

NOTE: These kits are not legal for use on pollution controlled vehicles



Go Port EFI System

Instruction manual for the Go Port

This quick start manual is designed to get you up and running with your Go Port EFI System Base Kit. The FiTech Go Port EFI System is the industry's most advanced multi port fuel injected system and also the easiest to install. It includes a very advanced hand-held controller, which is far more tunable than any competitive product that utilizes a hand-held controller. This port style EFI is as simple as a throttle body style EFI. It has the advantages of easy installation of the throttle body EFI and yet has the precision fuel distribution of port style EFI. This system combines a Hi Flo FiTech throttle body (with the ECU mounted right on it) together with a high quality aftermarket intake manifold, and includes FiTech brand Hi Flo injectors mounted in fuel rails. Please read the full instruction manual before beginning your installation. These instructions cover the Basic Kit installation and setup. For technical assistance with your Go Port EFI System, call 951-340-2624 or go online to www.fitechefi.com under "support".

Warning: Caution must be observed when installing any product involving fuel system parts or gas tank modifications. Work in a well ventilated area with an approved fire extinguisher readily available. Eye protection and other safety apparel should be worn to protect against debris and sprayed gasoline. We recommend having this installation performed by an experienced, qualified, and FiTech approved automotive technician. The finished installation must be thoroughly checked for any fuel system leaks. All safety precautions must be observed when working with fuel. Lastly, ensure the engine has had sufficient time to cool! The coolant may still be hot.

NOTE: Do not use solid core ignition wires.

Kit contents

Go Port EFI- SB Chevy – 550 HP- #37854 or
Go Port EFI- SB Chevy – 1050 HP- #37858 or
Go Port EFI- SB Ford – 550 HP- #32854 or
Go Port EFI- SB Ford – 1050 HP- #32858 or
Go Port EFI- Ford 351W – 550 HP- #32454 or
Go Port EFI- Ford 351W – 1050 HP- #32458 or
Go Port EFI- BB Chevy 1(rectangular)–550 HP-#30254-or
Go Port EFI- BB Chevy 1(rectangular)–1050 HP-#30258-or
Go Port EFI- BB Chevy 2 (oval) – 550 HP-#30454-or
Go Port EFI- BB Chevy 2 (oval) – 1050 HP- #30458-or
Go Port EFI- Standalone EFI- #30014-or
900 CFM matte black throttle body
Throttle body-mounted

Tools required

Socket wrench set
Open ended wrenches
Box/end flare wrenches (optional)
Distributor wrench
Ignition wrench set
Screwdrivers

Additional items required, not included

RTV sensor approved silicone

Sequential fuel ECU

2.5 BAR MAP sensor built into the throttle body
2.5 inch touch screen hand-held tuner
suction cup Windshield mount
High flow fuel rails
(8) FiTech high flow 36-lb injectors for 550 HP kits, 55-lb for 1,050 HP kits
Wide band O2 sensor and stainless steel clamp or weld in bung kit
6-pin sub harness with flagged lead destinations
Coolant temperature sensor
Throttle Body Gasket Kit

Gasket scraper or putty knife
Razor blade
Channel lock and hose clamp pliers
Torque wrench
Timing light and vacuum gauge
Drain bucket
Paper towels

Teflon Tape
Intake manifold gasket

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About your FiTech Go Port electronic Fuel Injection System

The FiTech Go Port EFI System is self-tuning once the initial setup is performed using the hand-held controller. When the necessary initial inputs are made with the hand-held controller the Go Port electronic Fuel Injection System creates a base fuel MAP to get the engine running. Then the self-tuning programming will fine tune the MAP to produce optimum power and performance. Through the use of a wide band O2 sensor the system can continuously make adjustments in the fuel delivery to provide the correct air/fuel ratio under all climate and altitude conditions. The ECU (computer) is mounted on the throttle body which will eliminate the necessity of remote mounting the ECU module and the need for an unsightly harness draped over your engine. Several sensors are also integrated in the throttle body assembly including the Throttle Position Sensor (TPS), Manifold Absolute Pressure (MAP), a barometric sensor (BARO), and the Intake Air Temperature (IAT). The Throttle Position Sensor's purpose is to display how far the throttle blades are open. The ECU maintains the calibration of the sensor but, if the TPS reading is not at 0 at idle then the sensor needs to be recalibrated. The Manifold Absolute Pressure measures the load on the engine and will range between 10 and 90 while the engine is running. When the engine is off it will read at 99-100kPa. The Intake Air Temperature monitors the temperature of the air flowing into the intake.

Special Instructions

- If using the Frame Mount Inline Fuel Pump, it should be mounted at or below the bottom level of the fuel tank and as close to the tank as possible, no more than three feet away from the tank. This type of pump is designed to pump, not draw, and works best when gravity fed.
- Only use hard fuel lines when using proper EFI rated flared fittings.
- Do not use solid core ignition wires
- Make sure that you remove ALL low pressure flex joints on factory fuel lines and replace them with EFI rated fuel hose and use proper flared connections and clamps. Be careful not to mix 45° and 37° AN fittings, they look similar but will not work together. 45° fittings usually come from a hardware store or auto parts store while 37° AN fittings are the ones supplied by FiTech and most speed shops.
- Inline fuel pump return line must be $\frac{3}{8}$
- Only the steady state fuel "learns". Cranking and hard throttle hits will not learn, but they can be tuned in Go-EFI Tuning. Selecting the right "cam" and engine CID (cubic inch) will get the learning closer. The Accel Pump will often need tuning for your particular engine combination.
- The tank must be primed with fuel before connecting the EFI pump. Running the EFI pump dry will damage it. Since the tank is filled by a low pressure pump, the system can also experience vapor lock. To ensure this does not happen make sure the low pressure system is separated from heat sources, such as the exhaust, and make sure there is a free flowing feed to the low pressure pump.
- Your system will be running at 58 PSI so consult an FiTech approved professional if you are not certain about this portion of your installation.
- FiTech does not recommend aluminum fuel lines EVER! Use the supplied EFI high pressure fuel hose supplied in your Fuel Delivery Kit.
- Use the supplied push lock style hose ends only with the supplied hose and vice versa. Interchanging hose ends and hose with other brands could cause leaks
- Our Go-Port systems are intended for use with unleaded pump gas up to 15% ethanol content
- The FiTech Go Port Timing Control feature cannot be utilized if you have a "Ready-to-Run" distributor or an HEI distributor.
- FiTech Fuel injection is designed to be used with street based injection systems: MSD digital 6AL or street fire, Summit street amplifier box, etc. It will not operate with race oriented systems such as MSD digital 7AL, 7AL /2, MSD 8 AL.
- Please refer to ignition system's instructions as some features may need to be altered for proper operation of the EFI System
- It is recommended to use unleaded fuel to ensure a longer lasting oxygen sensor. Leaded fuel will lead to improper exhaust gas oxygen readings.
- Ensure the engine has had sufficient time to cool down, the coolant can remain hot for extended periods of time.
- Before starting the install ensure the RTV silicone sealer is sensor compatible. Disregarding this information will result in destruction of the oxygen sensor. This information should be found on the RTV package.
- FiTech Systems are not designed, intended, or legal for use on pollution controlled vehicles.
- Before starting the install Disconnect the negative battery terminal.

Very important note: Your fuel tank must have a vent to prevent pressure building up inside the tank

Dimensions

Before installing your FiTech Intake manifold it is recommended to check hood clearance. this can be done in a few simple steps.

- 1 First, using modeling clay or putty, not included, make five small cones about 2-3 inches high. Position the cones on the air cleaner at the front, rear, each side, and on the center stud.
- 2 Close the hood to locked position and re-open. The height of the cones indicate the amount of clearance between the hood and the air cleaner.
- 3 Record these measurements. We recommend at least an inch of clearance. Modification of the hood might be necessary to ensure there is no damage to any components.

Engine Protection Feature

The FiTech Go Port EFI System is programmed with a limp home mode. Our features differ from competitors because it will not shut down your system. The ECU system will compensate if a sensor fails. This means, that if for any reason a sensor fails, that sensor will receive either a default value or a simulated value. This is to ensure that the engine remains running in a safe and controlled manner so that you can get to a repair facility, or to your home to resolve the issue. Due to the compensation features of the ECU the way to check if something is going wrong with your system is to check the fault codes. This menu option is on the main menu on your hand-held controller. The fault code comes up under OBD-II, diagnostic standard, but to the right of the code it will state which sensor is having the problem. Check our troubleshooting guide to solve them fault codes errors.

Preparing the Manifold for Installation

- 1 Before attempting to remove the manifold make sure the engine has had sufficient time to cool down.
- 2 Then disconnect the battery ground wire and tag the vacuum and crankcase ventilation hoses leading to the air cleaner and remove the assembly.
- 3 Before draining the radiator, ensure the engine is cool! The coolant may still be hot. Drain the radiator fluid by opening the port at the bottom corner of the radiator. If a port does not exist, then carefully drain the fluid by removing the lower radiator hose. Disconnect the existing throttle linkage set up.
- 4 Now remove the gas cap to relieve any built up pressure.
- 5 Disconnect the fuel line from the throttle body and plug the fuel line to prevent spillage and remove the existing carburetor/throttle body. Block the carburetor flange with tape to ensure nothing falls through the intake into the lifter galley.
- 6 Now tag and disconnect the ignition coil and sensors. Remove all water hose fittings and all of the vacuum fittings. Remove remaining brackets and loosen valve covers if necessary.

