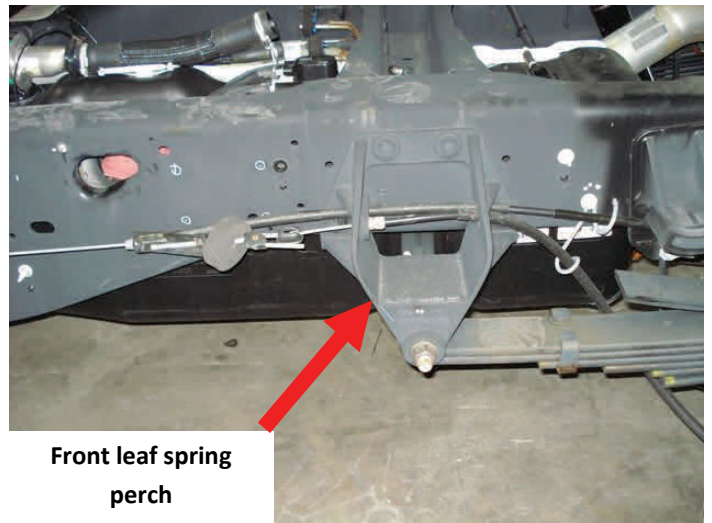
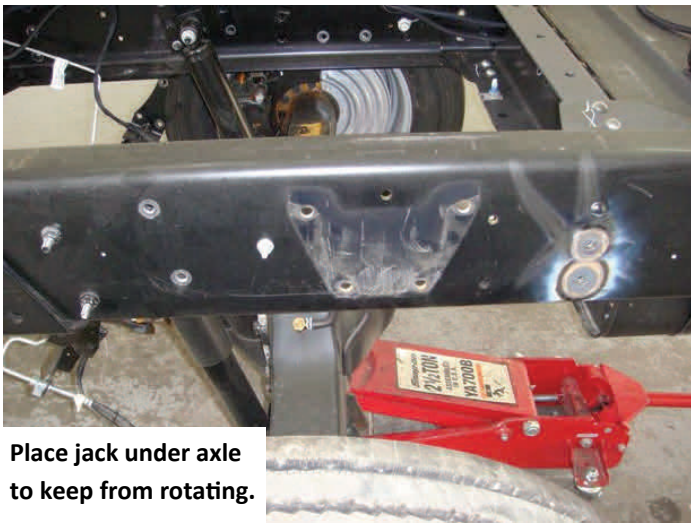
Exploded Views



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	17034	(PHB) Upper Frame Assembly	1
2	17036	(PS) Side Plate	1
3	17037	(DS) Side Plate	1
4	17038	(PS) Upper Bag Assembly	1
5	17039	(DS) Upper Bag Assembly	1
6	17030	(DS) Lower Bag Assembly	1
7	17031	(PS) Lower Bag Assembly	1
8	17033	Lower Axle Clamp	2
9	30578	Exhaust Hanger	1
10	17927	18" Trailing Arm	4
11	30572	PHB Crossmember	1
12	30581	PHB 18.125"	1
13	10019-X-4	FIRESTONE AIR BAG - 5323	4
14	17040	6 3/4" ENDLINKS	2
15	50006	End Link Mounting Bracket	2
16	50077	Sway Bar Plate	2
17	13812	UBOLT	2
18	16955	(PHB) Spacer	2
19	16636	Standoff Bracket, Brake Bracket	1
20	30582	Washer (Conversion Kit)	1
21	580290-00_1	Swar Bar 1129-130KLD	1
22	8141B_1	Sway Bar 1129-130KLD	2
23	PART1	Sway Bar 1129-130KLD	2
24	HBOLT 0.6250-18x4x4-8		1
25	HBOLT 0.2500-28x1x1-8		8
26	HBOLT 0.8750-14x5.5x5.5-8		2
27	HBOLT 0.8750-14x7.5x7.5-8		2
28	HBOLT 0.4375-20x1.5x1.5-8		8
29	HBOLT 0.5000-20x2x2-8		15
30	HBOLT 0.5000-20x2.5x2.5-8		7
31	HBOLT 0.8750-14x3x3-8		1
32	HBOLT 0.8750-14x2x2-8		1
33	HBOLT 0.8750-14x5x5-8		4
34	HBOLT 0.6250-18x2.5x2.5-8		4
35	HNUT 0.6250-18-D-8		9
36	HBOLT 0.7500-16x8x8-8		8
37	HBOLT 0.5000-12x3x3-8		4
38	HBOLT 0.4375-20x2x2-8		4
39	HBOLT 0.6250-11x4.5x4.5-8		1
40	HBOLT 0.2500-20x1x1-8		2
41	CSBOLT 0.4375-14x1.5x1.5-8-8		2
42	HNUT 0.8750-14-D-8		10
43	HNUT 0.2500-28-D-8		8
44	HNUT 0.4375-20-D-8		14
45	HNUT 0.5000-20-D-8		25
46	HNUT 0.7500-16-D-8		8
47	HNUT 0.6250-11-D-8		1
48	HNUT 0.2500-20-D-8		2
49	Preferred Narrow FW 0.5		53
50	Preferred Narrow FW 0.625		16
51	Preferred Narrow FW 0.875		20
52	Preferred Narrow FW 0.75		18
53	Preferred Narrow FW 0.4375		25
54	Preferred Narrow FW 0.25		21

## DISASSEMBLY

- 1) Before disassembling any components, measure the pinion angle and record the angle in the space provided on page 5. This is important as you will need to put the axle back to this measurement at the completion of the installation.
- 2) Jack the rear of the frame so that most of the tension is off of the leaf springs. Place a set of jack stands under the frame, block the tires so that the axle will not move and place a jack stand under the pinion so it does not rotate.
- 3) Remove the leaf springs, spring perches, factory sway bar end link mounts, and the over load pads. Use a torch to cut off the rivets and use a punch to remove the rivets. Make sure that there are no fuel lines, brake lines, or wiring that can be damaged while using a torch.

