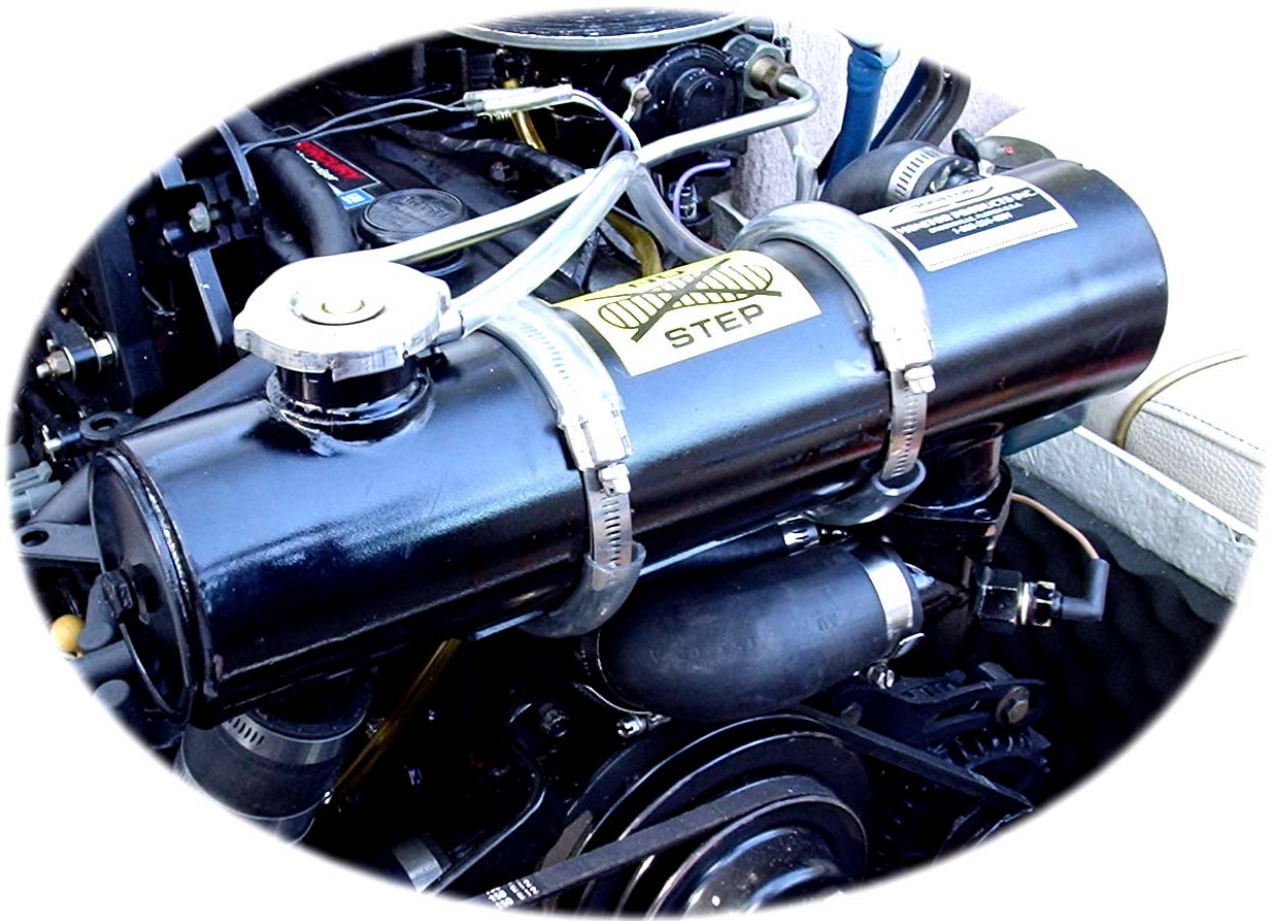


MFH-5344

3.0L On-Engine Freshwater 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 instructions have been written to cover 4-cylinder 3.0L MerCruiser engines from 1997 to present (S/N 0L010042 and up). The system is front-mounted at the level of the thermostat housing.

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. The phone number is 1-800-334-4591.

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.

MONITOR PRODUCTS, INC.

