PERFORMANCE STEERING COMPONENTS

392 Cylinder Assist Kit

SK689R64JP1-OE

https://youtu.be/k0PlwQDxRpk?si=A_DfOQZXEMmfu4BM

392 EHPS Cylinder Assist Kit

GENERAL INSTALLATION INFORMATION

The PSC JL 392 Kit is designed to replace the factory JL electric power steering pump system and add Cylinder Assist for more turning power.

This kit can be installed in a home garage, but if you have doubts, let a professional installer do the job. If you are doing the installation at home, we highly recommend a second person to help with the steering gear installation. It weighs about 50 lbs. and is difficult to locate and thread in the mount bolts by yourself.

You will need a 17/64" drill bit, 46mm socket, and a torque wrench that will allow you to torque the pitman arm nut to 220-240-foot pounds. Other than that, regular hand tools are all that's needed. We recommend using the thread sealant provided in the kit throughout the installation.

FOR THE KIT TO BE ELIGIBLE FOR WARRANTY, IT MUST BE INSTALLED AS A COMPLETE KIT WITH THE PROVIDED COOLER, PUMP, GEAR, AND HOSES.

This is just a guide for installation. Each Jeep is slightly different from the next, so no two installations will be the same.

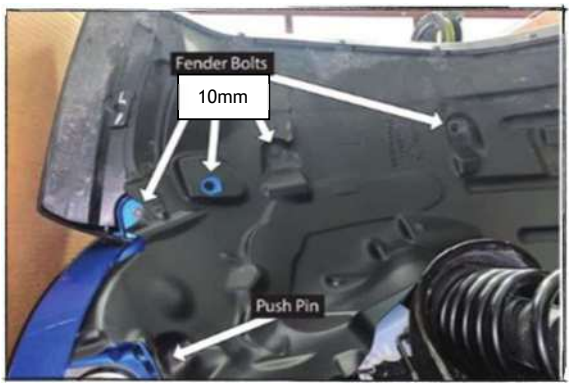
If you have any installation questions, feel free to contact us at support@pscmotorsports.com. PSC's hours of operation are Monday-Friday, 9 am - 5 pm CST.

INSTALLATION GUIDE
392 Cylinder Assist Kit

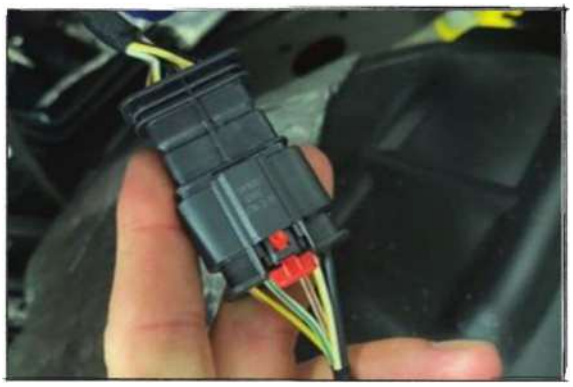
1. Begin with the wheels and tires straight and securing the steering wheel so it cannot turn. We used a bungie cord through the steering wheel to the seat frame. **VERY IMPORTANT - DO NOT SKIP to prevent breaking the clock spring.**

2. Lift the hood back against the windshield. Be sure to place something between the hood and windshield to prevent damage.

3. (tech tip) Remove both the passenger's and driver's side fender with inner fender well. It's faster and easier to remove fender and inner fender well as one piece.
    a. Remove (4) bolts located through holes in inner fender well and (1) push pin at front. Start by pulling up and out at rear of fender.
    b. There are several YouTube videos showing how this can be done.



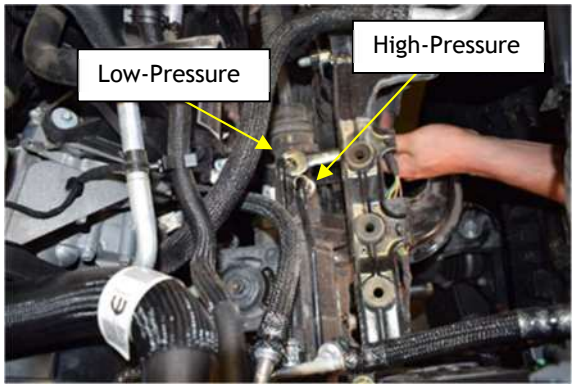
4. (tech tip) Before completely removing the fender, you will need to disconnect the wiring connector to the lights located at the top rear under the fender. To release the connector-slide red lock tab out, then push down on black tab while pulling the connector apart.



