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.

Thank you for your purchase of the VaporWorx fuel module speed control system. These "Smart" returnless systems are designed to work with the GM 5th-generation Camaro LS3/L99 (P/N19208719 and 13585454), ZL1 (P/N 13579899 and 19260557) or the Cadillac CTS-V dual pump (P/N 19207950) fuel modules. They are also compatible with many Ford fuel pumps that utilize a returnless pulse width modulated factory fuel control system (check with VaporWorx for compatibility.) These are stand-alone systems and require minimal ECM commands: Only a 12+ turn on signal is needed. Hence, it will work with any EFI control system.

The purpose of the VaporWorx fuel module control system is to allow the fuel module pump(s) to adjust their speed based on the fuel demand. As fuel demand increases, the VaporWorx pulse width modulation control will also increase the fuel pump speed. As fuel demand decreases, so will the pump speed. This allows a large pumping system like the CTS-V to run reliably with significantly reduced heat generation. It effectively makes a very large pump seem much smaller during cruise/low fuel demand conditions.

The FlowWorx system will provide a 30-80psi constant pressure at idle after user adjustments are made. It is recommended that 58-60psi be used for most applications. During maximum fuel pump output the fuel pressure will drop approximately 3-4psi. This is similar to the Corvette C5 fuel filter/pressure regulator or any other non-manifold referenced system. This is normal for a non-manifold referenced fuel pressure regulation system. In most cases the full 3-4psi pressure drop does not occur since the pump is not at maximum capacity.

Lower fuel pressure settings can be used. The ZL1 fuel modules can be used at an initial fuel pressure of 42-65psi, CTS-V 42-62psi. For the LS3 fuel module it is recommended to use this module at an initial fuel pressure setting of 58-60psi. The LS3 venturi pumps are not strong enough to keep the module full under certain conditions at pressures lower than 50psi.

In most cases vehicles that are using the C5 fuel pressure regulator, or similar fuel pressure regulating systems, engine re-tuning will not be required. The FlowWorx system is an excellent choice for naturally aspirated engines and many supercharged applications.

The PressureWorx system will provide a 1:1 rate of fuel pressure change with manifold pressure. For these systems initial fuel pressure can be as low as 32psi. Maximum fuel pressure at wide open throttle should be limited to: ZL1 = 65psi, CTS-V = 63psi. Wiring connections to the engine MAP sensor are required, and the VaporWorx kits are specific to each MAP sensor, so ordering must be done accordingly (1bar, 2bar, or 3bar.) To use a PressureWorx system in constant fuel pressure mode, just disconnect the MAP wiring to the VaporWorx controller and adjust the fuel pressure accordingly.

Unless otherwise specified the PressureWorx kits are tuned for 3-bar MAP sensors. Typical 3-bar sensors such as GM P/N 12592525 used on the LSA and ZR1 crate engines are a good choice.

The VaporWorx CTS-V FlowWorx kit is an excellent choice for the GM LSA engine package. Most all of the aftermarket ECM tuning packages are set up for 60psi constant, so matching the LSA to the VaporWorx CTS-V FlowWorx kit is a natural fit.

The choice between the constant pressure FlowWorx or the manifold referenced PressureWorx systems should be decided between you and your engine tuner. The tuner is key to getting the engine running correctly, and his/her input in this matter is critical to making both of your jobs easier.

Fuel Module Guidelines:

Under 600hp @ 60psi, and naturally aspirated: Gen5 Camaro LS3 fuel module.
Under 775hp @ 60psi, and naturally aspirated: Gen5 Camaro ZL1 fuel module.
Under 1000hp @ 60psi, and naturally aspirated: Cadillac CTS-V fuel module.

Under 650hp @ 60psi, supercharged: Gen5 Camaro ZL1 fuel module.
Under 810hp @ 60psi, supercharged: Cadillac CTS-V fuel module.
Over 810hp @ 60psi, supercharged: Twin fuel modules (custom controller required.)

When using the VaporWorx fuel module control system the idea of having a pump that is too big is no longer a concern. Yes, the LS3 pump is less expensive than the CTS-V, but if there is a chance that additional engine power is in the future, then buying the pump to suit those needs now will be less expensive, in both money and labor, in the long term.

VaporWorx was founded on Customer Satisfaction and Service. We strive to treat people and our products the way we would want others to treat us and the products we purchase. That is why our electronics products are tested thoroughly before they are packaged and shipped. VaporWorx stands behind our products for one full year after purchase with a well-stocked repair facility and quick turnaround times. VaporWorx does not want to be the reason you cannot enjoy your car. The Terms of Warranty and Service are as follows:

Limited Warranty

VaporWorx warrants its products to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from date of purchase. If found to be defective as mentioned above, it will be replaced or repaired if returned along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of VaporWorx to the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall VaporWorx be liable for special or consequential damages. This warranty is only valid on products purchased from VaporWorx or their Authorized Dealers.

Service

In case of malfunction, your VaporWorx component will be repaired free of charges according to the terms of the warranty. When returning VaporWorx components for warranty service, Proof of Purchase must be supplied for warranty verification. After the warranty period has expired, repair service is charged based on a minimum and maximum charge rate. (Contact VaporWorx for current rates).

