
















The ACES EFI™ In-Tank Retrofit Kit can be used with any EFI system, or with the proper low pressure bypass style external regulator, it can also be used in carbureted installations.

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 ACES™ approved automotive technician. The finished installation must be thoroughly checked for any fuel leaks. The fuel system is under pressure, be sure to relieve the pressure before opening the fuel system. All safety precautions must be observed when working with fuel.

Caution: Before starting this installation be sure the negative terminal is disconnected from the battery, you have proper eye protection, a fire extinguisher handy, and that you are working with a clean and free of combustible fumes fuel tank. The installation of fuel related components should be done in a well ventilated area free of any possible fire hazards. Gasoline fumes are toxic and highly flammable. Drilling and grinding can be a potential ignition source. Smoking is prohibited and extinguish any open flames. Start with a new fuel tank or have the fuel tank professionally cleaned for the safest install. Failure to comply with these warnings could result in injury or death.

This quick star manual is designed to get you up and running with your ACES EFI™ Tight-Fit In-Tank Retrofit Kit. The ACES EFI™ Tight-Fit In-Tank Retrofit Kit is the industry's most innovative fuel delivery system available.

Please read the full instruction manual before beginning your installation.

Kit Contents			4015	4016	4017
1.	(1)	Pump Main Assembly 	●	●	●
2.	(1)	C-Ring (Red) 	●		
3.	(1)	Foam Gasket 	●	●	●
4.	(1)	Return Tube 	●	●	●
5.	(1)	Outlet Tube 	●	●	●
6.	(1)	Submersible Hose 	●	●	●
7.	(2)	Fuel Hose Clamps 	●	●	●
8.	(2)	Electrical connectors w/ boots 	●	●	●
9.	(6)	M5x35mm Countersunk Screws			
	(6)	MS Keps Nuts 	●	●	●
	(6)	O-Ring Seals			
10.	(2)	Tie Wraps 	●	●	●
11.	(1)	Filter Sock V1 Filter 	●	●	●
12.	(1)	Sock V2 	●	●	●
13.	(1)	255 LPH Fuel Pump 	●		
14.	(1)	340 LPH Fuel Pump 		●	
15.	(1)	440 LPH Fuel Pump 			●



Recommended Tools

- Slow speed Drill
- 2-1/8" diameter hole saw
- Round fine file
- Shop vacuum
- Phillips Screwdriver
- Small Flathead Screwdriver
- 3/8" Socket and 1/4" Drive ratchet
- 5/16" Diameter Drill Bit (Optional)

Unpack the ACES EFI™ In-Tank Retrofit Kit

Carefully unpack the components and lay them out on a table and compare to the kit contents list and confirm that you have all the parts. Take the foam gasket (Item 3) and punch out the die cut holes with a small screwdriver or dowel rod.

Note: The outlet tube comes already assembled to fitting.

Special Instructions

- Foreextended fuel pump life never let car go below 1/8th tank of gas.
- If using hard fuel lines make sure to use high pressure EFI rated lines and flared fittings.
- 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° SAE fitting and 37° AN fittings, they look similar but will not work together. 45° SAE fittings usually come from a hardware store or auto parts store while 37° AN fittings are the ones supplied by Aces and most speed shops.
- If using a return line use at least a 3/8" line.
- ACES EFI™ does not recommend aluminum fuel lines EVER! Use EFI high pressure fuel hose on any plumbing in your system where high pressure is present.
- If using Push-Lok style hose and fittings in your fuel system, make sure all parts come from the same manufacturer. Mixing brands of hose ends and hose could cause leaks.
- Relieve the pressure from within the system before opening the fuel system.
- For Returnless Direct Injection Engines (with the correct computer controls) switch the Blank Jet with the .031 Jet

Very important note: Your fuel tank must have a vent or use a vented cap to prevent pressure building up inside the tank!

Features :

The ACES EFI™ Tight-Fit In-Tank Retrofit Kit is designed to be compatible with almost any fuel tank, depending on its depth. By mounting the fuel pump in the appropriate position on the return tube, the kit can be installed in tanks ranging from 6 to 12 inches in depth. This kit provides instructions for installation in both stock fuel tanks (version 1 install) and EFI-ready factory replacement fuel tanks (version 2 install). The Tight-Fit's low-profile design ensures maximum clearance from the vehicle's floor pan. The Tight-Fit In-Tank Retrofit Kit is available in three versions: AF4015, which includes a high-quality 255 LPH fuel pump; AF4016, which includes a 340 LPH fuel pump; and AF4017, which includes a 440 LPH fuel pump. Each version comes with a 35 square inch OEM style sock filter (version 1 install) to ensure clean fuel, extended fuel pump life, and steady fuel pickup. Replacement parts are available from www.acesefi.com.

