



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Performance Rules: Provisions
Contained in an Operator Manual
Under § 43.13(c)

Date: 10/24/23

Initiated by: AFS-300

AC No: 120-77A

Change:

1 PURPOSE OF THIS ADVISORY CIRCULAR (AC). This AC provides one means, but not the only means, of ensuring that the contemplated maintenance, alteration, or continue-in-service condition is in compliance with applicable regulations and existing policy. This AC is not mandatory and is not a regulation. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way, and the document is intended only to provide information to the public regarding existing requirements under the law or agency policies. The AC recommends acceptable methods by which:

1. Title 14 of the Code of Federal Regulations (14 CFR) part [43](#), § [43.13\(c\)](#) allows commercial operators, operating under 14 CFR part [121](#); part [129](#), § [129.14\(b\)\(3\)](#); and part [135](#), § [135.411\(a\)\(2\)](#),¹ to meet the requirements of § 43.13(a) and (b) by applying the maintenance methods, techniques, and practices of their maintenance manual or the maintenance portions of the manual. This AC describes that means of compliance.
2. These operators may continue to use articles in-service or perform maintenance and alterations in a different manner than incorporating the manufacturer's maintenance information. Other methods, techniques, and practices may be incorporated into the operator's manual so long as the methods, techniques, and practices are an acceptable standard to the Administrator, as required by § 43.13(c). An operator may not produce or incorporate in their manual a method, technique, or practice that is not based on accepted standards (refer to § 43.13).

Note 1: The special provisions of § 43.13(c) do not exempt these operators from the approved data requirement of part 121, § [121.379\(b\)](#) and § [135.437\(b\)](#) for major repairs and alterations.

Note 2: As stated in § 43.13(c), the special provisions are applicable only to § 129.14 operators of aircraft that are subject to a continuous airworthiness maintenance and inspection program. Therefore, not all part 129 operators are eligible to apply the provisions of § 43.13(c) and this AC. With respect to § 129.14(b)(3) for leased aircraft maintained and operated under a U.S. operator's continuous airworthiness maintenance and inspection programs, eligibility under

¹ For the purposes of this AC, part 121 operators, part 135 operators operating under § 135.411(a)(2), and § 129.14 operators holding operations specifications (OpSpecs) which require a continuing airworthiness maintenance and inspection program are referred to collectively as "operators."

§ 43.13(c) is determined by the existence of and traceability to the U.S. operator's Operation Specification (OpSpec) D072, Aircraft Maintenance—Continuous Airworthiness Maintenance Program (CAMP) Authorization. Operators using leased aircraft maintained and operated under a U.S. operator's Continuous Airworthiness Maintenance Program (CAMP) under § 129.14(b)(3) can use the special provisions in § 43.13(c). Any other maintenance programs under § 129.14 cannot use § 43.13(c).

- 2 **AUDIENCE.** This AC applies to parts 121 and 129 and § 135.411(a)(2) operators using the provisions of § 43.13(c).
- 3 **WHERE YOU CAN FIND THIS AC.** You can find this AC on the Federal Aviation Administration's (FAA) website at https://www.faa.gov/regulations_policies/advisory_circulars and the Dynamic Regulatory System (DRS) at <https://drs.faa.gov>.
- 4 **WHAT THIS AC CANCELS.** AC 120-77, Maintenance and Alteration Data, dated October 7, 2002, is canceled.
- 5 **SCOPE.** This AC applies to parts 121 and 135 and § 129.14(b)(3) operators that are required to provide a CAMP under § 43.13(c). A CAMP contains both maintenance and inspection tasks. The group of affected aircraft may include:

- Aircraft type certificated in accordance with 14 CFR part [25](#) and Civil Air Regulations (CARs) 4b, and
- Aircraft that have been type certificated in accordance with 14 CFR parts [23](#), [27](#), and [29](#).

6 REGULATIONS AND GUIDANCE MATERIAL.

- 6.1 **Regulations.** These acceptable means of compliance with operating regulations refer to the applicable sections of the following 14 CFR parts:

1. Part [1](#), Definitions and Abbreviations.
2. Part [21](#), Certification Procedures for Products and Articles.
3. Part [23](#), Airworthiness Standards: Normal Category Airplanes.
4. Part [25](#), Airworthiness Standards: Transport Category Airplanes.
5. Part [27](#), Airworthiness Standards: Normal Category Rotorcraft.
6. Part [29](#), Airworthiness Standards: Transport Category Rotorcraft.
7. Part [33](#), Airworthiness Standards: Aircraft Engines.
8. Part [35](#), Airworthiness Standards: Propellers.
9. Part [36](#), Noise Standards: Aircraft Type and Airworthiness Certification.
10. Part [39](#), Airworthiness Directives.
11. Part [43](#), Maintenance, Preventive Maintenance, Rebuilding, and Alteration.

12. Part [65](#), Certification: Airmen Other than Flight Crewmembers.
13. Part [91](#), General Operating and Flight Rules.
14. Part [119](#), Certification: Air Carriers and Commercial Operators.
15. Part [121](#), Operating Requirements: Domestic, Flag, and Supplemental Operations.
16. Part [129](#), Operations: Foreign Air Carriers and Foreign Operators of U.S.-Registered Aircraft Engaged in Common Carriage.
17. Part [135](#), Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft.
18. Part [183](#), Representatives of the Administrator.

6.2 Related Guidance Materials (current editions):

6.2.1 Orders. The following orders may be used to derive information to incorporate into an operator's manual for the purpose of alternate methods of inspection, repair, alteration, or maintenance. This list may not be all-inclusive. These orders may be accessed online at https://www.faa.gov/regulations_policies/orders_notices/.

1. FAA Order [8110.4](#), Type Certification.
2. FAA Order [8110.37](#), Designated Engineering Representative (DER) Handbook.
3. FAA Order [8110.51](#), Acceptability of Previously Approved Compliance Data From Foreign Sources.
4. FAA Order [8110.53](#), Reciprocal Acceptance of Repair Design Data Approvals Between FAA and TCCA.
5. FAA Order [8110.54](#), Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents.
6. FAA Order [8110.113](#), Approval of Flammability Test Data in Support of Major Repairs or Major Alterations.
7. FAA Order [8130.2](#), Airworthiness Certification of Aircraft.
8. FAA Order [8300.16](#), Major Repair and Alteration Data Approval.
9. FAA Order [8620.2](#), Applicability and Enforcement of Manufacturer's Data.
10. FAA Order [8900.1](#), Flight Standards Information Management System.
11. FAA Order 8900.1, [Volume 3, Chapter 36, Section 1](#), Evaluating an Engineering Change Authorization/Order.

6.2.2 ACs. The following ACs may be used to derive information to incorporate into an operator's manual for the purpose of alternate methods of inspection, repair, alteration, or maintenance. This list may not be all-inclusive. You may obtain copies of these documents from the FAA's website at https://www.faa.gov/regulations_policies/advisory_circulars/.