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Instructions for modifying the Cadillac CTS-V fuel module GM P/N 19207950 to work with the Pontiac G8 Platform.

The Cadillac CTS-V fuel module, when combined with the VaporWorx pulse width modulation fuel module control system, has proven to be a reliable and capable performer in Pontiac G8 applications. With only a few modifications the CTS-V fuel module can be used with minimal changes to the chassis and OE wiring. The following instructions will serve as a guide, but like any installation project it is prudent to check what you find vs. the instructions. If you find discrepancies, please contact VaporWorx for suggestions.

Some G8 owners modify the chassis by cutting a hole in the floorpan directly above the fuel module. Wretched Motorsports (found on g8board.com) has a very nice machined ring and bolted plate that makes the installation very clean and allows a bit more overhead room at the same time.

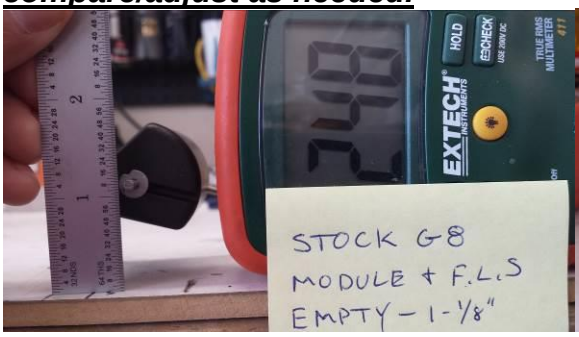
Greg at Pace Performance or Adam at Ace Performance can provide the necessary fuel plumbing fittings. These guys have done the homework to make sure that the installation is correct.

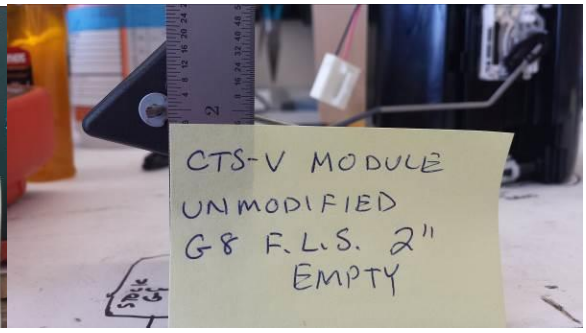
Be absolutely sure that when the fuel module is removed that the fuel level is below the module hat. If the fuel level is higher than the hat fuel will quickly rush out and flood the work area, possibly causing a fire.

Fuel Level Sensor Mechanical Modifications

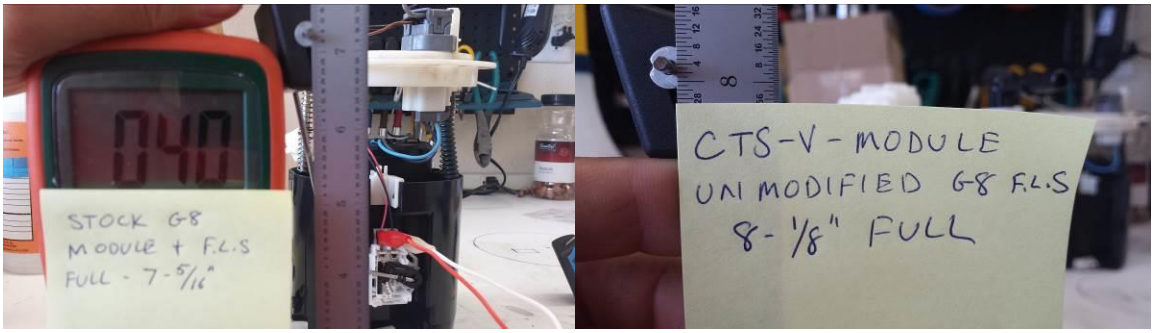
The Pontiac G8 and CTS-V fuel modules, though they look similar, have differences that do not allow the OE G8 fuel level senor (FLS) to have the same liquid level readings when mounted on the CTS-V module. In short, the FLS mounts higher on the CTS-V reservoir. These instructions will outline how to make small adjustments to the OE G8 FLS in order to obtain the correct fuel gauge readings without having to modify any ECM data.

In Photos 1-4 the full and empty readings of the OE G8 and CTS-V /G8 FLS can be seen. Note that the differences in height for both is approximately 7/8". ***Verify your dimensions and compare/adjust as needed.***





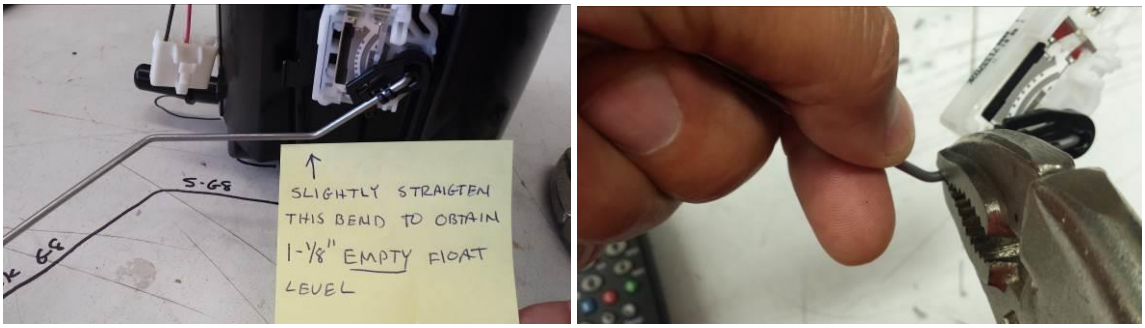
Photos 1 and 2. Empty float height readings for Pontiac G8 / CTS-V fuel modules.



