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CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

8300.10 CHG 16

5/21/03

SUBJ: AIRWORTHINESS INSPECTOR'S HANDBOOK

1. PURPOSE. This Change transmits new and revised portions of the handbook.

2. DISTRIBUTION. This Change is distributed to all addresses on special distribution list ZFS-830. An electronic message will be disseminated to Flight Standards employees (largely the airworthiness aviation safety inspectors, whom this change affects) to indicate when this Change is electronically published, which chapters are affected, and which bulletins are incorporated and will provide the Universal Resource Locator: http://www.faa.gov/avr/afs/faa/8300/index.cfm. The Change will be electronically published on the appropriate FAA Intranet site.

3. EXPLANATION OF CHANGES. This Change to the 8300.10 handbook uses change bars to indicate new and revised material. Significant areas of new direction, guidance, and policy included in this Change are as indicated. The Repair Station chapters (Volume 2, Chapters 161-165, rewritten with new information in accordance with 14 CFR part 145 and the new rule, were originally coordinated in Change 16. They will be published in the next future Change. This Change includes only 6 chapters listed below including editorial updates and Federal Aviation Regulation (FAR) references changed to 14 CFR.

a. Two new chapters are included: **Volume 2, Chapter 5,** Evaluate Operator's Application to Conduct Flight in Airspace Where Reduced Vertical Separation Minimums are Applied, with new RVSM information; and **Volume 3, Chapter 9,** Conduct Ramp Inspection on Cargo Loading, with new cargo information.

b. Volume 2, Chapter 1, Perform Field Approval of Major Repairs and Major Alterations, contain clarification of field approvals in accordance with FAA Order 8110.46, Major Alterations that Require Supplemental Type Certificates, and adds new Figure 1-3, Major Alterations, to differentiate field approvals requiring an STC or by other means.

c. Volume 2, Chapter 2, Issue SFAR 36 Authorization, incorporates changes in accordance with FAA Order 8100.9, DAS, DOA, and SFAR 36 Authorization Procedures; and **Chapter 91,** Evaluate Part 135 (Nine or Less) Operator/Applicant's Inspection and Maintenance Requirements, incorporates manufacturer service bulletin information.

d. Volume 3, Chapter 125, Monitoring Part 121 Operators Before, During, and After Labor Dispute, Strike, or Bankruptcy, is rewritten. This chapter will cancel **Volume 3, Chapter 127,** Monitor Operator During Mergers/Acquisitions/Bankruptcy Proceedings, and bulletin HBAW 03-01.

4. DISPOSITION OF TRANSMITTAL. This transmittal is to be RETAINED AND FILED IN THE BACK OF THIS HANDBOOK until it is superseded by a new basic order.

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/s/
David E. Cann
Manager, Aircraft Maintenance Division

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CHAPTER 1. PERFORM FIELD APPROVAL OF MAJOR REPAIRS AND MAJOR ALTERATIONS

SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3414, 3416, 3446

B. Avionics: 5414, 5416, 5446

C. JTA: 1.3.19

D. ATOS Elements: 1.2.2

3. OBJECTIVE. This chapter provides guidance in determining the category of a repair or alteration and ensuring that the aircraft, engine, or accessory can be returned to service in accordance with (IAW) the field approval process, regardless of the rules under which the aircraft is operated.

5. GENERAL.

A. Definitions:

(1) Acceptable Data. The drawings and specifications necessary to define the configuration and design features of the repair or alteration. These drawings and specifications include information on weight, balance, operating limitations, flight characteristics, dimensions, materials, and processes that are necessary to define the repair or alteration. The following are examples of acceptable data and may be used as a basis for developing approved data to substantiate repairs or alterations:

(a) Manufacturer's manuals are acceptable data that may be used as a basis for developing approved data for major alterations.

(b) Federal Aviation Administration (FAA) Form 337, Major Repair and Alteration, when the specified data has been previously approved as a one-time alteration or repair, is acceptable data that may be used as a basis for developing approved data for subsequent alterations.

(c) If it is not FAA-approved, data contained in a Structural Repair Manual (SRM); Advisory Circular (AC) 43.13-2, Acceptable Methods, Techniques, and Practices—Aircraft Alterations, as revised; and AC 43.13-1B, Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair, as revised. (The Original Equipment Manufacturer (OEM) SRM is a preferred manual even though the SRM is not FAA-approved.)

(2) Alter. To change or modify.

(3) Approval for Return to Service. The approval given by an appropriately rated person that enables an aircraft to be returned to service.

(4) Approved Data. Substantiating and descriptive technical data, used to make a major repair or alteration, that is approved by the Administrator. The following list, although not all-inclusive, contains sources of approved data:

(a) Type Certificate Data Sheets (TCDS).

(b) Supplemental Type Certificate (STC) data, provided it specifically applies to the item being repaired/altered. Such data may be used in whole or part as included within the design data associated with the STC.

(c) Appliance manufacturer's manuals or instructions, unless specifically not approved by the Administrator, are approved for major repairs.

(d) Airworthiness Directives (AD).

(e) FAA Form 337, which has been used to approve multiple identical aircraft, by the original modifier.

NOTE: Aviation safety inspectors (ASI) no longer approve data for use on multiple aircraft.

(f) U.S. Civil Airworthiness Authority (CAA) Form 337, dated before 10/1/55.

(g) FAA-approved portions of SRMs.

(h) Designated Engineering Representative (DER)-approved data, only when approval is authorized under his/her specific delegation.

(i) Designated Alteration Station (DAS) FAA-approved data, when the major alteration is performed specific to the authorization granted.

(j) Data in the form of Appliance Type Approval issued by the Minister of Transport Canada for those parts or appliances for which there is no current Technical Standard Order (TSO) available. The installation manual provided with the appliance includes the Transport Canada Civil Aviation (TCCA) certificate as well as the date of issuance and an environmental qualification statement (see paragraph 13).

(k) Repair data issued under Special Federal Aviation Regulations (SFAR) 36.

(l) Foreign bulletins, for use on U.S.-certificated foreign aircraft, when approved by the foreign authority.

(m) Data describing an article or appliance used in an alteration which is FAA-approved under a TSO. As such, the conditions and tests required for TSO approval of an article are minimum performance standards. The article may be installed only if further evaluation by the operator (applicant) documents an acceptable installation which may be approved by the Administrator.

(n) Data describing a part or appliance used in an alteration which is FAA-approved under a Parts Manufacturer Approval (PMA). (An STC may be required to obtain a PMA as a means of assessing airworthiness and/or performance of the part.).

NOTE: Installation eligibility for subsequent installation or reinstallation of such part or appliance in a Type Certificated (TC) aircraft, other than the aircraft for which airworthiness was originally demonstrated, is acceptable, provided the part or appliance meets its performance requirements and is environmentally and operationally compatible for installation. The operator/applicant must provide evidence of previously approved installation by TC, STC, or field approval on FAA Form 337 that will serve as a basis for "follow-on" field approval.

(o) Any FAA-approved Service Bulletins (SB) and letters or similar documents, including DER approvals.

(p) Foreign bulletins as applied to use on a U.S.-certificated product made by a foreign manufacturer located within a country with whom a Bilateral Agreement (BA) is in place and by letter of specific authorization issued by the foreign civil air authority.

(q) Other data approved by the Administrator.

(r) AC 43.13-1, as revised, for FAA-approved major repairs on non-pressurized areas of aircraft only when the user determines that it is:

- Appropriate to the product being repaired
- Directly applicable to the repair being made
- Not contrary to the airframe, engine, propeller, product, or appliance manufacturer's data

(5) Field Approval. One of the means used by the FAA to approve technical data used to accomplish a major repair or major alteration. It is an approval, by the Administrator, through an authorized ASI (airworthiness), of technical data and/or installations used to accomplish a major repair or major alteration. Technical data so approved becomes "technical data approved by the Administrator." This type of approval may be accomplished for one-time approval.

(6) Follow-On Approval. Approval of equipment of the same make and model on an aircraft using data from the initial approval. The make and model of the aircraft may be different if the installation is similar.

(7) Initial Approval. The first approval of equipment of a given make and model.

(8) Major/Minor Repair/Alterations. See Title 14 of the Code of Federal Regulations (14 CFR) part 1 and part 43, appendix A.

(9) Major/Minor Type Design Changes. See 14 CFR part 21, §§ 21.93 and 21.113.

(10) Meet the Minimum Standards Established in a TSO. Means that the equipment need not have TSO approval, but only meet requirements set by the TSO.

(11) Return to Service. The action of making an aircraft operational, after an appropriately rated person grants approval.

(12) Substantiating. To support and verify with proof or evidence.

NOTE: For other definitions, see Order 8300.10 volume 1, chapter 1.

B. ASI Qualifications and Responsibilities. The ASI must be authorized, experienced, and/or trained in the methods, techniques, and materials involved in the major repair/major alteration.

(1) The ASI must determine if, by granting a field approval, the affected product can be expected to result in safe operation and conform to regulatory requirements.

(2) If the ASI is not thoroughly familiar with all aspects of the alteration or repair, or has any doubt about the expected airworthiness, an airworthiness determination must not be given. He/she will seek assistance to the extent necessary to enable him/her to reach a clear decision before approval or denial is given.

(3) Flight Standards District Offices (FSDO) must ensure that the lack of an ASI's experience or qualifications does not necessarily stop the approval process. The lack of ASI qualifications does not mean the FSDO should deny a field approval and tell the applicant that they need an STC. The ASI can seek assistance from another ASI or FSDO, as appropriate.

(4) ASIs occasionally receive requests to approve alterations or repairs that do not require a field approval. These requests should be denied. Typically, these requests fall into one of two categories: minor alterations or repairs, or alterations or repairs that already have adequate approved data. Minor alterations and repairs do not need approved data and, therefore, should not receive field approvals. Alterations and repairs that are supported by sufficient previously approved DER-approved data may not require further approval. ASIs should review the data packages for each requested approval to ensure that a field approval is needed and is appropriate. ASIs who deny field approval requests to operators for alterations or repairs that do not need or qualify for field approvals should explain to the operator the reason for the denial and if requested, provide the reason(s) in writing or via e-mail. The operator can then retain this as part of the aircraft records for future reference.

C. DER. If the applicant employs an appropriately authorized DER to provide supporting data for a field approval, then the ASI should coordinate activities with both the applicant and the DER. If the data addresses the entire alteration or repair, and all of the requirements of part 21 and part 43 are met, there is no requirement for any further approval by the ASI. The DER may be limited to technical areas that do not fully cover the entire project. For specific DER authorization and limitations, reference FAA Order 8110.37, Designated Engineering Representative Guidance Handbook, FAA Order 8110.45, Use of Data Approved by Designated Engineering Representatives to Support Major Alterations, and AC 183.29-1, Designated Engineering Representatives Directory, as revised. The FAA must evaluate any area not covered by this approval.

D. DER Data. FAA Orders 8110.37 and 8110.45 address field approvals by reinforcing that although DERs are not authorized to approve alterations/repairs via a block 3 entry in FAA Form 337, DER data may still be used as the basis for an alteration in support of FAA Form 337. It also recommends inclusion of a note in the body of FAA Form 8110-3, Statement of Compliance with the Federal Aviation Regulations, stating, "This approval is for engineering design data only and is not an installation approval." DER data is not a field approval, but is approved data which, like other approved data, can be used to perform major alterations or repairs without further approval. DER data can also be included in the data package to support a field approval request.

E. Part 121 Air Carriers. Aircraft operated by 14 CFR part 121 air carriers, although not specifically prohibited from receiving field approvals, are not generally eligible for them. Field approvals may be performed on part 121 aircraft in rare instances for extenuating circumstances and each request must be evaluated on a case-by-case basis. If an ASI from a FSDO/certificate management office (CMO)/ international field office (IFO) believes that a field approval request is appropriate, the FSDO/CMO/IFO will obtain concurrence from the Flight Standards Division regional office prior to performing the approval.

(1) The Flight Standards Division regional office will maintain a database of part 121 field approvals that it concurred or non-concurred with. This database will contain:

- A unique control number for each instance
- The date of concurrence or non-concurrence
- The name of the ASI assigned to field approve the alteration/repair

- The FSDO/CMO/IFO's routing symbol
- An indication of concurrence or non-concurrence
- The air carrier identifier
- The make/model of the aircraft
- A brief description of the requested approval

(2) Annually, the Flight Standards Division regional office will forward a report of the above information to AFS-300 by October 15.

7. REPLACEMENT AND MODIFICATIONS PARTS. Parts or appliances developed, manufactured, and shipped before the dates established by the policy published in the Federal Register on February 27, 1995, 60 FR 10480/10482, and installed or intended for installation in type-certificated aircraft by TC, STC, or field approval process, may continue to be considered approved upon removal from the aircraft in which it was originally approved, for the purpose of repair or resale including installation in a different TC'd aircraft. The intent of this paragraph is to protect the used value of previously installed parts that were installed and approved through the field approval process prior to the Federal Register Notice.

9. ALTERATIONS THAT MAY REQUIRE ENGINEERING EVALUATION, AIRCRAFT CERTIFICATION OFFICE (ACO) ASSISTANCE, OR STCs.

A. The list in Figure 1-3, Major Alterations Job Aid, describes methods of approval for typical major alterations. This list is not all-inclusive and each project should be examined on a case-by-case basis. If an alteration is not identified on the list, it is eligible for a field approval unless the project is determined to be beyond the scope of the field approval process.

B. An alternative to the field approval process is the use of FAA DER-approved data on FAA Form 8110-3 (with data). If all the data supporting compliance with applicable airworthiness regulations is DER-approved, then the product can be altered in accordance with those data. The person(s) signing blocks 6 and 7 of FAA Form 337, not the DER, is then responsible for conforming and approving the installation. Refer to FAA Order 8110.45 for further details.

11. INCOMPLETE AND/OR INCREMENTAL INSTALLATIONS.

A. Incomplete or incremental installation field approvals are intended to approve partial-major alterations on aircraft that will be operated for an unspecified period of time. Aircraft having an incomplete equipment installation may be released for service only if the following have been accomplished:

(1) The alteration data has been FAA-approved;

(2) The incomplete/incremental alteration has been determined to not affect the safe operation of the aircraft;

(3) The equipment installed remains deactivated and has placards affixed to prevent use;

(4) The weight and balance reflects the incomplete installation; and

(5) The maintenance records, including the logbooks and Form 337, have been completed and signed for the work that was actually accomplished.

NOTE: In order to maintain an effective Airworthiness Certificate, the approval for return to service must be accomplished by an authorized person as defined in 14 CFR part 43, § 43.7.

B. The applicant must conduct a conformity inspection on the completed alteration. FAA approval of the incremental installation may provide for use of installed equipment if it can be determined that such equipment can be used safely (i.e., may require placards, Flight Manual Supplements, crew training.)

13. MAJOR REPAIR DESIGN APPROVALS BY TCCA AND CANADIAN DESIGN APPROVAL REPRESENTATIVE (DAR) (CANADIAN EQUIVALENT TO A U.S. DER). The FAA and TCCA have agreed in a Memo of Understanding (MOU) that certain TCCA and TCCA-delegated repair design approvals are considered to be FAA-approved data. The following information is provided for reference, but the MOU should be reviewed if additional guidance is required. The MOU is available at http://www.tc.gc.ca/aviation/aircert/internat/mou/MOU_US.htm.

A. For U.S.-held TCs, only repair design approvals issued by TCCA are considered to be approved data. Repair design approvals issued solely by a TCCA delegate are not approved data and to be used as such, require TCCA approval or direct approval by the FAA or FAA designee.

B. For Canadian-held TCs, repair design approvals issued by either TCCA or a TCCA delegate are considered to be approved data.

C. For TCs held by all other countries, TCCA or TCCA delegated repair design approvals are not considered to be approved data.

D. TCCA Repair Design Certificate (equivalent to FAA Form 8110-3) can accompany data and can be signed by either a TCCA-approved DAR or TCCA airworthiness authority.

15. FLIGHT TEST/OPERATIONAL CHECK REQUIREMENTS AND LIMITATIONS.

A. An alteration requiring a part 21, § 21.191(b) flight test to show compliance with the regulations must be coordinated with the appropriate engineering office or flight test DER. An Experimental Airworthiness Certificate to show compliance must be authorized by the Manufacturing Inspection District Office (MIDO) IAW FAA Order 8130.2, Airworthiness Certification of Aircraft and Related Products, as revised. If the flight test is unsatisfactory, the applicant must develop additional data.

B. Alterations requiring a flight manual supplement or operations limitations changes must be coordinated with the ACO, unless the Flight Standards inspector has been specifically authorized by Flight Standards to sign the document(s).

C. Any alteration or repair that will appreciably change the aircraft flight characteristics or substantially affect its operation in flight must be operationally checked IAW 14 CFR part 91, § 91.407 and the results recorded in the aircraft records.

17. FAA FORM 337, MAJOR REPAIR AND ALTERATION.

A. Types of Field Approval Data/Alteration Approvals.

(1) Data/alteration approvals issued for one aircraft are applicable only to the aircraft described in block 1 of FAA Form 337. The data/alteration may be used as acceptable data as a basis for obtaining approval on other aircraft.

NOTE: ASIs must not approve data for use on multiple aircraft.

(2) Data based on inspection or testing, such as approval of technical data by physical inspection (see section 2, paragraph 5D(3)).

B. Recording Data Deviation. Alterations that use data that does not differ appreciably from previously approved data do not require new or additional approval. Minor deviations that have no bearing on safety are acceptable without formal approval and without submission of a formal application by the applicant. A field approval is not required; however, the deviation should be recorded on FAA Form 337.

C. Disposition of FAA Form 337. Upon receipt of a completed FAA Form 337, accomplish the following:

(1) Review the form to ensure that all airworthiness requirements are met;

(2) Ensure that all applicable sections, signatures, and dates are affixed to the form;

(3) Ensure that the office identifier and the inspector's initials are entered in the place provided, in the upper right-hand corner of the form; and

(4) Mail the form to Civil Aviation Registry, AFS-700, Oklahoma City, OK.

D. Alterations to Fuel Tanks and/or Systems. Within 24 hours of receipt of an FAA Form 337 that describes a modification to an aircraft fuel system or shows additional fuel tanks installed in the passenger or baggage compartment, review and mail as in paragraph 17C(1) through (4) above.