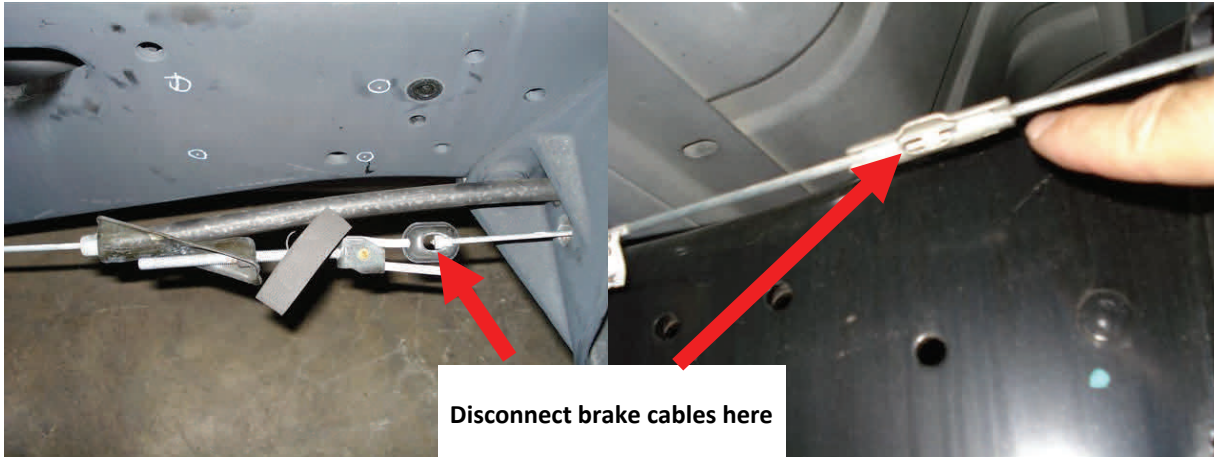


NOTES:



## DISASSEMBLY

- 4) On the drivers side, separate the emergency brake cables. The emergency brake cable will be installed onto the front trailing arm mount in a later step.



- 5) On the top of the axle, cut off the spring perches that are welded to the axle. Also remove the square block that holds the emergency brake cable in place.

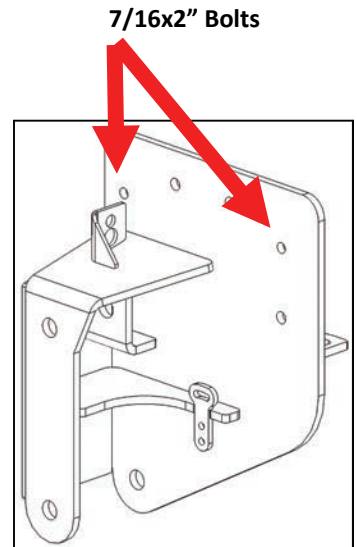


Disassembled View



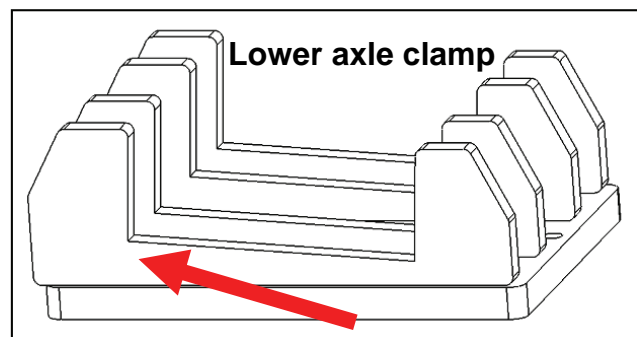
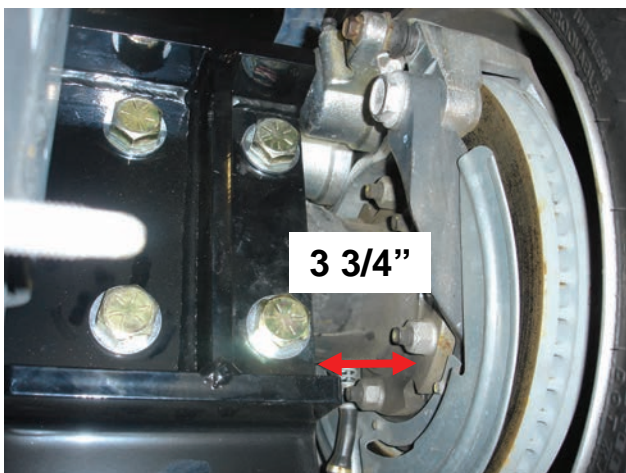
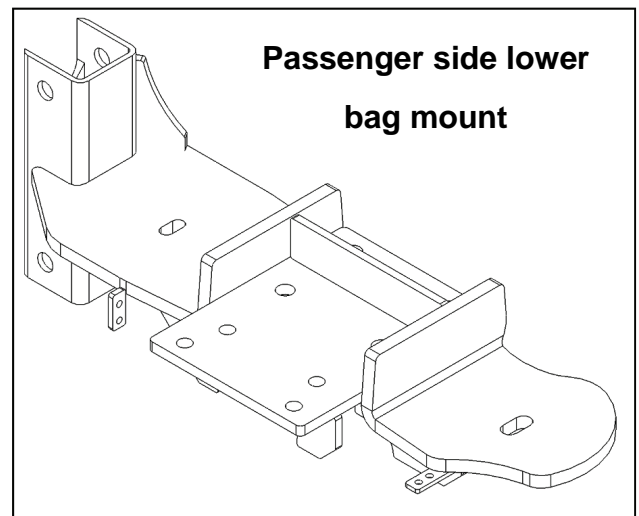
## INSTALLATION

1) Locate the front trailing arm mounts (driver side part #17037, passenger side part #17036 ). These mount to the frame in the factory mounting holes from the removed spring perch using two 7/16x2" and six 1/2x2" bolts, washers, and top lock nuts per side. Once you have all the bolts started, **torque the 7/16" bolts to 50 lb/ft, and the 1/2" bolts to 85 lb/ft.**



**Driver side plate**

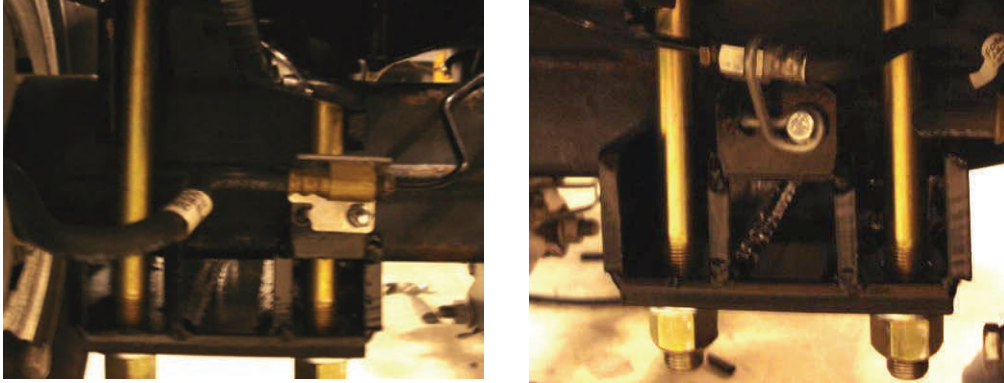
2) Locate the lower bag mounts (driver side part #17030, passenger side part #17031), and the eight 3/4x8 1/2" bolts. Insert the 3/4" bolts through the lower bag mounts. Place these mounts over the axle and measure 3 3/4" from the inner brake caliper mount surface to the lower bag plate (please see Fig.1). Fasten to the axle using the lower axle clamps, 3/4" flat washer, and 3/4" lock nuts. **NOTE: Check the orientation of the lower axle clamps. Make sure that the tall angle of the bottom axle towards the front of the truck.** Drop the bolts down from the top. Do not tighten the bolts until the pan hard bar mounts and pan hard bar have been installed.