1. AC [20-77](#), Use of Manufacturers' Maintenance Manuals.
 2. AC [20-107](#), Composite Aircraft Structure.
 3. AC [21.101-1](#), Establishing the Certification Basis of Changed Aeronautical Products.
 4. AC [23.1309-1](#), System Safety Analysis and Assessment for Part 23 Airplanes.
 5. AC [25.571-1](#), Damage Tolerance and Fatigue Evaluation of Structure.
 6. AC [25.1309-1](#), System Design and Analysis.
 7. AC [25.1529-1](#), Instructions for Continued Airworthiness of Structural Repairs on Transport Airplanes.
 8. AC [27-1](#), Certification of Normal Category Rotorcraft.
 9. AC [29-2](#), Certification of Transport Category Rotorcraft.
 10. AC [33-2](#), General Type Certification Guidelines for Turbine Engines.
 11. AC [33.4-1](#), Instructions for Continued Airworthiness.
 12. AC [43-9](#), Maintenance Records.
 13. AC [43.13-1](#), Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair.
 14. AC [43.13-2](#), Acceptable Methods, Techniques, and Practices—Aircraft Alterations.
 15. AC [43-210](#), Standardized Procedures for Obtaining Approval of Data Used in the Performance of Major Repairs and Major Alterations.
 16. AC [91-56](#), Continuing Structural Integrity Program for Airplanes.
- 7 **BACKGROUND.** Operators have requested additional guidance on existing policies and procedures for developing, substantiating, and documenting maintenance and/or alteration data for civil aviation products. They have specifically requested guidance for when an operator performs a maintenance or alteration task (or allows an existing condition to remain in-service) that differs from that called out in a manufacturer's service document, such as a Structural Repair Manual (SRM), Service Bulletin (SB), or maintenance manual. In response, the FAA Aircraft Certification Service and Flight Standards Service have jointly developed this AC.
- 8 **PERFORMANCE-BASED REGULATIONS.** The performance-based maintenance regulations place the scope of responsibility for the airworthiness and reliability of aircraft on the operators. Operators do not share this responsibility with manufacturers and design approval holders (DAH). Performance-based regulations require operators to produce a manual that is comprehensive in scope and detail (refer to §§ [121.133](#), [121.135](#), [135.21](#), and [135.23](#)). While they may derive maintenance (including inspections), preventive maintenance, and alteration information from product and article manufacturers, operators' methods, techniques, and practices are specific to their operations. Where these methods, techniques, and practices would result in major repairs or alterations to an aircraft, they must be supported by technical data approved by the Administrator. The operator using a CAMP is responsible to ensure the CAMP's

effectiveness, and quickly identify and address any deficiencies in their program or information they reference.

9 DEFINITIONS. For the purposes of this AC, the following definitions apply:

9.1 Airworthiness Limitation Section (ALS). The FAA-approved section of the instructions for continued airworthiness (ICA) that set forth mandatory maintenance requirements for structure and systems, such as those specified in accordance with part 23 appendix [A](#), § A23.4 and part 25 appendix [H](#), § H25.4. These maintenance requirements are approved by the FAA and may only be changed with approval from the FAA.

9.2 Airworthy. This means the aircraft conforms to its approved type design and is in a condition for safe operation. (Refer to 14 CFR part [3](#), § [3.5](#).)

1. The product must conform to its type design (refer to part 21, § [21.31](#)). A product conforms to its type design when its configuration and the equipment installed are as described in drawings, specifications, Type Certificate Data Sheet (TCDS), and other applicable data.
2. The aircraft must be in a condition for safe operation. The condition of the aircraft relative to wear and deterioration (e.g., skin corrosion, window delamination/crazing, fluid leaks, tire wear, etc.) must be within limits prescribed in the maintenance manual or ICA. Reference the aircraft's Airworthiness Certificate for terms, conditions, and limitations and refer to parts 21, 43, and 91.

9.3 Approved Data. Approved data is data approved by the FAA. The term "approved" is based on part 1, § [1.1](#), which states, "Approved, unless used with reference to another person, means approved by the FAA or any person to whom the FAA has delegated its authority in the matter concerned, or approved under the provisions of a bilateral agreement between the United States and a foreign country or jurisdiction." For the FAA aviation safety inspector (ASI), "approved" or "approved by" means the item (e.g., data, manual contents, tools, materials, equipment) is required to be and has been reviewed and formally approved by the FAA (or appropriate Civil Aviation Authority (CAA)). Approvals are granted only by letter, by a stamp of approval, by the issuance of OpSpecs, or by other official means. All data used to substantiate a major repair or major alteration, regardless of the source, must be approved prior to return to service (refer to §§ 121.379 and 135.437). Changes to approved data require FAA approval when used in conjunction with major repairs and major alterations.

9.4 Article. This means a material, part, component, process, or appliance.

9.5 Certification Maintenance Requirements (CMR). Required periodic tasks established during the design certification of the airplane as an operating limitation of the type certificate (TC). A detailed explanation of CMRs can be found in AC [25-19](#), Certification Maintenance Requirements.

9.6 Change. A variation from the method, technique, or practice, or the continue-in-service condition specified in the manufacturer's service document and incorporated into the

operator's manual for the aircraft and/or article being maintained, altered, or otherwise evaluated. Such changes include, but are not limited to, developing new repair designs, revising existing work instructions or inspection intervals, using a substituted part other than the one "called out" in a maintenance manual, or revising a damage limit or wear tolerance. Changes must be executed according to the documented policies in the operator's manual, and result in methods, techniques, and practices acceptable to the Administrator. (Refer to § 43.13(c).)

9.7 Continue-in-Service Condition. A limit, tolerance, or other parameter specified in a manufacturer's service document or operator's manual that authorizes operation with wear or damage within the specified parameter.

9.8 FAA Designees. As specified in part 183.

9.9 Instructions for Continued Airworthiness (ICA). The methods, techniques, and practices for performing maintenance, preventive maintenance, and alterations, which are provided by the DAH or its component manufacturers, and are considered acceptable to the Administrator under § 43.13(c) if the information is incorporated into the operator's manual as their maintenance practices. For example, under part 25 appendix H, the ICA includes an airplane maintenance manual or section, maintenance instructions, and an ALS. (Refer to §§ [21.50\(b\)](#) and 43.13(c) and part 25, § [25.1529](#) and appendix H.)

9.10 Major Alteration. An alteration not listed in the aircraft, aircraft engine, or propeller specifications.

1. An alteration that might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
2. An alteration that is not done according to accepted practices or cannot be done by elementary operations. (Refer to § 1.1.)

Note: Various segments of industry use the term "modification" to define a design change. The term "modification" is used throughout part 21 and is synonymous with the term "alteration."

9.11 Major Change. Certification regulation § [21.93](#) explains major changes to type design. These changes are an FAA Aircraft Certification Service office function. Major changes to type design and major alterations can sometimes be confused. A major change to type design will result in a major alteration to the aircraft. On the other hand, not all major alterations to an aircraft will necessarily be a major change to type design. Major changes to type design can be done with Supplemental Type Certificates (STC), changes to the original TC, or issuance of a new TC only by a responsible Aircraft Certification Service office. (Refer to § [21.113](#).)

9.12 Major Repair.

1. A repair that, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
2. A repair that is not done according to accepted practices or cannot be done by elementary operations. (Refer to § 1.1.)

Note: Part 43 appendix A contains a listing of major alterations and repairs. The appendix listing may not include every major alteration or major repair. Operators and anyone else working on an aircraft will have to make a determination of whether the work performed is a major or minor repair/alteration in accordance with part 1.

9.13 Manufacturer's Service Documents. Publications by a DAH that provide acceptable methods, techniques, and practices for performing maintenance, preventive maintenance, and alterations. They include, but are not limited to, maintenance manuals, restoration/overhaul manuals, ICAs, Component Maintenance Manuals (CMM), SRMs, SBs, Service Letters (SL), or other similar information. These documents may be incorporated into the operator's manual and are subject to the operator's control in consideration of § 43.13(c).

9.14 Methods, Techniques, and Practices. The methods, techniques, and practices referenced in § 43.13 are the step-by-step instructions for performing maintenance (including inspections), preventive maintenance, and alterations. These "how-to" instructions are normally contained in manufacturers' maintenance manuals and other service documents, and are usually based on approved technical data developed by the DAH in accordance with § 21.50(b). In accordance with § 43.13(c), operators incorporate instructions into their manual for performance of maintenance. These instructions are the responsibility of the operator and can be changed as described in this AC.

9.15 Minor Alteration. An alteration other than a major alteration. (Refer to § 1.1.)

9.16 Minor Repair. A repair other than a major repair. (Refer to § 1.1.)

9.17 Structural Repair Manuals (SRM). These typically provide repair instructions, material substitutions, and allowable damage limits for the aircraft's structure.

