

LCG-1112

NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: November 19, 1979

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-79-85

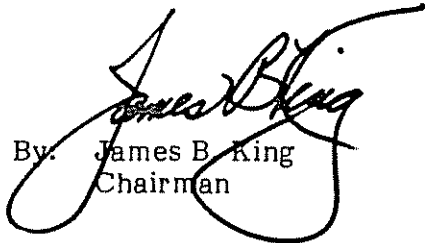
On April 18, 1979, a Sikorsky S-61L helicopter crashed at Newark International Airport, Newark, New Jersey. The Safety Board determined that the probable cause of the accident was the separation of the tail rotor assembly and gearbox from the aircraft at an altitude which made further controlled flight impossible. The rotor assembly and gearbox separated because of severe vibrations in the rotor assembly which were induced by the loss of a tail rotor blade due to fatigue failure. Metallurgical examination of the blade's spar revealed a fatigue fracture across 90 percent of its cross section 35 inches from the outboard end. The blade is designed and manufactured so that the spar is completely enclosed in an aluminum skin envelope, thereby making visual inspection of the spar impossible.

The Sikorsky S-58 model helicopter uses a tail rotor blade identical in design to the S-61L model blade, although dimensionally it is smaller in the spanwise direction. The Board learned that one tail blade spar failure has occurred recently on an S-58T model helicopter in South America. Loss of a section of blade on the S-58 results in the same conditions that occurred on the S-61L at Newark, New Jersey.

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

Issue an Airworthiness Directive to require a one-time ultrasonic inspection of tail rotor blades installed on S-58 and S-58T model helicopters for evidence of spar cracks and, if necessary, establish a recurring spar inspection based on an appropriate number of operating hours.
(Class I, Urgent Action) (A-79-85)

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


By: James B. King
Chairman