NOSTRUM
HIGH PERFORMANCE

Nostrum BMW Gen 1 B58 High Pressure Fuel Pump Kit

PRODUCT PART SKU#: H086-1555 & optional A061-1849 pulse damper kit

Warning! Please follow all warnings and instructions found in your vehicle service information. 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.

Please note that this product does require vehicle calibration. Please ensure provisions are made prior to installation. Nostrum Tuning Guides are available upon request. If you are already in touch with a tuner, please have them reach out to support@nostrumshop.com or access the Tuning Guide via the dealer portal on the Nostrum website. If you do not currently have a tuner, we will gladly connect you with someone within the Nostrum dealer network.

Required Tools:

- 10 mm socket
- E6 Torx socket, female
- E18 Torx socket, female
- T30 Torx socket, male
- 17 mm crow's-foot socket adapter
- 18 mm crow's-foot socket adapter
- 5 mm Allen socket adapter
- Ratchet
- Extension
- 17 mm open-end wrench
- Torque wrench capable of 10 to 50 Nm (5 to 75 ft-lb)
- Pick tool
- ECU calibration tool or calibration delivery device
- Safety glasses
- Fire extinguisher (Class B minimum)

Consumables:

- Clean, lint free rags
- Disposable rubber gloves

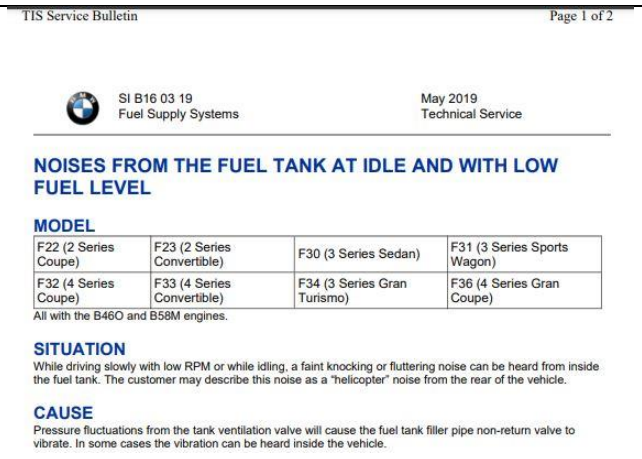
H086-1555 B58 Gen 1 HPFP Pump Kit Parts List:

Description	Part #	Quantity
1150-250 inverted solenoid fuel pump assembly	H066-0642	1
Electrical adapter harness, Tyco Amp 2 pin	E066-0737	1
B58 Gen 1 mounting flange	H140-1479	1
Pump to flange socket head cap screw, stainless, M6x1.0-50 mm	91292A144	2
Flange head socket head cap screw, stainless, M6x1.0-25 mm	91292A138	2
High pressure fuel tube assembly	H156-1830	1
Low pressure fuel line assembly	L926-1492	1
Flange installation tool	A140-0313	1

A061-1849 Pulse Damper Kit Parts List (Optional):

Pulse damper	L061-1551	1
45 deg AN-6 female to female fitting	ANFJ06-FJ-TUBE45BK	1

1. A TSB exists for noises from the fuel tank at idle with low fuel level for these vehicles. We recommend you make sure this TSB be performed, if applicable, before performing installation of any components on your vehicle. The Nostrum pump kit requires ECU calibration and the BMW TSB may also require ECU calibration that would overwrite/erase the calibration changes made for the operation of this pump. Details on the TSB can be found here: https://static.nhtsa.gov/odi/tsbs/2019/MC-10161557-9999.pdf



TIS Service Bulletin Page 1 of 2

SI B16 03 19
Fuel Supply Systems

May 2019
Technical Service

NOISES FROM THE FUEL TANK AT IDLE AND WITH LOW FUEL LEVEL

MODEL

F22 (2 Series Coupe)	F23 (2 Series Convertible)	F30 (3 Series Sedan)	F31 (3 Series Sports Wagon)
F32 (4 Series Coupe)	F33 (4 Series Convertible)	F34 (3 Series Gran Turismo)	F36 (4 Series Gran Coupe)

All with the B46O and B58M engines.

SITUATION

While driving slowly with low RPM or while idling, a faint knocking or fluttering noise can be heard from inside the fuel tank. The customer may describe this noise as a "helicopter" noise from the rear of the vehicle.

CAUSE

Pressure fluctuations from the tank ventilation valve will cause the fuel tank filler pipe non-return valve to vibrate. In some cases the vibration can be heard inside the vehicle.

Figure 1

2. If you have been driving the vehicle allow it to fully cool. This is to make the underhood temperatures lower for a safer & more comfortable installation process and to allow the fuel pressure in the system to bleed down.

   Open the trunk of the vehicle. Remove the passenger side storage bin that covers the battery by pulling down on the corner closest to the rear of the vehicle and then sliding the top of the bin out of its fabric tabs and pulling towards the driver side of vehicle.

Figure 2

3. Use a 10 mm socket to disconnect the negative battery terminal. Use a suitable clean rag to wrap and insulate the negative battery terminal to prevent power restoration.

