



**18646/18647/18648/18649/18655/18656 Stealth Fuel Cell
INSTALLATION INSTRUCTIONS**

WARNING!

The fuel system is under pressure. Do not open the fuel system until the pressure has been relieved. Refer to the appropriate vehicle service manual for the procedure and precautions for relieving the fuel system pressure.

To use this stealth fuel cell in your vehicle's fuel system, you must do the following:

- **A by-pass style fuel pressure regulator must be used in the system.**
- **Utilize high pressure fuel lines, fittings and o-rings for all connections from the fuel tank to the fuel pressure regulator.**
- **For long term driving applications where continuous run times exceed 30 minutes Aeromotive recommends maintaining at least a half-full tank of fuel.**

Failure to follow the above may result in fuel leakage, bursting of the fuel lines, poor vehicle performance and/or decreased fuel pump life! Improper installation will void all warranties for this product!

Aeromotive system components are not legal for sale or use on emission-controlled motor vehicles

CAUTION:

Installation of this product requires detailed knowledge of automotive systems and repair procedures. We recommend that this installation be carried out by a qualified automotive technician.

Installation of this product requires handling of gasoline. Gasoline vapors are highly flammable. Ensure you are working in a well-ventilated area with an approved fire extinguisher nearby. Extinguish all open flames, prohibit smoking, and eliminate all sources of ignition in the area of the vehicle before proceeding with the installation.

WARNING!

The controller used in this product has a fixed polarity. **ENSURE THAT THE POLARITY IS CORRECT ON CONNECTION** (red wire to battery red wire, black wire to battery black wire)! Reversing the polarity will render the controller inoperable. **IMPROPER INSTALLATION WILL VOID ALL WARRANTIES FOR THIS PRODUCT!**

The enclosed Aeromotive fuel pump utilizes a AN-10 ORB (O-ring Boss Ports) style outlet port; these ports are **NOT PIPE THREAD** and utilize **NO THREAD SEALANT**.

Compatible Fuels:

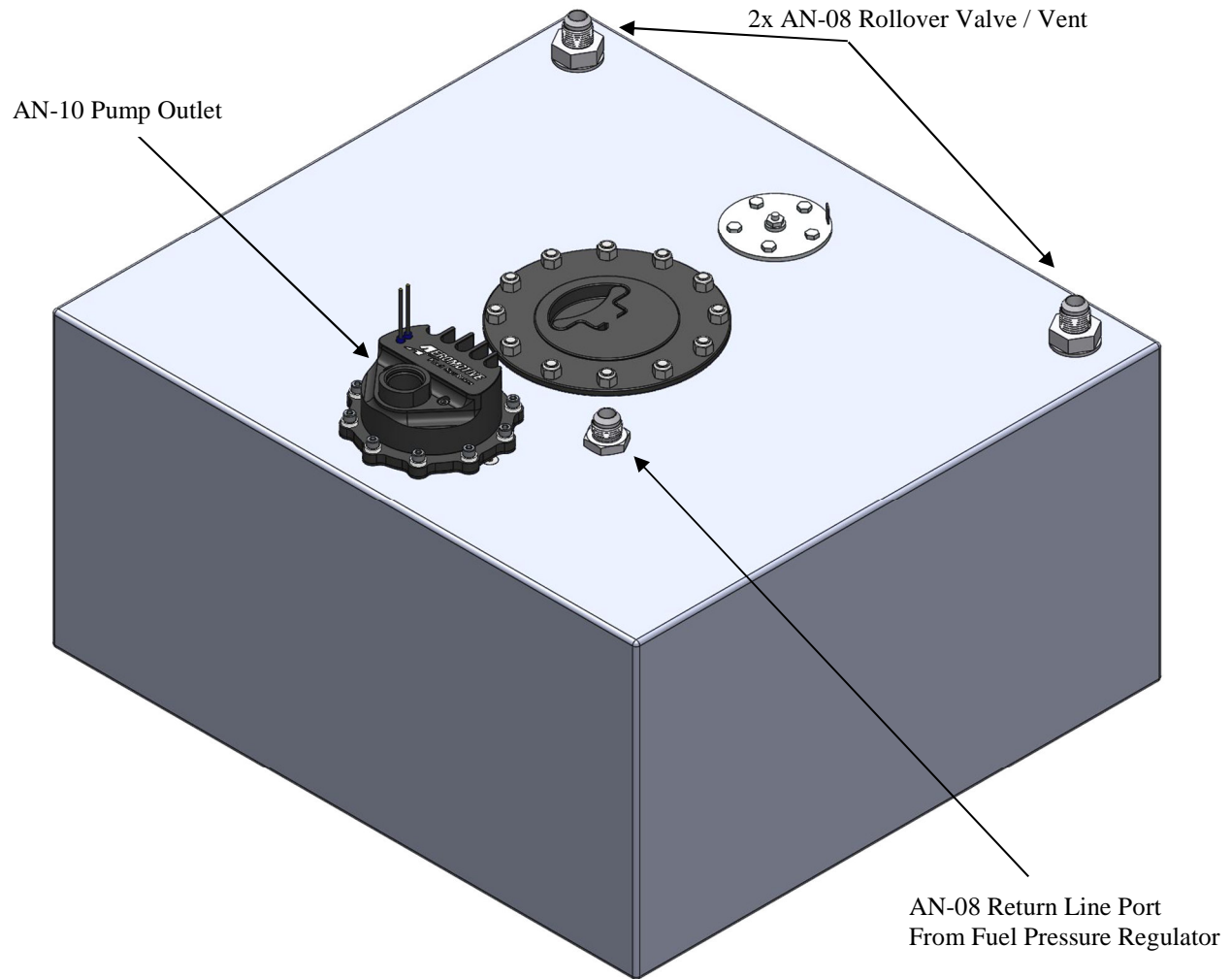
Pump Gas/Race Gas
E85/Ethanol
Alcohol/Methanol

