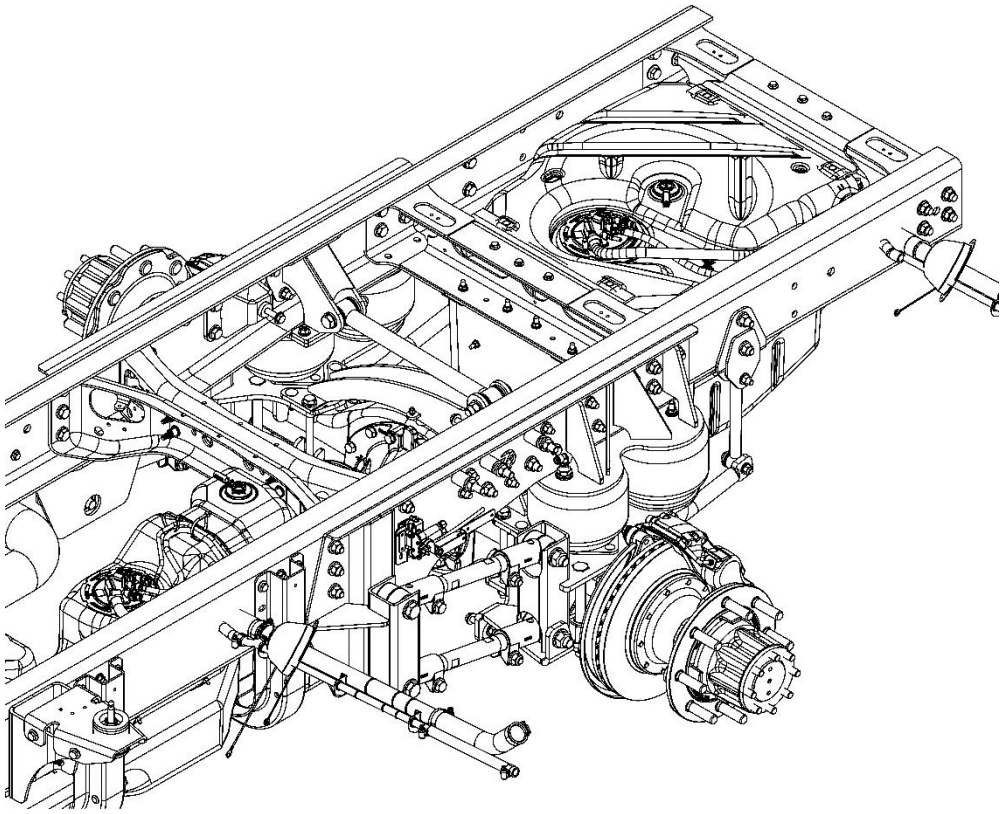
kelderman

Stock Height 4-Link Rear Installation Manual

- 2019+ Chevrolet 4500-6500

Kit Number: 10006311 – 10008314

Kelderman 4-Link Air Ride



Stock Height

- **Contents**

Kit Numbers

- **This installation manual covers the following air ride kits.**

Kit Number	Description
10006311	2019+ Chevrolet 4500/5500/6500 - 4-Link Rear – Stock Height – 4-1/4” x 4-5/8” Axle
10008314	2019+ Chevrolet 4500/5500/6500 (J27) - 4-Link Rear – Stock Height – 4-7/8” x 5-1/2” Axle

Introduction

- **Important**
  It is important that the entire installation instructions be read thoroughly before proceeding with installation.

- Before painting open every box and locate all parts. There are several smaller bushing pieces and bolts that are packaged separately inside the main box.

- **Product Installer Responsibilities**
  Installer is responsible for installing this 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 operation of this product.

- **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 correctly perform a task.
  - **Torque:** When italicized "*torque*" alerts the installer to tighten fasteners to a specified value.

Safety

- **Your Safety and the Safety of Others is Very Important.**
  Read and understand all safety precautions and instructions before installing this product.

- **CAUTION: Trucks Equipped with Parking Sensors or Other Like Devices.**
  Relocation of these devices will alter the field of view. It is the responsibility of the owner to understand how these changes affect the operation of these systems.

- **WARNING: Components Under Pressure.**
  Bleed all pressure from the air system before performing any maintenance or service. Serious injury could occur if components are removed while system is pressurized.

- **WARNING: Careless Installation Can Result in Serious Injury or Property Damage**
  - Wear eye protection.
  - Disconnect the battery before doing any work on the vehicle.
  - Work on flat level ground.
  - Ensure truck is properly supported by jack stands. Never work under a vehicle supported only by hydraulic jacks.
  - Take precautions when lifting product. Due to the size and weight of this product two people are recommended for installation.
  - Never work directly under the product until it has been securely fastened to the vehicle.
  - Avoid sharp, hot, and moving components when routing electrical cables and air lines.
  - If drilling inspect both sides of the surface and remove/relocate any objects located in the way.
  - Ensure all bolts are properly tightened before driving.

- Product Owner Responsibilities

- Product owner is solely responsible for pre-operation inspection, periodic inspections, maintenance, and use of the product as specified by Kelderman Mfg. Inc. Of particular importance is the re-torque of fasteners. This re-torque must be performed within 90 days or 1000 miles of this product being put into service.

- The Kelderman Air Suspension is fully automatic in controlling the height of the chassis when properly installed. No Manual Intervention to control air pressure or ride height is needing during the course of normal operation.

- The compressor switch must be on for the compressor to operate. With the switch in the on position the compressor will run when the tank pressure drops below 90psi, and continue to run until tank pressure reaches 125psi.

- The low-pressure warning light indicates a severe drop in tank pressure *(bellow 45psi)* immediate corrective action should be taken to determine the cause of air loss. Compressor switch should be turned off if low pressure warning light remains on even after the compressor has run for a normal period of time. **NOTE:** The low-pressure warning light can come on briefly when the *"Dump"* feature is being used.

- During difficult starting circumstances, *(extremely cold weather)* it is recommended to turn the compressor switch off until the vehicle is running, to limit current draw on the battery.

- When operating in temperatures below freezing it is important to purge moisture contained within the air tank on a daily basis. This is done by opening the petcock or pulling the lanyard on the air tank. Failure to purge moisture can cause the system to freeze and not operate properly.

- Product owner is responsible for "*down time*" expenses, cargo damage, and all business costs and losses resulting from a warrantable failure.

- **Service Intervals**

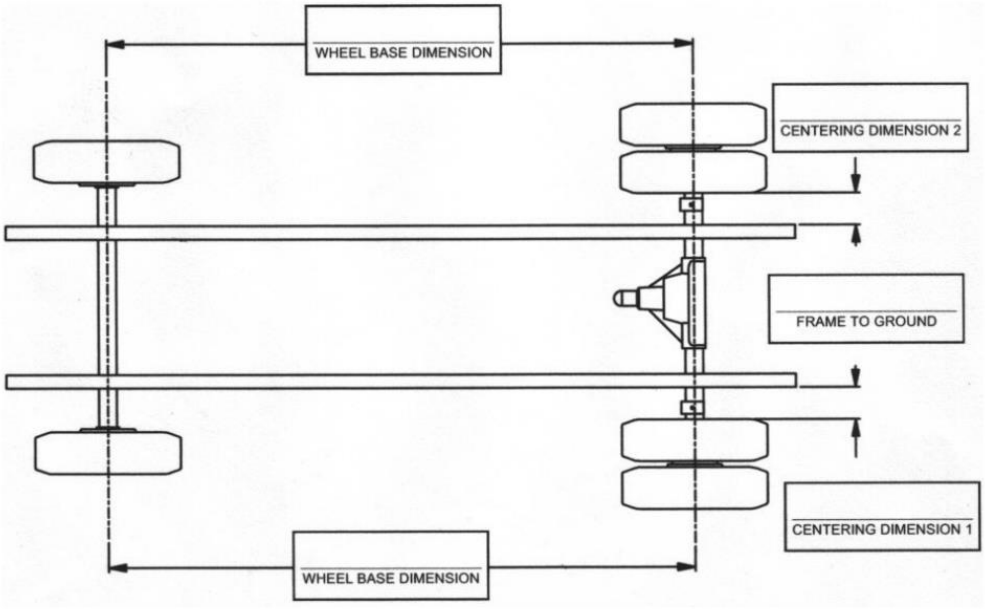
First 1,000 Miles
- Check Ride Height ± 1/4"
- Check for air leaks around fittings.
- Check for any loose or rubbing hoses and wires.
- Re-torque all hardware.

