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

Advisory Circular

AC 23-25

STANDARD AIRWORTHINESS COMPLIANCE CHECKLISTS FOR PART 23 PROJECTS

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FOREWORD

This Advisory Circular (AC) describes one method to create compliance checklists. These compliance checklists may fulfill some of the requirements for a Certification Plan as part of a part 23 Type Certification project.

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STANDARD AIRWORTHINESS COMPLIANCE CHECKLISTS FOR PART 23 PROJECTS

1. What is the purpose of this Advisory Circular (AC)?

This AC provides a standard compliance checklist for Title 14 of the Code of Federal Regulations (14 CFR) part 23 Type Certificate, Amended Type Certificate, and Supplemental Type Certificate projects. This checklist shows the typical methods of compliance with the regulations and provides a cross-reference to other related guidance material. The checklists created using the information in this AC complement the guidance in the Guides for Certification of Part 23 Airplanes (ACs 23-8B, 23-16A, 23-17B, and 23-19) and other more project specific guidance. This checklist is a starting place when applying for certification. This AC describes an acceptable means, but not the only means, of compliance with 14 CFR part 23. The material in this AC is neither mandatory nor regulatory in nature and does not constitute a regulation.

2. Who is affected by this AC?

a. Anyone applying for certification may use the compliance checklist in this AC as a starting point to create a project specific compliance checklist for discussions with their geographical Aircraft Certification Office (ACO). The list of ACO's with their addresses and phone numbers are on the Internet at www.faa.gov/certification/aircraft/acochart.htm.

b. Federal Aviation Administration (FAA) engineers working on certification projects may also use compliance checklists created using this AC as a basis for discussions with the anyone applying for certification.

3. What documents does this AC supersede?

This AC does not supersede any existing documents.

4. What other publications are related to this AC?

The publications listed in this section are a representative selection of documents that are relevant to part 23 airplane certification. The compliance checklist in Appendix 1 references many of these publications as guidance applicable to individual regulations. Depending on the details of the particular certification project, other guidance material may apply, and the project specific checklist should include all guidance material used. A complete list of documents is available at the Internet addresses listed below.

a. Regulations:

In general, this AC covers 14 CFR part 23 regulations in their entirety. In addition, the following related regulations are available on the Internet at www.airweb.faa.gov/far.

14 CFR part 21	Certification Procedures for Products and Parts
14 CFR part 33	Airworthiness Standards: Aircraft Engines
14 CFR part 34	Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes

14 CFR part 35

Airworthiness Standards: Propellers

14 CFR part 36

Noise Standards: Aircraft Type and Airworthiness
Certification

Many small airplanes certificated before the Civil Air Regulations (CARs) recodification to the Federal Aviation Regulations in 1964 list the CARs in their original certification basis. The checklist in Appendix 1 lists the CAR 3 cross-reference to the 14 CFR part 23 regulations at the recodification. These historic references are on the Internet at <http://dotlibrary.specialcollection.net/>.

b. Federal Aviation Administration (FAA) Orders and ACs available at no charge:

Copies of the current FAA orders and ACs listed below are available at no charge from:

U.S. Department of Transportation
Subsequent Distribution Office, M-30
Ardmore East Business Center
3341Q 75th Avenue
Landover, MD 20795

Telephone: 301-322-4779

Facsimile: 301-386-5394

These documents are also available on the Internet at www.airweb.faa.gov/orders and www.airweb.faa.gov/ac respectively.

FAA Order 8110.4B	Type Certification
FAA Order 8110.48	How to Establish the Certification Basis for Changed Aeronautical Products
AC 20-53A	Protection of Aircraft Fuel Systems Against Fuel Vapor Ignition Due to Lightning
AC 20-66A	Vibration and Fatigue Evaluation of Airplane Propellers
AC 20-73	Aircraft Ice Protection
AC 20-74	Aircraft Position and Anticollision Light Measurements
AC 20-88A	Guidelines on the Marking of Aircraft

