



RIVA RACING
PERFORMANCE PRODUCTS & ACCESSORIES

Pro Series SVHO Engine Cooling Upgrade Kit

PART# - RY10080-ECUK-PC-1



APPLICATION(S): Yamaha FZ & FX SVHO using RIVA Power Cooler Kit (part # RY17080-PC)

We strongly recommend the use of a service manual to familiarize yourself with the various components and procedures involved with this installation. Please note that some of the original clamps, hoses and hardware removed in the disassembly process will be used in the installation process. These instructions have been written in step-by-step format and refer to illustrations. Read through instructions entirely before performing installation. Please follow these step-by-step instructions and illustrations carefully.

***** ALLOW ENGINE TO COOL COMPLETELY BEFORE PERFORMING INSTALLATION *****

Required Specialty Tools

Oetiker Clamp Pincher Tool

Part#

C-48550347

Recommended tools

Factory Service Manual

Part#

n/a

- INSTALLATION INSTRUCTIONS -

Remove seats & rear storage bin.

Disconnect battery cables. **NOTE: Negative (black) first. Positive (red) second.**

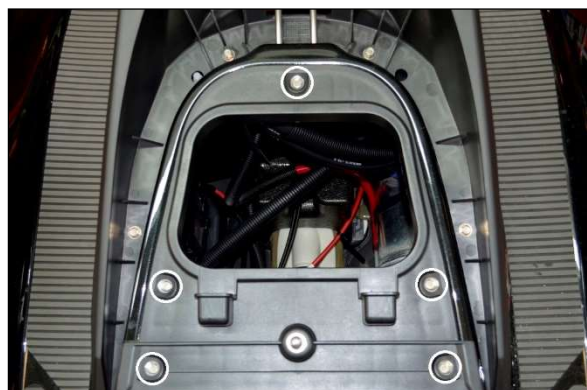
Remove the 2 engine cover screws. Pull straight up on engine cover & remove.



Remove bolts circled in illustration below & remove grab handle and deck beam.

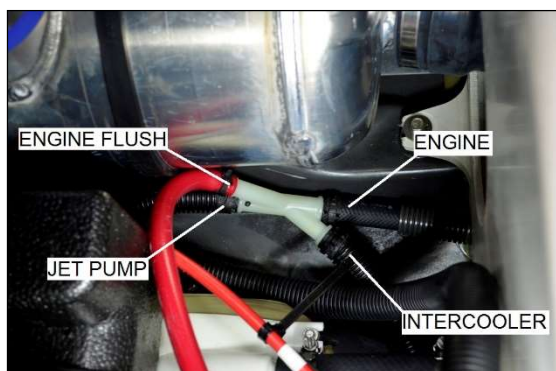


FZR/FZS MODELS



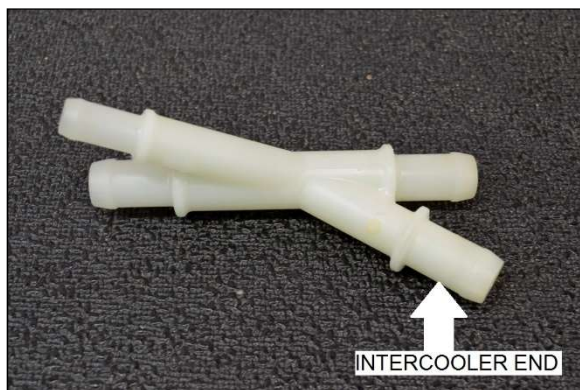
FX MODELS

Locate 4 way water joint inside the hull, at the rear, near the waterbox. Note location of hoses on water joint.



Disconnect the waterlines from the 4 way joint & remove the water joint. Save spring clamps on hoses for reinstallation.

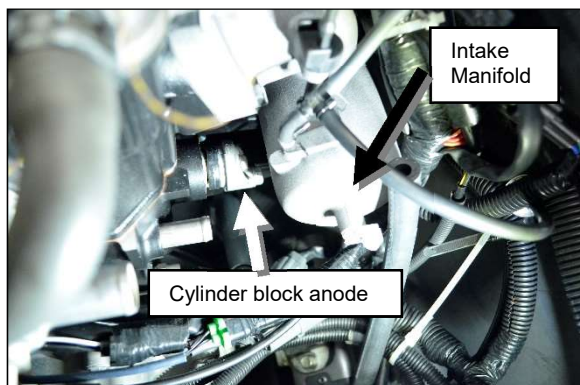
Locate the intercooler end on the 4 way water joint.



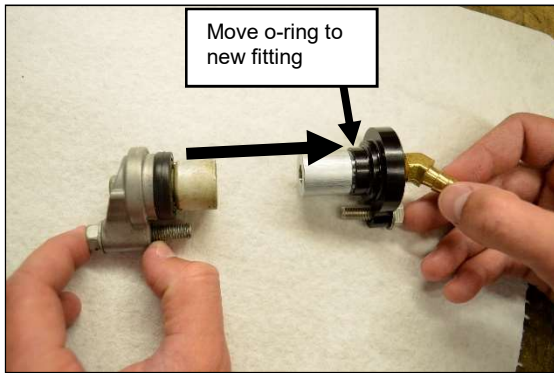
Using supplied drill bit, drill out intercooler end opening. **Note: Use care not to drill too deep. This may result in damaging the fitting.** Clean any plastic shavings / debris that may be inside the fitting.

