



2004

Fresh Water

Cooling Installation

Instructions -

Direct Drive

Kit RK147050



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FWC KIT INSTALLATION INSTRUCTIONS - RK147050

INSTALLATION NOTES AND RECOMMENDATIONS

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NOTE: Some Excaliburs may have the remote oil filter relocated to the front of the exhaust elbow. If your engine has the remote oil filter located to the front of the engine; skip steps 17-26 of this procedure. In addition, items 36-42 of the kit will not be used.

REFERENCES:

L510013 Marine Illustrated Parts Manual Model MP5.0/5.7L MY 2002 - 2004

L510010-04 Owner's Operation and Maintenance Manual

NOTE: Use pipe sealant with Teflon on all fittings being installed during these procedures. Loctite™ 565, PST Pipe Sealant, Part No. 56541 or equivalent is recommended.



WARNING

Do not remove cooling system filler cap when the engine is hot. Allow the engine to cool and then remove the pressure cap slowly, allowing the pressure to vent. Hot coolant, under pressure, may discharge violently and cause severe burns.

DIRECT DRIVE INSTALLATION

Installation of the fresh water cooling system, on direct drive applications, will require the relocation of the remote oil filter and oil lines. Provisions should be made to recover oil spilled from the lines.

An oil and filter change is not required, but it is recommended at this time. Draining the oil and changing the filter at the beginning of the procedure will help minimize oil spillage, and insure proper oil level. Add oil and check for proper operating level at the completion of the procedure. This will insure proper oil level in the engine after installation is complete.

FIGURE 1-1 5.7L, SERPENTINE, DIRECT DRIVE - R/W

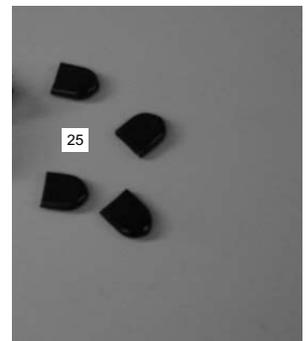
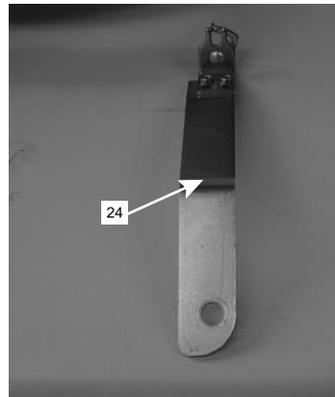
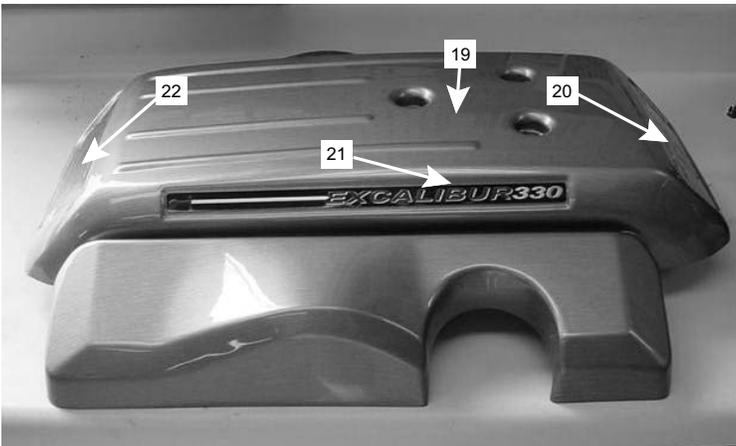
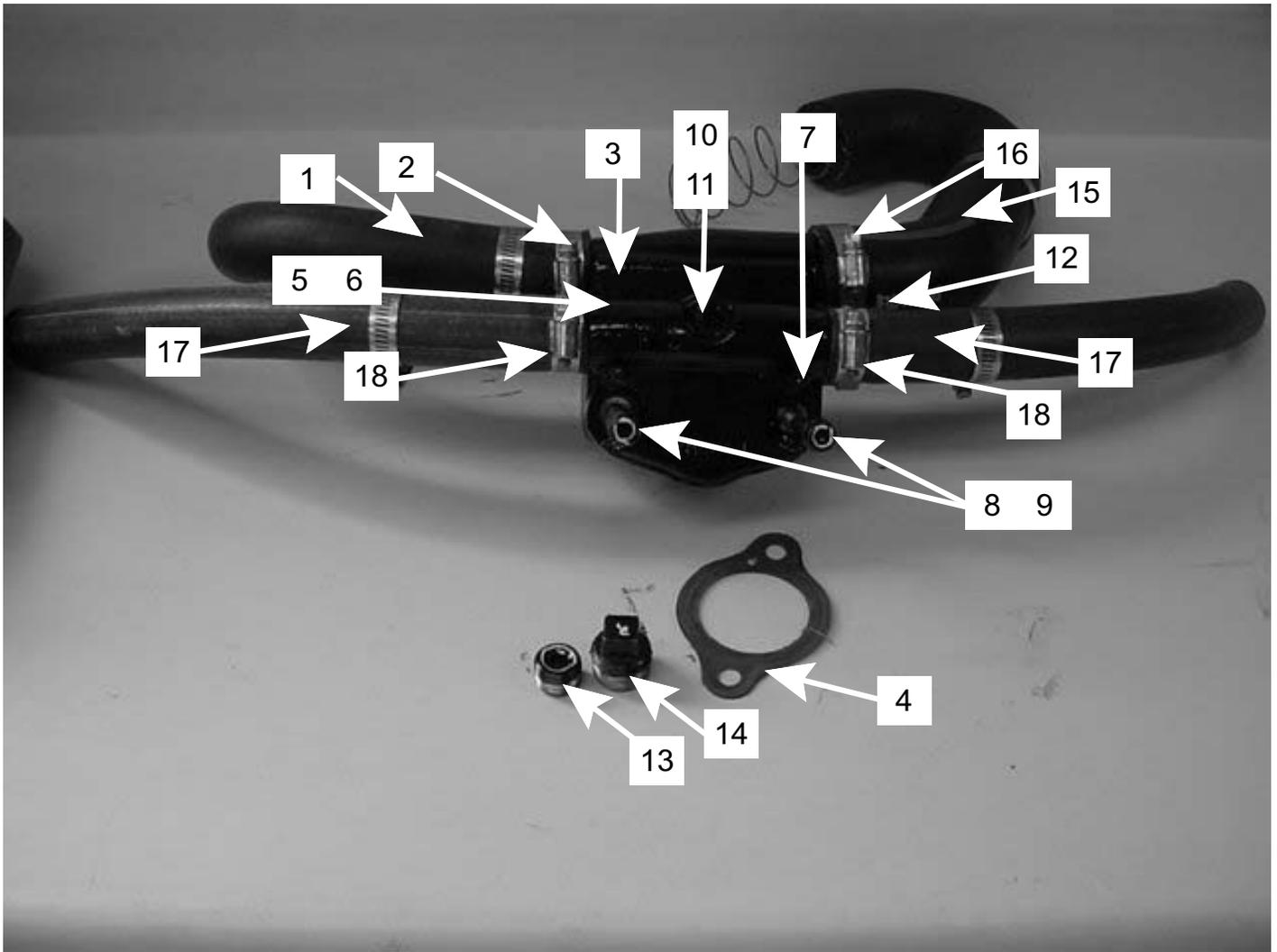
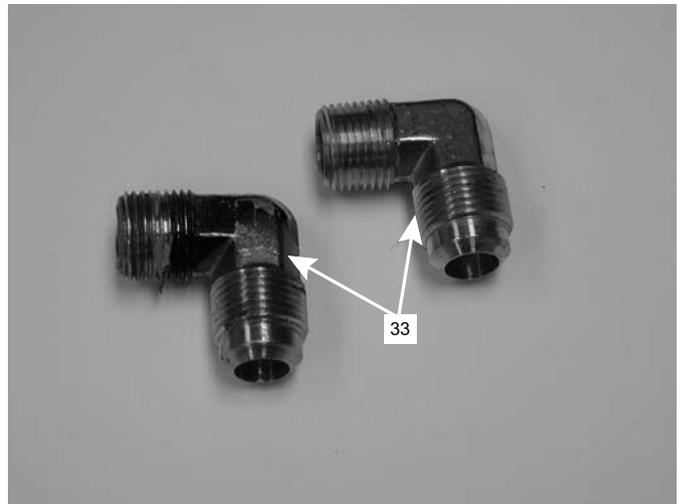
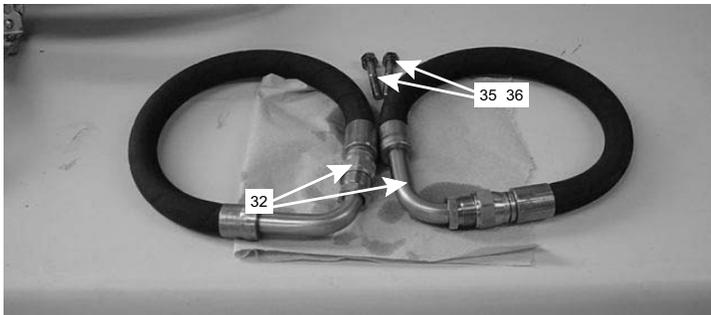
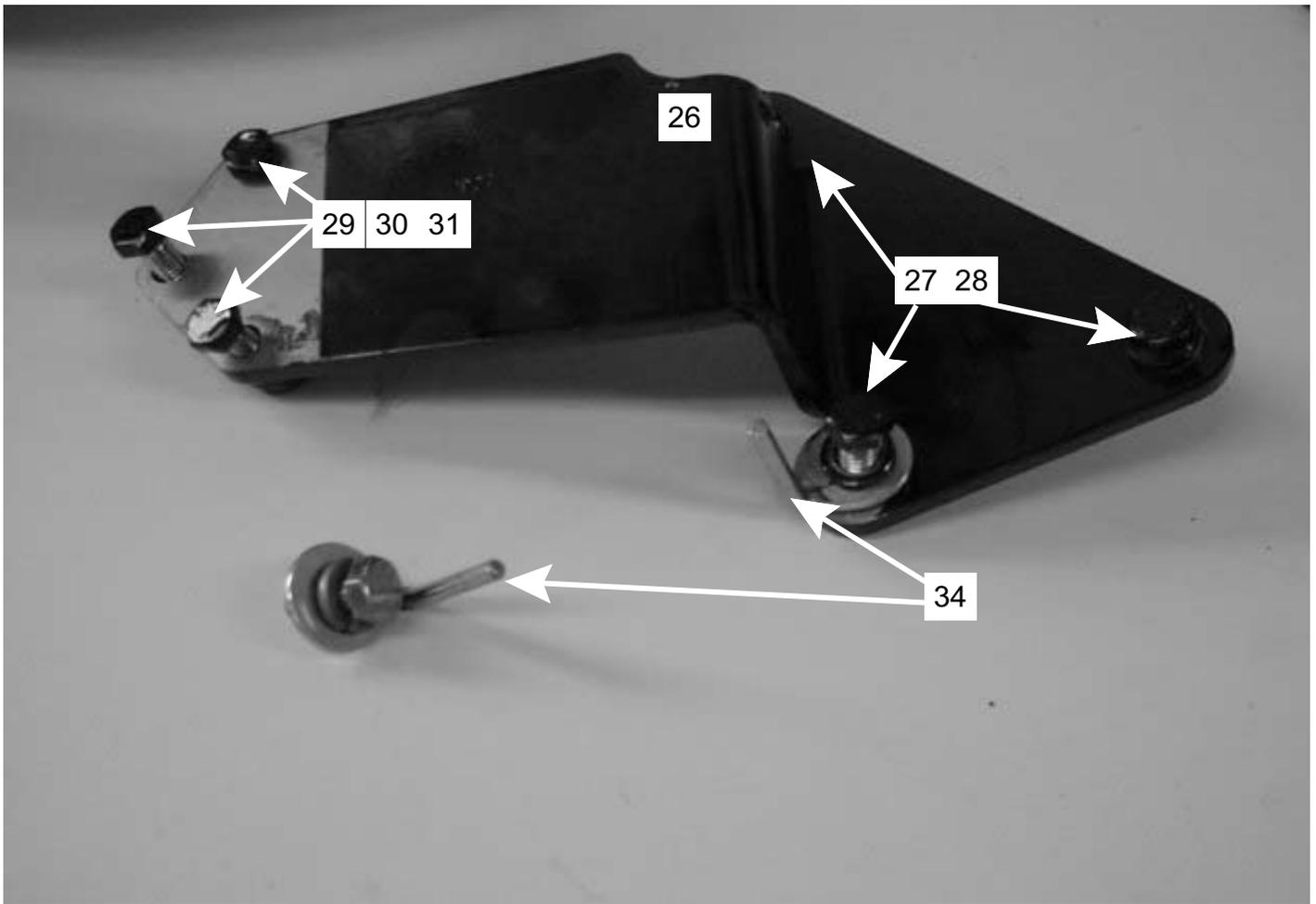


