

## 9-441-C10x-0910

# DeatschWerks 2008-14 Subaru WRX, 2008+ Subaru STi, 2005-09 Subaru Legacy GT, 2004-06 Pontiac GTO DW440 Brushless Pump Installation Guide



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## Included Parts:

- DW440 Brushless 440LPH Fuel Pump
- 12" Pump Electrical Connector
- Electrical Bulkhead w/Retainer and O-Ring
- Fuel Sock Pump Pre-Filter
- 15mm O-Ring
- 14.5mm O-Ring
- Pump Outlet Spacer
- Pump Outlet Extender
- 1cc Super Lube

**PLEASE READ:** This guide is intended to aid in the installation of our products. It is recommended that factory manuals or instructions are followed to remove the fuel pump assembly from the vehicle. Instructions in this guide are generic and are intended to aid in the installation of a DW440 Brushless fuel pump. The factory manual should supersede any contradiction.

**Note:** The DW440 pump is larger in diameter than the OEM pump, to fit the DW pump into the assembly you will need to remove a piece of the plastic center section, a Dremel style tool will make quick work of this job. The Subaru and Pontiac lower pump modules are identical, the pump install steps will work for both modules. The only difference between the two models will be the placement of the wiring bulkhead, those steps will be separated below.

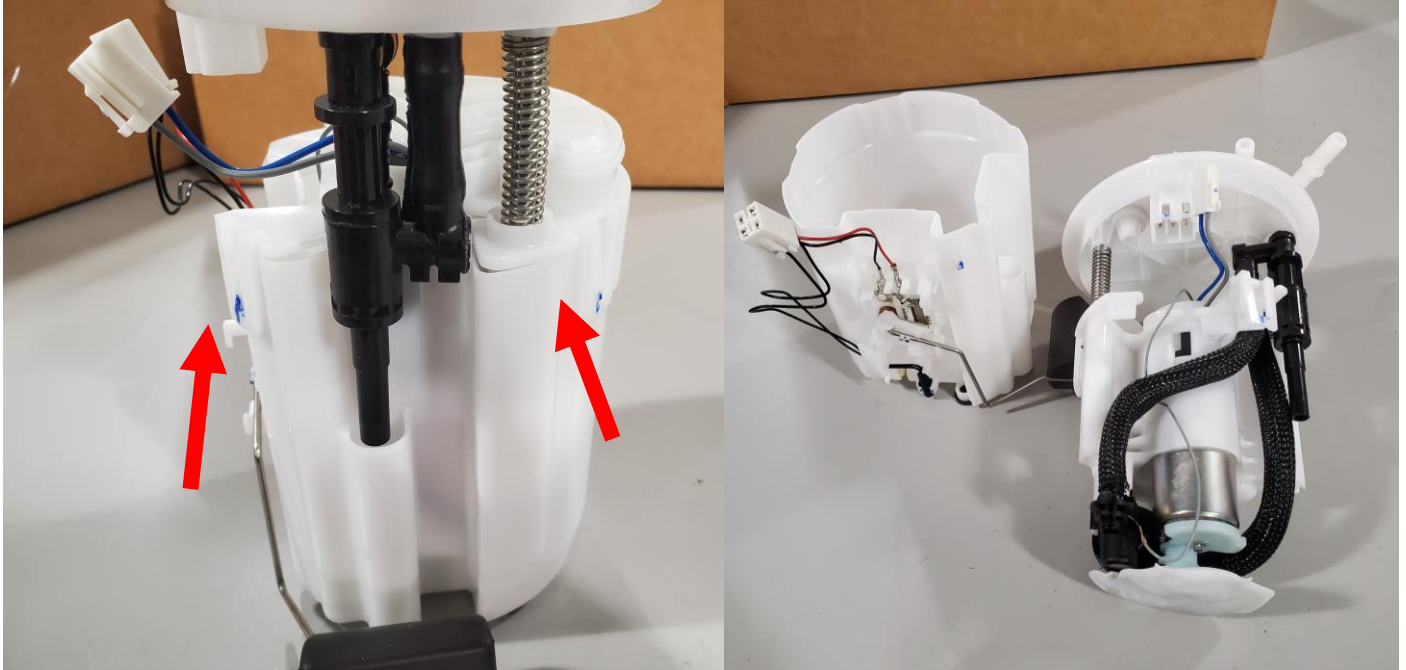
**Wiring Note:** The Pontiac GTO does not use a factory PWM signal, refer to the Two Speed C102 for GTO wiring applications.

