

9-441-C102-0903

DeatschWerks 1989-1993 Mazda Miata MX-5 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
- 4" x 5/16" Ethanol Safe Rubber Fuel Hose
- 5/16" Adjustable Hose Clamps (x2)
- 2-1/4" Adjustable Hose Clamp

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.

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



Disassembly of OEM Module

1 – Remove the wiring, filter sock, and remove the pump from the assembly.

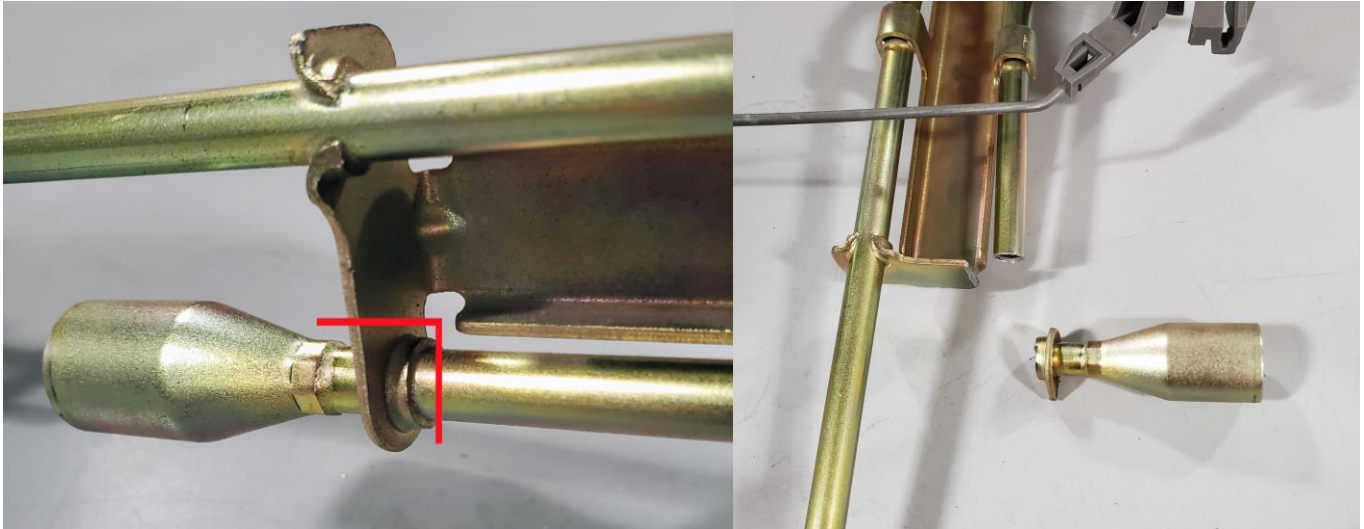


2 – Attach the supplied filter sock to the bottom of the DW Brushless fuel pump, secure the filter sock with the included star washer, this can often be a pain to install, it can be made easier by using a socket to push evenly on the edges of the washer.



Modifications to the Assembly

3 – In order to install the DW440 pump the OE fuel pump inlet must be modified, the OEM pump sealed with an O-ring, the DW440 pump is too short to re-use this style and must be converted to hose style. Using a hacksaw or Dremel style tool carefully cut the bell-shaped end off the feed line. See drawing for details.



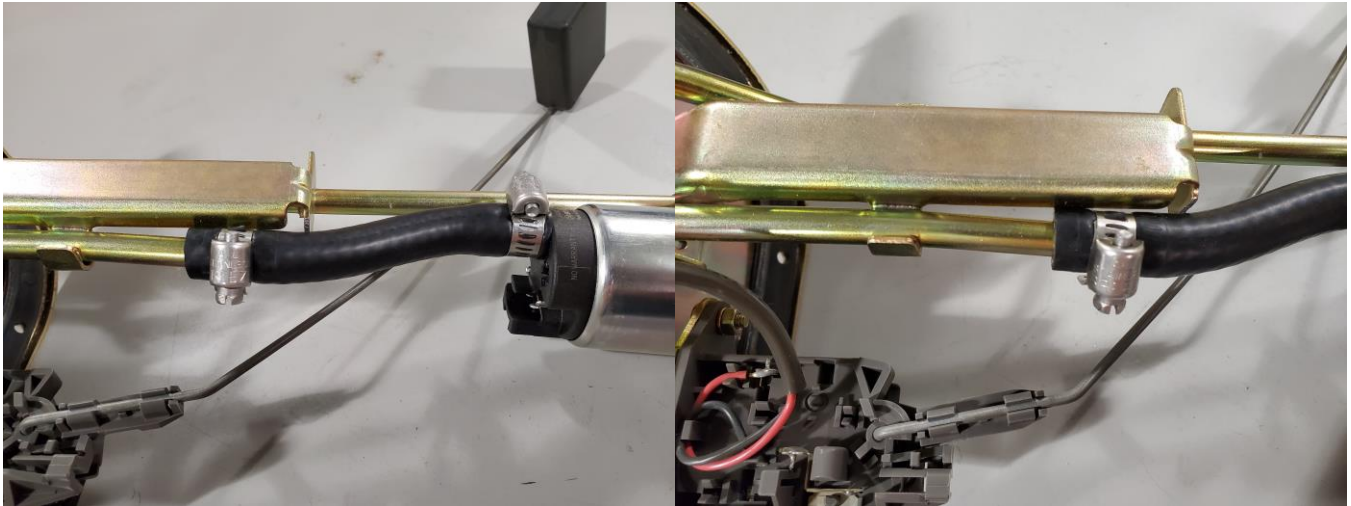
Installation of the DW440 Pump

3 – Install the pump onto the hanger assembly, orientate the pump so that the base of the pump sits flat on the lower mount portion and the filter sock hangs through the opening. Secure the pump in place with the supplied 2-1/4" adjustable hose clamps.



