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kelderman®

AIR SUSPENSION SYSTEMS

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2012+ Ford F-53 3" leaf spring Chassis Motorcoach Front Installation Instructions

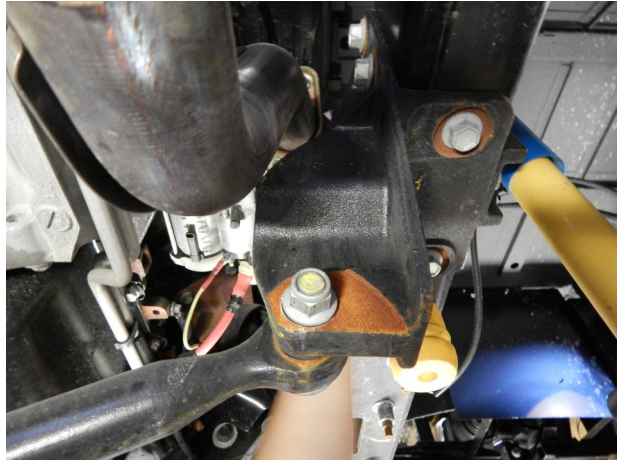


Installation

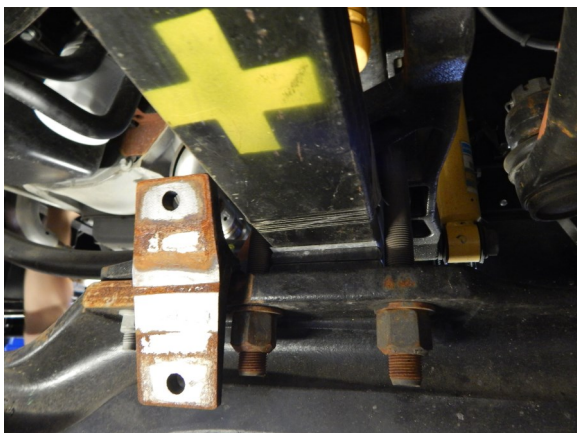
1. Place the coach on a level concrete surface.
2. Put wheel chocks in front and behind the rear wheels. Place a jack under each side of the frame just in front of the front leaf spring perch. Jack the coach up high enough so that the tires are just barely touching the ground. Place a jack stand next to the jacks to prevent the coach from falling off the jacks.
3. It works best to install one side at a time. Remove the shock bolts. Remove the sway bar and the track bar assembly. Remove the leaf spring. Keep track of the bolts because some will be reused.



Remove the socks, sway bar and rubber bump stop



Remove the panhard bar and leaf spring from one side.

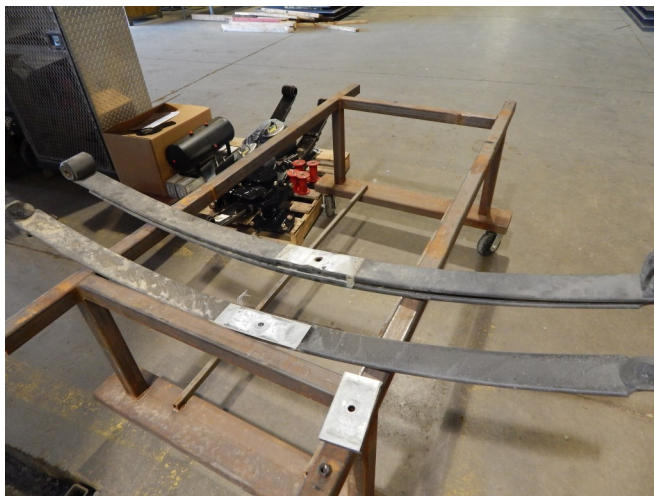
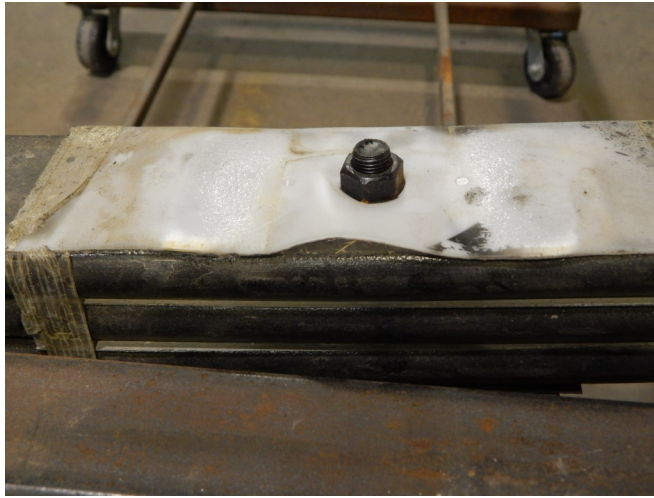