Every 30,000 Miles
- Check Ride Height ± 1/4"
- Check for air leaks around fittings.
- Grease panhard bar rod ends *(heim)*
- Inspect trailing arm bushings and panhard bar bushings for wear; replace if required.

Disassemlby

1: With the vehicle on flat level ground measure the pinion angle and record it. The pinion will need to be set back to this measurement after installation. **NOTE:** Use masking tape or some other method to mark the location of this measurement.
Pinion angle_____

2: Take the following measurements for future reference. These measurements will be used to adjust the suspension after installation.



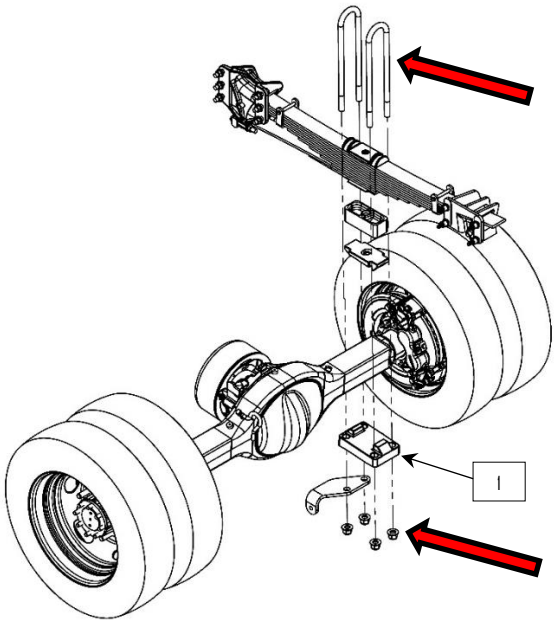
3: Chock the front wheels. Lift the rear of the vehicle just enough to take the weight off the leaf springs. Place jack stands under the frame and chock the rear tires so the axle won't roll. Support the front of the pinion with a jack stand.

4: If equipped, unbolt and remove the shock absorbers.

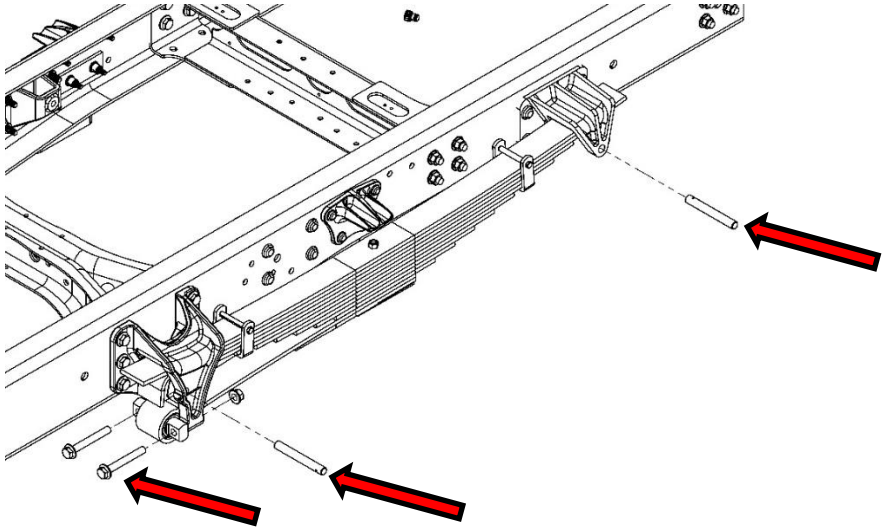
5: Unbolt the parking brake cable bracket from the top of the differential housing.

6: Remove any exhaust that extends over and past the rear axle. **NOTE:** On trucks equipped with this style exhaust it will need to be modified to exit in front of the axle.

7: Unbolt the leaf springs from the axle. Keep the cast lower axle clamps *(1)*, they will be reused during install. **NOTE:** The tires do not need to be removed

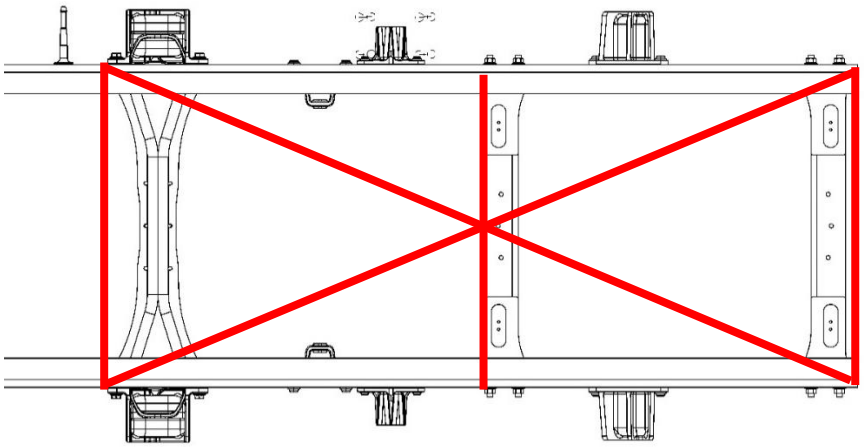


8: Remove the pins from each spring hanger and unbolt the leaf spring from the front hanger. The leaf spring is now free to be removed.



9: Mark, measure, and note the frame width at each crossmember. Using those same marks, measure the frame diagonally to check for square. These measurements will be compared against when installing the side plates.

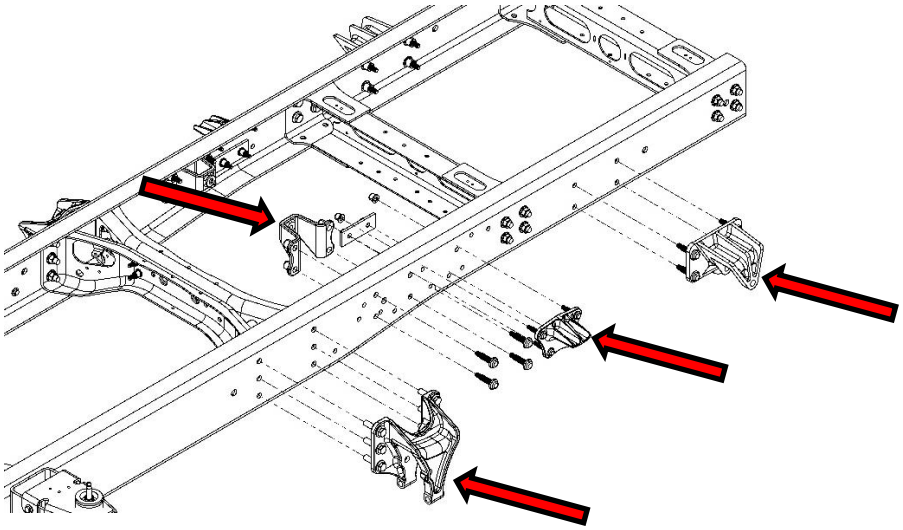
Frame Width: Forward_____ Diagonal Measurement #1_____
Frame Width: Middle_____ Diagonal Measurement #2_____
Frame Width: Rear_____



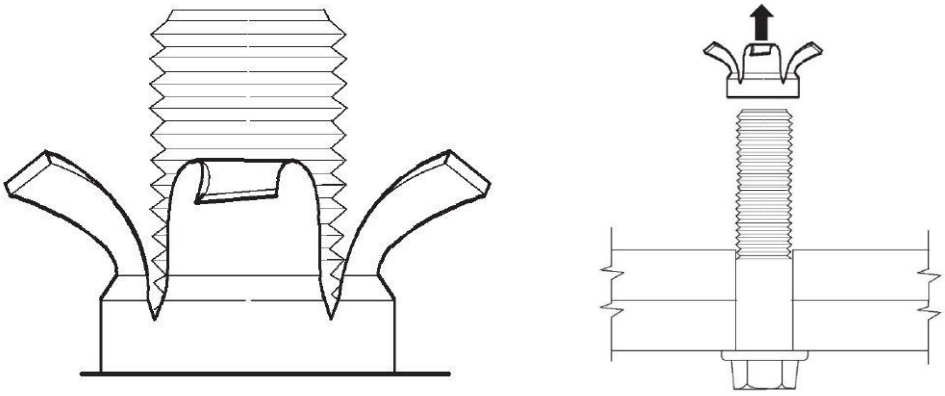
10: Mark the location of the forward and middle crossmembers on the frame rails.

11: On Trucks equipped with a mid-mount fuel tank remove the tank straps and slide the tank away from the frame to gain access to the spring hanger hardware. **CAUTION:** Take caution not to damage or kink any lines running to the tank.