Version #1 (Stock Tank) Drilling the hole

Caution: Wear eye protection and ensure tank is free of combustible fumes!! Have a radiator shop boil out the tank.

Step 1. The ACES EFI™ Tight-Fit In-Tank Retrofit Kit pump assembly must be installed into the fuel tank.

Step 2. Before beginning to cut the 2-1/8" diameter hole, align the red C-Ring (Item 2) in a central position on the fuel tank positioned far enough from edge of tank for clearance for the filter sock (Item 11) Try to find a flat area of the tank to make the 2-1/8" diameter hole. If this is not possible due to ribs in the tank, the supplied thick foam gasket will allow installation over ribbed areas.

Step 3. In selecting your hole location, be sure to avoid the stock fuel level sending unit assembly and stock fuel pump pickup, see Figure 1.

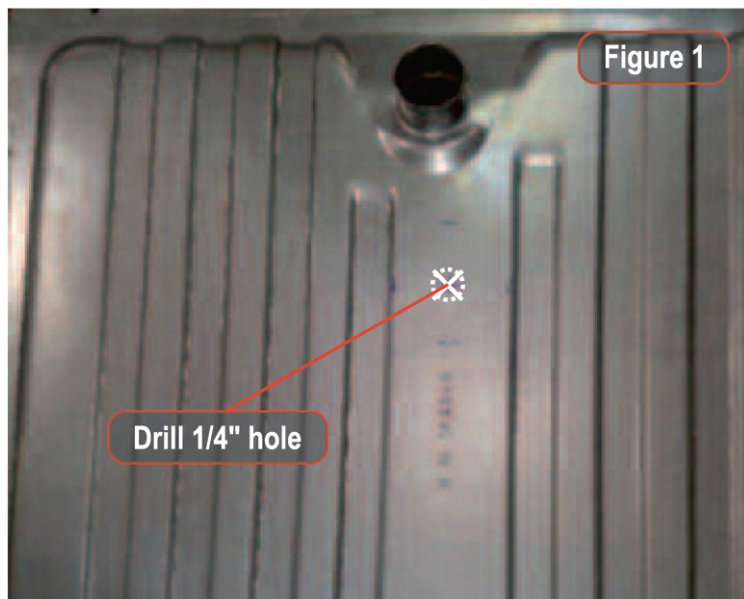
Step 4. With the red C-Ring in position, mark a spot in the center of the ring. Using a scribe, you can scribe a circle around the outside of the red C-Ring and then measure from the scribed line to find the center.

Step 5. Now, you are ready to begin your cut, drill a 1/4" pilot hole in the center of the X spot.

Step 6. Then using a slow speed drill with a 2-1/8" hole saw, cut a hole in the tank, see Figure 2.

Caution: Edges will be sharp once hole is cut through the fuel tank.

Step 7. Remove the cut piece and use a file to deburr the sharp edges.



Installing The Red C-Ring

Step 1. Using the red C-Ring as a template, drill six 1/4" holes in the tank, see Figure 3. Deburr the holes.

Step 2. Thoroughly clean the tank to remove all of the metal chips and debris inside and outside of the tank. Prior to final installation, it is important that the inside of the tank is totally clean.

Step 3. Screw the MS Countersunk Screws (Item 9) into the red C-Ring and tighten.

Step 4. Slide the Red C-Ring into the 2-1/8" diameter hole (see Figure 4) inserting the screws back up through the six drilled holes. Then install the Foam Gasket (Item 3) as shown in Figure 5. See Figure 13 on page 4 for proper assembly of these parts.

Step 5. Snap the Filter Sock(Item 12) onto the end of the Fuel Pump.

Step 6. Measure depth of tank and determine where pump needs to be positioned vertically. Once you have determined proper pump location so that filter sock will be within an 1/8" of the bottom of the tank when installed, cut a length of the Outlet Tube(Item 5) to the desired length. Using a heat gun, heat the end of the hose that will go onto the fuel pump, see Figure 6. Push the heated hose onto the outlet nipple of the pump, see Figure 7. Secure with a hose clamp. The pump should slide on with ease, if it is difficult the tube is not heated enough.

