Dorch Engineering N55 HPFP Kit Installation

DE-55-25A/B
DE-55-15A/B

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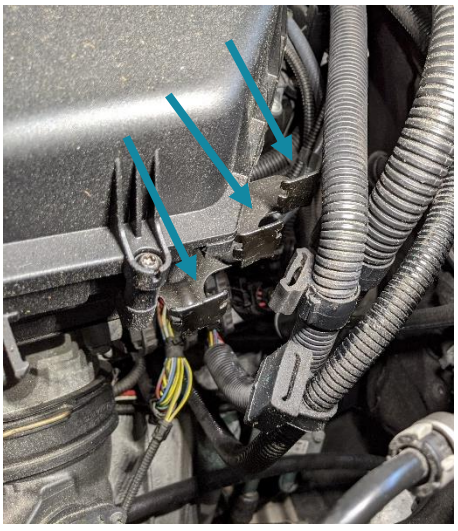
NOTE: These instructions are based on an F10 EWG. The cowl and other parts may differ slightly on other models.

1. Start by disconnecting the battery's ground terminal and removing the engine cover. The coolant hose clip circled below needs to be removed before the engine cover will come off:

2. Next the airbox needs to be removed. First loosen the 7mm hose clamp and unplug the MAF, then lift the 3 main harness clips off the back corner of the airbox. Now lift up firmly and away from the fresh air inlet.



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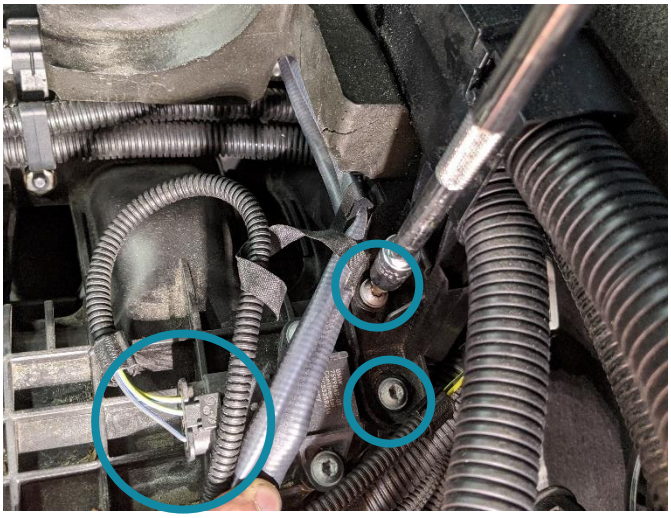
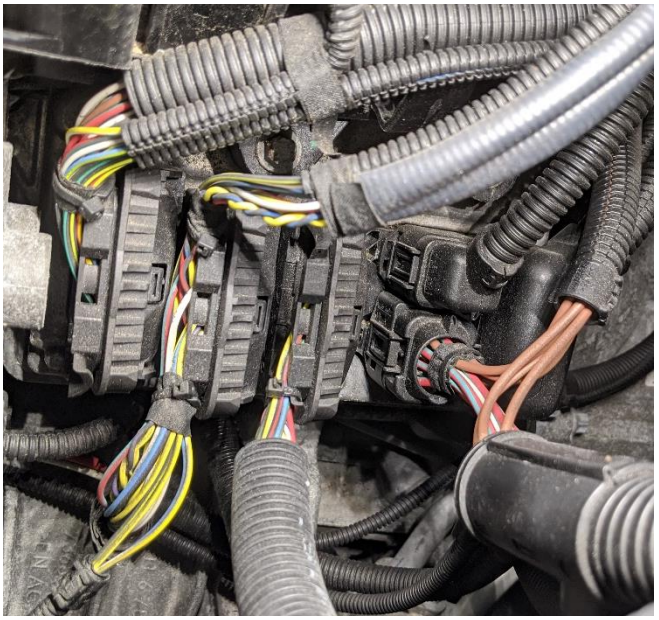
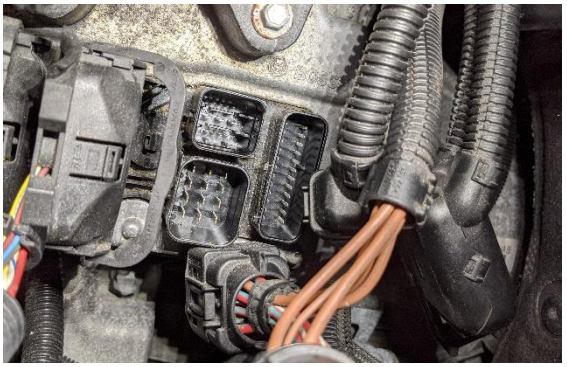
3. Next, loosen the 2x T25 bolts to remove the main harness from the rear of the intake manifold, along with removing the MAP sensor connector:



4. Next, the ECU connectors need to be removed.

   The rear most connector has a slide release which requires pulling down (top right photo below). With the rear connector removed, the two square connectors come right out by squeezing the tab on each side simultaneously. The next three connectors release by pushing down on the small release tab in the center and then rotating the gray collar towards the rear of the vehicle:





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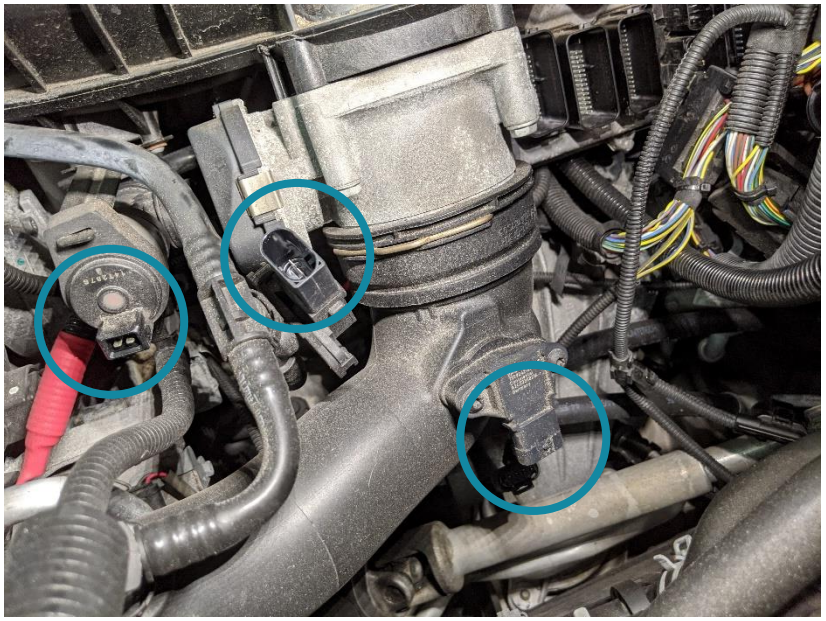
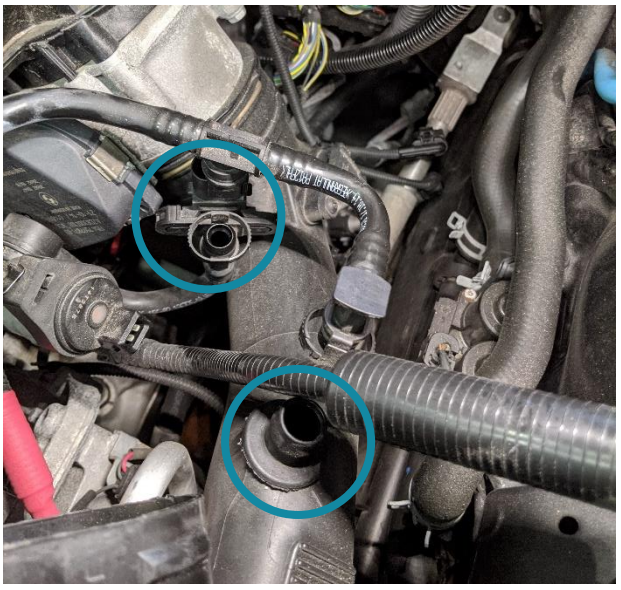
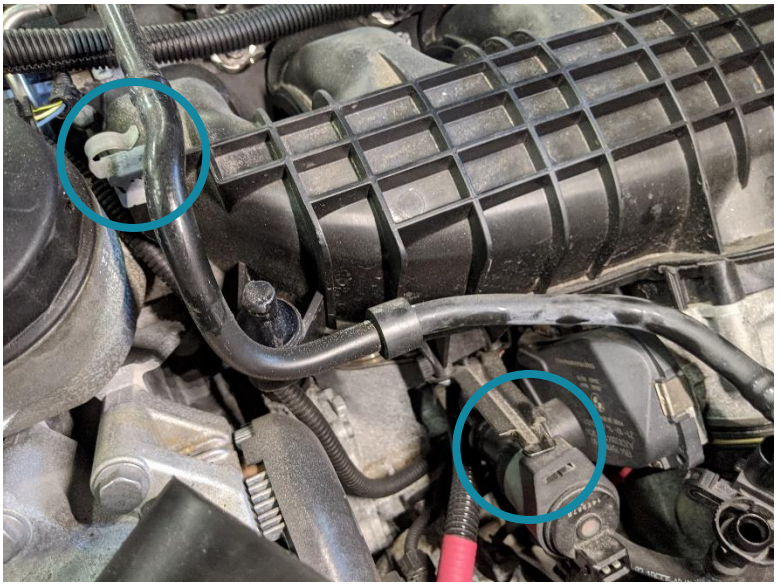
5. Remove the 3 electrical connectors pictured below:



6. Remove the 2 vacuum connections pictured below and then unclip the line and purge valve from the intake manifold:





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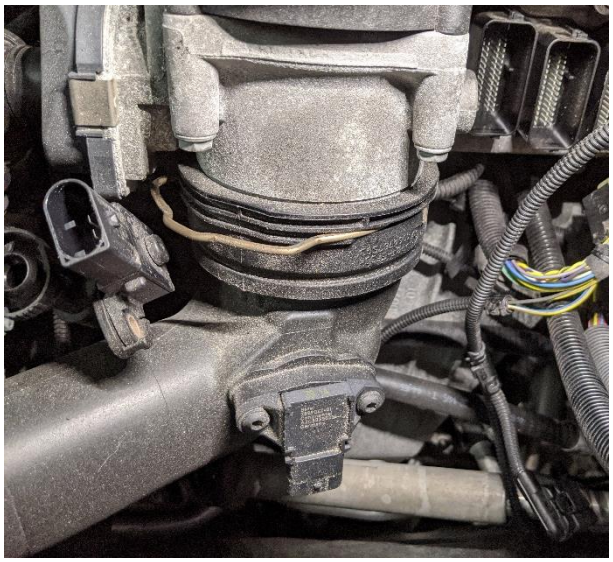
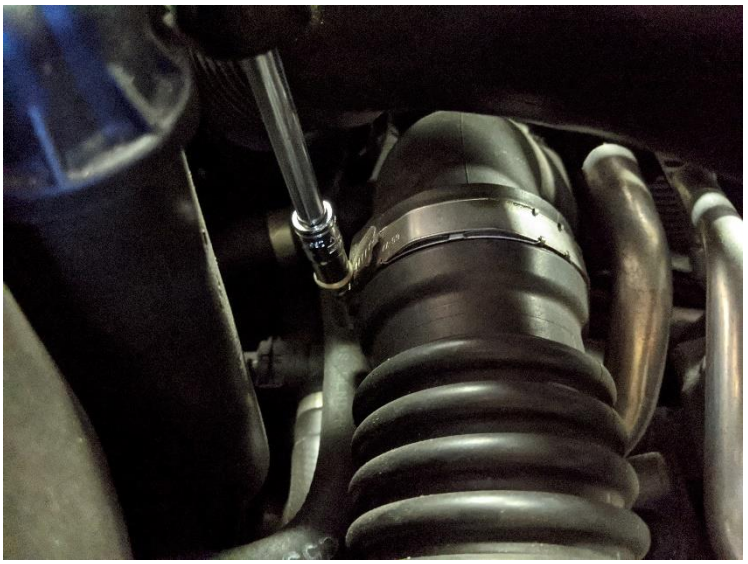
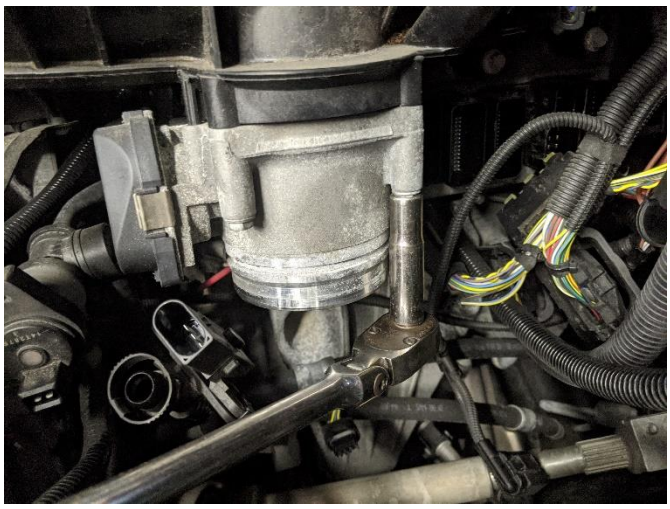
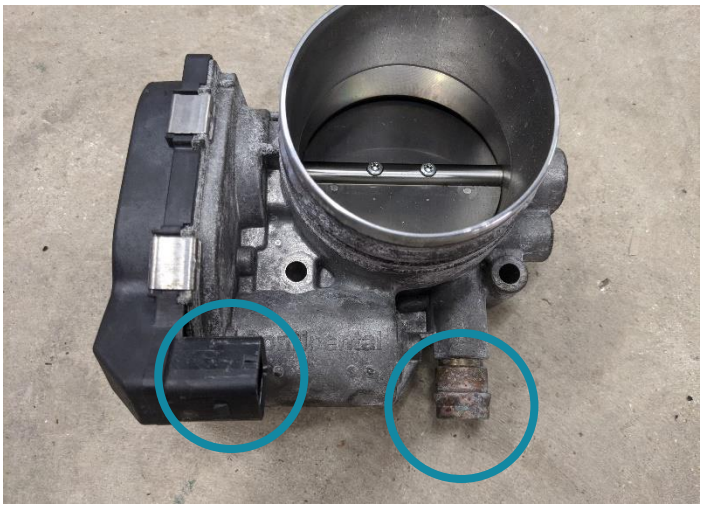
7. The charge pipe can now be removed. Start by sliding out the clip on the throttle body side of the charge pipe. This clip slides back into a notch which releases it from the throttle body (the clip does not need to be completely removed). Next, loosen the 7mm hose clamp and remove the entire charge pipe.





