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CIVIL AERONAUTICS MANUAL 1

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 — September 30, 1955

SUBJECT: Revisions to Civil Aeronautics Manual 1 dated October 1952.

This supplement is issued to provide subscribers of CAM 1 with changes published in the Federal Register on January 1, 1955 (1.15–1, 1.15–5); June 15, 1955, (1.34–1); and September 10, 1955 (1.76–4).

The changes (1) correct the engine test methods, (2) change the time that inspection reports must be retained by the manufacturer, (3) extend to designees the authority to inspect and approve the manufacturer's production as complying with the design data, (4) liberalize CAA's policy for weighing of aircraft for the purpose of finding the average empty weight c. g., and (5) establishes the condition under which the CAA Approved Airplane Flight Manual constitutes general authorization to an air carrier to conduct ferry flights of four-engine airplanes with one engine inoperative for the purpose of making repairs to that engine.

Remove and destroy the following pages:	*Insert in lieu thereof the following pages:*
3 and 4	3 and 4
4–1 and 4–2	4–1, 4–2 and 4–3
11 and 12	11, 12 and 12–1
27 and 28	27, 28 and 28–1

Ink revisions:

Page v—Add in proper place in Table of Contents, "Authorization for air carrier ferry flight of a four-engine airplane with one engine inoperative (*CAA rules which apply to sec. 1.76 (c)*)."

Page 10—Section 1.34–1 (b)—Last paragraph, first sentence, change "one year'" to read "two years."

NOTE: New or revised material is indicated by brackets [ ]

A. S. KOCH,
Director, Office of Aviation Safety.

Attachments:

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tions, the Administrator finds that the type design meets the requirements of the applicable Civil Air Regulations."

1.12–1 REQUIREMENTS FOR ISSUANCE OF TYPE CERTIFICATES. ***(CAA policies which apply to sec. 1.12.)***

(a) The requirements for the issuance of a type certificate for an aircraft may be found in the following parts of the Civil Air Regulations:

(1) PART 3. Airplane Airworthiness Normal, Utility, and Acrobatic Categories.

(2) PART 4a. Airplane Airworthiness.

NOTE.—Applies to new airplanes for which application for type certificate was received prior to the effective dates prescribed in Part 3, dated November 1, 1949, and Part 4b, dated October 1, 1949.

(3) PART 4b. Airplane Airworthiness Transport Categories.

(4) PART 5. Glider Airworthiness.

(5) PART 6. Rotorcraft Airworthiness.

(6) PART 8. Aircraft Airworthiness Restricted Category.

(7) PART 9. Aircraft Airworthiness Limited Category.

(8) PART 13. Aircraft Engine Airworthiness.

(9) PART 14. Aircraft Propeller Airworthiness.

(10) PART 16. Aircraft Radio Equipment Airworthiness.

(17 F. R. 8421, Sept. 19, 1952, effective Oct. 1, 1952.)

"CAR 1.13 ***Location of manufacturing facilities.*** **No type certificate for a product shall be issued if the manufacturing facilities therefor are located outside the United States, unless where facilities are located outside the United States the Administrator finds that no undue burden on the Government is created in administering applicable requirements of the act or regulations issued thereunder."**

"CAR 1.14 ***Transferability.*** **A type certificate may be transferred or made available to third persons by licensing agreements, and the grantor shall immediately notify the Administrator in writing of any transfer, licensing agreement, or termination thereof. The provisions of § 1.13 shall be complied with."**

1.14–1 TRANSFERABILITY. ***(CAA interpretations which apply to sec. 1.14.)***

The CAA and the manufacturer to whom the type certificate is issued are the first and second persons involved, and any other person to whom the type certificate holder may transfer privileges incidental to the type certificate is the "third person."

(17 F. R. 8421, Sept. 19, 1952, effective Oct. 1, 1952.)

"1.15 INSPECTIONS AND TESTS.

"(a) A representative of the Administrator shall be permitted to make such inspections and, in the case of aircraft, flight tests as may be necessary to determine compliance with applicable requirements.

"(b) A product manufactured under a type certificate only shall be required to undergo inspection by a representative of the Administrator to determine whether individual products conform with the type design.

