

9-441-C10x-0907

DeatschWerks 2011-2014 Ford Mustang and F-150 DW440 Brushless Pump Installation Guide



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Included Parts:

- DW440 Brushless 440LPH Fuel Pump
- 8" Pump Electrical Connector
- Electrical Bulkhead w/Retainer and O-Ring
- Fuel Sock Pump Pre-Filter
- 6" x 3/8" Convoluted Tube
- 5" x 1/8" Convoluted Tube
- 13.3mm Hose Clamps (x2)
- 6.1mm Hose Clamp (x2)

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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 2011-2014 Ford F-150 assembly is similar to the Mustang assembly, use the following steps to remove/install the DW440 pump, the location of the venturi hose and the placement of the wiring bulkhead will be different than the Mustang due to the change in module design, both are shown during the installation step.

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



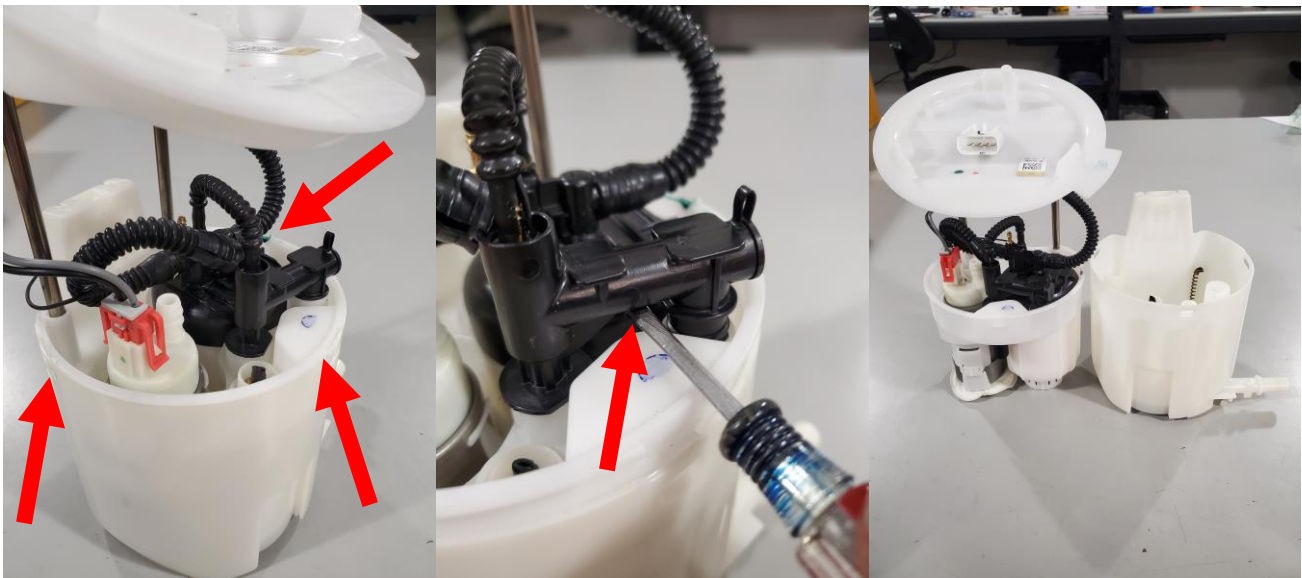
Disassembly of OEM Module

1 – Remove the factory feed and venturi hoses, the venturi hose must be removed to separate the bucket from the center section. The kit comes with replacements for both hoses.