Remove sway bar mount on passenger side.



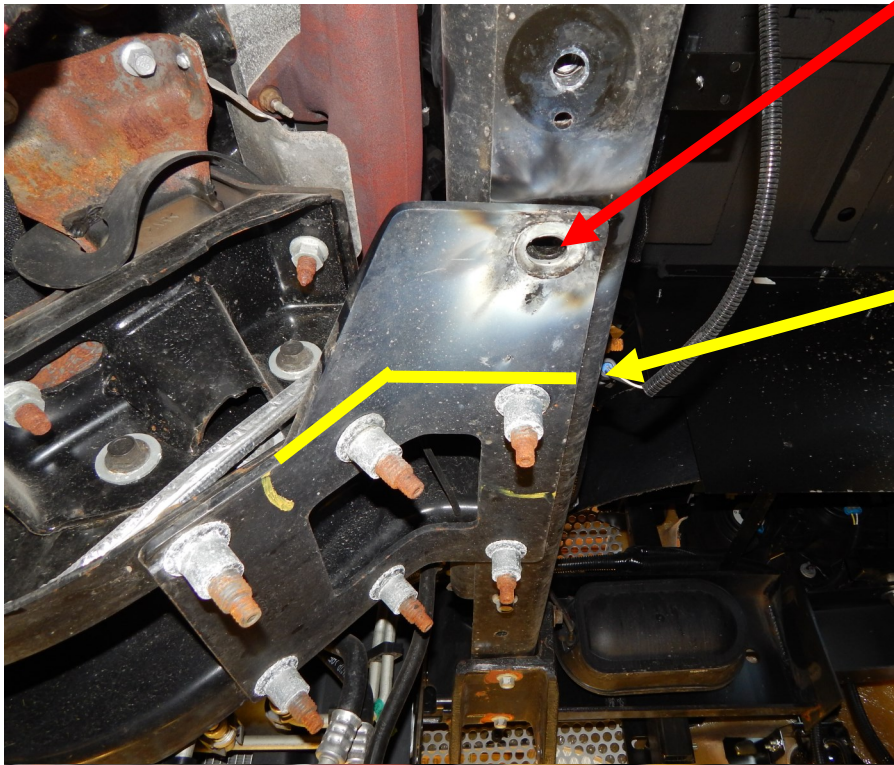
U bolts will be reused

4. It will be required to remove the lower leaf spring of the 3 leaf spring pack. Undo the tie bolt and cut the clamp off the end of the leaf springs. Use a grinder with a cut off wheel to cut the band at the rear of the spring pack. Now locate the provided bolt 1/2x3" tie bolt and refasten the 2 leafs together along with the bottom blocks.



5. The passenger side cross member bracket will need to be cut down and shortened where the air bag mounts. Use the picture below to see where to cut. **MAKE SURE NOT TO CUT INTO THE FRAME!!!** You will cut the forward huck bolt off and then cut the rear part off the bracket.

Use a torch to cut the huck bolt out on the bracket.



