



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

# **Advisory Circular**

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AC 23-24

## **AIRWORTHINESS COMPLIANCE CHECKLISTS FOR COMMON PART 23 SUPPLEMENTAL TYPE CERTIFICATE (STC) PROJECTS**

**August 24, 2005**

## **FOREWORD**

This Advisory Circular (AC) describes one method that may be used to generate compliance checklists for some common airplane changes. These compliance checklists may be used to fulfill some of the requirements for a Certification Plan as part of a part 23 STC project.

s/ Kim Smith

Acting Manager, Small Airplane Directorate  
Aircraft Certification Service

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## **AIRWORTHINESS COMPLIANCE CHECKLISTS FOR COMMON PART 23 SUPPLEMENTAL TYPE CERTIFICATE (STC) PROJECTS**

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

This AC provides information to create compliance checklists for some common Title 14 of the Code of Federal Regulations (14 CFR) part 23 Supplemental Type Certificate (STC) projects. These checklists may be used to fulfill some of the requirements for a Certification Plan for STC projects. The standard compliance checklist provided with this AC shows typical methods of compliance with the regulations and provides a cross-reference to other related guidance material. Guidance specific to STCs for autopilot, engine, propeller, auxiliary fuel tank, and gross weight changes is included in sections 12 through 19 of this AC. 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. The certification requirements listed in sections 12 through 19 of this AC may be complete for certain STC projects or may be used as a starting place when applying for an STC that may be beyond the scope of the common STCs in this AC. 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 an STC for the common changes covered in this AC may create a project-specific compliance checklist as a starting point for discussions with their geographical Aircraft Certification Office (ACO). The list of ACOs with their addresses and phone numbers may be found on the Internet at [www.faa.gov/certification/aircraft/acochart.htm](http://www.faa.gov/certification/aircraft/acochart.htm).

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

### **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 these paragraphs 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 a 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. Specific regulations that are applicable to the common STC projects covered in this AC are listed in paragraphs 12

through 19. In addition, the following regulations are available on the Internet at [www.airweb.faa.gov/far](http://www.airweb.faa.gov/far).

14 CFR part 21, subpart E	Supplemental Type Certificates
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. FAA Orders and ACs available at no charge:**

Copies of the current FAA orders and ACs listed below may be obtained at no charge from:

U.S. Department of Transportation  
Subsequent Distribution Office, M-30  
Ardmore East Business Center  
3341Q 75<sup>th</sup> 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](http://www.airweb.faa.gov/orders) and [www.airweb.faa.gov/ac](http://www.airweb.faa.gov/ac) respectively.

FAA Order 8110.4B	Type Certification
FAA Order 8110.48	How to Establish a 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 Consideration 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 23-19	Airframe Guide for Certification of Part 23 Airplanes
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 Section 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	Composite Propeller 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 for purchase:**

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](http://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 may be obtained 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](http://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	Final Policy for 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 Statement for Flammability of Electrical Wiring 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 (AC) related to other Federal Aviation Administration (FAA) ACs and Policy Statements?**

a. This AC provides guidance on the applicable sets of regulations for some common STC projects and a standard 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. This AC is organized by topic to address some common STC projects and is to be used 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: Flight Test, Powerplant, Systems, and Structures). 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. What common STC projects does this AC address?**

a. Review of databases for STCs and Certification Project Notices (CPNs) initiated since 2002 shows the five most common categories of changes over this time period are:

(1) Automatic Flight Control Systems installations, including autopilot installations with electric trim;

(2) Engine installations, including total engine replacements, horsepower (hp) increases, using different engine mounts, adding Full Authority Digital Engine Controls (FADEC), cowling modifications, and adding turbochargers;

(3) Propeller installations, including spinner changes and new propellers with different diameters, different number of blades, and variable pitch;

(4) Fuel systems installations, including the addition of auxiliary fuel tanks/cells, fuel filters and flow transducers, annunciators, indicators and pumps, and adding tip tanks; and

(5) Airplane gross weight increases.

b. These categories encompass many different potential airplane changes. This AC covers the following specific STC projects. In the future, checklists may be added to this AC to cover other specific STC projects.

(1) Installation of an autopilot system;

(2) Installation of a reciprocating engine with increased horsepower;

(3) Installation of a turbine engine with increased horsepower;

(4) Installation of turbine engines to replace reciprocating engines;

(5) Installation of a different propeller (simple);

(6) Installation of a different propeller (complex);

(7) Installation of auxiliary fuel tanks; and

(8) Increase in the airplane gross weight.

**7. Where can the common STC project checklists be found?**

A standard checklist is in Appendix 1. Sections 12 through 19 of this AC list the basic regulations applicable to each of the different common STC projects. This information may be used to create a checklist for the project as described in sections 9, 10, and 11. The checklists created using this AC are also available on the Internet at [http://www.faa.gov/other\\_visit/aviation\\_industry/designees\\_delegations/tools/forms/checklists](http://www.faa.gov/other_visit/aviation_industry/designees_delegations/tools/forms/checklists) in a format that allows the user to fill the forms in on their computer.

**8. How were the standard compliance checklist and the lists of applicable regulations for these common STC projects developed?**

Checklists used by various ACOs on past and present certification projects and current guidance material were used to develop the standard compliance checklist and the lists of applicable regulations for each of the common STC projects.

**9. How should the compliance checklists in this AC be used in certification projects?**

Order 8110.4B and AC 21-40 describe the STC 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 for some common STC projects 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.

**10. Should these checklists be combined into one for projects that cover more than one of these changes?**

Yes, the requirements for each of the changes should be combined into a single checklist if the project includes more than one of the changes listed in this AC. For example, adding auxiliary fuel tanks could involve a gross weight increase. In such cases, it is prudent to plan the certification program to show compliance to the applicable rules for these changes at the same time.

## **11. How should the standard checklist be filled in to generate a checklist specific to a project?**

Figures 1 and 2 show the first and second pages of the standard 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 for each of the common STC projects listed in sections 12 through 19 of this document is available at [http://www.faa.gov/other\\_visit/aviation\\_industry/designees\\_delegations/tools/forms/checklists](http://www.faa.gov/other_visit/aviation_industry/designees_delegations/tools/forms/checklists). The regulations shown in the standard and template checklists 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 STC, 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 STC, as shown on the 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](http://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 STC 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 indicate whether the proposed STC is for one serial number only or if it will be for duplication on other aircraft.
- k. Enter a brief description of the modification 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 STC.
- n. Enter the method or combination of methods used to show compliance with the regulations. Make an entry for each regulation (or sub-paragraph as explained in paragraph 11 above) in the checklist. The regulations listed in sections 12 through 19 are considered the

minimum required for showing compliance. Other regulations may be applicable depending on the specific changes proposed for the STC. Determine the applicability to the project for all the regulations. The standard checklist in appendix 1 lists typical methods of compliance that have been acceptable for other STC 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 STC 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. A more detailed description of the method of compliance (for example: component testing, hand calculations, validated finite element model analysis, or a combination of methods) should be included in any compliance plans referenced in the checklist plan column and remarks column described in sections 11.o and 11.q respectively.

(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 of simulated airplane systems, and ground testing of the airplane. These tests may be precursors to a flight test or may be used to show compliance when appropriate, and judged to be conservative.

(3) Analysis (AN) – This method of compliance includes a quantitative or qualitative assessment, as appropriate, of structures, systems, components, or the entire airplane. An analysis may be a precursor to ground and flight tests and a validation of the design. An analysis must be validated using published previous experience or appropriate 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 FAAs 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 section 11.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 section 11.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 modification for this STC; therefore, a showing of compliance is not necessary. Enter the reason the rule is not applicable in the “Applicable Guidance, References, and Remarks” column of the checklist described in section 11.q. below.

o. Enter the plan, drawing, and report numbers used to document the showing of compliance with the regulation. The items referenced here should contain sufficient 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](http://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](http://www.faa.gov/certification/aircraft/av-info/dst/DER_content.htm). Get Designees 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 rule is not applicable in this column. The checklist in this AC lists the latest revisions of other ACs with applicable guidance in this column. These revisions are current as of the release date of AC 23-24. 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](http://www.airweb.faa.gov/AC). Reference other applicable guidance as appropriate.

