



AEROMOTIVE
Part # 18080/81/82
2008-2020 Subaru WRX/STI
Pump Module
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

This pump assembly is a high-performance factory replacement unit. Key features:

- **Drops directly into the factory fuel tank (NO CUTTING REQUIRED).**
- **Utilizes patented Aeromotive jet siphon in conjunction with factory jet siphon system plumbing.**
- **High flow pre-filter built into inlet of pump.**
- **Includes fuel level mounting bracket for factory leveling unit.**

NOTE: The use of Teflon braided line with machine crimped hose ends is recommended. This eliminates the possibility of fuel vapors permeating through the fuel line.

Maximum continuous operating pressure should not exceed 65 psi.

The enclosed Aeromotive fuel pump utilizes AN-06 ORB (O-ring Boss Ports) style outlet, return, and siphon pickup/crossover ports; these ports are **NOT PIPE THREAD** and utilize **NO THREAD SEALANT**.

Pump Specifications:

Dual 340	18080 Kit (Pump 1x #11540)	18081 Kit (Pump 1x #11145)	18082 Kit (Pump 2x #11540)
Outlet pressure/typical flow:	40 psi / 291 LPH @ 13.5 V 60 psi / 227 LPH @ 13.5 V	40 psi / 381 LPH @ 13.5 V 60 psi / 324 LPH @ 13.5 V	40 psi / 631 LPH @ 13.5 V 60 psi / 511 LPH @ 13.5 V
Continuous Operating Range:	30 psi – 65 psi @ 13.5 V	30 psi – 65 psi @ 13.5 V	5 psi – 65 psi @ 13.5 V
Pump internal By-Pass Pressure:	105 psi	120 psi	105 psi
Current Draw:	13 amps @ 40 psi	15.3 amps @ 40 psi	2x 13 amps @ 40 psi

Aeromotive Related Components:

Fuel Filters:

12341 10 micron microglass ORB-12
12350 10 micron microglass ORB-10
12305 filter bracket

Check Valves:

15106 (6AN)
15107 (10AN)

Fuel Pressure Regulators:

13136 (-6 ORB ports)
13303 (-8 ORB ports)
13305 (-8 ORB ports)

Fuel Pressure Gauge:

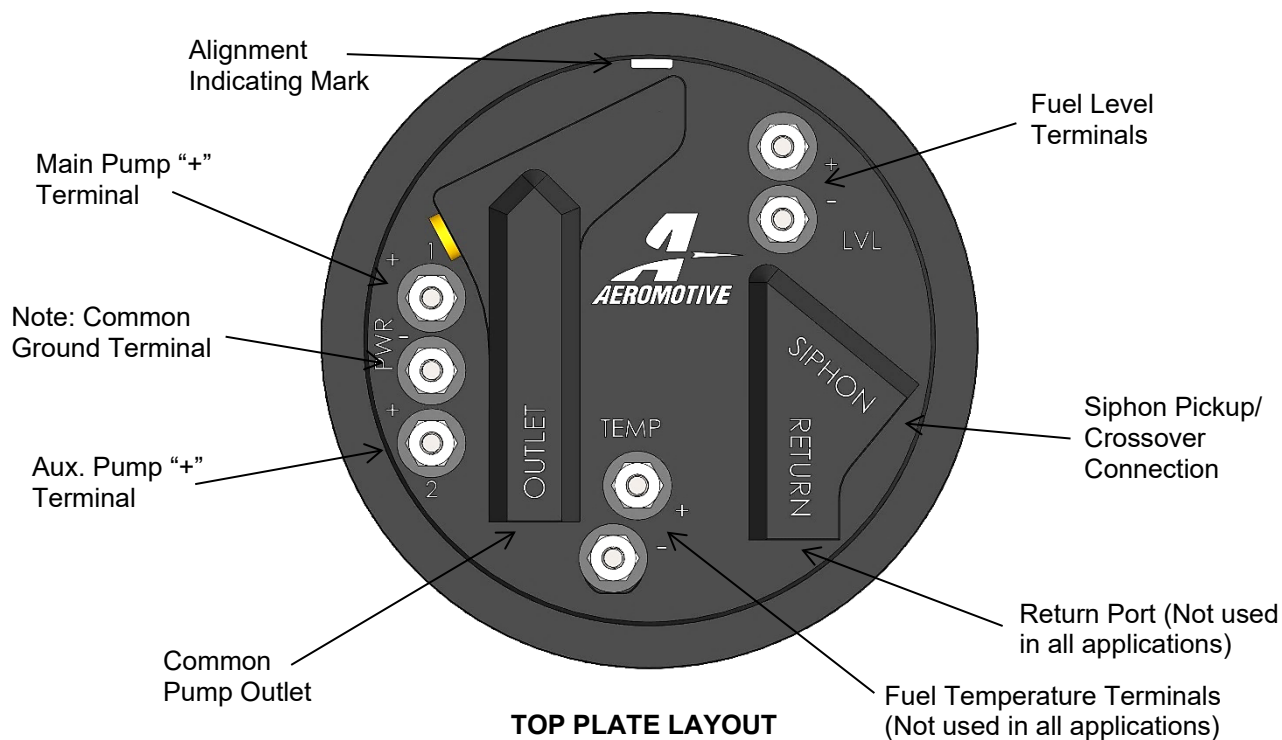
15633 (dry 0-100psi)

