

AC NO: 43-9

DATE: 2/19/75



ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: MAINTENANCE RECORDS: GENERAL AVIATION AIRCRAFT

1. **PURPOSE.** To discuss the responsibilities of:
 - a. The owner or operator to keep maintenance records.
 - b. The owner or operator to transfer certain maintenance records to the purchaser.
 - c. Maintenance personnel to make entries in maintenance records.
 2. **REFERENCES.** FAR 43, Sections 43.9 and 43.11; FAR 91, Sections 91.165, 91.173, 91.174, and 91.175.
 3. **BACKGROUND.** The subject of maintenance records (often referred to as logbooks) is one which is considerably misunderstood by the aviation community. It is hoped that through the discussions that follow, we will be able to present maintenance records in their proper perspective. FAR 91.173, which sets forth the requirements for the owner or operator to keep maintenance records, was revised effective September 8, 1972. This revision, among other things, provided that certain records could be disposed of after having served their purpose.
 4. **DISCUSSION.** Proper management of the operation of an aircraft begins with a good system of maintenance records. A properly completed maintenance record provides the information necessary for the owner or operator and maintenance personnel to establish when scheduled maintenance is to be performed. At this time, it should be pointed out that it is the owner's or operator's responsibility to determine when maintenance is to be performed and to ensure that the aircraft is brought to maintenance personnel and arrangements made for the maintenance to be performed. In order for the maintenance personnel to properly perform their work, it is
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Initiated by: AFS-830

necessary that they have available to them a properly executed set of maintenance records to give them the history or background of the item on which work is to be performed. A properly executed set of maintenance records will also save the owner or operator money since they will not require as much research by maintenance personnel who should establish the status of the item to be worked on prior to commencing the work. Since they are maintenance records, it is recommended that only the information required by FAR 91.173 be included. Inserting irrelevant information tends to clutter up the records and hampers maintenance research.

5. REQUIREMENTS FOR KEEPING MAINTENANCE RECORDS. A study of FAR 91.173(a)(1) will show the types of records to be kept and the information that is to be included in them. (See Appendix 1.) It should be noted that the current FAR 91.173, which became effective September 8, 1972, now specifically requires records for each propeller, rotor, and appliance in addition to the aircraft and each engine. This is a change from the previous FAR 91.173, which only required a separate record for the aircraft and each engine. This does not mean that a separate record must be kept for the airframe, each engine, propeller, rotor, and appliance although this might prove to be the easiest method for some operators. It does mean that the maintenance records must contain the required information for each item. Since the retention times for the various records will undoubtedly vary, separate records may prove advantageous. (See Paragraph 10, Format.)
6. RETENTION OF RECORDS. Unlike the superseded FAR 91.173, which required retention of all maintenance records, FAR 91.173 (b)(1) allows for some records to be discarded after they have served their purpose (see Appendix 1). The word "permanent" used in the previous FAR 91.173 is no longer used. If a single record is used, care should be taken when discarding portions of it to ensure that only records allowed by FAR 91.173(b)(1) are discarded. The new rule does not make it mandatory that certain records be discarded; rather it allows them to be discarded. Many owners or operators may find it desirable to retain all their records.
7. RESPONSIBILITIES. The information the owner or operator is required to keep in his maintenance records is listed in FAR 91.173. The owner or operator should carefully study this section to ensure that his records comply (see Appendix 1). Many owners and operators are under the mistaken belief that the maintenance records are not their responsibility but instead are the responsibility of the person maintaining the aircraft. While it is true that maintenance personnel must make entries of work performed under FARs 43.9 and 43.11, the responsibility for seeing that requirements listed in FAR 91.173 are met lies with the owner or operator. (See FAR 91.165.)