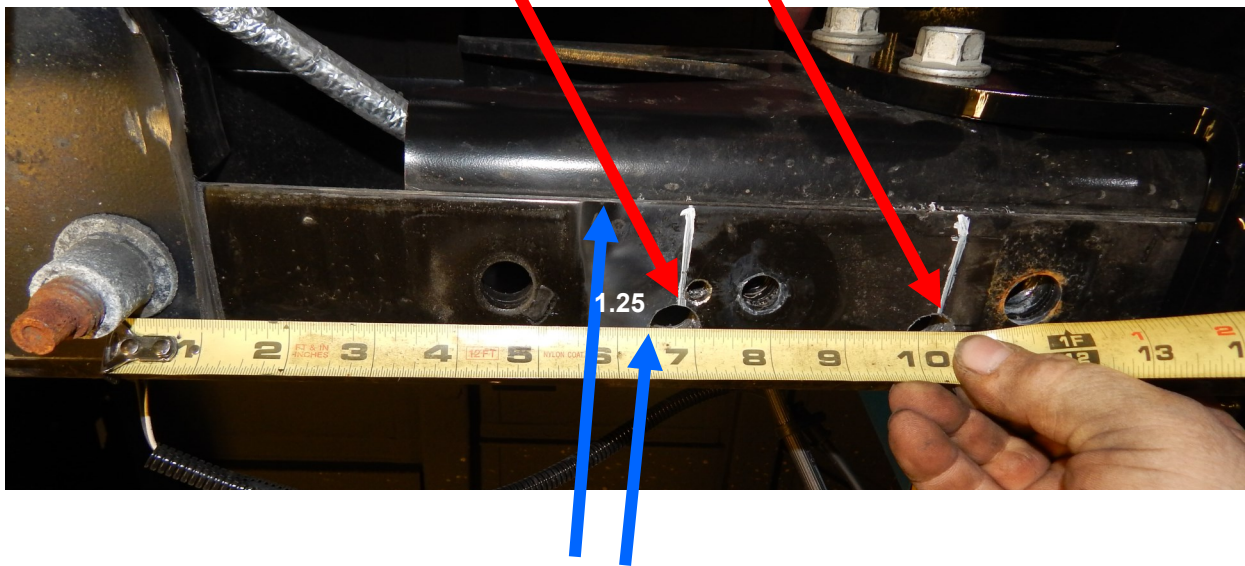
You will need to cut this bracket on the yellow line shown in the picture. Take your time, **MAKE SURE NOT TO CUT INTO THE FRAME.** A cut off wheel on an angle head grinder seems to work the best.



Measure from the center of this rivet back to get the measurements where to drill the air bag holes (step 6 on page 5)

6. Now that the passenger side cross member bracket is trimmed out for air bag clearance, measure where to drill the holes in the bottom of the frame for the air bag. (the drivers side will take the same measurements when that step comes)