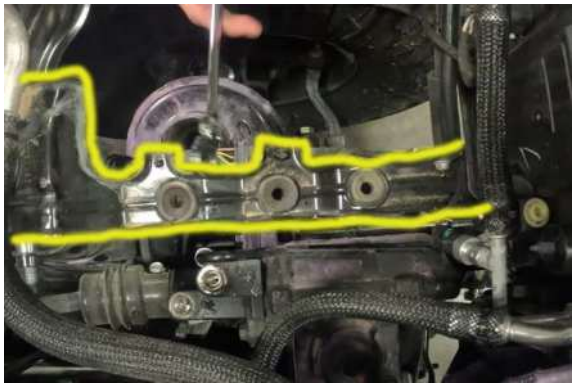
STEERING GEAR INSTALLATION

5. Disconnect battery. Remove air filter assembly and intake tubing, using 10 mm wrench. Then disconnect electrical connections before removing filter assembly.
   NOTE: DO NOT REINSTALL UNTIL THE END

6. Disconnect the high-pressure line (closest to radiator) and low-pressure line (closest to firewall) from gearbox using 18mm wrench. Disconnect the input steering shaft using a 13mm wrench and slide towards the firewall. Remove the reservoir cap for easier Draining. **DRIP PAN RECOMMENDED**



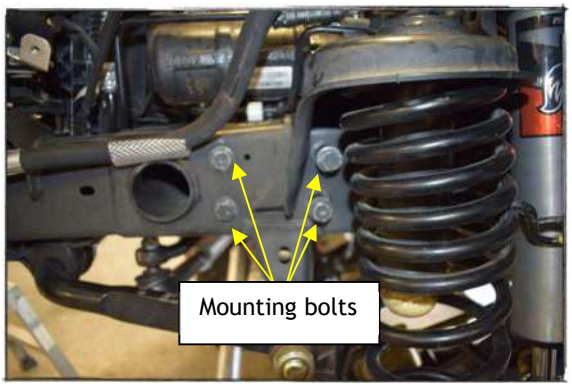
7. Remove and retain the air filter box bracket. Remove five (5) 10mm bolts and all the wiring harness clips.



8. Disconnect the drag link end from the pitman arm (21mm) and swing down out of the way.

9. (Tech Tip) Use a ratchet strap on the driver side coil spring to move the coil away to gain access to the steering gear box for mounting bolts.

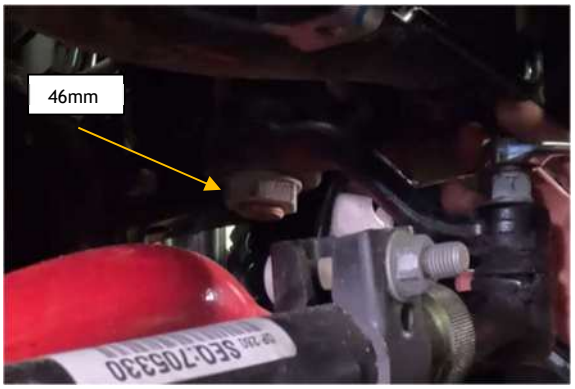
10. The steering gearbox is HEAVY; we recommend you get help to remove the original and install the 693R gearbox. By going through the fender well, remove and retain all four 18mm bolts. Have a friend hold the gearbox in place while you unbolt it. Once unbolted, take the steering gear box out of the top of the vehicle.



11. Remove the stock pitman arm from the stock steering gear (46mm).

12. Install the supplied SF02 fitting into the low-pressure port and SF01 in the high-pressure port of the new steering gear (use hydraulic thread sealant when installing this fitting to prevent leaks). Then install gear the way it came out, using the four factory bolts (18mm) to secure the gear box (we recommend using someone else to help thread in the bolts while another person holds the gear).

