Dual Force Fuel (#50005) Installation Instructions

The Force Fuel can be used in conjunction with any EFI system. These instructions are focused on pairing it with a FiTech EFI system but can also be easily adapted to suit other EFI systems.

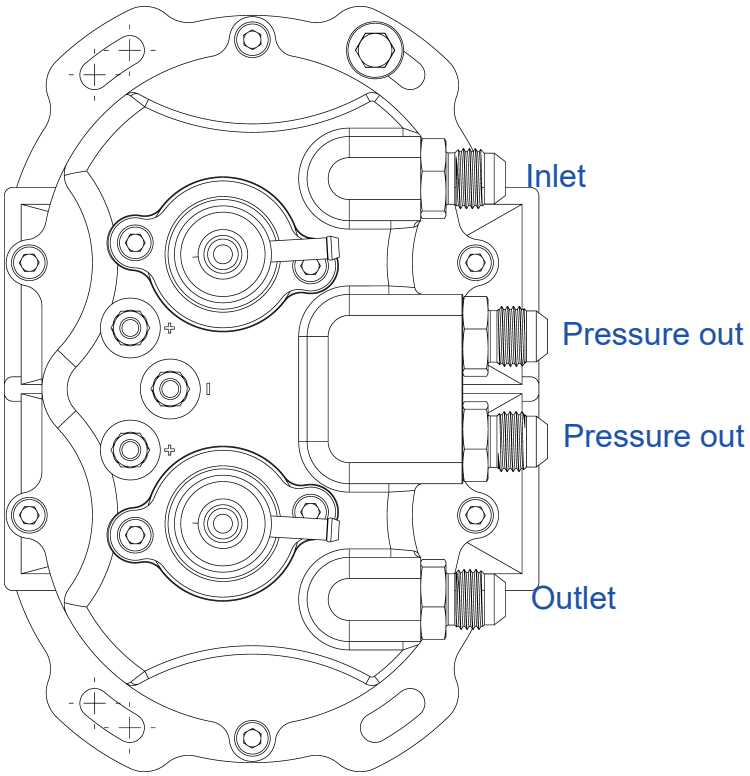
Fuel lines, filter, hardware, and wire are not included in this kit due to the numerous configurations of the system. Contact FiTech for help selecting additional components to complete the fuel system.

The FiTech Force Fuel is the ultimate in a fuel delivery system. It not only is the most efficient way to supply fuel to your Fitech EFI system, it also greatly simplifies the installation process. It uses your stock fuel tank, stock carburetor fuel pump, and stock inlet fuel lines. You simply disconnect the fuel line that runs from your pump to your carburetor and replace it from the pump to the Force Fuel which can be mounted in the engine compartment. The only additional plumbing required is to run a like from the Force Fuel to the inlet port on the FiTech Go EFI System. The second line you will need to plumb would be a return line from the Force Fuel to your existing fuel tank.

Most necessary hose, hose ends, and fittings are supplied. The Force Fuel contains a 2 liters (0.5 Gallon) reservoir of fuel at all times to prevent starvation. Dual 340 LPH high psi fuel pumps are submerged in the fuel in the sump tank. A submerged pump runs quieter, cooler, and lasts longer than external fuel pumps. The Dual Force Fuel is capable of providing enough fuel for engines producing up to 1,600 horsepower but is still suitable to be used on engines making as little as 200 horsepower. NOTE: Any fuel pump can transfer fuel to the Force Fuel. Please see manufacturers instructions on proper installation of this pump.

FiTech Force Fuel - Fuel Delivery Kit #50005

Figure 1



Inlet/Outlet: These ports are interchangeable. Use the inlet to provide fuel to the Force Fuel from an electric or mechanical fuel pump. Pressure output is not critical because this pump is being used to transfer fuel to the Force Fuel.

Pressure Out: These ports provide regulated fuel pressure (58PSI) out to fuel injection system. Fuel lines can be combined with a T or Y fitting when running both internal pumps at the same time. If pumps are run independently, check valves (pt# 55001) will have to be installed prior to combining with a T or Y fitting.

Installing the FiTech Force Fuel

Locate a suitable spot to install the Force Fuel module. It can be mounted on the core support, inner fender or down on the frame if you have room. Make sure you choose a position where fuel hose can be routed without getting too close to the exhaust manifolds or any moving parts. A 10 micron filter such as pt# 55002 should be installed in the fuel line that runs from the Force Fuel to the EFI fuel rail or throttle body. Plan the routing of the fuel hose so there is a convenient place to install the filter for easy servicing. You should also use this time to replace the prefilter between the fuel tank and the transfer pump (mechanical pump) to avoid dirt particles from entering the pump and module. The Force Fuel can be mounted vertically or horizontally. If mounted horizontally the return fitting MUST be located in the highest position. We recommend a vertical mounting for best performance to eliminate any possible fuel starvation. Mounting of the Force Fuel can be done using the mounting plate to the bottom or by removing the plate and mounting on the back side of the module. Determine your necessary hose lengths. You will need four hose lengths. One will run from the stock (transfer) fuel pump to an inlet/outlet port. A two will run from the pressure to the fuel rail or throttle body. The last one is the return line that runs from an inlet/outlet port back to the fuel tank.