1-800-334-4591

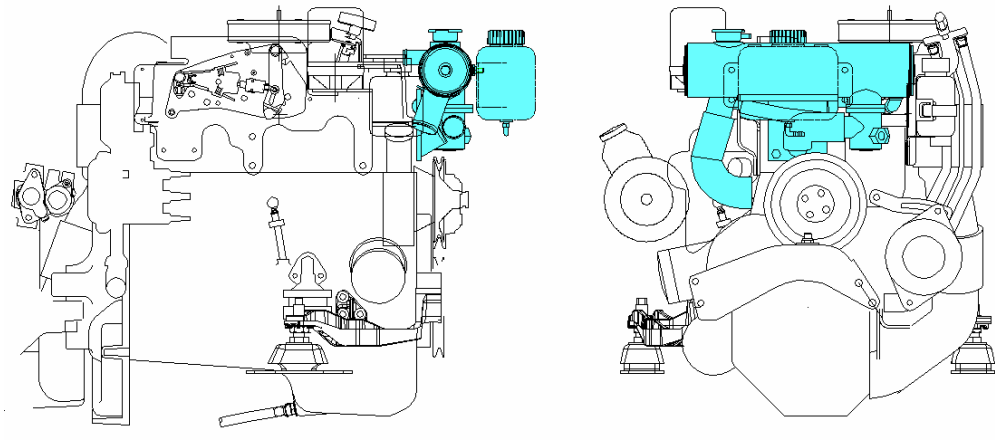
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The installer must make sure that the overall installation is safe and in accordance with Coast Guard and industry standards.

