

Gulf of Mexico Oil Spill, Affect on Engines and Drives

All Marine Engines

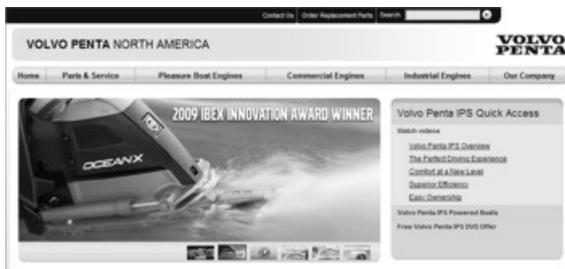
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Models Affected: All marine engines operated in waters affected by the Gulf of Mexico oil spill.

In addition to the environmental disaster, the recent oil spill in the Gulf of Mexico has also created a situation that can be detrimental to marine engines. As the oil spreads along the coasts of the Gulf, and possibly further, owners and operators of marine engines must take extra precautions to protect their vessels.

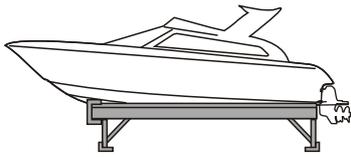
Boat Owner Alert

The following information has been posted on our web sites:

Volvo Penta does not recommend the operation of any Volvo Penta marine gasoline, diesel or transmission products in water contaminated by spilled crude oil.

The ingestion of even small amounts of oil into the cooling system of the engine may cause damage to the engine and/or many of its subsystems. Sterndrive components or other running gear may also be damaged by submersion in oil contaminated water. Damage caused by exposure to oil contamination is not covered by the Volvo Penta Limited Warranty, and expensive repair bills may result.

If your boat has been operated in or exposed to oil contaminated water, please contact your Volvo Penta dealer for service recommendations.



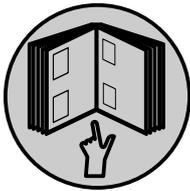
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Dealer Response

The effects of an oil spill and water contaminated with large amounts of crude oil on marine engines are not thoroughly known. However, based on what is known and on taking prudent precautions to protect these engines, Volvo Penta recommends the following preventative and corrective actions:

- Advise owners and operators of boats to avoid the areas of contaminated water if it can be done in a safe manner.
- If oil contaminated water is expected at the vessel's slip, remove the vessel from the water until the contamination has been contained or rectified.
- If oil contaminated water contacts the vessel at the slip, do not start the engines, if possible. This will greatly reduce the amount of cleaning required to get the vessel back in service.
- If a vessel has been operated in oil contaminated water, the vessel should be removed from the water as soon as possible. Then, the engine and transmission should be serviced and cleaned according to the procedures below.

See the appropriate Workshop Manual for the procedures for removing and reinstalling parts.

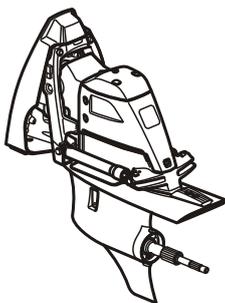


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As always, dispose of all parts and cleaning materials according to local environmental regulations. If cleaning chemicals are used, choose products with the least impact on the environment.

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Cleaning Procedure, Sterndrive and TSK

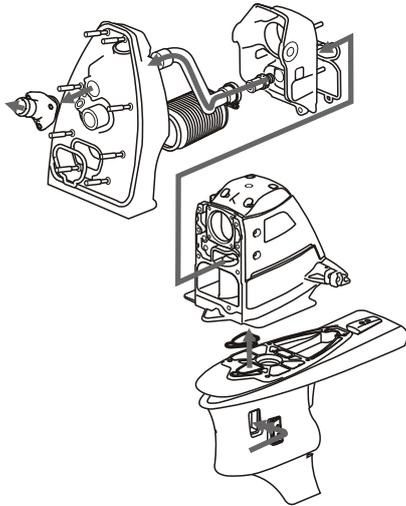
If oil contaminated water has contacted the sterndrive, IPS unit or other running gear, the gear must be cleaned to remove the oil.

