

CHANGE

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

ORDER 8150.1C CHG 1

National Policy

Effective Date
05/10/2012

SUBJ: Technical Standard Order Program

- 1. Purpose.** This change is written to revise some incorrect CFR references.

- 2. Who this change affects.** This change is distributed to the branch level in the Aircraft Certification Service and the Flight Standards Service; to the branch level in the Aircraft Certification Directorate offices and the regional Flight Standards Divisions; to the Federal Aviation Administration Academy and the Regulatory Support Division; to all Air Carrier; General Aviation, and Flight Standards District Offices; to all International Field Offices, International Area Offices; Aircraft Certification Field Offices; Manufacturing Inspection District and Satellite Offices.

- 3. Explanation of Changes:** This change revises several pages that contained incorrect CFR references. The reference to FAA Order 2150.3 in paragraph 5-2.c. was removed. The requirement to visit TSOA holders in paragraph 8-7.f.(1) was changed from “will” to “should.” No technical content was changed.

- 4. Disposition of Transmittal Paragraph.** Retain this transmittal sheet until the directive is cancelled by a new directive.

PAGE CHANGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
2-3	03/08/12	2-3	05/10/12
10-12	03/08/12	10-12	05/10/12
16-17	03/08/12	16-17	05/10/12
20-22	03/08/12	20-22	05/10/12
24	03/08/12	24	05/10/12
26-27	03/08/12	26-27	05/10/12
Appendix A, Page A-3 and A-4	03/08/12	Appendix A, Page A-3 and A-4	05/10/12
Appendix B, Page B-1 and B-2	03/08/12	Appendix B, Page B-1	05/10/12



Susan J. M. Cabler
Assistant Manager
Aircraft Engineering Division, AIR-100

Chapter 2. The TSO Program

2-1. What Is a TSO? A TSO is a minimum performance standard, defined by the FAA, used to evaluate an article. An article can be a material, part, component, process, or appliance. (See 14 CFR 21.1(b)(2).) Each TSO covers a certain type of article. The TSO provides a baseline standard that is intended to support compliance to airworthiness or operational requirements. However, compliance with a TSO cannot assure that the installation of the article will comply with airworthiness requirements. This determination is made during installation. See Advisory Circular (AC) 21-50, *Installation of TSOA Articles and LODA Appliances*, for further information.

2-2. Why Were TSOs Developed?

a. One Solution to Managing Our Limited Resources. Before 1947, we evaluated and approved articles the same way we approved airframes, engines, and propellers. The rapid growth of the aviation industry during the 1930s and early 1940s put an unprecedented demand on our certification resources, so we developed the TSO program that allows:

- (1) Us to define standards for common articles,
- (2) The manufacturer of an article to show compliance to a specific standard,
- (3) Us to accept the manufacturer's statement certifying that they meet the requirements of 14 CFR 21 subpart O and the specific requirements of the applicable TSO,
- (4) Us to reduce our involvement in the evaluation and approval process for articles, and
- (5) Us to focus limited resources on airframes, engines and propellers.

b. One Way to Standardize Approvals of Components Used on Products. Prior to the TSO program, we used a variety of "standards" to approve the same type of article. So the same article installed on two different airplanes often was approved to two different standards. The TSO program was developed to ensure the adequacy of the standards used to approve articles and to standardize the approvals of those articles.

2-3. What Is a TSOA and/or LODA?

a. Definition of TSOA. A TSO authorization is an FAA design and production approval issued to the manufacturer of an article that has been found to meet a specific TSO. A manufacturer is the person who controls the design and quality of the article produced to ensure that it meets the TSO. The manufacturer also must control all the suppliers they use for parts or services in the design and production of the TSO article. (See 14 CFR 21.601(b)(5)). We issue a TSOA only to a United States (U.S.) manufacturer. A TSOA is a design and production approval we issue to a U.S. manufacturer.

- (1) When we issue the TSOA, we make a finding that:

(a) The manufacturer's article design meets the applicable TSO, and

(b) The manufacturer has a quality system (QS) that will produce every article to conform to the approved design.

(2) The U. S. is the state of design (SOD) as defined by the International Civil Aviation Organization (ICAO) for a TSOA.

