SAN JUAN FRESH WATER COOLING SYSTEMS

3.0 Litre LX With Serpentine Belt "On Engine Mount"
"Turn Key" Block Only Cooling
Kit #MC-342 Installation Instructions

San Juan Engineering Heat exchangers provide thermostatically controlled fresh water cooling for marine engines. Its compact installation does not increase the height, width, or length of the overall engine dimensions, allowing for installation in most existing engine compartments. Designed to ensure years of satisfactory service, the entire unit is constructed of pure copper with silver alloys. This system is built by quality craftsman that have made San Juan Engineering the leader in their field for over 40 years.

San Juan Engineering Heat Exchangers prolong engine life by preventing corrosion in the cylinder block. A hot water heater or cabin heater is now possible with fresh water cooling.

Installation is simple. All necessary parts are supplied and no special tools are required.

Use caution when tightening threaded fittings. Never over tighten and always use a back-up wrench on threaded NPT female fittings ie., temperature sending units and zinc anodes.

1. All instructions are given while facing the front of the engine. The alternator is on the right hand side, the fuel pump on the left hand side.

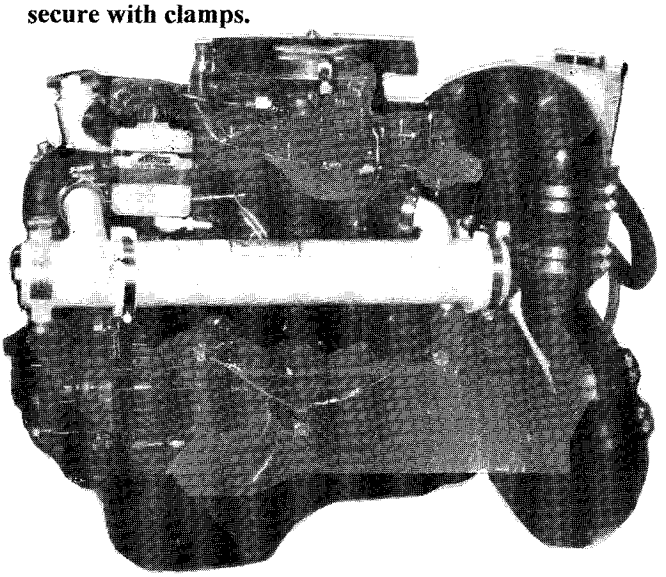
2. Drain the block and manifold with automatic drain on the right side of the engine. Remove the drain hoses from the manifold and block, there will be two hoses connected to the manifold and one on the block. In the kit you will find a 1/4" brass plug and a 3/8" brass plug.. Replace the fitting in the block with the 1/4" brass plug and install the 3/8" drain plug in the manifold.

3. Locate the original thermostat housing at Top, Front, Center of the engine. Remove all the hoses from the housing. Leave the 1" 90 degree hose that goes to the top, front of manifold, attached to the manifold. This hose will be re-used later. Discard the raw water supply hose, plastic tee and 3/8" hose that connected the thermostat housing to the outlet on the intermediate housing, leaving the remaining ends attached. Now, disconnect the wire from the temperature sending unit and remove the sending unit. SAVE.

4. Remove and discard the original housing (it is secured by two horizontal bolts into the front of the cylinder head). Take the NEW water outlet casting from kit. Using the bushing supplied, re-install the temperature sending units into the upper holes on the right side. The ½" NPT fitting on left side is for the "turn Key" sending unit. The 3/8" NPT fitting on the new upper thermostat housing is for the high temperature alarm sending unit. Then install new housing onto engine using one new 3/8" X 1-1/2" and 1" bolts and a gasket where original housing was removed. Re-connect wires. Also, install plugs supplied in remaining holes in housing assembly. Place the new thermostat into water outlet recess. BE SURE POINTED END IS UP. Then lay gasket over thermostat and place the new thermostat housing on top. Bolt housing in place.

5. Remove the (2) 9/16" nuts holding the automatic drain handle and the drive oil reservoir. Discard the drain handle and hoses. Replace the oil bottle along with the heat exchanger bracket, as shown in the picture on page 2.

6. Secure aft bracket to manifold as in the picture on page 2, place the heat exchanger on the brackets, with the zinc anode forward and down, secure with clamps.



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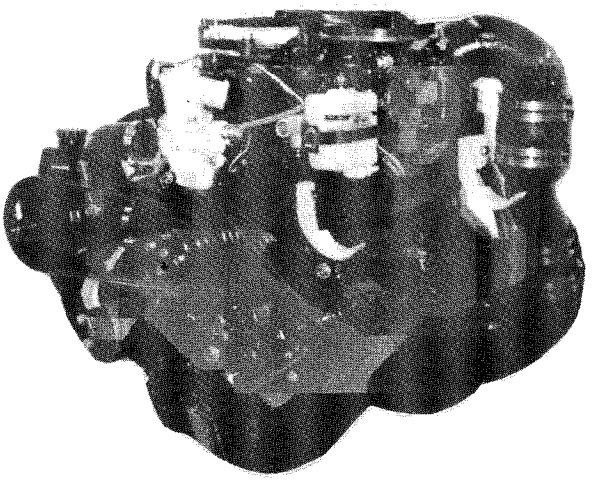
7. Install 1-3/4" X 10-1/2" hose to heat exchanger and heater return fitting and clamp. Install 1-1/2" X 18" hose from thermostat housing to rear of the heat exchanger and clamp. Loosen clamp on 1" hose from the fitting on the front, top of manifold and connect to the 1" X 90 degree fitting on heat exchanger. Clamp. Using the 7/8" X 15" hose and 1" X 7/8" copper connector, connect to the original raw water hose. Then connect the 7/8" hose from the copper connector to the heat exchanger. Trim 7/8" hose to fit. Clamp. (Do Not cut stock hose coming from transom).



