AEROMOTIVE
Part # 18087/18088
2005-2018 GM Truck Tank 3.5/5.0 GPM Fuel Pump / Baffle System
INSTALLATION INSTRUCTIONS

This product is not legal for sale or use on emission-controlled vehicles except when used as a direct replacement part matching OEM specification.

WARNING!

Always be aware of flammable situations. Drilling and grinding can be potential ignition sources. Extinguish all open flames, prohibit smoking and eliminate all sources of ignition in the area of the vehicle and workspace before proceeding with the installation. Ensure you are working in a well-ventilated area with an approved fire extinguisher nearby.

WARNING!

Installation of this product requires modification to a fuel tank/ the fuel system, failure to satisfy all safety considerations will result in fire, explosion, injury and/or loss of life to yourself and/or others. All fuel system components MUST be located as far from heat sources as possible, like exhaust, engine block, etc.

WARNING!

Mechanical and hydraulic lifting devices can tip over or lower accidentally due to incorrect maneuvering or technical errors. A falling object can cause injury and/or loss of life to yourself and/or others. When working under the vehicle, always use stands, and ensure that the ground or floor is stable and level. Never crawl under a vehicle which is only supported by a jack.

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.

CAUTION!

When installing this product always wear safety glasses and other appropriate safety apparel. A drilling operation will cause flying metal chips. Flying metal chips can cause eye injury.

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. Careless installation of this product can result in damage to the product, injury, or loss of life to yourself and/or others.

Compatible Fuels:
Pump Gas **Race Gas** **E85** **Alcohol/Ethanol**

Parts Included:

1ea Fuel Pump (18087) or (18088) 1ea Fuel Pump Outlet Cap 1ea Fuel Pump Foam Baffle Assembly 1ea Return Hose 1ea Fuel Pump remote mount controller 1ea Fuel pump extension tube	3ea Ring Terminal (10-12 GA Yellow for Pump) 2ea Ring Terminal (22-16 GA Red for Optional Level Sensor 5ea Ring Terminal Cap 2ea 10-24 Nyloc Locknut 1ea Baffle plate

Tools / Supplies Needed:

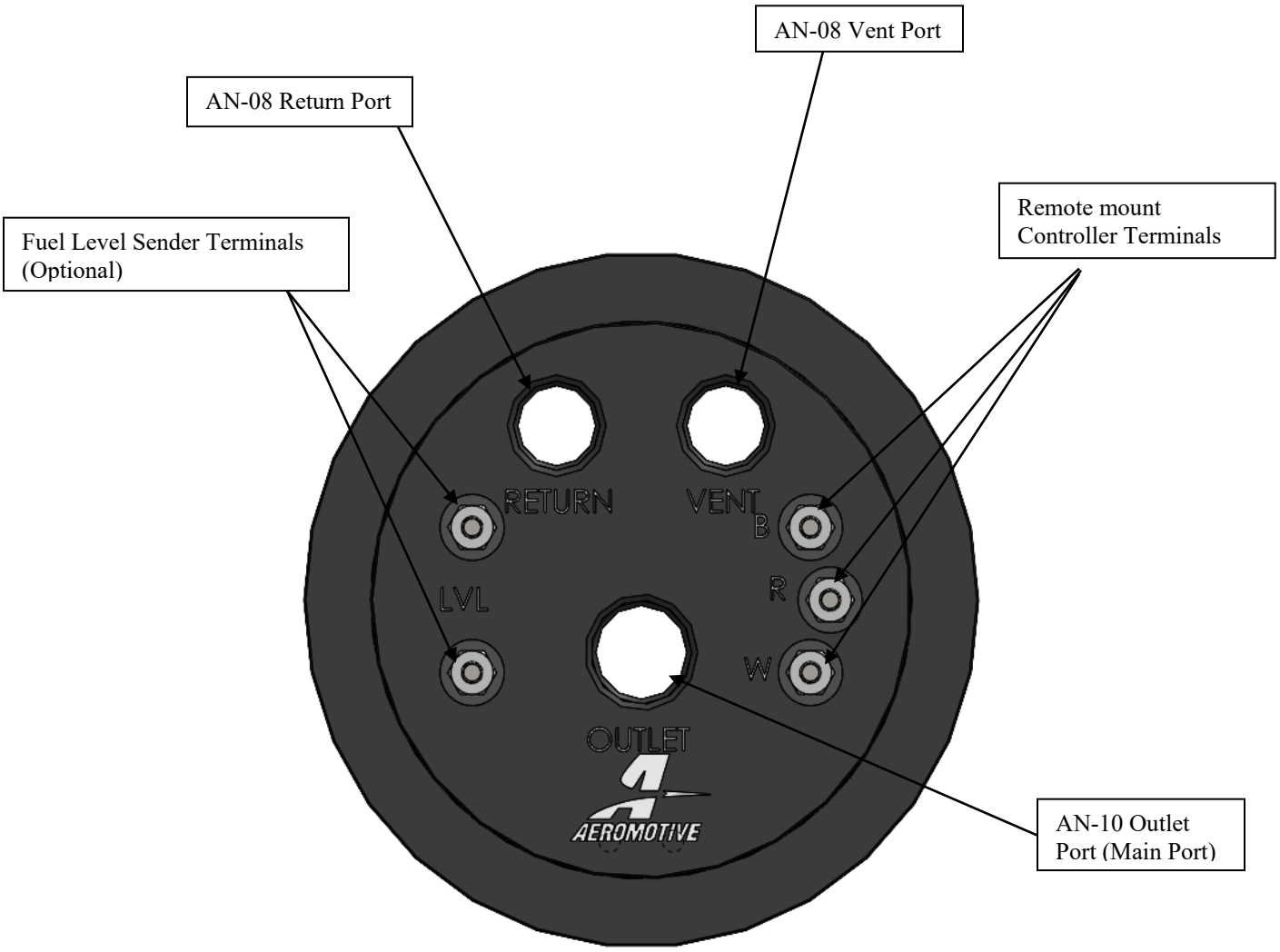
Tape Measure Bread Knife	Flat Screwdriver Lock Ring Remover Tool 1/8” Allen Wrench 3/8” Wrench

Parts Required: (Not Included)

1 – OEM Replacement Fuel Pump Gasket
PN: AC Delco G41 (#22682111)

The following list are part numbers for sending unit brackets and the level sensor that they are designed for. All brackets are made for 1500 series vehicles.