(3) The U. S. is the state of manufacture (SOM) as defined by ICAO for a TSOA.

b. Definition of a LODA. A LODA is a finding by the FAA that a manufacturer's article meets a specific TSO. The manufacturer's ability to manufacture articles that conform to the approved design is overseen by a foreign CAA with whom we have a bilateral agreement. All articles destined for import into the U.S. must be accompanied by a certificate of airworthiness for export as specified in 14 CFR 21.502. When we issue the LODA, we find that:

(1) The manufacturer's article design meets the applicable TSO and,

(2) A CAA, with whom we have a bilateral agreement addressing TSOs, will oversee the manufacturer's quality system (QS) that will produce every article to conform to the approved design.

(3) The manufacturer's country is the SOD as defined by ICAO for a LODA.

(4) The manufacturer's country is the SOM as defined by ICAO for a LODA.

2-4 What Is a Deviation? A deviation is *any* alternative method or criteria used to meet performance criteria specified in the TSO. It is an equivalent level of safety (ELOS) determination in lieu of the TSO requirement.

a. When Does an Applicant Need a Deviation? We require the applicant to propose and get our approval for *any* deviation from the applicable TSO, regardless of the significance of the TSO criteria from which they want to deviate. For example, we require applicants to get a deviation approval even when they propose to use a version of an industry standard later than the one referenced in the specific TSO.

b. How Does an Applicant Get Approval? To get our approval for a deviation, an applicant must show that compensating features or factors create an ELOS to the TSO performance requirement(s) from which they propose to deviate.

c. If the manufacturer doesn't provide design changes or production changes adequate to correct an unsafe article, the ACO must withdraw the TSOA. The ACO will notify the MIDO to coordinate this activity.

5-3. Reports of Noncompliance or Nonconformance For Articles Approved with LODA.

a. The ACO responsible for manufacturers in their geographical area should promptly notify the LODA holder's CAA when the ACO is aware of reports of a TSO article that is:

- (1) Experiencing service difficulty,
- (2) Being produced and doesn't comply with the applicable TSO, or
- (3) Being produced and doesn't conform to the approved design.

b. The ACO will ask the complainant to disclose all the facts, data, names, and places to support the allegation and forward this information to the LODA holder's CAA.

c. The ACO will ask the CAA to provide their findings from the investigation. Depending on the facts and circumstances, the ACO will ask the CAA to mandate additional TSO article testing by the LODA holder to prove compliance with the TSO.

d. When an article creates an unsafe condition, doesn't meet the TSO, or doesn't conform to the design approved under the LODA, the ACO informs the CAA to instruct the manufacturer to take corrective action.

e. If the manufacturer doesn't provide design changes or production changes adequate to correct an unsafe, non-compliant, or non-conforming article, the ACO must withdraw the LODA. See also FAA Order 2150.3.

f. The ACO will instruct manufacturers not to ship non-conforming articles. For example, manufacturers must not ship seats without the cushions. A TSOA holder violates 14 CFR 21.616(c) and a LODA holder violates 14 CFR 21.621, when they ship a non-conforming TSO article.

5-4. Process Address Changes.

a. Articles approved with a TSOA. When a TSOA holder informs the ACO its relocating facilities, the ACO:

- (1) Forwards this information immediately to the responsible MIDO.
- (2) Informs the TSOA holder not to ship any articles from a new facility until the MIDO has inspected and approved the new facility, and the ACO has reissued their TSOA.

(3) May reissue the TSOA at the same level as the original TSO after the MIDO determines the TSOA holder's quality system meets 14 CFR 21.137 and can produce each article to conform to the approved design.

(4) Forwards all information regarding name, address, or facility relocation changes to AIR-110 for updating the TSO manufacturer's data on the RGL website.

b. Articles approved with a LODA. When a CAA informs the ACO that one of their manufacturers who holds a LODA is changing their name, relocating facilities, or being acquired by another company in accordance with paragraph 5-5 the ACO:

(1) Verifies the CAA provided written confirmation that the manufacturer's legal status remains unchanged after an acquisition.

(2) Verifies the CAA notified the manufacturer not to mark or ship any articles with the TSO marking until the FAA has reissued the LODA for name changes or facility relocations.

(3) May reissue the LODA at the same level as the original TSO after receiving written confirmation from the CAA that the LODA holder's articles meets the TSO after a name change(s) or facility relocation.

(4) Forwards all information regarding name, address, or facility relocation changes to AIR-110 for updating the TSO manufacturer's data on the RGL website.