Removing the distributor

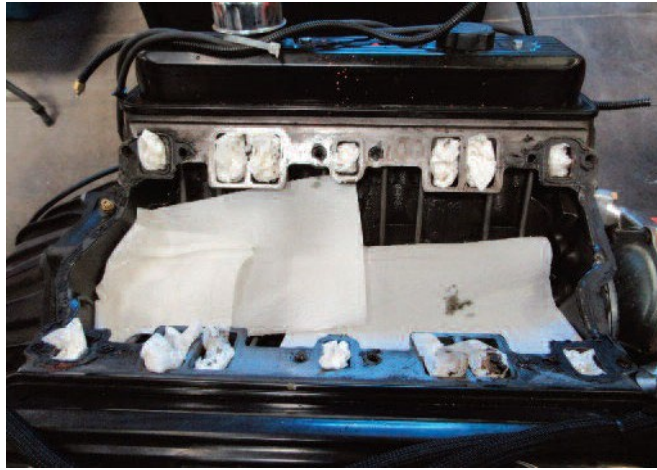
Remove and install distributor according to company specification

- 1 Disconnect all of the driver side spark plug wires off the distributor cap. Ensure to be sure to know which wire you took off from where to ensure the firing order does not get messed up.
- 2 Remove the distributor cap. Mark the existing timing of the rotor on the distributor body.
- 3 Then set the rotor tip to TDC: where the zero degree timing mark on the harmonic balancer matches with the timing mark line one the engine.
- 4 Now loosen the distributor hold down and pull out the distributor.

Removing the Intake

NOTE: Removal of the valve covers may be required on some applications. If valve covers are removed, replace the valve cover gaskets as needed.

- 1 Remove all of the bolts holding the intake to the cylinder head. Depending on the type of sealant used when installing the intake, it might be hard to remove. If this is the case, in the back two corners, jimmy a flat head screwdriver cautiously under the intake and try to lift it.
- 2 Once removed block all port holes with paper towels. We recommend paper towels verses a shop rag because if for any reason a bit of the paper towel falls through into the engine, it will not be hard for the motor to pass, where if a piece of a shop rag falls into the engine it can jam something and cause further complications. Using a paper towel will also ensure that no lint or anything from the shop rag is then being passed along through the motor.



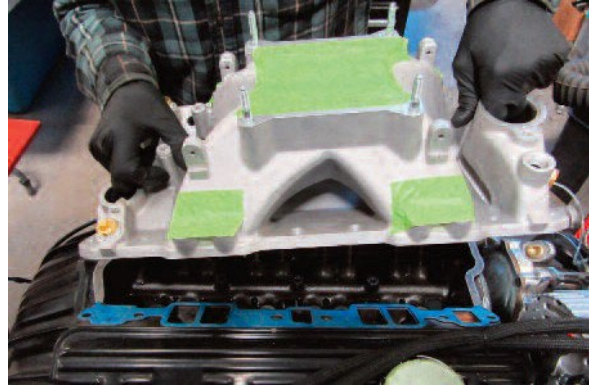
- 3 Lastly, lay extra paper towels across the lifters to catch any falling gasket debris through the cleaning process.
- 4 Once the ports are blocked clean all of the mating surfaces first with a gasket scraper than a razor blade to ensure that the mating surfaces go back to clean metal.
- 5 Now clean the leftover residue by spraying brake cleaner onto a clean shop rag and wipe down any mating surfaces. Any alcohol based or lacquer thinner will work, the main objective is to remove any existing oil to ensure a proper gasket seal.
- 6 Now remove the paper towels and use a shop vac to pick up any leftover debris. Also ensure to clean the threads on the bolts before reinstalling.

Installing the Manifold

- 1 Once the surfaces are all clean, lay the new gaskets down and align the intake ports and holes to ensure they will fit properly on the engine. Do the same thing on the intake, just to ensure there will be no complications or vacuum leak.
- 2 Next set your FiTech Go Port intake onto the gaskets on the engine and ensure it seats properly. If the intake fits properly in between the heads check the sealant distance. This is to ensure that when applying the silicone the proper amount is applied. If too little silicone is applied there will be a vacuum leak on the china walls, if too much silicon is applied there is a possibility it could get into the engine oil pump. NOTE:ensure to check the clearance between the intake and the head. If you are using vortec heads you may need to grind down a part of the side wall to ensure in intake seeds properly. Also adapters might be needed for the center 4 bolts
- 3 First apply silicone to the water ports under the gasket to make sure the gasket can be held into place, on both passenger and driver side, then install the gaskets.



- 3 Next, lay the intake onto the block and gage how much silicone will be needed. Apply the proper amount of silicone, proper according to best judgment, to the china walls.



- 4 Be sure that the corners of the china walls have the most coverage and the silicone is applied all the way, overlapping the gasket. The corner is where the leaks are most likely to occur. Make sure to be using sensor compatible RTV!



- 5 Set the intake on the heads, aligning all of the holes and ports. Verify that the silicone squishes evenly with no gaps. We recommend not wiping excess silicon that protrudes off the edge of the china walls.
- 6 Then apply a small amount of RTV to the bottom threads of all of the bolts that are not going into blind holes. This will ensure that excess oil does not run the threads.



- 7 Apply the bolts according to illustrations and engine spec. This is to ensure the intake will lay evenly on the heads when the bolts are being torqued. Run down and torque the bolts in illustrations (1,2, and 3) and engine spec.



- 8 Re-install oil pressure sender and tighten water block off plugs to engine manufacturer's recommendation.
- 9 Apply teflon tape onto the provided EFI CTS adapter and install into the intake and tighten as required.
- 10 Install the EFI CTS into the adapter, and tighten as required with a $\frac{3}{4}$ " wrench.
- 11 Now remove the engine temperature gauge adapter from the previous intake and clean the threads. Apply teflon tape to the adapter and install it into the Go-Port intake