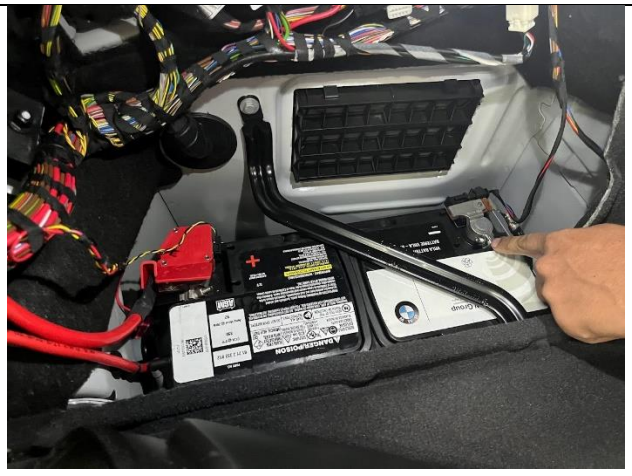
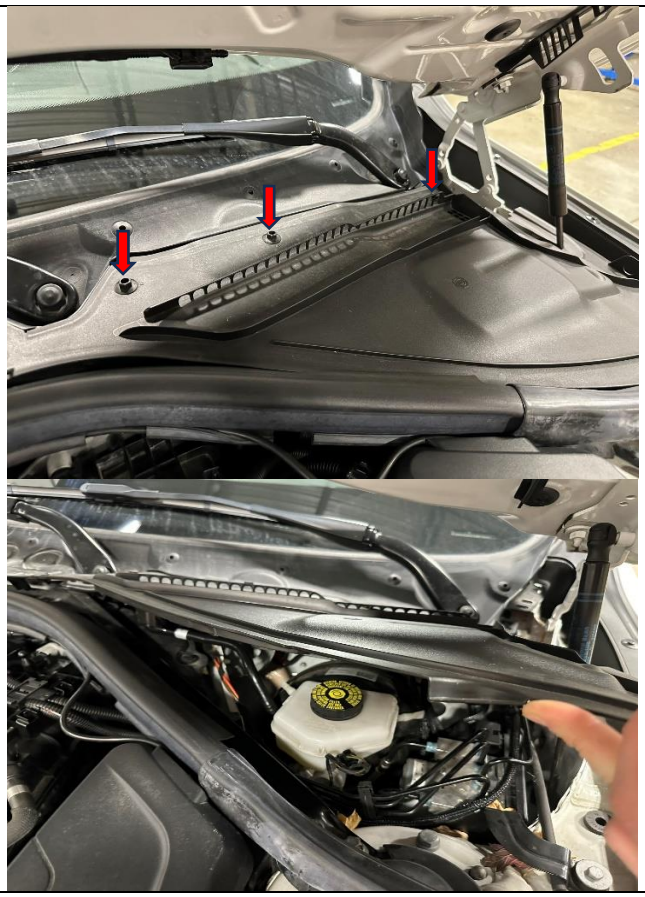
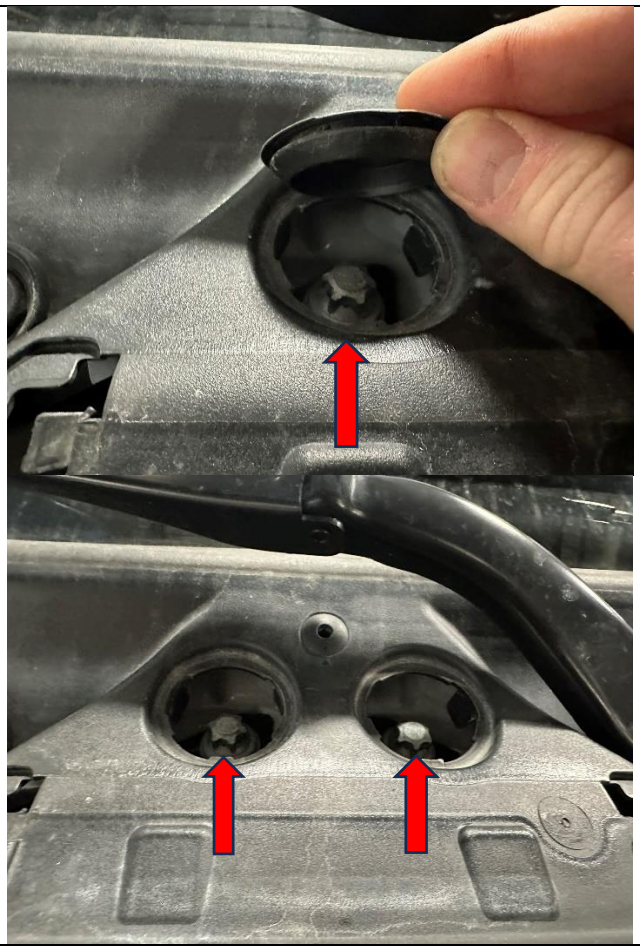
