

INSTRUCTIONS FOR SK 4823 FULL SYSTEM HEAT EXCHANGER KIT

Note: R. & L. in these instructions corresponds to the engine's Right and Left sides when standing at the stern and looking Forward towards the bow.

Important: Before beginning be sure to disconnect the battery.

- 1.A. Drain engine block. Right drain cock is located down and behind the R. front engine mount, just forward of the starter motor.
- B. L. block drain is located low on the engine block just forward of the oil filter.
- C. Drain both exhaust manifolds by removing the lower hoses on the manifolds.
2. Remove all hoses from the original thermostat housing. Discard the curved hose that connects down to the oil cooler located low on the left side of the engine. Be sure to save both hoses that go to the lower exhaust manifold fittings.
3. Remove and discard the original thermostat housing. Be sure to remove the old gasket and clean the gasket surface. The thermostat housing is located on the front of the engine directly in front of the carburetor. Be sure to unscrew and save the temperature sending unit and the temperature warning unit from the original thermostat housing.
4. Take the new thermostat housing, thermostat and the two 3/8" X 7/8" bolts from the kit. Install the thermostat in the manifold with Pointed End Up. Place the gasket over the thermostat on the manifold. Place the thermostat housing on top of the gasket with the off center hose barbs facing away from the carburetor. Using the two 3/8" X 7/8" bolts, bolt on the thermostat housing. Tighten bolts evenly and firmly. (Torque bolts approximately 30 ft. lbs.).
- 5.A. Remove and discard the 1/2" N.P.T. hollow or square socket pipe plug from the intake manifold located just to the R. of the new thermostat housing.
- B. Screw into the hole (in 5A above) the brass 1/2" N.P.T. X 5/8" hose fitting. Use thread sealant and tighten.
- C. Reinstall the temperature sending unit and the temperature warning unit into the side and the top of the new thermostat housing.

Note: If a hot water heater is going to be used discard the 5/8" X 30" long hose and connect the two hoses from the heater to the brass adapters in section 5D.

- D. Locate the square headed 1/2" N.P.T. pipe plug on the R. side of the engine's water pump, just above the large inlet spud on the water pump. Remove the pipe plug. Using thread sealant screw the brass 1/2" N.P.T. X 90° X 5/8" hose fitting

into the hole, the 5/8" hose spud should face forward. Connect the 5/8" X 30" long hose, from the kit, between the two brass adapters. Clamp.

6. Remove and discard the 3/4" N.P.T. pipe plugs from the front of each exhaust riser. Install the brass 3/4" N.P.T. X 1" hose adapter using thread sealant.
- 7.A. Locate the two 3/4" N.P.T. pipe plugs, on the top front of each manifold in front of each riser. Remove and discard. Using thread sealant, place the 3/4" N.P.T. X 90° X 1" hose adapter into these existing holes. Note: Exhaust risers must be removed before installing the 3/4" N.P.T. X 90° X 1" hose adapters.
- B. Remove both right and left exhaust risers and the riser extensions if equipped. Clean gasket surfaces. Install the blank gaskets using gasket sealer. (See illustration on page 5). Reinstall risers and riser extension. (Torque approximately 33 ft. lbs.). Important: Re-torque after the engine is up to running temperature and then cooled down.

Note: If your engine is equipped with riser extensions on the exhaust manifolds refer to page 5.

Note: It is necessary to remove the original 5/8" bypass hose from the top of the fresh water circulating pump before installing the heat exchanger mounting bracket. Plug off holes with 1/2" N.P.T. hollow head pipe plugs.

8. Installing the mounting bracket for the heat exchanger:

Note: The mounting bracket is secured to the engine by using two bolts and two spacers that are supplied in the kit. The bolts screw into the existing threaded holes, one on R. and one on L. cylinder head.

Note: The mounting bracket is labeled THIS SIDE TO ENGINE & UP.