Maintenance personnel should be thoroughly familiar with the provisions of FAR 43.9 and 43.11 (see Appendix 2). It is their responsibility to ensure that they have made the proper entries when maintenance, re-building, or alteration has been performed. It is, of course, incumbent upon the owner or operator to make the maintenance records available to the maintenance personnel. The importance of maintenance records cannot be overemphasized, since this is the area where the most maintenance violations occur.

8. TOTAL TIME IN SERVICE. The previous FAR 91.173 required total time in service not only for the airframe but also for each engine. This requirement is now applicable to only the airframe. However, under certain conditions it may be necessary to keep total time in service for other items. This could be in the case of life-limited parts where it is necessary to keep time in service to establish life times (ref. § 91.173(a)(2)(ii)). Other examples would be to establish due dates for inspections for AD compliance (ref. § 91.173(a)(2)(v)), or due dates for inspections under the inspection program (ref. § 91.173(a)(2)(iv)).
9. REBUILT ENGINE MAINTENANCE RECORDS. Another case in which old maintenance records may be discarded would be when an engine is REBUILT by the manufacturer or an agency approved by the manufacturer (ref. FAR 91.175). It should be noted that the word listed in the rule is REBUILT. The provisions of FAR 91.175 do not apply to those engines which are "remanufactured" or "reconditioned" or other terms coined by various aviation enterprises.
10. FORMAT. There is no specific format required by the regulation. As stated before, a separate record is no longer required. Many owners and operators, however, have found it to be advantageous to keep separate records for the airframe, engine, and propeller, particularly on multi-engine aircraft. Any system that works is acceptable. The important thing is to have a system that will provide the necessary information. There is also no requirement that the records be bound; they may be loose leaf type if this better serves the purpose. Also, many airworthiness directives require repetitive inspections after a specified time in service or in cycles. This alone could create the need for a separate record. In addition, engines, propellers, rotors, and appliances can be and are changed from one aircraft to another, making separate records a necessity. When separate records are used, it is suggested that they be properly identified. The inclusion of the following type of information will assist in keeping confusion to a minimum when maintenance entries are to be made, which in turn will result in a savings to the owner or operator, and will result in a more orderly system of records:
 - a. Make and model.
 - b. Serial number (if a propeller, hub and blade serial numbers).

- c. Location installed (i.e., left engine, right nacelle, etc).
- d. Registration number of the aircraft.

11. PUBLIC AIRCRAFT. Prospective purchasers of aircraft that have been used as public aircraft should be aware that such aircraft may not have records that comply with § 91.173. Under the Federal Aviation Act of 1958, public aircraft are not subject to the certification and maintenance requirements in the FARs, and therefore, may not have records that would enable the new purchaser to easily establish his maintenance records. Considerable maintenance research may be involved to bring the records up to date.
12. LOST OR DESTROYED RECORDS. There are occasions when the records for an aircraft become lost or are destroyed. This could create a considerable problem depending on the complexity of the aircraft. First it will be necessary to reestablish the total time in service of the airframe. This can be done in several ways, such as: (a) for the owner to have other records that will reflect the total time in service; (b) from records maintained by a repair facility; (c) from records maintained by individual mechanics, etc. An acceptable method of starting the new record would be for the owner or operator to make a statement in the new record describing the loss and then to establish the time in service, followed by his notarized signature.

The current status of applicable airworthiness directives may present a more formidable problem. This may require a detailed inspection by maintenance personnel to reestablish that the applicable airworthiness directives have been accomplished. It can readily be seen that this could entail considerable time and expense and, in some instances of inspection-type directives, might require compliance with the airworthiness directive again.

Other items required by FAR 91.173(a)(2) will present similar problems. These are the current status of life-limited parts, time since last overhaul, current inspection status, and current list of major alterations. Some of these items may be easier to reestablish than others, due to maintenance personnel or facilities having records from which accurate data can be obtained. From the foregoing, it can readily be seen that losing maintenance records can be troublesome and costly. As mentioned earlier, a good system for maintenance records is essential to proper management of the aircraft. Safekeeping of the records is an integral part of a good system.

