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Civil Aeronautics Manual 43

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 17, 1956**

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SUBJECT: Revisions to Civil Aeronautics Manual 43 dated March 1955.

This supplement is issued to provide subscribers of CAM 43 with a change in the interpretations and rules with respect to requirements for maintenance, inspection and records. It defines the responsibility of the aircraft owner or lessee and the pilot. Provisions are made whereby the aircraft owner or lessee may employ either a complete inspection at specific intervals or the alternative method of a formal progressive or continuous system when arrangements are made for proper personnel, facilities, and technical information.

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John F. Warlick

For William B. Davis
Acting Director
Office of Aviation Safety

Attachments

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Introductory Note

Civil Aeronautics Manual 43 contains the rules, policies, and interpretations issued by the Administrator of Civil Aeronautics in application to the various sections of Civil Air Regulations Part 43, General Operation Rules.

CAA rules are supplementary regulations issued pursuant to authority expressly conferred on the Administrator in the Civil Air Regulations. Rules are mandatory and must be complied with.

CAA policies provide detailed technical information on recommended methods of complying with the Civil Air Regulations. Such policies are for the guidance of the public and are not mandatory in nature.

CAA interpretations define or explain words and phrases of the Civil Air Regulations. Such interpretations are for the guidance of the public and will be followed by the Administrator in determining compliance with the regulations.

Rules, policies, and interpretations are published in the Federal Register and Code of Federal Regulations.

The table of contents is arranged to show the title and number of each section of the regulations. Any rules, policies, or interpretations follow the pertinent section of the regulations and are identified by consecutive dash numbers appended to the regulations section number. The text contains only the rules, policies, and interpretations which have been issued.

[A change has been made in the rules and interpretation with respect to requirements for maintenance, inspection, and records. It defines the responsibility of the aircraft owner or lessee and the pilot.

[Provisions are made whereby the aircraft owner or lessee may employ either a complete inspection at specific intervals or the alternative method of a formal progressive or continuous system when arrangements are made for proper personnel, facilities, and technical information.]

General Operation Rules

Aircraft Requirements

43.10-1 Operations limitations (CAA rules which apply to sec. 43.10 (b). Aircraft operating limitations prescribed by the Administrator shall consist of one of the following:

(a) A current CAA approved "Airplane Flight Manual" for airplanes, or a current "Rotorcraft Flight Manual" for helicopters, issued by the manufacturer, or

(b) Forms ACA-309 or ACA-309a issued by CAA to the aircraft as part of the airworthiness certificate prior to the effective date of this rule,[1] or

(c) Placards or listings or combination of both, containing the following operating limitations,[2] insofar as they have been prescribed by the Administrator for a particular aircraft:

Engine limits (takeoff, altitude, r.p.m., manifold pressure).
Airspeed limits (level flight or climb, glide or dive, flaps extended).
Maximum weights (takeoff, landing).
Empty weight and useful load.
Datum.
Center of gravity range.
Empty center of gravity.
Any special limitations prescribed by a CAA representative at the time the aircraft is presented for certification.

The placards or listings shall be accessible to the pilot, legible and not easily erased or disfigured.

(17 F. R. 7419, Aug. 15, 1952, effective Aug. 20, 1952.)

[DISCUSSION OF THE INTERPRETATION RELATING TO THE REQUIREMENTS OF SECTION 43.20-1

[The purpose of this interpretation is to delineate the responsibilities of the aircraft owner or operator, and the pilot. These responsibilities have been recognized by the industry for years; however, until this time, have not been established in any formal manner.]

[43.20-1 General (CAA policies which apply to sec. 43.20). (a) Primary responsibility for maintaining the aircraft in an airworthy condition is that of the aircraft owner or operator. The owner or operator must have the aircraft inspected, as required by section 43.22 of this part, and must maintain the airworthiness of the aircraft during the time between the required inspections by having any defects corrected or repaired in accordance with Part 18 of this subchapter during this interim. Various types of aircraft will require different degrees of maintenance. Factors such as kind of operation, climatic

[1]The Administrator will accept Forms ACA-309 or ACA-309a issued as satisfying the requirements of section 43.10 (a) and section 43.10-1 (b) until such time as the aircraft is altered or modified to such an extent as to render inapplicable any one of the prescribed limitations, in which event the owner will be required to comply with section 43.10-1 (c).

[2]It is the responsibility of the aircraft owner to prepare and place in the aircraft current operating limitations. The technical data necessary to develop these limitations may be obtained from the pertinent aircraft specifications issued by the Administrator. These specifications are furnished upon request, free of charge, by all CAA regional offices. These specifications are also available for review only at all Aviation Safety District Offices.

