

## Boat Exhaust Flappers

- Boat exhaust flappers are designed to prevent wave action from pushing water into a stationary, non-operating boat's exhaust system. In other words, without flappers, if your boat is tied up at a pier and not running and waves are hitting the back of your boat, the waves could "pack" into the exhaust system and into the engine. Curved downward exhaust outlets also prevent "wave packing" and some boats with curved downward exhaust outlets do not have flappers. Fresh Air Exhaust (FAE) provides the same protection as curved down exhaust outlets.

- Boat exhaust systems are wet exhaust. During proper operation the exhaust gasses are mixed with water as the exhaust exits the engine, at the exhaust header; therefore during normal operation there is water in the exhaust pipes and muffler.

- Most boat exhaust outlets are at least partially underwater when the boat is not moving forward. When a boat engine is not running the boat's exhaust is typically partially flooded.

- A marine engine is essentially an 8 cylinder air compressor being powered by a V8 engine. When the engine is running, it is virtually impossible for exhaust water to enter into an engine cylinder.

There are 2 ways in which water can get into a boat's engine cylinder:

1 - If the engine ever runs in reverse it will suck exhaust water into the cylinders. An engine running in reverse typically happens if the engine timing is incorrect and occurs as the engine is being turned off (also called dieseling). This is more common in older, pre-electronic controlled engines.

2 - The engine overheats. When a boat engine overheats it will likely warp either the heads or manifolds. If this occurs coolant water enters the cylinder; either immediately or the next time the engine is started.

Fresh Air Exhaust will not cause either of these to occur.

FAE has been installed on 850+ boats. Water in the engine has NOT occurred as a result of FAE. If your boat engine is still under warranty, to comply with the boat engine manufacturer installation requirements, we recommend flappers just to prevent any discourse about any warranty issues that may arise. We know of NO warranty issues with FAE installed but we prefer to err on the side of caution. The flappers are optional and are built into the FAE; they do not change the ease of installation. They can easily be retrofitted to existing FAE.

\*\*\*\*\*

**For all boats:** If your boat engine should EVER overheat, before attempting to restart the engine, you should pull the sparkplugs and then crank the engine.

- If there is water in the exhaust it will blow out the sparkplug holes and cause no damage. NEVER attempt to restart the engine if this occurs.

- If there is no water then you should be safe to reinstall the spark plugs and start the engine. If so, immediately watch the rubber hoses leaving the exhaust manifold. If there is inadequate cooling water the exhaust rubber hoses will begin to overheat and smoke within about 30 seconds. Also, BE AWARE that if there is no cooling water the temperature gauge will show low temperatures even while your engine overheats.

In your boat's toolbox you should have a sparkplug wrench, a spare impeller, and all the tools necessary to change the impeller. Impellers should be changed at the beginning of each season and are easy to change on most boats.

For enhanced engine protection you can install a cooling water flow alarm that will notify you instantly in case you lose cooling water. Let me know if interested.