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SP-70

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 7, 1984

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-84-104 through 107

On August 12, 1983, a Cessna Model 206, N5140U, experienced an engine failure and crashed immediately after departing Orlando North Airport, Plymouth, Florida. Fortunately, neither of the two occupants aboard was injured. The postaccident investigation disclosed that the engine fuel manifold valve and the left fuel reservoir tank contained substantial quantities of water. After the water was removed, the engine was started and operated normally.

Between 1978 and 1982, Cessna Models 177, 206, 207, and 210 were involved in 25 accidents in which water was found in the fuel. Some of the accidents involved fatal and/or serious injuries. Although the postcrash conditions of the airplanes precluded a positive determination regarding water in the fuel reservoir tanks, the Safety Board believes that some of these accidents also may have been precipitated by water collected in these tanks.

Preflight drainage of the fuel reservoir tanks would probably have prevented the August 12, 1983, accident. A witness stated that the pilot drained the main fuel tanks and fuel strainer using the quick drains; however, the reservoir tanks are fitted with safety-wired drain plugs intended only for irregular removal by maintenance personnel. Similar drain plugs were installed on the reservoir tanks of many Cessna airplanes produced before 1975. However, Cessna has installed fuel quick drains on the reservoir tanks of all airplanes produced since 1975 to facilitate drainage and purging by the pilot. Also, Cessna issued Single Engine Service Letter SE 79-45 on September 10, 1979, which announced the availability of the fuel quick drain installation for reservoir tanks on certain airplanes in the 1946 through 1974 model groups. The Safety Board believes that all Cessna fuel reservoir tanks should be equipped with quick drains and that the Federal Aviation Administration (FAA) should issue an Airworthiness Directive requiring their installation.

Depending upon whether drain plugs or quick drains are installed as original equipment on Cessna airplanes, pilot operating handbooks and manuals indicate, respectively: (1) that fuel reservoir tanks should be drained after each 100 flight-hours; or (2) that fuel reservoir tanks should be drained whenever water is evident at the fuel strainer or main fuel tank sumps. However, the fuel reservoir tanks on the Cessna Model 206 and most other Cessna Model 100 and 200 series airplanes are located at or near the fuel system low point where water is most likely to accumulate. Therefore, the Safety Board believes that the fuel reservoir tanks should be drained routinely during the airplane

preflight inspection and that the FAA should require Cessna to include a procedure for doing so in its handbooks and manuals applicable to these airplanes.

Even where reservoir tanks with quick drains are installed (as is increasingly the case), some operators remain unaware of the existence or location of the tanks and the means provided for draining them. This situation probably stems from the inconspicuous location of the tanks in the lower part of the fuselage, lack of emphasis on preflight drainage of the tanks as a routine procedure, and/or lack of adequate descriptive or operating information in pilot handbooks (pilot operating handbooks and flight manuals applicable to airplanes produced before 1975 do not contain specific information regarding the location of fuel reservoir tanks or drains). Therefore, to improve utilization of the quick drains, the location of the reservoir tanks and the procedures for gaining access to the drains should be described in the appropriate section(s) of all applicable Cessna flight manuals or handbooks, including those for pre-1975 airplanes. Additionally, consideration should be given to the installation of a decal on the lower fuselage of all Cessna airplanes with fuel reservoir tanks to assist in locating and draining the tanks.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive (AD) applicable to all Cessna Model 177, 206, 207, and 210 airplanes produced before 1975 to require the installation of quick drains on the fuel reservoir tanks and direct the manufacturer to extend its Service Information Letter SE 79-45, dealing with fuel reservoir tank quick drains, to apply to all airplanes in these model groups. (Class II, Priority Action) (A-84-104)

Supplement the preflight inspection procedure of its pilot handbooks and flight manuals applicable to all Cessna Model 177, 206, 207, and 210 airplanes to include routine draining (sumping) of fuel reservoir tanks. (Class II, Priority Action) (A-84-105)

Supplement its pilot handbooks and manuals applicable to Cessna Models 177, 206, 207, and 210 produced before 1975 to include information relating to the location of fuel reservoir tanks and drains. (Class II, Priority Action) (A-84-106)

Require installation of a decal on the lower fuselage of these models, irrespective of the date of manufacture, to assist in locating the tanks. (Class II, Priority Action) (A-84-107)

BURNETT, Chairman, GOLDMAN, Vice Chairman, BURSLEY and GROSE, Members, concurred in these recommendations.


By: Jim Burnett
Chairman