Reinstall 4 way fitting & reconnect waterlines. Secure waterlines using existing spring clamps. Make sure waterlines are reinstalled in the correct location.

Locate cylinder block anode on the rear of the engine block, just under the intake manifold. Remove M8 bolt holding anode cover in place & remove anode assembly.



Remove o-ring on anode assembly & install on supplied anode with water fitting.

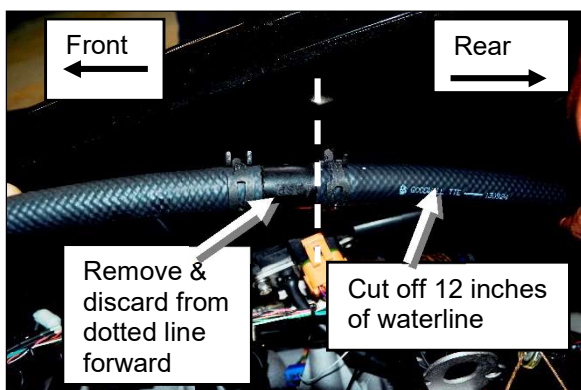


Note: If o-ring is warped or damaged, replace with OE part # 67F-11328-00-00.

Apply a light film of grease to the o-ring & install supplied anode fitting on to engine block. Secure fitting to block with supplied M8 bolt & washer. Apply blue Loctite to M8 bolt. Tighten M8 bolt to 14.8 ft. lbs.

Disconnect inlet waterline on intercooler. On the OEM intercooler, this is located on the bottom of the intercooler.

Follow the intercooler inlet cooling line & locate the in-line black plastic joint. Remove black plastic joint & cut 12 inches of waterline from the rear line. (See illustration below.)



Remove & discard forward line & black plastic joint.

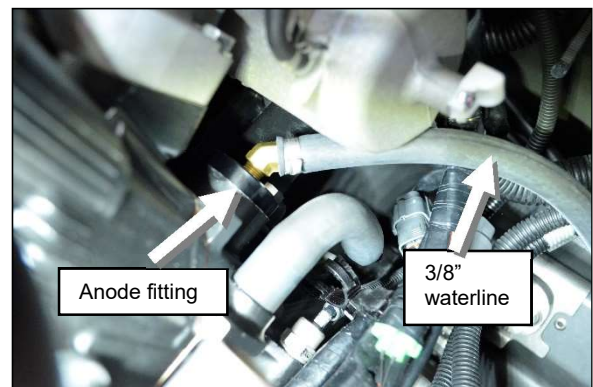
Install the supplied 5/8" to 3/8" brass reduction piece to the rear waterline. Secure using the supplied 22.6 size Oetiker clamp.

Cut a 10 inch length of the supplied 3/8" waterline. Attach to the brass reduction piece. Secure using the supplied 18.5 size Oetiker.

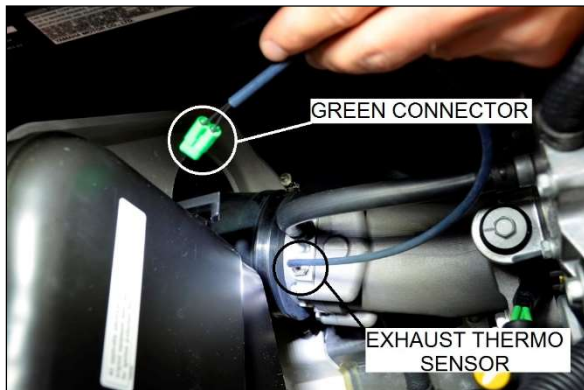


Connect 3/8" waterline to anode assembly fitting.

IMPORTANT: Do not install clamp just yet. Inspect waterline & make sure there are no tight bends or kinks that could cause loss of water flow. If necessary, cut hose to desired length. Once inspected/adjusted, secure waterline to anode fitting using supplied #18.5 Oetiker.

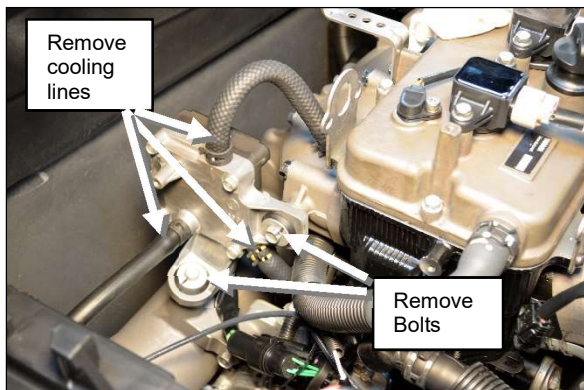


Locate exhaust thermosensor on exhaust tail pipe. Follow sensor wire & disconnect. (green connector)

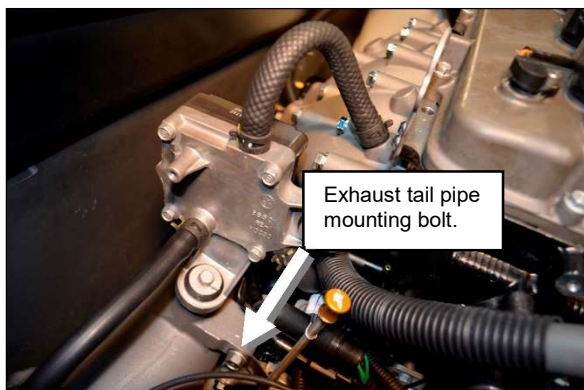


Loosen hose clamp on water box coupler hose at exhaust tail pipe.

