



SUBARU WRX VA FA20DIT HPFP Big Bore Kit Installation Guide

PRODUCT PART SKU#: IAG-AFD-2504

WARNING! PLEASE FOLLOW ALL WARNINGS AND INSTRUCTIONS FOUND IN YOUR VEHICLE OWNER'S 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,

CLEANLINESS IS PARAMOUNT!

Every injector is production tested for gross leak, fine leak, and leak decay for quality control. These injectors left the factory with no leaks! Contamination is the #1 cause of injector leaks. Injector contamination can come from poor fuel quality, dirt or debris introduced during installation, or dirt and debris from handling before installation. It is imperative that the engine, workspace, tools, and handling is as clean as possible during the installation process. Use fuels and ethanol from trusted sources!

SUBARU FA20F HPFP**HIGH FLOW BIG BORE HIGH PRESSURE FUEL PUMP
HIGH PRESSURE FUELL PUMP INSTALLATION****ALWAYS REFER TO FACTORY SERVICE MANUAL BEFORE COMPLETING INSTALL OF NEW PUMP**

The Nostrum Subaru FA20 High Pressure Fuel Pump (HPFP) provides a ~40% increase in fuel capacity vs. the stock pump. It is ethanol compatible up to E100, capable of 600+ whp on E85. To take advantage of your new pumps increased fuel capacity, you must also upgrade your vehicles intake (low pressure) pump. Fuel system limitations due to the low-pressure pump frequently are seen at high RPMs and high-power levels. The HPFP needs a constant supply of fuel pressure (around 4 bar) at its inlet in order to avoid cavitation. If the in-tank pump cannot supply sufficient fuel pressure/°ow, it will starve the HPFP at higher RPMs. Functionally, your vehicle does not require calibration changes to operate with the Nostrum HPFP. With the Nostrum HPFP it is possible to request higher fuel rail pressures at higher RPMs, however Nostrum does not recommend requesting more that 170 bar of pressure.

Removal of the OEM high pressure fuel pump

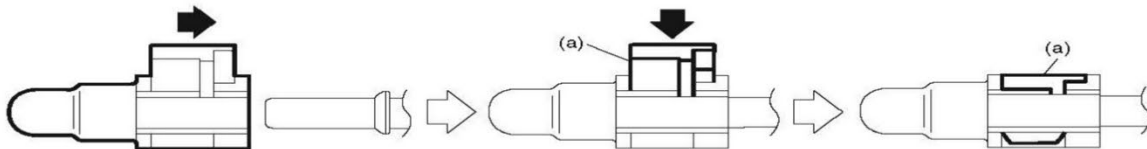
1. Disconnect low pressure fuel line from pump (catch excess fuel with rag)
2. Disconnect high pressure fuel line (Catch excess fuel with rag)
3. Disconnect pump wiring connector
4. Use TORX plus bit to remove bolts securing pump to base
5. Carefully remove pump

