

SAN JUAN FRESH WATER COOLING SYSTEMS

V109

NO EXTRAS TO BUY VOLVO 7.4 EFI COOLS BLOCK ONLY

SPECIAL ADVANTAGES

OF THE SAN JUAN COOLING SYSTEMS

- Longer Engine Life.
- No corrosion or harmful salt deposits.
- More uniform operating temperatures are assured for greater fuel economy and the elimination of harmful sludge.
- Permanent-type Anti-freeze may be used to insure year around protection.
- Equipped with standard zinc pencil to protect against electrolytic action.
- Workmanship and material fully guaranteed.

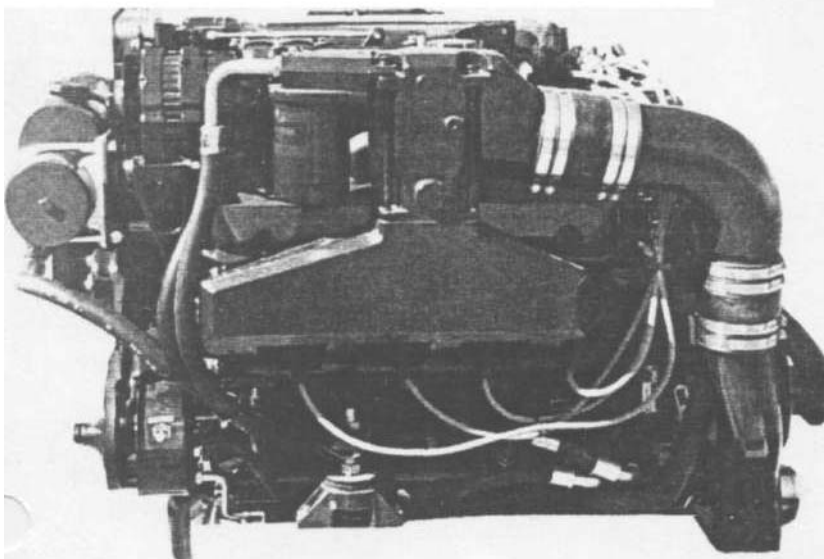
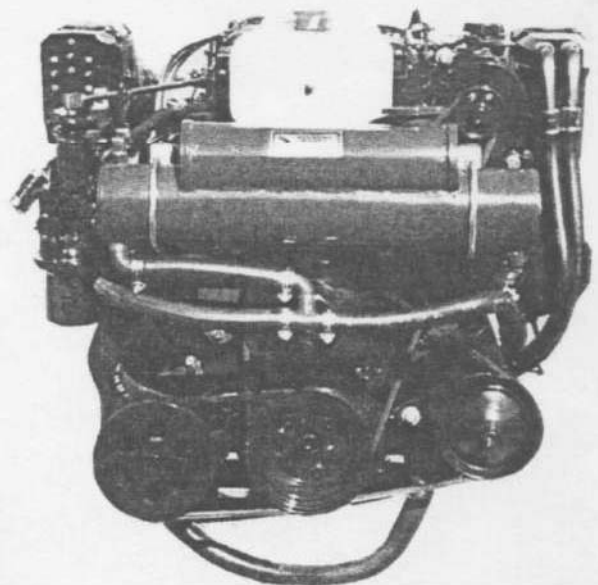
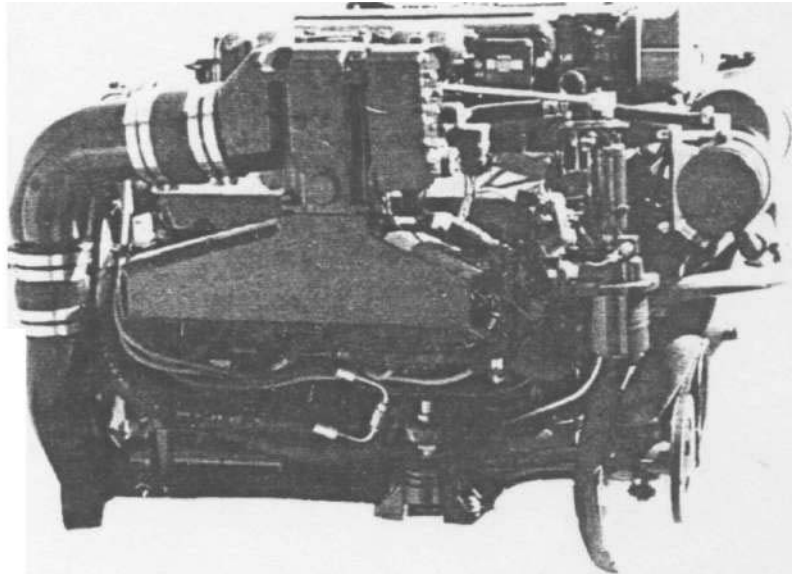
DURABLE