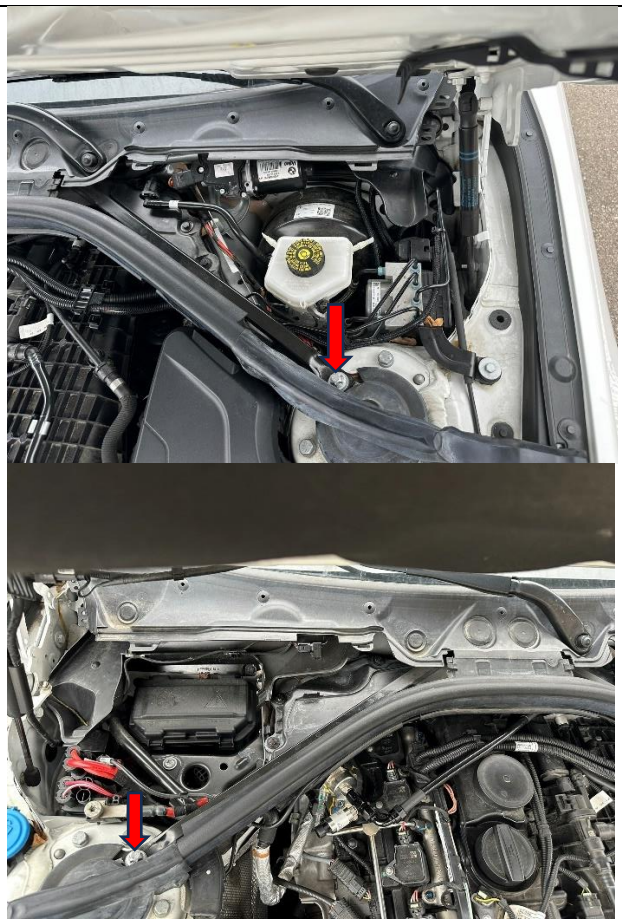
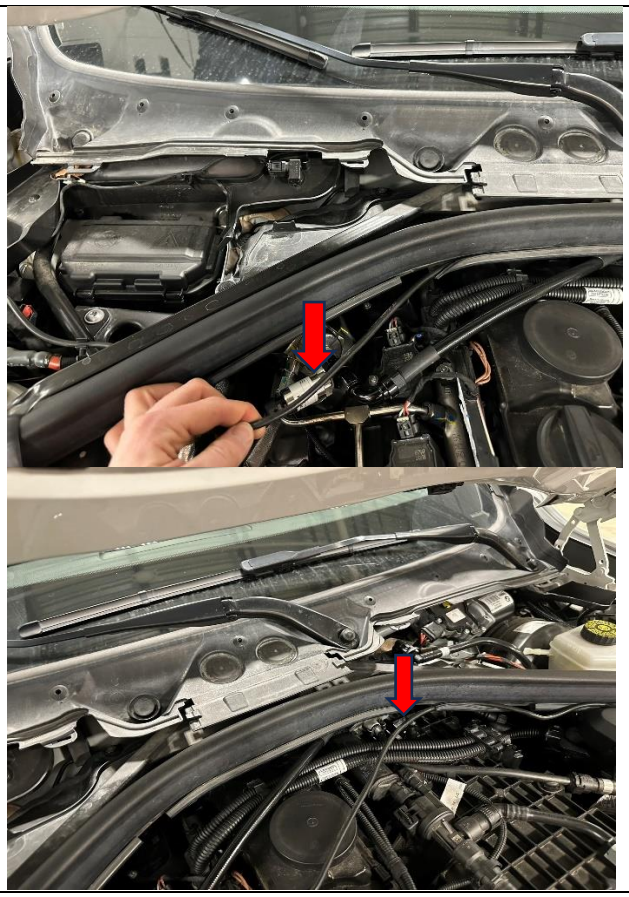