Clean the exterior of all sterndrive, transom assemblies, IPS units or other running gear to remove the oil. On sterndrive units, remove the shift cover and clean the areas behind the cover.

Reminder: do not use high pressure washers on the soft parts of the drives; including bellows, hoses, seals, and trim pumps.

Clean all anodes exposed to oil. If the oil can not be removed, replace the anodes.

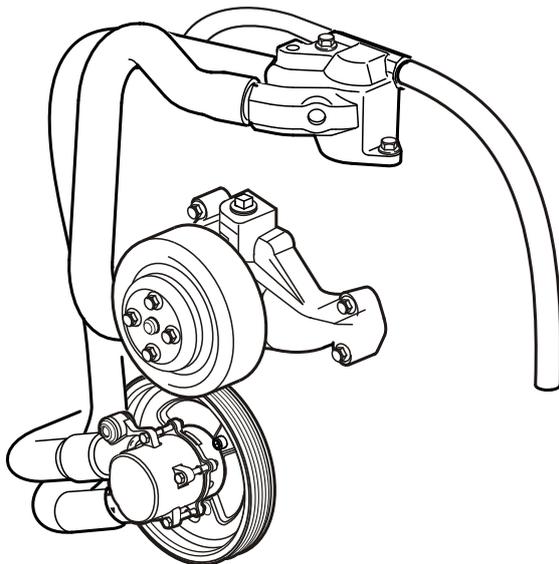
All cooling water intake passages must be free of oil. If oil is present, the parts must be removed and cleaned of all oil residue. If the oil can not be removed, replace the parts. **Seawater pump impellers exposed to oil will swell in the pump, which will lead to impeller failure, which could cause pump or engine damage.**



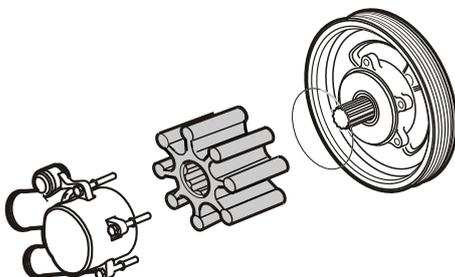
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Cleaning Procedure, Engine

If oil contaminated water has entered the engines cooling system, the entire cooling system must be flushed or cleaned to remove the oil. Follow the procedures below.

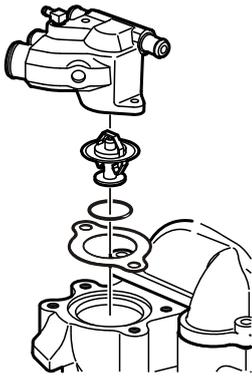


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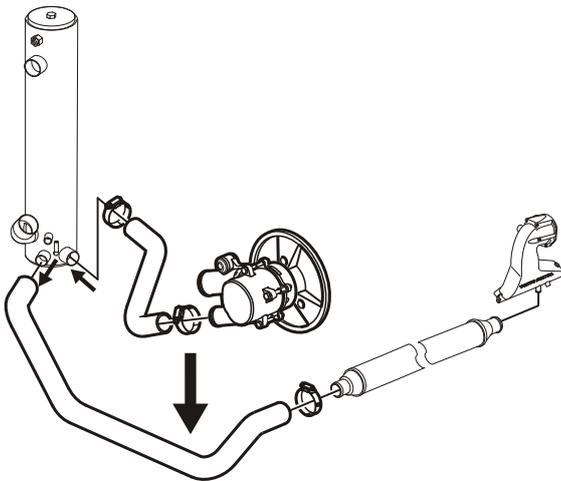
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If the seawater pump impeller has been exposed to oil it must be replaced. Also replace all sealing o-rings and gaskets. When replacing the impeller, check the inside of the pump and connected hoses for oil. All hoses and parts (coolers, seawater strainers) between the water intake and the pump must be checked for oil. This includes the cooling passages of the transom assembly and sterndrive. If oil is present the pump, parts, and hoses must be removed and cleaned of all oil residue. If the oil can not be removed, replace the pump, parts, and hoses. **Impellers exposed to oil will swell in the pump, which will lead to impeller failure, which could cause pump or engine damage.**



