

MFH-5398

Block Only Fresh Water Cooling Kit Instructions



MONITOR PRODUCTS, INC.

15400 Flight Path Dr
Brooksville, FL 34604

Tel: 1-800-334-4591 or 352-544-2620

Sales: ext 201

Technical Support: ext 209

Fax: 352-544-0870

IMPORTANT

Before you unpack the kit and start installation, make sure you have the right kit for your engine by studying these installation instructions. These installation instructions have been written to cover most sterndrive and inboard installations on Chevy small block engine conversions made by the major marine engine manufacturers before 1999. The system is front mounted at the level of the thermostat housing and the engine must have the alternator and/or the power steering pump mounted low or to the extreme port side of the engine. The heat exchanger is 22 inches long.

These instructions cover a normal installation situation. Sometimes problems can occur due to engine variations and boat-builder or owner modifications. If you run into such problems you can call Monitor Products for advice during normal business hours.

If you determine this is the wrong kit for your type of engine:

- Call the distributor you purchased the kit from for their return policy.
- If you purchased the kit from Monitor Products Inc., call 1-800-334-4591 for a return authorization. No returns will be accepted without this authorization. The kit must be in new condition and repacked in its original packaging to qualify for credit or replacement.

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1-800-334-4591

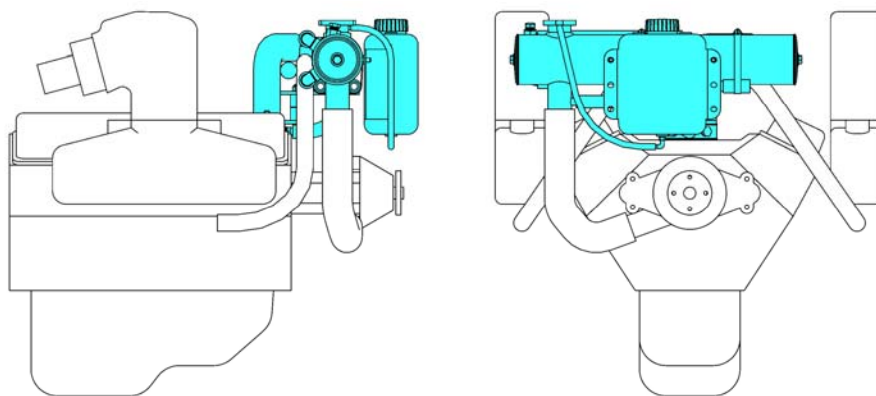
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The installer must make sure that the overall installation is safe and in accordance with Coast Guard and industry standards.