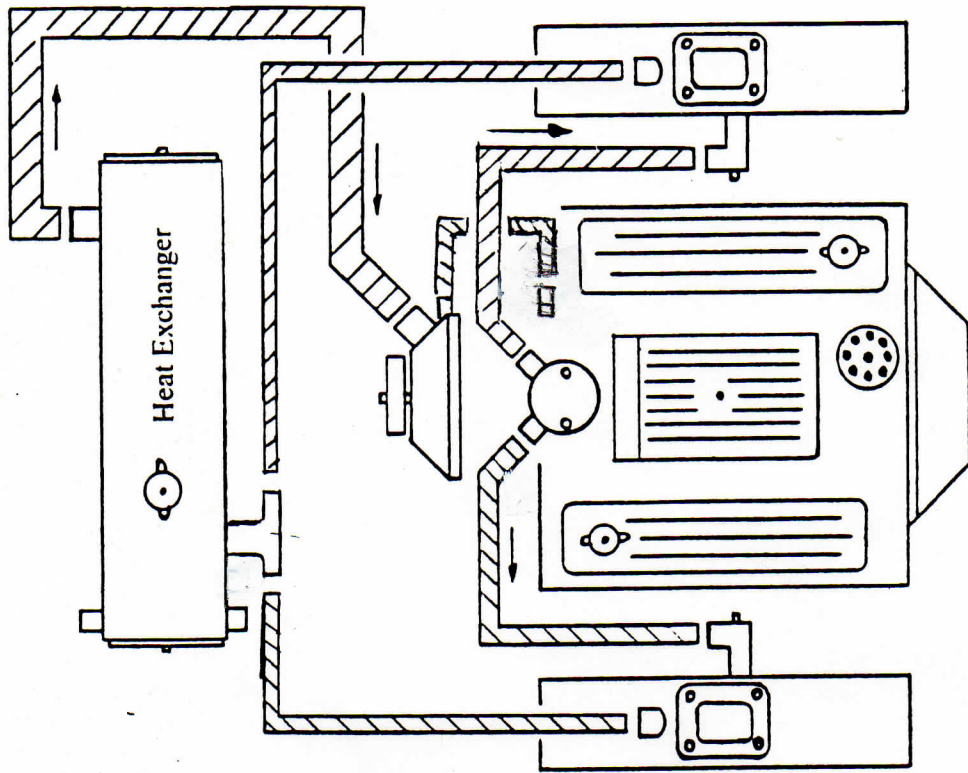
- A. On the R. Cylinder Head use the existing threaded hole directly above the two water pump bolts. Use the 7/16" X 3" bolt and the 2-1/8" long spacer. Place the spacer between the mounting bracket and cylinder head. Be sure the bolt is placed through the center of the spacer. Tighten bolt. (Torque approximately 45 ft. lbs.).
Note: It may be necessary to chase the threaded hole with a 7/16" -14 tap.
- B. On the L. Cylinder Head notice that the power steering pump mounting bracket is secured to the cylinder head with bolts. Remove the upper of the three bolts just above the water pump bolts. Using the 3/8" X 1-1/4" long bolt and 1-3/16" long spacer, from the kit, place the spacer between the mounting bracket and cylinder head. (Torque approximately 25 ft. lbs.).

- 9.A. Remove stainless steel straps and bolts from the aluminum mounting cradles.