13. Once the new gearbox is bolted to the frame, install the pitman arm to the gearbox and torque it to 220ft/lbs. using a 46mm socket.



14. Slide steering shaft onto the gearbox input shaft. Be sure to install steering shaft bolt (13mm) correctly. Bolt goes through the un-threaded side of coupler first, then threads into opposite side.

IF THE VEHICLE IS NEED TO DRIVE OR ONLY INSTALLING STEEERING GEAR, INSTALL LOW PRESSURE LINE TO GEAR AND PROCEED TO BLEEDING INSTRUCTIONS. (page 26)

STEERING PUMP INSTALLATION

15. Remove grill by releasing and removing the six (6) push rivets along top of the grill. Then pull out on the bottom edge of the grill to release push-in snap connectors along the bottom edge of the grill.

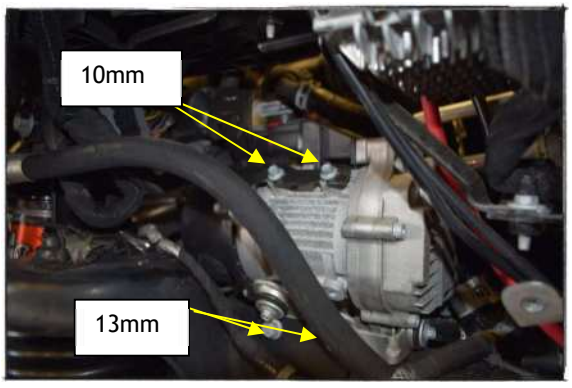
16. Depending upon which bumper and/or winch setup you have, you may need to remove it for access to install the cooler.

17. Feed the low-pressure line (included in the cooler kit) in between the radiator and frame on the driver's side then attach the 90-degree fitting to the SF02 AN using 11/16 wrench.

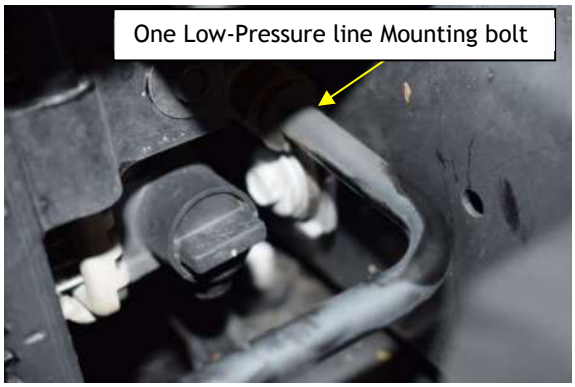
18. Disconnect the return line from the OE P/S pump to drain fluid. Opening the fill reservoir cap will help fluid drain quicker.

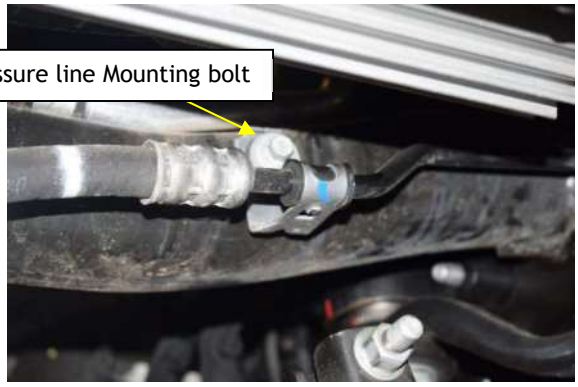
19. Remove OE fill reservoir and retain the 10 mm bolt to use later with SRVT installation.

20. Disconnect the wiring harness and high-pressure line from OE power steering pump. Make sure to secure the wires to avoid rattling while driving. Remove (2) mounting bolts and OE stock power steering pump. After the pump is removed disconnect low-pressure hose from the pump.



21. Remove and discard the 10mm bolts to the low-pressure line found on either side of the lower core support. Also remove the two mounting bolts to the high-pressure line located above the tie rod attached to a support.