9.18 Substantiating Data. Data used to show that an aircraft and/or article or a product complies with the applicable airworthiness standards (e.g., §§ [23.2260](#), [25.603](#), [27.603](#), [29.603](#), [33.15](#), and [35.17](#)). Types of substantiating data include tests, analysis, experience, and/or computations appropriate to the maintenance, alteration, or continue-in-service condition of the article or product being evaluated. Substantiating data establishes that the article or product meets the regulatory requirements and would be returned to its original or properly altered condition, as required by § 43.13(b). This data may not only be manufacture data. It may be any other acceptable data. (Refer to §§ 21.31, 25.603, and 43.13(c).)

- 9.19 Supplemental Type Certificate (STC).** A certificate issued by the Administrator approving a change in the type design of the product. (Refer to § [21.117](#).)
- 9.20 Technical Data.** Drawings and specifications, and a listing of those drawings and specifications, needed to define the configuration and design features of a particular article, product, repair, or alteration. Typically, this includes information on materials, dimensions, and processes necessary to define structural strength, any required airworthiness limitations (AL), and any data necessary to determine the airworthiness, noise characteristics, fuel venting, and exhaust emissions (as applicable). Technical data also includes test data, engineering analyses, or other engineering information, such as engineering handbooks or approved military or industry specifications. It may also include operational and service experience, maintenance and alteration experience, reliability data, and other documented factual information that can be shown to be directly applicable to the airworthiness of the aircraft and/or article. (Refer to § 21.31.)
- 9.21 Type Certificate (TC).** The type design, the operating limitations, the TCDS, the applicable regulations with which the Administrator records compliance, and any other conditions or limitations prescribed for the product in the pertinent airworthiness regulations. (Refer to § [21.41](#).)
- 9.22 Type Design.** Section 21.31 specifies type design; in pertinent part, this includes:
1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the requirements applicable to the product;
 2. Information on dimensions, materials, and processes necessary to define the structural strength of the product; and
 3. The ALS of the ICA as required by parts 23, 25, 27, 29, 33, and 35, or as otherwise required by the Administrator.

10 APPROVED DOCUMENTS.

- 10.1 Prior FAA Approval.** In several situations, prior approval must be obtained from the Administrator before an operator may implement changes to methods, techniques, and practices under § 43.13(c) included in approved documents that are required by the regulations. For example, changes to Airworthiness Directives (AD) may not be made without the prior approval of the Administrator. This is because part 39, § [39.7](#) requires the operator of any product to which an AD applies to comply with the provisions of an applicable AD. The alternative method of compliance (AMOC) procedure is incorporated into an AD; therefore, complying with an AMOC constitutes compliance with the AD. An AMOC can be obtained in accordance with § [39.19](#). The aircraft manufacturer may have made arrangements for some of its Airworthiness Representatives or Designated Engineering Representatives (DER) to approve repairs as an AMOC to an AD. Each AD identifies the FAA office responsible for approving AMOCs. (Refer to § [39.21](#).)
- 10.2 ALs/CMRs and the TCDS.** ALs and CMRs incorporated by reference into the appropriate TCDS also require prior approval of the Administrator or appropriately

delegated/authorized designee. (Refer to § [21.1](#) and part 21 subpart [B](#).) For example, the TCDS for the Boeing 777-200/300 series airplanes states that the CMRs are listed in either the FAA-approved Section 9 of the Boeing Maintenance Planning Document (ALs and CMRs) or the applicable engine TCDS. The TCDS for the aircraft specifically states that “the more restrictive requirement from these two documents shall be in force.”

11 MANUFACTURERS’ SERVICE DOCUMENTS.

- 11.1 General.** These documents are usually the baseline incorporated into an operator’s manual system to perform maintenance and inspections. In most cases, these documents can be changed by an operator under § 43.13(c). Manufacturers’ service documents include maintenance manuals, restoration/overhaul manuals, ICAs, CMMs, SRMs, SBs, SLs, and other similar information. Under § 21.50(b), DAHs are required to prepare and make ICAs available to operators required to comply with ICAs. While the FAA does not approve all service documents, it approves the ALS of the ICA. (Refer to § [23.1529](#); part 23 appendix A; § 25.1529; and part 25 appendix H.) Other documents could include FAA-approved sections of the SRM, SBs approved as described in AC 20-77, and Maintenance Review Board Report (MRBR)-approved data, as described in AC [121-22](#), Maintenance Review Boards, Maintenance Type Boards, and OEM/TCH Recommended Maintenance Procedures.
- 11.2 FAA Approval of Technical Data.** Approval of data when required must be obtained in accordance with the procedures contained in the CAMP regardless of who does the maintenance. Sometimes, manufacturers elect to obtain the FAA’s approval of technical data supporting a maintenance or alteration action before issuing a service document. This is often the most efficient and cost-effective way to approve technical data because it eliminates the need for affected operators and maintenance providers to secure independent approval before doing the work. However, it remains the operator’s responsibility to ensure that the Administrator’s approval of technical data is obtained, if required, before approving for return to service an aircraft or an article after incorporation of a repair or alteration based on the advice or recommendation of a manufacturer. A No Technical Objection (NTO) letter or a statement that a particular maintenance or alteration action is “DER approvable” does not constitute FAA approval. However, such a statement may be considered, when supported along with other technical information, when evaluating particular maintenance or alteration action or continue-in-service condition.
- 11.3 FAA-Approved Technical Data.** When a manufacturer has obtained the FAA’s approval of technical data, a service document is often marked “FAA-Approved,” “FAA/DER-Approved,” or “DER-Approved.” Although the entire document is reviewed by the FAA, only the technical data (see paragraph [9.20](#)) associated with it is approved. In many cases, the technical data is not included in the body of the service document. All of the drawings, engineering data, and other technical information approved by the FAA is proprietary information aircraft manufacturers will normally not give out. As a result, the service documents typically contain only the instructions (methods, techniques, and practices) for performing a particular repair or alteration and not the engineering information that established compliance with the applicable airworthiness standards.

Note: Technical data alone, however, may not fulfill the requirements of the performance standards set forth in part 43. Drawings, specifications, and other engineering data seldom contain the how-to instructions (methods, techniques, and practices) for performing maintenance, preventive maintenance, rebuilding, or alterations. For example, it may not contain disassembly, inspection criteria, or repair procedures. A DAH's ICAs or maintenance information contains methods, techniques, and practices considered acceptable to the FAA based on technical data approved by the FAA.

12 THE SRM AND MAINTENANCE AND RESTORATION/OVERHAUL MANUALS.

12.1 SRM's Purpose. The SRM provides repair instructions, material substitutions, and allowable damage limits data for continue-in-service condition of the aircraft's structure. Thus, the SRM sets forth acceptable methods, techniques, and practices for performing structural repairs in the same manner as other service documents (e.g., maintenance, component, or restoration/overhaul manual). Manufacturers typically request FAA approval of the SRM so the operator may have ready access to approved data to perform minor or major repairs and return aircraft to service in accordance with the airworthiness standards and §§ 121.379(b) and 135.437(b).

12.1.1 It is the operator's responsibility to classify repairs as major or minor. An operator may use an FAA-approved SRM to accomplish repairs it has classified as either major or minor. However the operator accomplishes the process, it must be done in accordance with the procedures described in the operator's manual.

12.1.2 The SRM also provides allowable damage limits that an operator may use to keep an aircraft in-service without incorporating a repair. These damage limits are not necessarily the maximum limits that the aircraft is capable of withstanding while still complying with the airworthiness standards. An operator intending to operate an aircraft with damage beyond a manufacturer's established damage limit must support the position that the aircraft continues to meet the airworthiness standards. The substantiating data must be in accordance with technical data or standards acceptable to the Administrator.

12.2 Maintaining Airworthy Condition. Performing maintenance in accordance with the SRM is one way to maintain certain areas (the areas the SRM is applicable to) of an aircraft in an airworthy condition. Aircraft structural designs are certificated to meet the applicable airworthiness standards that were in effect when the TC was issued. These standards form the type certification basis for the aircraft. Any subsequent repairs must continue to comply with applicable airworthiness standards and be accomplished in accordance with part 43.