Step 7. Determine the correct length of the Return Tube and mounting bracket (Item 4).

They should be long enough to be about 1/8" to 1/4" off the bottom of the tank. Cut the bracket and hose, then push the hose onto the barbed Push-Lok return fitting, see Figure 11. Secure hose with a hose clamp.

NOTE: If you have a 440 or bigger pump the return hose and bracket need to be cut above the bell of the pump.

Step 8. Then locate the pump against the mounting bracket and make sure it is secured into position with two Tie Wraps(Item 10). Make sure Tie Wraps are pulled tight, see Figure 9. Plug the electrical connector onto the Fuel Pump.

Step 9. Insert Main Assembly into tank. Lower down over extended MS Countersunk Screws, see Figure 5 and Figure 10.

Step 10. Install O-Rings on bolts and thread the six Nuts(Item 9) onto the exposed bolts and tighten securely using a crisscross pattern to tighten them down evenly.



Figure 4

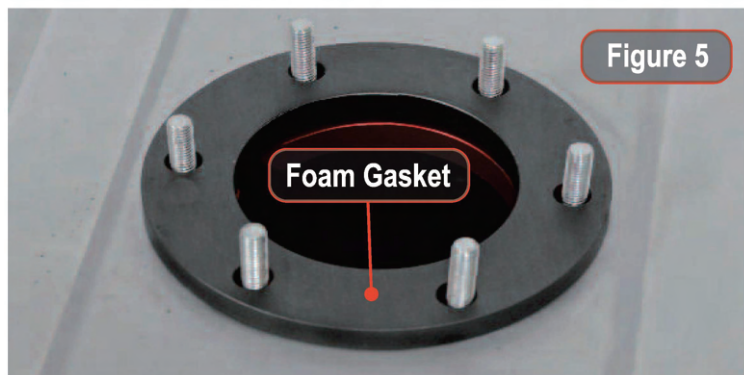


Figure 5

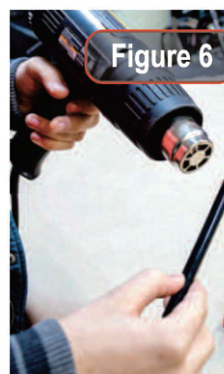


Figure 6



Figure 7



Figure 2

Opening for sending unit.

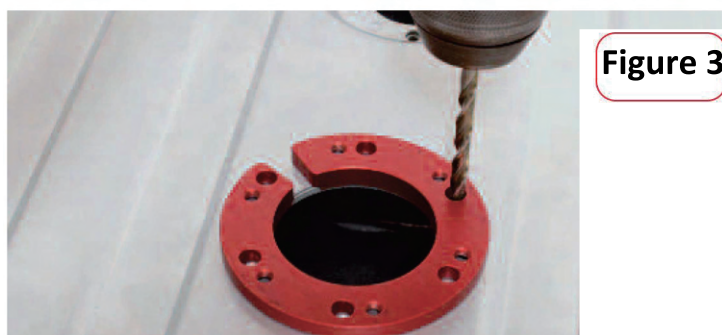


Figure 3



Figure 9

Similar for both versions 1 & 2 make sure to secure pump to bracket with zip ties

Version #2 - EFI Replacement/Universal EFI Fuel Tank Installing the Pump Unit

Because you are installing the ACES EFI™ Tight-Fit In-

Tank Fuel Pump assembly into a fuel tank that already has an access hole and tapped holes to thread into, see Figure 12. No cutting or drilling is required.

Step 1. Snap the Filter Sock (Item 11) onto the end of the Fuel Pump.

