



Model Number 20901
Fabricator's Power Module Kit

Operating and Installation Instructions

CAUTION!

This product is to be installed only by persons knowledgeable in the repair and modification of vehicle fuel systems and general vehicle systems modification. Only a qualified technician or mechanic who is aware of applicable safety procedures should perform the installation of this product.

GASOLINE AND OTHER FUELS ARE FLAMMABLE AND CAN BE EXPLOSIVE!

Perform the installation in a well ventilated location only to minimize the build up of fuel vapors. **NO** open flames, smoking or other sources of ignition are to be present during installation, to prevent fire or explosion that can cause serious injury or death. Grinding, cutting, and drilling must be performed with care to prevent ignition. Draining and removal of all fuel and ventilation of vapors in vehicle and fuel system is recommended when performing such procedures. Proper eye and personal protection is required at all times during installation.

DO NOT smoke, have lighted substances, or carry open flame of any type around when working near the vehicle during installation of this kit, including road tests and final inspections.

DO NOT have personal electronic devices near the vehicle during installation, to prevent possibility of igniting fuel.

WARNING!

The Vehicle's fuel system may be under pressure! **DO NOT** loosen any fuel connections until relieving all fuel system pressure. Consult an applicable service manual for instructions to relieve fuel system pressure safely.

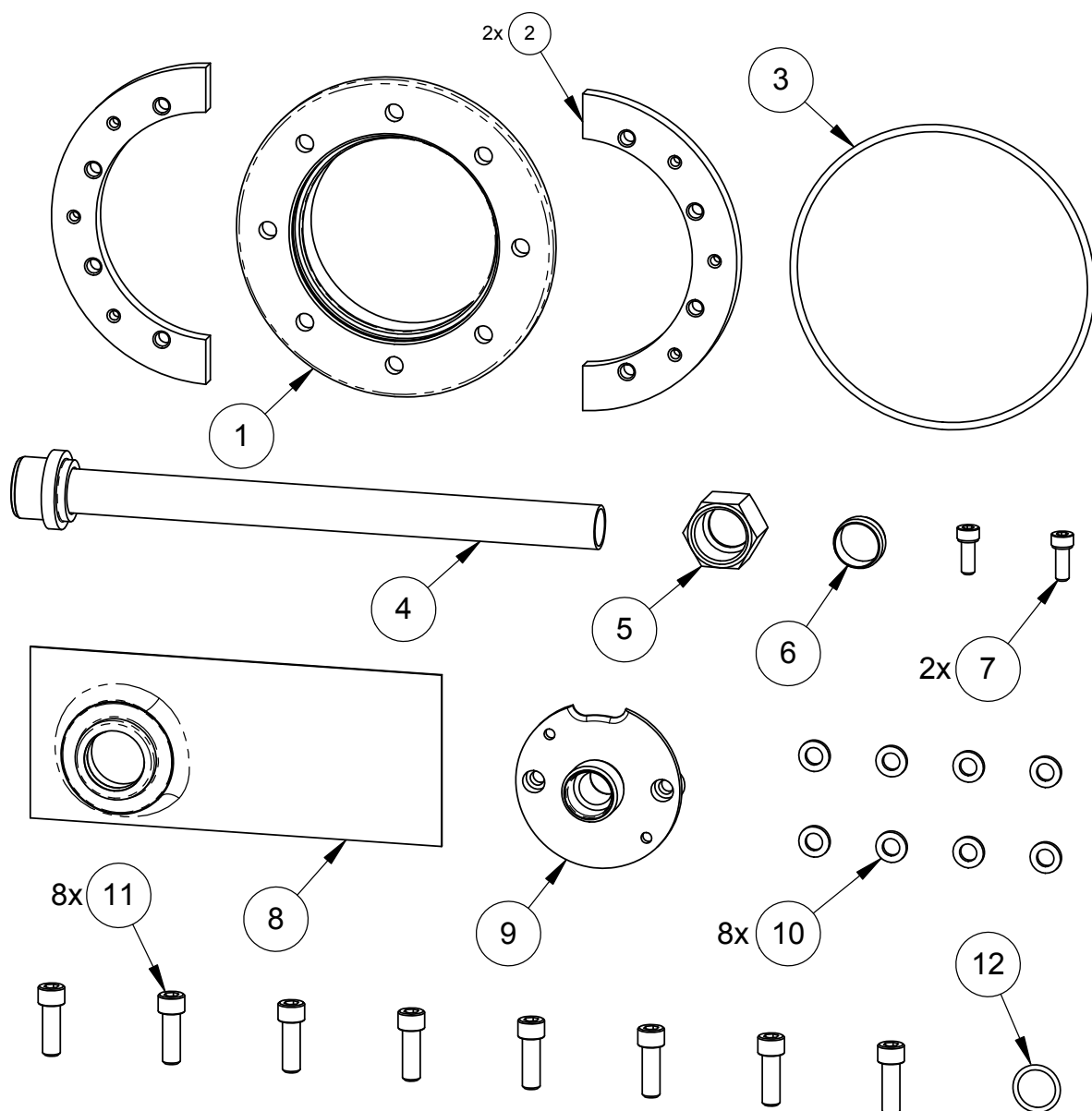
Application:

This Installation Kit is intended to be used with Fuelab® brand of Power Modules, including Models 90902, 91901 and 92902. Power Modules are Fuel Pumps that load into a flange that allow the pump to reside in the fuel tank or fuel cell. Use of this kit requires machining or fabrication of the vehicle's Fuel Tank or Fuel Cell. Machining can include the use of a drill with a hole saw. If this kit is incorrect, please contact your Fuelab® distributor immediately for replacement or selection of an appropriate Installation Kit.

Product Contents:

Verify the contents of this box, against the list of components and the diagram on next sheet (Sheet 2) to ensure that nothing is missing. When laying out the components, keep the parts close to each other as displayed in diagram (for convenience). Also note that o-ring (Item 12) may be pre-installed in Inlet Adapter Fitting (item 9). Contact your Fuelab® distributor immediately for replacement, if any items are missing.

FOLLOW ALL INSTRUCTIONS HEREIN AS WELL AS INSTRUCTIONS INCLUDED WITH THE FUEL PUMP (POWER MODULE, SEE APPLICATION SECTION). BOTH SETS OF INSTRUCTIONS CONTAIN IMPORTANT INFORMATION!



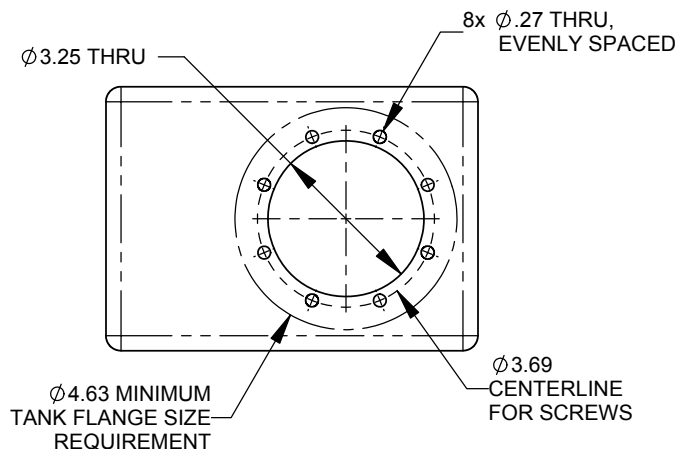
ITEM	Description	Qty
1	Flange	1
2	Tank Ring	2
3	O-ring, for Flange (Size -156)	1
4	Pick Up Tube Assembly (5/8" Line)	1
5	Compression Nut (for 5/8" Line)	1
6	Compression Ferrule (for 5/8" Line)	1
7	Cap Screw, #10-32 x 1/2" Long	2
8	Inlet Straining Filter (Fuelab Model 83801)	1
9	Inlet Fitting Adapter (for compression nut)	1
10	Nylon Washer	8
11	Cap Screw. 1/4"-20 x 3/4"	8
12	O-ring, Inlet Adapter Seal (Size -015)	1

Step 1: Open and sort the components, included in the Power Module (sold separately, reference Application Section herein).

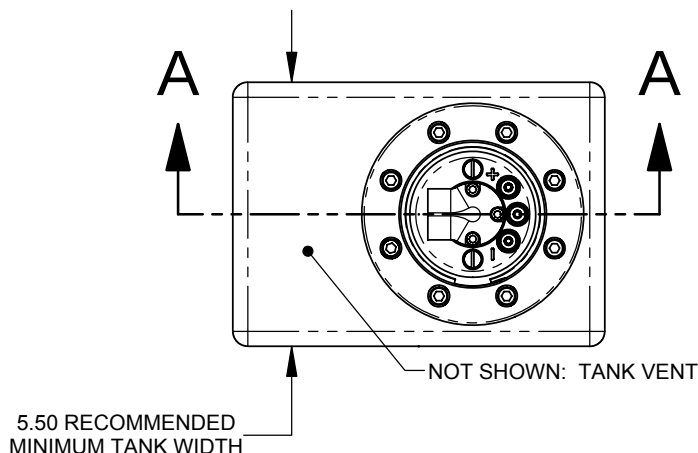
Step 2: Follow all instructions included with the Power Module, including planning notes regarding plumbing and electrical requirements.

