

[POWER COMMANDER V]

2014 SeaDoo Spark

Installation Instructions



PARTS LIST

- 1 Power Commander Module
- 1 PCV Wiring Harness
- 1 USB Cable
- 1 Installation Guide
- 2 Power Commander Decals
- 2 Dynojet Decals
- 2 Dual Lock strips
- 1 Alcohol swab
- 1 Posi-tap
- 1 Bypass Plug
- 1 CAN Termination Plug

THE IGNITION MUST BE TURNED OFF BEFORE INSTALLATION!

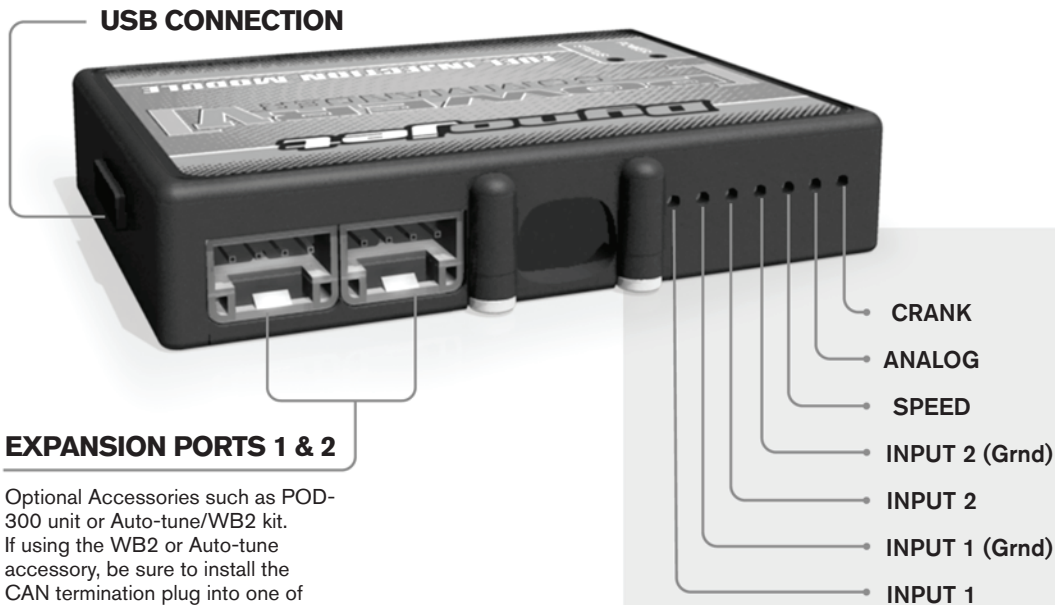
THE LATEST POWER COMMANDER SOFTWARE AND MAP FILES CAN BE DOWNLOADED FROM OUR WEB SITE AT:
www.powercommander.com

PLEASE READ ALL DIRECTIONS BEFORE STARTING INSTALLATION

Dynojet

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POWER COMMANDER V INPUT ACCESSORY GUIDE

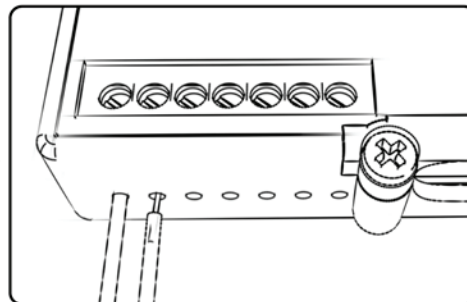


Optional Accessories such as POD-300 unit or Auto-tune/WB2 kit. If using the WB2 or Auto-tune accessory, be sure to install the CAN termination plug into one of the unused expansion ports. This is a hard plastic plug supplied with the PCV.

Wire connections:

To input wires into the PCV first remove the rubber plug on the backside of the unit and loosen the screw for the corresponding input. Using a 22-24 gauge wire strip about 10mm from its end. Push the wire into the hole of the PCV until it stops and then tighten the screw. Make sure to reinstall the rubber plug.

NOTE: If you tin the wires with solder it will make inserting them easier.



ACCESSORY INPUTS

Map -

(Input 1 or 2) The PCV has the ability to hold 2 different base maps. You can switch on the fly between these two base maps when you hook up a switch to the MAP inputs. You can use any open/close type switch. The polarity of the wires is not important. When using the Autotune kit one position will hold a base map and the other position will let you activate the learning mode. When the switch is "CLOSED" Autotune will be activated. (Set to Switch Input #1 by default.)

