



Sea-Doo 300 Open Loop Cooling Kit

PART# - RS1013-140



Applications:

Sea-Doo 300 2016 & Newer

Approximate Installation Time:

6 hrs.

Recommended Specialty Tools:

Utility Cutter (LG)

[Oetiker Pliers](#)

Part

N/A

[C-84550347](#)

Required Materials:

Blue Loctite

Cyanoacrylate Glue (super glue)

Silicone Sealer

Part

N/A

N/A

N/A

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 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.



RIVA RACING

PERFORMANCE PRODUCTS & ACCESSORIES

Sea-Doo 300 Open Loop Cooling Kit

PART# - RS1013-140

COMPONENT LIST

Item	Description	Qty. Req.	RIVA Part #	Notes
A	Billet Water Pump Housing	1	QCA-RS1013-50-OLC-1	
	1/2" Barb X 1/2" NPT Brass Elbow	1	220LFF	Installed in Pump Housing
B	Thermostat Housing	1	QCA-RS1013-TH	With 3/8" ID Disc
	Coolant Hose	1	2422-1	On Thermostat Housing
	Thermostat Disc - 3/8	1	FSM-RS1013-DS	In Thermostat Housing
	Oekiter (#47)	1	16705181	On Thermostat Housing
C	Thermostat Discs - 5/16" ID & 1/2" ID	1	FSM-RS1013-DS	
D	Vinyl Cap	2	9753K89	
E	Reducer, Water Supply at Pump	1	291004649	
F	Brass Reduction Hose Splicer (3/4" x 1/2")	1	N/A	
G	Brass Reduction Hose Splicer (3/4" x 3/8")	1	222RJF	
H	M6 Cup Point Socket Set Screw	1	92015A128	
I	Dowel Pin	2	93606-12019-00	
J	Flush Fitting Plug	1	292002022	
K	Anode (Pencil) 1/8" NPT	1	5031001	
L	Oekiter (#21.0)	2	16700024	
M	Oekiter (#47)	1	16705181	
N	Hose Clamp, #12	1	63004-0012-052	
O	Oekiter (#28.6)	6	16700035	
P	Zip Tie (5")	5	TY24MX	
Q	Zip Tie (3")	8	TY23MX	
R	Cable Tie Holder Adhesive	1	7566K62	
S	Gates "Green Stripe" Hose (3/4" ID X 10')	10	28448-1	

Your kit was inspected and verified before being carefully packaged by our staff. Please check package contents before beginning assembly. If you have a question about missing or damaged items please contact RIVA Technical Support directly at (954) 247-0705 or by e-mail at tech_support@rivaracing.com.

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

***** NO SMOKING *** NO SMOKING *** NO SMOKING *****

- INSTALLATION INSTRUCTIONS -

All suspended models: You are required to remove the moving deck to perform this installation. Please refer to the OEM Service Manual for this process.

Closed Loop Cooling System Removal

Remove or open seat.

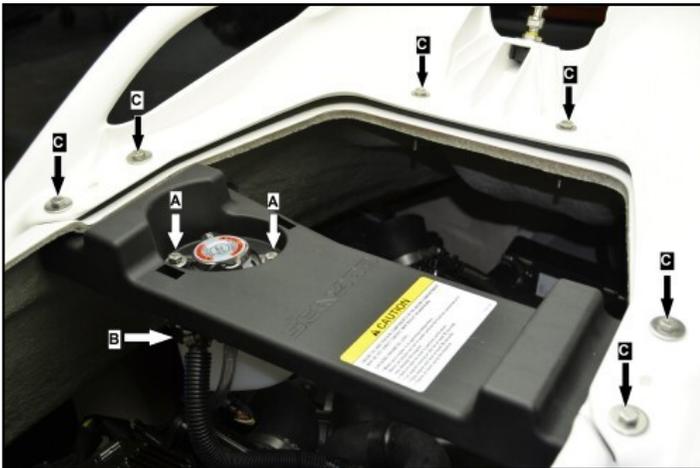
Drain engine coolant following steps outlined in the OEM Service Manual. *Please recycle or dispose of engine coolant properly!*

RXT-X and GTX 300:

Remove hoses from coolant reservoir. Remove two bolts holding coolant reservoir to deck beam (A). Pull out on retaining tabs (B) and remove reservoir from ski.

Remove 4 deck beam bolts and 2 grab rail bolts (C), nuts and washers. Caution: Do not drop nuts and washers into hull. Remove deck beam and grab rail assembly. (Figure 1)

Figure 1



RXP-X:

Remove the two bolts on each side holding the side panels in place and remove the side panels. (Figure 2)

Figure 2



Remove 2 screws (A) and 2 plastic rivets (B) holding vent cover to rear grab handle and remove vent cover (Figure

3).

Figure 3



Remove 2 plastic rivets under side panels removed previously (Figure 4)

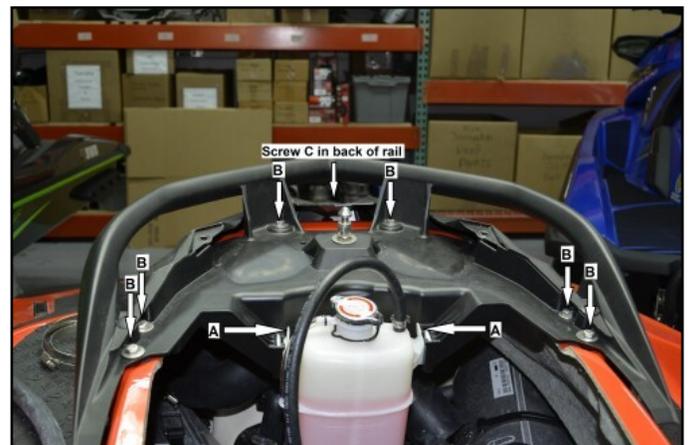
Figure 4



Remove hoses from reservoir. Press the (2) locking tabs (A) on the coolant reservoir towards the reservoir body and lift the reservoir out of its mounting location. Remove reservoir from ski.

Remove (6) bolts (B), screw (C), nuts and washers holding rear grab rail in place and remove grab rail. Caution: Do not drop nuts and washers into hull. (Figure 5)

Figure 5



- INSTALLATION INSTRUCTIONS -

All Models:

Disconnect waterlines between exhaust manifold and stock water box (A)

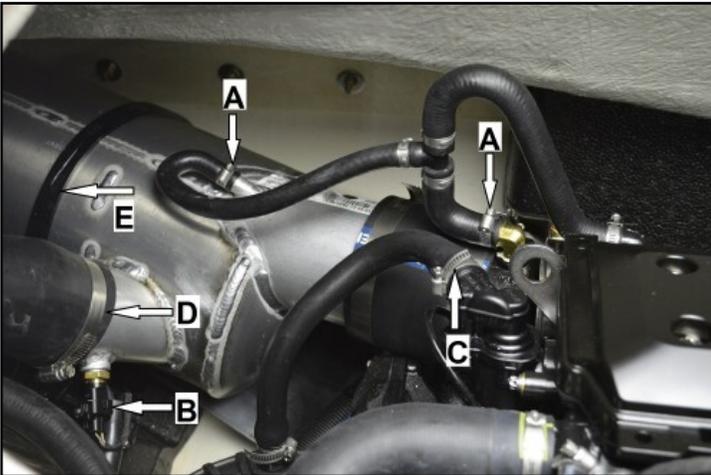
Disconnect water box overheate sensor (B).

