VaporWorx

We Give You Gas

WARNING

Working with fuel is dangerous. If fuel is handled improperly it can lead to fires and death. It is imperative above anything else that all appropriate safety measures be used to control the fuel and any ignition sources, including static electricity, heat, sparks, and any other sources. Proper high-pressure fuel lines and connections must be used in accordance to the manufacturer's specifications and routed away from any potential sources of heat, ignition, and protected from mechanical damage. If you are unsure about your work or safety, stop work immediately and consult with a qualified automotive technician and/or safety official.

Modifying the Fore Innovations transfer pump bypass hole for use with VaporWorx PWM systems.

In order for PWM to work with any closed-loop control system, a small amount of fuel is needed to pass through the pump(s) during operation to allow for smooth control. In the factory OE fuel modules this high pressure fuel is used to drive the transfer suction pumps that moves fuel from remote sections of the tank that will not gravity feed to the main module, and to help keep the module full. In the case of the TI 450lph pumps, this small amount of fuel needs to be increased due to the increased size of the pump.

1) Note on your Fore Innovations Fuel Pump Module the fuel pump bridge support, mid-span platform, and bulkhead hat as shown in Photo 1. The mid-span platform will need to be removed in Steps 3-6 below.
2) Exercise care to not place excessive loads/strain on the fuel pump outlets. They are plastic and can break.
3) Remove the two screws that hold the pump bridge to the mid-span platform as shown in Photo 1. Slide the bridge toward the large end of the pumps like that in Photo 2.
4) On triple fuel pump modules one pump will need to be removed to gain access to the hole that needs to be drilled. Remove the pump that is not shown in the photos.
5) On the top of the hat there is a single screw that secures the mid-span support. Remove the screw shown in Photo 3. Support the mid-span platform by hand so it does not fall off. The mid-span platform has o-rings and dowel pins between it and the hat mounting surface.
6) Remove the mid-span platform being careful to keep the o-rings and dowel pins in position. The result should be like that in Photo 4.
7) Note the small hole shown in Photo 5. Using the drill bits provided, increase the size of the hole. For TI450 pumps, use the 0.041" bit, for TI525, use the 0.051" bit. Be careful, take your time, and use a drill cutting lubricant to make the cut. Once the drill breaks through to the manifold passage, be sure to clear the hole of chips by moving the drill bit in and out of the hole, spinning the drill bit, etc. The hole must be clear of chips and burrs.
8) Check the position of the o-rings and dowel pins in the mid-span platform. Be sure all are in place and clean like that in Photo 6. Reinstall the platform.
9) Re-assemble the fuel module in the reverse order.

