



## 2010 & Up Raptor/F150 Heat Exchanger

Part Numbers: 80284PRO & 80284NDP



Congratulations on your purchase of the 2010 & Up Raptor heat exchanger. **Please read and understand each of the steps involved with the installation of the Heat Exchanger prior to getting started.**



## Parts List

(80284PRO)

- Heat exchanger (Qty. 1)
- 10" Fan (Qty. 2)
- Dual relay wiring harness (Qty. 1)
- 3M 3-way Scotchlock connector (Qty. 1)
- Wire tie (Qty. 8)
- Spacer .40" diameter (Qty. 4)
- Blue grommet (Qty. 4)
- M8 x 1.25 x 40mm Bolt (Qty. 4)
- M8 x 24mm Washer (Qty. 4)
- Hose clamps SAE #12 (Qty. 3)
- 3/4" Heater hose (Qty. 36")
- 1.38" x 1.38" M8x1.25 tapped plate (Qty. 1)
- Horn relocation bracket (Qty. 1)
- Lit-714 Installation manual (Qty. 1)

(80284NDP)

- Heat exchanger (Qty. 1)
- Wire tie (Qty. 4)
- Spacer .40" diameter (Qty. 4)
- Blue grommet (Qty. 4)
- M8 x 1.25 x 40mm Bolt (Qty. 4)
- M8 x 24mm Washer (Qty. 4)
- Hose clamps SAE #12 (Qty. 3)
- 3/4" Heater hose (Qty. 36")
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## Tool List

- 8mm Wrench
- 10mm Socket
- 13mm Socket
- 15mm Socket
- 1/4" Drive ratchet
- 1/4" Extension
- 3/8" Drive ratchet
- Phillips screwdriver
- 5/16" Nut driver
- Pliers
- Wire cutters
- Trim tool

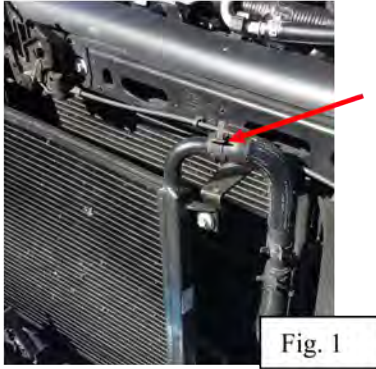
### WARNING:

1. Radiator fluid must be handled properly. Please observe local ordinances with regards to handling and disposal.
2. Allow vehicle and components to cool a minimum of 1 hour before handling.
3. **Never attempt to open the radiator cap when hot.**
4. Do not allow any tools or limbs to contact fans—SERIOUS INJURY MAY RESULT.
5. Always follow directions and disconnect the battery before attempting installation.
6. Retailer is not responsible for personal injury or damage to vehicle resulting from improper installation of this product.
7. Due to vehicle variations / tolerances it is ultimately up to the installer to determine proper installation.

**WARNING!!!!!! If you have the Roush Laser Radar Detector mounted in the grille it will need to be relocated to clear the heat exchanger. If you have a Whipple Supercharger you will need to purchase Hardware Kit 80284WHIPPLE.**

## Removal of the RoushHeat Exchanger

1. Disconnect the negative battery terminal.
2. Disconnect the inlet hose from the heat exchanger and drain as much coolant as you can (Fig. 1).



3. Remove the four 10mm bolts holding the Roush heat exchanger into the truck (Fig. 2).

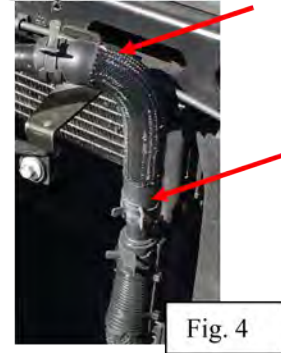


4. Move the heat exchanger in front of the bumper in order to drain the heat exchanger without spilling coolant. Disconnect the outlet hose and drain the coolant.