Maximum **continuous** operating pressure should not exceed 90 psi. Life expectancy may be reduced for continuous operation above 90 psi. Maximum intermittent operating pressure should not exceed 90 psi for 18647/18649/18656 to avoid overloading the pump controller. Maximum intermittent operating pressure should not exceed 125 psi for 18646/18648/18655.

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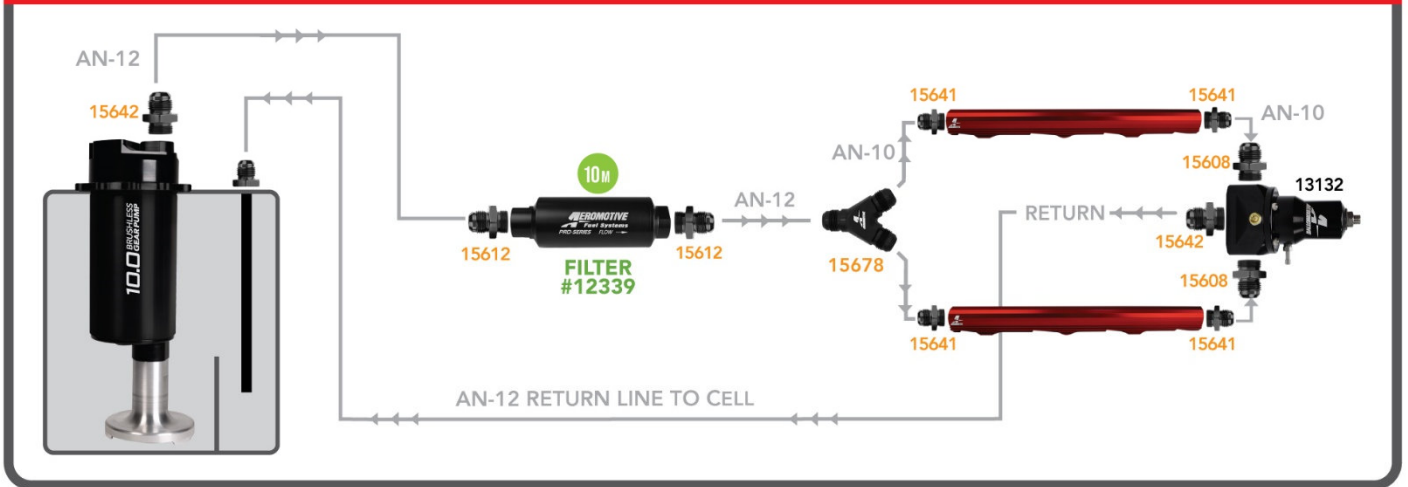
The following steps are typical of most installations:

1. Find a good mounting location on your vehicle for the Aeromotive Stealth Fuel Cell. Remove any sharp edges from the area around the fuel cell prior to mounting. Mount the cell in accordance to the requirements set forth by your racing sanctioning body. Fuel cells should always have good solid floor support under the cell for the weight of the fuel. The top, bottom, and sides of the cell must have the proper support. To make securing the Aeromotive Stealth Fuel Cell easier, strap kits are available from most major fuel cell manufactures.