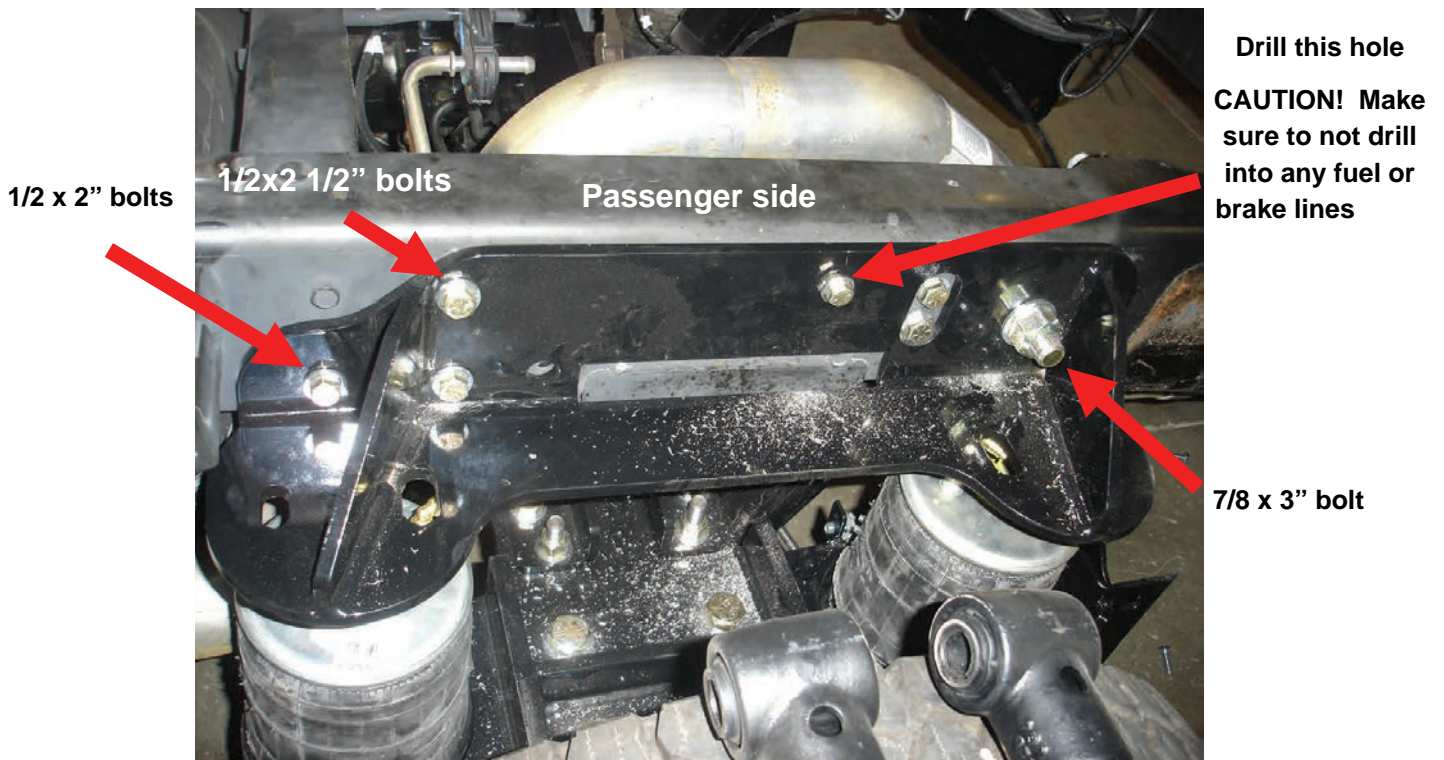
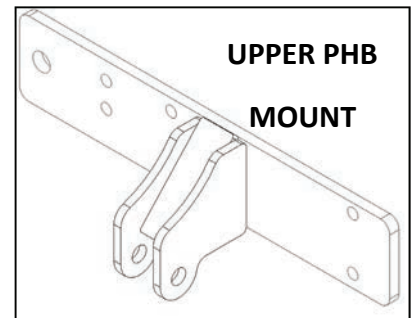
**Tall angle towards the front**

## INSTALLATION

- 3) Relocate brake line mount to the lower axle clamps and secure with a 1/4x1" bolt, flat washers, and nut. **Torque bolts to 60 lb/in.**



- 4) Locate the passenger side upper bag mounts (part #17038) and the pan hard bar mounting plate (part #17034). Use two 1/2x2" bolts to "sandwich" the frame between the upper bag mount, pan hard bar mounting plate, and the factory exhaust hanger. Use four 1/2x2" bolts and one 7/8x3" bolt to finish installing the assembly. You will need to drill a 1/2" hole for the center most 1/2" bolt. **Torque the 1/2" bolts to 85 lb/ft and the 7/8" bolt to 275 lb/ft.**

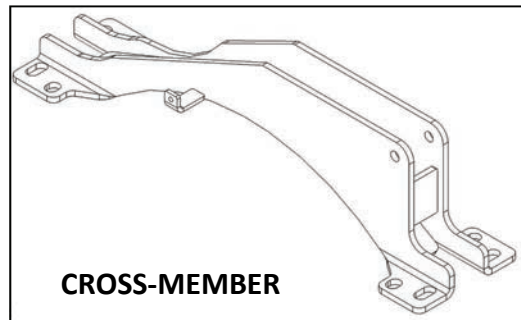
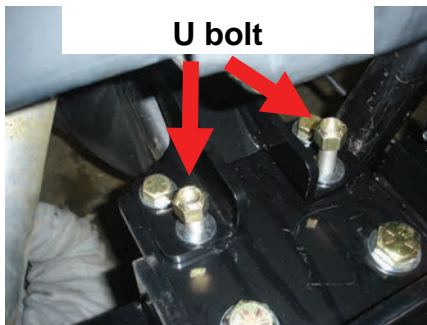


