SOUNDINGS

Ethanol and winter storage

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Boaters in colder climates are starting to winterize their boats - or they're at least thinking about it. Considering the problems that ethanol-blended gasoline can cause, proper preparation of the fuel system and engine is a critical step in preparing a boat for winter storage.

Gasoline with 10 percent ethanol (E10) has led to such problems as the disintegration of fiberglass fuel tanks, the gumming up of fuel lines, and piston and valve failure. Two properties of ethanol, in particular, can cause problems in boat fuel systems and engines. First, ethanol absorbs moisture - more so when it sits unused for long periods - so it can cause water to collect in your fuel tank and fuel system. Second, ethanol is a solvent. E10 can loosen debris in the tank or fuel lines and allow it to reach the engine.

The Complete Guide to Winterizing

"Fuels with ethanol are not going away," says David Meeler, Yamaha's product marketing information manager. "There's very little we can do about it except try to mitigate the risk as best we can and educate people the best we can."

Meeler and other engine manufacturer representatives recommend using a quality fuel stabilizer and conditioner. Yamaha recommends its own product, Yamaha Fuel Conditioner and Stabilizer Plus. Others include Marine Formula STA-BIL Ethanol Treatment, Star brite Star Tron Enzyme Fuel Treatment and ValvTect Ethanol Gasoline Treatment.

More on ethanol

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The stabilizer should be added to the fuel tank before the seasonal layup and the engine should be run long enough to ensure that the stabilized fuel courses through the entire system. Stabilizers inhibit corrosion and help prevent phase separation. Phase separation occurs when ethanol-blended fuel surpasses a certain water saturation point and the ethanol and water separate from the gasoline, forming a layer at the bottom of the tank where the fuel exits and heads to the engine. The gasoline remains on top of the ethanol-water layer.

Some engine manufacturers, including Yamaha, recommend adding a second treatment to the tank before layup. Yamaha Ring Free Plus removes carbon, gum and varnish and helps keep the fuel system clean,

according to the engine manufacturer. Several other companies also sell this type of carbon-cleaner treatment.

Experts say stabilizers targeting ethanol and carbon-cleaner treatments should be used during the boating season as well, not just before winter storage.

Empty or full?

Opinions vary about whether tanks should be left empty, mostly empty or about 95 percent full during winter storage. The benefit of leaving tanks empty or mostly empty, according to some experts, is that if there's no ethanol in the tank it can't absorb water and can't loosen deposits in the tank.

The benefit of leaving tanks filled with treated fuel, according to other experts, is that there's less likelihood of moisture forming in the tank from condensation and a topped-off tank minimizes the explosive fumes that can remain in an empty tank. (The National Fire Protection Association calls for tanks to be topped off to minimize explosive vapors.)

Draining the tank may be an option for boat owners with small fuel tanks (up to about 40 gallons), but for owners of larger boats, topping it off makes more sense.

Fuel lines and filters

The rest of the fuel system and the engine also need attention. Drain and replace the fuel/water separator and drain any fuel filters under the cowling or attached to the engine, experts say. Yamaha also recommends, as an extra precaution, draining the fuel from carburetors or the vapor separator tank after the stabilized fuel has been circulated. You also should inspect all fuel hoses, fittings and the primer ball.

To see Erik Klockars and editor Bill Sisson winterize a fuel system, watch "2-Minute Mechanic."

To determine the effect ethanol may have had on your fuel system, Meeler suggests a simple test. When changing the fuel/water separator, pour some of the gasoline into a clear jar and check the level of water and debris. "If you see black specks in the fuel, you're looking at a potential ethanol problem," Meeler says. "The black specks are typically pieces of rubber fuel line that has begun to deteriorate internally."

If you find them, Meeler recommends replacing the affected fuel line with a new ethanol-resistant line.

A water/fuel separator can catch debris before it reaches the engine. The experts recommend filters with a 10-micron rating. Filters should be changed every 50 to 100 hours, as well as for winter layup.

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2. Thursday, 14 October 2010 20:22
John Diauto
I add Valv-Tect gasolibe treatment & Stabilizer treatment to a 3/4 filled tank, When I put the boat up for the winter., no problems with start up each spring., I have a 172 gallom fuel cell on my Parker

1. Thursday, 14 October 2010 18:45
bill gardella
Nice work, Chris, handling a subject often confusing to all since the advent of ethanol.

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