



RAPTOR PUMP KIT INSTALLATION

It is always good to disconnect the battery even though no electrical is being modified.

Remove the air intake for more room to work.

Remove oil from PS reservoir with suction or by disconnecting hose.

Remove reservoir from fan shroud.

Remove PS pump. Carefully remove the two locating dowels and reinstall in the new pump bracket. **See Fig 1**

Remove all PS lines. Including lines to the PS cooler that is part of the AC condenser. You will not be using this cooler, so install the red rubber caps supplied. **See Fig 2**

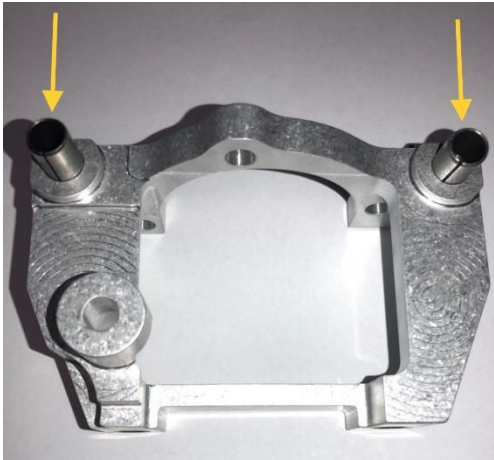


Fig 1



Fig 2

Install pump adaptor. Put anti seize on the three bolts. Do not exceed 18 ft lbs torque.**

** (foot note) We have found that some Raptors that have had the PS pump on and off several times have compromised threads. Check to make sure you have at least 5/8" of thread engagement by starting the bolt by one thread, then hold the adaptor bracket up and measure the amount the bolt sticks out past the bracket. Use a small piece of cardboard cut to 5/8" as a gauge. You can also measure from the block to the head of the allen bolt and subtract the thickness of the adaptor (1-1/2" for the two long bolts, and 17/32" for the short bolt). It is also good to inspect the threads using a small mirror and a flashlight.

Install the pump by starting the lower long bolt first, swing the pump up and install the second-long bolt, then the short bolt last.

Install the new billet steering rack -6 adaptor onto the rack in the OEM location using the supplied bolt. Lube the O-rings with a small amount of PS fluid and use anti seize on the threads. Do not exceed 18 ft lbs torque.

Install the reservoir. Start by marking a mark for drilling on the left front side core support in between the radiator and the headlight. **See Fig 3** 7/16 in from the edge of the core support and 1-1/4 up from the ledge of the headlight attachment protrusion.

Using a center punch mark that spot. Fit check the bracket using a framing square to make sure that the 2 top bolts are equal distance from the sides of the square hole in the core support. **See Fig 4.** Be careful to make a good center punch as the drill will be slightly off center because of the headlight. It can be done. Of course, if you are concerned about it you could pull the headlight and get a perfectly straight shot at it.

Drill a 1/4 inch hole first then re-drill to 25/64. This size drill is very important to properly seat the thread insert. Deburr the outer edge of the hole.

Using the 1" x 1/4 bolt and the 2 larger washers apply some anti seize and install the bolt through the reservoir bracket and into the thread insert

Install the thread insert into the 25/64 hole. Hold the bracket in its place, tighten the bolt using a socket and at least a 10" extension. You will feel the thread insert collapse on the back side then tighten up. Do not over tighten but enough to fully seat the insert. Leave that bolt in for now.