12.3 Additional SRM Uses. In addition to providing acceptable methods, techniques, and practices for performing maintenance, and when supported by appropriate substantiating data traceable to standards acceptable to the Administrator, the SRM may also be used to develop new or different repairs, or to authorize damage limits beyond those set forth in that manual. The SRM may also contain specific procedures authorizing continued

aircraft operation for a defined period of time before a permanent repair is required to be completed.

Note: The SRM is not part of the ALS of the ICA or the CMR. Moreover, the SRM is not part of the type design, even though it is often referenced on the TCDS under the heading of “Service Information,” as it is for the Boeing 777-200/300 series airplanes.

13 MAINTENANCE PERFORMANCE RULES.

13.1 Section 43.13(a). Section 43.13(a) states that maintenance, preventive maintenance, and alterations may be performed in accordance with either of the following, except as noted in § [43.16](#):

1. Methods, techniques, and practices in the current manufacturer’s maintenance manual or the ICA prepared by the manufacturer; or
2. Other methods, techniques, and practices acceptable to the Administrator.

13.2 Section 43.13(b). Under § 43.13(b), each person must perform work in such a manner and use materials of such a quality that the aircraft and/or article worked on will be returned to at least its original or properly altered condition. This does not mean that an aircraft and/or article must be maintained in factory-new condition. Rather, it requires that the maintenance, preventive maintenance, and alterations result in an airworthy aircraft (i.e., one that complies with part 25, any other applicable airworthiness standards (such as part 33), and the pertinent operating rules). Generally, this is accomplished by following the maintenance manuals prepared by the manufacturers, or using other information acceptable to the Administrator, such as ACs.

13.3 Section 43.13(c). Section 43.13(c) states that (unless otherwise notified by the Administrator) the methods, techniques, and practices in the operator’s maintenance manual constitute an acceptable means of compliance with § 43.13. Therefore, an operator that follows its maintenance manual procedures not only complies with §§ [121.367](#), [121.369](#), [135.425](#), and [135.427](#) (see paragraph [15](#)), but also complies with § 43.13(a) and (b). This applies to operators using a continuous airworthiness maintenance and inspection program under § 129.14.

Note: The special conditions of § 43.13(c) notwithstanding, each operator is responsible for determining that major repairs and major alterations have been accomplished in accordance with technical data approved by the Administrator. (Refer to §§ 121.379(b) and 135.437(b).)

14 METHODS, TECHNIQUES, AND PRACTICES VERSUS TECHNICAL DATA.

14.1 General. The terms “methods, techniques, and practices” and “technical data” have often been confused. While the concepts are related, each has a distinct meaning in 14 CFR.

- 14.1.1** The methods, techniques, and practices referenced in § 43.13 are the step-by-step instructions for performing maintenance (including inspections), preventive maintenance, and alterations. These “how-to” instructions are normally contained in manufacturers’ maintenance manuals and other service documents, and are usually based on approved technical data developed by the DAH. In accordance with § 43.13(c), operators generally incorporate these DAH instructions into their manual. These methods, techniques, and practices are the responsibility of the operator and can be changed as described in this AC.
- 14.2 Technical Data.** Technical data is defined in paragraph [9.20](#), which can be included in maintenance manuals and/or restoration/overhaul manuals may contain technical data. For example, if the manual specifies the required materials, dimensions, or other design information, this represents technical data. The operator must appropriately substantiate any changes to technical data in order for the methods, techniques, or practices to be acceptable to the Administrator.
- 14.3 Damage Limits.** An allowable damage limit in an SRM represents an acceptable method for accomplishing a repair or authorizing a continue-in-service condition. The allowable damage “limit” established by the TC holder (TCH) is based on approved substantiating data—i.e., an engineering analysis showing that even with such damage the aircraft would still meet the appropriate airworthiness standards. In many cases, a higher damage limit can also be shown to comply with those airworthiness standards. (See paragraph [16](#).)

15 MAINTENANCE AND RESTORATION/OVERHAUL MANUALS.

15.1 Parts 121 and 135.

- 15.1.1** Under §§ 121.133, 121.135, 135.21, 135.23, and 135.427 and part 119, § [119.49](#), operators must prepare and keep current a manual containing these items, among others:
- Instructions and procedures for performing maintenance, preventive maintenance, and servicing.
 - Time limitations, or standards for determining time limitations, for overhaul, inspections, and checks of aircraft and related components.
 - Airworthiness inspections, including instructions covering procedures, standards, responsibilities, and authority of inspection personnel.
- 15.1.2** Additional maintenance manual requirements are in §§ 121.367, 121.369, 135.425, and 135.427. These rules also require the operator to follow its manual when performing maintenance, preventive maintenance, and alterations. Operators must appropriately substantiate and incorporate changes to methods, techniques, or practices into their maintenance program, as required in § 43.13.
- 15.1.3** A maintenance manual generally includes two basic kinds of information. The first is product-specific and consists of the methods, techniques, and practices for performing

maintenance and alterations on specific aircraft, engines, and related components. Second, operators must include their maintenance practices, policies, and procedures, usually found in a General Maintenance Manual (GMM), Maintenance Policies and Procedures Manual, or similar document. Both kinds of information, the product-specific and the operator's general policies and procedures manuals, are part of the operator's manual system required by parts 121 and 135. When preparing its maintenance manual, and in accordance with § 43.13(c), the operator may designate the manufacturer's manuals as its own, develop its own maintenance information (operator-developed maintenance or inspections must be traceable to standards acceptable to the Administrator), or use some combination of the two. However, once its manual is FAA accepted under § 43.13(c), the operator is required to comply with its terms.

- 15.1.4** Operators may generally change their maintenance manuals in accordance with their procedures without obtaining prior FAA acceptance. These changes, however, must be acceptable to the FAA.

15.2 Section 43.13 Compliance. If an operator is following its maintenance manual under § 43.13(c), the operator will be in compliance with § 43.13(a) and (b). However, if the Administrator notifies an operator that a procedure in its manual is unacceptable under § 43.13(c), the carrier would no longer be authorized to use that procedure or process until the issue is resolved. Many operators have adopted procedures in their maintenance manuals to evaluate proposed changes to existing manufacturers' service documents. The procedures used for evaluation may be inadequate or in need of revision if they do not provide manual procedures acceptable to the Administrator. An operator's procedures must ensure that changes (and continue-in-service conditions) result in an airworthy aircraft. These changes (or variations) may involve the use of a different maintenance procedure, such as a temporary repair, an equivalent part substitution, inspection technique, or revising repair or allowable damage limit, including those in an SRM. In some cases, revising a limit results in an aircraft and/or article being approved for return to service without a repair having been performed.

15.3 Manual Changes. Operators typically process changes to their maintenance manual through their engineering organizations or may contract the services of others to process changes on their behalf. This includes documenting the damage, condition, or contemplated action; conducting a technical analysis to determine whether the change would comply with the pertinent airworthiness standards (e.g., parts 25, 33, etc.); and classifying the changed maintenance action or continue-in-service condition, which could include a major or minor repair. If the change is classified as major, the Administrator or designee must approve the technical and substantiating data. (Refer to §§ 121.379 and 135.437.) If the change is classified as minor, an operator should perform and document an engineering analysis in accordance with the procedures in the operator's maintenance manual, appropriate to the complexity of the situation.

15.4 Contract Maintenance Functions. Some operators may authorize other entities to perform maintenance functions on their behalf in accordance with the operator's procedures and manuals. These operators must have procedures in their maintenance manuals governing the manner in which these contract functions are carried out, and

include appropriate documentation and internal approval. (Refer to §§ [121.368](#), 121.369(a)(10), [135.426](#), and 135.427(a)(1).)