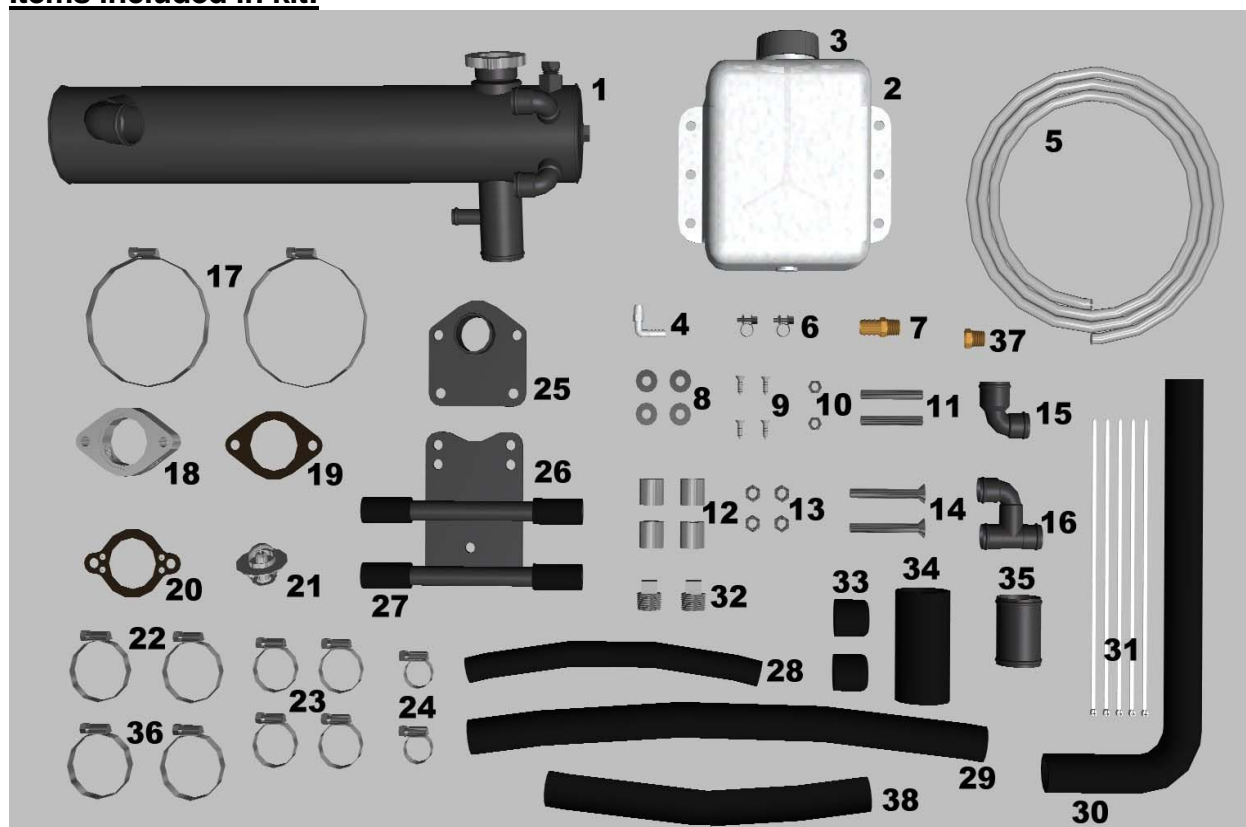


Installation tools & supplies

Flat head screw driver
Phillips head screw driver
11/16" deep socket or box wrench
9/16" socket or box wrench
7/16" socket or box wrench
3/16" hex key

7/32" hex key
Hose Cutter or Knife
Gasket scraper
RTV silicone gasket sealer
Antifreeze solution (See flush and fill instructions)

Items included in kit:



Item	Qty.	Part Number	Description	Item	Qty.	Part Number	Description
1	1	M5398-9700	Heat Exchanger	20	1	4500-3004	Grounded T'stat Hous. Gasket
2	1	5001-1327	Expansion Tank	21	1	5000-3012	Thermostat
3	1	5000-1763	Cap, Expansion Tank	22	2	5200-1143	Hose Clamp #24
4	1	5000-1343	1/8" NPT x 5/16" Hose Adapter	23	4	5200-1144	Hose Clamp #16
5	1	5102-2125	5/16" ID x 48" PVC Hose	24	2	5200-1401	Hose Clamp #12
6	2	5200-1344	Mini Clamp #02	25	1	5000-3021	Lower Bracket
7	1	3000-1351	3/8" NPT x 5/8" Hose Adapter	26	1	5002-2611	Upper Bracket
8	4	4300-2802	5/16" Washer	27	4	5102-2124	Isolators
9	4	4300-2801	#12 x 3/4" Flat Head Screw	28	1	5107-2128	5/8" ID x 12" Hose
10	2	4300-2790	5/16-18 Nylon Locking Nut	29	1	5118-2126	1" ID x 21" Hose
11	2	4300-3015	3/8-16 x 2-1/2" Stud	30	1	5100-1290	1-1/2" ID x 14" x 6-1/2" Hose
12	4	5000-2637	Spacer, 1" OD X 1" Long	31	5	5000-1154	Tie Wraps
13	4	4300-2791	3/8-16 Nylon Locking Nut	32	2	4400-1377	3/4" NPT Plug
14	2	4300-3016	3/8-16 x 3" Flat Head Cap Screw	33	2	5100-1722	Manifold Cap 1-5/16" ID
15	1	3103-1291	1" x 1-1/4" 90° Hose Coupling	34	1	5104-2129	1-3/4" ID x 4" Hose
16	1	5000-3014	Raw Water Splitting Tee	35	1	0321-2100	1-3/4" Hose Coupling
17	2	5200-1610	Hose Clamp #72	36	2	5200-1475	Hose Clamp #28
18	1	4005-2003	Thermostat Spacer	37	1	4400-1314	3/8" NPT Plug
19	1	4500-1381	Thermostat Housing Gasket	38	1	5105-2126	1" ID x 12" Hose