Outlet Cap Port Fittings:

15606 (-6 ORB x -6 AN Male)
15649 (-6 ORB x -8 AN Male)
15135 (-6 ORB x 3/8 Quick Connect)

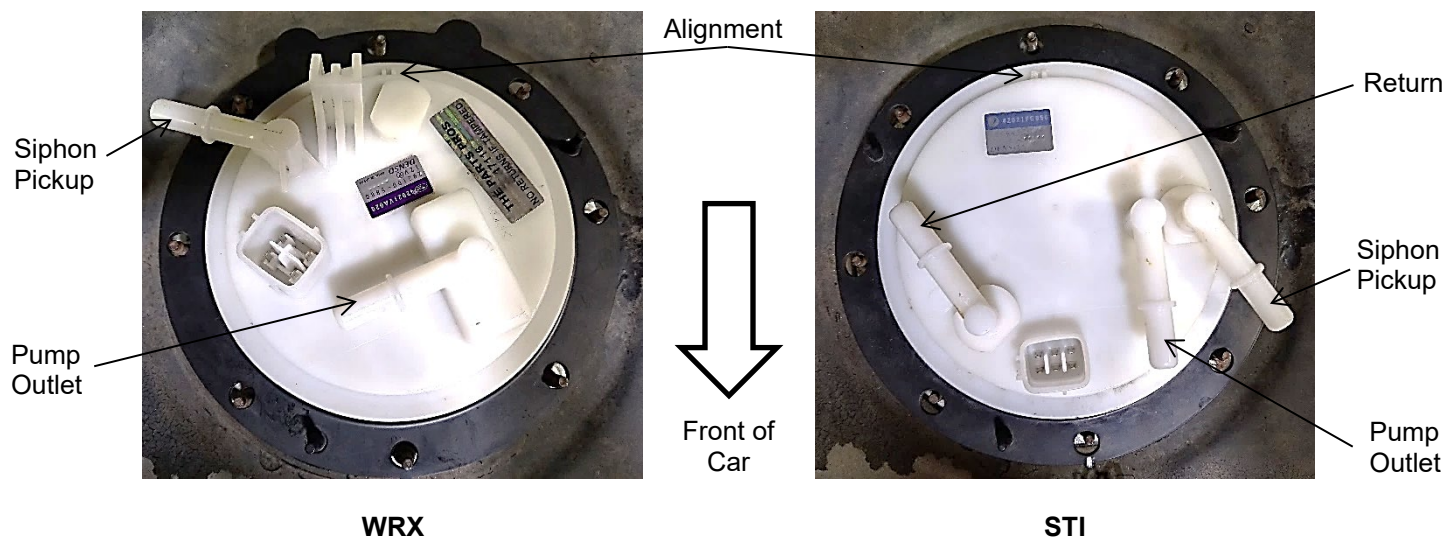
Electrical Components:

16307 (30A pump wiring kit)