Supplemental Type Certificate Compliance Checklist							
Project Number: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">a</span> _____ Originator: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">b</span> _____	Date: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">c</span> _____ Revision: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">d</span> _____						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Make: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">e</span></td> <td rowspan="5" style="width: 50%; vertical-align: top; padding: 5px;">           Description of Change: One-only STC <input type="checkbox"/> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">j</span>            Multiple STC <input type="checkbox"/>   <div style="text-align: center; font-size: 2em; margin-top: 20px;"><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">k</span></div> </td> </tr> <tr> <td style="padding: 2px;">Model: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">f</span></td> </tr> <tr> <td style="padding: 2px;">TCDS #: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">g</span></td> </tr> <tr> <td style="padding: 2px;">Original Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">h</span></td> </tr> <tr> <td style="padding: 2px;">Proposed Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">i</span></td> </tr> </table>	Make: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">e</span>	Description of Change: One-only STC <input type="checkbox"/> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">j</span> Multiple STC <input type="checkbox"/>  <div style="text-align: center; font-size: 2em; margin-top: 20px;"><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">k</span></div>	Model: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">f</span>	TCDS #: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">g</span>	Original Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">h</span>	Proposed Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">i</span>	
Make: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">e</span>	Description of Change: One-only STC <input type="checkbox"/> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">j</span> Multiple STC <input type="checkbox"/>  <div style="text-align: center; font-size: 2em; margin-top: 20px;"><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">k</span></div>						
Model: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">f</span>							
TCDS #: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">g</span>							
Original Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">h</span>							
Proposed Certification Basis: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">i</span>							
<p>*Methods of Compliance:</p> <p>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</p> <p style="text-align: right;">Page ____ of <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span></p>							

**Figure 1 – First page of the compliance checklist**

Supplemental Type Certificate Compliance Checklist					
Project Number: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">a</span>			Date: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">c</span>	Revision: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">d</span>	
Originator: <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">b</span>					
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)	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">m</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">n</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">o</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">p</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">q</span>
Subpart A -- General					
<b>Section</b>					
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
23.31 Removable ballast. (3.72)		DE, AN			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**



## Supplemental 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

Page \_\_\_\_ of \_\_\_\_

Figure 3 – Example of an expanded checklist entry

**12. What are the applicable regulations and guidance for the installation of an autopilot system?**

a. This change covers the installation of components associated with an autopilot system including the autopilot mode control and annunciation panel, the autopilot computer, the servos and actuators that drive control surfaces, and the data sources (pressure sensors, attitude data sources, navigation sources, other system interfaces) needed for proper functioning. The certification requirements for these installations are dependent on the type of autopilot system being implemented. AC 23-17B provides additional guidance regarding autopilot installations.

b. There are common certification issues that are related to autopilot installation approvals that need to be addressed, but are not covered in AC 23-17B and other existing guidance. Most of these issues can be related to specific installation aspects and complexity of a particular installation, the interface with existing systems on a particular airplane, and maintenance related issues. These items are dependent on the autopilot design. The following are examples of items that should be considered:

(1) Certification Basis: Advisory Circular 21.101-1 CHG 1 generally classifies autopilot installations as non-significant. Digital autopilot systems frequently are complex enough that this may not be the case. These systems may require additional effort to assure the proper interactions of the software and hardware. Hardware design assurance should also include RTCA/DO-160 testing to make sure the sensors and components being used meet appropriate airworthiness requirements. Other regulations in addition to those listed in section 12.c. below may need to be considered in this case.

(2) System Integration: Current guidance in AC 20-130A and AC 20-138A requires the source of navigation information be annunciated on or near the affected display. For an autopilot installation, the source of navigation data must be clearly annunciated to indicate to the pilot which source is driving the autopilot. This could include a Global Positioning System (GPS) roll steering source, an Instrument Landing System course deviation source, or some other navigation source. The lack of clear annunciation and the subsequent potential for confusion has been a contributing factor to several small airplane accidents. Any new autopilot installation must be integrated with existing navigation systems in a way that is clear to the pilot. The autopilot should be designed to avoid inadvertent mode changes. Also, if a Control Wheel Steering (CWS) function is implemented to allow temporary interrupt of the autopilot for the pilot to reposition the airplane, the CWS switch should not cause inadvertent mode changes.

(3) AFM Limitations on the Autopilot Envelope: Many autopilots are not capable of acceptable control of the airplane in all flight conditions. Frequently, flight manual limitations are used to restrict the use of the autopilot above or below a given airspeed, in certain turbulence conditions, or in certain airplane configurations. Title 14 CFR part 23, § 23.1329 clearly states that the autopilot cannot cause deviations in flight path. This includes the requirement that the autopilot should not be able to drive the airplane into a stalled condition, particularly in icing conditions.

(4) Maintenance Related Issues: The applicant should provide a means to insure proper autopilot rigging with the existing controls system. This would include checking primary and bridle cable tensions to make sure the airplane is rigged properly before and after the installation, and at regular maintenance intervals.

c. The applicable regulations for the installation of an autopilot system should include but are not limited to the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.143, 23.253;

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.391, 23.395, 23.397, 23.561;

(3) Title 14 CFR part 23, subpart D, §§ 23.603, 23.605, 23.607, 23.609, 23.611, 23.613, 23.619, 23.625, 23.627, 23.671, 23.672, 23.677, 23.685, 23.689, 23.693, 23.771, 23.777, 23.779, 23.853, 23.867;

(4) Title 14 CFR part 23, subpart F, §§ 23.1301, 23.1307, 23.1309, 23.1311, 23.1321, 23.1322, 23.1325, 23.1329, 23.1335, 23.1351, 23.1357, 23.1359, 23.1365, 23.1367, 23.1381, 23.1431; and

(5) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1529, 23.1541, 23.1555, 23.1581, 23.1583, 23.1585.

### **13. What are the applicable regulations and guidance for the installation of a reciprocating engine with increased horsepower?**

a. This change covers the replacement of a spark ignition reciprocating engine with a different spark ignition reciprocating engine that is able to supply more horsepower. This type of change is done mostly to increase the performance of the airplane in take-off and climb and maintains the airspeed limits of the airplane. These installations may increase the gross weight of the airplane in which case the applicant should refer to the gross weight increase compliance checklist for additional requirements. The impact of the increased horsepower on the noise level should be considered and accounted for per Title 14 CFR part 36. AC 23-19 provides additional guidance regarding modifications involving increased engine power.

b. The need for a limited spin matrix on an STC program is a subjective decision based on the service history of the specific airplane being modified. It is not possible to offer a comprehensive list of when to re-test the spin matrix because of the number of variables to consider. There are instances of airplanes with significant modifications that had little effect on spin recovery, and airplanes with subtle modifications that changed the spin recovery dramatically. If it is determined that the airplane does need to be re-evaluated for spin recovery, then a limited matrix using the middle and edges of the envelope is normally all that is needed to verify the airplane recovers.

c. The following key airplane characteristics and features seem to relate directly to the “stall/spin” or departure accidents, and should indicate the need for more evaluation of the spin characteristics.

8/24/05

(1) **Stall characteristics** - Does the airplane just buffet at full aft control or does it roll off dramatically with no aerodynamic warning? Does the airplane require talented footwork to keep the wings level or could the pilot put their feet on the floor during the stall with little roll-off? An airplane that is resistant to stalling and easy to keep the wings level may not need a spin recovery re-evaluation, but an airplane with poor stall handling qualities and a poor “stall/spin” accident history will need a spin recovery re-evaluation.

(2) **Stick force gradient** - Airplanes with steep stick force gradients are involved in fewer “stall/spin” accidents than airplanes with light force gradients.

(3) **Stall warning** - A stall warning system can reduce the number of “stall/spin” accidents depending on the effectiveness of the system. There are numerous stall warning schemes ranging from the ineffective lights to the very effective stick shakers with warning horns.

d. The following rules-of-thumb have been used with reasonable success since 1972 for airplane changes that increase the power and should be considered when addressing the spin recovery.

(1) Spin tests that are required because of mass distribution changes will require the use of power (75% Maximum Continuous Power (MCP) / thrust or full throttle, whichever is less) for one full turn into the spin.

(2) Airplanes modified by increasing the installed horsepower (maximum takeoff power) by more than 10% or 25 horsepower, whichever is less, over the original type certificated airplane installed horsepower rating, will require spin testing.

(3) Turbocharged engine installations will be evaluated as follows:

(a) Determine the maximum power available on the original engine at 10,000 feet pressure altitude.

(b) Determine the value of 75% MCP on the new engine.

(c) If the difference between (a) and (b) exceeds either 10% of the original installed horsepower (maximum takeoff power) or 25 horsepower, spin tests will be conducted.

