

KLM15440, KLM15716, KLM15800



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2005 & Newer Ford F-650 / 750 2WD 4-Link Front Installation Instructions



1. Before doing anything, place an angle finder on top of the axle and record the measurement here _____. Once the kit is installed, you will need this measurement to put the axle back to the correct caster and camber.
2. Jack up the truck between 8-10" from the frame right behind the rear shackles and place a jack stand under the frame on each side of the radiator.
3. We recommend doing one side at a time. We will start the instructions on the passenger side.

NOTE: When installing on a 2008 model, please refer to pages 16 & 17 before proceeding.

4. Using a torch, cut the heads off of the bolts that hold the front and rear shackles in place **(1.0)**. On each shackle hanger there are four bolts. There are two on the side and two on the bottom. Look on the back side of the frame to make sure there are no wires or lines that could be damaged when torching around this area. On the passenger side front, remove the bracket that holds the transmission cooler line. This bracket will not be reused. When you do the driver's side place a piece of tin on the front side of the spring in order not to burn the wires going to the headlight assembly. On the driver's side towards the rear of the spring remove the air valve in order not to damage it when torching the bolts off (2008 models have a cast spring perch mount on passengers' side front. **DO NOT REMOVE THIS BRACKET**).

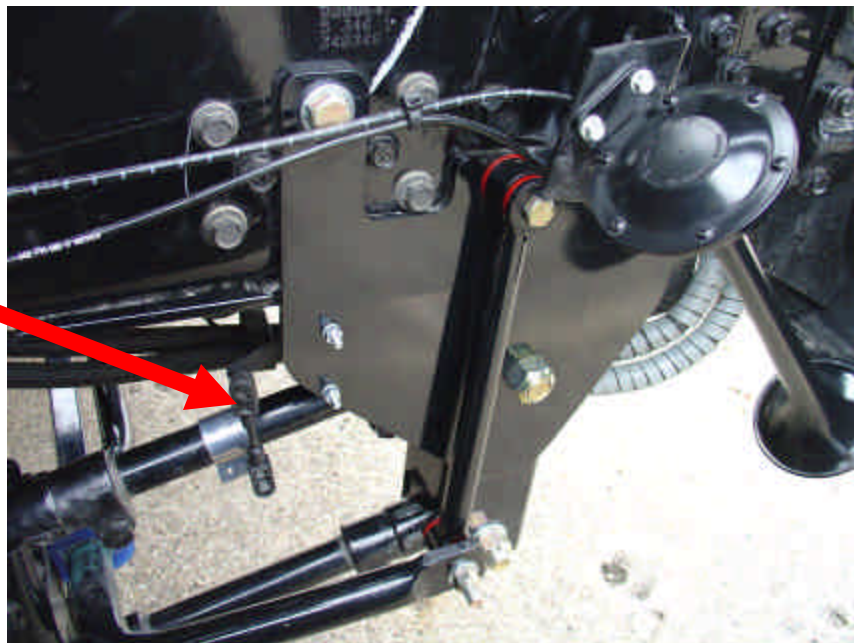
NOTE: When using a torch on any vehicle make sure to have a fire extinguisher nearby as well as a spray bottle of water incase anything catches fire.