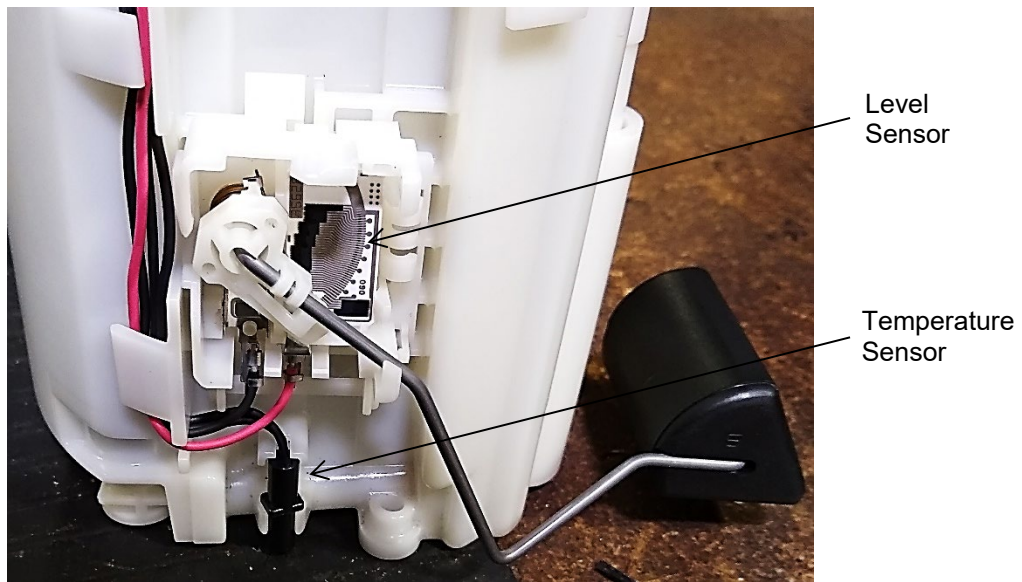


The following steps are typical of most installations:

1. Drain the fuel tank, relieve system pressure (refer to service manual for proper procedure), and disconnect the battery.
2. Remove the rear seat by lifting upward and rearward to decouple from the three retaining clamps near the sides and center of the seat. You should not need any special tools. There are multiple videos available online intended for general removal/replacement of the factory pump demonstrating how to perform this and the next four steps.
3. Remove the cover plate over the fuel pump module found on the passenger side of the car by removing the four Phillips head screws.
4. Push the wire harness grommet through the plate, disconnect all electrical connections on the fuel pump top plate, and remove the foam around the access hole.
5. Remove the fuel lines by pressing the tabs on the quick connect fittings and unplug the wire connectors. **Be sure to mark/identify the fuel hoses for later connection or replacement.** Fuel line connection locations are as shown following. Wipe the top of the fuel pump module clean to limit the amount of dirt and debris that can fall into the tank.

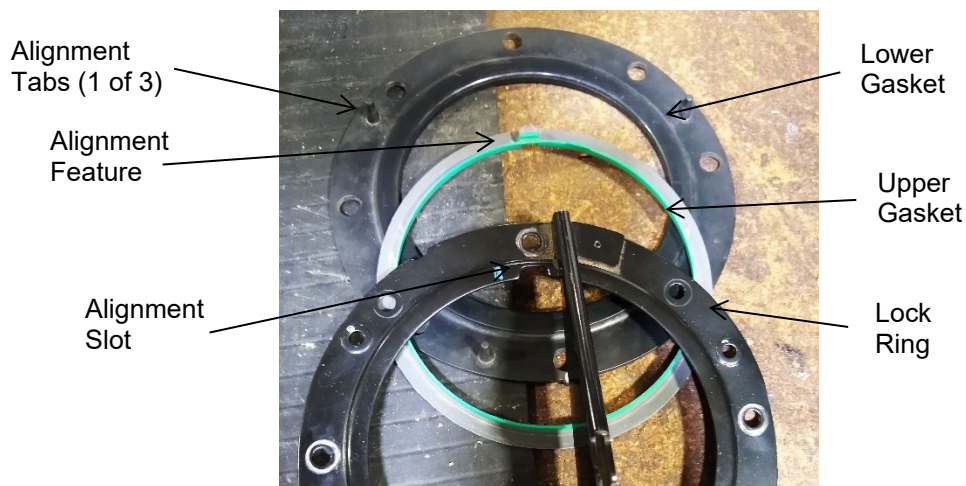


6. Remove the lock ring from the top of tank by removing the eight M5 flange nuts. Remove the pump module taking care not to spill fuel or damage the fuel level sending unit or fuel temperature sensor (if applicable) as shown in the image following. Not all models used the fuel temperature sensor. **RETAIN THE ORIGINAL FUEL PUMP MODULE FOR NOW.**