12: Remove the spring hangers, bump stop pads, and shock brackets *(if equipped)* from only one frame rail. **NOTE:** At this point it is recommended to only remove parts from one frame rail then install new components before moving to the opposite side.

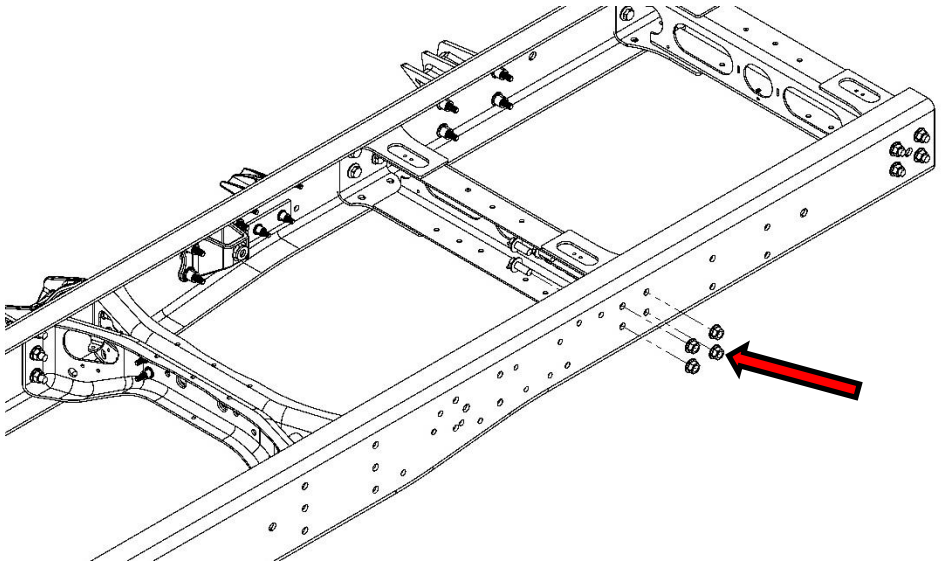


13: To remove the Huck bolts split the nut using a cutoff wheel or an air chisel.



14: Between the forward and middle crossmember unbolt all electrical, fuel, brake lines, and cables from each frame rail.

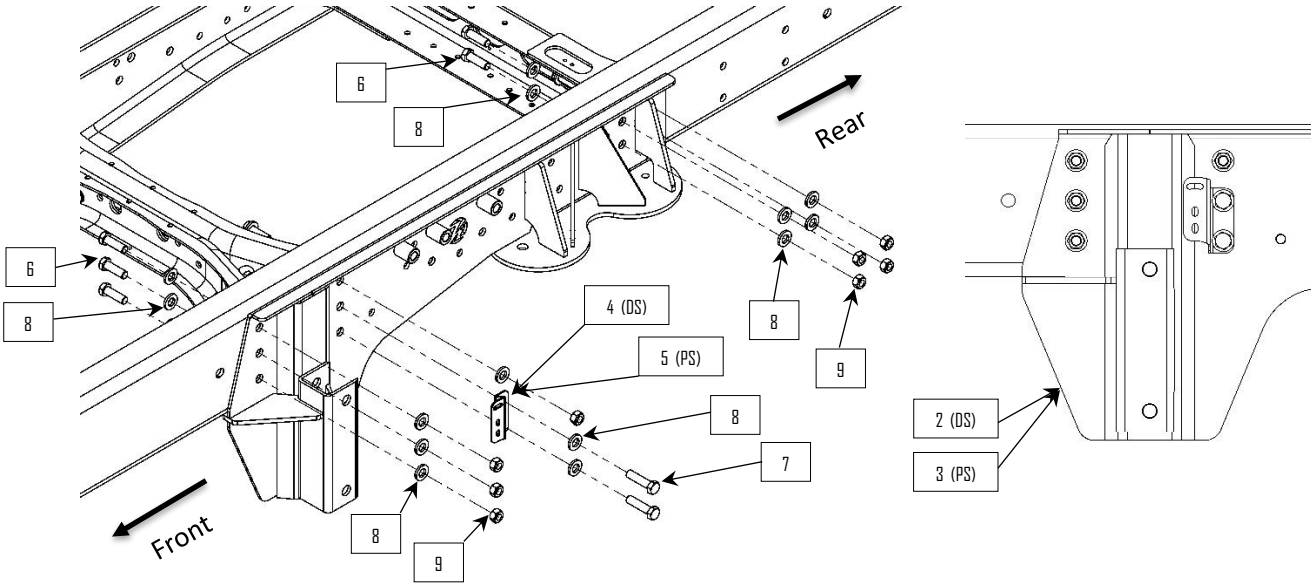
15: Unbolt the middle crossmember. **NOTE:** Support the rear fuel tank on trucks equipped with one.



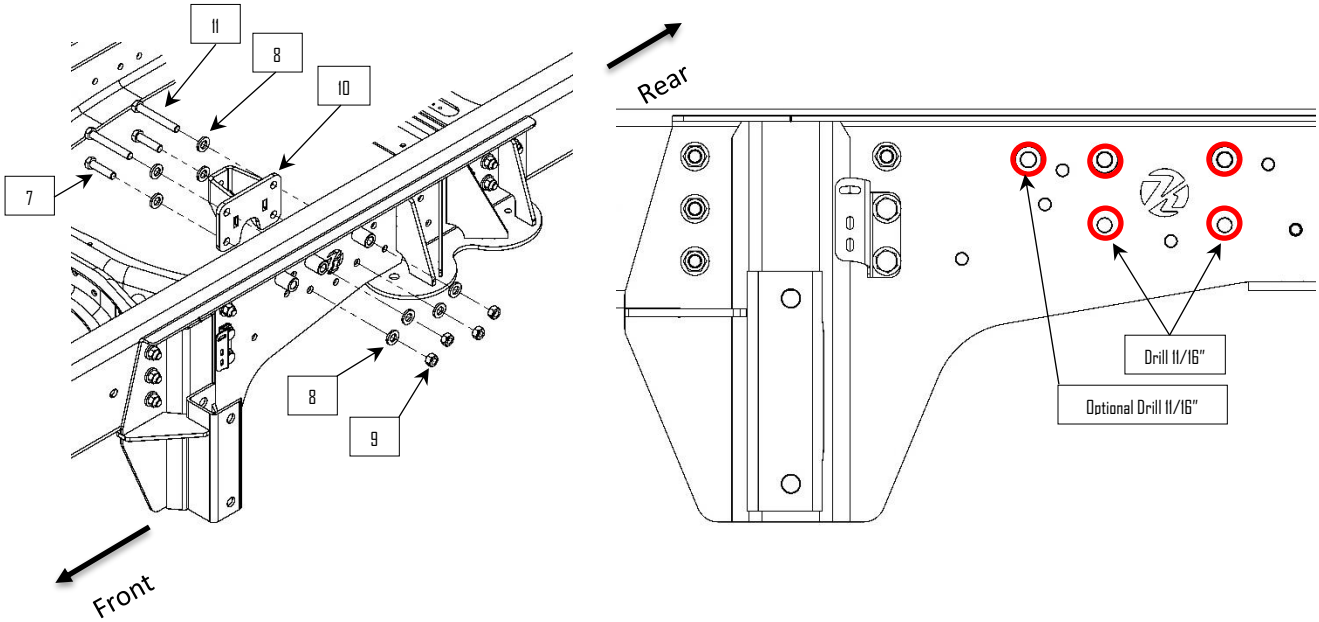
16: Proceed to *step 1* of the *Kit Installation* section of these instructions and install the Kelderman side plate onto the now bare frame rail.

Kit Installation

1: Realign the forward and middle crossmembers with the marks made during disassembly and bolt side plate *(2 or 3)* onto the frame rail using 5/8" hardware (6, 8, & 9). Install the sensor key *(4 or 5)* using the two longer bolts *(7)* behind the trailing arm mount.