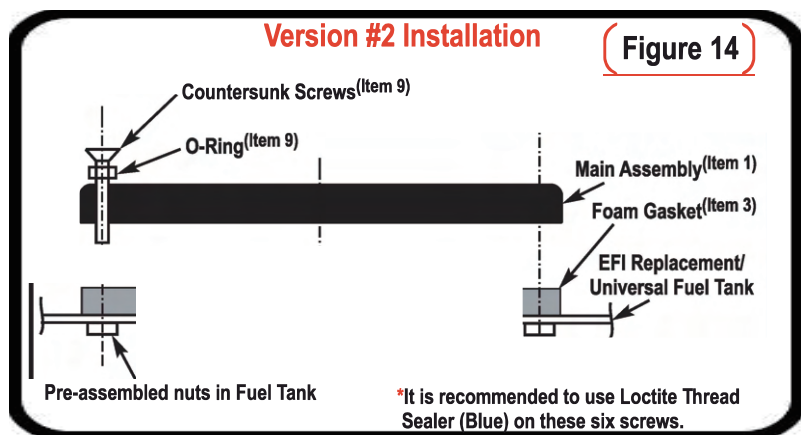
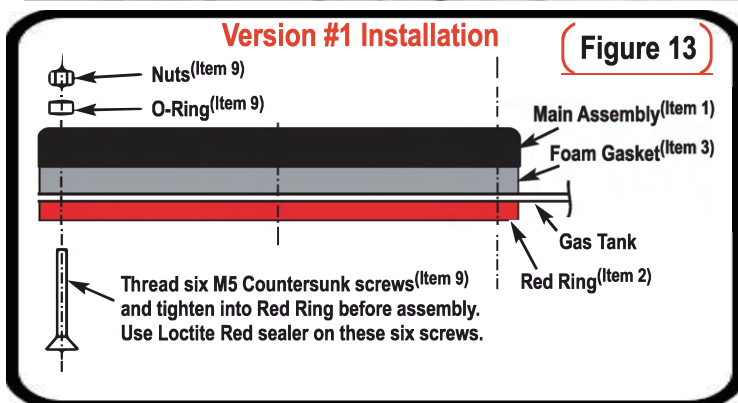
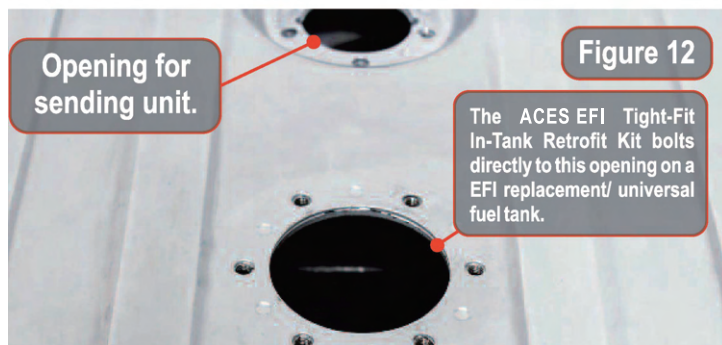
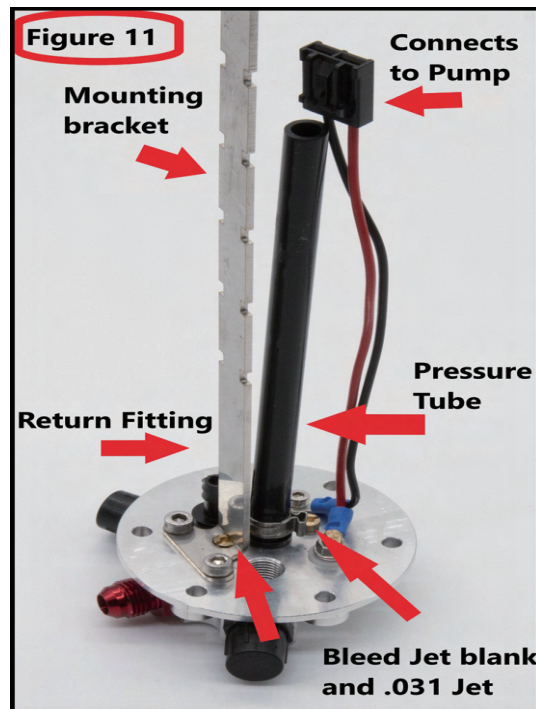
Step 2. Measure depth of tank and determine where pump needs to be positioned vertically. Once you have determined proper pump location so that filter sock will be within an 1/8" of the bottom of the tank when installed, cut a length of Outlet Tube (Item 5) to the desired length. Using a heat gun, heat the end of the hose that will go onto the fuel pump. (Figure 6). Push the heated hose onto the outlet nipple of the pump (Figure 7). Secure with a hose clamp. **NOTE:** The pump should slide on the tube with ease, if it is difficult the tube is not heated enough.