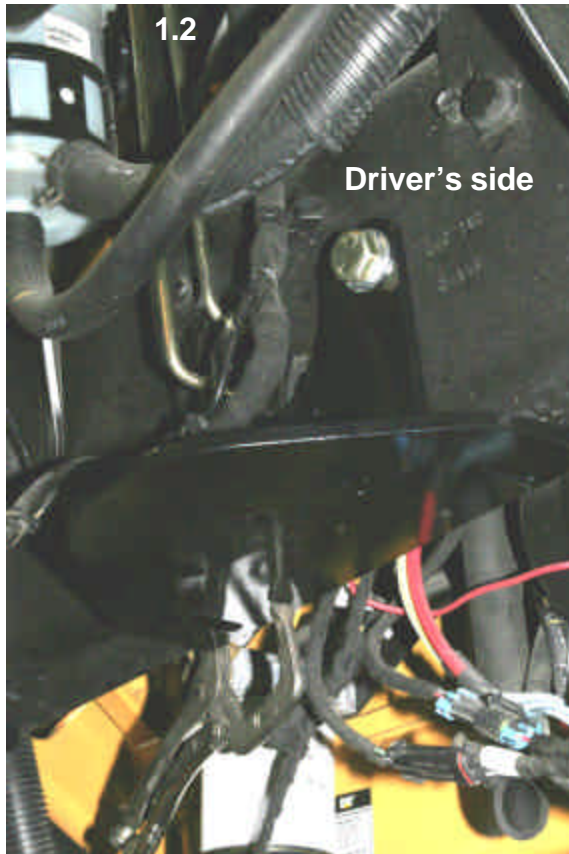
5. If the truck has shocks, remove them. Next, remove the U-bolts that hold the leaf springs in place and remove the leaf spring.
6. Locate the right side trailing arm side plate (part #15418). Use the four 5/8" x 2" bolts to fasten the mount in place utilizing the original holes that held the factory shackle fastening bolts that we cut off. You will need to drill the rear most hole with a 1/2" drill bit **(1.1)**. DO THIS IMMEDIATELY or you will not be able to fit a drill in place once the next components are installed. Go ahead and tighten all the bolts. (NOTE: The 1/2" hole in the middle of the bracket will be used to fasten the sway bar end link later in Step 19.



Electronic height control pictured



7. Locate the right rear upper air bag plate (part#15421). This has the pan hard bar mount welded to it **(1.2 & 1.3)**. Fasten in place using the 3/4" x 2" and the 1/2" x 2" bolts. Use the factory holes to locate the part in position. Next you will need to drill the four remaining holes into the frame. You can either use a transfer punch to locate the holes, and then remove the plate and drill, or you can leave the bag plate and drill the frame with the upper bag plate in position. Once the holes are drilled, install and tighten the remaining four 1/2" x 2" bolts.



8. Locate the lower passenger's side air bag plate (part #15426). Use the dowel pin to locate the correct position on the axle. Next locate the lower axle clamp (part #15434). This lower axle clamp fits very tight on the axle. It may be required to grind the roughness off of the axle to get the lower clamp to fit **(1.4 & 1.5)**. When installing locate the 4 3/4" spacer (part #15435) and the 3/4" x 7 1/2" bolts **(1.6)**. The 3/4" x 7 1/2" bolts go from the lower air bag plate down, then the spacer goes next, then the lower axle clamp then the flat washer and lock nut. On the front side of the axle clamp use the two 5/8" x 2 1/2" bolts to fasten it to the lower bag plate. If there is a space between the lower axle clamp and the lower bag mount when everything is tightened, loosen the 5/8" x 2 1/2" bolts and place one or two washers in between the two brackets and then retighten. If you don't use the washers, the mount will bend where the holes are for the 5/8" x 2 1/2" bolts and the axle clamp will not be tight on the axle. Since the axle is a casting each truck varies a little as to how many washers are needed. Once the amount of washers are needed is determined tighten all the bolts.



9. Locate the trailing arms (part #15429). When installing the arms into the front 4-link side plates and the bottom air bag plates, make sure to install one 7/8" ID washer on each side of the knuckle **(1.7)**. These washers are used as spacers to center up the trailing arms. Use the 7/8" x 5 1/2" bolts (part #12633) on the bottom front and the rear mounts and use the 7/8" x 6 1/2" (part #12635) on the front upper mount. When inserting the bolts go from the outside in with a flat washer on the head of the bolt and use a flat washer on the nut side also. You will not need to tighten these bolts until the final alignment is done.



10. Now remove the drivers side leaf spring, spring perches, and shocks just as you did on the passenger's side in Steps 4 and 5.

11. Locate the left front 4-link side plate (part #15418) **(1.8)**. Use the four 5/8" x 2 1/2" bolts to fasten the mount in place utilizing the original holes that held the factory shackle fastening bolts that we cut off earlier. You will need to drill the rear most hole into the bottom of the frame with a 1/2" drill bit. **DO THIS IMMEDIATELY** or you will not be able to fit a drill in place once the next components are installed. Go ahead and tighten all the bolts. (NOTE: The 1/2" hole in the middle of the bracket will be used to fasten the sway bar end link later in Step 19.

