

RECOMMENDATIONS

The National Transportation Safety Board believes that Advisory Circular 61-40, Certification - Pilots and Flight Instructors, superseded by Advisory Circular 61-4B, Flight Test Guide - Multiengine Airplane, has great accident prevention merit with regard to this type of accident. The requirement in both publications to conduct "approach to stalls" and not to conduct "full stalls" should be reemphasized to all pilots.

The Board is in agreement with the FAA's basic concept of type certification to assure that during normal operation, the operational pilot will not encounter any airplane characteristic that has not been explored by an experienced test pilot.

We believe that the one-turn spin recovery capability in single-engine aircraft, coupled with the placarding of the aircraft against intentional spins, meets the intent of the philosophy for providing an adequate level of safety. However, we do not believe that multiengine aircraft have been provided with a similar level of safety.

Since the certification rules do not require spin testing of multiengine aircraft, the full-stall regime of flight may not have been fully explored by experienced test pilots. Therefore, the operational pilot may attempt full stalls in aircraft in which there is not adequate data on the handling characteristics in the full-stalled condition. In order to preclude the conducting of full stalls by the average pilot in this type aircraft, the Board believes that the aircraft should be placarded against full-stall maneuvers and that this prohibition should be included in the airplane flight manual.

The Board also believes that it would be beneficial to safety to inform pilots of the differences between the airplane type certification stall requirements and pilots certification demonstrations of "approach to stall" maneuvers and to emphasize the inherent dangers which might exist at or close to speeds at which full stalls occur, particularly with one engine inoperative.

In our continued effort to prevent stall and spin accidents during pilot training, the Safety Board recommends that the Federal Aviation Administration:

1. Reissue Advisory Circular 61-40 to all pilots and flight instructors, reemphasizing the requirement to conduct or demonstrate only "approach to stalls," not full stalls.  
(A-73-8)
2. Require that flightcrews be provided with information in the airplane flight manual and by means of a suitable placard placed in the cockpit to indicate a prohibition against intentional full stalls on all twin-engine airplanes which have not been spin tested. (A-73-9)

3. Describe in each aircraft flight manual the aircraft characteristics which result from "approach to stalls" to assure that pilots will be able to perceive the end point of this maneuver. (A-73-10)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

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