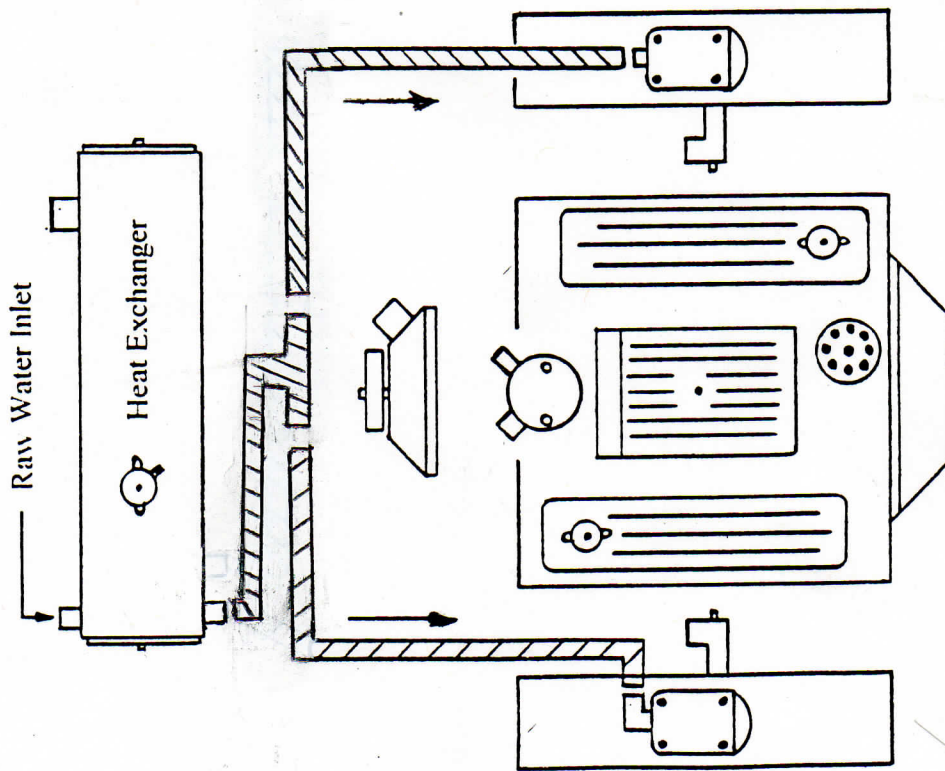
- B. Place and bolt aluminum cradles onto mounting bracket, using the 5/16" X 1" long bolts and 5/16" nuts.
 - C. Place the heat exchanger onto the aluminum cradles with the fill cap up.
 - D. Reinstall the stainless steel straps and bolts that were removed in section 9.A. Tighten bolts. (Torque approximately 12 ft. lbs.). DO NOT OVER TORQUE.
10. Connecting the hoses:
- A. Using the original hose that came from the bottom of each exhaust manifold, connect to the new thermostat housing one on the left and one on the right. Tighten clamps.
 - B. Using the 1"O.D. X 26" long wire flex hose, connect it to the 3/4"N.P.T. X 90° X 1" brass hose adapter on the right manifold, NOT THE EXHAUST RISER. Connect the other end to the right side of the tee on the heat exchanger that points right. Clamp. (See coolant water schematic on page 4).
 - C. Using the 1"O.D. X 17" long wire flex hose, connect to the 3/4"N.P.T. X 90° X 1" brass hose adapter on the left exhaust manifold, NOT THE EXHAUST RISER. Connect the other end of the hose to the left side of the tee on the heat exchanger. Clamp. (See coolant water schematic on page 4).
 - D. Using the salt water dividing tee from the kit, connect the original hoses with clamps from the R. & L. risers to the 1" straight hose fittings. Point the 90° elbow to the engine left. Using the 1-1/4" X 7" hose from the kit, connect the 90° elbow on the tee to the top salt water fitting on the heat exchanger.
 - E. Use the original curved hose to connect between the water pump inlet and the large 1-1/2" fitting under the R. end of the heat exchanger. Cut the upper end of the hose off to appropriate length. Use care not to cut the hose too short. (Note: If the original hose is cut too short or is damaged you may obtain a factory replacement hose from Mercruiser dealer using P/N 32897181).
 - F. Take the 1-1/4" I.D. X 16" hose along with the 1-1/4" I.D. X 5" long hose and connect them together with the 1-1/4" elbow from the kit. Push the long end of the 1-1/4" hose assembly up from below, behind the alternator belt, onto the 1-1/4" hose spud under the L. end of the front hose spud on the oil cooler. Clamp. (Note: The oil cooler may slip back in its clamp mount).
 - G. Check all hoses to be sure none will chaff or touch moving parts. Retighten all clamps.

Refer to the checklist attached for start-up information.

Thank you for buying Seakamp products. For technical support call 1-360-734-2788.