8. Next remove the four 10mm bolts holding on the throttle body along with the electrical connector and vacuum line:





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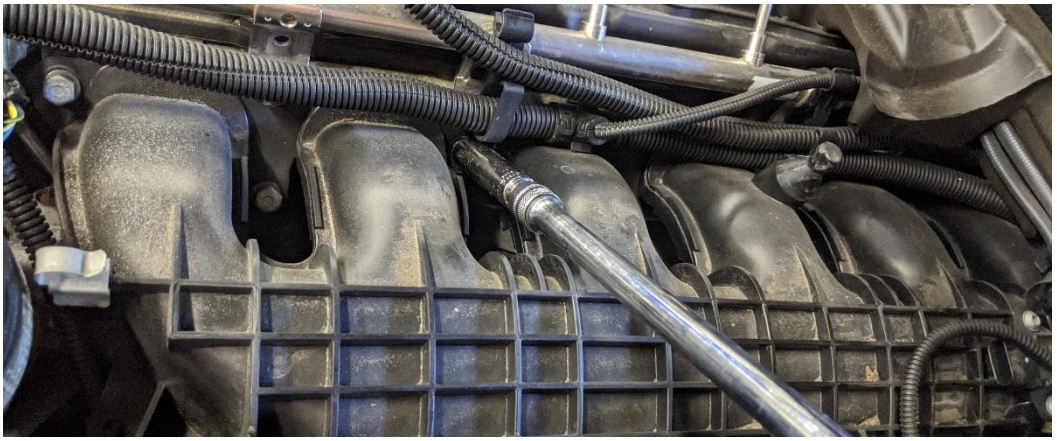
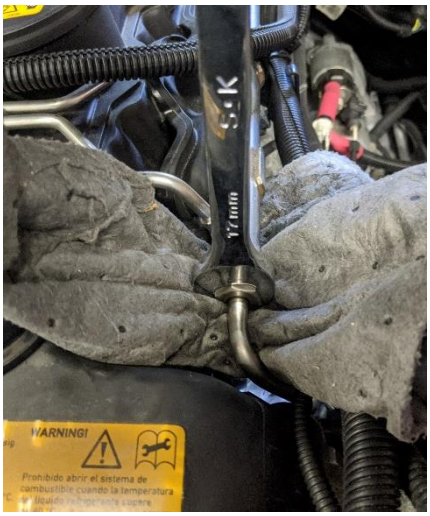
9. Now remove the intake manifold by loosening the 2x 11mm bolts and 5x 11mm nuts:



Disclaimer: The fuel pump is now accessible for removal, but take **CAUTION** as it is under **EXTREME PRESSURE**! Safety glasses, a disconnected battery, and plenty of rags are highly recommended.

10. **READ THIS STEP THOROUGHLY** - For discharging a pressurized fuel system, we recommend placing Pigmat or an equally absorbent rag under both the inlet of the high pressure pump and also under the high pressure line to fuel rail connection. Using a 17mm wrench, slowly crack the nut loose first on the rail and then on the inlet. Leave both of these cracked enough to drain, but not enough to spray fuel.

    Now let these drain for a couple minutes before removing any nuts completely (even if you think it's already drained).