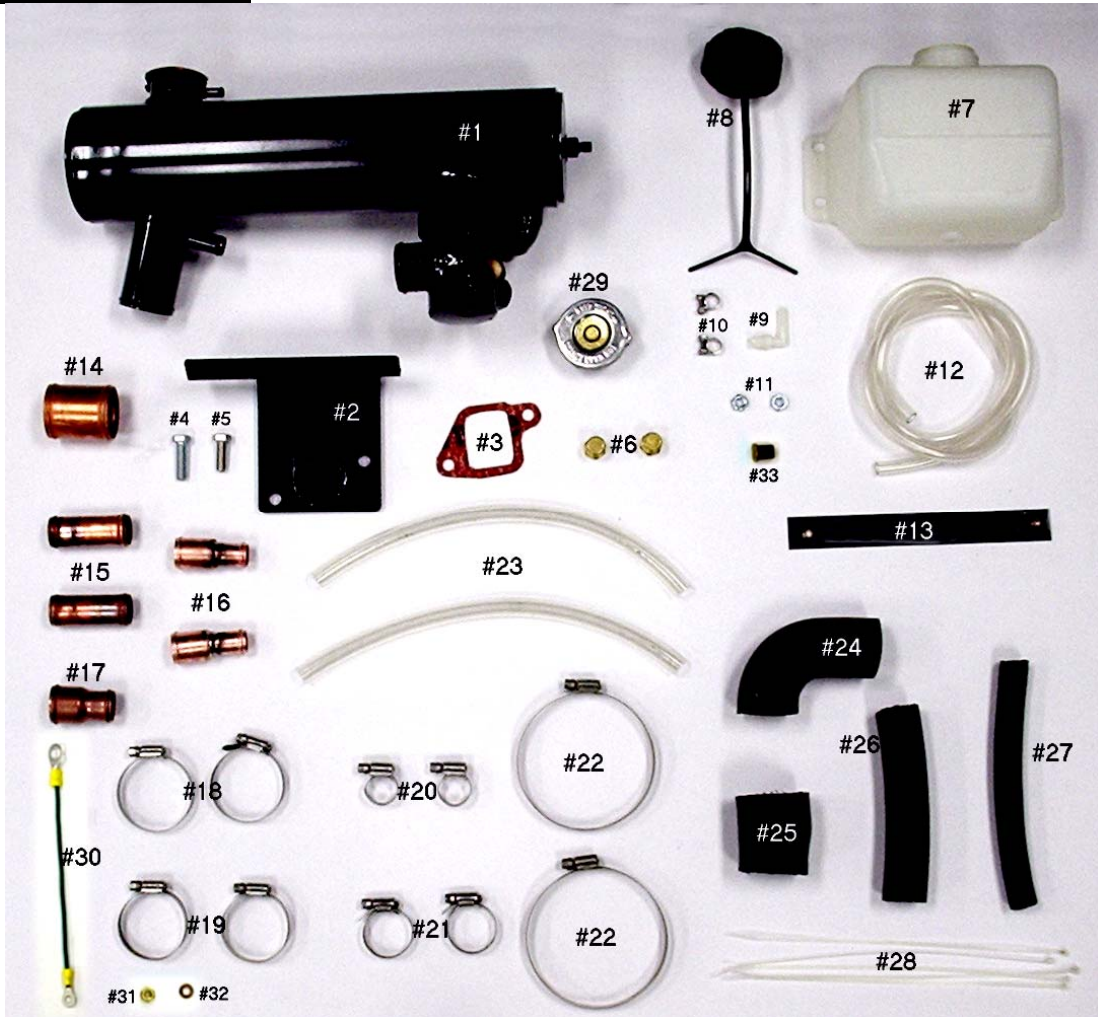


Installation tools & supplies

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

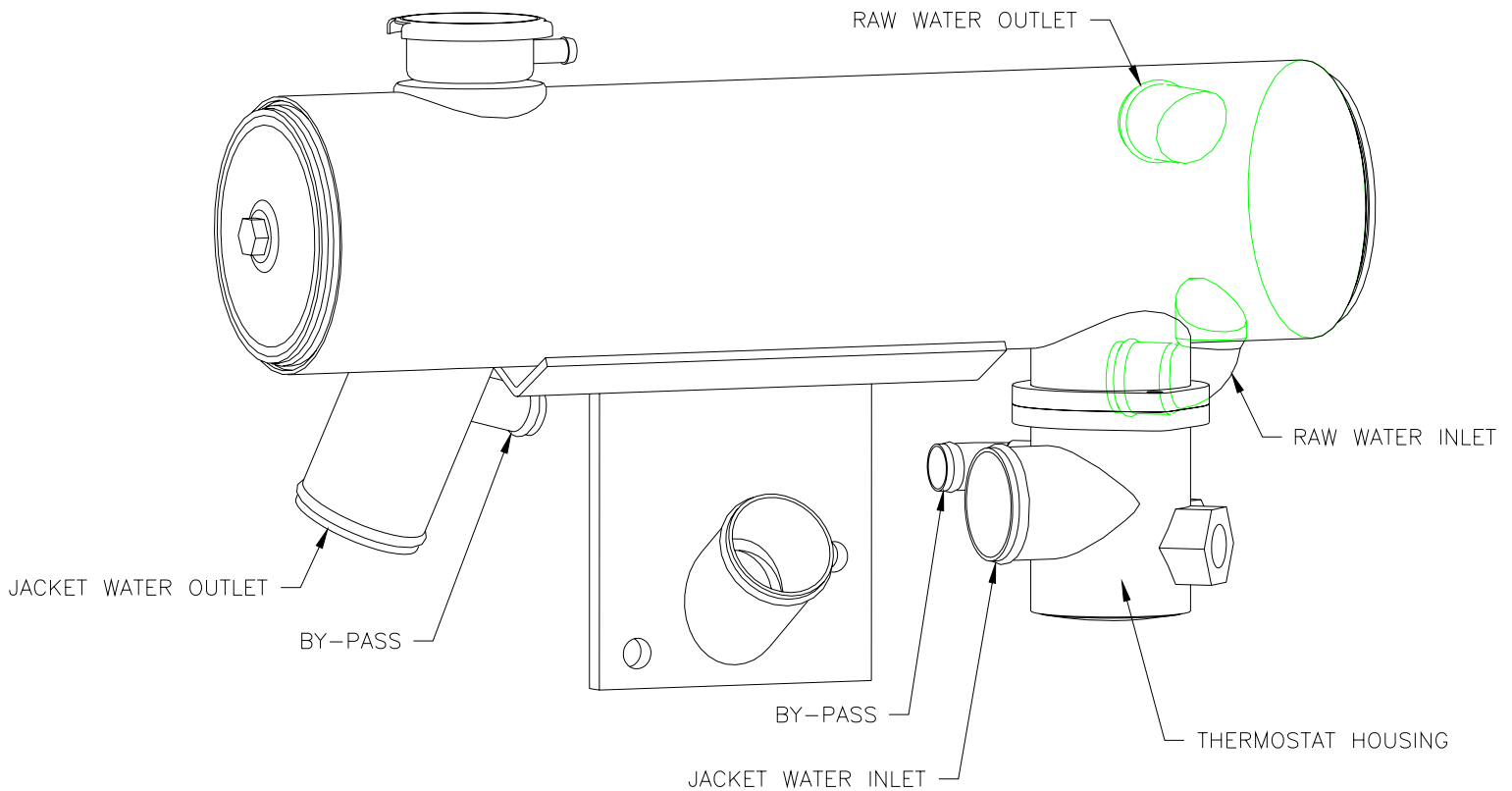
Hose Cutter or Knife
Gasket scraper
RTV silicone gasket sealer
Antifreeze solution (See flush and fill instructions)