Small Block Chevy Intake Manifold Torque Sequence

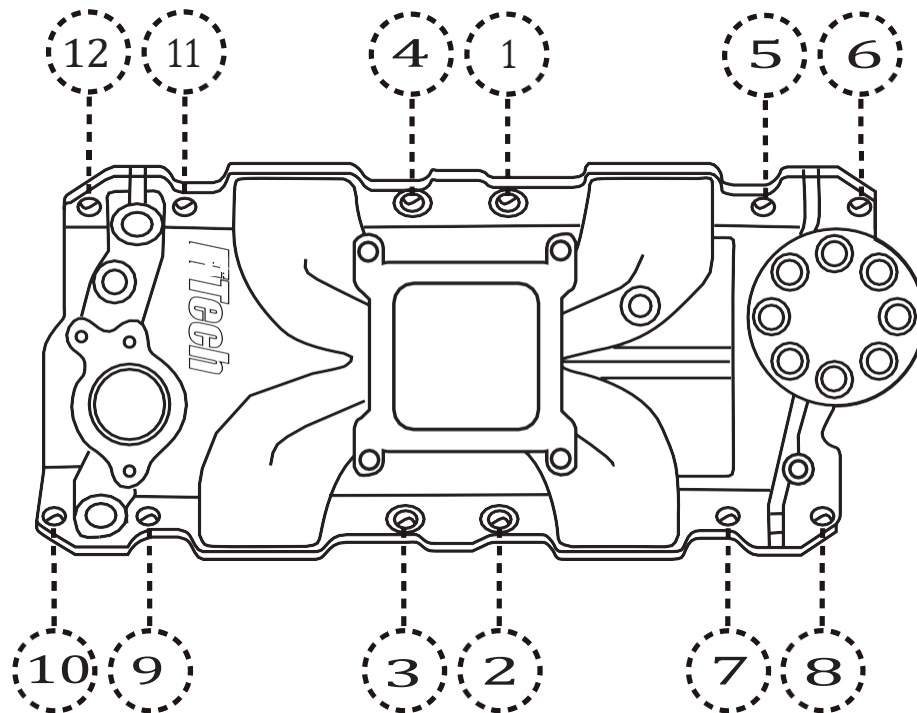


Figure 1

Big Block Chevy Intake Manifold Torque Sequence

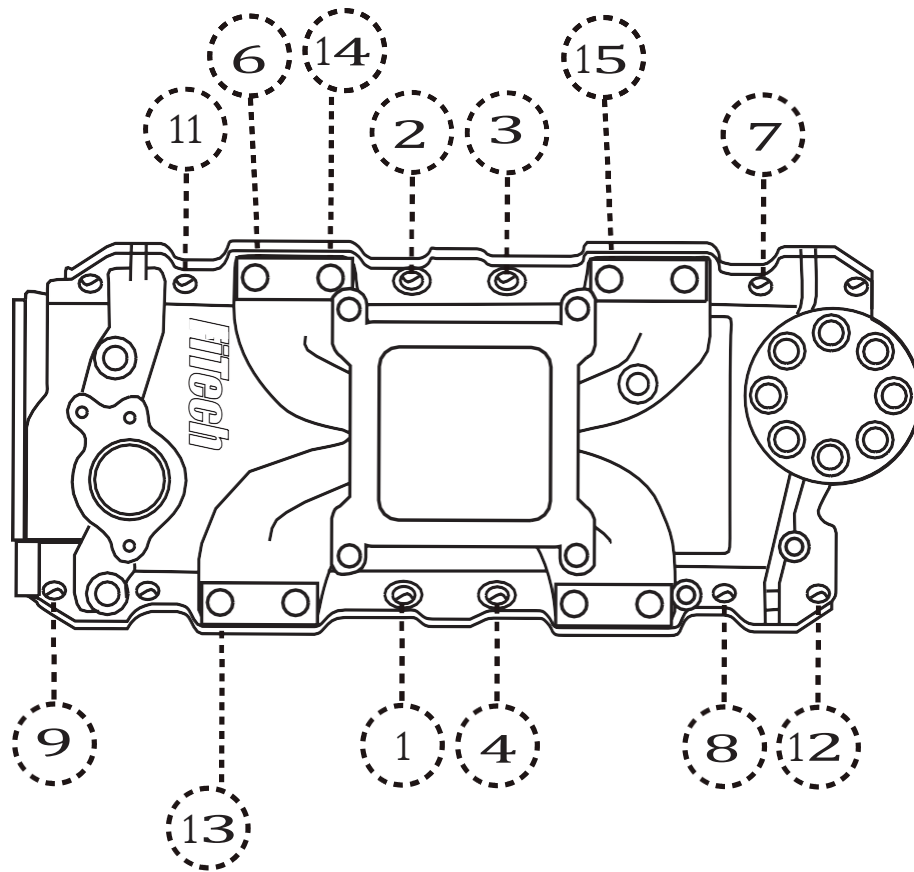


Figure 2

351 Ford Intake Manifold Torque sequence

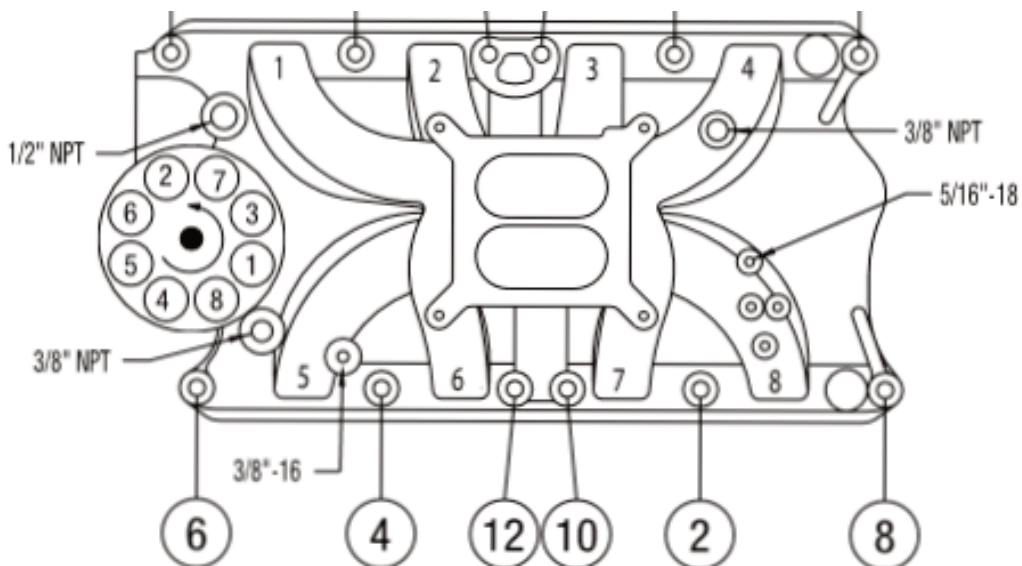


Figure 3

Installing the Distributor

Follow the manufacturer's recommended procedures for the following steps:

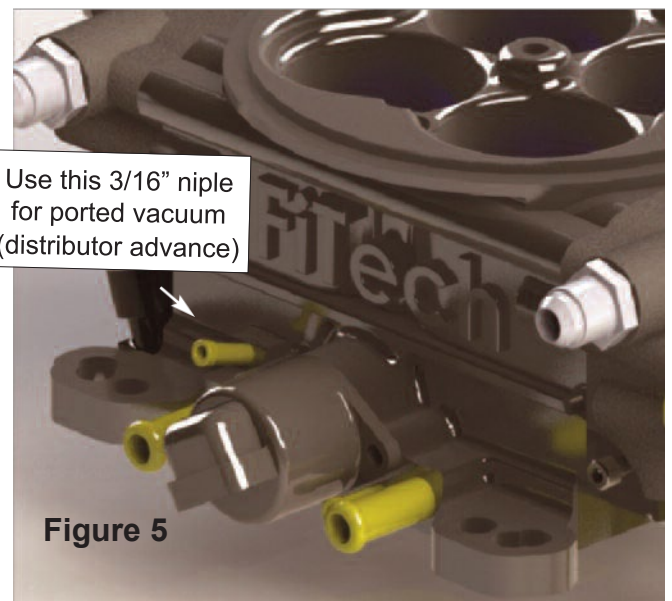
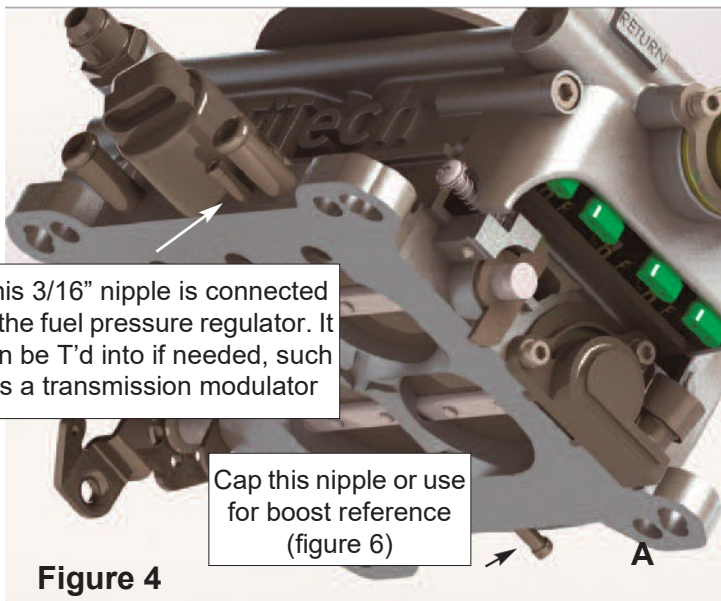
- 1 Drop in the distributor making sure that the rotor aligns with marks made during disassembly. If you are installing a new distributor, you will have to make sure it is properly timed.
- 2 Then, Align distributor housing with marks made on block during disassembly. Ensure the distributor seats properly against manifold and that the distributor shaft is fully engaged in the oil pump.
- 3 Bolt the distributor hold down clamp to the manifold.
- 4 Replace the distributor cap.
- 5 Replace the spark plug wires and check that they are in the correct firing order.

Vacuum Ports

Before installing the throttle body determine the engine's need for vacuum ports including ported and manifold. These ports cover accessories such as power brakes. There are three 3/16" male nipples and two 3/8" male nipples. If you need more vacuum connections than this, you can purchase vacuum tees and vacuum hose at your local auto parts store. See figure 4, 5, and 6 for location and use of various vacuum nipples.

Installing the Throttle Body

- 1 Installing the throttle body is no different than replacing the carburetor.
- 2 Place the supplied gasket onto the manifold and place the throttle body onto the gasket. The throttle body linkage must be on the driver's side of the engine.
- 3 Install the original nuts and washers onto the four carburetor studs. Tighten to 10 lb. ft. of torque. FiTech does not cover damage to the carb ears such as cracking or bending due to improper torqueing or installation.
- 4 The FiTech throttle body has four fuel ports: three inlet and one return. Any one of the three can be the inlet. The outlet port is marked with the word "return". The return line is 14mm -6 hose with an 11 1/16 hex size. The side facing the throttle body is 1/4".
- 5 On a returnless setup the outlet port is plugged. Three plugs are provided in the kit for the unused ports. Two plugs are installed in the throttle body with one loose plug in the kit. All the plugs will be used on return-less configurations only two will be used when the system will have a return line. Check the front fuel rail cross over tubing. This line may shift during the foregoing operations, so ensure that the line cannot interfere against the manifold runner or the water cross-over.
- 6 Reinstall the valve covers if removed.
- 7 Attach the throttle linkage and verify it moves freely without interference. Any throttle linkage interference MUST be resolved before proceeding.



