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

Civil Air Regulations Amendment 4a-2
Effective: August 1, 1949
Adopted: June 29, 1949

TEMPERATURE ACCOUNTABILITY FOR TAKE-OFF LIMITATIONS FOR TRANSPORT CATEGORY AIRPLANES

Special Civil Air Regulation No. 397, as adopted by the Board on August 21, 1947, established certain values, for various types of transport category airplanes, to be used to compensate more properly for the effect of temperature variations on airplane performance. Due to the introduction of new types of airplanes since the adoption of the regulation, and more recent engineering data on some types for which values had already been established, it was proposed to amend the rule establishing appropriate specific values for each of the current types of transport category airplanes operated by the air carriers. Accordingly, an appropriate notice of proposed rule making was published in the Federal Register on March 30, 1949 (14 F.R. 1411).

Comments received as a result of this publication indicated that considerable thought and inquiry has been devoted to the general problem of temperature effect on airplane performance, and that the admittedly simplified form of the proposed rule giving specific values to be used for a single basic model might not reflect accurately the maximum take-off weight or runway length necessary for safe operation for some variations of the basic type of airplane currently being manufactured or used by the air carriers. For this reason, the Board believes that it is desirable to revert to the general practice of promulgating regulations which establish a standard of safety, allowing their implementation in individual cases by the industry and the Administration. The Board, therefore, is adopting amendments to the various parts of the Civil Air Regulations which incorporate the formula used in establishing the current specific values set forth in Special Civil Air Regulation No. 397. The amendments require the entry of the appropriate values for each airplane in the Airplane Flight Manual, and provide that all transport category airplanes shall be operated in accordance with the values so entered.

The question of appropriate regulatory requirements for temperature effect on airplane performance will continue to be studied. Further consideration will be given to these regulations in the light of possible international developments.

It is our opinion that the notice of proposed rule making referred to herein adequately advised the public of the issues involved, and since the

amendments herein adopted reflect the comment thus received, no further rule-making procedures are required.

In consideration of the foregoing the Civil Aeronautics Board hereby amends Part 4a (14 CFR, Part 4a, as amended) effective August 1, 1949:

By adding a new § 4a.75322-T to read as follows:

4a.75322-T Temperature accountability. Operating correction factors for take-off weight and take-off distance shall be determined to account for temperatures above and below standard, and when approved by the Administrator shall be included in the Airplane Flight Manual. These factors shall be obtained as set forth in paragraphs (a) and (b) of this section.

(a) For any specific airplane type, the average full temperature accountability shall be computed for the range of weights of the airplane, altitudes above sea level, and ambient temperatures required by the expected operating conditions. Account shall be taken of the temperature effect on both the aerodynamic characteristics of the airplane and on the engine power. The full temperature accountability shall be expressed per degree of temperature in terms of a weight correction, a take-off distance correction, and a change, if any, in the critical engine failure speed, V_1.

(b) The operating correction factors for the airplane weight and take-off distance shall be at least one-half of the full accountability values. The value of V_1 shall be further corrected by the average amount necessary to assure that the airplane can stop within the runway length at the ambient temperature; except that the corrected value of V_1 shall not be less than a minimum at which the airplane can be controlled with the critical engine inoperative.

(Secs. 205 (a), 601, 603, 52 Stat. 984, 1007, 1009, 62 Stat. 1216; 49 U.S.C. 425 (a), 551, 553, P.L. 872, 80th Cong. 1st Sess.)

By the Civil Aeronautics Board:

/s/ Fred A. Toombs

Fred A. Toombs
Acting Secretary

(SEAL)