13. ALTIMETER SYSTEM TEST AND INSPECTION. FAR 91.170 requires that certain aircraft have each static pressure system and each altimeter tested and inspected in accordance with Appendix E of Part 43. When this is accomplished, FAR 43.9 requires that maintenance personnel, among other things, describe the work performed and obtain the signature of the person approving the

work for return to service. In addition, Appendix E, paragraph (c) requires the person approving the airplane for return to service to enter in the records the date and the maximum altitude to which the altimeter has been tested. FAR 91.173(a)(1) requires the owner or operator to have this information in his maintenance records (" . . . and other required or approved inspections. ").

14. FAR 91.217 INSPECTIONS. From the number of inquiries received, there seems to be a misunderstanding over the entry to be made following an FAR 91.217 inspection. These inspections are a part of maintenance and, as such, may be performed and the aircraft approved for return to service by any person authorized to approve for return to service following maintenance. Entries should be made by maintenance personnel in accordance with FAR 43.9(a)(5). The owner or operator is required by FAR 91.165 to ensure that maintenance personnel make the appropriate entry in the maintenance records. These inspection entries should not be confused with the annual, 100-hour, or progressive inspection record entries, which are not made under FAR 43.9. They are made under FAR 43.11 and have a special wording requirement.

It should be noted that this section requires the person making the entry to name the kind of inspection conducted. In addition, a statement should be made that the inspection was performed in accordance with the instructions and procedures for the kind of inspection program selected by the owner or operator of the airplane. If any defects are found during the inspection, a signed and dated list of the defects must be given to the owner or operator.

15. BEFORE YOU BUY. This is a good time to take a close look at the maintenance records of any used aircraft you intend to purchase. A well-kept set of maintenance records that properly identifies all previously performed maintenance and alterations, including AD compliances, is generally a good indicator of the condition of the aircraft. While this is not always the case, the point is that before you buy you should require the owner to produce the maintenance records for your examination and to correct any discrepancies that are found. Many prospective owners have found it advantageous to have a reliable maintenance person examine the maintenance records, as well as the aircraft, before negotiations have progressed too far.
16. PREVENTIVE MAINTENANCE. Neither FAR 91.173 nor FAR 43.9 requires that preventive maintenance be entered in the maintenance records. Both of these sections speak of maintenance, and preventive maintenance, by definition, is not a part of maintenance. Many owners or operators, however, wish to have preventive maintenance items entered in the maintenance records and, of course, this is their prerogative.

17. RECORDING TACHOMETERS. Many aircraft have recording tachometers or engine hour meters that record time in service. Some owners or operators are under the mistaken belief that these devices can be used in place of maintenance records. While they may be helpful to the owner in arriving at total time in service, they do not in any way fulfill the requirement of § 91.173.
18. AD COMPLIANCE. This subject has been covered in another Advisory Circular, AC No. 43-5, Airworthiness Directives for General Aviation Aircraft. However, a suggestion is offered in Appendix 3 for keeping a record of AD compliances. A separate record can be kept for the airframe and each engine, propeller, rotor, and appliance. This will not only facilitate the record search when an inspection is needed, but if an engine, propeller, rotor, or appliance is removed, the record can be readily transferred with it. This type of record can also be used as a schedule for recurring inspections. The format is a suggested one, and rigid adherence is not required. Any format that works can be used. This is an important area since non-compliance with ADs is an area where frequent violations occur. Owners should also be aware that they may be responsible for non-compliance violations of ADs when their aircraft are leased to foreign operators. They should, therefore, make an effort to ensure that ADs are passed on to all foreign lessees.
19. MAINTENANCE RECORD ENTRIES. There are two distinct types of maintenance record entries required when maintenance personnel perform maintenance. All maintenance, rebuilding, and alteration entries should be made in accordance with § 43.9. However, the entries for the annual, 100-hour, and progressive inspections should be made as prescribed by § 43.11. A study of that section will show that these entries are quite a bit different from the entries required by § 43.9. Of particular interest is the entry required when an aircraft is not approved for return to service following an annual inspection. The person making such an inspection is also required to give a list of discrepancies to the owner or lessee. Thereafter, the owner may have the discrepancies corrected by a maintenance entity of his choice, have them properly entered in the maintenance record, and then return the aircraft to service. It is important to notice that this provision is not made for the 100-hour inspection. The aircraft in a 100-hour inspection is either approved or disapproved for return to service. When it is disapproved, another inspection must be conducted to ensure that the items that caused the disapproval have been corrected. The extent of the second inspection would, of course, depend on whether the same maintenance entity conducted the second inspection or if one conducts it who is not familiar with the aircraft's condition.

