Affects Parts: 4a, 4b, 40, 41, 42 Regulation No. SR-411A
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UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Effective: July 1, 1957
Adopted: June 28, 1957

# SPECIAL CIVIL AIR REGULATION

## TRIAL OPERATION OF TRANSPORT CATEGORY AIRPLANES IN CARGO SERVICE AT INCREASED ZERO FUEL AND LANDING WEIGHTS

On June 30, 1955, the Civil Aeronautics Board adopted Special Civil Air Regulation No. SR-411 authorizing for a period of 2 years trial operations of transport category airplanes in cargo service at weights in excess of those permitted in passenger service. The weights involved are the zero fuel weight (maximum weight of the airplane with no disposable fuel and oil) and the structural landing weight. The use of the higher weights is made contingent upon certain findings by the Administrator and upon certain conditions of operation and inspection.

Prior to the adoption of SR-411, trial operations of Douglas DC-6A airplanes at higher weights were authorized in orders issued by the Board to individual carriers. The first of such orders was issued on July 21, 1954. Authorization of the trial operations was predicated on the premise that such operations could eventually lead to the establishment of a sound basis for differentiating between standards for passenger and cargo air carrier operations. The success of the trial operations under the Board's orders led to the promulgation of SR-411 which permits any number of any type of transport category airplane to be operated at increased weights in cargo service. The basic intent of SR-411 was to obtain a more extensive background of operating experience to assure that the conditions governing the trial operations do in fact provide a sound basis for establishing possible future standards for airplanes in cargo operations.

Prior to the effective date of SR-411, there were a total of 6 DC-6A airplanes being used by 3 operators under waivers at higher weights. As of December 30, 1956, such operations encompassed 23 DC-6A airplanes and 5 operators. More recently Lockheed L1049-H airplanes have been introduced in cargo service at increased weights. Results of inspections submitted thus far to the Board have revealed no serious structural defects which could be attributed to operation at the increased weights.

In the preamble to SR-411, the Board indicated that it expected to have interested persons submit their evaluation of the trial operations and recommendations with respect to future regulatory action. In this regard, industry segments directly related to the trial operations under SR-411 recommended that the authorization for trial operations be continued on the basis that such operations have not resulted in any


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indications of structural distress and on the basis of the economic importance of such trial operations to the promotion and success of cargo service. Based on the foregoing and on the evaluation of the inspection and operational reports submitted by the air carriers, the Board finds that there is sufficient justification to permit the continuation of trial operations beyond June 30, 1957, the termination date of Special Civil Air Regulation No. SR-411. From the operational data submitted by the operators, the scope of operations under SR-411 has been such that substantiation of the conditions for these operations for inclusion in the regulations on a permanent basis will entail a long range program. Consequently, the termination date of this regulation is being established to permit trial operations for an additional five-year period.

In connection with the rulemaking procedures effected on this matter, it was suggested that the Board extend the trial operations for a period no longer than one or two years on the premise that the shorter time extension would permit closer control of these operations. The Board fails to find any relationship between the extension period and the quality of control exerted over the trial operations inasmuch as the Board intends to continue its evaluation of the inspection reports submitted by the operators at regular intervals and envisions that the industry and the Administrator will do likewise.

Suggestions were also received to the effect that the trial operations should not be limited only to the older type airplanes, as proposed in the notice of proposed rule making; i.e., to airplanes certificated prior to March 13, 1956. In this regard, the Board considers that in view of the new concept of structural design requirements as well as other related changes in these requirements which were introduced on the aforementioned date into Part 4b of the Civil Air Regulations along with the new concept of structural design, it is advisable that some experience be gained with airplanes certificated under those provisions at the normal transport category weights before permitting such airplanes to operate at the higher weight. Accordingly, this special regulation extends the authorization to operate at higher weights only to airplanes certificated in accordance with the transport category requirements in effect prior to March 13, 1956.

It should be noted that, as indicated in the preamble to SR-411, the Board envisions that most of the airplanes taking advantage of this regulation will continue to be used in cargo service solely. However, if any of the airplanes operated under the provisions of this regulation are to be made eligible at any later time for passenger service, the provisions of this regulation require accomplishment of a special inspection and an evaluation of the fatigue limitations. It is suggested that, if it is contemplated to return the airplane to passenger service, the establishment of special inspections and the evaluation of the fatigue limitations be accomplished prior to increasing the airplane weight for cargo service. It is not the intent of this regulation to permit intermittent operations in passenger and cargo service.