Hose and Hose Ends Usage

We recommend FiTech Stainless steel braided fuel lines and fitting kits. If you need additional hose or hose ends they can be ordered directly from FiTech. There are many different ways to plumb the Force Fuel. The following is an example of one way to run the hoses. The hose that goes from the Force Fuel to the fuel filter should be a straight hose end on both the Force Fuel and 10 micron fuel filter side. The hose that runs from the filter to the Go EFI throttle body should also have a straight hose end on the filter end. On the throttle body side apply the 45° hose fitting. The hose that goes from the stock fuel pump to the Force Fuel should be a straight hose end on the fuel pump end and a 45° on the end that feeds the Force Fuel. Like previously stated this is just a suggested starting point. Carefully plan your plumbing and fitting requirements. When using with a Go EFI throttle body, the throttle body has three inlet ports so pick one or two that best suits your layout. Also remove the supplied return fitting and plug the return port on the throttle body with the supplied port plug.

Fuel Tank Return Line

The return line is a critical part of the Force Fuel installation and these instructions must be followed for the safe and proper operation of the system. When installing the Force Fuel a fuel rated hose or hard line must be routed from an inlet/outlet port back to the fuel tank. Many vehicles are equipped with a vent line to the tank. You can use an existing line if your vehicle is so equipped as long as it is in good condition. Otherwise you can use the Fuel Tank Return Fitting pt#50004-9 to connect the return line to the fuel tank and run a fuel rated line back to the return fitting. **IMPORTANT** DO NOT run a return line from the Force Fuel near exhaust or other hot components. **Proper routing of a return line is not an option. It is a mandatory part of the installation.**

Installing the Fuel Tank Return Fitting PT#50004-9 (not included)

The Fuel Tank Return Fitting provides a threaded hole in the fuel tank without having to reach inside the tank. Please read the instructions thoroughly and follow every step. Disregarding these instructions may result in a breach of the warranty and could cause serious bodily harm or death.
Before starting this installation, please be sure that the fuel tank is clean and contains no fuel vapors. DISREGARDING THIS CAN RESULT IN SEVERE PROPERTY DAMAGE, BODILY HARM, OR DEATH.

Start by drilling a ½" hole with a step drill in your fuel tank that is clean of all fuel vapors. The hole can be drilled anywhere towards the top of the tank. Avoid drilling hole in line with fuel pickup. Once the hole is drilled, clean any drilling debris off the tank and make sure the hole is free of burrs. Next, slide the bung with the gasket in the hole, and screw the bolt with a washer into the bung. While holding the bung flat against the tank and with a 1" wrench, rotate the bolt to cause the bung to collapse and press against the inside of the tank. When the bung is seated (the screw gets hard to turn), unscrew the bolt and washer and remove. Install the -6 ORB return fitting by holding the bung with the 1" wrench and the fitting with a 9/16" wrench and continue with the installation.

Determining Inlet Port On The Throttle Body The Force Fuel is a returnless system from the EFI system. On your FiTech Go EFI throttle body there are four fuel ports, (see figure 2). Plug the port marked "Return" with the plug supplied in the Go EFI kit. Select any one of the remaining three ports as your inlet port. Install the supplied -6AN fittings in the port that you have selected to use and install the supplied plugs in the other two ports. You will have one -6AN fitting left over. (This fitting is required when using inline (pt#50001) or intank (pt#50015) fuel pumps.)

Grounding the Force Fuel
Run a ground wire from the negative (-) terminal on the Force Fuel to a heavy metal grounded part of the vehicle. If your battery is close to the Force Fuel you can attach the wire directly to the battery ground cable. Without a good ground the pump will not run. Make sure any paint is removed so the ground wire makes contact with bare metal.

Wiring the Force Fuel
Your FiTech Go EFI system has a large orange wire that is part of the group of wires from the ECU. This wire can only support one fuel pump so a relay will have to be used. A relay can be used to either power both fuel pumps at the same time or to switch between the two pumps using a switch. See Figure 2 on next page on relay wiring options. Do not connect this wire to the Force Fuel at this time. The Force Fuel system must be primed before this wire is connected otherwise you risk damaging the pump. Place some tape over the exposed end of the wire to avoid accidental contact with a metal surface.