NOTE: Military aircraft without a civil TC, foreign-registered aircraft, and component parts not installed on an aircraft cannot have FAA Form 337 submitted to AFS-700. This is because they cannot be identified by aircraft make, model, serial number, and U.S. Registration Number.

19. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS (ICA).

A. The Administrator has determined that the field approval data package must include ICAs. The

purpose of the ICA is to provide instructions on how to maintain aircraft that are altered and appliances that are installed IAW a field-approved major alteration. The ICA checklist (Figure 1-1) is a guide for both the applicant who creates the ICA and the FAA Flight Standards inspector who accepts the ICA. The ICA developed IAW this guidance constitutes methods, techniques, and practices acceptable to the Administrator. If the ICA for the submitted field approval major alteration is not acceptable to the FAA inspector, that inspector should not sign block 3 of the applicant's FAA Form 337.

B. The ICA provides the aircraft owner/operator with the following advantages when included in block 8 of Form 337:

(1) The major alteration and reference to ICA is contained in one document;

(2) The ICA becomes a permanent aircraft record as required by part 91, § 91.417(a)(2)(vi); and

(3) The owner/operator can contact FAA registry for a replacement FAA Form 337 if the ICA is lost or destroyed. The additional reference to the presence of ICA as part of the major alteration in the aircraft's maintenance entry will ensure that maintenance personnel appropriately address ICAs during future inspections.

C. The applicant is to develop the ICA and present it in conjunction with the field approval request. The FAA inspector accepts the ICA if it meets the applicable requirements in 14 CFR part 23, § 23.1529; part 25, § 25.1529; part 27, § 27.1529; part 29, § 29.1529; part 31, § 31.82; part 33, § 33.4; and part 35, § 35.4. The checklist in Figure 1-1 is a guide so the applicant can be assured that all applicable requirements are met.

D. For field-approved major alterations to aircraft, engines, and propellers certificated under the Civil Air Regulations (CAR), the ICA must meet the original type design requirements. In cases where the major alteration is a total new design, or a substantial complete redesign which the CAR did not address, the major alteration must meet the applicable 14 CFR. The checklist provides acceptable guidance for these types of installations.

E. The ICA requirements are the same for a field approval or STC. The vast majority of field-approved major alterations are simplistic in design and execution. Therefore, the applicant's ICA may not need as much detail as an ICA required for a complicated STC. If the manufacturers' instructions are not available, the applicant may use FAA publications such as AC 43.13-1 and AC 43.13-2, as revised; appendix D of part 43, as revised; or other applicable aviation standards to develop the ICA.

F. Major alterations approved before 10/07/98 were not required to have ICAs. However, if an owner/operator wishes to formally incorporate an ICA for existing field-approved major alterations, they may do so using the revision process in the checklist's item number 16 in Figure 1-1.

SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites:

- Knowledge of the regulatory requirements of 14 CFR parts 21, 43, and 65
- Successful completion of the General/Air Carrier Airworthiness Safety Inspectors Indoctrination course, or previous equivalent FAA training
- Successful completion of the Aircraft Alterations and Repair Course
- Identification and authorization to perform field approvals by the FSDO office manager, and the Regional Flight Standards manager in the form of a signed statement of authorization placed in the ASI's file or in the office manual (the authorization will state that the ASI is authorized to perform field approvals)

B. Coordination. This task may require coordination or assistance from FAA engineering, other technical personnel, and the operator. Direct communication between field personnel to permit a rapid exchange of technical information is recommended.

3. REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- 14 CFR parts 1, 21, 23, 25, 27, 29, 31, 33, 34, 35, 36, 39, 43, and 91
- Applicable Special Federal Aviation Regulations (SFARs)
- FAA Order 8000.50, Repair Station Production of Replacement or Modification Parts
- FAA Order 8100.9, DAS, DOA, and SFAR 36 Authorization Procedures
- FAA Order 8110.37, Designated Engineering Representative (DER) Guidance Handbook
- FAA Order 8110.45, Use of Data Approved by Designated Engineering Representatives to Support Major Alterations
- FAA Order 8130.2, Airworthiness Certification of Aircraft and Related Products
- FAA Order 8310.6, Airworthiness Compliance Check Sheet Handbook
- FAA Order 8340.1, Maintenance Bulletins
- AC 20-114, Manufacturer's Service Documents
- AC 23-17, Systems and Equipment Guide for Certification of Part 23 Airplanes
- AC 33.4-1, Instructions for Continued Airworthiness
- AC 43-9, Maintenance Records
- AC 43.9-1, Instructions for Completion of FAA Form 337 (OMB No. 2120-0020), Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)
- AC 43.13-1, Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair
- AC 43.13-2, Acceptable Methods, Techniques, and Practices—Aircraft Alterations
- CAR 3, 4a, 4b, 6, 7, and 8
- Bulletin 7A, 7H, and 8
- TCDS

B. Forms:

- FAA Form 337, Major Repair and Alteration
- FAA Form 8110-3, Statement of Compliance with the Federal Aviation Regulations
- FAA Form 8110-12, Application for Type Certificate, Production Certificate, or Supplemental Type Certificate

C. Job Aids:

- FAA Order 8310.6
- Figure 1-1, ICA Checklist
- Figure 1-2, Decision Flow Chart for Field Approval Process
- Figure 1-3, Major Alterations Job Aid

5. PROCEDURES.

A. Review the Applicant's Request for a Field Approval. Ensure that the information supplied is complete enough and is appropriate to proceed with the field approval process for the proposed alteration or repair. The applicant should specify the certification

rule used as a basis for the field approval (ref. part 21, § 21.101.)

(1) Review and evaluate the following before the operator starts the actual work, as applicable:

(a) A formal request submitted on one of the following:

- FAA Form 337 completed in duplicate (in triplicate for extended range fuel tanks)
- Other administrative forms used by a manufacturer or operator that are acceptable to the Administrator, such as engineering orders

(b) Proposed Flight Manual Supplements.

(c) FAA Form 8110-3.

(d) The description of the proposed alteration or repair to ensure that it correctly and accurately describes the alteration or repair.

(e) Methods, sketches, drawings, stress analyses, photographs, electrical load analyses, etc., to ensure that the operator has considered all applicable design standards and has analyses to substantiate the findings in this regard. The inspector must consider at least the following:

- The certification basis, including special conditions (fail safe, damage tolerance, etc.)
- The structural requirements that may be affected by the alteration or repair
- Any hazards that may affect the aircraft or its occupants
- Weight and balance computations
- Operating limitations
- Any other factors affecting safety or airworthiness

(f) Ensure that all ground and flight tests and operational checks meet applicable certification requirements to substantiate the alteration or repair.

(g) Instructions for continued airworthiness.

(2) If data is not complete, the operator must supply any additional information needed.

B. Evaluate the Proposal. Determine if the applicant has conducted a conformity evaluation to ensure that the proposed alteration will not impact the airworthiness of the aircraft. The applicant will provide verification that he/she has inspected the aircraft and reviewed aircraft records to ensure compatibility of this alteration or repair with previously approved modifications.

C. Evaluate Data Package.

(1) If a determination is made that the proposed alteration is beyond the scope of a field approval, advise the applicant that an STC is necessary. Assistance to the applicant will include the following:

- Furnish FAA Form 8110-12 application for an STC
- Advise that supporting data must be attached

(2) If assistance from an ACO is needed for approving a major alteration/repair, the ASI, not the applicant, should make the request for engineering evaluation/assistance and/or approval of non-approved engineering data for the field approval. This request should be made through the Flight Standards regional office. A memorandum from the ASI's office to the ACO through the regional office should accompany the file. The memorandum should provide pertinent and detailed information, such as the ASI's recommendations and specific requests for advice. The regional office should forward the request to the ACO. After the ACO has completed its evaluation, the file should be returned to the ASI through the regional office. Coordination with the applicant will include the following:

(a) Request that the applicant provide all supporting data.

(b) Caution against proceeding with the alteration/repair before receiving engineering approval.

(c) Provide the applicant with proposed schedule for completion of the project that is consistent with available resources.

(d) Specific Authorization:

- Flight Manual Supplement signature authority may be authorized by ACs, bulletins, or other written documentation
- Interior compliance inspections as authorized by an ACO

- Other written authorizations as requested by the ACO and MIDO during the coordination process

D. Data Package Accepted for Field Approval.

(1) If engineering assistance was requested, written ACO concurrence (e.g., memo or e-mail) becomes an attachment to FAA Form 337.

(2) Approval for Data Only. If the repair or alteration data complies with regulations, record data approval by entering the appropriate statement and signing block 3 of FAA Form 337; return both copies to the applicant. When recording FAA approval in block 3, use the following statement for approval of technical data by examination of the data for use on only one aircraft:

> "The technical data identified herein has been found to comply with applicable airworthiness requirements and is hereby approved for use only on the above described aircraft, subject to conformity inspection by a person authorized in § 43.7."

(3) Approval of Technical Data by Physical Inspection. Schedule a physical inspection with the applicant to verify workmanship and compliance of the data submitted. If the repair or alteration complies with regulations, record alteration approval by entering the appropriate statement and signing block 3 of FAA Form 337, and return copies to the applicant. When recording FAA approval in block 3, use the following statement:

> "The alteration or repair identified herein complies with the applicable airworthiness requirements and is approved for use only on the above described aircraft, subject to conformity inspection by a person authorized in § 43.7."

NOTE: ASIs must not approve data for use on multiple aircraft.

(4) Denial of Proposed Alteration/Repair. If the applicant is unwilling or unable to comply with the requirements to obtain the requested field approval, terminate the process by notification in writing to the applicant. This notification should include the reason for denial. The applicant should be given the opportunity to make corrections as necessary.

E. Instructions for Continued Airworthiness. ASIs will ensure that each major alteration that requires additional maintenance or inspections not covered by original manufacturer's instructions approved under the field approval process will have ICAs prepared IAW §§ 23.1529, 25.1529, 27.1529, 29.1529, 31.82, 33.4, or 35.4, as applicable. The ICA will be documented on FAA Form 337. The ASI will advise the applicant that the entry for the major alteration in the aircraft's maintenance records required by part 43, § 43.9 will also include a reference to the ICA and identify FAA Form 337 where the instructions are documented. The form will be kept in the aircraft's permanent records IAW § 91.417(2)(vi). The checklist in Figure 1-1 is a guide so the applicant can be assured that all applicable requirements are met.

7. TASK OUTCOMES.

A. File PTRS Data Sheet.

B. Completion of this task can result in the approval of the data, alteration, or repair, reference to the ACO for an STC, or denial of a request for a field approval.

9. FUTURE ACTIVITIES. None.

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FIGURE 1-1. ICA CHECKLIST

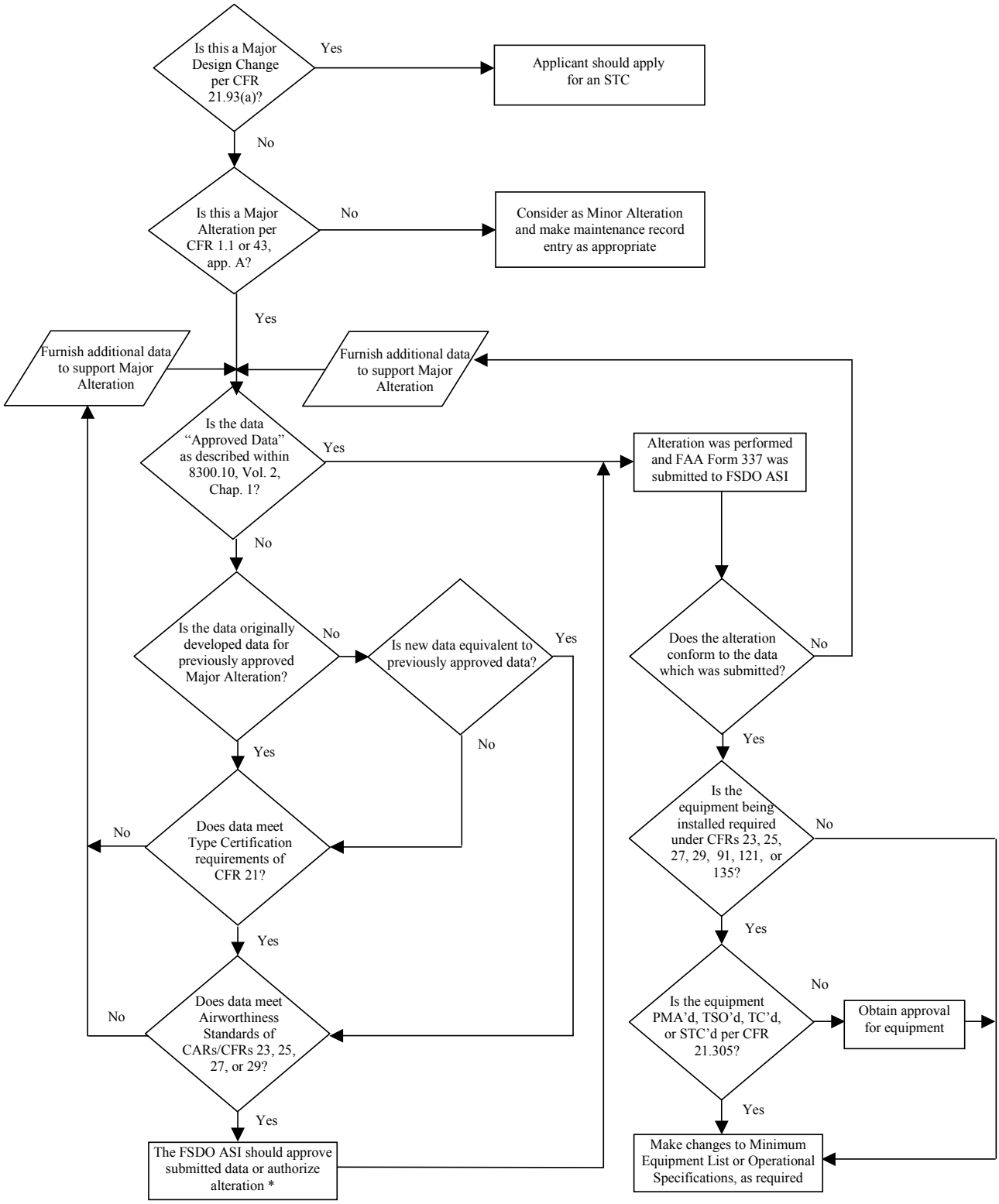
A/C Make: _____ Model: _____ S/N: _____ Reg. # N. _____
Revision: _____ Date: _____ System: _____

Item	Subject
1.	**Introduction:** This section briefly describes the aircraft, engine, propeller, or component that has been altered. Include any other information on the content, scope, purpose, arrangement, applicability, definitions, abbreviations, precautions, units of measurement, referenced publications, and distribution of the ICA as applicable.
2.	**Description:** Of the major alteration, its functions, including an explanation of its interface with other systems, if any.
3.	**Control, operation information:** Or special procedures, if any.
4.	**Servicing information:** Such as types of fluids used, servicing points, and location of access panels, as appropriate.
5.	**Maintenance instructions:** Such as recommended inspection/maintenance periods in which each of the major alteration components are inspected, cleaned, lubricated, adjusted, tested, including applicable wear tolerances and work recommended at each scheduled maintenance period. This section can refer to the manufacturers' instructions for the equipment installed where appropriate (e.g., functional checks, repairs, inspections). It should also include any special notes, cautions, or warnings, as applicable.
6.	**Trouble shooting information:** Information describing probable malfunctions, how to recognize those malfunctions, and the remedial actions to be taken.
7.	**Removal and replacement information:** This section describes the order and method of removing and replacing products, parts, and any necessary precautions. This section should also describe or refer to manufacturer's instructions to make required tests, trim checks, alignment, calibrations, center of gravity changes, lifting or shoring, etc., if any.
8.	**Diagrams:** Of access plates and information, if needed, to gain access for inspection.
9.	**Special inspection requirements:** Such as X-ray, ultrasonic testing, or magnetic particle inspection, if required.
10.	**Application of protective treatments:** To the affected area after inspection and/or maintenance, if any.
11.	**Data:** Relative to structural fasteners such as type, torque, and installation requirements, if any.
12.	**List of special tools:** Special tools that are required, if any.
13.	**For commuter category aircraft:** The following additional information must be furnished, as applicable: A. Electrical loads. B. Methods of balancing flight controls. C. Identification of primary and secondary structures. D. Special repair methods applicable to the aircraft.
14.	**Recommended overhaul periods:** Are required to be noted on the ICA when an overhaul period has been set by the manufacturer of a component, or equipment. If there is no overhaul period, the ICA should state for item 14: "No additional overhaul time limitations."

FIGURE 1-1. (Continued)

Item	Subject
15.	**Airworthiness limitation section:** Include any "approved" airworthiness limitations identified by the manufacturer or FAA Type Certificate Holding Office (e.g., an STC incorporated in a larger field approved major alteration may have an airworthiness limitation.) The FAA inspector shall not establish, alter, or cancel airworthiness limitations without coordinating with the appropriate FAA Type Certificate Holding Office. If there are no changes to the airworthiness limitations, the ICA should state for item 15: "No additional airworthiness limitations" or "Not Applicable."
16.	**Revision:** This section should include information on how to revise the ICA. For example, a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing block 3 and including the following statement: "The attached revised/new Instructions for Continued Airworthiness (date_____) for the above aircraft or component major alteration have been accepted by the FAA, superseding the Instructions for Continued Airworthiness (date_____)." Once the revision has been accepted, a maintenance record entry will be made, identifying the revision, its location, and date of the Form 337.

FIGURE 1-2. DECISION FLOW CHART FOR FIELD APPROVAL PROCESS



*** NOTE: ASIs should see guidance in Figure 1-3 to determine when additional coordination with a DER or the ACO may be necessary.**

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FIGURE 1-3. MAJOR ALTERATIONS JOB AID

The following lists indicate which method(s) may be used for approving major alterations to TC'd and STC'd products. These lists are not all-inclusive and each alteration should be evaluated on a case-by-case basis. Consult *each* section that concerns your product. Additionally, ASIs should review current bulletins, ACs, etc., for specific types of installations that have been identified as candidates for field approval. The legend is as follows:

- Items with the letters "STC" require an *STC*.
- Items with the letters "EVL" may be eligible for approval by means other than an STC, depending on the scope and complexity of the alteration. These items will not automatically qualify for a field approval; they require *evaluation* and review of guidance to determine if the field approval process may be used.
- Items with the letters "ENG" may be eligible for approval by means other than an STC, but require either supporting DER *engineering* data or concurrence from the ACO for field approval.