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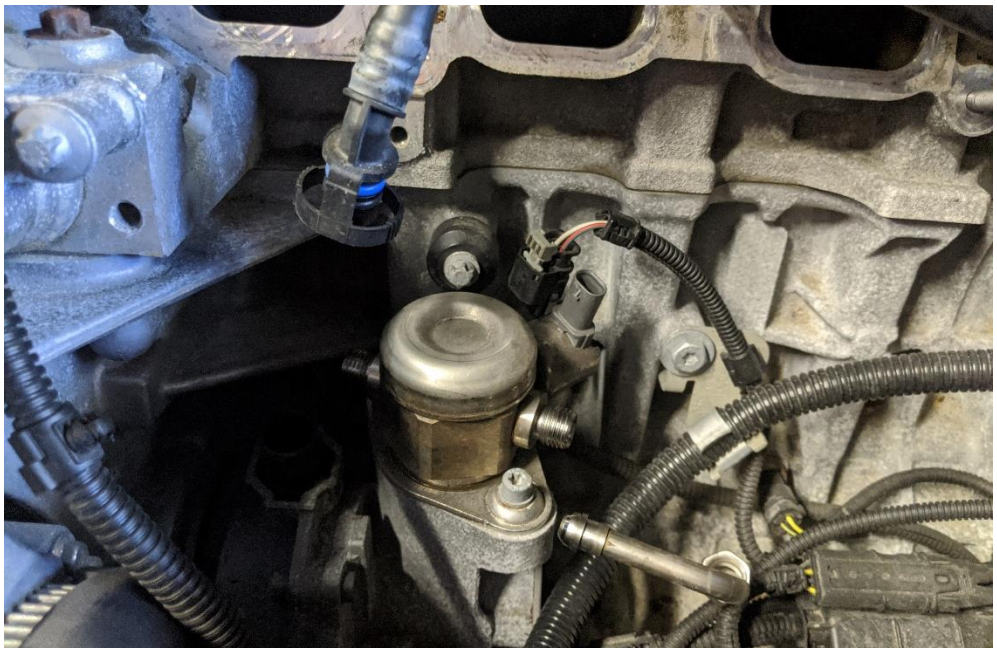
11. Once the fuel lines are drained, remove the high pressure line, the low pressure line nut, the vacuum pump connection, and the fuel pump's electrical connector

    HPFP Connector Note: Early N55 models will have a different connector than the one pictured. For this newer style connector, first pull the gray tab out until it stops (pull up). Then push the gray tab in towards the connector body while simultaneously pulling the entire connector away from the pump.



    PWG Note: PWG cars will have an additional vacuum line to remove from the vacuum pump. This is a single line attached with a T25 bolt:

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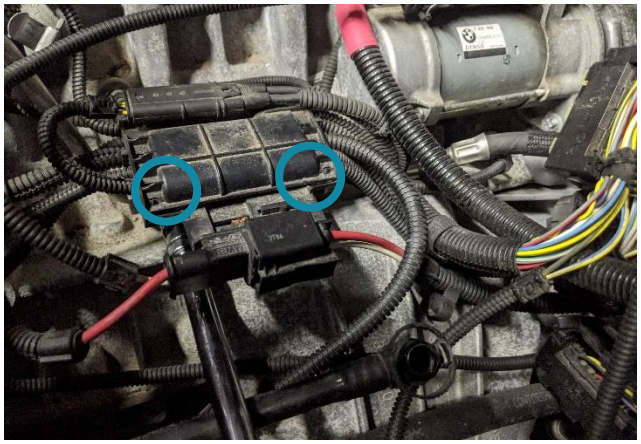
12. Now remove the OEM high pressure pump using a T30 socket. Use **CAUTION** when removing the pump. The area must be VERY clean to avoid contaminating the pump and engine. You also must unthread each mounting bolt a little at a time to ensure the pump comes out STRAIGHT.

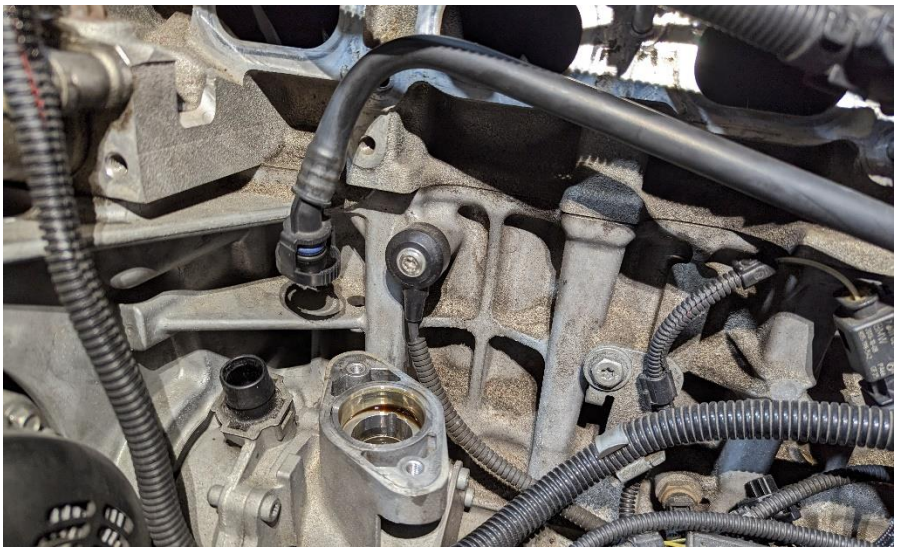
13. Now remove the OEM low pressure hardline hold-down clamps. Remove the two 13mm bolts below the cable junction assembly:



14. The low pressure line can now be removed. Be sure to place a rag under the quick-connect fitting before removal. This fitting requires removal of the gray clip first, and then push the black plastic collar in, while simultaneously pulling the line off (pictured above)

15. Now ith the OEM HPFP out of the way, remove the E10 bolt on the front knock sensor and replace it with the supplied 5mm Allen bolt.