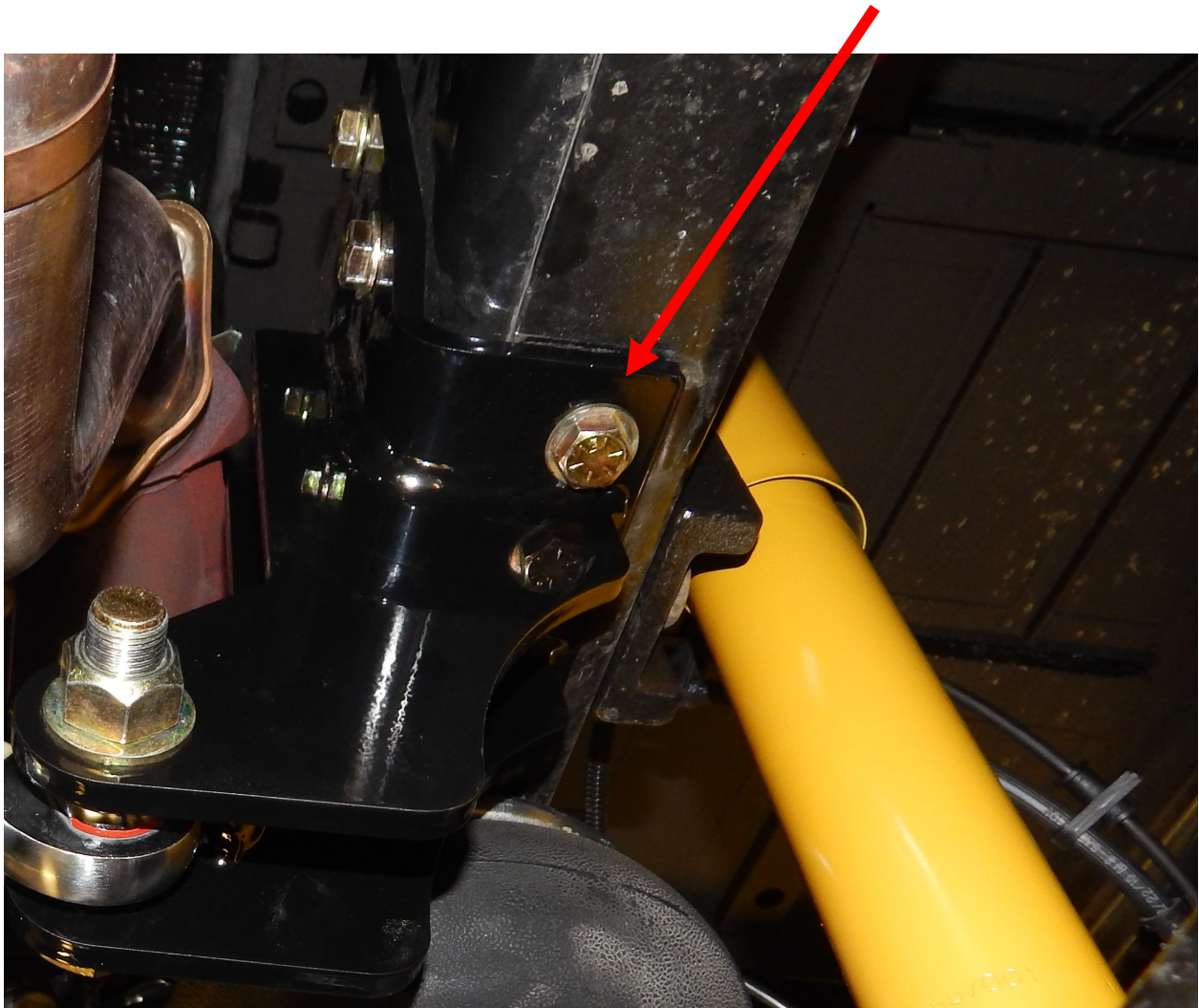
Measure back from the center of the rear rivet towards the back $6\frac{3}{4}"$ and $10\frac{1}{4}"$ and draw a line. Now measure from the outside of the frame in $1\frac{1}{4}"$ on the line. This is where you drill the two $\frac{5}{8}"$ holes for the upper air bag studs to go through



