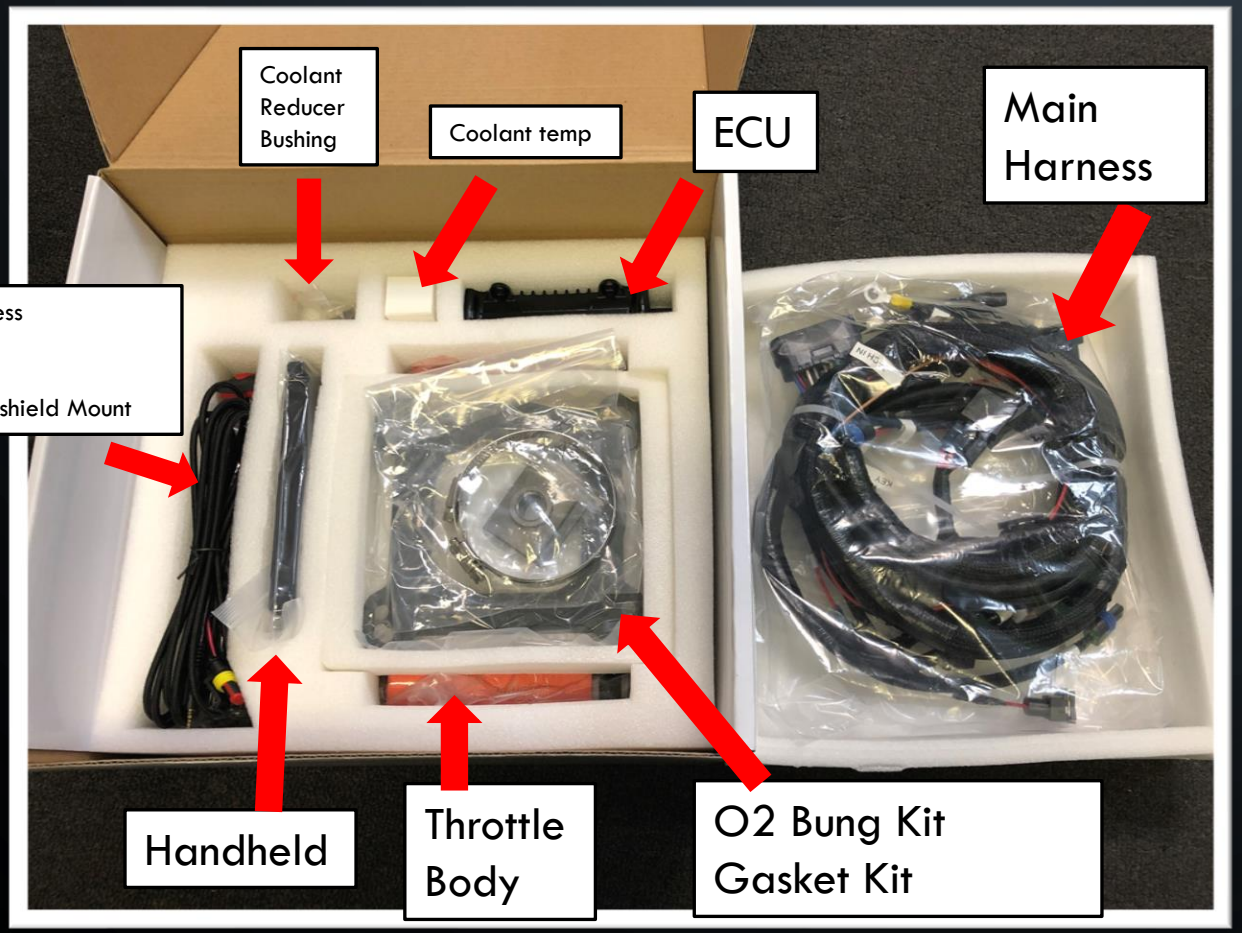
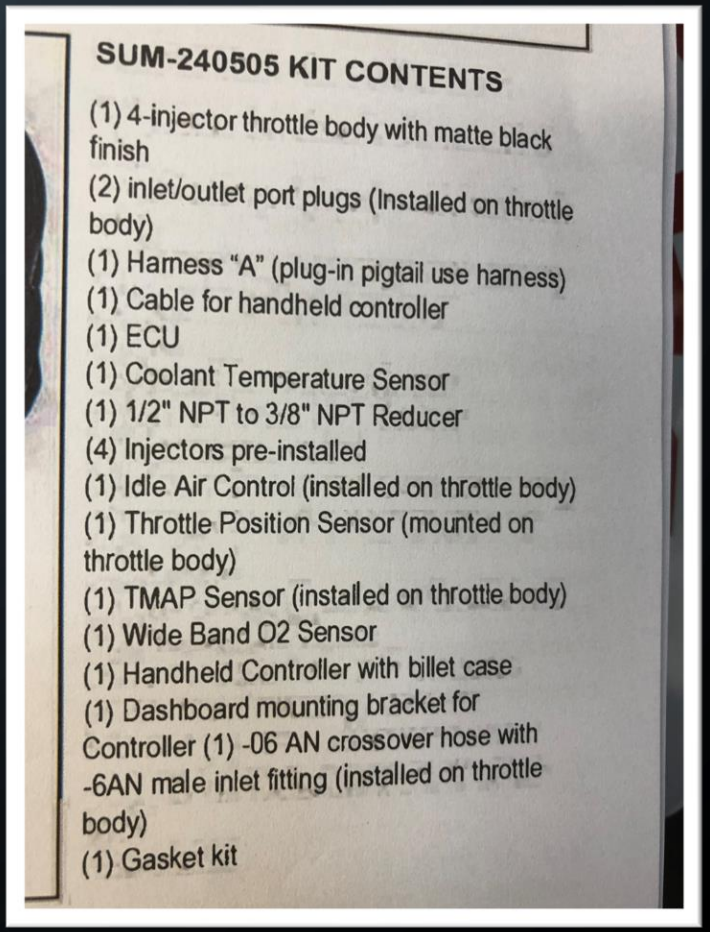
MAX EFI 500 HORSEPOWER EFI SYSTEM INSTALLATION AND SETUP