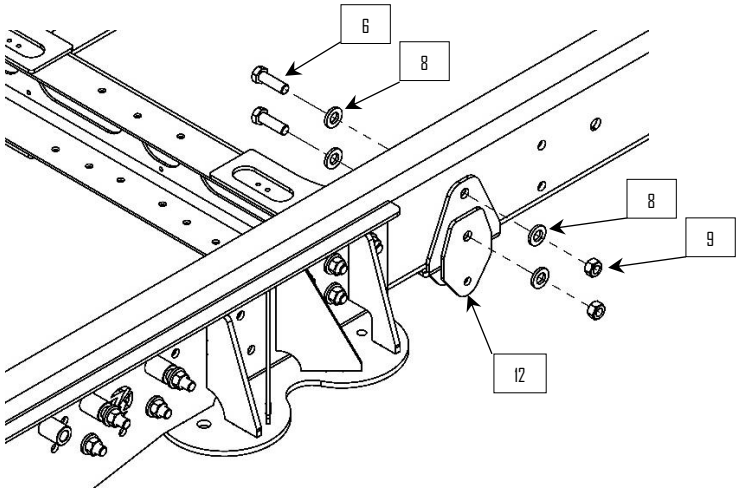


2: Install the upper shock bracket *(10)* using 5/8" hardware *(7, 8, 9, & 11).* **NOTE:** Trucks without factory shocks. Use the side plate *(2 or 3)* as a guide to drill four 11/16" holes in the frame.



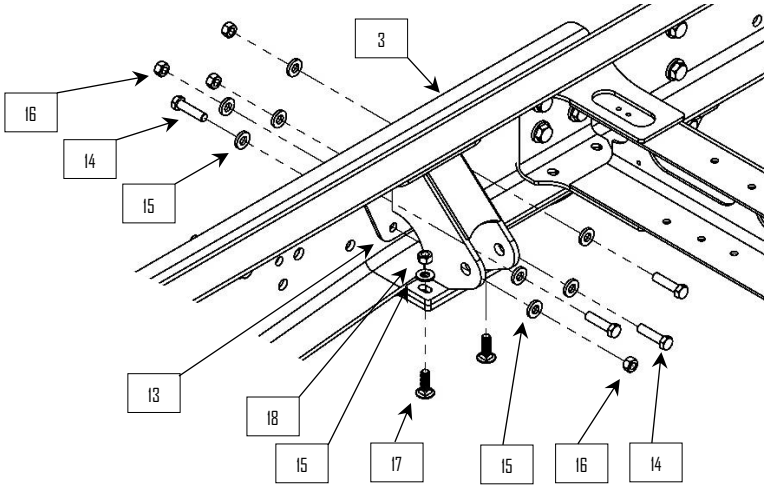
3: The standoff bushings allow for accessory brackets to be mounted without cutting the side plate *(2 or 3)* top flange. **NOTE:** A fifth 11/16" hole can be drilled if installer intends to use these mounts.

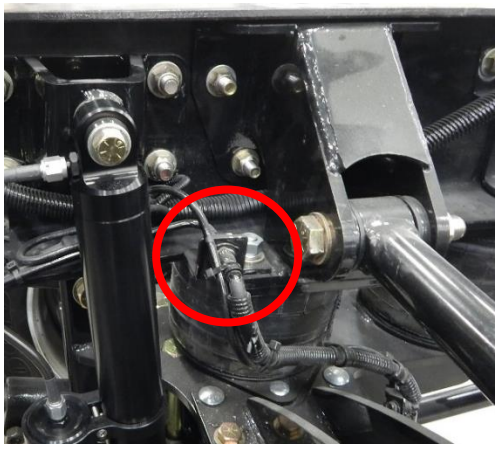
4: Install end link frame bracket *(12)* using 5/8" hardware *(6, 8, & 9).* The end link frame bracket will bolt up at the location of the removed rear spring hanger.



5: Proceed to *step 12* of the *Disassembly* section; remove and install components on the opposite frame rail.

6: Install the upper panhard bar bracket *(13)* onto the passenger side frame rail. Use 1/2" hardware *(14, 15, & 16)* to fasten thru the frame rail. Use *hardware (15, 17, & 18)* to fasten the bottom flange of the panhard bar bracket *(13)* to the side plate *(3).* **NOTE:** Route the wiring harness thru the opening at the bottom of the panhard bar bracket *(13)* before fastening. On the passenger side cut off the factory brake line bracket after the first hole and fasten it to the forward carriage bolt *(17).* **CAUTION:** Position the smooth head of carriage bolt *(17)* down or it will rub on the bag and cause damage.

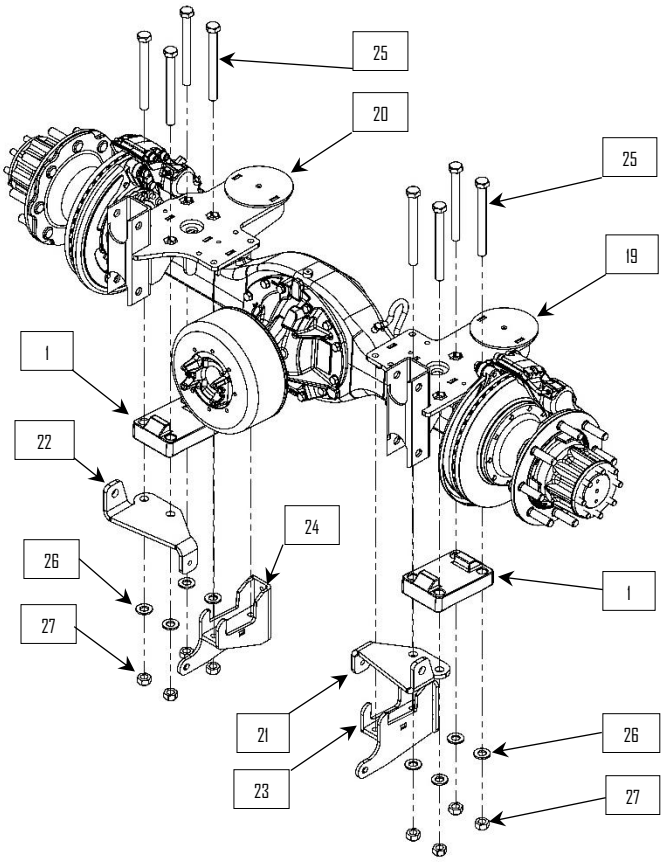




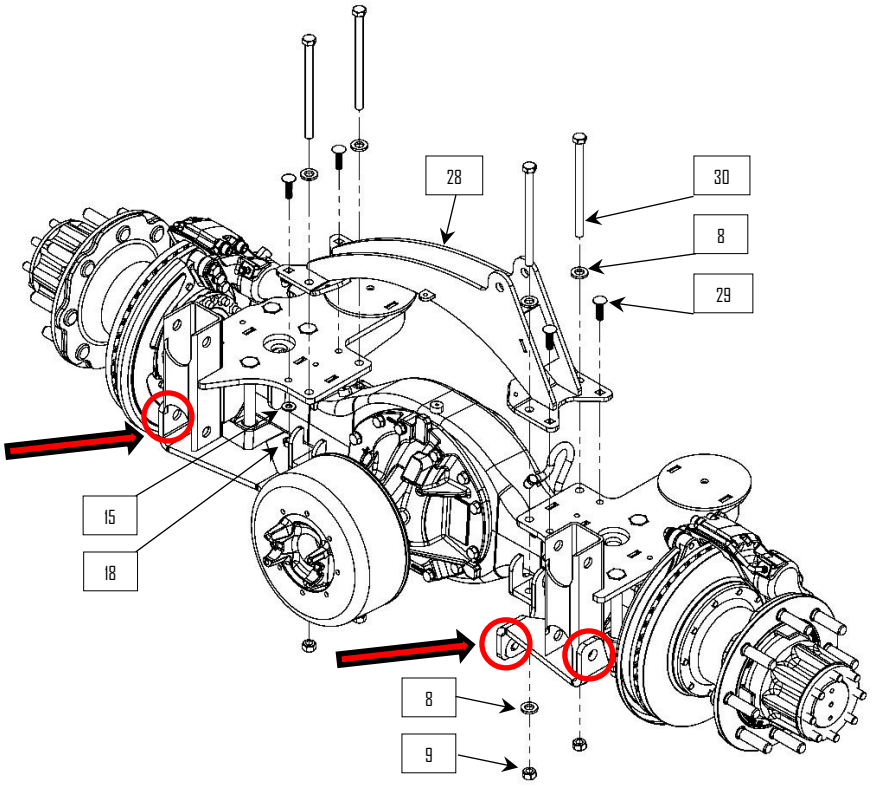
7: Check the frame for square using the reference measurements taken in *Disassembly step 9*. Make any required adjustments, once square, snug up the installed hardware.

8: Set the lower bag plates *(19 & 20)* onto the axle. Align the pins on the axle with the notches in the bag plates.