Roots type supercharger only: plug the indicated vacuum port with a 10-32 x 3/8 long set screw which will thread directly into the hole. Seal with blue loctite. Connect boost reference hose to 3/16" nipple "A"

For Unblown or blow through only: use nipple for boost gauge or boost reference
Use zip tie to retain hose on nipple

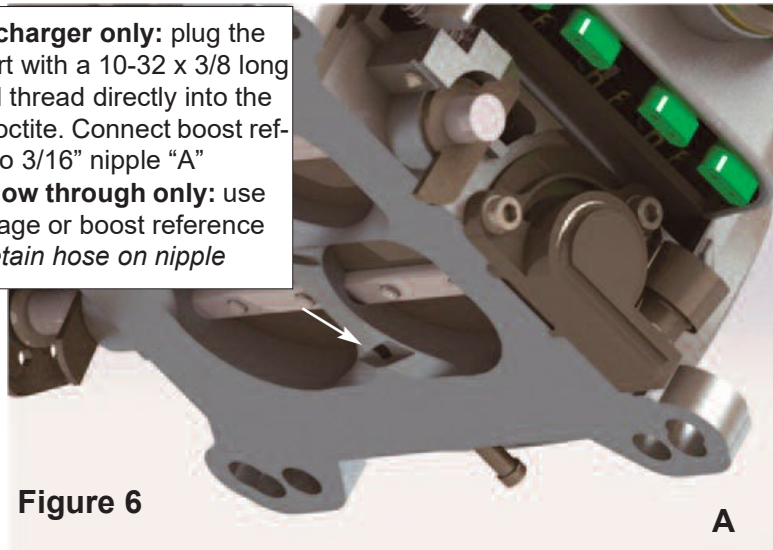


Figure 6

A

Instal Fuel Rails

- 1 Lubricate the fuel injector top and bottom o-rings. Do not use synthetic, animal or vegetable oils. Use of an o-ring specific lubricant is recommended. Use motor oil if you do not have a good o-ring lubricant. Be careful not to damage the o-rings.
- 2 Carefully install the injectors into the rails and then install the injectors and both rails into the manifold.
- 3 Install the rails onto the intake and tighten until secure. Make sure that the four end fittings in the fuel rails are threaded into an adequate depth.
- 4 Plug in injectors in the order of the illustrations (driver side 1 3 5 7 passenger side 2 4 6 8) **WARNING!** Damage of the o-ring can cause fuel leakage. A fuel leak may result in a fire or an explosion hazard, which could cause serious injury or death.
- 5 Carefully install the injectors into the rails and then install the injectors and both rails into the manifold.
- 6 install the four Allen head screws that held the rails in place and tighten securely. Make sure that the four end fittings in the fuel rails are threaded into an adequate depth.
- 7 Reattach the front and rear crossover tubes. Tighten completely hand tight.
- 8 After the crossover tubes are installed, tighten the nut on the four fittings that go into the fuel rails. Tighten securely.
- 9 Securely tighten the front and rear crossover tubes with a wrench. The regulator should already be installed. Make sure that the two Allen head screws securing it to the fuel rail are tight.
- 10 Also check that the regulator fitting is tight and pointed in the desired direction. Do not over tighten the fitting in the regulator or it will leak.

Coolant Temperature Sensor Installation

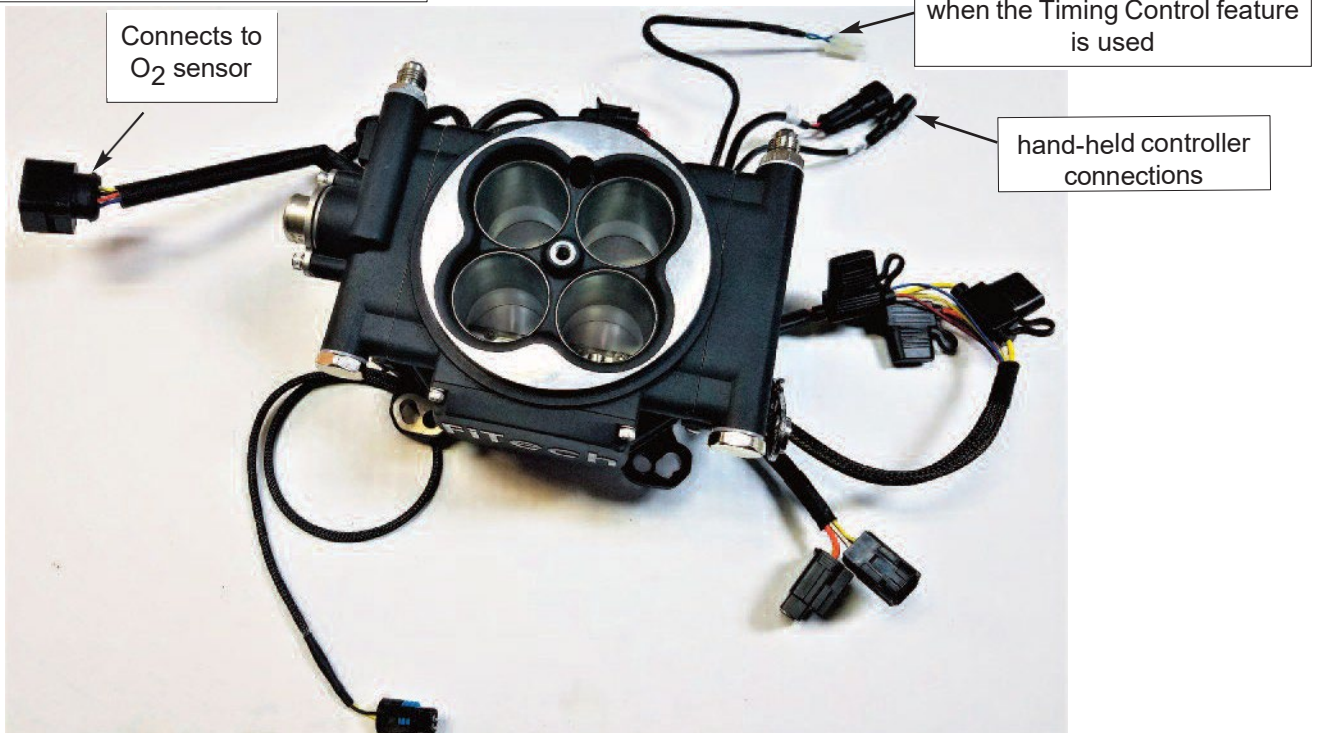
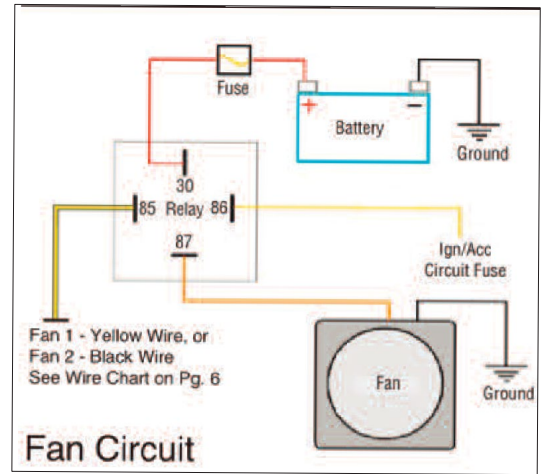
- 1 The Temperature Sensor should be threaded into one of the ports in the intake manifold or cylinder head. The sensor threads are 3/8-NPT. Some manifolds have 1/2-NPT ports and in this instance use supplied pipe reducer.
- 2 Connect the Yellow/Black wire lead from the throttle body to the sensor.
- 3 Snap the connector into the sensor. Use Teflon tape or a quality pipe sealant on both the pipe reducer (if used) and on the temperature sensor.

Wiring

The supplied Harness "A" (see figure 7) plugs into mating connector "B" from the throttle body mounted ECU (see figure 8). The various wires will need to be extended to make required connections. See the wire chart on page 6 which lists each wire used in the system and what it connects to. It is strongly suggested that any wire extensions are made with the same gauge and color wire as is used in the supplied harness. Make connections as a soldered joint rather than a crimped connection. Utilize a shrink wrapped sleeve covering all connections. All modifications to wiring must be made on harness "A" (the vehicle side wiring) such as extensions or cuts. Any modification of the ECU side harness will result in a VOID of warranty.



Harness "A" connects into connector "B" from the throttle body mounted ECU. See figure 8



Wiring Chart

The chart below lists all of the wires in the FiTech Go Port EFI System. The wires are color coded and the wires that are part of harness "A" are all marked for where they go. There are six wires in harness "A". Four of them are required connections and two are optional. One of the optional wires (Blue) is required when the timing control feature is being used. If timing control is not used, then the black wire is used in place of the blue wire. More detailed connection information (Figure 9 through 13) is provided on later pages of these instruction.

Wiring Diagrams

The following five pages are various wiring diagrams that address the most common ignition arrangements that will be found. Each diagram will show you the specifics of how to wire your FiTech Go Port EFI System for that particular ignition setup. Note the FiTech Go Port EFI timing control feature cannot be utilized if you have a "ready-to-run" distributor or an HEI distributor, unless they are being used WITHOUT timing. The FiTech Go Port EFI Systems require a two wire magnetic pickup distributor that is locked out and phased. It will work with most other aftermarket or stock distributors but in every instance the advance mechanism in the distributor must be locked so it cannot function when using timing control. Most aftermarket distributors provide instructions on how to lock the advanced mechanism.

The following wires are used in all systems (2x4-Pin Connector)

Req./Opt.	Wire Color	Description
Required	Red (Large)	Main power. Connect this wire directly to the positive (+) terminal of the battery. This circuit needs to be live even when the switch is off so that the self-learning files are maintained. This is fused with a 25 amp fuse.
Required only if timing control is not used	Blue	This is the tach input wire which triggers the system. It connects to the 12 V negative terminal of the coil. On HEI distributor it connects to the "Tach" terminal on the distributor cap or connects to a tach output on a CDI box.
Required	Yellow/Black	This wire connects to the Engine Coolant Temperature Sensor.
Required only if timing is used	Black	This is the coil trigger wire. Connect this wire to the points wire on any external ignition CDI box such as an MSD 6A or to negative coil post if not using CDI box.
Required	Orange (Large)	Fuel Pump circuit. This wire provides 12V to the fuel pump and connects to the positive (+) terminal on the pump. No relay is required.
Required	O ₂ Harness	This cable from ECU connects to the Wide Band Oxygen Sensor harness.
Required	Wiring Harness "A"	This connects to the Connector "B" from ECU. See figures 7 and 8 (Page 5)
Required	White	On/Off-Connect this wire to a switched 12V circuit. Must be on during both "Key ON" and "Cranking" DO NOT connect to the coil terminal when using an external CDI box such as an MSD 6A or any other CDI ignition.
Optional used with timing control	Violet (+) Green (-)	This is the input for a magnetic pickup, such as from an MSD distributor or any other magnetic pick-up two-wires distributor. This connection is only used in conjunction with the Timing Control feature.
Optional	Yellow	Fan Circuit #1. This wire goes to the ground terminal of the fan relay.

