

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 28, 1981

Forwarded to:

Honorable J. Lynn Helms
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-81-77 through -79

On March 25, 1981, a Houston Helicopters Bell 206, N1077H, experienced an engine failure at 500 feet m.s.l. during cruise flight over Brazos Block 578 in the Gulf of Mexico. The pilot entered autorotation and attempted to deploy the emergency floats by triggering the emergency float inflation switch. The floats failed to deploy and the aircraft struck the water gently, rolled over, and floated inverted. The pilot and five passengers aboard escaped without injury.

Investigation disclosed that the emergency flotation pneumatic system valve failed to actuate and inflate the float bags. The valve assembly consists of an integral piston pin, shear head, and an electrically fired squib charge. When the squib is fired, the piston pin releases the shear head and nitrogen gas inflates the float bags. Examination of the Futurecraft Corporation valve assembly revealed that although the squib charge had fired, the shear head release piston pin was incorrectly installed and was wedged in the machined groove of the shear head. The binding of the piston pin in the machined groove prevented release of the shear head and nitrogen gas to inflate the float bags. The manufacturer of the squib valve has reported 12 cases of improperly installed shear head release piston pins.

As a direct result of this accident, Bell Helicopter issued Alert Safety Bulletin No. 206L-81-21, dated May 7, 1981. This bulletin describes methods of inspecting the piston pin for correct installation in relation to the shear head.

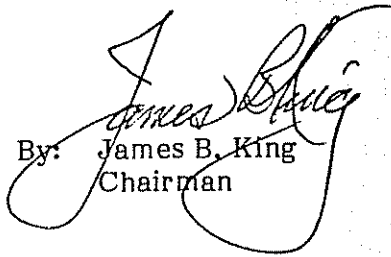
Because of the serious consequences of this failure and the potential for similar failures, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive making the provisions of Bell Helicopter Alert Service Bulletin No. 206L-81-21 mandatory for all 206L Series Aircraft. (Class II, Priority Action) (A-81-77)

Assess the need to modify the Futurecraft Corporation valve shear head release piston pin to minimize the possibility of installing the piston pin incorrectly. (Class II, Priority Action) (A-81-78)

Determine whether other models of helicopter aircraft equipped with emergency flotation equipment use the same Futurecraft Corporation valve and take appropriate corrective action to advise the operators of those aircraft of the potential problem. (Class II, Priority Action) (A-81-79)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.


By: James B. King
Chairman