AC 20-119	Fuel Drain Valves
AC 20-122A	Anti-misfueling Devices: Their Availability and Use
AC 20-124	Water Ingestion Testing for Turbine Powered Airplanes
AC 20-128A	Design Considerations for Minimizing Hazards Caused by Uncontained Turbine Engine and Auxiliary Power Unit Rotor Failure
AC 20-130A	Airworthiness Approval of Navigation or Flight Management Systems Integrating Multiple Navigation Sensors
AC 20-135	Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards, and Criteria
AC 20-136	Protection of Aircraft Electrical/Electronic Systems against the Indirect Effects of Lightning
AC 20-138A	Airworthiness Approval of Global Navigation Satellite System (GNSS) Equipment
AC 20-146	Methodology for Dynamic Seat Certification by Analysis for Use in Part 23, 25, 27, and 29 Airplanes and Rotorcraft
AC 20-147	Turbojet, Turboprop, and Turbofan Engine Induction System Icing and Ice Ingestion
AC 21-40	Application Guide for Obtaining a Supplemental Type Certificate
AC 21.101-1 CHG 1	Establishing the Certification Basis of Changed Aeronautical Products
AC 23-2	Flammability Tests
AC 23-9	[Large AC] Evaluation of Flight Loads on Small Airplanes with T, V, +, or Y Empennage Configurations
AC 23-10	Auxiliary Systems for Reciprocating and Turbine Powered part 23 Airplanes
AC 23-13	Fatigue and Fail-Safe Evaluation of Flight Structure and Pressurized Cabin for Part 23 Airplanes
AC 23-14	Type Certification Basis for Conversion from Reciprocating Engine to Turbine Engine-Powered Part 23 Airplanes
AC 23-15A	Small Airplane Certification Compliance Program
AC 23-15A CHG 1	Small Airplane Certification Compliance Program
AC 23-21	Airworthiness Compliance Checklists Used to Substantiate Major Alterations for Small Airplanes
AC 23-21 CHG 1	Airworthiness Compliance Checklists Used to Substantiate Major Alterations for Small Airplanes

AC 23-23	Standardization Guide for Integrated Cockpits in Part 23 Airplanes
AC 23.143-1	Ice Contaminated Tailplane Stall (ICTS)
AC 23.562-1	Dynamic Testing of Part 23 Airplane Seat/Restraint Systems and Occupant Protection
AC 23.607-1	Self-Locking Nuts on Bolts Subject to Rotation
AC 23.629-1B	Means of Compliance with Title 14 CFR, Part 23, § 23.629, Flutter
AC 23.1309-1C	Equipment, Systems, and Installations in Part 23 Airplanes
AC 23.1311-1A	Installation of Electronic Displays in Part 23 Airplanes
AC 23.1419-2C	Certification of Part 23 Airplanes for Flight in Icing Conditions
AC 23.1523	Minimum Flight Crew
AC 33-2B	Aircraft Engine Type Certification Handbook
AC 33.28-1	Compliance Criteria for 14 CFR § 33.28, Aircraft Engines, Electrical and Electronic Engine Control Systems
AC 33.28-2	Guidance Material for 14 CFR § 33.28, Reciprocating Engines, Electrical and Electronic Engine Control Systems
AC 35.37-1A	Guidance Material for Fatigue Limit Tests and Composite Blade Fatigue Substantiation
AC 36-1H	Noise Levels for U.S. Certificated and Foreign Aircraft
AC 36-2C	Measured or Estimated (Uncertificated) Airplane Noise Levels
AC 36-3H	Estimated Airplane Noise Levels in A-Weighted Decibels
AC 36-4C	Noise Standards: Aircraft Type and Airworthiness Certification
AC 183.29-1HH	Designated Engineering Representatives

c. ACs available to buy:

Copies of the current ACs listed below are available to buy from:

Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954

These documents are also available on the Internet at www.airweb.faa.gov/ac.

AC 23-8B	Flight Test Guide for Certification of Part 23 Airplanes
AC 23-16A	Powerplant Guide for Certification of Part 23 Airplanes and Airships
AC 23-17B	Systems and Equipment Guide for Certification of Part 23 Airplanes and Airships
AC 23-19	Airframe Guide for Certification of Part 23 Airplanes

d. Policy Statements:

Copies of the current Policy Statements listed below are available at no charge from:

Small Airplane Directorate Regulations and Policy Branch
 901 Locust St., Room 301
 Kansas City, MO 64106

These documents are also available on the Internet at www.airweb.faa.gov/policy.