2. Connect AN-08 lines to the tank vent fittings. Tank vent lines must be run outside the vehicle.
3. Connect the fuel pump outlet to a fuel filter (Aeromotive p/n 12339 (10 micron). **Make sure you use high pressure (150 psi minimum) fuel line for this connection!**
For AN-12 Line, Aeromotive p/n 15642, (AN-10 ORB to AN-12 Flare Union)
For AN-10 Line, Aeromotive p/n 15608, (AN-10 ORB to AN-10 Flare Union)
For AN-08 Line, Aeromotive p/n 15610, (AN-10 ORB to AN-08 Flare Union)
4. Connect the fuel filter outlet to the fuel rail(s) and then to a bypass style fuel pressure regulator as in the following diagrams. **Make sure you use high pressure (150 psi minimum) fuel line for these connections!** For optimum fuel system performance in EFI applications, Aeromotive recommends a balanced system with the fuel pressure regulator as the last component in the system as shown in the following example diagram.

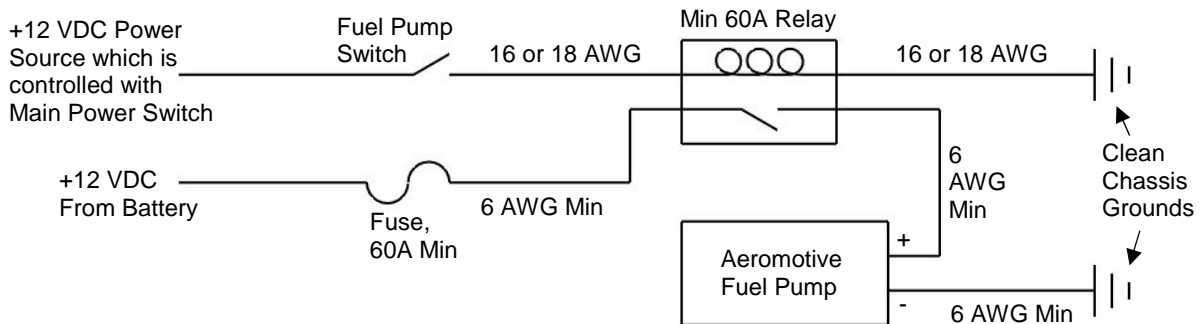
10.0 BRUSHLESS GEAR PUMP IN-TANK Dual Rail - Fuel Injection



Note: Be sure to route all electrical wires clear of any moving suspension or drivetrain components and any exhaust components! Protect wires from abrasion and road obstructions or debris.

5. Connect the return port on the fuel pressure regulator to the AN-08 Port on the Aeromotive Stealth Fuel Cell as in the above diagrams.
6. Connect the Aeromotive fuel pump using stranded, insulated copper wire, in the sizes shown, with matching crimp-type connectors for all connections. Attach the wires as shown in the following diagram, +12VDC to the red lead, Ground to the black lead. **NOTE: POWER TO THE PUMP MUST BE FLAT DC, NOT PULSE WIDTH MODULATED!**

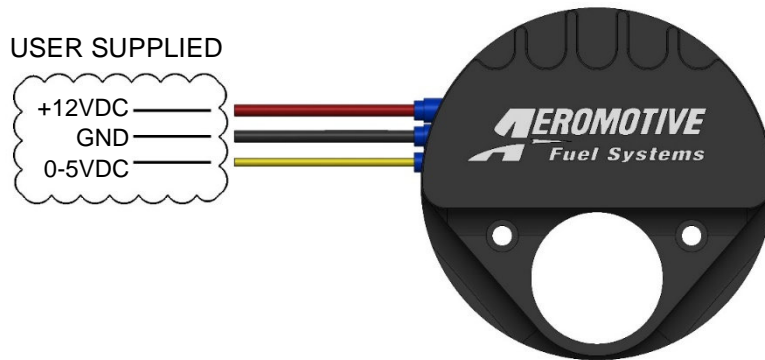
CAUTION: DO NOT REVERSE THE POLARITY-CONNECT AS STATED ABOVE. Reversing the polarity will render the controller inoperable and will void all warranties for this product!