The following additional wires are used in Power Adder System (4-Pin Connector)

Req./Opt.	Wire Color	Description
Optional	Red (Thin)	Air Conditioning
Optional	Black	Fan Circuit #2. This wire goes to the ground terminal of the fan relay.
Optional	White	Nitrous "IN" signal. This should receive 12V positive when Nitrous arming safety switch is activated

Initial Programming

This simple procedure is performed using the hand-held controller. A laptop computer is not required. This unit plugs into the throttle body ECU. After a few initial inputs are made the hand-held controller can be removed or left connected. When connected, there is a dashboard and gauges screen that will show engine parameters in real time.

Hand-held controller

There are two ways to navigate the hand-held controller; you can use the touchscreen with your finger or the D-pad up, down, left, and right. The D-pad can be used to view the displays on the controller by moving the button up and down or side to side, pressing the OK=enter. When making changes to the ECU through the hand-held make sure that the key is on. Once the changes are made turn the key off, wait 15 to 20 seconds until the values disappear under the "dashboard" feature. Doing this will ensure that your changes have received a hard save. Once the hard save is completed if desired the battery can be disconnected without interference with the calibrations. For handheld controller definitions visit www.fitechefi.com under "tech center" subtab handheld controller.

Trigger Tach Signal

The FiTech Go Port EFI requires an rpm/trigger reference to operate. This is obtained by a connection to the negative post on a 12V coil while cranking. If you see 0 RPM in the dashboard during cranking, this is the first thing to check. On HEI distributors, this connection is made to the "Tach" terminal that is indicated on the HEI distributor cap. If you are using an MSD (or other brand) CDI box to control your timing then you would use the Tachometer output wire, commonly a grey wire or blade connector on the side of the CDI box.

NOTE:

- All wires need to be separated from the CDI output, the coil, and the spark plug wires. These sources of EMI will cause problems. Shielding can sometimes be used on the CDI system to keep the EMI at bay. Problems associated with this include false RPM signals, which can cause severe drivability problems. Other sources of EMI include the alternator and starter. If the RPM shows values that are unreal, first thing to do is check what's crossing the wires.
- Battery power must come from the battery, NOT from the starter, or another 12V source, ONLY the battery is acceptable. Everywhere else drops too much voltage during cranking. If the handheld ever "whites out", it's because the voltage drops out too far. The ECU likely turns off temporarily in these same situations, and poor or no starting can result.

Timing Control

Timing Control, or "spark control" as it is sometimes called, is available on the Go Port EFI System. Unlike most systems, an external CDI ignition box is not required. In fact, the Go Port System is the only throttle body EFI with a throttle body mounted ECU that has timing control without the need for an external CDI box. When using timing control, the distributor still needs to be moved and synched to the ECU with a timing light matched to the Spark Advance in the Dashboard. Timing control is not self-learning and is not mandatory when installing your Go Port EFI System. The values in the timing map are the final numbers you should see at the timing light. Cranking has double spark, so most timing lights won't show accurate numbers. Idle has a stability control algorithm, so the timing will bounce around the Idle Advance by +/- 6 degrees or so. A new feature coming soon is a lock-out option for setting the timing. Settings are available for idle timing, as well as complete timing control using your hand-held controller.

Rev Limiter

The Go Port EFI System provides both spark and a fuel controlled rev limiter. When the engine attains the programmed RPM limit, fuel will be cut off to maintain the desired limit. Any external ignition related RPM limiter is independent of the Go Port EFI System and you should set the EFI related RPM limiter higher than your external rev limiter to prevent a crossover of the two happening at the same time.

Power Adders

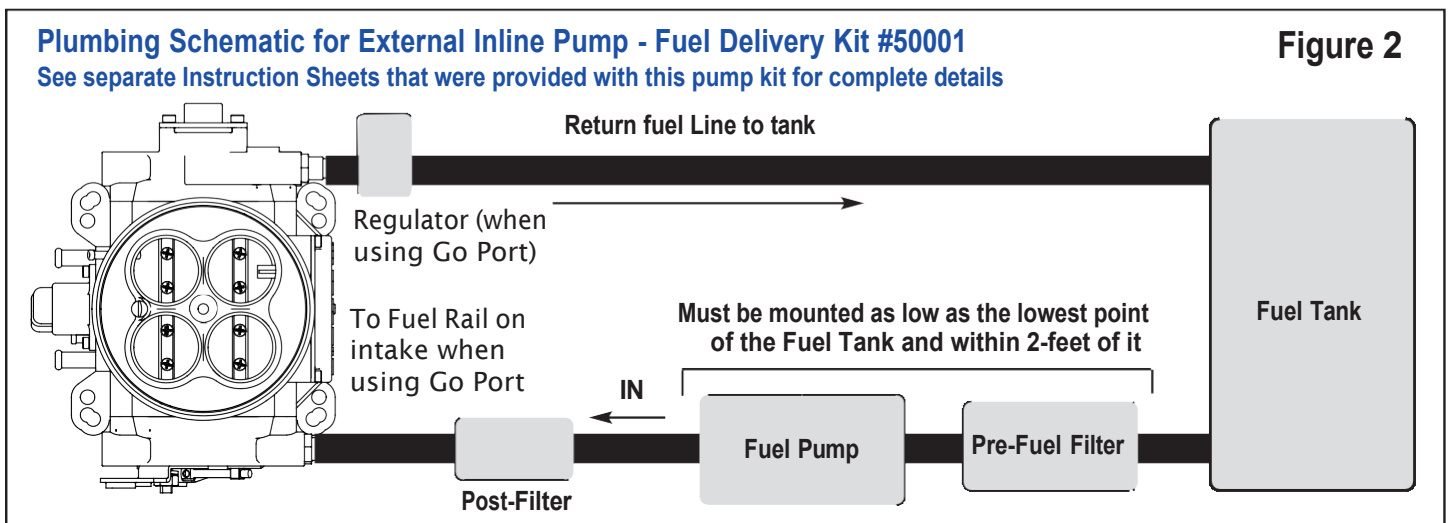
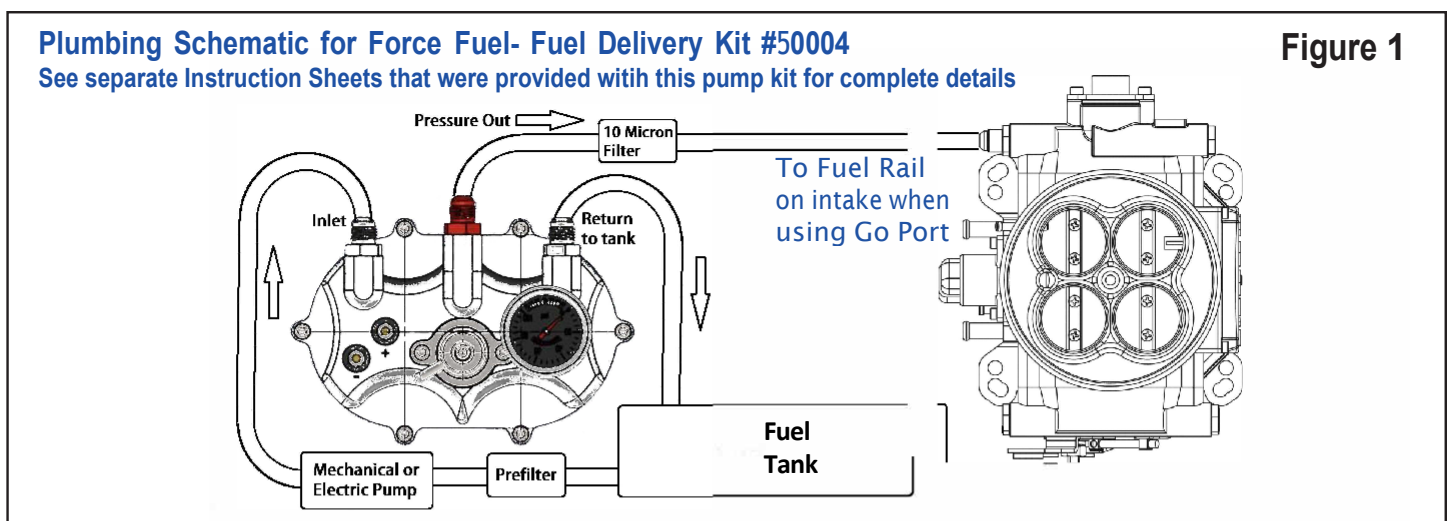
Power Adder units are designed to operate in conjunction with wet nitrous systems as well as draw-through or blow through superchargers or turbochargers. The hand-held controller includes a program for nitrous that allows you to set a target air/fuel ratio when the nitrous is activated plus you can retard the timing (when timing control is active). Nitrous systems require their own fuel pump to supply the added fuel required with nitrous. There is a target air/fuel ratio setting when operating under boost with forced induction applications. The purpose of having a power adder versus a non-power adder is that a power adder has a 10 pin harness, air conditioning input, and a second fan relay driver. The purpose of the air condition input is to kick up the idle speed automatically. The benefit of having a second fan relay is to induce more total air flow without installing a large loud fan. While the non-power adders have a 2x4 pin harness, single fan relay drive, and no air conditioning input.