16 EVALUATING PROPOSED CHANGES TO SERVICE DOCUMENTS.

- 16.1 General.** Before an operator or other person acting on their behalf may change a repair design, limit, or other procedure in an SRM or other service document, the following three requirements must be met. First, the change must be processed in accordance with procedures in the operator's maintenance manual, and result in methods, techniques, and practices traceable to standards acceptable to the Administrator (refer to §§ 43.13(c), 121.367, and 135.425). Second, the change must be shown to comply with the relevant airworthiness standards and documented. Compliance with these standards will establish that the aircraft and/or article will be returned to its original or properly altered condition in accordance with procedures in the operator's manual that comply with § 43.13(c). Third, major repairs or alterations must be done in accordance with technical data approved by the Administrator (refer to §§ 121.379 and 135.437). Any new maintenance process must be documented in the operator's manual (refer to § 43.13(c)).
- 16.2 Manual Procedures.** The operator's manual procedures should be sufficiently detailed to allow anyone revising the manual to differentiate between minor editorial changes or substantive changes affecting maintenance practices. Changes to the baseline maintenance practices must be acceptable to the Administrator (refer to § 43.13(c)). Procedures should also provide for a continuous loop of timely information and communications among the operators, FAA principal inspector (PI), responsible Aircraft Certification Service office, designees, and the manufacturer, as appropriate. The procedures to evaluate proposed changes to content contained in service documents should be included in the operator's manual and should contain the following elements:
- 16.2.1** A procedure for ensuring only appropriately qualified and experienced personnel will make the engineering determinations required. Operators with no engineering department should have a process to assure DER services utilized under part 183 are qualified and hold Aircraft Certification Service office authorizations to produce the data.
- 16.2.2** A procedure for determining whether the proposed change requires FAA approval because it affects an AD, CMR, AL, minimum equipment list (MEL), maintenance program tasks, intervals, etc., and if the change requires FAA approval, procedures for obtaining that approval.
- 16.2.3** A procedure for determining whether the proposed change is minor or major. If the change would result in a major repair or alteration, procedures to obtain FAA approval of the data supporting the change. (Refer to §§ 121.379 and 135.437.) Operators should have a process written in their manual for this determination.
- 16.2.4** A procedure for developing technical and substantiating data, which includes the following (also see paragraphs [16.4](#) through [16.6](#) below.):

- A documented review to determine if the available technical data is sufficient to proceed with the proposed change.
- A documented process of consulting with the manufacturer, as appropriate. Such consultation brings together the best available knowledge and experience in the areas of design, production changes, and operations to ensure a well-designed repair.
- A procedure for obtaining additional substantiating data, as necessary.
- A procedure for documenting and substantiating compliance with pertinent airworthiness regulations, including citing the specific 14 CFR part(s) for which compliance has been determined. This should be accomplished through tests, analyses, and/or computations appropriate to the complexity of the change being proposed.

Note: In each case, the procedures must identify the airworthiness standards that are applicable to the change and provide for documenting that the change results in an airworthy aircraft.

- A procedure for documenting the substantiation process.

16.2.5 The method of notification/reporting to PIs of changes accomplished, as appropriate.

16.2.6 For other persons performing these functions on behalf of an operator, a method of coordinating with the operator.

16.2.7 A method of retaining the records of each action consistent with the recordkeeping requirements of 14 CFR.

16.3 Evaluating the Proposed Change. When determining whether a contemplated change from an existing service document is minor or major, the focus should be the change's effect on the capability of the aircraft to remain airworthy after the change. For example, a structural repair performed in accordance with an SRM may call for a specific size fastener, fastener edge margin, finish, corrosion treatment, or similar method, technique, or practice. This may also pertain to a change to data not listed in any SRM or other manufacture data (i.e., a repair developed by a designee or operator engineering staff). In evaluating a proposed change (such as using an oversized fastener or a different finish than specified in the SRM), the analysis should address whether the change (including its effect on the repair and the aircraft configuration) will result in a change to the alteration or repair defined in § 1.1. This is because the FAA only considered the configuration of the aircraft with the repair described in the repair instructions when it previously approved the technical data supporting that repair in the SRM. This evaluation should be made within the scope of the definitions of part 1.

16.4 Showing Compliance With the Relevant Airworthiness Standards. Changes to aircraft maintenance programs shall ensure the aircraft meets the original airworthiness certification or other acceptable standards. Section 43.13(b) specifies these requirements. Operators must document changes with traceability to new processes. Manual procedures must ensure evaluations consider the effect of changes to aircraft or articles relative to

allowable wear and limits. The procedures must consider previous changes (approved or acceptable) during revision of maintenance practices. Taken separately or in combination, each maintenance practice incorporated to an aircraft, cannot compromise the airworthiness. The interrelationships of multiple revisions to methods, techniques, or practices in the program shall be evaluated during each maintenance practice revision. Failure to assess all maintenance practices (e.g., when the DAH, the FAA, or the designee is unaware of specific configuration), multiple alterations, repairs, or changes in maintenance practices on the same individual aircraft or aircraft fleet may affect the aircraft's airworthiness. It is the operator's responsibility to manage aircraft airworthiness configuration control.

Note: Other items to consider are the effects of the change on other requirements such as ALs, ADs, and life-limited parts. The following procedure (see paragraph [16.6](#) below) will help operators evaluate whether appropriate technical and substantiating data exists to accomplish the proposed change. The nature and extent of the data required to substantiate the change will vary according to the complexity of the change and the other factors described below.

16.5 Initial Assessment.

16.5.1 Description of the Affected Aircraft and/or Article. This description should include, but is not limited to:

- Nomenclature.
- Part number.
- Assembly number.
- Serial number(s), if applicable.
- Make and model of the aircraft and/or article.
- If known or as appropriate: hours or cycles, time-in-service, time since new, time since last maintenance action.

16.5.2 Description of the Discrepancy or Contemplated Change. A complete description of the damage, discrepancy, or change should include, but is not limited to:

- Specific location on the aircraft and/or article.
- Type (e.g., corrosion, limit exceeded, cracks, dents).
- Extent and/or dimensions.
- Associated, hidden, and/or adjacent discrepancies, damage, or alteration(s).
- Previous maintenance action(s) or disposition(s) thereof, or alteration(s) at or adjacent to the affected area(s) or part(s).
- Cause, if known (e.g., environmental, accidental, design).

16.5.3 Review Existing Data. As appropriate, review and document existing information (e.g., applicable maintenance documents, procedures, or process specifications) to determine whether it applies to the proposed change.

16.5.4 Circumstances in Which Additional Data Are Required. Situations in which further data collection and analysis are required (refer to § 43.13) include, but are not limited to:

- Instances where no methods, techniques, and practices are specified in the applicable service document, or the existing condition is beyond allowable limits or repair tolerances.
- Performing an action in a different manner than prescribed by manufacturers' service documents.
- Using maintenance or alteration data intended for a specific product, on a like product. In this case, a documented evaluation of product differences may be necessary to determine the degree to which the data is applicable.
- Substitution of materials or processes.
- Identifying that an AD applies to the product in the area of the damage, discrepancy, or contemplated change. This may require an AMOC.
- Discovering that the area of the damage, discrepancy, or contemplated change has been defined as a primary structure or will create a Principal Structural Element (PSE) (refer to § [25.571](#)).
- Identifying that a CMR applies in the area of the damage, discrepancy, or contemplated change.
- Identifying that the aircraft and/or article has an AL. Items identified as having ALs require the responsible Aircraft Certification Service office's approval to change.

16.6 Data Development.

16.6.1 Technical Qualifications. The operator's procedures should prescribe the steps for reviewing, approving, and overseeing engineering authorizations, and specifying the minimum qualifications (particularly knowledge of applicable airworthiness standards) for the individuals engaged in these activities. These procedures should identify an individual who is responsible for the process, can delegate final engineering approval authority, and has the following qualifications if requiring the services of a designee:

1. The designee is qualified under part 183 and has the authorizations (codes) to perform the specific engineering function; or
2. The designee has:
 - Similar qualifications or meets requirements described in FAA Order [8100.8](#), Designee Management Handbook;
 - A thorough working knowledge of the applicable airworthiness standards of 14 CFR;

- At least 1 year of satisfactory experience in processing engineering work, in direct contact with the FAA for type certification or major repair/alteration approval; and
- At least 8 years of aeronautical experience, which may include the 1 year of processing engineering work described above.