20. MAINTENANCE RELEASE. FAR 43.9 requires certain information to be entered in the maintenance record by the person who maintains, alters, or rebuilds. In addition to this entry, FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance) (OMB-04-R0060.1), must be executed for major repairs or major alterations. However, in the case of major repairs made in accordance with a manual or specification acceptable to the Administrator, a certificated repair station may, in lieu of FAA Form 337, use the customer's work order and give the aircraft owner a maintenance release. The type of information that is to be included in the maintenance release is shown in FAR 43, Appendix B, paragraph (b). It should be noted that this provision is only applicable to certain major repairs and does not apply to major alterations. Also, the maintenance release alone does not fulfill the requirements of FAR 43.9 unless all the information required is included with the maintenance release.
21. COMPUTERIZED RECORDS. There is a growing trend to having maintenance records in a computer. Many of these systems are offered to the owner/operator on a commercial basis. While these are excellent scheduling systems, they do not always fulfill the requirements of FARs 43.9 or 91.173. The owner/operator who uses such a system should ensure that it provides the information in FAR 91.173. If it does not, the owner/operator should ensure that the records are complete.
22. LIFE LIMITED PARTS. There are many present-day aircraft being operated that have life limited parts installed. These are parts or components for which retirement times, service life limitations, parts retirement limitations, retirement life limitations, or life limitations are required by the Federal Aviation Regulations. They may be set forth in a Type Certificate Data Sheet, an Airworthiness Directive, an operator's Operations Specification, an FAA approved maintenance or inspection program, the limitations section of an airplane flight manual, or other manual required by an operating rule.

FAR § 91.173(a)(2)(ii) requires the owner or operator who has such parts on his aircraft to have the records which contain the current status of such parts. Many owners or operators have found it to be advantageous to have a separate record for such parts which shows the name of the part, part or serial number, date of installation, total time in service, date removed, and signature and certificate number of person installing or removing the part. In this way, when the part or component is removed for maintenance and/or installed in another aircraft, the maintenance record can accompany the part.


Acting Director, Flight Standards Service

MAINTENANCE RECORDS

Retained until work is repeated, superseded by other work, or one year after the work is performed	Retained and transferred with aircraft when sold
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(1) Records of the maintenance and alteration, and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe, and each engine, propeller, rotor, and appliance of an aircraft.) The records must include--

(i) A description (or reference to data acceptable to the Administrator) of the work performed;

(ii) The date of completion of the work performed; and

(iii) The signature and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The identification of the current inspection status of the aircraft, including the times since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives, including the method of compliance.

(vi) A list of current major alterations to each airframe engine, propeller, rotor, and compliance.

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APPENDIX 1. MAINTENANCE RECORDS - FAR 91

AC 43-9
Appendix 1

Maintenance Personnel

§ 43.9

Content, form and disposition of maintenance, rebuilding and alteration records (except 100-hour, annual, and progressive inspections).