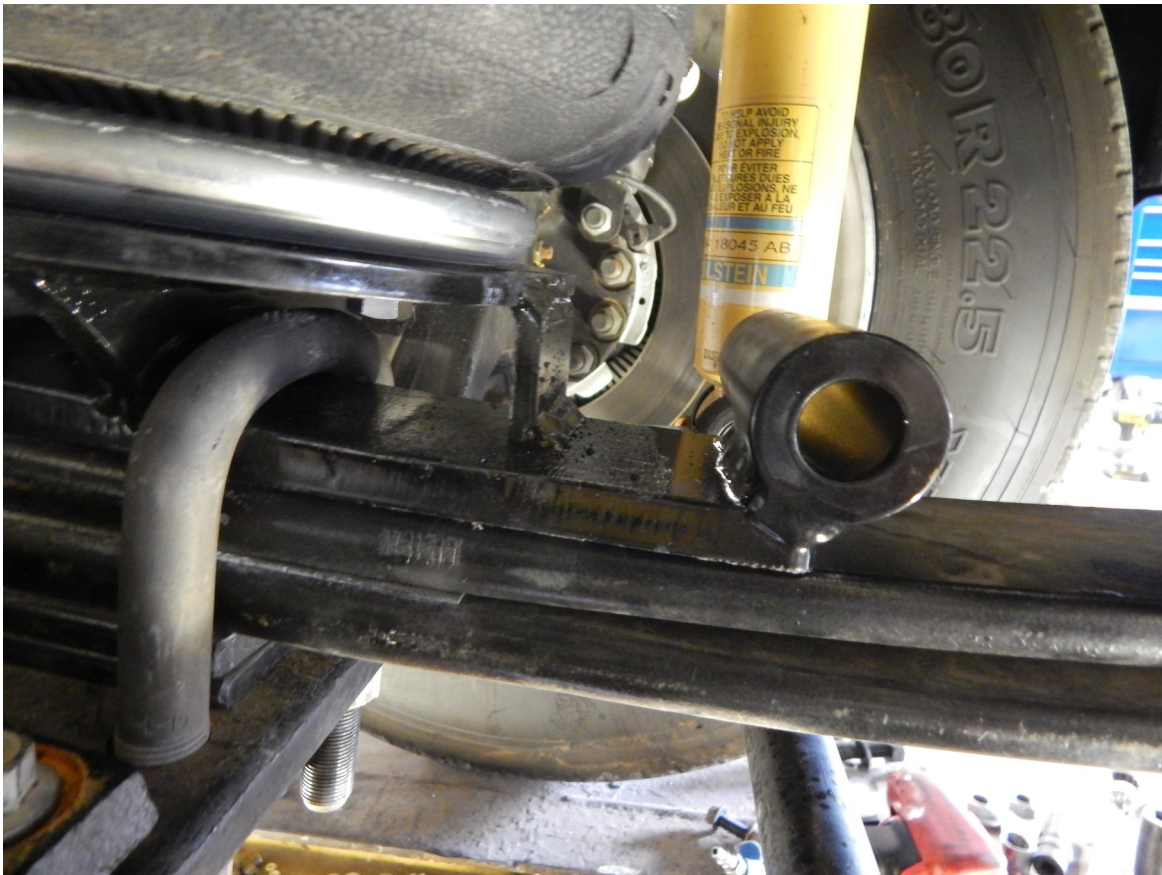
Measure from outside edge of the frame in $1\frac{1}{4}"$ to get spot where to drill on the bottom of the frame flange

7. Now locate upper pan hard bar mount (part #15993). It fastens to the frame with two of the factory bolts and four 1/2x2" bolts. You will have to drill the one 1/2" bolt hole. It works best to drill this hole after all the other bolts are installed and tightened. Torque the bolts to 85 ft/lbs

Drill this hole after
bracket is bolted on

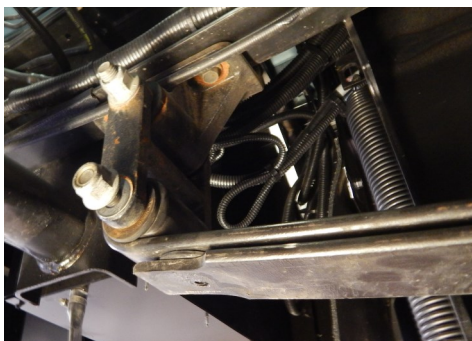


8. Now locate the lower air bag mounting bracket (part# 30111), leaf springs, U bolts and front and rear leaf spring mounting bolts. Slide the U bolts over the lower air bag mount and place the air bag mount on top of the leaf springs. Next use the factory bolts to reconnect the front leaf spring eyelette into the front perch and the rear shackle gets connected to the bottom of the frame. Next place the 6905 air bag in place. Use the 3/8x1 1/4" to fasten the bottom of the air bag in place and the 1/2" nuts and lock washers to fasten the top of the air bag into the bottom of the frame. Torque the air bag bolts and nuts to 35 ft/lbs. Torque the U bolts to 275 ft/lbs. Now install the shocks.



Rear leaf spring shackle

Front leaf spring installed in factory perch



9. Now that the passenger side is installed, its time to remove the drivers side leaf springs. Just like the other side, remove the shocks, leaf springs and rubber bump stop.

10. Remove the bottom leaf spring and put the top two leafs back together with the spacer and the tie bolt. Use the exact same procedure as the passenger side.