Shifter-

(Input 1 or 2) These inputs are for use with the Dynojet quickshifter. Insert the wires from the Dynojet quickshifter into the SHIFTER inputs. The polarity of the wires is not important. (Set to Switch Input #2 by default.) This option does not apply to watercraft.

Speed-

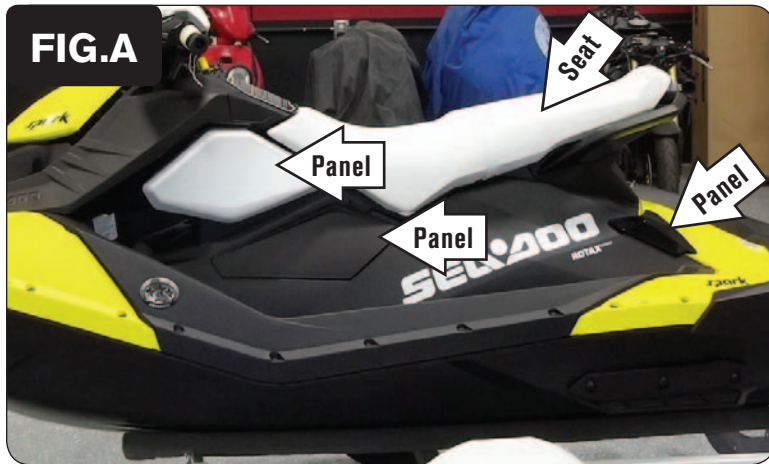
If your application has a speed sensor then you can tap into the signal side of the sensor and run a wire into this input. This will allow you to calculate gear position in the Control Center Software. Once gear position is setup you can alter your map based on gear position and setup gear dependent kill times when using a quickshifter. This option does not apply to watercraft.

Analog-

This input is for a 0-5v signal such as engine temp, boost, etc. Once this input is established you can alter your fuel curve based on this input in the control center software.

Crank-

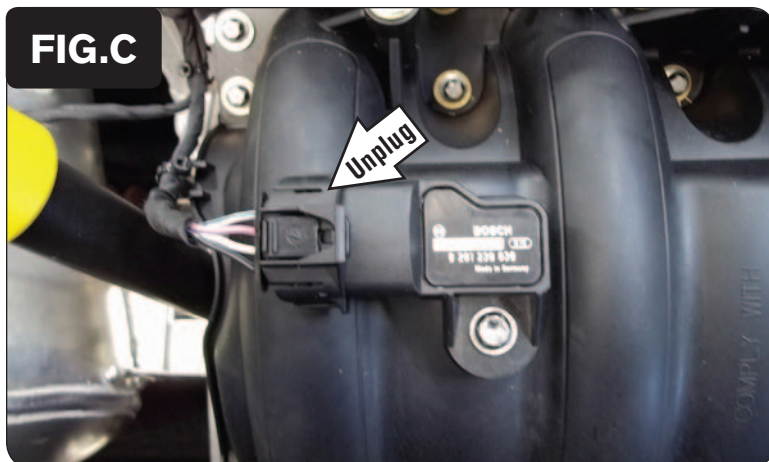
Do **NOT** connect anything to this port unless instructed to do so by Dynojet. It is used to transfer crank trigger data from one module to another.



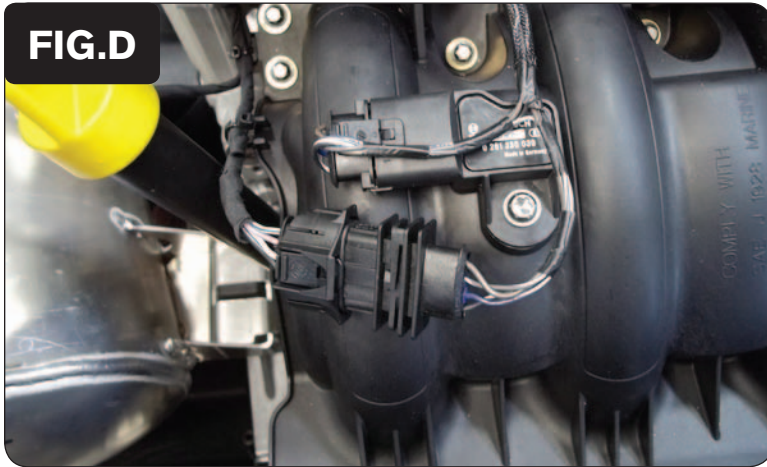
- 1 Remove the seat, the two side panels forward of the seat on both sides of the watercraft, the small panel below the seat on the left side, the 2 small panels at the rear of the hull, and the oil filler access cap on the right side of the hull (Fig. A).