1 – Aeromotive P/N: 18713 for 2005-2007 Silverado/Sierra 1500 series
- Works with WVE 5S13490 level sensor see figure 4-1 below
1 – Aeromotive P/N: 18715 for 2008-2014 Silverado/Sierra 1500 series
- Works with AC Delco SK1293 level sensor see figures 4-2 below
1 – Aeromotive P/N: 18716 for 2015-2018 Silverado/Sierra 1500 series
- Works with AC Delco 13582492 level sensor see figure 4-3 below
1 – Aeromotive P/N: 18714 for 2005-2009 Trailblazer
- Works with Dorman 911013 level sensor see figures 4-4 below



The enclosed Aeromotive fuel pump assembly utilizes an o-ring sealed AN-08 style vent ports. Feed port/ outlet and return ports are AN-08 style o-ring sealed ports. These ports seal with o-rings; these ports are **NOT PIPE THREAD** and utilize **NO THREAD SEALANT**. The in-tank side of the vent port, however, is 3/8 NPT and will require thread sealant if used.

The fuel pump used in this tank is the Aeromotive 3.5 GPM/ 5.0 GPM (part # 18087/18088). To ensure proper pump function and life, we strongly recommend the following:

- **Utilize AN-10 (EFI) or (carb) size high pressure fuel lines, fittings and o-rings for all connections from the fuel tank to the engine, including the supply and return lines.**
- **Install a 10-micron post-filter (Aeromotive p/n 12339).**
- **Install a remote-mount rollover valve. It must be mounted in a vertical position and mounted as high or higher than your filler tube.**
- **Fuel pump wiring should be 10-gauge wire and triggered with a relay rated for a minimum of 30 amps (Aeromotive standard fuel pump wiring kit P/N 16307 for 30A or P/N 16308 for 60A).**
- **A return style or bypass regulator must be used (Aeromotive p/n 13134 for EFI, 13202 for carb).**

Failure to follow the above recommendations 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 Commonly Used Fittings

15607 AN-08 ORB to AN-08 Flare	For AN-08 fuel lines
15641 AN-08 ORB to AN-10 Flare	For AN-10 fuel lines
15608 AN-10 ORB to AN-10 Flare	For AN-10 fuel lines
15613 AN-12 ORB to AN-10 Flare	For AN-10 fuel lines

Aeromotive AN-10 Fuel Filter P/N's

12339 Black 10-micron Micro Glass Fuel Filter	12302 Black 100-micron Stainless Steel Fuel Filter
12342 Black 40-micron Stainless Steel Fuel Filter	12332 Black-100-micron Fuel Filter w/ Shutoff Valve

Aeromotive Electrical Components

16307 Deluxe HD Fuel Pump Wiring Kit
16308 Premium Fuel Pump Wiring Kit

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

CAUTION:

Aeromotive Phantom Components, including the 3.5/5.0 GPM Fuel Pump and the patented Foam and Bladder Baffle assembly, have been thoroughly tested for use in common pump gas, non-oxygenated racing gas, ethanol including E85 from corn, and petroleum based (not-bio) diesel fuel. Blending fuels and/or additives, including cleaners, stabilizers or octane boosters, cannot be tested and could result in damage to fuel system components. These failures cannot be anticipated and may not be covered under warranty. Contact the Aeromotive Tech Department with any questions on blending of fuels and/or use of additives.

The following steps are typical of most installations:

1) Once the engine has been allowed to cool, disconnect the negative battery cable, and relieve the fuel system pressure, referring to the appropriate vehicle service manual for the procedure and precautions for doing so.

2) Raise the vehicle on stable level ground and support it with jack stands.

3) Referring to the appropriate vehicle service manual for instructions, drain, disconnect any electrical and fuel system component connections and remove the OEM fuel tank. Remove the OEM fuel pump assembly by removing the lock ring, (note the position of the OEM fuel line connections to the fuel pump assembly). The removal of the vehicles exhaust system may be necessary for fuel tank removal.

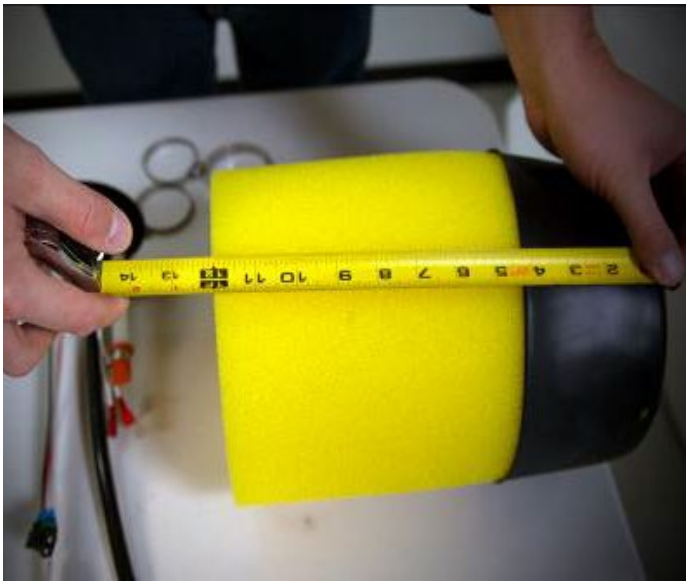
This Aeromotive Phantom Fuel Pump System is intended to be installed into a NEW fuel tank that does NOT and has NEVER contained fuel.
If you choose to install this product into a fuel tank that has had fuel introduced to it, proceed at your own risk.

The fuel tank must be professionally cleaned to remove all traces of any combustible fluids. Failure to properly clean and remove all combustible fluids from the fuel tank will result in injury or loss of life to yourself and/or others.

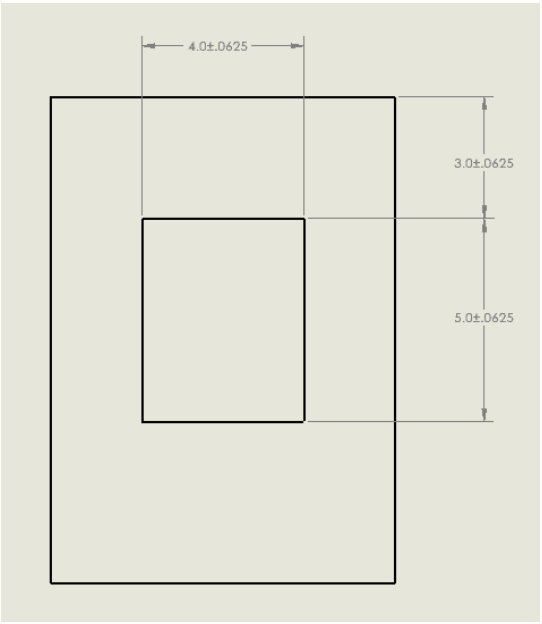
4) With the new cleaned fuel tank on your preferred work surface, ensure you have all components listed above to complete the installation.