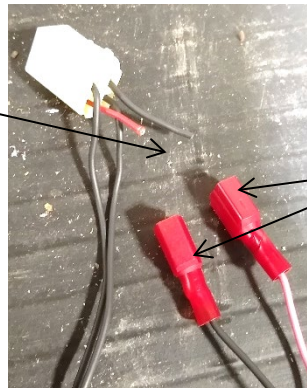
CAUTION: Immediately wipe up any fuel spills from the hoses.

7. Note that the fuel pump module has both an upper, thin, plastic gasket with an alignment feature and a lower, thick, rubber flange gasket with through holes and alignment tabs. These gaskets are not symmetrical and will align the new module correctly in the tank. Gaskets may be reused if in like-new condition but it is recommended to order replacement gaskets for best sealing performance. **RETAIN THE LOCK RING FOR REUSE WITH THE NEW PUMP MODULE.**



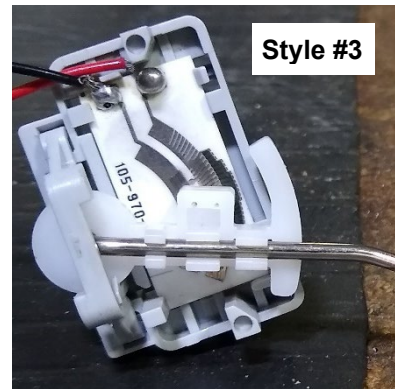
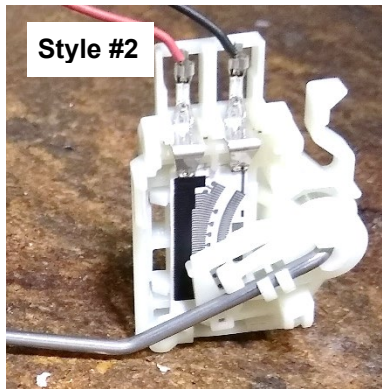
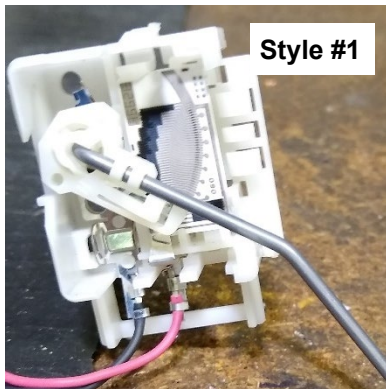
8. Once the unit is removed, cover the opening in tank so dirt and debris will not enter the tank.
9. **Be sure to mark/identify which wires are used for the level and temperature (for models using a temperature sensor).** Cut the wires as close as to the four pin connector as possible and strip the ends of the wires from the level and temperature sensors. Crimp on the new blade connectors as shown following.

Cut Close to
the Four Pin
Connector



Blade
Connectors

10. Determine which of the level and temperature sensors are used in your vehicle. Some aftermarket options are also able to be used with the parts supplied in this kit.

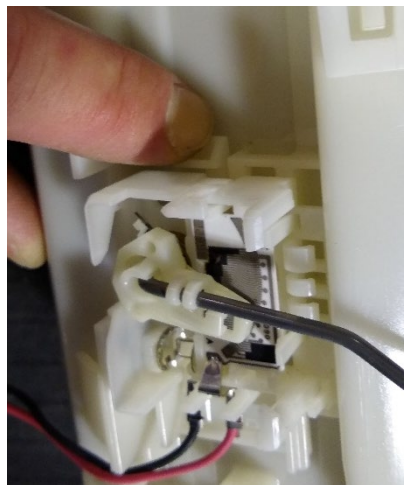


NOTE: If at any point the fuel level sensor becomes damaged or the sensor on your vehicle does not match one of the options shown, a replacement/substitute can be ordered that will work with this kit using the following part numbers. Check that the ohm range for the sending unit from your vehicle matches those shown for reference. These can be ordered from a Subaru parts retailer.