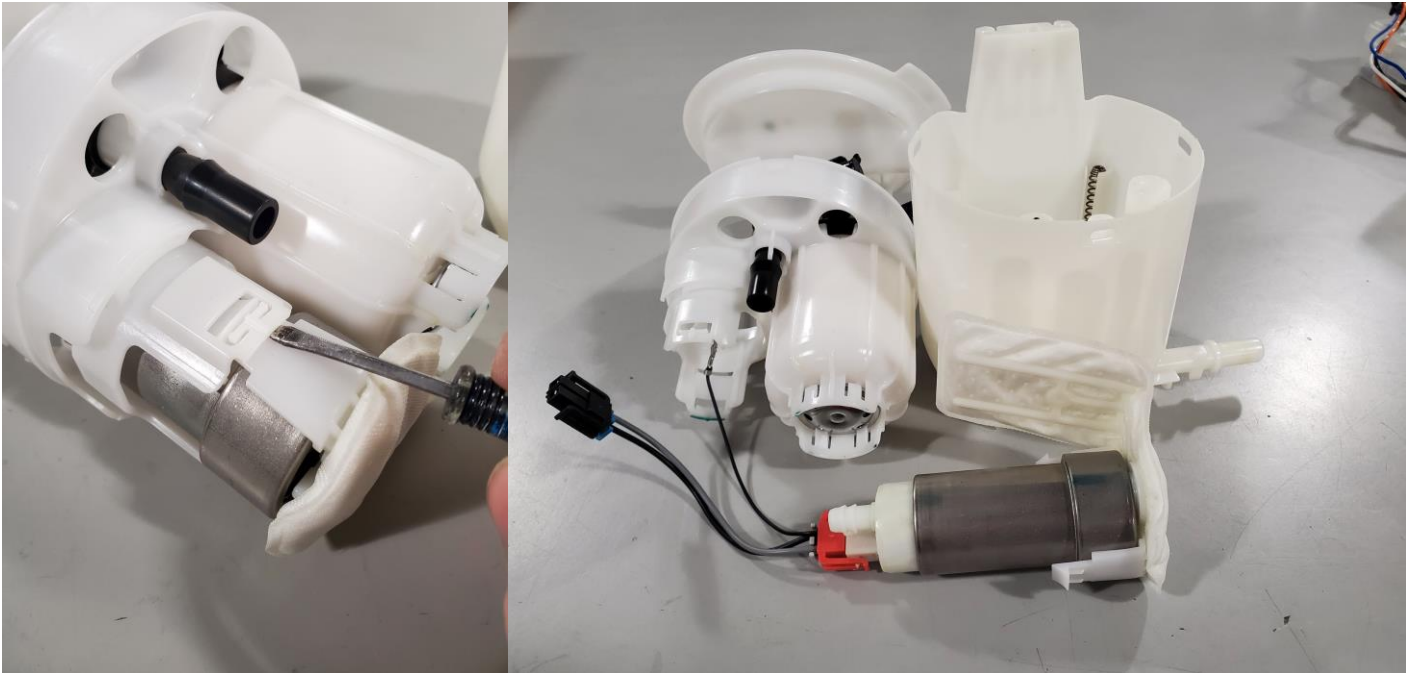
2 – Separate the bucket from the center section by unlatching the 3 clips around the edge of the bucket. You will need to pry up the venturi jet assembly to be able to separate the bucket from the center section.

Note: The F-150 does not have the external venturi jet assembly skip this step.



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3 – Remove the factory pump, filter and wiring harness by prying the latches on either side of the filter sock.

**Installation of the DW440 Pump**

4 – To accommodate the slightly larger diameter of the DW440 pump, the pump retainer cage needs to be split to expand.



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5 – Prep your DW440 pump by installing the supplied filter sock, 3/8" convoluted tubing. Secure the 3/8" hose with the supplied 13.3mm clamp. Slip the pump assembly into the center section.