Step 3: Refer to the requirements shown in figures on this sheet and the next sheet regarding tank requirements. These include:

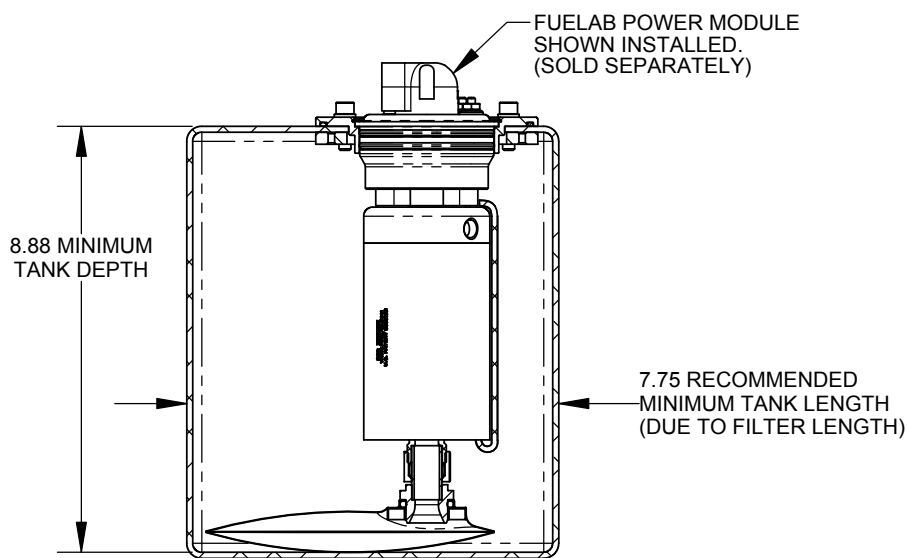
- Flat top with an accessible area at 4-5/8" diameter. This area **MUST HAVE** a good surface finish to seal the flange (Item 1) to the tank using the provided O-ring (Item 3). This Flat Area can be at an angle or even side of the fuel tank if required. **DO NOT INSTALL ON THE BOTTOM OF THE TANK!!**
- Minimum Depth (reference figures) is 8.875 inches (225mm)
- Minimum Length (reference figures) is 7.75 inches (200mm)
- Minimum Width (reference figures) is 5.5 inches (140mm)



