NOSTRUM
HIGH PERFORMANCE

Ford 3.0L Ford Explorer ST High Pressure Fuel Pump Kit

Part Sku#: H086-1182

WARNING! PLEASE FOLLOW ALL WARNINGS AND INSTRUCTIONS FOUND IN YOUR VEHICLE OWNERS MANUAL. THE FOLLOWING INSTRUCTIONS MUST BE READ AND FULLY UNDERSTOOD BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN VEHICLE DAMAGE, PERSONAL INJURY OR DEATH. IF THESE INSTRUCTIONS ARE NOT FULLY UNDERSTOOD, DO NOT ATTEMPT INSTALLATION.

Required Tools:

- Socket wrench
- 13mm socket
- 15mm socket
- 8mm socket
- 10mm socket
- 7mm socket
- Socket extension
- 10mm ratchet wrench
- 10mm wrench
- 17mm wrench
- 6 Allen wrench
- 5 Allen wrench
- Wiper removal tool
- 3/8” quick connect removal tool
- Channel locks
- Trim removal tool

Expendables:

- Absorbent towels

1. Remove battery cover and unscrew the negative battery terminal from the battery with a 10mm socket.

Figure 1

2. Remove the crossbar by removing the bolts mounting it the engine bey with a 13mm socket. (Torque Spec: 30 Nm)

Figure 2

3. Remove cap over windshield wiper.

Figure 3

4. Remove nut holding the windshield wiper in place with a 15mm socket.

Figure 4

5. Use wiper removal tool to pull the wipers off their studs. Place jaws around the outside of the wiper and secure them then torque the screw down over the wiper to pull it away from the stud.

Figure 5

6. Remove cowl cover by removing all plastic fasteners holding the cowl in place.

Figure 6

7. Once all fasteners are removed pull the cowl covers out by hand.

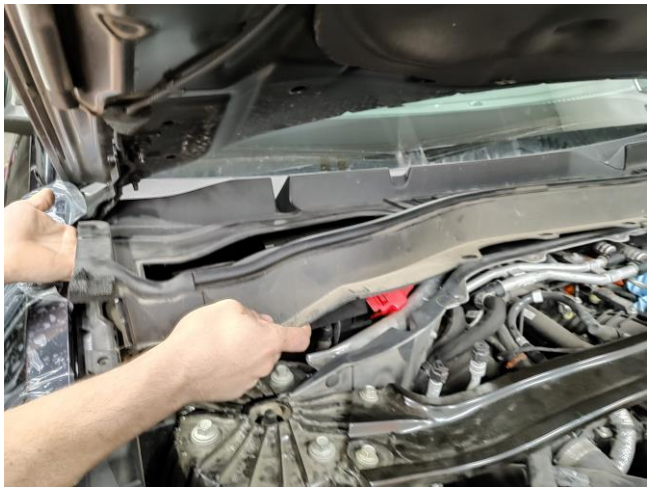

Figure 7

8. Remove bolts retaining the wiper actuator using an 8mm socket. **(Torque Spec: 7 Nm)**

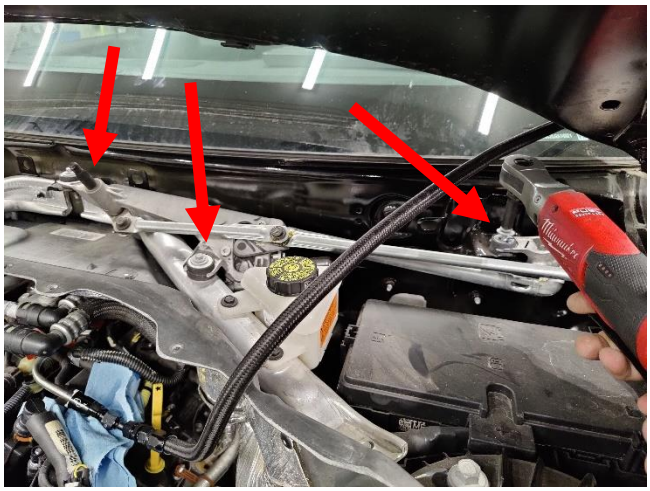

Figure 8

9. Remove wiper connector at the back of the wiper actuator.

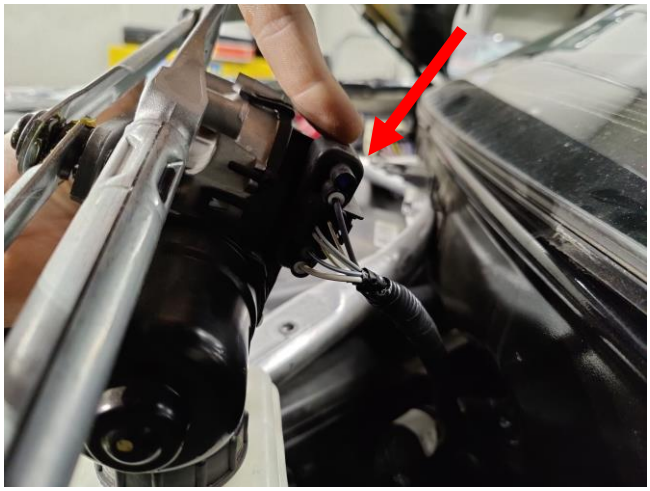

Figure 9

10. Use 10mm socket to remove the bolts holding the brake fluid container from the brace.

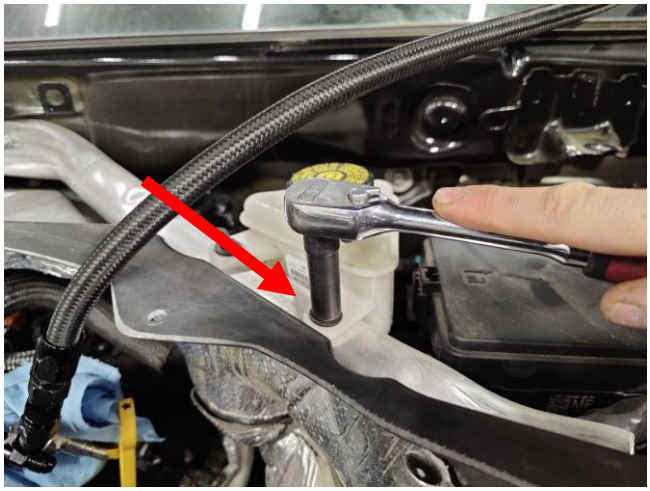

Figure 10

11. Use 10mm socket to remove the bolt holding the bracket in place. Move the wire connector out of the way so the brace can be removed.