Installation Steps

Fig. 1

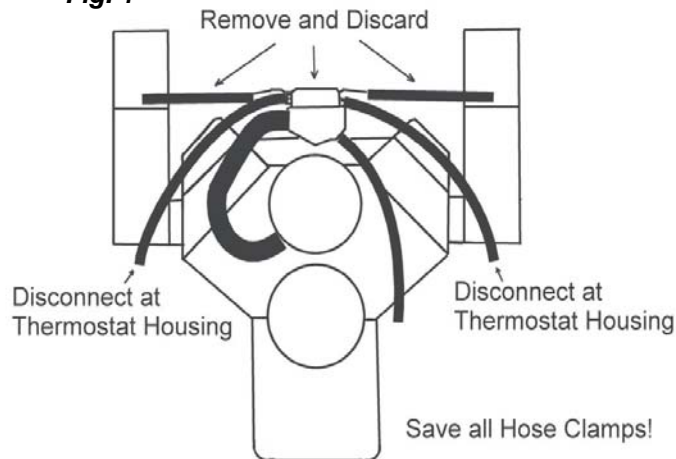
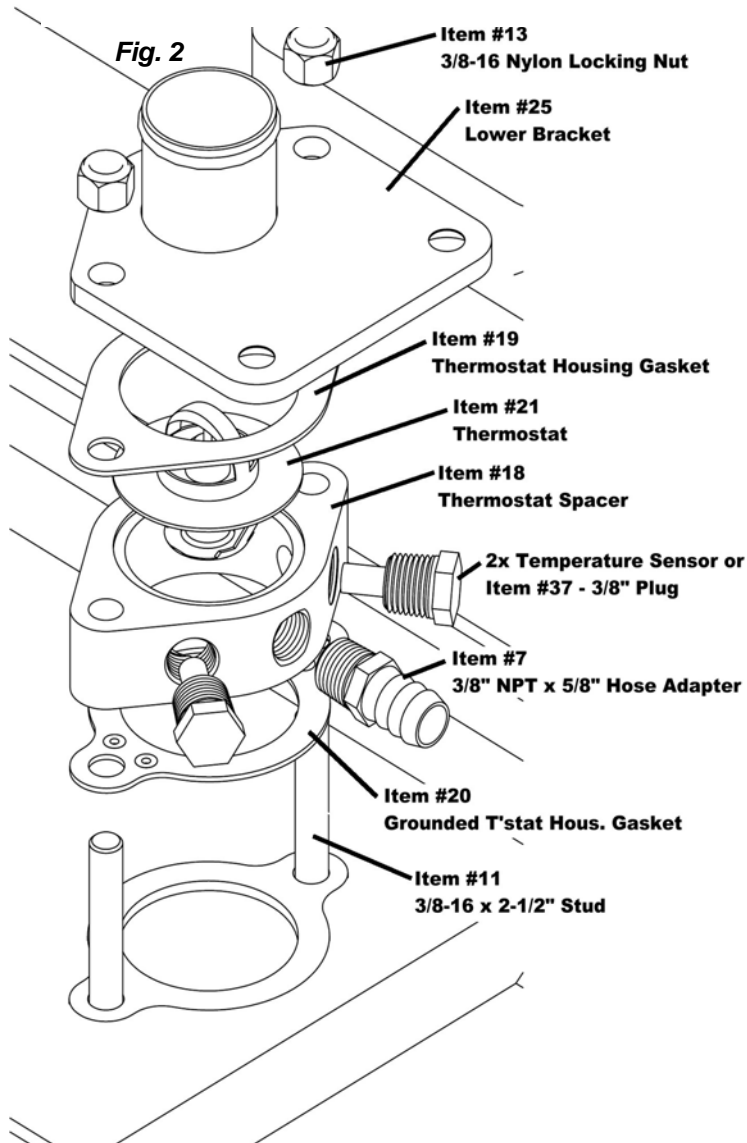