TANK FABRICATION REQUIREMENT SHOWN ABOVE



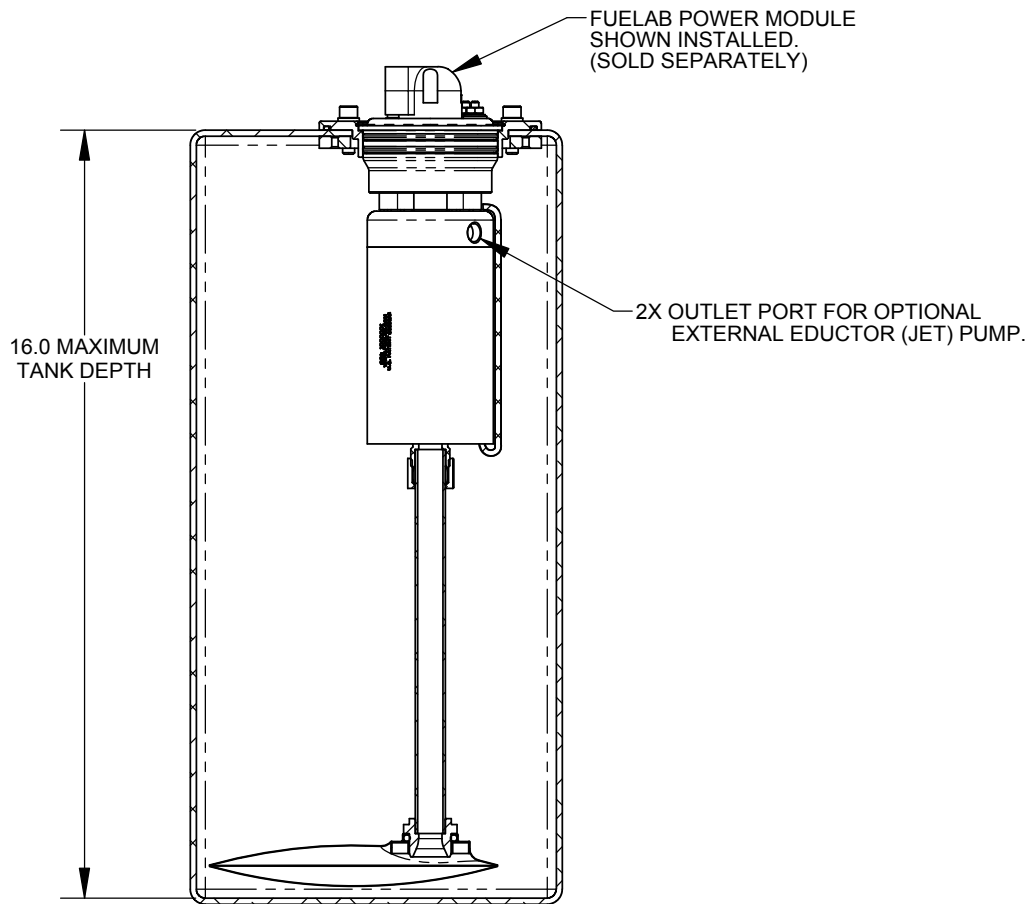
**TANK MUST BE VENTED!
DO NOT ALLOW A
VACUUM TO FORM
INSIDE TANK!**



SECTION A-A MINIMUM INSTALLATION HEIGHT SHOWN ABOVE

Other requirements include being vented to atmosphere. While it is possible to have the Power Module installed inside a reservoir or surge tank, the maximum pressure allowable is 20 PSIG. A vacuum **CANNOT** be allowed to form inside the tank in **ANY** instance! Fuel Pump failure will result, if a vacuum is formed inside the tank.

See the diagram below, showing the maximum depth allowed for application. Two auxiliary outlet ports (per 1/8"-NPT) are available on the outlet cap of the Power Module as shown. These ports have plugs installed, and can be used for alternate purposes. One such purpose is to be used for Jet Pump(s). Jet Pumps (such as Fuelab® 21901) are sometimes referred to as Eductors. These devices use pressurized fuel to allow pumping action, to allow fuel to be drawn from another source. These are commonly used in saddle tank designs, to allow fuel to be drawn from an area of the tank that is isolated from the primary sump area of the fuel tank. **SPECIAL NOTE: ANY** item connected to these auxiliary output ports prevent "cartridge loading" through the Flange of this kit thus requiring installation of the Power Module via alternate access. Cartridge loading is referred to the installation and removal of the Power Module through the Flange portion of this kit (Reference *Step 18* herein).



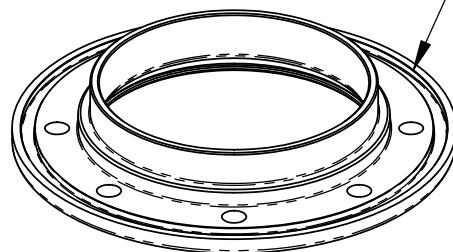
**MAXIMUM INSTALLATION HEIGHT
SHOWN ABOVE**

Step 4: WARNING: Vehicle's fuel system may be under pressure! **DO NOT** loosen any fuel connections until relieving all fuel system pressure. Consult an applicable service manual for instructions to relieve fuel system pressure safely. Remove **ALL** Fuel and Fuel vapors from the fuel tank, to allow a safe fabrication of the Fuel Tank. **GASOLINE AND OTHER FUELS ARE FLAMMABLE AND CAN BE EXPLOSIVE!** This step **CANNOT** be overlooked or ignored. While in many cases, it may be safe to perform fabrication while the Fuel Tank remains installed in the vehicle, it may be recommended to remove the Fuel Tank from the vehicle prior to proceeding.

Step 5: Measure and inspect the area of intended installation as described in *Step 3* herein. Use a 3.25 inch diameter (85mm) hole saw or other method of similar precision or better to create a 3.25 inch (85mm) hole into the fuel tank. Deburr the edges of the opening. Use the Flange (Item 1) as a template, to mark holes to be used for the Mounting Cap Screws (Items 11) to pass through during installation. Drill these marked holes using a drill bit between .250 inches in diameter (Drill Size: 1/4", 6.35mm) to .276 inches (Drill Size I, 6.91mm) in diameter. While hand-drills can be used, be as precise as possible, including location. Deburr the edges of the drilled holes.

Step 6: Place the provided O-ring (Ref. Item 3) over the newly created opening of the fuel tank. While keeping the O-ring in a circular shape, inspect the tank surface under and around the O-ring. Inspect the surface for deep scratches or flaws that can cause leakage. Repair surface if required. In some cases two-part epoxies may be used during installation to assist in sealing (still using provided O-ring). Remove the O-ring, and clean any debris from it by hand rinsing under water and allow drying. Wipe the prepped surface of the tank with clean rag.