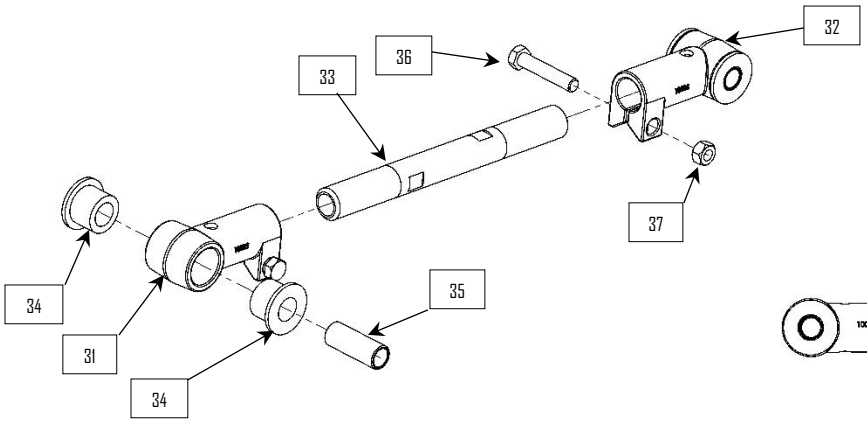
9: Use 7/8" hardware *(25, 26, & 27)* to bolt thru the lower bag plates *(19 & 20),* the cast axle clamps *(1),* and lower shock ear plates *(21 & 22).* Do not tighten hardware yet. **NOTE:** Follow the directional markings on the cast axle clamps *(1).*



10: Bolt the panhard bar crossmember *(28)* to the lower bag plates *(19 & 20)* using 1/2" hardware *(15, 18, & 29)*. Use 5/8" hardware *(8, 9, & 30)* to fasten lower axle clamps *(23 & 24)* to the axle. Align the holes on the lower shock ear plates *(21 & 22)* with the other components. Do not tighten hardware yet.

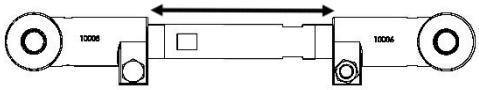


11: Assemble the trailing arm bars. Press poly hat bushings *(34)* & knuckle sleeve *(35)* into cast knuckles *(31 & 32).* Thread cast knuckles *(31 & 32)* onto the trailing arm bar *(33).* Adjust the knuckles equally until the gap between the knuckles equals 8-1/8" on the top bar and 7-3/4" on bottom bar. Insert 5/8" pinch bolt hardware *(36 & 37)* into the cast knuckles but do not tighten.



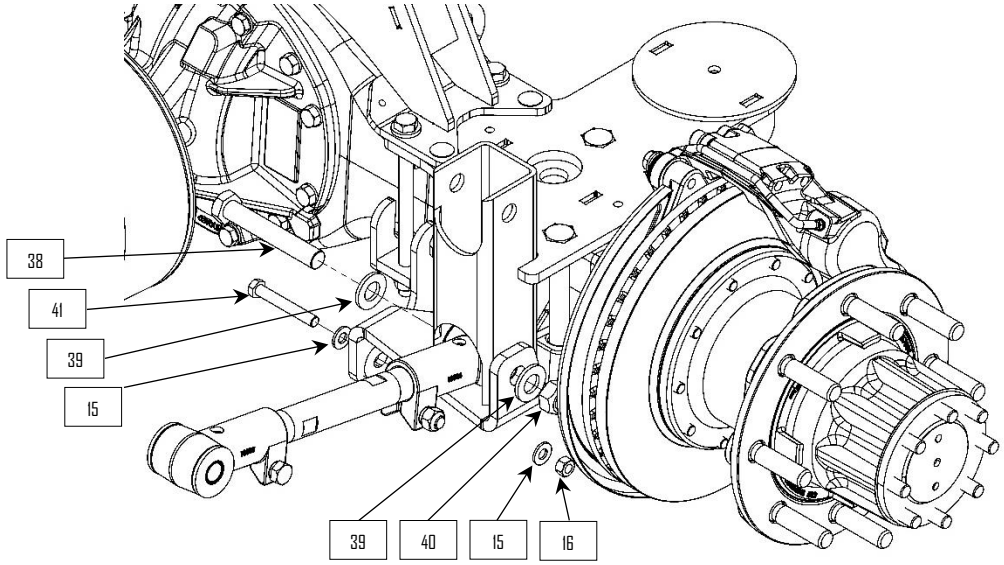
Top Bar – 8-1/2"

Bottom Bar – 7-3/4"



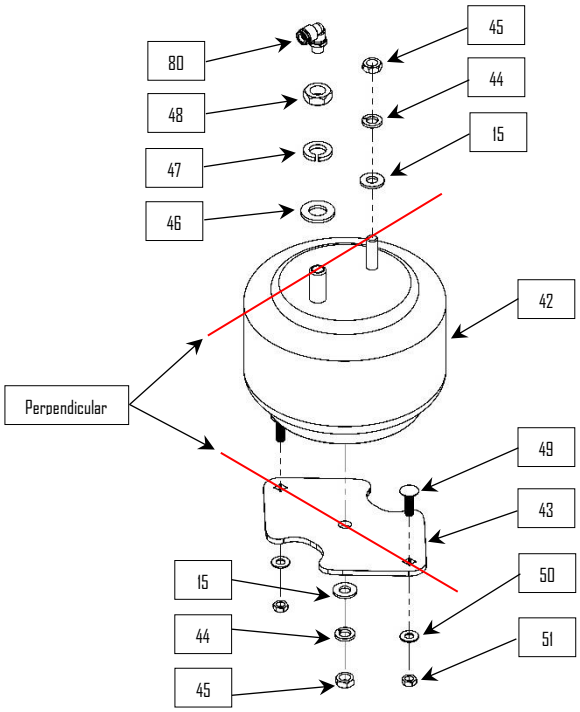
12: Use 7/8" hardware *(38, 39, & 40)* to install the lower trailing arm assemblies into the lower bag plates *(19 or 20).* Do not tighten hardware.

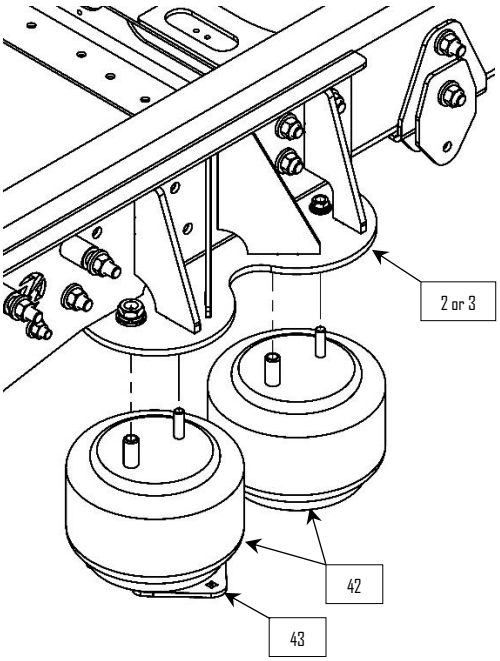
13: Insert 1/2" hardware *(15, 16, & 41)* thru the lower axle clamp *(23 or 24)* and the lower shock plate *(21 or 22).*



14: Once aligned and bolted together tighten down all axle hardware.

15: Fasten the air bag *(42)* to the removable lower bag plate *(43)* using 1/2" hardware *(15, 44, & 45).* **NOTE:** Orient the studs on the air bag *(42)* perpendicular to the removable bag plate *(43).*