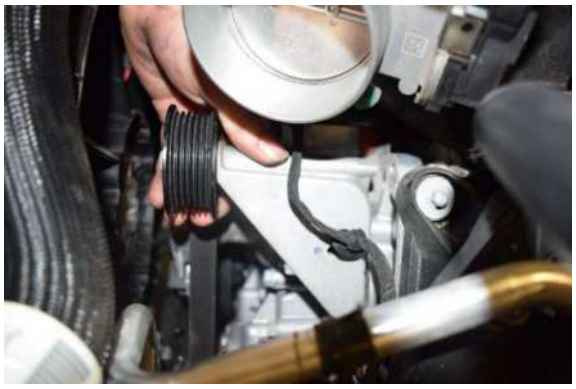


22. Remove your stock low-pressure and high-pressure lines at this point.

    (tech tip) Cutting the low-pressure line as shown will make removal easier.

23. Use a socket wrench to release the tensioner and remove the belt from the front of the engine

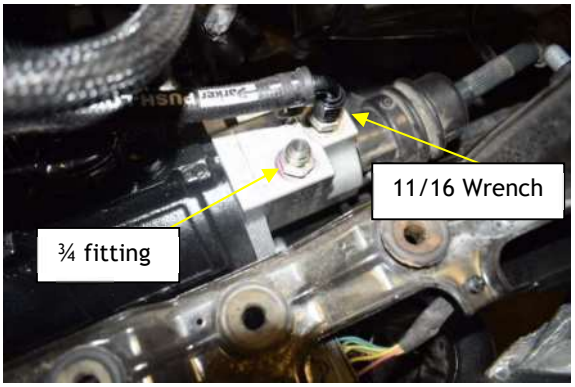
24. Remove the three 13 mm bolts securing the idler bracket to the front of the engine.



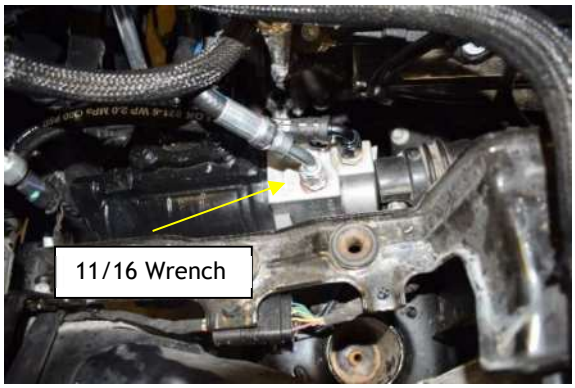
25. Install the pump mounting bracket using the screws provided (6mm Allen head) into the same three bolt holes previously used to secure the idler.

26. Place your pump up against the mounting bracket. Secure the pump to the bracket using the two 13mm bolts provided. Make sure to use the long bolt in the top mounting hole.

27. Install your SF01 high-pressure fitting to the top of your new steering gear, ensuring that you use thread sealant on the fittings. The SF01 fitting is ¾" and the hose fitting is 11/16".



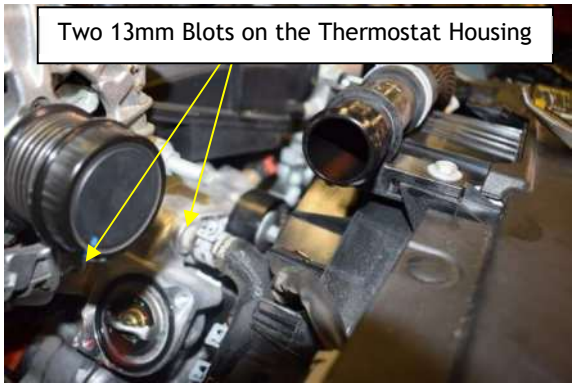
28. Install your high-pressure hose to your steering gear with the 45-degree angle on the gear and the straight on the pump.



29. Move to a table and install the 12AN and 6AN fittings into the reservoir (11/16 and 1 ¼ Wrench). Make sure to use thread sealant on each fitting.

30. Install the Reservoir mounting bracket to the back of your reservoir using the two 7/16th bolts provided.

31. Remove the two 13 mm bolts holding your thermostat housing and remove the clamp holding that hose to the radiator, then fully remove the hose (should look like picture when the hose is removed). You will need a drip pan as radiator fluid will go everywhere!