Photos 3 and 4. Full float height readings for Pontiac G8 / CTS-V fuel modules.

Since the height difference between both the empty and full readings is approximately 7/8", what needs to happen is that when the G8 OE FLS is mounted on the CTS-V fuel module the float must move down a similar 7/8".

Step 1: Note the bend in Photo 5. This bend will control the empty float height reading. Remove the float from the fuel module. Using a pair of Vice Grip™ pliers for support like that in Photo 6, slightly increase this bend. Remount the FLS on to the module and measure the empty float height similar to that in Photo 1. Adjust the bend until an empty measurement of 1-1/8" is obtained. Small amounts of bend change will result in much larger changes at the float, so take your time and make small adjustments. Your empty height may differ.



Photos 5 and 6. Make the bend along the same axis as the OE bend. Do not allow bending loads to travel up to the fuel level sensor body.

Step 2: Note the bend in Photo 7. This bend will control the full float height reading. Remove the float from the fuel module. Using a pair of Vice Grip™ pliers like that in Photo 6, slightly decrease this bend. Remount the FLS on to the module and measure the full float height similar to that in Photo 3. Adjust the bend until a full measurement of 7-5/16" is obtained. Small amounts of bend change will result in much larger changes at the float, so take your time and make small adjustments. Your full height may differ.

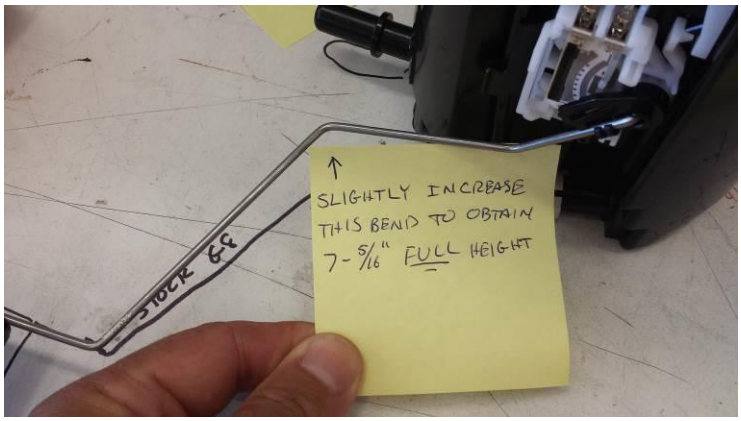


Photo 7. Full float height bend adjustment. Make the bend along the same axis as the OE bend. Do not allow bending loads to travel up to the fuel level sensor body.

Step 3: Recheck the empty float level measurement. Readjust float rod to obtain an empty float level reading of 1-1/8" if necessary. Small amounts of bend change will result in much larger changes at the float, to take your time and make small adjustments.

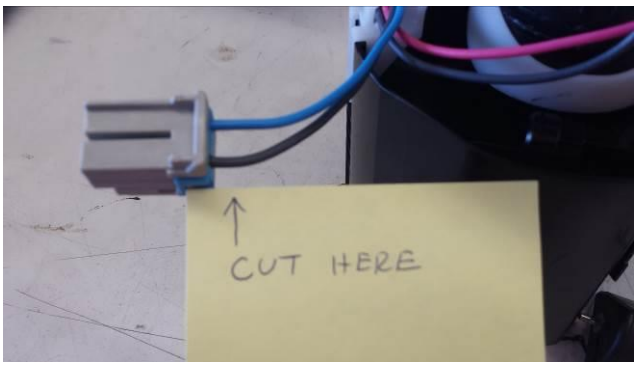
Fuel Level Sensor Electrical Modifications

Step 1: On the underside of the CTS-V fuel module hat, remove the grey-colored connector by depressing the release tab and pulling the connector body away from the hat plug.

Step 2: If not already done, cut the wires near the plug body (Photo 8.)

Step 3: On the OE G8 fuel level sensor, cut the wires right next to the white plug body. Strip the wire and crimp the Weatherpack terminals provided in the hardware kit to the wiring. Solder the wires to the terminals.

Step 4: On the grey plug, remove the blue terminal position assurance (TPA) clip from the plug body. Using a eyeglass screwdriver, very carefully release the locking tab located on the side opposite the wire. By gently prying up on the lock the terminal will release with a slight pull on the wire. See Photo 9 below.



Photos 8: Cut wires near plug body.