MERCUISE 7.4 ENGINES
 COOLANT WATER SCHEMATIC
 FULL SYSTEM

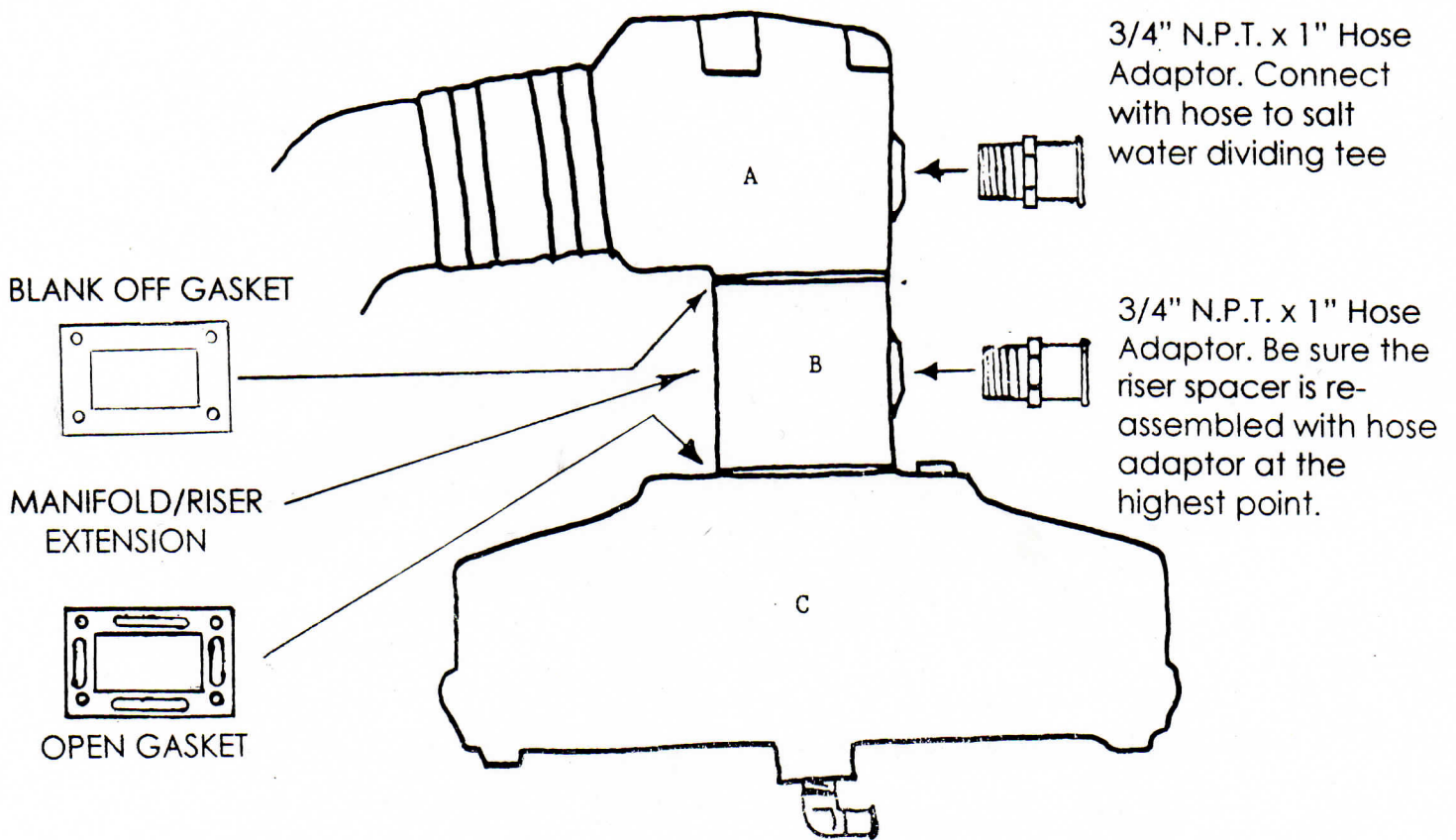


MERCUISE 7.4 ENGINES
 RAW WATER SCHEMATIC
 FULL SYSTEM



IMPORTANT:

READ BEFORE INSTALLING GASKETS



IMPORTANT: Some engines may have come from the factory supplied with plastic fittings on the bottom of the exhaust manifolds. If that is the case, it is necessary to replace them with brass or metal fittings.

SEAKAMP

INITIAL COOLING SYSTEM CHECK LIST BEFORE THE BOAT LEAVES THE DOCK

CAUTION! Never start an engine dry. Boat must be in the water or have water supplied to the sea water intake on either the inboard or stern drive units before the engine is started.

The water pump's rubber impellers will be ruined or their efficiency seriously impaired if they are run dry for any length of time.

1. Install all drain plugs and close all drain cocks firmly.
2. Open the seacock that supplies the seawater to the engine pump (inboards and some large stern drive engines).
3. Fill the cooling system with permanent coolant (50/50 mixture). Do not put on the fill cap until the cooling water level has stabilized.

NOTE: The initial coolant filling rarely removes all the air from the system. When the engine is started the water level will usually drop as the circulating pump forces air out of the system. Refill immediately.

4. As quickly as possible check to be sure that the seawater is flowing. On inboards this is usually at the exhaust outlet in the transom. On stern drives where exhaust exits through the foot or lower unit feel the exhaust hoses. The hoses should not get hot. If you are unsure loosen the sea water hose where it connects to the heat exchanger and carefully slip it off just enough to determine that water is flowing through it. In either case if water is not flowing, STOP THE ENGINE and investigate.
5. Warm up the engine at 1200 to 1500 R.P.M. Make visual checks for water leaks. Maintain the water level in the fill neck. The system will often require refilling several times as the air works out.
6. After the engine warms up to normal, stop the engine. Firmly snug up each hose clamp. You don't want them too tight or too loose. Frequently clamps are located out of sight therefore look under manifolds, etc.
7. Install the fill cap if you are satisfied that the water level has stabilized.
8. Check all V belts for proper tension.