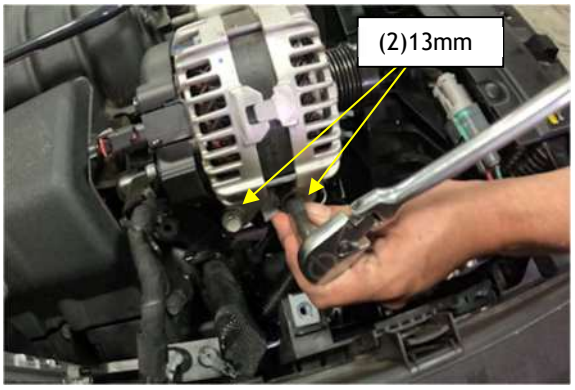


32. Remove the stock filler neck from the hose and cut three inches off the engine side of the hose.

33. Install the modified radiator hose on to the new filler neck provided.

34. Loosely install the filler neck with the stock 13mm bolts and hose remembering to reset the clamp creating a seal.

35. Remove the two 13mm bolts on the passenger side of the alternator.

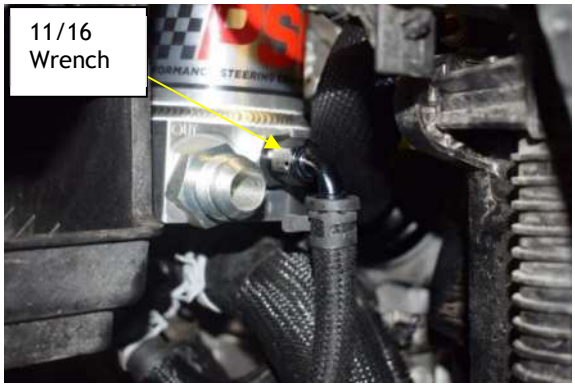


36. Align the reservoir mounting bracket with the alternator mounting holes and loosely reinstall the original bolts. At this time, you may need to rotate the hose clamp on the lower radiator hose for the reservoir to clear the clamp.

37. It's important to make sure that both your freshly cut radiator hose and your reservoir fit well into the original space. Ensure there are no kinks in the hose, and the reservoir sits level and flush to the mount. Tighten both the reservoir mounting bolts and thermostat housing securely.

38. Feed the HAL-142 (cooler) hose in between the frame and the radiator. Make sure the 90-degree fitting remains on the engine side.

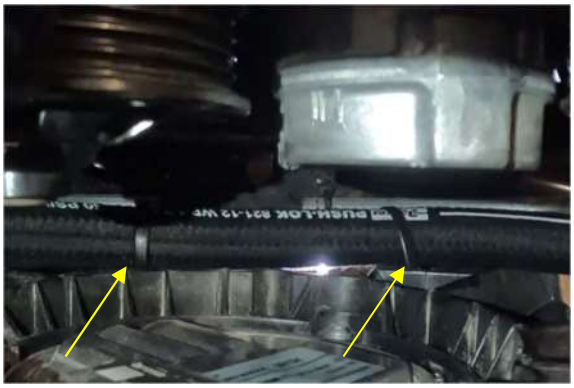
39. Install the 90-degree side of the HAL-142 hose to the AN6 fitting on the reservoir.



40. Feed the pump feed hose from the reservoir to the pump. Pushing the 180-degree angle fitting in the slot between the radiator and engine right above the transmission cooler lines. Then tighten both fittings on the pump and reservoir.

(Tech Tip) We recommend taking off your passenger headlight by removing the three factory bolts securing the light. Once you are done installing the hose you may put the headlight back on.

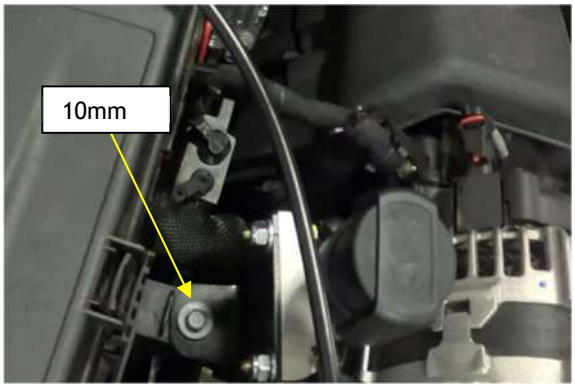
41. Zip tie the pump feed hose to the bottom of the radiator shroud. Making sure not to impede the fan or any pulleys nearby.