- (a) Maintenance record entries. Except as provided in paragraphs (b) and (c) of this section, each person who maintains, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, or appliance shall make an entry in the maintenance record of that equipment containing the following information:
- (1) A description (or reference to data acceptable to the Administrator) of the work performed.
 - (2) The date of completion of the work performed.
 - (3) The name of the person performing the work.
 - (4) If the aircraft, airframe, aircraft engine, propeller, or appliance is approved for return to service, the signature (and if a certified mechanic, the certificate number) of the person who approved it.
 - (5) If the work performed is an inspection required under § 91.217 of this chapter for a large airplane, or a turbo-jet or turbopropeller-powered multi-engine airplane, the entry must name the kind of inspection conducted (continuous airworthiness inspection program, approved inspection program, etc.) and include a statement that -
 - (i) The inspection was performed in accordance with the instructions and procedures for the kind of inspection program selected by the owner or operator of the airplane; and
 - (ii) A signed and dated list of the defects, if any, found during the inspection was given to the owner or operator of the airplane.

§ 43.11

Content, form, and disposition of annual, 100-hour, and progressive inspection records.

- (a) Maintenance record entries. The person approving or disapproving for return to service an aircraft, airframe, aircraft engine, propeller, or appliance after any annual, 100-hour, or progressive inspection required by Part 91 of this chapter shall make an entry in the maintenance record of that equipment, containing the following information:
- (1) The type of inspection (and for progressive inspections, a brief description of the extent of the inspection).
 - (2) The date of the inspection and aircraft time in service.
 - (3) The signature (and if a certified mechanic, the certificate number) of the person approving or disapproving for return to service; the aircraft, airframe, aircraft engine, propeller, or appliance.
 - (4) For annual or 100-hour inspections if the aircraft is approved for return to service, the following or a similarly worded statement-"I certify that this aircraft has been inspected in accordance with (insert type) inspection and was determined to be in airworthy condition".
 - (5) For annual inspections, if the aircraft is not approved for return to service because of needed maintenance, noncompliance with applicable specifications, airworthiness directives or other approved data, the following or a similarly worded statement-"I certify that this aircraft has been inspected in accordance with an annual inspection and a list of discrepancies and unairworthy items dated

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APPENDIX 2. MAINTENANCE RECORDS - FAR 43

AC 43-9
Appendix 2

§ 43.9

In addition to the entry required by this paragraph, major repairs and major alterations shall be entered on a form and the form disposed of, in the manner prescribed in Appendix B, by the person performing the work.

- (b) Each holder of an air carrier or commercial operator certificate that is required by its operating certificate or by approved operations specifications to provide for a continuous airworthiness maintenance program, shall make a record of the maintenance, rebuilding, and alteration, on aircraft, airframes, aircraft engines, propellers, appliances, or parts thereof, which it operates, in accordance with the provisions of Part 121 or Part 127 of this chapter, as appropriate.
- (c) This section does not apply to persons performing the annual, 100-hour, and progressive inspections required by Part 91 of this chapter.

§ 43.11

(date) has been provided for the aircraft owner or lessee".

- (6) For progressive inspections, the following or a similarly worded statement--"I certify that in accordance with a progressive inspection program, a routine inspection of (identify whether aircraft, or components) and a detailed inspection of (identify components) were performed in accordance with a progressive inspection and the aircraft is approved for return to service".
- (b) Listing of discrepancies. If the person performing an annual inspection finds that the aircraft is unairworthy or does not meet the applicable type certificate data, airworthiness directives, or other approved data upon which airworthiness depends, he shall give the owner or lessee a signed and dated copy of a list of discrepancies. If the aircraft is not approved for return to service, he shall send the list of discrepancies to the local FAA District Office, within 48 hours after completing the inspection.

Aircraft, Engine, Propeller, Rotor, or Appliance Make_____

N

Model

Ser. No.

[illegible]

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Appendix 3

APPENDIX 3. AIRWORTHINESS DIRECTIVE COMPLIANCE RECORD
(SUGGESTED FORMAT)

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Washington, D.C. 20591**

Official Business

PENALTY FOR PRIVATE USE, \$300

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