High Pressure Fuel Pump

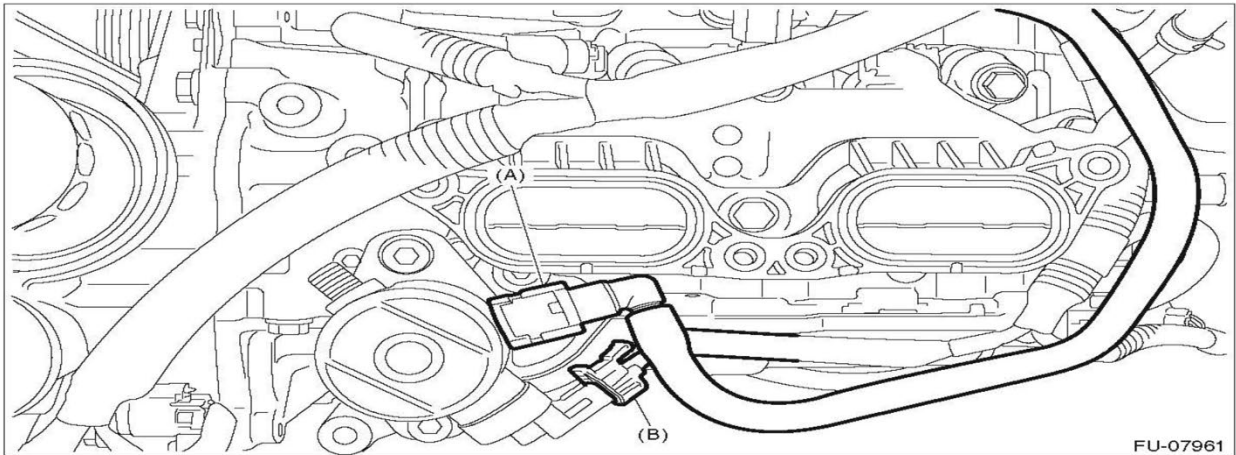
1. Be careful not to spill fuel!
2. Disconnect high pressure fuel line (Catch excess fuel with rag)
3. Disconnect the ground terminal from battery sensor.
<Ref. to NT-6, BATTERY, NOTE
4. Remove the high-pressure fuel delivery pipes. <Ref. to FU(w/o STI)-78, HIGH-PRESSURE FUEL DELIVERY PIPE, REMOVAL, High Pressure Fuel Delivery Pipe.>
5. Remove the fuel delivery pipe (A) from the high-pressure fuel pump, and disconnect the connect tor (B) from the high-pressure fuel pump.



NOTE: Disconnect the quick connector as shown in the figure.



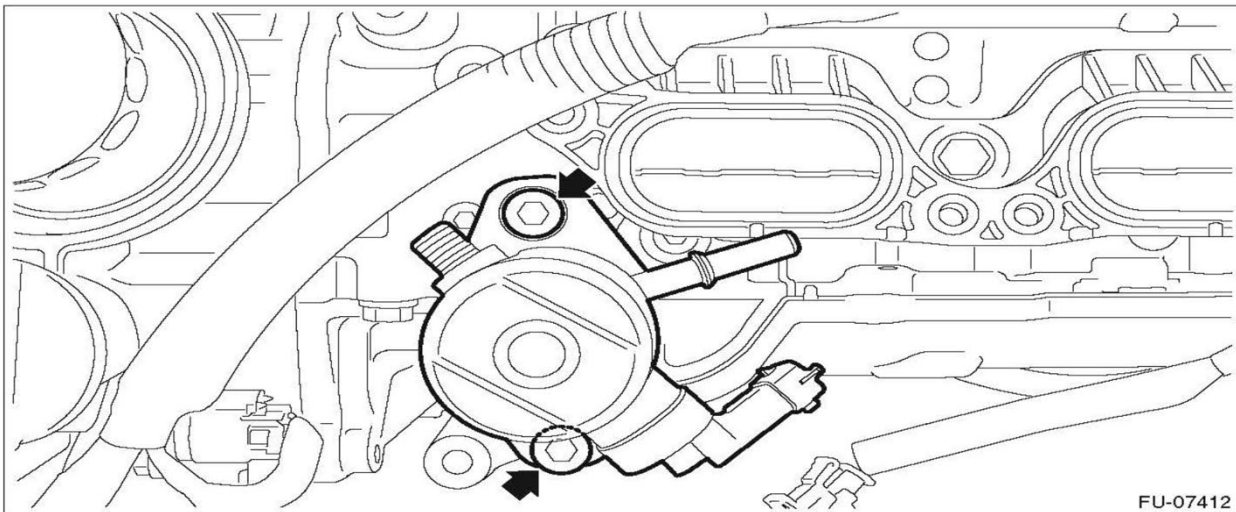
3) Remove the high-pressure fuel pump case from the cam carrier assembly LH.