(4) Airplanes modified as described in paragraph 9.d.(2) may accept a de-rated power schedule in lieu of spin testing. The maximum horsepower difference criteria, 10% or 25 horsepower, whichever is less, applies from sea level to the airplane service ceiling. This requires a placard of manifold pressure versus pressure altitude (at rated Revolutions Per Minute (RPM)) corresponding to the maximum allowable horsepower differential between the de-rated engine and the original type certificated engine.

e. Using a limited spin matrix should be considered if the change to the airplane causes a weight and/or a rotational inertia increase of greater than 10%.

f. The applicable regulations for the installation of a reciprocating engine with increased horsepower should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.25, 23.33, 23.45, 23.49, 23.65, 23.66, 23.67, 23.75, 23.77, 23.143, 23.145, 23.147, 23.149, 23.155, 23.161, 23.171, 23.175, 23.177, 23.201, 23.203, 23.207, 23.221 (except agricultural and twin engine airplanes), 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.253;

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.331, 23.333, 23.335, 23.337, 23.341, 23.361, 23.363, 23.371, 23.479, 23.499, (23.572, 23.573, 23.574, 23.575 as required or if part of original certification basis);

(3) Title 14 CFR part 23, subpart D, §§ 23.601, 23.603, 23.607, 23.609, 23.611, 23.613, 23.619, 23.627, 23.629, 23.735, 23.777, 23.779, 23.781, 23.831, 23.841, 23.863, 23.865, 23.867;

(4) Title 14 CFR part 23, subpart E, §§ 23.901, 23.903, 23.905, 23.907, 23.925, 23.929, 23.933, 23.939, 23.943, 23.951, 23.953, 23.954, 23.955, 23.959, 23.961, 23.991, 23.993, 23.994, 23.995, 23.997, 23.1105, 23.1107, 23.1011, 23.1013, 23.1015, 23.1017, 23.1019, 23.1021, 23.1023, 23.1027, 23.1041, 23.1043, 23.1047, 23.1091, 23.1093, 23.1101, 23.1103, 23.1105, 23.1107, 23.1121, 23.1123, 23.1141, 23.1143, 23.1145, 23.1147, 23.1149, 23.1153, 23.1163, 23.1165, 23.1181, 23.1182, 23.1183, 23.1189, 23.1191, 23.1193, 23.1195, 23.1197, 23.1199, 23.1201, 23.1203;

(5) Title 14 CFR part 23, subpart F, §§ 23.1301, 23.1303, 23.1305, 23.1309, 23.1311, 23.1321, 23.1322, 23.1329, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1416, 23.1437, 23.1435, 23.1438;

(6) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1513, 23.1521, 23.1527, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1551, 23.1555, 23.1557, 23.1581, 23.1583, 23.1585, 23.1587; and

(7) Title 14 CFR part 36.

#### **14. What are the applicable regulations and guidance for the installation of a turbo-prop engine with increased horsepower?**

a. This change covers the replacement of a turbo-prop engine with a different turbo-prop engine that is able to supply more horsepower. This type of change is done mostly to increase the performance of the airplane in take-off, climb, and cruise at altitude. These installations may increase the gross weight of the airplane, in which case, the applicant should refer to the gross weight increase compliance checklist for additional requirements. The impact of the increased horsepower on the noise level should be considered and accounted for per Title 14 CFR part 36. AC 23-19 provides additional guidance regarding modifications involving increased engine power.

b. The need for a limited spin matrix on an STC program is a subjective decision based on the service history of the specific airplane being modified. It is not possible to offer a comprehensive list of when to re-test the spin matrix because of the number of variables to consider. There are instances of airplanes with significant modifications that had little effect on spin recovery, and airplanes with subtle modifications that changed the spin recovery dramatically. If it is determined that the airplane does need to be re-evaluated for spin recovery, then a limited matrix using the middle and edges of the envelope is normally all that is needed to verify the airplane recovers.

c. The following key airplane characteristics and features seem to relate directly to the “stall/spin” or departure accidents, and should indicate the need for more evaluation of the spin characteristics.

(1) **Stall characteristics** - Does the airplane just buffet at full aft control or does it roll off dramatically with no aerodynamic warning? Does the airplane require talented footwork to keep the wings level or could the pilot put their feet on the floor during the stall with little roll-off? An airplane that is resistant to stalling and easy to keep the wings level may not need a spin recovery re-evaluation, but an airplane with poor stall handling qualities and a poor “stall/spin” accident history will need a spin recovery re-evaluation.

(2) **Stick force gradient** - Airplanes with steep stick force gradients are involved in fewer “stall/spin” accidents than airplanes with light force gradients.

(3) **Stall warning** - A stall warning system can reduce the number of “stall/spin” accidents depending on the effectiveness of the system. There are numerous stall warning schemes ranging from the ineffective lights to the very effective stick shakers with warning horns.

d. The following rules-of-thumb have been used with reasonable success since 1972 for airplane changes that increase the power and should be considered when addressing the spin recovery.

(1) Spin tests that are required because of mass distribution changes will require the use of power (75% MCP or full throttle, whichever is less) for one full turn into the spin.

(2) Airplanes modified by increasing the installed horsepower (maximum takeoff power) by more than 10% or 25 horsepower, whichever is less, over the original type certificated airplane installed horsepower rating, will require spin testing.

(3) Turboprop engine installations will be evaluated as follows:

(a) Determine the maximum power available on the original engine at 10,000 feet pressure altitude.

(b) Determine the value of 75% MCP on the new engine.

(c) If the difference between (a) and (b) exceeds either 10% of the original installed horsepower (maximum takeoff power) or 25 horsepower, spin tests will be conducted.

(4) Airplanes modified as described in paragraph 10.d.(2) may accept a de-rated power schedule in lieu of spin testing. The maximum horsepower difference criteria, 10% or 25

horsepower whichever is less, applies from sea level to the airplane service ceiling. This requires a placard of manifold pressure versus pressure altitude (at rated RPM) corresponding to the maximum allowable horsepower differential between the de-rated engine and the original type certificated engine.

e. Using a limited spin matrix should be considered if the change to the airplane causes a weight and/or a rotational inertia increase of greater than 10%.

f. The applicable regulations for the installation of a turbo-prop engine with increased horsepower should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.25, 23.33, 23.45, 23.49, 23.65, 23.66, 23.67, 23.75, 23.77, 23.143, 23.145, 23.147, 23.149, 23.155, 23.161, 23.175, 23.171, 23.177, 23.201, 23.203, 23.207, 23.221 (except agricultural and twin engine airplanes), 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.253;

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.331, 23.333, 23.335, 23.337, 23.341, 23.361, 23.363, 23.367, 23.371, 23.479, 23.499, (23.572, 23.573, 23.574, 23.575 as required or if part of original certification basis);

(3) Title 14 CFR part 23, subpart D, §§ 23.601, 23.603, 23.607, 23.609, 23.611, 23.613, 23.619, 23.627, 23.629, 23.735, 23.777, 23.779, 23.781, 23.831, 23.841, 23.863, 23.865, 23.867;

(4) Title 14 CFR part 23, subpart E, §§ 23.901, 23.903, 23.904, 23.905, 23.907, 23.925, 23.929, 23.933, 23.937, 23.939, 23.943, 23.951, 23.953, 23.954, 23.955, 23.959, 23.961, 23.965, 23.973, 23.977, 23.991, 23.993, 23.994, 23.995, 23.997, 23.1011, 23.1013, 23.1015, 23.1017, 23.1019, 23.1021, 23.1023, 23.1027, 23.1041, 23.1043, 23.1045, 23.1091, 23.1093, 23.1103, 23.1105, 23.1107, 23.1111, 23.1121, 23.1123, 23.1141, 23.1143, 23.1145, 23.1149, 23.1153, 23.1155, 23.1163, 23.1165, 23.1181, 23.1182, 23.1183, 23.1189, 23.1191, 23.1193, 23.1195, 23.1197, 23.1199, 23.1201, 23.1203;

(5) Title 14 CFR part 23, subpart F, §§ 23.1301, 23.1303, 23.1305, (23.1307 if necessary to maintain original operating envelope and conditions), 23.1309, 23.1311, 23.1321, 23.1322, 23.1329, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1416, 23.1435, 23.1437, 23.1438;

(6) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1513, 23.1521, 23.1527, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1551, 23.1555, 23.1557, 23.1581, 23.1583, 23.1585, 23.1587;

(7) Title 14 CFR part 34; and

(8) Title 14 CFR part 36.

**15. What are the applicable regulations and guidance for the installation of turbine engines to replace reciprocating engines?**

a. This change covers the replacement of reciprocating engines with gas turbine engines (turbopropeller, turbojet, or turbofan). Additional guidance for this may be found in AC 23-14. The impact on the noise levels should be considered and accounted for per Title 14 CFR part 36. Installations that involve the following changes may require additional substantiation and/or additional certification basis requirements that could exceed the scope of this AC.