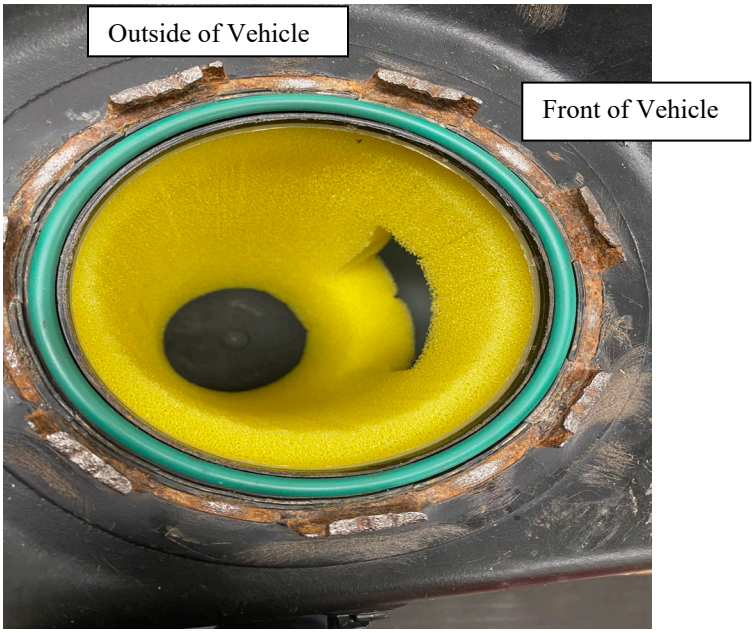
5) Using a tape measure, determine the depth of the tank at the OEM fuel pump assembly location by measuring from the bottom of the tank to the gasket sealing surface.

6) Measure the foam baffle assembly from the bottom (black rubber part) up and mark the assembly 1" longer than the determined tank depth. (If the tank was 8.00" deep, mark the foam baffle assembly to be 9.00" long). **Some tanks will require the use of the provided extra length of foam.** Using a bread knife or fine-tooth hacksaw blade, carefully cut the foam baffle to the desired length.

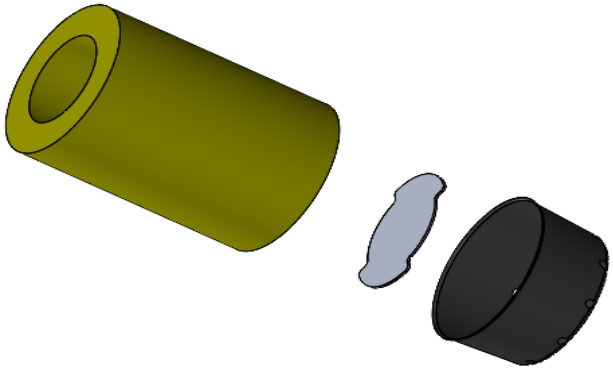


7) Compress the baffle assembly and insert it in the tank being careful not to cut the assembly or your hands on the tank edge. Once the baffle assembly is in the tank, manipulate it until it's centered within the opening. If using two lengths of foam, ensure the two lengths are concentric with each other and with the sending unit hole. Be sure that the foam and baffle did not separate as they were pushed into the tank opening. **(Note: If you are fabricating a bracket to use with the level sender, you will need to cut a "window" in the foam to allow your fabricated bracket/level sender to pass through. Do not cut into the black rubber part of the baffle assembly). If needing to cut the window for sending unit bracket refer to dimensioned image below.**





8) Once the foam is in the tank, work to get the baffle plate into the bottom of the baffle between the foam. Baffle plate should be forced down with the foam due to the 1 inch extra length.



9) Position the fuel pump on the outlet tube connected to the bottom of the outlet cap. The length from the bottom of the pump to the bottom of the outlet cap should be the depth of the tank.

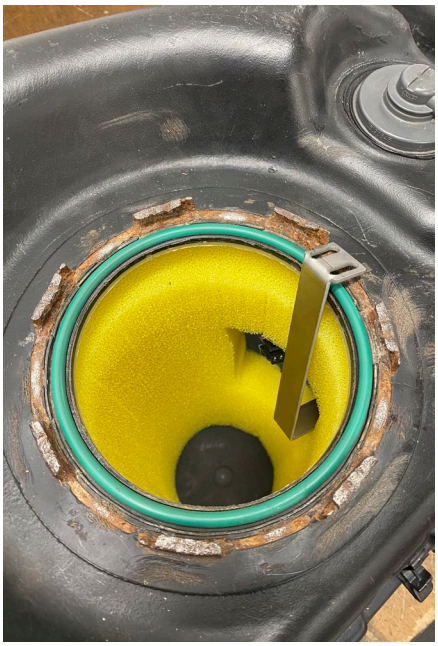
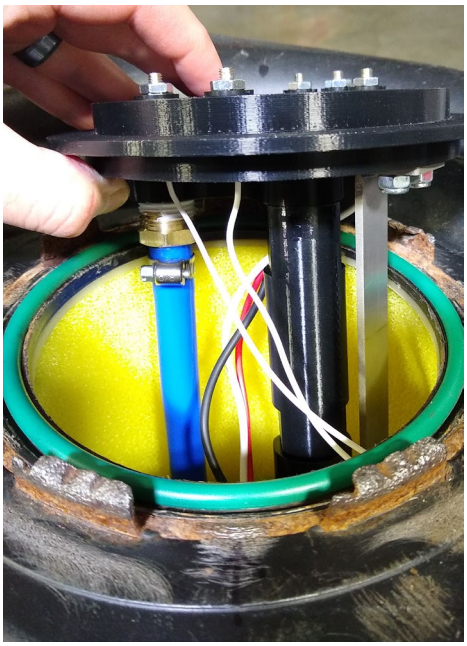
Note: 2x 10-24 Tapped holes are provided on the bottom side of the outlet cap that can be used for a fabricated bracket to accommodate a fuel level sensor. Due large variations in level sensors a universal bracket is not available, but there are four brackets for specific applications as listed above. The two white wires connected to the "LVL" terminals on the bottom of the outlet cap are provided to make a connection between a level sensor and the outlet cap. If you are not using a level sensor, remove or tie the two white

wires out of the way as they will not be used. Make sure the hole is to the right having the tank positioned as the figure above.

10) Bolt the ring terminals to the correct electrical terminals on the outlet cap of the pump.

11) Install a new OEM replacement fuel pump gasket (***not included,*** **use AC Delco GM41 or equivalent)** in factory sending unit location. **Note: Do not reuse the existing fuel pump gasket. A new one is required for proper tank seal.**

12) With the fuel pump assembly wired correctly it can now be dropped into the tank. If a level sending unit is being used, then the sending unit and bracket should be slid into the tank first through the hole in the foam. Then using the threaded studs and lock nuts the sending unit assembly can be affixed to the pump assembly.