9. This pump controller allows the ability to change the speed of the pump via a 0-5VDC analog input to the yellow signal wire. **THE CONTROL SIGNAL MUST BE A TRUE ANALOG INPUT, NOT PWM.** A PWM signal can only be used if filtered sufficiently for smooth operation. The signal wire used to control the speed of the pump may be connected in ONE of multiple configuration examples as shown in the following illustrations to control the speed of the pump.
10. This pump controller has a minimum floor for pump speed of 30-40% depending on the pump. This means that fuel pump speed will not fall below 30-40% of full speed with zero input voltage on the yellow control signal wire.
11. This pump controller has a minimum voltage threshold of approximately 0.5VDC, above which, the minimum floor pump speed will begin to be exceeded. Signal input of voltage below 0.5VDC will have no effect on pump speed. This ensures allowance for minimum, closed throttle TPS settings of up to 0.5VDC are allowed and will not affect fuel pump speed at idle.

12. This pump controller has a full pump speed voltage threshold of approximately 3.7VDC, where the full pump speed will be achieved with signal input voltage at or above 3.7VDC and above which no further change in pump speed will occur. This ensures that when a TPS signal is used to drive pump speed that typical throttle openings of 70-75% and higher will ensure full fuel pump volume to the fuel rail or carburetor.

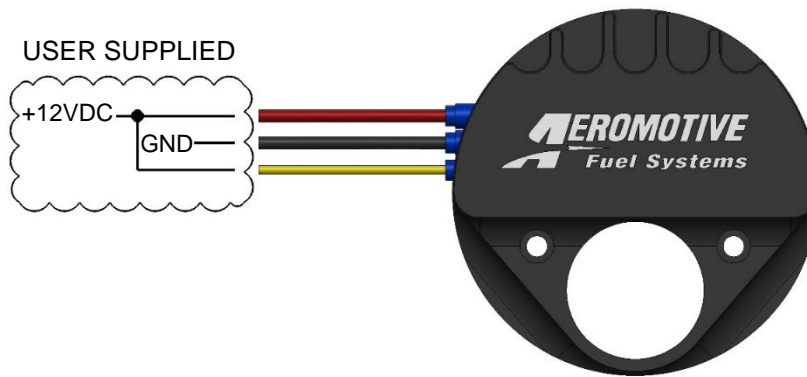
CONTROL CONFIGURATIONS:



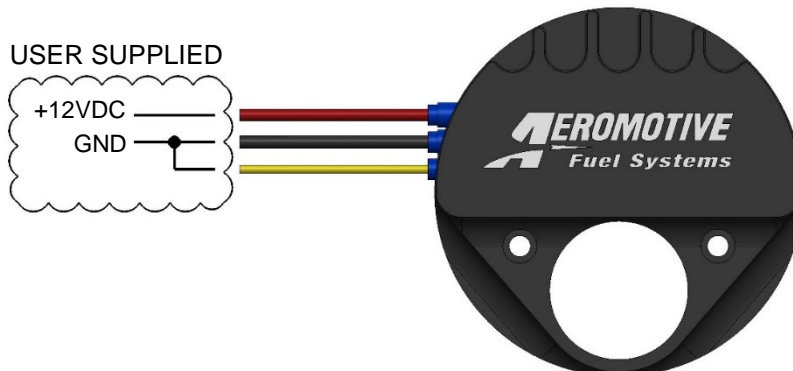
MODE 1 – TPS or Other 0-5VDC Input Control

Aeromotive recommends the “Mode 1” control method where the 0-5VDC signal input is tied to a Throttle Position Sensor using the output wire to the ECU. The intent for this control is to reduce the fuel pump output (and thus the amount of returned fuel flow) during low throttle opening (low engine demand) to reduce excess recycling of fuel to help keep fuel tank temperatures low. Alternatively, other 0-5VDC analog output sensors (MAF or MAP sensors, boost pressure sensor, etc.) or voltage dividing/regulating/switching components may be used to vary pump speed. It is the customer’s responsibility to ensure a signal supply and control strategy where the fuel flow is sufficient.

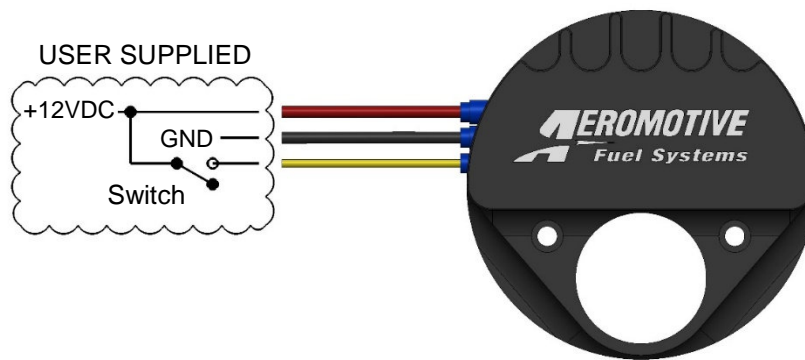
If no signal supply is suitable or desired, the controller can still be wired for use as in Modes 2 – 4, as shown below, to allow different fuel pump speed and flow outputs from the pump.