FIGURE 1-1 (cont.) 5.7L, SERPENTINE, DIRECT DRIVE - R/W



PARTS DELETED - 5.7L, SERPENTINE, DIRECT DRIVE - R/W

FIGURE 1-1

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R045160	Hose , r/w pump to tstat housing	1
2	RS3858	Clamp , 1 1/4"	2
3	R025031	Housing , tstat, lower	1
4	RM0121	Gasket , tstat housing, lower	1
5	R026002	Thermostat , 160° F	1
6	RM0258	Gasket , tstat housing, upper	1
7	R025033	Housing , tstat, upper	1
8	98333080	Bolt , tstat housing	2
9	RS2179	Lock washer , tstat housing	2
10	98223035	Bolt , tstat housing	1
11	93920000	Lock Washer , tstat housing	1
12	R020002	Sender , water temperature	1
13	TBD	Plug , intake, (water temp sender)	1
14	TBD	Plug , bypass, circulating pump	1
15	R045048	Hose , r/w supply to engine	1
16	RS3852	Clamp , 1 3/4"	2
17	R045107	Hose , r/w dump	2
18	RS3851	Clamp , 1"	4
19	R060060	Hood	1
20	R143141	Decal , hood, "PCM Excalibur"	1
21	R143142	Decal , hood, "Excalibur"	2
22	R143143	Decal , hood, spec	1
23(NS)	R143158	Decal , hood, "3 Star" emission	1
24	R090143	Bracket , shift cable	1
25	R128001C	Cover , hose clamp tip (black)	8
26	R090190A	Bracket , oil header	1
27	RS0302	Bolt , brkt, oil header	3
28	RS2180	Lock Washer , brkt, oil header	3
29	RS0282	Bolt , oil header	3
30	RS2179	Lock Washer , oil header	3
31	RS1027	Nut , oil header	3
32	RA045120C	Oil Lines	2
33	R024184	Fitting , oil line adapter	2

PARTS DELETED - 5.7L, SERPENTINE, DIRECT DRIVE - R/W

FIGURE 1-1

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
34	R096144	Bracket , plug wire clip	2
35	RS0285	Bolt , riser, short	2
36	RS2179	Lock Washer , riser	2