Fuel System Requirements

FiTech offers multiple different fuel delivery options. One option is the 50004 Force Fuel delivery system. When using this option, you can configure the system to operate on a returnless basis. The Force Fuel uses your existing carburetor fuel pump and fuel lines to deliver fuel to the Force Fuel which is mounted in the engine compartment. High pressure hose and fittings are supplied with this kit to ensure plumbing occurs from the Force Fuel to the EFI throttle body. A 340 L/PH EFI pump is submerged in the fuel in the Force Fuel sump tank. The Force Fuel also has a regulator and fuel pressure gauges. Another fuel delivery system is the 50001 Frame Mount Inline External Pump. Using this pump the system must have a return line. It comes with a 255 L/PH inline external fuel pump suitable for use with an engine making up to 600 HP to the flywheel.

Note: If you choose to use some other fuel delivery system other than FiTech, it is important to make sure that you confirm its compatibility with the FiTech EFI system. Contact the FiTech technical staff to check compatibility. Failure to do so can void your warranty (951-340-2624).

* If running a frame mounted pump a regulator will be required.



Fuel Pump Pulse Width Modulation

- 1 The fuel pump pulse width modulation or better known as PWM controls the speed of your pump from your handheld. It can be set with four basic steps.
- 2 To start plug your handheld controller into the ECU on the FiTech Throttle Body, turn your key to the power system, but do not crank.
- 3 Next, go to main menu, scroll down to option 4: Go EFI Initial set-up, click the joystick to enter.
- 4 Now, go under option 1: Engine Setup.
- 5 Then, scroll down to option 6 (pump PWM) and select edit, press clear (CLR) and enter a new value. The lower the number the slower the pump will run.
- 6 Once you enter the value you would like be sure to send to ECU by hitting enter on the joystick.

Idle Air Control (IAC) Setup

The idle screw on the throttle body needs to be adjusted. This needs to be set so that the IAC valve is nearly closed when fully warmed up and in idle. 0-10 IAC Steps are recommended for a fully warm engine, out of gear, at idle. When in idle mode, the IAC will learn the necessary position to keep the RPM at the Target Idle Speed. When loads are placed on the engine, or when the throttle is open, the IAC steps will move around, this is normal. It's best to adjust this screw from a more open position to more closed, so that it does not detect the TPS as open, which will exit the idle control mode.

- 1 Turning the key off will allow the TPS to reset it to the zero position.
- 2 Turn the driver's side throttle adjustment screw IN (clockwise) half a turn to start.
- 3 Then turn the key on and go to dashboard and find TPS and make sure it reads zero.
- 4 If not, then shut the key off and wait for the numbers to go black then turn the key on again. Once that reads zero start the vehicle and find IAC Steps on dashboard.
- 5 This number needs to be within 3-10 at warm idle. If the number reads zero then slowly turn the screw OUT (counterclockwise) until the IAC steps reads between 3-10.
- 6 If the number is above 10 then shut the vehicle off and turn the screw IN as stated above and repeat the process until the IAC steps are between 3-10.

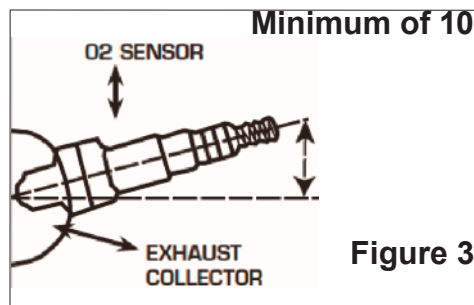
Air Fuel Ratio (AFR)

An approximate value for gasoline's "stoichiometric" value is 14.7. A value of 12.5-13.0 is a "rich" value for near best power. For boost conditions (superchargers and turbochargers) 11.8 is a little richer than best power to keep combustion chambers a little cooler. 14.7-15.5 are lean and can sometimes be used for better cruise fuel economy. Idle AFR should be set to give a decently stable idle. Many engines prefer between 13.2 and 14.0 stoichiometric value.

Oxygen Sensor Installation

This is the key component of any EFI system. Only one sensor is required. This sensor continuously monitors the exhaust gas mixture and sends the information to the ECU where adjustments are constantly made to maintain the air/fuel targets. The benefits of having the wide band O2 sensor is that it provides real time accurate feedback of the amount of fuel the motor needs to reach desired air/fuel ratio directly to the ECU.

- 1 The supplied O2 Sensor can be installed in either exhaust bank. The Sensor cable connects to one of the cables coming out of the ECU on the throttle body. The ideal location for the Sensor is 8 inches after the exhaust collector or in the collector itself. It must always be at least 18-inches from the exhaust tip. It will not work on "Zoomie" style headers.
- 2 The sensor should be between 10° to 14° above horizontal (see figure #3) to allow condensation to run off. If this is not adhered to, the sensor is susceptible to water damage. Never position the sensor on the outside of a bend in the tubing.



- 3 The sensor must always be mounted ahead of any catalytic converter if so equipped.
- 4 Drill a 7/8" diameter hole in the desired location.
- 5 The supplied bung kit can either be welded in place or clamped onto the pipe. The clamp-on style works well and will not leak. If welded, make sure the bung is welded completely all the way around and does not leak.
- 6 Install the sensor into the bung.

WARNING: Do not start the engine without the sensor cable connected to the throttle body and the EFI system is fully operational or damage will occur to the sensor

Air Leaks

It is important that no air leaks exist anywhere in the exhaust system before or after the sensor as this will cause false readings. This will lead to poor engine performance, including misfires, and the inability to properly auto-tune the EFI. Continued running of the system with an exhaust leak can create detonation and possible severe engine damage. Incorrect installation of the sensor, exhaust leaks, and any resulting damage is not covered by the FiTech manufacturer's warranty. It is very important to ensure your exhaust is leak-free.

Selecting the Correct Wiring Schematics

Review figures 10 through 14 and select the schematic that suits your particular application. Note that if you elect to use Timing Control you must select a suitable schematic. Figure 10 shows how to connect a ready-to-run distributor without timing control. Figure 11 is for an HEI distributor without timing control. Figure 12 is for a system with an external CDI box without timing control while figure 13 is a CDI box with timing control. Lastly, figure 14 is with a conventional 2-wire distributor with timing control. One of these configurations will suit your vehicle.

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Wiring Connections for FiTech Go EFI System with Ready-to-Run Distributor w/o Timing Control