## INSTALLATION

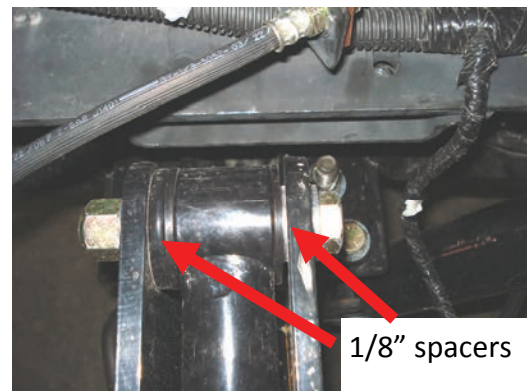
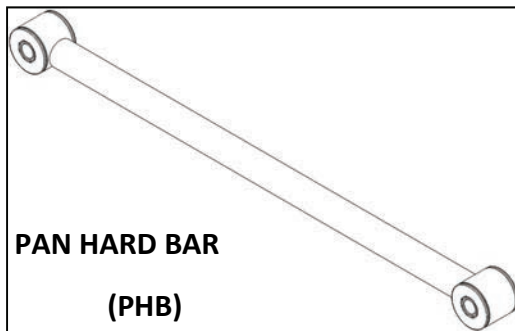
### Please note Pages 16-19 for '13 Model Changes

5) Locate the driver side upper air bag mount (part #17039). You will use five 1/2x2" bolts and one 7/8x2" bolt to secure the upper bag plate to the frame. **Torque the 1/2" bolts to 85 lb/ft and the 7/8" bolt to 275 lb/ft.**

6) Locate the cross member (part #17035). Fasten to the lower bag mounts using the four 5/8x2" bolts and the U-bolts. The pan hard bar mounting point should be installed on the drivers side. Slide the U-bolts up from the bottom and start the nuts but do not tighten. Once you have all the bolts started you can tighten bolts using a criss cross pattern beginning with the bottom air bag mounts and the U-bolts last. **Torque 3/4" bottom air bag bolts to 175 lb/ft., the U-bolts to 85 lb/ft., and the 5/8" bolts to 150 lb/ft.**



7) Locate the pan hard bar (part #17032). Use the 5/8x4 1/2" bolt, flat washers, lock nuts, and 1/8" spacers to fasten the pan hard bar in on the driver side. Use the 5/8x4" bolt, flat washers, and lock nuts to fasten the pan hard bar the upper mount on the passenger side. **Torque the 5/8" bolts to 150 lb/ft.**

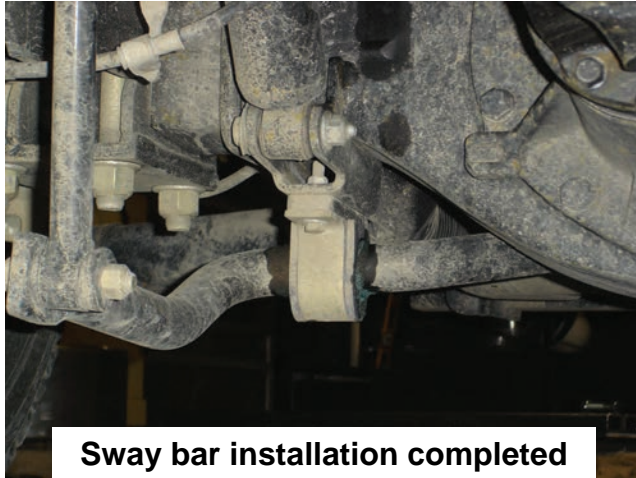


6) Locate the four air bags (part #F5323). Use the 3/4" and 1/2" nuts, flat and lock washers to fasten the top of the air bags into place. Use the 1/2x3 1/2" bolts to fasten the bottom of the air bags into place. **Torque these to 35 lb/ft.**

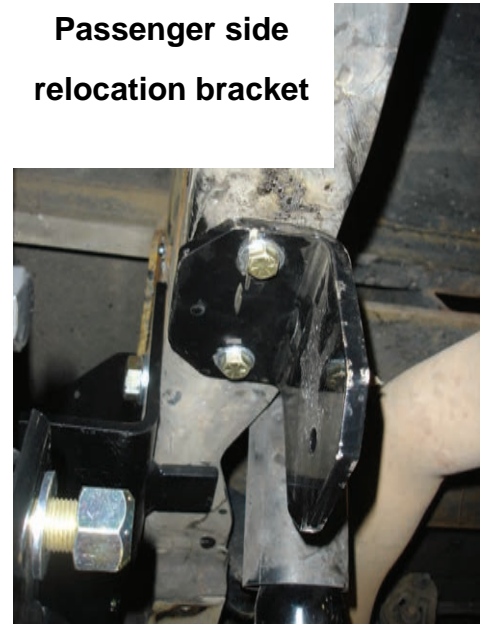


## INSTALLATION

7) Locate the sway bar end link relocation bracket. Fasten to the frame using the four 7/16x2" bolts, **torque to 50 lb/ft.** Locate the sway bar, end links, "D" bushings, and adapter plates. The adapter plates have 3/8" stud sticking out which will install into the back hole of the factory sway bar mount, you will need to drill the existing holes to accommodate the 3/8" bolts. Fasten the sway bar and the "D" bushings to the adapter plate. Fasten the end links to the sway bar and sway bar relocation bracket using 1/2x3" bolts, flat washers, and lock nuts.



**Passenger side  
relocation bracket**



**Passenger side**



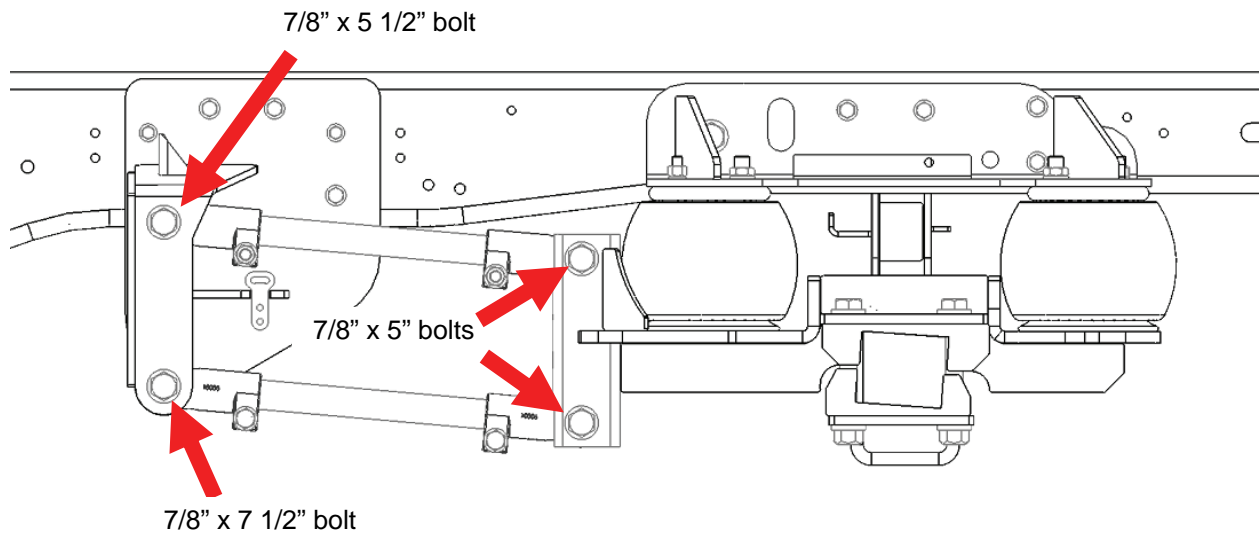
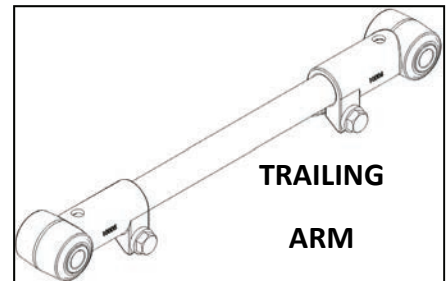
**Driver side**