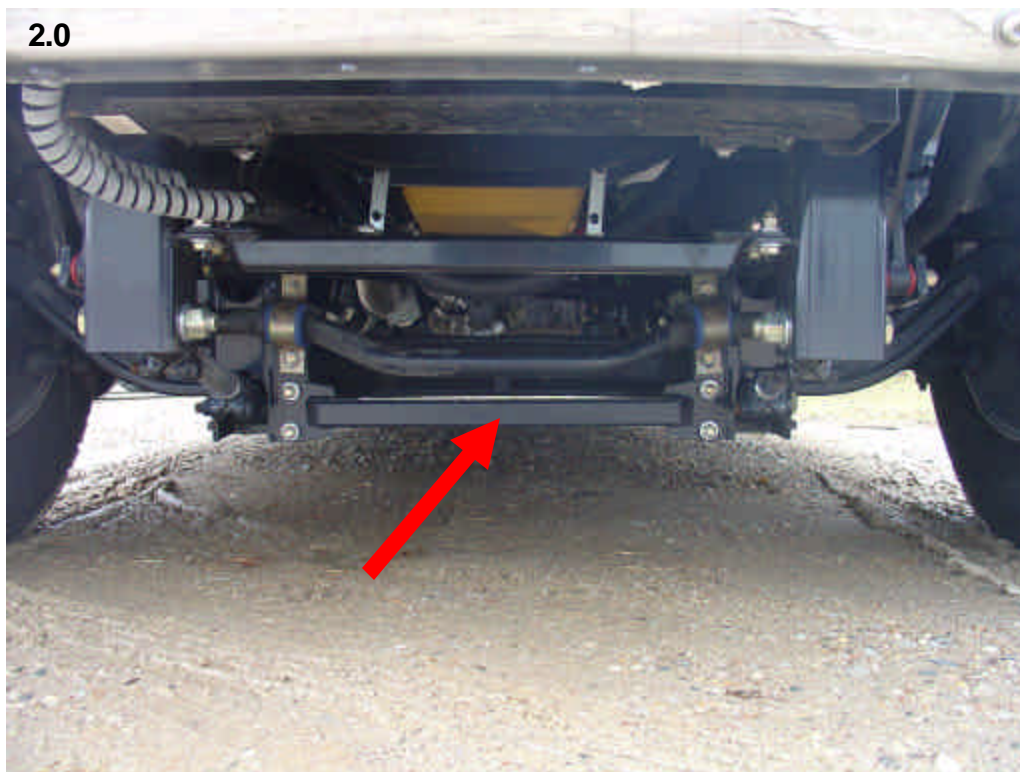


12. Locate the upper cross member (part #15425) **(1.9)**. This cross member goes in between the left and right 4-link side plates. Use the 1/2" x 1 1/2" bolts to fasten it in place. Go ahead and tighten the four bolts.



13. Locate the left side rear upper bag plate (part #15423). Use the factory holes in the frame to locate the bracket. Use the 3/4" x 2" and 1/2" x 2" bolts to fasten into place. Now, you will need to drill the four remaining holes in the frame. You can either use a transfer punch to locate the holes, and then remove the plate to drill, or you can leave the bag plate attached to the frame and drill the holes into the frame with the plate in position. Once the holes are drilled, insert the 1/2" x 2" bolts and tighten. Tighten all the bolts on this bracket at this point.
14. Locate the lower left side air bag plate (part #15427). Use the dowel pin to locate the correct position on the axle. Next locate the lower axle clamp (part #15434). This lower axle clamp fits very tight on the axle. It may be required to grind the roughness off of the axle to get the lower clamp to fit. When installing locate the 4 3/4" spacer (part #15435) and the 3/4" x 7 1/2" bolts. The 3/4" x 7 1/2" bolts go from the lower air bag plate down, then the spacer goes next, then the lower axle clamp then the flat washer and lock nut. On the front side of the axle clamp use the two 5/8" x 2 1/2" bolts to fasten it to the lower bag plate. If there is a space between the lower axle clamp and the lower bag mount when everything is tightened, loosen the 5/8" x 2 1/2" bolts and place one or two washers in between the two brackets and then retighten. If you don't use the washers, the mount will bend where the holes are for the 5/8" x 2 1/2" bolts and the axle clamp will not be tight on the axle. Since the axle is a casting each truck varies a little as to how many washers are needed. Once the amount of washers are needed is determined tighten all the bolts.