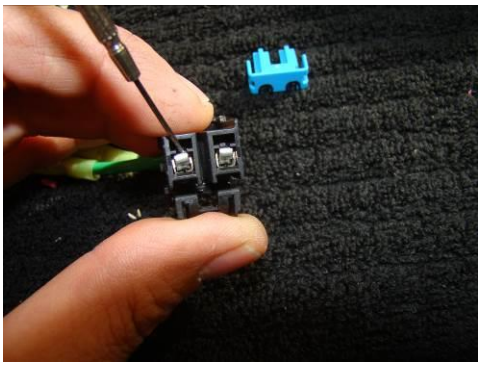
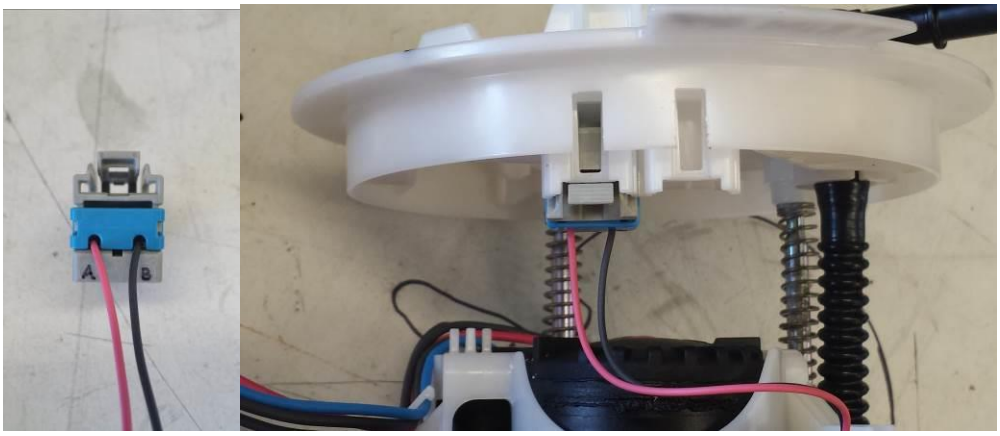


Photo 9: TPA clip and terminal removal.

Step 5: Insert the wired terminals into the grey plug body as shown in Photo 10. The red wire = cavity "A", the black wire into cavity "B" as marked on the plug body. The red wire should line up with the purple wire on the VaporWorx main harness plug. The black should line up with the brown wire. Reinstall the TPA clip.

Step 6) Insert the fuel level sensor into its mounting point and secure into position. Insert the grey plug into the same underhat cavity that it was removed from. It will only install in one of the two cavities. The final installation should look like that in Photo 11.



Photos 10 and 11. Plug and final installation arrangements.

Fuel Pump Electrical Modifications

Step 1: On the underside of the CTS-V fuel module hat, remove the black-colored connector by depressing the release tab and pulling the connector body away from the hat plug.

Step 2: Cut the wires near the plug body in a similar manner as shown in Photo 8.

Step 3: On the black plug, remove the blue terminal position assurance (TPA) clip from the plug body. Using an eyeglass screwdriver, very carefully release the locking tab located on the side opposite the wire. By gently prying up on the lock the terminal will release with a slight pull on the wire. See Photo 9.

Step 4: Note the pump power wires as shown in Photo 12, cut the longer black wire to the same length as the shorter. Do the same for the red/blue wires. The black wires are pump negative, red/blue pump positive. The intent here is to leave the pump wires as long as possible but have their ends stop at the same place.

Step 5: Using the red and black marked PTFE covered short wires in the VaporWorx hardware kit, insert the red wire into cavity “B” and the black wire into cavity “A” on the black plug. Reinstall the TPA clip. See Photo 13.

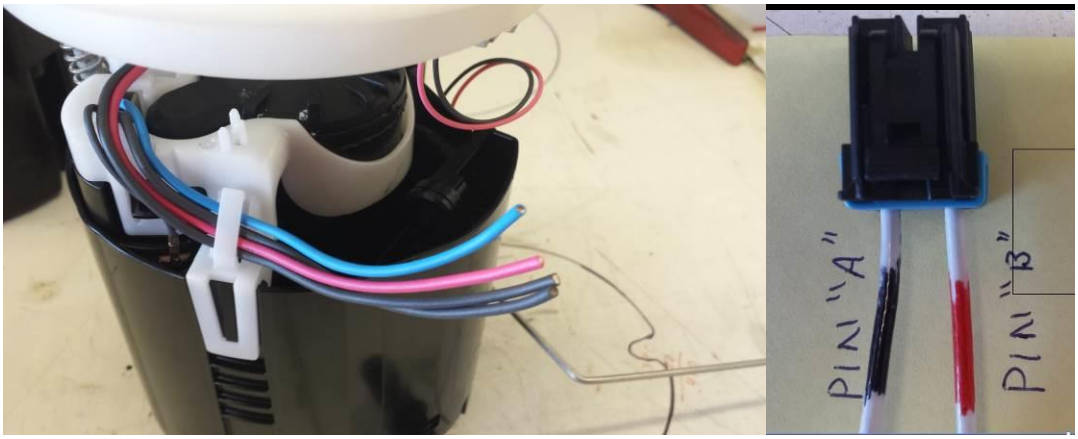


Photo 12: Pump power wiring Photo 13. Pump power

Step 6: Insert the black plug into the same underhat cavity that it was removed from. It will only install in one of the two cavities.

Step 7) Strip approximately 3/8” of insulation from the pump wires. Insert the two black pump wires into the yellow crimp connector on the end of the black plug body wire with the black marking, Pin “A”. Do the same for the pump red and blue wires and the red-marked wire, Pin “B”. Crimp securely. When finished the connections should look like that in Photo 14.