## INSTALLATION

8) Locate the trailing arms. The upper trailing arm fastens into the front side plate using 7/8x5" bolts, flat washers, and lock nuts, inserting the bolts from the outside in. **NOTE: On the driver side, make sure to run the emergency brake line between the trailing arms.** The rear of the upper trailing arm fastens into the lower bag mount using 7/8x5" bolts, flat washers, and lock nuts inserting the bolts from the inside out. Do not tighten the bolts until alignment is completed.

9) The lower trailing arms fasten into the front side using 7/8x7 1/2" bolts, flat washers, and lock nuts inserting the bolts from the outside in. The rear of the lower trailing arms fastens into the lower bag mount using 7/8x5" bolts, flat washers, and lock nuts from the inside out. Do not tighten bolts until alignment is completed.



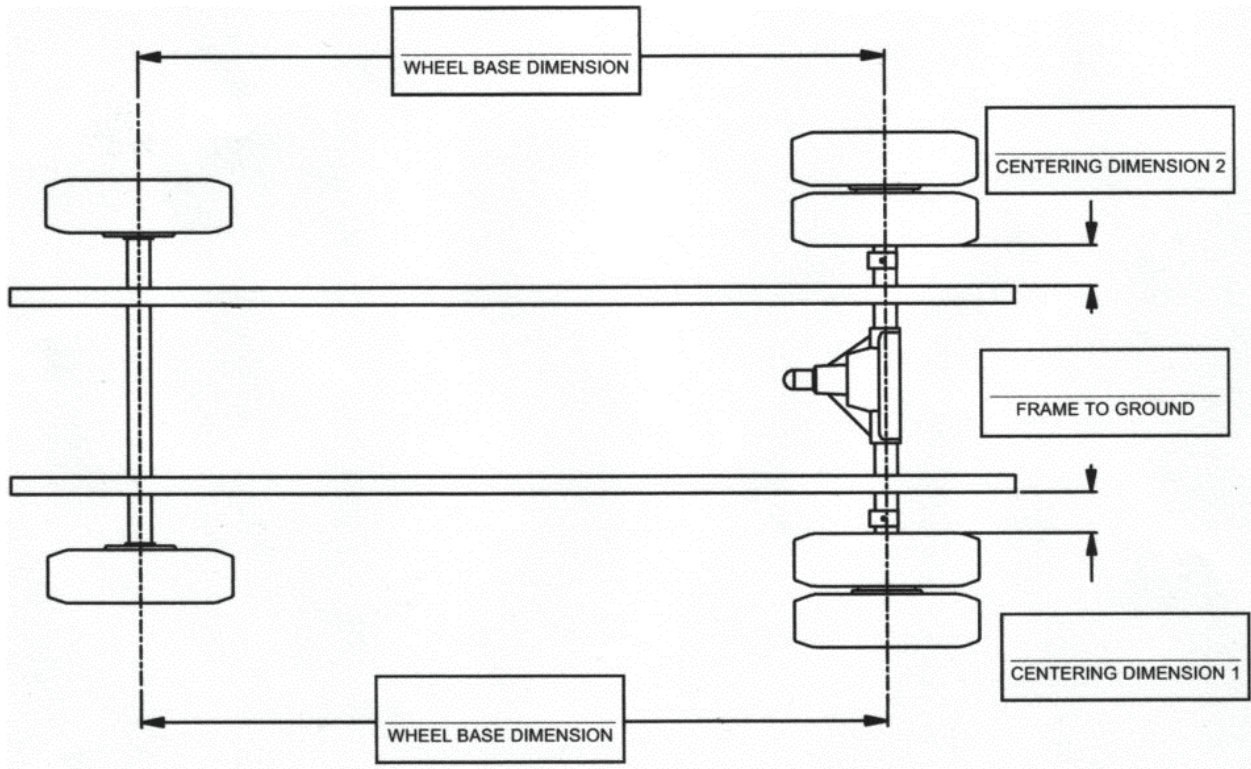
## ALIGNMENT

- 1) Once all the brackets are installed and tightened, adjust the jack stands that are holding up the rear of the frame so that the distance between the upper and lower air bag mounting brackets is 8". Once this height is set, refer to the original measurements taken in pre-installation checklist. **After the adjustments are made torque all the 7/8" bolts to 275 lb/ft.**
- 2) Check wheelbase measurement on vehicle: To adjust wheelbase, turn either both left or both right trailing arms as a set. This will prevent the trailing arms from binding. Keep checking measurement and adjusting until your wheelbase measurement is the same on both sides within 1/8".
- 3) Check pinion angle with angle gauge. It is important to place gauge in exact position used to take measurement in the beginning. To adjust pinion angle, adjust either both top or both bottom trailing arms. Always turn them the same direction and only 1/2 turn at a time. Keep checking measurements and adjusting until your pinion angle is the same as your initial measurement.

### Torque table

	Fastner	Nut/Bolt	LB/FT	Torqued?	Paint mark?
Front trailing arm mounts	1/2"	UNF Nuts	85		
Front trailing arm mounts	5/8"	UNF Nuts	150		
Front trailing arm mounts	7/16"	UNF Nuts	50		
Lower bag mounts	3/4"	UNF Nuts	175		
Upper bag mounts	1/2"	UNF Nuts	85		
Upper bag mounts	5/8"	UNF Nuts	150		
Air bags	1/2"	UNC Nuts	35		
Air bags	1/2"	UNC Bolts	35		
Air bags	3/4"	UNF Nuts	35		
Pan hard bar	5/8"	UNF Nuts	75		
Pan hard bar U-Bolt	1/2"	UNF Nuts	85		
Pan hard bar mount	1/2"	UNF Nuts	85		
Pan hard bar mount (lower)	5/8"	UNF Nuts	150		
Trailing arms (pinch bolts)	5/8"	UNC Nuts	150		
Trailing arms	7/8"	UNF Nuts	275		
D bushing (factory OEM)	12 mm	Bolts	75		

# FINAL DIMENSION SHEET



NOTES:



## **OWNER GUIDELINES**

The Kelderman suspension needs no lubrication and little maintenance. However immediate corrective action should be taken if a serious malfunction occurs.