PS-ACE100-2001-004	Guidance for Reviewing Certification Plans to Address Human Factors for Certification of Part 23 Small Airplanes
PS-ACE100-2001-006	Static Strength Substantiation of Composite Airplane Structure
PS-ACE100-2002-002	Installation Approval of Multi-Function Displays Using the AML STC Process
PS-ACE100-2002-004	Diesel Engine Installations
PS-ACE100-2002-006	Material Qualification and Equivalency for Polymer Matrix Composite Material Systems
PS-ACE100-2002-007	Policy Statement on Pitot Heat Indication Systems for 14 CFR Part 23, § 23.1326(b)(1)
PS-ACE100-2002-008	Propeller Testing V_d Versus V_{NE}

PS-ACE100-2004-10023	Final Policy for Flammability of Electrical Wire Used in Part 23 Aircraft per 14 CFR, Part 23, §§ 23.853 and 23.1359
PS-ACE100-2004-10024	Installation of Electronic Engine Control for Reciprocating Engine
PS-ACE100-2004-10030	Substantiation of Secondary Composite Structures

5. How is this Advisory Circular related to other Federal Aviation Administration (FAA) ACs and Policy Statements?

a. This AC provides a standard compliance checklist to use in creating a project specific checklist. The standard checklist shows the typical methods of compliance with the regulations and cross-references other related guidance material. Use this AC with other published guidance described in b and c below.

b. The Small Airplane Directorate has published Guides for Certification of Part 23 Airplanes covering broad sections of Title 14 of the Code of Federal Regulations (14 CFR) part 23 regulations (that is: Structures, Systems, Powerplant, and Flight Test). These Guides for Certification of Part 23 Airplanes (that is: ACs 23-8B, 23-16A, 23-17B, and 23-19) provide guidance for showing compliance with individual regulations.

c. The Small Airplane Directorate has published ACs and Policy Statements that address specific airplane installations (for example: AC 23-10, AC 23-14, and AC 23.1419-2C). These documents provide guidance for showing compliance with the sets of regulations applicable to specific airplane design changes and installations.

6. Where do you find the standard compliance checklist?

The standard checklist is in appendix 1 and is also available on the Internet at www.faa.gov/certification/aircraft/aceAirworthinessComplianceChecklists.htm in a format that allows the users to fill the forms in on their computer.

7. How was the standard compliance checklist developed?

Checklists used by various ACOs on past and present certification projects and current guidance material were used to develop the standard compliance checklist.

8. How should you use the standard compliance checklist in certification projects?

Order 8110.4B describes the Type Certification application process that begins with the applicant submitting a completed FAA Form 8110-12 with a Certification Plan. A compliance checklist may fulfill some of the requirements for the Certification Plan. The information in this AC is a starting point to create a project specific compliance checklist that tells how the applicant intends to show compliance with the regulations. This checklist submitted as part of the Certification Plan provides applicants and ACO engineers a communication tool to begin the project.

9. How should you complete the standard compliance checklist to create a project specific checklist?

Figures 1 and 2 show the first and second pages of the compliance checklist from appendix 1 of this AC. The following paragraphs describe the checklist entries with the letters of the paragraphs below matching the circled letters in the figures. A template checklist is available at www.faa.gov/certification/aircraft/aceAirworthinessComplianceChecklists.htm. The regulations shown in the checklist template do not show all subparagraphs. Where the method of compliance differs between subparagraphs of the same regulation, you should expand the checklist to show the subparagraphs and the methods of compliance for each. Figure 3 shows an example of an expanded checklist entry.

- a. When you initially use the checklist, this field will be blank. The ACO assigns a project number when accepting the project application.
- b. Enter the name of the originator of the completed checklist.
- c. Enter the date of the latest checklist revision.
- d. Enter the latest checklist revision. The applicant may choose any method to track this, provided it can distinguish different versions. For example, use sequential numbering or lettering for each new version of the checklist.
- e. Enter the make of the airplane to receive this certification, as shown on the Type Certificate Data Sheet (TCDS) (for example: Cessna, Piper).
- f. Enter the complete model number of the airplane to receive this certification, as shown on the Type Certificate Data Sheet (TCDS) (for example: 150C, PA-32-260).
- g. Enter the number of the TCDS for the airplane make and model listed in e and f. The TCDS information is on the Internet at www.airweb.faa.gov/TCDS.
- h. Enter the original certification basis of the airplane as listed on the airplane TCDS. It is acceptable to reference the airplane TCDS.
- i. Enter the proposed certification basis for this certification project. Refer to AC 21-101-1 CHG 1 and FAA Order 8110.4B for guidance on choosing the proposed certification basis.
- j. Check the box to show whether the proposed certification project is for Type Certification (TC), Amended Type Certification (ATC), one-airplane-only Supplemental Type Certificate (STC), or multiple airplane STC.
- k. Enter a brief description of the change similar to that stated on FAA Form 8110-12 (found in FAA Order 8110.4B). A complete description of the change will appear in the certification plan provided to the ACO as described in FAA Order 8110.4B.
- l. Enter the page number and the number of pages.
- m. Enter the applicable regulation amendment level used as the Certification Basis for the project.
- n. Enter the method or combination of methods used to show compliance with the regulations. Make an entry for each regulation (or subparagraph as explained in paragraph 9 above) in the checklist. Determine the applicability to the project for all the regulations. The

