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

Civil Air Regulations Amendment 6-3
Effective: May 17, 1958
Adopted: April 15, 1958

ROTORCRAFT AIRWORTHINESS; NORMAL CATEGORY

MISCELLANEOUS AMENDMENTS RESULTING FROM THE
1957 ANNUAL AIRWORTHINESS REVIEW

There are contained herein amendments with respect to issues stemming from the 1957 Annual Airworthiness Review.

The nonsubstantive changes deal with the definitions of standard atmosphere, take-off power or thrust, maximum continuous power or thrust, and gas temperature. These changes are being made to maintain consistency in the definitions throughout the Civil Air Regulations.

The only substantive change being made deals with protection from fan blade failures. A recent accident involving engine overspeed and fan disintegration prompts the Board to amend § 6.401 to require protection from fan blade failures.

Interested persons have been afforded an opportunity to participate in the making of this amendment (22 F.R. 9116), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, the Civil Aeronautics Board hereby amends Part 6 of the Civil Air Regulations (14 CFR Part 6, as amended) effective May 17, 1958:

1. By amending § 6.1 (c) (1) by inserting between the words "atmosphere" and "defined" the following "(see NACA Technical Report 1235)".

2. By amending § 6.1 (c) (1) (iv) by deleting the expression "-67° F." and inserting in lieu thereof "-69.7° F."

3. By amending § 6.1 (c) (1) (v) by deleting the numerals "0.002378" and inserting in lieu thereof "0.002377".

4. By amending § 6.1 (g) by amending the title, by amending subparagraphs (2) and (3), by redesignating subparagraphs (4) and (5) as subparagraphs (5) and (6), respectively, and by adding a new subparagraph (4) to read as follows:

6.1 Definitions. * * *

(g) Powerplant installation.[1/] * * *

(2) Take-off power or thrust.

(i) Take-off power for reciprocating engines is the brake horsepower developed under standard sea level conditions, under the maximum conditions of crankshaft rotational speed and engine manifold pressure approved for the normal take-off, and limited in use to a maximum continuous period as indicated in the approved engine specification.

(ii) Take-off power for turbine engines is the brake horsepower developed under static conditions at specified altitudes and atmospheric temperatures, under the maximum conditions of engine rotor shaft rotational speed and gas temperature approved for normal take-off, and limited in use to a maximum continuous period as indicated in the approved engine specification.

(iii) Take-off thrust for turbine engines is the jet thrust developed under static conditions at specified altitudes and atmospheric temperatures, under the maximum conditions of engine rotor shaft rotational speed and gas temperature approved for the normal take-off, and limited in use to a maximum continuous period as indicated in the approved engine specification.

(3) Maximum continuous power or thrust.

(i) Maximum continuous power for reciprocating engines is the brake horsepower developed in standard atmosphere at a specified altitude, under the maximum conditions of crankshaft rotational speed and engine manifold pressure, and approved for use during periods of unrestricted duration.

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(ii) Maximum continuous power for turbine engines is the brake horsepower developed at specified altitudes, atmospheric temperatures, and flight speeds, under the maximum conditions of engine rotor shaft rotational speed and gas temperature, and approved for use during periods of unrestricted duration.

(iii) Maximum continuous thrust for turbine engines is the jet thrust developed at specified altitudes, atmospheric temperatures, and flight speeds, under the maximum conditions of engine rotor shaft rotational speed and gas temperature, and approved for use during periods of unrestricted duration.

(4) Gas temperature. Gas temperature for turbine engines is the temperature of the gas stream obtained as indicated in the approved engine specification.

5. By amending § 6.401 by redesignating the present title and text of the section as paragraph (a), by adding a new title to the section, and adding a new paragraph (b) to read as follows:

6.401 Engines. * * *

(b) Engine cooling fan blade protection. If an engine cooling fan is installed, means shall be provided to protect the rotorcraft and to permit a safe landing in the event of a fan blade failure. Compliance shall be shown with any one of the provisions of subparagraphs (1) through (3) of this paragraph.

(1) It shall be demonstrated that the fan blades will be contained in the event of failure;

(2) The fan is so located that a fan blade failure will not jeopardize the safety of the rotorcraft or its occupants; or

(3) It shall be demonstrated that the fan blade can withstand an ultimate load of 1.5 times the centrifugal force resulting from engine rpm limited by either:

(i) The engine terminal rpm which can occur under uncontrolled conditions, or

(ii) An overspeed limiting device.

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

By the Civil Aeronautics Board:

/s/ M. C. Mulligan

M. C. Mulligan
Secretary

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