Disconnect engine breather hose from TOPS valve at rear of cylinder head (C).

Disconnect exhaust outlet hose from water box (D).

Remove rubber strap around waterbox (E).(Figure 6)

Figure 6



At exhaust clamp loosen t-bolt nut enough to allow end ('T') to be removed from band clamp. Remove exhaust clamp. (Figure 7)

Figure 7

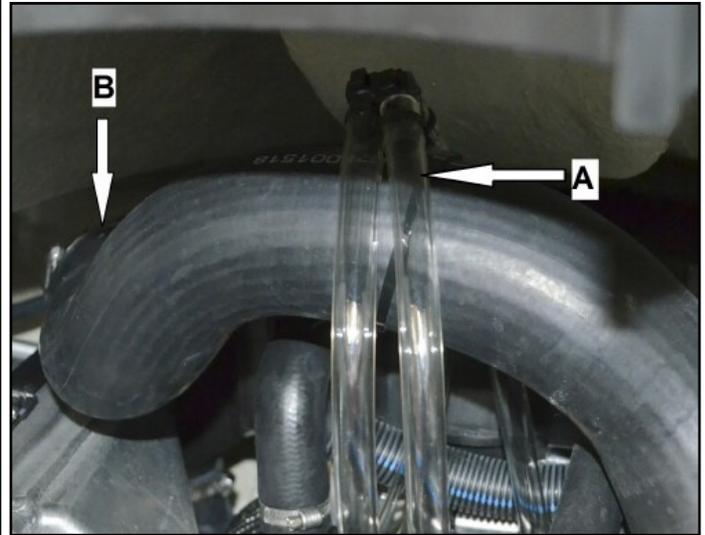


Remove water box assembly from hull.

Cut the zip tie (A) securing the two clear siphon bilge hoses to the OEM Front Exhaust Hose. (Figure 8)

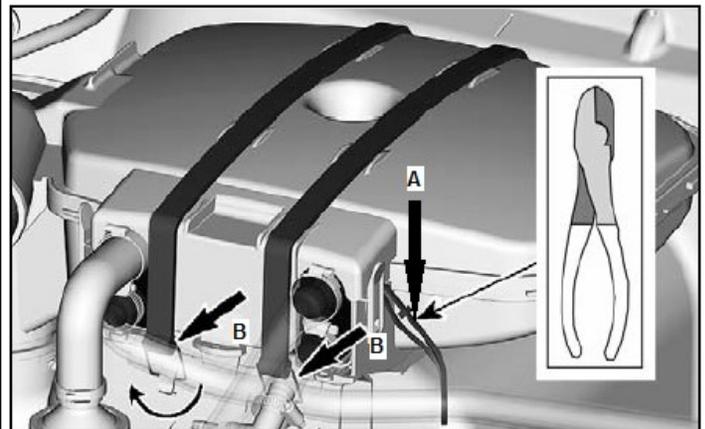
Loosen the clamp (B in figure 8) holding the OEM Front Exhaust Hose to the resonator. Remove the Front Exhaust Hose.

Figure 8



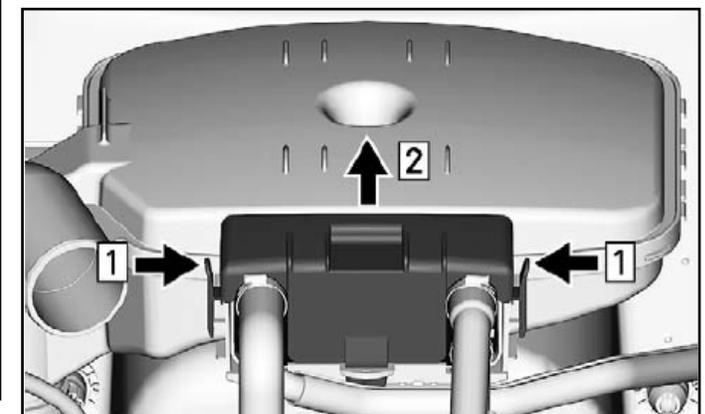
Cut the zip tie (A) securing the intercooler feed hose to the plastic heat exchanger cover on the front of the resonator. Remove the two rubber straps (B) securing the resonator in the hull. (Figure 9)

Figure 9



Push the two locking tabs (1) on the heat exchanger cover toward the center and pull the cover upward to remove it. (Figure 10)

Figure 10



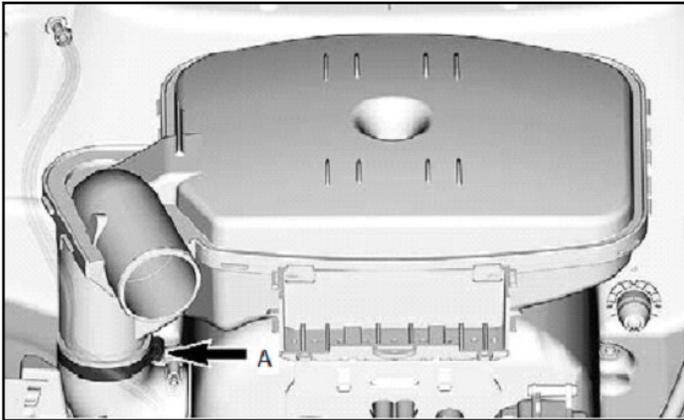
- INSTALLATION INSTRUCTIONS -

Pull the heat exchanger up to release it from the resonator bracket. Disconnect the hoses from the heat exchanger and remove it from the hull.

Remove the two nuts holding the resonator bracket to the hull and remove the bracket from the hull. Apply Loctite to the bolts and reinstall the nuts and washers after removing the bracket.

Loosen the clamp holding the resonator outlet to the through hull fitting..(Figure 11)

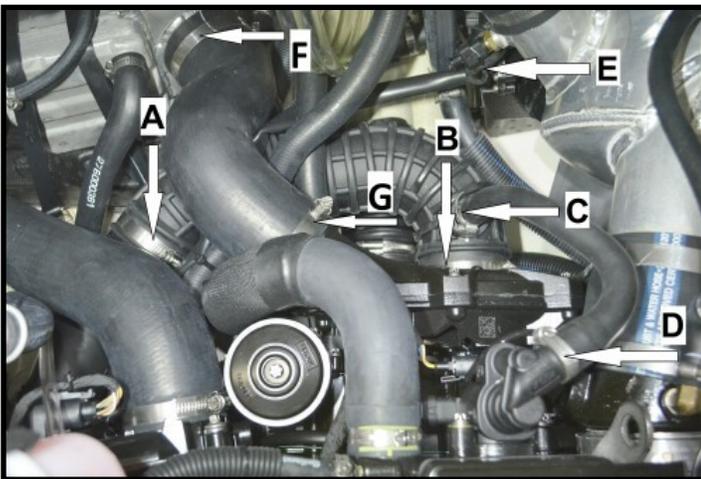
Figure 11



Pull the resonator upward while twisting it back and forth to remove it from the through hull fitting. Remove the resonator from the hull.