5-5. Processes TSOA/LODA Transfers. Transfers may not be made by the TSOA holder, but can be requested and approved by the FAA.

a. What's a transfer? A transfer is the sale or liquidation of a company that holds TSOAs or LODAs which results in the change in the legal status of the company, or the sale of an individual TSOA or LODA from one company to another. For example, the acquisition of a company with a TSOA or LODA by a holding company would be considered a transfer if the acquired company is disbanded or absorbed into the purchasing corporation. In this case the legal entity which received the TSOA or LODA no longer exists and the purchasing corporation would need to reapply for a TSOA or LODA, or request a transfer as described in paragraph 5-5.c. below.

Example: ABC Corporation purchases XYZ Company. XYZ Company holds a TSOA. ABC Corporation plans on disbanding XYZ Company and absorb the assets of XYZ into the ABC Corporation. In this case the legal status of XYZ has changed (i.e. the company no longer exists as a legal entity) and the acquisition of the XYZ Company is considered a transfer.

b. What's not a transfer? A company changing their name or relocating their facilities is not considered a transfer. The acquisition of a company with a TSOA or LODA by a holding company would not be considered a transfer if the acquired company continued to exist as the

same legal entity to which the original TSOA or LODA was issued under the following conditions:

- (1) The acquired company retains possession of the TSOA or LODA.
- (2) The acquired company must retain the same quality system (TSOA only).
- (3) The acquired company must continue to operate at the same location with the same core management for manufacturing and design.
- (4) The TSOA holder provides written confirmation that its legal status remains unchanged after an acquisition.

Example: ABC Corporation purchases XYZ Company. XYZ Company holds a TSOA and will continue to operate; under the same name, in the same location, with the same management, and under the same production system. In this case the legal status of XYZ has not changed and is therefore not considered a transfer.

c. If the holder of a TSOA or LODA requests a transfer, the transfer request is sent to AIR-100 with TSOA or LODA transfer request in the subject line. The ACO must include all information provided by the holder to justify the transfer request. Transfer requests are sent to AIR-100 at: TSO-Coordinator@faa.gov. AIR-100 will approve or deny the request, and notify the ACO. If approved, the ACO should complete the transfer using the procedures for an address change (see previous paragraph).

Airworthiness Responsibilities, Requirements, and Contents, for further details. If the applicant states that no maintenance instructions or installation limitations are necessary, the ACO will review the applicant's substantiation for that statement.

(1) Send the manual describing the applicant's QS (per 14 CFR 21.608) to the appropriate MIDO.

(2) Verify the applicant has a process for determining major and minor design changes. See chapter 8, paragraphs 8-4 through 8-7 for more information.

(3) Verify the applicant has a service difficulty reporting process that complies with 14 CFR 21.3 for the article.

j. Issue the TSOA letter per paragraph 6-7, if the article complies with the TSO and the MIDO reports the applicant has an acceptable quality system and can produce each article to conform to the approved design. Deny the TSOA per paragraph 6-9, if:

(1) It is determined the manufacturer's article design doesn't comply with the TSO, or

(2) It is determined the manufacturer's article has service history problems as explained in paragraph 6-6, or

(3) The MIDO reports the applicant doesn't have an acceptable quality system or can't produce each article to conform to the approved design.

6-5. Managing Design Review and Approval for TSOAs and LODAs. The rigor and scope of the review of design data depends on the complexity of the TSO article, the experience of the TSO applicant, or both.

a. For applicants experienced in meeting FAA requirements and who have demonstrated technical competence and whose article is of low risk, the ACO may only need to check that the package is complete. The ACO may check drawings, article installation instructions, and article limitations for completeness and adequacy.

b. For new applicants and applicants not experienced in meeting FAA requirements, who haven't demonstrated technical competence or whose article is of significant risk, the ACO may evaluate their data for compliance with the TSO more thoroughly. Someone from the ACO may visit the applicant's facility to determine their competence to make a valid certifying statement to the applicable TSO and 14 CFR, subpart O, and to ensure they adequately conduct any tests required by the TSO.

c. ACOs may use a partnership for safety plan (PSP) to help them manage a TSO project. A PSP is a working agreement between the FAA and the manufacturer that defines the roles, responsibilities, and expectations of both parties. Using a PSP in TSOA applications can help us more efficiently issue a TSOA. A PSP is not mandatory and both the FAA and the applicant must agree to it.