16.6.2 Technical Data. Technical data development is the first part of the process in revising an operator's manual, in accordance with § 43.13(c). The data needed to substantiate changes to in-service or alternate items to be installed on the aircraft may be derived from manufacturer information or developed by personnel as described in paragraph 16.6.1. In any case, the technical data must support that the condition of the article or product will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

16.6.2.1 **Assessment.** As appropriate to the change being considered, the operator must assess the functions, interactions, environment, and consequence of the aircraft and/or article's failure. The assessment must determine the extent of analysis and the expertise needed to develop technical data to comply with the airworthiness regulations.

16.6.2.2 This assessment may include, but is not limited to:

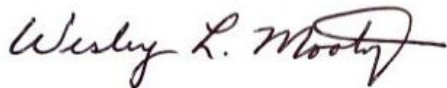
- Functional information describing how the aircraft and/or article functions within the assembly, how the assembly functions within the system, and/or how the system functions within the product.
- Operating environment of the product.
- Interaction with other systems and consequences of failure that could be most influenced by the maintenance, disposition, or alteration resulting from the proposed change. Consider the most probable effect on its ability to perform its intended function.
- Effect of the maintenance, alteration, or continued in-service condition on the aircraft's ability to meet the airworthiness standards specified in its type certification basis, including its operational characteristics or performance.

16.6.2.3 **Methods, Techniques, and Practices.** After the technical data is developed to support the change, an operator must write the methods, techniques, and practices to implement the change. These methods, techniques, and practices should establish detailed work instructions, inspection criteria (incoming or initial, in-process, and/or final inspections), and a description of or reference to processes and instructions. These methods, techniques, and practices are written to implement the change based on the technical data. For example, processes and instructions could include:

1. Heat-treating, surface treatment, blending, and welding.
2. Consideration of specialized processes on engine hardware, such as, not limited to:
 - High-pressure turbine (HPT) blade repair (especially single crystal alloys).
 - Low-pressure turbine (LPT) blade repair.
 - Subjecting engines and parts thereof to specialized processes (e.g., acid stripping, ultrasonic cleaning, etc.) outside of the manufacturer's ICA.
3. Continuous inspection requirements and/or future maintenance action requirements; and
4. Acceptance of condition without further specific maintenance action.

17 RETENTION OF RECORDS. The continued in-service processes of aircraft maintenance in accordance with § 43.13(c) must be documented in an operator's manual in accordance with §§ 121.135 and 135.21. Because the operator is responsible for the continuing airworthiness of aircraft affected by their changes, it should retain these records for a sufficient period. These records may need to be used as reference material in addressing possible airworthiness concerns related to a repair or alteration.

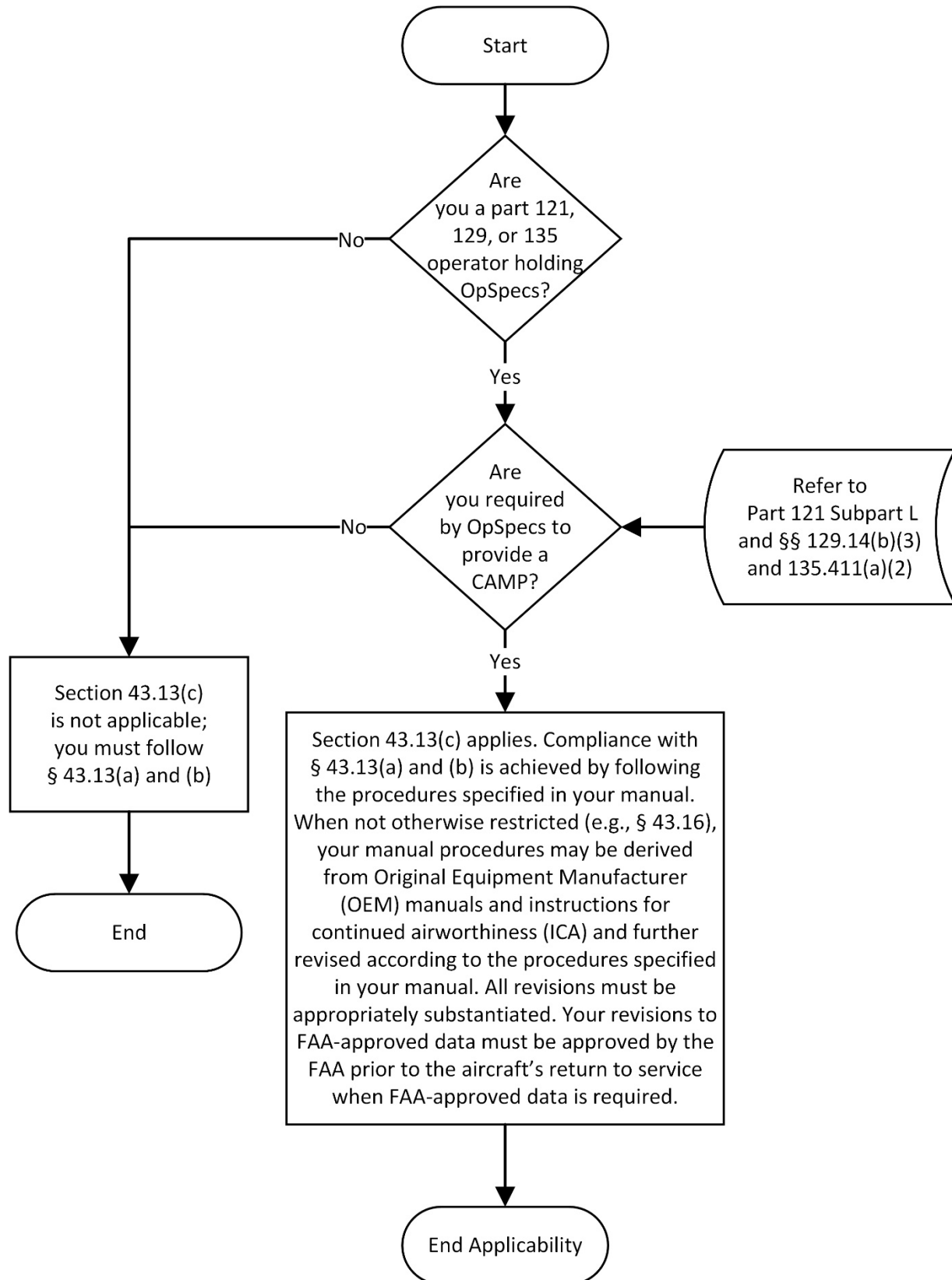
18 AC FEEDBACK FORM. For your convenience, the AC Feedback Form is the last page of this AC. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this AC on the Feedback Form.