42. Install the SRVT mount onto your SRVT using the two 7/16” nuts and bolts provided in the kit.

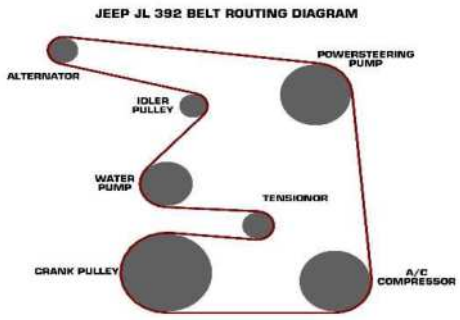
43. Install push lock fitting with hose to the top of your reservoir using a 12mm wrench.

44. Mount the SRVT in the original mounting hole of the stock electric pump reservoir using the stock 10 mm hardware.



45. Cut your SRVT hose to an appropriate length to be able to remove and move around your reservoir cap. We recommend 12-14 inches of hose for this application. Push the loose end of the hose into the SRVT push hose fitting.

46. Reinstall your belt in the factory routing for a 392

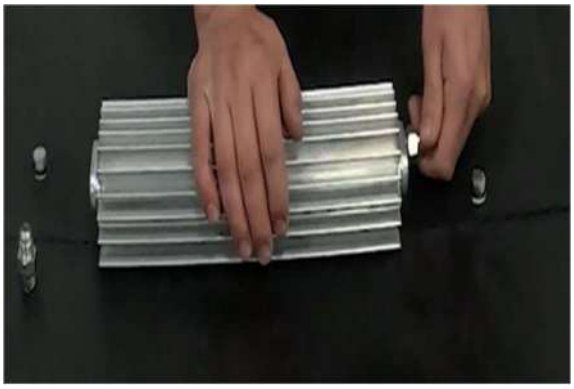


COOLER INSTALLATION

47. Mark two (2) places at the base of the core support. The first mark is 1/2” to the passenger side of the second mounting clip slot from the driver’s side. The second is 1/2” to the driver’s side from the fourth clip slot. Drill both marks with a 17/64” drill bit.

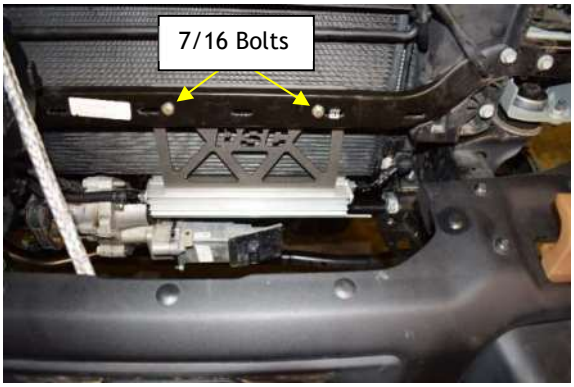
48. **(Tech Tip) Put an obstruction between the radiator and core support to prevent damage to the radiator.**

49. Thread the 6An fittings into the ends of the cooler diagonally from one another. Place the plugs in the remaining holes, use thread sealant and tighten with 11/16" wrench.

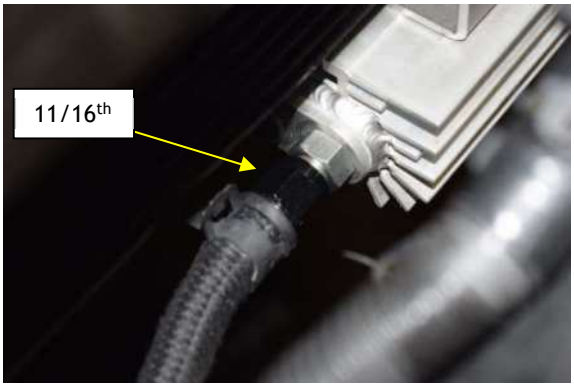


50. Install the bracket to the cooler by placing the head of the bolts in the groove on the bottom side of the cooler

51. Mount the bracket behind the core support using the two 7/16" bolts, washers, and nuts in your predrilled holes.



52. Install HAL-142 from reservoir to the cooler and the low-pressure line from the gear box to the other side of the cooler, using a 11/16" wrench.