Where the Administrator has never published an aircraft specification or limitation for a particular aircraft, the Administrator will prescribe the appropriate limitations at the time the aircraft is presented for certification or at any time the owner requests such information.

conditions, storage facilities, and age of the aircraft will influence the maintenance requirements. Experience has indicated that most aircraft will require some type of preventive maintenance every 25 hours or less, and minor maintenance at least every 100 hours. The owner or operator must also make sure that maintenance personnel have made appropriate entries in the aircraft and maintenance records to indicate that the aircraft has been released to service.

[(b) The pilot, however, must assume responsibility for determining that an aircraft is in condition for safe flight or discontinuing the flight when unairworthy mechanical or structural conditions occur. In this connection, the pilot is expected to make a preflight inspection. The preflight inspection should include, but not be limited to, a visual inspection of the aircraft and its components for general condition and state of repair, a functional check of controls, powerplants, instruments, and a determination that sufficient fuel and oil are aboard for the proposed flight.]

[(Published in 21 F. R. 3183, May 15, 1956, effective July 17, 1956.)]

Maintenance

43.21-1 Flight tests on aircraft prior to carrying passengers--determination of repairs or alterations which may have appreciably changed flight characteristics or substantially affected operation in flight (CAA policies which apply to sec. 43.21).

(a) The flight test requirement of this section is not necessary where ground tests and/or inspections of an aircraft have been made which conclusively show that the repairs and alterations have not appreciably changed the flight characteristics or substantially affected its operation in flight.

(b) Because of the many types and variations of aircraft repairs or alterations, including engine changes, it is recognized that it is difficult to determine whether or not a repair or alteration has appreciably changed the flight characteristics of an aircraft, therefore an air carrier or other persons accomplishing repairs pursuant to air carrier maintenance rules, will include in the air carrier's or operator's maintenance manual a detailed outline, for the guidance of all personnel, which specifies the procedures and circumstances under which flight tests will or will not be required.

(c) When repairs or alterations are made to aircraft other than air carrier aircraft, persons authorized under section 18.11 of this subchapter to approve such repairs or alterations as airworthy should determine whether or not a flight test is required. In making such flight test determination, such persons should consider the following: the nature of the repair or alteration, adequacy of ground test and inspection procedures, adequacy of facilities and equipment for the performance of such tests or inspections and the service experience with a particular repair or alteration.

(Published in 20 F. R. 4002 on June 9, 1955, effective June 30, 1955.)

[DISCUSSION OF RULES RELATING TO MAINTENANCE REQUIREMENTS IN SECTION 43.22-1

[This section provides the aircraft owner with two methods of inspection whereby the continued airworthiness of an aircraft may be assured.

[The first method is the use of the periodic inspection, and the 100-hour inspection if passengers are carried for hire. Both the periodic and 100-hour inspections are complete inspections of the aircraft--identical in scope. The periodic inspection must be accomplished by a mechanic with an inspection authorization, a repair station, or the aircraft manufacturer; whereas the 100-hour inspection may be performed by any certificated rated mechanic, as well as the aforementioned agencies.

[The second method, or alternative method, is the progressive inspection which is a formal plan for continuous or progressive inspection of an aircraft whereby the inspection workload may be adjusted or equalized to suit the operation of the aircraft or the need of the owner. Its purpose is to permit greater utilization of the aircraft. The owner

electing to employ the progressive inspection must provide proper personnel, procedures, and facilities prior to commencing such inspection. The use of progressive inspection eliminates the need for periodic and 100-hour inspections during the period that the progressive inspection is followed.

[43.22-1 Inspections (CAA interpretations which apply to sec. 43.22). (a) General. (1) An aircraft issued an airworthiness certificate containing an expiration date is permitted to operate in accordance with the provisions of section 43.22 prior to its revision effective July 17, 1956. Upon expiration of such certificate the owner or lessee may apply for an airworthiness certificate of indefinite duration in accordance with Part 1 of this subchapter.

[(2) The owner or lessee may at his option exchange an unexpired airworthiness certificate for an airworthiness certificate of indefinite duration by contacting a representative of the Administrator authorized to issue such certificates. Subsequent to exchanging the airworthiness certificate, the first periodic inspection would be required within 12 calendar months after the last annual inspection.

[(3) In the event the owner or lessee elects to use the progressive inspection, an unexpired airworthiness certificate must be exchanged for a certificate of indefinite duration prior to commencing such inspection.

[(b) Periodic and 100-hour inspections. Since the 100-hour and periodic inspections are defined as complete inspections of an aircraft, the periodic inspection will be accepted as a 100-hour inspection, also the 100-hour inspection will be accepted as a periodic when performed by a person specified in section 18.12 of this subchapter.

[(Published in 17 F. R. 7675, August 21, 1952, effective August 25, 1952; amended in 21 F. R. 3183, May 15, 1956, effective July 17, 1956.)