Remove the three cooling lines from rectifier regulator. Remove two bolts securing rec/reg to engine and move rec/reg aside.



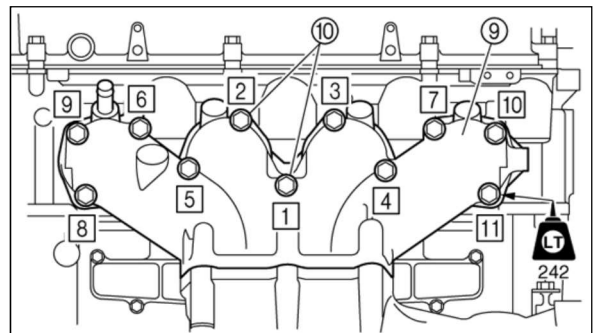
Remove exhaust tail pipe mounting bolt.



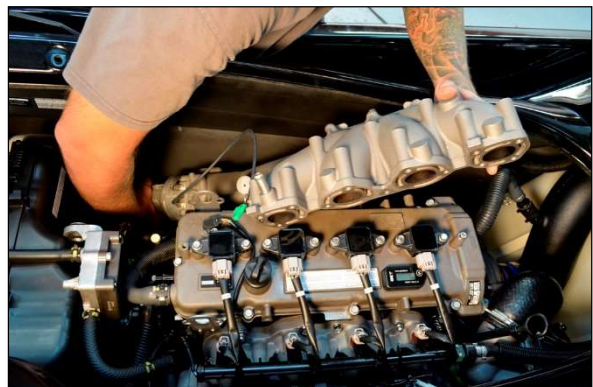
Disconnect waterline from bottom of exhaust tail pipe.



Remove bolts (11 total) securing exhaust pipe assembly to motor. (See illustration below.)

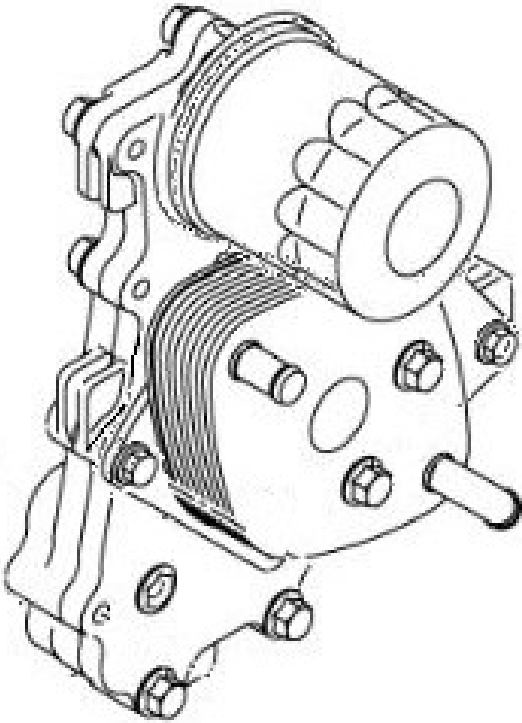


Remove exhaust pipe assembly by rotating away from engine towards hull. While lifting up at front pull forward to remove tail pipe from water box inlet.

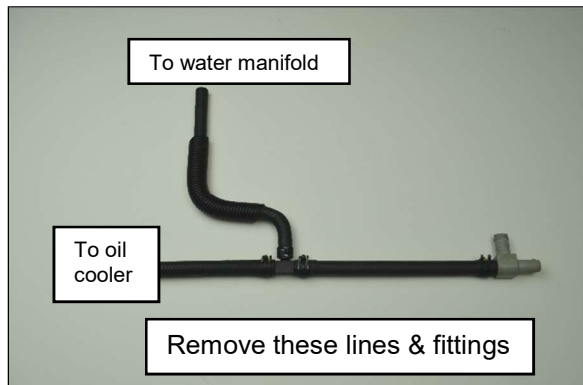


SVHO Models may have two different types of oil cooler and water hoses.

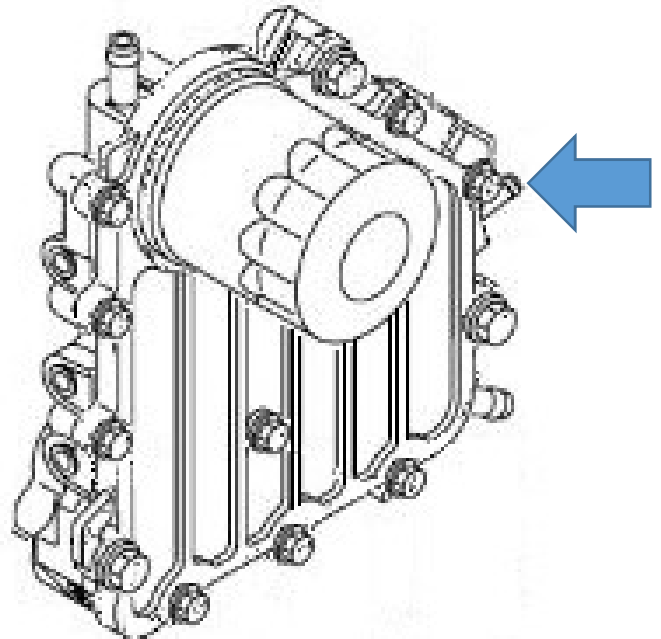
Follow the instructions on this page in this column if your oil cooler looks like the one pictured below:



Disconnect waterline on front of gray T fitting, water manifold & inlet of oil cooler. Remove lines & T fitting and discard. (See illustration below.)