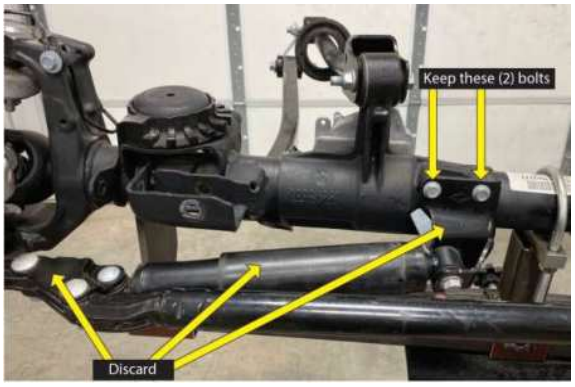


INSTALLATION GUIDE
392 Cylinder Assist Kit

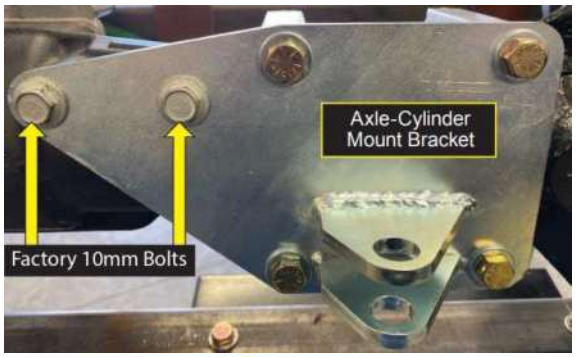
IF THE VEHICLE IS NEED TO DRIVE OR ONLY INSTALLING STEEERING GEAR/ PUMP & COOLER PROCEED TO BLEEDING INSTRUCTIONS. (page 26)

CYLINDER INSTALLATION

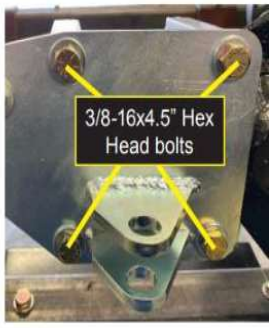
53. Start by removing factory steering stabilizer shock and brackets. Retain the (2) 10mm bolts holding the bracket to differential housing to re-use later.



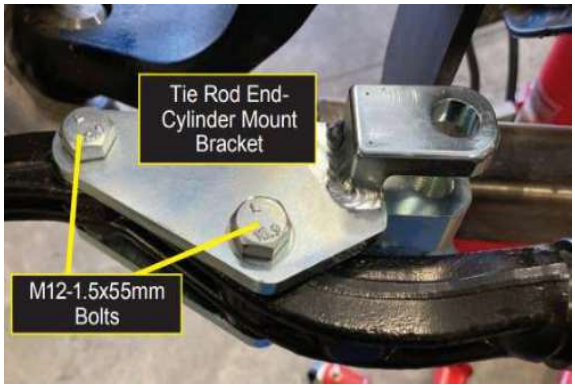
54. Loosely install the axle-cylinder mount bracket using (2) 10mm bolts retained from last step.



55. Install the (2) U-Clamp blocks around the axle tube to back side of cylinder mount bracket. Use (4) 3/8” x 4.5” bolts with (8) flat washers and (4) nylon lock nuts. Tighten (2) 10mm bolts first then the (4) 3/8” clamp bolts.

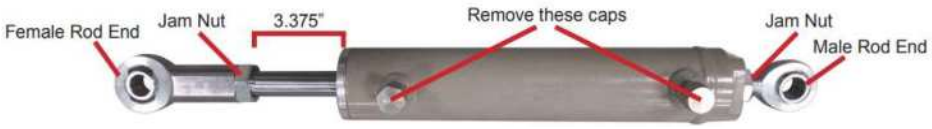


56. Install the tie rod end-cylinder mount bracket to tie rod arm. Use (2) M12-1.5x55mm bolts with the (2) M12-1.5 nylon lock nuts.