Fig 3

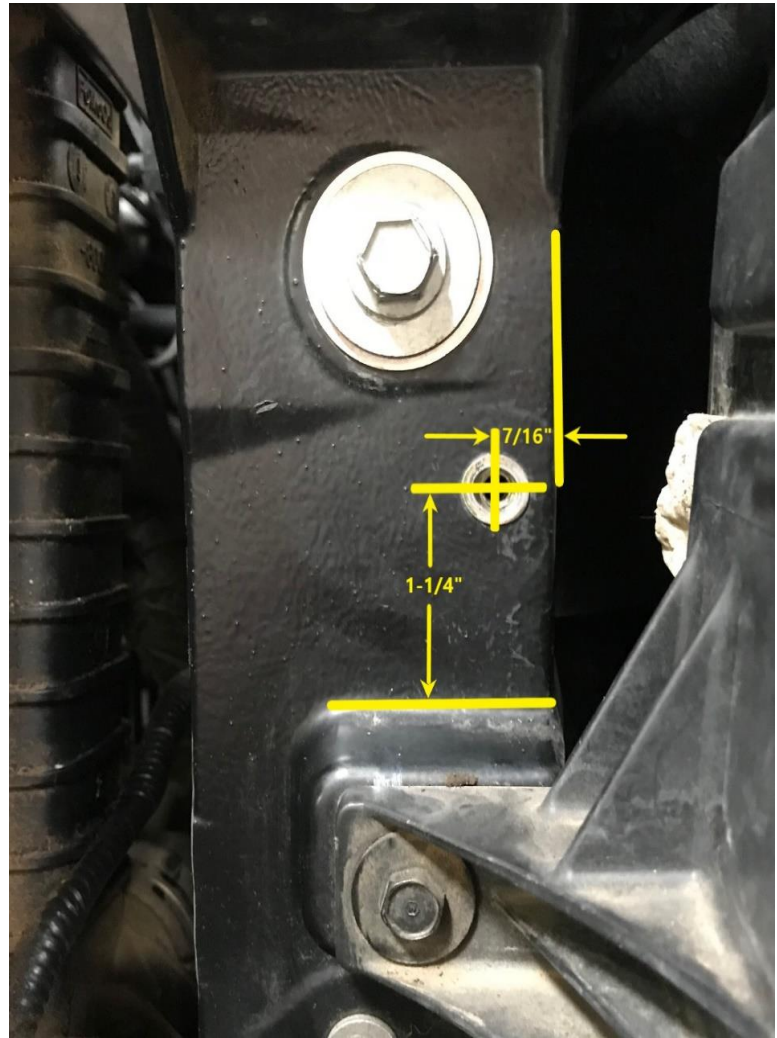


Fig 4



Fig 5

Using the framing square again, line up the bracket and transfer drill one of the top mounting holes with a 1/4 drill. **See Fig 5** Remove the lower 1" bolt and the bracket. Re-drill the hole with the 25/64 drill, deburr the outer edge. Using the 1" bolt with anti-seize, the 2 washers and the bracket, repeat the process of installing the thread insert holding onto the bracket. Repeat this process once more for the 3rd bolt.



Slide the reservoir into position with the clamp bolts out. The supply hose slides through a gap between the radiator and core support. **See figure 6.** You may need to remove a rubber flap. **Do not destroy**, keep to reinstall around hose. Feed the -12 supply line through the gap with the 120° fitting headed towards the pump. Remove the dust cap, apply some anti seize to the -12 nipple. Thread the 120° hose end onto the pump. This can be tricky, there is not a lot of room for your hands. You either get it on the first try or sometimes it helps to have a second person looking at the alignment while you thread it on. Connect the straight -12 hose end to the reservoir with some anti seize. Find the best spot for the -6 return on the reservoir. It should be 45° to the truck pointing towards the radiator. Some super charger air coolers may interfere with this so adjust accordingly. Set the height of the reservoir with the cap approximately centered in the top of the core support bar. **See Fig 7.**



Fig 6



Fig 7

Install the return line and filter. Start by installing a 45° -6 hose end on the return hose. Temporarily attach to the upper port on the rack adaptor. Route the hose towards the support under the radiator. You can attach the filter to this support using the aluminum L-bracket. Find a place on the support where the filter can be placed. Mount the L-bracket to the support using the three self-tapping screws. Then mount the filter to the L bracket using the two Adel clamps, 10-32 screws, washers and nylock nuts. **See Fig 8.** Use the 2 straight hose ends on the filter, find the proper routing location for the return hose up to the reservoir and attach to the reservoir with the 90° hose end. On final hose end assembly use a small amount of anti-seize on the treads of the fittings.



Fig

8



Install the pressure line. Attach **but do not** tighten the 45° fitting on the pressure line to the rack adaptor lower port. Route the line under the oil filter drain following the cross member back around the lower radiator and up to the pump. There are several spots to clamp the hose. Make sure to use the split tubing to protect the hose. See **Fig 9,10,11,12**. When secured, tighten both ends.

