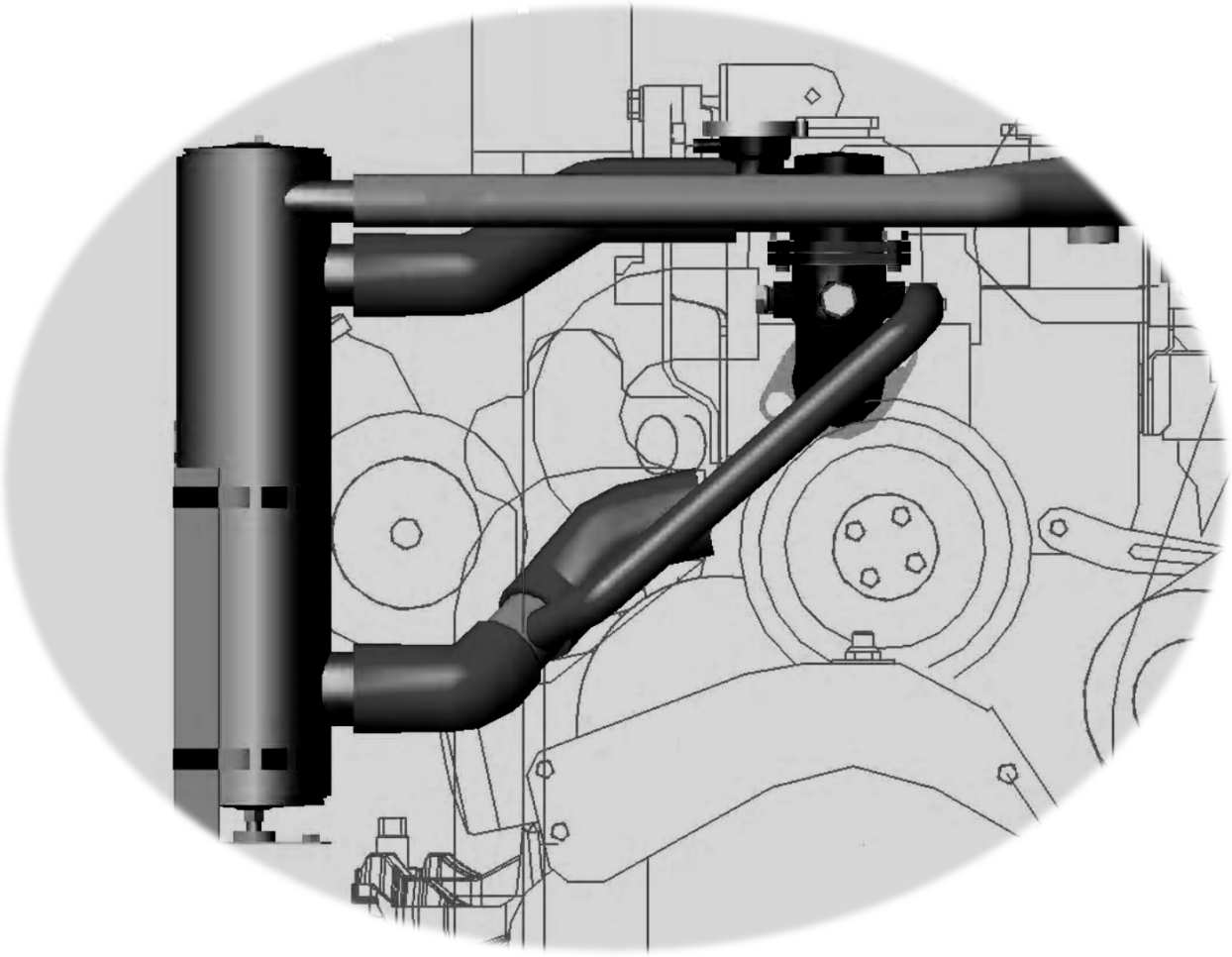
MRM-5345

3.0L Remote Mounted Freshwater Cooling Kit Instructions



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Sales: ext 201
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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 instructions have been written to cover most installations on most Chevy 3.0L 4-Cyl engine conversions made by the major marine engine manufacturers. The system is remote-mounted. The system cools the block only.

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, by mistake, received the wrong kit for your type of engine or run into other insurmountable installation problems you may return an undamaged kit for exchange or credit. To get return authorization, call Monitor Products with information about the problem and how the kit was purchased.