1. GENERAL AVIATION AIRCRAFT.	
The following list applies to aircraft certificated under 14 CFR parts 23 and 31 (or the earlier equivalents), SFAR 41, or Joint Aviation Regulation (JAR) 22.	
A. Weight and Balance.	
(1) Changes that increase the certificated maximum weight limits (increases in the maximum gross weight, maximum take-off, or landing weights).	**STC**
(2) Changes in the certificated center of gravity range limits (for example decreasing the forward limit or increasing the aft limit).	**STC**
(3) Changes that increase the operational limits (maximum speed limits, such as V_A, V_{FE}, V_{NE}; minimum speed limitations, such as stall speed; increases in service ceiling, and so forth).	**STC**
B. Structural Strength.	
(1) Changing primary structures (structure that carries flight, ground, or pressure loads as defined in AC 25.571-1, Damage Tolerance and Fatigue Evaluation of Structure, as amended).	**ENG**
(2) Substituting airframe primary structural materials.	**STC**
(3) Substituting an engine or propeller (such as replacing a reciprocating engine with a turbine engine).	**STC**
(4) Substituting or altering a reciprocating engine such that the net result is an increase of more than 10 percent greater horsepower.	**STC**
(5) Substituting blind fasteners in primary load structures.	**ENG**
NOTE: All field approvals for blind fasteners, (Cherry Max, or equivalent) in primary load structures must be coordinated with the ACO or supported by DER-approved data.	
(6) Altering passenger-carrying aircraft to an all-cargo or combination configuration.	**STC**

FIGURE 1-3. (Continued)

C. Reliability.	
(1) Changes to manifolding, air induction systems or air intake doors, engine cowling, or baffle that affect the flow of engine cooling air and carburetor/fire ignition heat rises.	**ENG**
(2) Changes to the basic engine or propeller design, controls, and operating limitations.	**ENG**
(3) Changes that include engine/propeller adjustments and settings limitations that affect power output.	**ENG**
(4) Modifications to approved avionics equipment that affect reliability or airworthiness, such as changes:	
• Deviating from the design environment performance.	**STC**
• Deviating from the component manufacturer's operating limitations.	**STC**
• To software.	**STC**
• To wire shielding that may affect High Intensity Radiated Fields (HIRF) and Electromagnetic Interference (EMI).	**EVL**
D. Operational Characteristics.	
(1) Changes or relocation of system components (including hydraulic, oil, and fuel systems components) and equipment that affect structural integrity, flight, ground handling characteristics, or noise/acoustics of the aircraft.	**ENG**
(2) Changes that alter the movable control surfaces that affect the dynamic and/or static balance, alter the aerodynamic contour of movable control surfaces, or change the weight distribution.	**STC**
(3) Changes in control surface travel, control system mechanical advantage, location of control system component parts, or direction of motion.	**STC**
(4) Changes in basic dimensions or external aerodynamic contour/configuration of the aircraft such as wing and tail planform or incidence angles, canopy, contour or radii, the location of wing and tail fairings, winglets, wing lift struts, tiptanks, windows, and doors.	**STC**
(5) Changes in canopies, windows, and doors on unpressurized aircraft.	**EVL**
(6) Changes in engine cowlings.	**ENG**
(7) Changes to flight-critical electrical/electronic systems such as electronic flight controls or the engine control system, Full Authority Digital Engine Control (FADEC), fly-by-wire, and so forth.	**STC**
(8) Changes that affect aircraft performance, affected by changes in drag, engine power, revolutions per minute (RPM), or exhaust muffler.	**EVL**
(9) Changes affecting noise.	**ENG**
(10) Changes affecting flight characteristics.	**ENG**
(11) Installation of:	
• Avionics systems performing critical functions or involving complex interfaces to other systems.	**STC**
• Heads up displays used for primary navigation.	**STC**
• Traffic Alert and Collision Avoidance Systems I (TCAS I).	**EVL**

FIGURE 1-3. (Continued)

• Traffic Alert and Collision Avoidance Systems II (TCAS II).	**STC**
• Autopilots.	**STC**
• Flight data recorders (FDR).	**STC**
• Ground proximity warning systems (GPWS).	**STC**
• Electronic flight instrument systems (EFIS) (see relevant bulletin(s)).	**STC**
• Terrain Awareness and Warning Systems (TAWS-A).	**STC**
• Terrain Awareness and Warning Systems (TAWS-B).	**EVL**
• Emergency Vision Assurance Systems (EVAS).	**STC**
• Global positioning system (GPS) (see relevant bulletin(s)).	**EVL**
NOTE: ASIs should also review current guidance for specific types of installations that have been identified as candidates for field approval.	
(12) Changes that increase the differential pressure limits of an atmospheric or climatic control system of aircraft interior compartments.	**ENG**
(13) Changes in engine and propeller combination (vibration approval).	**ENG**
(14) Any alteration that requires flight testing to show compliance with the regulations (not applicable to operational flights conducted under § 91.407(b)).	**ENG**
(15) Anti-terrorism countermeasures, including flares.	**STC**
E. Airworthiness.	
(1) Changes to landing gear and related components, such as internal parts of shock struts, length, geometry of members, brake and brake systems, or additions.	**EVL**
(2) Changes to systems that affect aircraft airworthiness, such as:	
• Relocation of exterior fuel vents, fuel drains, or battery vents. (Applicable to components not attached to the basic engine.)	**EVL**
• Crew or passenger liquid oxygen (LOX) or on-board generating systems.	**ENG**
• External critical access doors, Auxiliary Power Unit (APU) ram air, nacelle blowout doors, fuel drain.	**ENG**
(3) Changes to oil, hydraulic, pneumatic, and fuel lines, or systems that affect their operation or installation and flammability requirements, such as:	
• New types of hoses and/or hose fittings that may not meet installation requirements, such as flow rate and flammability requirements.	**ENG**
• Changes to fuel dump valves.	**EVL**
• New oil/fuel/hydraulic line materials beyond the scope of AC 43.13-1, as revised.	**EVL**
• Change to, or addition of, permanent fuel tanks or fuel system components, including sealants.	**EVL**

FIGURE 1-3. (Continued)

(4) Changes in fixed fire extinguisher or detector systems that affect the system's effectiveness or reliability, such as:	
• Relocating discharge nozzles, detector units, or fixed fire extinguisher bottles.	**ENG**
• Using new or different detector components.	**ENG**
• Decreasing the amount or changing the type of extinguishing agents.	**ENG**
(5) Changes that include substituting airframe materials that affect structural integrity, lightning protection, or flight characteristics.	**ENG**
(6) Alterations or repairs that include:	
• Use of synthetic covering materials.	**EVL**
• New titanium applications.	**ENG**
• Ceramic coatings.	**ENG**
• Use of synthetic coatings.	**ENG**
• Use of new plated coatings.	**ENG**
F. Crashworthiness.	
(1) Changes to the aircraft structure, cabin interiors, or equipment relocation.	**EVL**
(2) Changes that affect emergency exits (i.e., emergency medical services, sport parachute jumping).	**ENG**
2. ROTORCRAFT.	
The following section applies to aircraft with a certification basis of 14 CFR parts 27, 29, or the earlier equivalents.	
A. Weight and Balance.	
(1) Changes that increase the certificated maximum weight limits affecting structural, performance, handling qualities, and so forth (for example, increases in the maximum gross weight, maximum take-off weight, or landing weight).	**STC**
(2) Changes in the certificated center of gravity range limits (for example, decreasing the forward limit or increasing the aft limit).	**STC**
(3) Changes that increase the operational limits; for example, maximum speed limits such as V_A, and V_{NE}; minimum speed limitations, such as V_{MIN}; or increases in service ceiling, and so forth.	**STC**
B. Structural Strength.	
(1) Changing primary structures (structure that carries flight, ground, or pressure loads as defined in AC 25.571-1) as well as the following additional modifications or structural members:	
• Installation of significant structure and/or appliances to the exterior of the aircraft (i.e., FLIRs, cameras, firefighting, and spray/dusting equipment).	**ENG**
• Changes to landing gear and related system and structural components, including wheels, brakes, and tires.	**EVL**

FIGURE 1-3. (Continued)

• Internal frame, longeron, or structural members.	**STC**
• Consideration of flutter and vibration for any of the aforementioned changes.	**STC**
(2) Substituting engine, propeller, rotor, or airframe primary structure materials.	**STC**
(3) Substituting blind fasteners in primary load structures.	**ENG**
NOTE: All field approvals for blind fasteners (Cherry Max, or equivalent) in primary load structures must be coordinated with the ACO or supported by DER-approved data.	
(4) Changing the structural panels and load bearing components that could affect service life.	**STC**
(5) Installing Health Usage Monitoring Systems (HUMS).	**STC**
(6) Installing systems that extract power from drive systems, such as air conditioning power drawn from the tail rotor driveshaft.	**STC**
C. Reliability.	
(1) Changes to manifolding, air induction systems or air intake doors, engine cowling, or baffle that affect the flow of engine cooling air and carburetor/fire ignition heat rises.	**STC**
(2) Change to the basic engine, rotor or propeller design, controls, or operating limitations.	**STC**
(3) Changes that include engine/propeller adjustments and setting limitations that affect power output.	**STC**
(4) Modifications to approved avionics equipment that affect reliability or airworthiness, such changes as:	
• Deviating from the design environment performance.	**STC**
• Deviating from the component manufacturer's operating limitations.	**STC**
• To software.	**STC**
• To wire shielding that may affect High Intensity Radiated Fields (HIRF) and Electromagnetic Interference (EMI).	**EVL**
D. Operational Characteristics.	
(1) Changes or relocation of systems (including hydraulic, oil, and fuel systems) and equipment that affect structural integrity, flight, ground handling characteristics, or noise/acoustics of the aircraft.	**STC**
(2) Changes that alter the movable control surfaces that affect the dynamic and/or static balance, alter the aerodynamic contour of movable control surfaces, or the weight distribution.	**STC**
(3) Changes in control surface travel, control system mechanical advantage, location of control system components parts, or direction of motion.	**STC**
(4) Changes in basic dimensions or external aerodynamic contour/configuration of the aircraft such as wing and tail planform or incidence angles, canopy, cowlings, contour or radii, the location of wing and tail fairings, winglets, wing lift struts, tiptanks, windows, and doors.	**STC**
(5) Changes to flight-critical electrical/electronic systems, such as electronic flight controls or engine control system, FADEC, fly-by-wire, and so forth.	**STC**

FIGURE 1-3. (Continued)

(6) Installation of:	
• Avionics systems that perform critical functions or involve complex interfaces to other systems.	**STC**
• Heads up displays used for primary navigation.	**STC**
• Traffic Alert and Collision Avoidance Systems I (TCAS I).	**EVL**
• Traffic Alert and Collision Avoidance Systems II (TCAS II).	**STC**
• Autopilots.	**STC**
• Flight data recorders (FDR).	**STC**
• Ground proximity warning systems (GPWS).	**EVL**
• Electronic flight instrument systems (EFIS) (see relevant bulletin(s)).	**EVL**
• Terrain Awareness and Warning Systems (TAWS-A).	**STC**
• Terrain Awareness and Warning Systems (TAWS-B).	**EVL**
• Emergency Vision Assurance Systems (EVAS).	**STC**
• GPS (see relevant bulletin(s)).	**EVL**
NOTE: ASIs should also review current guidance for specific types of installations that have been identified as candidates for field approval.	
(7) Changes that affect aircraft performance, affected by changes in drag, engine power, RPM, or exhaust muffler.	**EVL**
(8) Changes affecting noise.	**ENG**
(9) Changes affecting flight characteristics.	**ENG**
(10) Any alteration that requires flight testing to show compliance with the regulations (not applicable to operational flights conducted under § 91.407(b)).	**ENG**
(11) Anti-terrorism countermeasures, including flares.	**STC**
E. Airworthiness.	
(1) Changes to systems, such as:	
• Relocation of exterior fuel vents or battery vents.	**EVL**
• Crew or passenger liquid oxygen (LOX) or on-board generating systems.	**ENG**
• External critical access doors, APU ram air, nacelle blowout doors, and fuel drain.	**ENG**
(2) Changes to oil, hydraulic, pneumatic, and fuel lines, or systems or their components that affect their operation or installation and flammability requirements, such as:	
• New types of hoses and/or hose fittings that may not meet installation requirements, such as those of flow rate and flammability.	**ENG**
• Changes to fuel dump valves.	**EVL**

FIGURE 1-3. (Continued)

• New oil/fuel/hydraulic line materials.	**EVL**
• New fuel tanks or fuel system components, including sealants.	**EVL**
(3) Changes in fixed fire extinguisher or detector systems that affect the system's effectiveness or reliability, such as:	
• Relocating discharge nozzle, detector units, or fixed fire extinguisher bottles.	**ENG**
• Using new or different detectors.	**ENG**
• Decreasing the amount or changing the type of extinguishing agents.	**ENG**
(4) Changes that include substituting rotor/airframe materials that affect structural integrity, lightning protection, or flight characteristics.	**ENG**
(5) Changes that alter dynamic components of rotorcraft, such as loads, vibration, fatigue, damage tolerance, flaw tolerance, characteristics of main or tail rotor system, transmission system, gearbox, drive shafts, driveshaft support bearings, and main and tail rotor blades.	**STC**
(6) Installation of new or modification of existing icing protection systems.	**ENG**
(7) Changes to a critical or life-limited part, including engine/APU rotating parts.	**STC**
(8) Alteration of passenger-carrying aircraft to an all-cargo or combination configuration.	**STC**
(9) Additional items include:	
• Changes that may require a human factors compliance finding, for example, in flight deck instrumentation and controls.	**STC**
• Flight deck lighting changes to support night vision goggle use, or any approvals related to night vision goggles.	**STC**
• Changing or substituting engine/aircraft instrumentation required by a unique characteristic of the particular type design.	**STC**
NOTE: RPM changes of main and tail rotor may affect handling performance characteristics and/or noise or acoustics.	
(10) Alterations or repairs that include:	
• Use of synthetic covering materials.	**EVL**
• New titanium applications.	**ENG**
• Ceramic coatings.	**ENG**
• Use of synthetic coatings.	**ENG**
• Use of new plating coatings.	**ENG**
F. Crashworthiness.	
(1) Changes to the aircraft structure, cabin interiors, or equipment relocation that affect crashworthiness and/or emergency evacuation. This includes initial installation or relocation of seats or litter systems.	**STC**

FIGURE 1-3. (Continued)

(2) Changes that affect emergency exits (i.e., emergency medical services, sport parachute jumping).	**ENG**
3. TRANSPORT AIRPLANES.	
The following list applies to airplanes certificated under 14 CFR part 25 (or the earlier equivalents).	
A. Weight and Balance.	
(1) Changes that increase the certificated maximum weight limits (maximum gross weight, maximum take-off or landing weights, and maximum zero fuel weight).	**STC**
(2) Changes in the certificated center of gravity range limits (for example, decreasing the forward limit or increasing the aft limit).	**STC**
(3) Changes that increase the operational limits (e.g., maximum speed limits, such as V_A, V_{FE}, V_{NE}, $V_{MO,}$ and V_{MO}/M_{MO}; minimum speed limitations, such as stall speed; and increases in service ceiling).	**STC**
B. Structural Strength.	
(1) Changes to principal or primary structural elements (principal elements that carry flight, ground, or pressure loads) defined by AC 25.571-1, as amended.	**STC**
(2) Substitution of engine, propeller, or airframe primary structure materials.	**STC**
(3) Substitution of blind fasteners in primary load structures. (All field approvals must be coordinated with the ACO or supported with DER data.)	**ENG**
(4) Alteration of passenger-carrying aircraft to an all-cargo or combination configuration.	**STC**
C. Reliability.	
(1) Significant changes to manifolding, air induction systems or intake doors, engine cowling, or baffle that affect the flow of engine cooling air.	**STC**
(2) Changes to the basic engine or propeller design, controls, and operating limitations.	**STC**
(3) Changes that include engine/propeller change to the adjustments and setting limitations.	**STC**
(4) Modifications to approved avionics equipment that affect reliability or airworthiness, such as changes:	
• Deviating from the design environmental performance.	**STC**
• Deviating from the component manufacturer's operating limitations.	**STC**
• To software.	**STC**
• To wire shielding that may affect High Intensity Radiated Fields (HIRF) and Electromagnetic Interference (EMI).	**EVL**
D. Operational Characteristics.	
(1) Changes or relocation of systems (including hydraulic, oil, and fuel systems) and equipment that affect structural integrity, flight, and ground handling characteristics of the aircraft.	**STC**
(2) Significant changes to the movable control surfaces that affect the dynamic and/or static balance, alter the aerodynamic contour of movable control surfaces, or change the weight distribution.	**STC**

FIGURE 1-3. (Continued)

(3) Changes to control surface travel, method of control system mechanical advantage, or direction of motion.	**STC**
(4) Changes in basic dimensions or external aerodynamic contour/configuration of the aircraft, such as wing and tail planform or incidence angles, canopy, cowlings, contour or radii, the location of wing and tail fairings, winglets, wing lift struts, tiptanks, windows, and doors that would require flight or performance revalidation.	**STC**
(5) Installation of new flight critical electrical/electronic systems, electronic flight controls, or engine control systems such as FADEC and fly-by-wire.	**STC**
(6) Changes that affect aircraft performance, drag, engine power, RPM, or exhaust muffler.	**STC**
(7) Changes that alter the aerodynamic contour that affect noise or flight characteristics.	**ENG**
(8) Installation of:	
• Avionics systems performing critical functions or involving complex interfaces to other systems.	**STC**
• Heads up displays used for primary navigation.	**STC**
• Traffic Alert and Collision Avoidance Systems I (TCAS I).	**EVL**
• Traffic Alert and Collision Avoidance Systems II (TCAS II).	**STC**
• Autopilots.	**STC**
• Flight data recorders (FDR).	**STC**
• Ground proximity warning systems (GPWS).	**EVL**
• Electronic flight instrument systems (EFIS) (see relevant bulletin(s)).	**EVL**
• Terrain Awareness and Warning Systems (TAWS-A).	**STC**
• Terrain Awareness and Warning Systems (TAWS-B).	**EVL**
• Emergency Vision Assurance Systems (EVAS).	**STC**
• GPS (see relevant bulletin(s)).	**EVL**
NOTE: ASIs should also review current guidance for specific types of installations that have been identified as candidates for field approval.	
(9) Any alteration that requires flight testing to show compliance with the regulations (not applicable to operational flights conducted under § 91.407(b)).	**ENG**
(10) Anti-terrorism countermeasures, including flares.	**STC**
E. Airworthiness.	
(1) Changes to landing gear and related components, such as internal parts of shock struts, length, geometry of members, brake and brake systems, or additions.	**ENG**
(2) Changes to systems, such as:	
• Relocation of fuel vents or drains.	**EVL**