6-6. Considering Service History at Time of TSOA or LODA Application. The ACO should not issue a TSOA for an article that is not in a condition for safe operation. (See 14 CFR part 45.10(b)) The ACO may review the service history of the article when it is a known derivative of a prior design. The ACO will verify that the prior design is neither subject to an AD nor found as a causal factor in an accident investigation. Also, the ACO must verify the prior design has not been the cause of an airworthiness problem. The ACO will follow the guidelines below if a prior design presents a potentially unsafe condition and the proposed article has a similar design.

6-7. Issuing a TSOA. After the applicant's article has been found to meet the TSO and the applicant meets 14 CFR part 21 subpart O, as explained above in paragraphs 6-1. and 6-4., the ACO will issue a TSOA letter. The TSOA is issued to the principal manufacturing facility that controls the design and quality of the article(s). The ACO will:

a. Prepare the TSOA letter using the sample in appendix D of this order as a guide. The ACO modifies or adds additional details to the TSOA letter as necessary. The original letter is sent to the manufacturer and the ACO keeps a copy for the TSOA master file. If requested, the ACO can send a scanned copy of the letter to the manufacturer, as long as the original is also sent. Notify the MIDO responsible for inspecting and monitoring the manufacturer. Also, the ACO will electronically send a copy of the letter to AIR-110 at 9-AMC-AIR140-Information-Products@faa.gov (Submittals to this email address need to be in Microsoft Word), who adds it to the TSO approval database.

b. The ACO will specifically list in the TSOA letter all pertinent data submitted by the applicant. The letter *must* state:

(1) The FAA authorizes the applicant to identify the article with the applicable TSO marking.

(2) The TSOA is based on the applicant's:

(a) Statement certifying that the applicant meets the requirements of 14 CFR part 21 subpart O.

(b) Statement certifying that the article complies with the TSO in effect on the date of application.

(c) Quality system, which complies with the requirements of 14 CFR 21.607 and has been found satisfactory for production of the article.

(3) The FAA requires the applicant to:

Chapter 7. ACO Responsibilities for Deviations

7-1. What Is a Deviation? A deviation is any alternative method or criteria used to meet the performance criteria specified in the TSO, with compensating features that provide an ELOS, per the provisions outlined in 14 CFR part 21.

7-2. When Does an Applicant Need a Deviation? We require the applicant to propose and get our approval for *any* deviation from the applicable TSO, regardless of the significance of the TSO criteria from which they want to deviate. For example, we require applicants to get a deviation approval even when they propose to use a version of an industry standard later than the one referenced in the specific TSO.

7-3. How Does an Applicant Get Approval for a Deviation? To get our approval for a deviation, an applicant must show that compensating features or factors create an ELOS to the TSO performance requirement(s) from which they propose to deviate.

7-4. Evaluating Deviation Requests. The ACO is responsible for evaluating requests for deviation from a TSO, per 14 CFR 21.618. The ACO evaluates all requests to deviate from the TSO and submits to AIR-100 a recommendation to grant or deny the request.

Note: See paragraph 7-4.e. for deviation requests that AIR-100 has delegated to ACO managers.

a. Deviation Request Acknowledgement. ACOs will acknowledge requests for deviations.

b. Substantiating Data. The ACO ensures an applicant's deviation request includes substantiating data that specifically cover the compensating factors or features. The proposed TSO deviation must clearly establish an ELOS to the TSO requirement. The ACO may return the request when there is insufficient or no supporting data.

c. Recommendation to AIR-100. The ACO evaluates the merit and validity of deviation requests.

(1) The ACO manager (or delegated position) must submit in writing, a recommendation to AIR-100 to grant or deny the request. AIR-100 will accept electronic copies of the signed recommendation. The ACO manager (or delegated position) can send electronic copies to: TSO-Deviations@faa.gov.

(2) The CAA for the LODA applicant doesn't have to send a recommendation to the ACO. If a LODA applicant's deviation request includes a recommendation from the CAA, the ACO must still make their own finding and recommendation to AIR-100, independent of the CAA's recommendation.

d. Notification. ACOs notify applicants of the decision to approve or deny their deviation by doing one of the following:

(1) For TSOA applicants:

- (a) Sending a copy of the letter from AIR-100 to the applicant,
- (b) Asking AIR-100 to respond directly to the applicant with a copy to the ACO, or
- (c) Writing the response to the applicant based on the AIR-100 response.