5. Unplug the wire pigtail for the horns. Remove the horns and bracket using a 10mm wrench (Fig. 3).



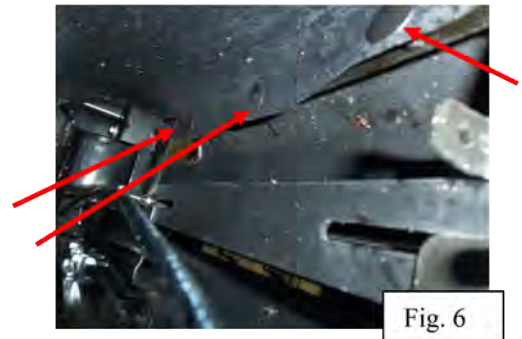
6. Remove the top segment of the inlet hose (Fig. 4).



7. Remove the six 15mm bolts holding the front skid plate to the truck (Fig. 5). Remove the skid plate.



8. Using a trim tool or screwdriver, remove the three plastic clips holding the rubber air deflector to the bumper (Fig. 6).



9. Remove the upper driver side Roush bracket from the radiator support. This will be moved and used for the installation of the AFCO heat exchanger (Fig. 7).



- Using a Phillips screwdriver and trim tool remove the plastic clip holding the rubber air deflector on the passenger side of the truck next to the headlight (Fig. 8).



Fig. 8

- Remove the two Roush lower heat exchanger brackets by removing the four 10mm bolts. These will be used in the installation of the AFCO heat exchanger (Fig. 9). (The large bottom Roush bracket does not have to be removed, Fig. 9 is for illustration purposes only.)



Fig. 9

### Installation of AFCO Heat Exchanger

- Install the blue grommets into the AFCO heat exchanger as shown below. Make sure the aluminum sleeve is in the center of the blue bushing (Fig. 10).



Fig. 10

- Attach the Roush bottom brackets to the back side and bottom of the AFCO heat exchanger using the supplied 13mm bolts and washers. Leave these bolts loose to allow movement for the installation (Fig. 11).

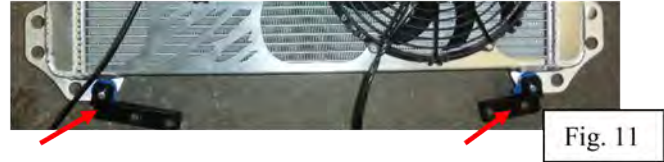


Fig. 11

- Place the AFCO heat exchanger into the truck and line up the bolt holes with the lower brackets. Install the four 10mm bolts that were removed (Fig. 12-13). Again, leave these loose until all bolts and brackets are installed.

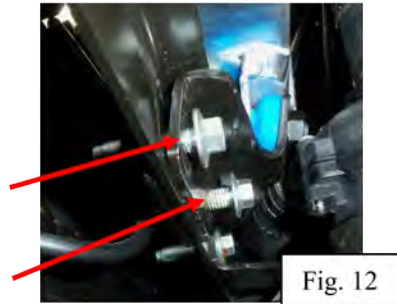


Fig. 12

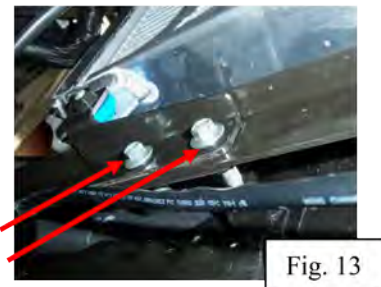


Fig. 13

- Remove the horns from the factory bracket. Attach both horns to the relocation bracket as shown (Fig. 14-15).



Fig. 14



Fig. 15

16. Install the upper passenger heat exchanger bracket and the horn bracket using the existing bolt. Install the supplied 13mm bolt and washer to attach the heat exchanger to the bracket (Fig. 16).