Subaru PN
42081AG030
42081SG000

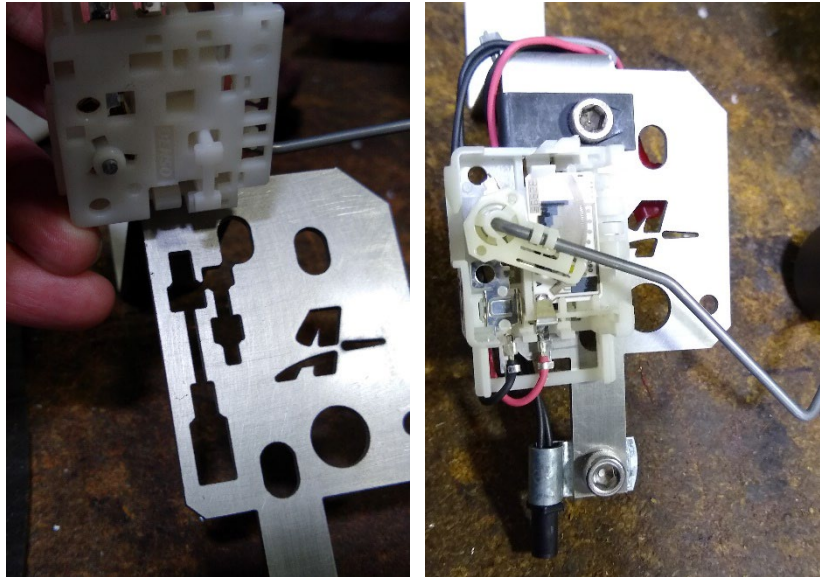
Year Range
2008-2014 (~32Ω full – 2Ω empty)
2015-2020 (~139Ω full – 9Ω empty)


11. Remove the fuel level sensor from the retaining clip by pressing the tab and sliding taking care not to bend or otherwise damage the float rod or circuit board. Pop the fuel temperature sensor (as applicable) loose by gently pulling it from its retaining clips.