"(c) The manufacturer of a product being manufactured under a type certificate only shall maintain at the place of manufacture such technical data and drawings as may be necessary to determine whether the product or any part thereof conforms to the current type design.

"(d) A manufacturer producing a product under the terms of a type certificate without a related production certificate shall provide, for products manufactured after six months from the date of issuance of the type certificate, a production inspection system approved by the Administrator which will give assurance that each article produced is in conformity with the type design and is in a condition for safe operation."

1.15–1 INSPECTIONS AND TESTS. ***(CAA policies which apply to sec. 1.15.)***

(a) Parts, assemblies or products fabricated by the prime, subsidiary or subdivisional manufacturer operating under the terms of a type certificate only will be inspected while the articles are in an "inspectable" condition. Drawings and other technical data maintained at

the place of manufacture should be made available by the manufacturer to enable the CAA [representative] to determine that the finished product or any part thereof conforms with the applicable requirements and current type design data.

(b) Aircraft manufactured under a type certificate only will be flight tested at the manufacturer's plant by, or under the supervision of, a CAA [representative] prior to airworthiness certification. Upon completion of the flight test, the aircraft may be shipped unassembled provided that:

(1) The aircraft is inspected for conformity and airworthiness by a CAA [representative] at the manufacturer's plant, and

(2) Approval Tags, Form ACA–186, are attached to all major assemblies, components, and boxes of parts. These tags will be signed by the CAA [representative], and will indicate the make, model, and serial number of the aircraft.

(c) After completion of the engine test run (see sec. 1.15–5 (e)), each engine will be subjected to such internal inspections and examinations by a CAA [representative] as may be necessary to ascertain that no unsafe condition exists.

(d) All propellers will be subjected to such inspections and examinations by a CAA [representative] to ascertain conformity with the type design data, and to assure that no unsafe condition exists. (See sec. 1.15–5 (f) for tests required for variable pitch propellers.)

(20 F. R. 3, Jan. 1, 1955, effective Jan. 31, 1955.)

1.15–2 INSPECTION APPROVAL OF PRODUCTS, PARTS, AND ASSEMBLIES. (*CAA policies which apply to sec. 1.15.*)

(a) *Complete products.* When products other than complete aircraft or communications equipment are manufactured under the terms of a type certificate only, the CAA [representative], having determined by inspection that the product is acceptable, will prepare and attach thereto, by means of a lead seal, an Approval Tag, Form ACA–186. This tag will show the make and model of the product tagged, will indicate that the product has been inspected and approved, and will be signed by the CAA [representative].

(b) MAJOR COMPONENTS.

(1) Any major spare or replacement components of an aircraft, aircraft engine, propeller, or appliance manufactured under a type certificate only will be inspected for conformity and airworthiness by a CAA [representative]. All such major assemblies or components, upon determination of acceptability, will be tagged with an Approval Tag, Form ACA–186, which will identify the part to which attached, will indicate the make and model of the aircraft, engine, propeller, etc., for which intended, and will bear the CAA [representative's signature].

(2) The conformity, quality, and acceptability of major components and critical parts manufactured by a subsidiary manufacturer in accordance with the prime manufacturer's approved drawings will be determined in accordance with section 1.34–1 (a) (2), except that a [CAA representative] will conduct such additional inspections as may be deemed necessary to determine conformity, compliance, and acceptability of materials and workmanship.

(20 F. R. 3, Jan. 1, 1955, effective Jan. 31, 1955.)

1.15–3 PRODUCTION TEST FLIGHT AUTHORIZATION. (*CAA policies which apply to sec. 1.15).*

(a) To facilitate compliance by manufacturers with related provisions of section 43.10, the reverse side of the Dealer's Aircraft Registration Certificate, Form ACA–1707, will be used to provide flight authorization for production flight testing prior to the initial issuance of individual airworthiness certificates.[2] This flight authorization is provided for the convenience of manufacturers, and has no connection with the issuance, validity, or continuation of the Dealer's Aircraft Registration Certificate. The flight authorization is limited to