6/23/2021

OPENING THE BOX

Each Summit Max EFI kit is ran on a live engine prior to being packaged for shipment. This means that the ECU, harness, throttle body, and handheld are proven to work together. When the Max EFI box is opened each part will have a specific location that it is placed. We recommend that you use the instructions to inventory the box contents to ensure all parts are received. Knowing the parts locations will help find all of the items.





SUM-240505 KIT CONTENTS

(1) 4-injector throttle body with matte black finish
(2) inlet/outlet port plugs (Installed on throttle body)
(1) Harness "A" (plug-in pigtail use harness)
(1) Cable for handheld controller
(1) ECU
(1) Coolant Temperature Sensor
(1) 1/2" NPT to 3/8" NPT Reducer
(4) Injectors pre-installed
(1) Idle Air Control (installed on throttle body)
(1) Throttle Position Sensor (mounted on throttle body)
(1) TMAP Sensor (installed on throttle body)
(1) Wide Band O2 Sensor
(1) Handheld Controller with billet case
(1) Dashboard mounting bracket for Controller (1) -06 AN crossover hose with -6AN male inlet fitting (installed on throttle body)
(1) Gasket kit

INSTALLING THE THROTTLE BODY

The Max EFI 500 installs just like a 4 bbl carburetor and uses many of the same accessories.

Here are some Summit Accessories that are a great addition:

1. Carb Stud Kit # SUM-G1423
2. Air Cleaner Stud Kit # SUM- 239006
3. LS Style Fuel System # SUM-03-0261

Tighten the throttle body down in a criss X cross pattern. First lightly snug the nuts and then tighten to 12 ft lbs on the second pass. This will prevent breaking the feet of the throttle body.

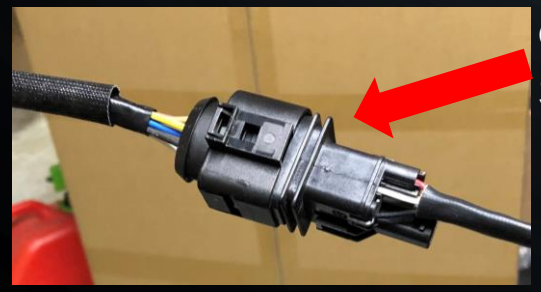
With one fuel inlet, fuel pressure needs to be regulated to 58 psi prior to the throttle body.

The throttle linkage is the same as a Holley style carburetor and the same transmission adapter bracket will work with the Max EFI 500.

INSTALLING THE WIRING HARNESS AND ECU

When it comes time to installing the harness for the Max EFI 500 we encourage starting by plugging into the throttle body. The ECU is water resistant when mounted with the connector facing down and can be mounted in the engine compartment. All the wires and leads are flagged for where they belong.