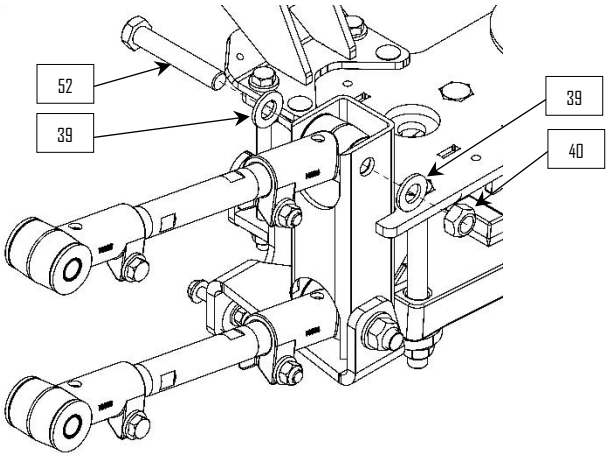




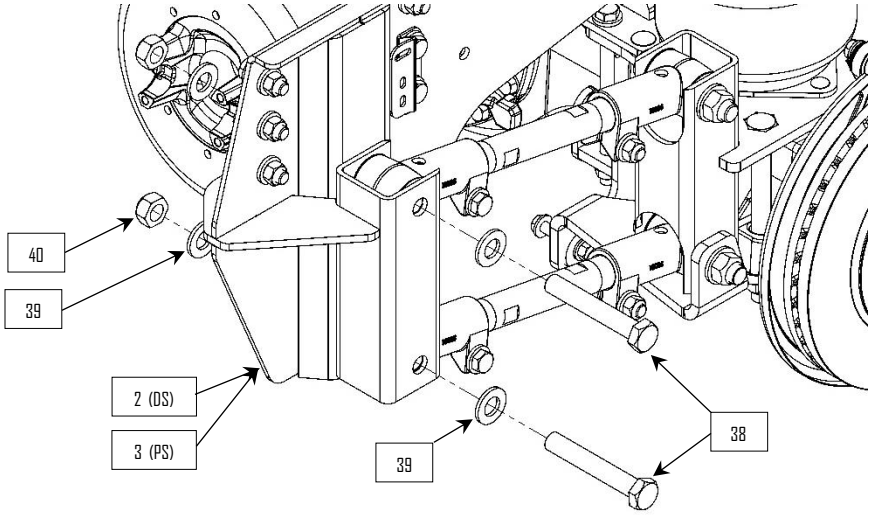
16: Bolt the air bags *(42)* to the side plate *(2 or 3)* using 1/2" hardware *(15, 44, & 45)* and 3/4" hardware *(46, 47, & 48).* **NOTE:** The air bag and plate assembly from *step 15* goes toward the front of the truck.

17: Fasten the bottom of the air bags (*42)* to the lower bag plates *(19 or 20).* Use 3/8" hardware *(49, 50, & 51)* on the forward bag assembly. Use 1/2" hardware *(15, 44, & 45)* on the rear bag. **CAUTION:** Position the smooth head of carriage bolt *(49)* up or it will rub on the bag and cause damage.

18: Use 7/8" hardware *(39, 40, & 52)* to install the upper trailing arm assemblies into the lower bag plates *(19 or 20).* Do not tighten hardware. **NOTE:** Install the upper trailing arm bar the same direction as the lower bar, this will make adjustments easier.



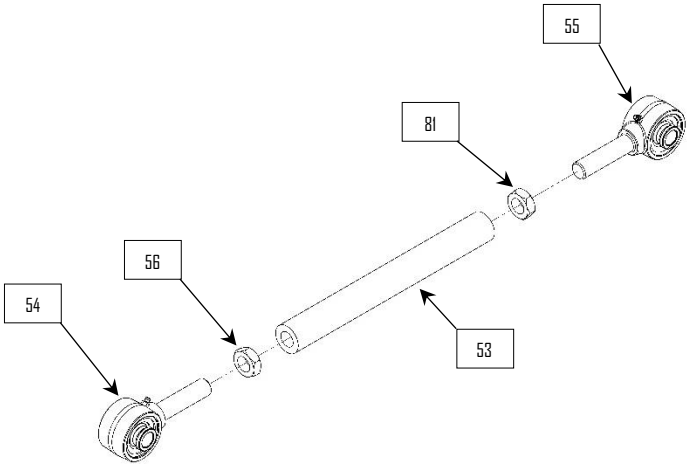
19: Bolt the upper and lower trailing arm assembly into the side plate *(2 or 3)* using 7/8" hardware *(38, 39, & 40). **Torque:*** 7/8"-14 trailing arm bolts should be torqued to 300ft-lb.

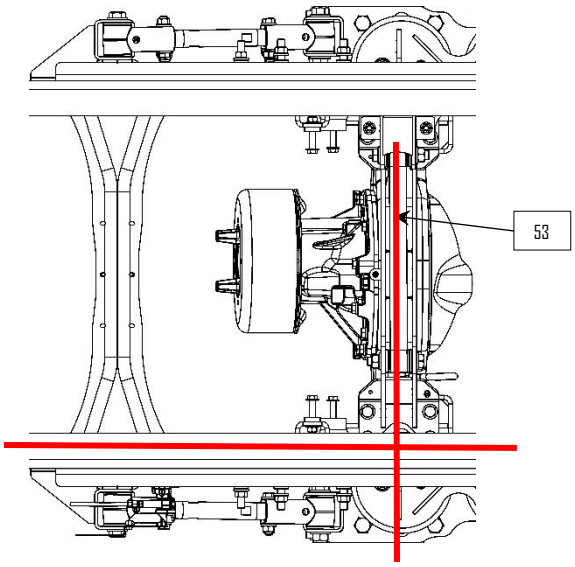


20: If equipped slide the mid mount fuel tank back into position and reinstall the straps removed in Disassembly *step 11*.

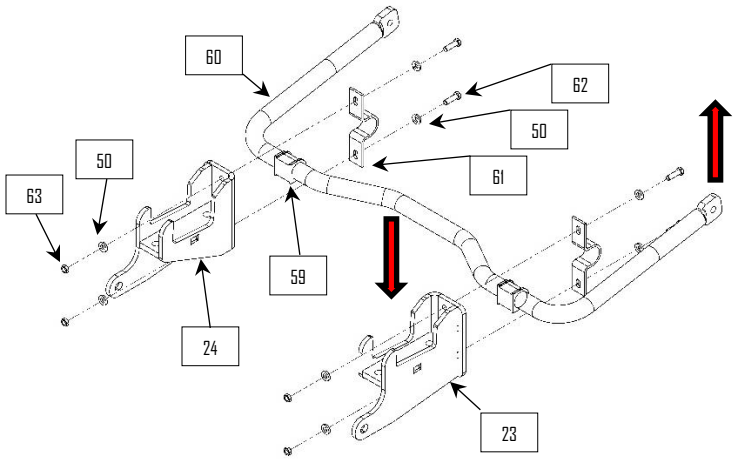
21: Thread jam nuts *(56 & 81)* onto heim joints *(54 & 55)* before threading into panhard bar *(53).* **NOTE:** Set the length of the assembled bar to 18-1/8" measured center to center.

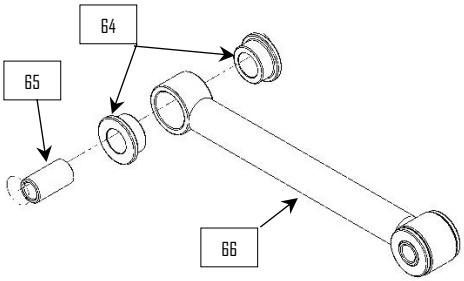
22: Use 3/4" hardware *(46, 57, & 58)* to bolt the assembled panhard bar into the upper panhard bar bracket *(13)* and panhard bar crossmember *(28).* **NOTE:** Adjust all four trailing arms equally to move axle forward and backward. At ride height the panhard bar should run perpendicular to the frame rails. Adjust the panhard bar length to center the axle under the frame. ***Torque:*** 3/4"-16 panhard bar bolts should be torqued to 150ft-lb.





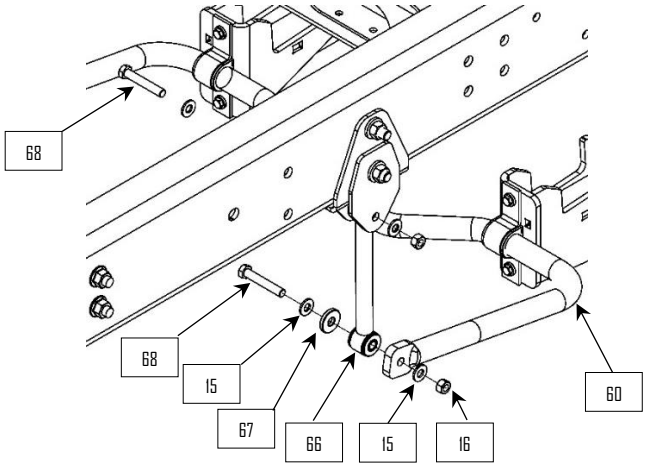
23: Grease sway bar bushings *(59)* and install onto sway bar *(60).* Install the d-rings *(61)* over the bushings *(59)* and fasten to the lower axle clamps *(23 & 24)* using 3/8" hardware *(50, 62, & 63).* **NOTE:** Install sway bar with the arms angled up and the center angled down.