Release clamp (A) securing supercharger inlet hose to rear of OEM inlet tube. Pull hose off inlet tube. Remove OEM inlet tube by sliding out through front storage compartment. Release clamps (B, C and D) and remove OEM supercharger inlet hose and crankcase breather hose. (Figure 12)

Figure 12



Loosen clamps at both ends of intercooler air hoses and remove both hoses. (Figure 13 and 14)

Figure 13

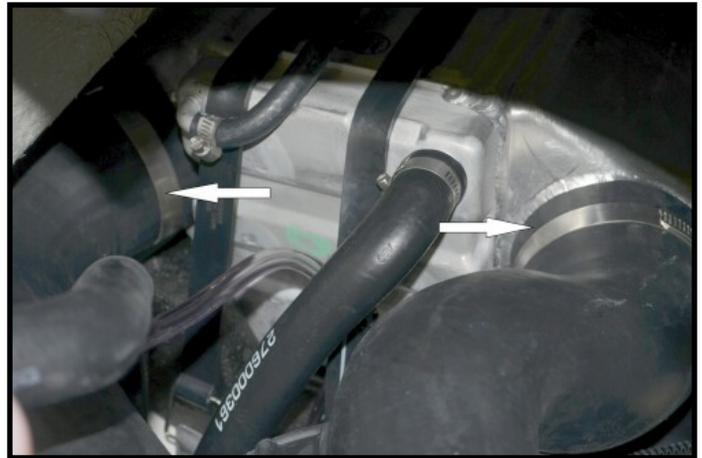
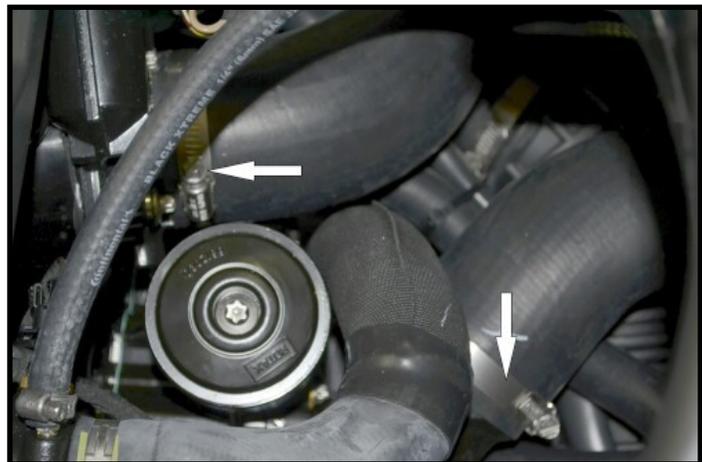


Figure 14



Release clamps (A,B and C) and remove upper and lower water hoses and vent hose from intercooler. (Figure 15)

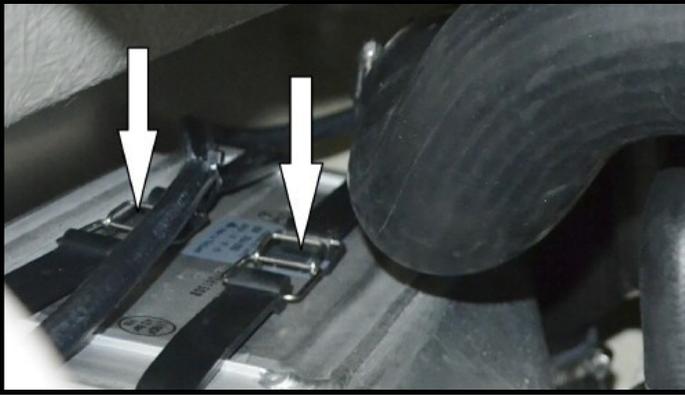
Figure 15



Release two straps holding intercooler in place. (Figure 16)

- INSTALLATION INSTRUCTIONS -

Figure 16



Remove intercooler.

Remove oil dipstick and engine cover.

Wrap absorbent shop rag around fuel supply hose at front of intake manifold. Disconnect fuel supply hose. (Figure 17)

Figure 17



Unplug ECU connectors. Remove (cut) all zip ties (1) securing wiring harness to intake manifold. (Figures 18, 19, 20)

Figure 18

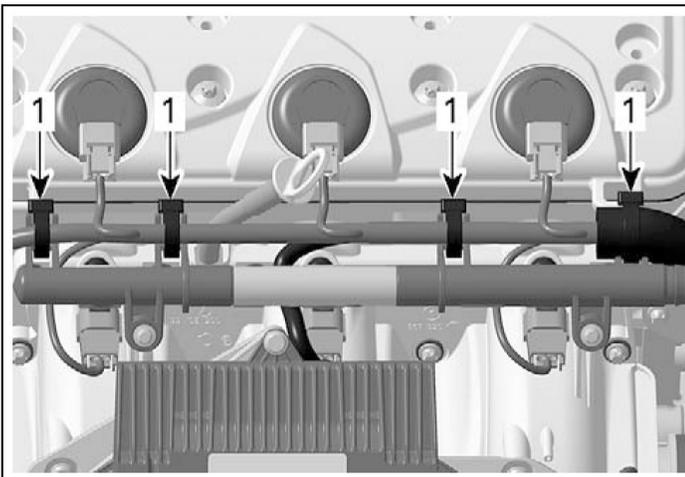


Figure 19

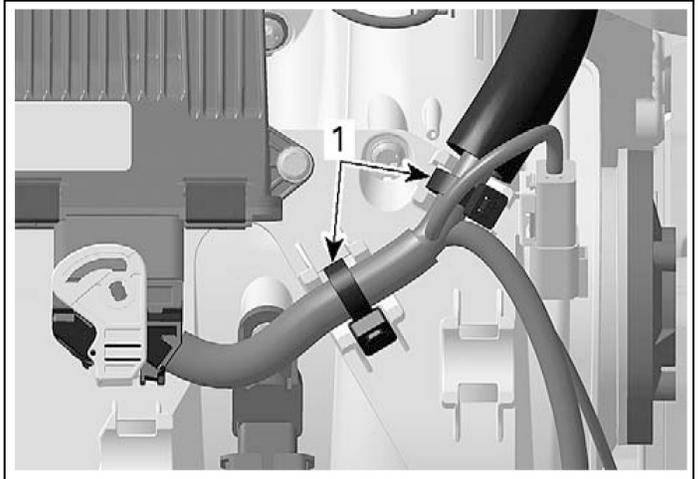
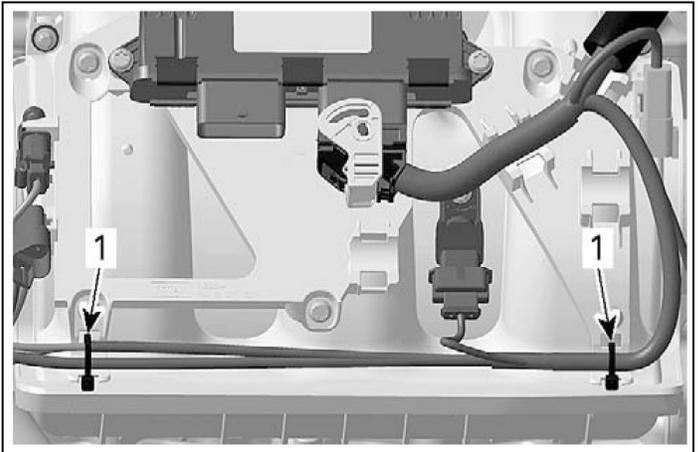
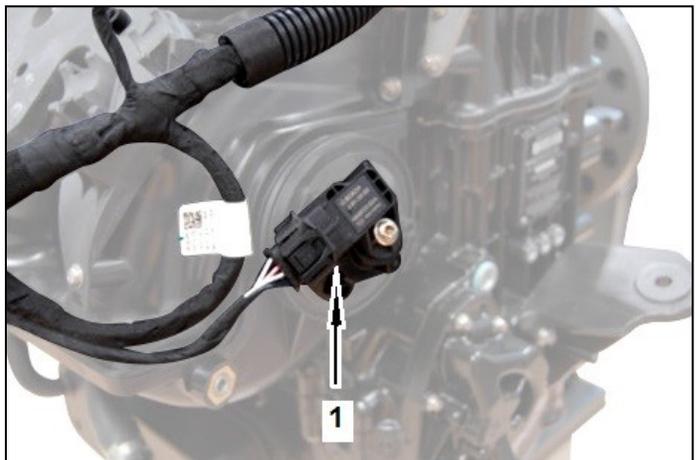


