

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

ISSUED: May 9, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 19th day of April 1972

FORWARDED TO:)

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

SAFETY RECOMMENDATIONS A-72-47 thru 50

The National Transportation Safety Board's investigation of several accidents and incidents involving the inability to extend the landing gear in various models of Beechcraft airplanes has revealed a number of internal failures in the gear actuator assemblies. The gear actuators on many different models of Beechcraft airplanes are similar in design (Models A-65, A-65-70, 65-80, B-99).

Examination of the subject actuators has indicated that improper lubrication, rigging, and overhaul procedures were the primary causes for the operational failures of these actuators. Moreover, a failure in one of the gear actuators nullifies the operation of both the normal and the emergency gear extension systems.

The Safety Board believes that the actuator failures can be attributed to inadequacies in the Beech maintenance and overhaul manuals. These manuals do not contain sufficient information regarding lubrication, servicing, and overhaul of the actuators.

There are no grease fittings on the actuators to service them externally on the aircraft; thus, when required, they must be removed, disassembled, serviced with grease, reinstalled, and rerigged.

Evidence in three of the accidents indicated improper overhaul procedures. In two of the accidents (Beech 65-80, Kansas City, Missouri, September 15, 1971, and Beech 99, Houston, Texas, December 17, 1971), the

pinion bearings in the actuator apparently were installed improperly at overhaul. In the third accident (Beech 99, New York City, New York, September 30, 1971), there was apparently no grease servicing of the actuator at overhaul. The Board believes that the overhaul manuals do not clearly indicate the proper procedures for the installation of the pinion bearing, nor do they state that disassembly is required for lubrication during overhaul.

In the cases cited above, the aircraft were extensively damaged as a result of landing gear-up. To prevent recurrence of such incidents and accidents, we believe that Part 23 of the Federal Aviation Regulations (FAR) should be comparable to Part 25, in that an independent emergency means for extending the landing gear should be required upon any reasonable failure in the normal system.

Accordingly, the Safety Board recommends that the Federal Aviation Administration:

1. Forward a notice to all owners, operators, and repair facilities, describing the lubrication and overhaul problems of the model aircraft mentioned above. This should include the necessary corrective procedures to improve the reliability of the landing gear actuators.
2. Issue an Airworthiness Directive requiring a one-time inspection of all landing gear actuators on applicable type aircraft to ensure proper configuration and lubrication.
3. Reduce the time interval between the recommended service periods, as indicated in the service manual, to preclude future failures caused by corrosion, lack of lubrication, and service wear.
4. Modify FAR 23.729 (c) to require an independent means for the emergency extension of the landing gears comparable to the wording of FAR 25.729 (c).

Our technical staff is available for any further assistance or information you may desire.

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

Honorable John H. Shaffer 3

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

A handwritten signature in cursive script that reads "John H. Reed". The signature is written in black ink and is positioned above the typed name and title.

By: John H. Reed
Chairman

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