

# NEWS From BoatUS

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BoatUS Press Room at <http://www.BoatUS.com/pressroom>

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Photo Available at: <http://www.BoatUS.com/pressroom/previewlmg/hiRes/769.jpg>

Photo Caption: Damage to a boat engine carburetor as a result of ethanol at 10% (E10).

## A Shotgun Marriage? Ethanol and Old Outboard Boat Engines

ALEXANDRIA, Va., March 28, 2012 -- Ever since E10 gasoline (gas containing 10% ethanol) became widely available several years ago, the nation's largest recreational boat owners group, BoatUS, has received hundreds of calls and emails complaining about boat engine problems. The majority of complaints concern older outboard motors, those made before about 1990. BoatUS' [Seaworthy](#) magazine asked [Mercury Marine's](#) Ed Alyanak and Frank Kelley, who between them have over 60 years of experience, to find out what's made these decades-old outboards more susceptible to ethanol's well-known problems and what owners can do.

### 1. Vulnerable hoses:

In the mid 1980's new standards (SAE J1527) for fuel hoses were developed for "gasohol," which was known to deteriorate rubber and plastics. Since then, problems with hoses have largely gone away, but that doesn't mean they are maintenance free. Tech Tip: Any hose older than 10 years should be replaced. Here's another way to test rubber fuel hose condition: wipe a clean rag along the hose. If you smell gas on the rag, replace the hose immediately.

### 2. Carburetors:

O-rings and rubber carburetor parts on older engines tend to get hard and brittle when exposed to ethanol and then break off in bits and pieces causing clogs, misfires and shutdowns. Pre-1990 carburetors were also made from alloys that didn't stand up to ethanol, leading to corrosion that can cause tiny fuel orifices to clog, resulting in hard starts and poor running. Old carbs are also "dumb" in that they were designed to run on only one type of fuel. Ethanol, however, has more oxygen and affects the air/fuel ratio, causing engines to run leaner and hotter. Tech Tip: The best solution with old outboards is to run straight gas - if you can find it. Some mechanics may also have the ability to "recalibrate" a carburetor to tolerate E10 (note: gas with ethanol greater than 10% should never be used with any boat engine).

### 3. Plastic fuel filter bowl:

Some older engines may have plastic fuel filter bowls. Tech Tip: If you still have one, replace immediately with a metal bowl.

#### **4. Fuel fill gasket:**

Keeping water out of the fuel tank is even more important with ethanol as it can eventually lead to the formation of two separate solutions in the gas tank (water and fuel), also known as phase separation. The process is more common on older boats which are more likely to have accumulated water at the bottom of the tank. Once phase separation happens - the tipping point when water in the gas is either harmlessly ingested or transformed into a corrosive mixture no engine will run on - there's no going back. No fuel additive can restore E10 back to its normal state. Tech Tip: Age and exposure to ethanol can rot fill gaskets or O-rings. Replace them every few years.

#### **5. "Gunk" in the tank:**

It is still possible that some old outboards and boat fuel systems have yet to sip a drop of E10. But once your boat drinks its first tankful, ethanol will "scour" or dissolve the gunk that's been coating the tank walls (and hoses) for years. Tech tip: You may want to think about hiring a professional to have the tank drained completely of any gas and water at the bottom before adding your first load of E10. If not, keep a supply of filters on hand - they will clog quickly. Always use a fuel stabilizer and avoid using octane boosters that contain ethanol.

For more information on ethanol and boat engines, go to <http://www.BoatUS.com/seaworthy/ethanol.asp>.