Figure 20



Unplug ignition coil and fuel injector connectors. Unplug MAPTS sensor (1) (Figure 21)

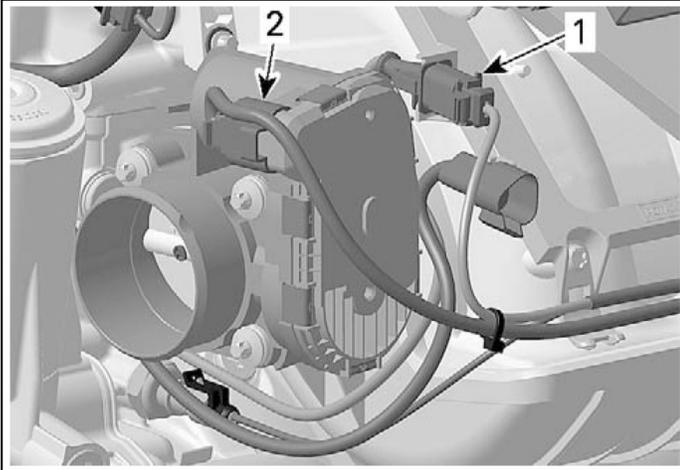
Figure 21



Unplug Knock Sensor (1) and Throttle Actuator (2). (Figure 22)

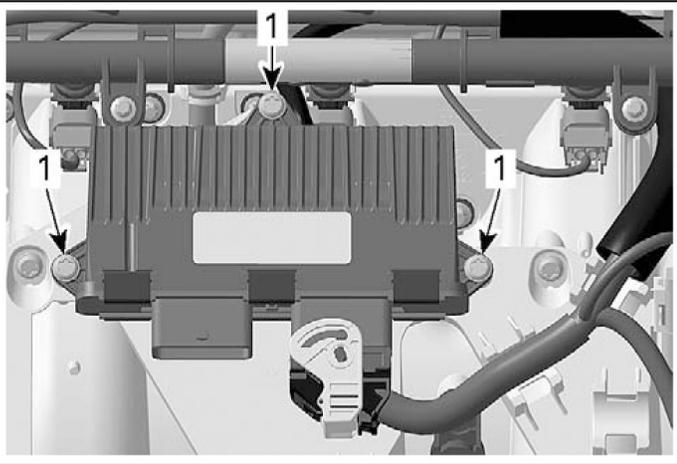
- INSTALLATION INSTRUCTIONS -

Figure 22



Remove ECU (3 bolts) (1). (Figure 23)

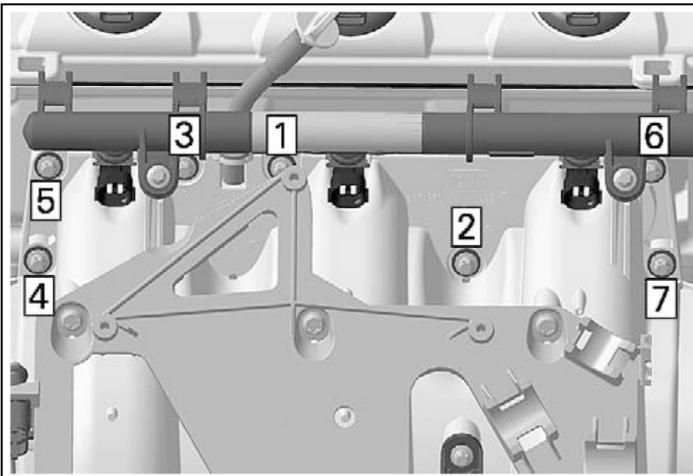
Figure 23



Move wiring harness away from intake manifold (towards fuel tank).

Remove bolts (1-7) securing intake manifold to engine. (Figure 24)

Figure 24



Pull intake manifold away from motor. Remove oil dipstick tube from manifold. Remove intake manifold.

Disconnect OEM hoses from oil cooler. Figure 24.

Figure 24



Remove clamps and hoses from ride plate to water pump. (Figure 25) Cover ride plate fittings with supplied push on caps.

Figure 25



Remove coolant reservoir overflow hose and fitting from cylinder head. (Figure 26) Plug hole with supplied M6 cup point socket set screw.

Figure 26



- INSTALLATION INSTRUCTIONS -

Remove water pump and hoses (parts 5-15 in figure 27). Retain gasket 6 (Figure 27) and bolts (Figure 28) for re-use.

Figure 27

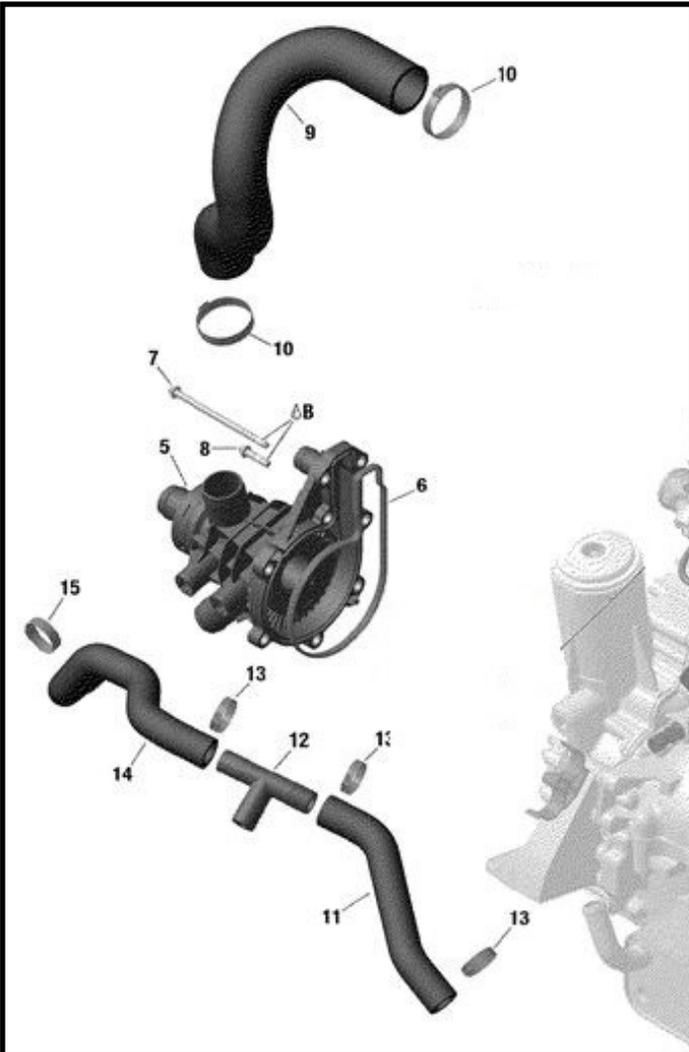
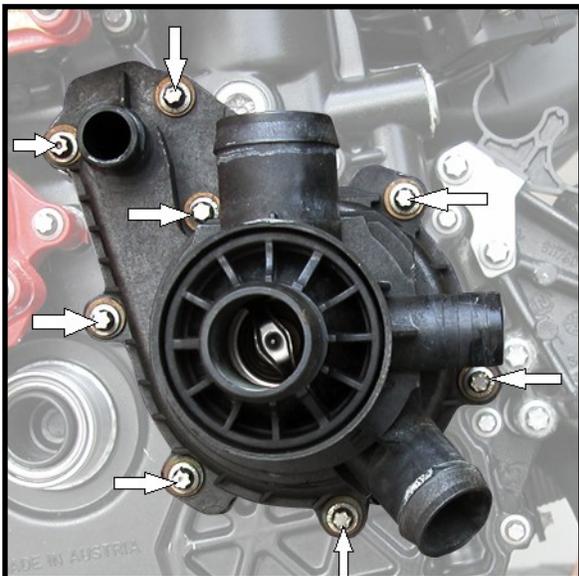