15. Locate the trailing arms (part #15429). When installing the arms into the front 4-link side plates and the bottom air bag plates, make sure to install one 7/8" ID washer on each side of the knuckle **(1.7)**. These washers are used as spacers to center up the trailing arms. Use the 7/8" x 5 1/2" bolts (part #12633) on the bottom front and the rear mounts and use the 7/8" x 6 1/2" (part #12635) on the front upper mount. When inserting the bolts go from the outside in with a flat washer on the head of the bolt and use a flat washer on the nut side also. You will not need to tighten these bolts until the final alignment is done.
16. Locate the lower cross member (part #15425) **(2.0)**. This goes between the left and right lower bag plates. Use the four 1/2" x 1 1/2" bolts to fasten into place. Go ahead and tighten the bolts.



17. Locate the 5770 air bags (part #10020). Next locate the air bag spacers (part #15443). Fasten the bottom of the bag to the air bag riser using the $\frac{3}{4}$ " nut and lock washer (**2.1**). Do not tighten yet. Slide the studs sticking out of the top of the air bag into the upper bag plate. Locate the $\frac{3}{4}$ " x 2" bolts and fasten the bottom of the air bag riser to the lower air bag plate. Use the $\frac{1}{2}$ " lock washer and nut and the $\frac{3}{4}$ " lock washer and jam nut to fasten the top of the bag in place. Go ahead and tighten the lower bag nut and lower spacer bolts. Use the same procedure on the other side.

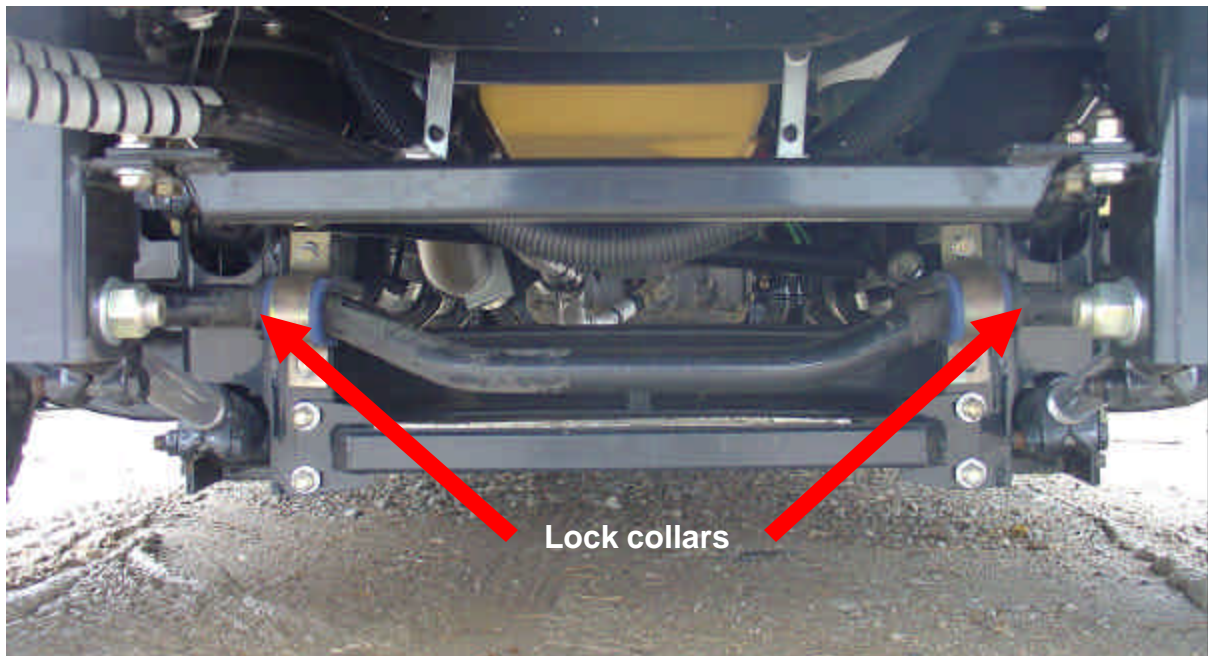
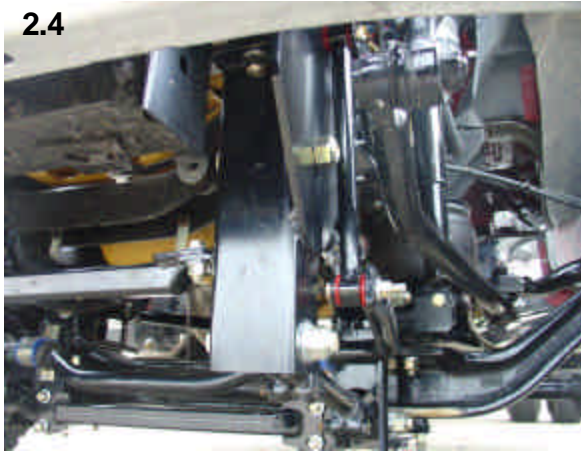