Figure 3

4. Open the hood and begin removing the plastic covers on both sides of the windshield by unlatching the three 10mm rotating clips per cover that retain the covers (see red arrows in the image to the right). Rotate the fasteners counterclockwise until they stop and then the cover can be lifted off and removed. Repeat the process for the similar cover on the other side of the engine bay.	
	Figure 4

5. In the center of the lower windshield cowl, remove the two rubber caps (as indicated by the red arrows to the right) by lifting them up. This will expose the bolts below the caps. Remove the bolts using an E18 Torx socket.	
	Figure 5

6. Remove the E18 Torx bolts on both the driver and passenger side as shown.	
	Figure 6

7. Pull this wire out of the rubber retainer lip it resides in. Remove it from the entire length of the retainer from driver to passenger side of engine bay. This will allow removal of the rubber strip from driver to passenger side.	
	Figure 7

8. Remove the rubber seal strip that is tucked into the plastic cover slot by sliding the rubber strip towards the front of the engine bay.

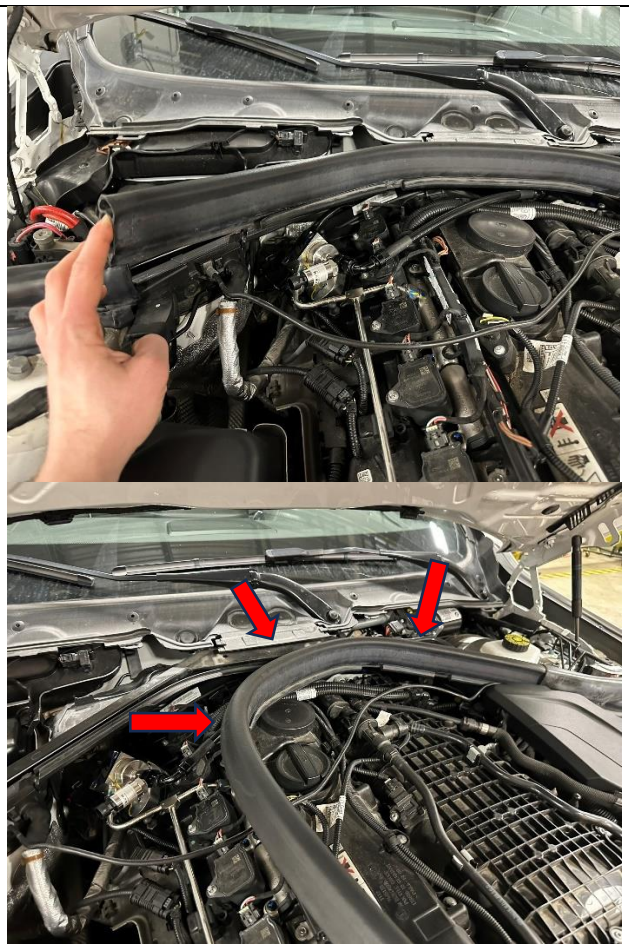


Figure 8

9. Remove the black plastic cover shown here by removing the six 10 mm bolts to gain access to the low-pressure fuel line that leads into the GDI high pressure fuel pump (HPFP).

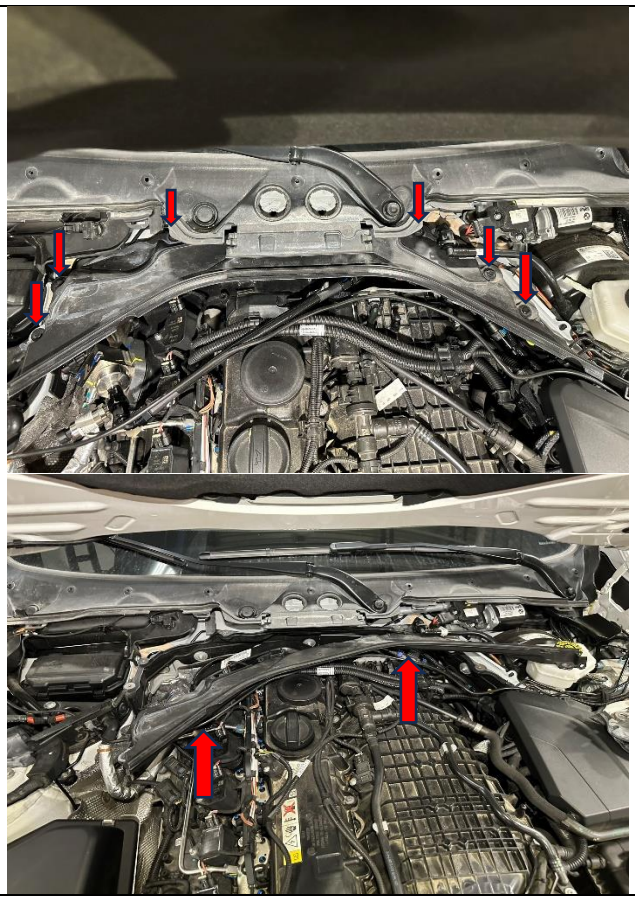


Figure 9

10. Use a 17 mm wrench to loosen the compression nuts on the high pressure and low-pressure fittings on the high-pressure fuel pump. Loosen the low-pressure side first. Cover the fitting with absorbent rags to catch any fuel that may come out of the fitting.

Safety glasses and rubber gloves are recommended

Figure 10

11. Use a 17 mm wrench to loosen the compression nuts on both fuel rails. Cover the fittings with absorbent rags to catch any fuel that may come out of the fuel line. Once all the line nuts are unthreaded, remove the line and cap the fittings to prevent contamination.

Figure 11

12. Disconnect the pump solenoid electrical connector by squeezing the grey tab and sliding the electrical connector off.

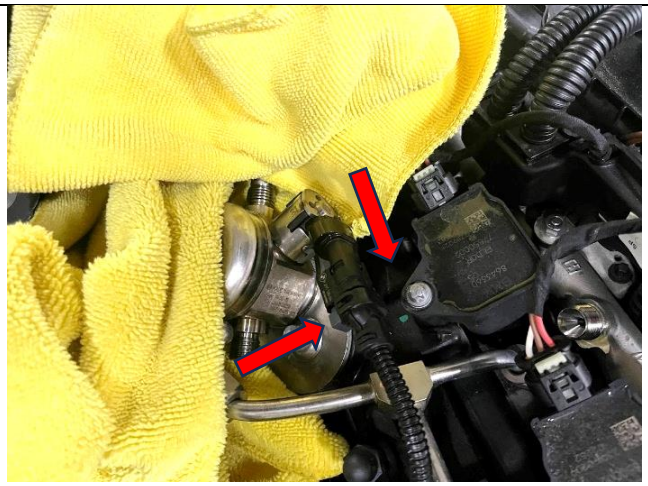


Figure 12

13. Locate the low-pressure hard line near the back of the engine.

Figure 13

14. Unclip the grey round retaining clip by opening the gap where the arrow points and maneuvering off the black plastic within the quick connector.