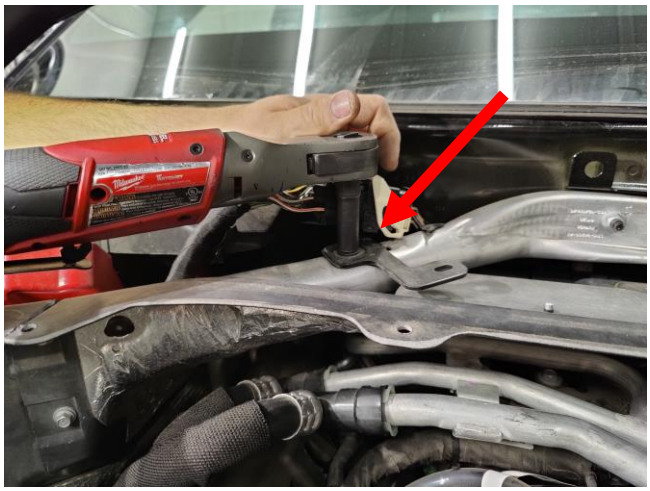

Figure 11

12. Remove both drivers side and passenger side brace using a 13mm socket to remove retainer nuts and bolts.

Figure 12

13. Remove lower cowl cover by removing the retainment bolts using an 8mm socket.

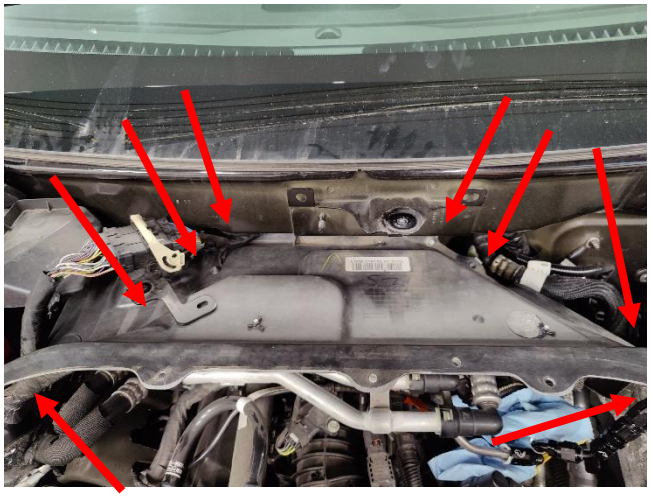

Figure 13

14. Remove Bracket holding the coolant hoses in place using a 10mm socket.

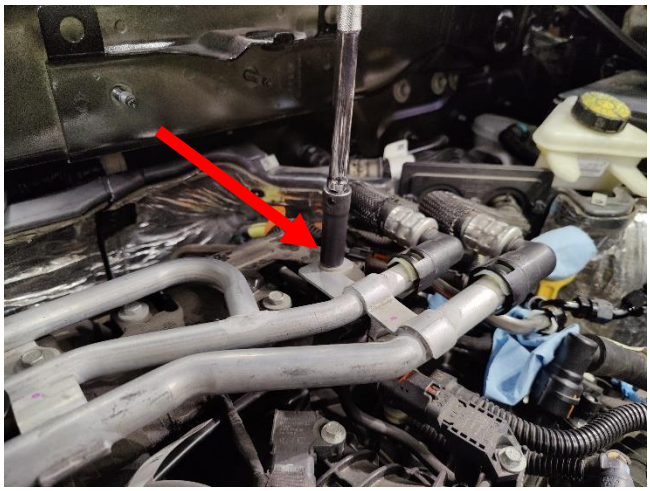

Figure 14

15. Remove the zip tie retainer from the foam cover. Located underneath the coolant lines seen in the adjacent image.

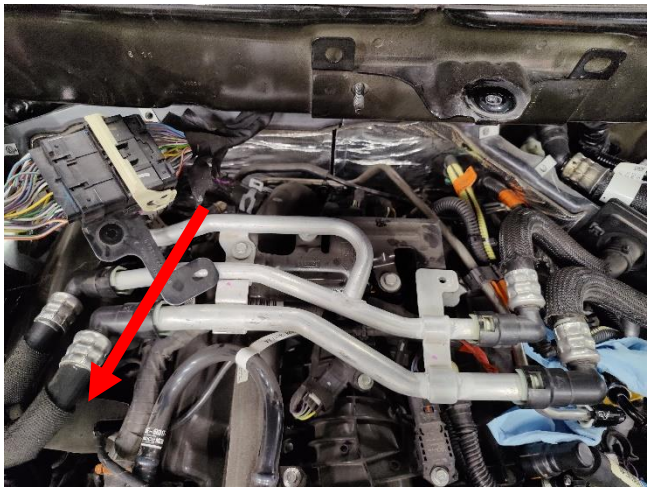

Figure 15

16. Remove the Quick connect coolant fittings on the passenger side of the engine to allow access to the fuel pump area. Push both tabs on either side of the QC and pull away from hard coolant lines to release it.

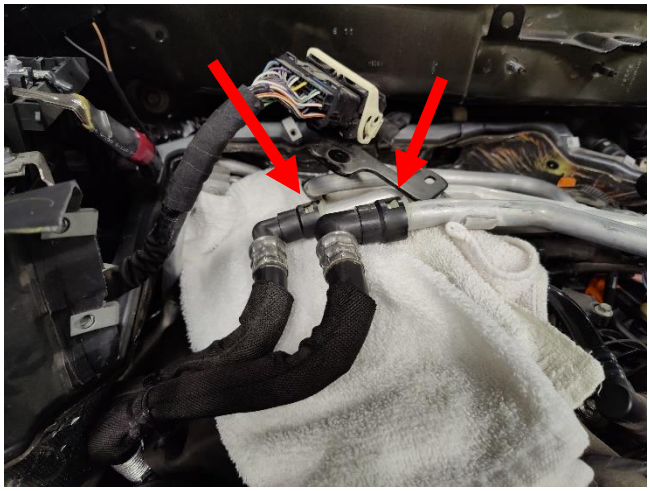

Figure 16

17. Remove sound dampening foam cover that fits over top of the crash bracket.

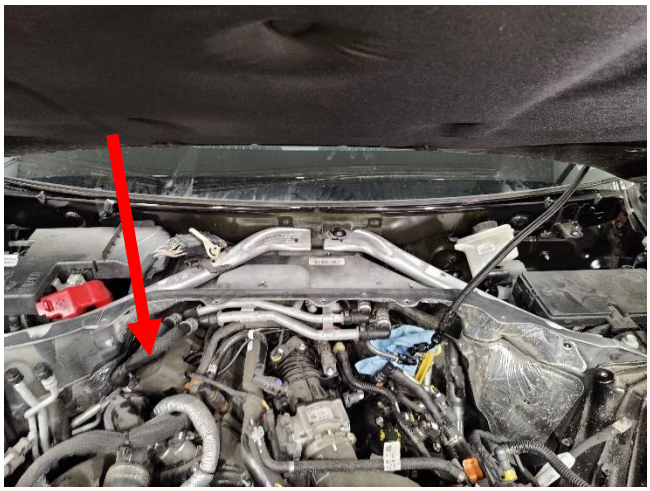

Figure 17

18. Remove nuts holding the crash bracket with a 13mm socket and extension.

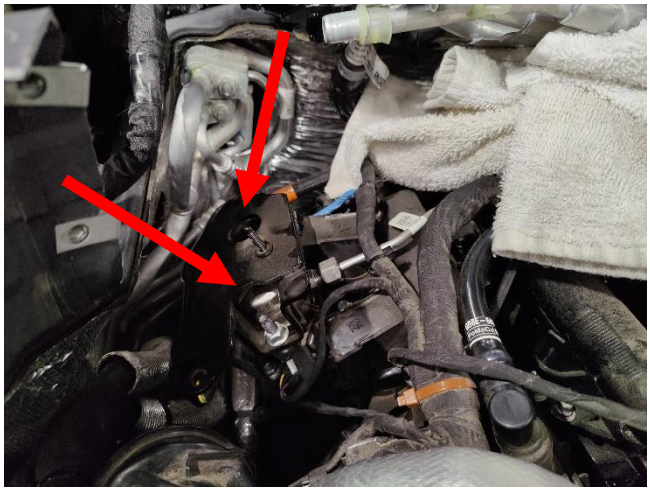

Figure 18

19. Remove the nut underneath the crash bracket below the pump with a 10mm ratchet wrench. The easiest way to remove the nut is to fit the wrench through the side of the crash bracket seen in the corresponding image. The red arrow signifies the direction to approach the bolt from.