Items Included in kit:



Item	Qty	Part Number	Description
1	1	M5344-9900	Heat Exchanger
2	1	5001-2795PC	Bracket
3	1	4500-2798	Gasket
4	1	4300-2794	3/8-16 x 1 1/4" HHCS
5	1	4300-1730	3/8-16 x 1" HHCS
6	2	4400-1314	3/8" NPT Plug
7	1	5000-1733	Expansion Tank
8	1	5000-1763	Expansion Tank Cap
9	1	5000-1343	1/8" NPT x 5/16" Hose Barb Elbow
10	2	5200-1344	#02 Mini-clamp
11	2	4300-2790	5/16" Nut
12	1	5102-2125	5/16" ID x 48" Clear PVC Tubing
13	1	5000-2796	Expansion Tank Mounting Bracket
14	1	0321-2100	1 3/4" Hose Coupling
15	2	0353-2078	1" Hose Coupling
16	2	5000-2797	1" to 3/4" Hose Reducer Coupling
17	1	3202-1140	1 1/4" to 1" Hose Reducer Coupling
18	2	5200-1475	#28 Hose Clamps

Item	Qty	Part Number	Description
19	2	5200-1143	#24 Hose Clamps
20	2	5200-1353	#8 Hose Clamps
21	2	5200-1144	#16 Hose Clamps
22	2	5200.1142	#64 Hose Clamps
23	2	5102-2636	5/8" ID x 13" Clear PVC Tubing
24	1	5108-1373	1 1/2" ID 90° Molded Hose
25	1	5106-2129	1 3/4" ID x 3" Hose
26	1	5101-2126	1" ID x 5 1/2" Hose
27	1	5113-2128	5/8" ID x 7 1/2" Hose
28	5	5000-1154	Tie Wraps
29	1	4000-1649	16# Pressure Cap
30	1	5000-2803	Ground Wire
31	1	4300-1312	1/4-20 Brass Nut
32	1	4300-1313	1/4" Bronze Lock Washer
33	1	4400-1497	1/4" NPT Plug
34	2	4300-2801	#12 x 3/4" Phillips Flat-head Screw
35	2	4300-2802	5/16" Flat Washer



Installation Steps

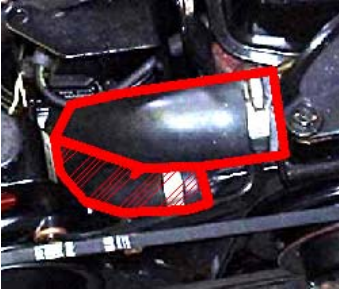
1. Disconnect both cables from the battery.
2. Drain water from block by removing plug from lower side of engine block. If engine has a central drain system, disconnect hoses and remove the quick disconnect fitting in bottom of engine block.
3. Remove hoses from the existing thermostat housing. Save 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, gasket and bolts. Scrape gasket surface clean.