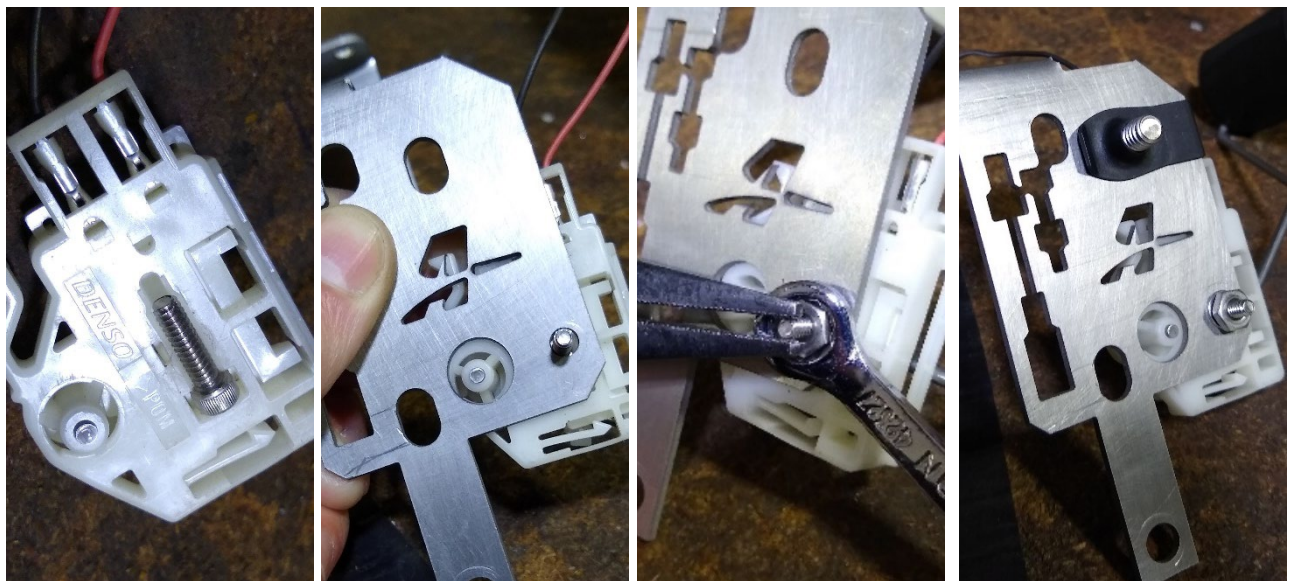



12. Install the level sensor on the new bracket provided in the kit. The bracket has been designed to place the level sensor at the proper height in the tank for the styles shown previously. The installation will vary based on the style of sensor in your vehicle.

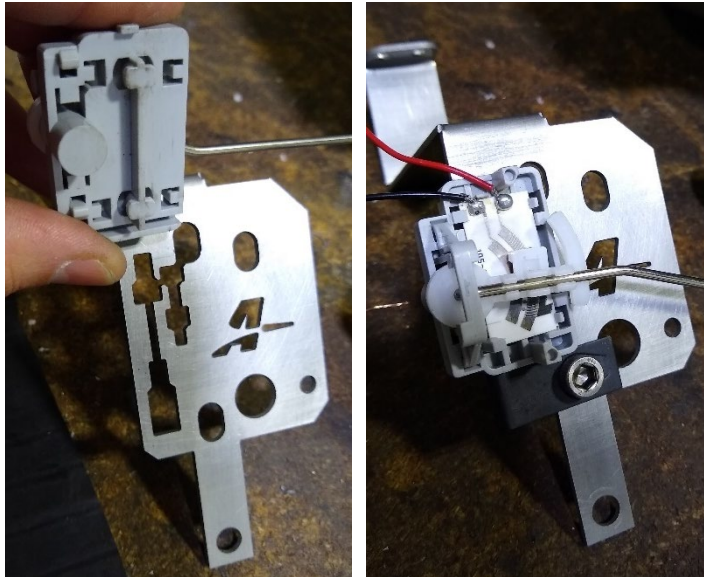
- a. For **Style #1**, slide the level sensor into the more central alignment feature from the “front” side of the bracket (“” on right when looking at “front” face) and retain using the provided clip-on nut and one of the 1/4-20 screws fixed into place **above** the sensor as shown following. Be sure to hold the clip firmly against the **top** of the sensor while tightening to retain the rigidity of the assembly.



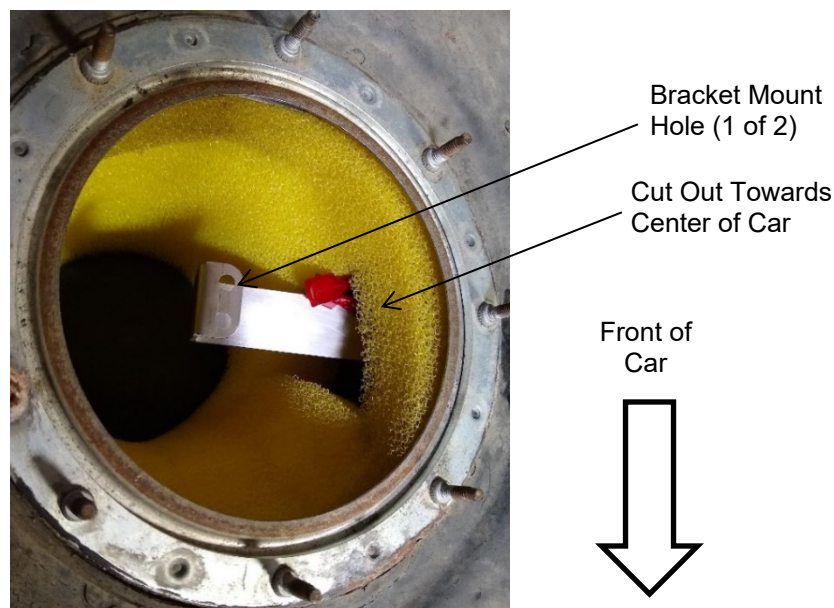
- b. For **Style #2**, slide the provided #6 screw head into the “back” of the level sensor by laying the screw nearly flat over the slot with the head toward the larger opening, then turning the screw into place. Slide the head of the screw “up” until it stops nearly at the center of the slot. Slide the screw from the “back” side of the bracket through the far-right hole when looking from the “front” (“” on right when looking at “front” face) as shown following. While holding the sensor, attach it to the bracket by tightening the provided #6 nut over the flat washer and lock washer placed onto the protruding screw end. Use a plier to hold the threaded end of the screw while tightening the nut to keep the screw from spinning but gently apply pressure so as to limit damage to the thread should removal in future be desired. **DO NOT OVERTIGHTEN!** Retain the sensor using the provided clip-on nut and one of the 1/4-20 screws fixed into place **above** the sensor as shown following being sure to hold the clip firmly against the **top** of the sensor while tightening to retain the rigidity of the assembly.