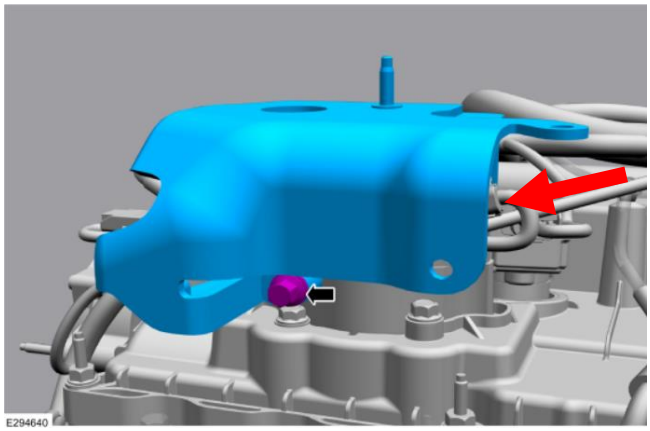

Figure 19

20. Using quick connect removal 3/8th tool to remove the low-pressure fitting from the pump. The fuel line can be seen at the back of the pump facing the cabin.

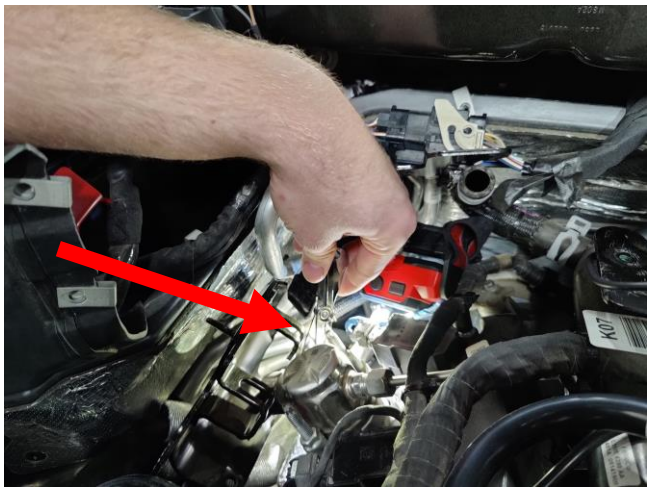

Figure 20

21. Remove the coolant hoses at the back of the engine. They can be seen coming off the main coolant tube. Disconnect it by first pushing the hose clamp down the line with channel locks. Then pull the hose off the main coolant tube.

Figure 21

22. To avoid coolant leaking into the engine bay, evacuate the radiator of coolant. If you cannot empty the radiator have absorbent towels or rags available to absorb coolant that leaks when the coolant tube is removed.

Figure 22

23. Remove the small coolant line at the front of the engine by pushing the hose clamp down the line with channel locks. Pull the hose off the main coolant tube.

