



SI 2009/1

SERVICE INFORMATION
to all distributors, owners

Use of Fuels with Ethanol content

INFORMATION ONLY – NO ACTION REQUIRED

Please pay attention to the following safety definitions used in this service bulletin:

WARNING! Disregarding the following instruction leads to severe deterioration of flight safety and hazardous situations, including such resulting in serious injury and loss of life.

CAUTION! Disregarding the following instruction leads to serious deterioration of flight safety, may cause serious damage to the aircraft and suspend warranty.

Applies to all Sinus/Virus/Taurus/Apis-Bee/Trike aircraft.

Distributors are to translate this service information into their native language and forward it to all concerned owners in your area immediately.

Please see following page(s) for further details.

Use of Fuels with Ethanol content

Recently, Rotax has announced and approved use of Fuels with up to 10% Ethanol content, also known as E10 fuels. Specific information can be found in Rotax Service Instruction: SI-912-016 R2 and SI-914-019 R2.

We have conducted tests of the complete fuel system on all Pipistrel aircraft (Sinus/Virus/Taurus/Apis-Bee/Trikes), which included the testing of reservoirs, hoses, valves, gascolator and fittings. No problems were discovered when using E10 fuel, which has up to 10% Ethanol content.

Based on this fact and current field experience, we approve use of Fuels with up to 10% Ethanol/Alcohol content (E10 or similar) on all our products: Sinus (all models), Virus (All models), Virus SW (all models), Taurus, Apis/Bee and Trikes.

The added ethanol in E10 fuel offers advantages and disadvantages. Officially, Rotax has approved the use of fuel with up to 10 percent alcohol content. Other than a slight increase in the exhaust gas temperatures (EGT), the engines seem to work fine operating on blends with up to 10 percent ethanol. Most autogas produced today has at least some alcohol mixed in to help reduce unwanted auto emissions.

Ethanol, or any type of alcohol, readily absorbs water. It may even absorb significant amounts of water from the atmosphere in humid conditions. If too much water is absorbed, phase separation can occur, which results in the water and ethanol combining and falling to the bottom of the fuel tank. By using the gascolator, the water/ethanol combination can be drained off leaving only the gasoline, but it will have a slightly reduced octane level—down by 2 to 3 points using the antiknock index (AKI) rating method.

The Rotax 912ULS (100-hp), require 91 octane fuel using the AKI rating method. The 912UL (80-hp) and the two-stroke 447, 503, and 582 engines will run on 87 octane.

Because of ethanol's propensity to absorb water, follow these instructions in addition to information from the Flight manual and Maintenance manual of the aircraft in question:

- **Use the freshest E10 fuel possible.**
- **Check your tanks for water before adding fresh fuel.**
- **Do not store E10 fuel in cans for more than a couple of weeks, unless you live in a dry climate.**
- **Buy your fuel when you plan to use it.**
- **Perform fuel drains using the gascolator multiple times.** If you find water when draining your gascolator, phase separation has probably occurred, and there is likely to be a significant amount

of water/alcohol mix somewhere in your fuel system. Your engine will not run on this separated mix, so it should not be allowed to make its way to the engine.

- **You must make a more complete investigation of your fuel system to look for water before attempting a takeoff.** This holds true for gasoline with any percentage of alcohol mixed in. When you have found water in your gascolator, you should consider draining a significant amount of fuel (at least 10 liters/2 gallons) from each tank through the gascolator; then check the drained fuel for water contamination. Continue draining fuel until all the water has been removed. The gascolator is at the lowest point in the fuel system, so the aircraft must be level for all the water to from the system pickups towards the gascolator.
- **Fuel containing ethanol also suffers from an increased susceptibility to vapor lock,** which occurs when fuel vaporizes in the fuel lines because of higher temperatures and/or reduced ambient pressure at higher altitudes. With Pipistrel aircraft, there is a special vapor bleed-back systems that help purge and return any vaporized fuel back to the fuel tank before it reaches the carburetors. However, if you live or fly in an area where conditions may be conducive to causing vapor lock and you use fuel containing ethanol, be aware that the possibility of vapour lock is increased.

Distributors

As a distributor you are to advise each concerned owner about this topic.

Pipistrel d.o.o. Ajdovscina
Leon Breclj, Head of Service

THIS IS THE END OF THE SERVICE INFORMATION.