[43.22-2 Progressive inspections (CAA rules which apply to sec. 43.22(b)). (a) If a registered aircraft owner or lessee elects to use the progressive inspection he shall provide the following inspection personnel, inspection procedures manual, facilities and technical information; and submit a statement to this effect to the local Aviation Safety District Office (See appendix A for example) prior to using such inspection:

[(1) The services of an authorized mechanic, an airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection.

[(2) An inspection procedures manual which must be maintained in a current condition at all times. It shall be available to and in a form that is readily understood by pilot and maintenance personnel. It shall contain the following information in detail:

[(i) An explanation of the progressive inspection outlining continuity of inspection responsibility including responsibility for submission of reports and maintenance of records and technical reference material.

[(ii) An inspection schedule including instructions for exceeding an interval by not more than 10 hours while en route and for amending any interval on the basis of service experience.

[(iii) Sample routine and detailed inspection forms, including instructions for their use.

[(iv) Sample reports and records and instructions for their use.

[(3) Sufficient housing and equipment for the necessary disassembly and proper inspection of the aircraft undergoing progressive inspection.

[(4) Appropriate and current technical information for the aircraft undergoing progressive inspection shall be available to inspection personnel.

[(b) Upon discontinuance of a progressive inspection the registered owner or lessee shall submit immediately to the local Aviation Safety District Office a written statement to this effect (see appendix A for example).

[(Published in 17 F. R. 7676, August 21, 1952, effective August 25, 1952; amended in 21 F. R. 3183, May 15, 1956, effective July 17, 1956.)

[43.23-1 Aircraft and engine maintenance records (CAA rules which apply to sec. 43.23). The maintenance records prescribed in section 43.23 of this part shall provide a separate, current, and permanent record of the maintenance accomplished on the aircraft and each engine and shall be suitable identified as to the make, model, serial number, and, if applicable, registration number of the aircraft or engine involved. Each record shall be of sufficient size to accommodate the following basic information for the aircraft, and where applicable, each engine:

[(a) Maintenance. The record of maintenance shall include the type and extent of maintenance, alterations, repair, overhaul, or inspection and reflect the time in service and date when completed.

[(b) Compliance with mandatory notes. Chronological listing of compliance with service bulletins, airworthiness directives, etc., including a description of the method of compliance.

[(c) Weight and balance record. Current empty weight, empty center of gravity and useful load.

[(d) Equipment list. Entries shall be made to reflect optional equipment which has been added or removed. Required equipment shall not be listed except when exchanged or replaced by optional equipment.

[(e) Record of major repairs and major alterations. Reference to repair and alteration Form ACA-337 by date or work order by number and approving agency is sufficient.

[(Published in 15 F. R. 768, February 11, 1950, effective upon publication in the Federal Register; amended in 21 F. R. 3183, May 15, 1956, effective July 17, 1956.)

[43.23-2 Maintenance of engine maintenance records (CAA interpretations which apply to sec. 43.23). A record of the previous operating time and history of all engines overhauled, repaired, or reassembled to standards other than those for rebuilt engines, as defined in section 43.24-1 of this part shall be retained in the engine maintenance records.]

[(Published in 21 F. R. 3184, May 15, 1956, effective July 17, 1956.)]

43.24-1 Rebuilt engine (CAA interpretations which apply to sec. 43.24). A rebuilt engine is defined as a used engine which has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine. Component parts of such engines may be either used parts or new parts. The used parts may be either the parts from the same engine or from other service engines, but they must conform to production drawing tolerances and limits to which new parts must conform. In addition, all parts, either new or used, meeting approved oversize and undersize dimensions acceptable for new engines are also eligible.

(15 F. R. 768, Feb. 11, 1950, effective upon publication.)

43.24-2 Approval of rebuilt aircraft engines (CAA rules which apply to sec. 43.24).

(a) Logbook entries. Other information which must be entered in the logbook of a rebuilt engine consists of a notation when (1) any mandatory changes required by Airworthiness Directives have been incorporated, and (2) any changes have been incorporated as a result of compliance with manufacturers' service bulletins, where such recording is requested specifically in the bulletin.

(b) Compliance date. All manufacturers who grant zero time to rebuild engines, and all agencies approved by the manufacturer to do such work must apply paragraph (a) as soon as possible, but not later than November 1, 1949.

(15 F. R. 768, Feb. 11, 1950, effective upon publication.)