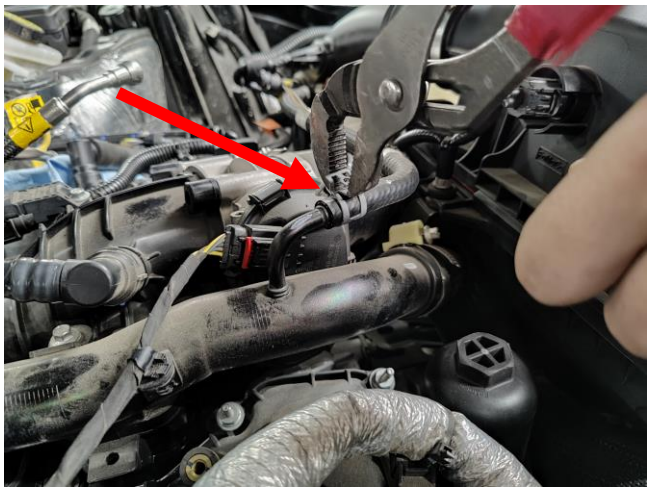

Figure 23

24. Pull the red tab on the throttle body connector. Pull on the connector to remove.

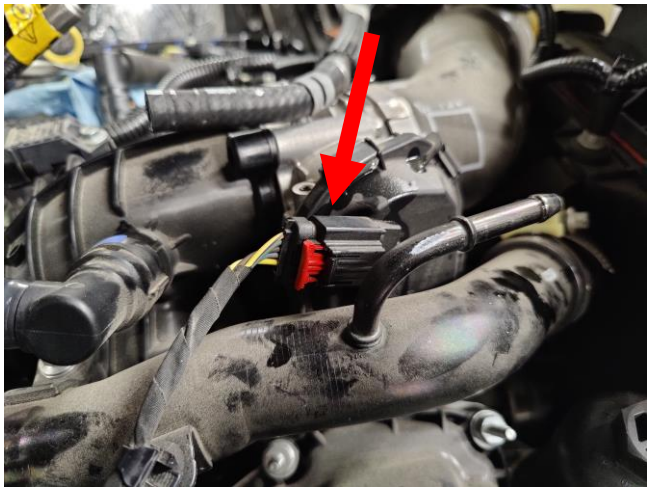

Figure 24

25. Remove the zip tie clip that holds the throttle body connector wire in place.

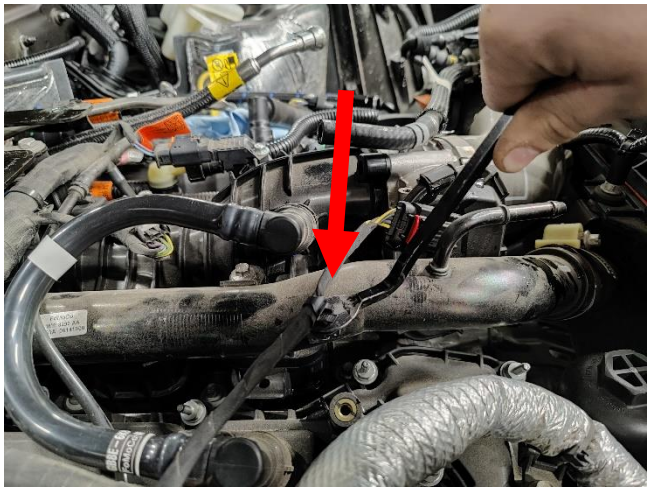

Figure 25

26. Remove the zip tie clip from the wiring harness that is above the coolant tube using a trim removal tool.

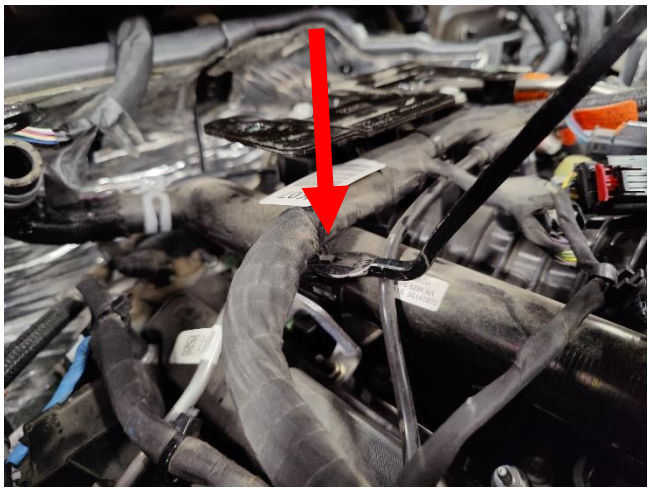

Figure 26

27. Disconnect the manifold absolute pressure connector located in the middle of the intake manifold.

Figure 27

28. Disconnect the injector connectors located near the back of the manifold.

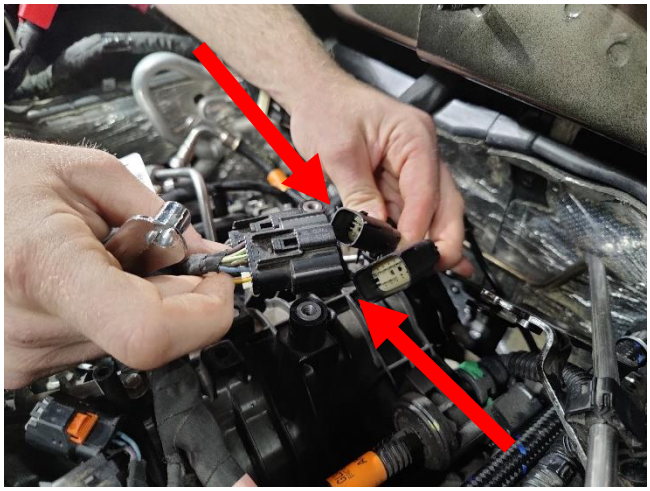

Figure 28

29. Disconnect the manifold absolute pressure connector located near the throttle body.

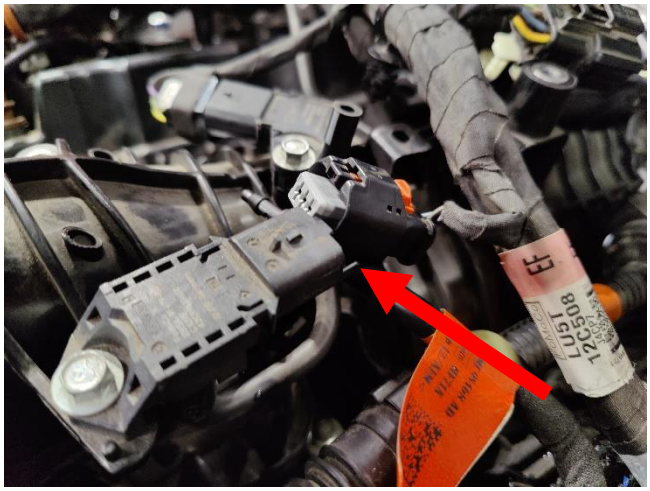

Figure 29

30. Disconnect the quick connect evap system tube located near the throttle body.

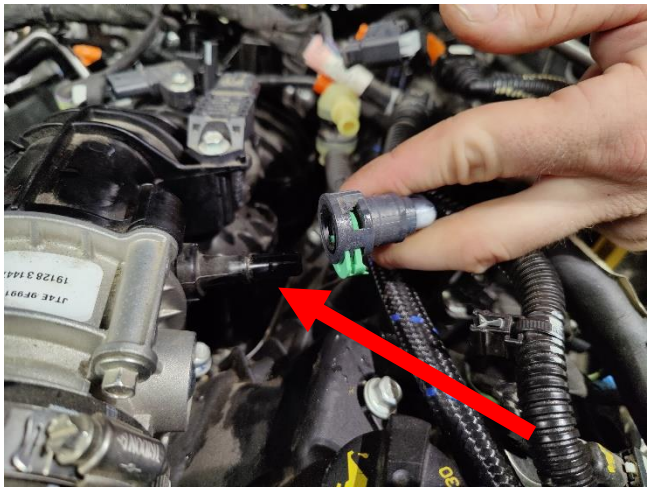

Figure 30

31. Disconnect the quick connect purge solenoid to fresh air intake tubing.

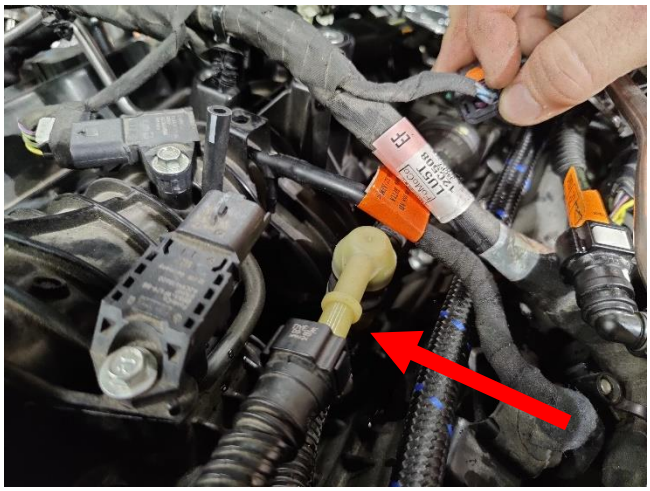

Figure 31

32. Pull the evap purge solenoid away from the intake manifold.

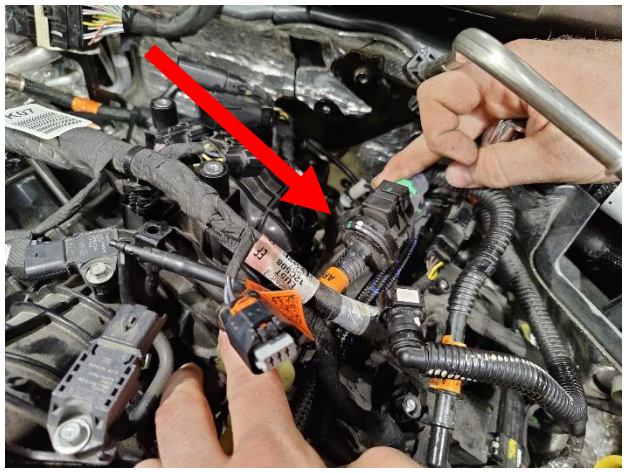

Figure 32

33. Remove the PCV tube fitting by pulling the blue tab across to release the fitting. Pull the PCV tube to one side to make room for the removal of the coolant tube.