FIGURE 1-2 5.7L, SERPENTINE, DIRECT DRIVE - F/W

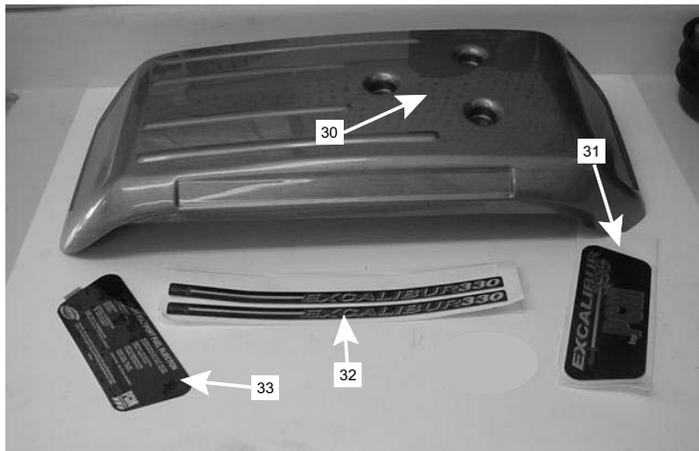
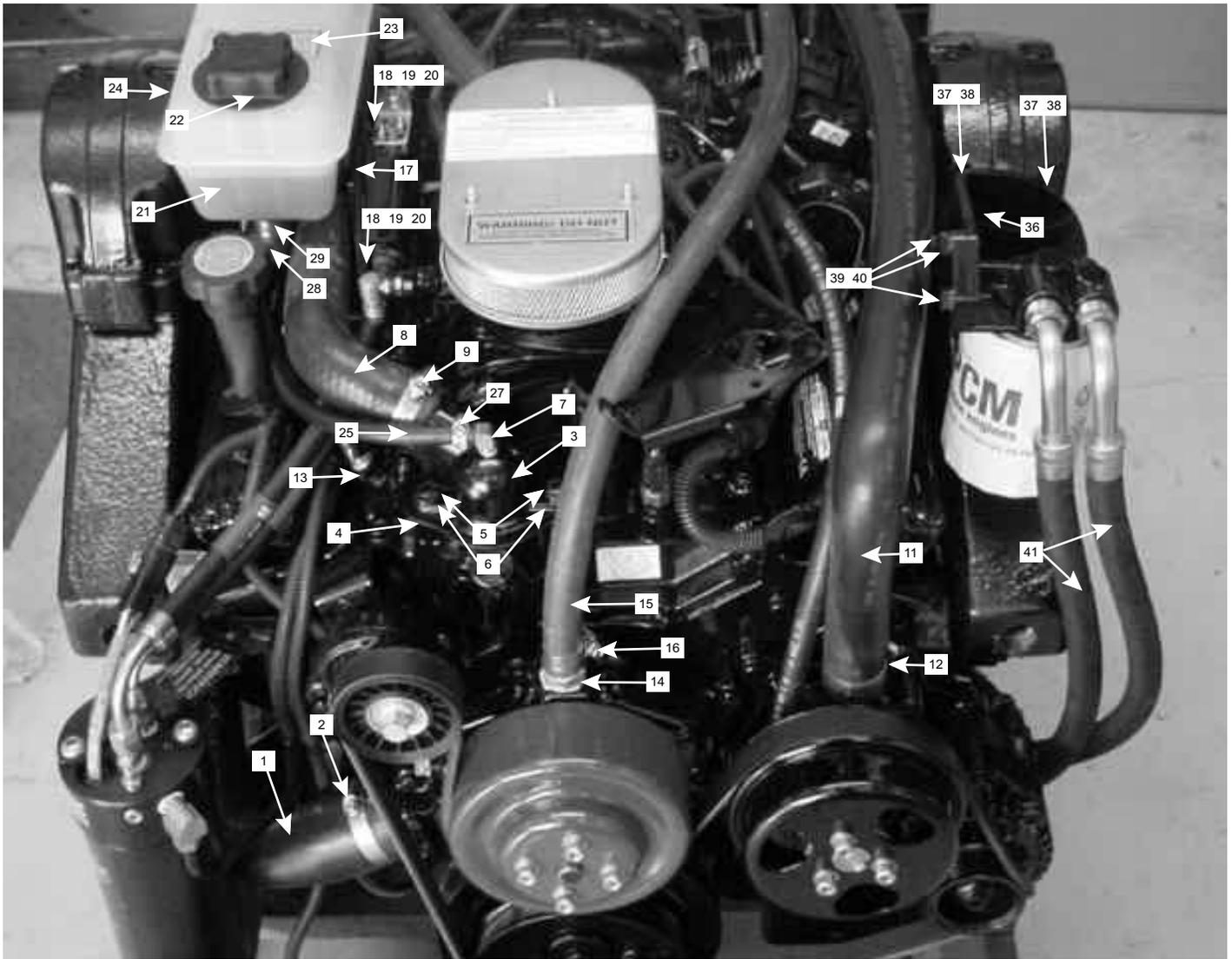
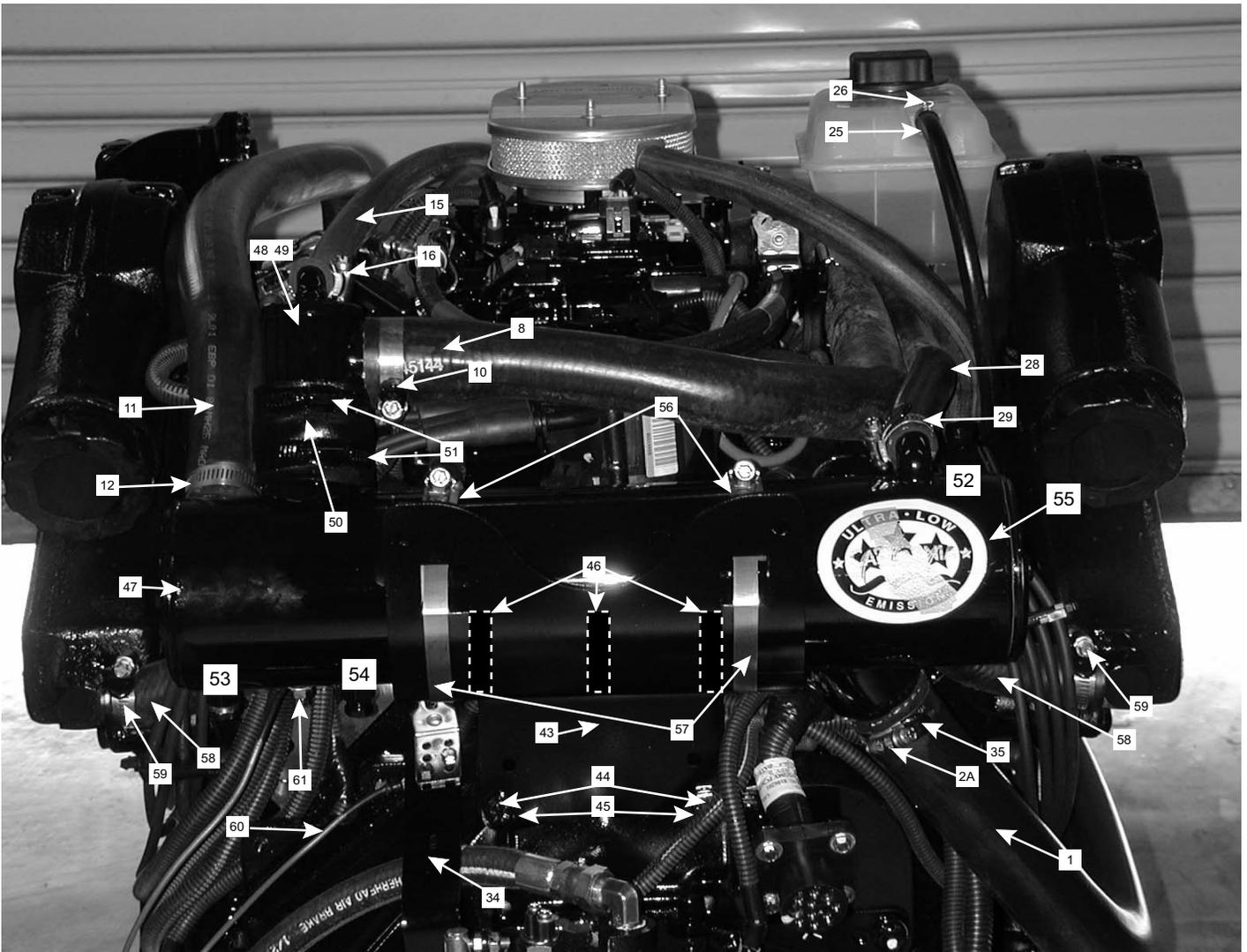


