



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

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**Subject:** Submittal of Data to an ACO, a DER or  
an ODA for a Major Repair or a Major Alteration.

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**Initiated by:** AIR-100

This advisory circular (AC) provides guidance for creating a complete data package when data is submitted to a Federal Aviation Administration (FAA) aircraft certification office (ACO), or to FAA designees, to support a major repair or major alteration.

A handwritten signature in cursive script that reads "Susan McMahon".

for David W. Hempe  
Manager, Aircraft Engineering Division  
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## Chapter 1. General Information

### 1. Purpose.

**a.** When seeking FAA approval of data to support a major repair or major alteration, a person must submit the necessary descriptive data, test reports, computations, and other information, to show compliance with applicable FAA regulatory requirements. This advisory circular (AC) addresses data submitted to:

(1) An FAA ACO, either directly or through a flight standards district office (FSDO), a certificate management office (CMO), or an international field office (IFO).

**Note:** If you submit data to a FSDO, a CMO, or an IFO, and they forward the data to an ACO for review, you may be asked by the ACO to follow the guidance of this AC.

(2) An organization designation authorization (ODA) or a designated engineering representative (DER) working within the scope of their authority for major repairs and major alterations data approvals.

**b.** Data submitted to show compliance with regulatory requirements should be complete and in a logical format for review by the ACO, the DER or the ODA.

**c.** This AC:

- Details what constitutes a complete data submittal;
- Details what information a person should include when submitting data to an ACO, a DER, or an ODA, to show compliance with the applicable FAA requirements; and
- Provides a sample form in order to document the contents of a data submittal.

**d.** This AC is not mandatory and is not a regulation. This AC describes an acceptable means, but not the only means, to comply with the applicable requirements. However, if you use the means described in this AC, you must follow it entirely.

**2. Definitions.** For the purpose of this AC the following definitions are used:

**a. Approved,** unless used with reference to another person, means approved by the FAA or any person to whom the FAA has delegated its authority in the matter concerned, or approved under the provisions of a bilateral agreement between the United States and a foreign country or jurisdiction (see Title 14 of the Code of Federal Regulations (14 CFR) part 1).

**b. Article** means a material, part, component, process, or appliance.

**c. Person** means an individual, firm, partnership, corporation, company, association, joint-stock association, or governmental entity. It includes a trustee, receiver, assignee, or similar representative of any of them.

**d. Product** means an aircraft, aircraft engine, or propeller.

**3. Audience.** This AC applies to any person who presents data to an ACO, DER or ODA to show compliance with the applicable FAA requirements for the approval of data to support a major repair or major alteration.

**4. Scope.**

**a.** This AC does not supersede any guidance or requirement defined by regulation, FAA policy or FAA guidance.

**b.** When FAA policy requires the use of a certification plan or compliance check list, the guidance in this AC does not supersede that requirement. The guidance in this AC is intended to supplement the general information in a certification plan or compliance check list by clarifying what information a person submitting data to the FAA or to FAA designees is expected to provide with each submittal.

**c.** This AC does not apply to a DER, an ODA or an ODA unit member (UM) submitting data to an ACO.

## Chapter 2. Submittal of Data

**1. Components of a “Complete” Data Submittal.** A data submittal is not considered complete until you present all the descriptive data and substantiation data for your design that addresses the applicable regulations. The complete data submittal includes documents that address the following basic elements:

**a.** Descriptive data, which includes:

(1) The drawings (or equivalent) and specifications necessary to define the configuration and the design features;

**Note:** We accept sketches, photos or pictures as descriptive data when it is appropriate, such as for certain one-time approvals.

(2) Information on dimensions, materials, and processes;

(3) Airworthiness limitations, if applicable; and

(4) Documents required by the airworthiness requirements such as instructions for continued airworthiness (ICA) and airplane or rotorcraft flight manuals, if applicable.