Timing Control cannot be used with Ready-to-Run Distributor

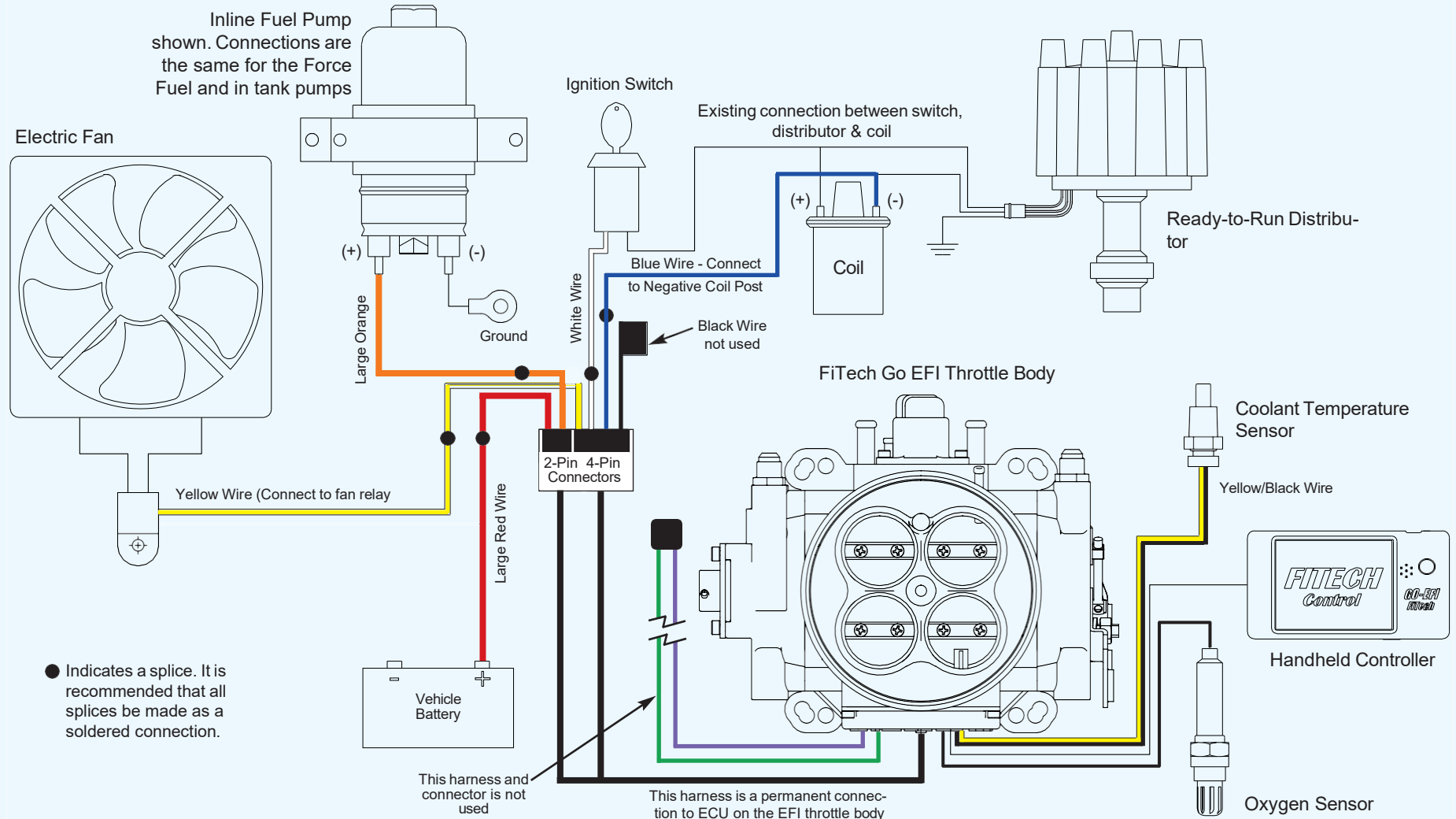


Figure 9

Wiring Connections for FiTech Go EFI System with HEI Distributor w/o Timing Control

Timing Control cannot be used with HEI Distributor

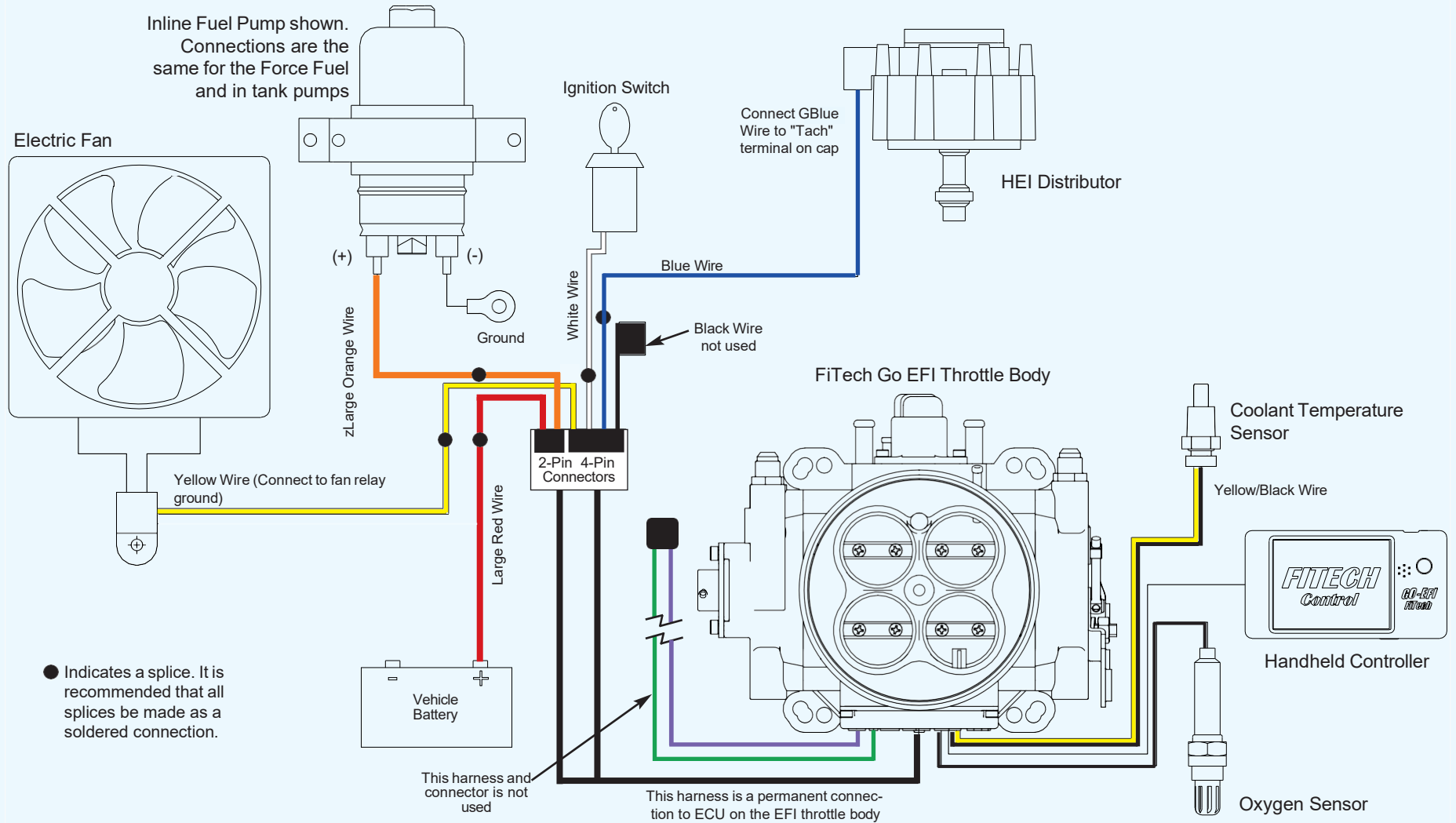


Figure 10

Use this wiring schematic if you are utilizing an HEI distributor without an external CDI box, such as a MSD 6AL or similar aftermarket ignition box. Note that the Fitech EFI Timing Control feature cannot be used with this type of distributor. All other EFI features are compatible.

Wiring Connections for FiTech Go EFI System with External CDI Box w/o Timing Control

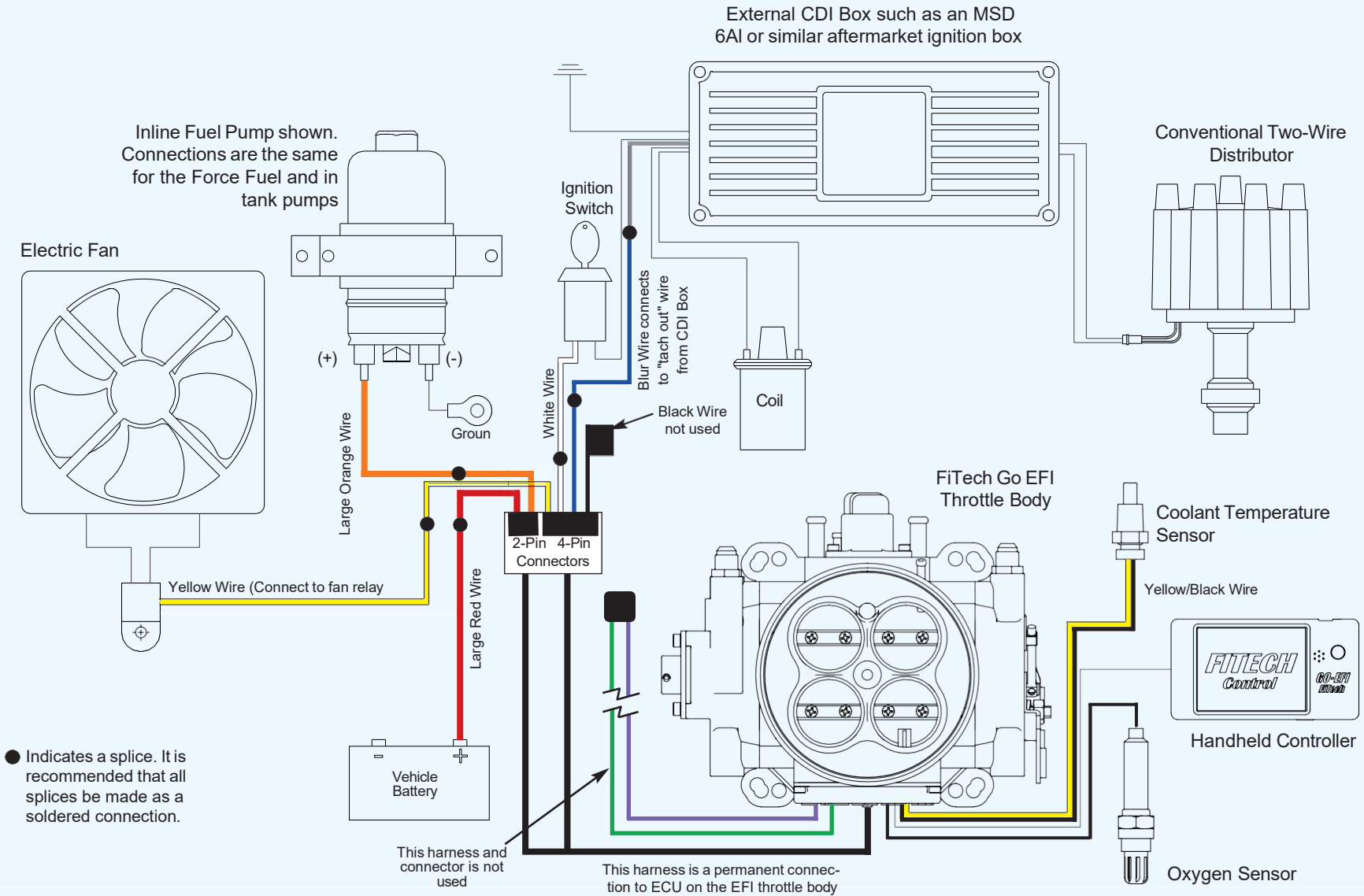


Figure 11

Use this wiring schematic if you are utilizing a conventional two-wire distributor with an external CDI box, such as a MSD 6AL or similar aftermarket ignition box, and you will not be using the FiTech Timing Control feature. See Figure 11 for this configuration with Timing Control.