FIGURE 1-3. (Continued)

• Crew or passenger liquid oxygen (LOX) or on-board generating systems.	**ENG**
• External critical access doors, APU ram air, nacelle blowout doors, and fuel drain.	**ENG**
(3) Changes to oil, hydraulic, pneumatic, and fuel lines, or systems or their components that affect their operation or installation and flammability requirements, such as:	
• New types of hoses and/or hose fittings that may not meet the installation requirements such as flow rate and flammability requirements.	**ENG**
• Changes to fuel dump valves.	**ENG**
• New oil/fuel/hydraulic line materials.	**ENG**
• New flammable fluid tanks or system components.	**STC**
• Change to or addition of permanent fuel tanks or fuel system components, including sealants.	**ENG**
(4) Changes in fixed fire extinguisher or detector systems that affect the system effectiveness or reliability, such as:	
• Relocation of discharge nozzle, detector units, or fixed fire extinguisher bottles.	**ENG**
• Using new or different detector components (including TSO-approved detectors in new or existing circuit arrangements).	**ENG**
• Decreasing the amount or changing the type of extinguishing agents.	**ENG**
(5) Changes that include the substitution of airframe materials that affect structural integrity, lightning protection, or flight characteristics.	**ENG**
(6) Installation of new systems that affect their operation or installation and flammability requirements, such as:	
• Changing or adding permanent fuel tanks or fuel system components.	**STC**
• Emergency back-up electrical power sources.	**STC**
• Crew or passenger oxygen systems.	**STC**
• Auxiliary Power Unit (APU).	**STC**
• Installing new fire extinguisher or detector systems or changing the type of extinguisher agents.	**STC**
(7) Changes to critical or life-limited parts.	**STC**
(8) Installation of new or modification of existing icing protection system.	**STC**
(9) Changes that alter critical or life-limited parts, including engine/APU rotating parts.	**STC**
(10) Changes that increase the differential pressure limits of an atmospheric or climatic control system of the aircraft and aircraft interior compartments.	**STC**
(11) Alterations or repairs that include:	
• Use of synthetic covering materials.	**ENG**
• New titanium applications.	**ENG**

FIGURE 1-3. (Continued)

• Ceramic coatings.	**ENG**
• Use of synthetic coatings.	**ENG**
• Use of new plating coatings.	**ENG**
F. Crashworthiness.	
(1) Changes to the aircraft structure, cabin interiors, or equipment relocation that affect crashworthiness and/or emergency evacuation. This includes initial installation or relocation of seats.	**STC**
(2) Changes that affect emergency exits (i.e., emergency medical services, sport parachute jumping).	**ENG**
4. ENGINES, PROPELLERS, AND APUs.	
The following list applies to engines certificated under 14 CFR parts 33, 34, and 36 or JAR E, propellers certificated under 14 CFR part 35 or JAR P, or APUs approved under TSO-C77a or b.	
A. Weight and Balance. Changes that increase or decrease the certificated weight or center of gravity.	**STC**
B. Structural Strength. Changes to an engine, APU, or propeller's primary or critical structure.	**STC**
C. Reliability and Airworthiness.	
(1) Changes to the approved ratings or operational or installation limits.	**STC**
(2) Changes to the engine, propeller, or APU control system.	**STC**
(3) Changes to engine, propeller, or APU adjustments and setting limitations that have an affect on power output or control functions or operability.	**STC**
(4) Changes that alter the aerodynamic contour of any blades, vanes, or internal or external aerodynamic surfaces.	**STC**
(5) Changes affecting engine or propeller performance, power, or RPM.	**ENG**
(6) Changes to inlet induction or exhaust components.	**STC**
(7) Changes to components, assemblies, or systems, such as:	
• Relocation of fuel vents or drains.	**ENG**
• Using new or different alternators, generators, starters, vacuum pumps, or magnetos.	**EVL**
• Using new or different hydraulic components, pumps, or turbo or superchargers.	**STC**
• Pressure fuel lines and oil lines.	**ENG**
• External critical access doors, APU ram air, nacelle blow out doors, bleed ports and doors, and so forth.	**STC**
• Installing new or modifying existing icing protection systems.	**STC**
(8) Changes that include substituting engine/APU/propeller materials that affect structural integrity, lightning protection, operating characteristics, fire protection, or noise/acoustics.	**STC**
(9) Major alterations to propellers.	**STC**
(10) Changes to critical or life-limited parts.	**STC**

FIGURE 1-3. (Continued)

(11) New propeller and engine combinations (vibration approval).	**STC**
(12) Modification to approved electrical equipment, such as:	
• Deviating from the design environmental performance compliance requirements.	**STC**
• Deviating from the component manufacturer's operating limitations.	**STC**
• Changing wire shielding or components that may affect HIRF, EMI, or lightning compliance.	**STC**
• Changing flight-critical electrical/electronic systems, such as electronic controls or engine, propeller, or APU control systems such as FADEC.	**STC**
• Changing or substituting engine, propeller, or APU instrumentation.	**EVL**
• Changes that do not conform to the minimum standards in a TSO under which a particular component or appliance is manufactured.	**STC**
(13) Changes to or relocation of any systems (including hydraulic, oil, and fuel systems) and equipment that affect structural integrity, operating characteristics, noise/acoustics, fire protection, or emissions and fuel venting.	**STC**
(14) Changes affecting the Airworthiness Limitations Section (i.e., Chapter 4 or 5) of the ICAs.	**STC**
D. Other Considerations.	
(1) Changes affecting exhaust emissions (14 CFR part 34).	**STC**
(2) Changes affecting engine noise (14 CFR part 36).	**STC**

CHAPTER 2. ISSUE SFAR 36 AUTHORIZATION

SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3347

B. Avionics: 5347

3. OBJECTIVE. This chapter provides guidance for evaluating and issuing a Special Federal Aviation Regulation (SFAR) 36 authorization.

5. GENERAL. Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 145, §§ 121.379(b) and 145.51 (§ 145.201 after October 3, 2003) state that major repairs and major alterations must be accomplished according to technical data approved by the Administrator. SFAR 36 permits certain part 121 and 145 operators and commercial operators to develop their own technical data for performing major repairs on aircraft, airframes, engines, propellers, and/or appliances when approved data does not exist.

A. The applicant for an SFAR 36 authorization must submit a written application to the Flight Standards District Office (FSDO) in the area where the applicant is located. The applicant is required to submit for approval:

- A cover letter stating the authority requested under the applicable regulations and limitations for the authorization that include the products on which the authorization will be used. The cover letter must also contain a brief statement as to the applicant's eligibility in accordance with applicable regulations
- FAA Form 8100-8, DOA, DAS, SFAR 36 Statement of Qualifications
- A detailed description of how the eligibility and qualification requirements are satisfied as defined in paragraph 3-2 of FAA Order 8100.9, DAS, DOA, and SFAR 36 Authorization Procedures; also, a description of how the specific eligibility requirements are satisfied as defined in chapter 6 of Order 8100.9 (e.g., having 14 CFR parts 121 and 145)
- The resume of the authorization holder's administrators, as outlined in paragraph 3-7a of Order 8100.9
- A list of the proposed Authorized Representatives (ARs) and their associated resumes determining their experience and qualifications
- A procedures manual that includes the contents required by paragraph 3-8 of Order 8100.9, and the specific details as outlined in the Procedures Manual example in appendix 2 of that order

B. An applicant's eligibility for an SFAR 36 authorization is determined by an Evaluation Panel (EP) comprised of personnel from the FSDO and the Aircraft Certification Office (ACO). Responsibility for the issuance of an SFAR 36 authorization is shared jointly by the ACO and the FSDO. The ACO is also responsible for approving the applicant's SFAR 36 procedures manual.

C. An authorization issued under SFAR 36 applies only to products covered by the applicant's:

- Repair station rating
- Operations specifications (OpSpecs)
- Certificate
- Maintenance manual

D. Once approved, the SFAR 36 authorization is not transferable.

7. MAINTAINING ELIGIBILITY.

A. To maintain eligibility, each holder of an SFAR 36 authorization must continue to meet the requirements for issuance of the authorization.

B. The authorization holder must notify the Administrator within 48 hours of any changes

(including a change of personnel) that could affect the holder's ability to meet these requirements.

C. The authorization holder's facilities, records, items being repaired, and completed work will be made available for surveillance by the Administrator.

D. Each authorization issued under SFAR 36 is effective from the date of issuance until it is surrendered or until the Administrator suspends, revokes, or otherwise terminates the authorization.

9. DATA REVIEW AND SERVICE EXPERIENCE.

A. Investigating Defects.

(1) The authorization holder, upon notification by the Administrator, must investigate defects under the following circumstances:

- If the Administrator finds that a product for which repair data was developed under an SFAR 36 does not meet the applicable airworthiness requirements
- If an unsafe feature or characteristic caused by a defective repair exists

(2) The authorization holder will report to the Administrator the results of the investigation and any corrective action either taken or proposed.

B. Corrective Action. If corrective action by the user of the repaired item is necessary, the authorization holder must submit information necessary for the issuance of an Airworthiness Directive under 14 CFR part 39 to the FSDO. The FSDO will forward this information to the ACO responsible for the SFAR 36 Authorization.

SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites:

- Knowledge of the regulatory requirements of SFAR 36 and 14 CFR parts 121, 135, or 145, as applicable
- Successful completion of the General/Air Carrier Airworthiness Safety Inspectors Indoctrination course

B. Coordination. This task requires coordination between the FSDO and the ACO to develop an Organization Management Team (OMT). Coordination may also be required with the Aircraft Evaluation Group (AEG).

3. REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR, parts 39, 43, 121, 135, and 145 and SFAR 36
- FAA Order 8100.9, DAS, DOA, and SFAR 36 Authorization Procedures
- FAA Order 8300.10, volume 2, chapter 162, Procedures for Certificating Part 145 Repair Stations/Satellites located within U.S. Territories, and chapter 221, Conduct Evaluation of Operator/Applicant's Maintenance Facility

B. Forms:

- FAA Form 8100-8, DOA, DAS, SFAR 36 Statement of Qualifications

C. Job Aids:

- FAA Order 8100.9, appendix 2, Sample DAS, DOA, SFAR 36 Procedures Manual; and appendix 5, Technical Evaluation Procedures and Criteria

5. PROCEDURES.

A. Conduct a preapplication meeting with the applicant and inform the applicant of SFAR 36 authorization's requirements.

B. Receive the Formal Application.

- Receive letter of application, FAA Form 8100-8, AR resumes, and SFAR 36 procedures manual
- Notify the ACO and create an EP

C. Review the Application. Ensure the application contains the following information:

- The repair station certificate number, if applicable
- The current ratings covered by the certificate, if applicable
- A copy of the repair station's OpSpecs, if applicable
- The air carrier certificate number held by the applicant, if applicable
- The products that the applicant may maintain under an air carrier certificate
- A list of the proposed staff and their associated resumes
- A resume for the authorization holder's administrator

D. Review the SFAR 36 Procedures Manual. Ensure that the applicant's procedures manual contains at least the following:

- Cover page with signature blocks for the FAA and authorization holder's administrator
- Table of Contents
- Log of Revisions
- List of Effective Pages (optional if manual is reprinted and paginated at each revision)
- Description of how to process changes to the manual
- Limitation of the authorization specifically identifying the product models and project types authorized
- Description of the authorization holder's facilities
- Listing of ARs and their authorized functions and forms authorized to sign. The listing must include names, signatures, and impression stamps, if appropriate (the listing may be maintained as a separate file)
- Description of the procedures used in performing authorized functions
- Sample forms and instructions for their use
- Selection criteria for appointing ARs, with procedures for expanding an AR's authority and the development of new ARs

- Recordkeeping requirements
- List of required training and procedures for maintaining training records
- Process for revising the procedures manual and obtaining FAA approval of the revisions
- Requirement that changes requiring approval will be defined in the manual
- Limitation that prior to approval of the changes, the organization may continue to perform only those functions not affected by the change
- Self-evaluation procedures

NOTE: The manual must be reviewed by both the ACO and FSDO and be approved by the ACO.

E. Inspect the Applicant's Facility. Determine if the applicant has the capability to meet the regulatory requirements of the authorization sought. See the following related tasks:

- FAA Order 8300.10, volume 2, chapters 162 and 221
- FAA Order 8100.9

F. Inspect the Applicant's Operating Manual. Ensure that the applicant's operating manual contains references that direct the reader to the SFAR 36 procedures manual in the operator's manual system.

G. Debrief Applicant. Brief applicant on inspection findings and discuss how to resolve deficiencies.

7. TASK OUTCOMES.

A. File PTRS Data Sheet.

B. Completion of this task will result in one of the following:

- A letter denying the authorization and listing the reasons for denial
- A letter approving the authorization

C. FSDO and ACO form an OMT to oversee the authorization holder.

D. Document Task. File all supporting paperwork in the applicant's office file.

9. FUTURE ACTIVITIES. Normal surveillance.

CHAPTER 5. EVALUATE OPERATOR'S APPLICATION TO CONDUCT FLIGHT IN AIRSPACE WHERE REDUCED VERTICAL SEPARATION MINIMUMS ARE APPLIED

SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Operations: 1411, 1413

B. Maintenance: 3411, 3413

C. Avionics: 5411, 5413

D. ATOS Element: 5.1.9

3. OBJECTIVE. This chapter provides guidance for evaluating applications for an operator to conduct flight in airspace where Reduced Vertical Separation Minimums (RVSM) is applied, evaluating and approving RVSM maintenance programs associated with an application, and issuing operations specifications (OpSpecs) or a Letter of Authorization (LOA), as appropriate.

5. GENERAL.

A. Requirements. The current regulation in Title 14 of the Code of Federal Regulations (14 CFR) part 91, appendix G, states the requirements an operator and the operator's aircraft must comply with for a person to operate a civil aircraft of U.S. registry in RVSM airspace.

B. Authorization. Aircraft and operators must be authorized by the Administrator to conduct operations in RVSM airspace. The criteria evaluated to issue this authorization consists of three basic elements:

- An aircraft must be determined to comply with the requirements of part 91, appendix G, section 2
- The operator's maintenance program must be found to comply with the requirements of part 91, appendix G, section 3
- The operator must be found to have adopted RVSM operating policies and procedures for pilots and, if applicable, dispatchers, that are acceptable to the Federal Aviation Administration (FAA)

C. Responsibilities.

(1) The evaluation of the aircraft, maintenance program, and operator's program should be coordinated between Avionics/Maintenance airworthiness safety inspectors (ASI), and operations ASIs. Either the principal avionics inspector (PAI) or principal maintenance inspector (PMI) will make the determination of an aircraft's compliance. Either the PAI or PMI will evaluate the operator's maintenance program for approval by the Administrator. The principal operations inspector (POI) will evaluate and accept the required program operational elements. The Flight Standards District Office (FSDO) or certificate management office (CMO) manager will issue an OpSpecs or LOA, as appropriate, to authorize an operator to conduct flight in RVSM airspace.

(2) The applicant will obtain and submit all documents that establish the eligibility of its aircraft. The applicant will submit to the FAA evidence that it is capable of operating and maintaining each aircraft or aircraft group for which it applies, and an RVSM maintenance program for approval. The applicant will establish that each pilot has an adequate knowledge of RVSM requirements and procedures. The applicant may also be required to submit for acceptance RVSM policy and procedures, and its initial and recurring pilot training requirements.

7. AIRCRAFT COMPLIANCE.

A. Aircraft may be authorized to conduct RVSM operations if the Administrator finds that it complies with the requirements of part 91, appendix G, section 2. Aircraft may be produced RVSM-compliant or brought into compliance through the application of FAA-approved Service Bulletins (SB), Service Letters (SL), or Supplemental Type Certificates (STC),

which apply to the specific aircraft type or group and, if applicable, the specific aircraft serial number.

B. The PAI or PMI makes the determination of aircraft RVSM compliance after reviewing the aircraft RVSM documentation.

(1) In-Service Aircraft. The PAI/PMI ensures that the inspections and/or modifications required for aircraft compliance have been performed and documented.

(2) In-Production or New Production Aircraft. The PAI/PMI ensures that RVSM compliance is stated in the aircraft flight manual (AFM) or aircraft Type Certificate Data Sheet (TCDS).

NOTE: The determination that an aircraft is RVSM-compliant may be accomplished entirely through the examination of documents and/or data. Physical inspection of an airframe may not be required if the submitted documentation is sufficient.

C. Upon determination that an aircraft is RVSM-compliant, the PAI/PMI will make the appropriate PTRS entry and notify the applicant in writing. Aircraft found to be RVSM-compliant are listed in the U.S. RVSM Approvals Database (as a result of the inspector's PTRS entry).

9. MAINTENANCE PROGRAM.

A. The application for authorization to operate within RVSM airspace must include an approved RVSM maintenance program. This program must outline procedures to maintain aircraft in accordance with the requirements of part 91, appendix G.

B. Operators without an approved aircraft maintenance program are required to develop and obtain approval of an RVSM maintenance program. The approved RVSM maintenance program is *not* required to include elements not related to RVSM maintenance. Inspection programs such as an Approved Aircraft Inspection Program (AAIP) or manufacturer's recommended inspection program do *not* satisfy the RVSM requirements because they do not contain procedures to maintain RVSM aircraft. Operators who maintain their aircraft under a continuous airworthiness maintenance program (CAMP) may choose to incorporate the RVSM maintenance requirements into the program. Part 121 operators currently under Air (ATOS) should develop RVSM maintenance programs using the Safety Attribute Inspection (SAI) Job Aid 5.1.9.