O-RING MUST FIT INTO GROOVE SHOWN (UNDER FLANGE) FOR PROPER INSTALLATION

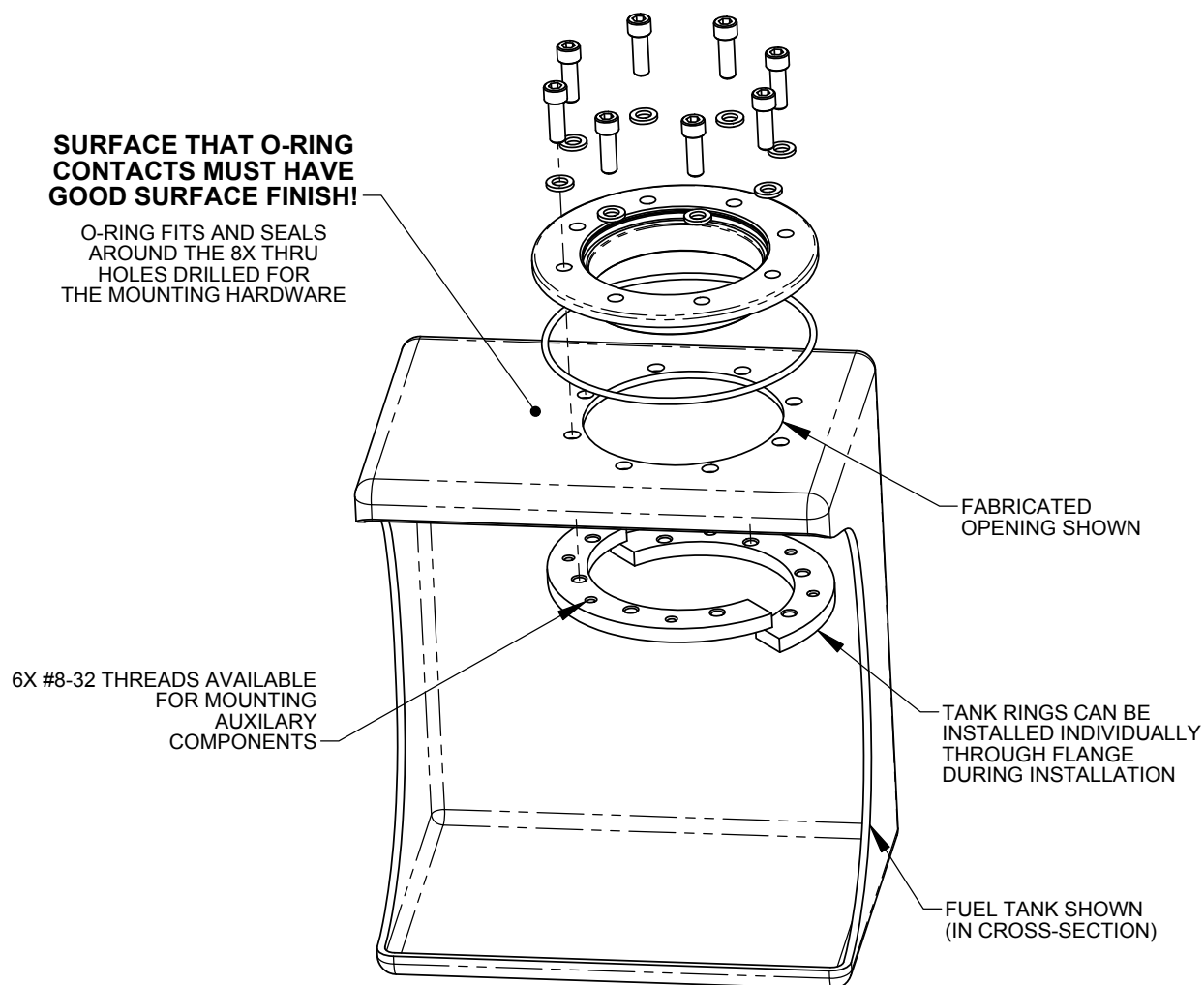


Step 7: Place O-ring back onto surface as described in Step 6. Gently rest the Flange (Item 1) into position as shown in the figure below. The O-ring fits into the groove on the back-side of Flange as shown in the figure to the right. Slip the Cap Screws (Items 11) through the supplied Washers (Items 10), then through the Holes drilled (Reference Step 5). The Cap Screws should pass freely, if not; additional deburring of the holes or use of a round file may be required.