FIGURE 1-2 (cont.) 5.7L, SERPENTINE, DIRECT DRIVE - F/W



PARTS ADDED - 5.7L, SERPENTINE, DIRECT DRIVE -F/W

FIGURE 1-2

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R045146	Hose , f/w supply, circ. pump to H.E.	1
2	RS3852	Clamp , 1 3/4"	1
2A	RS3868	Clamp , 1 1/2"	1
3	R025015A	Housing , water neck outlet	1
4	RM0121	Gasket , water neck outlet	1
5	RS6531	Bolt , water neck outlet	2
6	93200000	Lock Washer , water neck outlet	2
7	R024055	Elbow , 1/8 NPT X 1/4 vent hose	1
8	R045144	Hose , f/w return, H.E. to water neck	1
9	RS3858	Clamp , 1 1/4"	1
10	RS3868	Clamp , 1 1/2"	1
11	R045163	Hose , r/w supply, r/w pump to H.E.	1
12	RS3858	Clamp , 1 1/4"	2
13	R020003	Sender , water temperature	1
14	R024217	Fitting , circ. pump, bypass	1
15	R045086	Hose , bypass, 5/8" X 31"	1
16	RS3864	Clamp , 5/8"	2
17	R090295	Bracket , degas bottle	1
18	98223016	Bolt , brkt, degas bottle	2
19	RS2672	Lock Washer , brkt, degas bottle	2
20	RS7068	Flat Washer , brkt, degas bottle	2
21	R146001	Degas Bottle	1
22	R034045	Cap , degas bottle	1
23	R143166	Decal , bottle, top, "Open Slowly"	1
24	R143153	Decal , bottle, side, "Engine Coolant Fill"	1
25	R045132	Hose , coolant vent, 1/4" X 30"	1
26	R127087	Clamp , Oetiker	1
27	RS3870	Clamp , 1/4"	1
28	R045164	Hose , f/w fill	1
29	RS3854	Clamp , 3/4"	2
30	R060061B	Hood	1
31	R143141	Decal , hood, "PCM Excalibur"	1
32	R143142	Decal , hood, "Excalibur"	2
33	R143143	Decal , hood, spec	1

PARTS ADDED - 5.7L, SERPENTINE, DIRECT DRIVE -F/W

FIGURE 1-2

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
34	R090143A	Bracket , shift cable	1
35	R128001C	Cover , hose clamp tip (black)	20
36	R090257	Bracket , oil header	1
37	RS0286	Bolt , brkt, oil header	2
38	RS2179	Lock Washer , brkt, oil header	2
39	98333020	Bolt , oil header	3
40	RS2179	Lock Washer , oil header	3
41	RA045120D	Hose , oil line	2
42	R024184	Fitting , oil adapter, 90°, 1/2 NPT X 5/8	2
43	R090266	Bracket , heat exchanger	1
44	RS0304	Bolt , brkt, heat exchanger	2
45	RS2180	Lock Washer , brkt, heat exchanger	2
46	R094040	Isolator , rubber, adhesive	1
47	RA147050	Heat Exchanger	1
48	R025039	Thermostat Housing	1
49	R026007	Thermostat , 170° F	1
50	R045162	Hose , tstat housing to H.E., 2 1/2"	1
51	RS3860	Clamp , 2 1/2"	2
52(NS)	R143155	Decal , "Protective Anode"	1
53(NS)	R143156	Decal , "Raw Water Drain"	1
54(NS)	R143157	Decal , "Fresh Water Drain"	1
55	R143158	Decal , "3 Star" emission	1
56	R094041	Isolator , rubber	2
57	RS3857	Clamp , 4"	2
58	R045151	Hose , r/w dump, 1"	2
59	RS3851	Clamp , 1"	4
60	R101013	Wire , H.E. ground	1
61	RS1078	Nut , w/lock washer, H.E. grd. stud	1

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

FWC KIT INSTALLATION - DIRECT DRIVE

1. Disconnect the negative battery terminal cable.

IMPORTANT: If an oil change is going to be performed in conjunction with this procedure; drain oil and change filter at this time. Do not refill the oil until you are instructed to do so later in this procedure.

2. Remove the hood (Figure 1-1, item 19) from the engine. The hood is not required to complete the installation. Save the hood retention nuts for installation of the new hood later in this procedure.
3. Remove the thermostat housing, water temperature sender, and associated hoses.

NOTE: The complete thermostat housing with hoses, temperature sender, and thermostat can be removed as an assembly. (Figure 1-1, items 1-18)

- a. Disconnect the wire connected to the water temperature sender (Figure 1-1, item 12), located in the lower thermostat housing.
 - b. Loosen the hose clamps of the raw water dump hoses at each exhaust manifold connection; the raw water pump hose at the raw water pump, and the raw water supply to engine hose at the circulating pump. Refer Figure 1-3.
 - c. Remove the two bolts and lock washers (Figure 1-4) attaching the thermostat housing assembly to the intake manifold.
 - d. Remove, from the engine, the thermostat assembly, all hoses and clamps. Clean thermostat gasket from the intake manifold. None of these parts are required to complete the installation. Refer Figure 1-5.
4. Remove and discard the plug located top, center of the circulating pump. Refer Figure 1-4.
 5. Remove and discard the plug located right, front of the intake manifold. Refer Figure 1-4.

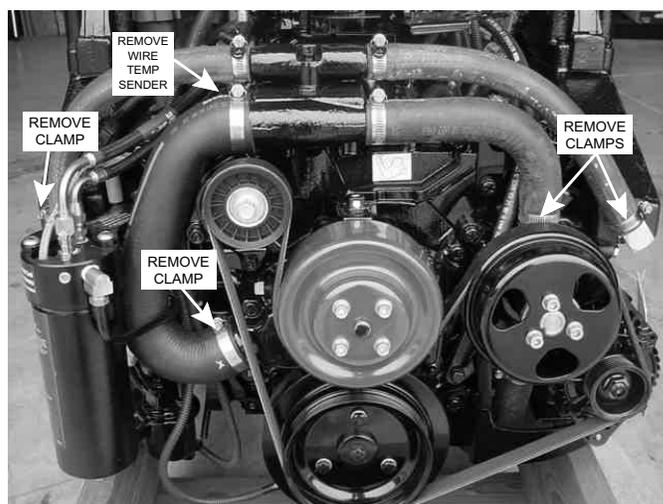


Figure 1-3 Disconnect Points - Steps 3a, 3b.

