

Crusader Product Awareness Update

#SUC-0207-02

Excessive Water in Bilge of Boat

February, 2007

Engines Affected: ALL

Model Years Affected: ALL

In efforts to continue providing the most reliable marine engine, and maintaining the longevity of the engine, Crusader finds it necessary to inform dealers, and boat owners of the consequences of excessive water in the bilge of the boat. This update will help you be aware of how the water gets in the bilge, why it stays in the bilge, what damage this water creates and lastly, how to prevent this situation from occurring.

First, let's start with how the water may get into the bilge of the boat. The following list provides some of the most common ways for excessive water to accumulate in the bilge.

1. Water Leaks - drain plugs, shaft seals, hoses, etc. Such parts should be inspected at the routine maintenance intervals.
2. Rain Water.
3. Water from skiers, swimmers and equipment coming in and out of the boat.
4. **Purposely filling the bilge with water in order to get a specific wake performance.**

Note: Some boat models may accumulate water in areas that do not have bilge pumps. When the boat accelerates, this water can move to the engine/bilge area causing an excessive water condition. Each boat model should be evaluated for this potential condition.

Second, let's focus on what to check if water accumulates, or stays in the bilge.

1. Bilge pump not working (defective pump, not plugged in, misadjusted floats, etc.)
2. Bilge pump not turned ON (some pumps are wired to be automatic, and some are manual)

Bilge pumps are obviously designed to remove water from the boat's bilge whenever it reaches a certain level. Bilge pumps may be wired (configured) in several different ways. Some bilge pumps may run automatic all the time. Some bilge pumps may run automatic when a battery switch is turned off, but require a manual switch to be triggered to run the pumps when the engine is running (or the battery switch turned to the ON position). Some bilge pumps require a manual switch to be triggered any time the pumps need to be run.

Thirdly, let's understand how that excessive water damages engines and/or components.

1. Excessive water can cause certain components to be submerged, causing the water to enter the component and damage it. Such components may consist of, but are not limited to, the engine block, starter, alternator, etc.
2. When the water level in the bilge gets excessively high, the engine crankshaft pulley (lower drive belt pulley) will act as a paddle, even if the pulley is barely touching the water. The drive belt system becomes a conveyor belt and slings the water everywhere inside the bilge. This allows the engine to take on water through the intake system, and in most cases, will cause catastrophic engine damage.

NOTE: Components and/or engine failures, resulting from water damage, are NOT covered under warranty.

Lastly, how can you prevent water from accumulating in the bilge and damaging components and/or your engine?

1. Read your boat manufacturer's owners manual and have a clear understanding of how the bilge pump system works on your boat. If the bilge system does not run automatically while you are operating the boat, the manual switch should be activated periodically to assure that any excessive water is pumped out of the boat as soon as possible.
2. Periodically confirm that the bilge pump system is working properly in your boat.
3. Perform a visual inspection of the boat's bilge prior to starting and operating the engine.
4. **DO NOT** purposely fill water into the bilge in order to achieve a specific wake.

NOTE: Bilge pump systems should be operated in such a way that the pump(s) are working automatically, even while the boat is being operated. This would allow the water to be pumped from the bilge, whether the boat is sitting at the dock, or the boat is being operated.

6.0L Flame Arrestor Cover Kit - RF060069

The only way to ensure water from entering the engine is to **keep the water out of the bilge**. In order to **help deter** water from directly entering the flame arrestor, Crusader offers a 6.0L flame arrestor cover that can be attached to the existing flame arrestor. Again, this cover only helps to deter the water, it **DOES NOT** completely prevent water from entering the engine. Contact the Crusader Service Department for more information.

NOTE: Components and/or engine failures, resulting from water damage, are NOT covered under warranty. This includes engines containing the flame arrestor covers as well.

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