Fig 9



Fig 10



Fig 11



Fig 12

Bleed the system. Check that all hose end connections are tight. Jack up the truck until the front tires are off the ground. Secure with jack stands. Pour fluid into the reservoir up to second baffle down. **Do not start the truck!** Turn key to unlock steering wheel. Slowly turn the steering wheel all the way to the right and then all the way to the left. Repeat until no more bubbles come up in the reservoir. It helps to have a second person watch and listen while turning. The oil will be slightly aeriated but that is to be expected at this point. Connect the battery. Do not stick your arm through the steering wheel to reach the ignition key. Sometimes air in the system can cause steering to jump. Start the truck and quickly shut off. Recheck the fluid level. The oil should just cover the 2nd baffle down.



ITEM CHECK LIST





| RAPTOR KIT PACK LIST | PART | QTY |
|--|---|-----|
| 1) PUMP MOUNT W/HARDWARE | PUMP MOUNTING BRACKET W/INSERTS INSTALLED | 1 |
| | MOUNTING BOLT 8X70 HEX | 2 |
| | MOUNTING BOLT 8X65 SHCS | 2 |
| | MOUNTING BOLT 8X35 SHCS | 1 |
| | MOUNTING BOLT 8X25 HEX | 1 |
| | WASHERS | 3 |
| 2) PUMP W/PULLEY | TC PUMP (STEEL, .88 LINER, EXTENDED -6 FLOW CONTROL, -12 INLET, 1500PSI, 3.25GPM) | 1 |
| | PULLEY | 1 |
| 3) PRESSURE HOSE | PRE-MADE PRESSURE HOSE (W/ ONE 90 DEG AND ONE 45DEG PARKER FITTINGS CLOKED AS PER NOTES) W/PLASTIC INSERT INSTALLED | 74" |
| 4) -6 HOSE ADAPTOR | HOSE ADAPTOR W/ORINGS INSTALLED | 1 |
| | MOUNTING BOLT FOR HOSE ADAPTER 8X25 SHCS | 1 |
| 5) RETURN HOSE | HOSE -6 PUSH | 6' |
| 6) -6 PUSH FITTINGS | FITTING -6 PUSH ON (STRAIGHT) | 2 |
| | FITTING -6 PUSH ON (90 DEG) | 1 |
| | FITTING -6 PUSH ON (45 DRG) | 1 |
| 7) RETURN HOSE MOUNT HARDWARE | 5/8" ADEL CLAMP | 3 |
| | 6MM X 20 FLANGED BOLT | 3 |
| | 6MM FLANGED NUT | 1 |
| | 6MM U NUT | 1 |
| 8) FEED HOSE (NEED TO ASSEMBLE) | HOSE -12 PUSH (HOSE DOES NOT COME ASSEMBLED) | 3' |
| | FITTING -12 PUSH ON (STRAIGHT RESERVOIR END) | 1 |
| | FITTING -12 PUSH ON (120 DEG PUMP END) | 1 |
| 9) RESERVOIR | (Updated and not pictured) RESERVOIR 3.5X8 FINNED (-12 side-out, -6 RET) For use on standard application, or with light bar | 1 |
| 10) RESERVOIR MOUNT W/HARDWARE | RESERVOIR MOUNT BRACKET | 1 |
| | HEX HEAD 1/4-20 X 1 3/4 | 2 |
| | NYLOCK 1/4-20 | 2 |
| | 1/4 WASHER | 4 |
| | ALUMINUM SPACER | 2 |
| 11) RIV-NUT INSTALLATION BOLT | HEX HEAD 1/4-20 X 1 | 1 |
| | 1/4 WASHER | 1 |
| | ANTI-SEIZE PACKET | 1 |
| 12) RESERVOIR MOUNT HARDWARE | HEX HEAD 1/4-20 X 3/4 | 3 |
| | RIVNUT 1/4-20 | 3 |
| | 1/4 WASHER | 3 |
| 13) FILTER MOUNT | 1" X 1" X 4" ALUMINUN ANGLE BRACKET | 1 |
| | #10 X 3/4 SELP TAP SCREW | 3 |
| | 10/32 X 1" SCREW | 2 |
| | 10/32 NYLOCK NUT | 2 |
| | #10 WASHER | 4 |
| | 2" ADEL CLAMP | 2 |
| 14) IN LINE FILTER | FILTER (6GPM W/ -6 IN AND OUT) | 1 |
| 15) SPLIT TUBING | 5/8 SPLIT TUBING | 3' |
| 16) COOLER CAPS | SMALL CAP FOR COOLER | 1 |
| | LARGE CAP FOR COOLER | 1 |