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.

Instructions for installing the VaporWorx BoostWorx fuel module control system using the JMS voltage booster and how to modify the Cadillac CTS-V fuel module GM P/N 19207950 to work with the Pontiac G8 Platform. Applicable to ZL1 fuel modules as well.

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 modifications 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 have decided to 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.

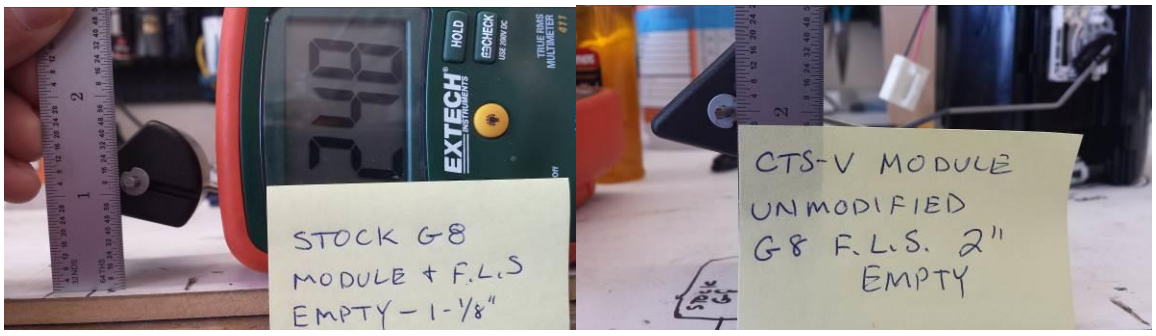
Greg at Pace Performance or Adam at Ace Performance can provide the necessary fuel plumbing fittings. These guys have done the homework to make sure that the installation is correct.

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.

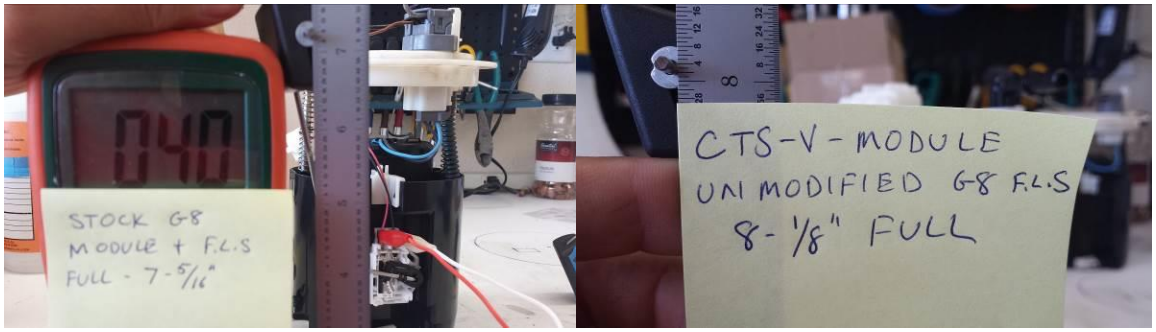
Fuel Level Sensor Mechanical Modifications (CTS-V only. ZL1 skip to Page 5)

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.***



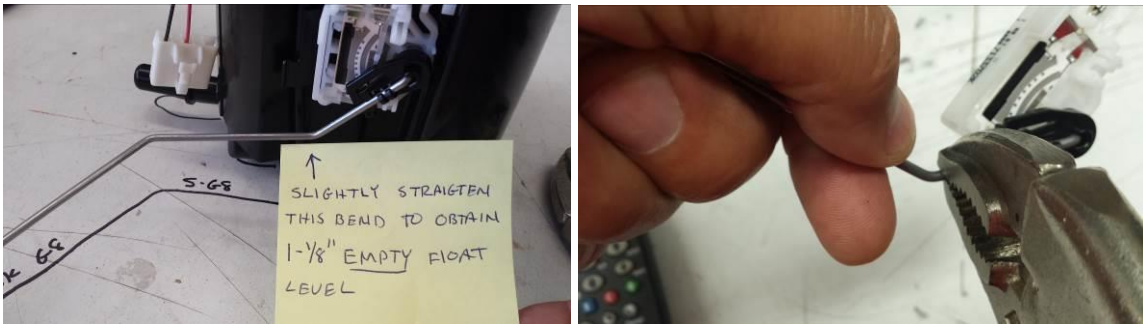
Photos 1 and 2. Empty float height readings for Pontiac G8 / CTS-V fuel modules.



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.