Caution: Take special care to ensure that the fuel pump wires are fully inside of the tank and will not be pinched in between the pump assembly and the fuel tank during assembly.

View from inside the tank as an example on how the float should be positioned with the cap positioned as pictured above.

13) Press down firmly on the top of the pump assembly to compress the gasket. Position the OEM fuel pump lock ring over the billet fuel pump outlet cap. Rotate the lock ring unit until it is firmly seated against the OEM stops. **Ensure that the outlet cap and the lock ring are centered with each other and that the gasket is not deformed under the outlet cap flange.**

14) Prep the new tank by making all the necessary connections (feed, return, vent and electrical) before placing tank in vehicle. In most cases once the tank is placed in the vehicle these connections will not be accessible. For electrical wiring refer to **Figure 2-1.**

    Note: The tank vent must be at least 6" above the top of the tank if a roll-over valve is used (highly recommended).

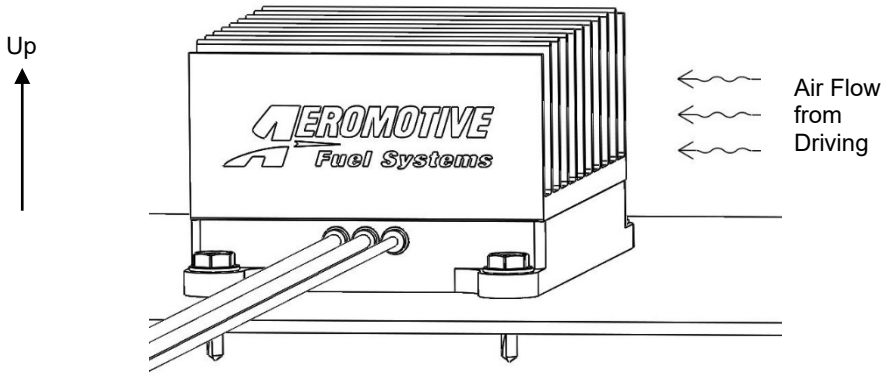
15) Determine a suitable location to mount the controller remote from the pump considering the following:

    a) It is recommended to keep the controller-to-motor lead wire lengths as short as possible for best pump performance.

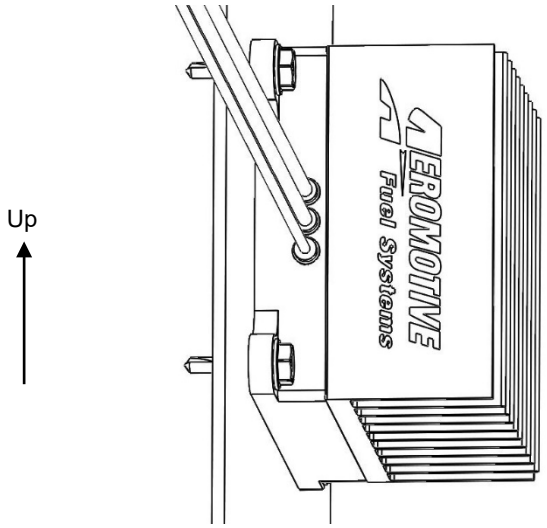
    b) If desired, motor lead extensions can be used but should be kept as short as possible and lead extensions should be sized large to keep electrical resistance low (you may even want to use a larger size for the extensions than the provided leads for long extensions).

    c) The controller is fully sealed so it can be mounted externally (frame rail, e.g.). The controller sink is designed to be able to handle low air flow so it can also be mounted internally (trunk, e.g.). However, for best results, it is recommended to mount the controller such that it will receive the most and coolest air flow.

    When mounting the controller externally and in a location that will likely receive air flow from driving, mount the controller with fins parallel to the airflow and, if possible, upward (not required with sufficient air flow) as in the following image.



When mounting the controller internally or behind obstructions in a location that will not receive much air flow from driving, mount the controller with the fins vertically as in the following image to achieve the maximum natural convective cooling.



d) NOTE: THIS CONTROLLER CAN GET HOT when using full power (60A rating) continuously with little air flow. **Mount away from locations prone to fuel vapor (e.g., tank vent)**.

17) Once a suitable location is found, mount the controller in the recommended orientation using the four #10 self-drilling screws.

18) Crimp the #10 ring terminals to the motor lead wires after cutting to length if not using extensions.

19) Connect the three motor leads from the controller to the pump matching the colors to the engravings (In most cases, the black lead connects to the “B”, red to “R”, and white/gray to “W”). Secure connections using the #10-32 nuts installed on the outlet cap, firmly holding the terminal end in place while tightening.

20) Connect the fuel pump controller as shown in the following diagram, +12VDC to the red lead, Ground to the black lead. To make installation easier, kits are available, Aeromotive fuel pump wiring kit, part # 16307 (30A) or 16308 (60A). **NOTE: POWER TO THE PUMP MUST BE FLAT DC, NOT PULSE WIDTH MODULATED!**

