



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Log 1821 SP-20

Date: MAR 28 1986

In reply refer to: A-86-22 and A-86-23

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

On June 25, 1985, a Cessna Model 150 airplane, N704ZS, sustained substantial damage after a loss of engine power in flight forced the pilot to execute an emergency landing at Rushville, Missouri. The National Transportation Safety Board's investigation of the accident disclosed that the power loss occurred because a self-locking nut became disengaged from the bolt that connects the throttle cable rod end to the carburetor throttle arm, permitting the bolt to back out of the bolt hole.

Since January 1, 1980, throttle linkages have become disconnected from carburetor throttle arms for similar reasons on seven other Cessna Model 150 airplanes. Additionally, the loss of connecting hardware has caused the separation of engine throttle or mixture controls on Cessna Model 152, 172, 177RG, A188, and U206 airplanes, resulting in six accidents, one incident, and eight service difficulty reports. Remarks typical of those contained in the service difficulty and accident reports on these occurrences include: "Power loss enroute, landed in a wheat field, bolt separated from throttle linkage at the carburetor"; "Throttle control rod end bolt became disengaged in flight with unchangeable low power"; "Forced landing, bolt at end of throttle linkage to fuel controller missing"; "Lost engine power at cruise, safe landing on boulevard, bolt connecting throttle linkage to carburetor was missing"; and "Aircraft damaged during an emergency landing in a field, throttle linkage had become disconnected."

On April 16, 1979, the Cessna Aircraft Company issued Single Engine Service Information Letter SE 79-6, "Engine Control Attachment", applicable to all Cessna single engine aircraft prior to model year 1979. The letter, issued to promote the reliability of engine and propeller controls, stated the following:

An improved means of attaching the engine and propeller controls, which utilize a ball bearing type rod end, is now being used on all production single engine aircraft.

The throttle, mixture, and propeller control cable ends are now being secured to the engine with a predrilled AN bolt, castellated nut, and a cotter pin.

Replacement of any undrilled bolts and self-locking nuts with an AN bolt of appropriate size and length, predrilled for use with an AN 310 castellated nut and cotter pin is recommended. This improved type attachment should be incorporated on all earlier aircraft at the next 100 hour or annual inspection.

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The Safety Board believes that the Federal Aviation Administration should issue an airworthiness directive to require compliance with the service letter.

Throttle opening springs, which are located on the end of a carburetor throttle shaft opposite the throttle lever, are installed on some Cessna airplanes (e.g., Cessna Model 152 airplanes equipped with carburetor accelerator pumps and pre-1966 Cessna Model 150 airplanes). Throttle opening springs prevent the throttle plate from closing in the event of a disconnected throttle control, thereby providing additional protection against the loss of engine power inflight. However, beginning in 1966, similar throttle opening springs were no longer provided on the carburetors of several Continental engines installed in Cessna airplanes, including the Cessna Model 150 airplane. Cessna has been unable to explain why these springs were no longer installed and has indicated to the Safety Board that the springs should have been installed on the carburetors of all Cessna Model 150 airplanes.

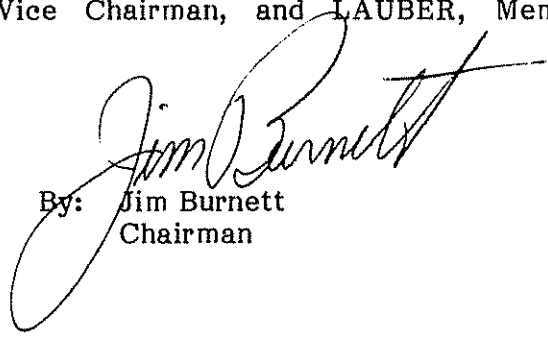
Throttle opening springs are easily installed in the field and carburetors without the springs are otherwise identical to those with the springs. The Safety Board believes that the springs should be installed on all single-engine Cessna airplanes with carbureted engines. 1/

Therefore, in order to avoid subsequent accidents stemming from disconnected engine controls, the Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive to require compliance with Cessna Service Information Letter SE 79-6 by all Cessna single-engine airplanes manufactured prior to model year 1979 by the next 100-hour or annual inspection. (Class II, Priority Action) (A-86-22)

Require that throttle opening springs be installed on all Cessna single-engine airplanes with carbureted engines similar to those already installed on some Cessna Model 152s and pre-1966 Model 150 airplanes. (Class II, Priority Action) (A-86-23)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and LAUBER, Member, concurred in these recommendations.


By: Jim Burnett
Chairman

1/ On January 15, 1981, the National Transportation Safety Board issued a Safety Recommendation (A-81-6) recommending that the Federal Aviation Administration establish a requirement that, when throttle linkage separation occurs in a small single engine aircraft, the fuel control will go to a setting which will allow the pilot to maintain level flight in the cruise configuration. The Safety Board has been advised that the Federal Aviation Administration anticipates issuing a Notice of Proposed Rulemaking regarding this matter in March 1986.