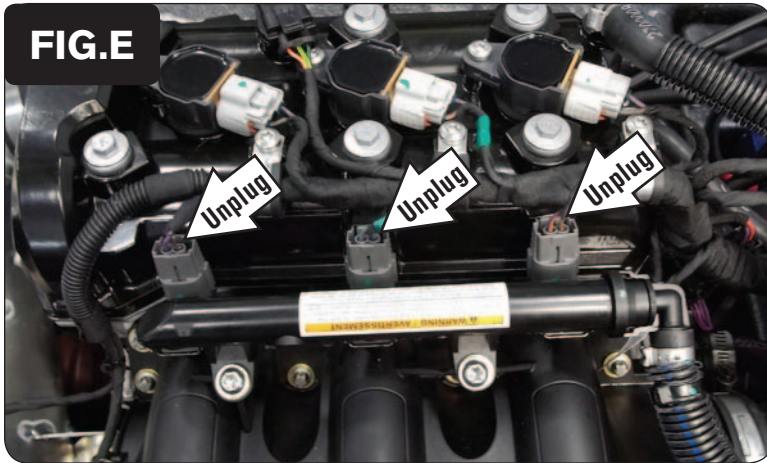
- 2 Disconnect the steering cable from under the handlebars. Loosen it from the hull. Pull it through the hull and into the engine compartment.
Do the same for the reverse gate cable, if applicable.
- 3 Behind the lower panel on the left side of the watercraft that was removed in step 1, unplug the main wiring harness connector that leads out of the left side of the hull and up to the instrument cluster (Fig. B).



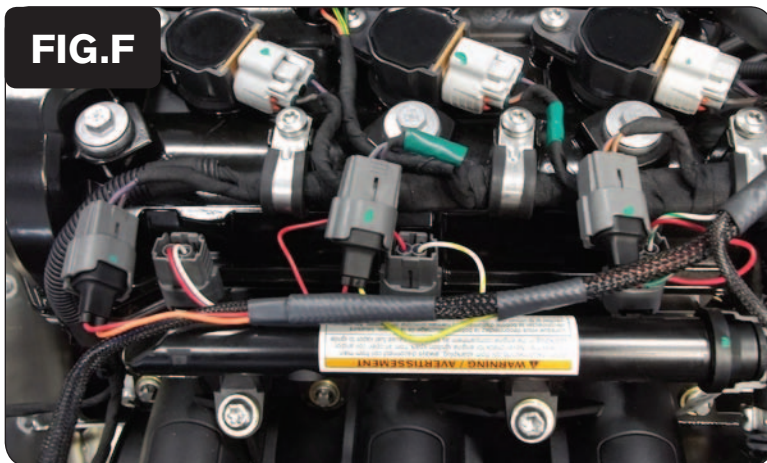
- 4 Remove the 3 bolts around the fuel filler cap and all of the bolts (several) around the outer edge of the upper hull assembly.
- 5 Lift the upper hull assembly up and off of the watercraft. Set it aside temporarily.
The entire engine compartment should now be accessible.
- 6 Unplug the stock MAP/IAT sensor (Fig. C).
This sensor is located directly on top of the intake plenum.



- 7 Plug the pair of 4-pin leads of the PCV wiring harness in-line of the MAP/IAT sensor and the stock wiring harness (Fig. D).



- 8 Locate and unplug the 3 fuel injectors (Fig. E).