Below is a picture of some suggested tools that will make the installation process easier.

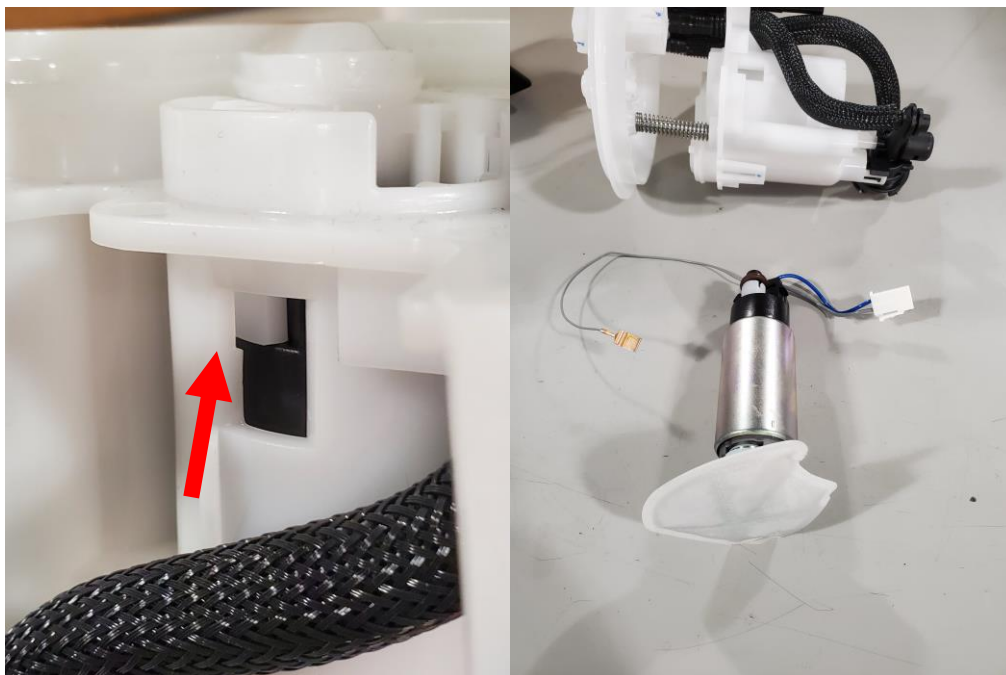


## Disassembly of OEM Module

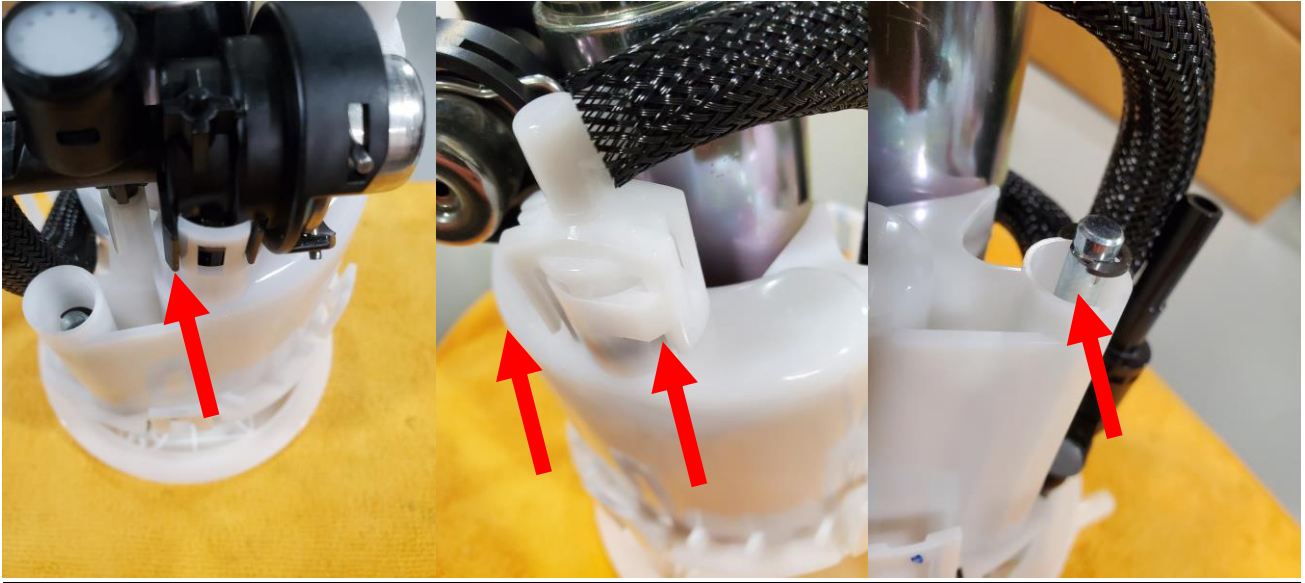
1 – Unplug the fuel level sending unit and fuel pump wiring from the top hat, lift the four latches that hold the center section to the bucket to separate the bucket from the rest of the assembly.