Figure 28



Install pencil anode into water pump cover. Transfer gasket (6 in Figure 27) from back of thermostat housing to back of supplied Billet Water Pump Cover. **Hint: Apply a thin coat of grease to gasket.** Install Billet Water Pump Cover onto engine and secure using OEM bolts. **NOTE: Apply blue Loctite to bolts. Torque to 89 lbf·in / 10 N·m.**

Install supplied Flow Control Assy. onto rear of cylinder head. (See note on page 13 for calibration of flow.) Secure using supplied 47 mm Oetiker clamp. (Figure 29)

Figure 29



Cut hose from port (left) flush fitting to heat exchanger (previously removed) as far back in the hull as you can reach and discard. Coat supplied plastic plug with silicone sealer and thread into port (left) fitting. (Figure 30)

Figure 30



Remove front water hose connected to bottom of exhaust manifold. Retain hose clamp for reuse. (Figure 31)

Figure 31



- INSTALLATION INSTRUCTIONS -

The hose from the bottom rear of the exhaust manifold crosses to the starboard (right) side of the craft and connects with a T fitting to the intercooler water outlet hose and the hose to the starboard flush fitting. Remove the T fitting and the intercooler water outlet hose. Leave the hose from the T to the flush fitting and the rear exhaust manifold water hose in place.

The hose from the bottom front of the exhaust manifold connects to a 4 way fitting that also connects to the water inlet hose from the jet pump the intercooler water inlet hose and the heat exchanger inlet hose. Remove all of these parts by disconnecting the hose at the jet pump.

Removal of the OEM cooling system is now complete. Refer to OEM Water Hose diagram for details. (Appendix A, Figure 1)

Remove protective sheathing from OEM hoses and retain for reuse.

Identify and remove OEM hoses 276000357 and 276000367 from the remaining components of the OEM system. OEM hoses are marked with white part numbers. Retain these two hoses for reuse. Refer to OEM Water Hose diagram for details. (Appendix A, Figure 1)

Cut hose 276000367 as shown in Figure 32. Cut 5.5" (14 cm) measured along the outside of the curve (Figure 33) from the end previously attached to the thermostat.

Figure 32



Figure 33



Cut 2.25" (5.7 cm) from the opposite end of hose 276000367 as shown in figure 34.

Figure 34



Install intercooler into hull. Attach OEM vent hose to vent fitting on intercooler using OEM screw clamp. (A in figure 35)

Slip 1 supplied Oetiker clamp onto each end of hose 276000367. Install sharply bent end of hose onto intercooler upper fitting (C in Figure 35). Install straighter end of hose onto jet pump fitting (B in Figure 35). **Tip: Use glass cleaner to lubricate inside of hose and outside of fittings in this and the following steps.** Slide clamps into position and tighten using Oetiker plier.

Figure 35



Cut hose 276000357 as shown in figure 36. Cut 3" (7.6 cm) from the straighter end of the hose.

Figure 36



- INSTALLATION INSTRUCTIONS -

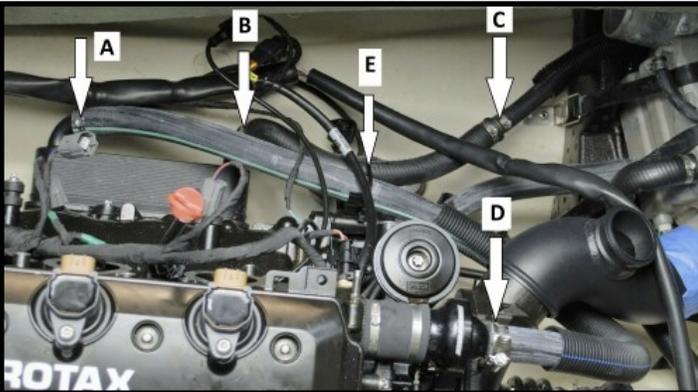
Install large end of supplied 3/4" to 1/2" reducer fitting into end of hose 276000357 cut in the previous step. Secure with supplied 28.6 mm Oetiker clamp using Oetiker plier.

Slip 1 supplied 28.6 mm Oetiker clamp onto the sharply curved end of hose 276000357 and install onto rear fitting of oil cooler. (B in Figure 37) Slip supplied 21 mm Oetiker clamp onto hose from starboard (right) flush fitting (C in figure 37). Connect small end of 3/4" to 1/2" reducer in hose 276000357 to hose from starboard flush fitting and secure clamps on both ends of hose using Oetiker plier.

Cut a piece of supplied 3/4" hose 40" (102cm) long. Slip 1 supplied 28.6 mm Oetiker clamp onto one end of the hose and install onto front fitting of oil cooler (A in figure 37). Secure clamp with Oetiker plier. Use supplied zip tie (E in Figure 37) to secure oil cooler hoses together. Route hose as shown in Figure 37 to thermostat housing on rear of cylinder head. (D in Figure 37) Leave room to clear inter-cooler air inlet tube. Cut hose to final length and secure using supplied no.12 screw clamp.

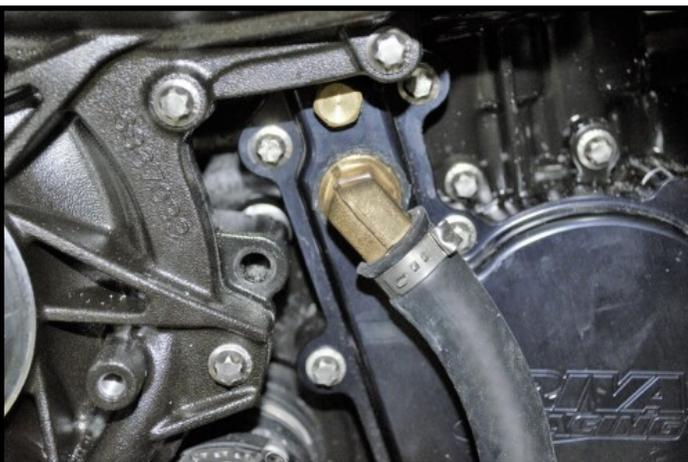
Install a protective cover (previously removed from OEM hoses) onto hose as shown in Figure 37.