Step 8: Slip one Tank Ring (Item 2) through the opening of the Flange (Item 1). While holding the Tank Ring, lift up into position against the underside of the Fuel Tank (against the Flange too). Move the Tank Ring Around until one of the Cap Screws (Item 11) can be threaded. Once this Cap Screw is threaded (2 to 5 turns), the remaining corresponding Cap Screws can then be threaded (2 to 5 turns). Once the Cap Screws are threaded (four of them), they can be threaded and tightened (finger-tight). **BE SURE TO NOTE THE POSITION OF THE O-RING TO ENSURE THAT IT IS IN THE GROOVE SHOWN IN ABOVE FIGURE.**

Step 9: Repeat Steps 7 and 8 for the remaining Tank Ring (Item 2) and Cap Screws (Items 11).

Step 10: Using a cross-torque method of tightening, tighten all Cap Screws (Items 11) between 40 and 60 in-lbs.

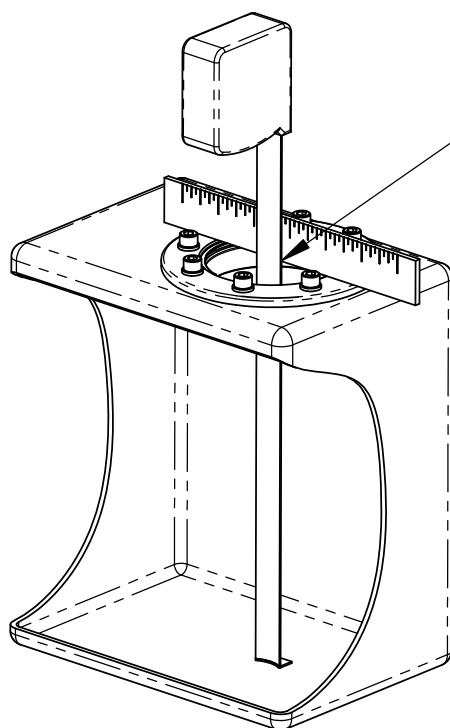


Step 11: Using a strait edge and a tape measure, measure the depth of the fuel tank as shown in the figure below. Write down this value here:

_____ INCHES

then take this above value and subtract: **8.25 (8-1/4) INCHES**. This is the new value for the length of the tube measurement for cutting (in *Step 12*, herein). Write down this new value here (for convenience):

_____ INCHES

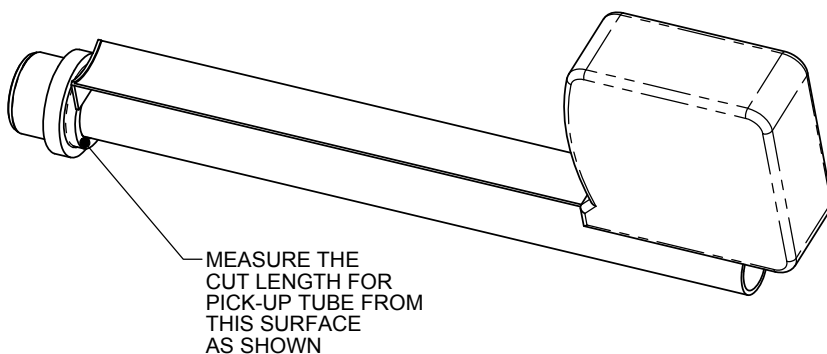


USING STRAIT EDGE AND TAPE MEASURE, MEASURE THE DEPTH OF TANK AT THE CENTER OF THE FLANGE OPENING AS SHOWN.

READING FOR DEPTH IS ON TAPE MEASURE, AT END OF ARROW SHOWN

FOR CONVIENCE, WRITE THE MEASURED VALUE ABOVE IN STEP 11. PERFORM THE CALCULATION TOO

Step 12: Using the calculated value from *Step 11* (second value obtained, after subtraction), measure and mark the Pick-Up Tube Assembly (Item 4) as shown below. Use a Pipe Cutting Tool, to cut the tube at the marked position, to achieve the correct installation length for the Pick-Up Tube Assembly as measured in *Step 11*. Deburr the end of the tube, to remove any hanging chips. Use compress air to remove any debris from operation as well.