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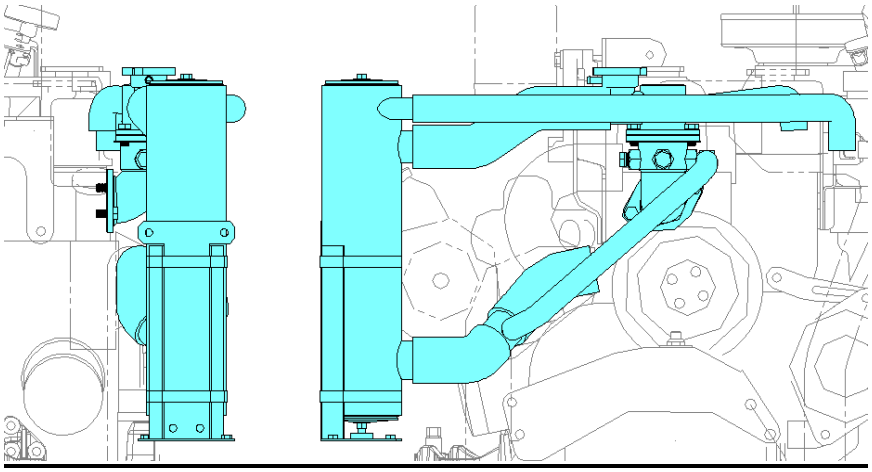
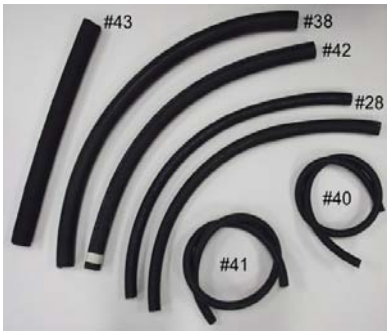
The installer must make sure that the overall installation is safe and in accordance with Coast Guard and industry standards.



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
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
1	1	M5345-9900PC	Heat Exchanger
2	1	5000-2806	Bracket
3	4	4300-2809	#12 x1 1/4" Lag Screw
4	4	4300-2810	3/8-16 x 2 1/2" HHCS
5	4	4300-2565	3/8-16 Hex Nut
6	4	4300-2811	3/8 Washer
7	2	5200-1142	#64 Hose Clamp
8	-	-	-
9	3	5000-1382	Rubber Pads
10	1	5000-1733	Expansion Tank
11	1	5000-1763	Expansion Tank Cap
12	1	5102-2125	5/16"ID x 48" Clear PVC Hose
13	2	5200-1344	#02 Mini-Clamp
14	1	5000-1343	1/8" NPT X 5/16 Hose Barb Plastic Elbow
15	2	4300-2801	#12 x 3/4" Sheet Metal Screw
16	2	4300-2802	5/16" Washer
17	1	5000-2839PC	Thermostat Adapter Elbow
18	1	5000-2804PC	Thermostat Housing
19	-	-	-
20	2	4500-1381	Gasket, Thermostat Housing
21	4	4300-1203	3/8-16 x 3/4" HHCS
22	-	-	-

Item	Qty	Part Number	Description
23	1	4000-1857	#16 Pressure Cap
24	1	3000-1342	3/8" NPT X 5/8" Hose Barb Brass Elbow
25	2	3000-1499	1/2" NPT x 3/8" NPT Bushing
26	1	5000-1150	160° Thermostat
27	1	3202-1140	1 1/4" x 1" Hose Coupler
28	2	5120-2126	1" ID x 36" Hose
29	2	0353-2078	1" x 1" Hose Coupler
30	2	5000-2797	1" x 3/4" Hose Coupler
31	-	-	-
32	4	5200-1475	#28 Hose Clamp
33	6	5200-1401	#12 Hose Clamp
34	4	5200-1353	#08 Hose Clamp
35	2	5200-1143	#24 Hose Clamp
36	1	0321-2100	1 3/4"X1 3/4" Hose Coupler
37	1	5000-2807	1 3/4"x1 3/4"x5/8" Hose Coupler Tee
38	1	5108-2127	1 1/2" ID x 36" Hose
39	5	5000-1154	Tie Wraps
40	1	5112-2128	5/8" ID x 48" Hose
41	1	5114-2124	3/4" ID x 50" Hose
42	1	5105-2134	1 1/4" ID x 36" Hose
43	1	5107-2129	1 3/4" ID x 24" Hose
44	1	4400-1314	3/8" NPT Plug