Figure 37



Route hose from bottom rear of exhaust manifold under driveshaft to fitting on billet Water Pump Cover. Cut hose to fit. (Cut approximately 5.5" (14 cm) from end of hose). Secure with supplied 21 mm Oetiker clamp using Oetiker plier. Figure 38

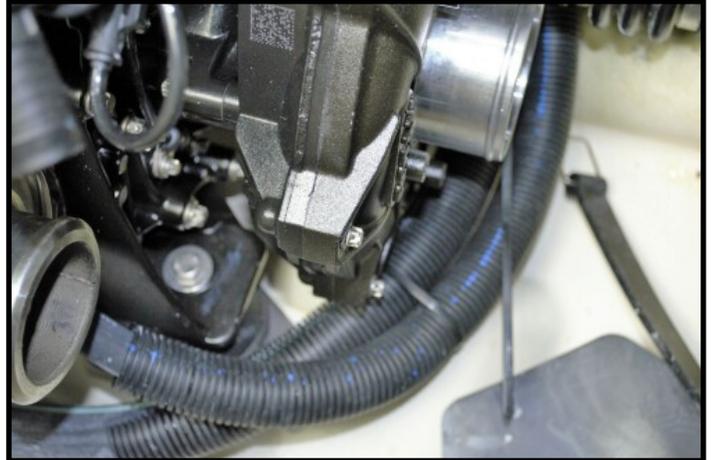
Figure 38



Slip screw clamp, previously saved, onto remainder of supplied 3/4" hose and secure to fitting on bottom front of exhaust manifold. See Figure 31.

Route hose under driveshaft. Install hose protector, previously removed from OEM hoses and secure with two supplied zip ties in front of hose from exhaust manifold to water pump cover. Figure 39

Figure 39

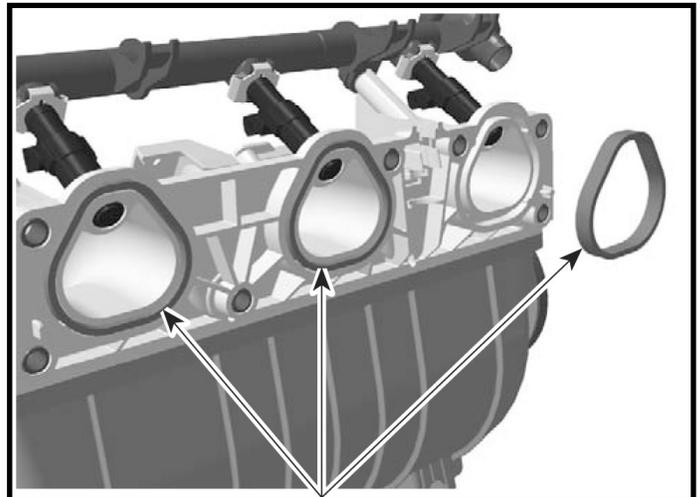


Route hose to intercooler water outlet fitting (D in Figure 35). Cut to length and secure with supplied 28.6 mm Oetiker clamp using Oetiker plier.

Reinstall intake manifold.

Make sure o-rings to are properly in place. **NOTE: Apply light coating of grease.** (Figure 40)

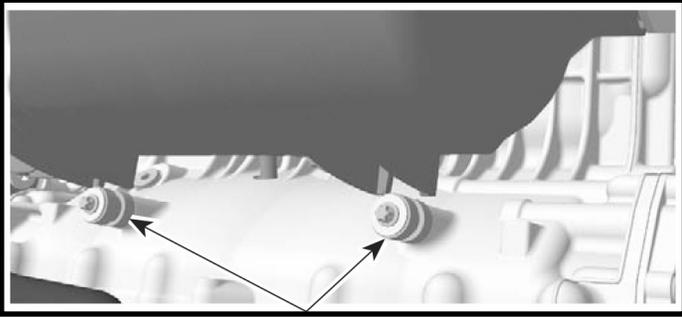
Figure 40



Install oil dipstick tube into manifold. Install Intake Manifold onto engine mounting brackets. (Figure 41) Ensure that oil dipstick tube fits into crankcase opening.

- INSTALLATION INSTRUCTIONS -

Figure 41



Secure manifold to engine using stock Torx bolts (7).
NOTE: Apply blue Loctite to threads. Torque to 80 lbf•in / 9 N•m. (Refer to Figure 24)

Continue intake manifold installation process reversing removal steps. Replace zip ties previously cut with supplied 4" zip ties.

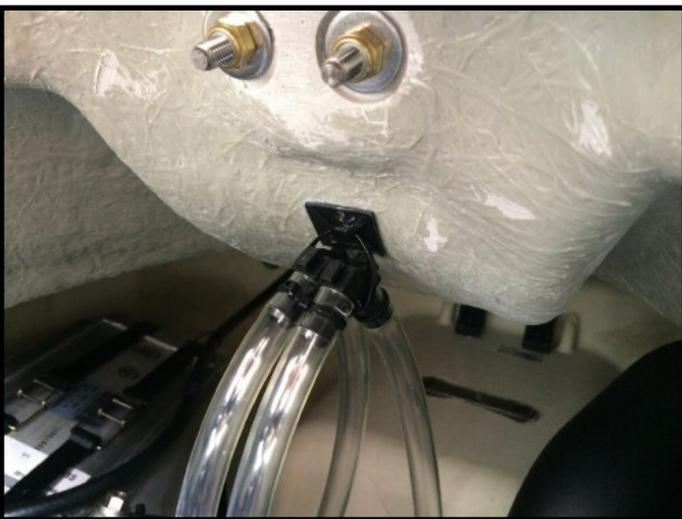
Install intercooler hold down straps and intercooler air inlet and output hoses/tubes.

Re-install waterbox reversing removal directions.

Install exhaust following directions in appropriate exhaust kit.

Attach supplied tie strap holder to hull and zip tie (2) Siphon Bilge hoses to tie holder as shown using supplied 5" zip tie. **Tip: Use sandpaper to prepare hull and back of tie holder and attach with Cyanoacrylate Glue (super glue).** Figure 42

Figure 42



Re-install side panels grab rail and seat reversing removal instructions appropriate to your model. **NOTE: Apply blue Loc-tite to bolts. Do not over tighten bolts.**

Remove the six screws (A) holding the guard covering the iBR gate to the hull. Remove the guard. Set aside the guard and screws for reinstallation later. (Figure 43)

Figure 43



Remove the nut and bolt (B) holding the steering cable to the steering nozzle. Set aside for reinstallation later. (Figure 43)

Use iBR override function to align the openings in the iBR gate with the screws holding the iBR Support Bracket:

Note: Remove any foreign object that may obstruct iBR actuator movement.

1. Press the START/STOP button.
2. Install the tether cord.

NOTE: Do not start the engine. The tether cord must be installed to ensure the information center will not shut off all indications after its self test function. Briefly press the START/STOP button to reactivate the electrical system when required.

3. Pull in the iBR lever;
 - 3.1 There will be a beep.
4. Press the VTS UP or DOWN button to move the iBR gate.

Remove the bolt connecting the linkage arm to the iBR gate. Set aside for reinstallation later. (Figure 44)

Figure 44



- INSTALLATION INSTRUCTIONS -

Remove the 4 bolts (A) and 2 nuts (B) holding the iBR support bracket to the jet pump. Remove the iBR gate and support bracket assembly from the ski. Set the assembly and hardware aside for reinstallation later. (Figures 45 and 46)

Figure 45



Figure 46



Remove four jet pump retaining bolts and remove jet pump. (Figure 47)

Figure 47



Replace OEM water reducer with supplied (yellow) reducer. (Figure 49)

Figure 49



Reassemble jet pump, VTS and iBR in reverse order of disassembly.

Reattach steering cable. Check steering alignment.

Check bilge for tools, rags, etc. Start craft and run using flush kit to check for exhaust leaks at connecting points of exhaust system and for water leaks in installed hoses and connections. Do not run craft out of water for more than two minutes at a time.