(Tech Tip) You may need to drop the tie rod down by loosening the nut on the passenger side tie rod ball joint to have space to insert the MB36 bolts.

57. Install rod ends to the cylinder with the jam nuts. Thread the rod ends in approximately 5/8” and rod end holes are about horizontal to cylinder ports as shown in picture. Do not tighten jam nuts yet. Un-cap both cylinder ports and pull out the shaft out all the way.



58. Turn the tires all the way to the passenger side. Best to have a buddy hold the wheel just slightly off full lock.

59. Install the cylinder to brackets as shown in picture. Use (1) 5/8” x 2-3/4” bolt into tie rod end-cylinder mount Bracket. After that bolt is tightened, thread 5/8” nylon lock nut onto 5/8” bolt protruding out from bottom side of tie rod end-cylinder mount bracket and tighten. Use the 5/8”x 2” bolt through the axle-cylinder mount bracket and rod end at the other end of the cylinder with 5/8” nylon lock nut.

60. Install HA-H2038D (shorter) high-pressure hose to driver-side of the cylinder. Next install HAH2038P (longer) high-pressure hose to passenger side of the cylinder. Now rotate the cylinder to achieve proper position and clearance of hoses and ports on top of cylinder, then tighten the (2) jam nuts on the rod ends to lock cylinder into position.

61. Remove the port caps on the steering gear, then attach the cylinder hoses to the respective “Passenger” and “Driver” ports, as pictured to the right.

62. Reconnect the drag link to the pitman arm.

63. Bleed the system (Page 26).

64. Refill cooler reservoir with coolant all the way to the fill line. Let your engine heat to normal operating temperature, then refill what is missing in the reservoir till the fluid reaches the fill line.

65. Reinstall all parts (fender, grill, etc.) and check for any leaks within the system while checking to make sure all hoses are tight.

BLEEDING PROCEDURES With the kit installed, the last step is adding PSC 715 or PSC TRU BLUE™ power steering fluid and bleeding the system of all air. This part takes patience and diligence to do it properly—but it is critical to purge all the air out of the system to prevent damage to the pump.

With the engine off jack up the front of the vehicle and put jack stands under the front axle. This will make the bleeding process easier. Next, add the PSC fluid to the reservoir and fill to about 1" to 1-1/2" of fluid from the top of the reservoir **be sure to keep the filter submerged in fluid at all times**. Continue this until the fluid level remains steady. Next turn the steering wheel from lock to lock (all the way right and all the way left) to pull more fluid through the system. Add fluid as necessary and repeat until At least two quarts have been applied to the system. Replace the cap on the reservoir and start the engine for about 30 seconds—do not turn the steering wheel yet. The fluid level in the reservoir will drop and will become aerated. Letting a few minutes pass between startups will allow air bubbles to work their way out of the system. Refill the reservoir and repeat this process a couple of times.

Now, start the engine and turn the steering wheel completely to the right and then left 10-15 times, shut the engine off and let the vehicle sit for 10 minutes. Check and add fluid as necessary. Repeat this process 3-4 times as needed. At this point the fluid level should move about one inch up or down when cycling the steering and no bubbles should be visible in the reservoir. Lower the vehicle to the ground and repeat the process above 1 more time.

Take the vehicle for a test drive and listen for any pump noise. Noise indicates fluid aeration, and the vehicle should be shut off to let the bubbles dissipate. If noise is persistent double check the low-pressure lines and confirm the fittings are tight. Top off the fluid and drive the vehicle again. Let the system cool down once you believe it is properly bled.

Next, remove the reservoir cap and have someone start the vehicle while you watch the fluid level. If the level drops on startup, you still have air in the system. If it does not, you should be good. Again, note that getting all the air out of the system can take some time. If the pump is whining, you are aerating the fluid which is not good for the pump. If you are running your vehicle for an extended time and your pump has not stopped whining, it needs to be addressed as soon as possible. Sometimes this can be as simple as letting the vehicle sit to get the last of the air out. Always make sure the fluid level is good and there are no leaks. If you have questions, contact us Monday-Friday from 9-5 CST at support@pscmotorsports.com.