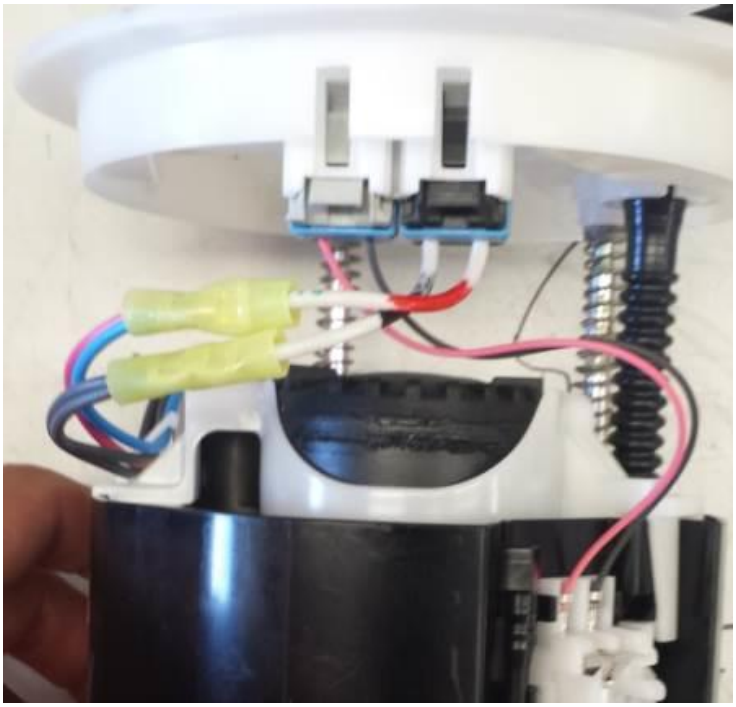


Photo 14. CTS-V module wiring complete and ready for tank installation.

External Wiring Connections

Step 1) Note in Photo 14 the OE G8 fuel module wiring. The violet wire lines up to the fuel level sensor pink, and the brown/yellow to the FLS black. This alignment of colors must remain consistent when the VaporWorx main harness plug is connected.

Step 2) Note in Photo 15 the grey Pump + wire. Cut this wire from the OE harness approximately 1.5” from the plug body. Cut the black wire approximately 1.5” as well and insulate the wire end to prevent shorting.

Step 3) Cut the violet and brown/yellow wires approximately 1.5” from the plug body.

Photo 15. OE G8 fuel module wiring. Note the violet lines up with the FLS pink wire, the brown to the black FLS wire, and the grey wire that will run to the VaporWorx grey wire in the three-pin Molex connector.

Step 4: On the workbench, confirm that the VaporWorx harness plug wiring corresponds to the wiring on the bottom of the module hat. Harness red goes to pumps +, harness black goes to pumps -, violet goes to FLS pink, brown goes to FLS black.

Step 5: Many installations utilize an existing rubber grommet (Photo 16) to route the VaporWorx power harness through the floorboard of the car and in to the passenger cabin. Route the harness accordingly so that it will not come into contact with sharp edges, heat, etc. Use the included braided wrap to help protect the wiring. Use additional loom where needed.

Step 6: Install the modified CTS-V fuel module into the G8 tank using a new O-ring. Secure using the GM cam ring.

Step 7: Plug the white VaporWorx wiring harness plug into the CTS-V module plug.

Step 8: Connect the 14ga grey wire in the OE G8 harness to the grey 20ga wire in the three-pin Molex connector. Solder the connection and use the included heat shrink tubing to seal the connection.

Step 9: Connect the violet and brown wires from the three-pin Molex connector to the corresponding violet and brown/yellow wires in the OE G8 harness. Solder the connections and use the included heat shrink tubing to seal the connections.

Photo 16. Note the how the woven braid routes through the OE grommet and then goes to the other side of the car. The VaporWorx controller is mounted near the battery, so route the wiring to best suit the layout of the car. The fuel pressure sensor wiring can also be included.

Step 10: Install the VaporWorx fuel pressure sensor into the fuel line like that shown in Photo 16. The nipple is 1/8”-NPT so a standard AN6 Male-Male union with an 1/8”-NPT on the side works well. Be sure to apply PTFE paste on just the threads. Arrange the fittings so that the sensor will stay as close to the module hat as possible.

WARNING: The fuel outlet on the module is made of plastic. It will break if excessive strain is applied and it cannot be replaced. Take precautions to not apply excessive strain during installation and confirm that there is sufficient support of the fuel lines once attachement is complete.

Step 11: Install the VaporWorx fuel pressure sensor harness. Included is a woven mesh braid for wire protection. This harness will route to the VaporWorx PWM controller.

Step 12: Finish all wiring and plumbing connections but do not cover the access hole, if applicable.

Step 13: Route the pump power, fuel pressure sensor, and the single blue wire to the VaporWorx controller. Installing the wires intot he supplied woven braid will help reduce the chances of damage.

Step 14: Mounting the controller in the battery area on top of the Radio Speaker Amplifier has shown to work well. Be sure that the mounting screws are not too long and will not damage the RSA assembly.

Step 15: The VaporWorx GT150 six-pin connector provides fuel pressure sensor, fuel enable circuit, and MAP sensor connections. Using the terminals and seals provided as seen in Photo 17, crimp the terminals to the wires as shown. Solder the terminals to the wires if needed.