Note: Flushing of craft is now done using starboard (right) flush fitting only.

Water Flow / Temperature Calibration

This open loop cooling kit comes with three flow control discs to calibrate water flow and temperature. (Item P in components list page 2.) The Flow Control Assembly comes with the medium flow control disc installed. Ideal engine operating temperature is 140-158 degrees F (60-70 degrees C). If your engine temperature is below that range install the smallest flow control disc. (5/16" hole) If it is above that range install the largest flow control disc. (1/2" hole)

***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@rivaracing.com.

Limited Warranty

RIVA Open Loop Cooling Kits carry a 1 year 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.

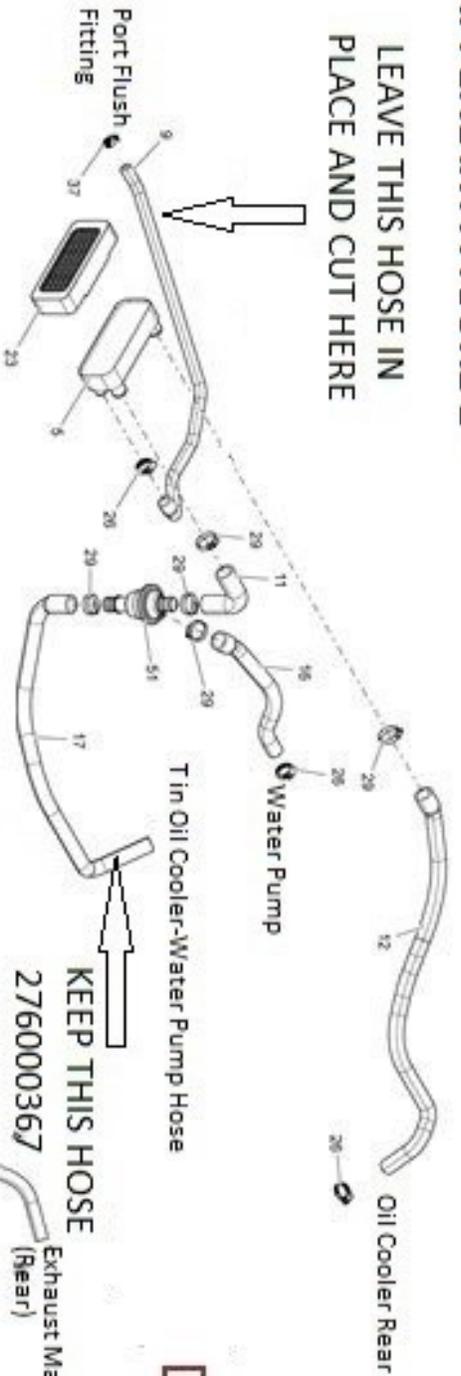
Warranty does not include the expenses related to freight or transportation of parts or compensation for any inconvenience or loss of use while being repaired. A copy of the original invoice and a Return Authorization Number (RA#) must accompany all warranty claims.

Warranted replacement parts will be returned freight collect.

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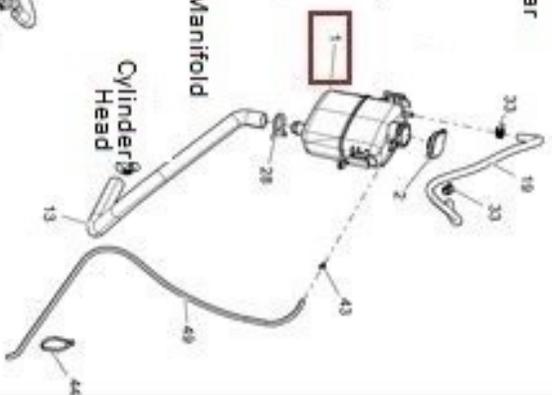
APPENDIX A FIGURE 1

LEAVE THIS HOSE IN PLACE AND CUT HERE

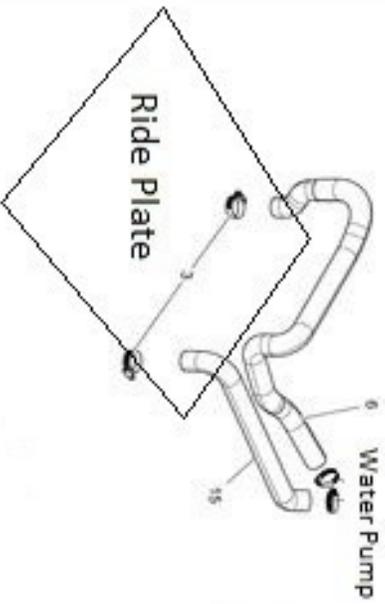


LEAVE THIS HOSE IN PLACE

KEEP THIS HOSE
276000367



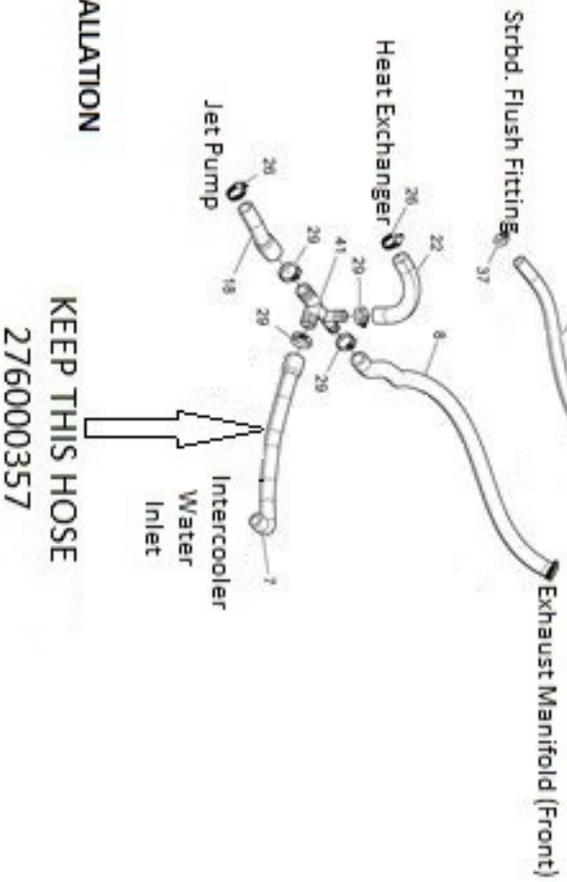
LEAVE THIS HOSE IN PLACE



REMOVE ALL HOSES AND FITTINGS IN THIS DRAWING UNLESS MARKED "LEAVE IN PLACE"

