U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Maintenance Records

Date: 4/7/17 **AC No:** 43-9C

Initiated by: AFS-300 **Change:** 1

1. PURPOSE. This advisory circular (AC) describes methods, procedures, and practices that have been determined to be acceptable means of showing compliance with the General Aviation (GA) maintenance record-making and recordkeeping requirements of Title 14 of the Code of Federal Regulations (14 CFR) parts 43 and 91. This material is not mandatory, nor is it regulatory, and it acknowledges that the Federal Aviation Administration (FAA) will consider other methods that may be presented. It is issued for guidance purposes and outlines several methods of compliance with the regulations.

2. PRINCIPAL CHANGES. This change to AC 43-9C updates and adds clarification to regulatory references.

PAGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
Pages 2 and 3	6/8/98	Pages 1 thru 3	4/7/17
Page 5	6/8/98	Page 5	4/7/17
Page 8	6/8/98	Page 7	4/7/17
Page 10	6/8/98	Pages 9 (and 10)	4/7/17

John Barbagallo
Deputy Director, Flight Standards Service

U.S. Department of Transportation
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Advisory Circular

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Initiated by: AFS-340 **Change:**

1. PURPOSE. This advisory circular (AC) describes methods, procedures, and practices that have been determined to be acceptable means of showing compliance with the General Aviation (GA) maintenance record-making and recordkeeping requirements of Title 14 of the Code of Federal Regulations (14 CFR) parts 43 and 91. This material is not mandatory, nor is it regulatory, and it acknowledges that the Federal Aviation Administration (FAA) will consider other methods that may be presented. It is issued for guidance purposes and outlines several methods of compliance with the regulations.

> **NOTE: The information in this AC does not apply to air carrier maintenance records made and retained in accordance with 14 CFR part 121.**

2. CANCELLATION. AC 43-9B, Maintenance Records, dated January 9, 1984, is canceled.

3. RELATED REGULATIONS. Title 14 CFR parts 1, 43, 91, and 145.

4. DISCUSSION. The CFR states that a U.S. standard airworthiness certificate is effective until it is surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator. In addition to those terms, a U.S. standard airworthiness certificate is effective only as long as the maintenance, preventive maintenance, and alterations are performed in accordance with parts 43 and 91, and the aircraft is registered in the United States. These terms and conditions are further restated in block 6 on the front of FAA Form 8100-2, Standard Airworthiness Certificate. Qualified persons who perform the maintenance, preventive maintenance, and alterations shall make a record entry of this accomplishment, thus maintaining the validity of the Certificate of Airworthiness. Adequate aircraft records provide tangible evidence that the aircraft complies with the appropriate airworthiness requirements. In accordance with the terms and conditions listed in block 6 of FAA Form 8100-2, insufficient or nonexistent aircraft records may render that standard airworthiness certificate invalid.

5. MAINTENANCE RECORD REQUIREMENTS.

a. Responsibilities. Part 91, § 91.417 states that an aircraft owner/operator shall keep and maintain aircraft maintenance records. However, part 43, § 43.9 states that each person who maintains, performs preventive maintenance, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment. Section 43.11 states that the person approving or disapproving for return to service an aircraft, airframe, aircraft engine, propeller, appliance, or component part after any

inspection performed in accordance with part 91, 125, 135, § 135.411(a)(1), or § 135.419 shall make an entry in the maintenance record of that equipment. The persons that are authorized to perform maintenance can be found in §§ 43.3 and 43.7.

b. Maintenance Records that Are to Be Retained. Section 91.405 requires each owner or operator to ensure that maintenance personnel make appropriate entries in the maintenance records to indicate that the aircraft has been approved for return to service. Section 91.417(a) sets forth the content requirements and retention requirements for maintenance records. Maintenance records may be kept in any format that provides record continuity, includes required contents, lends itself to the addition of new entries, provides for signature entry, and is intelligible. Section 91.417(b) requires records of maintenance, alterations, and required or approved inspections to be retained until the work is repeated, superseded by other work, or for one year. It also requires the records, specified in § 91.417(a)(2), to be retained and transferred with the aircraft at the time of sale.

