A-151

UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Civil Air Regulations Amendment 4b-5
Effective: November 27, 1951
Adopted: November 27, 1951

STALLING CHARACTERISTICS

The stalling characteristics provisions presently in effect in the Civil Air Regulations may, if literally applied, result in unrealistic and dangerous testing procedures. Those provisions were written with a view to certification of airplanes relatively smaller than many of the large present-day transports.

It is the opinion of the Board that these new provisions will allow manufacturers to demonstrate safe stalling characteristics in future airplanes with a minimum of danger to the testing personnel. This has been accomplished mainly by a change in the definition of a stall.

The note following § 4b.162 is not intended to make a stall warning 7 percent above the stalling speed mandatory, but is inserted only as a guide. The prior regulation required a warning 5 percent above stalling speed and was completely inflexible. As amended, however, while an earlier indication of approaching stall is stated to be desirable, other margins may be accepted providing the attendant factors are such that the pilot can be expected to receive sufficient warning.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented. Since this amendment imposes no additional burden on any person, it may be made effective without prior notice.

In consideration of the foregoing the Civil Aeronautics Board hereby amends Part 4b of the Civil Air Regulations (14 CFR, Part 4b, as amended) effective immediately:

1. By amending § 4b.160 to read as follows:

4b.160 Stalling; symmetrical power.

(a) Stalls shall be demonstrated with the airplane in straight flight and in banked turns at 30 degrees, both with power off and with power on. In the power-on conditions the power shall be that necessary to maintain level flight at a speed of 1.6 V_{S1}, where V_{S1} corresponds with the stalling speed with flaps in the approach position, the landing gear retracted, and maximum landing weight.

difficult with normal piloting skill to effect a prompt recovery and to regain control of the airplane.

(g) In both the straight flight and the turning flight stall demonstrations it shall be possible promptly to prevent the airplane from stalling and to recover from the stall condition by normal use of the controls.

2. By amending § 4b.162 to read as follows:

4b.162 Stall warning. Clear and distinctive stall warning shall be apparent to the pilot with sufficient margin to prevent inadvertent stalling of the airplane with flaps and landing gear in all normally used positions, both in straight and in turning flight. It shall be acceptable for the warning to be furnished either through the inherent aerodynamic qualities of the airplane or by a device which will give clearly distinguishable indications under all expected conditions of flight.

NOTE: A stall warning beginning at a speed 7 percent above the stalling speed is normally considered sufficient margin. Other margins may be acceptable depending upon the degree of clarity, duration, and distinctiveness of the warning and upon other characteristics of the airplane evidenced during the approach to the stall.

(Sec. 205 (a), 52 Stat. 984; 49 U.S.C. 425 (a), Interpret or apply secs. 601, 603, 52 Stat. 1007, 1009; 49 U.S.C. 551, 553)

By the Civil Aeronautics Board:

/s/ M. C. Mulligan

M. C. Mulligan
Secretary

(SEAL)

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