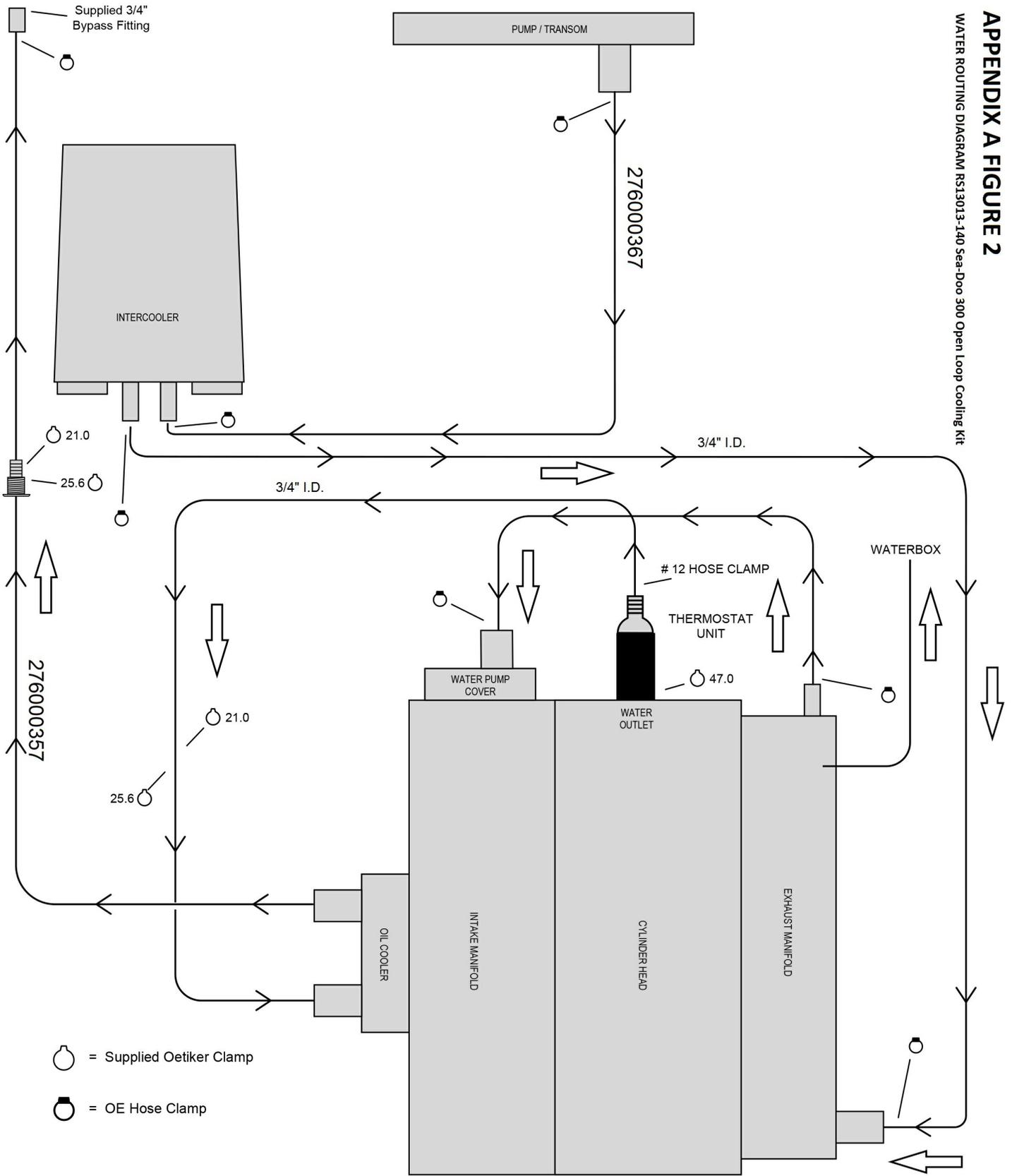
HOSES MARKED "KEEP THIS HOSE" SHOULD BE REMOVED AND KEPT FOR RE-USE

SAVE HOSE PROTECTIVE COVERS FOR RE-USE DURING INSTALLATION



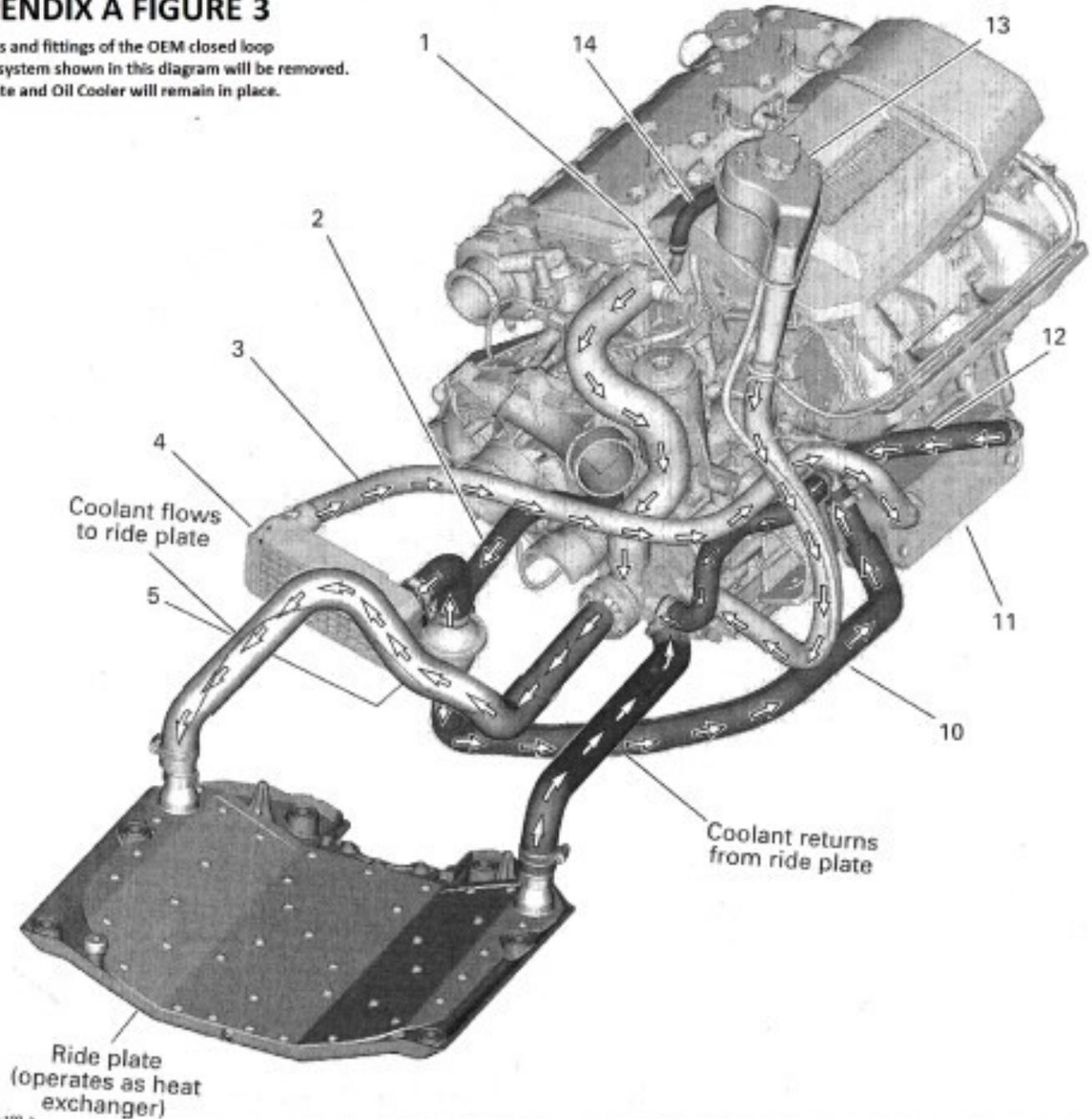
APPENDIX A FIGURE 2

WATER ROUTING DIAGRAM RS13013-140 Sea-Doo 300 Open Loop Cooling Kit



APPENDIX A FIGURE 3

All hoses and fittings of the OEM closed loop cooling system shown in this diagram will be removed. Ride Plate and Oil Cooler will remain in place.



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