> **NOTE: Section 91.417(a) contains an exception regarding work accomplished in accordance with § 91.411. This *does not* exclude the making of entries for this work, but applies to the retention period of the records for work done in accordance with this section. The exclusion is necessary since the retention period of one year is inconsistent with the 24-month interval of test and inspection specified in § 91.411. Entries for work done per this section are to be retained for 24 months or until the work is repeated or superseded.**

c. Section 91.417(a)(1). Requires a record of maintenance for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. This *does not* require separate or individual records for each of these items. It *does* require the information specified in § 91.417(a)(1) through 91.417(a)(2)(vi) to be kept for each item as appropriate. As a practical matter, many owners and operators find it advantageous to keep separate or individual records since it facilitates transfer of the record with the item when ownership changes. Section 91.417(a)(1) has no counterpart in § 43.9 or § 43.11.

d. Section 91.417(a)(1)(i). Is identical to § 43.9(a)(1) and requires the maintenance record entry to include "a description of the work performed." The description should be in sufficient detail to permit a person unfamiliar with the work to understand what was done and the methods and procedures used in doing it. When the work is extensive, this results in a voluminous record. To provide for this contingency, the rule permits reference to technical data acceptable to the Administrator in lieu of making the detailed entry. Manufacturer's manuals, service letters, bulletins, work orders, FAA ACs, and others, which accurately describe what was done or how it was done, may be referenced. Except for the documents mentioned that are in common usage, referenced documents are to be made a part of the maintenance records and retained in accordance with § 91.417(b).

> **NOTE: Certificated Repair Stations (CRS) frequently work on components shipped to them without the maintenance records. To provide for this situation, repair stations should supply owners and operators with copies of work orders written for the work, in lieu of maintenance record entries. The**

work order copy must include the information required by § 91.417(a)(1) through 91.417(a)(1)(iii) be made a part of the maintenance record and retained per § 91.417(b). This procedure is not the same as that for maintenance releases discussed in paragraph 16, and it may not be used when maintenance records are available. Section 91.417(a)(1)(i) is identical to its counterpart, § 43.9(a)(1), which imposes the same requirements on maintenance personnel.

e. Section 91.417(a)(1)(ii). Is identical to § 43.9(a)(2) and requires entries to contain the date the work was completed. This is normally the date upon which the work is approved for return to service. However, when work is accomplished by one person and approved for return to service by another, the dates may differ. Two signatures may also appear under this circumstance; however, a single entry in accordance with § 43.9(a)(3) is acceptable.

f. Section 91.417(a)(1)(iii). Differs slightly from § 43.9(a)(4) in that it requires the entry to indicate only the signature and certificate number of the person approving the work for return to service, and does not require the type of certificate being exercised to be indicated as does § 43.9(a)(4). This is a new requirement of § 43.9(a)(4), which assists owners and operators in meeting their responsibilities. Maintenance personnel may indicate the type of certificate exercised by using airframe (A), powerplant (P), Airframe and Powerplant (A&P), Inspection Authorization (IA), or CRS.

g. Section 91.417(a)(2). Requires six items to be made a part of the maintenance record and maintained as such. Section 43.9 does not require maintenance personnel to enter these items. Section 43.11 requires some of them to be part of entries made for inspections, but it is ultimately the responsibility of the owner or operator to verify and validate all maintenance record entries. The six items are discussed as follows:

(1) Section 91.417(a)(2)(i). Requires a record of total time in service to be kept for the airframe, each engine, and each propeller. Part 1, § 1.1, Definitions, defines time in service, with respect to maintenance time records, as that time from the moment an aircraft leaves the surface of the earth until it touches down at the next point of landing. Section 43.9 does not require this to be part of the entries for maintenance, preventive maintenance, rebuilding, or alterations. However, § 43.11 requires maintenance personnel to make it a part of the entries for inspections made under parts 91, 125, and time in service in all entries.