[2] A new aircraft, in which a Manufacturer's Special Flight Authorization, Form ACA–1707, is displayed, may be given a production flight test subject to the following operations limitations which are specified on such form:

Flights, except takeoffs and landings, prohibited over thickly populated areas or large gatherings of people. No flight shall be conducted for hire or reward. Cross-country flights prohibited. Occupancy of the aircraft restricted to personnel essential to the purpose of the flights.

production test flights, and does not provide for prototype or experimental flight testing. The flight authorization will be issued at the time the Dealer's Aircraft Registration Certificate is issued. The Application for Dealer's Aircraft Registration Certificate(s), Form ACA–1706, contains a section for the use of manufacturers in applying for authorization to conduct production flight tests.

(b) Aircraft to be flown for production flight tests, which are intended for U. S. registration and certification, are required to display the appropriate U. S. identification markings in accordance with sections 1.100 through 1.108.

(c) New aircraft intended for export should display the appropriate foreign identification markings during the production flight testing.[3] If these markings are not available, the aircraft may display temporarily assigned U. S. identification markings.

(19 F. R. 7078, Oct. 30–54 effective Nov. 15, 1954.)

1.15–4 LOGGING OF PRODUCTION AIRCRAFT FLIGHT TEST TIME. ***(CAA policies which apply to sec. 1.15).*** Production flight test time will be recorded on the flight test check-off form.[4]

(19 F. R. 7079, Oct. 30, 1954, effective Nov. 15, 1954.)

1.15–5 PRODUCTION INSPECTION SYSTEM. ***(CAA rules which apply to sec. 1.15 (d)).***

(a) Within the first six months from the date of issuance of the type certificate, the manufacturer producing products under the terms of a type certificate only, shall establish and thereafter maintain, a production inspection system which will insure conformity with the type design data, and that unacceptable materials and parts are not installed in the finished product. Statistical quality control procedures may be employed where it is shown that a satisfactory level of quality will be maintained for the particular materials or parts involved.

(b) The production inspection system shall include materials review procedures and a Materials Review Board to process parts and materials rejected because of damage or manufacturing errors, which may be serviceable, when such rejected items are to be considered for installation in the product. (See sec. 1.34–1 (e) for procedures.) The Materials Review Board shall consist at least of representatives from the inspection and engineering departments. Parts and materials which are determined by the Materials Review Board to be serviceable shall be properly identified and reinspected if rework or repair is necessary. Parts or materials rejected by the Materials Review Board, or by inspection, shall be marked accordingly and disposed of in a manner which will prevent such parts and materials being incorporated in the finished product.

(c) Inspection records shall be maintained, identified with the completed product where possible, and retained in the manufacturer's files for at least two years. Complete records of Materials Review Board action applying to materials, parts, assemblies, and the completed product, shall be retained for at least two years and available for review by the Aviation Safety Agent.

(d) COMPLETE AIRCRAFT.

(1) After the prototype is type certificated, each aircraft produced under the terms of a type certificate only shall be flight tested by the manufacturer as a final check on the operation of the completed product. The manufacturer shall develop a production flight test procedure and a flight check-off form, subject to approval of CAA, to be used in connection with the initial flight testing of each production aircraft. The flight test procedure shall apply to aircraft which are assembled and delivered via flyaway, and to those which are delivered unassembled to an authorized distributor.

[3] A new aircraft which, upon completion of local production flight tests, is to be disassembled and shipped to a foreign purchaser, or a new aircraft for which foreign nationality and registration markings have been requested but not received, may be locally test-flown by the manufacturer without displaying identification markings. In such case, the CAA agent will place the following additional operations limitations on the Manufacturer's Special Flight Authorization, Form ACA–1707:

Flights will be restricted to vicinity of manufacturer's plant. Local authorities responsible for the enforcement of flight regulations will be advised of such flights.

[4] Such flight test time need not be made a part of the aircraft or aircraft engine logbooks. Any flight test time, including accelerated service flight testing of prototype or modified aircraft after airworthiness certification, must be recorded in accordance with section 43.23.

(2) The production flight test shall provide for at least the following:

(i) An operational check of the trim, controllability, or other flight characteristics, to establish the fact that the production aircraft has the same range and degree of control as the prototype aircraft.