- (1) primary structure;
- (2) aerodynamics;
- (3) airspeeds;
- (4) mass distribution (may induce whirl mode, flutter, and fatigue life changes);
- (5) maximum weight;
- (6) system changes;
- (7) changes in center of gravity (c.g.) limits; or
- (8) power increases affecting high speed characteristics or airplane handling qualities.

b. Projects such as commuter category or restricted category airplanes will require a more detailed analysis to establish the appropriate certification basis. Installations that increase the gross weight of the airplane should refer to the gross weight increase compliance checklist for additional requirements.

c. The applicable regulations for the installation of a turbine engine to replace a reciprocating engine should include, but are not limited to, the following:

- (1) Title 14 CFR part 23, subpart B, §§ 23.25, 23.33, 23.45, 23.49, 23.65, 23.67, 23.77, 23.145, 23.149, 23.155, 23.161, 23.175, 23.177, 23.201, 23.203, 23.221 (except agricultural and twin engine airplanes), 23.231, 23.233, 23.239, 23.251, 23.253;
- (2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.331, 23.333, 23.337, 23.341, 23.335, 23.361, 23.363, 23.367, 23.371, 23.479, (23.572, 23.573, 23.574, 23.575 as required or if part of original certification basis);
- (3) Title 14 CFR part 23, subpart D, §§ 23.603, 23.627, 23.629, 23.735, 23.777, 23.781, 23.831, 23.863, 23.865;
- (4) Title 14 CFR part 23, subpart E, §§ 23.901, 23.903, 23.904, 23.905, 23.907, 23.925, 23.929, 23.933, 23.937, 23.939, 23.943, 23.951, 23.953, 23.955, 23.959, 23.961, 23.965, 23.973, 23.977, 23.991, 23.993, 23.994, 23.995, 23.997, 23.1011, 23.1013, 23.1015, 23.1017, 23.1019, 23.1021, 23.1023, 23.1027, 23.1041, 23.1043, 23.1045, 23.1091, 23.1093, 23.1103, 23.1111, 23.1121, 23.1123, 23.1141, 23.1143, 23.1145, 23.1149, 23.1153, 23.1155, 23.1163, 23.1165, 23.1181, 23.1182, 23.1183, 23.1189, 23.1191, 23.1193, 23.1203;



(5) Title 14 CFR part 23, subpart F, §§ 23.1301, 23.1303, 23.1305, 23.1307, 23.1309, 23.1321, 23.1322, 23.1329, 23.1337, 23.1351, 23.1353, 23.1357, 23.1359, 23.1435, 23.1438;

(6) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1513, 23.1521, 23.1527, 23.1529, 23.1545, 23.1549, 23.1551, 23.1555, 23.1557, 23.1583, 23.1585, 23.1587;

(7) Title 14 CFR part 34; and

(8) Title 14 CFR part 36.

**16. What are the applicable regulations and guidance for the installation of a different propeller (simple)?**

a. A simple propeller change consists of replacing an originally certificated propeller with a different propeller that has the same diameter and number of blades as the original propeller. The regulations listed in section 16.b. apply to single engine tractor configuration (Normal Category) airplanes only. The impact on the noise levels should be considered and accounted for per Title 14 CFR part 36. AC 20-66A provides additional guidance regarding propeller installation.

b. The applicable regulations for the installation of a different propeller (simple) should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.33, 23.53, 23.65, 23.71, 23.75, 23.77, 23.201, 23.251;

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.361, 23.363, 23.371, (23.573, 23.574, 23.575 as required or if part of original certification basis);

(3) Title 14 CFR part 23, subpart E, §§ 23.901, 23.905, 23.907, 23.925, 23.1041, 23.1043, 23.1045, 23.1047;

(4) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1521, 23.1529, 23.1541, 23.1549, 23.1559, 23.1581, 23.1583, 23.1585, 23.1587; and

(5) Title 14 CFR part 36.

**17. What are the applicable regulations and guidance for the installation of a different propeller (complex)?**

a. A complex propeller change consists of replacing an originally certificated propeller with a different propeller that has a different diameter and/or a different number of blades than the original propeller. The regulations listed in section 17.b. apply to single engine (Utility, Acrobatic, or Commuter Category) and twin-engine reciprocating and turbine airplanes only. The impact on the noise levels should be considered and accounted for per Title 14 CFR part 36. AC 20-66A provides additional guidance regarding propeller installation.

b. The applicable regulations for the installation of a different propeller (complex) should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.33, 23.45, 23.49, 23.51, 23.53, 23.55, 23.57, 23.59, 23.61, 23.63, 23.65, 23.66, 23.67, 23.69, 23.71, 23.73, 23.75, 23.77, 23.141, 23.143, 23.145, 23.147, 23.149, 23.151, 23.153, 23.155, 23.157, 23.161, 23.171, 23.173, 23.175, 23.177, 23.181, 23.201, 23.203, 23.207, 23.221 (except agricultural and twin engine airplanes), 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.253;

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.321, 23.331, 23.333, 23.335, 23.337, 23.341, 23.347, 23.349, 23.351, 23.361, 23.363, 23.367, 23.371, 23.391, 23.393, 23.395, 23.397, 23.399, 23.405, 23.407, 23.409, 23.415, 23.421, 23.423, 23.425, 23.427, 23.441, 23.443, 23.445, 23.455, 23.459, 23.571, (23.573, 23.574, 23.575 as required or if part of original certification basis);

(3) Title 14 CFR part 23, subpart D, §§ 23.629, 23.671, 23.672, 23.673, 23.675, 23.677, 23.679, 23.681, 23.683, 23.685, 23.687, 23.689, 23.691, 23.693, 23.697, 23.699, 23.701, 23.703, 23.721, 23.723, 23.725, 23.726, 23.727, 23.729, 23.731, 23.733, 23.735, 23.737, 23.745, 23.751, 23.753, 23.755, 23.757, 23.771, 23.773, 23.775, 23.777, 23.779, 23.781, 23.783, 23.785, 23.787, 23.791, 23.803, 23.805, 23.807, 23.811, 23.812, 23.813, 23.815, 23.831, 23.841, 23.843, 23.851, 23.853, 23.855, 23.859, 23.863, 23.865, 23.867, 23.871;

(4) Title 14 CFR part 23, subpart E, §§ 23.901, 23.905, 23.907, 23.925, 23.929, 23.933, 23.934, 23.937, 23.939, 23.943, 23.1027, 23.1041, 23.1043, 23.1045, 23.1047, 23.1091, 23.1093, 23.1121, 23.1149, 23.1153, 23.1155;

(5) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1507, 23.1511, 23.1513, 23.1519, 23.1521, 23.1529, 23.1541, 23.1543, 23.1545, 23.1549, 23.1555, 23.1559, 23.1583, 23.1585, 23.1587; and

(6) Title 14 CFR part 36.

**18. What are the applicable regulations and guidance for the installation of auxiliary fuel tanks?**

a. AC 23-10 provides additional guidance and criteria for the installation of auxiliary fuel tanks. These installations may increase the gross weight of the airplane in which case the applicant should refer to the gross weight increase compliance checklist for additional requirements.

b. Performing spin recovery tests with a limited spin matrix should be considered if the change to the airplane causes a weight and/or a rotational inertia increase of greater than 10%.

c. The applicable regulations for the installation of auxiliary fuel tanks should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.23, 23.25, 23.29, 23.147, 23.251, 23.157, 23.177, 23.181, 23.201, 23.203, 23.221 (except agricultural and twin engine airplanes);

(2) Title 14 CFR part 23, subpart C, §§ 23.301, 23.303, 23.305, 23.307, 23.321, 23.331, 23.333, 23.335, 23.337, 23.341, 23.343, 23.471, 23.473, 23.479, 23.485, 23.561, 23.571, 23.572, (23.573, 23.574, 23.575 as required or if part of original certification basis);

(3) Title 14 CFR part 23, subpart D, §§ 23.601, 23.603, 23.605, 23.607, 23.609, 23.611, 23.613, 23.619, 23.623, 23.625, 23.627, 23.629, 23.777, 23.787, 23.843, 23.853, 23.863, 23.867;

(4) Title 14 CFR part 23, subpart E, §§ 23.901, 23.903, 23.951, 23.953, 23.954, 23.955, 23.957, 23.959, 23.961, 23.963, 23.965, 23.967, 23.969, 23.971, 23.973, 23.975, 23.977, 23.991, 23.993, 23.994, 23.995, 23.997, 23.999, 23.1001, 23.1011, 23.1183, 23.1189;

(5) Title 14 CFR part 23, subpart F, §§ 23.1301, 23.1305, 23.1309, 23.1337, 23.1351, 23.1357;

(6) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1507, 23.1511, 23.1513, 23.1519, 23.1521, 23.1522, 23.1523, 23.1524, 23.1525, 23.1527, 23.1529, 23.1541, 23.1543, 23.1549, 23.1553, 23.1555, 23.1557, 23.1581, 23.1583, 23.1585, 23.1589; and

(7) Title 14 CFR part 36 if the auxiliary tanks are externally mounted or there is a change to the airplane performance.