To insure years of satisfactory service, entire unit is constructed of pure copper with silver alloys. Also equipped with standard zinc pencil to protect against local electrolytic action.

QUICKLY INSTALLED

This kit can be installed by anyone with a few common hand tools.

COMPLETELY ON ENGINE This San Juan Cooler is completely on engine, including cooler, mounting brackets, etc. Nothing in the "Bilge."



COMPACT

EFFICIENT

Improved internal design gives generous cooling capacity. Temperatures will not surge after a hard run. Additional efficiency and protection from coolant loss is obtained through the use of a pressure cap.

SAN JUAN ENGINEERING *it* MANUFACTURING CO.

766 MARINE DRIVE • BELLINGHAM, WASHINGTON 98225 • (360) 734-1910

7.4 EFI VOLVO PENTA ----- S.J.E. P/Nfl V109
-- INSTALLING THE SAN JUAN COOLING SYSTEM --

NOTE: In these instructions R. & L. indicates the Right and Left side of the engine as corresponds to your Right & Left, when standing at the transom and looking forward.

1. Drain engine block both sides. R. drain is just forward of the starter, at oil pan gasket level. L. drain is located again at pan gasket level and just above the rear end of the engine oil cooler. BE SURE TO CLOSE both drains.
2. Remove spark arrester from front of engine.
3. At the TOP, FRONT, CENTER of the engine is the original thermostat housing.
 - a. Remove all four hoses from this housing, leaving the hoses other ends attached.
 - b. Before you discard the thermostat housing, remove the 1/4" 90° adapter - SAVE.
 - c. Thoroughly clean the gasket surface on the manifold.
 - d. Take the NEW thermostat, gasket, thermostat housing and two 3/8" X 1" bolts from kit.
 - e. Place the NEW thermostat into the recess in the intake manifold. BE SURE POINTED END IS UP. Place the gasket and the NEW thermostat housing down, over the thermostat. Then using the two 3/8" X 1" bolts supplied, secure housing in place. Tighten evenly.
4. When you do not install a hot air heater.
 - a. Remove 1/2" plug from side of circulating pump. Install 90° adapter, when tight the hose barb should be in the up position.
 - b. Remove temperature sending unit from front of intake manifold, place 1/2" X close nipple into end of tee provided. Install tee and nipple where you removed temperature sending unit, tighten until center opening is in the up position. Install temperature sending unit in the end of tee, connect wire. Place the 1/2" X 5/8" 90° adapter into the upper opening, Tighten until the hose spud is pointing right. Connect the two adapters with the 5/8" X 12" hose provided. Secure Clamps.
5. Hot Air Heater Installation.
 - a. Remove 1/2" plug from side of circulating pump. Install 1/2" X close nipple and 1/2" tee, when tight the center opening of the tee will be in the up position. In the center opening of the tee, place the straight adapter, in the end opening position the 90° adapter. The hose end of the adapter should be pointing down and slightly aft.
 - b. Remove the alarm sending unit from the front of the intake manifold, replace with 3/8" close nipple and 3/8" tee. When tight the center opening will be in the up position. Place the alarm unit in the center opening, replace wire. Place the 3/8" X 5/8" 90° adapter into the end opening with the hose end pointing right. Connect the 5/8" X 3/8" 90° adapter to the 5/8" X 1/2" straight adapter that is in the tee connected to the circulating pump. Remove temperature sending unit from front of manifold. Replace with 3/8" tee and 3/8" close nipple, place temperature sending unit in center of tee, install 3/8" X 5/8" 90° adapter in the end opening with hose spud pointing right. Connect heater hose to 5/8" fitting at the temperature sending unit, connect other end to the bottom fitting on heater. The upper fitting on the heater connects to the 90° elbow that is in the tee on the circulating pump.
6. Installing Heat Exchanger mounting plate.
 - a. Locate on the front of the engine, the water circulating pump bolts. There are two bolts on the R. side that hold the pump to the front of the engine block. Remove and discard this lower bolt, of those two.
 - b. There are two threaded holes in the upper front ends of the cylinder heads each side. The R. hole is empty while the L. head has a bolt in it that holds the alternators mounting bracket. Remove and Discard this bolt.
 - c. Take the mounting plate, the three pipe spacers and the three long bolts with washers, from the kit.
 - d. Hold the plate up to the front of the engine with the "let" to the R. then using the 2-1/2" long spacer with a 3/8" X 5" bolt through the plate. Start the bolt in through the hole of the alternator mount. (see Step b).
 - e. Next, using the longest spacer (4-1/2") and the 3/8" X 5-1/2" bolt, start bolt into the threaded hole in the upper front end of the R. cylinder head.
 - f. Now place the remaining 5/16" X 5" bolt with the remaining 2-7/8" spacer through the lower R. "leg" of the mounting plate and into the lower hole of the engines water pump. (see step 3.a.) Tighten all three bolts firmly.