**b.** Substantiating data, which can be test results, computations and other information necessary to show that the descriptive data meets the applicable requirements. You should present the data in a logical order with explanations of how the data shows compliance.

**2. Applicable Requirements.** There are various requirements that may be applicable to your complete data submittal. You should establish that you have substantiated each requirement or that it is not applicable to your submittal. The regulatory requirements could include:

**a.** The airworthiness requirements applicable to the article or product as defined in 14 CFR part 23, 25, 27, 29, 31, 33, or 35, or their predecessor regulations.

**b.** Any requirements defined by the FAA that we determine provide an equivalent level of safety to another requirement.

**c.** The limitations of any exemptions granted by the FAA that are applicable to a product.

**d.** Any special conditions prescribed by the FAA.

**e.** Any applicable airworthiness directive (AD).

**f.** The continued airworthiness and safety standards for transport category airplanes, if applicable (14 CFR part 26).

g. The noise standards (14 CFR part 36).

h. The fuel venting and exhaust emission requirements for turbine engines, if applicable (14 CFR part 34).

**3. Developing the Contents of a Complete Data Submittal.** You can either develop the contents of a complete data submittal yourself or obtain the data from another source. Current FAA regulations and policy do not specify acceptable sources of descriptive data or substantiating data or the method of acquiring the data, whether generated by a foreign or domestic person.

**4. Substantiation by Test.** You must allow the FAA to perform any inspection or test or witness any inspection or test you perform that is necessary to determine compliance with the applicable requirements. This includes inspection during the manufacture of the test article, inspecting the test set-up or witnessing the test itself. If the substantiation includes testing, you should coordinate with an ACO, an ODA, or a properly authorized DER, prior to manufacturing any test articles or conducting the test.

**5. Making Submittals.** You do not have to present your complete data submittal at one time. You may choose to divide the data into manageable components to be submitted separately to an ACO, a DER or an ODA. Each component submittal does not have to contain every element of a complete data submittal. However, data submitted to show compliance with regulatory requirements should be complete and in a logical format for review by the ACO, the DER or the ODA. You should provide the following information with any data you submit:

a. **Name:** Indicate the name of the person submitting the data.

b. **Purpose of Data:** You should indicate the purpose for which the data is being submitted. Indicate if the data is in support of a major alteration or a major repair. If the data is in support of an aircraft major repair or major alteration, enter the serial number of the aircraft. For major repairs or major alterations of parts, components, engines, or propellers not installed on aircraft, the specific serial number of the parts, components, engines, or propellers, or a specific work order for parts or components that are not serialized can be used. For multiple use alterations, repairs, repair schemes, or establishment of repair limits for multiple use repairs without specific serial number or work order effectivity you may indicate “*Multiple use repair procedure.*”

c. **Make, Model and Series:** Include the make, model, and series, information for the product (reference the type certificate data sheet (TCDS)). If an article, identify the related product information.

d. **Related Submittals:** Indicate whether there are other data submittals related to the descriptive data indicated on this submittal. If so, only on your final submittal for that descriptive data should you list the related submittals. You may provide a reference to a document that provides this information.

**e. Descriptive Data:** List the descriptive data related to this submittal, such as drawings and specifications. Be sure to include the revision level or dates of the descriptive data in the listing. You may provide a reference to a document, such as a master drawing list, that provides this information. If the descriptive data is listed only as a reference for substantiation data and is not included in this submittal, indicate “not included”.

**f. Substantiation Data:** List any substantiation data being presented for the listed descriptive data. Be sure to include the revision level or dates of the substantiation data in the listing. You may provide a reference to a document, such as a data list, that provides this information.

**g. Substantiated Applicable Requirements:** Indicate the specific applicable airworthiness requirements and other requirements as defined in chapter 2, paragraph 2, of this AC for which the data is presented to show compliance. General references (such as “part 25”) should not be used. Include the amendment level of the regulations. You may also do this by referencing a compliance check list specific to the descriptive data as an alternative to listing the applicable regulatory requirements.

