Bird CK, Blocked Fuel Tank, ATA 2810

(Attached to the end of this report is a copy of the FAA Special Airworthiness Information Bulletin CE-09-23.)

An A&P mechanic writes, "This aircraft underwent full restoration; the original steel fuel tank was used which was in excellent condition. The tank was prepped, and Randolph sloshing compound was applied IAW the manufacturer's instructions. This tank was sloshed to seal any pin holes in the tank—common for its age and material. Ten months after being put back into service, the aircraft had accumulated 6.0 hours since restoration with no abnormalities. Shortly after *the next* takeoff, the engine quit—the pilot landed on the remaining part of the runway. This aircraft sustained major damage during the forced landing. Upon investigation with the FAA, the carburetor and Gascolator screens had small white/amber flakes. The fuel tank had a sump at the bottom of the tank similar in size to an aluminum Cessna Gascolator. Fittings were removed from the sump and a large amount of white/amber flakes were visible through the holes. The top of this fuel tank has a large access port; once removed the sides of the tank and the sump were *(both)* visible through the baffles. The sump was 75% full of flakes and large portions of the sloshing compound were missing from the sides of the tank. The size of the flakes varied from pencil lead to 2 or 3 inch diameter flakes. The aircraft had been serviced only with 100LL.

"The mechanics thought that the engine quit due to fuel starvation from the tank sloshing compound breaking off in large quantities and blocking the outlets of the fuel tank. It is obvious the sealant is failing to adhere to the sides of the tank, regardless of the preparation techniques directed by the manufacturer. To prevent similar occurrences which could result in loss of life, the mechanic recommended the following: 1) Do not use any sort of fuel sloshing compound in any part of the fuel system. 2) Insure a finger strainer is installed in each outlet of each tank. 3) Remove any tank from service and replace if it has been treated. 4) Closely monitor the fuel screens and outlets if a tank has been treated with this product until replacement can occur. Piper Aircraft Service Bulletin 251D is a great reference to the use of Randolph Tank Sloshing Compound. Piper recommends removing and replacing a fuel tank that has been treated with this product."

FAA
Aircraft Certification Service

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SAIB: CE-09-23
Date: April 7, 2009

SUBJ: Fuel: Piper PA-28, PA-32, PA-34

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners, or operators, of all serial numbers of Piper Aircraft, Inc. (Piper) PA-28, PA-32, and PA-34 series airplanes of an airworthiness concern and the potential for environmental deterioration of a sloshing material that was previously used to repair leaking fuel tanks. The sloshing compound can peel from the wall of the fuel tank and block the fuel tank outlet, which can starve the engine of fuel.

At this time, this airworthiness concern is not an unsafe condition that would warrant AD action under Title 14 of the Code of Federal Aviation Regulations (14 CFR) part 39.

Background

In May 2008, a Piper Model PA-32R-300 airplane made a forced landing in a field because of engine problems. The aircraft experienced substantial damage. The pilot was the only occupant and no injuries were reported. The probable cause for the engine power loss event in this event was determined to be fuel starvation due to a blocked left inboard fuel tank outlet. This blockage was due to contamination of the fuel tank caused by the sloshing compound peeling from the wall and covering the fuel outlet port.

The National Transportation Safety Board (NTSB) and further FAA investigation revealed the following details regarding the accident:

- The inboard fuel tank was observed having what appeared to be large sections of sloshing compound peeling from the tank walls resulting in a blockage to the left inboard fuel tank outlet.
- The aircraft records show the left inboard fuel tank was sloshed in February 1996, using Randolph 802 sealer per paragraph 8-5a of the Piper Service Manual.
- Piper Service Bulletin 251C, dated May 16, 2005, was issued to remove Randolph 802 as an approved sealer and stated that the sloshing procedure was to be removed from all Piper Service Manuals.

Piper released Service Bulletin 251D on February 24, 2009, to include a repetitive 100-hour inspection (corresponds with an annual inspection) for tanks that have been previously sloshed with the Randolph 802 sealer. If sloshing material is found to be flaking off from the interior of the tank, then replacement of the tank is recommended.

Recommendations

The purpose of this SAIB is to highlight the potential of engine fuel starvation from the environmental deterioration of a sloshing compound that was used in some PA-28, PA-32, and PA-34 Series aircraft as an approved repair procedure. As such, the FAA recommends compliance with the inspection procedures in Part I of Piper Service Bulletin 251D. If that inspection reveals that the fuel tank has been previously sloshed, the FAA recommends that the repetitive 100-hour/annual inspection of the fuel tank be incorporated into the aircraft maintenance program as outlined in Part II of Piper Service Bulletin 251D. Finally, if a leak develops, or if the sloshing compound is found to be

separating from the inner walls of the fuel tank, the FAA recommends replacement of the fuel tank per the procedures in Part III of Piper Service Bulletin 251D.

For Further Information Contact

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Part Total Time: 6.0 hours