Follow the instructions on this page in this column if your oil cooler looks like the one pictured below:



Remove hose from oil cooler fitting indicated above to water manifold. Install supplied block off hose assembly using 18.5 Oetiker clamp.



Block-off hose assembly

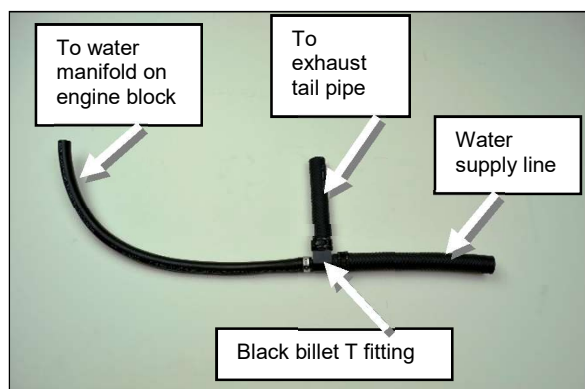
Disconnect waterline on front of gray T fitting & inlet of oil cooler. Remove line & T fitting and discard. (See illustration below.)



Instructions from this point apply to both oil cooler types.

Measure 19 inches of the 3/8" supplied waterline & cut. Attach one end of the waterline to the 3/8" side of the supplied black billet T fitting. Secure using supplied size 18.5 Oetiker clamp.

Install the black billet T fitting in the same location as the gray T fitting. Connect the two waterlines (supply line from pump & short line to exhaust tail pipe) to the black billet T fitting. Secure using the existing stock spring clamps. (See illustration below.)



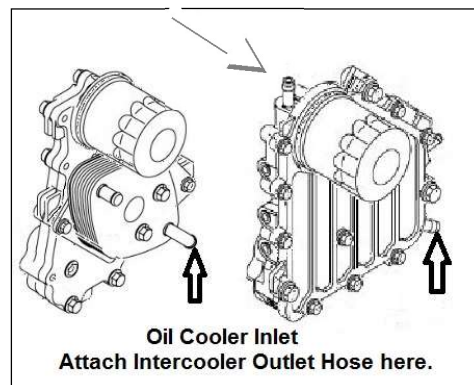
Connect the other end of the 3/8" line to the water manifold on side of engine block.

IMPORTANT: Do not install clamp just yet. Inspect waterline & make sure there are no tight bends or kinks that could cause loss of water flow. If necessary, cut hose to desired length. Once inspected/adjusted, secure waterline to water manifold using supplied 18.5 size Oetiker.

Measure 5 ft. of supplied 1/2" waterline & cut.

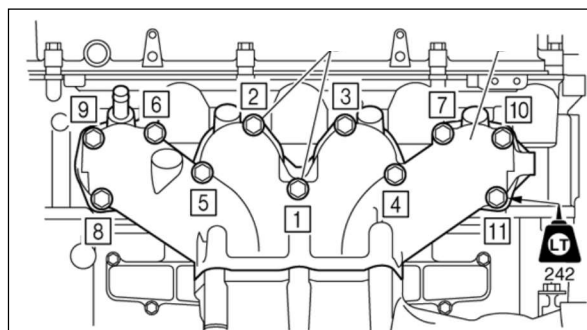
Connect 5 ft. waterline to water outlet fitting on intercooler. (See RY17080-PC Power Cooler instructions) Secure with supplied hose clamp. **Do not over tighten clamp.**

Run waterline on bottom of hull in front of engine towards left side (exhaust side) of engine. Connect waterline to inlet of oil cooler. Secure using supplied 22.6 size Oetiker clamp. (See next illustration.)



Reinstall exhaust assembly. **NOTE: Make sure the "6ET" marking on the exhaust gasket is facing out. If exhaust gasket is damaged, warped or corroded do not reuse.**

Apply blue Loctite to bolts. Torque bolts in sequence:



TORQUE SEQUENCE:

First: 14 lbf•in / 20 N•m

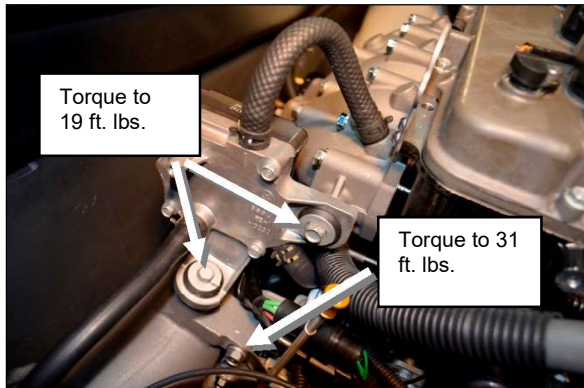
Second: 25 lbf•in / 35 N•m

Tighten hose clamp on exhaust outlet hose at tail pipe.

Connect waterline from black billet T fitting to underside of exhaust tail section. Secure using stock spring clamp.