(ii) An operational check of each part or system operated by the crew while in flight to establish that, during flight, all instrument readings are within normal range.

(iii) A determination that all instruments are properly marked, and that all placards and/or required Flight Manuals are installed after flight test.

(iv) A check of the operational characteristics of the aircraft on the ground.

(v) A check on any other items peculiar to the aircraft being tested which can best be done during the ground or flight operation of the aircraft.

(e) COMPLETE ENGINES. Each engine (either reciprocating or turbine) produced under the terms of a type certificate only, shall be subjected to a satisfactory test run by the manufacturer, consisting of break-in runs which shall include a determination of fuel and oil consumption and maximum power characteristics. The test run shall include at least 5 hours of operation at the maximum rating, of which at least thirty minutes shall be at take-off power and speed where this rating is in excess of the maximum continuous rating. [These tests may be conducted with the engine appropriately mounted and utilizing current types of power and/or thrust measuring equipment (i. e., integral torque meter, thrust meter, dynamometer, calibrated test club or propeller, reaction stand, etc.).]

(f) COMPLETE PROPELLERS. Each variable pitch propeller produced under the terms of a type certificate only, shall be subjected to a satisfactory functional test to determine that the propeller will operate properly throughout the normal pitch range, as a final check on its operational characteristics. Each propeller tested shall be subject to the inspection provided for in section 1.15–1 (d).

(20 F. R. 3, January 1, 1955, effective January 31, 1955.)

1.15–6 SURVEILLANCE OF PRODUCTION INSPECTION SYSTEM. ***(CAA policies which apply to sec. 1.15 (d).***

(a) During the six months' interval, the CAA will conduct conformity inspections to determine that the finished product is in conformity with the type design data, is airworthy, safe for installation on a certificated aircraft, or, in the case of aircraft, is eligible for an airworthiness certificate.

(b) Materials review dispositions will be spot checked by a representative of the Administrator to verify that no obvious adverse effect will result from such dispositions.

(c) At the end of the six months' interval, the CAA will advise the manufacturer whether the inspection system is considered acceptable. If the inspection system is considered acceptable, as determined by evaluating the results of the system as reflected in the conformity, quality, and airworthiness of the finished products, the CAA will thereafter reduce its inspection surveillance and increase its reliance in the manufacturer's inspection system in the determination of the airworthiness of future products. If the inspection system is not acceptable, as evidenced by questionable parts and materials accepted for installation in the finished product, or significant discrepancies repeatedly found in the finished products, the issuance of airworthiness certificates for aircraft or approvals of other products for installation on an aircraft may be deferred until the manufacturer has made necessary corrective changes.

(19 F. R. 7079, Oct. 30, 1954, effective Nov. 15, 1954.)

"CAR 1.16 ***Duration.*** **A type certificate shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Board.**

"CAR 1.17 ***Display.*** **Type certificates shall be made available for examination by an authorized representative of the Board or of the Administrator.**

"CAR 1.18 ***Privileges.*** **The holder of a type certificate or license may produce duplicates of any product for which a type certificate has been issued.**

"CAR 1.19 ***Statement of Conformity.*** **(a)**

The holder of a type certificate only or of a current right to the benefits of a type certificate only under a licensing arrangement, upon the initial transfer by him of the ownership of any product manufactured under such type certificate or upon application for original issuance of an airworthiness certificate for an aircraft, shall furnish to an authorized representative of the Administrator a statement of conformity for such product on a form prescribed by the Administrator. For aircraft manufactured under a type certificate only, there shall be included a statement that the aircraft referred to has been flight checked. When a production certifi-

(i) All materials, parts, and components which are damaged or do not conform to approved type design and/or other approved standards will be rejected and isolated.

(ii) All items thus withheld will be reviewed by qualified quality control and engineering personnel (Materials Review Board) to determine whether such items may be used safely in their present condition, whether rework or repair is necessary to assure equivalent safety and reliability, or whether the items are to be scrapped.

(iii) All items which are reworked or repaired in accordance with materials review dispositions will be reinspected for conformity therewith.