**h. Compliance Status.** It is your responsibility to identify the regulatory requirements that are addressed by the data you submit and if there are requirements for which you still need to submit data. If you present incomplete substantiation for the specified descriptive data, you should indicate to the ACO, the DER, or the ODA, that the data is not a complete showing of compliance. For the specified descriptive data, you should indicate whether you presented substantiation to all the applicable airworthiness requirements and other requirements (see chapter 2, paragraph 2, of this AC):

(1) Airworthiness Requirements: Indicate whether you presented all necessary information to address all the airworthiness requirements applicable to the purpose for the listed descriptive data.

(2) Exemptions: Indicate if you presented all necessary information to address the limitations of any applicable exemptions granted by the FAA.

(3) Special conditions: Indicate whether you presented all necessary information to address any special conditions we prescribed that are applicable to your submittal.

(4) 14 CFR part 26: For transport category aircraft, indicate if you presented all necessary information to address the continued airworthiness and safety standards for transport category airplanes.

(5) Airworthiness Directives: Indicate whether you presented all necessary information to address all the applicable ADs for the listed descriptive data. If you did not directly comply with an applicable AD, you must apply for an alternative method of compliance (AMOC) as defined in the AD. If there is not an applicable AD, indicate “N/A.”

(6) **Instructions for Continued Airworthiness:** Indicate whether you presented all necessary information to address the requirements for instructions for continued airworthiness (ICA) or changes to ICAs for the listed descriptive data, including the airworthiness limitation section (ALS) of an ICA. If ICAs are not required, indicate “N/A.”

(7) **Noise Requirements:** Indicate whether you presented all necessary information to address the impact of the noise requirements for the listed descriptive data. If not applicable, indicate “N/A.”

(8) **Emission Requirements:** Indicate whether you addressed the impact of the emission requirements for the listed descriptive data. If not applicable, indicate “N/A.”

(9) **Flight Manual Requirements:** Indicate whether you presented all necessary information to address the flight manual requirements or changes to the flight manual for the listed descriptive data. If not applicable, indicate “N/A.”

**i. Unsubstantiated Applicable Requirements:** At your option you may list the applicable regulatory requirements for which you still need to present substantiation data. If you do list the requirements, general references (such as “part 25”) should not be used. Include the amendment level of the regulations. You may also do this by referencing a compliance check list specific to the descriptive data as an alternative to listing the applicable regulatory requirements.

**j. Printed Name:** Print your name as the person or as the representative of the person submitting the data.

**k. Signature:** Provide a signature to indicate you believe the information is accurate.

**l. Date:** Provide the date of signature.

**6. Data Submittal Form.** There is not a required FAA form for submitting data. However, appendix A of this AC contains a sample optional form you can use to present data to an ACO, a DER or an ODA. Using the form will increase the possibility that you have addressed all the elements of the information you should provide for each data submittal and will also assist in the review of your data. The form in appendix A addresses the same details as paragraph 5 of this chapter. If you do not use the form in appendix A, whatever method you use to submit data to us should document the information defined in this AC.

**7. Using the Data Submittal Form to Make Several Related Submittals.** If you elect to use the optional form in appendix A and make several related submittals, you should complete a form for each individual data submittal. Each block on the form should be completed for each submittal. Once you have submitted all the data, you should submit a final form, listing all the descriptive data (or reference a master drawing list) in the descriptive data block, and a listing of the substantiating data (or a referenced document listing all the substantiating data) in the substantiation block of the form. At this point, check all boxes “yes” (or “n/a” when appropriate)

indicating that you believe you have shown full compliance.

**8. Erroneous Data.** It is your responsibility to present data to us that is accurate and correct (reference 14 CFR 21.2). If data is found to be insufficient or erroneous you must provide additional data or corrected data to support your submittal.