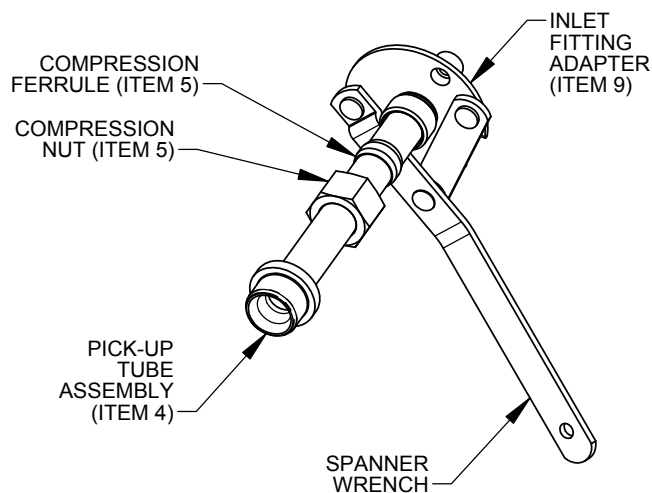


MEASURE THE CUT LENGTH FOR PICK-UP TUBE FROM THIS SURFACE AS SHOWN

MEASURE TWICE, CUT ONCE!

DOUBLE CHECK ALL MEASUREMENTS!

Step 13: Place a spanner wrench (span: 2" using 5/32" Pin maximum) such as available through McMaster-Carr per P/N 5794A16, into a bench vice. Set the Inlet Fitting Adapter (Item 9) into The Spanner Wrench to provide counter-torque as shown in the figure to the right. Slip the Pick-Up Tube (modified in Step 12) into the threaded end of the Inlet Fitting Adapter, while having the Compression Nut (Item 5) and Compression Ferrule (Item 6) slipped over the tube as shown in the Figure to the right.



Step 14: Thread the Compression Nut (Item 5) into the Inlet Fitting Adapter (Item 9) and Torque between 10 and 15 ft-lbs.

Step 15: Lubricate O-ring (Item 12) and slip onto the corresponding O-ring groove on the Inlet Fitting Adapter (Item 9). Note (this o-ring may already be installed). Slip the end of the Inlet Fitting Adapter (with the Pick-up Tube Assembly) into the Power Module. **BE SURE TO ALIGN**

WINDOW FEATURE OF THE INLET FITTING ADAPTER AROUND THE MOTOR WIRES DURING

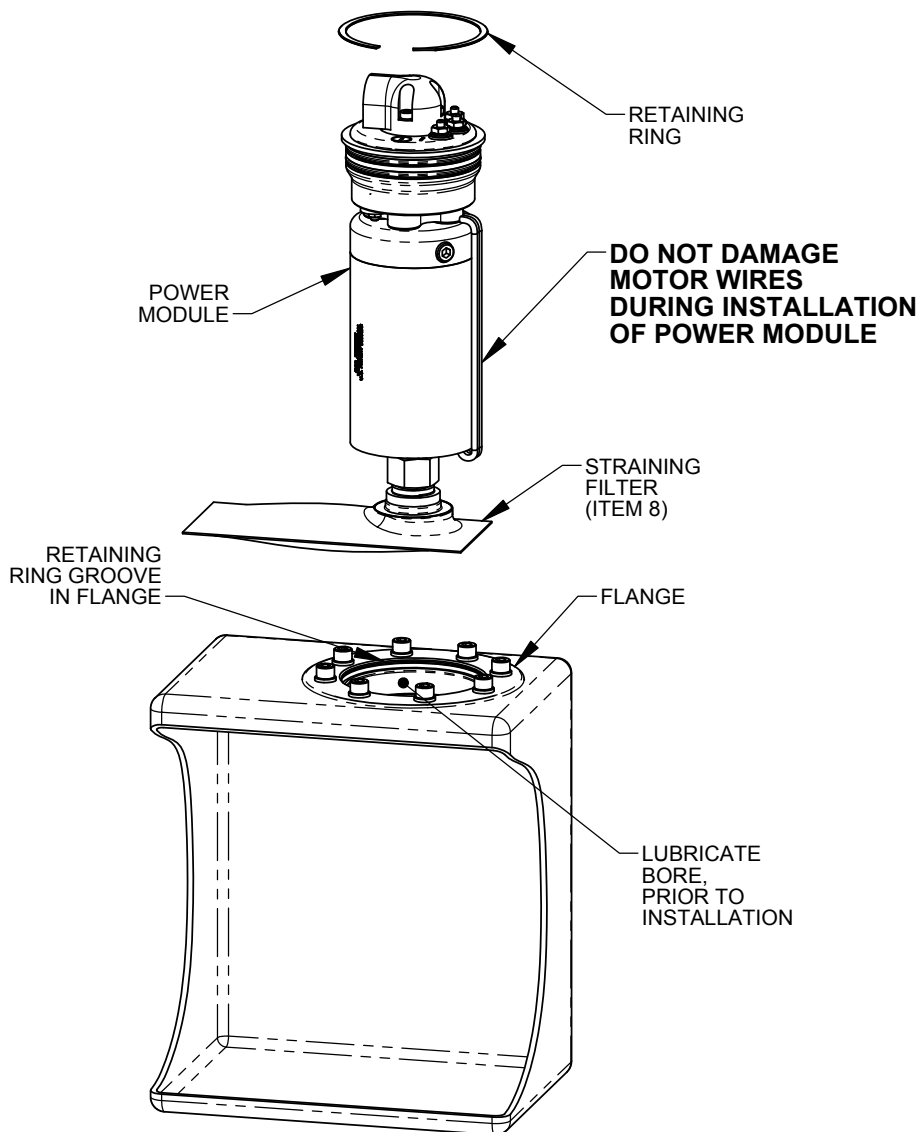
INSTALLATION. DO NOT DAMAGE MOTOR WIRES! Use the Cap Screws (Items 7) and thread into the Power Module, to secure the Inlet Fitting Adapter and Pick-Up Tube Assembly. Tighten Cap Screws between 20 and 35 in-lbs of torque.