The provisions of this regulation differ from the provisions of Special Civil Air Regulation No. SR-411 in that they are made applicable only to airplanes certificated in accordance with the transport category structural requirements effective prior to March 13, 1956; they require inspection and flight data records to be kept available for no longer than one year; and they require flight records (as distinguished from inspection records) to be made only with respect to those flights involving increased weights, rather than for all flights regardless of whether or not they are made at the increased weights.

Interested persons have been afforded an opportunity to participate in the making of this regulation (22 F.R. 3416), and due consideration has been given to all relevant matter presented. Since this regulation imposes no additional burden on any person, it may be made effective on less than 30 days' notice.

In consideration of the foregoing, the Civil Aeronautics Board hereby makes and promulgates the following Special Civil Air Regulation, effective July 1, 1957.

Notwithstanding the applicable structural provisions of the Civil Air Regulations, any air carrier may operate in cargo service transport category airplanes which were certificated under the provisions of Part 4a or Part 4b, effective prior to March 13, 1956, subject to the conditions hereinafter set forth:

(1) The air carrier shall submit an application to the Administrator indicating its desire to operate its airplane(s) under the provisions of this special regulation, and indicating which airplane(s) would be involved.

(2) The air carrier shall furnish a statement from each manufacturer for each type of airplane involved indicating in each case that the airplane manufacturer approves the operation of such type of airplane under the provisions of this regulation and that the airplane manufacturer will establish the inspection procedure prescribed in paragraph (4) of this Special Civil Air Regulation and will supervise such inspection as necessary.

(3) The zero fuel weight (maximum weight of the airplane with no disposable fuel and oil) and the structural landing weight may be increased beyond the maxima approved in full compliance with the applicable Civil Air Regulations: Provided, That the Administrator of Civil Aeronautics finds that the increase in either such weight is not likely to reduce seriously the structural strength, that the probability of sudden fatigue failure is not noticeably increased, and that the flutter, deformation, and vibration characteristics do not fall below those required by the Civil Air Regulations: And provided further, That any increase in the zero fuel weight approved shall not exceed 5 percent and that the increase in the structural landing weight shall not exceed the amount, in pounds, of the increase in the zero fuel weight.

(4) Airplanes for which the increased weights become effective shall be subject to inspections in addition to those normally performed, such inspections to be established by the manufacturer of the type airplane concerned, subject to the approval of the Administrator of Civil Aeronautics and to be supervised as found necessary by that manufacturer, to safeguard against possible structural distress resulting from the higher operating stress levels. The air carrier shall keep for a period of at least one year, and make available upon request to the Civil Aeronautics Board, the Administrator of Civil Aeronautics, or the manufacturer of the type of airplane concerned, the records of such inspections.

(5) Airplanes for which the increased weights become effective shall be operated in accordance with the transport category performance operating limitations prescribed in Part 40, 41, or 42 of the Civil Air Regulations, whichever is applicable.

(6) The air carrier shall keep for a period of at least one year and make available upon request to the Civil Aeronautics Board, the Administrator of Civil Aeronautics, or the manufacturer of the type airplane concerned, records of all flights conducted at increased weights with airplanes for which the increased weights become effective, such records to include the actual take-off, zero fuel, and landing weights.

(7) The Airplane Flight Manual of each airplane operating under the provisions of this special regulation shall be appropriately revised so as to include the necessary operating limitations and operating information.

(8) An airplane which has been operated at increased weights under the provisions of this regulation shall not be used for the carriage of passengers, except under the following conditions:

(a) Special inspections established by the manufacturer and approved by the Administrator of Civil Aeronautics shall have been accomplished.

(b) The effects of the operations at increased weights on structural fatigue shall have been evaluated by the airplane manufacturer and taken into account in any fatigue limitations established for the airplane.

This regulation shall terminate on June 30, 1962, unless sooner superseded or rescinded by the Board.

(Sec. 205 (a), 52 Stat. 984; 49 U.S.C. 425 (a). Interpret or apply secs. 601, 603, 604, 52 Stat. 1007, 1009, 1010, as amended; 49 U.S.C. 551, 553, 555)

By the Civil Aeronautics Board:
/s/ M. C. Mulligan

(SEAL)

M. C. Mulligan
Secretary