The ECU can me mounted up to 50 inches away from the throttle body.



O2 Sensor

ECU connector facing down

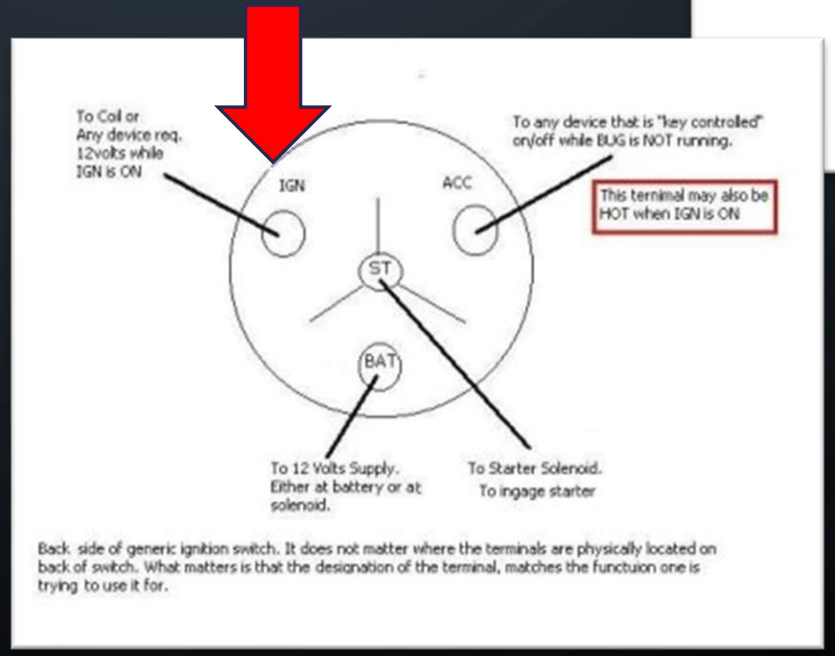
CONNECTING THE WIRE LEADS AND GROUNDS

The battery lead is marked BATTERY + and is expected to be hooked to the battery positive post. Not to any other 12 volt source.

Installing the grounds to the engine block is recommended. The engine should also be grounded direct to the battery for best results. Be sure the grounding point is clear of rust and paint to ensure a good contact.

The key wire is what turns the system on and off. This wire must receive 12 volts when the vehicle is turned on as well as during cranking. The best location for this wire is to the keyed ignition switch on the ignition position.

Correct Key hook up



COMPATIBLE IGNITION SYSTEMS

Hooking up the tach wire will be different depending on the ignition system on the engine. The most important part of the ignition system is to make sure that it works with the MAX EFI 500.

Ballast resisted ignition systems or systems that require a coil with high primary resistance (Over 0.700 Ohms) will not work. This includes points, Ford Durasparks and Mopar electronic with blue or orange box. Some points eliminator kits will work, but only if the distributor is in good working condition. Better ignition system options are Ready to Run Distributors, HEI Distributors, and CDI systems.

Up sale possibilities
SUM-850205 or similar
SUM-850001R or similar
SUM-850620 or similar

CDI

Ready to Run

HEI

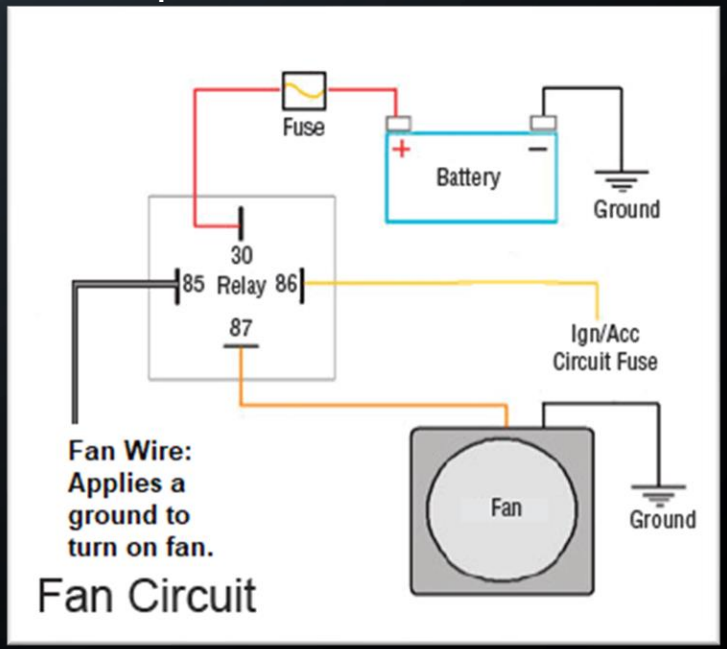
FUEL PUMP AND FAN HOOK UP

The Max EFI 500 has a built-in fuel pump relay which allows the ECU to intelligently run the fuel pump. This wire should hook directly to the fuel pump. If RPM is not detected the system will shut off the fuel pump. This is most commonly noticed when the key of the vehicle is turned on. The fuel pump will run for 4 seconds then shut off. The pump will not turn on again until the engine is cranking.