Wiring Connections for FiTech Go EFI System with External CDI Box with Timing Control

To utilize FiTech Timing Control, the advance mechanism on the distributor must be locked and inoperative.

Inline Fuel Pump shown. Connections are the same for the Force Fuel and in tank pumps

External CDI Box such as an MSD 6AI or similar aftermarket ignition box

Conventional Two-Wire Distributor

Electric Fan

Ignition Switch

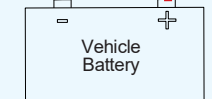
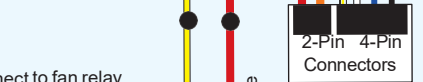
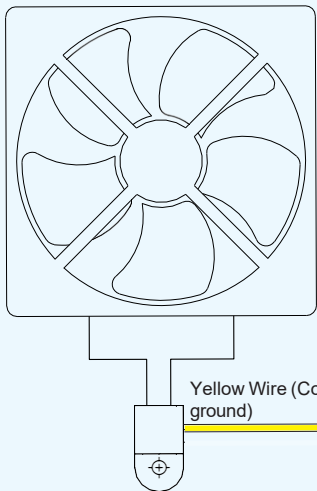
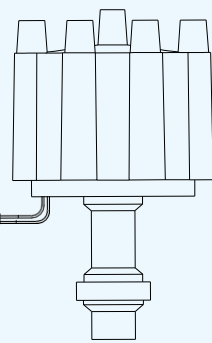
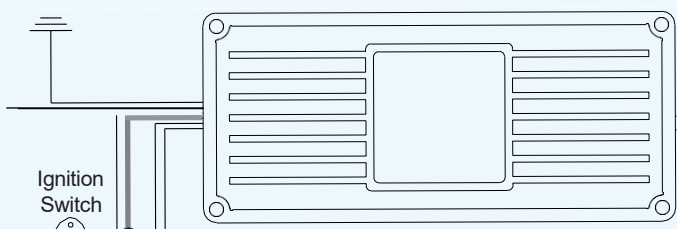
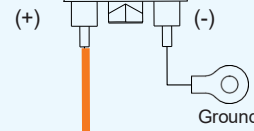
Coil

FiTech Go EFI Throttle Body

Coolant Temperature Sensor

Handheld Controller

Oxygen Sensor



Blue Wire not used

White Wire

Black Wire connects to "points" input wire from CDI Box (may be a white wire)

Yellow Wire (Connect to fan relay ground)

Large Red Wire

Yellow/Black Wire

● Indicates a splice. It is recommended that all splices be made as a soldered connection.

Connect to 2-wire pigtail on distributor

This harness is a permanent connection to ECU on the EFI throttle body

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Figure 12

Use this wiring schematic if you are utilizing a conventional two-wire distributor with an external CDI box, such as a MSD 6AI or similar aftermarket ignition box, and you want to use the FiTech Timing Control. Note that your mechanical advance mechanism must be locked to use Timing Control.

Wiring Connections for FiTech Go EFI System with Conventional Distributor w/Timing Control

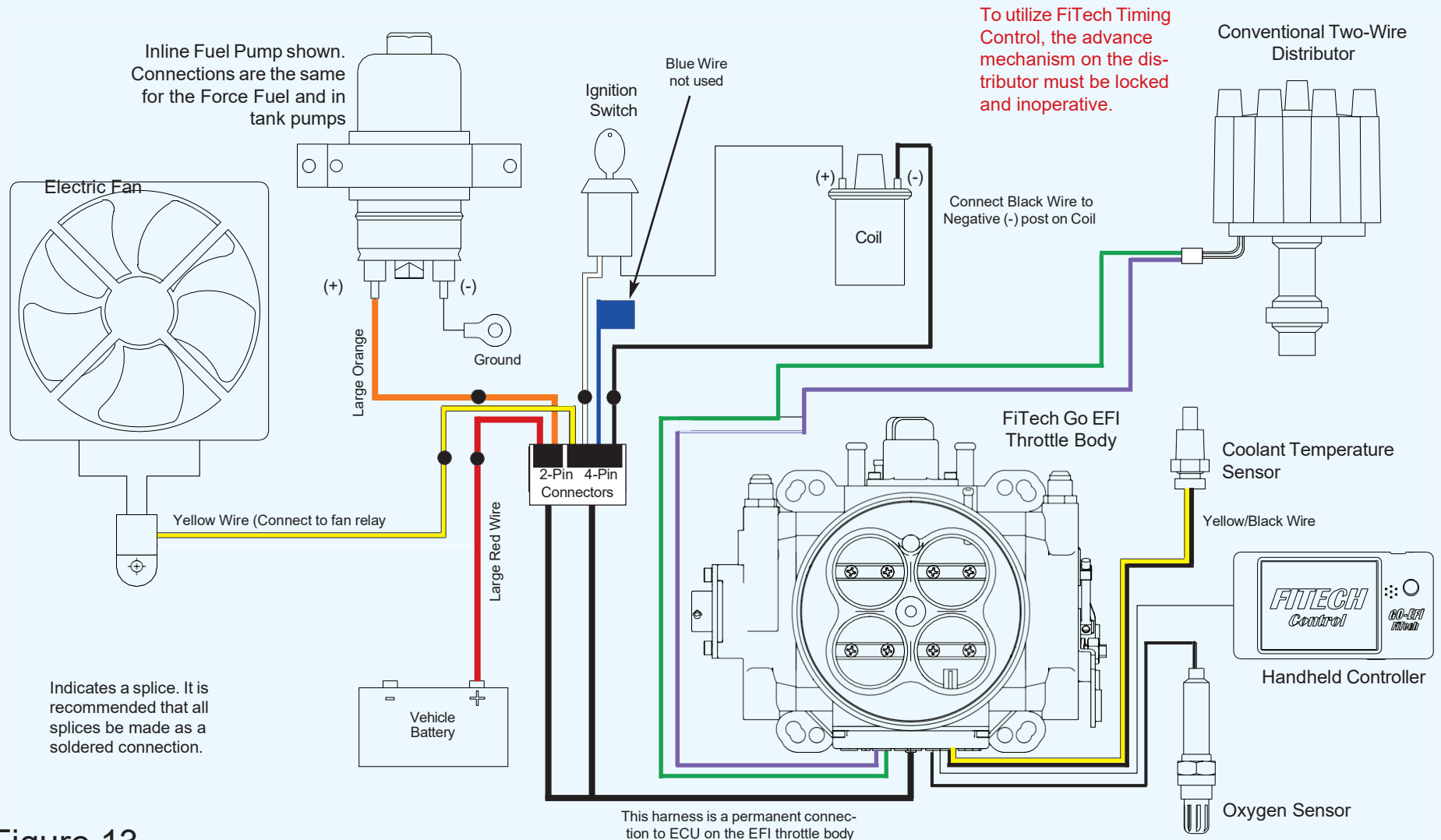


Figure 13

Use this wiring schematic if you are utilizing a conventional two-wire distributor without an external CDI box, such as a MSD 6AL or similar aftermarket ignition box, and you want to use the FiTech Timing Control. Note that your mechanical advance mechanism must be locked to use Timing Control.

Warranty

One Year Limited Warranty on FiTech EFI Systems

FiTech extends the following limited warranty to the original purchaser of a FiTech EFI system. FiTech warrants its products against defects in materials and workmanship for one year from the date of original purchase. This applies only to the original purchaser and the parts must remain installed on the original vehicle for which they were purchased. This warranty is void if the product was improperly installed, was installed on a vehicle for which it was not designed, if it was modified in any manner, or was removed from the original vehicle and reinstalled on another vehicle.

This warranty shall not apply to any product installed on a racing vehicle, installed improperly, or contrary to FiTech's instructions, altered, misused, or repaired or damaged from an accident, collision, or willful or negligent act. To make a claim under the terms of this Warranty, the original purchaser must return the product to FiTech along with proof of original purchase. Purchaser must call FiTech (951-340-2624) or email to: Warranty@fitechefi.com, to obtain a Returned Material Authorization (RMA). Proof of purchase must clearly show the place of purchase, purchase price, product purchased, and date of purchase.

FiTech's liability is expressly limited to replacing the defective part or parts. FiTech will have no liability for the cost of installation or removal of the defective product or for the cost of labor or any additional parts required to complete the installation of the replacement product. In no event will FiTech be liable for any indirect, special, incidental, or consequential losses or damages (including but not limited to interruption of business or loss of business or profit) resulting from the use or inability to use the product, any breach of warranty, or any defect in the product, even if FiTech shall have been advised of the possibility of such potential damages or losses. Some states do not allow the exclusion or limitations of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

If the product is in the FiTech facility for repair, the amount of time the product is in repair will be added to the existing warranty period.

Pollution Controlled Vehicles

FiTech EFI products are not designed, intended, or legal for use on pollution controlled vehicles.

California proposition 65 warning

This product may contain one or more substances or chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.