**CAUTION!** If maintenance or service is to be done on the air system be sure to drain all air from the system. Serious injury could occur if components are removed while the system is full of air.

### **PRODUCT OWNER RESPONSIBILITIES**

- Owner is solely responsible for pre-operation inspection, periodic inspections, maintenance, and use of the product as specified in the particular Kelderman Mfg. instructions available by product model, except as specified in this warranty, and for maintenance of other vehicle components. Of particular importance is the re-torque of fasteners including axle bolts, four link bolts, and pan hard bar bolts. This re-torque must be performed within 90 days of the suspension being put into service.
- Owner is responsible for “down time” expenses, cargo damage, and all business costs and losses resulting from a warrantable failure.
- The Kelderman Air Suspension is fully automatic in controlling the height of the chassis. No manual intervention to control air pressure is needed during the course of operation.
- On a mechanical control system the compressor switch must be on for the compressor to operate. During the starting circumstances, (i.e. extremely cold weather) it is recommended to turn the compressor switch off until the vehicle is running so it will not draw current from the battery. The compressor is controlled by the pressure switch located in the air control box. This switch automatically turns the compressor on when the tank pressure falls below the preset low point of the pressure switch and turns the compressor off when the tank pressure reaches the preset high point of the pressure switch.
- On a mechanical control system the low pressure warning light indicates a severe drop in the tank pressure (below 45 PSI). Immediate corrective action should be taken to determine the cause of air loss. Compressor switch should be turned off if low pressure warning light is on and remains on even after the compressor has run for a normal period of time. **NOTE: The low pressure warning light could come on briefly when the “dump” feature is being used.**
- It is important to release any moisture contained within the air tank on a regular basis. This is done by pulling on the attached release cable for approximately 5 seconds. Not releasing the moisture on a regular basis could cause the system to operate properly.
- On an electronic control system it is vital that you remove the main fuse located by the battery during any jump starting of the battery or replacement of parts.

### **CHECK AT EVERY VEHICLE SERVICE INTERVAL:**

Check ride height to ensure that it is within 1/4”.

Check for air leaks around fittings.

### **CHECK AFTER THE FIRST 1000 MILES:**

Recheck and tighten any loose fasteners.

Check for any loose or worn components.

### **CHECK AFTER EVERY 30,000 MILES:**

Check trailing arm and pan hard bar bushings for wear; replace if worn.

## 2013 Model Year Updates

**NOTE: Differences between the 2013 and 2014 model year are shown on pages 22-23. The part # will remain the same for 2013/2014 kits.**

For the 2013 model year, the Ram 4500/5500 Chassis Cab vehicles will use a redesigned, rear pan hard bar (PHB), crossmember, exhaust hanger and brake line relocation bracket. The changes in the installation process are shown below:

1.) Remove bump stops on the bottom of the frame. These stops are located directly over the axle. Carefully remove the bump stops using a cutoff wheel or grinder.



bottom of the frame. These stops are located directly over the axle. Carefully remove the bump stops using a cutoff wheel or grinder.



Grinder shown removing bump stop.

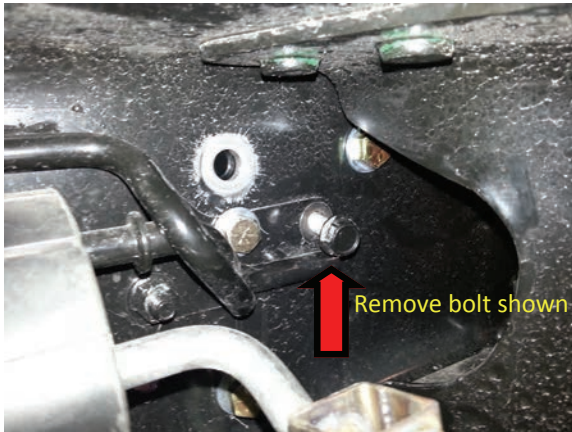
Below,  
Left—



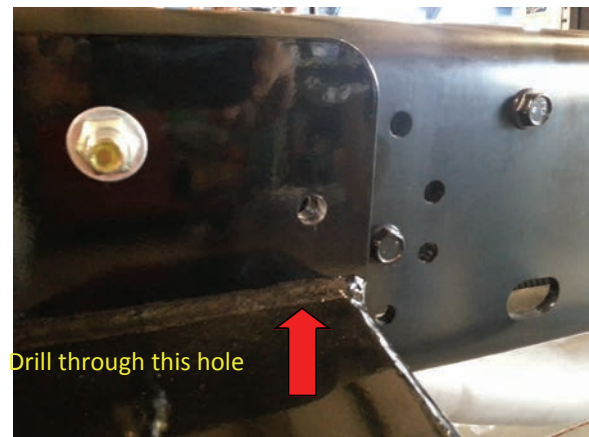
Below, Right—Bump stop shown removed.

2.) For the installation of the side plate on the passenger side, a bolt is removed from the factory exhaust hanger. A pre-drilled hole in the side plate will allow for a bolt to be placed through the factory hanger and frame and into the side plate. Remove the factory bolt and make clearance through the side plate using a 1/2" drill bit. Use the 7/16" x 2" bolt provided as shown below.

Below , left—factory exhaust hanger shown.



Below, right— Hole drilled to allow clearance for side plate bolt into exhaust hanger.



3.) The hanger on the factory exhaust near the PS by the rear differential will require cutting to allow clearance for the cross member. Take a grinder/cutoff wheel and remove the very end of the hanger (shown below).

Below , left— Factory exhaust hanger above rear differential.

A section of this hanger must be removed.



Below, right— Section of exhaust hanger shown removed.



4.) See Pages 10-11 for installation of crossmember and pan hard bar setup. NOTE: PHB and crossmember setups are different on the 2013 model from the 2008-2012 models due to exhaust and brake line locations. These parts install the same as on previous years, shown on Page 10.