21) ***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!**

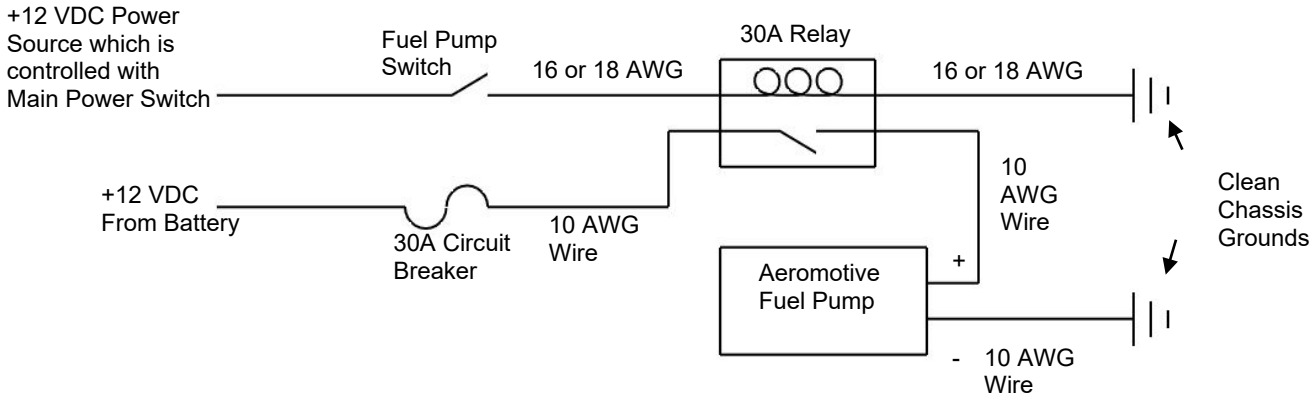


Figure 2-1

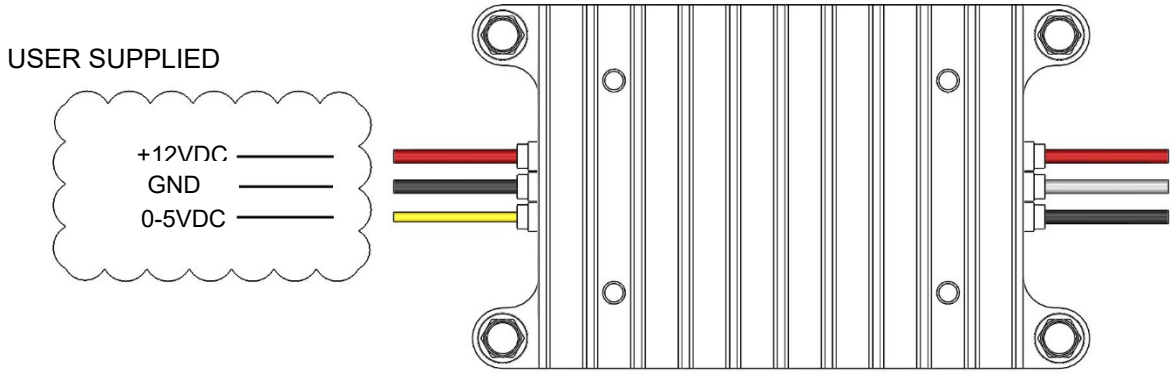
22) This pump controller allows the ability to change the speed of the pump via a 0-5VDC analog input to the yellow signal wire. **THE CONTROL SIGNAL MUST BE A TRUE ANALOG INPUT, NOT PWM**. A PWM signal can only be used if filtered sufficiently for smooth operation. The signal wire used to control the 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.

23) This pump controller has a minimum floor for pump speed of approximately 40% depending on the pump. This means that fuel pump speed will not fall below 40% of full speed with zero input voltage on the yellow control signal wire.

24) This pump controller has a minimum voltage threshold of approximately 0.5VDC. Voltage above 0.5VDC on the yellow input wire will increase the speed of the pump. 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 without affecting fuel pump speed at idle.

25) 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 is delivered to the fuel rail or carburetor. Voltage between 0.5VDC and 3.7VDC will vary the speed of the fuel pump according to the voltage applied.

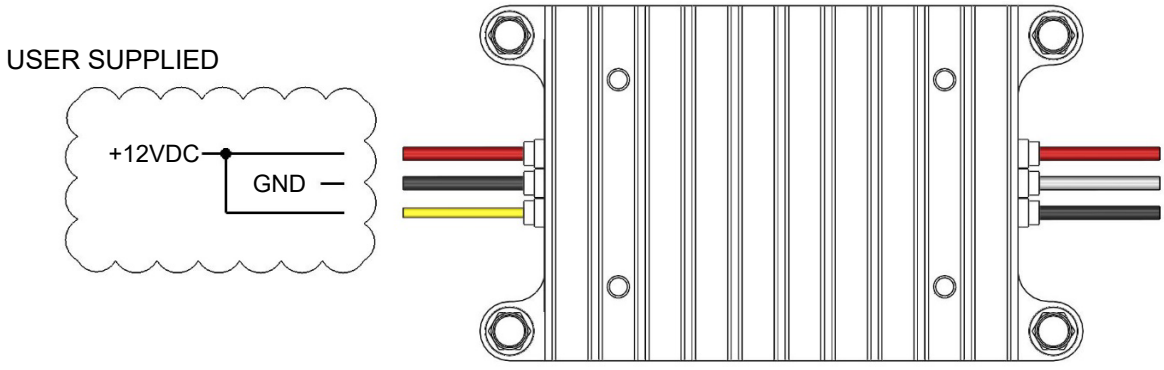
CONTROL CONFIGURATIONS:



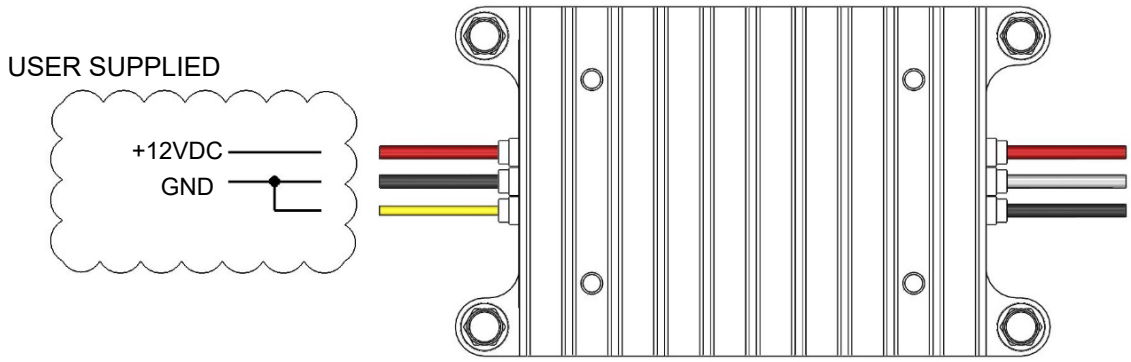
MODE 1 – TPS or Other 0-5VDC Input Control

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 (some MAF sensors, a 2 or 3-Bar MAP sensor, etc.) or voltage dividing/regulating/switching components may be used. It is the customer’s responsibility to ensure a signal supply and control strategy where the fuel flow is sufficient to meet engine demand.

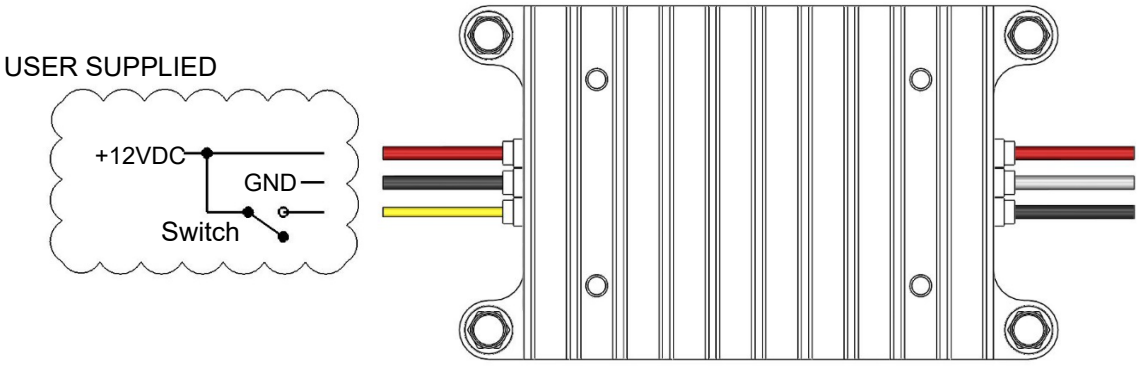
If no signal supply is suitable or desired, the controller can still be wired for use as in Modes 2 – 4, as shown following, to allow different fuel pump speed and flow outputs from the pump.