Fig. 2



1. Drain water from block by removing plugs from both lower sides of engine.
2. Remove hoses from the existing thermostat housing. Save all hose clamps. See Fig. 1.
3. Disconnect wires from temperature sender(s) and remove the sender(s) from thermostat housing.
4. Remove and discard existing thermostat housing, thermostat, gasket and bolts. Scrape surface clean especially grooves where new thermostat will be located. Avoid getting scrapings into thermostat opening. See Fig. #1
5. Flush engine. If new, flush engine briefly with fresh water through thermostat opening. Use a garden hose with a rag around it. If used, more thorough flushing may be needed. See Flushing instructions in Fresh Water Cooling General Maintenance Manual.
6. Install two 3/8-16 studs (Item #11) into intake manifold.
7. Install spacer (Item #18), thermostat (Item #21), and lower bracket (Item #25), with two gaskets (Item #19 and Item #20) as shown in Fig. #2. Tighten 3/8-16 nuts (Item #13) securely.
8. Thread straight hose adapter (Item #7) into center threaded hole in spacer.
9. Thread temperature sender into spacer. If overheat alarm is used, thread into the other threaded hole of spacer. If not, install 3/8" plug (Item #37). Reconnect wire to temp senders. We strongly recommend that you install an audible "buzzer" type alarm. These overheat alarms are usually combined with low oil pressure alarm and are very reasonable in price.