Figure 33

34. Remove the coolant bracket on top of the manifold by removing the retainment bolts with a 10mm socket.

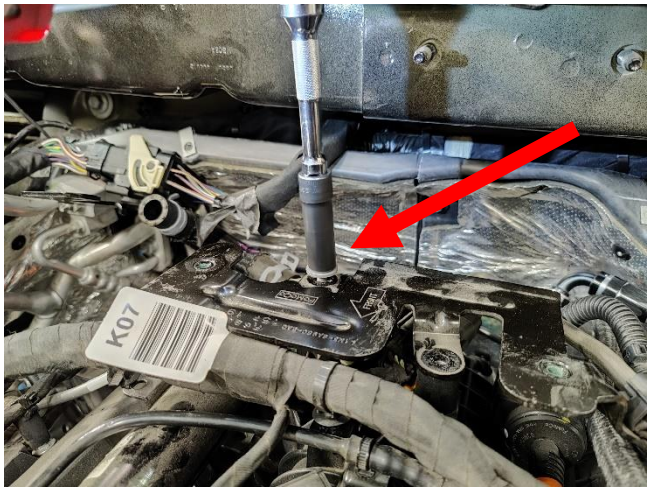

Figure 34

35. Remove both bolts that hold the coolant tube in place using an 8mm socket. **(Torque Spec: 12 Nm)**

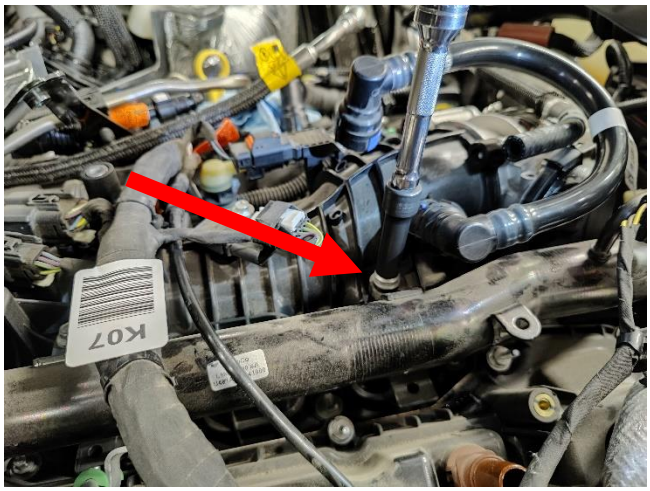

Figure 35

36. Use a 7mm socket to loosen the hose clamp that connects to the coolant tube at the front of the engine.

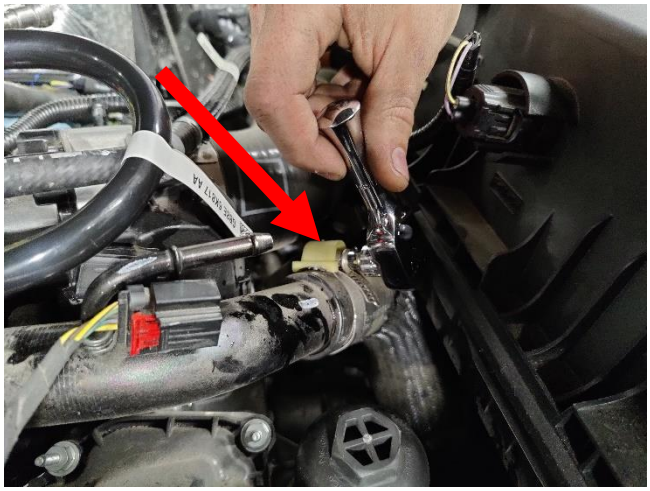

Figure 36

37. Remove the zip tie clips holding the low-pressure line to the coolant tube.

Figure 37

38. Pull the coolant tube out of its seated position at the back of the engine. It will come loose of its seal.

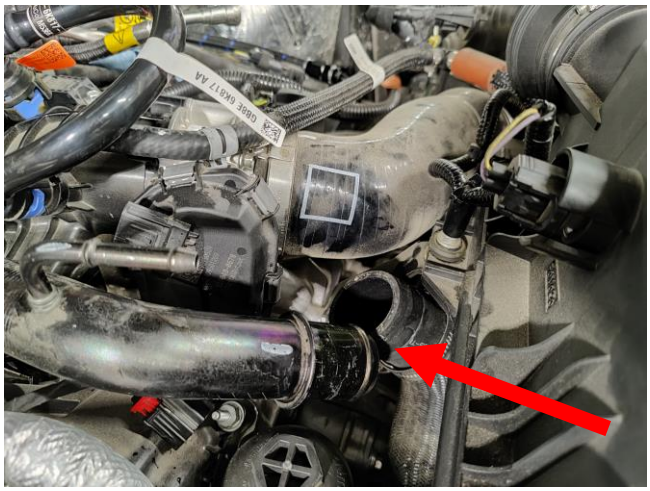

Figure 38

39. Loosen the hose clamp on the charge tube connected to the throttle body. Use a 7mm socket to loosen it.

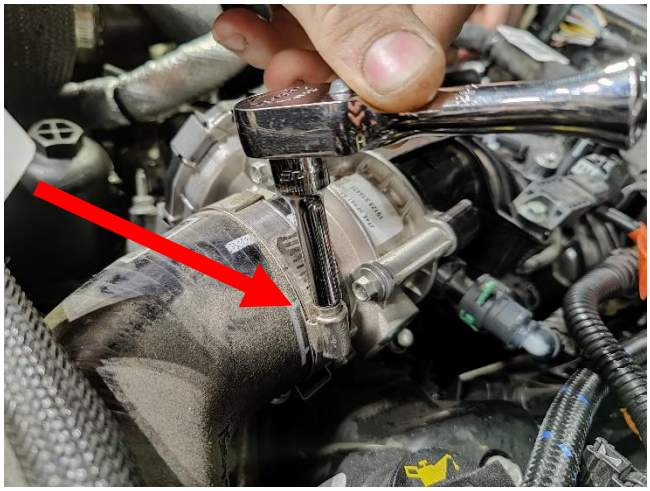

Figure 39

40. Disconnect the low-pressure quick connect with the 3/8 quick connect removal tool.

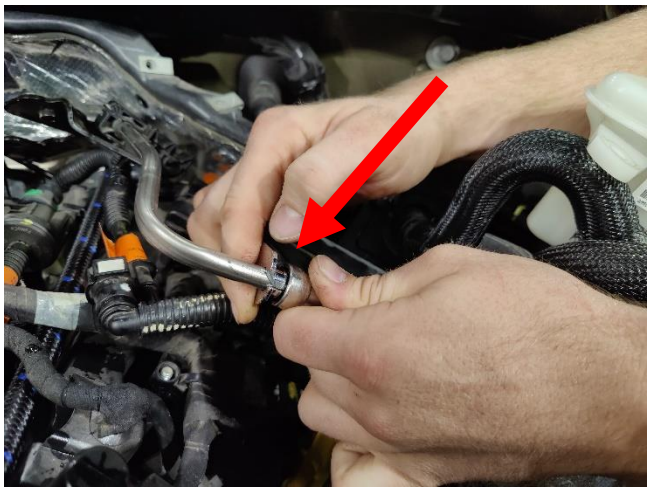

Figure 40

41. Remove the retainment bolts for the intake manifold as seen in figure 42. Use an 8mm socket to remove the bolts and then pull the intake out of the engine.