2 – The factory pump is held in by two clips on either side of the outlet and connector, use a small flathead screwdriver or a pick tool to pry these away while pushing down or pulling out on the pump.

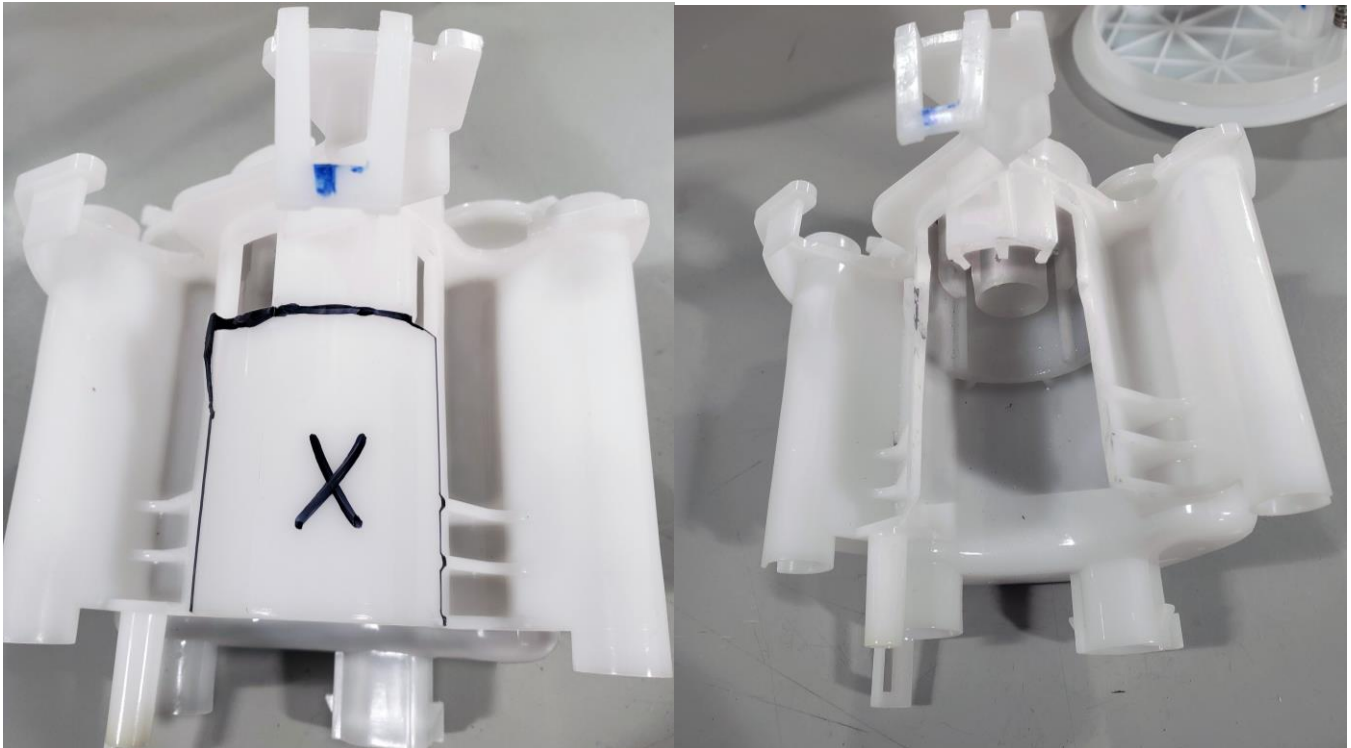


3 – To separate the top hat from the center section, you will need to unclip the PRV, the venturi feed and the e-clip that holds the support rods in place. Use a pick or small flathead to pry these tabs away to release the PRV and feed, use a pick or plier to remove the e-clip being careful not to let it fly away.