MODE 2 – Constant Full Speed



MODE 3 – Constant Low Speed



MODE 4 – Switched Speed On - Demand from Low to High

Mode 4 can be activated by any relay or switch providing 5VDC or higher to the control wire. A relay for this purpose could be activated using the programmable output from a tunable ECU, or via a boost or WOT switch connected to 12VDC to name a few examples.

7. Connect the fuel sending unit output wire (not used on 6 gallon cells) to a 0-90 ohm compatible fuel level gauge. 0 ohms reads empty, and 90 ohms reads full. If an ohm rating other than 0-90 ohms is required there are aftermarket signal modifiers available including P/N SN34 through Classic Instruments to convert to any ohm rating desired.
8. Attach a suitable fuel pressure gauge to the fuel system Schrader valve, fuel rail or fuel pressure regulator.
P/N 15633 0-100 PSI (1 1/2") Fuel Pressure Gauge

Ensure that any spilled fuel and any fuel-soaked shop towels are cleaned up and removed from the vicinity of the vehicle.

CAUTION: While performing the following steps, if any fuel leaks are detected, immediately turn the ignition to OFF, remove any spilled fuel and repair the leak(s) before proceeding!

9. Turn the ignition to ON **without starting the engine**, allow the pump to run for several seconds and check the fuel pressure. If there is no pressure, turn the ignition to OFF, wait one minute, then turn the ignition to ON and recheck the pressure. Repeat this ignition OFF and ON procedure until the gauge registers pressure or you detect a fuel leak. If no pressure is registered on the gauge after running the pump for several seconds and you have found no leaks, check all fuel and electrical connections to determine the cause.
10. Once the fuel pressure gauge registers pressure, start the engine. If you have installed an adjustable fuel pressure regulator, adjust it to the desired setting. To ensure the regulator installed is capable of handling the full pump flow, it is recommended to set the pump to full speed when setting the regulator pressure.
11. Shut the engine off. Using suitable clips and other mounting hardware, secure the newly installed fuel lines and electrical wires by attaching them to the vehicle chassis.
12. Test-drive the vehicle to insure proper operation and re-check the fuel system for leaks. **If any leaks are found, immediately discontinue use of the vehicle and repair the leak(s)!**



WARNING: This product can expose you to chemicals, including chromium, which is known to the State of California to cause cancer or birth defects or other reproductive harm. For more information, visit: www.p65Warnings.ca.gov

AEROMOTIVE, INC. LIMITED WARRANTY

This Aeromotive Product, with proof of purchase dated on or after January 1, 2003, is warranted to be free from defects in materials and workmanship for a period of one year from the original date of purchase. No warranty claim will be valid without authentic, dated proof of purchase.

This warranty is to the original retail purchaser and none other and is available directly from Aeromotive and not through any point of distribution or purchase.

If a defect is suspected, the retail purchaser must contact Aeromotive directly to discuss the problem, possible solutions and obtain a Return Goods Authorization (RGA), if deemed necessary by the company. Please call 913-647-7300 and dial option 3 for the technical service dept. All returns must be shipped freight pre-paid to the company and with valid RGA before they will be processed.

Aeromotive will examine any product returned with the proper authorization to determine if the failure resulted from a defect or from abuse, improper installation, misapplication or alteration. Aeromotive will then, at it's sole discretion, return, repair or replace the product.

If any Aeromotive product is determined defective, buyer's exclusive remedy is limited in value to the sale price of the good. In no event shall Aeromotive be liable for incidental or consequential damages.

Aeromotive expressly retains the right to make changes and improvements in any product it manufactures and sells at any time. These changes and improvements may be made without notice at any time and without any obligation to change the catalogs or printed materials.

Aeromotive expressly retains the right to discontinue at any time and without notice any Aeromotive product that it manufactures or sells.

This warranty is limited and expressly limits any implied warranty to one year from the date of the original retail purchase on all Aeromotive products.

No person, party or corporate entity other than Aeromotive shall have the right to: determine whether or not this Limited Warranty is applicable to any Aeromotive product, authorize any action whatsoever under the terms and conditions of this Limited Warranty, assume any obligation or liability of any nature whatsoever on behalf of Aeromotive under the terms and conditions of this Limited Warranty.

This Limited Warranty covers only the product itself and not the cost of installation or removal.

This Limited Warranty is in lieu of and expressly excludes any and all other warranties, expressed or implied. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.