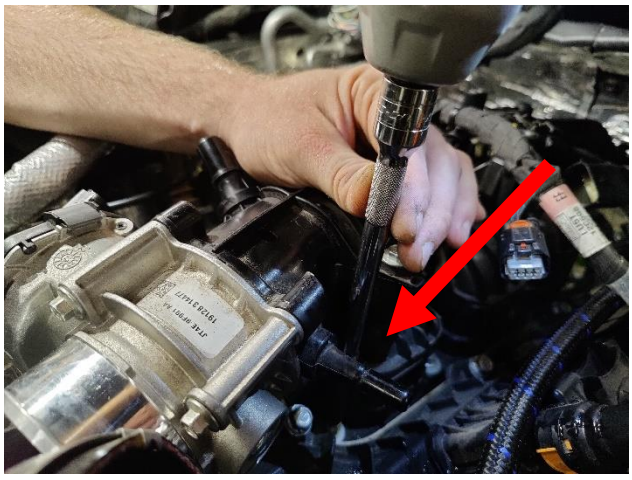

Figure 41

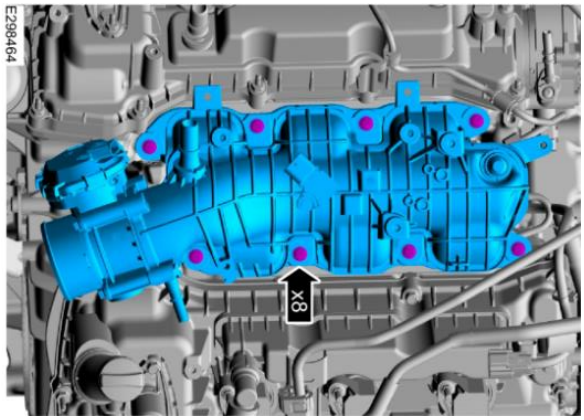

Figure 42

42. Loosen the compression nuts on both the pump and the fuel rail side of the high-pressure fuel pump. Use a 17mm wrench to loosen them.

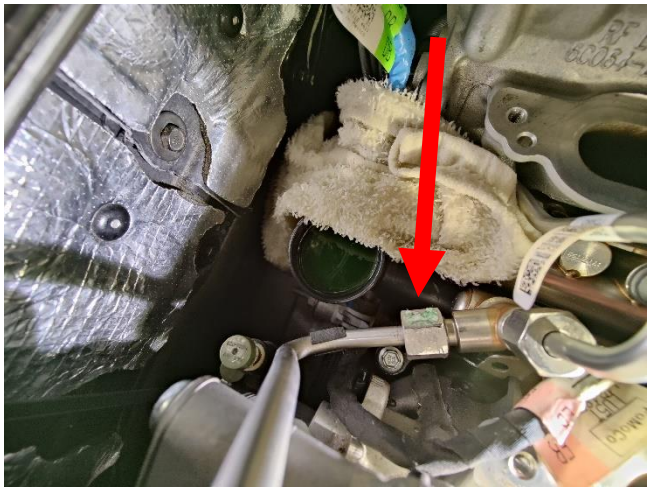

Figure 43

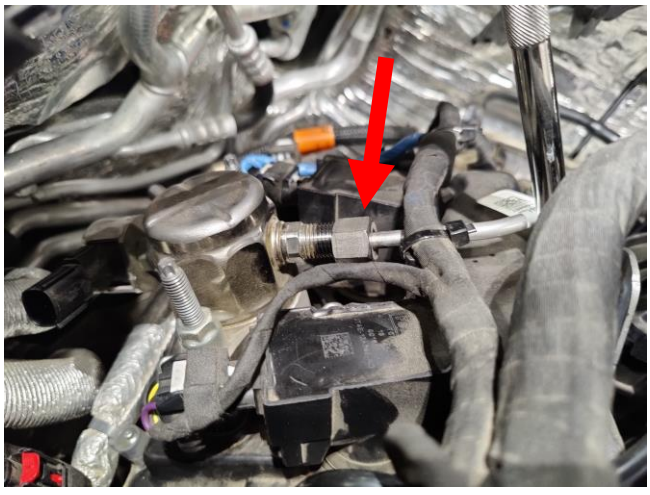

Figure 44

43. Remove the nut that holds the high-pressure fuel line to the bracket on the engine. Use a 10mm socket at both locations to remove them.
44. Pull the high-pressure tube out of the vehicle.

Figure 45

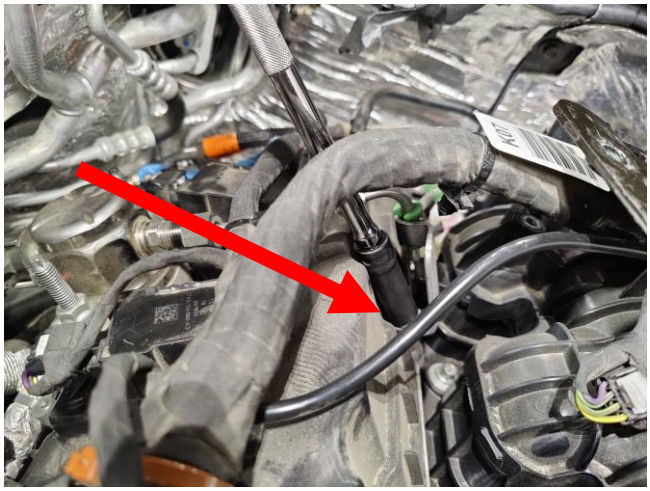

Figure 46

45. Remove the high-pressure fuel pump by removing the retainment nuts on either side of the pump with a 13mm socket. **Note: When removing the bolts, alternate sides as you loosen them to avoid side loading the piston.**

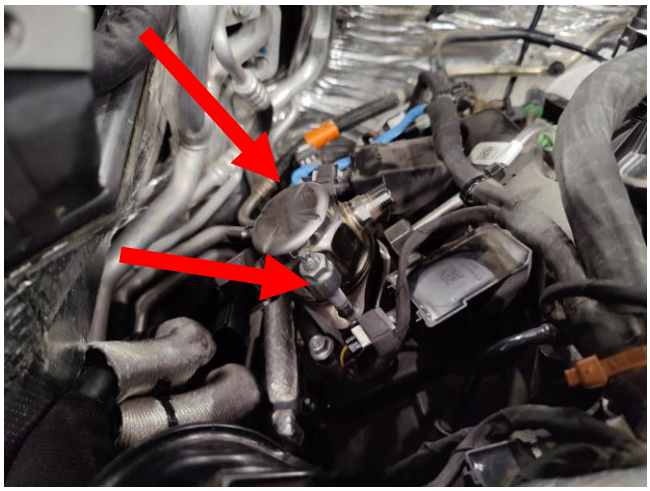

Figure 47

46. Use an external torque socket size E8 to remove the studs that are used for the OEM pump.

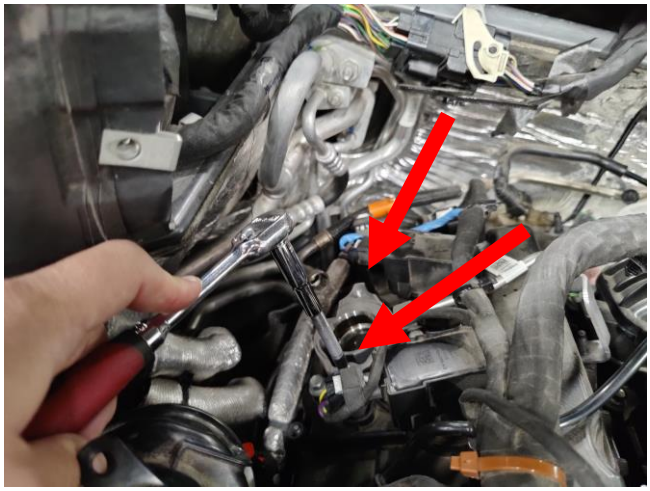

Figure 48

47. Install the new high-pressure fuel pump flange onto the fuel pump head. Place the flange alignment tool in the center of the flange. This will align the flange with the seated position of the fuel pump. Use a 6 Allen wrench to tighten down the flange bolts and secure the flange. **(Torque Spec: 20 Nm and a 45-degree turn)**