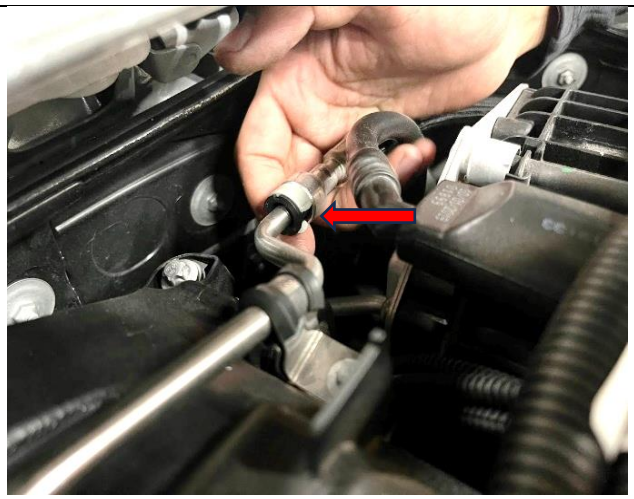


Figure 14

15. Push the black part of the female quick connect into the female housing, this will disconnect the male hard line from the flexible female portion. Use absorbent rags to catch any spilled fuel.

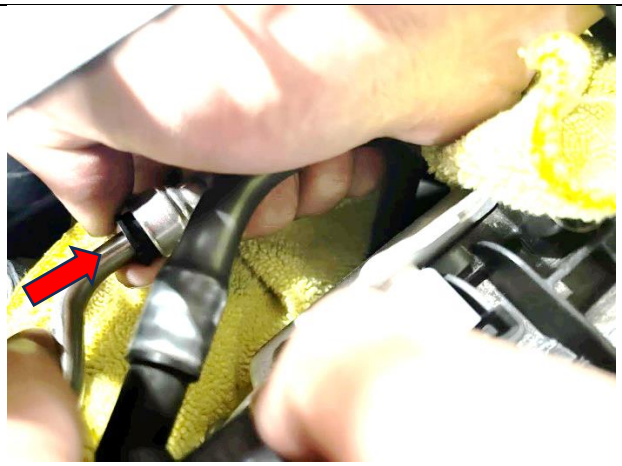


Figure 15

16. Use an E6 Torx socket to remove the bolt securing the stock low-pressure hardline bracket in place. Save this fastener. You will be using it to install the Nostrum supplied low pressure line assembly.

Figure 16

17. Remove the stock hard line from the engine bay.

Figure 17

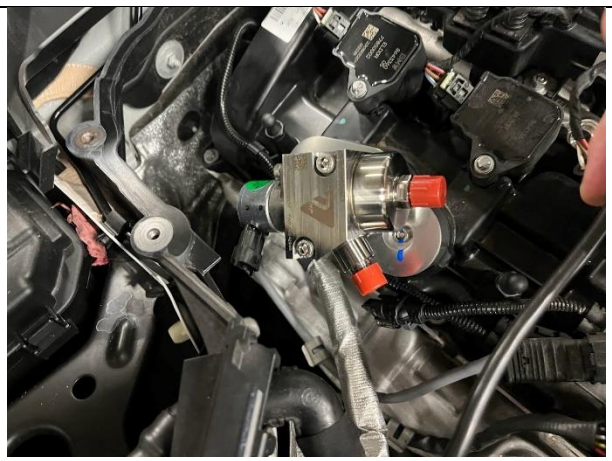
18. Use a T30 Torx socket to remove the bolts securing the stock pump. Gradually loosen the bolts alternating between both bolts as you loosen so that you do not side load the factory pump piston. Then remove the pump from the engine bay. Cap the inlet and outlet fittings for storage.

Figure 18

19. Inspect the GDI pump camshaft roller follower for flat spots or signs of wear. If found to be worn replacement may be necessary. Be sure to inspect the gasket for flat spots or other damage to ensure proper sealing. Replace the gasket if found to be worn or damaged.

BMW Service part numbers:
GDI HPFP camshaft follower part # 11327601233
HPFP gasket part # 11128633750

Figure 19

20. Place the Nostrum supplied pump flange onto the pump seating surface on the cylinder head as shown. Make sure the tapped holes are visible (facing away from the engine). Hand thread the included M6x1.0-25 mm socket head cap screws a few turns.	
	Figure 20
21. Place the included alignment tool in the center hole to align the flange correctly. Torque both M6x1.0-25 mm socket head cap screw fasteners to 12 Nm (9 ft-lb) using a torque wrench and a 5 mm Allen head socket. Now remove the flange alignment tool.	
	Figure 21
22. Place the pump on the flange and hand thread the M6x1.0-50 mm socket head cap screw fasteners into the pump. Using a 5 mm Allen socket adapter tighten the fasteners, alternating from side to side every few revolutions so as not to put significant side load on the pump. Once fully seated, torque the fasteners to 10 Nm (7 ft-lb).	
	Figure 22

23. Unpack the supplied high pressure fuel line tube assembly. Prepare the fuel rail and top of engine for high pressure tube installation. Be sure the areas are clean and clear of debris. Contamination is a leading cause of fuel system failure.