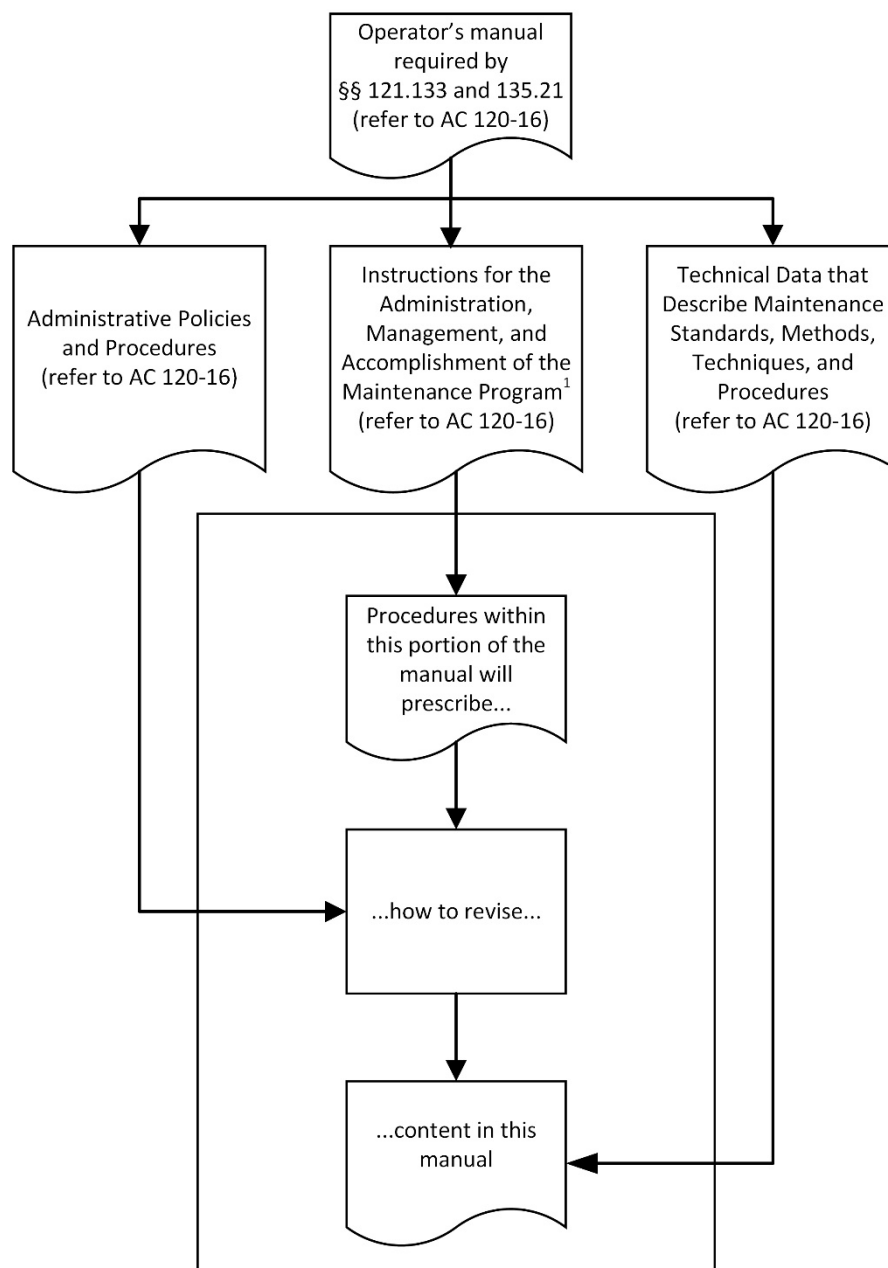


Wesley L. Mooty
Acting Deputy Executive Director, Flight Standards Service

APPENDIX A. ASSESSING 14 CFR PART 43, § 43.13 APPLICABILITY

- A.1** The flowchart from the prior version of this advisory circular (AC) was for the purpose of major and minor determinations: repairs, alterations, and continued-in-service conditions. This AC, as stated in paragraph [1](#), is about the information in an operator's manual in accordance with § [43.13\(c\)](#). Unless otherwise notified by the Administrator, for operators in 14 CFR part [121](#); part [129](#), § [129.14\(b\)\(3\)](#); and part [135](#), § [135.411\(a\)\(2\)](#) using the special provisions of § 43.13(c), your manual constitutes an acceptable means of compliance with § 43.13.
- A.2** With this revision, we are clarifying that changes to FAA-approved data, in the case of major repairs or alterations, renders that data no longer FAA-approved, regardless of the nature of that data change. If using approved data for minor repairs or alterations, changing of the data does not require FAA approval.

Is § 43.13(c) Applicable?

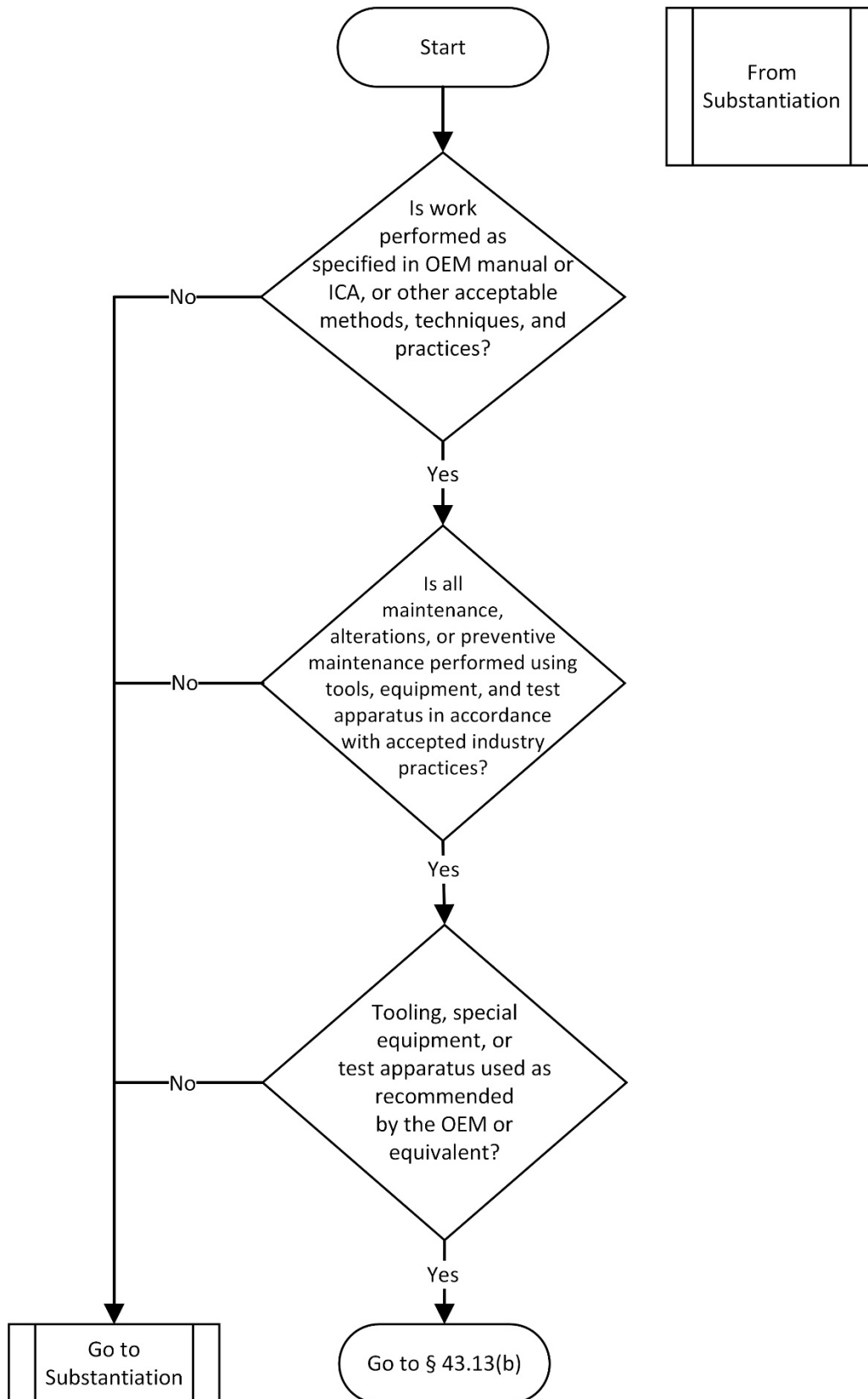
Manual Content in Support § 43.13(c)