(a) Some circumstances impact the owner's or operator's ability to comply with § 91.417(a)(2)(i). For example, in the case of rebuilt engines, the owner or operator would not have a way of knowing the total time in service, since § 91.421 permits the maintenance record to be discontinued and the engine time to be started at *zero*. In this case, the maintenance record and time in service, subsequent to the rebuild comprise a satisfactory record.

(b) Many components presently in-service were put into service before the requirements to keep maintenance records on them. Propellers are probably foremost in this group. In these instances, practicable procedures for compliance with the record requirements must be used. For example, total time in service may be derived using the procedures described in paragraph 12; or if records prior to the regulatory requirements are just not available from any

source, time in service may be kept since last complete overhaul. Neither of these procedures is acceptable when life-limited parts status is involved or when Airworthiness Directive (AD) compliance is a factor. Only the actual record since new may be used in these instances.

(c) Sometimes engines are assembled from modules (turbojet and some turbopropeller engines) and a true total time in service for the total engine is not kept. If owners and operators wish to take advantage of this modular design, then total time in service and a maintenance record for each module is to be maintained. The maintenance records specified in § 91.417(a)(2) are to be kept with the module.

(2) Section 91.417(a)(2)(ii). Requires the current status of life-limited parts to be part of the maintenance record. If total time in service of the aircraft, engine, propeller, etc., is entered in the record when a life-limited part is installed and the time in service of the life-limited part is included, the normal record of time in service automatically meets this requirement.

(3) Section 91.417(a)(2)(iii). Requires the maintenance record to indicate the time since last overhaul of all items installed on the aircraft that are required to be overhauled on a specified time basis. The explanation in paragraph 5g(2) also applies to this requirement.

(4) Section 91.417(a)(2)(iv). Deals with the current inspection status and requires it to be reflected in the maintenance record. Again, the explanation in paragraph 5g(2) is appropriate even though § 43.11(a)(2) requires maintenance persons to determine time in service of the item being inspected and to include it as part of the inspection entry.

(5) Section 91.417(a)(2)(v). Requires the current status of applicable ADs to be a part of the maintenance record. The record is to include, at minimum, the method used to comply with the AD, the AD number, and revision date; and if the AD has requirements for recurring action, the time in service and the date when that action is required. When ADs are accomplished, maintenance persons are required to include the items specified in § 43.9(a)(2), (3), and (4) in addition to those required by § 91.417(a)(2)(v). An example of a maintenance record format for AD compliance is contained in Appendix 1, Airworthiness Directive Compliance Record (Suggested Format).

(6) Section 91.417(a)(2)(vi). In the past, the owner or operator has been permitted to maintain a list of current major alterations to the airframe, engine(s), propeller(s), rotor(s), or appliances. This procedure did not produce a record of value to the owner/operator or to maintenance persons in determining the continued airworthiness of the alteration since such a record was not sufficient detail. This section of the rule has now been *changed*. It now prescribes that copies of FAA Form 337, MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance), issued for the alteration, be made a part of the maintenance record.

6. PREVENTIVE MAINTENANCE.

a. Preventive maintenance is defined in § 1.1. Part 43 appendix A paragraph (c) lists those items which a pilot may accomplish under § 43.3(g). Section 43.7 authorizes appropriately rated repair stations and mechanics and persons holding at least a private pilot (PP) certificate to approve an aircraft for return to service after they have performed preventive maintenance. All of these persons must record preventive maintenance accomplished in accordance with the

requirements of § 43.9. AC 43-12, Preventive Maintenance, contains further information on this subject.

b. The type of certificate exercised when maintenance or preventive maintenance is accomplished must be indicated in the maintenance record. Pilots may use PP, commercial pilot (CP), or air transport pilot (ATP) to indicate private, commercial, or airline transport pilot certificate, respectively, in approving preventive maintenance for return to service. Pilots are not authorized by § 43.3(g) to perform preventive maintenance on aircraft when they are operated under 14 CFR part 121, 125, 129, or 135. Pilots may only approve for return to service preventive maintenance that they themselves have accomplished.