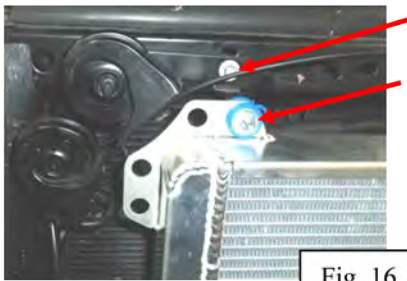


Fig. 16

17. Attach the upper driver side bracket to the heat exchanger using the supplied 13mm bolt and washer. Place the 1.38" x 1.38" tapped plate into the opening in the radiator support. Using the Roush 10mm bolt attach the upper driver side bracket to this plate (Fig. 17).

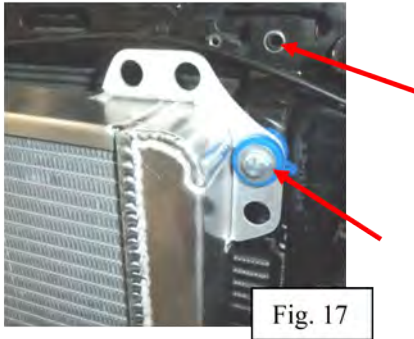


Fig. 17

18. Check for clearances around the heat exchanger. The coolant pump may have to be rotated slightly to clear the heat exchanger. Grab the base of the pump and rotate the pump in the bracket to gain clearance if needed (Fig. 18).

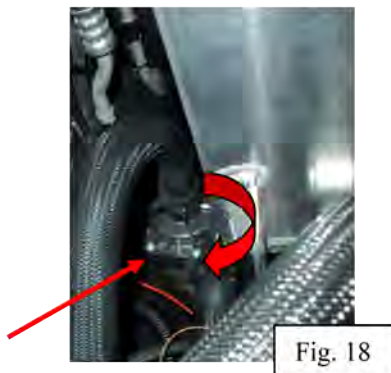


Fig. 18

19. Now all of the bolts for the AFCO heat exchanger can be tightened at this time. The bolts going through the blue grommets should be tightened until it compresses the blue grommet approximately 1/16" or until the bolt bottoms out on the aluminum spacer.

20. Attach the 36" piece of heater hose to the inlet of the heat exchanger using the supplied hose clamp with a 5/16" nut driver. Route the hose to the driver side of the vehicle. This hose may need to be trimmed to size and then attach it to the factory Roush hose coupler with the supplied hose clamp. Zip tie the hose to the plastic fan housing (make sure not to go around the fan blade) and also to the side of the heat exchanger (Fig. 19).

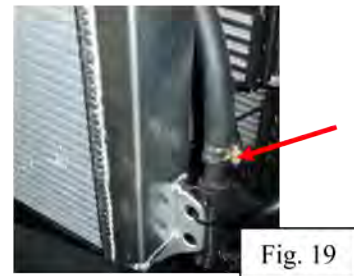


Fig. 19

21. Attach the factory outlet hose from the pump to the outlet of the heat exchanger using the supplied hose clamp (Fig. 20).



Fig. 20

22. Using one of the supplied zip ties, attach the hood release cable to the horn relocation bracket (Fig. 21). If you purchased an 80284NDP (non-fan Heat exchanger) skip to step 30.

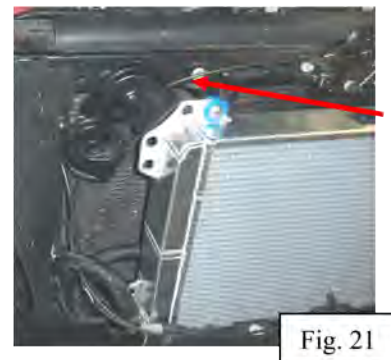


Fig. 21

23. Remove the 10mm bolt holding the passenger side head light in place (Fig. 22). The wire harness relays will attach using this bolt. Some tape may have to be removed from the harness to allow more slack in the wires for the relays. Attach the relays as shown (Fig. 23).



Fig. 22



Fig. 23

24. Route the positive leads with the fuses through the opening in the radiator support and attach the fuse holders to the hole in the radiator with the supplied zip ties (Fig. 24-25).