If a fuel pump is needed the best option is always an in-tank pump. Options for this are to modify a fuel tank and use a pump such as our SUM-250151 or to replace the fuel tank. We carry a full line of EFI ready fuel tanks for a large range of vehicles.

In Tank

The fan wire is an optional wire that will trigger a relay. The ECU will ground the relay trigger when the temperature reaches the fan on temp. SUM-890008



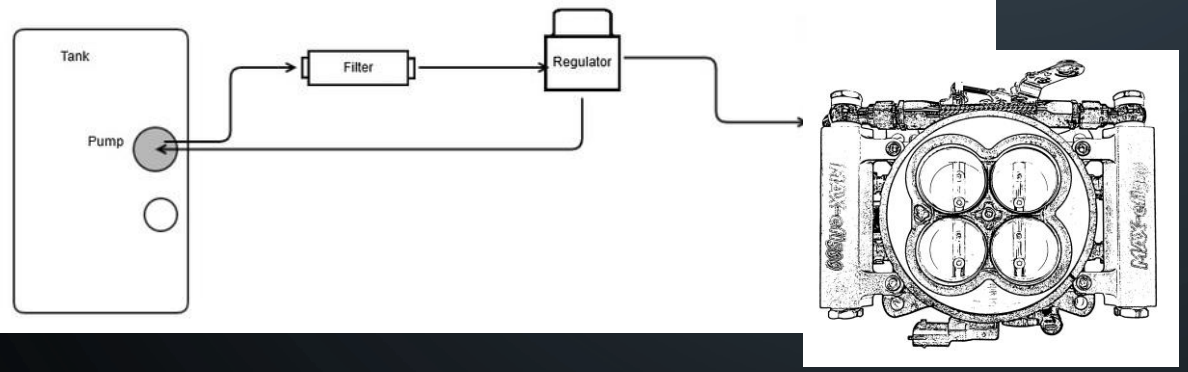
Inline Fuel Pump

Surge Tank

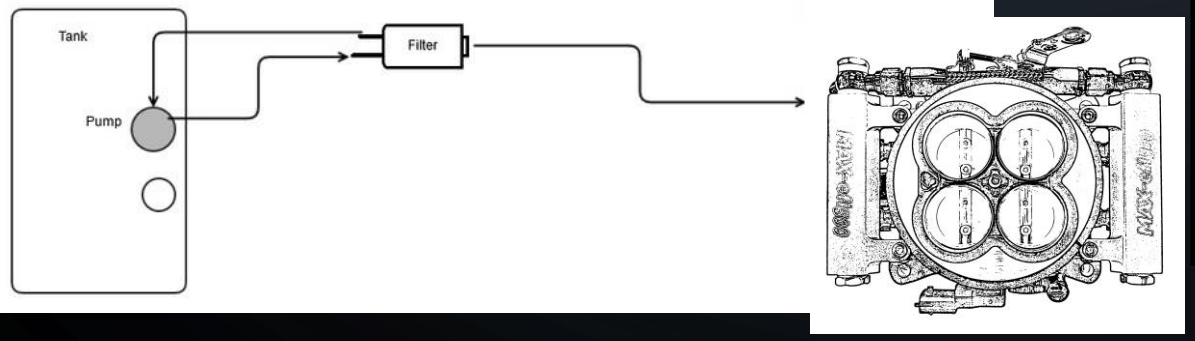
HOOKING UP FUEL LINES

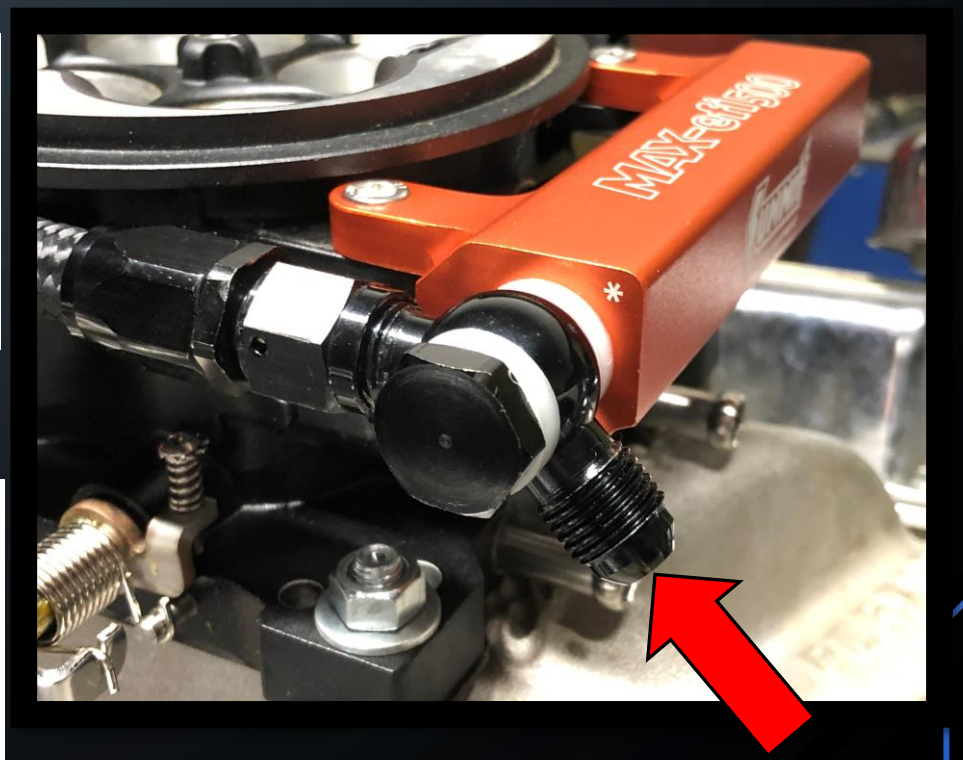
The Max EFI 500 has a single AN-6 fuel inlet on the driver rear side of the throttle body. It can be fed with any fuel delivery system capable of producing 58 PSI of fuel pressure such as inline fuel pumps, surge tanks, and in tank fuel pumps. Be sure to check fuel pressure and fuel leaks prior to cranking the engine over.