7. REBUILT ENGINE MAINTENANCE RECORDS.

a. Section 91.421 provides that *zero time* may be granted to an engine that has been rebuilt by a manufacturer or an agency approved by the manufacturer. When this is done, the owner/operator may use a new maintenance record without regard to previous operating history.

b. The manufacturer or an agency approved by the manufacturer that rebuilds and grants zero time to an engine is required by § 91.421 to provide a signed statement containing:

(1) The date the engine was rebuilt;

(2) Each change made, as required by an AD; and

(3) Each change made in compliance with Service Bulletins (SB), when the SB specifically requests an entry to be made.

c. Section 43.2(b) prohibits the use of the term “rebuilt” in describing work accomplished in required maintenance records or forms unless the component worked on has had specific work functions accomplished. These functions are listed in § 43.2(b) and, except for testing requirements, are the same as those set forth in § 91.421(c). When terms such as “remanufactured,” “reconditioned,” or other terms coined by various aviation enterprises are used in maintenance records, owners and operators cannot assume that the functions outlined in § 43.2(b) have been done.

8. RECORDING TACHOMETERS.

a. Time in service recording devices sense such things as electrical power on, oil pressure, wheels on the ground, etc., and from these conditions provide an indication of time in service. With the exception of those that sense aircraft lift-off and touchdown, the indications are approximate.

b. Some owners and operators mistakenly believe these devices may be used in lieu of keeping time in service in the maintenance record. While they are of great assistance in arriving at the time in service, such instruments alone do not meet the requirements of § 91.417. For example, when the device fails and requires change, it is necessary to enter time in service and the instrument reading at the change. Otherwise, record continuity is lost.

9. MAINTENANCE RECORDS FOR AD COMPLIANCE. This subject is covered in AC 39-7, Airworthiness Directives. A separate AD record may be kept for the airframe and each engine, propeller, rotor, and appliance, but is not required. This would facilitate record searches when inspection is needed, and when an engine, propeller, rotor, or appliance is removed, the record may be transferred with it. Such records may also be used as a schedule for recurring inspections. The format, shown in Appendix 1, is a suggested one, and adherence is not mandatory. *Owners* should be aware that they *may be responsible for non-compliance with ADs* when their aircraft are leased to foreign operators. They should, therefore, ensure that leases should be drafted to deal with this subject.

10. MAINTENANCE RECORDS FOR REQUIRED INSPECTIONS.

a. Section 43.11 contains the requirements for inspection entries. While these requirements are imposed on maintenance personnel, owners and operators should become familiar with them in order to meet their responsibilities under § 91.405.

b. The maintenance record requirements of § 43.11 apply to the 100-hour, annual, and progressive inspections under part 91; inspection programs under parts 91 and 125; approved airplane inspection programs under part 135; and the 100-hour and annual inspections under § 135.411(a)(1).

c. Appropriately rated mechanics are authorized to conduct these inspections and make the required entries. Particular attention should be given to § 43.11(a)(7) in that it now requires a more specific statement than previously required under § 43.9. The entry, in addition to other items, must identify the inspection program used, identify the portion or segment of the inspection program accomplished, and contain a statement that the inspection was performed in accordance with the instructions and procedures for that program.

d. Questions continue regarding multiple entries for 100-hour/annual inspections. As discussed in paragraph 5c, neither part 43 nor part 91 requires separate records to be kept. Section 43.11, however, requires persons approving or disapproving equipment for return to service, after any required inspection, to make an entry in the record of that equipment. Therefore, when an owner maintains a single record, the entry of the 100-hour or annual inspection is made in that record. If the owner maintains separate records for the airframe, powerplants, and propellers, the entry for the 100-hour inspection is entered in each, while the annual inspection is only required to be entered into the airframe record.

