

**ORCA
MARINE COOLING SYSTEMS
BELLINGHAM, WA 98226**

**4.3 - 5.7 Liter MPI/CARB
Mercruiser 86 – 01**

Installation instructions

**300851
Half system**

1. Disconnect battery before working on engine. Drain system according to your owner's manual. Remove the plastic shroud if equipped. Remove the hoses from the thermostat housing. Remove and save the sending units. Remove the thermostat housing and clean the gasket surface. Place a rag in the opening to prevent parts from falling in. If you have 1" hoses going to each exhaust elbow you will remove the fittings at the elbow and replace them with the 3/4" hex head plugs.

2. Thread the 3/8" x 4-1/2" all-thread studs in each hole. They should seat all the way with just your fingers. If necessary, use two 3/8" nuts separated by a lock washer to be able to tighten the stud with a 9/16" wrench. Place the 3-hole thermostat housing in a soft-jawed vise. Install the 3/8" x 3/8" brass hose adapter and then the 3/8" x 5/8" 90° brass hose elbow in the center hole. Tighten it so the hose end is at approximately 9 o'clock with the thermostat recess as the top. Install the alarm and temperature sending units. Clamp one end of the 5/8" wire hose to the elbow unless you are installing a heater. Remove the rag from the thermostat boss and set a new #5-A gasket (4 small brass buttons) in place over the studs and then the 3-hole housing. The new thermostat will sit in the top of this housing. Now set the #5 fiber gasket in place and install the KA-118 water outlet. The outlet is reversible for optimum routing of hoses. Attach one end of each 1" x 22" wire hose to the water outlet with the #16 ss clamps. The steel saddle bracket goes on top and all are secured with the 3/8" plated nuts and lock washers. Connect the sending unit wires.

3. Remove the 1/2" plug from the starboard side of the circulating pump. Thread in the 1/2" x 5/8" brass hose barb. Connect this to the 5/8" wire hose in step #2 if you are not installing a heater.

HEATER : Connect the hose from the return side of the heater to the hose barb on the side of the circulating pump. The inlet side to the heater will connect to the hose barb in the center of the thermostat housing.

4. Set the heat exchanger on the saddle bracket. Clamp loosely with the #88 clamps. Measure and cut the raw water hose which lies along the valve cover and clamp it to the 1-1/4" od horizontal fitting on the tee on the HE. You may need to cut the hose and insert the 1-1/4" copper conector and rotate the hose to fit. If the engine has the hose coming underneath the exhaust manifold you will fit it to the vertical fitting on the tee. Use the 1-1/4" rubber cap and #20 ss clamp to seal the hose fitting not used.

5. You will change the C-shaped circulating pump hose into a S shape by cutting it in the straight section and rotating the hose. See the attached picture. Save both ends and cut to fit between the heat exchanger and the pump. Use the 1-1/2" or 1-3/4" copper connector and the #24 or #32 ss clamps.

6. Connect the 1" raw water out hoses coming from the bottom of the exhaust manifolds to the legs of the copper tee. The elbow on the tee will connect to the HE with the 1-1/4" x 16" non-wire hose (trim to fit). The elbow will sit between the carburetor and the thermostat housing. Attach the free ends of the 1" x 22" wire hoses to the fittings on the ends of the expansion tank. You may need to trim these hoses after determining the best routing which may be under or over the serpentine belt. Replace the plastic shroud.

7. Tighten all clamps and make sure no hoses are rubbing against moving parts. If needed use the black cable ties to secure hoses. Fill system with a maximum 50/50 mix of antifreeze and water which is about 10 qt's. Top off if necessary; about 1/2" below filler neck once the system is up to temperature.

CAUTION:

INSTALLATION OF THE COOLANT RECOVERY BOTTLE IS CRITICAL TO THE OPERATION OF THIS SYSTEM.

IT MAY BE INSTALLED ANYWHERE BUT MUST MAINTAIN THE LIQUID LEVEL IN THE BOTTLE BETWEEN THE WARM AND COLD LINES AT ALL TIMES.

THE RECOVERY BOTTLE ALLOWS FOR THE EXPANSION AND CONTRACTION OF ANTI-FREEZE IN NORMAL OPERATION AND HELPS TO KEEP THE SYSTEM FULL.

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PARTS LIST

300851
HALF SYSTEM

Bag #1:

1	2 - Stud, pltd all-thrd 3/8 x 4-1/2 400070	8	2 - Clamp, ss, #88 with sleeve 300788
2	3 - Nuts, plated, 3/8 021588	9	2 - Clamp, ss, #32 006846
3	2 - Washer, plated, lock, 3/8 070206	10	2 - Clamp, ss, #24 006845
4	1 - Elbow, brass, 90, 5/8H x 3/8M 001079	11	5 - Clamp, ss, #20 006844
5	1 - Adapter, brass, 3/8F x 3/8M 001091	12	6 - Clamp, ss, #16 006105
6	1 - Hose barb, brass, 5/8H x 1/2M 001056	13	2 - Clamp, ss, #08 006101
7	2 - Plug, brass, hex head, 3/4 400455		