18. Locate the pan hard bar (part #10485) (**2.2 & 2.3**). Install the pan hard bar with the 7/8" x 4" bolts. Make sure put one 7/8" spacer on each side of the heim end. Also check to make sure the heim ends have the same amount of thread on each end. Go ahead and tighten the 7/8" bolts, but leave the jam nuts on the heim ends loose.

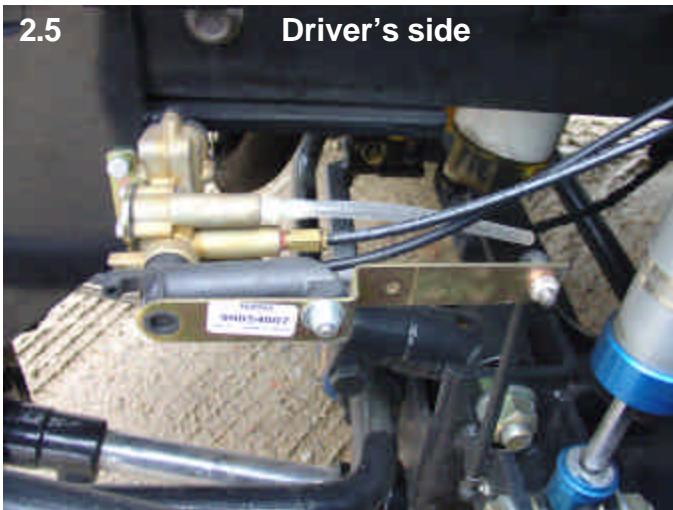


19. Locate the sway bar (part #11902) and the sway bar bushings/clamps (part # 11895) (2.4). Slide the sway bar between the trailing arms **MAKING SURE THE DROP IN THE SWAY BAR IS DOWN**. If you install the sway bar with the drop going up it will hit the bottom of the oil pan which will cause damage if the kit loses air. Fasten into place with the four 7/16" x 1 1/2" bolts. Next locate the sway bar end links (part # 11818). Use the 1/2" x 3 1/2" bolts to fasten the top of the sway bar end link through the front 4-link side plates. Make sure to use the large machined washer (part #13024) on the bolt head side for the bolt. On the bottom end of the end link, use the 1/2" x 3" bolt with the large machined washer also on the head end of the bolt. Go ahead and tighten the bolts once each end link installed. Once the sway bar is installed locate the lock collars. Install a lock collar on the outside of the blue bushings. This will keep the sway bar from sliding side to side.