checklist in appendix 1 lists typical methods of compliance that have been acceptable for other certification projects in the past. The unique features of the project may require other combinations of methods. Check whether the methods listed are appropriate and change them to reflect the certification plan for the specific project. When choosing the applicable regulations, make sure to consider the impact of the airplane changes on areas such as structural integrity, performance, controllability, and human factors. See FAA policy statement PS-ACE100-2001-004, for guidance that addresses human factors considerations. Use the following definitions when filling in this column.

(1) Flight Test (FT) – This method of compliance is a test of the airplane in the air or on the ground when the nature of the test requires a flight test pilot.

(2) Ground Test (GT) – This method of compliance includes component bench testing, testing components in simulated airplane systems, and ground testing of the airplane. These tests may be precursors to a flight test.

(3) Analysis (AN) – This method of compliance includes a quantitative or qualitative assessment, as appropriate, of structures, systems, or components. An analysis may be a precursor to ground and flight tests and a validation of the design. An analysis must be validated using previous experience or testing to be accepted for showing compliance to the regulations.

(4) Design (DE) – This method of compliance encompasses the inherent features of structures, systems, or components. Inspection of airplane hardware, the drawings, the bill of materials, or other documentation, such as material specifications shows compliance with the applicable regulations.

(5) Similarity (SI) – This method of compliance is a comparison between a previously certificated design and the proposed design. The intent is to show that these designs are the same in all ways relative to showing compliance with the applicable regulation, so the proposed design will perform the same or better than the previously certificated design. The applicant must account for any differences in the regulations if the amendment levels of the regulations are not the same for the two designs. Refer to the other guidance applicable to the different regulations to determine if similarity is proper.

(6) Equivalent Level of Safety Finding (ELOS) – Title 14 CFR part 21, § 21.21(b)(1) and FAA Order 8110.4B paragraph 2-10g describe this method of compliance. An ELOS is issued when the applicant cannot show literal compliance with a regulation, and the applicant shows to the FAA's satisfaction that compensating factors achieve a safety level equal to that of the applicable regulation. The applicant may propose the use of an ELOS by submitting a letter to the ACO for consideration. The FAA is responsible for making the finding of equivalency and issuing the ELOS memo if satisfied. If proposing an ELOS for a given regulation, enter the reference for the proposal letter into the checklist under the "Plan, Drawing, Report Number" column for the regulation (see paragraph 9.o.) and on the last page of the checklist under the "EQUIVALENT LEVELS OF SAFETY (ELOS):" heading. Make all proposals for ELOSs to the ACO early in the project to allow time for processing.

(7) Petition for Exemption (PExmpt) – Title 14 CFR part 11, § 11.15 defines a petition for exemption as, "...a request to the FAA by an individual or entity asking for relief from the

requirements of a current regulation.” Petitions for exemptions are rulemaking as described in 14 CFR part 11 and are subject to a public review process that is outside the scope of this AC. If petitioning for exemption from a given regulation, enter the reference for the petition letter into the “Plan, Drawing, Report Number” column for the regulation (see paragraph 9.o.) and on the last page of the checklist under the “EXEMPTIONS:” heading. Make all petitions for exemption to the ACO early in the project to allow time for processing.

(8) Not Applicable (N/A) – This means the specific regulation does not apply to the design or change for this project; therefore, a showing of compliance is not necessary. Enter the reason the regulation is not applicable in the “Applicable Guidance, References, and Remarks” column of the checklist described in paragraph q below.

o. Enter the plan, drawing, and report numbers used to document compliance with the regulation. The items referenced here should contain enough detail to show compliance to the regulation.

p. Enter the name and designee number (as applicable) of the Person or Entity that will find or recommend compliance with each of the applicable regulations. This could be a Designee (Designated Engineering Representatives (DER), Designated Alteration Stations (DAS), Delegated Option Authorization) or the FAA. The FAA encourages applicants to use Designees in their projects. More information on designees is on the Internet at www.faa.gov/other_visit/aviation_industry/designees_delegations. Consultant DERs typically provide their services to applicants for a fee. A directory of DERs is available in AC 183.29-1HH. An updated electronic directory and more information on DERs may be on the Internet at www.faa.gov/certification/aircraft/av-info/dst/DER_content.htm. Get Designee concurrence before submitting the checklist to the ACO.