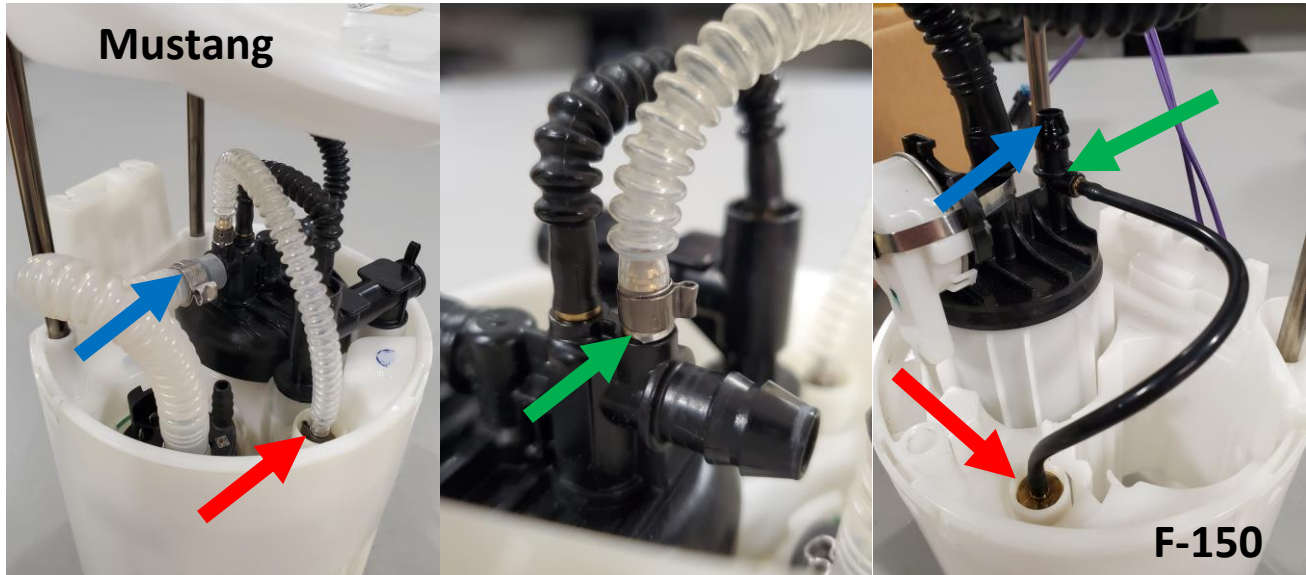


6 – Attach the supplied 1/8" venturi hose to the venturi jet inlet on the bucket and clamp with the 6.1mm clamp. Install the center section into the bucket. Make sure to snap the venturi jet assembly back into place.



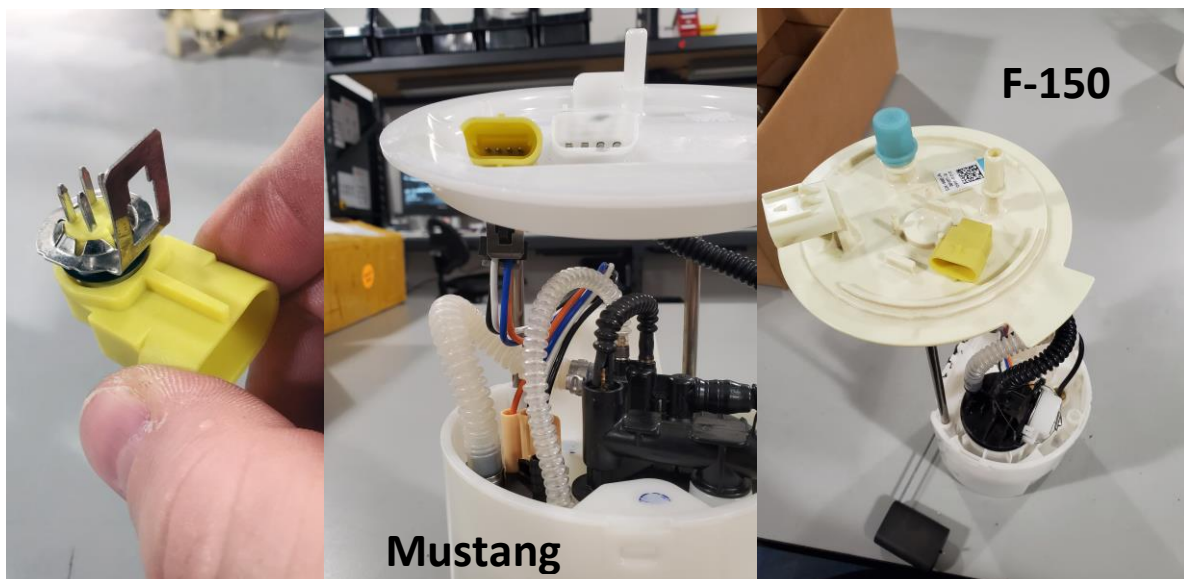
7 – Attach the end of the 3/8" tube to the inlet on the filter assembly and secure with the remaining 13.3mm clamp. Attach the remaining end of the 1/8" venturi hose to the outlet on the filter assembly.