    After the area and workspace is clean and ready, remove the yellow spherical fitting caps from the high-pressure tube and the red high pressure fitting cap from the pump. Arrange the high-pressure tube in alignment with the pump fitting and fuel rail fittings (bank 1 and 2), be sure the compression nuts are close to but not covering the spherical fittings.

    Seat fuel line tube spherical fitting 2 onto the Bank 2 fuel rail.

    NOTE – on the BMW inline 6-cylinder engine we are using Bank 1 to designate the 1st three cylinders at the front of the vehicle and Bank 2 to designate the last three cylinder in the engine (closest to the firewall).

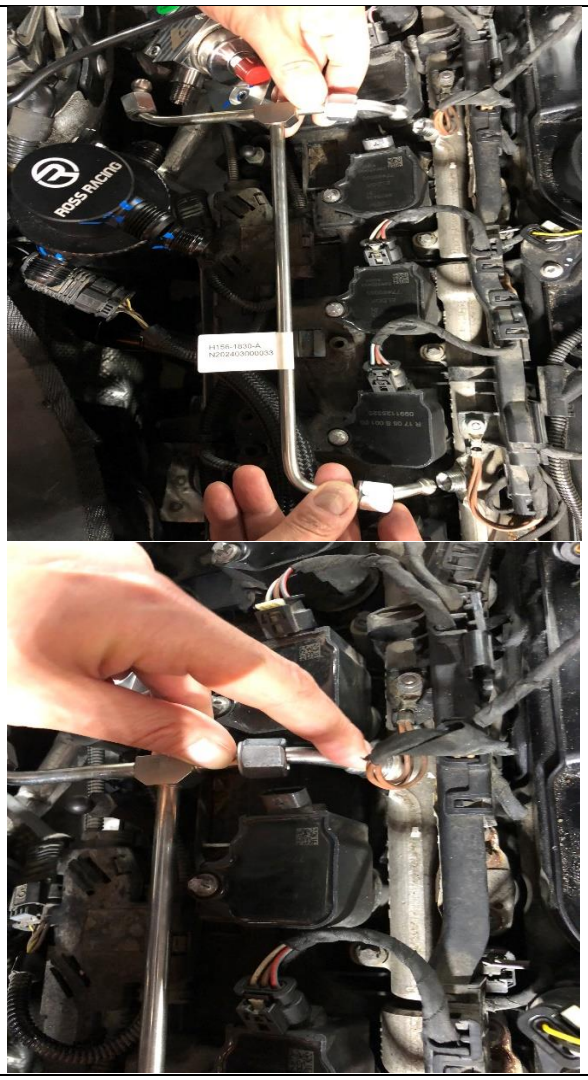


Figure23

24. Seat spherical fitting 1 from the high-pressure fuel line onto the Bank 1 fuel rail. You may need to manipulate the line to get it to seat.

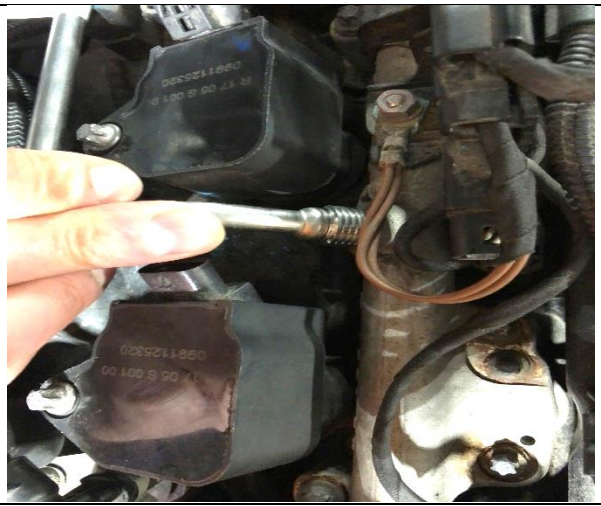
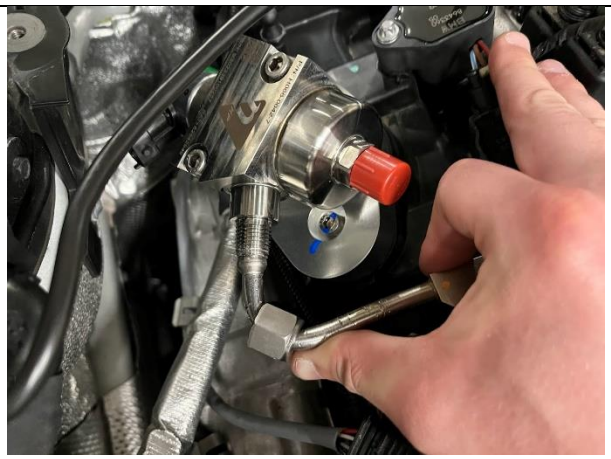