A: Grey 20ga from the fuel pressure sensor
B: Black 20ga from the fuel pressure sensor
C: Brown 20ga from the fuel pressure sensor
D: Blue 20ga from the ECM fuel pump enable circuit
E: Orange/Black 20ga from the engine MAP (-) sensor*
F: Light green 20ga from the engine MAP (output) sensor*

*Manifold referenced fuel pressure only. Leave disconnected for constant fuel pressure.

Using the ECM fuel pump circuit will allow the safety features of the ECM to remain functional. If only an IGN + signal is used the fuel system may continue running after an accident. If the fuel lines, tank, fuel module, or other components are damaged, fuel may be pumped in an uncontrolled manner. Modern ECM's will shut down the fuel pump enable circuit if engine rotation is not sensed, hence making for a safer condition. It is imperative that these features remain functional for your safety.

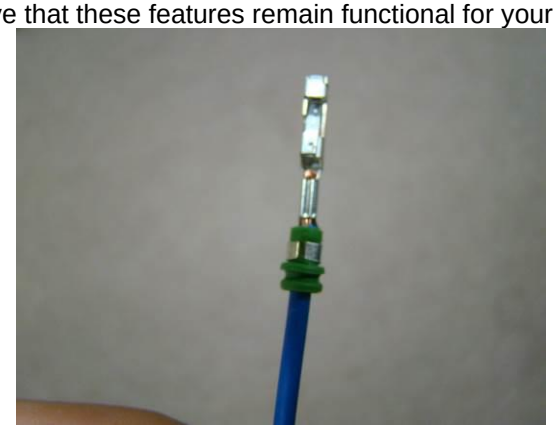


Photo 17: The GT150 connector body, terminals, seals, and terminal positional assurance clip. Six cavity PressureWorx plug similar.

Step 16: Insert the wires into the Delphi GT150 female connector body as shown in Photo 18. The pinout schedule is listed below for the connector body. Capital letters can be found on the connector body on one side only near the wire insertion hole. Just align the colors to the VaporWorx connector.

NOTE: If a constant fuel pressure is desired do not connect the orange/black and the light green MAP sensor wiring to the VaporWorx controller. A 58-60psi setting is typical but a pressure as low as 42psi can be used. The VaporWorx controller comes preset to approximately 58psi with no MAP sensor connection (constant pressure.) For manifold referenced applications, turning the fuel pressure adjustment screw four turns CCW will reduce the at-idle pressure to approximately 42psi with MAP wiring connected.

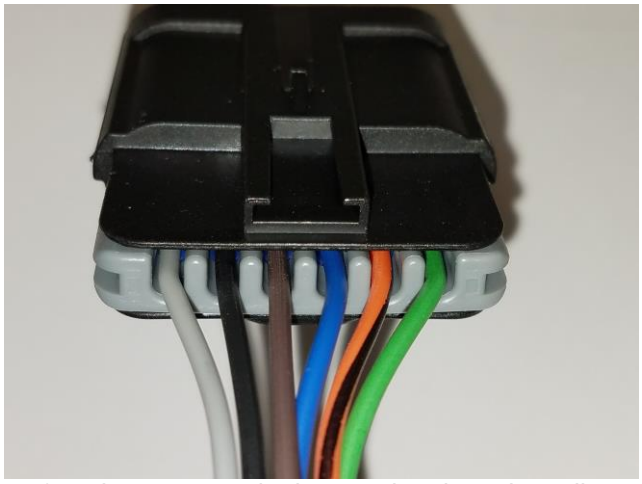


Photo 18: Delphi GT150 female connector (LH). Note that the colors align to the connector on the VaporWorx controller connector.

Step 17: Re-verify that the wires have been properly placed in the connector and that the colors align. This is the single most common assembly error, so please verify your work. If the wiring is incorrect, or the crimp not satisfactory, then the terminals will need to be removed and placed in the proper cavity. This can be done by removing the purple cap on the inside of the connector body face using a small screwdriver to pry up on the sides. The terminal can then be released by very gently prying back on the locking tab that secures the terminal to the body. Once corrected re-install the purple connector body cap. NOTE: The purple cap acts as a terminal locking device. Once the cap is fully seated removal and installation of the terminals is very difficult. The cap has a pre-terminal installation position where it is located in the body but not fully seated. Fully seat the cap once terminal installation is completed.

Step 18: Once the correct wiring has been confirmed, install the grey terminal position assurance clip as shown in Photo 18.

See Diagram 1 for Steps 19-25

Step 19: The labels on the top of the VaporWorx controller lid shows the input and output of the positive side of the controller. Using the supplied WeatherPack fused link, connect one end of the fused link directly to the battery positive and the other to the controller BAT+ input terminal. Ring terminals are provided in the kit. *Do not over-tighten the brass terminal screws on the controller.* If additional wire is needed use a section of the 12ga red from the long wiring harness.

Step 20: Using a short piece of black 12ga wire from the main fuel module wiring harness, make a connection directly from the battery and route it to the controller BAT/PUMP - terminal. A suitable 12ga GXL, SXL, or TXL insulated wire can also be used if there is concern that the wiring to the fuel module may become too short.