(iv) All items accepted through materials review action will be identified by stamp, tag, etc.

(v) The Materials Review Board will maintain accurate records which will provide at least the following:

(*a*) Name, part number, date, and quantity of parts involved.

(*b*) The quantity of parts in the lot or order.

(*c*) Description of the discrepancy.

(*d*) The material review disposition.

(*e*) The results of reinspection.

(Items accepted after inspection will be treated as normal material.)

(vi) When material is first found by the manufacturer's inspection personnel to depart from the specification and/or drawings, the material shall be properly identified, and may be given a preliminary review by authorized manufacturer's inspection personnel.

(*a*) If the material is obviously unfit for use and irreparable, it should be disposed of by the manufacturer in such a way as to preclude installation in the finished product.

(*b*) If the material does not meet the requirements because of incomplete fabrication, the manufacturer may provide for the additional work necessary to bring the material within specified requirements without submission to the Materials Review Board.

(*c*) The CAA Aviation Safety Agent is authorized to approve certain variations or repairs made by the manufacturer without submission to the Materials Review Board.

(*d*) All questionable materials to be considered for use in the finished product which cannot be disposed of by preliminary review action should be designated for Materials Review Board action.

(2) The Materials Review Board should use discretion in deciding on the proper disposition of new parts and materials presented for review. This Board should not accept parts with deviations of a nature which make it impossible to readily install the part with a mating part which does conform with the pertinent drawings. Parts or assemblies involving mating parts should be in conformity with drawing tolerances to the extent that such parts may be installed, removed, or replaced without harm, misalignment, or injury to adjoining parts or portions of the finished product. In assembling parts under these circumstances, no fabrication operations such as cutting, hammering, bending, prying, or forcing should be permitted, or, when final installation has been completed, the parts should not be temporarily or permanently subjected to deformation or distortion of a nature which would cause any undesirable tensions, compressions, stresses, or strains. Where deviating parts, in themselves, are found acceptable, they must not jeopardize the airworthiness or performance of other parts when installed in the assembly. In general, parts which do not conform with the approved technical data should not be accepted when such parts can be reworked to conform with the approved design data.

(f) TECHNICAL DATA. A system should be established whereby detailed drawings and other technical data are available to both production and inspection personnel.

(g) FLIGHT OR FUNCTIONAL TESTS. Each aircraft, aircraft engine, and variable pitch propeller produced under the terms of the production certificate will be subjected to a flight test or functional tests as a final check on the operation of the completed product.

(1) Aircraft produced under a production certificate will be flight tested periodically by the CAA. The number or percentage of aircraft which will be flight tested by the CAA will be dependent upon the complexity and size of the aircraft, and upon experience gained

while conducting functional and reliability tests of prototype and production aircraft prior to issuance of the production certificate. The manufacturer should formulate a flight test schedule that is acceptable to CAA personnel conducting the tests.

(2) Aircraft may be delivered unassembled to an authorized distributor prior to initial assembly and flight test, provided the manufacturer will acquaint the distributor with his established flight test procedure and furnish him with copies of the approved flight test check-off form. Flight test procedures established by a distributor must be equivalent to those established by the manufacturer, including the use of an identical flight test check-off form. These forms, when prepared by the manufacturer, will be filed as part of the aircraft inspection record, and, when prepared by a distributor, will be retained by him for future reference.

(3) Each aircraft engine produced under the terms of a production certificate should be subjected to a satisfactory test run consisting of a break-in run, which should include at least the determination of each engine's fuel and oil consumption and maximum power characteristics. [These tests may be conducted with the engine appropriately mounted and utilizing current types of power and/or thrust measuring equipment (i. e., integral torque meter, thrust meter, dynamometer, calibrated test club or propeller, reaction stand, etc.).]

(4) Each variable pitch propeller produced under the terms of a production certificate should be subjected to a satisfactory functional test to determine that the propeller will operate properly throughout the normal pitch range. All propellers should be inspected for conformity with the type design data and to assure that no unsafe conditions exist.

