



Photos courtesy of Dave Kenny

Fuel Tank **Sloshing**

Beware those sloshing type noises coming from your fuel tank – it may not be the fuel.

Is sloshing sealant installed in your aircraft fuel tank? If you don't know, then you'd better find out, because if it's installed in your tank you could be in for a nasty surprise, as illustrated by the following recent example.

An Unwelcome Surprise

Dave Kenny from Cromwell knows about amateur-built aircraft, having assembled his own Jodel a number of years ago. He was recently involved with a friend who, several months ago, bought an Avid Flyer from a North Island vendor.

The aircraft was fitted with one fuel tank in the wing, which had developed a leak. In the process of rectifying the leak, Dave identified loose flaking material in the tank below the filler neck, so they decided to investigate further. After cutting access holes in the fibreglass tank, what they discovered came as a shock. Large sheets of sloshing compound had lifted from the tank walls, and large flakes were floating loose. Extensive delaminating of the sloshing sealant was evident throughout the tank.

Dave says, "There was no maintenance record of the type of sloshing sealant used, or when it had been applied to the tank, which was additional to the factory build. The tank itself was in good order with no sign of fibreglass flaking.

"Such fragments of sealant could easily have blocked the one small fuel pickup

in the tank, or its breather, and led to fuel starvation of the engine.

"With only one fuel tank, there was no redundancy should a blockage occur. We are lucky to have found it, because the owner was about to start training and it could have been fatal," Dave said.

Dave and the owner completely removed the sloshing sealant from the fuel tank, a major job, and repaired and resealed the tank with a fuel-resistant resin specifically designed for fibreglass. They also submitted a defect report to the CAA for follow-up.

What It Is

Bob Jelley, CAA Aviation Safety Adviser and Licensed Aircraft Maintenance Engineer, says that sloshing compound is a 'rubberised' material that is thin enough to pour into fuel tanks and 'slosh' around to cover and seal all surfaces once it dries.

"Sloshing sealants can be widely used in industry, not just in special category aircraft. A variety of compounds are used in the different sealants available, so the correct choice appropriate to the tank material and fuel type is essential.

"For it to be effective, the compound needs to be approved, properly prepared and applied to correctly cleaned and prepared surfaces, otherwise it won't do the job," Bob warns.

Precautions

Because of problems with sloshing compounds, the manufacturer of RV kits, Vans Aircraft, has warned builders not to use it, and owners of older aircraft are asked to check if sloshing material has been applied.

"The problems seem to be more prevalent with fuel tanks that have not been factory assembled, including those that have had fuel tank repairs.

"The ethanol additives in automotive fuels (Mogas) can attack the sloshing compound, and many of the common brands of approved aircraft sealants are not to be used with Mogas," Bob says.

In September 2011, Vans Aircraft issued Service Bulletin 11-9-13 *Fuel Tank Slosh Inspection*, for all its models, to inspect for the presence, and condition, of fuel tank sloshing compound before further flight.

The Service Bulletin cautions that, "the safe service life of slosh can vary significantly depending on many factors including initial preparation of the interior of the tank, type of slosh, type of fuel used, etc. Failure of fuel tank slosh can cause in-flight power loss leading to injury or death. Periodic inspections should be performed to assure that slosh, if present, remains in an airworthy condition."

More Information

EAA's *Sport Flying* Spring 2011. ■