    Knock Sensor Tightening Torque: 21.5nm

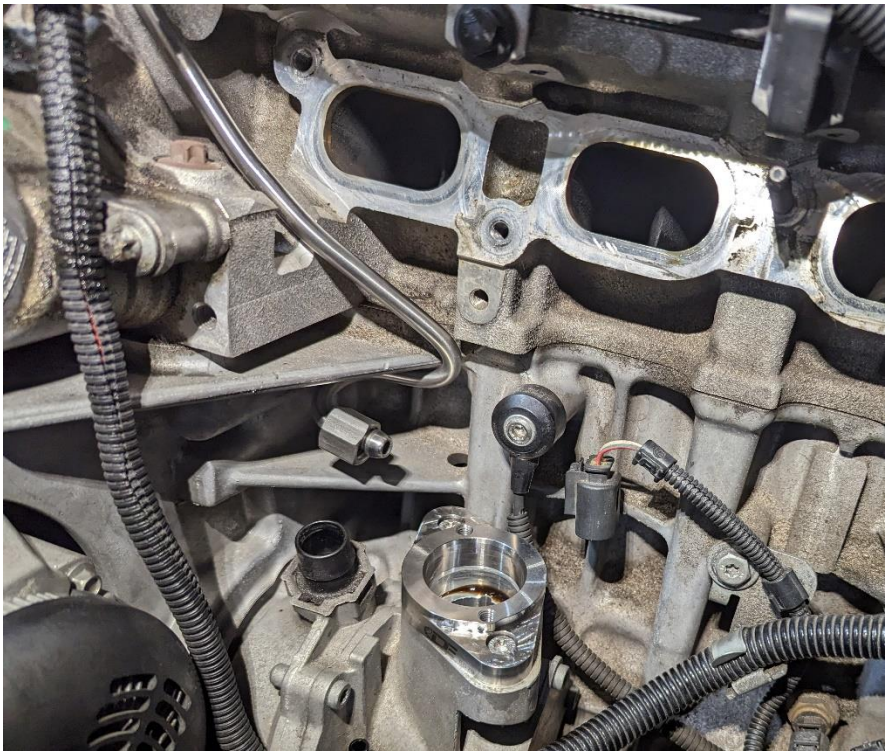


<u>NOTE:</u> Before final torque, the knock sensor "pigtail" angle should be straight downward as pictured (or slightly forward, but NOT rearward) for maximum HPFP clearance.

16. Now install the Dorch Engineering pump flange and seal using the supplied Torx T30 bolts and the flange alignment tool. First place the alignment tool and supplied O-ring seal into the flange and then place it on the pump mount. Be sure that the seal is properly seated and then tighten the bolts.

