E15 ethanol testing spells bad news for boat motors

12-10-11

BY PHILLIP GENTRY
FOR THE JOURNAL

The next time you're at
ne gas pump, take a look
t the required, but oth-
rwise easy to overlook,
dvisory that the gasoline
ou're pumping into your
utomobile may contain
p to 10 percent ethanol. If
iat vehicle has a boat in
ow, I'd think twice about
ioving down the line and
lling up the boat with
ie same fuel.

Most gasoline now con-
ains up to 10 percent corn
thanol, but the Environ-
iental Protection Agency
i moving toward allow-
ig the sale of 15-percent
lends for model year
001 and newer cars and
'ucks.

The increase is aimed
t expanding the market
or ethanol to ensure
iat refiners can meet
ie government's an-
ual mandates for use of
iofuels.

This move has led to a
overnment-funded study,
onducted by two separate
iarine engine manu-
icturers, on the effects
f ethanol, particularly
15 ethanol, on marine
ngines.

Mercury Marine and
olvo Penta of the Ameri-
s both conducted a
overnment-funded High
thanol Fuel Endurance
udy on some of their
oducts to determine the
fects of E15 on today's
arine engines.

The Mercury study, con
ucted on three of Mercu-
y's products, caused so
uch damage to the boat
ngines that the testing
two of the three motor
pes ended early.

The study tested the
fects of E15 in compari-
n to E0 on four-stroke
d two-stroke Mercury
itboard engines that
cluded the 9.9HP four-
roke, the Verado 300HP
upercharged four-strok
d the 200 EFI two-
roke.



PHOTO COURTESY OF MERCURY MARINE

A recent study conducted by two leading marine engine manufacturers concludes that proposed higher ethanol content in gasoline could cause serious damage to boat motors.

Based on the studies, which were conducted in accordance with the National Renewable Energy Laboratory, the gasoline and ethanol blend can cause issues including drivability, materials compatibility, increased emissions, and long-term durability in outboard, stern drive and inboard engines.

The Volvo Penta study, conducted on a Volvo Penta carbureted 4.3 GL inboard/sterndrive engine concluded that throughout testing, the engine exhibited poor starting characteristics on E15 fuel for both hot restart and cold-start conditions.

These characteristics included backfire, stumble, idle surge and stall or initial start-up. Cranking time to start and smooth idle was roughly doubled compared with typical E0 operation.

The proposed move to higher ethanol content comes amid current problems identified by the National Marine Manufacturer's Association with the current E10 ethanol content that has become prevalent across the country.

"Current proposals by the ethanol industry to increase the amount of ethanol in gasoline should seriously concern all boaters and owners of other small engine equipment," said Thom Dammrich, NMMA president. "Although NMMA strongly supports renewable fuels as a means to reduce America's dependence on foreign sources of oil and improve the environment, there is growing evidence that ethanol is not the answer to America's energy challenge."

In addition to a gasoline additive, ethanol alcohol is used as a solvent, degreaser, cleaner and anti-freeze. Ethanol also has high hygroscopic properties, meaning it attracts and absorbs water.

Ethanol fuels such as the current E10 and E85 brands available at most gas pumps rapidly absorb nearly 50 times more water than non-alcohol gas.

The end result is that alcohol fuels are not suitable for marine engine use. While aircraft fuels are exempt from the required inclusion of ethanol, many marine manufacturers have requested government exemption for ethanol in marine engines but have been denied.

As such, many marine engine manufacturers, including Bombardier, Mercury Marine, Nissan, OMC, Pleasurecraft and Suzuki include language in their warranties that prohibits or warns against the use of ethanol-enhanced fuels in their products.

"The biggest problems we see is customers letting their boat sit with ethanol gas in the gas tanks," said Todd Pearson, Service Manager for Strickland Marine in Seneca. "The ethanol will separate from the petroleum, and that takes all the water and impurities with it so when they crank the motor up, all that stuff gets sucked into the carburetor."

Common problems include clogged jets, which often results in reduced lubrication of engine parts, particularly in two-stroke motors, that can lead to seizing and malfunction of the engine.

Pearson recommends that boat owners only use ethanol-free gasoline whenever possible and to make sure they take precautions when storing boats for the winter.

"A petroleum-based stabilizer, such as the Marine Stabil, will help eliminate problems as will installing a water-separating fuel filter in your boat's fuel system," he said. "The shelf life of untreated ethanol/gas is only 11 days, so unless you're running your boat every week, you need to be taking precautions."

Locations that offer ethanol-free gasoline

Lindsay Oil Co., 901 W. N 1st St., Seneca
Loco Mart, 15802 Wells Hwy., Seneca
J & Z Food Mart, 219 Shiloh Road, Seneca
Jakes, 11709 N. Highway 11, Salem
Five Forks Grocery, 1204 Coffee Road, Westminster
Sonny's Food Store, 1509 E Main St., Westminster
Chauga Service Station, 4274 Toccoa Hwy., Westminster
Lake Hartwell Fishing & Marine, 5365 Hwy. 24, Anderson