MODE 2 – Constant Full Speed



MODE 3 – Constant Low Speed



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

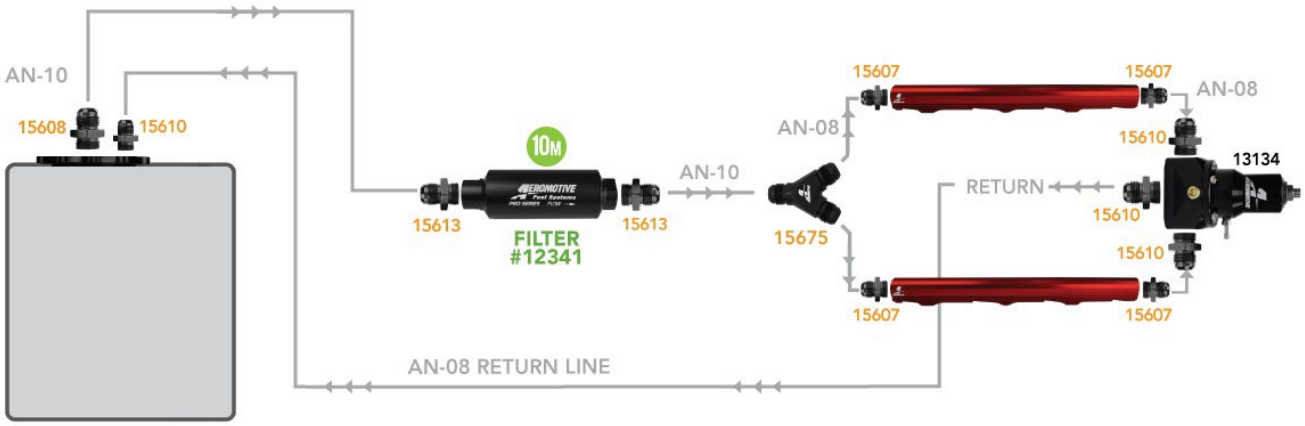
Mode 4 can be activated by any relay or switch providing 5VDC or higher (system voltage up to 19VDC is fine) to the control wire. A relay for this purpose could be activated using the programmable output from a tunable ECU, or via a boost Hobb's or WOT switch connected to 12VDC to name a few examples.

Reinstall the fuel tank in the vehicle. In some cases, it may be necessary to space the fuel tank down to allow additional clearance for the new pump outlet. Additional fabrication may be necessary to gain clearance in extreme cases.

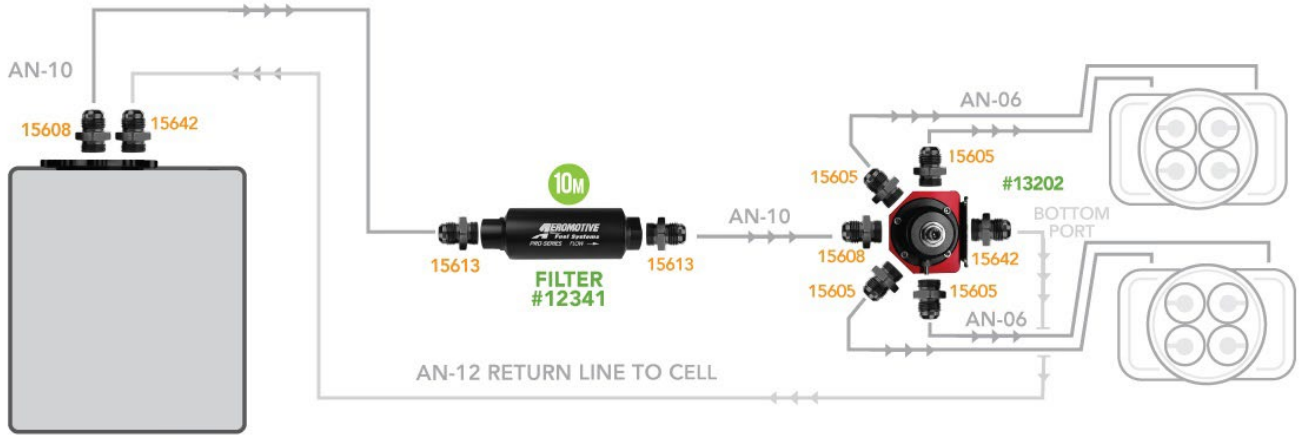
Now route the feed and return line under the vehicle and secure them to the chassis. It's recommended to install a post-filter between the fuel pump and the engine (see Aeromotive part # 12339 or 12341). Place the filter in a location that is clear of suspension and exhaust system components and easy to get to for servicing.

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

26) Connect the outlet filter to the vehicle's fuel rails or pressure regulator depending on application as shown in the following diagrams. 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. **Make sure you use high pressure (150 psi minimum) fuel line of this connection!**



EFI



CARBURETED

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 fuel pump OFF, remove any spilled fuel and repair the leak(s) before proceeding!

27) Turn the fuel pump 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 fuel pump OFF, wait one minute, then turn the fuel pump ON and recheck the pressure. Repeat this fuel pump OFF and ON procedure until the fuel pressure gauge registers pressure or you detect a fuel leak. It may be necessary to loosen the fuel line fitting at the pressure regulator to bleed off excessive air in the system. Tighten any fuel line fittings which where loosened and ensure that any spilled fuel is cleaned up and removed from the vicinity of the vehicle. 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.

28) Once the fuel pressure gauge registers pressure, start the engine. The gauge on the fuel pressure regulator should register between 3-12 psi for carb and 35-60 for EFI. Now adjust the fuel pressure regulator to the desired setting.