    Flange Tightening Torque: 12nm - Blue Threadlocker Required

17. Next, put the Dorch supplied high pressure line into place by hand-tightening the fuel rail connection:



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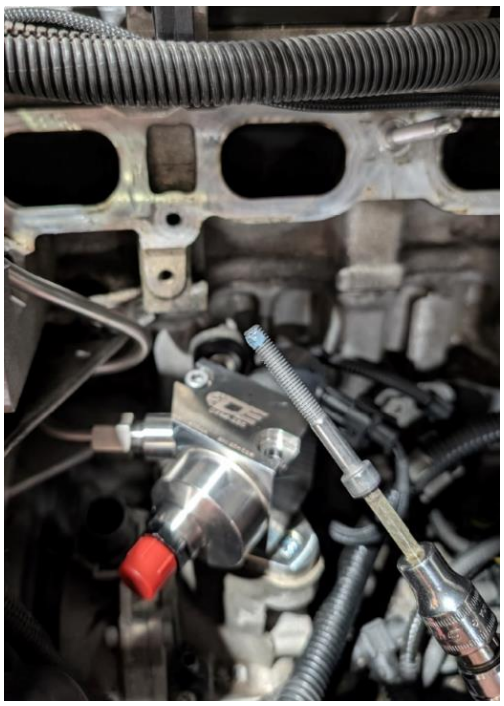
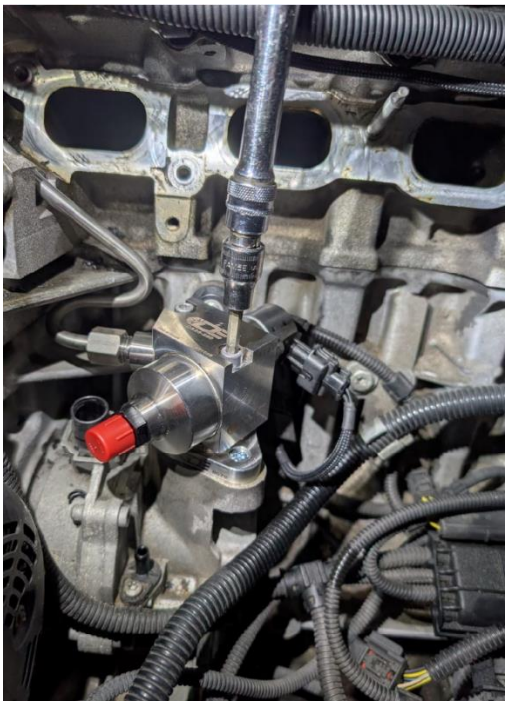
18. At this point the HPFP can be installed into the mounting flange. The pump should NEVER be forced into the flange or damage will occur. There will be slight resistance from the HPFP O-ring as you slide the pump into the flange and there will also be some slight pre-load force on the spring.

    Use extreme **CAUTION** when installing the pump. The bolts MUST BE TIGHTENED EVENLY. Uneven loading of the spring can damage the pump. Also, be **EXTREMELY CLEAN** as all HPFPs are very sensitive to contaminants.

    Pump to Flange Tightening Torque: 12nm - Blue Threadlocker Required

19. **READ THIS STEP THOROUGHLY.** Now connect the high pressure line to the HPFP. It will be a tight fit and the line **MUST BE AS STRAIGHT AS POSSIBLE** at the fittings.

    *The nuts should thread effortlessly by hand on each fitting until they bottom out. If they do not, there is an alignment problem. Alignment can be adjusted by loosening the pump-to-flange bolts and rotating the pump either way in it's bolt holes. Further adjustment can be had by doing the same with the flange-to-vacuum pump bolts. If you need to take these steps for alignment be sure to **RE-TORQUE** any bolts that were loosened.*

    If the nuts thread on effortlessly and bottom out with all the fittings well aligned, the nuts can now be torqued (a 17mm wrench can be used for this if need be, since special sockets are required for proper torque). Be sure not to over tighten the nuts as this will damage the line.

    High Pressure Line Nut Tightening Torque: 30nm

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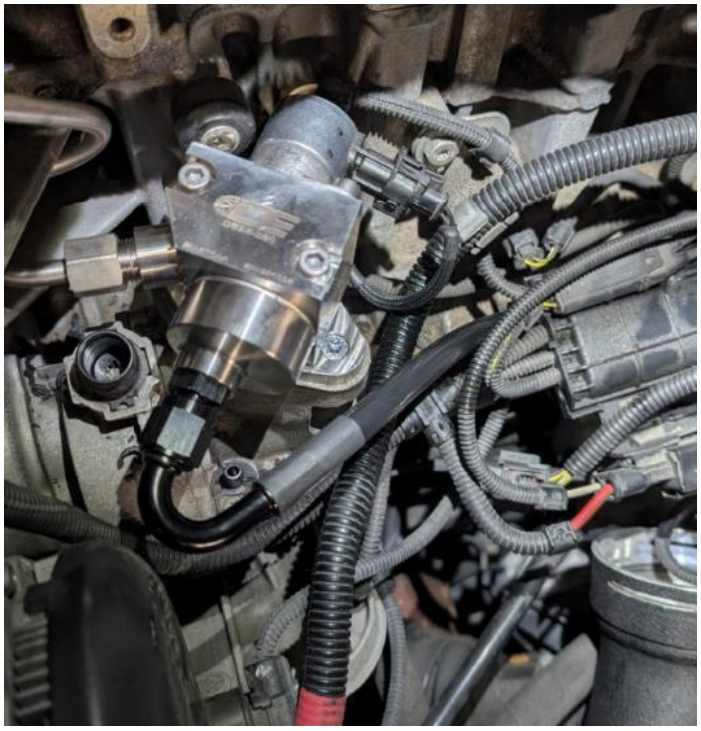
20. The Dorch supplied low pressure hose can now be connected. The AN fitting should be tightened in a position so that the hose has plenty of clearance from the vacuum pump/HPFP mounting flange as pictured (left). The hose will be routed under the cable junction assembly.

NOTE: Keep the plastic cap on the hose during routing to avoid dirt from entering the hose (pictured on the right)



NOTE: Aluminum AN wrenches are strongly recommended for aluminum AN fittings to prevent damage while tightening.