Fig. 3

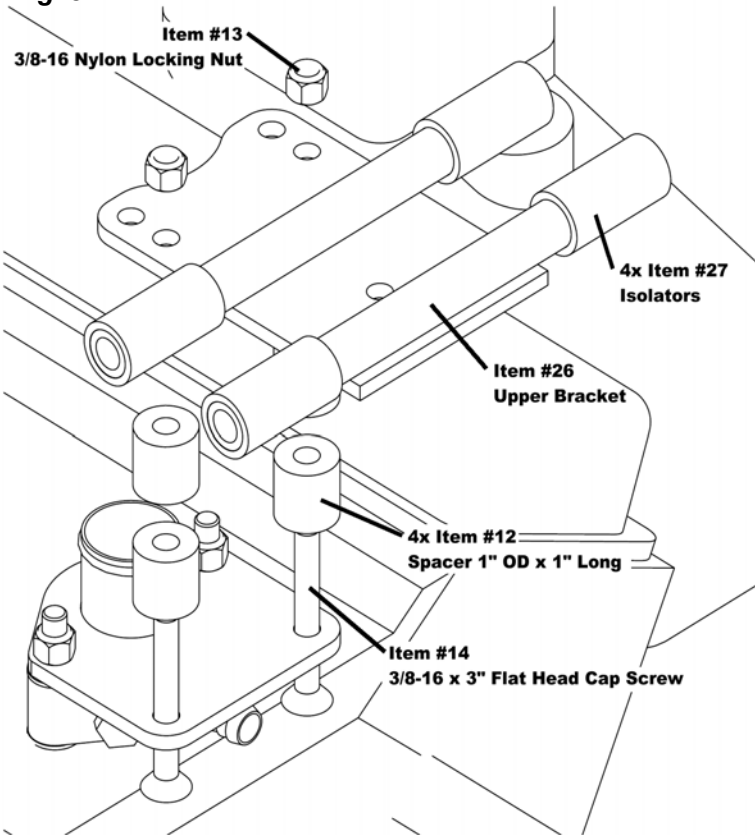
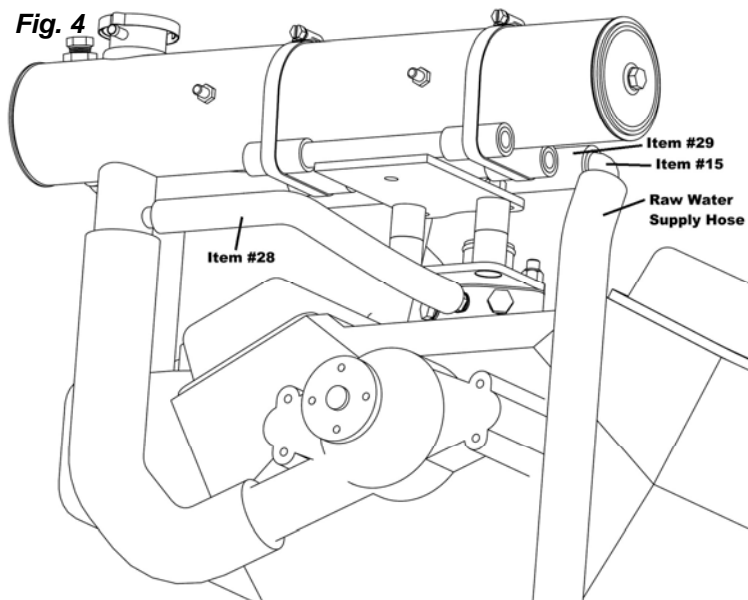
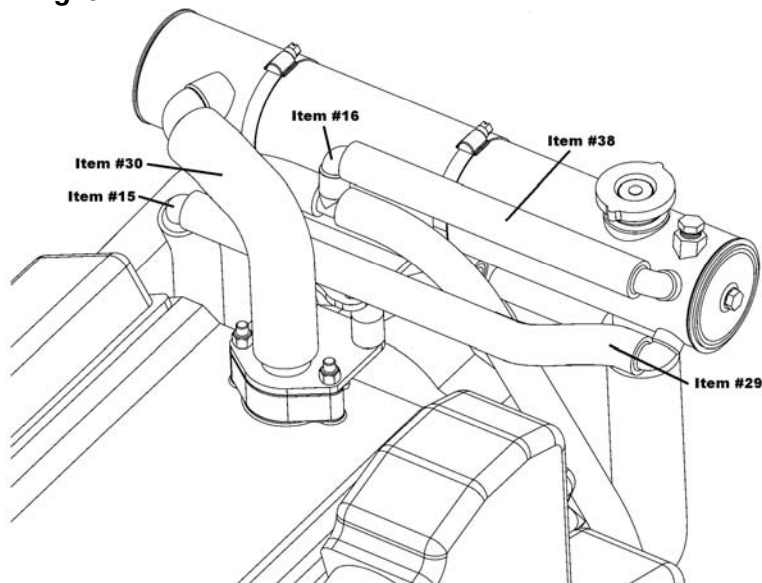


Fig. 4



10. Install upper bracket (Item #26), with the 3/8-16 flat head screws (Item #14) and 3/8-16 nylon locking nuts (Item #13), using the appropriate number of spacers (Item #12) needed for your application. Be sure that when heat exchanger is installed it will not interfere with any belts, fuel lines, or hatches and covers. See Fig. # 3.
11. Install isolators (Item #27) onto bracket rails.
12. Install heat exchanger (Item #1) on rails of upper bracket and secure with two large hose clamps (Item #17). See Fig. # 4.
13. Install the 90° hose coupling, (Item #15) into raw water supply hose located vertically along the front of the engine under the heat exchanger bracket using existing clamp. Supply hose may need to be trimmed. Measure and cut 1" ID hose (Item #29) to length. Trim hose as required to fully engage 90° hose coupling. Secure using two hose clamps (Item #23).
14. Trim 1 3/4" molded hose running from circulating pump to engage 1 3/4" fitting on heat exchanger. Secure using existing clamps. See Fig. # 4. (If need, use 1 3/4" hose coupling (Item #35), 1 3/4" hose (Item #34), and hose clamps (Item #36) to make this connection.)