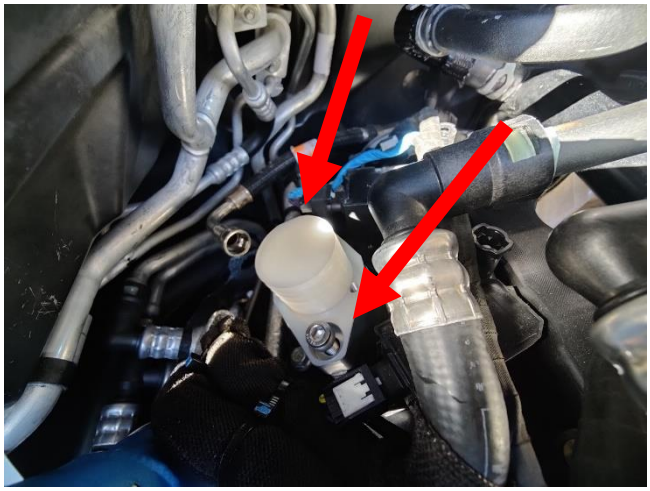

Figure 49

48. Use a 5 Allen wrench or socket to secure the pump to the flange. **(Torque Spec: 14 Nm)**
49. Place the new Nostrum fuel line into place. The brackets on the line will be loose and allow you to shift their position to get the best fit for the globe fittings on either end of the line as seen in the upcoming steps.

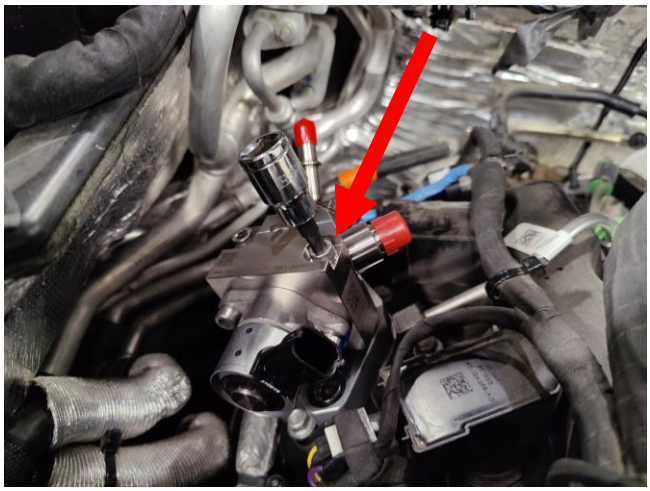

Figure 50

50. Place the stock quick connect fitting on the end of the low-pressure fuel line onto the quick connect fitting on the fuel pump. It will click into place once it is secure.

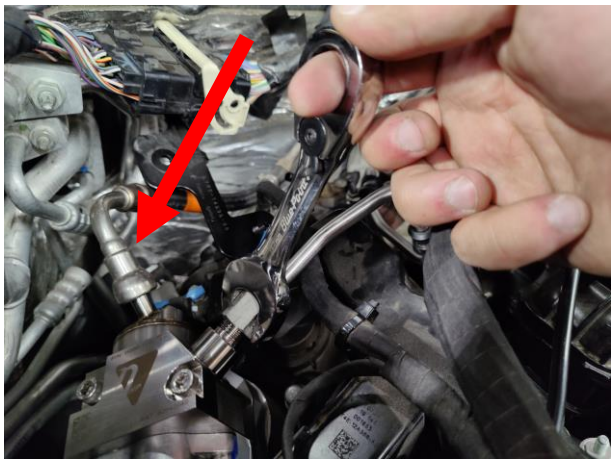

Figure 51

51. Rap the rubber sleeve around the low-pressure fuel line where the line is touching or comes closest to contact with other components of the engine. This is done to prevent long term wear of the fuel line. Place the clamps included in kit on either end of the sleeve to lock it in place and prevent it from falling off.

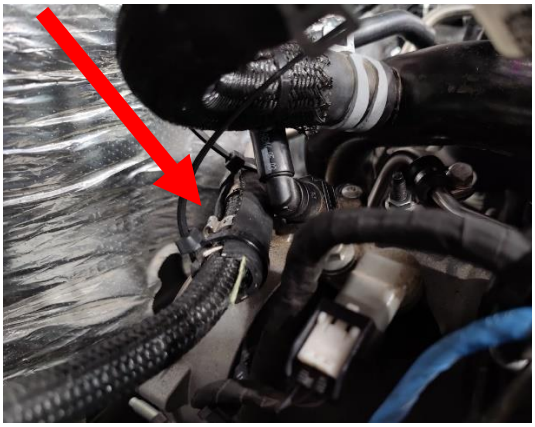

Figure 52

52. Seat the globe fitting for the HP fuel in the fuel rail's fitting. Partially thread the compression nut on using an 18 wrench. Ensure that the fuel line and the fuel rail fitting are concentric. This means that the axis of the straight section of the fuel line connect to the globe fitting is in line with the axis of the fitting on the rail. Make sure to verify that they are in line from multiple angles and not just from one viewpoint. You should be able to draw a straight line through the center of the rail fitting and continue through the center of the fuel line. This is needed to ensure that the line seals with the fitting. **Torque the compression nut down with 10 Nm of force and a 25 degree turn.**

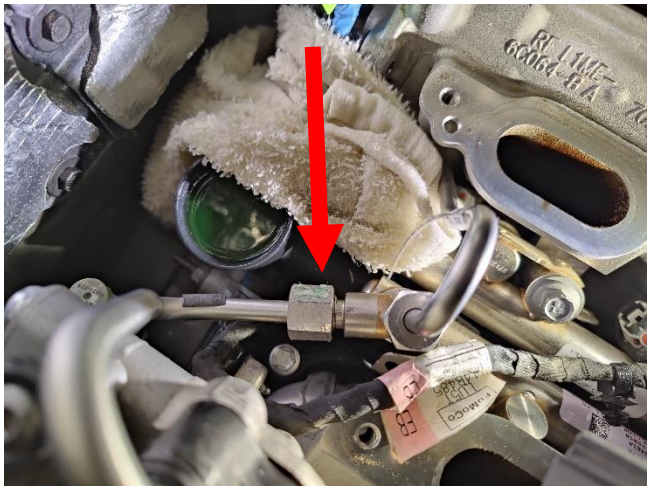

Figure 53

53. Ensure that when you secure the fuel rail side of the fuel line that the opposite end of the fuel line lines up with the pump as close as possible. This will allow the globe fitting to be placed on the pump fitting once you have secured the fuel rail end of the line.
54. Place the pump side globe fitting into place on the fuel pump's female fitting (this may take some force) and thread the compression nut completely down to torque spec (10 Nm and 25 degrees). Ensure that you do not lose concentricity at the rail by placing the pump side of the fuel line in place. **Torque to 10 Nm and a 25 degree turn.**