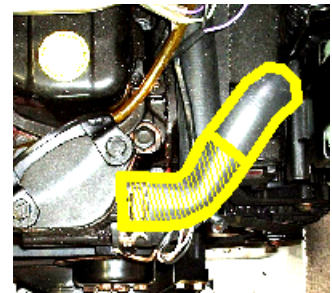
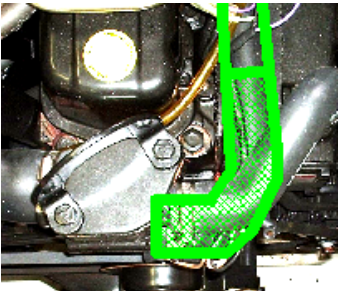
6. Flush engine.

- 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. Remove the U-shaped 1 3/4" ID hose from the jacket water return fitting. Cut this hose according to the cutting instructions attached to the end of this document. Discard remaining hose.

8. Cut raw water outlet hose as shown in cutting instructions.



9. Remove raw water inlet hose and cut as per cutting instructions. Discard remaining hose.

10. Mount bracket onto block in old thermostat housing location with new gasket (item #3) and 2 provided bolts (Items #4 & #5). Use RTV silicone sealer on both sides of gasket.

11. Re-install modified 1 3/4" ID hose (from step #7) to jacket water return fitting. Install 1 3/4" hose coupling (Item #14) with #28 Hose clamps (Item #18). Leave hose clamps loose.



12. Install temperature sending units into thermostat housing on heat exchanger, if only one temperature sending is to be used install 3/8" NPT plug (Item #6). Do not use thread sealant.

13. Install 5/8" ID by-pass hose (Item #27) from 5/8" fitting on heat exchanger to 5/8" fitting on thermostat housing, using (2) #8 hose clamps (Item #20).

14. Install 1 3/4" ID X 3" long hose (Item #25) to 1 3/4" jacket water outlet fitting on heat exchanger with hose clamp. Leave hose clamp loose.

15. Install 1 1/2" ID 90° hose elbow to 1 1/2" jacket water inlet fitting on thermostat housing with (2) #24 Hose clamps (Item#19). Leave hose clamps loose.



16. Install heat exchanger, by first setting heat exchanger on bracket. While connecting 1 3/4" hose from heat exchanger to 1 3/4" coupling. After 1 3/4" connection is made connect 1 1/2" 90° elbow hose to 1 1/2" fitting on bracket.

17. Straighten #64 clamps (Item #22), and then slide the clear 5/8" ID PVC hose (Item # 23) onto them.

18. Install #64 hose clamps around heat exchanger and bracket. If mounting expansion bottle to front of heat exchanger, install expansion tank mounting bracket (Item #13) under hose clamps. **Tighten all hose clamps!!** See step #22 if space, for expansion bottle, is limited at front of engine.

19. Attach the 45° piece cut from the outlet hose (Step #8) to the raw water inlet hose with the 1" connector (Item #15) and #16 Hose clamps (Item #21). Connect the other end to the raw water inlet elbow on bottom of the heat exchanger with hose clamp.



20. Attach the 90° piece cut from the inlet hose (Step #9) to raw water outlet. Connect other end to raw water outlet on heat exchanger.

21. Install the 1/8" NPT elbow (Item #9) to the bottom of the expansion tank (Item #7). No thread tape or sealer is needed.

22. Install the expansion tank on the front of the heat exchanger using nylon-locking nuts (Item #11). If space in front of engine does not allow installation on heat exchanger, install on vertical surface next to engine using supplied screws and washers (Items #34 & #35). Keep as close to heat exchanger as is practical with top of tank level with top of heat exchanger.

23. Route the clear 5/16" hose (Item #12) between the heat exchanger filler neck and the expansion tank elbow. Secure in place with mini-clamps (Item #10).

24. Install ground wire (Item #30) to 1/4-20 stud on thermostat housing with 1/4-20 brass nut and bronze lock washer (items #31 & #32). Attach other end to bracket on engine.

25. 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.