Reinstall exhaust tail pipe mounting bolt. **Apply blue Loctite to bolt. Torque to 31 lbf•in / 42 N•m.**

Reinstall rectifier regulator. **NOTE: Make sure rubber grommets and metal collars are in place. Apply blue Loctite to bolts. Torque to 19 lbf·in / 26 N·m.**



Reconnect rectifier regulator cooling lines. Secure using OEM spring clamps.

Reconnect exhaust thermosensor on exhaust tail pipe. (green connector).

In jet pump area locate and remove the two rubber flaps around jet pump unit.

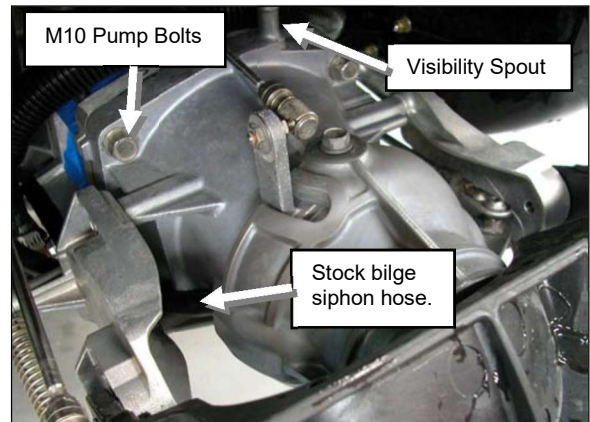
Remove bolts (4) securing speedo sensor to ride plate.

Remove bolts (4) securing ride plate to hull. Remove ride plate.

Disconnect steering, reverse cables and Q.S.T.S. trim rod.

Disconnect visibility spout hose from top of reduction nozzle and stock bilge siphon hose from left side of reduction nozzle.

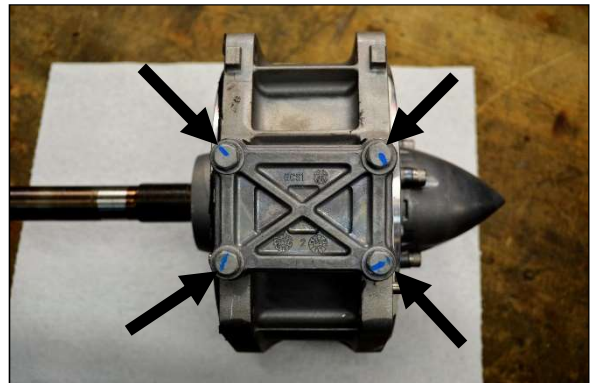
Remove the M10 bolts (4) securing reduction nozzle to pump.



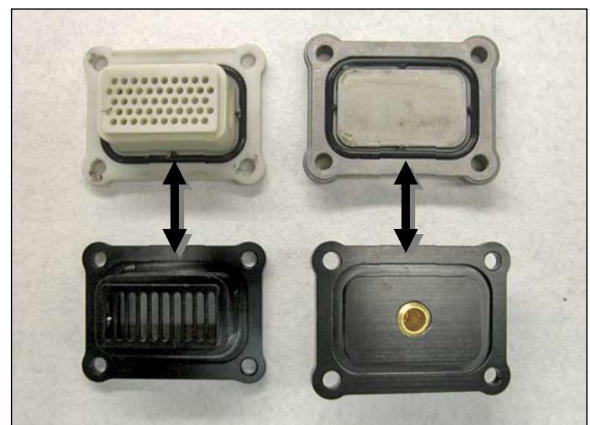
Remove reduction nozzle assembly.

Remove jet pump assembly. **NOTE: Take care not to damage splines at end of drive shaft.**

On left side of pump remove the bolts (4) securing water strainer assembly to pump. Remove cover and strainer.

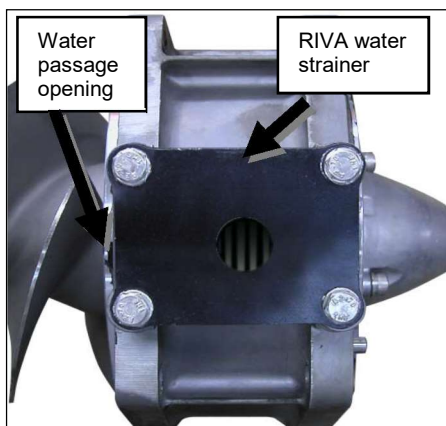


Transfer o-rings from stock strainer and cover to supplied billet strainer and cover. Apply a thin layer of waterproof grease to o-rings.

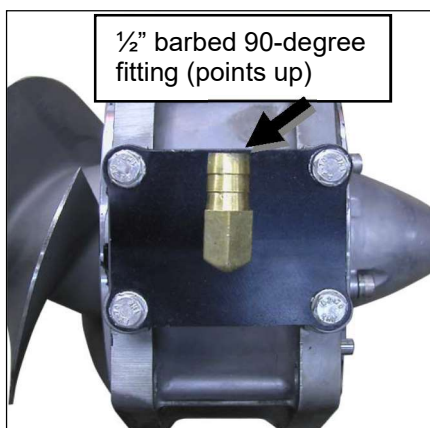


Install billet strainer into pump.