### **Modifications to the Module**

4 – The area you need to remove is marked below; you need to cut from the outside of the window you use to unlatch the pump straight down on either side. Then cut across the bottom of those windows to remove a square.



## Installation of the DW440 Pump

5 – Install the provided filter sock, and spacer on the outlet of the pump, then install the smaller of the two O-rings above the spacer. Install the larger O-ring on the outlet extension piece then install the extension on the outlet of the pump. Lubricate the smaller O-ring to help installation of the outlet extension.

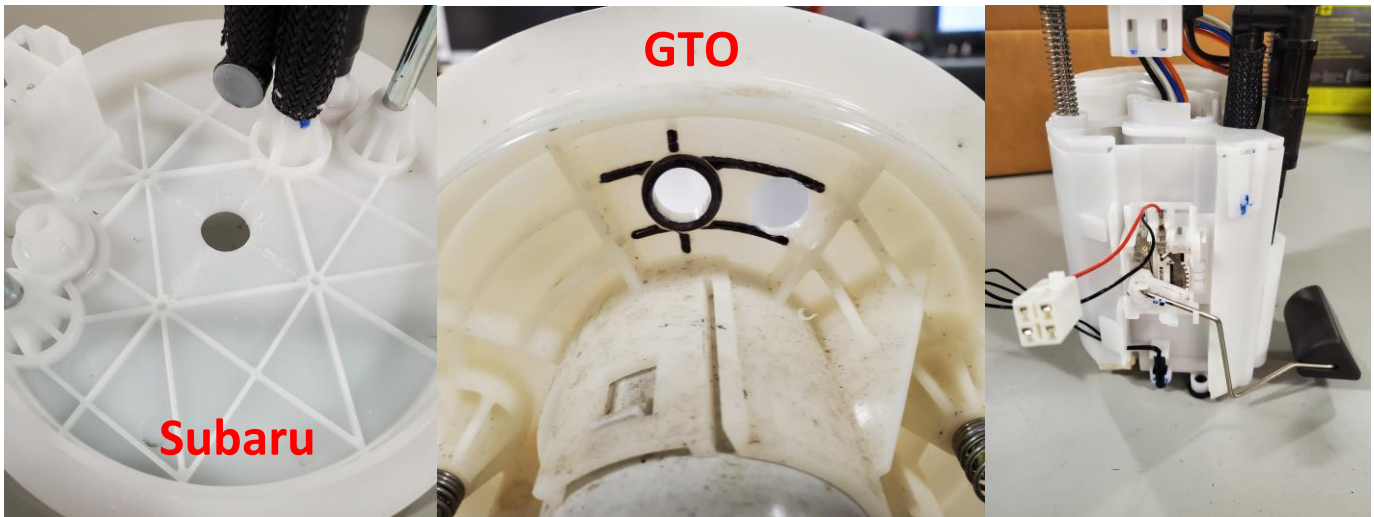


6 – Insert the pump into the center section, lubricate the O-ring to aid installation, the outlet extension should be fully seated into the center section. It is also necessary to install the wiring harness currently and fish it through the opening for the OEM harness.



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7 – To make room for the bulkhead to install in the top hat, you will need to remove some of the webbing from the underside of the top hat to make room for the metal retainer. Once you have removed the webbing you can reassemble the module. Next, reattach the PRV, Venturi Feed and the support rods to the center section, then clip the center section back into the bucket. To keep the new DW440 pump in place, there is a slight tension on the bucket and center section, you will need to apply a small amount of force to re-latch the four clips around the bucket.



### Installing the Bulkhead

8 – The DW440 Brushless pump requires its own 4 wire bulkhead to power the pump. Locate a hole in the top hat that has no obstructions on the bottom side and drill a 10.3mm or 13/32" hole for the electrical bulkhead. The bulkhead uses an O-Ring on the top to provide a seal and a metal push style retainer on the bottom side to secure. The metal retainer also acts as a latch for the electrical connector, make sure the latch is facing the pins of the bulkhead (see Picture).

**Note:** For Pontiac GTO use the OEM pressure sensor hole for the bulkhead and drill a new hole for the pressure sensor. This step is needed for clearance for the metal retainer underneath.