Step 16: Lubricate the O-rings (2X -146 O-ring from Power Module) and slip over the end and onto the o-ring glands of the Power Module (Fuel Pump). Push on the Straining Filter (Item 8) onto the end of the Inlet Fitting Adapter as shown in the Figure below.

Step 17: This is a good chance to double check the length of the Power Module Assembly and the depth of the Tank (as Described in Step 11). Lubricate the bore of the Flange (Item 1) and carefully insert the Power Module Assembly into the Flange.

Step 18: Orientate the Outlet Fitting of the Power Module Assembly to the desired orientation. Slip the Retaining Ring (from the Power Module sold separately) into the corresponding groove in the Flange (Item 1). Retaining Ring will snap in place when correctly inserted. The Retaining Ring can be removed as well for easy maintenance.

Step 19: Follow all instructions included in the Power Module (sold separately) for wiring and plumbing.



LIMITED WARRANTY

FUELAB, a division of FCP, Inc., having its principal place of business at **1605 Eastport Plaza Drive, Suite 125, Collinsville, IL 62234, USA** ("Manufacturer") warrants its **FUELAB** products (the "Products") as follows:

1. Limited Warranty.

Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of 2 Years from the date of purchase to the original purchaser. If the Products do not conform to this Limited Warranty during the warranty period (as herein above specified), Buyer shall notify Manufacturer in writing, or by phone, of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its own expense, furnish replacement Products or, at Manufacturer's option, replacement parts for the defective Products. Removal of Products from vehicle (*Vehicle means any automotive, bike or marine transportation powered by an internal combustion engine. This product is **NOT** intended or designed for use on aircraft, experimental or otherwise.*), shipping to Manufacturer and installation of the replacement Products or replacement parts shall be at Buyer's expense.

2. Other Limits.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising out of improper or abnormal use or handling of the Products; against defects or damages arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to Buyer the warranty it received (if any) from the maker thereof of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization by Manufacturer.

3. Exclusive Obligation.

THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for incidental, special, or consequential damages.

4. Other Statements.

Manufacturer's employees, representatives' and/or resellers ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTY, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

5. Entire Obligation.

This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

6. Warranty Service

What Does This Warranty Not Cover? Any problem that is caused by abuse, misuse, or an act of God (such as a flood) is not covered. Also, consequential and incidental damages are not recoverable under this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How Do You Get Service? In order to be eligible for service under this warranty you **MUST** return the Warranty Registration card, or register on-line at www.fuelab.com/warranty within 30 days of purchasing the Product.

If something goes wrong with your product contact FUELAB at 1-800-541-2345, International customers call 001-217-324-3737, for a Return Authorization Number (RMA). After receiving your RMA send it postage paid, fully insured, with a brief written description of the problem to:

FUELAB Warranty Department, 1605 Eastport Plaza Drive, Suite 125, Collinsville, IL 62234

We will inspect your Product and contact you within 72 hours of receipt to give the results of our inspection and an estimate of the labor and/or parts charges required to fix the Product, if applicable. If covered under this limited warranty Manufacturer will repair Product and return it to you at no cost. If the Product is NOT covered under this warranty and if you authorize repairs, we will return the repaired Product to you COD, or prepaid via credit card, within 72 hours. There is no charge for inspection. If return product is found to be free of defects a \$25.00 shipping and handling charge will be applied. We will return the repaired Product to you COD, or prepaid via credit card, within 72 hours.