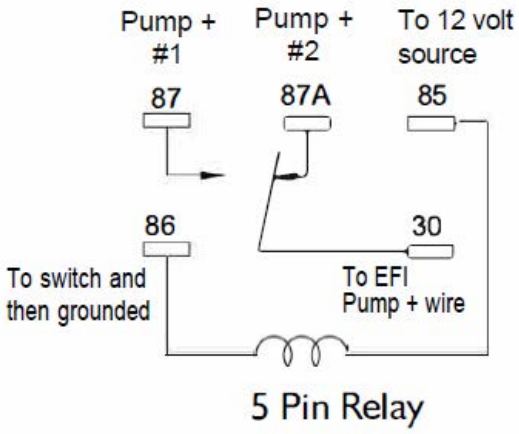
Plumbing Stock Fuel Pump to the Force Fuel
Some stock mechanical pumps have a steel tube as the pump outlet. If your pump is configured this way you can slip one end of the supplied -6 hose over the tube and secure it with a hose clamp. Other style pumps have a threaded port for the outlet. If the port has a fitting that has a barbed end where a stock fuel hose is clamped to it, you can use that fitting. If your pump has a hard line coming from the outlet port of the pump, remove the threaded fitting and replace it with a steel adapter fitting with male threads to fit one of the supplied -6AN hose fittings. Adapter fittings are available from any fitting supplier such as Russell or Aeroquip. Ford, Chrysler and pre-1970 Chevy pumps have 1/2-20 threads. Chevy's, 1970 and later pumps have 5/8-18 threads. If your pump has an outlet port with 3/8-NPT or 1/2-NPT threads you will need to acquire an adapter with those threads. Edelbrock pumps may require a special adapter fitting available from Russell Performance.

Plumbing the Force Fuel to the Throttle Body
You have previously determined the lengths required for the hose from the Force Fuel to the fuel filter and from the filter to the throttle body. Install those hoses. The supplied fuel filter is light enough that it's weight can be supported by the fuel hose. However, you can secure it with an Adel clamp or a tie wrap is desired. (Clamps or tie wraps are not included in this kit.)

Fuel Pressure Regulator Supercharger or Turbocharger.
The Force Fuel has built-in fuel pressure regulators mounted to the top. These regulators are not adjustable but is pre-set to provide 58 psi of fuel pressure to the EFI system. The regulators also have a vacuum nipple on it. When used with a FiTech Go EFI System, this nipple is recommended to be tee'd into the vacuum hose on regulator of the Go EFI system. Though not required for proper operation this is recommended to prevent fuel leaks if by chance the regulator fails. This is a requirement if using the Force Fuel on the engine with a blow through supercharger or turbocharger. The Force Fuel can be used with any fuel injection system. Depending on the design of the unit being used, different connections need to be made to the vacuum nipple on the regulator. If the throttle body in the system you are using has the injectors under the throttle blades, you need to connect a vacuum hose to a ported nipple on the throttle body. If the injectors are above the throttle blades, the nipple does not need to go to vacuum. However we recommend running a vacuum hose down to the bottom of the engine compartment. On a port injection system where the injectors are in the manifold, connect a vacuum line to a ported nipple on the throttle body. On an engine with a roots supercharger, a vacuum connection should be made between the regulator and the throttle body if the injectors are under the throttle blades. If the injectors are above the throttle blades (which includes FiTech EFI Systems) then the nipple port on the regulator does not need to go to vacuum. Note that 43.5psi (3 BAR) regulators (pt#60025) are available from FiTech when the Force Fuel is used with other after-market EFI systems that require this type of regulator.

Priming the Force Fuel
Reconnect the negative battery cable. **Do not connect the Force Fuel to GO EFI systems orange wire at this time**. This is to avoid having the engine start during the priming procedure. If using a mechanical pump as the transfer pump then turn the ignition key to the
"ON" position and crank for ten seconds. Turn key to the "OFF" position and wait 30 seconds. Repeat this procedure second time to fill the sump tank. If using an electric pump as the transfer pump then turn the ignition key to the "ON" position for ten seconds. Turn key to the "OFF" position and wait 30 seconds. This procedure allows your stock fuel pump to pump fuel to the Force Fuel without running the pump in the Force Fuel.
Check entire fuel system for any leaks before attempting to start the engine

Switching Between Pumps



Powering Both Pumps

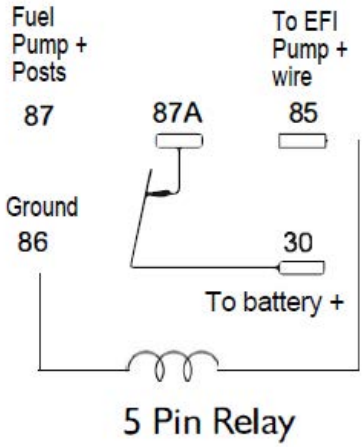


Figure 2

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 im-properly, or contrary to FiTech's instructions, altered, misused, repaired/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.

If, upon inspection, FiTech determines a defect in materials or workmanship, FiTech will refund the returned goods shipping expense, and replace the defective part or parts with a new part or parts.

FiTech's liability is expressly limited to the payment of shipping costs and replacing the defective part or parts. FiTech will have no liability for the cost of installation, removal of the defective product, 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 pos-sibility 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.

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

FiTech Fuel Injection
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