Aircraft Instruments and Equipment

43.30-1 Instrument flight rules (CAA interpretations which apply to sec. 43.30 (c) (2)). Two-way radio communications systems and navigational equipment, which will normally provide continuous coverage from any point along the routes flown, will be considered to be appropriate to the ground facilities to be used. Where either an LF/MF or VOR system will not provide continuous route coverage, a com-

Appendix A

PERIODIC AIRCRAFT INSPECTION REPORT

(SEE REVERSE SIDE OF THIS FORM FOR INSTRUCTIONS)

1. AIRCRAFT	MAKE	MODEL	SERIAL NO.	NATIONALITY AND REGISTRATION MARK

2. INSPECTION (INDICATE WHETHER AIRWORTHY OR NOT BY CHECKING (✓) APPROPRIATE BLOCK)

3. Fuselage—Hull Group	Yes	No	4. Cabin—Cockpit Group	Yes	No	5. Engine—Nacelle Group	Yes	No
a. Fuselage structure			a. Fuel system—tanks			a. Fuel system		
b. Fabric—skin			b. Oil system			b. Oil system—tanks		
c. External bracing			c. Electrical system			c. Ignition—electrical system		
d. Control mechanism			d. Batteries			d. Exhaust stacks or manifolds		
e. Electrical system			e. Hydraulic system			e. Cooling system		
f. Hydraulic system			f. Instruments			f. Engine controls		
g. Fuel system—tanks			g. Flight—engine controls			g. Power plant—general		
h. Emergency exits			h. Seats—berths			h. Superchargers		
i. Cargo compartments			i. Safety belts			i. Heating—ventilating system		
j. Rotor drive shafts			j. Fire-warning system			j. Engine mount—attach fittings		
k. Hull			k. Fire-extinguisher system			k. Engine accessories		
l. Envelope			l. Heating—ventilating			l. Engine cowling		
m. Gas bag			m. Windows—windshields			m. Main rotor transmission gear box		
n. Ballast tanks			n. Control car					

6. Landing Gear Group	Yes	No	7. Wing—Centersection Group	Yes	No	8. Empennage Group	Yes	No
a. Main landing gear			a. Fixed surfaces			a. Fixed surfaces		
b. Tail—nose gear			b. Movable surfaces			b. Movable surfaces		
c. Latches			c. Fabric—skin			c. Fabric—skin		
d. Retracting mechanism			d. External bracing			d. External bracing		
e. Landing gear attach fittings			e. Wing attach fittings			e. Attach fittings		
f. Electrical system			f. Flight-control mechanism			f. Flight-control mechanism		
g. Hydraulic system			g. Fuel system—tanks			g. Electrical system		
h. Wheels—brakes			h. Electrical system			h. Hydraulic system		
i. Floats			i. Hydraulic system			i. Anti-icing devices		
j. Struts—attach fittings			j. Anti-icing devices			j. Gust lock mechanism		
k. Skis—fittings			k. Gust lock mechanism			k. Tail rotor blades		
			l. Main rotor blades					

9. Propeller Group	Yes	No	10. Radio Group (Installation)	Yes	No	11. Miscellaneous Group	Yes	No
a. Propeller blades			a. Receiver			a. Position-light flasher mechanism		
b. Propeller hub(s)			b. Transmitter			b. First-aid—emergency equipment		
c. Control mechanism			c. Antennas—insulators			c. Industrial and advertising installations		
d. Attachment			d. Bonding—shielding			d. Pyrotechnics installation		
e. Accessories			e. ADF receiver—loops			e. Water-injection systems		
f. Anti-icing devices			f. Dynamotor			f. Oil-dilution system		
			g. Auxiliary power unit					
			h. Electronic devices					

This form is authorized by the CAA. The inspection recorded herein was conducted in accordance with the Civil Air Regulations.

12. SIGNATURE(S)	CERTIFICATE NO.(S) AND RATING(S)	DATE

FIGURE 1. Periodic Aircraft Inspection Report.

Date

Civil Aeronautics Administration
Aviation Safety District Office
Podunk
U. S. A.

Gentlemen:

As registered owner (or lessee) of (make) (model) aircraft N (registration number) (serial number), I wish to inform you that arrangements have been made for progressive inspection of such aircraft in accordance with the requirements of CAR 43.22(b). As of this date, the aircraft will be inspected in accordance with the requirements of CAR 18.30(c).

The records and procedures established for the progressive inspection are available at (address) and the aircraft is normally based at (name and address of airport).

(Signature of owner, lessee, or person authorized to sign for owner or lessee)
(Name of registered owner or lessee)
(Permanent mailing address)

[FIGURE 2. Sample of letter to indicate use of progressive inspection.]

Date

Civil Aeronautics Administration
Aviation Safety District Office
Podunk
U. S. A.

Gentlemen:

As registered owner (or lessee) of (make) (model) aircraft N (registration number), (serial number), I wish to inform you that such aircraft will no longer be inspected in accordance with a progressive inspection as of this date.

The aircraft will be inspected in accordance with CAR 43.22(a) after this date.

(Signature of owner, lessee or person authorized to sign for owner or lessee)
(Name of registered owner or lessee)
(Permanent mailing address)

[FIGURE 3. Sample of letter to indicate discontinuance of progressive inspection.]