Figure24

25. At the HPFP, start the compression nut onto the fitting thread. It is expected that you may need to wiggle or maneuver the tube to allow the nut to thread on smoothly. Do not force the nut or you may cross thread it and destroy the pump fitting. After you have it started, hand thread the compression nut onto the high-pressure outlet (pressing down, lifting or other manipulation of the line may be required). If it is aligned correctly the nut will thread on smoothly by hand. Do not tighten it yet.	
	Figure 25
26. At the Bank 2 fuel rail fitting, start hand threading the compression nut onto the Bank 2 fuel rail. Pressing down, lifting and manipulating the line into place may be required to get it properly aligned.	
	Figure 26
27. At the bank 1 fuel rail fitting, start hand threading the compression nut onto the Bank 1 fuel rail. Pressing down, lifting and manipulating the line into place may be required.	
	Figure 27

28. Once all the nuts are properly threaded onto the connection points torque all three nuts to 33 Nm (24 ft-lb) using a 17 mm crow's-foot adapter and a torque wrench.

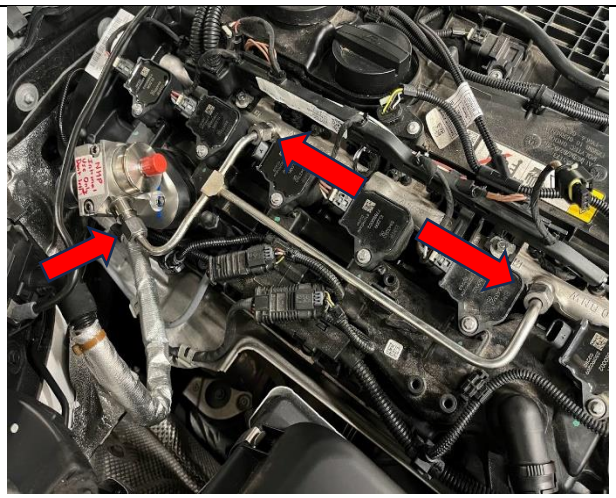


Figure 28

29. This step is for the installation without the optional pulse damper kit. If you are installing the optional pulse damper kit, skip to step 30.

    Remove the Nostrum supplied low pressure supply line assembly from the packaging. Remove the red plastic AN-6 cap from the high-pressure fuel pump inlet. Hand thread the aluminum AN-6 swivel fitting onto the AN-6 low pressure inlet fitting on the pump as shown. Route the line as low as possible across the valve cover and coil packs to be sure it will not rub or make contact with any points. Once the line is correctly routed torque the aluminum AN-6 swivel fitting on the pump to 20 Nm (15 ft-lb) using an 18 mm crow's-foot adapter and a torque wrench.

    When complete skip to Step 32.

Figure 29

30. Steps 30 to 31 are for the installation of the optional pulse damper. If you are not installing this optional component skip to step 32.

    The assembly of your low pressure line connection will look like this when installed on the vehicle.

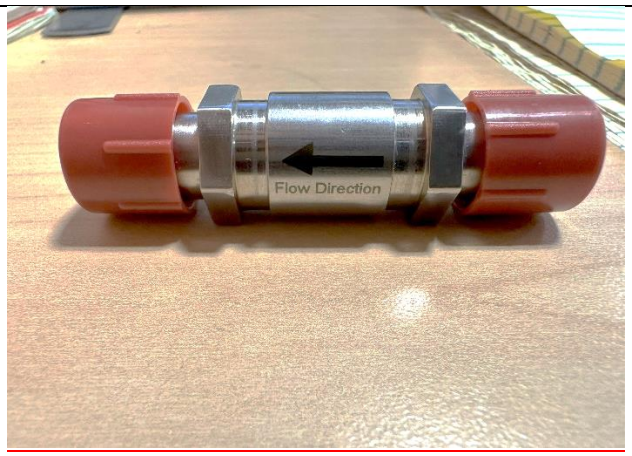
    The only thing that will change the kit setup will be as follows:

    Remove the pulse damper from the packaging tube and remove the red caps on both ends of damper.

    Locate the supplied 45 degree female to female AN adapter.

    Hand thread the pulse damper to the supplied Nostrum low pressure line then torque the pulse damper to the supplied low pressure supply line to 20 Nm (15 ft-lb) using an 18mm crow's-foot socket adapter while holding the hex of the pulse damper with the 17mm open end wrench. Make sure the flow direction arrow points towards the pump as indicated in the photo and on pulse damper.

    Once the pulse damper is secured and torqued to the supplied low-pressure line, hand thread on the supplied female to female 45 degree AN fitting adapter to the pump and pulse damper outlet. Orientation will match the photo to the right.



