NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 16, 1974

Forwarded to:

Honorable Alexander P. Butterfield
Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-74-87 & 88

On March 1, 1974, en route from Reno, Nevada, to San Carlos, California, a passenger in Piper PA-23-250, N6117Y, unscrewed the heater shutoff valve stem from the valve body while he was attempting to activate the cabin heater. Fuel leaked from the valve, soaked the cabin carpet, and accumulated in the fuselage beneath the passenger cabin. The leak, which could not be controlled because of valve inaccessibility, eventually resulted in a loss of power in both engines while crossfeeding and an emergency, wheels-up landing. The pilot and three passengers were not injured, but the aircraft was substantially damaged. Corrective action could minimize the possibility of similar and more serious accidents.

The investigation of the accident revealed that there was no locking device on the cap nut of the heater fuel valve stem assembly, PN 19460-02 , which made the valve assembly, PN 19460-00 , separation possible. The reason for the absence of a locking device could not be determined. Three methods have been used by the manufacturer to secure the valve stem cap nut to the valve body: (1) A metal tab lock, (2) Loctite, and (3) safety wire. Currently, safety wire is being used.

This accident is the sixth reported case of heater fuel valve assembly separation in the Piper PA-23-250 since 1971. Although the five previous cases did not result in accidents, a serious accident potential certainly exists. The Federal Aviation Administration has recognized the danger and publicized the valve separation problem in its General Aviation Inspection Aids Summary of August 1973, (AC 20-7K).

Currently, the PA-23-250 Service Manual requires 100-hour operational checks of the heater fuel valve, and Section 13-135 of the manual describes valve inspection and repair procedures. However, the number of reported valve separations indicates that more detailed inspection and repair procedures are needed in the PA-23-250 Service Manual to alert owners and maintenance personnel of the importance of properly securing the valve.

Although the causes of the five known cases of valve separation which preceded this accident are undetermined, future cases of valve separation could be prevented by appropriate inspection of the valve stem assembly. Accordingly, the National Transportation Safety Board recommends that the Federal Aviation Administration:

1. Issue an Airworthiness Directive to require a visual inspection of heater fuel valve stem (PN 19460-02) cap nut security in all Piper PA-23-250 airplanes within the next 25 hours of operation. This AD should specify appropriate corrective measures for improperly secured valve stem assemblies.

2. Request Piper Aircraft Corporation to modify the PA-23-250 Service Manual by:

   (a) Adding a visual inspection of the heater fuel valve locking mechanism at an appropriate inspection interval.

   (b) Adding a distinctive note in the heater fuel valve inspection and repair section (13-135) regarding reinstallation of safety wire in the valve stem nut after valve repair or maintenance.

Personnel from our Bureau of Aviation Safety are available if any further information or assistance is desired.

REED, Chairman, McADAMS, THAYER, BURGESS, and HALEY, Members, concurred in the above recommendations.

By: John H. Reed
Chairman

THESE RECOMMENDATIONS WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.