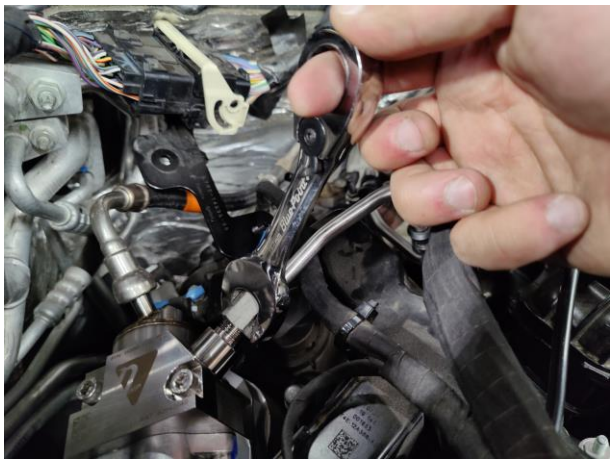

Figure 54

55. The brackets should be loose allowing you to correctly place each end of the fuel line first before securing the brackets. Make sure the brackets are placed on the stock studs used for the stock fuel line. Tighten down each high-pressure tube bracket to secure their location using 2 10mm wrenches or sockets.

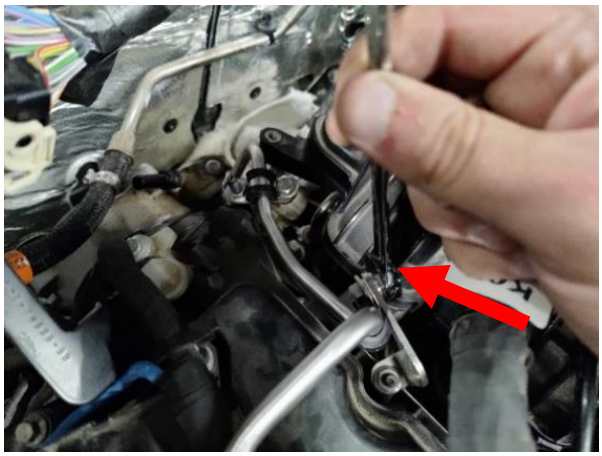

Figure 55

56. Place the stock bracket nuts onto their corresponding studs and secure them to a **torque spec of 10 Nm.**

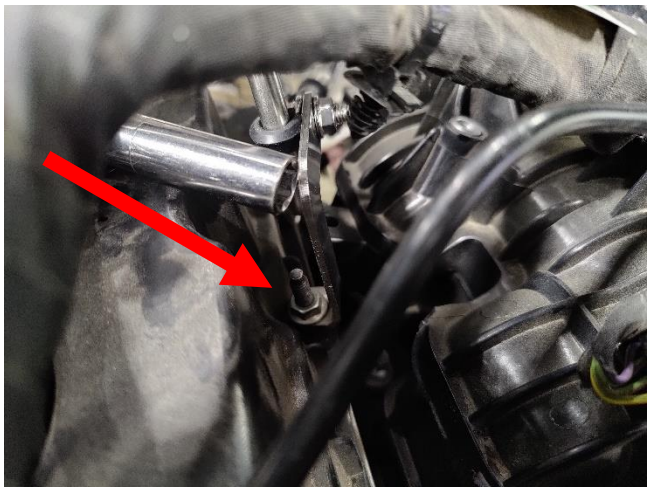

Figure 56

57. When tightening down the L shaped bracket ensure to keep the bracket parallel with the section of tube below it. This will allow the bracket to clear the coolant tube once it is placed back in the vehicle as seen in F**igure 57**.

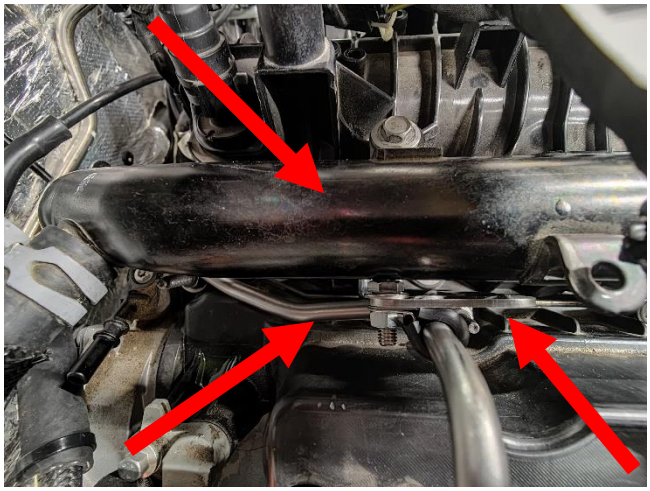

Figure 57

58. Once the Nostrum pump and fuel line are installed, reinstallation of all remaining components can begin. Follow the steps of disassembly listed above in reverse to re-install components starting with step 32. Follow all torque specs that are included in each step where applicable. If a torque spec is not included in a step where it seems applicable assume snug fit with a wrench or socket wrench.

Figure 58

Hardware installation is complete.

First Start-Up

1. Be sure to remove all installation tools and loose items from the engine compartment. Follow good, safe
practices when working on your vehicle. Be sure to reassemble all parts and components according to your OE maintenance manual.

2. Key cycle the vehicle into the "Accessory On" position (do not go to Ignition position). The low- pressure fuel pump with activate and the low-pressure side of the pump will pressurize. Check the high-pressure fuel pump and the low-pressure side for leaks. If OK, proceed to step 3.

3. Key cycle to ignition and let the car attempt several start cycles. Remember that the fuel lines, pump and part of the fuel rail are filled with air, therefore this step is necessary to evacuate that air and get the system charged. If it starts, OK. If it does not, key off the vehicle. Check the high- pressure lines to the fuel rail, to the pump and the pump itself for leaks. If OK, proceed to step 4.

4. Key cycle one more time all the way to ignition. Engine should start-up and idle. If not, proceed with steps 2-4 again.

5. Let the car idle for a few minutes. Check for leaks on low and high-pressure portions again.

6. Installation is complete! **Time for a Tune!!**

NOTE: a fault code may appear at the first key cycle due to the long ignition time or the low pressure in the fuel rail, both due to the air in the fuel system.
This code should self-clear after the OEM defined quantity of key cycles.

NOTE: After driving the car and letting it cool, next day, check for fuel leaks again (from thermal expansion and contraction). Retighten fittings if needed.

For additional technical & software support please contact:

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Revision	Notes	Date
Rev 1	Production Release	12/2/21
Rev 2	Torque Spec Updates	1/6/21