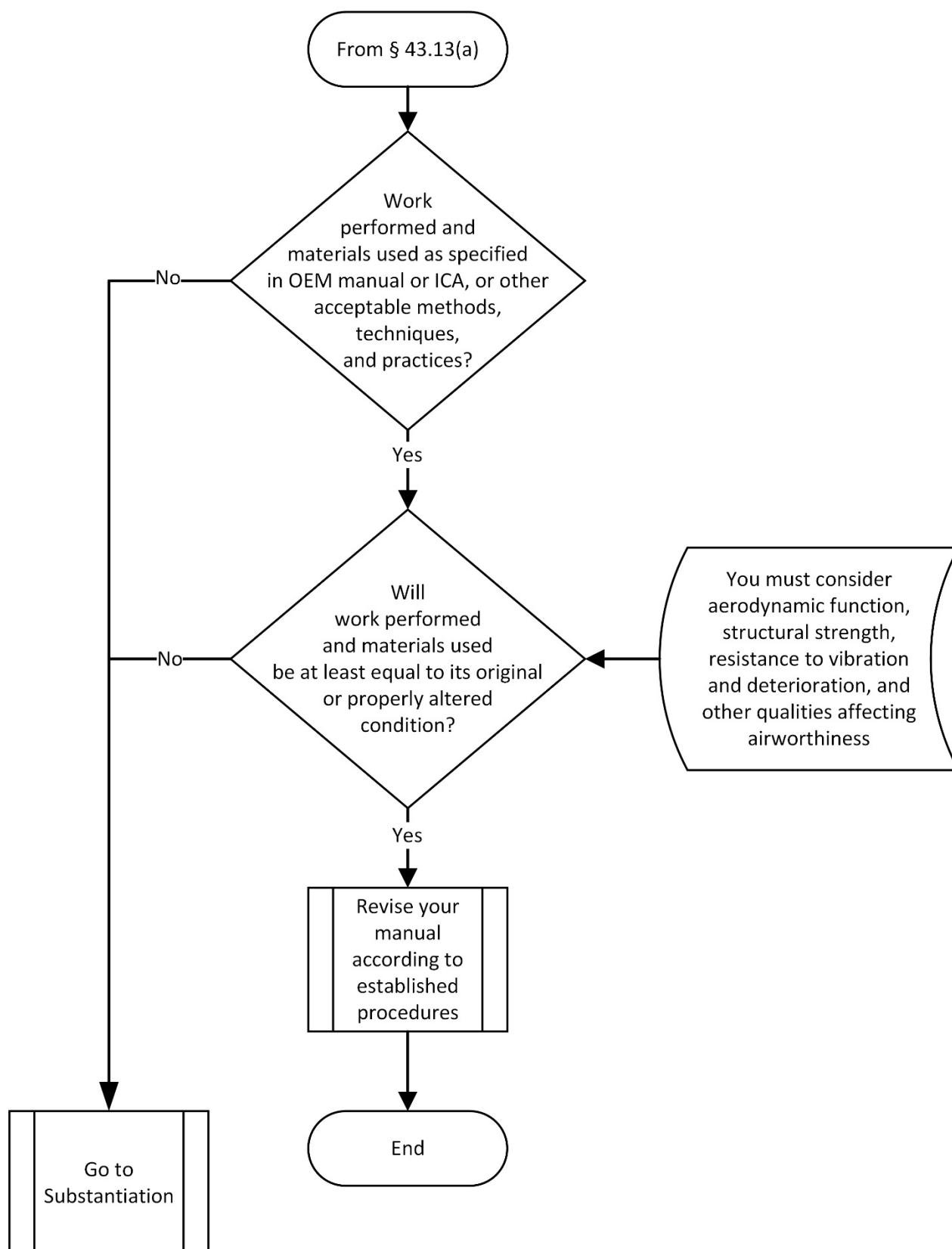
¹ Separate sections are typical but not required. The operator's manual should include all information indicated above.

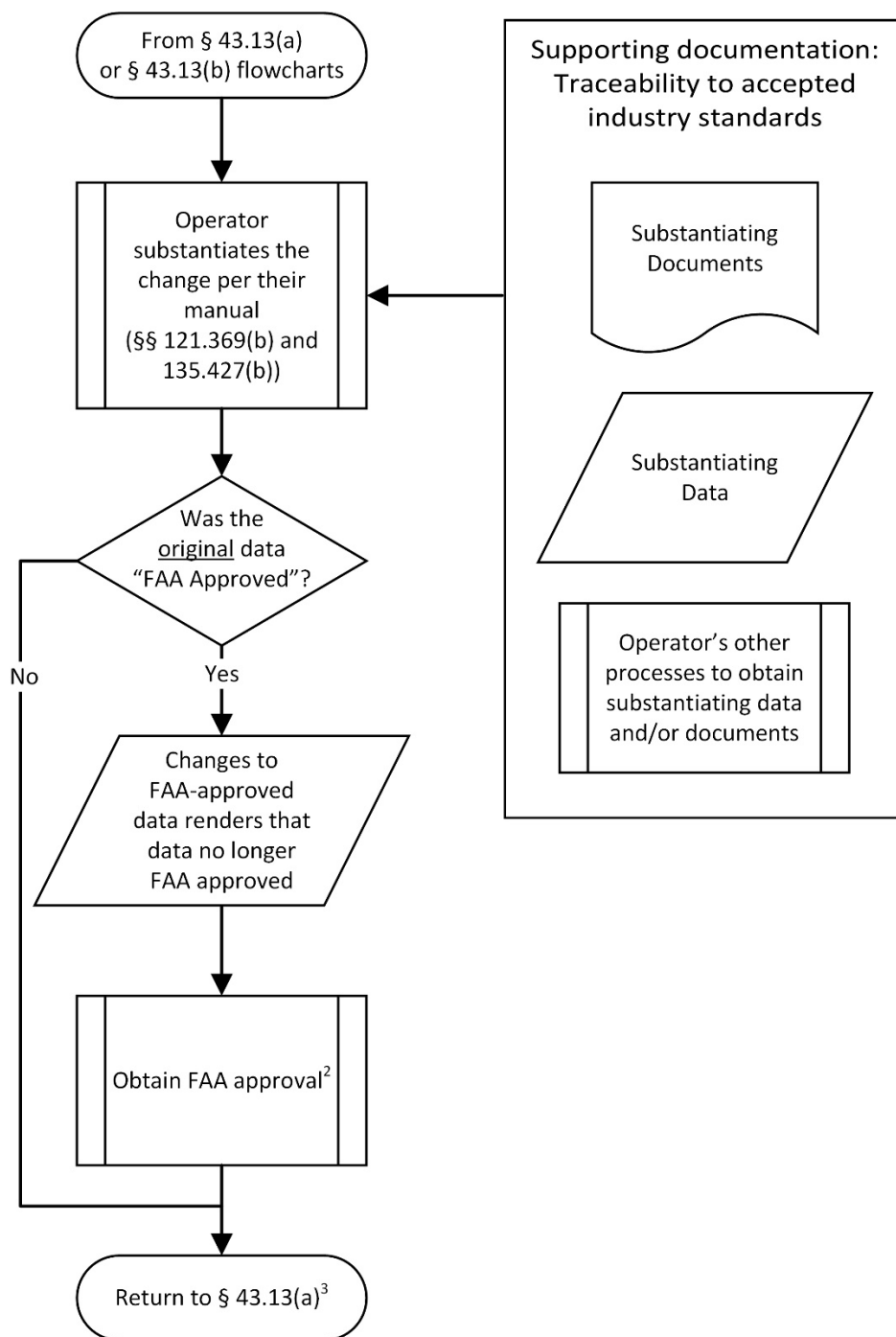
Under the provisions of § 43.13(c) and requirements of §§ [121.135](#) and [135.23](#), you must:

1. Describe this process in your manual, and
2. Follow the process when making revisions.

Doing so constitutes an acceptable means of compliance with § 43.13.

Applying § 43.13(a)

Applying § 43.13(b)

Substantiation

² FAA-approved data that is changed can be used for minor repairs and alterations. Any changes to FAA-approved data that are used for major repairs or alterations require approval prior to use.

³ After substantiation, operators should be able to answer "Yes" to all questions in flowcharts "§ 43.13(a)" and "§ 43.13(b)."

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-AFB-120-Directives@faa.gov.

Subject: AC 120-77A, Performance Rules: Provisions Contained in an Operator Manual Under § 43.13(c)

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: _____