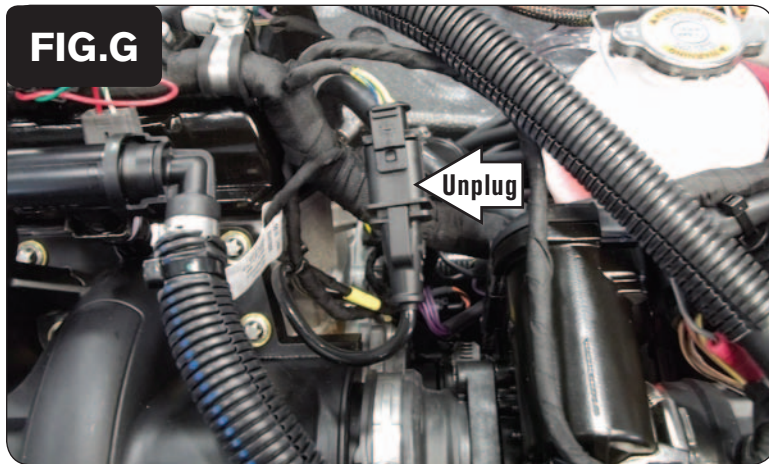


- 9 Plug the PCV wiring harness in-line of each fuel injector and the stock connector for each fuel injector (Fig. F).

The pair of PCV wiring harness leads with ORANGE colored wires go to Cylinder #1 (rear most cylinder).

The pair of PCV wiring harness leads with YELLOW colored wires go to Cylinder #2 (middle cylinder).

The pair of PCV wiring harness leads with GREEN colored wires go to Cylinder #3 (forward most cylinder).

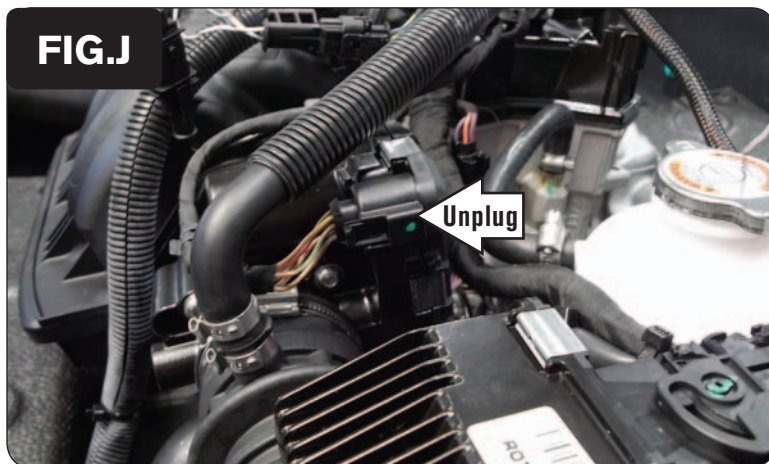


- 10 Locate and unplug the stock 2-pin connector from the Crank Position Sensor (Fig. G).

This 2-pin connector is located just forward of the fuel rail.



- 11 Plug the pair of 2-pin leads from the PCV wiring harness in-line of the stock Crank Position Sensor connectors (Fig. H).



- 12 Locate and unplug the stock wiring harness from the Throttle Body Servo (Fig. J).

FIG.K



- 13 Use the supplied Posi-tap to attach the single unterminated GREY wire of the PCV wiring harness to the stock TAN/WHITE wire of the Throttle Body Servo connector (Fig. K).

The stock TAN/WHITE wire is in pin position #1 of this connector.

It is recommended to use dielectric grease on this connection.

