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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 21, 1981

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-81-73

On January 16, 1981, the National Transportation Safety Board investigated an aircraft accident in Pittsburgh, Pennsylvania, involving an Italian Agusta 109A helicopter. The investigation disclosed that the No. 7 tailrotor driveshaft bearing had failed, which resulted in the failure of the tubular tailrotor shaft tubing. The exact reason for the failure of the bearing could not be determined; however, there was no lubrication on the bearing parts. This is the first known failure of the bearing and driveshaft assembly.

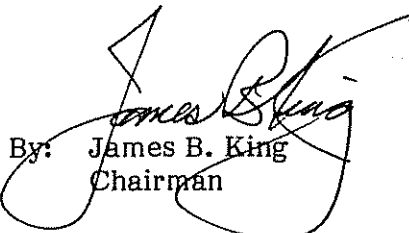
There are no overhaul or replacement time limits on either the driveshaft or its seven bearings; however, they are required to be inspected visually during preflight. The No. 7 bearing and its support are located in the base of the vertical stabilizer assembly and previously could only be inspected by removing a piece of skin. The inaccessibility of the bearing and its support could have been a factor in whether or not an adequate daily preflight inspection was performed. Access to six bearings for inspection involves removing the hinged tailcone cover. Since the accident, all similar aircraft in this country have had an inspection door installed in order to perform inspections of the No. 7 bearing more easily. All aircraft coming off the assembly line now have an inspection door installed.

While the bearing accessibility problem has been solved, the maintenance manual, Chapter 65-30-17, page 204, does not describe clearly the manner of inspecting and maintaining the bearings. It does not require the removal of the bearing covers to examine the internal areas of the bearings for lubrication and general condition. The manual does not require inspection of the overall condition of the rubber collars which clamp the bearing's inner race to the tailrotor driveshaft. Although required by the maintenance manual, there were no slippage marks on the No. 7 bearing, on the other six driveshaft bearings, or on the tailrotor driveshaft. Also, the lubrication requirements stated in the maintenance manual do not specify a lubricant nor lubrication intervals for the tailrotor driveshaft bearings. The failure to specify lubrication intervals and an approved lubricant may have contributed to the lack of lubrication in this case.

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

Revise the Agusta 109A helicopter maintenance manual to specify a more detailed daily inspection requirement, a maintenance service interval for lubrication, and an approved lubricant to be used on tailrotor driveshaft bearings. (Class II, Priority Action) (A-81-73)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in this recommendation.


By: James B. King
Chairman