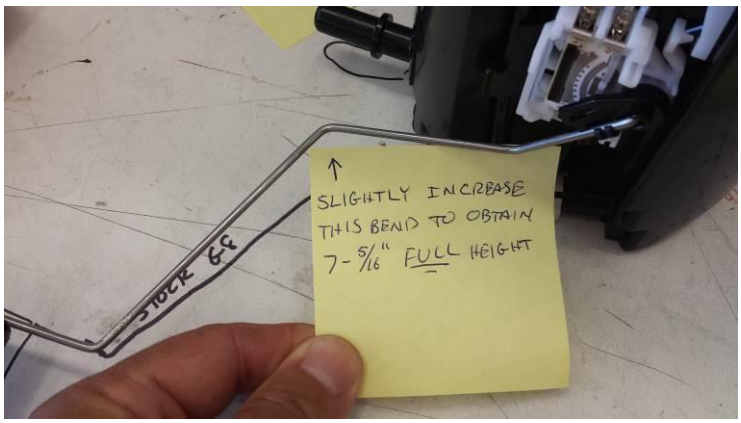


Photo 7. Full float height bend adjustment. Make the bend along the same axis as the OE bend. Do not allow bending loads to travel up to the fuel level sensor body.

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, so take your time and make small adjustments.

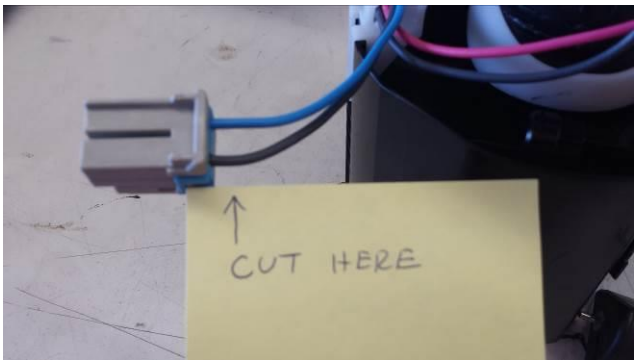
Fuel Level Sensor Electrical Modifications

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 as shown in Photo 9 the terminal will release with a slight pull on the wire.



Photos 8: Cut wires near plug body.

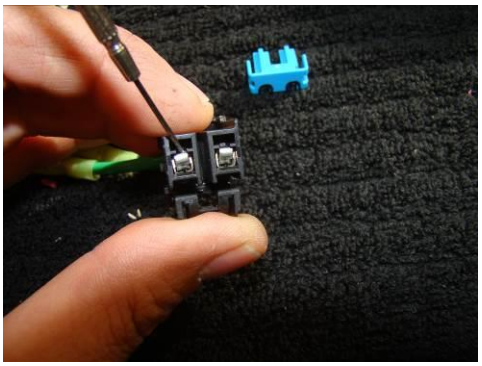
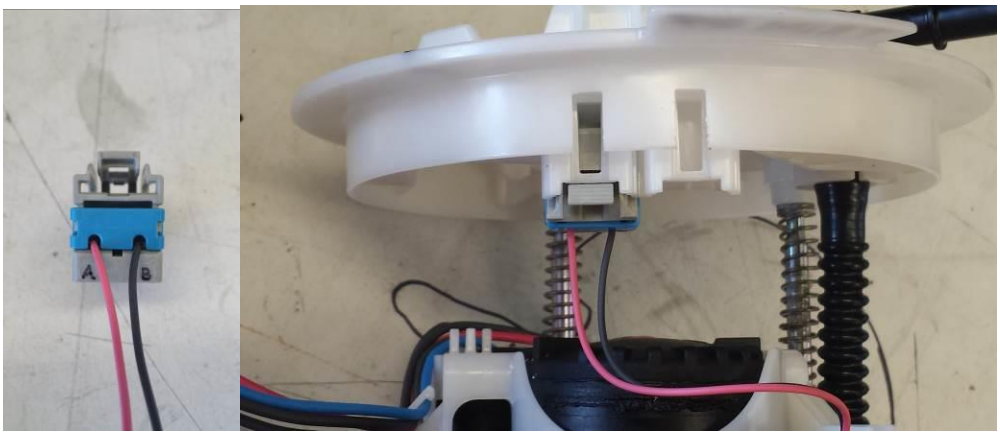


Photo 9: TPA clip and terminal removal.

Step 5: Insert the wired terminals into the grey plug body as shown in Photo 10. The red wire = cavity "A", the black wire 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.