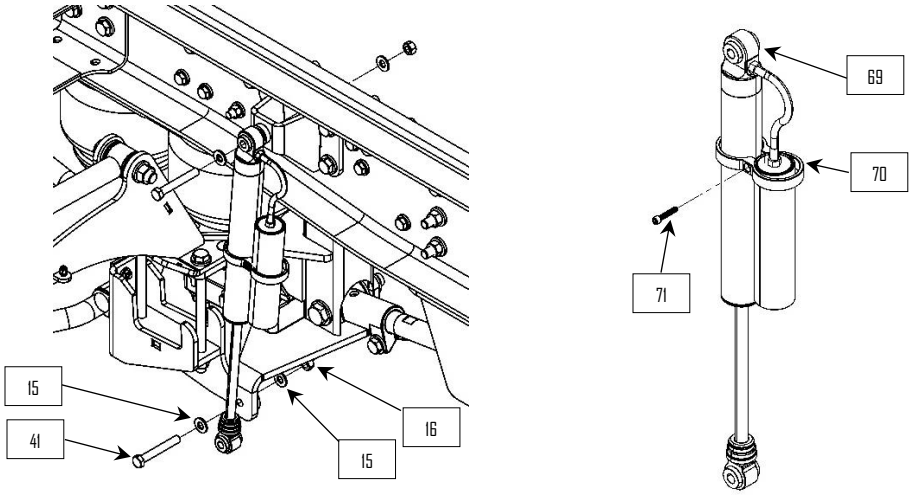


24: Press poly hat bushings *(64)* and sleeve *(65)* into both ends of the sway bar end links *(66).*

25: Install the end link assemblies using 1/2” hardware *(15, 16, & 68).* **NOTE:** Install the end link washer *(67)* on the side opposite the sway bar *(60).*



26: Use the piggyback clamp *(70)* and socket head cap screw *(71)* to mount the shock reservoir to the main body of the shock *(69).*



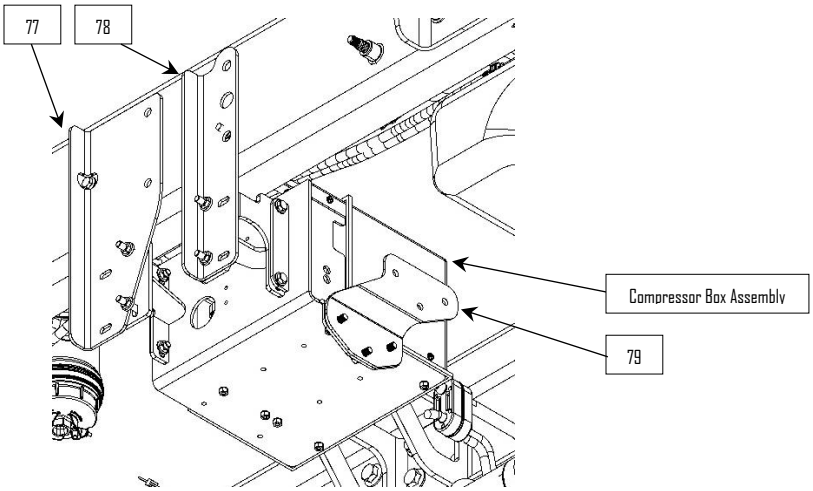
27: Use 1/2" hardware *(15, 16, & 41)* to mount the shocks *(69).* **NOTE:** Orient the reservoir toward the front of the truck. Check that the reservoir will not contact any brackets or snag any hoses or lines as the suspension travels thru its full sweep.

28: Use 1/4" hardware *(72, 73, 74, & 75)* to fasten the parking brake cable bracket removed in Disassembly *step 5* to the tab on the panhard bar crossmember *(28).*

29: Install remaining 1/2"side plate hardware *(15, 16, & 76),* most of these bolts will be used to re-attach wiring harness & brake line brackets as well chassis grounds to the frame. **NOTE:** Check that all lines and wiring have room to move as the suspension travels thru its full sweep.

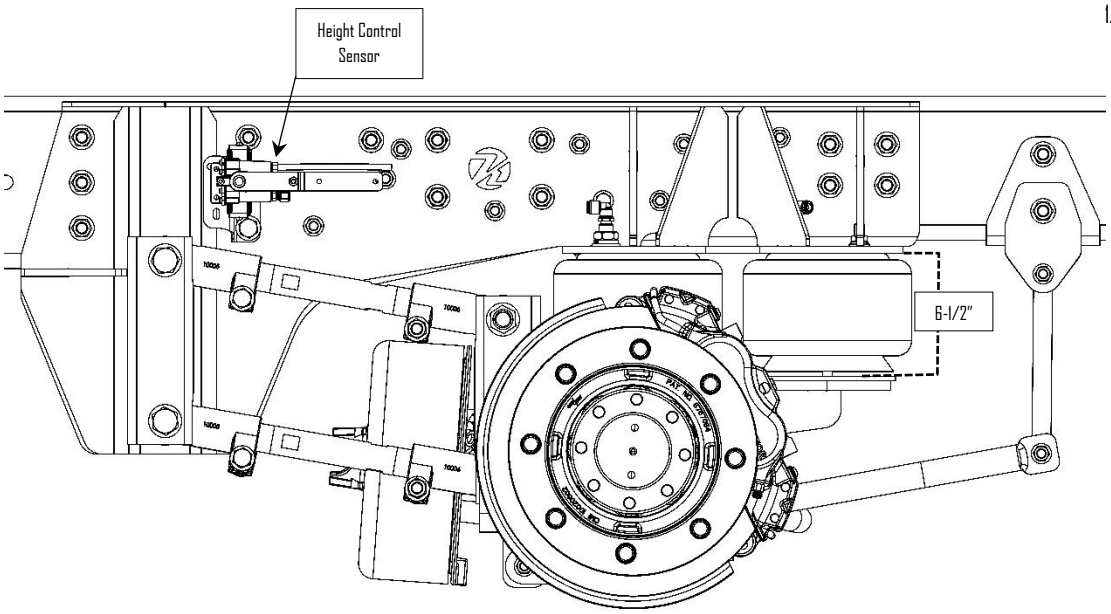
30: Refer to the Air Controls Instruction Manual for directions on plumbing and installing the compressor.

31: This kit is supplied with two brackets *(77 & 78)* that will mount the compressor box to the driver's side frame rail in front of the mid mount fuel tank. There is also a bracket *(79)* that will lift the air dryer if this mounting method is used. **NOTE:** Alternately the compressor box can be mounted at installer's discursion wherever there is room.



32: The height control sensors mount to the sensor key *(4 or 5)* installed in *step 1.*

33: Inflate the airbags *(42)* to 6-1/2" this is the designed ride height for this kit.



34: With the truck sitting at ride height Check pinion angle and wheelbase measurements. Adjust the trailing arm bars as needed to set the rear axle back to factory position. **NOTE:** Refer to notes taken in *Disassembly steps 1 & 2*.

35: Re-install the exhaust.

36: Torque all fasteners to the specifications in the chart below, unless noted otherwise in these instruction.

Bolt Size	Grade 5 Torque	Grade 8 Torque
1/4"-20	8 *ft-lb*	12 *ft-lb*
3/8”-16	31 *ft-lb*	44 *ft-lb*
3/8”-24	*35 ft-lb*	49 *ft-lb*
1/2"-13	75 *ft-lb*	106 *ft-lb*
1/2"-20	85*ft-lb*	120 *ft-lb*
9/16”-18	121 *ft-lb*	171 *ft-lb*
5/8”-11	150 *ft-lb*	212 *ft-lb*
5/8”-18	170 *ft-lb*	240 *ft-lb*
3/4"-16	297 *ft-lb*	420 *ft-lb*
7/8”-14	474 *ft-lb*	669 *ft-lb*