over

7. Mounting the Heat Exchanger.
 - a. Take the two aluminum cradles and placing the "U" bolts around the heat exchanger approximately 3" in from each end and through the cradles. Hold the heat exchanger with the fill cap UP and the large lower outlet spud to the R. push the "U" bolts through the corresponding holes in the mounting plates. Start the self locking nuts supplied. Center the heat exchanger and with the fill cap straight up, Tighten nuts on "U" bolts. DO NOT OVERTIGHTEN these nuts. Approximately one thread through each nut is enough.
8. Hosing Up.
 - a. Using the "T" supplied, with its elbow UP and pointing to the R. connect the two hoses that go to each (R. & L.) exhaust manifold to the side of the "T". This will position the T to just in front of the heat exchanger. Now use the 1" X 8" hose to connect between the 1" elbow on R. bottom end of the heat exchanger. Clamp.
 - b. Now, connect the original curved hose, which runs under the front of the engine and up on the front, R. side, onto the 1" spud pointing back, on the R. side of the Heat exchanger. Clamp.
 - c. Carefully cut to proper length, the large curved hose on the engines water circulating pump inlet, so it will be able to be installed onto the large, angled spud (1-3/4" dia.) under the lower R. end of the heat exchanger. Clamp, re-using the original hose clamps.

NOW READ AND FOLLOW START UP SHEET 1A.

1. NOTE: The cooling system capacity is approximately 13 quarts U.S.
 2. NOTE: Some parts of the engine will not be protected by antifreeze in the cooling system and MUST BE DRAINED in freezing weather. They are as follows:
 - a. The sea water pump.-Remove BOTH hoses to drain.
 - b. The sea water side of the heat exchanger.-Drain and zinc combination plug under the L. end of heat exchanger.
 - c. The engine oil cooler.-Remove the hose on it's forward end. it is back of, and below the power steering pump (on the front, lower left side of engine).
 - d. BOTH exhaust manifolds.-Each has a rubber cap at the lower, rear end.

IMPORTANT: BE SURE TO REPLACE ALL HOSES, DRAIN PLUGS, AND RUBBER CAPS as soon as draining is Completed.

PLEASE send these instructions with engine and/or boat.

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