Step 21: Attach the red wire from the fuel module wiring harness to the positive output on the VaporWorx controller. Ring terminals are provided. *Do not over-tighten the brass terminal screws on the controller.*

Step 22: Attach the black wire from the fuel module wiring harness to the BAT/PUMP - terminal on the VaporWorx controller. *Do not over-tighten the brass terminal screws on the controller.*

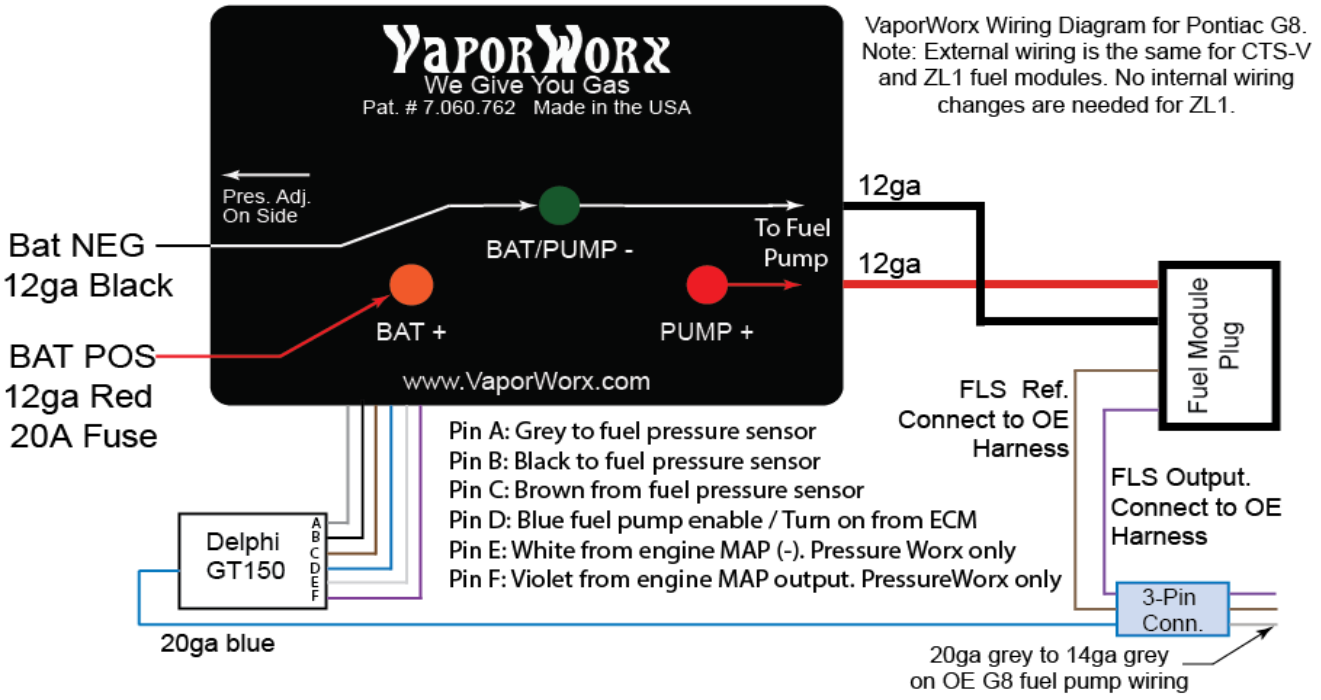


Diagram 1. Basic wiring layout for the VaporWorx controller. The wiring may enter/exit the controller area as needed provided that there is no chance of shorting between connections. NOTE: White and Violet colors on Gt150 connector replaced with Orange/Black and Light Green, respectively.

Preparation Required Prior to Engine Startup

1) Add some fuel to the tank so that the fuel level will be higher than the module reservoir but not as high as the module hat. This will allow for quick module refilling during the flushing process. Check for any leaks.

2) Disconnect the fuel line from the engine fuel rail. Route or extend this line to a fuel-rated and approved container. Secure the line to the container so that it will remain in place when fuel is pumped through the line. High-pressure fuel flow will cause a flexible line to whip if not secured.

3) Insert the 20A fuse into the WeatherPack fuse link.

4) Turn on the ignition switch. Fuel should begin to flow in several seconds. If the ECM controls the fuel turn-on circuit (blue wire) then it may take several cycles to flush the system. Most ECM's have a safety feature that turns off the fuel pump after 1-2 seconds if it does not sense that the engine is running. Do not run the pump for more than 2-3 seconds with the fuel line removed from the rail. Allow at least one minute before repeating the turn-on cycle so that the fuel module reservoir can refill. NOTE: The fuel module venturi pumps do not work unless there is high fuel pressure. With the fuel line disconnected, no fuel pressure is available to power the venturi pumps. The pause between flushing cycles is to allow the module reservoir to refill with fuel.

   In some cases, after several cycles the ECM may not turn the fuel circuit on until it senses engine rotation. In this case, if needed, 12v+ can be applied to the VaporWorx controller blue wire for a few seconds. The pump should begin to run. The fuel pressure sensor wiring must remain in place and not be disconnected.

5) Reconnect the fuel line to the engine fuel rail and attach a fuel pressure gauge to the engine fuel rail.