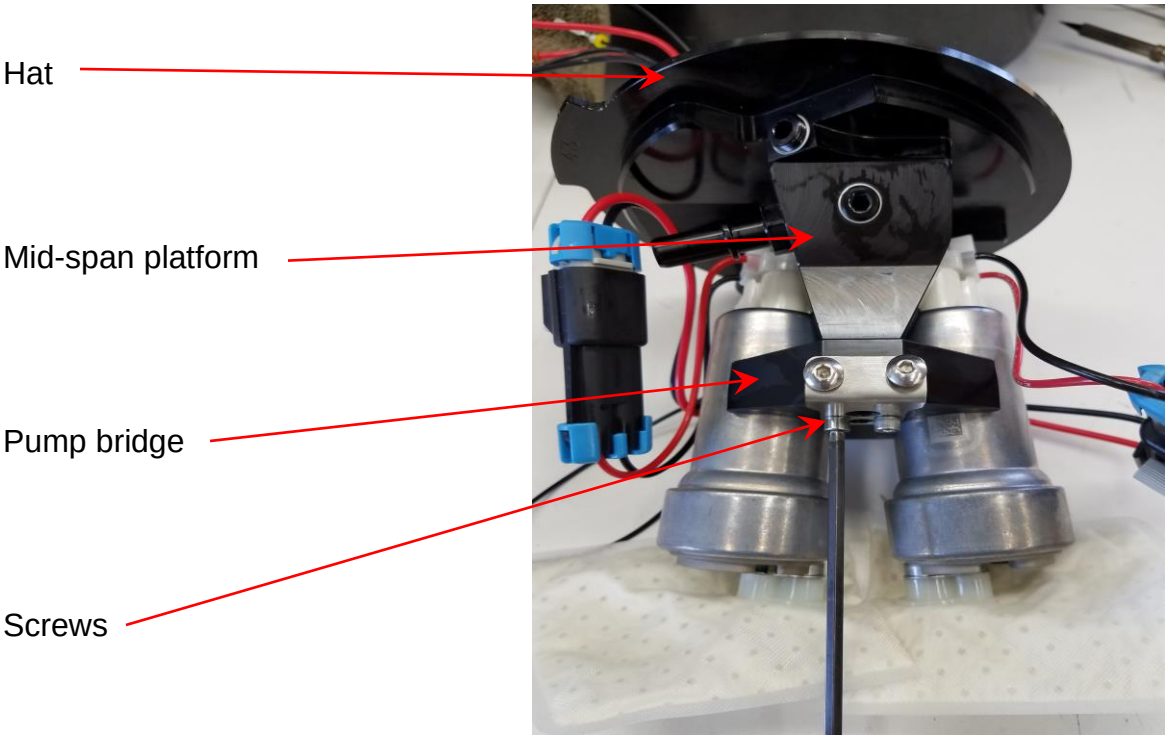

Photo 1. Note the hat, mid-span platform, and fuel pump bridge. Triple fuel pump systems will require the removal of one pump.

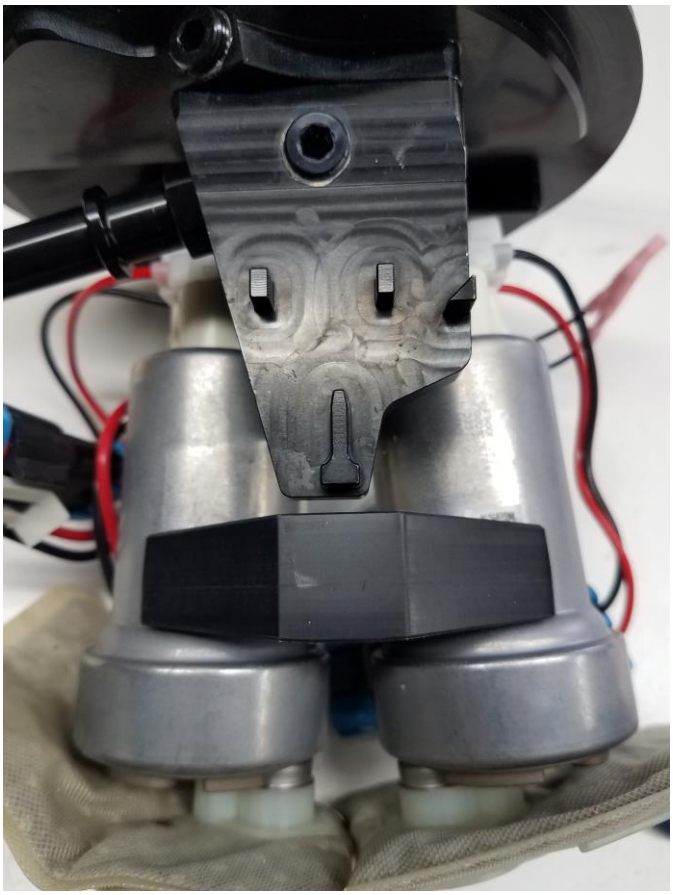

Photo 2. Slide the fuel pump bridge toward the large end of the pumps.

Photo 3. Remove the single screw from the top of the module hat. Support the mid-span platform by hand so it does not fall off.

Photo 4. The disassembled module should look like this.

Photo 5. Using the drill bits provided, drill out the hole as shown. For TI450 pumps, use the 0.041” bit. For TI525 pumps, use the 0.051” bit. Only increase the size of this hole, do not drill past the manifold passage and into the hat. A pin vise works well to hold the drill bit. BE SURE TO USE THE BIT TO CLEAR THE HOLE OF BURRS AND CHIPS.

Photo 6. Confirm that all of the o-rings and dowel pins are in place and seated correctly. Some versions may appear a bit different, but the premise is the same.