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

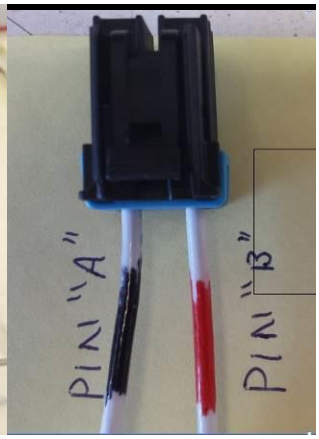


Photo 13. Pump power

Step 6: Insert the black plug into the same underhat cavity that it was removed from.

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.

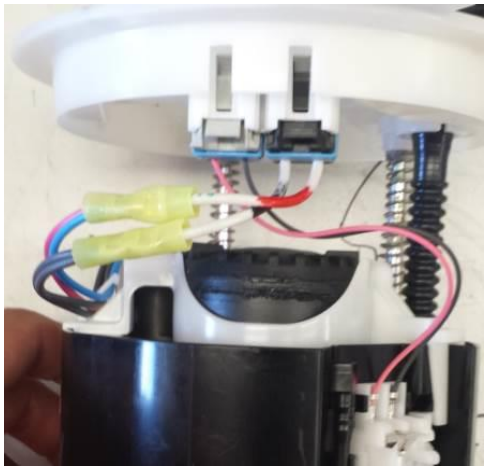


Photo 14. CTS-V module wiring complete and ready for tank installation.

External Wiring Connections

NOTE: External wiring connections are the same for CTS-V or ZL1 fuel modules

Step 1) Note in Photo 15 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 VaporWorx harness 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. When using the ZL1 fuel level sensor the polarity of the connections is correct as-is from VaporWorx.

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 and seal the ends of the braid with heat shrink tubing. 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 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. Seal the ends of the braid to the wires using heat shrink tubing. 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.

Step 14: Mount the VaporWorx manifold pressure sensor in the engine compartment way from heat, rotating components, etc. Braided sleeve is provided to encapsulate the wires. Use heat shrink to seal the braid ends to the wires. Route wiring back to the battery area and connect the rubber hose to the pressurized side of the manifold. Use a small zip tie if needed to secure the rubber hose to the manifold and sensor nipples.

Step 15: REMOVE THE IN-LINE 40A FUSE FROM THE JMS VOLTAGE BOOSTER. Mount the VaporWorx controller in the battery area on top of the Radio Speaker Amplifier or on the outer side panel near the battery has shown to work well. Be sure that the mounting screws are not too long and will not damage the RSA assembly. Mount and connect the JMS voltage booster according to their “Universal” instructions. One of the blue 20ga wires shown in Diagram 1 should be used for the JMS input relay trigger +.

Step 16: The VaporWorx GT150 eight-pin connector provides fuel pressure sensor, fuel turn on/off, manifold pressure sensor, and JMS circuit connections. Using the terminals and seals provided as seen in Photo 17, crimp the terminals to the wires like that shown in Photo 18. Solder the terminals to the wires if needed. The pinout schedule follows:

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. This turns the controller on/off.
E: Black 20ga from the BoostWorx pressure sensor
F: Violet 20ga from the BoostWorx pressure sensor and JMS 0-5v red wire.
G: Grey 20ga from the BoostWorx pressure sensor
H: Blue to the JMS input relay on/off trigger (+)

Using the G8 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 and 18: The GT150 connector body, terminals, seals, and terminal positional assurance clip. Eight cavity plug similar. The terminal is crimped to the wire and seal.

Step 17: Insert the wires into the Delphi GT150 female connector body as shown in Photo 19 and 21. The pinout schedule is listed above 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 male connector. Common colors have common connection points, so as long as the colors line up the unit should function properly.

NOTE: If a constant fuel pressure is desired do not connect the violet pressure sensor wiring to the VaporWorx controller. A 58-60psi setting is typical but a pressure as low as 42psi can be used. All other wiring must be attached as shown in Diagram 1.

Photo 19 and 20: Delphi GT150 female connector (LH). Note that the colors align to each other on both plugs. Delphi designates the gender of the connector by the terminal used. Six/eight pin plug similar. BoostWorx pressure sensor (RH) harness. Note the three wires that route to the VaporWorx control box and the brass manifold connection.

Step 18: 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 19: Once the correct wiring has been confirmed, install the terminal position assurance clip as shown in Photo 21.

Photo 21: The purple terminal position assurance clip is installed. Eight cavity plug similar.

See Diagram 1 for Steps 19-25

Step 20: The labels on the top of the VaporWorx controller lid shows the input and output of the positive side of the controller. Connect the white 10ga wire from the JMS voltage booster to the VaporWorx controller BAT+ input terminal. Ring terminals are provided in the kit. *Do not over-tighten the brass terminal screws on the controller.* The 40A inline fuse on the JMS voltage booster will act as circuit protection.