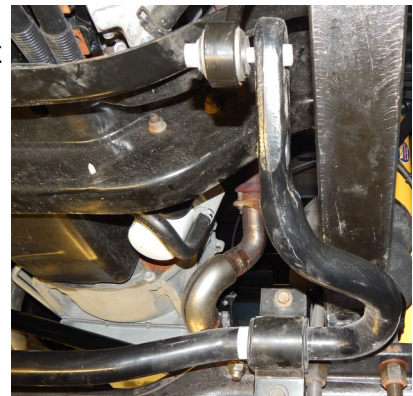
11. Next use the same measurements to drill the two 5/8" holes in the bottom of the frame flange. (page 5 step 6).

12. Now locate the drivers side lower air bag mount (part# 30110), factory U bolts, leaf spring bolts and reinstall the leaf springs just like you did on the passenger side. Torque the U bolts to 275 ft/lbs. Install the shock.



13. Locate the lower pan hard bar mount (part# 70692). It fastens to the axle with the 1/2x2 1/2" bolts and factory bolts. Torque the bolts to 85 ft/lbs.

14. Now reinstall the front OEM sway bar.



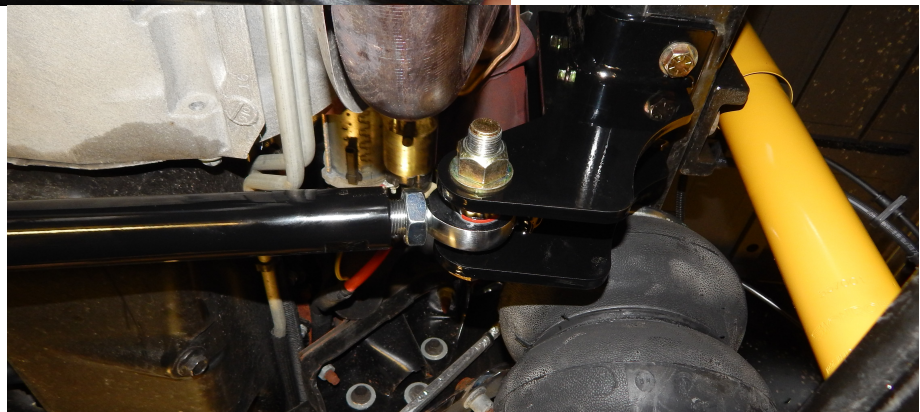
15. Now locate the pan hard bar (part# 70694). It fastens to the upper and lower control arms with the 3/4x4" bolts. Use the spacers (part# 10199) on each side of the heim end to center it up. Once the ride height is set in the next step, adjust the pan hard bar by turning the pan hard bar in/out as needed to get the steering wheel straight. Once the steering wheel is straight, tighten the jam nuts on the pan hard bar. Torque the 3/4" bolts to 250 ft/lbs.

16. Now all that is left is to set the air bag ride height. If you are doing a manual fill air system, locate the dual needle air pressure gauge. A good place to mount it is under the hood in an area that has easy access for an air hose. Once the gauge is mounted, run an air line to each bag from the back of the gauge. Inflate each bag until it is 7" tall. You will want to add a little air to each side and then switch back and forth. The pressures will not be even since the weights are not the same on each side. Typical pressures will be anywhere from 35-55 psi. Try and get the coach leveled up from side to side. The air bag can run anywhere from 6 1/2" to 8 1/2". It seems to be the best ride in the 7" range. If you are installing the automatic system, go to step 17 on the next page.