C. The ASI will indicate approval of the RVSM maintenance program. The approved RVSM maintenance program elements are specific to the operator and aircraft for which they are approved and are not transferable.

D. Each RVSM maintenance program must include the following:

(1) Identification of components considered to be RVSM critical, and identification of structural areas noted as RVSM critical areas.

(2) The name or title of the responsible person who will ensure that the aircraft is maintained in accordance with the approved program.

(3) The method the operator will use to ensure that all personnel performing maintenance on the RVSM system are properly trained, qualified, and knowledgeable of that specific system.

(4) The method the operator will use to notify the crew if the aircraft has been restricted from RVSM but is airworthy for an intended flight.

(5) The method the operator will use to ensure conformance to the RVSM maintenance standards, including the use of calibrated and appropriate test equipment and a quality assurance program for ensuring continuing accuracy and reliability of test equipment, especially when outsourced.

(6) The method the operator will use to verify that components and parts are eligible for installation in the RVSM system, as well as to prevent ineligible components or parts from being installed.

(7) The method the operator will use to return an aircraft to service after maintenance has been performed on an RVSM component/system or after the aircraft was determined to be non-compliant.

(8) Periodic inspections, functional flight tests, and maintenance and inspection procedures with acceptable maintenance practices for ensuring continued compliance with the RVSM aircraft requirements.

- These elements may be listed in detail or described by reference to an acceptable program that is identified and controlled by revision or issue number

- The need for functional flight tests may be limited to only after repairs or modifications that are deemed to warrant such testing and may be accomplished through monitoring height-keeping performance

(9) The maintenance requirements listed in Instructions for Continued Airworthiness (ICA) associated with any RVSM associated component or modification.

(10) Any other maintenance requirement that needs to be incorporated to ensure continued compliance with RVSM requirements.

E. Operators using the services of FAA part 145 certificated repair stations must include provisions to ensure that the requirements of their RVSM programs are being met.

11. OPERATOR EVALUATION.

A. To obtain authorization from the Administrator to conduct operations in RVSM airspace, the operator must be found to have adopted RVSM operating policies and procedures for pilots and, if applicable, dispatchers, and ensure each pilot has adequate knowledge of RVSM requirements, policies, and procedures. The Minimum Equipment List (MEL), if used, must incorporate the required changes stated in Master Minimum Equipment List (MMEL) GC-59 (formerly policy letter PL-84), dated August 15, 1997.

B. The appropriate FSDO or CMO manager, in coordination with the PAI, PMI, and POI, will issue the OpSpecs or LOA after determination of aircraft compliance, approval of the RVSM maintenance program, and acceptance of operator policies and procedures. Upon issuance, the POI will make the appropriate PTRS entry. Operators issued authorizations are listed in the U.S. RVSM Approvals Database (as a result of the inspector's PTRS entry).

C. An applicant who operates under 14 CFR part 121 or 135 must submit for approval the initial and recurrent pilot training requirements and RVSM policies and procedures that will enable it to conduct RVSM operations safely.

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SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites:

- Knowledge of the regulatory requirements of 14 CFR part 91, appendix G, as applicable
- Successful completion of the General/Air Carrier Airworthiness Safety Inspectors Indoctrination course, or equivalent

B. Coordination. This task requires coordination between Airworthiness and Operations ASIs.

3. REFERENCES, FORMS, AND JOB AIDS.

A. References:

- 14 CFR parts 43, 91, 145, 121, 125, 135
- Interim Guidance (IG) 91-RVSM, Interim Guidance Material on the Approval of Operators/Aircraft for RVSM Operations, Change 1
- HBAT 99-11A/HBGA 99-17A, Approval of Aircraft and Operators for Flight in Airspace Above Flight Level (FL) 290 Where a 1,000 Foot Vertical Separation is Applied

B. Forms. None.

C. Job Aids. SAI Job Aid 5.1.9.

5. PROCEDURES.

A. Determination of Aircraft Compliance.

(1) Determine if the aircraft meets the requirements of part 91, appendix G, section 2 and is RVSM-compliant.

(2) Review the aircraft documentation to identify references to RVSM capability. For in-service aircraft, ensure that all required elements of the Aircraft Certification Office (ACO) approved data package through which RVSM airworthiness approval is sought have been applied. This data package may consist of SBs, SLs, or STCs. For in-production or new-production aircraft, either the aircraft TCDS or flight manual will state RVSM compliance.

(3) If sufficient documentation is available, a determination of compliance may be made entirely through the examination of documents and/or data. Physical inspection of an airframe may not be required.

B. Evaluation and Approval of Operator's RVSM Maintenance Program. Review the RVSM maintenance program to ensure that it contains the following:

(1) Identification of components considered to be RVSM critical, and identification of structural areas noted as RVSM critical areas.

(2) The name or title of the responsible person who will ensure that the aircraft is maintained in accordance with the approved program.

(3) The method the operator will use to ensure that all personnel performing maintenance on the RVSM system are properly trained, qualified, and knowledgeable of that specific system.

(4) The method the operator will use to notify the crew if the aircraft has been restricted from RVSM but is airworthy for an intended flight.

(5) The method the operator will use to ensure conformance to the RVSM maintenance standards, including the use of calibrated and appropriate test equipment and a quality assurance program for ensuring continuing accuracy and reliability of test equipment, especially when outsourced.

(6) The method the operator will use to verify that components and parts are eligible for installation in the RVSM system, as well as to prevent ineligible components or parts from being installed.

(7) The method the operator will use to return an aircraft to service after maintenance has been performed on an RVSM component/system or after the aircraft was determined to be non-compliant.

(8) Periodic inspections, functional flight tests, and maintenance and inspection procedures with acceptable maintenance practices for ensuring continued compliance with the RVSM aircraft requirements.

NOTE: The need for functional flight tests may be limited to only after repairs or modifications that are deemed to warrant such testing.

(9) The maintenance requirements listed in ICA's associated with any RVSM associated component or modification.

(10) Any other maintenance requirement that needs to be incorporated to ensure continued compliance with RVSM requirements.

C. Operator Authorization. Provide assistance to the Operations ASI as required.

7. TASK OUTCOMES.

A. Determine Aircraft RVSM Compliance.

(1) If it is determined that an aircraft is RVSM-compliant, the PAI or PMI will make an entry in the PTRS with date of modification or RVSM compliance date in comment field, and notify the applicant in writing. The activity code for this work function will be 3411 (Maintenance) or 5411 (Avionics) for initial airframe acceptance (determination of compliance). Either PTRS entry will result in the aircraft being listed as RVSM-compliant in the U.S. RVSM Approvals Database.

(2) If it is determined that an aircraft is not RVSM-compliant, advise the operator/applicant by letter of the determination with an explanation.

B. Approve or Reject Aircraft Maintenance Program/Revision.

(1) Upon approval or rejection of the applicant's RVSM program, the PAI or PMI will make an entry in the PTRS and notify the applicant. The activity code for this work function will be 3413 (Maintenance) or 5413 (Avionics).

(2) If it is determined that the RVSM maintenance program or revision meets all of the regulatory requirements, the approval process is as follows:

(a) Approved maintenance programs shall include a list of effective pages and a revision log as future revisions are incorporated.

(b) Indicate approval of RVSM maintenance program elements that will be incorporated into an existing accepted or approved program for each element or group of elements by the inspector's signature, date of approval, office name, number, and location.

(c) Indicate approval of RVSM maintenance programs submitted as stand-alone on the cover page of the program together with the date of approval, inspector's signature, office name, number and location. Stamp each succeeding page with the district office stamp, and date and initial it.

(d) Other approval controls may be used.

(3) If it is determined that the aircraft maintenance program/revision is not acceptable, advise the operator/applicant by letter that the program is rejected. Return it to the operator/applicant with the reasons for the rejection.

9. FUTURE ACTIVIES. None.

[CHAPTERS 6 THROUGH 20 RESERVED]

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CHAPTER 91. EVALUATE PART 135 (NINE OR LESS) OPERATOR/ APPLICANT'S INSPECTION AND MAINTENANCE REQUIREMENTS

SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3341

B. Avionics: 5341

3. OBJECTIVE. This chapter provides guidance for evaluating, approving, and administering aircraft inspection and additional maintenance requirements for a Title 14 of the Code of Federal Regulations (14 CFR) part 135, § 135.411(a)(1) operator.

5. GENERAL.

A. The aircraft's type-certificated passenger capacity is the passenger seating capacity as indicated on the Type Certificate (TC) or Supplemental Type Certificate (STC). The manufacturer (the TC holder) may have several approved passenger seating configurations that allow the TC- or STC-approved capacity to be changed by converting seating configurations. Removing passenger seats does not constitute a change in type-certificated capacity unless the resulting cabin configuration conforms to an STC or other approved data.

NOTE: It is not the intent of § 135.411(a)(1) to allow operators to remove or block passenger seats to circumvent maintenance requirements.

B. Except as discussed in the next paragraph, aircraft that are type-certificated for nine or less passenger seats must meet the inspection requirements of 14 CFR part 91, § 91.409 or an Approved Aircraft Inspection Program (AAIP) in accordance with part 135, § 135.419. In either case, the additional maintenance requirements of § 135.421 must also be met.

C. A part 135 (nine or less) operator/applicant may elect to maintain its aircraft under a continuous airworthiness maintenance program (CAMP). Such a program should be approved in accordance with the guidance in Federal Aviation Administration (FAA) Order 8300.10, vol. 2, ch. 64, Evaluate Continuous Airworthiness Maintenance Program/Revision.

7. ANNUAL AND 100-HOUR INSPECTION REQUIREMENTS. Annual and 100-hour inspection requirements are defined in 14 CFR part 43, appendix D. The operator/applicant may request additional work or special emphasis on certain tasks. However, there is no formal method of including these items on a continuing basis in future inspections. These inspections are suitable for, and should be limited to, aircraft that the operator/applicant will schedule for inspection but that have no particular input for the work to be accomplished (ref. § 91.409(a) and (b)).

9. PROGRESSIVE INSPECTIONS. Each operator/applicant wanting to use a progressive inspection must submit a written request to the district office with jurisdiction over the area in which the operator/applicant is located. The operator/applicant must have the following (ref. § 91.409(d)):

A. A certificated mechanic holding an Inspection Authorization (IA), a certificated airframe repair station, or the aircraft manufacturer to supervise or conduct the inspection.

NOTE: In this instance, the term "supervise" can be taken to mean the monitoring of a mechanic's out-station work to ensure that work is performed in accordance with the procedures of the certificated mechanic with an IA who would otherwise perform the inspection.

B. A current inspection procedures manual that meets the requirements of § 91.409(d)(2).

C. Enough housing and equipment for the necessary disassembly and proper inspection of the aircraft.

D. Appropriate current technical information for the aircraft.

11. PROGRESSIVE INSPECTION INTERVALS.

A. A progressive inspection program must provide for a complete inspection of the aircraft within each 12 calendar-month period. The inspection must be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The inspection schedule must ensure that the aircraft is, at all times, airworthy and conforms to all applicable FAA aircraft specifications, Type Certificate Data Sheets (TCDS),

Airworthiness Directives (AD), and other approved data.

NOTE: A calendar month is the period of time from the first day of a month to the last day of the month. In a calendar month, compliance can be achieved at any time during the month, up to and including the last day of the month. A month is the time from any day of one calendar month to the corresponding day of the next calendar month.

B. Inspection intervals should be based on manufacturer's recommendations, field service experience, malfunction and defect history, and the type of operation in which the aircraft is engaged.

(1) If the operator/applicant needs help establishing inspection intervals, the aviation safety inspector (ASI) should provide assistance based upon experience and knowledge of the particular aircraft.

(2) When an operator/applicant has inadequate knowledge of service problems for a particular aircraft, advise him or her to establish a reasonable initial routine, create detailed inspection intervals, and plan to adjust intervals based on service experience. Make the operator/applicant aware of his or her responsibility for initiating an inspection frequency: This will result in a complete inspection of the aircraft.

C. Requirements.

(1) Before an aircraft can be placed on a progressive inspection program, it must undergo an inspection at least equal to a 100-hour inspection. After this initial inspection, routine and detailed inspections must be conducted as stated in the progressive inspection schedule.

(2) Routine inspections consist of a visual examination or check of the aircraft, appliances, and components and systems without disassembly, if possible.

(3) Detailed inspections consist of a thorough examination of these items for which such disassembly is necessary. For the purposes of this subparagraph, the overhaul of a component or system is considered a detailed inspection.

(4) Before an aircraft can be removed from a progressive inspection program and returned to an annual/100-hour inspection program, the remaining portions of the progressive inspection must be completed.

13. ADDITIONAL MAINTENANCE REQUIREMENTS.

A. Each operator/applicant maintaining aircraft under § 135.411(a)(1) must comply with the additional maintenance requirements of § 135.421. These requirements ensure that major maintenance tasks (overhaul, hot section inspections, etc.) are performed on engines, propellers, rotors, emergency equipment, and medical carry-on oxygen. These requirements do not apply to the airframe and are not intended to impose a CAMP or otherwise increase the aircraft inspection program.

B. Engine requirements apply to the engine itself, including turbo-superchargers, appurtenances, and accessories necessary to its function. It does not include aircraft provisions such as mounts or cowling or accessories such as generators or starters. Title 14 CFR part 1 defines a propeller as including controls normally supplied by the manufacturer. Most propeller TCDS specify the applicable control unit, which should be considered part of the propeller.

C. The operator/applicant may use either the manufacturer's recommended maintenance programs or develop a program that includes equivalent requirements.

D. Manufacturer's requirements, such as pilot pre-flight or other inspection items within the scope of the inspections required by § 135.411(a)(1), should not be included as additional maintenance requirements. To meet the requirements of § 135.421, an operator/applicant may use one of the following.

- The applicable portions of an aircraft manufacturer's recommended maintenance requirements for the engine, propeller, rotor, and emergency equipment
- The manufacturer's programs for individual items
- A combination of both

E. Section 135.421(b) defines a manufacturer's maintenance program as one which is in the manufacturer's maintenance manual or instructions. It does not include individual authorizations or recommendations by a repair facility or manufacturer to a particular operator/applicant.

(1) These manuals and instructions generally include service bulletins (SB), service letters (SL), and other maintenance publications.

(2) SBs and SLs about repairs, alterations, or other items beyond the meaning of the term "maintenance" do not fall within the scope of § 135.421. Compliance is not required unless it is made regulatory (see paragraph 15 below for further

discussion). The operator/applicant may include these items in the additional maintenance program to support higher maintenance intervals or other inspection variables.

F. An operator/applicant may adopt a manufacturer's entire maintenance program. The program must apply to the specific make, model, configuration, etc., and meet the requirements of § 135.421.

(1) If the aircraft manufacturer's program does not include engine overhaul (or comparable heavy maintenance) but the engine manufacturer's program does, the operator/applicant must incorporate the engine manufacturer's program to the degree necessary to meet the engine overhaul requirement. It may be necessary to designate SBs, other manufacturer's maintenance instructions, and a manufacturer's maintenance manual to ensure an adequate program.

(2) Operations specifications (OpSpecs) must show program limitations.

G. Section 135.421 allows operators/applicants to develop their own maintenance program. An operator/applicant-developed program requires FAA approval and the operators/applicant must justify the program. In most cases, these programs are based on a manufacturer's maintenance program, although they may contain variations, such as a higher engine overhaul period. When evaluating the operator/applicant's program, the ASI may consider a program in use by another operator for similar make/model aircraft. In any case, the proposed program should be equivalent to the manufacturer's recommended maintenance program.

(1) Each change to an operator/applicant-developed program requires FAA approval. Changes to a manufacturer's program should be considered but must not be incorporated into an operator/applicant-developed program without specific FAA approval.

(2) Automated OpSpecs will approve an operator/applicant-developed program for use.

H. Section 135.411(a)(1) states in part that the maintenance requirements for aircraft certificated under part 135 for a passenger seating configuration of nine or less passengers requires operators to perform their maintenance under parts 91, 43, and §§ 135.415, 135.416, 135.417, and 135.421.

- Section 135.415 speaks to mechanical reliability reports
- Section 135.417 speaks to mechanical interruption summary reports
- Section 135.421 speaks to additional maintenance requirements

I. The certification requirements for small aircraft, engines, and propellers are covered in parts 23, 33, and 35, respectively. These regulations require that the manufacturers provide Instructions for Continued Airworthiness (ICA) for their products as part of the product certification.

15. MANUFACTURER'S SERVICE BULLETIN REQUIREMENTS.

A. Generally, manufacturers' SBs are classified as MANDATORY, URGENT, or GENERAL in nature. Some manufacturers consider all SBs mandatory and at times have identified them as FAA MANDATORY, giving the impression that the SB is FAA-approved and compliance is required. This is not the case. For an SB to be required, it must be regulatory. The following list has examples of situations when SBs would be regulatory and covers most situations ASIs encounter.

NOTE: For this section only, all references to manufacturer's SBs will encompass all manufacturer's service information.

- If all or a portion of an SB is incorporated as part of an AD
- If the SB is part of the FAA-approved Airworthiness Limitations section of the manufacturer's manual or the TC
- If SBs are incorporated directly or by reference into some type of FAA-approved inspection program, such as an AAIP or CAMP
- If the manufacturer of a product provides revisions to the maintenance manual or instructions for continuing airworthiness on the maintenance performance in the form of SBs
- If the SB is the only FAA-accepted data available on the maintenance to be performed
- If SBs are listed as an additional maintenance requirement in the certificate holder's OpSpecs

B. SBs are provided by the manufacturer to advise the operator of conditions or procedures which may or should be improved or changed. Some of the conditions or procedures in SBs may include:

- Structural cracking
- Component failure
- Electrical shorts
- Inspection procedures
- Recommended overhaul times
- Repetitive inspections

C. SBs are often used for corrective action and/or compliance with manufacturer recommendations. In some cases, as listed below, SBs are issued for safety of flight items without an AD being issued, such as one-time inspections, suspect parts, and improper maintenance procedures. SBs may describe damage and repair procedures that exceed Structural Repair Manual (SRM) requirements. Operational procedures are included as well.