Step 3. Determine the correct length of the Return Tube and mounting bracket (Item 4). They should be long enough to be about 1/8" to 1/4" off the bottom of the tank. Cut the bracket and hose, then push the hose onto the barbed Push-Lok return fitting, see Figure 11. Secure hose with a hose clamp. **NOTE:** If you have a 440 or bigger pump the return hose and bracket need to be cut above the bell of the pump.

Step 4. Then locate the pump against the mounting bracket and make sure it is secured into position with two Tie Wraps (Item 10). Make sure Tie Wraps are pulled tight, see Figure 9. Plug the electrical connector onto the Fuel Pump.

Step 5. Place the Foam Gasket (Item 3) over the six holes in the tank see Figure 9.

Step 6. Insert Main Assembly into tank, see Figure 10. Align black top cap of the Main Assembly with the holes in the gasket and tank. Carefully install O-Rings into the six MS Countersunk Screws (Item 9) and thread them through the Main Assembly and the gasket and into the threaded holes in the tank, see Figure 14. Tighten securely using a crisscross pattern to ensure it is tightened evenly.



Installing the Fuel Tank back in Vehicle & Wiring

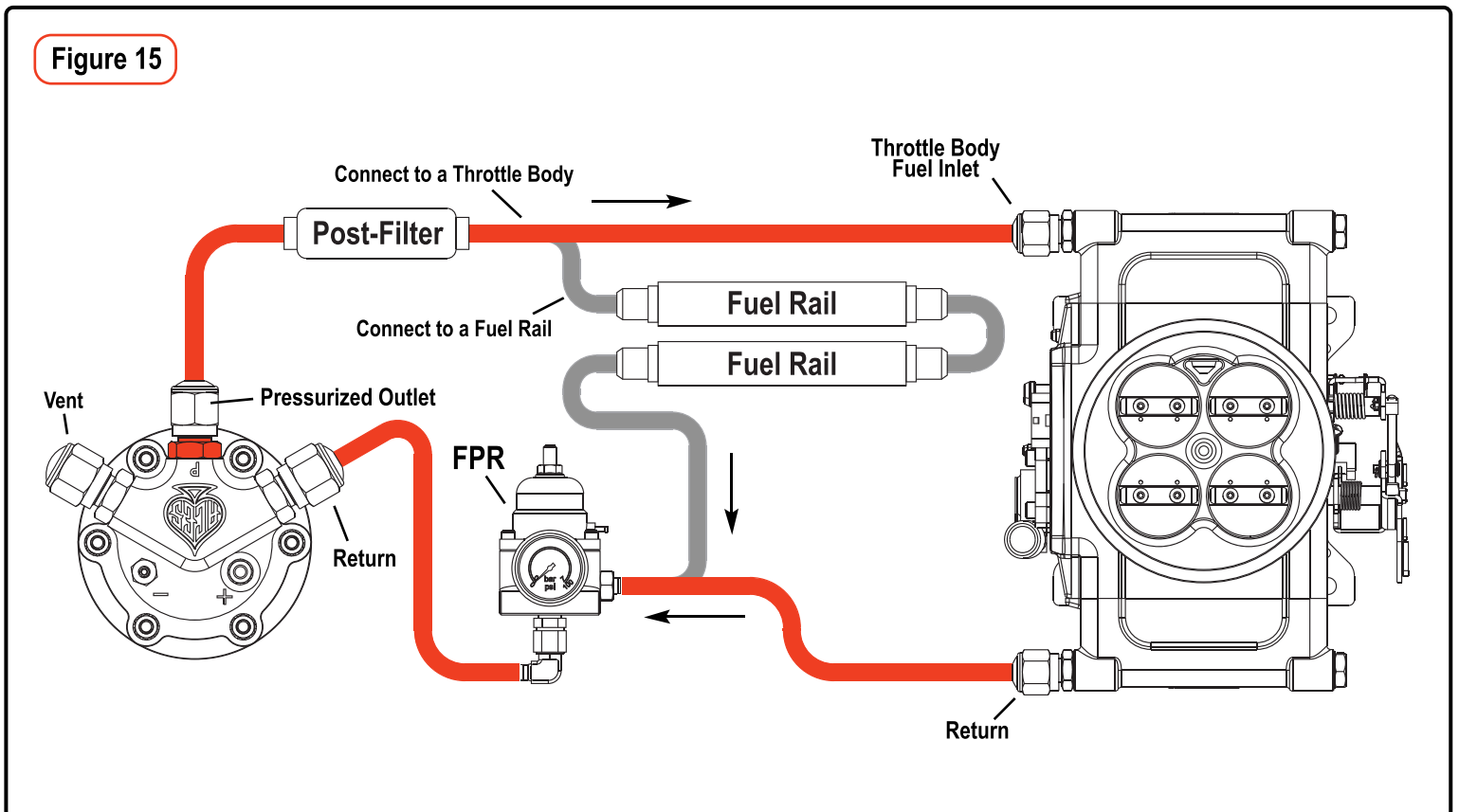
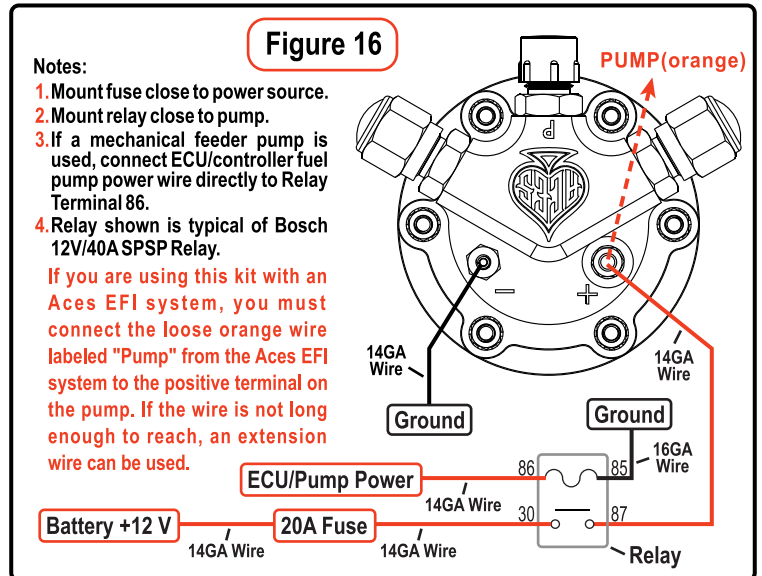
- Step 1.** Install the fuel tank into the vehicle and attach the fuel lines.
- Step 2.** Attach the fuel pump power wire to the positive terminal and cover the terminal with the provided insulation boot, see Figure 16.
- Step 3.** Next attach one side of a ground wire to the negative terminal and the other end to a good ground on the chassis, see Figure 16. Make sure that the positive terminal has clearance and/or insulation to avoid the possibility of hitting the bottom of the car floor pan. One option is to lay a piece of foam over the top of the pump to insure the pump will not short out against any metal. The foam can be purchased from any home improvement store.
- Step 4.** Run a return line from the return fitting on the throttle body to the return port on the Tight-Fit In-Tank Main Assembly if applicable, see Figure 15. See below for more complete information on plumbing the system.
- Step 5.** Make sure there is gas in the tank.
- Step 6.** Reconnect your battery.
- Step 7.** Turn your key to the "On" position, don't crank.
- Step 8.** Thoroughly check for any leaks.
- Step 9.** If no leaks are present then you are ready to start your vehicle.

Plumbing for a Return Style System

The ACES EFI™ Tight-Fit In-Tank Retrofit Kit must be run with a return fuel line. Note that the center -6 ORB fitting

