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

Civil Air Regulations Amendment 42-17
Effective: December 30, 1958
Adopted: December 30, 1958

IRREGULAR AIR CARRIER AND OFF-ROUTE RULES

USE OF AVERAGE, ASSUMED, AND ESTIMATED WEIGHTS

Air carriers have for many years utilized approved weight and balance control procedures involving average, assumed, and estimated weights in determining compliance with the various weight limitations of this part. Such procedures have been formally endorsed by the Civil Aeronautics Administration and the Board since December 8, 1947, the date of issuance of Safety Regulation Release No. 270. Subsequently, these procedures and the methods by which they may be carried out have been continued in Civil Aeronautics Manual 42. These procedures and the recommended methods of implementation described in Civil Aeronautics Manual 42 are a practical approach to compliance with the regulations pertaining to operating limitations without adversely affecting the safety of air carrier operations. This approach recognizes that it is not possible to require literal compliance with the weight and balance requirements of Part 42 of the Civil Air Regulations through a determination of actual weights in every instance, considering the extent of present-day air carrier operations, without drastically curtailing such operations.

To obviate the actual weighing of the airplane and its contents prior to each flight, certain approved methods and procedures have become an essential part of day-to-day air carrier operations and insure reasonable compliance with the appropriate operating limitations. For a fleet or group of airplanes of the same model and configuration, an average operating fleet weight is utilized when the operating weights and positions of the center of gravity are within the limitations established by the Administrator in Civil Aeronautics Manual 42. For example, an operator of a fleet of more than 9 airplanes of the same model and configuration must weigh periodically at least 6 of these airplanes, plus at least 10 percent of the number over 9. Furthermore, to insure that a safe average weight is maintained, certain safeguards are incorporated in the approved weight procedures. If the basic operating weight of any airplane weighed or the calculated basic operating weight of any one of the remaining airplanes in the fleet varies by an amount more than plus or minus one-half of one percent of the maximum landing weight from the established basic operating fleet weight, that airplane will be eliminated from the group and operated on its actual or calculated weight. Carriers also may elect to use either the actual passenger weight or the average passenger weight to compute passenger loads over any route except in unusual cases as, for example, a passenger load consisting of an athletic team. The average weights which may be used are set forth in Civil Aeronautics Manual 42. In determining compliance with certain operating limitations such as landing distance limitations, the carrier may assume that the take-off weight of the airplane is reduced by the weight of the fuel and oil expected to be consumed in flight to the field of intended destination and the weight of such fluids may be established on the basis of actual weight, a standard volume comparison, or a volume comparison utilizing appropriate temperature correction factors to actually determine the weight by computation of the quantity of fluid on board.

There are many other instances in which average, assumed, or estimated weights are used in the conduct of air carrier operations.

It has recently been brought to the Board's attention that the absence of explicit authority in Part 42 for the use of average, assumed, or estimated weights in accordance with procedures approved by the Administrator has given rise to concern that an air carrier might be considered in technical violation of the Civil Air Regulations if the weight of a particular airplane actually exceeded any of the various weight limitations of this part, even though the calculations had been made in accordance with approved procedures.

In order to remove any doubt as to the legality of using such approved procedures and to bring the regulations into accord with a well-established and safe administrative practice, Part 42 is being amended to provide specific authority for the use of an approved weight and balance control system in which average, assumed, or estimated weights may be utilized if such system gives assurance of results substantially equalling direct weighing.

Since this amendment merely confirms an established administrative practice essential to the maintenance of safe, optimum air carrier operations and imposes no additional burden on any person, the Board finds that notice and public procedure hereon are unnecessary and that good cause exists for making this amendment effective without prior notice.

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In consideration of the foregoing, the Civil Aeronautics Board hereby amends Part 42 of the Civil Air Regulations (14 CFR Part 42, as amended) effective December 30, 1958.

By amending § 42.14 by adding at the end thereof a new sentence to read as follows: "In determining compliance with the applicable airworthiness requirements and operating limitations, a weight and balance control system approved by the Administrator based upon average, assumed, or estimated weights may be utilized."

(Sec. 205 (a), 52 Stat. 984, as amended; 49 U.S.C. 425. Interpret or apply secs. 601, 604, 605, 52 Stat. 1007, 1010, as amended; 49 U.S.C. 551, 554, 555)

By the Civil Aeronautics Board:

/s/ Mabel McCart

Mabel McCart
Acting Secretary

(SEAL)

Part 42 last printed December 15, 1954.