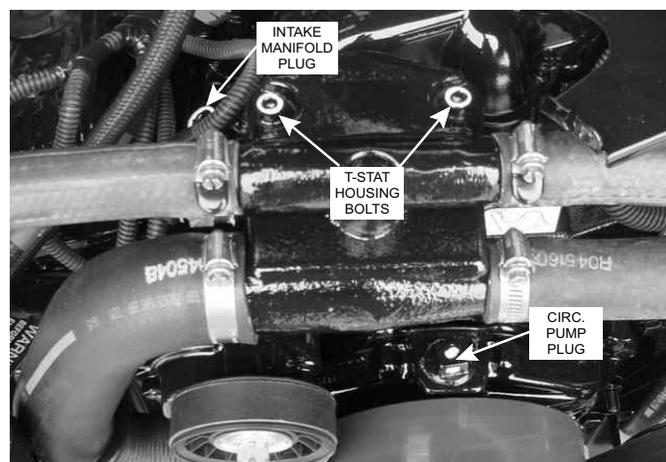


Figure 1-4 Disconnect Points - Steps 3c, 4, 5.



Figure 1-5 Parts removed - Steps 3-5.

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

NOTE: Use pipe sealant with Teflon on all fittings being installed during these procedures. Loctite™ 565, PST Pipe Sealant, Part No. 56541 or equivalent is recommended.

6. From the kit, install the Bypass Fitting (Figure 1-2, item 14) into the circulating pump, where the plug was removed.
7. From the kit, install the Water Temperature Sender (Figure 1-2, item 13) into the intake manifold, where the plug was removed, and reconnect the temperature sending wire to the sensor. This is the wire disconnected in step 3a.
8. Remove 90° hose fittings from the front of each exhaust manifold and the plug fitting from the rear of each exhaust manifold.

Install the hose fittings in the rear of each exhaust manifold, with the hose barb facing inboard. Install the plugs in the front of each exhaust manifold.

9. From the kit, install the Degas Bottle Bracket using (2) Bolts (*metric), (2) Lock washers, and (2) Flat washers (Figure 1-2, items 17-20). The bracket is installed to the existing bracket on the starboard side of the intake manifold.
10. From the kit, install the Water Neck Outlet using (2) Bolts, (2) Lock washers, and Gasket (Figure 1-2, items 3-6), provided.
11. From the kit, install the Vent Hose Fitting (Figure 1-2, item 7) into the Water Neck Outlet. The hose barb should be positioned to starboard, approximately parallel with the water neck outlet.
12. From the kit, install the Fresh Water Supply Hose (Figure 1-2, item 1) to the circulating pump using 1-3/4" Hose Clamp (Figure 1-2, item 2). The F/W Supply Hose will route to the rear of the engine along the lower starboard side, below the exhaust manifold.
13. From the kit, install the Fresh Water Return Hose (Figure 1-2, item 8) to the Water neck Outlet using 1-1/4" Hose Clamp (Figure 1-2, item 9). The F/W Return Hose will route to the rear of the engine along the top, starboard side of the engine, inside of the oil fill, and outside of the Degas Bottle Bracket installed in step 12. The open end of the hose will point to the port side of the engine.

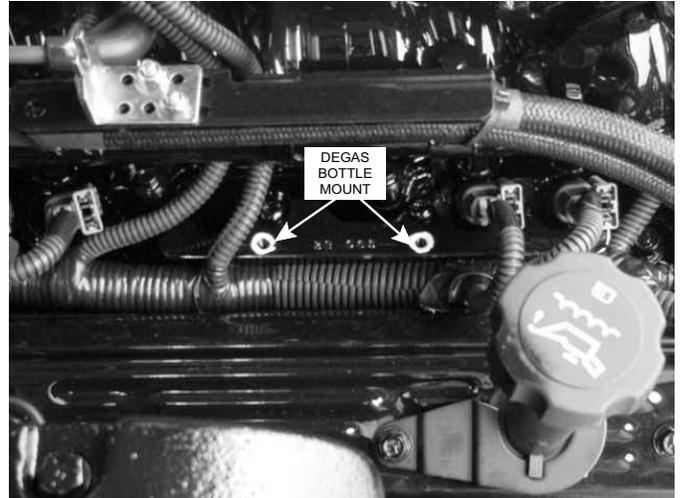


Figure 1-6 Degas Bottle Bracket Mounting Location

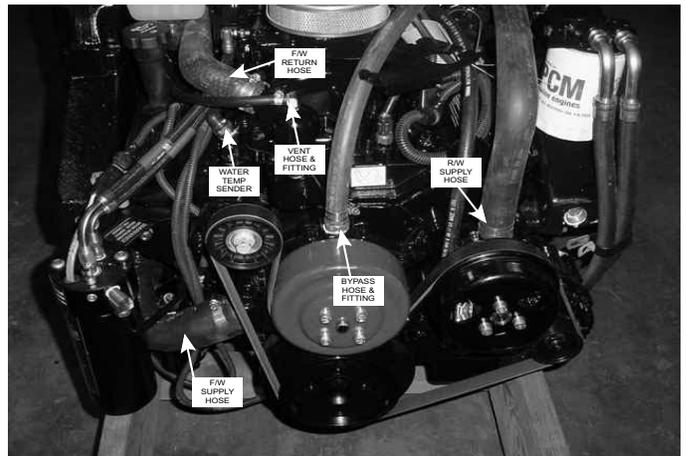


Figure 1-7 Hose and Fitting Locations

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

14. From the kit, install the Bypass Hose, 5/8" X 31", (Figure 1-2, item 15), onto the Bypass Fitting on the circulating pump, using 5/8" Hose Clamp (Figure 1-2, item 16). This hose will route up and to the rear of the engine on the port side of the throttle body.
15. From the kit, install the Raw Water Supply Hose, (Figure 1-2, item 11) 90° end, to the raw water pump using 1-1/4" Hose Clamp (Figure 1-2, item 12). This hose will route to the rear of the engine along the top port side of the intake manifold.
16. From the kit, obtain the Degas Bottle, Degas Bottle Cap, "Open Slowly" Decal, "Engine Coolant Fill" Decal, Coolant Vent Hose (1/4" X 30"), Fresh Water Fill Hose, 1/4" Oetiker Hose Clamp, 1/4" Hose Clamp, and 3/4" Hose Clamp (Figure 1-2, items 21-29).

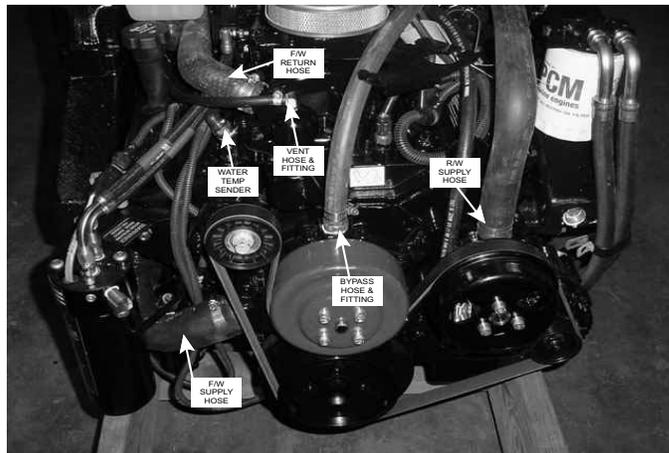


Figure 1-8 Hose and Fitting Locations

- a. The cap end of the degas bottle is the front of the degas bottle. On the upper starboard, forward, outside corner of the degas bottle, above the "MIN"/"MAX" marks, affix the "Engine Coolant Fill" Decal here. Affix the "Open Slowly" decal just behind the cap.
- b. Attach the Coolant Vent Hose to the top nipple fitting on the degas bottle using the 1/4" Oetiker Hose Clamp.
- c. Attach the Fresh Water Fill Hose to the bottom hose outlet of the degas bottle.
- d. Install the Degas Bottle Cap on the Degas Bottle. With the cap towards the front of the engine, route the Coolant Vent Hose down and under the Degas bottle so the end of the hose is toward the front of the engine. Route the vent hose inside of the oil fill and attach it to the Vent Hose Fitting on the Water Neck Outlet using 1/4" Hose Clamp. (Figure 1-2, item 27) Seat the Degas Bottle on the Degas Bottle Bracket.