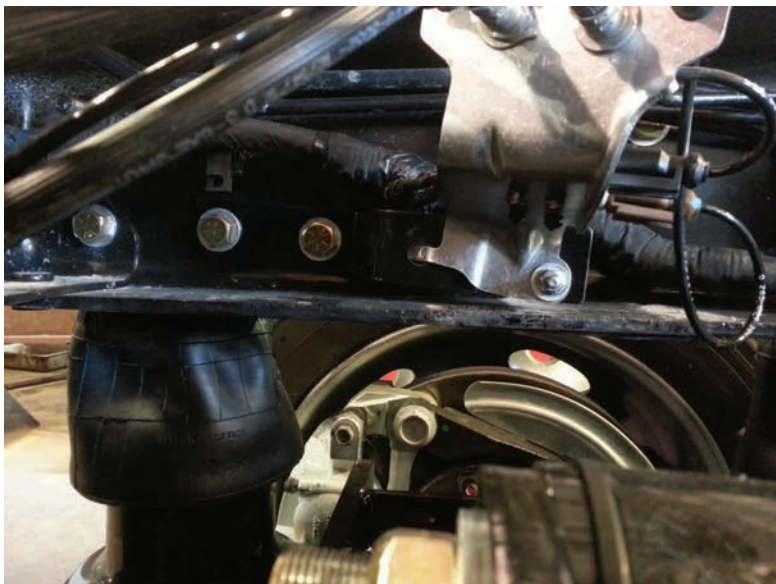


Above Photo—Completed installation of crossmember, pan hard bar and exhaust hanger.

NOTE: 2013 Ram 4500 Chassis shown.

5.) A brake line relocation bracket is provided to allow for the necessary clearance for the new crossmember and pan hard bar.

Below , Left—Brake line relocation bracket shown above Kelderman Crossmember.

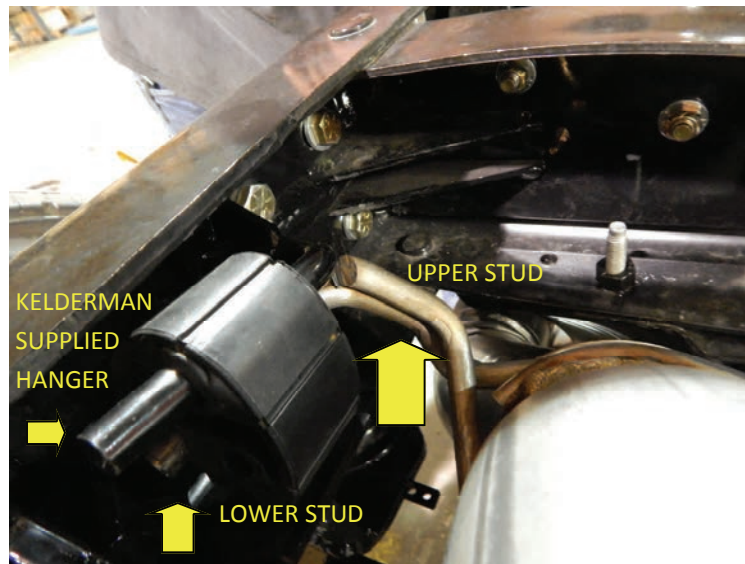


Below, Right—Brake Line Tab shown mounted on rear of differential.

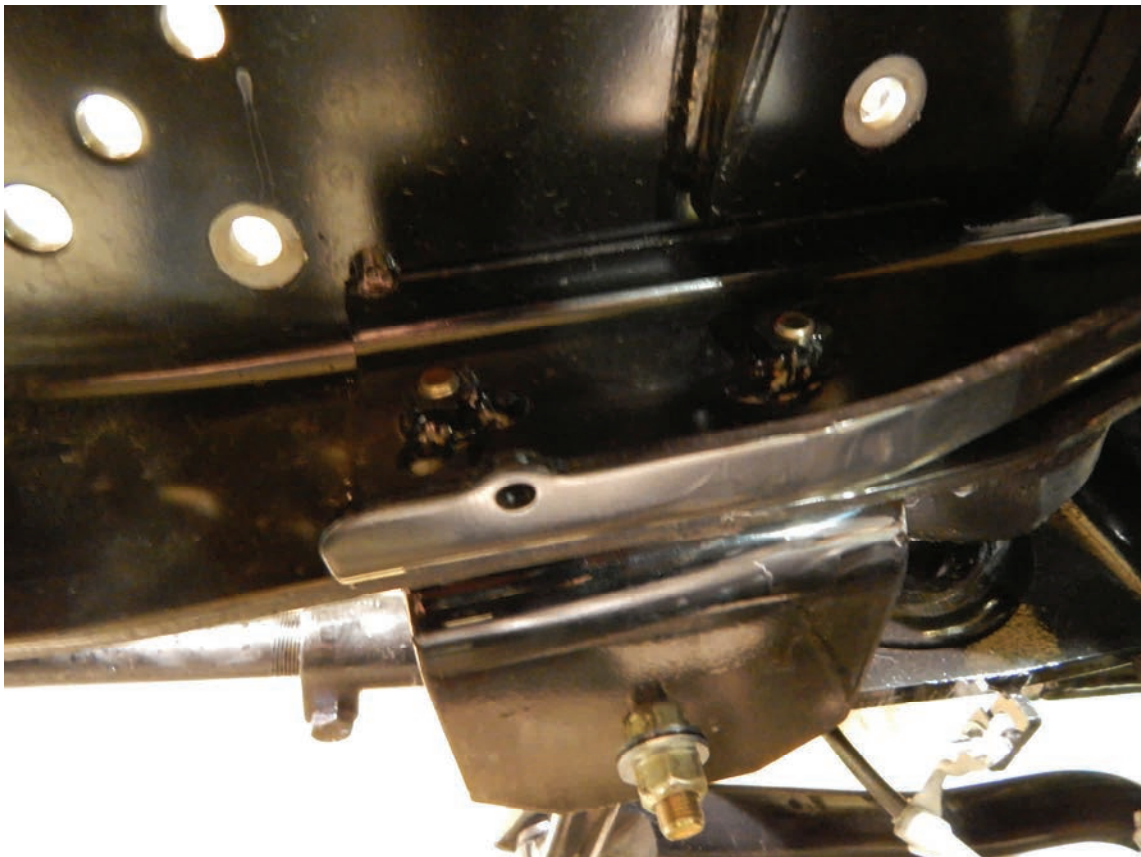


## 2014 Model Year Changes

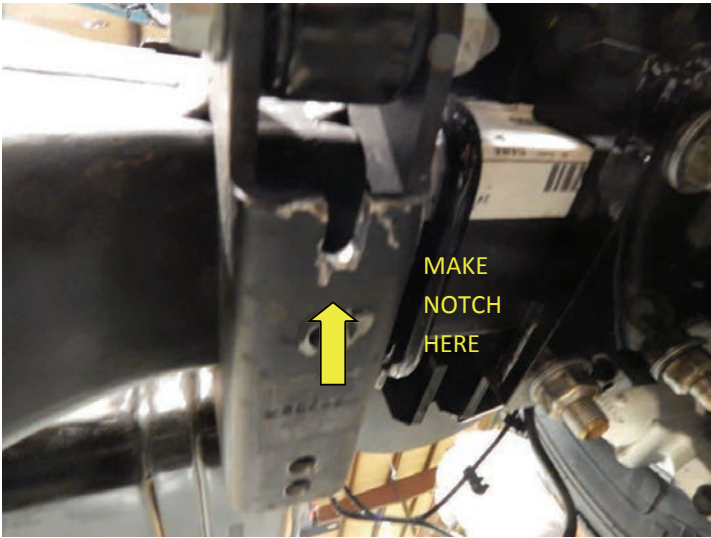
For the 2014 Ram 4500/5500 Chassis Cab trucks there is an additional exhaust hanger from the factory. The upper stud hanger (shown below) needs to be cut off at the first bend of the exhaust. The other exhaust hanger must also have the lower stud cut off one inch from the head of the stud. (shown below)



2.) On sway bar end link mounting brackets, the 2014 models will now use M10-40 Grade 8 bolts to fasten the bracket to the frame. This hardware will be supplied within the kit. Use red 'Loc-Tite' on these bolts prior to installation.