Note: The F-150 venturi hose is routed different than the Mustang, see Picture with matching colored arrows.



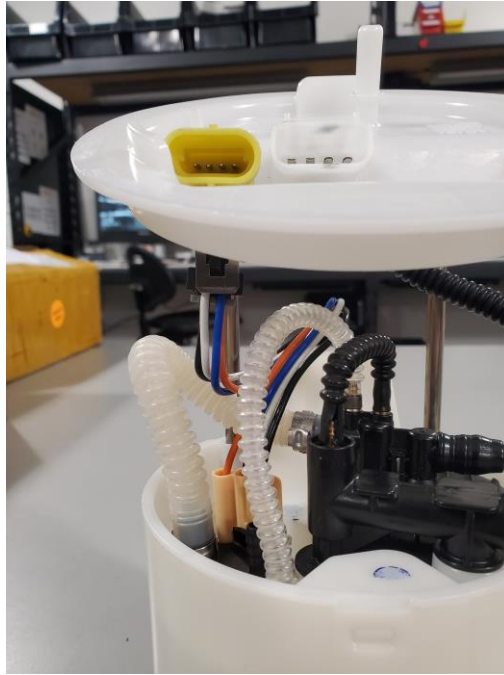
Installing the Bulkhead

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).



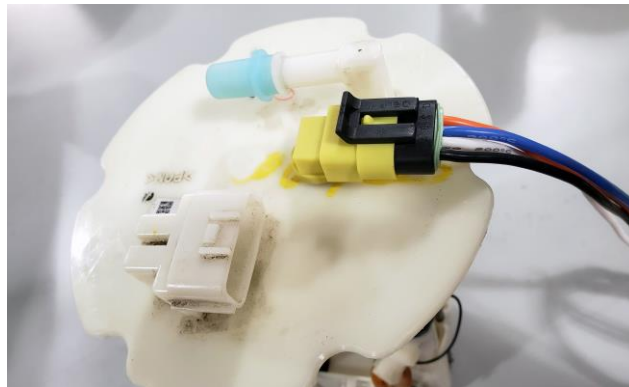
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9 – The factory fuel pump power and ground wires can be removed or covered so they will not short on the module. Attach the supplied Brushless pump harness to the bulkhead and the DW440 pump.



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.



2011-2014 Ford Mustang/F-150 DW440 Brushless Installation Guide**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 DW controller will accept a pulsed ground signal from 50 to 100k hertz.
 - Open is 0% duty cycle, and Ground is 100% duty cycle.
 - Input range is 5% to 95% duty cycle, 0-5% defaults to Off, and 95%+ defaults to 100%.
 - The signal must be pulsed for the pump to activate, the pump will not turn on if you permanently ground the white wire.
 - If your ECU/Control module outputs a pulsed positive signal see **Step 12c** for options to convert the positive signal to a ground signal.

Note: *The DW controller memorizes the last signal it received and will continue flowing at that duty cycle until it receives another signal. Depending on your application the OEM prime function could cause the pump to continue to run on, until either the engine is started and receives a PWM signal or power is cut to the controller.*



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12c – If your ECU outputs a pulsed positive signal it will have to be converted to a ground signal before you can use the DeatschWerks Brushless Controller. Follow the wiring diagram below to install the signal adapter.

- **Red** wire attaches to the factory positive PWM signal wire from your car.
- White wire attaches to the white wire on the DW Brushless controller.
- **Black** wire attaches to ground.



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