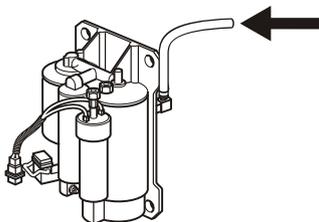
On seawater cooled engines exposed to oil, replace the thermostat and thermostat gaskets and/or o-rings. When replacing the thermostat, check the inside of the housing and connected hoses for oil. If oil is present, the pump and hoses must be removed and cleaned of all oil residue. If the oil can not be removed, replace the parts.

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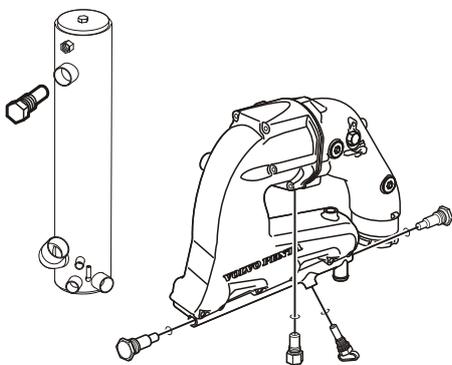
On freshwater cooled engines exposed to oil, remove outlet hoses from the exchanger and check for sufficient cooling water flow. Also check for evidence of oil in the exchanger or hoses. If oil is present, the exchanger and hoses must be removed and cleaned of all oil residue. If the oil can not be removed, replace the parts.

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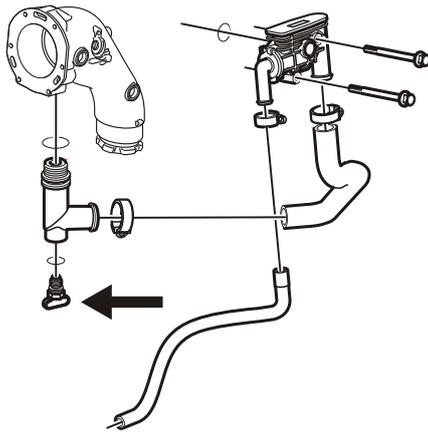
On gas EFI engines, inspect the fuel pump assembly to be sure cooling water is passing through the system. Disconnect the outlet hose at the exhaust riser and check for a constant stream of water exiting the system. If the stream is weak or absent, remove all hoses and the fuel pump, flush or clean until sufficient cooling water passes through the system.

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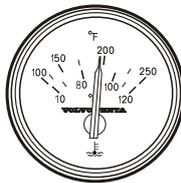


Any cooling system anodes exposed to oil should be replaced. Anodes are located in the heat exchanger, oil coolers, and catalyst exhaust manifolds and elbows. Check the operator's manual or parts catalog to identify all of the anodes on an engine.

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On gas engines with catalyst exhaust systems, the thermostats on the exhaust manifolds must be checked for oil. With the engine running, remove the blue drain plugs at the elbows and check the exiting water for oil. If oil is present, the thermostat, fittings, and hoses must be removed and cleaned of all oil residue. If the oil can not be removed, replace the parts.

Check all other cooling system parts not specifically noted above for the presence of oil (seawater side only). If oil is present the parts must be removed and cleaned of all oil residue. If the oil can not be removed, replace the parts.

Return to Service

The long term effect of the oil on cooling system parts such as hoses and gaskets is not known. After the oil spill has been resolved and the engine has been cleaned, advise your customers to be diligent in monitoring their engine for symptoms of cooling problems. Watch for alarms, fault codes and gauge readings that are higher than before. Check the engine closely before each trip for leaks.

Again, dispose of all parts and cleaning materials according to local environmental regulations. If cleaning chemicals are used, choose products with the least impact on the environment.

This Service Bulletin may be revised in the future as more knowledge is gained regarding this subject.