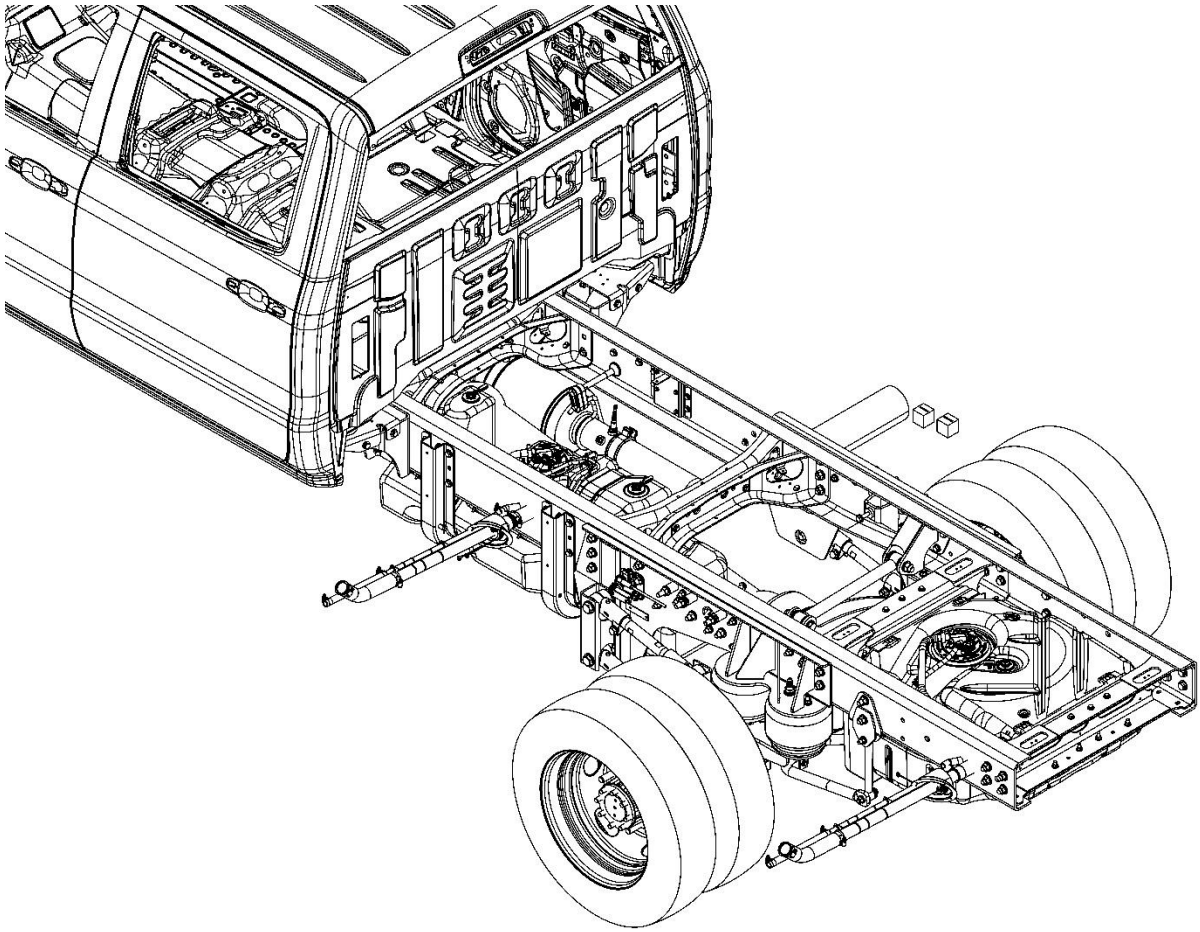
37: Sweep the suspension thru the full range of motion and check that no components are binding, colliding, or rubbing.

38: Grease the panhard bar heim joints *(54 & 55).*

39: The truck is now ready to test drive. If the truck pulls to one direction, shorten the opposite side trailing arms one turn and test drive again. Repeat until pull is eliminated. Always check the pinion angle and bag heights after making any trailing arm adjustments.

40: After test driving check all fasteners to make sure nothing has worked loose. Inspect suspension for signs that any component maybe binding, colliding, or rubbing, reposition if required.

41: Use soapy water to check air components and lines for any leaks.



Parts Key

Item Number	Part Number	Description
1		GM Cast Lower Axle Clamp
2	10006316	Weldment – Side Plate (DS)
3	10006393	Weldment – Side Plate (PS)
4	10006459	Plate – 11ga – Sensor Key (DS)
5	10006467	Plate – 11ga – Sensor Key (PS)
6	12409	Hex Bolt: 5/8”-18 x 2”
7	12415	Hex Bolt: 5/8”-18 x 2-1/2”
8	13026	Flat Washer: 5/8”
9	13126	Lock Nut: 5/8”-18
10	10006553	Weldment – Upper Shock Bracket
11	12431	Hex Bolt: 5/8”-18 x 4-1/2”
12	10006442	Weldment – End Link Frame Bracket
13	10006381	Weldment – Upper PHB Bracket
14	12011	Hex Bolt: 1/2”-20 x 2”
15	13024	Flat Washer: 1/2"
16	13124	Lock Nut: 1/2"-20
17	13839	Carriage Bolt: 1/2"-13 x 1-1/2”
18	13104	Lock Nut: 1/2"-13
19	10006329	Weldment – Lower Bag Plate (DS)
20	10006410	Weldment – Lower Bag Plate (PS)
21	10006464	Plate – 1/2" – Shock Ear (DS)
22	10006466	Plate – 1/2" – Shock Ear (PS)
23	10006427	Weldment – Lower Axle Clamp (DS)
24	10006431	Weldment – Lower Axle Clamp (PS)
25	12661	Hex Bolt: 7/8”-14 x 9”
26	13030	Flat Washer: 7/8”
27	13130	Lock Nut: 7/8”-14
28	10006384	Weldment – Panhard Bar Crossmember
29	14147	Carriage Bolt: 1/2"-13 x 1-3/4”
30	12467	Hex Bolt: 5/8”-18 x 9”
31	10005	Cast Trailing Arm Knuckle (RHT)
32	10006	Cast Trailing Arm Knuckle (LHT)
33	52114.5	Trailing Arm Bar – 14-1/2”
34	80136	Poly Hat Bushing – 1.8”OD x 1-1/8”ID
35	20093	Sleeve – 1-1/8”OD x 7/8”ID x 3”L
36	12420	Hex Bolt: 5/8”-11 x 3”
37	13106	Lock Nut: 5/8”-11
38	12633	Hex Bolt: 7/8”-14 x 5-1/2”
39	13030	Flat Washer: 7/8”
40	13130	Lock Nut: 7/8”-14
41	12025	Hex Bolt: 1/2”-20 x 3-1/2”
42	80012-8997	Air Bag 8997
43	10006339	Plate – 1/4" – Removable Bag Plate
44	13050	Lock Washer: 1/2"

45	13144	Hex Nut: 1/2”-13
46	13028	Flat Washer: 3/4"
47	13056	Lock Washer: 3/4"
48	13208	Jam Nut: 3/4"-16
49	14145	Carriage Bolt: 3/8”-16 x 1-1/4”
50	13022	Flat Washer: 3/8”
51	13102	Lock Nut: 3/8”-16
52	12629	Hex Bolt: 7/8”-14 x 5”
53	10011537	Panhard Bar: 13” Long – 7/8”-14 Thread
54	80281	Heim: Johnny Joint - 7/8"-14 RHT – 3/4” Bolt
55	80282	Heim: Johnny Joint - 7/8"-14 LHT – 3/4” Bolt
56	13210	Jam Nut: 7/8”-14 RHT
57	13128	Lock Nut: 3/4”-16
58	12533	Hex Bolt: 3/4”-16 x 4-1/2”
59	80255	Sway Bar Bushing – 1-3/8”
60	80270	Sway Bar - 1-3/8” OD
61	80258	Sway Bar D-Ring Bracket
62	12213	Hex Bolt: 3/8”-24 x 1-1/4”
63	13122	Lock Nut: 3/8”-24
64	80134	Poly Hat Bushing – 1-1/8”OD x 3/4"ID
65	11550	Panhard Bar Sleeve – 3/4" Bolt
66	10006879	Weldment – End Link 9.5”
67	11551	Plate – 1/4" – End Link Washer
68	12021	Hex Bolt: 1/2"-20 x 3”
69	10007132	Raptor Shock (10136)
70	80253	Raptor Shock – Piggyback Clamp
71	13502	Socket Cap Screw: 1/4”-20 x 1-1/4”
72	12110	Hex Bolt: 1/4"-20 x 1”
73	13042	Split Lock Washer: 1/4"
74	13140	Hex Nut: 1/4”-20
75	13000	Flat Washer: 1/4"
76	12009	Hex Bolt: 1/2"-20 x 1-3/4”
77	10007182	Plate 7ga – Large Compressor Box Bracket
78	10007183	Plate 7ga – Small Compressor Box Bracket
79	30092	Plate 7ga – Offset Dryer Relocation Bracket
80	80168	90° Air Fitting – 1/4” NPT to 3/8” Tube
81	13211	Jam Nut: 7/8”-14 LHT

Notes

Notes

Contact Information

- Kelderman Manufacturing appreciates your business. We strive to meet the needs of our customers by providing the highest quality products. If you have any questions concerning our products please call or email us at the following:

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