Install billet strainer cover and secure using supplied bolts and washers. **NOTE: Apply blue Loctite to bolts. Do not over tighten bolts.**



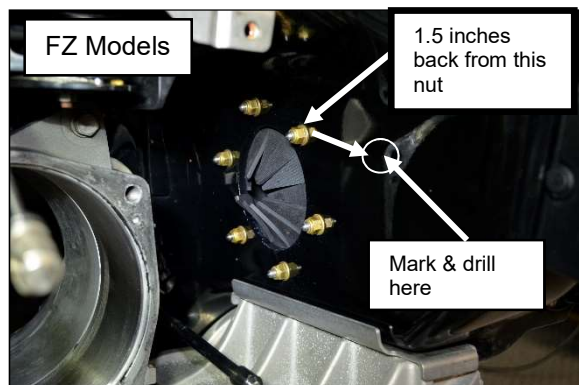
Install supplied 1/2" barbed 90-degree fitting into billet strainer cover (pointing upward). **NOTE: Apply pipe thread sealant to fitting. Do not over tighten fitting.**



Install 1/2" bulkhead through hull fitting.

FZ/GP Models:

On right side of pump area, locate the top rear nut of the exhaust outlet. Measure 1.5" inches back from nut. Mark location & drill a 5/8" hole. (see next illustration)

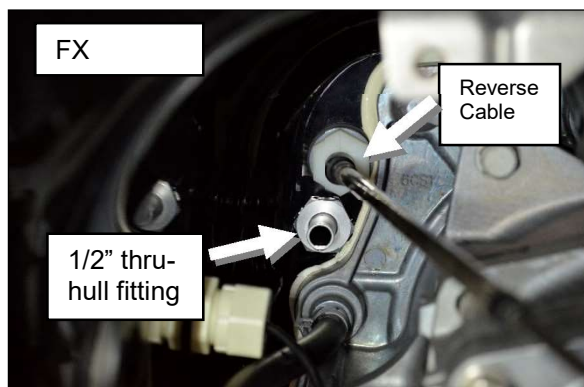


Install supplied 1/2" thru-hull fitting from pump side. **NOTE: Apply below waterline silicone sealant to fitting (including threads).** Install nut from inside and secure.



FX Models:

On left side of pump just below the reverse cable, drill a 5/8" hole. Install supplied 1/2" thru-hull fitting from pump side. **NOTE: Apply below waterline silicone sealant to fitting (including threads).** Install nut from inside and secure. (See illustration next page.)

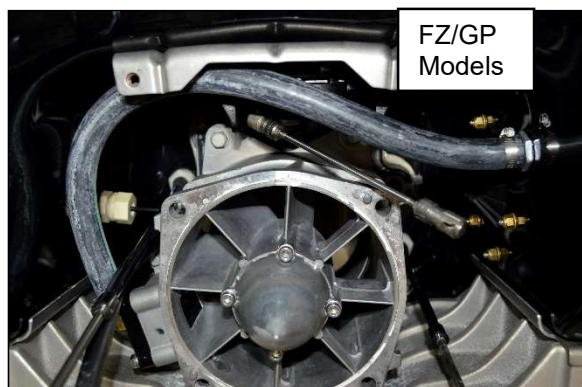


Inspect and clean splines at end of drive shaft. Apply waterproof grease to splines. Apply below waterline silicone sealant to gasket mating surface on impeller wear ring and install pump.

FZ/GP Models:

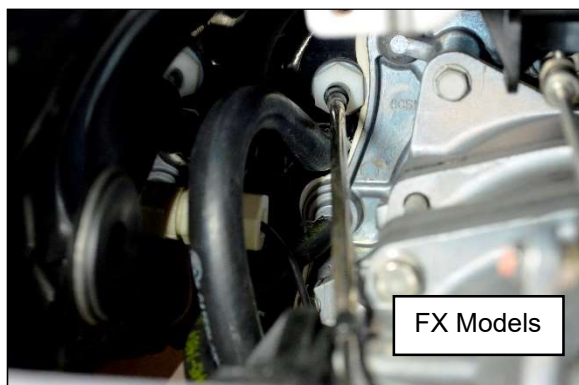
Cut a 19 inch length of the supplied 1/2" waterline. Connect waterline to 90 degree fitting on pump strainer & run waterline up & over pump. Connect other end to bulkhead fitting.

Note: Inspect waterline & make sure there are no tight bends or kinks that could cause loss of water flow. If necessary, cut hose to desired length. Make sure waterline does not interfere with Q.S.T.S. trim rod. Once inspected/adjusted, secure waterline in place with supplied hose clamps. **Do not over tighten clamps.**



FX Models:

Cut a 12 inch length of the supplied 1/2" waterline. Connect one end of waterline to the 1/2" thru-hull fitting & the other end to the 90 degree fitting on the pump strainer. Secure waterline to fittings with supplied hose clamps. **Do not over tighten clamps.**



Apply below waterline silicone sealant to gasket mating surface on jet pump. Install nozzle onto pump and secure using stock hardware. **NOTE: Apply blue Loctite to bolts. Torque bolts to 40 N•m (30 ft•lb).**

Reconnect stock visibility spout hose and stock bilge siphon hose to reduction nozzle.

Reconnect reverse, steering cables and Q.S.T.S. trim rod.