Step 21: 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. CONNECT THE JMS VOLTAGE BOOSTER TO THE SAME BATTERY GROUND POINT. Do not chassis ground.

Step 22: 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 23: 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.*

NOTE: It may be helpful to leave the JMS and VaporWorx control boxes loose for adjustment purposes. Leaving a bit of extra wire length is helpful for this purpose. Do not allow the terminals of the VaporWorx controller to short across the chassis of the car. Be sure to securely attach both controllers before driving.

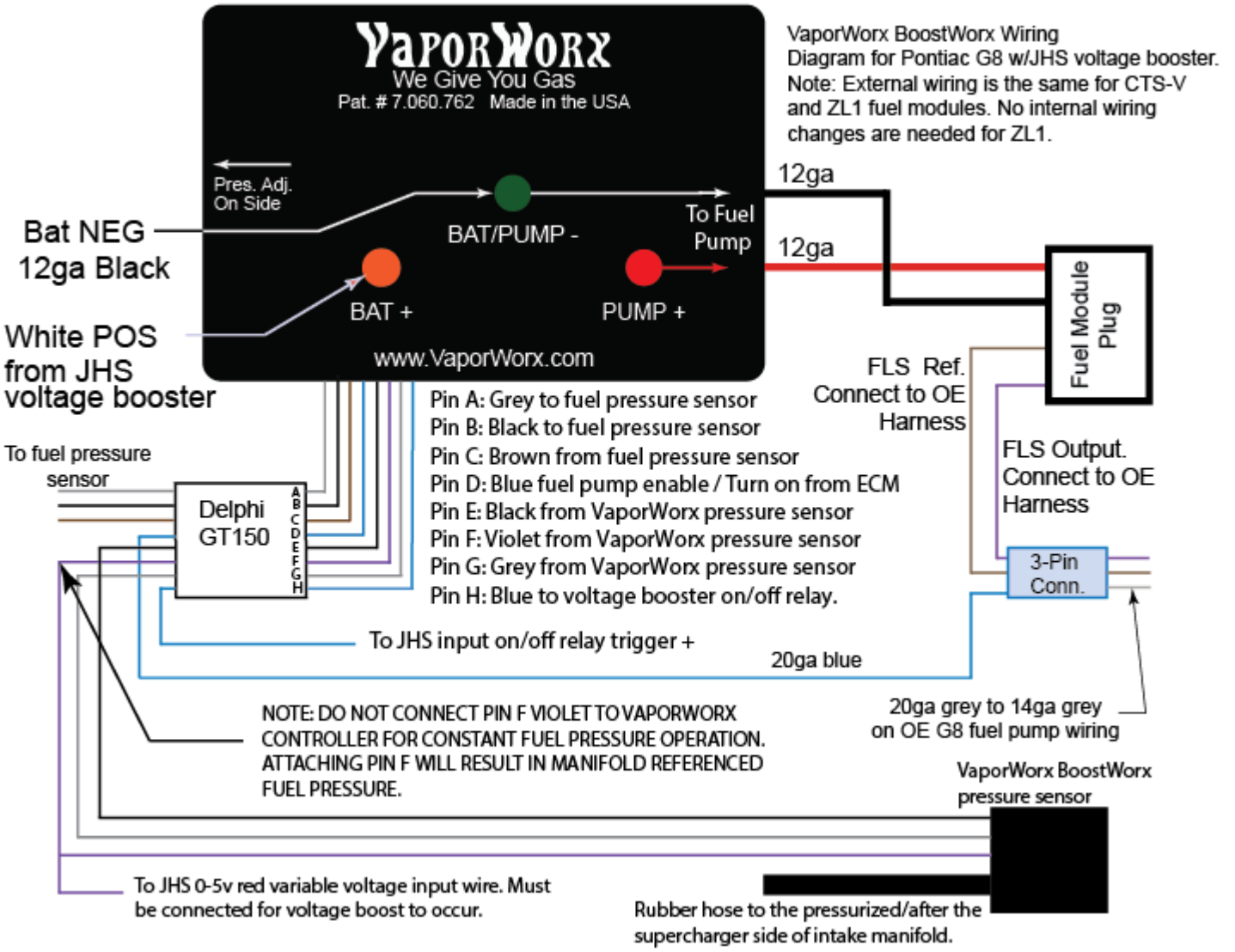


Diagram 1. Basic wiring layout for the VaporWorx BoostWorx G8 controller. The wiring may enter/exit the controller area as needed provided that there is no chance of shorting between connections.