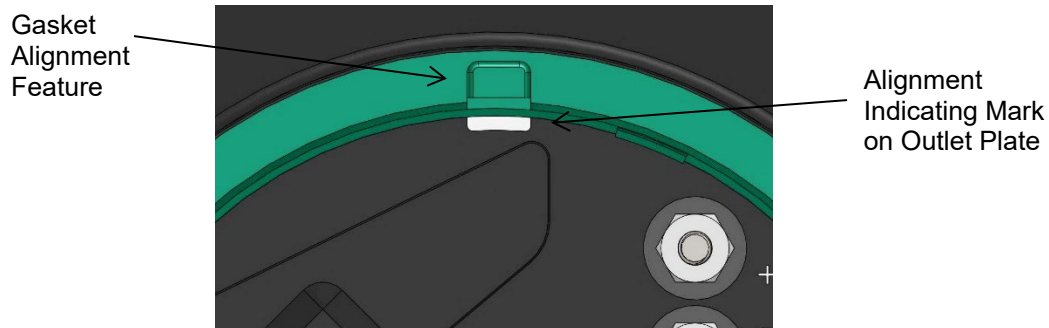
- c. For **Style #3**, slide the level sensor into the far-left alignment feature from the “front” side of the bracket (“” on right when looking at “front” face) and retain using the provided clip-on nut and one of the 1/4-20 screws fixed into place **below** the sensor as shown following. Be sure to hold the clip firmly against the **bottom** of the sensor while tightening to retain the rigidity of the assembly.



13. Install the temperature sensor (as applicable) on the new bracket using the provided loop clamp that most closely matches the size of the sensor in your vehicle and attach with the other 1/4-20 screw and lock nut. The loop clamp for the 1/4" diameter temperature sensor may need to be crushed slightly with a plier **prior to installing the sensor** in order to rigidly retain it.
14. Using the provided zip ties, attach the level and temperature sensor wires to the bracket to ensure they do not interfere with the float travel. **Be sure to mark/identify which wires are used for the level and temperature sensors (if applicable) as they will be hard to identify when inserted in the tank.** Note: Neither the level or temperature sensors have directional polarity, so either wire of each set can be hooked to the "+" or "-" **as long as they are maintained as a set.**
15. Insert the foam (yellow) into the baffle (black with holes) if this was not done already with the cut out square farthest from the baffle end. With the foam inserted into the baffle, fold/compress and insert into the pump module hole in the tank and expand to form a round basket inside the tank. The foam has been cut to provide the optimal compression within the tank. **Rotate the foam so that the cut out square is at approximately 3 o'clock when viewing the tank from the front of the car (cut out towards center of car) to aid in placing the assembly in the correct orientation.**
16. Carefully slide and rotate the float and remainder of the level sending unit bracket assembly through the hole in the foam and over the bladder so that the float is outside of the basket and the mounting holes through the bracket (on the short tab) are near the top of the tank. It may be helpful to slide the basket to the side slightly to accomplish this.