8. If an auxiliary water, or cabin heater is to be installed use 1/2" NPT hole in the lower housing, connect to the LOWER FITTING on heater. Use the 3/8" NPT hole on the heater return fitting for return from the top of the heater.

IMPORTANT: When connecting cabin heater or hot water heater, certain requirements must be met.

A. Supply hose (from engine to heater) and return hose (from heater to engine) MUST NOT EXCEED 5/8 in. (16 mm) inside diameter.

B. Make heater connections ONLY at locations described in the following instructions

C. Check complete system for leaks after heater is connected into cooling system.

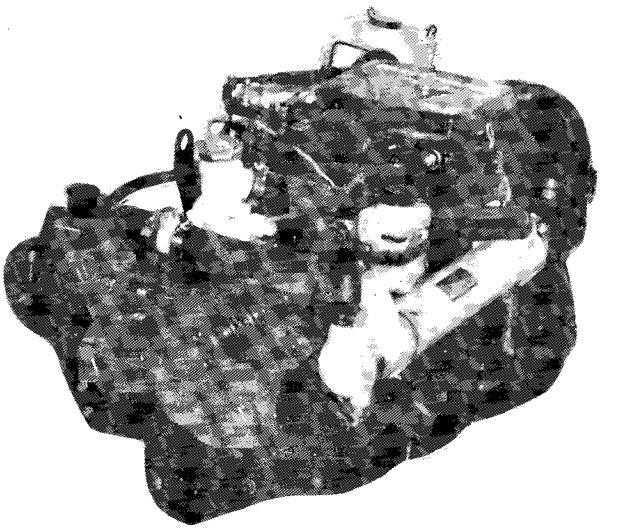
D. Check for overheating condition (of engine) after heater is connected.

CAUTION!

Heater must be mounted lower than the fill cap on the heat exchanger. If the heater is higher than the fill cap on the heat exchanger and some coolant is lost from the system, an air pocket may form in the closed cooling system. This can cause the engine to overheat.

9. This system uses a recovery type accumulator tank for the expansion of the coolant and also removal of air from the system. Secure the plastic expansion tank in best location for checking fluid. Cut a piece of 5/16" hose to connect the spud at the heat exchanger fill neck to the spud at the bottom of the expansion tank. Use the (2) 5/16" spring clamps to secure the hose.

10. Fill accumulator tank to cold line. Fill through the fill cap neck on the heat exchanger until full. Continue to fill until water is overflowing at the fill neck. As it is IMPORTANT to remove all air from the system, leave the fill cap off after starting engine and be prepared to refill water into the fill neck as AIR is removed and water level drops. All air must be out of system if it is to work properly. This may take 10 minutes, or more of running the engine in neutral at 1,000 to 1,500 RPM at the dock. Do Not run the engine at all without a water supply to the water inlet on the lower unit. The sea water pump will be damaged or destroyed if run dry. When you are sure all air has been purged from the system and water level has stabilized at the fill neck, and it is full, install the fill cap. DO NOT remove the fill cap when engine is HOT! Coolant capacity is approximately 14 quarts. NOTE OPTION: Expansion tank may be mounted in the transom area or wherever desirable



11. The zinc anode retards corrosion in the raw water side of the cooling system. Check occasionally and replace when 3/4 eroded.

12. Check to make sure all hose clamps and bolts are firmly tightened before moving on to the start-up procedures (Sheet 1A).

3.0 Litre LX MerCruiser with Serpentine Belt "On Engine Mount" Block Only Cooling Kit #MC-342

PARTS LIST

Part Number	Qty.	Description
MC342-0	1	Installation Manual
MC342-1	1	Heat Exchanger
MC342-2	1	Thermostat Housing, Upper
MC342-3	1	Thermostat Housing, Lower
MC342-4	2	Hanging Brackets
MC342-5	1	Heater Return Fitting
MC342-6	1	Expansion Tank Kit
MC342-7	1	Thermostat 330-160 (with one 1/8" hole)
		Hoses
MC342-8	1	1-1/2" X 18"
MC342-9	1	1-3/4" X 10-1/2"
MC342-10	1	7/8" X 15" Hose
		Clamps
MC342-11	2	#48
MC342-12	2	#28
MC342-13	2	#24
MC342-14	1	#20
MC342-15	3	#16
		Gaskets
MC342-16	1	Thermostat, GMT-1 Upper
MC342-17	1	Thermostat, #10140501 Lower
		Fittings
MC342-18	2	3/8" X 1/2" Bushing
MC342-19	3	3/8" Pipe Plugs (Brass)
MC342-20	1	1/4" Pipe Plug
MC342-21	2	1/2" Pipe plugs
MC342-22	1	7/8" X 1" Copper Connector
		Bolts, Nuts, Washers & Misc.
MC342-23	2	3/8" X 7/8"
MC342-24	1	3/8" X 1-1/2"
MC342-25	1	3/8" X 1"
MC342-26	4	3/8" Lock Washers
MC342-27	2	3-1/2" Rubber Strips
MC342-28	1	3/8" NPT Zinc Anode (in Heat Exchanger)

Sheet 1A Before Leaving Dock/Warranty
Winterizing Sheet
Return Policy