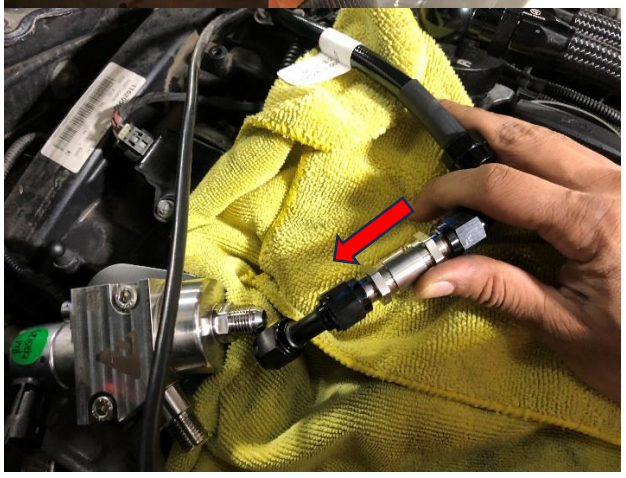


Figure 30

31. Once the pump to pulse damper fitting is hand tight, finish the process by torquing both ends to 20 Nm (15 ft-lb) using the 18mm crow's- foot while holding the pulse damper hex with the 17mm open end wrench.	
	Figure 31
32. Take the Nostrum low pressure line and connect it to the female quick-connect stock feed line at the back of the engine.	
	Figure 32
33. Install the bracket on the Nostrum low pressure fuel line assembly in the same location as where the stock fuel line bracket was located. Secure the bracket using the stock E6 Torx head fastener. Using an E6 Torx socket, hand tighten only being careful not to strip the plastic it threads into.	
	Figure 33

34. Using the Nostrum supplied electrical adapter harness, connect the adapter to the factory harness connector for the high-pressure pump.

Figure 34

35. Connect the other end of the adapter harness to the Nostrum high pressure fuel pump flow control/spill valve solenoid connector as shown.

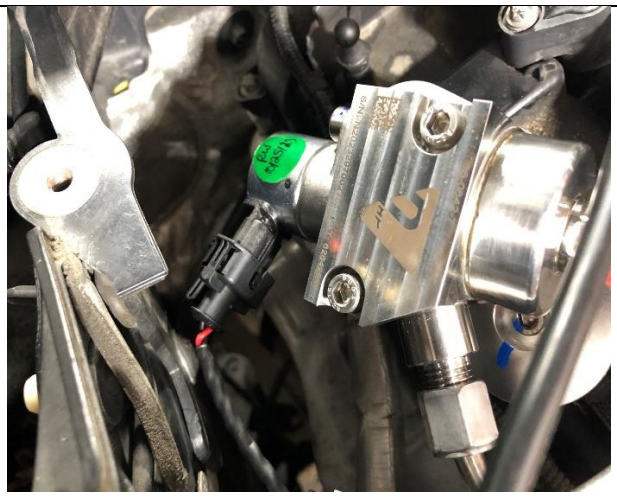


Figure 35

36. Reassemble the vehicle in reverse order of assembly. Check for leaks after first cranking of vehicle. Tighten any leaks if present and recheck.

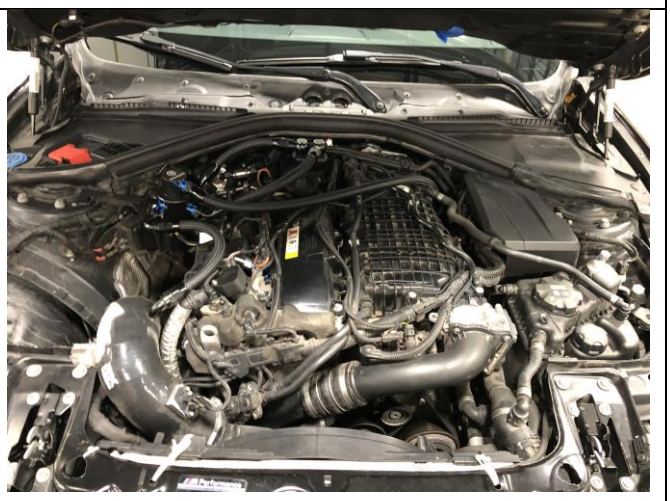


Figure 36

Hardware installation is complete.

Calibration

Do not start your vehicle, this product requires calibration. Obtain the required vehicle calibration file from your tuner or refer to the Nostrum tuning guide to make the necessary changes prior to starting the vehicle. Once calibration is complete, please proceed to the next step.

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 no leaks are found, proceed to step 3. If leaks are found, correct the leaks before restarting the leak check process.

3. Cycle the key to the ignition position 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 the vehicle starts proceed to step 5. 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 no leaks are present, proceed to step 4. If leaks are found, correct the leaks before continuing the process.

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

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

6. Installation is complete!

NOTE: a fault code may appear at the first key cycle due to the extended cranking 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: Please check for fuel leaks after driving the car and letting it cool for an extended period of time, fittings may loosen after the first heat cycle due to thermal expansion and contraction. Retighten fittings if needed.

For additional technical & software support please contact:

Email: support@nostrumshop.com
Phone: 734-548-8677 (during normal business hours)

Revision	Notes	Date
0.1	Initial installation guide w/o optional pulse damper	3/21/2024
0.2	Added optional pulse damper installation	3/21/2024
1.0	Public release	3/25/2024