(2) For LODA applicants:

(a) Sending a copy of the letter from AIR-100 to the applicant's CAA with a cover letter from the ACO,

(b) Asking AIR-100 to respond directly to the applicant's CAA with a copy to the ACO, or

(c) Writing the response to the applicant's CAA based on the AIR-100 response.

(d) In all cases, the ACO notifies the applicant's CAA, and the CAA notifies the applicant.

e. Deviations the ACO Grants Without AIR-100 Approval. The ACO can grant an applicant's request to deviate from the following standards identified in the applicable TSO without AIR-100 approval, provided the applicant uses the *entire* later version of the standard and not just a *portion* of it:

(1) A later version of RTCA/DO-160, *Environmental Conditions and Test Procedures for Airborne Equipment*, which has been recognized by the FAA in AC 21-16, than the environmental test conditions specified in the applicable TSO.

Note: If the TSO contains an appendix with environmental test conditions and test procedures, or references an older industry standard for environmental test conditions other than RTCA/DO-160, it is acceptable to allow deviation to use RTCA/DO-160.

(2) A later FAA version of RTCA/DO-178, which has been recognized by the FAA in AC 20-115, than the version of it specified in the applicable TSO.

Note: The applicant needs AIR-100 approval when they ask to use an alternative method, as defined in RTCA/DO-178B, Section 12.3.

(3) A later version of RTCA/DO-254, which has been recognized by the FAA in AC 20-152, than the hardware design assurance specified in the applicable TSO.

(4) ACOs can grant deviations to the TSO article marking requirements without AIR-100 approval when we issue multiple TSO approvals for one article to a single applicant/manufacturer and establish one TSO as the primary TSO for the article. In that case, the applicant must:

(a) Mark the primary TSO number on the nameplate. (Marking each individual TSO number on the article's nameplate may be impractical.)

(b) Mark the primary article permanently and legibly with a statement that the remaining TSO marking requirements are in the IM, for example "See Inst Mnl for Addtl TSO approvals and/or markings."

(c) List the other TSOs (and marking requirements for each TSO) in the front section of the IM for the article's primary TSO.

7-5. Documenting Details of Deviation. ACOs instruct manufacturers to document the specific details of deviations granted in their manual (installation manual (IM), component maintenance manual (CMM), etc.). This includes any installation limitations or maintenance procedures required to ensure the article continues to meet the MPS of the TSO after installation. This is necessary to alert installers to evaluate the article further for installation or operational limitations affected by the deviations. The ACO will:

a. Ensure manufacturers describe the details of any deviations and document any known functional differences resulting from a deviation.

b. Ensure the TSOA or LODA letter includes a reference to the deviations granted as noted in appendixes D and E of this order.

8-4. Design Changes – TSOA.

a. Minor Design Changes. We permit TSOA holders to make minor design changes to their articles without further approval, per 14 CFR 21.619(a).

(1) We encourage the manufacturer and ACO to agree on what constitutes a minor change for a particular TSO article being manufactured and establish a process for minor design changes. Sometimes minor changes may require revalidation of certain TSO requirements, but not a “substantially complete investigation” per 14 CFR 21.619(b).

(2) The ACO and the manufacturer may use a PSP to formalize this agreement with the ACO. AIR-100 and MIDO must approve any PSP agreement, MOU, or MOA to assure standardization of what we accept as a minor change for a given TSO article. As with all TSO data, the manufacturer must maintain and submit to the FAA, on request, minor change substantiation data.

(3) Manufacturers of TSO articles substantiate and document all minor design changes. The ACO and manufacturer must agree on a time frame for minor change data submittal. The ACO may ask TSOA holders to provide revised data or make it available, as agreed on with the ACO. The manufacturer must notify the ACO within the time frame agreed upon between them. The manufacturer’s minor change notification letter should state that the new article complies with 14 CFR part 21 subpart O. The manufacturer can send this letter to the ACO by email.

(4) The ACO, as part of accepting minor changes, audits design change data submitted or the “notification of minor change” letter statement, to ensure that the change is really a minor change, as defined in 14 CFR 21.619(b) before sending the manufacturer an acknowledgement for the acceptance of their data.

(5) If a minor design change submittal is not sufficiently or properly substantiated, the ACO will ask the manufacturer to provide more substantiation or other data necessary to justify their claim. This may include the manufacturer retesting the article to show compliance with the TSO standard.

b. Minor Design Changes We Find Major. If an ACO determines that a minor design change submittal is really a major design change, as defined in 14 CFR 21.619(b), the ACO must:

(1) Immediately notify the manufacturer to stop marking and shipping any changed articles. Inform the manufacturer they must reapply for a new TSOA under the TSO currently in effect, as required in 14 CFR 21.619(b). When the manufacturer obtains a new authorization, they may then re-label and ship articles.