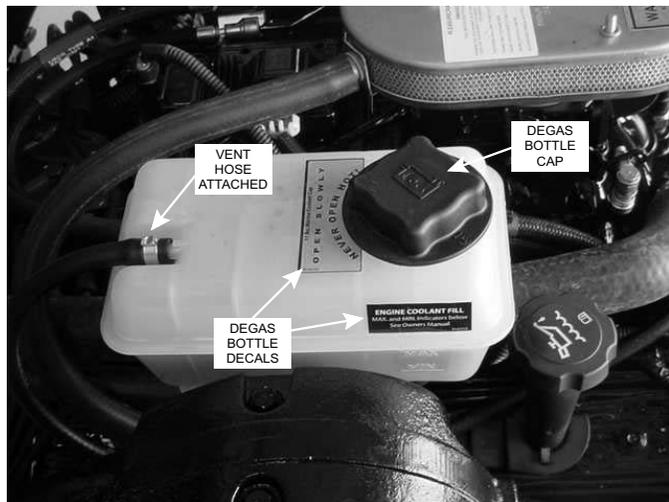


Figure 1-9 Degas Bottle Assembly



WARNING

Do not remove cooling system filler cap when the engine is hot. Allow the engine to cool and then remove the pressure cap slowly, allowing the pressure to vent. Hot coolant, under pressure, may discharge violently and cause severe burns.

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

17. On the port exhaust riser, remove the (2) forward retaining bolts and lock washers. From the kit, install the Remote Oil Filter Bracket using (2) Bolts and (2) Lock washers (Figure 1-2, items 36-38).

NOTE: The following procedure involves the removal of the remote oil header, oil lines, and remote oil adapter housing. Have materials in place to absorb any oil spilled.

18. Disconnect oil lines from the oil header. Keep the ends of the lines elevated to reduce oil spillage.
19. Remove the (3) oil header mounting bolts, lock washers, and nuts. Relocate the oil header to the new Oil Header Bracket (step 17). The notch in the bracket locates the rib of the oil header to allow for easier mounting. From the kit, Use (3) Bolts (*metric) and (3) lock washers (Figure 1-2, items 39-40), mount the oil header to the new bracket.

20. Remove the oil lines from the Oil Bypass Adapter and discard.
21. Remove the outboard oil adapter fitting and discard.
22. Remove the oil bypass adapter attaching fitting and oil line fitting as an assembly. The oil adapter housing will come free at this time. Set the housing aside keeping the O-rings in the housing clean and free of dirt. Retrieve the oil adapter housing O-ring from the engine if it did not come with the housing. Place it in the groove of the housing. Remove and discard the oil fitting from the oil adapter housing attaching fitting.
23. Reattach the oil bypass adapter. Hand tighten the oil bypass adapter fitting, then tighten 1/4 turn more. Install the new oil fitting (Figure 1-2, item 42) into the oil bypass attaching fitting. The oil connection needs to face forward. Do not allow the oil bypass attaching fitting to tighten further while installing the new oil fitting.

NOTE: Some Excaliburs may have the remote oil filter relocated to the front of the exhaust elbow. If your engine has the remote oil filter located to the front of the engine; skip steps 17-26 of this procedure. In addition, items 36-42 of the kit will not be used.

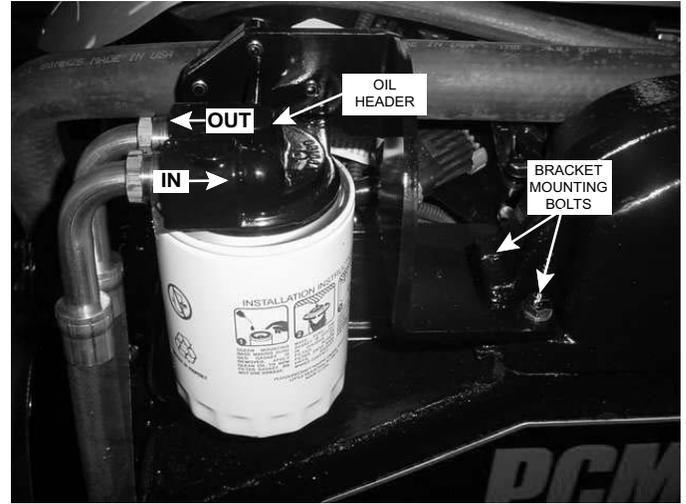


Figure 1-10 Oil Header and Bracket - New Location



Figure 1-11 Oil Adapter and Fittings



CAUTION

Do not over tighten the oil bypass adapter fitting. Damage to the engine can occur.

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

24. Install the second new oil fitting (Figure 1-2, item 42) into the outboard port of the oil bypass adapter, orientating the oil connection forward.
25. Route the new oil lines (Figure 1-2, item 41) inboard of the front port engine mount. The oil line connected to the center fitting of the oil adapter housing will connect to the output of the oil header; the oil line connected to the outboard fitting of the oil adapter housing will connect to the input of the oil header. Secure these connections. Refer to Figure 1-12 for proper routing; Figure 1-10 and 1-13 for proper connections at the oil header and oil adapter.



CAUTION

Severe engine damage can occur if the oil lines are not connected properly.

26. Remove the old remote oil header bracket. Discard the bracket, (3) bracket mounting bolts, (3) lock washers, and (1) plug wire retaining clip bracket.
27. From the kit, install the Heat Exchanger Ground Wire (Figure 1-2, item 60) to the ground bolt located in the upper left bell housing retaining bolt. (located behind shift cable bracket) Refer to Figure 1-14
28. Remove the existing shift cable bracket and install the new shift cable bracket, from the kit. (Figure 1-2, item 34) Be sure to reconnect the shift cable onto the new bracket.
29. Remove and save the stud bolt in the upper center position of the bell housing. This will release a ground wire and the main engine harness 10-pin connector bracket. Relocate the 10-pin connector bracket to the lower bolt that attaches the top mount starter block off plate. Refer Figure 1-14.
30. Remove the starboard plug wire retaining clip bracket. Discard the bracket. Use the bolt and lock washer to attach the ground wire (step 29) to the lower inboard hole on the starboard head. Be sure to remove the paint from around the mounting hole so that a good ground is achieved. Reinstall the stud bolt (step 29) back into the upper center hole of the bell housing.