(h) STANDARD EMPTY WEIGHT AND C. G. FOR PRODUCTION AIRCRAFT. The following procedure may be used by aircraft manufacturers to avoid the necessity of weighing each aircraft. This procedure applies only to newly manufactured aircraft [(except helicopters and transport category aircraft)] which are produced under the terms of a production certificate.

(1) Manufacturers who are interested in establishing an average empty weight and empty c. g., in lieu of actually weighing each aircraft, should prepare a detailed proposal regarding the procedure to be followed. This material should be furnished to the assigned Aviation Safety Agent for approval. Any proposal which will provide an accurate determination of average empty weight and c. g. will be considered acceptable.

[(2) The following example outlines an acceptable method for effecting this system:

[(i) Actually weigh and determine the empty c. g. of ten aircraft of a particular model as a means of establishing an average empty weight and empty c. g. Each aircraft of the model need not have identical equipment installed at time of weighing, provided the manufacturer selects a "standard" equipment configuration, and the weight and arm of the nonstandard equipment items are determined. In order to compute the correct average weight and c. g. for such a model, appropriate corrections to the weight and balance data for individual aircraft should be made, where necessary, to make such data correspond to the "standard" equipment configuration.

[(ii) Subsequently, with respect to production aircraft, at least each tenth aircraft should actually be weighed for the purpose of determining that the initially established empty weight and empty c. g. are being maintained. If this weighing indicates a variation in empty weight which is in excess of 1 percent of the initially established weight, or a variation in the empty c. g. which exceeds one-half of 1 percent of the MAC, a new average weight should be established in accordance with procedures followed in establishing the initial average empty weight and c. g. conditions.]

(3) A weight and balance report is required in connection with each aircraft presented for airworthiness certification. These reports may be computed for aircraft which are not actually weighed, and should be marked "computed." All other reports should be marked "actual."

(20 F. R. 4184, June 15, 1955, effective July 15, 1955.)

"CAR 1.35 *Statement of Conformity.* It shall not be necessary for the holder of a

production certificate to furnish a separate statement of conformity for each of the products produced."

1.35–1 STATEMENT OF CONFORMITY. ***(CAA policies which apply to sec. 1.35.)***

The Statement of Conformity, Form ACA–

The pertinent portion of the log should be certified by the signature of the applicant and by the signature of the pilot or pilots, other than the applicant that flew the aircraft during the flight experience period.

(h) FLIGHT TEST DEMONSTRATION. Upon satisfactory completion of the flight experience required in paragraph (g) of this section, the applicant may apply for the modified restrictions provided for in paragraph (f) of this section. Application should be made in writing to the local CAA Aviation Safety District Office. An Aviation Safety Agent will reexamine the aircraft and the flight experience record and upon finding them satisfactory will witness the flight test demonstration. The flight test will be conducted by a certificated pilot holding at least a private pilot's rating. The flight test will be of such scope as to demonstrate that the aircraft performance is adequate for such operations with respect to take-off, climb, and landing at maximum and minimum weights, for which the aircraft is to be certificated. The aircraft will be demonstrated to be satisfactorily controllable and reasonably maneuverable during taxiing, take-off, climb, level flight, dive and landing, with or without power. Adequate provisions should be made for emergency egress and use of parachutes by the crew during the flight test.

(17 F. R. 8429, Sept. 19, 1952, effective October 1, 1952.)

"CAR 1.75 *Special flight permits.* A special flight permit may be issued for an aircraft which may not currently meet applicable airworthiness requirements, but which is capable of safe flight, for the purpose of permitting the aircraft to be flown to a base where repairs or alterations are to be made or to permit the delivery or export of the aircraft."

1.75-1 SPECIAL FLIGHT PERMITS. *(CAA interpretations which apply to sec. 1.75.)*

(a) GENERAL. Section 43.10 (a) states in part that "No aircraft, except foreign aircraft authorized by the Administrator to be flown in the United States, shall be operated unless an appropriate and valid airworthiness certificate or special flight authorization and a registration certificate issued to the owner of the aircraft are carried in the aircraft * * *."