**19. What are the applicable regulations and guidance to increase the airplane gross weight?**

a. Many changes may cause an increase in the airplane gross weight. In many cases, due to changes in the operational requirements of an owner/operator, the need arises to modify and

substantiate the structure for an increase in maximum takeoff weight, in maximum landing weight, or in maximum zero fuel weight.

b. An increase in maximum gross weight is in general a large effort, as it requires a complete review of all aspects of the aircraft design. When an airplane is initially designed, the manufacturer determines the gross weight through a process of compromise with the desired performance features. Once the gross weight is fixed, the details of the aircraft are designed around that weight. This means that the basic loads for the aircraft are determined using that weight, then the control surfaces and wing area are sized for those loads, and the size of the primary structure is determined using the same loads. Most manufacturers over estimate the weight by a small percentage to allow for future growth and unforeseen weight increases. This margin may be used in some cases to allow a small gross weight increase without changing the primary structure, but the applicant must be familiar with all the analysis to determine how much margin exists in the design. It must be kept in mind that this margin may exist to mitigate fatigue and airframe longevity. Gross weight changes that do not involve using this margin in the airframe will require a complete re-analysis of the airplane to determine the effect on basic loads, performance, and primary structural strength.

c. A common misconception is that since an airplane has operated over gross weight and seems to fly fine, the airplane is good for that weight, and should be granted an approval for increased gross weight. The nature of aircraft design is that many airplanes have the capability to takeoff and fly well in excess of their allowable gross weight under the right conditions. However, the airplane will no longer be able to perform in its entire certificated performance envelope. This results in a lower service ceiling, decreased takeoff and climb performance, increased landing distance, a decreased ability to withstand the design g-loads without deformation, and a decrease in fatigue life of the airframe that could result in early structural cracking and possible failure. In the end, this airplane no longer meets the requirements of 14 CFR part 23, and is less safe than the original design even though it seems to fly fine.

d. The need for a limited spin matrix on an STC program is a subjective decision based on the service history of the specific airplane being modified. It is not possible to offer a comprehensive list of when to re-test the spin matrix because of the number of variables to consider. There are instances of airplanes with significant modifications that had little effect on spin recovery, and airplanes with subtle modifications that changed the spin recovery dramatically. If it is determined that the airplane does need to be re-evaluated for spin recovery, then a limited matrix using the middle and edges of the envelope is normally all that is needed to verify the airplane recovers. Using a limited spin matrix should be considered if the change to the airplane causes a weight and/or a rotational inertia increase of greater than 10%.

e. The applicable regulations to increase the airplane gross weight should include, but are not limited to, the following:

(1) Title 14 CFR part 23, subpart B, §§ 23.21, 23.23, 23.25, 23.29, 23.45, 23.49, 23.51, 23.53, 23.55, 23.59, 23.63, 23.65, 23.66, 23.67, 23.69, 23.71, 23.73, 23.75, 23.77, 23.141, 23.143, 23.145, 23.147, 23.149, 23.151, 23.153, 23.155, 23.157, 23.161, 23.171, 23.173, 23.175,

(2) 23.177, 23.181, 23.201, 23.203, 23.207, 23.221 (except agricultural and twin engine airplanes), 23.231, 23.233, 23.235, 23.237, 23.239, 23.251, 23.253;

(3) Title 14 CFR part 23, subpart C, §§ 23.301, 23.302, 23.303, 23.305, 23.307, 23.321, 23.331, 23.333, 23.335, 23.337, 23.341, 23.343, 23.345, 23.347, 23.349, 23.351, 23.369, 23.373, 23.391, 23.395, 23.397, 23.399, 23.405, 23.407, 23.409, 23.415, 23.421, 23.423, 23.425, 23.427, 23.441, 23.443, 23.445, 23.455, 23.459, 23.471, 23.473, 23.479, 23.481, 23.483, 23.485, 23.493, 23.497, 23.499, 23.505, 23.507, 23.509, 23.511, 23.521, 23.523, 23.525, 23.527, 23.529, 23.531, 23.533, 23.535, 23.537, 23.561, 23.562, 23.571, 23.572, 23.573, 23.574, 23.575;

(4) Title 14 CFR part 23, subpart D, §§ 23.601, 23.603, 23.605, 23.607, 23.609, 23.611, 23.613, 23.619, 23.621, 23.623, 23.625, 23.627, 23.629, 23.641, 23.651, 23.657, 23.671, 23.672, 23.673, 23.677, 23.681, 23.683, 23.687, 23.689, 23.691, 23.693, 23.721, 23.723, 23.725, 23.726, 23.727, 23.731, 23.733, 23.735, (23.737 if part of type design), 23.751, 23.753, 23.755, 23.757;

(5) Title 14 CFR part 23, subpart G, §§ 23.1501, 23.1505, 23.1507, 23.1511, 23.1513, 23.1519, 23.1521, 23.1527, 23.1529, 23.1541, 23.1557, 23.1563, 23.1567, 23.1581, 23.1583, 23.1585, 23.1587, 23.1589; and

(6) Title 14 CFR part 36.

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## **APPENDIX 1 – STANDARD COMPLIANCE CHECKLIST**

## Supplemental Type Certificate Compliance Checklist

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<b>Make:</b>	Description of Change:    One-only STC <input type="checkbox"/> Multiple STC <input type="checkbox"/>
<b>Model:</b>	
<b>TCDS #:</b>	
<b>Original Certification Basis:</b>	
<b>Proposed Certification Basis:</b>	

**\*Methods of Compliance:**

FT = Flight Test, GT = Ground Test, AN = Analysis, DE = Design, SI = Similarity, ELOS = Equivalent Level of Safety Finding,  
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## Supplemental Type Certificate Compliance Checklist

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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
<b>Title 14 CFR part 23: (CAR 3)</b>					
<b>Subpart A -- General</b>					
<b>Section</b>					
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
<b>Subpart B -- Flight</b>					
<b>GENERAL</b>					
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

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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
23.29 Empty weight and corresponding center of gravity. (3.73 (1st sent.), 3.73-3(b))		AN, GT			AC 23-8B
23.31 Removable ballast. (3.72)		DE, AN			AC 23-8B
23.33 Propeller speed and pitch limits. (3.418, 3.419, 3.420, 3.421)		AN, FT			AC 23-8B
<b>PERFORMANCE</b>					
23.45 General. (3.81)		AN, GT, FT			AC 23-8B
23.49 Stalling period. (3.82, 3.81-1, 3.83)		AN, FT			AC 23-8B
23.51 Takeoff speeds. (3.84 (less (c)), 3.84-2, 3.84a, 3.780(a) (1st sent.))		AN, FT			AC 23-8B
23.53 Takeoff performance.		AN, FT			AC 23-8B
23.55 Accelerate-stop distance.		GT, FT			AC 23-8B
23.57 Takeoff path.		FT			AC 23-8B
23.59 Takeoff distance and takeoff run.		FT			AC 23-8B
23.61 Takeoff flight path.		FT			AC 23-8B
23.63 Climb: General.		FT			AC 23-8B
23.65 Climb: All engines operating. (3.85(a), 3.85-5(b) (less (1) and (2)), 3.85a(a), 3.419-1 (a) (2nd sent.))		FT			AC 23-8B

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23.66 Takeoff climb: One-engine inoperative.		FT			AC 23-8B
23.67 Climb: One engine inoperative. (3.85(b), 3.85-3, 3.85a(b))		FT			AC 23-8B
23.69 Enroute climb/descent.		FT			AC 23-8B
23.71 Glide: Single-engine airplanes.		FT			AC 23-8B
23.73 Reference landing approach speed.		FT			AC 23-8B
23.75 Landing distance. (3.86(a), 3.87, 3.780(a) (1st sent.))		FT			AC 23-8B
23.77 Balked landing. (3.85 (less (a) and (b)), 3.85a (less (a) and (b)))		FT			AC 23-8B
<b>FLIGHT CHARACTERISTICS</b>					
23.141 General. (3.105)		FT			AC 23-8B
<b>CONTROLLABILITY AND MANEUVERABILITY</b>					
23.143 General. (3.106)		FT			AC 23-8B, AC 23.143-1
23.145 Longitudinal control. (3.109)		FT			AC 23-8B
23.147 Directional and lateral control. (3.110)		FT			AC 23-8B