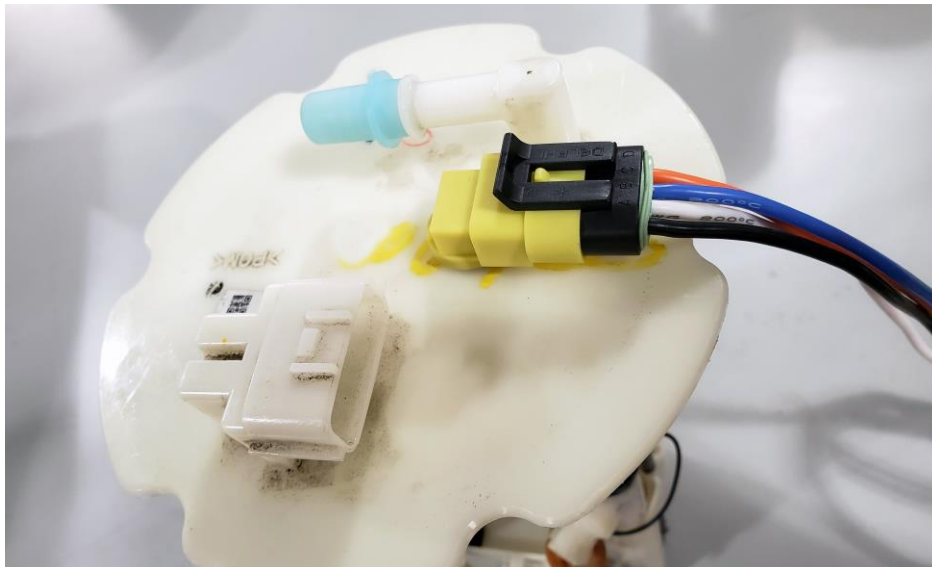


9 – The factory fuel pump power and ground wires can be removed or covered so they will not short on the module. Attach the supplied Brushless pump harness to the bulkhead and the DW440 pump. Reattach the fuel level sending unit wiring and the static ground wiring.



### Wiring the Controller and Pump

10 – Plug the 4-wire harness from the controller into the bulkhead wiring connector.





11 – Plug the 3-wire pigtail harness into the controller.



## Wiring the Two Speed High/Low Version (PN# 9-441-C102-09xx)

12a – The Two Speed version of the DeatschWerks Brushless controller, gives you the ability to run two staged pumps in one. A low flow pump for idle and light duty driving, and a high flow pump for maximum performance.

**Note:** To bypass the Low Speed setting permanently ground the White wire, when power is applied to the controller, this will permanently switch the pump to the full 440LPH High Speed mode.

*(This is the same function as the discontinued C101 part number)*

- Attach the **Red** wire on the controller to a known solid +12v key on switched power source.
- Attach the **Black** controller wire to a known solid clean ground source.
- Attach the White wire to a switched ground to activate the High flow mode.
  - You can activate this many ways, popular solutions would be a pressure activated switch like a “Hobb switch”, a second fuel pump output on your ECU, or a RPM/WOT switch could also be used to trigger the high flow mode. All options should be switched ground.
  - Low flow mode is 68% duty cycle outputting 265 LPH at 40psi.
  - High flow mode is 100% duty cycle outputting 440 LPH at 40psi.



## Wiring the PWM Version (PN# 9-441-C103-09xx)

12b – The PWM version of the DeatschWerks Brushless controller, gives you the ability to use your ECU's Pulse Width output signal to infinitely adjust the pumps output from low to max flow. Wiring the C103 controller can be tricky, knowledge of your cars factory fuel pump wiring system is mandatory. If your car is not factory PWM or your Standalone ECU cannot control a PWM output, you will need to use the C102 controller instead. Most applications will use a ground pulsed signal provided by the ECU or an separate fuel pump control module.

- Attach the **Red** wire on the controller to a known solid non pulsed +12v key on switched source.
- Attach the **Black** controller wire to a known solid non pulsed ground source.
- Attach the White wire to the PWM output on your ECU or Fuel Pump Control Module.
  - The 2008-2014 Subaru WRX and STi use a Light Green Wire from the ECU to the FPCM to control PWM Output.
  - The FPCM is located in the passenger rear trunk/cargo area.



## Flushing and Priming the System

- 13 – Reinstall the assembly into the fuel tank and attach a length of hose to the outlet of the pump assembly allowing it to drain into a fuel safe container and prime the fuel pump assembly
- 14 – Cycle the key to the on position as many times as required to prime the pump assembly and evacuate the air introduced during the pump installation process
- 15 – Attach supply line to the outlet of the pump assembly

