

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

AI-4
Log 946

ISSUED: February 2, 1979

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-79-1 and 2

While in cruise flight at an altitude of 800 feet over Vancouver, Washington, on May 25, 1978, a Hughes Model 269A helicopter experienced a loss of engine power. The pilot-in-command took control of the aircraft from a student pilot and implemented autorotation procedures. However, during the descending approach to the intended landing site, the aircraft struck powerlines and fell inverted to the ground. Although there was a large fuel spill, no fire ensued. The student pilot was killed, and the instructor pilot was seriously injured.

The following cockpit information was documented immediately after the accident. Battery and generator switches--on; mixture--rich; carburetor heat--cold; magneto--both; fuel shutoff--on; fuel boost pump--off.

The National Transportation Safety Board's investigation of the accident disclosed that (1) the fuel system for this helicopter requires an auxiliary fuel boost pump that incorporates an internal bypass system; (2) on May 18, 1978, an auxiliary fuel boost pump without a bypass feature had been installed on the aircraft; and (3) the electric fuel boost pump was turned off in flight which caused the engine to lose power because of insufficient fuel flow. The investigation also revealed that only the pump end assembly (Weldon PN A-8110) had been removed on May 18, and it had no identifying decals or the required Weldon name plate attached. The replacement part (Weldon P/N AA-8001-F, S/N 712) appeared to the mechanic who installed it to be identical in size, shape, and appearance to the pump that had been removed. The pump body for the A-8110 fuel pump has a blue anodize finish, while the pump body finish for the AA-8001 is grey.

The Weldon Tool Company stated that the 8000 Series pump does not include a bypass feature while the 8100 Series pump design does. This valve enables the engine-driven fuel pump to continue to draw fuel through the auxiliary pump even though it is not operating.

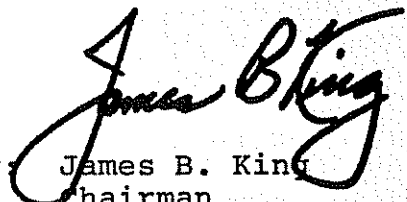
These Weldon pumps are identified by a decal which is heat-impressed into the pump body during final assembly. However, during repair or renovation, these decals are frequently defaced or removed, and the only way to distinguish one pump from the other visually is the presence of the bypass valve in the inlet port of the 8100 pump series.

In view of the potentially catastrophic consequences associated with such an installation and to prevent human error in the maintenance of all aircraft that utilize these fuel pumps, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue a General Aviation Airworthiness Alert to all aircraft owners, operators, manufacturers, and maintenance personnel apprising them of the circumstances of this accident and the approved flight manual operating procedures for checking fuel boost pump pressures. (Class II Priority Action) (A-79-1)

Advise overhaul facilities and manufacturers that permanent identification of parts is required by 14 CFR 45.15. (Class II Priority Action) (A-79-2)

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

By  James B. King
Chairman