In Tank Fuel Pump Diagram with Regulator

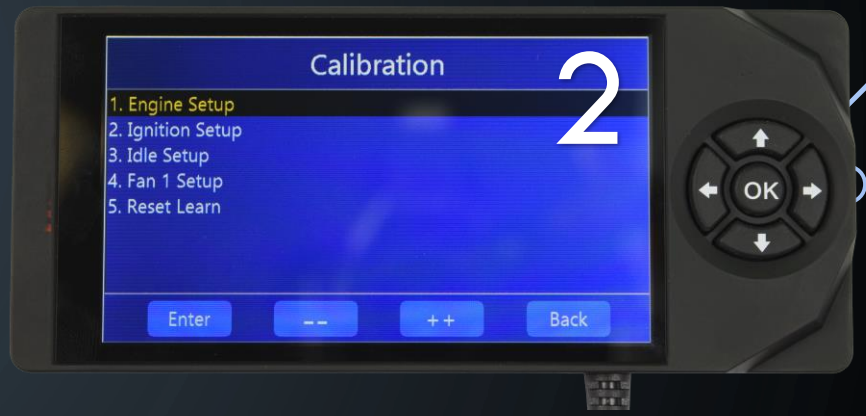


In Tank Fuel Pump Diagram with LS Style Filter/Regulator

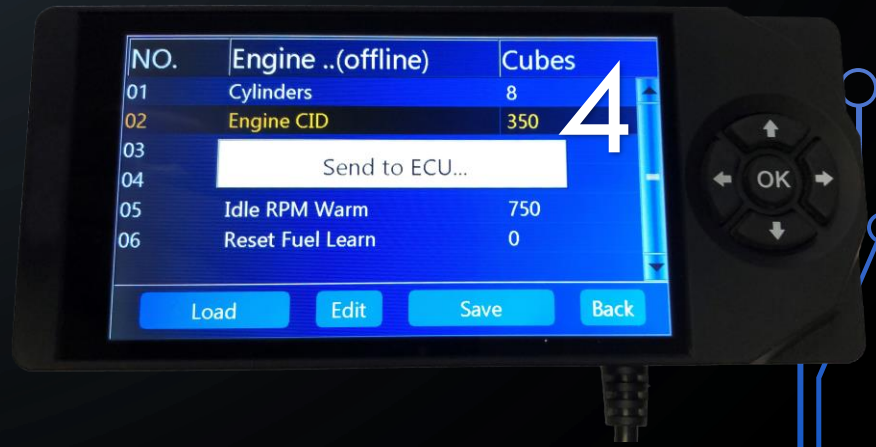




SETUP THE HANDHELD



1. Key on the vehicle and scroll to option 4 “Initial Setup”
2. Select Engine Setup
3. Change each setting as needed
4. Hit okay when desired setting is selected. Send to ECU to apply change.
5. Key off vehicle for 15 seconds when all selections are made to save settings permanently to ECU.

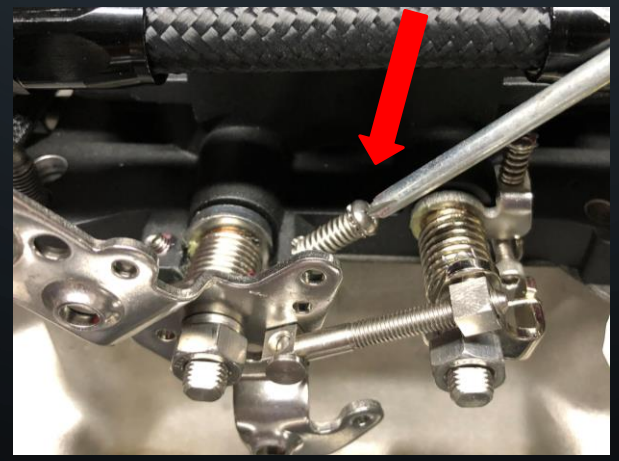


STARTING THE ENGINE & ADJUST THROTTLE

Check for fuel leaks one more time. Key on and crank engine. A little throttle input may be necessary to get the engine to fire off. Once started allow engine to warm up to operating temperature. Use this time to check for any leaks or components touching something hot like the exhaust. When engine is at operating temperature (170+ degrees) follow these steps to adjust throttle.

IAC STEP ADJUSTMENT

1. Go to “Idle Setup” under Initial Setup on handheld.
2. Change option 3 “Idle Screw Set TPS 0” to “Adjust” and hit OK to apply.
3. Go back to the Main Menu and enter into option 1 Dashboard. Scroll down until IAC Steps is shown.
4. Turn throttle adjustment screw until IAC Steps are between 3 and 10.
5. Key off for 15 seconds for system to save and the Initial Setup is complete.



INITIAL ADJUSTMENTS AND DRIVING