(A) Slider

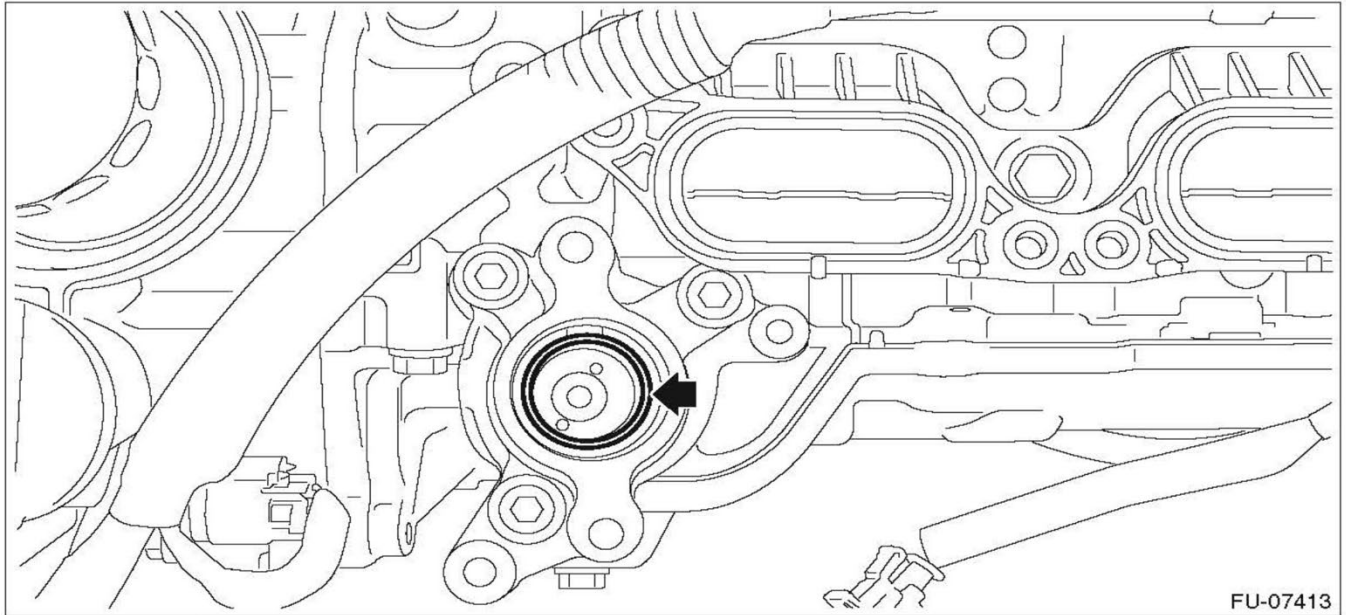
FUEL INJECTION (FUEL SYSTEMS)

4) Using TORX PLUS® bit 40IP, remove the high-pressure fuel pump.



FUEL INJECTION (FUEL SYSTEMS)

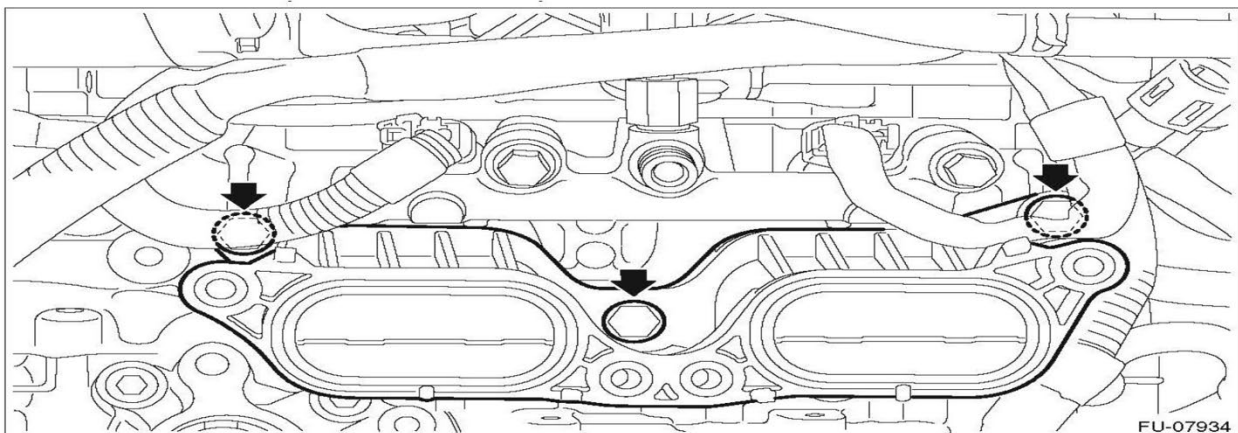
5) Remove the fuel pump lifter from the fuel pump case.