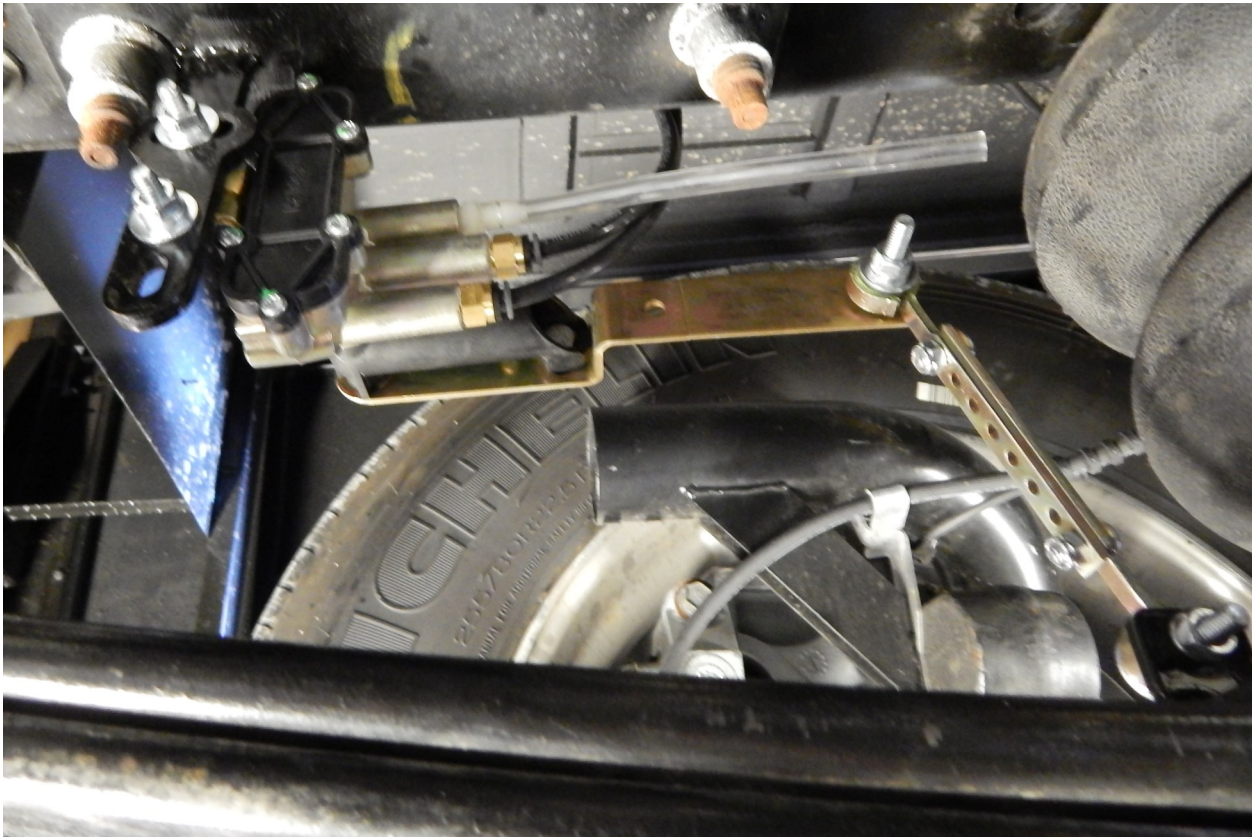
Drivers side

Passenger side



17. Locate the height control valves, mounting bracket and the adjustable linkages. The mounting bracket welds to the bottom of the frame next to the forward rivet. Use the picture below to see where to weld the bracket. Now fasten the height control valve to the mounting bracket with the 1/4x1" bolts. Locate the linkages. You will need to shorten the linkages so there are 7 or 8 holes showing. Now you will fasten the adjustable linkage to the outer hole on the height control arm and to the tab on the lower air bag mounts with the 1/4x 1 1/4" bolts. Adjust the linkages so the height control arm is straight out at your ride height that was selected in step 16.

18. Now mount the air tank and compressor box. Its up to the end user if they want to put the box and air tank in a storage compartment or just hang them on the side of the frame. Use the wiring and plumbing diagram that came with the control system when installing.



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.
- 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 improperly.
- 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”.