3.) For 2014 models, the lower shock mount on both sides of the chassis will need to be notched out near the hole closest to the cab. This is done to make clearance for the sway bar bushings to mount upon installation of the sway bar. (shown below)



4.) Check the clearance between the exhaust and the fuel tank. You should be able to fit a hand between the exhaust and fuel tank.



5.) If the clearance is not found to be acceptable the exhaust hanger might need to be bent slightly.

A.) Please use this method if you do not have anything installed over the rear of the frame. Tap the outer portion of the exhaust hanger downward which should arrange the exhaust away from the fuel tank.



B.) Please use this method if you have something installed on the rear of the frame. Use a pry bar to slightly bend the exhaust hanger downward which should arrange the exhaust away from the fuel tank.

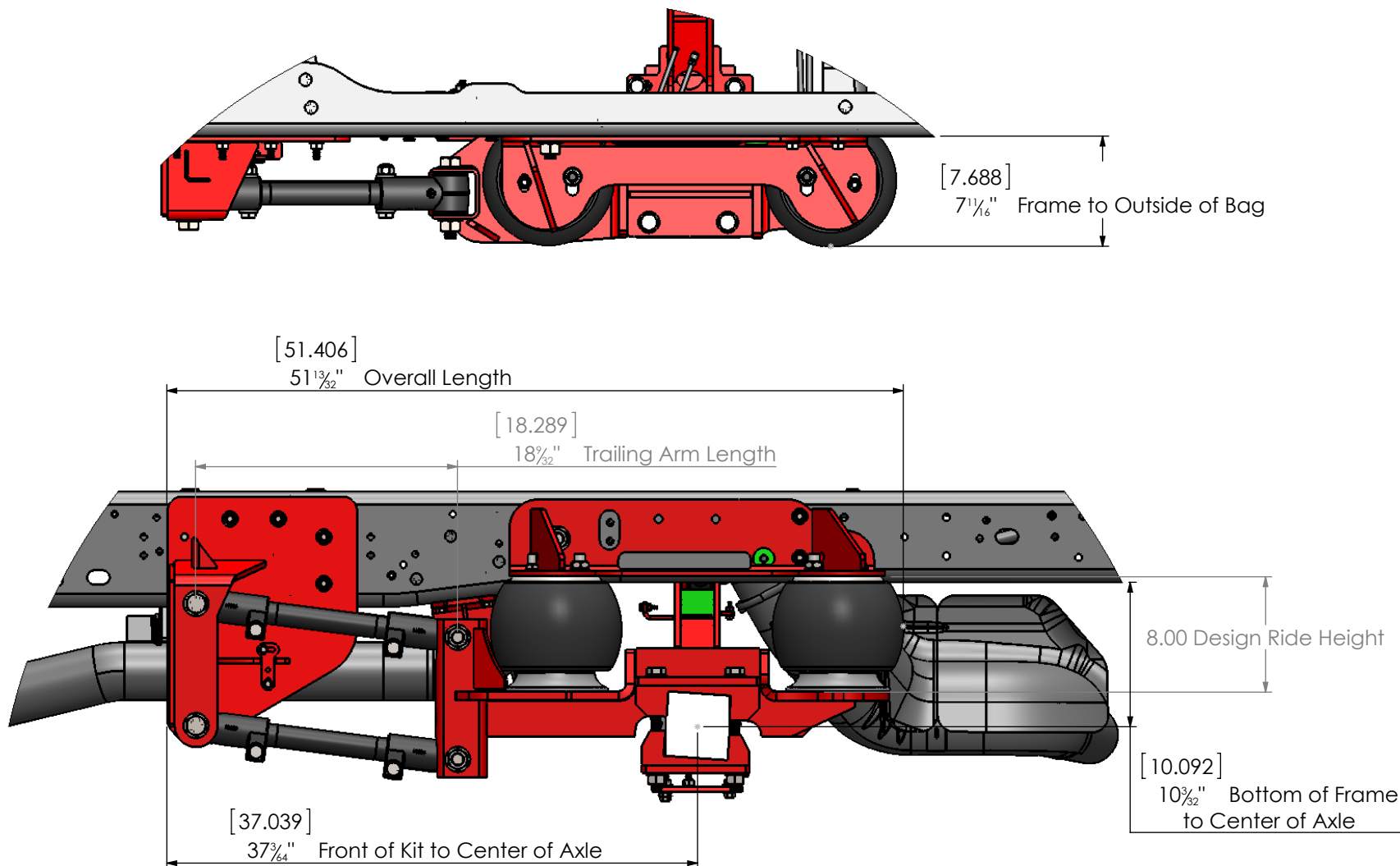




### Troubleshooting Tips

- Decreased ride quality — Measure the height of the air bags at the bag closes to the cab on each side. The bags should measure 8" tall between the plates for proper ride quality.
- Noise from the suspension — Noise over bumps could indicate worn bushings from wear and tear on the suspension. Inspect pan hard bar, trailing arm, sway bar end links and sway bar bushings for damage. Replace as necessary.
- Increased body roll — Inspect rear sway bar, end links, bushings w/ D-Rings for damage. Replace as necessary.
- Loss of air pressure — Follow air lines on the vehicle and inspect for damage. Check all fittings and connectors and air bags for damage. A damaged component should be replaced as quickly as possible to avoid downtime.
- Compressor Operation — If the compressor does not turn on to fill the tank/system, check the fuse for the system commonly located by the battery under the hood. If the compressor will not turn off check to see if there is air pressure in the tank. If the tank has pressure, locate the pressure switch and check for voltage.





UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32" ANGULAR: MACH ± 1 BEND ± 1 TWO PLACE DECIMAL ±.030 THREE PLACE DECIMAL ±.010 MATERIAL FINISH WEIGHT	Design By:	Zach Beltz 2014	Project:
	Shelf # / Qty		
	Inventory		Description: Kit
	Run Qty:		
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	SCALE: 1:200 DO NOT SCALE DRAWING		SHEET 1 OF 2

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