D. Other items such as lubrication, inspection procedures, adjustment procedures, and minor modifications, may be required on a one-time basis. Environmental problems will also be included. SBs appear to fall in the following classes:

(1) Urgent. The manufacturer believes the bulletin should be accomplished and that safety may be a factor. This type of SB may be used as a corrective action for FAA-issued ADs.

(2) Routine. This SB is of a general nature and will provide better maintenance reliability, but does not discuss items in which safety may be a factor.

(3) Procedural. This SB explains a change in the way to accomplish a basic function but in a different way.

(4) Environmental. This SB explains a procedural change due to the type of operating or maintenance conditions such as wet or dry, or hot or cold climate conditions.

(5) Repetitive. This SB may require a repetitive inspection of an area or part. This may be short-term until a repair can be made, but it may also be a long-term procedure.

17. MAINTENANCE PROGRAM APPROVAL FOR CARRY-ON OXYGEN EQUIPMENT USED FOR MEDICAL PURPOSES.

A. Part 135, § 135.91(a)(1)(ii) requires that equipment used for storage, generation, or dispensing of oxygen and carried aboard an aircraft must be maintained in accordance with the operator/applicant's approved maintenance program. Part 135 does not have specific rules for maintaining and testing pressure cylinders. However, procedures in Department of Transportation (DOT) regulations are considered acceptable for controlling hydrostatic and life-limits of pressure cylinders. The Research and Special Programs Administration establishes standards that pressure cylinders must meet to be eligible for transportation purposes (see Title 49 of the Code of Federal Regulations (49 CFR), parts 100 through 199).

B. The schedule for performing inspections and maintenance, whether by time-in-service, calendar time, system cycles, or combination must comply with 49 CFR part 173. Instructions and procedures for conducting the maintenance program, including the necessary checks and test, must be in sufficient detail for maintenance personnel to correctly perform the maintenance without further guidance.

C. Title 49 CFR part 173, §§ 173.301(a)(6) and 173.301(a)(7) state that a container for which a required periodic retest is due must not be charged and shipped until it has been properly retested. Pressure cylinders used as aircraft equipment that remain charged or partially charged on the date a hydro-static test is due may remain in service beyond the test date if the cylinder is tested before its next full or partial refilling.

D. The maintenance program for carry-on oxygen equipment for medical purposes is approved for use in OpSpecs D104 as an item of emergency equipment.

19. REVISING TIME LIMITATIONS.

A. Revisions to inspection and overhaul time limitations for powerplants, propellers, rotors, and emergency equipment normally are based on service experience. An operator may request authorization for a time increase by submitting justification to support the requested increase. The data must indicate that the increase will not negatively affect the airworthiness of the aircraft. If service records indicate that any item consistently requires repair, adjustment, or other maintenance within the current time limitations due to damage, wear, or deterioration, the operator must take corrective action.

B. Time limitations may be established in terms of hours of operation, cycles, or calendar time. Time limitations for items on which deterioration is not necessarily a function of hours of operation (such as electronic units and emergency flotation equipment) should be established in terms of calendar time.

C. Increases in engine overhaul intervals may be approved in increments mutually agreed upon by the operator and the ASI. Increases should be based on satisfactory service experience and/or a tear-down examination of at least one exhibit engine. The engine chosen for exhibit should have operated to within 5 percent of the currently-approved time interval.

D. The operator must justify an inspection time interval increase by providing sampling documentation that supports the proposed increase. The principal maintenance inspector (PMI) must ensure that the part or engine sampled represents the total sample population and that it has not been given special treatment or undergone early inspections by the operator. A substantial portion of the time in service should have been accrued by the current operator. Industry experience and manufacturer's

recommendations for similar equipment can be used as supporting justification, but should not be the sole source.

E. Time extensions will not exceed 200 hours on reciprocating engines or 10 percent of the approved time interval on turbine-powered engines.

F. Time limitation extensions are approved and authorized for use by amending OpSpecs.

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SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites:

- Knowledge of the regulatory requirements of 14 CFR parts 43, 91, and 135
- Successful completion of the General/Air Carrier Aviation Safety Inspectors Indoctrination course, or previous equivalent

B. Coordination. This task requires coordination between the airworthiness ASIs.

3. REFERENCES, FORMS, AND JOB AIDS.

A. References:

- Operator/applicant's manual
- 49 CFR part 173
- Order 8300.10, Airworthiness Inspector's Handbook, vol. 2, ch. 64, Evaluate Continuous Airworthiness Maintenance Program/ Revision; ch. 83, Evaluate Part 135 (Nine or Less) Approved Aircraft Inspection Program; and ch. 84, FAR Part 121/135 Operations Specifications

B. Forms:

- FAA Form 8400-8, Operations Specifications

C. Job Aids. None.

5. PROCEDURES.

A. Brief the Operator/Applicant. Provide the operator/applicant with policies and regulatory requirements. Schedule and conduct a preliminary meeting, if necessary.

B. Review the Schedule of Events. If this task is performed as part of an original certification, review the schedule of events to ensure that the task can be accomplished according to the schedule.

C. Evaluate the General Manual Requirements. Ensure that the operator/applicant's policies and procedures manual describes procedures, levels of authority, and information appropriate to the inspection and maintenance requirements of § 135.411(a)(1).

D. Evaluate the Inspection and Maintenance Requirements. Accomplish the following:

(1) Determine if the aircraft meets the nine or less passenger seat requirements of § 135.411(a)(1).

(2) Verify with the operator/applicant the type of program with which the aircraft is to be inspected.

(a) If the operator/applicant would prefer to have progressive inspections, ensure that the requirements of § 91.409(d) are met.

(b) If the operator/applicant would prefer to be on an AAIP, ensure that the requirements of § 135.419 and vol. 2, ch. 83, Evaluate Part 135 (Nine or Less) Approved Aircraft Inspection Program, are met.

(c) If the operator/applicant would prefer to have a 100-hour/annual inspection, ensure that the requirements of § 91.409(a) and (b) are met.

(d) If the operator/applicant intends to haul cargo only, ensure that the requirements of §§ 91.409(a), 91.409(d), or 135.419 are met.

(3) Determine if the operator/applicant meets the additional maintenance requirements of § 135.421 for engines, propellers and rotors (as applicable), and emergency equipment.

(a) Determine if the operator/applicant intends to use the manufacturer's maintenance program or develop one of its own.

(b) Determine the time-in-service intervals for which the operator/applicant intends to apply.

E. Analyze the Findings. Discuss with the operator/applicant any discrepancies and the changes required to resolve them.

7. TASK OUTCOMES.

A. File PTRS Data Sheet.

B. When all requirements for acceptance and approval of the inspection and maintenance programs have been met, completion of this task will result in approval or amendment of OpSpecs.

C. Document the Task. File all supporting paperwork in the operator/applicant's office file.

9. FUTURE ACTIVITIES. Normal surveillance.

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SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3623

B. ATOS Element: 3.1.8

3. OBJECTIVE. This chapter provides guidance for conducting surveillance and inspection on Title 14 of the Code of Federal Regulations (14 CFR) part 121 and 135 passenger, cargo, combi, and regional passenger aircraft that transport cargo, passenger baggage, company materials (COMAT), and hazardous materials (HAZMAT) in the upper deck, lower deck, forward and/or aft cargo compartments, or pods.

5. GENERAL.

A. Federal Aviation Administration (FAA) Inspection Personnel.

(1) Aviation safety inspectors (ASI) should become familiar with the type of aircraft to be inspected before performing their surveillance. This may be accomplished through on the job training (OJT) or formal aircraft systems training.

(2) Due to operators' varying schedules, inspectors may need to perform their surveillance outside of normal office hours or when time permits.

(3) Inspectors should complete the cargo computer-based instruction (CBI) course #27013.

(4) Inspectors will review the operator's cargo procedures.

B. Coordination.

(1) An ASI who needs additional information or guidance on a topic will coordinate with other ASIs who are experienced in that specialty.

(2) Geographic units may need to coordinate with the certificate-holding district office (CHDO) to gain access to the operator's maintenance procedures manual. In addition, when it finds discrepancies, the geographic unit will communicate with the CHDO before initiating corrective or enforcement action.

7. INITIATION AND PLANNING.

A. Initiation. This task is scheduled as part of the work program. Additional inspections are initiated by national, regional, or district office special requirements.

B. Planning. The ramp inspection provides the ASI with a good opportunity to ensure that the compliance dates and requirements of new Airworthiness Directives (AD) and regulatory revisions have been met. ASIs should review ADs, Service Difficulty Report summaries, maintenance/ airworthiness bulletins, PTRS entries, and incidents, when available, to become familiar with current service difficulty information.

(1) Review Vital Information Subsystem (VIS) for special authorizations.

(2) Review operator's cargo and baggage loading procedures.

(3) Review operator's weight and balance procedures.

(4) Review operator's procedures for unusual loads such as oversized cargo, sports teams and their equipment, or military contract loads (either cargo or troop transport).

(5) Review operator's procedures for loading last-minute items in cargo, baggage, pod compartments, and so forth. May include items such as carry-on bags, last-minute bags or cargo, mail, or COMAT/HAZMAT.

(6) Principal inspectors are responsible for operator AD compliance procedures and may request assistance from geographic ASIs for surveillance of AD accomplishment.

9. MAINTENANCE RECORDS.

A. By regulation, maintenance, when performed, must be recorded in the aircraft records prior to an approval for return to service. The operator's manual should describe the procedures for ensuring that recording requirements are met for cargo-related

equipment. Additionally, the manual should include the specific instructions on when an airworthiness release or appropriate maintenance log entry is required.

NOTE: The records should include unit load devices (ULD), net, or cargo handling system component repairs conducted in-house or by outside agencies, and record retention and receiving inspections of those items.

B. Every mechanical discrepancy in the maintenance log must be either corrected or deferred using the methods identified in the operator's maintenance procedures manual.

11. DEFERRED MAINTENANCE.

A. Minimum Equipment List (MEL)—Deferred Maintenance. The operator's approved MEL allows the operator to continue a flight or series of flights with certain inoperative equipment. The continued operation must meet the requirements of the MEL deferral classification and the requirements for the equipment loss. Only items that appear in the Master Minimum Equipment List (MMEL) are approved by the Flight Standards Operations Board (FOEB). During the ramp inspection, an ASI may encounter MEL items that do not appear in the MMEL but have been approved by the CHDO for individual carrier use. If this is the case, the ASI should contact the CHDO for clarification, if required.

B. Other Deferred Maintenance.

(1) Operators frequently use a system to monitor items that have been inspected previously and found to be within serviceable limits, per the maintenance manual. These items are still airworthy, yet warrant repair at a later time or when the items no longer meet serviceable limits. This method of deferral may require repetitive inspections to ensure continuing airworthiness of the items. Examples of items that are commonly deferred in this manner are fuel leaks, surface dents, and temporary (airworthy) repairs.

(2) Passenger convenience item (not safety/ airworthiness related) deferrals should be handled in accordance with the operator's program.

C. Repairing Inoperative Items. The maintenance program approved for an operator must provide for prompt and orderly repairs of inoperative items.

13. AIRCRAFT INSPECTION GUIDELINES. Ensure the following:

A. Load Manifest. Ensure that the load manifest form is prepared and signed by employees of the certificate holder or other qualified and authorized persons assigned to supervise the loading of aircraft and prepare the load manifest form.

B. Upper Deck Inspection (Cargo/Combi Aircraft).

(1) Inspect the main cargo door, door seal, locking mechanism, and door lock viewing windows (if installed) for damage, deterioration, distortion, and security.

(2) Inspect the cargo compartment, paying particular attention to the condition and security of the ceiling, sidewall linings, and floor panels. Holes in liners that are repaired by tape may indicate hidden damage.

(3) Inspect main floor locks, rollers, side rails, and cargo loading components for security, damage, and general condition. Ensure conformance with the air carrier's approved program.

NOTE: Be aware of possible substitution of load-bearing components of the cargo handling system. If any substitution of load-bearing components is found, contact the air carrier for clarification. After the inspection is completed, the ASI should contact the CHDO.

(4) Inspect the main cargo doorsill protector for installation and security.

(5) Inspect the main cargo compartment area for foreign object damage and general cleanliness.

(6) Inspect the overall condition of the smoke barrier curtain, if installed, or cockpit door seal, barrier net assembly, or solid bulkhead. Ensure that the net (if used) is properly rated for its intended G loading. Pay particular attention to the following:

(a) The smoke barrier curtain must be free of tears, holes, and cuts to prevent smoke from entering the forward cabin and flight deck.

(b) The door seal, for condition and integrity.

(c) The barrier net, for condition and security (i.e., check for frayed straps, hardware integrity, and proper markings).

(d) Cargo compartment retention nets, for condition and security.

(e) The solid bulkhead, for condition and security.

(f) The required placards, such as loading, fire suppression, and so forth.

C. Lower, Forward and/or Aft Compartment (Passenger and Cargo Aircraft), and Pods.

(1) Inspect the compartment or pod to determine its condition, security, deterioration, and cleanliness.

(2) Ensure that the required placards are installed.

(3) Ensure that baggage is loaded in accordance with the operator's weight and balance program and/or other operator procedures.

(4) Check the condition and security of tiedown devices/restraints.

(5) Check the security of ballast, if installed.

(6) If the aircraft is equipped with cargo pods, inspect area like any other cargo compartment.

(7) Inspect cargo for proper tagging and/or identification (e.g., mail, crew bags, equipment, and parts that the carrier considers COMAT). Inspect floor locks/cargo loading system, if installed. Inspect door seals and mechanisms.

(8) Inspect the interior, paying particular attention to the condition and security of the ceiling/ sidewall linings and floor panels, including the proper installation of repair tape.

(9) Inspect cargo doors, door seals, locking mechanisms, and door lock viewing windows (if installed) for cleanliness, damage, deterioration, and security. Ensure that the fire detection/suppression is appropriate for its classification and that required placards are present.

(10) Ensure that cargo is properly secured by appropriate tie-downs having enough strength to eliminate the possibility of shifting under all normal flight conditions.

(11) Inspect retention nets for condition and security.

(12) Ensure that loading/unloading is conducted in a safe manner in accordance with the operator's procedures.

D. Unit Load Devices (ULD).

(1) Ensure that ULDs are eligible for installation on the aircraft.

NOTE: Eligibility is determined by the original equipment manufacturer (OEM) Weight and Balance Manual or supplemental type certificate (STC) Weight and Balance Supplement.

(2) Ensure that TSO markings are attached to cargo containers, nets, and pallets (if applicable).

(3) Inspect ULD (nets, pallets, and containers) for serviceability per the air carrier's procedures and limitations.

(4) Ensure that identification markings are present in accordance with operator procedures.

E. Weighing Scales.

(1) Inspect current calibration of scales traceable to the National Institute of Standards and Technology, or equivalent.

(2) Inspect overall condition of scales.

(3) Ensure conformance with the air carrier's program.

(4) Observe weighing procedures and system integration to the load manifest.

F. Aircraft Loading and Ground Equipment.

(1) Ensure that the aircraft is loaded/unloaded in accordance with the operator's manual.

(2) Ensure that ground equipment is positioned in accordance with the operator's manual.

(3) Ensure that load sheets or the manifest is properly executed and signed for.

(4) Ensure that HAZMAT information is relayed to the crew.

(5) Observe general safety procedures being used during cargo off-loading operations, especially at night, for use of lighting, reflective clothing, flashlights, and wands.

G. Supernumeraries.

(1) Inspect the supernumerary area (if equipped) for condition and security.

(2) Ensure that emergency equipment is properly installed and each item has an inspection tag affix.

(3) Ensure that escape devices, such as slides, ropes, or descent devices, are serviceable per the operator's manual.

(4) Ensure proper placarding of the supernumerary area for emergency exit.

(5) Ensure that supernumerary to flight deck communications is serviceable.

(6) Inspect the galley area (if installed) for condition and security.

H. Dangerous Goods. The surveillance of hazardous material handling is not the primary function of the Flight Standards Service (AFS). However, inspectors can ensure the following:

NOTE: Corrosion and structural damage may occur by improper handling of some hazardous materials.

(1) Inquire about proper training for loaders, load supervisors, and personnel involved in ULD build up in HAZMAT recognition.

(2) Inquire about proper training in HAZMAT recognition for maintenance personnel involved with movement of COMAT.

(3) Ensure proper loading and marking of HAZMAT materials. The ASI should contact the CHDO and, if time permits, the appropriate representative from the FAA Office of Security and Investigation (ACS) after noting discrepancies in the handling of HAZMATS.

(4) Inquire about safety procedures and equipment availability in case of a HAZMAT accident, such as a spill (e.g., mercury spill kit, emergency equipment).

I. Civil Reserve Air Fleet (CRAF) (If Aircraft is Being Operated in CRAF Operations).

(1) If the operation involves the CRAF program with the Air Force Air Mobility Command (AMC), the ASI should ensure the following:

(a) Operator CRAF procedures are followed.

(b) Aircraft are equipped for CRAF operations.

(c) Check that loadmaster or equivalent procedures are followed.

(d) Weight and balance procedures for CRAF operations are followed.

(2) If the operator contracts with AMC outside of the CRAF arena, ensure that the operation conforms to the operator's current procedures.

(3) Ensure that authorized military ULDs are used.

NOTE: Authorized military ULDs may be found in the appropriate OEM weight and balance manual or STC weight and balance supplement.

15. INSPECTION RESULTS.

A. This inspection must be accomplished without interfering with the ground time limitations unless safety of flight becomes an issue. The following items, which are common discrepancies, may cause scheduling delays if found during a ramp inspection.

- Improper load manifest
- ULDs are not airworthy
- Damage to aircraft loading system
- Damage to the aircraft
- Improper positioning of ground equipment
- Inadequate training
- Any other unusual operator activity

B. The ASI must bring all noted discrepancies to the attention of appropriate personnel immediately, to allow the operator the opportunity to take corrective action without interrupting the flight schedule. The ASI must verify that all corrective maintenance actions taken regarding maintenance discrepancies were in accordance with the requirements of the operator's maintenance procedures manual.

SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites:

- Knowledge of the regulatory requirements of 14 CFR parts 121 and 135, as applicable
- Successful completion of the General/Air Carrier Airworthiness Safety Inspectors Indoctrination course and CBI course # 27013
- Experience working with similar type aircraft

B. Coordination:

- This task may require coordination between Airworthiness and Operations ASIs
- Geographic units should coordinate with the CHDO

3. REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- 14 CFR parts 21, 23, 25, 27, 29, 43, 45, 47, 91, 121, and 135
- Advisory Circular (AC) 25-17, Transport Airplane Cabin Interiors Crashworthiness Handbook
- AC 25-18, Transport Category Airplanes Modified for Cargo Service
- AC 120-27, Aircraft Weight and Balance Control
- FAA Order 8300.10, Airworthiness Inspector's Handbook
- Operator's Maintenance Procedures Manual

B. Forms. None.

C. Job Aids. ATOS Element 3.1.8.

5. PROCEDURES.

A. Initiate Ramp Inspection in Accordance with the Flight Standards Field Office Work Program.

B. Prepare for the Inspection.

(1) Review the operator's flight schedule, select the flight to be inspected, and note the type of operation (cargo or PAX). Make certain the selected flight has adequate ground time so that the inspection can be accomplished without schedule delays.

(2) Determine if any recent problem areas have been identified for that type of aircraft.

(3) Determine if recent regulatory changes and AD requirements affect the aircraft to be inspected.

C. Conduct Exterior Inspection, as Applicable. Perform this inspection in accordance with FAA Order 8300.10, vol. 3, ch. 1, Introduction to Aircraft and Equipment, Figure 1-2, Exterior Inspection Guidelines, paying particular attention to areas identified in Section 1 of this chapter.

D. Interview Flightcrew and/or Loading Supervisor, as Appropriate. Introduce yourself to the flightcrew and/or loading supervisor, as appropriate, and describe the purpose and scope of the inspection.

E. Inspect Aircraft Maintenance Records.

(1) Ensure that all open discrepancies from the previous flight are addressed per the operator's manual, prior to departure of the aircraft.

(2) Review the maintenance records to determine if repetitive maintenance problems exist, which might indicate a trend.

(3) Ensure that all MEL items are deferred in accordance with the provisions of the operator's approved MEL.

(a) Review the operator's approved MEL to determine whether conditions, procedures, and placarding requirements were accomplished to correctly defer specific items.

(b) Note the date when an item was first deferred to determine if the maximum allowed length of deferral was exceeded. Accomplish this by examining maintenance record pages, the deferred maintenance list, or deferred maintenance placards or stickers.

(4) Ensure that an airworthiness release, maintenance record entry, or appropriate approval for return to service has been made after the completion of maintenance.

(5) Ensure that the maintenance record contains the following for each discrepancy, as specified in the operator's manual:

- Description of the work performed or a reference to acceptable data

- Name or other positive identification of the person approving the work
- Name of the person performing work, if outside the organization

F. Perform Interior Inspection, as Applicable. Perform this inspection in accordance with Volume 3, Chapter 1, Figure 1-1, Interior Inspection Guidelines, paying particular attention to areas identified in Section 1 of this chapter.

G. Debrief Operator. Inform the appropriate personnel that the inspection has been completed. Discuss the discrepancies found during the inspection with the operator.

H. Examine Maintenance Record Entries. Ensure that the operator has recorded all maintenance discrepancies noted during this inspection. If time is available, monitor the operator's corrective actions.

I. Analyze Findings. Analyze each finding to determine if the maintenance-related discrepancies are the result of improper maintenance and/or missing or inadequate maintenance/inspection procedures.

7. TASK OUTCOMES.

A. File PTRS Data Sheet.

B. Complete the Task. Completion of this task can result in the following:

(1) Appropriate enforcement action when analysis of the findings disclose improper maintenance.

(2) Written notification to the operator of the necessary changes to the manual, when analysis of the findings disclose missing or inadequate maintenance/ inspection procedures.

(3) Communication with the CHDO by the geographic unit finding discrepancies.

C. Document Task. File all supporting paperwork in the operator's office file.

9. FUTURE ACTIVITIES. Based on inspection findings, determine if increased surveillance, additional enforcement, other job tasks, and/or additional coordination between the CHDO and geographic units is required for noncompliant operators to regain compliance.

[CHAPTERS 10 THROUGH 16 RESERVED]

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CHAPTER 125. MONITORING PART 121 OPERATORS BEFORE, DURING, AND AFTER LABOR DISPUTE, STRIKE, OR BANKRUPTCY

SECTION 1. BACKGROUND

1. REPORTING AND TRACKING CODES.

A. Air Transportation Oversight System (ATOS) Reporting. All surveillance elements are to be documented in accordance with (IAW) appendix 6 of Federal Aviation Administration (FAA) Order 8400.10, Air Transportation Operations Inspector's Handbook.

B. Non-ATOS Air Carrier Reporting. All inspections activities are to be documented IAW the Program Tracking and Reporting Subsystem (PTRS) procedures manual (PPM).

3. OBJECTIVE. This chapter provides information and guidance to be used when conducting surveillance of an operator before, during, and after a labor dispute, strike, or bankruptcy. Air carriers experiencing labor issues may be unable to meet financial obligations, and filing for bankruptcy protection may curtail certain necessary maintenance and operational activities, thereby adversely impacting safety. During these periods, the Flight Standards Service (AFS) may determine that a modification to the existing surveillance plan is necessary. In any case, the FAA must ensure that public safety is not jeopardized.

5. GENERAL. Safety is a concern when any of the above situations cause disruption or inconsistency in an air carrier's operation. The operator has the ultimate responsibility for recognizing current or potential financial problems that could adversely affect safe operations. The FAA and operator should take a proactive role in these matters, going beyond reacting to events. The operator should inform the certificate-holding district office (CHDO) of relevant events leading to a labor dispute, strike, or bankruptcy, and any associated operational impacts. The operator should immediately inform the CHDO of any significant safety-related findings identified through its monitoring and oversight programs. The CHDO may learn of events leading to a labor dispute, strike, or bankruptcy from the news media, normal surveillance reports, reports from the public, other government agencies, or other means. Regardless of the source of information, affected FAA offices should initiate immediate action. Since these problems may raise questions about an operator's ability to safely conduct operations, CHDO and Regional Flight Standards Division (RFSD) managers and principal inspectors (PI) must be alert to indicators of financial problems.

A. Indicators. One or more of the following indicators may show that an operator is experiencing financial problems:

- Changes in operational control systems
- Changes in programs or subsystems that are part of the operational control system
- Continuing Analysis and Surveillance System reveals a rising trend of deficiencies in the performance and effectiveness of inspection, maintenance, preventive maintenance, or alterations programs
- Revisions to operations procedures manuals
- Revisions to maintenance and inspection program procedures manuals
- Requests for changes in training programs
- Changes in aircraft, equipment, and parts inventories
- Increasing number of personnel layoffs
- Reduction in route structure
- Reduction of line stations and maintenance bases
- Changes in substantial maintenance contracts
- Reductions in flight schedules
- Increase in repeat maintenance logbook discrepancies
- Increase in short-term escalations
- Increase in the number of Minimum Equipment Lists (MEL)
- Increase in the number of extensions to FAA MEL requests
- Increases in turnover rate among employees/ management

- Delays in meeting payrolls
- Increase in the frequency of complaints against the operator
- High-risk credit rating in the Safety Performance Analysis System (SPAS)
- Media reports of an airline's financial difficulty

B. Bankruptcy. Financial difficulties may occasionally lead an operator to file for bankruptcy protection. In these cases, early FAA notification is often not practical. Therefore, it is essential that air carriers intending to operate during bankruptcy proceedings develop, in partnership with the FAA, an operating plan. Since judgments and decisions of the bankruptcy court must be taken into account, it may be impractical for the operator to project a completion date for all operational changes. The operator must continue to operate at all times in accordance with Title 14 of the Code of Federal Regulations (14 CFR).

NOTE: The regulations do not specifically require air carriers to notify the FAA of impending bankruptcies. However, 14 CFR part 119, § 119.51 requires an air carrier to submit any application for an amendment to operations specifications (OpSpecs) at least 90 days before the proposed date of the amendment is to become effective unless a shorter time is approved.

C. Surveillance.

(1) When an operator experiences a labor dispute, strike, or bankruptcy, the FAA may need to modify the existing surveillance plan to assess the air carrier's ability to conduct safe operations. The surveillance program must be modified to meet any unique circumstances and operational changes proposed by the operator.

(2) Analysis of surveillance data may be provided by the assigned Operations Research Analyst (ORA), or, upon request, the Flight Standards Safety Analysis Information Center to support specific work activities.

D. Communications.

(1) Operator Communications. The CHDO should initiate and maintain an open line of communication with the operator. The CHDO and operator should continually discuss the operator's operational status and projected changes, including FAA surveillance adjustments. Such collaborative communication is intended to maintain a proactive oversight of the operation.

(2) Internal FAA Communications. Labor disputes, strikes, and bankruptcy actions generate many inquiries, complaints, and opinions from other government agencies, labor unions, the general public, and other sources. Therefore, the CHDO must inform the regional office, which will keep AFS-200, AFS-300, and AFS-900 informed at all times.

NOTE: In the course of conducting surveillance, an inspector inevitably acquires proprietary knowledge about the operator and forms personal opinions. Inspectors and managers should not express personal opinions or discuss any findings with the media or general public. FAA employees should refer all public inquiries regarding the status of FAA activities to the appropriate public affairs office.

E. Resumption of Operations after Labor Dispute, Strike, or Bankruptcy. After the labor dispute, strike, or bankruptcy has been resolved, normal operations might not be resumed immediately. Upon resumption of normal operations, the FAA may need to revise its level and focus of surveillance. It is important to maintain internal FAA coordination for agreement on the appropriate levels of surveillance.

SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites (Inspector Qualifications):

- Knowledge of the regulatory requirements of 14 CFR parts 119 and 121
- Successful completion of the General Aviation/Air Carrier Aviation Safety Inspector's Indoctrination course, or previous equivalent
- Experience with the involved operation
- Knowledge of the equipment involved

B. Coordination. This task requires coordination with the CHDO, regional offices, AFS-200, AFS-300, and AFS-900.

3. REFERENCES, FORMS, AND JOB AIDS.

A. References:

- 14 CFR parts 119 and 121
- FAA Order 8400.10, appendix 6, Air Transportation Oversight System

B. Forms. None.

C. Job Aids:

- Figure 125-1, Monthly Surveillance Report Checklist
- Figure 125-2, ACAT/SEAT Risk Indicators

5. CHDO RESPONSIBILITIES AND PROCEDURES.

A. Regional Coordination.

(1) Before a Labor Dispute, Strike, or Bankruptcy. When a determination is made that a labor dispute, strike, or bankruptcy is expected, the CHDO must:

(a) Immediately inform the regional office.

(b) Report the extent of any possible work stoppage or interruption in operations.

(c) Report any tentative modifications to the surveillance plan during the labor dispute, strike, or bankruptcy.

(d) Report any operational safety concern.

(2) During a Labor Dispute, Strike, or Bankruptcy. When the labor dispute, strike, or bankruptcy occurs, the CHDO must:

(a) Immediately inform the regional office.

(b) Coordinate with the operator regarding its business plan (see paragraph 5B below).

(c) Modify and coordinate the surveillance plan with the regional office (see paragraph 5C below).

(d) Assess any resource needs and communicate these needs to the regional office.

(e) Continually advise the regional office of any newsworthy events or significant developments.

(f) Assess what safety elements may be compromised.

NOTE: Once the labor dispute, strike, or bankruptcy occurs, both the operator and the CHDO should work proactively and in partnership to implement and execute the business and surveillance plans. The operator and CHDO should discuss any significant safety-related findings either generated through the air carrier's own internal tracking and oversight programs or the FAA surveillance activities.

B. Operator's Business Plan. When an operator faces financial difficulties (e.g., pending bankruptcy), the operator should develop and submit a business plan that outlines operational impacts and management initiatives.

(1) Meet with the Operator. The CHDO must schedule a meeting to brief the operator's key management personnel of the need for a business plan.

(a) At the initial meeting, the CHDO will inform the operator that it should develop and submit a business plan that should include the following elements:

- Address any changes the operator will make during the transition period that will require FAA approval or acceptance
- Address operational impacts and reduced capabilities (e.g., staff reduction, contracting out, vendor

oversight, fleet reduction, route changes)

- Address the decisions of the bankruptcy court
- Address initiatives for continued compliance with regulatory requirements and safe operating practices during the transition
- Indicate interim operating methods and procedures with provisions for additions or modifications to the plan when necessary
- Include the operator's estimated schedule of when changes will be implemented

(b) The CHDO should advise the operator that the FAA will respond to modifications to the business plan in a timely manner if the operator provides timely notification of these changes.

(2) Review the Business Plan. The CHDO should review the operator's business plan to ensure that it covers the requirements listed in paragraph 5(1)(a) above. If the PIs find deficiencies or potential problem areas in the business plan, they should meet with the operator to work through the subject areas.

(3) Develop a Surveillance Plan, if Necessary. The operator may decline to develop a business plan or share the contents of such a plan with the CHDO. In such cases, the CHDO should develop a surveillance plan with increased emphasis placed in areas of suspected moderate and high risk. In this case, the regional office should interact with the operator regarding its business plans.

C. Surveillance Program.

(1) Non-ATOS Air Carriers.

(a) The CHDO will continually review its surveillance program and adjust it to meet the operator's changing needs. The CHDO should use the Surveillance and Evaluation Program (SEP) and the Surveillance and Evaluation Assessment Tool (SEAT). Instructions for use can be found in the SEP Work Instruction Guide under the Surveillance and Evaluation link at http://cset.faa.gov. Special attention should be given to the SEAT risk indicators listed in Figure 125-2.

(b) All FAA surveillance should be recorded using the appropriate PTRS activity codes. Geographic units may be assigned to perform additional surveillance activities, as required. The regional office will ensure that geographic manpower resources are available to accomplish the activities.

(2) ATOS Air Carriers. The Certificate Management Team (CMT) will review their Comprehensive Surveillance Plan (CSP), based upon identified risks, IAW guidance in FAA Order 8400.10, appendix 6. During this review, the risk indicators in Figure 125-2 should receive special attention, as well as other issues discovered through surveillance or meetings with air carrier management personnel. The CSP allows the CMT to promptly redirect surveillance. All ATOS data collection should be recorded IAW the guidance in FAA Order 8400.10, appendix 6.

(3) Analysis and Coordination of Surveillance Data.

(a) Information obtained from surveillance reports and other related sources must be evaluated, with special emphasis on the following areas:

- Noncompliance with regulations or safe operating practices
- Negative trends
- Isolated deficiencies or incidents
- Causes of noncompliance trends or isolated deficiencies

(b) The results of any analysis of surveillance data should be provided to the PI. The PI will communicate the necessary information to the operator.

(4) Debrief Operator. The PI will:

- Discuss negative trends or findings discovered by the surveillance program
- Discuss possible corrective action(s)
- Inform the operator that he or she will send an official written notification of findings
- Inform the operator to submit a corrective action plan

NOTE: The PI and the operator should agree on time limits for the corrective action plan during the debriefing. Negotiations over time limits can be done later if mitigating circumstances arise.

(5) Follow-Up Surveillance. Upon the completion of corrective action, the CHDO will schedule periodic follow-up surveillance (completed within 6 months) in the areas of the deficiency to determine the effectiveness of the operator's corrective action.

(6) Surveillance Report. The CHDO must submit a surveillance report at the end of each week to the regional office's point of contact while the air carrier is undergoing a labor dispute, strike, or bankruptcy. The report should address the items in Figure 125-1, Monthly Surveillance Report Checklist.

D. Resumption of Normal Operations After a Labor Dispute, Strike, or Bankruptcy. In some cases, after an operator emerges from a labor dispute, strike, or bankruptcy, the reduction in operations is followed by rapid expansion. The CHDO/RFSD managers should develop a follow-up surveillance plan using bulletin HBAT 98-36, Monitoring Operators During Periods of Growth or Major Change, when monitoring air carriers during periods of growth or major change. The surveillance plan will confirm whether the operator is able to continue operating in compliance with the regulations.

7. REGIONAL RESPONSIBILITIES AND PROCEDURES.

A. Before a Labor Dispute, Strike, or Bankruptcy. When the CHDO informs the regional office that a labor dispute, strike, or bankruptcy is expected, the regional office must:

(1) Immediately inform AFS-200, AFS-300, and AFS-900;

(2) Review any tentative modifications to the surveillance plan from the CHDO and work with the CHDO to improve the plan, if necessary;

(3) Determine if the CHDO will need additional resources for the surveillance plan; and

(4) Review any safety concerns.

B. During a Labor Dispute, Strike, or Bankruptcy. When the CHDO informs the regional office that a labor dispute, strike, or bankruptcy is actually occurring, the regional office must:

(1) Immediately inform AFS-200, AFS-300, and AFS-900;

(2) Assign a regional point of contact between the region, CHDO, AFS-200, AFS-300, and AFS-900;

(3) Review the CHDO's modified surveillance plan;

(4) Allocate any additional resources to the CHDO, as needed;

(5) Coordinate with other regional offices;

(6) Request, review, and use any data, analysis, and information provided by the Flight Standards Safety Analysis Information Center;

(7) Provide any of the data, analysis, or information that may be useful to the CHDO, as needed; and

(8) Review any safety concerns.

9. FUTURE ACTIVITIES. The CHDO must:

- Schedule and accomplish follow-up surveillance(s) (completed within 6 months) specific to the areas in which the operator took corrective actions on deficiencies found during the labor dispute, strike, or bankruptcy
- Schedule and accomplish follow-up post-labor dispute, strike, or bankruptcy surveillance activities
- Keep all supporting documentation
- Review and close out all PTRS and ATOS documentation

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FIGURE 125-1. MONTHLY SURVEILLANCE REPORT CHECKLIST

The CHDO's monthly surveillance report should address the following:

1. External stress issues that the air carrier is experiencing, such as:

   a. A labor dispute ((precontract)/slow downs/work disruptions/unfounded AC logbook discrepancies/refusal to work overtime).

   b. Management issues (lock outs/refusal to negotiate).

   c. A strike.

   d. A bankruptcy.

   e. Changes in management.

   f. Significant changes in personnel.

   g. Significant changes in equipment (office type/ground support/aircraft, etc.).

