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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: 15 APR 1982

Forwarded to:

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

SAFETY RECOMMENDATION(S)

A-82-31

The Fort Worth Field Office of the National Transportation Safety Board recently reported the occurrence of four Bell 206L-1 helicopter accidents in slightly more than 1 month which involved Allison 250C-28B engine and fuel control system failures. Although there were no fatalities associated with these accidents, we believe a safety hazard exists. Preliminary accident reports indicate that Allison 250C-28B engines and fuel control systems were a cause or factor in 15 accidents (or 65 percent) of the Bell 206L-1 accidents investigated by the Safety Board between April 1980 and January 1982. During this period, there were a total of 16 injuries and 2 fatalities as a result of these accidents.

Initial deliveries of the Allison 250C-28B engine began in 1976 for installation in Bell 206L-1 helicopters. The Bell 206L-1 was certificated and entered into service in January 1978. According to the manufacturer, Detroit Diesel Allison, 720 engines were delivered through June 1981. A search of Federal Aviation Administration (FAA) Service Difficulty Reports (SDR's) concerning the Allison 250C-28B engine and fuel control system revealed that 256 reports had been received, 199 (or 78 percent) from January 1980 to July 1981. A detailed review of these SDR's by engine serial number showed that 68 engines had 2 or more discrepancies; 1 had as many as 16. An 18-month comparison of the total number of SDR's received for a population of 8,720 Allison 250C-20, -20B, and -28B series engines versus the number of SDR's received for the population of 720 Allison 250C-28B engines, which constitutes only 8.3 percent of the 8,720 engines, is as follows:

Allison 250C -20, -20B, and -28B Engines

Period	Total SDR's Received		Percent of Total For 250C-28B
	All 250C-20, -20-B, and -28B	250C-28B	
1980	398	135	34
1981 (Jan. to July)	168	64	38

A review of the System Analysis and Summary Reports prepared by the FAA Flight Standards National Field Office verified an upward trend in the number of SDR's received on the Allison 250C-28B engine and fuel control system over the past 3 years. According to the propulsion engineer at the FAA Great Lakes Region Engineering and Manufacturing Branch, the controlling regional office for certification of the Allison engine, no detailed study is planned on the Allison 250C-28B engine and fuel control failure rate. Because of the continuing high percentage of Allison 250C-28B engine and fuel control system failures and the recent increase in accidents involving these engines and fuel control systems, the Safety Board believes corrective measures should be taken.

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

> Implement an in-depth study to determine what remedial action should be taken to eliminate the excessive failure rate of the Allison 250C-28B engine and fuel control system. (Class II, Priority Action) (A-82-31)

BURNETT, Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in this recommendation.

Patricia A. Goldman

By: Jim Burnett
Acting Chairman