Replace ride plate and secure using stock bolts. **NOTE: Apply blue Loctite to bolts. Torque bolts to 17 N•m (12.5 lbf•ft).**

Reinstall speedo sensor and secure using stock screws. **NOTE: Apply blue Loctite to bolts. NOTE: Do not over tighten bolts.**

FZ/GP Models

Measure 6.5 ft. of supplied 1/2" waterline & cut.

FX Models

Measure 6 ft. of supplied 1/2" waterline & cut.

Connect this cut piece of ½" waterline to the ½" thru-hull fitting from the inside of the hull. Secure waterline with supplied hose clamp. **Do not over tighten clamp.**

Run waterline along the bottom of hull, through the bulkhead on right side (battery side) of hull. Use the same access hole in the bulkhead that the steering cable passes through. Continue waterline along the bottom of hull & connect to the water inlet fitting on the intercooler. (See RY17080-PC Power Cooler instructions) Secure waterline with supplied hose clamp. **Do not over tighten clamp.**

Reinstall rear grab handle & deck beam.

Reinstall engine cover.

Reconnect battery cables. **NOTE: Positive (red) first. Negative (black) second.**

Installation is now complete. Thoroughly inspect engine compartment and bilge for tools, rags, parts, etc. Run craft on stand using flush kit to check for proper operation.

***Remember, the water belongs to everyone.
Please ride responsibly and respect the environment!***

Technical Support

For answers to questions regarding installation or trouble shooting RIVA Performance Products contact: RIVA Technical Support directly at (954) 247-0705 or by e-mail at tech_support@rivamotorsports.com.

Limited Warranty

RIVA Engine Cooling Upgrade Kits carry a 90 day limited warranty to the original purchaser. They are warranted to be free of defects in materials and workmanship under normal use and service. Customer modified components will be void of warranty. This warranty is limited to defects in the primary components only. Finish and/or wear marks in or on primary components are not covered under this warranty.

RIVA Racing's liability is expressly limited to the repair or replacement of the components contained within or associated with this kit. RIVA Racing agrees to repair or at RIVA's option, replace any defective unit without charge, if product is returned to RIVA Racing freight prepaid within the warranty period. Any equipment returned which, in RIVA's opinion, has been subjected to misuse, abuse, overheating or accident shall not be covered by this warranty.

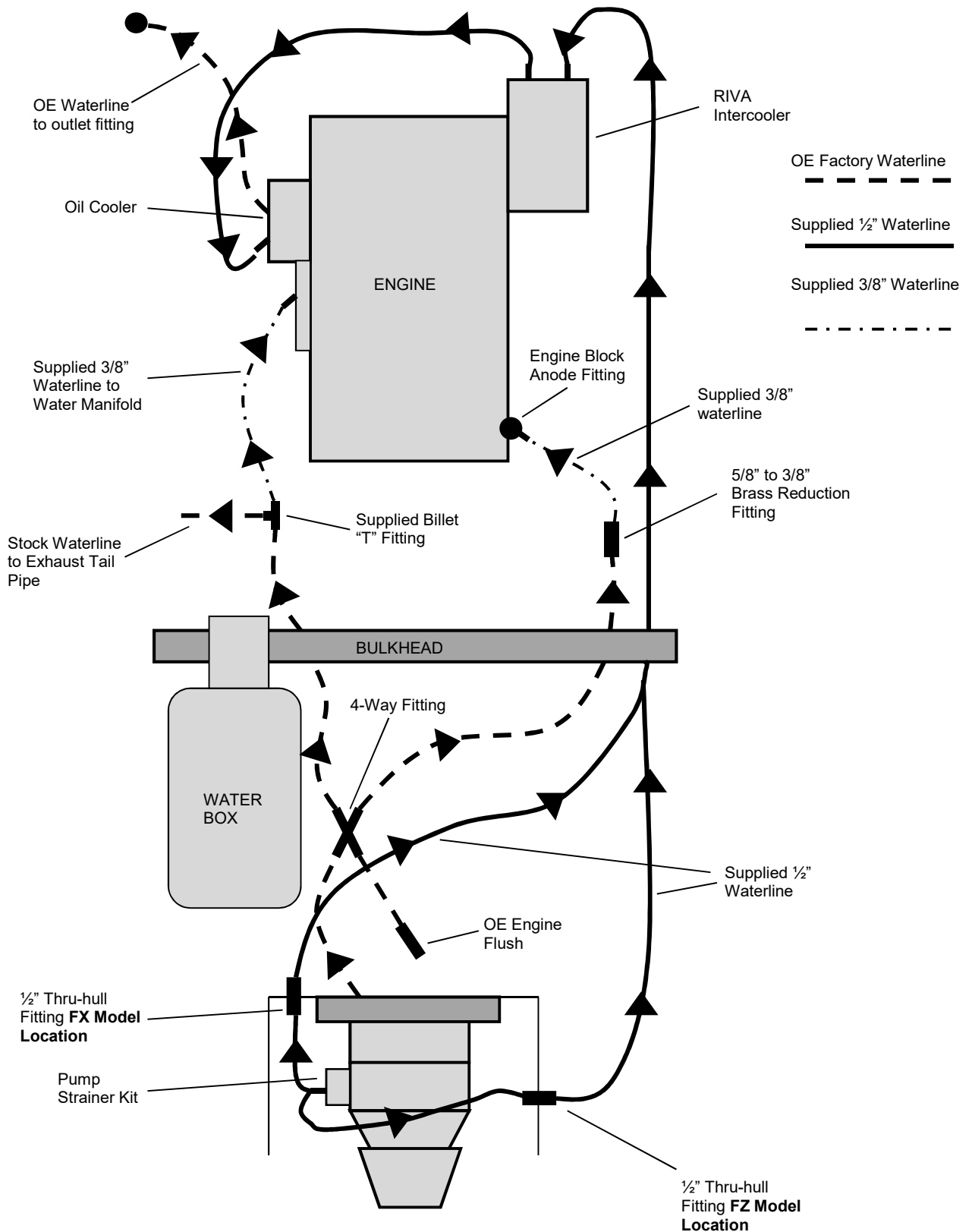
RIVA Racing shall have no liability for special, incidental or consequential damages or injury to persons or property from any cause arising from the sale, installation or use of this product.

