

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 24, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 12th day of January 1972

FORWARDED TO:)
Honorable John H. Shaffer)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

SAFETY RECOMMENDATIONS A-72-17 & 18

On September 1, 1971, a Hiller UH-121A helicopter, N90486, was involved in an accident at Grand Canyon, Arizona, when the pilot experienced a loss of power to the main rotor during takeoff on a local sightseeing flight. The three passengers received minor injuries, and the aircraft was destroyed by the ensuing ground fire.

Detailed examination disclosed that the loss of power to the main rotor drive system was caused by slippage of the mercury drive clutch assembly. The slippage, which was revealed during functional testing at the manufacturer's facilities, occurred as a result of glazed and worn friction shoes and not from a loss of mercury, although the net mercury content was 24 grams below the specified requirement.

On March 27, 1967, after seven Hiller helicopter accidents caused by slipping mercury drive clutches, the National Transportation Safety Board recommended that the flight manuals be revised to include the proper engagement and time procedures for engagement of the mercury clutch, and that a placard listing the maximum acceptable limits be mounted near the engine/rotor tachometer. In April 1968, the flight manuals were revised to include the correct engagement and time procedures; however, our recommendation pertaining to the placard was not accepted.

Since clutch engagement time increases with wear of the friction shoes or drum, and since these components are maintained on an "on condition" basis (no mandatory replacement or overhaul schedule), the Board again recommends that:

1. A placard containing the specific clutch engagement time limits be mounted on the instrument panel adjacent to the engine/rotor tachometer to remind the pilot that

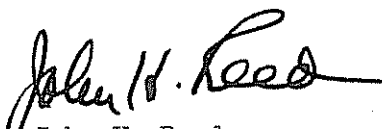
these components should be inspected before further flight when the average clutch engagement time exceeds the 20- to 25-second limit.

2. A maintenance alert bulletin be sent to all operators apprising them of this accident and the necessity of complying with the clutch maintenance procedures when engagement times exceed those specified.

Personnel from our Bureau of Aviation Safety will be made available if any further information or assistance is desired.

These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Laurel, McAdams, Thayer, and Burgess, Members, concurred in the above recommendations:


By: John H. Reed
Chairman

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SAFETY BOARD
DEPARTMENT OF TRANSPORTATION
Washington, D.C. 20591

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