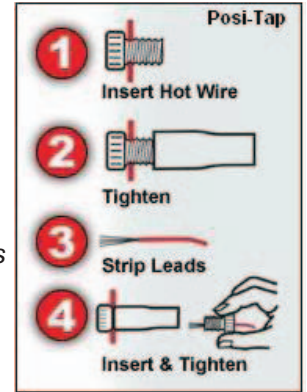
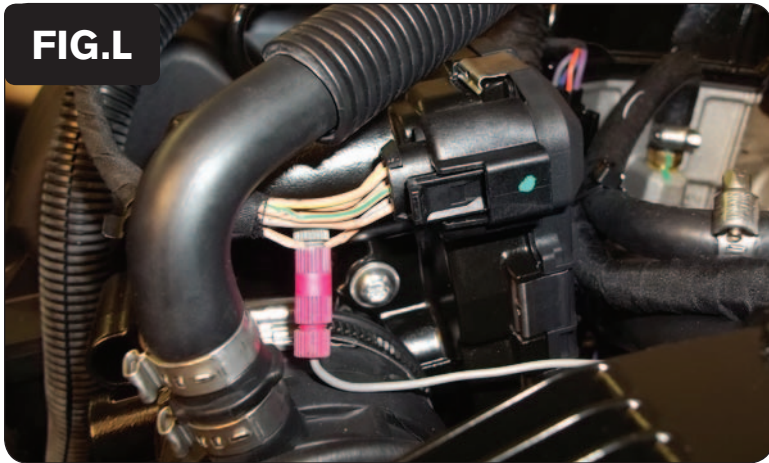
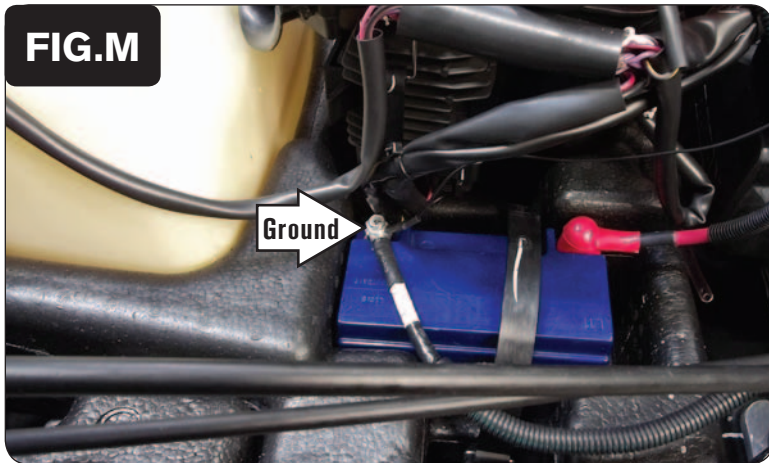


FIG.L



- 14 Plug the stock Throttle Body Servo connector back onto the Throttle Body Servo (Fig. L).

FIG.M



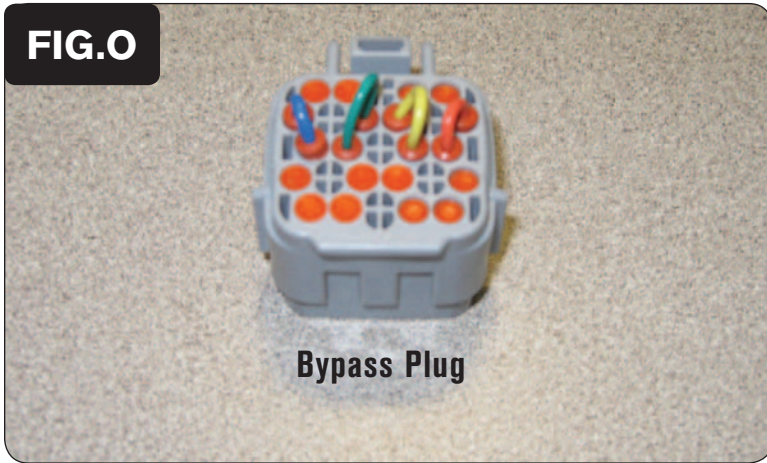
- 15 Secure the Ground wire of the PCV wiring harness with the small ring lug to the negative (-) terminal of the watercraft's battery (Fig. M).

FIG.N



- 16 Using the supplied Dual Lock strips, secure the PCV module to the top of the stock ECM.
Clean both surfaces with the supplied alcohol swab prior to applying the Dual Lock adhesive.
- 17 Plug the PCV module into the PCV wiring harness (Fig. N).
- 18 Reassemble the watercraft.

FIG.O

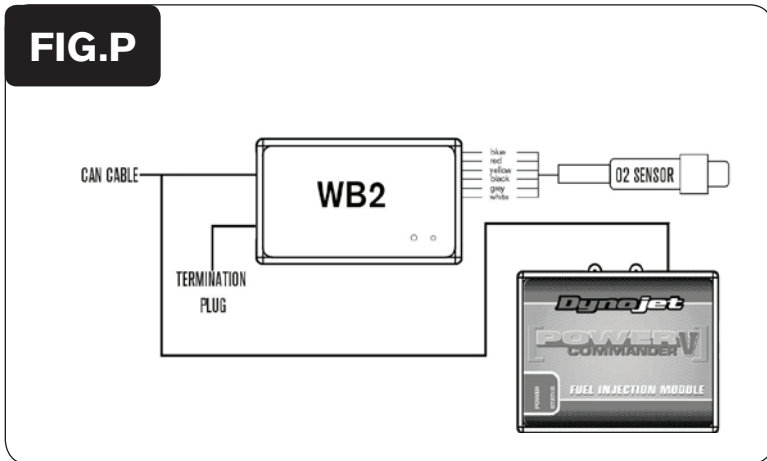


Bypassing the PCV

In the event you need to run the engine without the PCV module, the supplied bypass plug will return the engine control and tune back to stock. Refer to Figure O.