2. A review of the logbook, including the number of minimum equipment list (MEL) items:

   a. Opened.

   b. Closed.

   c. Granted FAA extensions.

3. The maintenance program, including:

   a. Whether the air carrier has requested changes to the continuous airworthiness maintenance program.

   b. The number of short-term escalations used.

4. Operations training during this period, including:

   a. Whether the air carrier has requested to reduce the pilot training program.

   b. Whether the air carrier has requested to change the pilot training contract provider.

   c. Operations traffic statistics. (This information must be obtained from the air carrier.)

   d. Total fleet block hours.

   e. Total available seat miles.

FIGURE 125-1. (Continued)

f. Total number of flight hours flown.

g. Total revenue passenger miles.

5. A review of significant surveillance findings.

6. The air carrier's SPAS performance measures (negative trends), if appropriate.

7. Any changes to the operator's business plan.

8. Corrective actions (discrepancies that the air carrier corrected during this reporting period).

9. Reduction in route structure.

10. Changes in management personnel.

11. Changes in technical support personnel (pilots/mechanics/dispatch).

12. Recent pending enforcement cases.

13. Aircraft placed in, or removed from, storage.

14. Other areas reflecting changes determined by the CHDO/regional office.

15. Any safety concerns.

FIGURE 125-2. ACAT/SEAT RISK INDICATORS

1. SPAS Economic Indicators. Periodically, inspectors should:

   a. Review the SPAS Experian Credit Rating Database for economic and/or financial changes, such as changes in the certificate holder's external credit rating.

   b. Contact the Department of Transportation, Air Carrier Fitness Division to determine if the air carrier has had a change in the marketplace, loss of passenger volume, and/or related revenues.

2. Changes in Management. During surveillance activities, inspectors should:

   a. Review the OpSpecs regularly to determine changes or vacancies in the 14 CFR part 119 key management personnel.

   b. Inquire about changes in air carrier middle management personnel responsible for managing critical departments of the organization.

   c. Inquire about reorganizations that can reduce the amount of safety oversight within the air carrier.

   d. Determine if there is a good working relationship between the air carrier and FAA personnel.

   e. Determine whether the air carrier is willing to share data and findings with the FAA.

3. Turnover in Personnel. During surveillance activities, inspectors should:

   a. Inquire about changes in personnel/departments (streamlining) that may reduce the amount of safety oversight within the air carrier.

   b. Inquire about turnover in personnel to determine the potential impact on the air carrier's system and operational stability.

   c. Find out whether new or remaining staff are being retrained or cross-trained to perform new or expanded maintenance and/or operations functions.

4. Reduction in Force. During surveillance activities, inspectors should:

   a. Find out if downsizing has reduced the amount of internal safety oversight within the air carrier.

   b. Find out if a reduction in force, layoff, or buyouts has been assessed by the air carrier to determine the impact that these events could have on the air carrier's system and operational stability.

   c. Inquire about the speed or rate of any reduction, layoff, or buyout.

   d. Inquire about the issue of training as it relates to workforce reductions or layoffs. Whether the remaining staff is being retrained or cross-trained to perform the new functions is a factor.

5. Merger or Takeover. During surveillance or certification activities, inspectors should:

   a. Inquire about whether the buyer has an aviation background.

   b. Inquire about whether key personnel will be retained or replaced.

FIGURE 125-2. (Continued)

6. Labor Management Relations. During surveillance activities, inspectors should:

a. Inquire about threatened or actual shutdown in operations, which may have a disastrous economic impact on an air carrier.

b. Inquire about the status of the bargaining agreement between air carrier labor and management.

c. Look for signs that indicate a lack of trust between parties.

d. Look for dissatisfaction among groups within the owner/operator base, which indicates instability. For example, long hours and low pay, even as an owner/operator, can present problems and have an impact on an air carrier's system and operational stability.

7. Changes to Program/Outsourcing. During certification or surveillance activities, inspectors should:

a. Consider the impact of new or major program changes on personnel. For example:

- Does the air carrier's staff size and capabilities meet the requirements of these program changes?
- Are air carrier personnel trained in and have a clear understanding of the new program or program changes?

b. Consider the reason behind any program improvements or enhancements when reviewing a program change or revision.

c. Inquire about the air carrier outsourcing any functions in maintenance, training, and/or operations.

d. Consider how the air carrier's outsourcing policies affect its internal surveillance requirements.

e. Consider the qualifications of contractors used by the air carrier for outsourcing. For example, inspectors should determine if contractors were approved by FAA prior to being authorized for use by the air carrier.

f. During surveillance activities, inspectors should inquire about the air carrier outsourcing routine and substantial maintenance or emergency equipment maintenance. For example, inspectors should check the OpSpecs (D091) to determine if it includes everything between emergency equipment and substantial heavy maintenance.

g. During surveillance activities inspectors, should inquire about the ground-handling contract including support personnel. For example:

- Has the air carrier bought or leased ground space from another carrier?
- Does the ground-handling contract include all station personnel such as ramp, fueling, deicing, etc.?

8. Relocation/Closing of Facilities. During surveillance activities, inspectors should:

a. Consider the impacts of adding, closing, or relocating a facility. For example, new facilities may require more surveillance than older, established facilities.

b. Consider the background and experience of the personnel assigned to the new facility added by an air carrier.

FIGURE 125-2. (Continued)

c. Consider the impact that a change in facility has on the personnel requirements and determine whether the air carrier has adequate resources and training.

d. Consider the rate and pace at which the carrier adds, relocates, and/or closes facilities. For example, a change that is major, abrupt, haphazard, and/or occurs over a short timeframe may be a sign of trouble.

9. Lease Arrangement. During certification and/or surveillance activities, inspectors should:

a. Determine the type of leasing arrangement the air carrier maintains. For example, the air carrier may have a wet lease, dry lease, or interchange agreement in place with other entities.

b. Review the aircraft leases and/or interchange agreements to determine if all of the responsibilities of the lessor/lessee are described. The inspector must ensure that the lease/interchange contains all effective dates and provisions required by regulation. Those items not required by regulation must be reviewed to determine their applicability and compatibility with the regulatory requirements.

APPENDIX 1. ACRONYMS AND ABBREVIATIONS

This appendix contains many acronyms and abbreviations for both old as well as new Airworthiness terms that are used throughout this Handbook. Inspectors can refer to the following alphabetical listing of frequently used acronyms and abbreviations and their meanings when using this Handbook.

14 CFR	Title 14 of the Code of Federal Regulations
49 CFR	Title 49 of the Code of Federal Regulations
49 U.S.C.	Title 49 of the United States Code
A/FD	Airport/Facility Directory
A&P	Airframe and Powerplant
AAD	Automatic Activation Device
AAIP	Approved Aircraft Inspection Program
AC	Advisory Circular
ACAT	Air Carrier Assessment Tool
ACCSS	air carrier cabin safety specialists
ACE	aerobatic competency evaluator
ACO	Aircraft Certification Office
ACR	airman certification representative
AD	Airworthiness Directives
ADA	Airline Deregulation Act
ADF	automatic direction finding
AEE	Office of Environment and Energy
AEG	Aircraft Evaluation Groups
AEM	Area Equivalent Method
AES	Automated Exemption System
AFM	Approved Flight Manual
AFSC	Air Force Specialty Codes
AFSS	automated flight service station
AFTN	aeronautical fix telecommunication
AH	alert height
AGL	above ground level
AIDS	Accident Incident Data Subsystem
Air Oper VIS	Air Operator Vital Information Subsystem
AIP	Aeronautical Information Publication
ALS	Advance Life Support
AMA	Aviation Mechanic Airframe
AMC	acceptable means of compliance
AME	Aviation Medical Examiner
AMG	Aviation Mechanic General
AMO	Approved Maintenance Organization
AMP	Aviation Mechanic Powerplant
AMT	Aviation Maintenance Technician
AMTS	Aviation Maintenance Technician School
ANM	Seattle Aircraft Evaluation Group
AOD	Automatic Opening Device
AOG	Aircraft on the Ground
APP	Accident Prevention Program

APPM Accident Prevention Program Manager

APU Auxiliary Power Unit

AR Authorized Representative

ARA Airborne Radar Approach

ARFF Aircraft Rescue and Fire Fighting Equipment

ARINC Aeronautical Radio, Inc.

ASAS Aviation Safety Analysis System

ASI aviation safety inspector

ASR Airport Surveillance Radar

AST aviation safety technician

ASTM American Society for Testing and Materials

ASW Southwest Aircraft Evaluation

AT Air Traffic

ATA Air Transport Association

ATC air traffic control

ATE Automatic Test Equipment

ATOS Air Transportation Oversight System

ATP airline transport pilot

ATPE airline transport pilot examiner

BA Bilateral Agreement

BASA Bilateral Aviation Safety Agreement

BFA Balloon Federation of America

BITE Built-In Test Equipment

BLS Basic Life Support

CAA Civil Aviation Authority

CAB Civil Aviation Board

CAIS Comprehensive Airmen Information Subsystem

CAM Civil Aviation Manuals

CAMI Civil Aero Medical Institute

CAMP Continuous Airworthiness Maintenance Program

CAN Center Area NOTAM

CAR Civil Air Regulations

CASE Coordinating Agencies for Supplier's Evaluation

CASFO Civil Aviation Security Field Office

CASP Continuous Analysis and Surveillance Program

CBI Computer Based Instruction

CDL Configuration Deviation List

CE commercial pilot examiner

CFI certificated flight instructor

CFR Code of Federal Regulations

CFRS certificated foreign repair station

CG Center of Gravity

CHDO certificate-holding district office

CIRE commercial and instrument rating examiner

CL capabilities list

CM Condition Monitoring

CMO Certificate Management Office

CMP Configuration Maintenance Procedures

CMR Certification Maintenance Requirements

CMT Certificate Management Team

COA	certificate of authority
COB	Close of Business
COMAT	company material
ConDOR	Constructed Dynamic Observation Reports
CPL	commercial pilot license
CPM	certification project manager
CRW	canopy relative work
CSP	Comprehensive Surveillance Plan
CVR	Cockpit Voice Recorder
CTA	control areas
d/b/a	doing business as
DAR	Designated Airworthiness Representatives
DAS	Designated Alteration Station
DBA	Other Business Names
DCT	Data Collection Tools
DER	Designated Engineering Representative
DFDAU	digital flight data acquisition unit
DH	decision height
DME	Designated Mechanic Examiners
DME	distance measuring equipment
DNL	Decibel Noise Level
DOD	Department of Defense
DOT	Department of Transportation
DPE	designated pilot examiner
DPRE	Designated Parachute Rigger Examiners
DS	Discard
EA	Environmental Assessment
EA/EO	Engineering Change Authorization/ Order
EAA	Experimental Aircraft Association
EFIS	Electronic flight instrument systems
EMI	electromagnetic interference
EIR	Enforcement Investigation Report
EIRS	Enforcement Investigative Reports
EIS	Enforcement Information Subsystem
EIS	Environmental Impact Statement
EP	Evaluation Panel
EPI	Element Performance Inspections
ETOPS	Extended-Range Operation With Two-Engine Airplanes
EVAS	Emergency Vision Assurance Systems
FAA	Federal Aviation Administration
FA Act	Federal Aviation Act of 1958
FAR	Federal Aviation Regulations
FCAA	Foreign Civil Aviation Authority
FCC	Federal Communications Commission
FD	flight director
FDC	flight data center
FDR	Flight Data Recorder
FIE	flight instructor examiner
FIR	flight information regions
FIRC	flight instructor refresher clinic
FL	flight level
ELT	Emergency Locator Transmitter

FM	flight manual
FMCS	flight management computer systems
FMS	flight management system
FOI	fundamentals of instructing
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FSAIC	Flight Standards Safety Analysis Information Center
FSAS	Flight Standards Automation System
FSDO	Flight Standards District Office
FSS	flight service station
FTD	flight training device
GM	General Manuals
GPWS	ground proximity warning systems
GPS	global positioning system
GSGC	Ground School Graduation Certificate
GTD	ground training device
HAZMAT	hazardous material
HEL	Helicopter
HEMES	Helicopter Hospital Emergency Medical Evacuation
HF	high frequency
HIRF	High Intensity Radiated Fields
HT	Hard-Time
HUD	heads-up display
HUMS	Health Usage Monitoring Systems
IA	Inspection Authorization
IAP	instrument approach procedures
IAW	in accordance with
ICA	instructions for continued airworthiness
ICAO	International Civil Aviation Organization
ICAS	International Council of Air Shows
ICS	Intercom Systems
IEM	Interpretive Explanatory Material
IFO	International Field Office
IFP	Instrument Foreign Pilot
IFR	instrument flight rules
IFSD	in-flight shut down
IG	Interim Guidance
IGA	international general aviation
IIC	inspector-in-charge
ILS	instrument landing system
IMC	instrument meteorological conditions
IN/FC	Inspection/Functional check
INM	Integrated Noise Model
INS	inertial navigation system
IP	implementation procedures
IPM	Inspection Procedures Manual
IRA	Instrument Rating Airplane
IRS	inertial reference systems
ISC	Industry Steering Committee
ISIS	Integrated Safety Information Subsystem
ISO	International Standards Organization
ISS	inertial sensor system

JAA Joint Aviation Authorities

JAD Job Aid Disc

JAR Joint Aviation Requirement

JTA Job Task Analysis

LAHSO land-and-hold-short operations

LEI Letter of Investigation

LIBRA Logical Information Based on Reliability

LOA letter of authorization

LORAN long-range navigation

LOX liquid oxygen

LRN long-range navigation

LRNS long-range navigation system

LRU Line Replaceable Units

LU/SV Lubrication/Servicing

MAST Maintenance Airworthiness Standardization Team

MC/FPE military competency/foreign pilot examiner

MEL minimum equipment list

MEL Multi-engine Land

MES Multi-engine Sea

MIDO Manufacturing Inspection District Offices

MIP maintenance implementation procedures

MIS Mechanical Interruption Summary Reports

MISR Mechanical Interruption Summary Reports

MIST Maintenance International Standardization Team

MLS microwave landing system

MME maintenance management exposition

MMEL Master Minimum Equipment List

MMF Manufacturer Maintenance Facility

MNPS Minimum Navigation Performance Specification

MOE maintenance organization exposition

MOS Military Occupational Speciality

MOU memorandum of understanding

MRB Maintenance Review Board

MRB Material Review Board

MRR Mechanical Reliability Reports

MSG Maintenance Steering Group

MSL mean sea level

MTBF Mean Time Between Failure

NAA National Aviation Authority

NAO Noise Abatement Officer

NAS National Airspace System

NASIP National Aviation Safety Inspection Program

NAT North Atlantic navaid navigational aid

NAT/MNPS North Atlantic Minimum Navigation Performance Specifications

NAVAID Navigational Aid

NEPA National Environmental Policy Act of 1969

NDB nondirectional beacon

NDI Non-destructive Inspection

NDPER National Designated Pilot Examiner Registry

NEB National Examiner Board

NFDC National Flight Data Center

NFPA National Fire Protection Association

NM nautical miles

NOPAC North Pacific

NOTAM Notice to Airmen

NTSB National Transportation Safety Board

OC On-Condition

OCA oceanic control areas

OEM Original Equipment Manufacturer

OJT on-the-job training

OMT Organization Management Team

OpSpecs operations specifications

OP/VC Operational/Visual check

ORA Operations Research Analyst

OST Office of the Secretary of Transportation

OTAC Outside-the-Aircraft Check

PAI principal avionics inspector

PAR Precision Approach Radar

PASI Preapplication Statement of Intent

PC Production Certificate

PCA Positive Control Area

PCA primary category aircraft

PE private pilot examiner

PI principal inspector

PIC pilot-in-command

PMA Parts Manufacturer Approval

PMI principal maintenance inspector

POI principal operations inspector

PPE proficiency pilot examiner

PPH Policy Procedures Handbook

PPM PTRS Procedures Manual

PSRAB Propulsion System Reliability Assessment Board

PTRS Program Tracking and Reporting Subsystem

PTS practical test standards

QMS Quality Monitoring System

RAIM receiver autonomous integrity monitoring

RFSD Regional Flight Standards Division

RII Required Inspection Items

RNAV Area Navigation

ROC Regional Operations Center

RS Restoration

RPM revolutions per minute

RT Remedial Training

RTCA Radio Technical Commission of Aeronautics

RVR runway visual range

RVSM Reduced Vertical Separation Minimum

SA selective availability

SAE Society of Automotive Engineers

SAI Safety Attribute Inspections

SAT	System Analysis Team
SB	Service Bulletin
SDR	Service Difficulty Report
SEAT	Surveillance and Evaluation Assessment Tool
SEL	Single Engine Land
SEP	Surveillance and Evaluation Program
SES	Single Engine Sea
SFAR	Special Federal Aviation Regulations
SIC	second-in-command
SIGMET/ AIRMET	Significant Meteorological Information Airmen's Meteorological Information
SIP	simulator implementation procedures
SL	Service Letter
SODA	Statement of Demonstrated Ability
SOIR	simultaneous operations on intersecting runways (replaced by LAHSO)
SPAS	Safety Performance Analysis System
SPG	Special Planning Group
SRM	Structural Repair Manuals
SSID	Supplemental Structural Inspection Document
STC	supplemental type certificate
SUP	suspected unapproved parts
TAF	terminal weather forecasts
TALTAR	Tactical Landing Approach Radar
TAWS	Terrain Awareness and Warning Systems
TBO	Time between overhauls
TC	type certificate
TCA	Appliance Type Approval
TCAS	Traffic Alert and Collision Avoidance Systems
TCCA	Transport Canada Civil Aviation
TCDS	type certificate data sheet
TCE	training center evaluator
TCO	training course outline
TGL	temporary guidance leaflet
TRSB	Time Reference Scanning Beam
TSO	technical standard order
TSOA	Technical Standard Order Authorization
UHF	Ultra High Frequency
ULD	unit load device
USNOF	United States NOTAM Office
USPA	United States Parachute Association
VFR	visual flight rules
VHF	very high frequency
VIS	Vital Information Subsystem
VLF	very low frequency
VMC	minimum controllable airspeed
VMC	visual meteorological conditions
VOR	VHF omni-directional radio range
Vref	approach speed
WINDOWS	Segmented Inspections and Built-In Inspection Tolerances

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