NOTE: The engine's temperature gauge has a needle pointing to red and green colors. The green is approximately 140 degrees. The red starts at approximately 160 degrees, which is the normal temperature with fresh water cooling. Do not assume that the engine is overheating because the needle is in the low part of the temperature gauge's red sector. This can be confirmed by simply removing the fill cap and placing a common cooking thermometer into the water of a warm engine idling at the dock. It is not uncommon to have temperature gauges read incorrectly. Compare the temperature reading with the gauge's numbers or color.

ROUTINE MAINTENANCE SUGGESTIONS

- A. When the engine is warm be very careful when removing the fill cap. Normal pressure in the system can spray out hot coolant.
- B. When the engine is cold the coolant will usually be down an inch or two below the fill neck. If you fill it up the water will be forced out through the overflow hose as the engine warms up due to normal expansion. Seakamp always recommends an overflow recovery tank #SK3111.

- C. Water pumps with rubber impellers should have their impellers removed and checked each season or after 200 hours of use. The blades can take a set and may have to be replaced for top efficiency. Most stern drive units have a rubber impeller pump in the lower unit. This will also require periodic servicing. On inboards with visible wet exhaust do not try to determine a pump's output by the water flowing out the exhaust, as several gallons per minute variation is not visually apparent.

There is no mystery to a fresh water cooling system. If the correct amounts of fresh and seawater are being moved through the system it has to work. For long and trouble free service from your engine it is always best to make routine checks to avoid problems later.

Remember the operator has a direct responsibility to frequently check all gauges on the instrument panel and take the appropriate action should they vary from normal. Because everyone can become careless at times we strongly recommend a good alarm system to protect your engine from damage due to overheating, low oil pressure, etc.

There is little maintenance to do:

1. Check water level daily.
2. Check V belts tension weekly.
3. Check hose clamps monthly.
4. Check zinc anode every two months.
5. Check or replace rubber impellers in water seasonally or anytime the engine temperature is above normal (some engines may have two rubber impeller pumps).
6. Check hoses for deterioration yearly.

SUGGESTIONS FOR WINTERIZING HEAT EXCHANGERS

- A. Some engines have parts that are not protected by anti-freeze. Consult your engine manual to determine which points require draining after use in freezing weather or for winterizing. All cooling systems should have the seawater side of the heat exchanger drained, as well as the manifolds if they are not cooled by anti-freeze. Manifolds have a drain on the bottom side.
- B. Loosening the heat exchangers end covers can drain the seawater. Retighten the end covers before operating. The seawater drain plug usually holds a zinc anode. The zinc fitting can be removed if located on the bottom of the heat exchanger and it should be replaced if it has eroded away. Seawater pumps can be drained by loosening their back cover or by removing it's lower hose. If the sea water pump is mounted on the engine you would remove the lower hose from the pump or loosen the front plate on the pump.



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STATEMENT OF COMPANY WARRANTY AND WARRANTY PROCEDURE

LIMITED WARRANTY

SeaKamp Engineering, Inc. warrants the materials and workmanship of products manufactured by us to be free of defects except component parts manufactured by others, which we assign, as permitted, the original manufacturer's warranty. SeaKamp product's warranty period shall be twelve (12) months after date of shipment to the original purchaser, during which time defective dequpment must be returned to SeaKamp for inspection at the Buyer's expense and risk. The part(s) shall be repaired or replaced at SeaKamp's option. This warranty does not cover labor costs and is void on any product that has been improperly installed, abused, altered in any manner, used other than its' intended purpose, has damage caused from electrolysis or any electrolytic action, or damage or loss due to freezing. This limited warranty is in lieu of all other warranties expressed or implied, including design and fitness for a particular purpose. SeaKamp shall not be liable to the purchaser or to any other person for loss of use, revenue, or profit, or for injury, or for any other consequential, incidental, or punitive damages resulting from any defect in or malfunction of our products. In no event will SeaKamp be liable for more than the original cost of the defective part(s). Some states do not allow the exclusion or limitation of incidental or consequential damages, so some of the above limitation or exclusion may not apply to you.

WARRANTY PROCEDURE

- Should a product be defective, or be suspected of malfunctioning, immediately contact our Service Department (360-734-2788) with a detailed description of the complaint.
- DO NOT dis-assemble, alter, repair, or replace any unit, or component, without explicit permission from our Service Department personnel.
- The Service Department will advise what corrections, if any, can be made, or they will give instructions as to the method of returning the faulty unit for inspection, repair and/or replacement.
- Anyone making service calls, replacements, alterations, or repairs without our Service Department's written (or faxed) permission, do so at their own risk and will be solely responsible for any related expenditures.
- Should a problem or question arise, we have experienced personnel who will be happy to assist you.

NOTE: All merchandise damaged in transit is the sole responsibility of the transportation company. File damage claims directly with the carrier.