## \*Methods of Compliance:

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23.149 Minimum control speed. (3.111)		FT			AC 23-8B
23.151 Acrobatic maneuvers. (3.107, 3.108)		FT			AC 23-8B
23.153 Control during landings.		FT			AC 23-8B
23.155 Elevator control force in maneuvers.		FT			AC 23-8B
23.157 Rate of roll.		FT			AC 23-8B
<b>TRIM</b>					
23.161 Trim. (3.112)		FT			AC 23-8B
<b>STABILITY</b>					
23.171 General. (3.113)		FT			AC 23-8B
23.173 Static longitudinal stability. (3.114, 3.115 (less (a)-(c)))		FT			AC 23-8B
23.175 Demonstration of static longitudinal stability. (3.115 (a)-(c))		FT			AC 23-8B
23.177 Static directional and lateral stability. (3.118)		FT			AC 23-8B
23.181 Dynamic stability. (3.117)		FT			AC 23-8B

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<b>STALLS</b>					
23.201 Wings level stall. (3.120(a), 3.120(b), 3.120 (less (a)-(f)), 3.120-1, 3.122 (2nd sent.))		FT			AC 23-8B
23.203 Turning flight and accelerated turning stalls. (3.120(c), 3.120(d), 3.120(e) (1st through 26th words), 3.121, 3.122 (less 2nd sent.))		FT			AC 23-8B
23.207 Stall warning. (3.120(f))		FT			AC 23-8B
<b>SPINNING</b>					
23.221 Spinning. (3.124(a) (less last sent.), 3.124(b), 3.124(c) (less (4)), 3.124(d))		FT			AC 23-8B
<b>GROUND AND WATER HANDLING CHARACTERISTICS</b>					
23.231 Longitudinal stability and control. (3.144)		FT			AC 23-8B
23.233 Directional stability and control. (3.145)		FT			AC 23-8B
23.235 Operation on unpaved surfaces. (3.146)		FT			AC 23-8B

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23.237 Operation on water.		FT			AC 23-8B
23.239 Spray characteristics. (3.147)		FT			AC 23-8B
<b>MISCELLANEOUS FLIGHT REQUIREMENTS</b>					
23.251 Vibration and buffeting. (3.159)		FT			AC 23-8B, PS-ACE100-2001-004, PS-ACE100-2002-008
23.253 High speed characteristics.		FT			AC 23-8B
<b>Subpart C -- Structure</b>					
<b>GENERAL</b>					
23.301 Loads. (3.171,3.171-1)		AN, GT, FT			AC 23-19
23.302 Canard or tandem wing configurations.		AN, GT, FT			AC 23-19
23.303 Factor of safety. (3.172)		AN, GT			AC 23-19
23.305 Strength and deformation. (3.173)		AN, GT			AC 23-19, PS-ACE100-2001-006, PS-ACE100-2004-10030
23.307 Proof of structure. (3.174)		AN, GT			AC 23-19, PS-ACE100-2001-006, PS-ACE100-2004-10030

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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
<b>FLIGHT LOADS</b>					
23.321 General. (3.181, 3.182)		AN, GT, FT			AC 23-19
23.331 Symmetrical flight conditions. (3.183, 3.189)		AN			AC 23-19
23.333 Flight envelope. (3.185, 3.187, Figure 3-1)		AN, GT			AC 23-19
23.335 Design airspeeds. (3.184)		AN			AC 23-19
23.337 Limit maneuvering load factors. (3.186)		AN			AC 23-19
23.341 Gust loads factors. (3.188, 3.188-1)		AN			AC 23-19
23.343 Design fuel loads.		AN, GT			AC 23-19
23.345 High lift devices. (3.190 and note, 3.190-1)		AN, GT			AC 23-19
23.347 Unsymmetrical flight conditions. (3.191 (less (a) and (b)))		AN			AC 23-19
23.349 Rolling conditions. (3.191(a) and note)		AN, GT			AC 23-19
23.351 Yawing conditions. (3.191(b))		AN, GT			AC 23-19
23.361 Engine torque. (3.195)		AN, GT			AC 23-19
23.363 Side load on engine mount. (3.196)		AN, GT			AC 23-19

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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
23.365 Pressurized cabin loads. (3.197)		AN, GT			AC 23-19
23.367 Unsymmetrical loads due to engine failure.		AN, GT			AC 23-19
23.369 Rear lift truss. (3.194 and note)		AN			AC 23-19
23.371 Gyroscopic and aerodynamic loads.		AN			AC 23-19
23.373 Speed control devices.		AN, GT			AC 23-19
<b>CONTROL SURFACE AND SYSTEM LOADS</b>					
23.391 Control surface loads. (3.211)		AN, GT			AC 23-19
23.393 Loads parallel to hinge line.		AN			AC 23-19
23.395 Control system loads. (3.231, 3.231-1 (1st and 4th sent.), 3.231-2)		AN, GT			AC 23-19
23.397 Limit control forces and torques. (3.212, 3.212-1, Figure 3-11)		AN, GT			AC 23-19
23.399 Dual control system. (3.232)		AN, GT			AC 23-19
23.405 Secondary control system. (3.234)		AN			AC 23-19
23.407 Trim tab effects. (3.213)		AN			AC 23-19
23.409 Tabs. (3.224)		AN			AC 23-19

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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
23.415 Ground gust conditions. (3.233, 3.233-1)		AN			AC 23-19
<b>HORIZONTAL STABILIZING AND BALANCING SURFACES</b>					
23.421 Balancing loads. (3.215 and note)		AN			AC 23-19
23.423 Maneuvering loads. (3.216 and notes, 3.216-4 (a) and (b))		AN			AC 23-19
23.425 Gust loads. (3.217 and notes)		AN			AC 23-19
23.427 Unsymmetrical loads. (3.218)		AN			AC 23-19
<b>VERTICAL SURFACES</b>					
23.441 Maneuvering loads. (3.219 and notes)		AN			AC 23-19
23.443 Gust loads. (3.220)		AN			AC 23-19
23.445 Outboard fins or winglets. (3.221)		AN, GT			AC 23-19

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<b>AILERONS AND SPECIAL DEVICES</b>					
23.455 Ailerons. (3.222(a), (b), and (e))		AN			AC 23-19
23.459 Special devices. (3.225)		AN, GT			AC 23-19
<b>GROUND LOADS</b>					
23.471 General. (3.241)		AN, GT			AC 23-19
23.473 Ground load conditions and assumptions. (3.85-4 (last sent.), 3.242, 3.243)		AN, GT			AC 23-19
23.477 Landing gear arrangement. (3.244)		AN			AC 23-19
23.479 Level landing conditions. (3.245, 3.245-1(b))		AN, GT			AC 23-19
23.481 Tail down landing conditions. (3.246)		AN, GT			AC 23-19
23.483 One-wheel landing conditions. (3.247)		AN, GT			AC 23-19
23.485 Side load conditions. (3.249)		AN, GT			AC 23-19
23.493 Braked roll conditions. (3.248)		AN, GT			AC 23-19

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23.497 Supplementary conditions for tail wheels. (3.250, 3.251, 3.252)		AN			AC 23-19
23.499 Supplementary conditions for nose wheels. (3.253, 3.254, 3.255, 3.256)		AN			AC 23-19
23.505 Supplementary conditions for skiplanes. (3.257)		AN			AC 23-19
23.507 Jacking loads.		AN			AC 23-19
23.509 Towing loads.		AN			AC 23-19
23.511 Ground load; unsymmetrical loads on multiple-wheel units.		AN			AC 23-19
<b>WATER LOADS</b>					
23.521 Water load conditions. (3.265, 3.265-1(a), 3.265-2)		AN, GT			AC 23-19
23.523 Design weights and center of gravity positions.		AN, GT			AC 23-19
23.525 Application of loads.		AN			AC 23-19
23.527 Hull and main float load factors.		AN			AC 23-19
23.529 Hull and main float landing conditions.		AN			AC 23-19
23.531 Hull and main float takeoff condition.		AN			AC 23-19

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23.533 Hull and main float bottom pressures.		AN			AC 23-19
23.535 Auxiliary float loads.		AN			AC 23-19
23.537 Seawing loads.		AN, GT			AC 23-19
<b>EMERGENCY LANDING CONDITIONS</b>					
23.561 General.		AN, GT			AC 23-19
23.562 Emergency landing dynamic conditions.		AN, GT			AC 23-19, AC 23.562-1
<b>FATIGUE EVALUATION</b>					
23.571 Metallic pressurized cabin structures. (3.270)		AN, GT			AC 23-19
23.572 Metallic wing, empennage, and associated structures.		AN, GT			AC 23-19
23.573 Damage tolerance and fatigue evaluation of structure.		AN, GT			AC 23-19, PS-ACE100-2001-006
23.574 Metallic damage tolerance and fatigue evaluation of commuter category airplanes.		AN, GT			AC 23-19
23.575 Inspections and other procedures.		DE			