Now it is time to go drive the vehicle and allow the Summit Max EFI 500 to learn the engine and vehicle. During this process the vehicle should be driven in varying throttle inputs. A driving route with hills, highways, city streets, etc., will be best for a quick learning process. If the ECU only receives data from the vehicle cruising, it will never learn hard acceleration. This process can take anywhere from 20 to 200 miles depending on driving manners.

If driving issues appear the handheld can be used to quickly tune out the problem. The most common adjustments that can be performed to speed up the learning process are Cranking, Warm-Up, Acceleration, and Air Fuel Ratio.

FAULT CODES

If a drive-ability issue appears the first thing to ALWAYS check is the Fault Code Menu. This menu will display hard faults that will direct you to where components and reading are not operating properly. Once corrected, hit the clear button on the screen to clear the codes. Momentary codes will appear in the DASHBOARD and will go into the Fault Code menu when the issue happens multiple times in a short period.

Fault Code Menu

Dashboard Menu

P Code	Number	Name
P0107	11	MAP Low
P0108	12	MAP High
P0129	13	Baro Low
P0106	14	Baro High
P0122	15	TPS Low
P0123	16	TPS High
P0112	21	IAT Low
P0113	22	IAT High
P0116	23	CTS Low
P0117	24	CTS High
P0131	27	Wideband Low
P0132	28	Wideband High
P0130	31	Wideband Open
P0562	32	Battery Low
P0563	33	Battery High
P0335	36	Crank Noise Fault
P0201	45	Injector A
P0202	46	Injector B
P0203	47	Injector C
P0204	48	Injector D
P0505	53	IAC Fault
P0032	55	Wideband Heater Open
P0031	56	Wideband Heater Short
P0230	63	Fuel Pump Relay Open
P0480	74	Fan 1 Open
P0480	75	Fan 1 Short