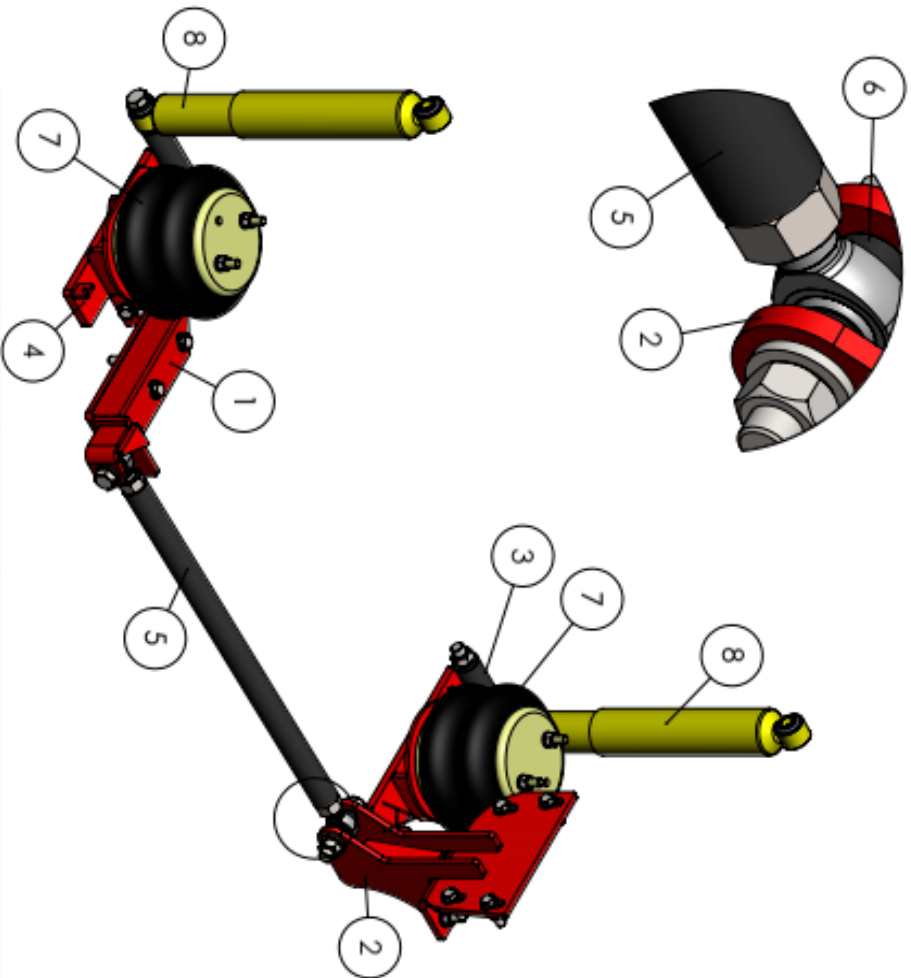
Check for air leaks around fittings.

CHECK AFTER THE FIRST 1000 MILES:

Recheck and tighten any loose fasteners.

Check for any loose or worn components.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	70692	Lower (PHB)/Axle Mounting Bracket	1
2	15993	(PS) (PHB) Frame Mounting Bracket	1
3	30111	(PS) Leaf Spring Bracket	1
4	30110	(DS) Leaf Spring Bracket	1
5	70694	25.5" Portford Bar	1
6	10199	Helm Spacer .440"	4
7	80012-6905	Frestone 6905	2
8	80122	Tenneco - 557001 F53 RV Shock	2
9	13164	1/2"-20 Hex Nut Gr.B	16
10	13168	3/4"-16 Hex Nut Gr.B	4
11	13046	3/8" Lock Washer	4
12	13050	1/2" Lock Washer	4
13	13022	3/8" Flat Washer	4
14	13024	1/2" Flat Washer	24
15	13028	3/4" Flat Washer	8
16	12210	Bolt - 3/8"-16 X 1.00 - Gr.B	4
17	12009	Bolt - 1/2"-20 X 1 3/4" - Gr.B	6
18	12011	Bolt - 1/2"-20 X 7" Gr.B	6
19	12529	Bolt - 3/4"-16 X 4" Gr.B	2
20	12561	Bolt - 3/4"-16 X 8.00 - Gr.B	2



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONS: ± 1/32" ANGULAR: MACH: ± 1 BEND: ± 1 TWO PLACE DECIMAL: ± .005 THREE PLACE DECIMAL: ± .003 MATERIAL:		Design By: Zach Belliz 2014	Project: F53 3 Leaf Spring Kit
FINISH	Inventory	Run Qty:	Description: 2-leaf front
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74546	SIZE DWG. NO. A KLM-70691	SCALE: 1:20	DO NOT SCALE DRAWING SHEET 1 OF 1