2.4



20. Locate the height control valves **(2.5)**. Find the two 1/2" holes and use the 1/4" x 1 1/2" bolts to fasten the height control valve to the front 4-link side plate. Open up the bag of parts that is packaged with the valve and fasten the plastic fitting in the top port. Find the air tank on the vehicle and locate a 1/4" air line coming out of the tank. Cut this line and install a "T" fitting in the line (when cutting use a razor blade and make sure your cut is 90 degrees.) Next insert the new air line into the "T" and run it along the drivers side up to the middle fitting of the height control valve. The bottom port of the valve goes to the air bag. Insert the supplied fittings in the bag as well as the height control valve. Once the driver's side valve is hooked up, insert a "T" on the supply line around the area of the bottom of the firewall. Route another air line up along the firewall/cowl and over to the height control valve on the passengers side. Run this line to the middle fitting and then run another line to the air bag. Make sure to run the line away from anything sharp as well as any moving parts and the exhaust. Once the lines are run, go back through with zip ties and secure all the lines.



21. Locate the adjustable linkages that attach to the end of the height control valves. Use the 1/4" x 1 1/2" bolt to fasten linkage to the end of the height control valve and to the hole by the shock mount on the lower bag plate. Adjust the linkage so the bags are 8" tall when inflated.

22. Shock installation. Locate the shocks and fasten them into the bottom mounting tabs on the lower bag plates (2.6). Use the 1/2" x 3 1/2" bolts to fasten them in place. If the shocks you are using have a larger bushing than 1/2", it will be required to drill out or open up the holes with a die grinder and acquire a different bolt. On the top of the shock, fasten into place using the factory bolt or replace the bolt with the necessary bolt needed to fit the upper shock bushing.



23. Alignment.

There are 3 main items we will address when aligning the front axle.

1. Original camber/caster angle (this is where the measurement taken with the angle finder in step one comes becomes important). This is adjusted by moving the top trailing arm in and out.

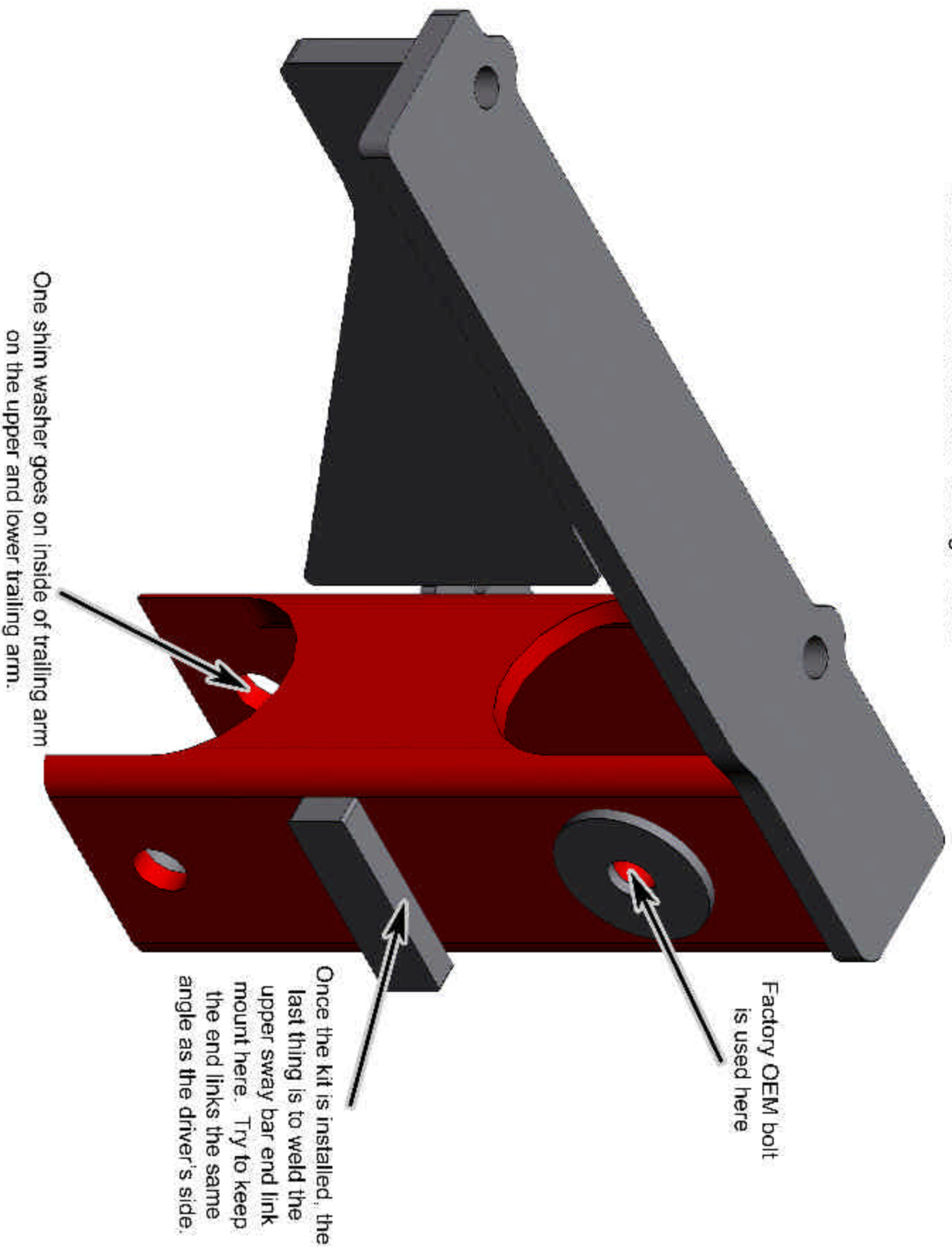
2. Axle position side to side. You will use the pan hard bar to center the axle in the middle of the frame.

