

NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: October 17, 1978

 Forwarded to:
 Honorable Langhorne M. Bond
 Administrator
 Federal Aviation Administration
 Washington, D.C. 20591

SAFETY RECOMMENDATION(S)
A-78-76

On March 30, 1967, the National Transportation Safety Board recommended that the Federal Aviation Administration issue an Airworthiness Directive to require an internal inspection of the main integral fuel tanks on Piper PA-28 and PA-32 series airplanes for evidence of fuel-tank sealant (sloshing compound) deterioration. Those tanks found faulty were to be repaired or replaced before further passenger or commercial flights. The Safety Board further recommended that the inspection be required continually on all PA-28 and PA-32 series airplanes at appropriate intervals until a permanent solution to the peeling and flaking problem could be found.

The Safety Board based its recommendation on the finding of fuel-tank sealant deterioration in two PA-28 and a PA-32 aircraft that were involved in fatal accidents. Also, fifty or more model PA-28/32 aircraft were visually inspected, and more than half the tanks were found to contain deteriorated sealant.

In response to the Safety Board's recommendation, Airworthiness Directive 67-26-3 was issued which called for inspections of the fuel tanks and removal of loose sealant material in certain model PA-28 and PA-32 production aircraft. Since the manufacturer changed the compound used in subsequent models PA-28 and PA-32 production aircraft, only those with the older compound were affected by the AD.

Although the change to a different sloshing compound was apparently considered a solution, continuing difficulties have indicated otherwise. A review of FAA Service Difficulty Reports from 1974 through 1977 disclosed 14 cases involving problems directly associated with fuel-tank sealant deterioration in Piper PA-28 and PA-32 aircraft. Seven of these cases involved loss of engine power either just after takeoff or during the final approach sequence; four resulted in serious accidents.

On June 3, 1974, a Piper PA-28-160, N5404W, serial No. 28-472, was involved in an accident at Belleville, Michigan. The accident occurred just after takeoff when engine power was lost. The aircraft struck a house and crashed. Investigation disclosed that liquefied fuel-tank sealant had partially restricted the fuel screen to the engine carburetor.

On June 21, 1974, a Piper PA-28-235, N8744W, serial No. 28-10284, was involved in an accident at Troy, Michigan, just after takeoff; this engine also lost power. The aircraft struck a powerline and crashed. Investigation disclosed that the fuel sump drains in the main tanks were coated with sloshing compound. The fuel tank outlet screens were also partially coated, and sealant affected the normal operation of a fuel selector ball check valve.

On August 1, 1976, a Piper PA-32, N3223W, serial No. 32-30, lost engine power during the final approach to the Nut Tree Airport, Vacaville, California. Investigation disclosed that the bottoms of the carburetor accelerator pump and discharge nozzle were coated and clogged with a white substance. The bottom of the mixture control also contained foreign matter.

On November 27, 1977, a PA-28-140, N38478, serial No. 28-772583, was involved in a similar approach accident at Travis Air Force Base. The investigation disclosed that the gascolator fuel screen was covered with a white substance and white flakes were evident in the fuel tanks.

In view of the continued existence of sloshing compound deterioration on Piper PA-28 and PA-32 model aircraft in spite of AD-67-26-3 and in spite of a change in sloshing compound, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive similar to AD 67-26-3 for all Piper PA-28 and PA-32 aircraft to require that the interior surfaces of both main fuel tanks are inspected for evidence of sealant deterioration. This inspection should be repeated at prescribed intervals to insure continued airworthiness of the aircraft until a permanent solution to the problem of fuel-tank sealant deterioration is resolved. (Class II Priority Action) (A-78-76)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, and HOGUE, Members, concurred in the above recommendation.

By: 
James B. King
Chairman