Fig. 24



Fig. 25

25. Open the fuse box and remove the 10mm nut holding the main power wires to the fuse box. Attach both power leads from the wire harness to the main wire lead of the fuse and tighten the 10mm nut (Fig. 26).



Fig. 26

26. The rest of the wire loom from the relays needs to be routed down and through the rubber air deflector below the heat exchanger (Fig. 27).



Fig. 27

27. Remove the 8mm bolt holding the power steering lines to the cross member (Fig. 28). Attach the gray and black ground wires from the relays using the 8mm bolt. Tighten the bolt. Zip tie the wires to the factory wire harness that is along the frame rail.



Fig. 28

28. Route the orange wire through the hole in the rubber air deflector towards the coolant pump (Fig. 29). Cut the power wire (white and green wire) approximately 3" from the pump connector (Fig. 30). Insert the two ends of the power wire from the coolant pump and the orange wire into the clear 3M Scotchlock 3-way splice connector supplied (Fig. 31). Note: It is not necessary to strip the wires, and the order of the wires inserted does not matter. Once the button is depressed, the connector is difficult to reuse. Be sure the wires are inserted completely. Using slip joint pliers (or similar tool) press the button down into the connector until the button locks. The connector is filled with EG-3 sealant. Just wipe off any excess with a rag. You may wrap the connection with electrical tape, although it is not necessary. Zip tie the wires and connector to the wire loom.

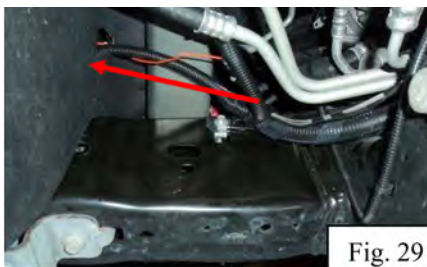


Fig. 29



Fig. 30



Fig. 31

29. Route the fan leads through the center hole in the rubber air deflector (Fig. 32). Connect the weatherpack plugs from the harness to the ones on the fans. The order does not matter. Zip tie the wires out of the way (Fig. 33).

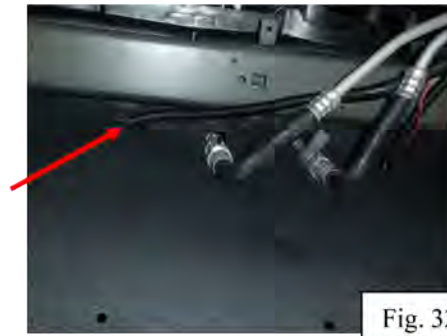


Fig. 32



Fig. 33

30. Reconnect the negative battery terminal.
31. Fill the heat exchanger reservoir with the recommended coolant. The AFCO heat exchanger will hold approximately 3/4 gallon more coolant. Start the truck and let it idle. The coolant pump and fans should kick on. Once the pump kicks on more coolant will need to be added to the system. Fill the reservoir until a sufficient level is reached. Check the system for leaks while the truck is running. When the fans turn on, hold a rag or piece of paper in front of each fan to verify the fans are pulling the air and not pushing. The rag or paper should pull towards the front of the heat exchanger. If the rag or paper blows away from the front of the heat exchanger, contact AFCO customer service at 1-800-632-2320 ext. 2320.

32. Reinstall three plastic clips holding the rubber air deflector in place that is underneath the heat exchanger (Fig. 34).



Fig. 34

33. Reinstall the rubber air deflector on the passenger side using the Phillips head plastic snap that was removed (Fig. 35).



Fig. 35

34. Reinstall the front skid plate and tighten the six 15mm bolts to factory torque specification (Fig. 36).



Fig. 36

- 35. Check the hood for clearance before closing. If you have the Roush Laser Radar Detector mounted in the grill it will need to be relocated to clear the heat exchanger.**

36. The fans are wired to the coolant pump which is controlled by the intake air sensor. The fans and coolant pump may continue to run after the truck is shut off. The fans and pump should not run longer than 5 minutes after the truck has been shut off. (80284PRO only)