Preparation Required Prior to Engine Startup

1) Add some fuel if needed 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 40A fuse into the JMS 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 adjustment tool, adjust the fuel pressure for constant pressure systems to 58psi/4bar, and 42psi/3bar for manifold referenced 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 manifold referenced systems, the fuel pressure should rise and fall with manifold pressure. Do not drive the car until the JMS voltage booster has been adjusted.

Adjusting the JMS voltage booster variable input.

NOTE: Voltage greater than 17.5v applied to the VaporWorx controller will cause permanent damage.

1) Set the following switches on the JMS controller:
    a. #1 on
    b. #2 off (18v maximum output.) Never change this setting while using a VaporWorx controller.
    c. #3 on
    d. #4 off
    e. #5 on
2) The adjustment pots on the JMS voltage booster should have white tick marks. Set the 0-5v input pot so that the white mark points at approximately 2:00. Set the voltage output to the mid-range / 12:00.
3) Remove from the intake manifold the rubber hose from the VaporWorx pressure sensor. Temporarily plug the empty hose attachment point on the intake manifold. Attach a Mityvac or similar tool that can apply monitored pressure to the sensor.
4) Attach a voltmeter between the BAT + and BAT – on the VaporWorx controller.
5) Start the engine. Note the voltage on the voltmeter. The voltage should be approximately 13.5v/battery voltage.
6) Using the Mityvac, slowly apply pressure to the VaporWorx pressure sensor while watching the voltage reading on the voltmeter. Note the pressure where the voltage starts to increase. By applying and releasing pressure, adjust the JMS 0-5v voltage input pot so that the voltage boosting starts at 4psi pressure (not vacuum!) This will simulate the voltage increase starting at 4psi boost.
7) Once the 4psi low-end is set, slowly increase pressure and watch the voltage increase on the voltmeter. Maximum voltage should occur at approximately 11-12psi. If the voltage reaches 17v, stop immediately. Reduce the output voltage of the JMS voltage booster via the output pot by turning CCW. Never exceed 17v or controller damage will result.
8) Slowly apply pressure up to 15psi. Similar to the above, do not allow the voltage to go over 17v. Once 15psi has been reached, increase the JMS output voltage to 17v maximum. The top-end of the variable input and the maximum voltage output has been set.
9) Set Switch #1 to off.

Other settings:

Reducing the output voltage to meet only what is required will increase all component life. The following can be used as a guideline for minimizing output voltage:

Piston horsepower @ 60psi output pressure / 0.6 Brake Specific Fuel Consumption

	13.5v	14.5v	15v	15.5v	16v	16.5v	17v
ZL1:	650	740	785	830	875	920	965
CTS-V:	800	900	950	1000	1050	1100	1150

Calculate the approximate piston horsepower fuel requirement:

Piston HP = Expected flywheel horsepower + supercharger drive horsepower
For TVS1900/similar add 90hp
For TVS2300/similar add 120hp

Piston HP = RWHP*1.2 + supercharger drive horsepower.
For manual transmission replace 1.2 by 1.15

How to final tune to match engine demand:

1) Attach a voltmeter to the BAT + and PUMP + on the VaporWorx controller. Route wires to the passenger compartment so that the voltmeter can be observed.
2) At idle the voltage should be approximately 6v. The exact number here is not important, but should be greater than 4-5v at idle. If the voltage is less than one volt the VaporWorx controller is not functioning properly. Check that the fuel pressure and wiring are correct.
3) In a safe and legal way, drive the car and slowly increase engine load/throttle. The voltage observed should fall as fuel demand increases.
4) The voltage should not fall below .75v. If so, increase the voltage output of the JMS controller to a maximum of 17.0v.
5) If the voltage is greater than .75v at maximum fuel demand, decrease the JMS voltage output until 0.75v is obtained.
6) A 0.75v reading means that there is another approximate 10% safety factor of fuel capacity available.
7) If engine modifications lead to more horsepower, the above must be performed again in order to determine actual fuel demand.
8) If the voltage falls below 0.75v AND the engine manifold pressure is less than 4psi boost (ATM), then the JMS controller must be adjusted so that the voltage increase starts sooner. Adjust the 0-5v JMS input accordingly.

NOTE: Switch #1 on the JMS voltage booster must be in the “ON” position for adjustments to occur. If potentiometer adjustments are made before switch #1 is turned “ON”, then a full initial system adjustment must be performed in order to properly reset the outputs. If the output voltage adjustment is increased to over 17.5v, and switch #1 turned to the “ON” position, VaporWorx controller damage will result.

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.
    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 damaged (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.