No other warranty, express or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose, applies. Various states do not allow for the limitation of incidental or consequential damages and therefore the above exclusion or limitation may not apply to you.

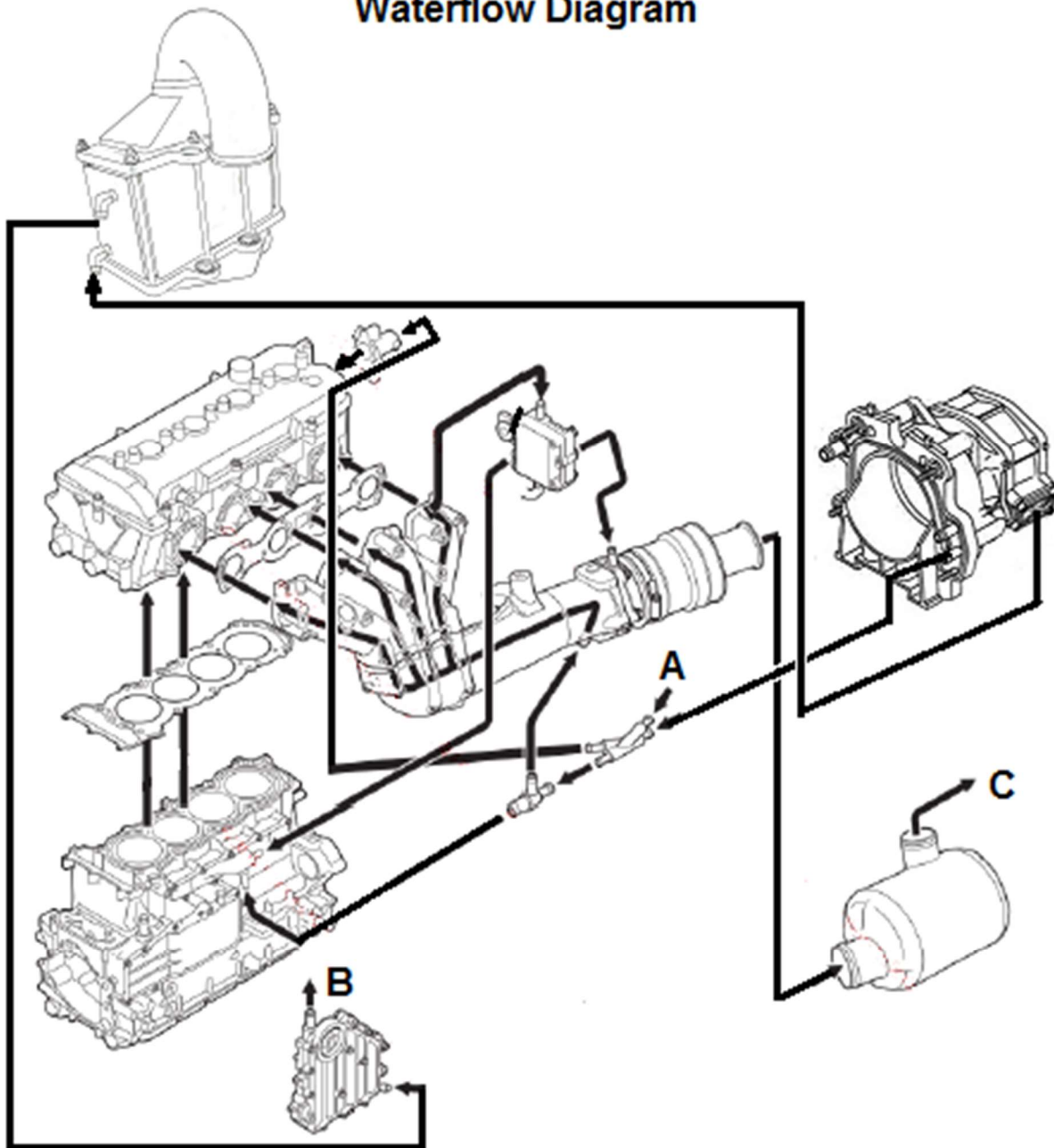
Warranty does not include the expenses related to freight or transportation of parts or compensation for any inconvenience or loss of use while being repaired. A copy of the original invoice and a Return Authorization Number (RA#) must accompany all warranty claims.

Warranted replacement parts will be returned freight collect.

RIVA Pro Series SVHO Engine Cooling Upgrade Kit Water Map
RY10080-ECUK-PC / 1.8L SVHO Engines



Waterflow Diagram



- A. Flush Hose
- B. To Through Hull Fitting
- C. Exhaust