

7-24-78

**NATIONAL TRANSPORTATION SAFETY BOARD**  
**WASHINGTON, D.C.**

ISSUED: July 24, 1978

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Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-78-49

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On July 14, 1978, a Bell 212 helicopter was conducting water-drop operations under contract for the Department of Interior near Vernel, Utah. After the pilot reported that noise and excessive vibration were emanating from the main transmission, he made a precautionary landing. Preliminary examination of the aircraft's main transmission disclosed that four teeth had separated from the main transmission input spiral bevel gear (PN 204-040-701-3). The total time on the component was 562 hours.

This incident occurred only 41 days after a fatal accident involving a Bell 212 helicopter which was engaged in offshore oil operations; a transmission gear failure also appears to have been a causal factor.

Review of the service history of the main transmission input spiral bevel gear revealed that Bell 212 helicopters used by the military had recently had three such failures; two had resulted in forced landings and one had resulted in a nonfatal accident. All failures have been random from the standpoint of manufacturing dates and operating times.

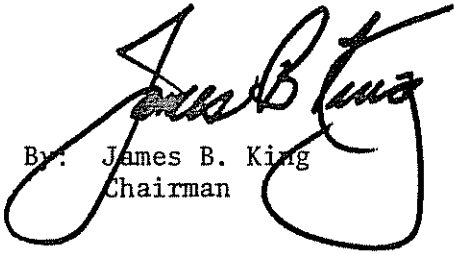
The Safety Board is aware that Bell Helicopter has dispatched inspection teams worldwide to visually inspect the subject gear without major disassembly of the main transmission. Using this procedure without magnification, the inspector's ability to detect a progressive-type crack emanating from the gear teeth root radius is questionable. The Safety Board is also aware that a military-funded test program is forthcoming on the Model 212 to attempt to determine the cause of the random failures in the PN 204-040-701-3 gear. However, the Safety Board is concerned that continued operation of the aircraft with these spiral bevel gears installed will compromise the helicopter's airworthiness.

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

Determine immediately the potential risks of operating the Bell 212 helicopter with the main transmission input spiral bevel gear PN 204-040-701-3 installed and act to minimize those risks. (Class I, Urgent Action) (A-78-49)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendation.

  
By: James B. King  
Chairman