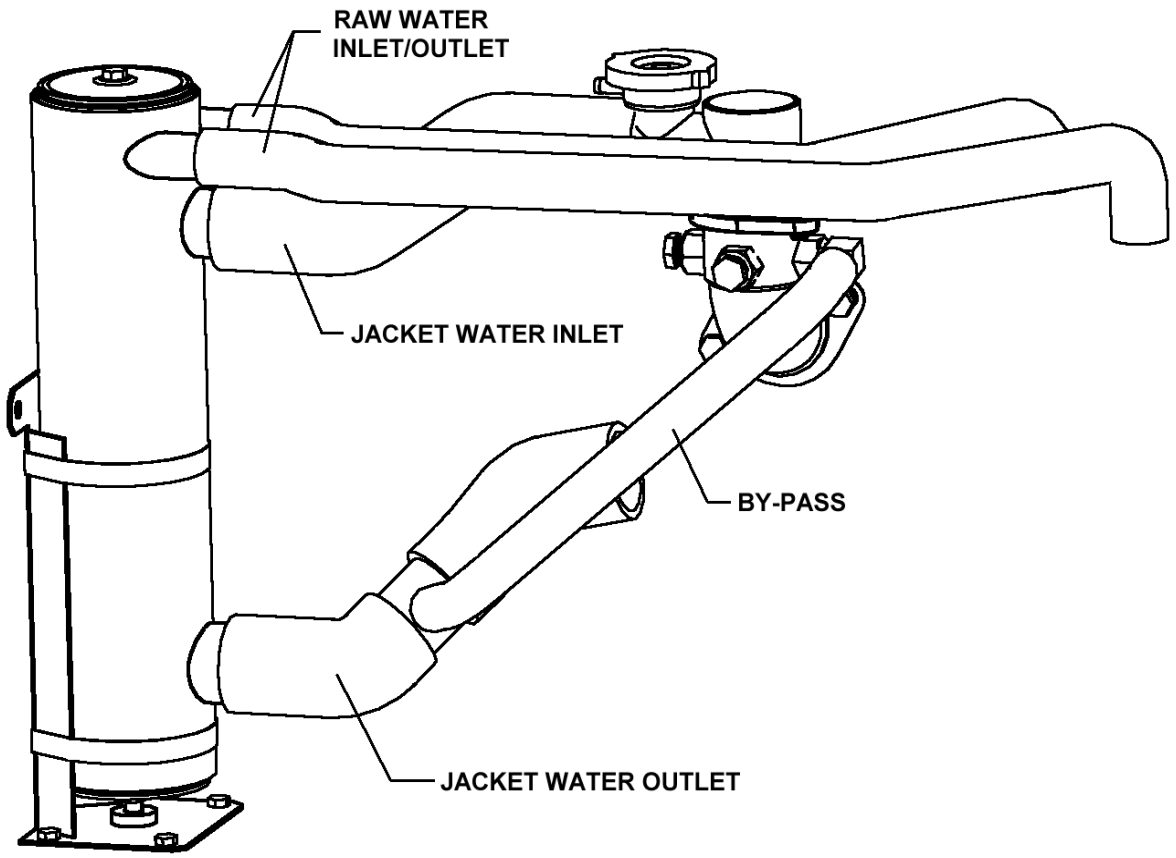


Figure 1

Installation Steps

1. Disconnect both cables from the battery.

2. Drain water from block by removing plug from lower side of engine block. If engine has a central drain system, disconnect hoses and remove the quick disconnect fitting in bottom of engine block.

3. Remove hoses from the existing thermostat housing. Save all hose clamps

4. Disconnect wire(s) from temperature sender(s) and remove the temperature sending unit(s) and/or pipe plug from the thermostat housing. Set these aside for later use. MONITOR PRODUCTS strongly recommends that you install an audible "buzzer" type alarm, if the engine is not currently equipped with one.

5. Remove and discard existing thermostat housing, thermostat, and gasket. Set bolts aside for later use. Scrape gasket surface clean. Do not allow debris to fall into engine.

6. Flush the engine.

    a. If the engine is new, flush briefly with fresh water through thermostat opening. Use a garden hose with a clean rag around it.