"Special flight authorization," mentioned above, is interpreted to mean the special flight permit described in this section. Special flight permits are issued for only two purposes: the first and primary purpose is to permit aircraft not fully complying with the established airworthiness requirements to be flown to bases where repairs or alterations may be made; the second purpose is to permit "flyaway" delivery or flights to points of export of aircraft which are airworthy but not eligible for a U. S. Certificate of Airworthiness. For example, an aircraft purchased by a person other than an American citizen would not be eligible for a U. S. Certificate of Airworthiness due to the fact that a current U. S. Registration Certificate is a prerequisite to obtaining an airworthiness certificate, and only a U. S. citizen, who can present proof of ownership, may obtain a current Aircraft Registration Certificate.

(17 F. R. 8430, Sept. 19, 1952, effective Oct. 1, 1952.)

"CAR 1.76 *Special flight permits; requirements for issuance.* The requirements for the issuance of special flight permits are as stated in paragraphs (a) and (b) of this section.

"(a) Where found necessary by the Administator, an applicant for a special flight permit shall submit a statement in a form approved by the Administrator indicating the purpose of the flight, the proposed itinerary, the duration of authorization requested, the persons to be on board the aircraft, the particulars, if any, in which the aircraft does not comply fully with the applicable airworthiness requirements, and the restrictions, if any, deemed necessary for safe operation of the aircaft.

"(b) The Administrator shall accomplish, or shall require the applicant to accomplish, such appropriate inspections or tests as the Administrator may deem necessary in the interest of safety.

"(c) Nothing in paragraphs (a) and (b) of this section shall prevent the issuance to an air carrier by the Administrator of a general authorization to conduct ferry

flights for specified purposes as provided in those paragraphs, under such terms and conditions as may from time to time be prescribed by the Administrator."

1.76–1 APPLICATION FOR PERMIT. ***(CAA rules which apply to sec. 1.76.)***

(a) PERSONS WHO MAY MAKE APPLICATION. The registered aircraft owner or his agent shall make application for a special flight permit.

(b) APPLICATION FORM. Application shall be made by completing in duplicate Form ACA–1779 [17] entitled "Application and Authorization for Ferry Permit," and submitting it to an authorized CAA Aviation Safety representative.

(Application forms are available at all CAA regional and Aviation Safety District Offices and from designated CAA representatives. The application form consists of two parts: the first part is completed by the applicant and furnishes a description of the aircraft, and the proposed flight; the second part is completed by the CAA representative, and is the authority to conduct the flight. This part shall be prepared to contain the conditions and limitations under which the flight is to be conducted.)

(17 F. R. 8430, Sept. 19, 1952, effective Oct. 1, 1952.)

1.76–2 AIRWORTHINESS. ***(CAA Policies which apply to sec. 1.76.)***

While the aircraft may not be eligible for a Certificate of Airworthiness, it must be found safe for the flight described on the application prior to commencing the flight. The CAA representative may make this determination prior to issuing the authorization, or he may require a pre-flight inspection to be conducted by a certificated mechanic in order to determine that the aircraft is safe for the flight authorized.

(17 F. R. 8431, Sept. 19, 1952, effective Oct. 1, 1952.)

1.76–3 FLIGHT RESTRICTIONS. ***(CAA policies which apply to sec. 1.76.)***

The following flight restrictions will be prescribed for all aircraft to be operated under a special flight permit:

(a) The carriage of persons other than crew members will be prohibited.

(b) Weather minimums under which the flight may be conducted will be established.

(c) The duration of the authorization will be shown.

(d) The purpose of the flight will be indicated.

(e) Special area restrictions will be listed, if applicable.

(f) Preflight inspection requirements, if any, will be listed.

(g) The origin, destination, and proposed itinerary, taking into consideration reasonable deviations necessitated by weather or other circumstances beyond the control of the operator, will be indicated.

(17 F. R. 8431, Sept. 19, 1952, effective Oct. 1, 1952.)

[1.76–4 AUTHORIZATION FOR AIR CARRIER FERRY FLIGHT OF A FOUR-ENGINE AIRPLANE WITH ONE ENGINE INOPERATIVE. ***(CAA rules which apply to sec. 1.76 (c)).***

[(a) GENERAL AUTHORIZATION. An air carrier is authorized to conduct ferry flights of a four-engine airplane with one engine inoperative, to a base where repairs are to be made to the inoperative engine, in accordance with the following conditions and limitations:

[(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with the flight test requirements of paragraph (b) of this section.