11. DISCREPANCY LISTS.

a. Before October 15, 1982, issuance of discrepancy lists (or lists of defects) to owners or operators was appropriate only in connection with annual inspections under part 91, inspections under § 135.411(a)(1), inspection programs under part 125, and inspections under § 91.217. Now, § 43.11 requires that a discrepancy list be prepared by a person performing any inspection required by parts 91, 125, or § 135.411(a)(1).

b. When a discrepancy list is provided to an owner or operator, it says in effect, *except for these discrepancies, the item inspected is airworthy*. It is imperative, therefore, that inspections be complete and that all discrepancies appear in the list. When circumstances dictate that an

inspection be terminated before it is completed, the maintenance record should clearly indicate that the inspection was discontinued. The entry should meet all the other requirements of § 43.11.

c. It is no longer a requirement that copies of discrepancy lists be forwarded to the local Flight Standards District Office (FSDO).

d. Discrepancy lists (or lists of defects) are part of the maintenance record and the owner/operator is responsible to maintain that record in accordance with § 91.417(b)(3). The entry made by maintenance personnel in the maintenance record should reference the discrepancy list when a list is issued.

12. LOST OR DESTROYED RECORDS. Occasionally, the records for an aircraft are lost or destroyed. In order to reconstruct them, it is necessary to establish the total time in service of the airframe. This can be done by reference to other records that reflect the time in service; research of records maintained by repair facilities; and reference to records maintained by individual mechanics, etc. When these things have been done and the record is still incomplete, the owner/operator may make a notarized statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service.

a. The current status of applicable ADs may present a more formidable problem. This may require a detailed inspection by maintenance personnel to establish that the applicable ADs have been complied with. It can readily be seen that this could entail considerable time, expense, and in some instances, might require the AD being performed again to establish compliance.

b. Other items required by § 91.417(a)(2), such as the current status of life-limited parts, time since last overhaul, current inspection status, and current list of major alterations, may present difficult problems. Some items may be easier to reestablish than others, but all are problems. Losing maintenance records can be troublesome, costly, and time consuming. Safekeeping of the records is an integral part of a good recordkeeping system.

13. COMPUTERIZED RECORDS. There is a growing trend toward computerized maintenance records. Many of these systems are offered to owners/operators on a commercial basis. While these are excellent scheduling systems, alone they normally do not meet the requirements of § 43.9 or § 91.417. The owner/operator who uses such a system is required to ensure that it provides the information required by § 91.417, including signatures. If not, modification to make them complete is the owner's/operator's responsibility and that responsibility may not be delegated.

14. PUBLIC AIRCRAFT. Prospective purchasers of aircraft that have been used as public aircraft should be aware that public aircraft may not be subject to the certification and maintenance requirements in 14 CFR and may not have records that meet the requirements of § 91.417. Considerable research may be involved in establishing the required records when these aircraft are purchased and brought into civil aviation. The aircraft may not be certificated or used without such records.

15. LIFE-LIMITED PARTS.

a. Present day aircraft and powerplants commonly have life-limited parts installed. These life limits may be referred to as retirement times, service life limitations, parts retirement limitations, retirement life limits, life limitations, or other such terminology, and may be expressed in hours, cycles of operation, or calendar-time. They are set forth in Type Certificate Data Sheets (TCDS), ADs, or the limitations section of FAA-approved airplane or rotorcraft flight manuals. Additionally, instructions for continued airworthiness, which require life-limits be specified, may apply (See 14 CFR part 23 appendix G and 14 CFR part 27 appendix A).

b. Section 91.417(a)(2)(ii) requires the owner or operator of an aircraft with such parts installed to have records containing the current status of these parts. Many owners/operators have found it advantageous to have a separate record for such parts showing the name of the part, part number, serial number, date of installation, total time in service, date removed, and signature and certificate number of the person installing or removing the part. A separate record, as described, facilitates transferring the record with the part in the event the part is removed and later reinstalled or installed on another aircraft or engine. If a separate record is not kept, the aircraft record must contain sufficient information to clearly establish the status of the life-limited parts installed.