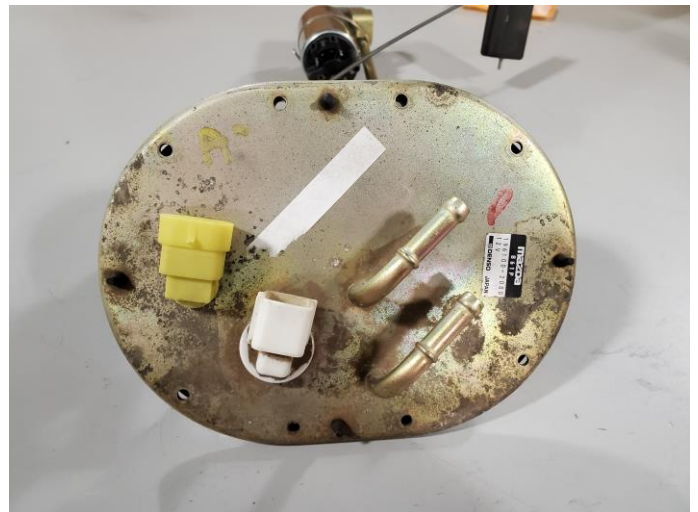
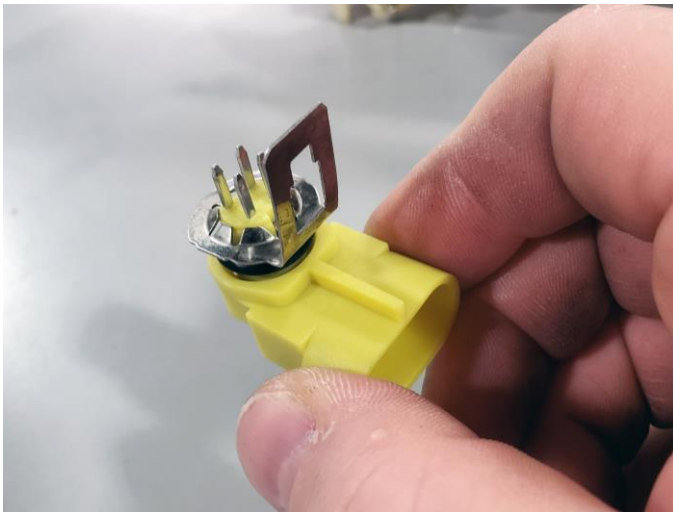
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4 – Install the supplied fuel safe submersible rubber hose between the pump and the module, use the two supplied adjustable hose clamps to secure the hose in place. The supplied hose is 4 inches long, it may be cut down to fit as needed. It may also be necessary to slightly bend the fuel feed away from the module to allow room for the fuel hose and clamp.



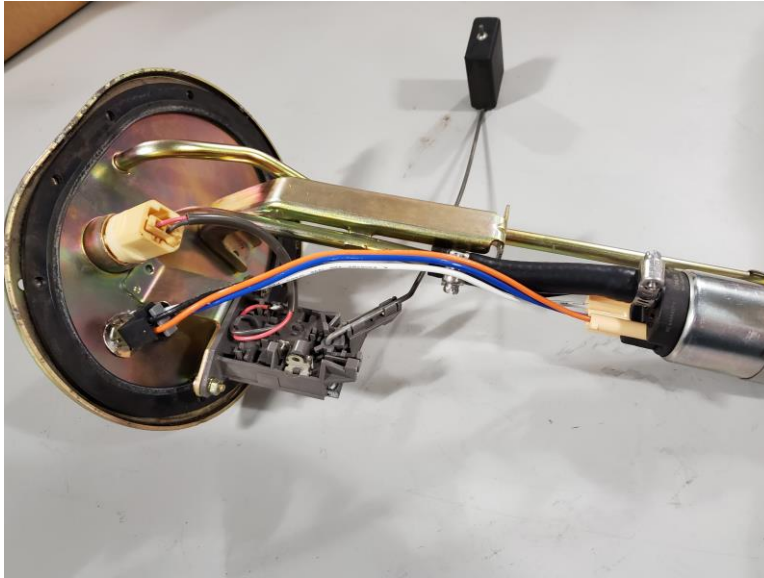
Installing the Bulkhead

5 – 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)



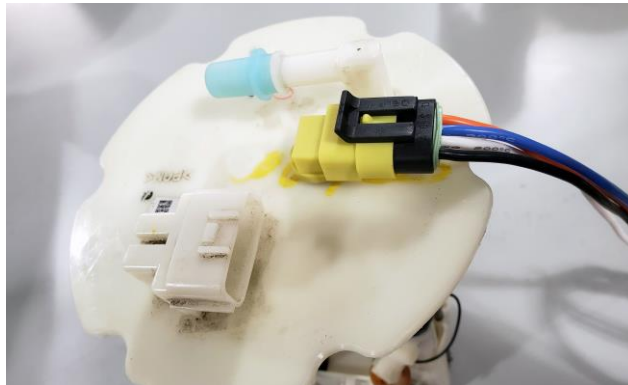
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6 – The factory fuel pump power and ground wires can be removed or covered so they will not short on the module. Attach the supplied Brushless pump harness to the bulkhead and the DW440 pump.



Wiring the Controller and Pump

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



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



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

13a – 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.



Flushing and Priming the System

14 – 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

15 – 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

16 – Attach supply line to the outlet of the pump assembly



For additional technical support please contact us at: TechSupport@Deatschwerks.com or 405.233.3991