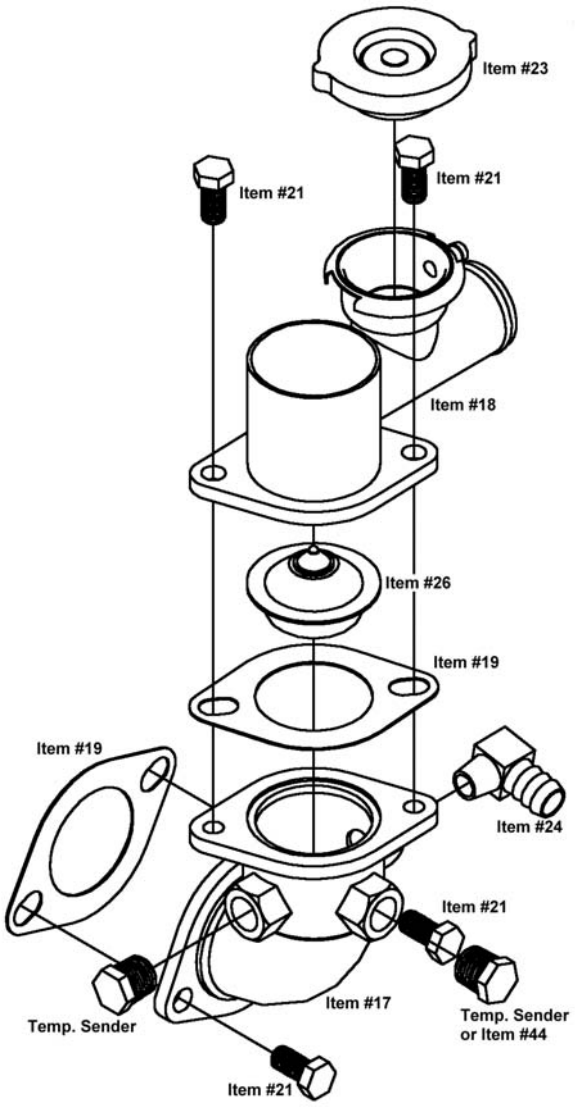
    b. If the engine is used, more thorough flushing is required. MONITOR PRODUCTS recommends the purchase of a good quality flush-&-fill kit and engine flushing/cleaning fluid. Please follow the manufacturer's recommendations.

7. Install the 3/8" NPT to 5/8" OD brass elbow (Item #24) into the thermostat adaptor housing. The elbow must face forward.

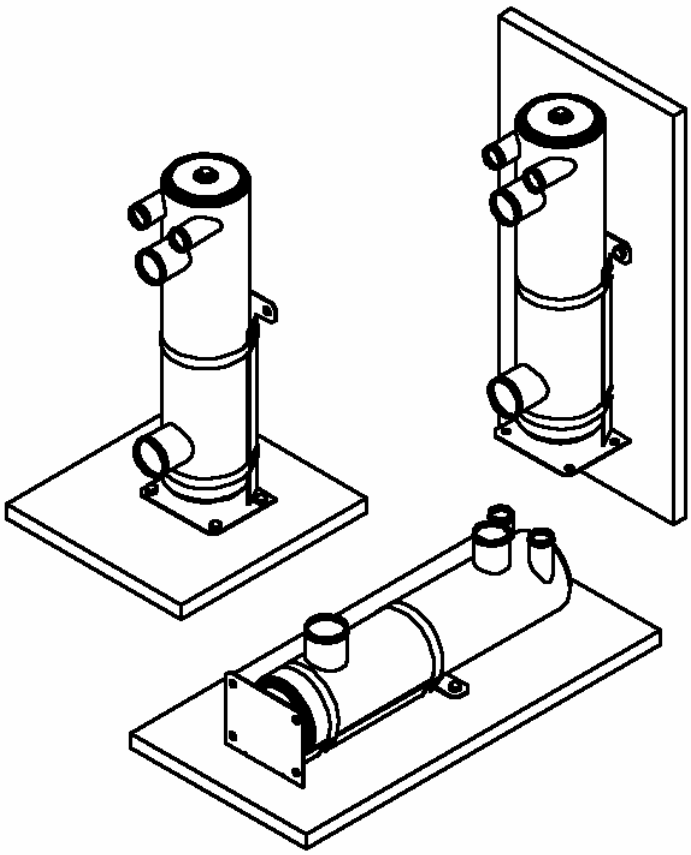
8. Install the temperature sensors into the new housing. If there is only one sensor, plug one the threaded holes with a 3/8" NPT plug. Do not use thread sealant.
Note: Monitor Products strongly recommends that you install an audible "buzzer" type alarm, if the engine is not currently equipped with one.