The male end of the Dorch hose will slide and click into the OEM hose. Once it's seated, pull back on the hose to ensure it's truly clicked in, then re-install the gray locking clip on the OEM hose.

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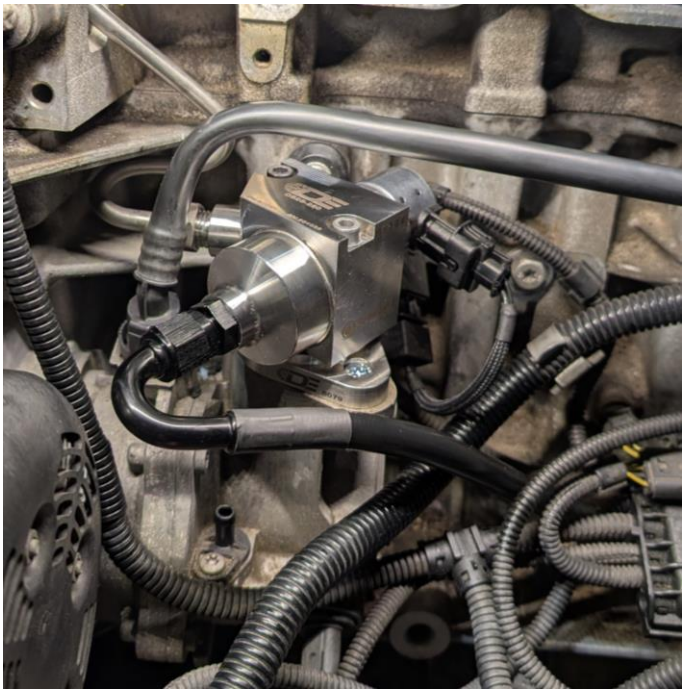
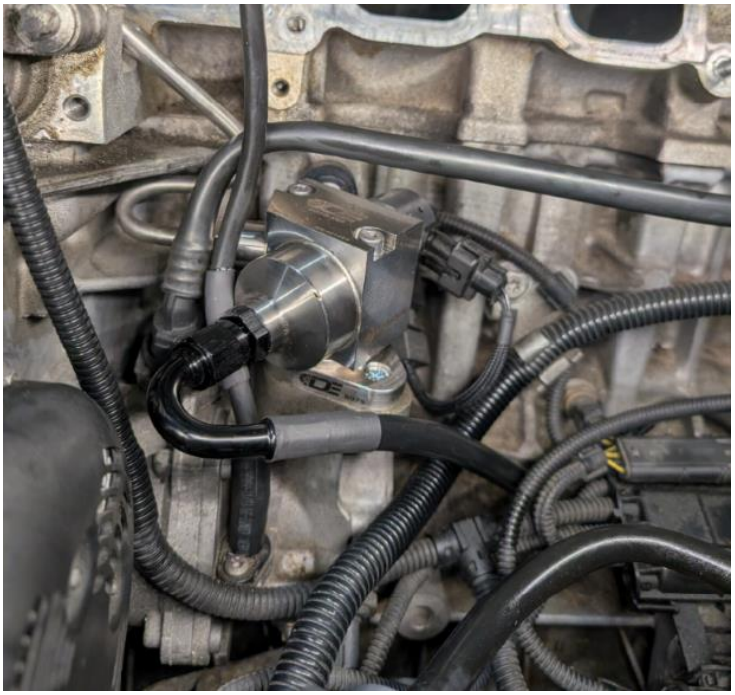
21. Now install the supplied plug-n-play harness adapter to complete the Dorch HPFP install.





22. At this point double check all of your fuel connections, fastener torques, etc. and then the reassembly process can begin. Re-install everything just as it came off. Typically, new throttle body and intake manifold gaskets are recommended upon reassembly.

    Intake Manifold to Cylinder Head Tightening Torque: 15nm
    Throttle Body to Intake Manifold Tightening Torque: 7nm

23. Now re-connect the battery ground terminal and turn the car's ignition on to be sure the low pressure pump has fully primed the system and check for leaks at every connection.

24. It's now time to start the engine. Make sure the proper tune file is loaded (**THE CAR WILL NOT RUN WITHOUT OUR FILE LOADED**) and have someone standing by to check for high pressure leaks during cranking and when the engine fires up.

    NOTE: It is normal for the car to crank at least a few times before firing. The high pressure line and rail have been drained of fuel and are full of air, so they need to fill with fuel before the pump can even being to build pressure. Slightly rough idling can also be a normal symptom for a few seconds as the rail "bleeds" itself of any air on the first startup.

    At this point you should have a leak free and smooth running car. It's now time to make some power!

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