(2) Notify the MIDO of the change in type or model number resulting from the major change and the potential for discrepancies in marking, if the manufacturer has already

(c) Notifies the MIDO of the withdrawal.

8-7. Administrative Activity After Issuance of TSOAs and LODAs.

a. Reporting TSO Authorizations. The ACO will report all new TSOAs, LODAs, and name or address changes to AIR-110, which updates the index of TSO manufacturers. This information may be sent to: 9-AMC-AIR140-Information-Products@faa.gov Submittals to this email address need to be in Microsoft Word.

b. Maintaining Records. The ACO will create and maintain complete and accurate records of the following for each TSOA and LODA:

- (1) Authorizations and design approvals granted,
- (2) Technical data,
- (3) Design change approvals and service difficulty reports,
- (4) Relevant service bulletins and airworthiness directives (ADs),
- (5) Non-compliance actions, and
- (6) Terminations related to each TSO application.

c. Keeping Master File. The issuing ACO keeps the TSOA/LODA holder's master file. The file contains all data submitted by a manufacturer pertaining to their application and TSO approval or disapproval. If the ACO and TSOA holder have an agreement (a PSP, MOU, MOA, or other agreement) covering the master file, a TSOA holder may hold it. The agreement must have a clause requiring the TSOA holder to provide copies of records from the master file on request. Expect the manufacturer to submit to the ACO, and keep for their records, one copy of the technical data specified in the "data requirements" paragraph of the applicable TSO. On request, the responsible ACO will give copies of the technical data to other ACOs and show in the transmittal letter which TSO applies.

d. Keeping Adequate TSO-Authorization Records. Each ACO (or the TSOA holder on the ACO's behalf, as allowed above) must keep adequate records. Keeping proper records guarantees continued airworthiness support for TSO articles that remain in service but are no longer in production. Therefore, when a TSOA holder goes out of business or no longer operates under the provisions of their TSO Authorization, instruct them to send the ACO copies of all required data, per 14 CFR 21.616(f), and any other technical data the ACO deems necessary. Under FAA Order 1350.15C, *Records Organization, Transfer, and Destruction Standard*, Paragraph 8151, we don't authorize destruction of TSO Authorization records. As the OPR, the ACO has authority to dispose of technical data. Accordingly, under 14 CFR 21.616(f), the ACO must keep these data for as long as approved articles are in service.

e. Freedom of Information Act (FOIA) Requests. All technical data we keep may be subject to FOIA requests. ACOs should keep only that information clearly relevant and necessary to support the TSO Authorization.

f. Monitoring TSOA Holders. The ACO will control and monitor all manufacturers producing articles under a TSOA, including all holders of TSOA's previously issued under 14 CFR part 37. For U.S. TSOA holders with manufacturing facilities outside the U.S., the ACO does this only under agreement with the responsible MIDO and after considering the "undue burden" to the FAA.

(1) The ACO and MIDO should visit all TSOA holders for oversight once every two to three years. This includes evaluations conducted in accordance with FAA Order 8100.7, *Aircraft Certification Systems Evaluation Program (ACSEP)*. During visits, at a minimum, the representative from the ACO may audit the following under the authority granted in 14 CFR 21.610:

- (a) Article's compliance to the TSO's requirements.
- (b) TSOA holder's compliance with 14 CFR part 21 subpart O.
- (c) TSOA holder's COS process.
- (d) TSOA holder's design change process.
- (e) TSOA holder's change impact analysis process.
- (f) TSOA holder's configuration control process.
- (g) TSOA holder's quality system (during Aircraft Certification Systems Evaluation Program (ACSEP) evaluation).
- (h) TSOA holder's manufacturing processes (during ACSEP evaluation).

(2) If the ACO auditor finds deficiencies they are documented and given to the manufacturer so they can correct the deficiencies. The manufacturer must address and resolve the deficiencies in a timeframe the ACO or MIDO finds acceptable. The ACO or MIDO may consider compliance and enforcement action if appropriate.

Acronym	Definition
U.S.	United States

A-2. Definitions and Terms.