Figure 1-12 Oil Line Routing



Figure 1-13 Oil Line Connections at Adapter Housing

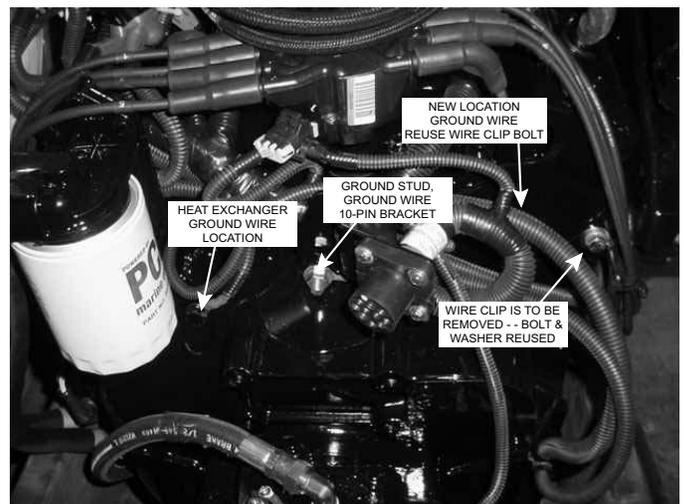


Figure 1-14 FWC Service Points - Rear of Engine

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

31. From the kit, cut the rubber isolator, with adhesive, into thirds. Affix the isolator onto the Heat Exchanger Bracket in the center and inboard of each of the mounting clamp holes.
32. From the kit, mount the Heat Exchanger Bracket to the bell housing using (2) bolts and (2) lock washers. (Figure 1-2, items 43-45)
33. From the kit, obtain the Heat Exchanger, Thermostat housing, Thermostat, Thermostat Housing to Heat Exchanger Hose, and (2) 2-1/2" Hose Clamps. (Figure 1-2, items 47-51) Install the Thermostat into the Heat Exchanger with the spring portion of the Thermostat facing up. Place the Tstat Housing to H.E. Hose over the H.E. fitting with the (2) hose clamps in place but not tight. Seat the Thermostat Housing into the hose, making sure that it contacts the thermostat and fits into the collar of the H.E. fitting. The Tstat Housing Bypass fitting should be facing the front of the engine. Tighten the (2) hose clamps securing the upper hose section to the Tstat Housing and the lower hose section to the H.E.

Mount the Heat Exchanger assembly to the H.E. Bracket using (2) 4" Hose Clamps (Figure 1-2, item 57). Do not fully tighten the clamps, at this time.

34. From the kit, install the (2) Raw Water Dump Hoses, using (4) 1" Hose Clamps, to the H.E. 1" outboard fittings and to the 90° fittings installed in rear ports of the exhaust manifolds.

NOTE: The starboard r/w dump hose may need to be trimmed slightly, at the H.E. side, to prevent it from rubbing on the corner of the starboard head.

35. Connect the Fresh Water Supply Hose (from the circ. pump) to the H.E. lower starboard fitting using 1-1/2" Hose Clamp (Figure 1-2, item 2A).
36. Connect the Fresh Water Fill Hose (from the Degas Bottle) to the H.E. upper starboard 3/4" fitting using 3/4" Hose Clamp (Figure 1-2, item 29).
37. Connect the Fresh Water Return Hose (from the Water neck Outlet) to the H.E. thermostat housing 1-1/2" fitting using 1-1/2" Hose Clamp (Figure 1-2, item 10).

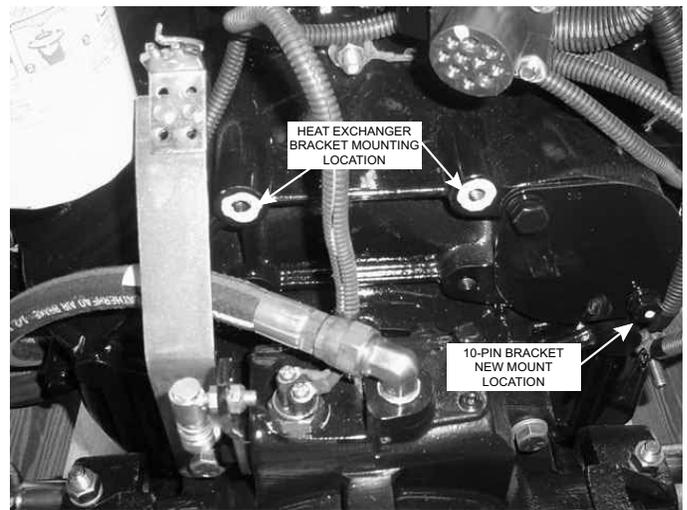


Figure 1-15 Bracket Locations - Rear Of Engine

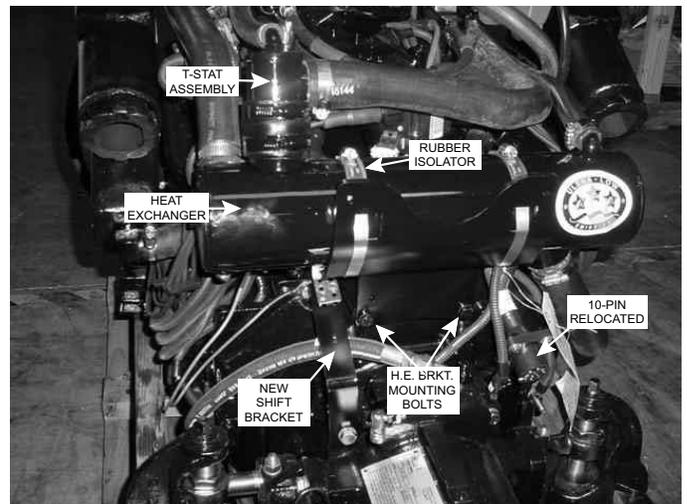


Figure 1-16 FWC Assembly Locations - Rear of Engine

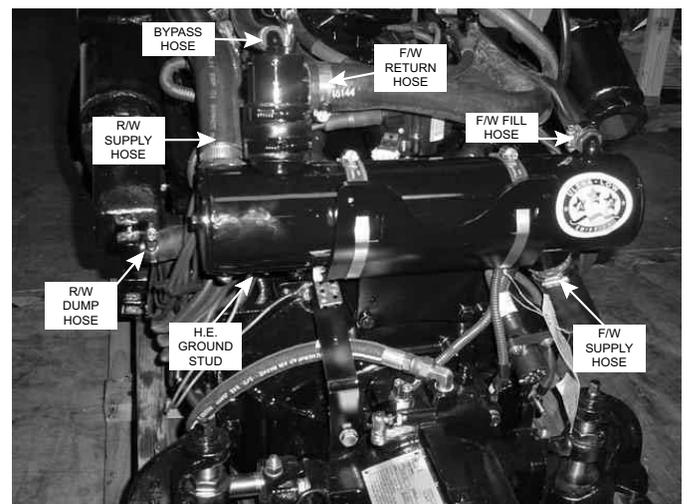


Figure 1-17 Hose Connections - Rear of Engine

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

38. Connect the Bypass Hose (from circ. pump) to the H.E. thermostat housing 5/8" fitting using the 5/8" Hose Clamp (Figure 1-2, item 16).
39. Connect the Raw Water Supply Hose (from the raw water pump) to the H.E. 1-1/4" fitting, upper port side of the H.E., using 1-1/4" Hose Clamp (Figure 1-2, item 12).
40. Ensure that the H.E. r/w and f/w drains are facing straight down. From the kit, install a rubber isolator (Figure 1-2, item 56) under each of the H.E. mounting clamp, then tighten clamps securing the H.E. to the H.E. Mounting Bracket.
41. From the kit, use the Nut w/lock washer (Figure 1-2, item 61) to secure the ground wire to the H.E. ground stud.
42. From the kit, affix decals (Figure 1-2, items 52-55, Figure 1-2 also shows approximate location of the decals) to the Heat Exchanger.
43. Remove the engine block drain plugs and drain any remaining water from the engine block. Reinstall block drain plugs.
44. Make sure that all drain plugs are properly installed.