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<b>Subpart D -- Design and Construction</b>					
23.601 General. (3.291)		DE, AN, GT			AC 23-19, PS-ACE100-2002-006, PS-ACE100-2001-006, PS-ACE100-2004-10039
23.603 Materials and workmanship. (3.292)		DE, AN, GT			AC 23-19, PS-ACE100-2002-006, PS-ACE100-2001-006, PS-ACE100-2004-10039
23.605 Fabrication methods. (3.293)		DE			AC 23-19, PS-ACE100-2002-006, PS-ACE100-2001-006, PS-ACE100-2004-10039
23.607 Fasteners. (3.294 (last sent.))		DE			AC 23-19, AC 23.607-1
23.609 Protection of structure. (3.295)		DE			AC 23-19, PS-ACE100-2001-006, PS-ACE100-2004-10030
23.611 Accessibility provisions. (3.296)		DE			AC 23-19
23.613 Material strength properties and design values. (3.301 and note)		DE, AN, GT			AC 23-19, PS-ACE100-2002-006, PS-ACE100-2001-006, PS-ACE100-2004-10030
23.619 Special factors. (3.302, 3.303)		AN, GT			AC 23-19
23.621 Casting factors. (3.304)		AN, GT			AC 23-19
23.623 Bearing factors. (3.305)		AN			AC 23-19
23.625 Fitting factors. (3.306)		AN			AC 23-19

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23.627 Fatigue strength. (3.307)		AN			AC 23-19
23.629 Flutter. (3.311, 3.11-1, 3.311-2(a))		AN, GT, FT			AC 23-19, AC 23.629-1B, PS-ACE100-2002-008
<b>WINGS</b>					
23.641 Proof of strength. (3.317)		AN, GT			AC 23-19
<b>CONTROL SURFACES</b>					
23.651 Proof of strength. (3.327)		AN			AC 23-19
23.655 Installation. (3.328)		DE, AN			AC 23-19
23.657 Hinges. (3.329)		AN			AC 23-19
23.659 Mass balance. (3.330)		AN			AC 23-19
<b>CONTROL SYSTEMS</b>					
23.671 General. (3.335)		DE, AN, GT, FT			AC 23-8B, AC 23-17B, PS-ACE100-2001-004
23.672 Stability augmentation and automatic and power-operated systems.		DE, AN, GT, FT			AC 23-8B, AC 23-17B, PS-ACE100-2001-004
23.673 Primary flight controls. (3.336)		DE			AC 23-17B
23.675 Stops.		DE, AN, FT			AC 23-17B

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23.677 Trim systems. (3.337)		DE, AN, FT			AC 23-8B, AC 23-17B, PS-ACE100-2001-004
23.679 Control system locks.		DE, GT			AC 23-8B, AC 23-17B, PS-ACE100-2001-004
23.681 Limit load static tests.		AN or GT			AC 23-17B
23.683 Operation tests.		GT, FT			AC 23-17B
23.685 Control system details.		DE			AC 23-17B
23.687 Spring devices.		AN, GT, FT			AC 23-17B
23.689 Cable systems.		DE			AC 23-17B
23.691 Artificial stall barrier system.		AN, FT			AC 23-8B, AC 23-17B
23.693 Joints.		AN			AC 23-17B
23.697 Wing flap controls.		DE, FT			AC 23-8B, AC 23-17B
23.699 Wing flap position indicator.		GT, FT			AC 23-8B, AC 23-17B
23.701 Flap interconnection.		DE, AN, FT			AC 23-8B, AC 23-17B
23.703 Takeoff warning system.		DE, FT			AC 23-17B
<b>LANDING GEAR</b>					
23.721 General.		AN or FT			AC 23-17B
23.723 Shock absorption tests.		AN or GT			AC 23-17B
23.725 Limit drop tests.		GT			AC 23-17B
23.726 Ground load dynamic tests.		AN or GT			AC 23-17B
23.727 Reserve energy absorption drop test.		GT			AC 23-17B

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23.729 Landing gear extension and retraction system.		DE, AN, FT			AC 23-8B, AC 23-17B
23.731 Wheels.		DE, AN			AC 23-17B
23.733 Tires.		DE, AN			AC 23-17B
23.735 Brakes.		AN, GT, FT			AC 23-8B, AC 23-17B
23.737 Skis.		AN			AC 23-17B
23.745 Nose/tail wheel steering.		FT			AC 23-17B
<b>FLOATS AND HULLS</b>					
23.751 Main float buoyancy.		DE, AN			AC 23-17B
23.753 Main float design.		AN, GT			AC 23-17B
23.755 Hulls.		DE, AN			AC 23-17B
23.757 Auxiliary floats.		AN			AC 23-17B
<b>PERSONNEL AND CARGO ACCOMMODATIONS</b>					
23.771 Pilot compartment.		DE, FT			AC 23-8B, AC 23-17B, AC 23-1311-1A, PS-ACE100-2001-004
23.773 Pilot compartment view.		GT, FT			AC 23-8B, AC 23-17B, AC 23-1311-1A, PS-ACE100-2001-004
23.775 Windshields and windows.		DE, GT			AC 23-8B, AC 23-17B

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23.777 Cockpit controls.		DE, FT			AC 23-8B, AC 23-17B, AC 23-1311-1A, PS-ACE100-2001-004
23.779 Motion and effect of cockpit controls. (Figure 3-14)		DE, FT			AC 23-17B
23.781 Cockpit control knob shape. (Figure 3-13)		DE			AC 23-17B
23.783 Doors. (3.389)		DE, AN, GT			AC 23-17B
23.785 Seats, berths, litters, safety belts, and shoulder harnesses. (3.390, 3.390-2)		DE, AN, GT			AC 23-8B, AC 23-17B, PS-ACE100-2001-004
23.787 Baggage and cargo compartments. (3.392)		DE, AN, GT			AC 23-17B
23.791 Passenger information signs.		DE, GT			AC 23-17B
23.803 Emergency evacuation.		GT			AC 23-8B, AC 23-17B
23.805 Flightcrew emergency exits.		DE, AN			AC 23-17B
23.807 Emergency exits.		DE, GT			AC 23-8B, AC 23-17B
23.811 Emergency exit marking.		DE, AN			AC 23-17B
23.812 Emergency lighting.		DE, AN, GT			AC 23-17B
23.813 Emergency exit access.		DE, AN			AC 23-17B
23.815 Width of aisle.		DE			AC 23-17B
23.831 Ventilation. (3.393)		AN, GT, FT			AC 23-8B, AC 23-17B

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<b>PRESSURIZATION</b>					
23.841 Pressurized cabins. (3.395)		DE, AN, GT			AC 23-8B, AC 23-17B
23.843 Pressurization tests. (3.396)		GT, FT			AC 23-8B, AC 23-17B
<b>FIRE PROTECTION</b>					
23.851 Fire extinguishers.		DE			AC 23-17B
23.853 Passenger and crew compartment interiors.		AN, GT			AC 23-2, AC 23-17B, PS-ACE100-2004-10023, PS-ACE100-2004-10030
23.855 Cargo and baggage compartment fire protection.		DE, GT			AC 23-2, AC 23-17B
23.859 Combustion heater fire protection.		DE, AN, GT			AC 23-17B
23.863 Flammable fluid fire protection.		DE and AN or GT			AC 23-17B
23.865 Fire protection of flight controls, engine mounts, and other flight structure.		DE, AN, GT			AC 23-17B

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<b>ELECTRICAL BONDING AND LIGHTNING PROTECTION</b>					
23.867 Electrical bonding and protection against lightning and static electricity.		DE, GT			AC 23-17B, PS-ACE100-2004-10030
<b>MISCELLANEOUS</b>					
23.871 Leveling means. (3.401)		DE			AC 23-17B
<b>Subpart E -- Powerplant</b>					
<b>GENERAL</b>					
23.901 Installation. (3.411)		DE, AN, GT, FT			AC 23-8B, AC 23-16A, AC 20-136, AC 23-1311-1A
23.903 Engines. (3.415)		DE, AN, GT, FT			AC 23-8B, AC 23-16A, AC 20-136
23.904 Automatic power reserve system.		AN, GT, FT			AC 23-16A
23.905 Propellers. (3.416)		DE, AN, GT, FT			AC 23-8B, AC 23-16A
23.907 Propeller vibration. (3.417)		AN, GT, FT			AC 23-16A
23.909 Turbocharger systems.		AN, GT, FT			AC 23-8B, AC 23-16A