q. Enter the applicable guidance followed as well as other references and remarks clarifying how you are showing compliance with the applicable regulations. If entering N/A for Method of Compliance, enter the reason the regulation is not applicable in this column. The checklist in this AC lists the latest revision of some ACs with applicable guidance in this column. These revisions are current on the release date of AC 23-25. When creating a project specific checklist, enter the latest revisions of these documents in this column as found on the Internet at www.airweb.faa.gov/AC. Reference other applicable guidance as appropriate.

Type Certificate Compliance Checklist	
Project Number: <u> </u> (a) Originator: <u> </u> (b)	Date: <u> </u> (c) Revision: <u> </u> (d)
Make: <u> </u> (e) Model: <u> </u> (f) TCDS #: <u> </u> (g) Original Certification Basis: <u> </u> (h)	Description of Change: <u> </u> (k) TC <input type="checkbox"/> ATC <input type="checkbox"/> (j) One-only STC <input type="checkbox"/> Multiple STC <input type="checkbox"/>
Proposed Certification Basis: <u> </u> (i)	

*Methods of Compliance:
 FT = Flight Test, GT = Ground Test, AN = Analysis, DE = Design, SI = Similarity, ELOS = Equivalent Level of Safety Finding,
 PExmpt = Petition for Exemption, N/A = Not Applicable

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Figure 1 – First Page of the Compliance Checklist

Type Certificate Compliance Checklist

Project Number: a
 Originator: b

Date: c
 Revision: d

Regulation Title 14 CFR (1964 CAR 3)	Applicable Amendment	Method of Compliance*	Plan, Drawing, Report Number	Person or Entity Finding Compliance	Applicable Guidance, References, & Remarks
Title 14 CFR part 23: (CAR 3)	(m)	(n)	(o)	(p)	(q)
Subpart A -- General					
Section					
23.1 Applicability. (3.0)		DE			AC 23-8B
23.2 Special retroactive requirements.		AN, GT			
23.3 Airplane categories. (3.20 (less 2nd sent. of (a)(2) and 2nd and 3rd sent. of (b)), 3.20-1, 3.20-2 (1st sent.))		DE			AC 23-8B
Subpart B -- Flight					
GENERAL					
23.21 Proof of compliance. (3.61, 3.71-1)		AN, GT, FT			AC 23-8B
23.23 Load distribution limits. (3.71)		DE, AN, FT			AC 23-8B
23.25 Weight limits. (3.74, 3.75)		AN, FT			AC 23-8B
23.29 Empty weight and corresponding center of gravity. (3.73 (1st sent.), 3.73-3(b))		AN, GT			AC 23-8B

*Methods of Compliance:
 FT = Flight Test, GT = Ground Test, AN = Analysis, DE = Design, SI = Similarity, ELOS = Equivalent Level of Safety Finding,
 PExmpt = Petition for Exemption, N/A = Not Applicable

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Figure 2 – Second Page of the Compliance Checklist

Type Certificate Compliance Checklist

Project Number: _____
 Originator: _____

Date: _____
 Revision: _____

Regulation Title 14 CFR (1964 CAR 3)	Applicable Amendment	Method of Compliance*	Plan, Drawing, Report Number	Person or Entity Finding Compliance	Applicable Guidance, References, & Remarks
23.1416 Pneumatic de-icer boot system		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1416(a)		AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1416(b)		GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1416(c)		DE, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1419 Ice protection. (3.712)		DE, SI, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1 The analysis and tests to be conducted must be specified. An exemption may be required for stall speed in icing.
23.1419(a)		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1 The analysis and tests to be conducted must be specified. An exemption may be required for stall speed in icing.
23.1419(b)		AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1419(c)		SI, AN			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1
23.1419(d)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1419-2C, AC 20-73, AC 23.143-1

*Methods of Compliance:

FT = Flight Test, GT = Ground Test, AN = Analysis, DE = Design, SI = Similarity, ELOS = Equivalent Level of Safety Finding, PExmpt = Petition for Exemption, N/A = Not Applicable

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Figure 3 – Example of an Expanded Checklist Entry

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AC 23-25T
Appendix 1T

APPENDIX 1 – COMPLIANCE CHECKLIST FORM

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A1T-1 (and A1-2)

