UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

ISSUED: August 3, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 14th day of July 1971

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

SAFETY RECOMMENDATION A-71-38

On December 11, 1970, a Cessna Model 337 aircraft, N5462S, was involved in a fatal accident at Hobby Airport, Houston, Texas.

The pilot had filed an IFR flight plan from Houston, Texas, to Kerrville, Texas. Both the front and aft engines were operating when the aircraft departed the parking ramp; however, the aircraft taxied onto the active runway with only the front engine operating. Takeoff was made on a 4,500-foot-long runway on one engine from an intersection with 3,200 feet of runway available. After the aircraft became airborne, the tower controller informed the pilot the aft engine was inoperative; the pilot acknowledged and began a left turn. When the aircraft was approximately 500 feet left of the departed runway, it stalled and struck the ground in a steep nosedown attitude. Both aircraft occupants, the pilot and passenger, were fatally injured.

Examination after impact of the aft propeller disclosed evidence that the propeller was in the normal shutdown pitch. This information and the fact that takeoff was attempted from a runway intersection indicate the pilot was not aware of the inoperative aft engine.

During the course of the National Transportation Safety Board's investigation of this accident, other accidents and incidents came to light where pilots have attempted to take off in a Cessna Model 337 aircraft, unaware that the aft engine was inoperative. One such accident occurred at Schulenburg, Texas, on February 4, 1968, aircraft N6310F, and another at Midland, Texas, on September 26, 1968, aircraft N3408S. A more recent accident occurred on May 16, 1971, at Jackson, Mississippi, aircraft N5388C in which both aircraft occupants, the pilot and passenger, were fatally injured.

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Early Cessna Model 336/337 aircraft were equipped with an aft engine-out warning light system. The light was activated by the aft engine forward shift against a microswitch while developing thrust. This warning light system has since been discontinued.

The three dual engine instruments, manifold pressure, tachometer, and fuel flow, used in determining engine power output, are positioned in a vertical plane on the copilot's instrument panel. The top instrument, manifold pressure gage, in the event of loss of power on one engine during the takeoff sequence, would indicate maximum manifold pressure and therefore would not give a clue to the pilot of a malfunctioning engine. The electronic tachometer, center instrument, has a dual vertical scale with a 5/8-inch-thick indicator exposed. A split needle condition would not be as readily detectable as on a conventional dual instrument where both needles are completely exposed and sweep through the same arc. The fuel flow gage is also a dual vertical instrument similar to the tachometer and is located directly below the tachometer.

The procedure, as stated in the 1966 Cessna Super Skymaster Owner's Manual, for an engine-out after takeoff above 85 m.p.h. (without sufficient runway ahead) is to determine inoperative engine (from engine r.p.m.) with a note to verify inoperative engine choice by closing throttle and noting power response to throttle movement.

It is apparent from these four accidents and other known incidents where pilots attempted a takeoff with an aft engine inoperative that there is a need for some type of visual and/or aural warning signal that would alert pilots in the event of an aft engine power loss.

In view of these findings, the Safety Board recommends that:

The Federal Aviation Administration require the installation of an aft engine-out warning device in Model 336/337 Cessna aircraft as a safety measure.

Details of this accident have been discussed with personnel of your Flight Standards Service. Personnel of our Bureau of Aviation Safety will be pleased to provide any further information or assistance that might be considered desirable in respect to this matter.

This recommendation 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 recommendation.

By: John H. Reed
Chairman