U. S. Department of Commerce — Civil Aeronautics Administration

Civil Aeronautics Manuals and Supplements thereto are issued by the Office of Aviation Safety, Civil Aeronautics Administration, for the guidance of the public and are published in the Federal Register and the Code of Federal Regulations.

Supplement No. 2 — July 18, 1949

SUBJECT: 3.112 Empty Weight

The purpose of this supplement is to provide a procedure which will permit manufacturers of new aircraft to establish an average empty weight and empty c.g. for such aircraft, thus avoiding the necessity of weighing each aircraft. Aircraft to which this procedure may be applied are those which are newly manufactured in accordance with requirements contained in CAR 3 and CAR 4a (except transport category aircraft), and which are produced under the terms of a production certificate.

3.112-1 New Production Aircraft -- Empty Weight and C.G. Determination

Attached is a new page headed "CAR 3.112 Empty Weight," and dated July 18, 1949. This page supersedes Aviation Safety Release No. 315, dated March 24, 1949, and should be retained as the second in a series of similar statements that will be issued explaining or implementing Civil Air Regulation 3.

E. S. Hensley
Director, Office of
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Attachment
Distribution: Air 3, 14, 40 all tabs, 40-D, 40-E, 40-F-1

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"CAR 3.112 Empty weight. The empty weight and corresponding center of gravity location shall include all fixed ballast, the unusable fuel supply (see § 3.4221), undrainable oil, full engine coolant, and hydraulic fluid. The weight and location of items of equipment installed when the airplane is weighed shall be noted in the Airplane Flight Manual."

3.112-1 NEW PRODUCTION AIRCRAFT — EMPTY WEIGHT AND C.G. DETERMINATION (CAA policies which apply to section 3.112.)

(a) PURPOSE. The purpose of this supplement is to provide a procedure which will permit manufacturers of new aircraft, as described in paragraph (b) below, to establish an average empty weight and empty c.g. for such aircraft, thus avoiding the necessity of weighing each aircraft.

(b) COVERAGE. Aircraft to which the procedure outlined herein may be applied are those which are newly manufactured in accordance with requirements contained in CAR 3 and CAR 4a (except transport category aircraft), and which are produced under the terms of a production certificate.

(c) PROCEDURE. Manufacturers producing aircraft in accordance with the requirements prescribed in paragraph (b) above who are interested in establishing an average empty weight and empty c.g. in lieu of actually weighing each aircraft, should prepare and forward through the local Aviation Safety Agent to the Chief, Manufacturing Inspection Branch, for coordination and approval, a detailed proposal regarding the procedure to be followed in establishing the system outlined herein. Any proposal submitted by a manufacturer which can be shown to achieve the objective of the present requirements applying to weight and balance control; i.e., an accurate determination of average empty weight and empty c.g., will be considered acceptable.

(d) EXAMPLE. The following example outlines an acceptable method for effecting this system:

(1) Actually weigh and determine empty c.g. of five to ten aircraft of a particular model, which have comparatively identical equipment installed, to determine the average weight and c.g.

(2) Weigh an individual aircraft at regular intervals; e.g., each tenth aircraft, as circumstances and conditions may warrant, for the purpose of determining continued accuracy of the initial empty weight and c.g. established.

(3) When the spot checking, as prescribed in (2) above, indicates a variation in weight in excess of 1 percent of the initially established empty weight and/or a variation in the empty weight c.g. in excess of ½ percent of the MAC, a new average should be established in accordance with (1) above.

(4) Inasmuch as a weight and balance report is required in connection with each aircraft presented for certification, these reports may be computed for aircraft which are not actually weighed. Such reports should be marked "computed" for those aircraft which are not actually weighed, and other reports will be marked "actual."

July 18, 1949

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