16. MAINTENANCE RELEASE.

a. In addition to those requirements discussed previously, § 43.9 requires that major repairs and alterations be recorded as indicated in part 43 appendix B, (i.e., on FAA Form 337). An exception is provided in paragraph (b) of that appendix, which allows repair stations certificated under part 145 to use a maintenance release in lieu of the form for major repairs (and only major repairs).

b. The maintenance release must contain the information specified in paragraph (b)(1), (2), and (3) of part 43 Appendix B; be made a part of the aircraft maintenance record; and be retained by the owner/operator as specified in § 91.417. The maintenance release is usually a special document (normally a tag) and is attached to the product when it is approved for return to service. The maintenance release may, however, be on a copy of the work order written for the product. When this is done (for major repairs only) the entry on the work order must meet paragraph (b)(1), (2), and (3) of the appendix. That is to say that the repair station is required to give the owner: (1) the customers work order upon which the repair is recorded, (2) a signed copy of the work order, and (3) a maintenance release which has been signed by an authorized representative of the company. In some cases, a work order and a maintenance release may be a different document. Both must be supplied to the customer.

c. Some repair stations use what they call a maintenance release for other than major repairs. This is sometimes a tag and sometimes information on a work order. When this is done, all of the requirements of § 43.9 must be met (paragraph (b)(3) of appendix B not applicable) and the document is to be made and retained as part of the maintenance records under § 91.417 per discussion in paragraph 5c.

17. FAA FORM 337.

a. Major repairs and alterations are to be recorded on FAA Form 337, as stated in paragraph 16. This form is executed by the person making the repair or alteration. Provisions are made on the form for a person other than that person performing the work to approve the repair or alteration for return to service.

b. These forms are now required to be made part of the maintenance record of the product repaired or altered and retained in accordance with § 91.417.

c. Detailed instructions for use of this form are contained in AC 43.9-1, Instructions for Completion of FAA Form 337.

d. Some manufacturers have initiated a policy of indicating, on their Service Letters (SL) and bulletins, and other documents dealing with changes to their aircraft, whether or not the changes constitute major repairs or alterations. Some manufacturers also indicate that the responsibility for completing FAA Form 337 lies with the person accomplishing the repairs or alterations and cannot be delegated. When there is a question, it is advisable to contact the local FSDO for guidance.

18. TESTS AND INSPECTIONS FOR ALTIMETER SYSTEMS, ALTITUDE REPORTING EQUIPMENT, AND AIR TRAFFIC CONTROL (ATC) TRANSPONDERS. The recordation requirements for these tests and inspections are the same as for other maintenance. There are essentially three tests and inspections (the altimeter system, the transponder system, and the data correspondence test), each of which may be subdivided relative to who may perform specific portions of the test. The basic authorization for performing these tests and inspections, found in § 43.3, is supplemented by §§ 91.411 and 91.413. When multiple persons are involved in the performance of tests and inspections, care must be exercised to ensure proper authorization under these three sections and compliance with § 43.9 and 43.9(a)(3) in particular.

19. BEFORE YOU BUY. This is the proper time to take a close look at the maintenance records of any used aircraft you expect to purchase. A well-kept set of maintenance records, which properly identifies all previously performed maintenance, alterations, and AD compliance, is generally a good indicator of the aircraft condition. This is not always the case, but in any event, before you buy, require the owner to produce the maintenance records for your examination, and require correction of any discrepancies found on the aircraft or in the records. Many prospective owners have found it advantageous to have a reliable unbiased maintenance person examine the maintenance records, as well as the aircraft, before negotiations have progressed too far. If the aircraft is purchased, take the time to review and learn the system of the previous owner to ensure compliance and continuity when you modify or continue that system.

20. AC FEEDBACK FORM. For your convenience, the AC Feedback Form is the last page of this AC. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this AC on the Feedback Form.

APPENDIX 1. AIRWORTHINESS DIRECTIVE COMPLIANCE RECORD (SUGGESTED FORMAT)

AD Number and Amendment Number	Date Received	Subject	Compliance Due Date Hours/Other	Date of Compliance	Airframe Total Time in Service at Compliance	One-Time	Recurring	Next Compliance Due Date Hours/Other	Authorized Signature, Certificate, Type and Number	Remarks

- Aircraft, Engine, Propeller, Rotor, or Appliance: Make _____ Model _____ S.N. _____ N_____

Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by contacting the Flight Standards Directives Management Officer at 9-AWA-AFS-140-Directives@faa.gov.

Subject: AC 43-9C CHG 1, Maintenance Records

Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____

_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____

_____

☐ Other comments:

_____

_____

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____