9. Install the new thermostat adaptor housing onto block in old thermostat housing location with new gasket (Item #20) and 3/8-16x.75" bolts (Item #21). Use RTV silicone sealer on both sides of gasket.

10. Install thermostat (Item #26) into groove of thermostat opening with pointed end of thermostat up. Use RTV silicone sealer on both sides of gasket. Install gasket (Item #20) and thermostat housing with filler neck (Item #18) with 3/8"16x.75" bolts (item #21).



11. Position heat exchanger (Item #1) and mounting bracket (Item #2) where they are to be mounted, keeping them as close to the front of the engine as possible to minimize the length of hoses required and their related pressure drops. **Note: The heat exchanger must be below the level of the filler neck on the thermostat housing.** The heat exchanger may be mounted on any horizontal or vertical surface.



12. Using the supplied hoses, couplings, and clamps, determine all hose routes to make sure that they do not contact any belts or fuel lines. Reference figure 1 (Page 4).

    a. 5/16" ID - Bleed and Overflow
    b. 5/8" ID - Fixed Bypass
    c. 1" ID - Raw Water Inlet & Outlet
    d. 1-1/2" ID –Thermostat Housing Outlet to Heat Exchanger Jacket Water Inlet
    e. 1-3/4" ID – Heat Exchanger Jacket Water Outlet to Pump Inlet

    NOTE: The 1-3/4" x 1-3/4" x 5/8" hose coupling (Item #37) will need to be installed somewhere along the length of the 1-3/4" ID hose connected to the heat exchanger jacket water outlet.

13. Mount the bracket.
    a. If mounting to a bulkhead, use 3/8" x 2 1/2" HHCS (Item #4), 3/8" nuts (Item #5), and 3/8" washers (Item #6).
    b. Otherwise use #12 lag screws (Item #3). Do not drill into fuel tanks, water tanks, or any other critical areas. Do not contact any belts or fuel lines.

14. Secure the heat exchanger to the bracket with supplied #72 hose clamps (Item #7).

15. Connect the hoses:
    a. Connect the 1 3/4" jacket water hose from the outlet side of heat exchanger to the jacket water pump inlet, using the #28 hose clamps (Item #32).
    b. Connect 1 1/2" ID hose from thermostat housing cover to inlet side of heat exchanger, using the #24 hose clamps (Item #35).

c. Install 5/8” ID bypass hose from 5/8” hose barb on the thermostat housing to 5/8” hose barb on the 1 3/4” coupler, using the #08 hose clamps (Item #34). Reconnect temperature sensors at this time.
d. Using the #12 hose clamps (Item #33), place hose coupler into raw water inlet hose and connect to 1” raw water fitting on the heat exchanger. Connect the other 1” raw water fitting on the heat exchanger to the raw water outlet.

16. Install the 1/8” NPT x 5/16” hose barb plastic elbow into the bottom of the expansion tank. Mount the 2-quart expansion tank on a vertical surface next to heat exchanger. The tank should be located where it is easy to see and fill. Keep it as close to the heat exchanger as is practical and with the top of the tank level with the top of the filler neck.

The exact level of the expansion tank is not critical. If the tank is higher than the heat exchanger it is necessary to pinch tubing shut whenever pressure cap is removed or system will overflow. If mounted excessively low it is IMPORTANT that the upper rubber gasket of the pressure cap seals perfectly or system may draw air back instead of coolant when the system contracts due to cool down.

17. Route the clear 5/16” hose (Item #12) between the thermostat housing filler neck and the expansion tank elbow. Secure in place with mini-clamps (Item #10).

18. Use tie wraps (Item #28) to make sure that hoses or other parts are not in contact with critical engine components such as belts and fuel lines.

19. Install 1/4” NPT plug (Item #33) in bottom of engine block.

20. Double check total installation and make sure all fasteners, fittings, and hose clamps are tightened properly. See separate Filling and Start-Up instructions.

MONITOR PRODUCTS strongly recommends 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
4000-1857	PRESSURE CAP, 16# SS
5000-1150	THERMOSTAT
4500-1381	GASKET, THERMOSTAT HOUSING
4500-2420	GASKET, RUBBER THERMOSTAT
4500-2419	GASKET, 3 ¾” (END COVER)