- 1 Unplug the wiring harness from the PCV Module.
- 2 Plug the bypass plug into the PCV wiring harness in place of the module.

FIG.P

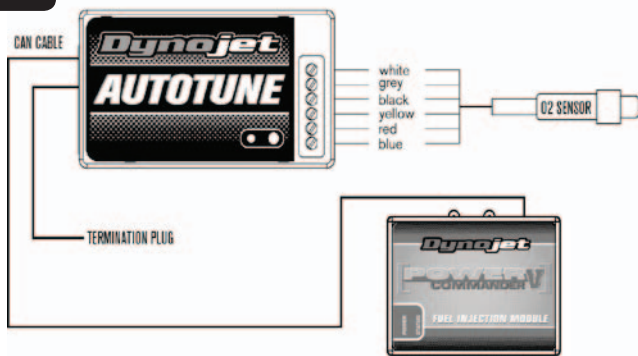


Using Auto-tune with PCV

To take advantage of Dynojet's AutoTune feature with the PCV, you need to install a Wideband device on your vessel. With the PCV, this could be one of the following:

- Wideband 2—single channel Auto-tune module with gauge output (Fig. P)
- AT-200—single channel AutoTune only module (Fig. Q)

FIG.Q

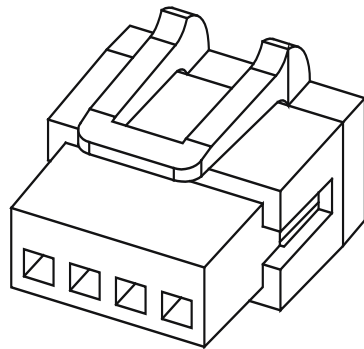


The PCV Control Center software allows you to enable and configure Auto-tuning when it sees one of these devices connected.

Refer to the appropriate Wideband device installation guide for more information on installation.

Refer to the PCV Control Center Help for more information on enabling and configuring Auto-tune.

FIG.R



CAN termination plug

Connecting the PCV to the Wideband

- 1 Verify the Wideband device is installed correctly. Refer to the appropriate Wideband device installation guide.
- 2 Connect the PCV to the Wideband device using the CAN to CAN cable. Refer to Figure P or Q.

The CAN to CAN cable is provided with the Wideband device.

- 3 In one of the open CAN ports on either AutoTune module, attach the provided CAN termination plug. Refer to Figures P, Q, and R.

EFI Tuning with PCV

The PCV makes fueling changes based off of the values in the map stored in the PCV.

The PCV is shipped with a Zero Map. A Zero Map means that all the values are 0, which will yield no changes and the watercraft will run exactly the same as if the unit were not installed.

When a map is loaded into the PCV, the engine fueling will be adjusted according to the values in the map.

The PCV does not make changes to the ECU programming. The numbers in the PCV map add or subtract a percentage of the fuel the ECU is supplying for a particular load condition. For example, if the PCV map shows a 10 in a given cell, the PCV increases the amount of fuel the ECU is supplying by 10%. If the PCV map shows a -10 in a given cell, the PCV reduces the amount of fuel the ECU is supplying by 10%.

When tuning, always start with a setting where the motor runs rich. Slowly trim fuel out to find the desired exhaust gas temperature (EGT) or air-to-fuel ratio (A/F).

The PCV gives you the freedom to subtract up to 99% and add up to 250% of the fuel the ECU is supplying for a particular condition.

When adding fuel with the PCV, the injector duty cycle may reach 100% (always open) before the PCV fuel change value reaches 100%. For example, if the ECU is running the injectors at 67% duty cycle (injectors open 67% of the time) then adding 50% fuel with the PCV will max out the injectors. In this case, the amount of fuel that can be added will be limited by the injectors.

Primarily, tuners will choose to map the fueling based off of a throttle position versus RPM fuel table; however, the device has the capability to map fueling based off of intake manifold air pressure versus RPM as well.