Bag #2:

14	1 - Gasket, continuity, #5-A 300233	20	1 - T-stat housing, 3-hole 400040
15	1 - Gasket, fiber, #5 300479	21	1 - Water outlet, KA-118 400203
16	2 - Cable ties, black, 14" 300955	22	1 - Connector, cpr, 1-3/4 300893
17	1 - Thermostat, 160 degree 000962	23	1 - Connector, cpr, 1-1/2 300892
18	2 - Tape, cushion 300496	24	1 - Connector, cpr, 1-1/4 300891
19	1 - Cap, rubber, 1-1/4 300682		

Bag #3:

25	1- Bkt, Steel Saddle Universal w/ 1-7/8 Hole 501351	26	1 - Tee, cpr, 1 x 1 x 1-1/4 90 EI 300373
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Hose:

27 1 - Wire, 5/8 x 18
051453
28 2 - Wire, 1 x 22
053538

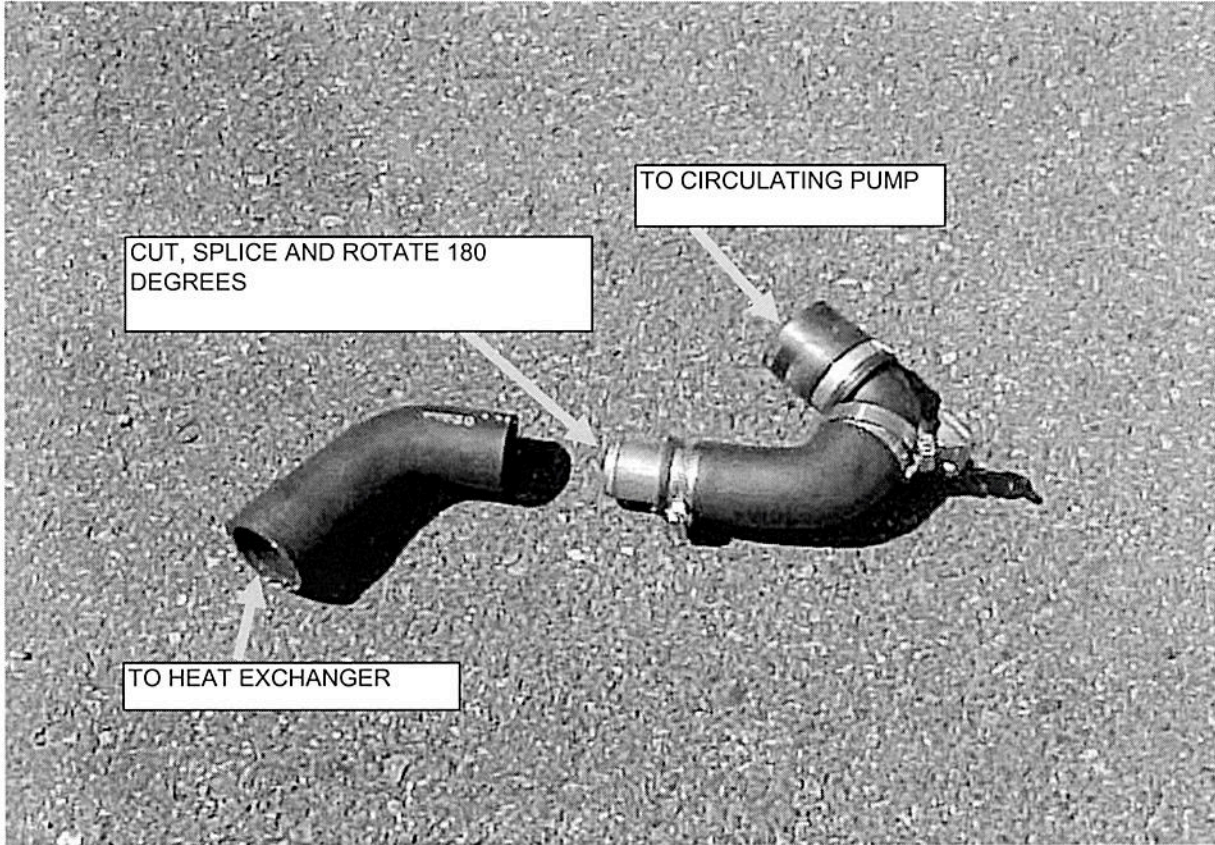
28 1 - Heater, 1-1/4 x 16
006775

Loose packed:

29 1 - Recovery bottle
300671

30 1 - Installation instructions and
warranty card

Proudly packed and shipped by



Date: 10/28/02

Engine Make: Mercruiser

Engine Application: 4.3/5.7L Chev V-6/V-8

Model Yr. 1997- 2002

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Installation Photo

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Orca Kit Number : 300851

Type of System : Horizontal Mount / Block Only

SPECIAL ENGINE FEATURES:

Thermostat Housing and Mounting Bracket