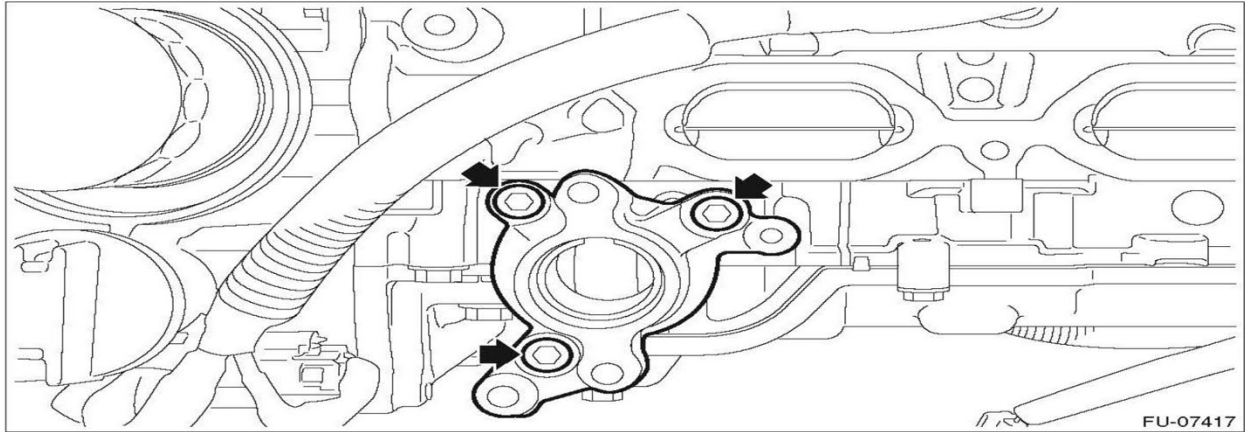
2. HIGH-PRESSURE FUEL PUMP CASE

1) Remove the high- pressure fuel pump. <Ref. to FU(w/o STI)-69, HIGH PRESSURE FUEL PUMP REMOVAL, High Pressure Fuel Pump.>

2) Remove the air intake adapter LH from the cylinder head.



3. Remove the high-pressure fuel pump case from the cam carrier assembly LH.



Installation of NEW Nostrum High Pressure Fuel Pump

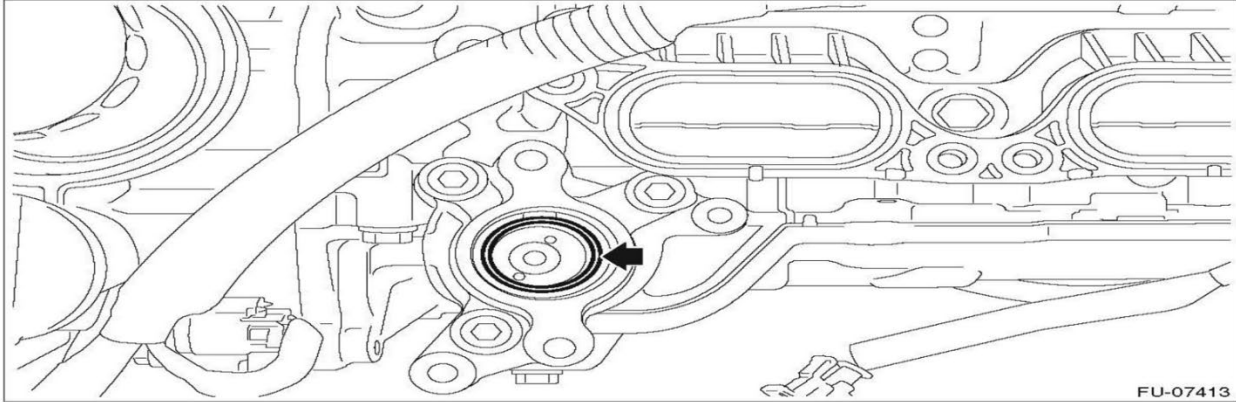
1. Carefully guide new pump into bore
2. Install pump to head flange bolts and torque to (21NM, 15.5FT-LBS)
3. Carefully thread high pressure fitting back on until fully seated and torque to (6.4NM, 4.7FT-lbs)
4. Re-install low pressure fuel line making sure the locking clip is fully seated.
5. Re-install fuel pump wiring connector