Accepted data is data or analysis the FAA acknowledges and considers valid. The applicant may use accepted data to substantiate compliance with airworthiness regulations, but the FAA doesn't consider it *approved* data.

Aircraft Certification Office (ACO) is a field branch of the FAA Aircraft Certification Service. It administers and secures compliance with agency regulations, programs, standards, and procedures governing the design approval of TSO articles. ACO locations and addresses are in appendix C.

Airworthiness regulations are the regulations identified in 14 CFR parts 23, 25, 27, 29, 31, 33, and 35. The regulations contain standards for specific types of products.

Applicant is a person or organization seeking approval from the FAA.

Compliance is a successful showing that a design meets a set of requirements or standards.

Conformity is establishment that a manufactured article meets the approved design.

Design consists of all drawings and specifications that show the part's configuration and all information on dimensions, tolerances, materials, processes, and procedures necessary to define all part characteristics. A master drawing list is the summary of these drawings and specifications.

Guidance is material the FAA publishes to assist an applicant in complying with regulatory requirements.

Letter of TSO design approval (LODA) is a FAA design approval that we issue only to a foreign manufacturer of an article that we find meets a specific TSO. A LODA is not a production approval and is not installation approval. The geographic ACO is responsible for issuing the LODA to the applicant's civil aviation authority (CAA). See paragraph 2-3b of this order for a more comprehensive definition of a LODA.

Manufacturer of an article is a person who controls the design and quality of an article. (See 14 CFR 21.601(b)(5).

Modifier is the person to whom the FAA grants approval to implement an approved design change to a TSO article.

Part number is a string of alphanumeric characters used to uniquely identify an article's configuration.

Process is a set of interrelated activities performed to produce a prescribed output or article.

Product is an aircraft, aircraft engine, or propeller. (See 14 CFR 21.1(b)(5))

Quality system is an organizational structure with responsibilities, procedures, processes, and resources that implements a management function to determine and enforce quality principles. A quality system encompasses quality assurance and quality control.

Supplier is any person or organization contracted to furnish aviation products, parts, appliances, components, materials, or services to the TSOA holder.

Test is a quantitative procedure to prove performance using stated objective criteria with pass/fail results.

Technical standard order authorization (TSOA) is an FAA design and production approval issued to a U.S. manufacturer of an article that we find meets a specific TSO. The geographic ACO is responsible for issuing the TSOA to the applicant. The TSOA is not installation approval for the article. See paragraph 2-3a of this order for a more comprehensive definition of TSOA.

Appendix B. Related Publications and How To Get Them

B-1. Code of Federal Regulations (CFR). Order 14 CFR sections from the Superintendent of Documents, Government Printing Office, P.O. Box 37154, Pittsburgh, PA 15250-7954. Telephone (202) 512-1800; fax (202) 512-2250. Order on-line at www.gpoaccess.gov/cfr/.

B-2. FAA Orders. View or download the following orders on the MyFAA Employees Website at https://employees.faa.gov/tools_resources/orders_notices/ or FAA's Regulatory and Guidance Library (RGL) at <http://rgl.faa.gov/> - Use the latest version:

- a. FAA Order 1350.15, *Records Organization, Transfer, and Destruction Standards*.
- b. FAA Order 2150.3, *Compliance and Enforcement Program*.
- c. FAA Order 8040.1, *Airworthiness Directives*.
- d. FAA Order 8100.5, *Aircraft Certification Service Mission, Responsibilities, Relationships, and Programs*.
- e. FAA Order 8100.7, *Aircraft Certification Systems Evaluation Program (ACSEP)*.
- f. FAA Order 8110.54, *Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents*.
- g. FAA Order 8120.2, *Production Approval and Certificate Management Procedures*.

B-3. FAA Advisory Circulars. View or download the following AC on the FAA Advisory Circulars website: http://www.faa.gov/regulations_policies/advisory_circulars/ and the FAA's Regulatory and Guidance Library (RGL) at <http://rgl.faa.gov/> - Use the latest version:

- a. AC 21-1, *Production Certificates*.
- b. AC 21-46, *Technical Standard Order Program*.
- c. AC 21-50, *Installation of TSOA Articles and LODA Appliances*.
- d. AC 21-23, *Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States*.

B-4. RTCA, Inc. Documents. Order RTCA/DO-160, RTCA/DO-178 and RTCA/DO-254 from RTCA, Inc., 1150, 18th Street NW, Suite 910, Washington, D.C. 20036. Telephone