3. Axle position front to rear. You will use the top and bottom trailing arms to adjust the axle to square it up with the frame. Set the height control linkages so the air bags are at 8". Check to make sure the truck is setting level from side to side. If one side is lower, you can lengthen the linkage to raise it up. Once the truck is setting square, place the jack stands back under the front of the frame and set them so that when you deflate the airbags the truck will still be at ride height. To deflate

the bags, either one of the ¼” bolts out of the linkage and pull the height control lever down. The height control valve has an eight second delay, so you will have to hold it down for 20-30 seconds. Do this procedure on each side. Once the air is deflated, grab the angle finder gauge that you used on step one. Place the gauge on the same place that you took your initial measurement. To get the axle back to the original factory specs, lengthen and shorten the trailing arms accordingly. Once you get the angle correct, use the pan hard bar to center up the axle. Measure from the outside of each tire to the frame to center the axle up. Next locate a hole in the side of the truck frame that is in the same position on each side. Use these points to measure from in order to square up the axle with the frame. Measure from the same point on each side of the axle back to the hole in the frame. If you get this within 1/16th of an inch, set the axle square side to side and get the angle of the axle back to the factory specs, the truck will drive straight and no further alignment will be needed. Once you have the axle in correct position, tighten the bolts on the trailing arms.

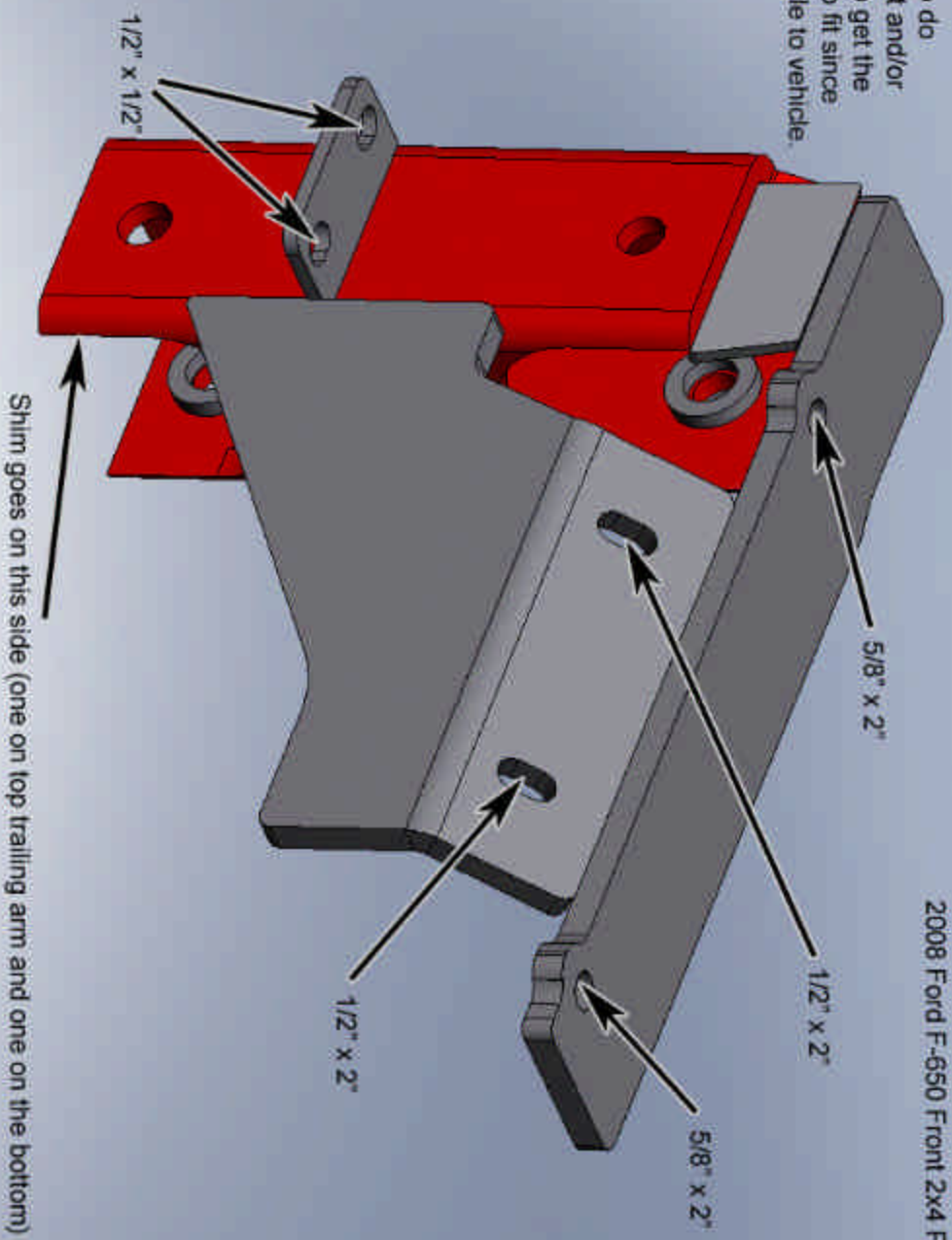
24. Once the alignment is complete go through and recheck all the bolts in the system as well as recheck the air lines to make sure they are safely zip tied.