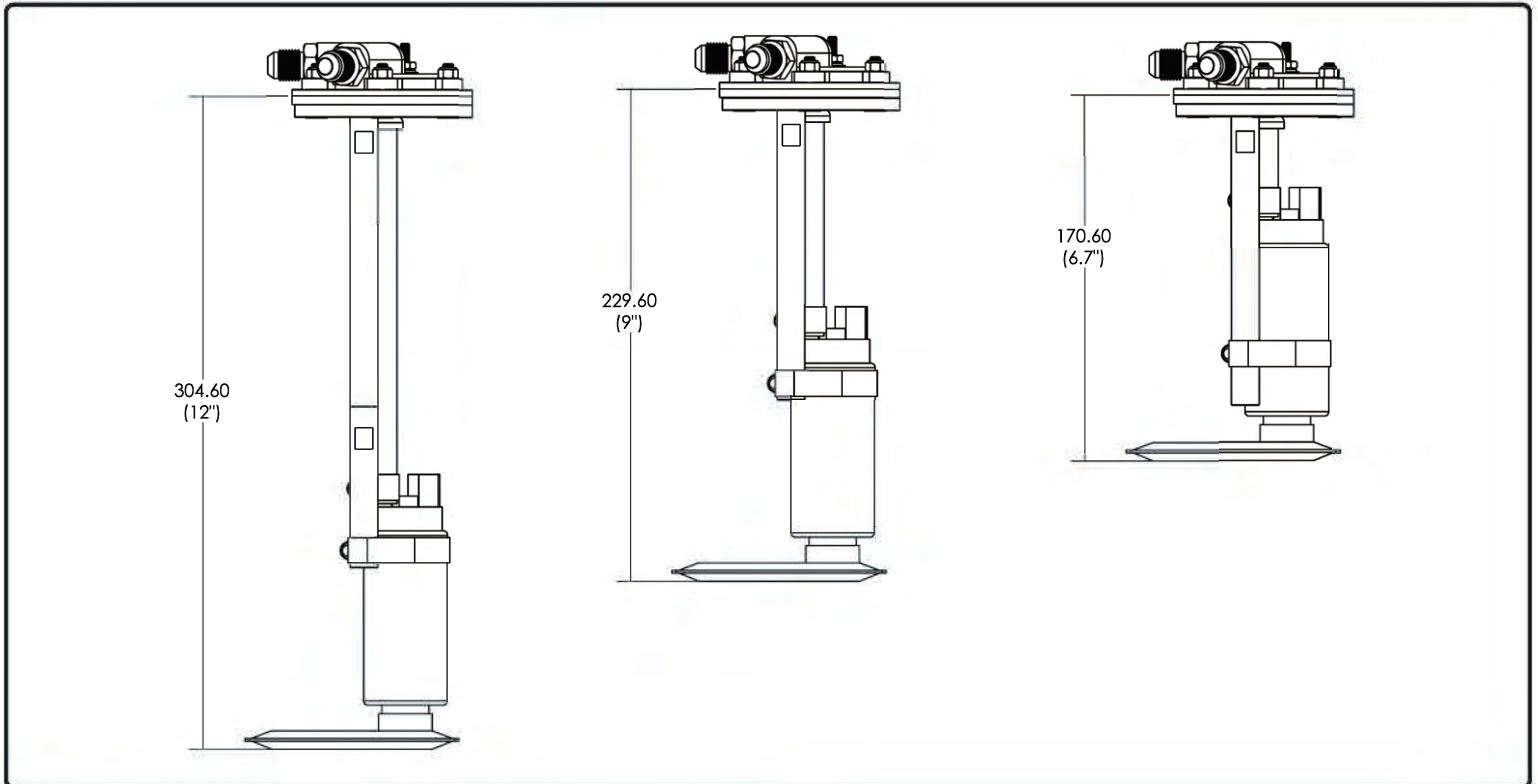
(marked P) is always the pressure out port. The Vent Port is always the Vent Port and the Return Port is always the Return Port, see Figure 11. Do not attempt to use the Vent port for the Return line. If the fuel tank is not vented, use the Vent Port as a vent, see Figure 15 for plumbing a Return style.

If you are using this ACES EFI™ Tight-Fit In-Tank Retrofit Kit with an EFI system, an external fuel pressure regulator will be required as the supplied pump in the Tight-Fit In-Tank Retrofit Kit exceeds 60 PSI. In a case where the pump and fuel tank are mounted inside the car, we recommend routing a vent hose from the vent port on the In-Tank Retrofit Kit routed to the outside of the vehicle.



IF YOUR TANK IS LESS THAN 7 INCHES DEEP:

1. Switch the position of the fuel pump tube and fitting and the Push-Lok fitting, see Figure 17.
2. Make sure that the threads of the Push-Lok fitting are sealed to prevent any fuel leakage back to the tank which will cause loss of fuel pressure to the EFI system.
3. Cut the submersible fuel hose (Item 6) to the proper length for your tank.
4. Push the hose onto the Push-Lok fitting and install the pump onto the other end of the tube. Secure it with the supplied hose clamp (Item 7), see Figures 21 and 22.



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.

www.P65Warnings.ca.gov