Fig. 5

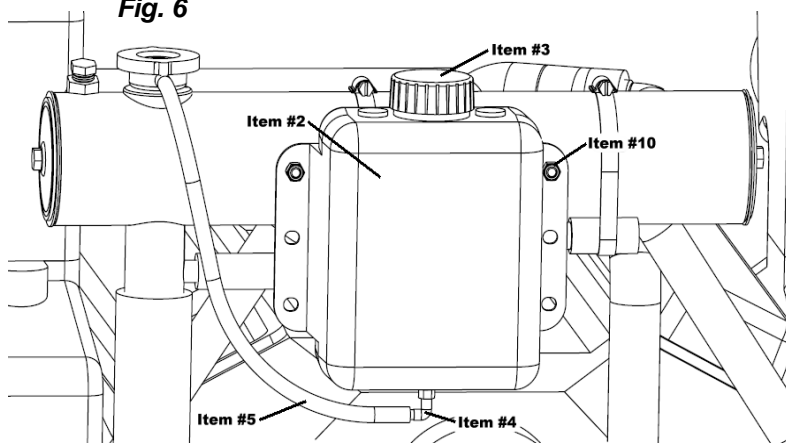


15. Connect tee assembly (Item #16) to heat exchanger at top rear left side of heat exchanger with 1" ID hose (Item #38) using clamps (Item #23). Place Tee assembly on top of heat exchanger bracket and between 1 1/2" fitting and heat exchanger. Attach hoses leading to bottom or front of exhaust manifolds to each side of tee assembly. Use existing hose clamps. See Fig. #5.

16. Connect heat exchanger to lower bracket with 1 1/2" ID molded hose (Item #30) using clamps (Item #22). See Fig. #5.

17. Attach 5/8" ID hose (Item #28) using clamps (Item #24) to hose adapter on spacer and 5/8" hose fitting on heat exchanger. See Fig. #4. If heater system hook-up is used this 5/8" hose is extended to heating devices and back. Trim as necessary. If desired, an optional flushing tee, available at most automotive supply stores, can be installed in this 5/8" hose.

Fig. 6



18. Thread plastic elbow (Item #4) into bottom of (Item #2) using sealer. Expansion tank cap (Item #3) should already be in place. See Fig. #5.

19. Mount overflow bottle on studs on front of heat exchanger using 5/16-18 nylon locking nuts (Item #10). If space in front of engine does not allow installation on heat exchanger, install on vertical surface next to engine using

washers (Item #8) and screws (Item #9). Keep as close to engine as is practical, with top of tank at the same level as the top of heat exchanger.

20. Connect 5/16" clear PVC hose (Item #5) to the fitting on filler neck and elbow on bottom overflow bottle with mini clamps (Item #6).

21. Some model Mercury Marine engines only: Remove hoses from exhaust elbows and discard. The kit includes two rubber caps (Item #33) as well as two 3/4" NPT pipe plugs (Item #32). Depending on the type of connection use one or the other to plug the connection of each exhaust elbow.

22. Use tie wraps (Item #31) to make sure that hoses or other parts are not in contact with critical engine components, such as V-belt and fuel lines.

23. Reinstall engine block drain plugs.

24. Double check total installation and make sure all fasteners, fittings, and hose clamps are tightened properly. See Filling and Start-Up Instructions in Fresh Water Cooling General Maintenance Manual.

We strongly recommend that you install an audible "buzzer" type alarm. These overheat alarms are usually combined with low oil pressure alarm and are very reasonable in price.

Replacement Parts

Part Number	Description
5000-1763	Cap, Expansion Tank
4000-1857	Pressure Cap, 16# SS
5000-3012	Thermostat
4500-1381	Gasket, Thermostat Housing
4500-1622	Gasket, Rubber Thermostat
4500-3004	Grounded T'stat Hous. Gasket
4500-1082	O-Ring, Buna-N
4500-2005	Gasket, 4" (end cover)
4400-1044	Zinc Anode, 3/8"NPT, 1-1/4" Long