## Chapter 3. Related Documentation

### 1. Related Documents.

a. AC 23-21, *Airworthiness Compliance Checklists Used to Substantiate Major Alterations for Small Airplanes*.

b. AC 43-210, *Standardized Procedures for Requesting Field Approval of Data, Major Alterations, and Repairs*.

**2. Where to Find Related Documents.** Order copies of FAA Advisory Circulars from the U.S. Department of Transportation, Subsequent Distribution Office, M-30, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785. You can also get copies from our FAA website at [www.faa.gov/regulations\\_policies/advisory\\_circulars/](http://www.faa.gov/regulations_policies/advisory_circulars/).

### Appendix A. Sample Form

Name: \_\_\_\_\_

#### Purpose of Data

<b>Owner/Operator/Repair Station</b>	<input type="checkbox"/> Major Alteration
	<input type="checkbox"/> Major Repair
<b>Product or Product Component Information</b> (Identify the product or, if an article, the related product information).	
<b>Make:</b> _____	<b>Model:</b> _____ <b>Series:</b> _____
<b>Serial Number:</b> _____	

Are there previous data submittals related to the descriptive data listed below?  Yes  No

If Yes, at your option please list or reference other data submittal information \_\_\_\_\_

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#### Descriptive Data

List the descriptive data *for this submittal* including applicable drawings, material specifications, and process specifications. A reference to a drawing list, including revision level, may be used.

#### Substantiation Data

List all substantiation data submitted to show that the descriptive data above meets the applicable requirements listed in the next block. A reference to a data list, including revision level, may be used.

Name: \_\_\_\_\_

**Requirements for which Substantiation Data is Submitted**

List the applicable regulatory requirements for which the substantiation data listed above shows compliance for the specific descriptive data listed above. Include airworthiness regulations (include amendment level), special conditions, equivalent levels of safety and airworthiness directives, etc. A reference to a compliance check list for the descriptive data may be used.

**For this and all related data submittals:**

- |  |                              |                             |                              |
|--|------------------------------|-----------------------------|------------------------------|
| Are all applicable airworthiness requirements addressed? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are all exemptions addressed?                            | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are all special conditions addressed?                    | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are the requirements of Part 26 addressed?               | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are all applicable airworthiness directives addressed?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are instructions for continued airworthiness addressed?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are the applicable noise requirements addressed?         | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are the applicable emission requirements addressed?      | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Are all changes to a flight manual addressed?            | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |

**Requirements that Require Substantiation Data (Optional)**

List the applicable regulatory requirements for which substantiation must still be shown for the specific descriptive data listed above. Include airworthiness regulations (include amendment level), special conditions, equivalent levels of safety and airworthiness directives, etc. A reference to a compliance check list for the descriptive data may be used.

I agree that the information presented above is, to the best of my knowledge, accurate and true per 14 CFR § 21.2, for the application which I have submitted,

\_\_\_\_\_  
Print Applicant Representative Name

\_\_\_\_\_  
Applicant Representative Signature

\_\_\_\_\_  
Date

**Appendix B. Acronyms**

<b>14 CFR</b>	Title 14 of the Code of Federal Regulations
<b>AC</b>	Advisory circular
<b>ACO</b>	Aircraft certification office
<b>ALS</b>	Airworthiness limitation section
<b>AD</b>	Airworthiness directive
<b>AMOC</b>	Alternative method of compliance
<b>CMO</b>	Certificate management office
<b>DER</b>	Designated engineering representative
<b>ELOS</b>	Equivalent level of safety findings
<b>FAA</b>	Federal Aviation Administration
<b>FSDO</b>	Flight standards district office
<b>ICA</b>	Instructions for continued airworthiness
<b>IFO</b>	International field office
<b>N/A</b>	Not applicable
<b>ODA</b>	Organization designation authorization
<b>TCDS</b>	Type certificate data sheet
<b>UM</b>	Unit member