[(2) The CAA Approved Airplane Flight Manual contains the performance data specified in paragraph (c) of this section and the flight is conducted in accordance with such data.

[(3) The air carrier's operations manual contains operating procedures specified in paragraph (d) of this section and the flight is conducted in accordance with such procedures.

[(4) No person other than required members of the flight crew shall be carried on board the airplane during such flight.

[(5) No flight crew member shall be used unless he is thoroughly familiar with the operating procedures for one-engine-inoperative ferry flights specified in the air carrier's operations manual and the limitations and performance information set forth in the CAA Approved Airplane Flight Manual.

[(b) FLIGHT TESTS. The performance

[17] The reporting requirements of this form have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

of the airplane with one engine inoperative shall be determined by flight test in accordance with the following:

[(1) A speed shall be chosen, but in no case shall it be less than $1.3V_{s1}$, at which the airplane is satisfactorily controllable in a climb with the critical engine inoperative and its propeller removed or in a configuration desired by the applicant, and all other engines operating at the maximum power determined in subparagraph (3) of this paragraph.

[(2) The distance to accelerate to the speed specified in subparagraph (1) of this paragraph and climb to 50 feet shall be determined with the landing gear extended, the critical engine inoperative and its propeller removed or in a configuration desired by the applicant, and the other engines operating at not more than the power specified in subparagraph (3) of this paragraph.

[(3) The procedures to be used during takeoff, flight, and landing shall be established, i. e., the approximate trim settings, the method of power application, maximum power and speed.

[(4) The performance shall be determined at a maximum weight not to exceed that which will permit a rate of climb of at least 400 feet per minute in the enroute configuration specified in section 4b.120 (c) of this subchapter at an altitude of 5,000 feet.

[(c) CAA APPROVED AIRPLANE FLIGHT MANUAL. The CAA Approved Airplane Flight Manual shall contain the following performance data determined in accordance with paragraph (b) of this section covering at least the following variables:

[(1) maximum weight

[(2) c. g. range

[(3) configuration of the inoperative propeller

[(4) runway length for takeoff

[(5) altitude range

[(d) AIR CARRIER'S OPERATIONS MANUAL. Operating procedures shall be established in the air carrier's operations manual which will provide for the safe operation of the airplane, with specific provisions for operations from airports where the runways may require a takeoff or approach over populated areas. No airplane shall be taken off where the initial climb is made over thickly populated areas. VFR weather conditions shall exist at the airport of takeoff and at the intended destination. The manual shall also include procedures for the inspection of the operating condition of the remaining engines.]

(20 F. R. 6677, Sept. 10, 1955, effective Sept. 30, 1955.)

AIRCRAFT NATIONALITY AND REGISTRATION MARKS

"CAR 1.100 *General.* The identification of each aircraft shall be marked, and the markings shall be displayed as required in §§ 1.101 through 1.107. No design, mark, or symbol which modifies or confuses the identification marks shall be placed on an aircraft, except with the approval of the Administrator.

"CAR 1.101 *Display of identification marks.* Identification marks shall be displayed in accordance with the provisions in paragraphs (a) and (b) of this section.

"(a) Aircraft registered for the first time after December 31, 1948, shall display identification marks consisting of the Roman capital letter "N", denoting United States registration, followed by the registration number. Other aircraft which display identification marks containing an airworthiness symbol "C", "R", "X", or "L", and which are operated solely within the United States may display such identification marks until the first time such aircraft are recovered or refinished to an extent necessitating the reapplication of the identification mark. Thereafter, such aircraft, and after December 31, 1950, all aircraft of United States registry operated outside of the United States, shall display identification marks consisting of the Roman capital letter "N", denoting United States registration, followed by the registration number.

"(b) When an identification mark including only the Roman capital letter "N" and the registration number is utilized, limited and restricted category aircraft and experimental aircraft shall display the words 'limited,' 'restricted,' or 'experimental,' respectively, near each entrance to the cabin or cockpit of the aircraft. These markings