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

27. 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
5000-1763	CAP, EXPANSION TANK, 2-¼ VENTED w/TEE
4000-1857	PRESSURE CAP, 16# SS
5000-1704	THERMOSTAT
4500-1381	GASKET, THERMOSTAT HOUSING
4500-1622	GASKET, RUBBER THERMOSTAT
4500-2005	GASKET, 4" (END COVER)

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**HOSE CUTTING
INSTRUCTIONS
MFH-5344**

**Cut 1 3/4" jacket water
hose in Figure E using
template Figure F. Cut
portion will be re-attached
to the jacket water return
fitting.**

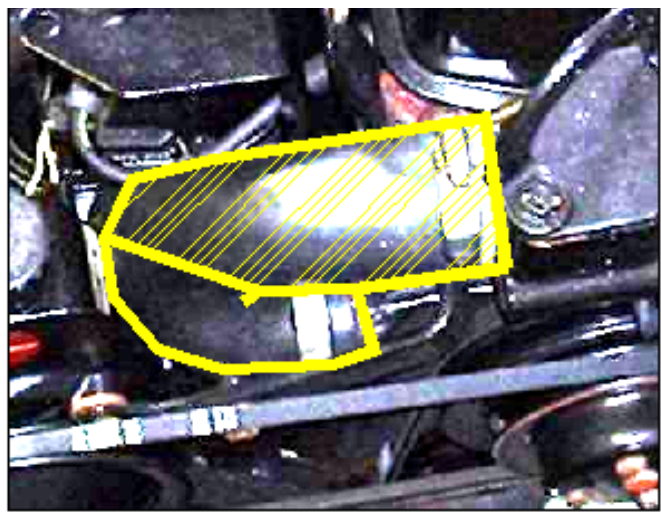
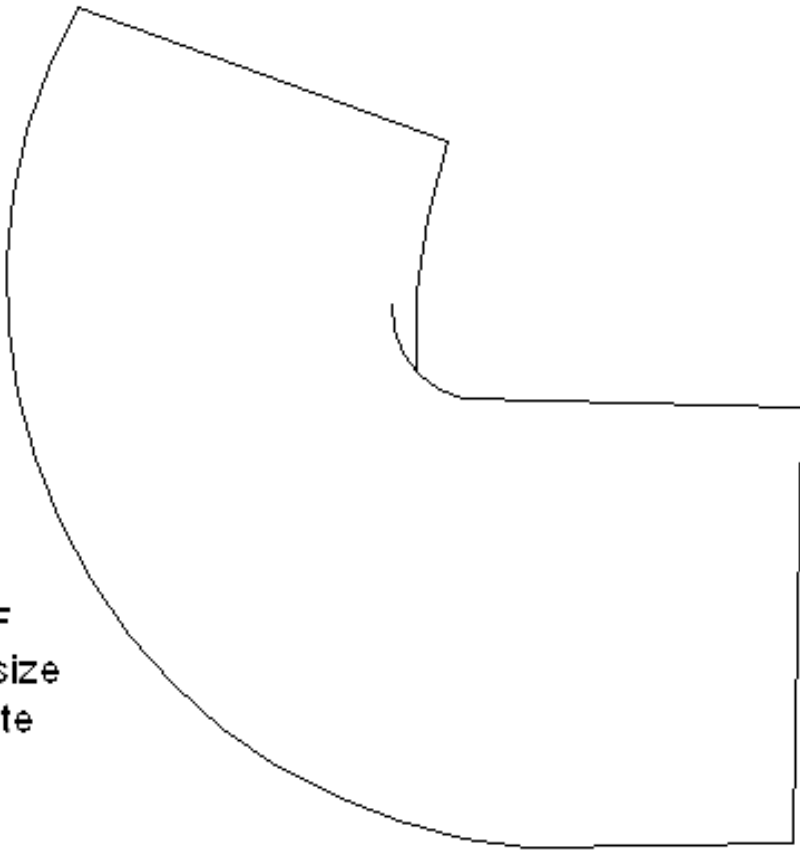


Figure E



**Figure F
Actual size
Template**

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**HOSE CUTTING
INSTRUCTIONS
MFH-5344**

Cut raw water outlet hose in Figure A using template from Figure B. Cut portion will be attached to the raw water inlet hose.