17. Place the thick, rubber gasket on the flange over the studs with the thicker part up. Note: this is not rotationally symmetrical and will only fit one way.
18. Connect the sensor wires to the wires from the new pump module for the appropriate sensor terminals. If the temperature sensor is not used, these wires can be clipped or removed from the new module outlet plate.
19. Place the pumps, siphon, and hoses into the basket with the pump outlet and return facing the front of the car. Lifting up on the bracket (pull it up against the foam), attach it to the pump module outlet plate using the provided lock nuts on the studs protruding from the bottom of the outlet plate. There will be limited room to accomplish this.
20. With the bracket attached to the pump module, and the outlet plate rotated so that the pump outlet faces the front of the car, lift up on the thick, rubber gasket and slide it over the bottom boss of the outlet hat. It will fit tightly over the outside diameter. Lower the pump module and gasket back down over the studs.
21. Place the original thin, plastic gasket over the top boss of the outlet plate. Orient the gasket so that the alignment tab is aligned with the laser etched mark on the outlet hat as shown following.

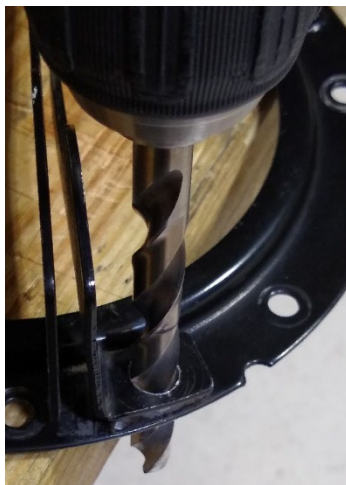


22. Install the original locking ring by placing it over the alignment feature of the gasket and the studs. Retain the lock ring and pump module using the original flange nuts.

NOTE: STI models used a locking ring as shown following. Depending on your line size and fittings, it may be VERY difficult to get a wrench on the return line fitting to tighten. If desired, you might find convenience in drilling the two spot welds holding the vertical stop across the ring with a 3/8" bit to give a similar, flat ring as found in the WRX models.



Original



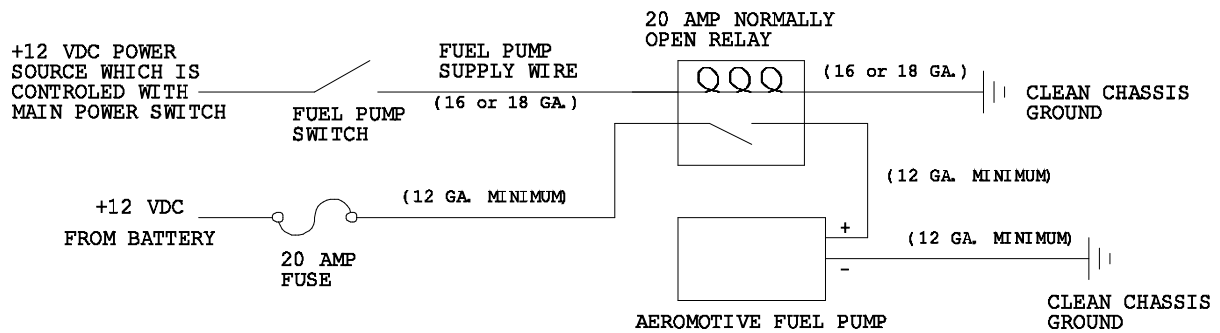
Drill



Modified to WRX-Like

23. Run all necessary increased plumbing and wiring under the rear seat sheet metal using the appropriate example plumbing and wiring diagram found following. Route the fuel lines under the vehicle being sure to keep them away from heat and moving suspension components. The siphon pickup line can be reused. Each pump (for 18082 kit) will need its own relay and power wire. Aeromotive offers a wiring kit, p/n 16307, which may be used.





Wiring (per Pump)

24. Connect the electrical lines to the outlet hat first to aid in installation (the temperature terminal is close to the pump outlet and may limit the ability to put on the terminal nut depending on the fitting used). Connect the fuel lines to the outlet hat.

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!

25. Turn the fuel pump(s) 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 were 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.
26. Once the fuel pressure gauge registers pressure, start the engine. The gauge on the fuel pressure regulator should register between 35 and 60 psi. Adjust the fuel pressure regulator to the desired setting.
27. 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)!**

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.