B. INSTALLATION

1. HIGH-PRESSURE FUEL PUMP

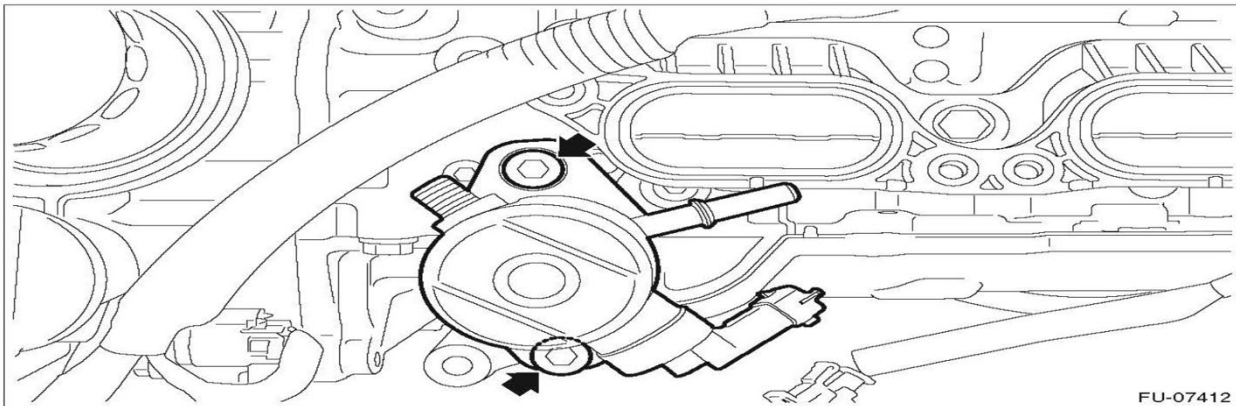
- 1) Install the fuel pump lifter to the high-pressure fuel pump case.

NOTE: Apply engine oil to the side of the high-pressure fuel pump case and to the bottom surface of the fuel pump lifter.



2. Using TORX PLUS® bit 40IP, install the high-pressure fuel pump.

NOTE: Use new O-Rings. Tightening torque. 21 N-m (2.1 kgf-m, 15.5 ft-lb)



3. Connect the connector (B) to the high-pressure fuel pump, and install the fuel delivery pipe (A) to the high-pressure fuel pump.

CAUTION: Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe. When connecting the quick connector, make sure to insert it all the way in before locking the slider. When it is difficult to lock the slider, check again that the quick connector is securely connected.

NOTE: Connect the quick connector as shown in the figure below.

4. Install the high-pressure fuel delivery pipe. <Ref. to FU(w/o STI)-79, HIGH PRESSURE FUEL PUMP REMOVAL, High Pressure Fuel Pump.>

5. Connect the ground terminal to battery sensor. <Ref. to NT-6, BATTERY, NOTE, Note.>

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 will 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:

Email: support@iagperformance.com

Phone: **410-840-3555**

IAG PERFORMANCE

Revision	Notes	Date
1.0	Revision to standard format	1/12/2020
2.0	Update tools list	5/10/2020
3.0	edits	7/1/2022
4.0	Revision for IAG formatting, cleanliness warning added	10/9/2024