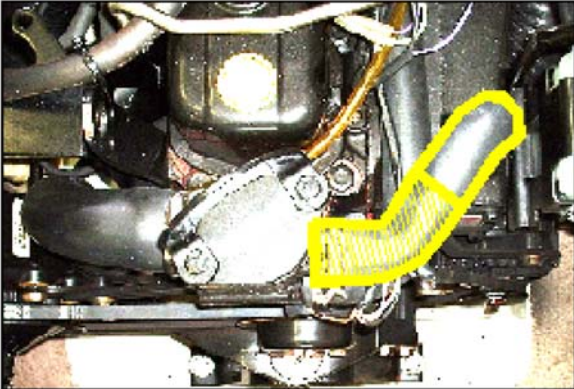


Figure A

Cut raw water inlet hose in Figure C using template from Figure D. Cut portion will be attached to the raw water outlet hose.

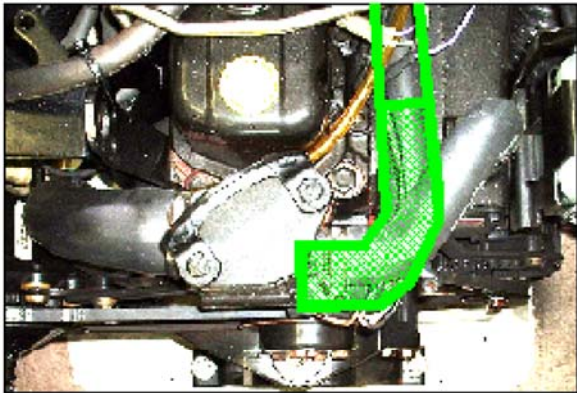
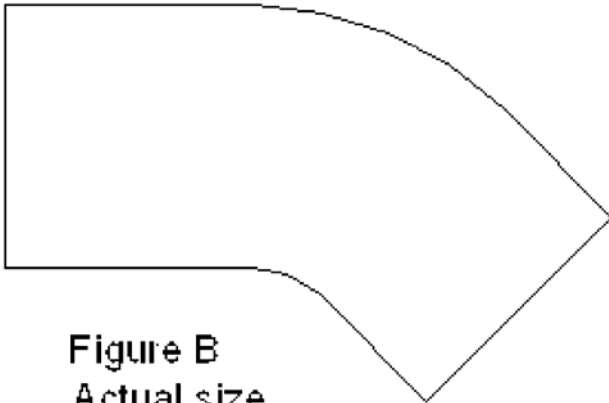
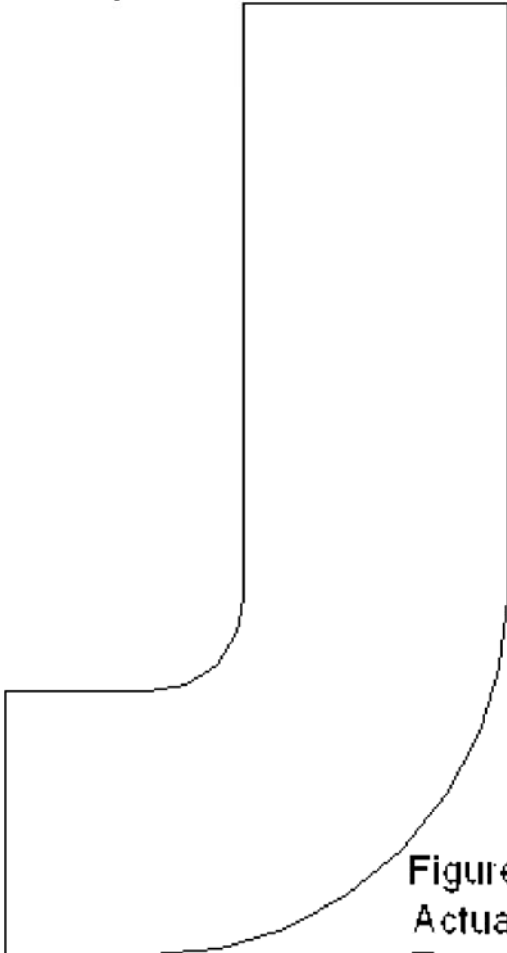


Figure C



**Figure B
Actual size
Template**



**Figure D
Actual size
Template**