IMPORTANT: If the engine oil was drained at the beginning of this procedure, you will need to replace the oil in the engine at this time. Add 4 quarts of oil to the engine. Do not add any more oil until after you have run the engine.

FILLING FRESH-WATER COOLING SYSTEM

A new extended life engine coolant known as DEX-COOL™ is recommended for use in your engine. It is imperative to note the following about DEX-COOL™ engine coolant:

- IT IS PINK IN COLOR TO DISTINGUISH IT FROM CONVENTIONAL COOLANT.
 - THE SERVICE CHANGE INTERVAL ON ENGINES BUILT WITH DEX-COOL™ IS 5 YEARS.
 - TO MAINTAIN FULL CORROSION PROTECTION DURABILITY, DEX-COOL™ MUST NOT BE MIXED WITH CONVENTIONAL (CONTAINING SILICATE) ENGINE COOLANTS.
- DEX-COOL™ IS AN ETHYLENE GLYCOL BASED PRODUCT, THEREFORE, BOIL AND FREEZE PROTECTION ARE MEASURED IN THE SAME FASHION AS CONVENTIONAL COOLANTS.

TO FULLY REALIZE ITS MANY ADVANTAGES, DEX-COOL™ MUST NEVER BE MIXED WITH CONVENTIONAL COOLANTS.

DEX-COOL™ can become contaminated by inadvertently topping-off with conventional coolant, adding conventional coolant to the system or even if fill/drain containers are shared between coolants. If contamination occurs, the cooling system must be immediately drained and flushed, and refilled with DEX-COOL™. No short-term damage will occur, however, the service interval will be reduced from 5 years to 2 years.

The fresh-water cooling side of the cooling system must be filled with a 50/50 mixture of DEX-COOL™ (or equivalent, which meets GM6277M) extended life antifreeze and water solution.

IMPORTANT: More than 50% antifreeze solution can contribute to an overheating condition.



WARNING

Do not remove cooling system filler cap when the engine is hot. Allow the engine to cool and then remove the pressure cap slowly, allowing the pressure to vent. Hot coolant, under pressure, may discharge violently and cause severe burns.

45. Reconnect negative terminal of the battery.
46. Remove the pressure cap from the Degas Bottle.
47. Prepare 5 gallons of DEX-COOL™ 50/50 solution. Fill the system with antifreeze solution until the system is filled. Degas Bottle will be full to the top of the bottle.
48. Start the engine and operate at idle speed (800-1000 RPM) to purge any air from the system. When the coolant level remains constant, install the pressure cap on the Degas Bottle.

FWC KIT INSTALLATION INSTRUCTIONS - DIRECT DRIVE

49. Continue to run the engine until it reaches normal operating temperature. Check for oil leaks, fresh water coolant leaks, and raw water leaks at all fittings and connections. Correct leaks, as required.
50. Continue to run the engine at operating temperature. Check the Degas Bottle for the proper level and add coolant if necessary.



WARNING

Do not remove cooling system filler cap when the engine is hot. Allow the engine to cool and then remove the pressure cap slowly, allowing the pressure to vent. Hot coolant, under pressure, may discharge violently and cause severe burns.

NOTICE: It is not necessary to remove pressure cap to check coolant levels. Check Degas Bottle daily and keep filled to the 'MAX' level indicated on the bottle.

51. With the engine stopped, check engine oil level. Add oil until level reads "Full" on the dipstick. Do Not overfill.
52. From the kit, install the Hose Clamp Covers, (Figure 1-2, item 35), on all hose clamp ends.
53. From the kit, affix decals (Figure 1-2, items 31-33) to the new hood and attach the hood to the engine with the retention nuts removed in step 2.

Installation of the Fresh Water Cooling Kit on a Direct Drive application is complete.

FIGURE 2-1, FWC WATER FLOW DIAGRAM

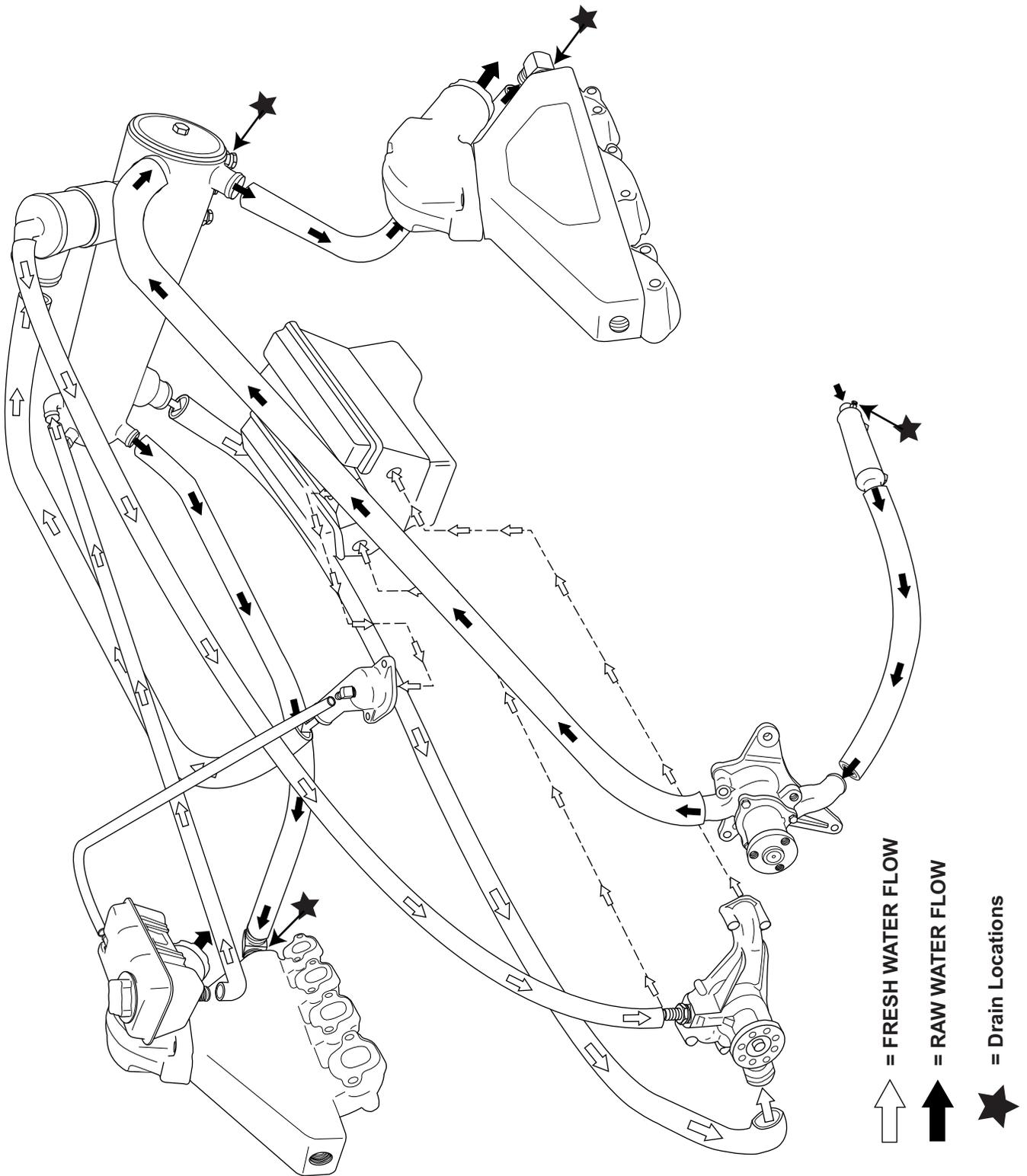


Figure 2-1 Fresh-Water Cooling System (5.7L)