6) Turn on the ignition switch but do not start the engine. The fuel pressure gauge should rise and settle near its pre-set value. Turn off the ignition key and inspect the fuel system and engine fuel rails for leaks. It is normal that the fuel pressure will spike after fuel system shutdown. Fuel pressure should return to normal after engine start-up. Like before, it may take several cycles to fill the fuel rails and create pressure.

7) If no leaks are found, start the engine. Fuel pressure may increase 2-3psi higher than what was observed during engine-off. Again, check for leaks.

8) On the side of the controller there is a small hole where the fuel pressure adjustment screw is located. Note the arrow on the lid of the controller. Inside the hole is a brass potentiometer screw that is used to adjust the fuel pressure. Using the smaller exposed blade on the supplied blue trimmer tool, adjust the fuel pressure for the FlowWorx systems to 58psi/4bar, and 42psi for PressureWorx systems. If access is tight, cut the plastic tool shorter to fit. CW = Pressure Increase. ½-turn = approximately 2psi pressure change.

9) Shut down the engine as soon as practical and check the fuel system for leaks. Repair any leaks before continuing. If a hole was cut in the floorboard cover it securely with a metal plate and seal it to prevent air, water, and contamination entry.

10) Restart the engine. Quickly depress and release the throttle pedal. For the FlowWorx system the pressure should remain constant, with perhaps a small pressure drop-off. For PressureWorx systems, the fuel pressure should rise and fall with manifold pressure.

Troubleshooting

1) Fuel pump runs at full speed when the engine is on:

    a. Adjust the fuel pressure via the small screw on the side of the box.
    b. Check fuel pressure sensor wiring connections. On the fuel pressure sensor plug Pin 1 = Brown, Pin 2 = Black, Pin 3 = Grey. Confirm that these wires align with the same wires on the controller GT150 plug. It is possible to crimp across the insulation of the wire and not obtain a good circuit pathway, hence, causing a controller malfunction.
    c. Confirm that the input and output main power wires from the battery and to the fuel module are correct/not reversed. No chassis grounds.

2) Fuel pump does not run:

    a. Check the input fuse. A 20A fuse has shown to be adequate in most situations for single module with no voltage increasing devices (Boost a Pump).
    b. Check fuel pressure sensor wiring connections. On the fuel pressure sensor plug Pin 1 = Brown, Pin 2 = Black, Pin 3 = Grey. Confirm that these wires align with the same wires on the controller GT150 plug. It is possible to crimp across the insulation of the wire and not obtain a good circuit pathway, hence causing a controller malfunction.
    c. Confirm that a minimum of 10v is available to the VaporWorx blue wire Pin D. 12v + can be applied directly to the GT150 Pin D blue wire for testing only.
    d. Check that the brass nuts for the battery and fuel module power wiring terminals are properly tightened and not corroded.
    e. Check the brass nuts that are under the 12ga battery and fuel module ring terminals. These may loosen over time. Retighten them and test the system.
    f. Excessive fuel pressure due to engine shutoff. After ignition shutoff the injectors shut but the pump still spins, causing a pressure spike. This is normal, but until the

pressure drops below the set pressure, the controller will not send power to the fuel module.

g. Check the temperature of the VaporWorx controller black aluminum lid. If the lid is over 225*F the controller will shut down.
h. Confirm that the battery and butt-joint connections are good. Use a volt-ohm meter to check connections.
i. Confirm that the input and output main power wires from the battery and to the fuel module are correct/not reversed. No chassis grounds.

3) The fuel pressure rapidly fluctuates, especially at idle:

a. The fuel pressure sensor is too close to the fuel rail. The VaporWorx system can react fast enough to chase individual injector pulses at idle, hence causing rapid fuel pressure gauge readings. Once engine speeds increase this tendency reduces. Move the fuel pressure to as close to the fuel module as practical. In some case where a very short primary fuel line is used, a longer line from a “T” may be needed to install the fuel pressure sensor into. This extra head length acts a damping system for the injector pulses.

4) Fuel pump does not have adequate pressure:
a. Turn the fuel pressure adjustment screw inside the hole on the side of the controller. A small eyeglass screwdriver can be used, as well as the tool supplied in the kit.
b. Remove the power wiring from the brass terminals on the top of the controller. Confirm that the lower brass nuts are tight.
c. Check that the connections from the VaporWorx controller to the fuel module are good.
d. Confirm that the CTS-V underhat wiring is correct.
e. Using a heavy gauge jumper wire, connect the BAT+ to the PUMP+ on the VaporWorx controller. If the fuse is good the pump should run. If the pump is running but little or no fuel pressure exists, then either the fuel module is internally damage (broken plastics), the fuel pump(s) have been damaged, or there is a massive leak. The most common cause of fuel pump damage is running the pumps dry. Fuel is the life blood for pumps. If the pump does not run then there is a problem with the electrical wiring at the module connection.

Fuel Module Output Testing

One question that often arises is how to monitor pump output. This is good to know in order to determine if the pump is adequate for the power produced. To test this, connect a voltmeter to the BAT + and PUMP + output of the VaporWorx controller. These connections must be made on the controller terminals. In a safe and legal way, have an assistant watch the meter as the car is driven at wide open throttle/maximum fuel demand. Once the voltage reaches 0.2volts, the controller is effectively sending maximum power to the pump(s).