

# VOLVO PENTA

## Volvo Penta of the Americas

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## Service Bulletin

Group	Number	Version
23-0	3	01

## Vapor Lock All Gas Engines

Distribution: M

Date: 03-2001

Binder: C

With the upcoming boating season rapidly approaching, consideration should be given to vapor locking and the conditions that cause this phenomenon. Hot weather combined with high engine compartment temperatures can be conducive to the formation of vapor lock in the fuel lines.

When using automobile gasoline, vapor lock is an important consideration because automobile gasoline has been designed to facilitate engines starting in the winter time and thus has a higher volatility. This winter fuel of higher volatility, when used in high summer ambient temperatures, represents the most adverse conditions for the formation of vapor lock.

There are other important considerations such as the effect of high ambient temperatures, very high engine operating temperatures under conditions of maximum cruise with high volatility fuel, and the complexity of the fuel system (many bends and fittings) and the lack of good engine compartment ventilation. All of these factors and many more affect the likelihood for vapor lock.

When a fuel is heated, vapor is driven off, which in turn reduces the volatility of the remaining fuel. As a boat sits at the dock or at anchor, the fuel tanks are heated and vapor is vented out reducing the vapor pressure.

Another area of concern is high altitude vapor lock. As a boat is operated at higher altitudes on high temperature days, there is a greater likelihood that Vapor Lock will be present given the same operating conditions.

If critical operating conditions, as mentioned, reach extremes, vapor lock can occur. Operation conditions that encourage the formation of vapor in automotive gasolines are those which raise the under-cowl temperatures to extremes and provide a source for the transfer of excessive heat into the fuel lines. After any prolonged period of heat soak (e.g., hot day prolonged idling or engine restart a short time after a long period of engine operation, and poor engine compartment ventilation), ventilate the engine compartment to

reduce engine compartment temperatures to help prevent vapor locking.

Volvo Penta uses the highest quality marine fuel components in our engines. This does not, however, guarantee that vapor lock will form in some circumstances.

To help prevent vapor lock in your fuel system use new, approved marine quality components. Even with new parts, check each component and part to verify that it is free of defects and functions properly. In addition to following all legal requirements for marine fuel system components you should:

- Route your fuel lines as directly as possible, avoiding sharp bends, rises and descents. Keep them away from hot exhaust pipes. The fuel lines may slope up or down but should not have a sag or low point between connections.
- Be sure, absolutely sure, that your fuel lines do not rub against any structure, sharp edges, or are routed where they can be stepped on or otherwise abused.
- If a supplemental gascolator is used, it should be mounted to some structure and not hanging unsupported from the fuel line.
- If the gascolator is not at the lowest point in the fuel system, it will function primarily as a fuel filter and not as a point where water will collect and can be drained.