    Test drive the vehicle to ensure 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)!**

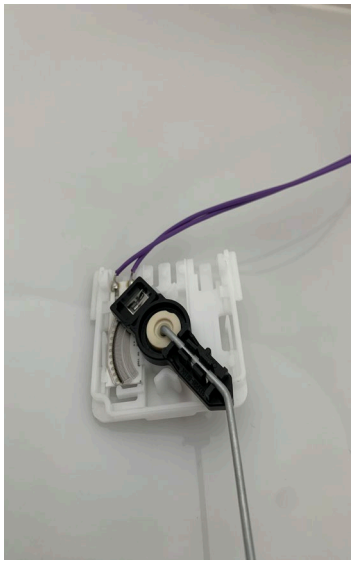


Figure 4-1a

Figure 4-1b

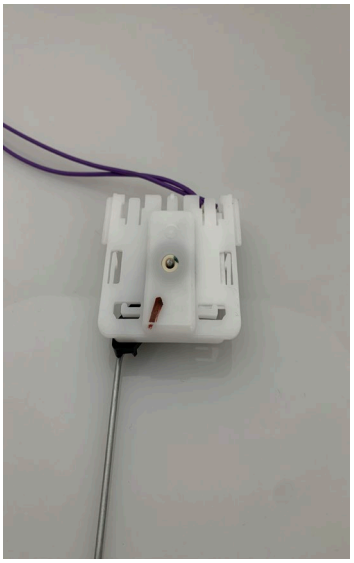


Figure 4-1c

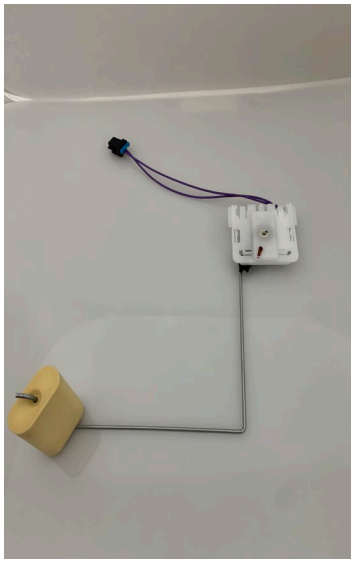


Figure 4-1d

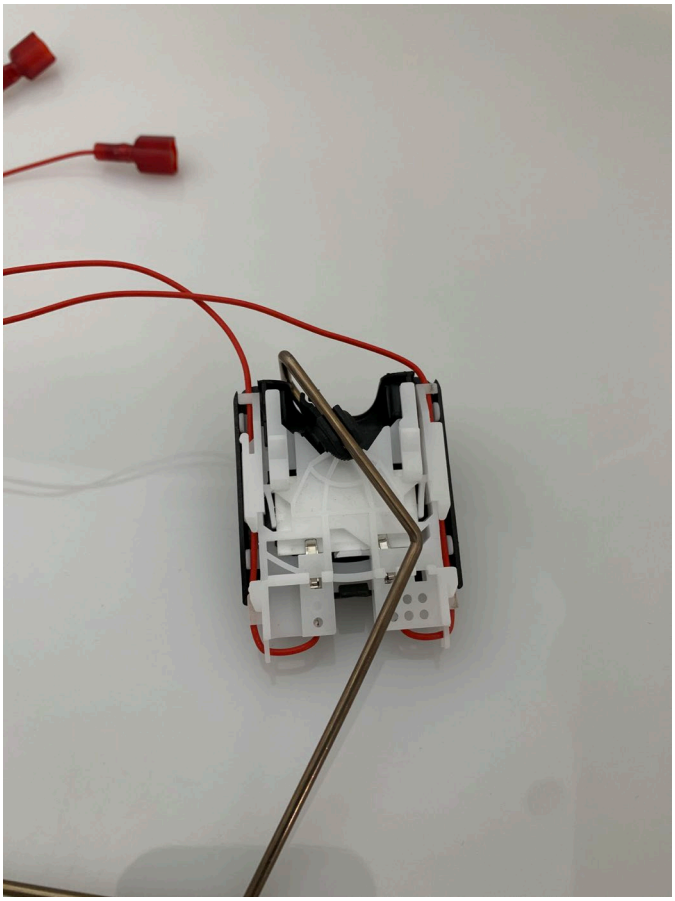


Figure 4-2a

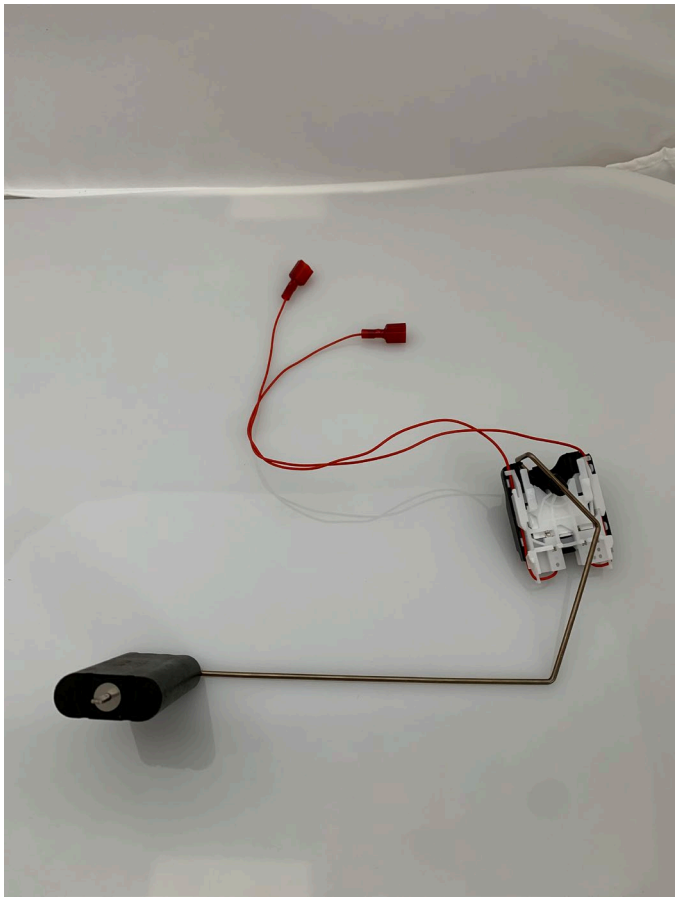


Figure 4-2b

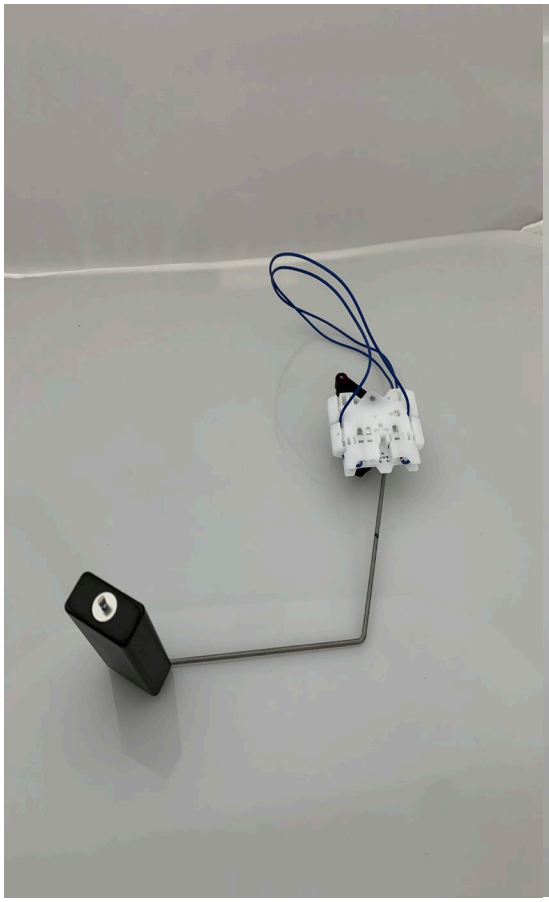


Figure 4-3a

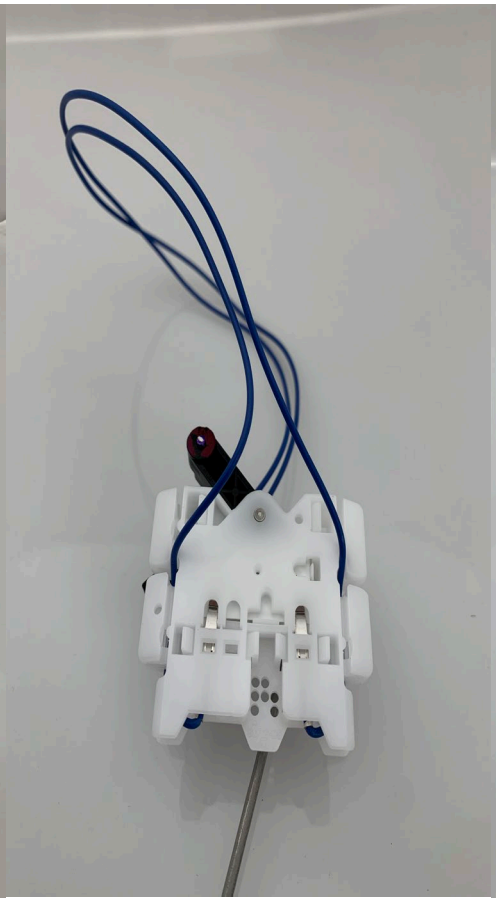


Figure 4-3b

Figure 4-3c

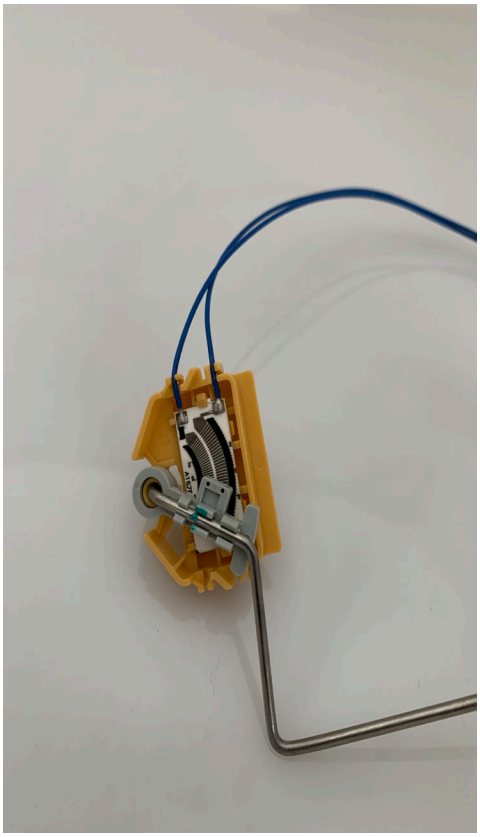


Figure 4-4a

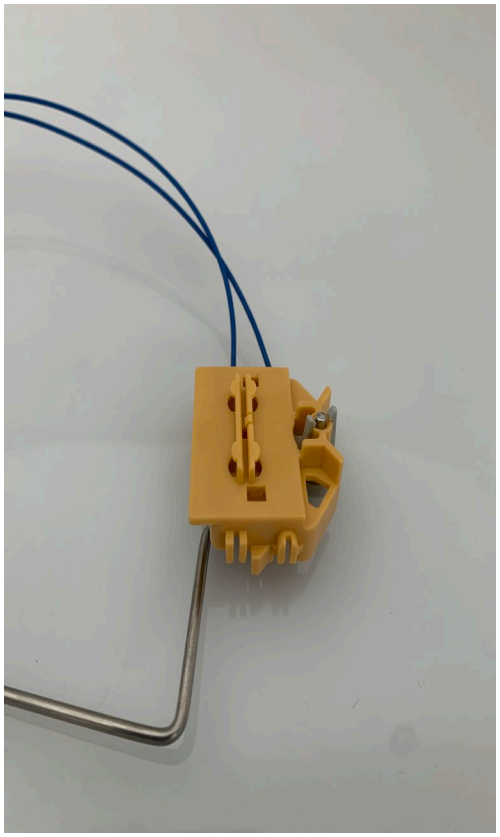


Figure 4-4b

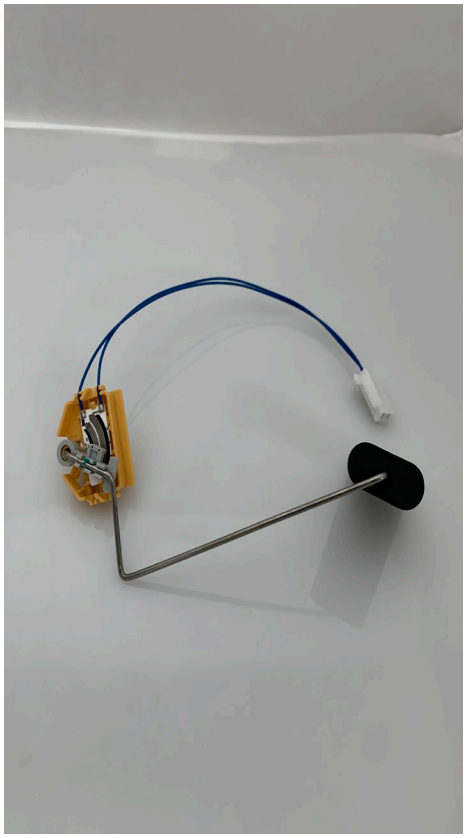


Figure 4-4c

Contact Us

RGA NUMBER REQUIRED FOR ALL RETURNS TO AEROMOTIVE.
To obtain an RGA number, please call (913) 647–7300 and ask for the Returns and Repairs department or complete the online form under the “Rebuilds” section at www.aeromotiveinc.com .

- **Shipping & Returns**
  Aeromotive Inc.
  10955 Mill Creek Road
  Lenexa, KS 66219

General Inquiries and Tech Line: (913) 647-7300

General Email: info@aeromotiveinc.com
Tech Email: tech@aeromotiveinc.com

The Aeromotive Tech Lines are open Monday through Friday from 9:30AM to 5:00PM Central Standard Time.

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.