25. Test drive. The first thing you will notice on the test drive is that the steering wheel is not straight. This is because this kit raises the front of the truck about 3, which is what it takes to get the truck to set level. The truck should drive straight and not pull to either side. If the truck pulls to the right, then the right front side of the axle needs to be pushed forward. When dialing the truck in, turn the trailing arms just one turn at a time, then test drive. Most times, you should have no further adjustment after the initial install.
26. Steering wheel adjustment. Make sure the front wheels are straight. To set the steering wheel straight with the tires, remove the bolts that hold the center steering wheel cover in place. You can get to these from the back of the steering wheel. Remove the nut that holds the steering wheel on. Pull the steering wheel off by hitting the steering wheel on each side with the palm of your hand. You can also grab each side of the wheel and work it back and forth. Once the wheel comes off, place it straight and refasten the wheel with the nut to 30-40 lb/ft.
27. From here forward, it is recommended it check all the bolts for tightness at regular service intervals. The kit will provide years and years of ride comfort. If you have any questions regarding the installation of this product, please call Kelderman Air Ride at 800-334-6150. Hours of operation are 7:30 am – 4:30 pm CST.

2008 Ford F-650 Front 2x4 Passenger's Side



2008 Ford F-650 Front 2x4 Passenger's Side

NOTE: It may be required to do some grinding on the bracket and/or die grinding on the casting to get the front trailing arm side plate to fit since the casting varies from vehicle to vehicle.



Do not tighten bolt until all are started