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23.925 Propeller clearance. (3.422, 3.422-2)		AN, GT			AC 23-8B, AC 23-16A
23.929 Engine installation ice protection.		AN, GT, FT			AC 23-8B, AC 23-16A
23.933 Reversing systems.		AN, GT, FT			AC 23-8B, AC 23-16A
23.934 Turbojet and turbofan engine thrust reverser systems tests.		AN, GT, FT			AC 23-16A
23.937 Turbopropeller-drag limiting systems.		AN			AC 23-16A
23.939 Powerplant operating characteristics.		AN, GT, FT			AC 23-8B, AC 23-16A
23.943 Negative acceleration.		FT			AC 23-8B, AC 23-16A
<b>FUEL SYSTEM</b>					
23.951 General. (3.429, 3.430)		AN, GT, FT			AC 23-16A
23.953 Fuel system independence. (3.431)		AN, GT, FT			AC 23-16A
23.954 Fuel system lightning protection.		DE, AN			AC 23-16A, AC 20-53A, AC 20-136
23.955 Fuel flow. (3.433, 3.434, 3.435, 3.436)		DE, AN, GT			AC 23-16A
23.957 Flow between interconnected tanks. (3.439)		DE, AN, GT			AC 23-16A

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23.959 Unusable fuel supply. (3.437(a) (less last sent.), 3.437 (less (a)))		AN, GT, FT			AC 23-8B, AC 23-16A
23.961 Fuel system hot weather operation. (3.438)		DE, AN, GT, FT			AC 23-8B, AC 23-16A
23.963 Fuel tanks: General. (3.440 (less last two sent.))		DE, AN, GT			AC 23-16A
23.965 Fuel tank tests. (3.441)		AN, GT			AC 23-16A
23.967 Fuel tank installation. (3.442, 3.442-1)		DE, AN			AC 23-16A
23.969 Fuel tank expansion space. (3.443)		DE, AN			AC 23-16A
23.971 Fuel tank sump. (3.444)		DE, AN			AC 23-16A
23.973 Fuel tank filler connection. (3.445)		DE, AN			AC 23-16A
23.975 Fuel tank vents and carburetor vapor vents. (3.446, 3.447A)		DE, AN, GT, FT			AC 23-16A
23.977 Fuel tank outlet. (3.448)		DE, AN			AC 23-16A
23.979 Pressure fueling systems.		DE, GT			AC 23-16A
<b>FUEL SYSTEM COMPONENTS</b>					
23.991 Fuel pumps. (3.449, 3.449-1)		DE, AN, GT, FT			AC 23-16A

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23.993 Fuel system lines and fittings. (3.550)		DE, AN, GT			AC 23-16A
23.994 Fuel system components.		DE, AN			AC 23-16A
23.995 Fuel valves and controls. (3.551, 3.633)		DE, AN, FT			AC 23-16A
23.997 Fuel strainer or filter. (3.552)		DE, AN, GT			AC 23-16A
23.999 Fuel system drains. (3.553)		DE, AN, GT			AC 23-16A
23.1001 Fuel jettisoning system.		DE, AN, GT, FT			AC 23-8B, AC 23-16A
<b>OIL SYSTEM</b>					
23.1011 General. (3.561, 3.561-1(b))		DE, AN, GT, FT			AC 23-16A
23.1013 Oil tanks. (3.563, 3.565, 3.566, 3.567, 3.568, 3.569)		DE, AN, GT			AC 23-2, AC 23-16A
23.1015 Oil tank tests. (3.564)		AN, GT			AC 23-16A
23.1017 Oil lines and fittings. (3.570, 3.575)		DE, GT			AC 23-16A
23.1019 Oil strainer or filter. (3.573)		AN, GT			AC 23-16A
23.1021 Oil system drains. (3.574)		AN, GT			AC 23-16A
23.1023 Oil radiators. (3.572)		GT			AC 23-16A
23.1027 Propeller feathering system. (3.577)		AN, GT, FT			AC 23-8B, AC 23-16A

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<b>COOLING</b>					
23.1041 General. (3.581)		AN, GT, FT			AC 23-8B, AC 23-16A
23.1043 Cooling tests. (3.582, 3.582-1, 3.583, 3.583-1 (1st sent.), 3.584, 3.585)		AN, GT, FT			AC 23-8B, AC 23-16A
23.1045 Cooling test procedures for turbine engine powered airplanes. (3.586)		AN, GT, FT			AC 23-8B, AC 23-16A
23.1047 Cooling test procedures for reciprocating engine powered airplanes. (3.587)		AN, GT, FT			AC 23-8B, AC 23-16A
<b>LIQUID COOLING</b>					
23.1061 Installation. (3.588, 3.589, 3.591, 3.592, 3.593, 3.594, 3.595)		DE, AN			AC 23-16A
23.1063 Coolant tank tests. (3.590)		AN, GT			AC 23-16A
<b>INDUCTION SYSTEM</b>					
23.1091 Air induction system. (3.605)		DE, AN, GT, FT			AC 23-2, AC 23-8B, AC 23-16A

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23.1093 Induction system icing protection. (3.606)		DE, SI, AN, GT, FT			AC 23-8B, AC 23-16A
23.1095 Carburetor deicing fluid flow rate. (3.607)		AN, GT			AC 23-16A
23.1097 Carburetor deicing fluid system capacity. (3.608)		DE, AN			AC 23-16A
23.1099 Carburetor deicing fluid system detail design. (3.609)		DE, AN			AC 23-16A
23.1101 Induction air preheater design. (3.610)		DE, AN			AC 23-16A
23.1103 Induction system ducts. (3.611)		DE, AN			AC 23-16A
23.1105 Induction system screens. (3.612)		DE, AN			AC 23-16A
23.1107 Induction system filters.		DE, AN, GT			AC 23-16A
23.1109 Turbocharger bleed air system.		DE, AN, GT			AC 23-16A
23.1111 Turbine engine bleed air system.		DE, AN, GT, FT			AC 23-16A
<b>EXHAUST SYSTEM</b>					
23.1121 General. (3.615)		DE, AN, GT, FT			AC 23-16A

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23.1123 Exhaust system. (3.616)		DE, AN, GT, FT			AC 23-16A
23.1125 Exhaust heat exchangers. (3.617, 3.618)		DE, AN, GT, FT			AC 23-16A
<b>POWERPLANT CONTROLS AND ACCESSORIES</b>					
23.1141 Powerplant controls: General. (3.627)		DE, AN, GT, FT			AC 23-8B, AC 23-16A
23.1142 Auxiliary power unit controls.		DE, AN, GT, FT			AC 23-16A
23.1143 Engine controls. (3.628)		DE, AN, FT			AC 23-16A
23.1145 Ignition switches. (3.629)		DE, AN			AC 23-8B, AC 23-16A
23.1147 Mixture controls. (3.630)		DE, AN, FT			AC 23-16A
23.1149 Propeller speed and pitch controls. (3.631)		DE, AN, GT, FT			AC 23-16A
23.1153 Propeller feathering controls. (3.632)		DE, AN, GT, FT			AC 23-8B, AC 23-16A
23.1155 Turbine engine reverse thrust and propeller pitch settings below the flight regime.		DE, AN, GT, FT			AC 23-16A
23.1157 Carburetor air temperature controls. (3.634)		AN, GT			AC 23-16A

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23.1163 Powerplant accessories. (3.635)		DE, AN			AC 23-16A
23.1165 Engine ignition systems. (3.636)		AN, GT, FT			AC 23-16A
<b>POWERPLANT FIRE PROTECTION</b>					
23.1181 Designated fire zones; regions included.		DE			AC 23-16A
23.1182 Nacelle areas behind firewalls.		DE, AN, GT			AC 23-16A
23.1183 Lines, fittings, and components. (3.638)		DE, AN, GT			AC 23-2, AC 23-16A
23.1189 Shutoff means. (3.637)		DE, AN, GT			AC 23-2, AC 23-8B, AC 23-16A
23.1191 Firewalls. (3.623, 3.623-1, 3.624)		DE, AN, GT			AC 23-2, AC 23-16A
23.1192 Engine accessory compartment diaphragm.		DE, AN, GT			AC 23-2, AC 23-16A
23.1193 Cowling and nacelle. (3.625)		DE, AN, GT			AC 23-2, AC 23-16A
23.1195 Fire extinguishing systems.		DE, AN, GT, FT			AC 23-16A
23.1197 Fire extinguishing agents.		DE, AN, GT			AC 23-16A

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23.1199 Extinguishing agent containers.		DE, AN			AC 23-16A
23.1201 Fire extinguishing systems materials.		DE, AN, GT			AC 23-16A
23.1203 Fire detector system.		DE, AN, GT			AC 23-16A
<b>Subpart F -- Equipment</b>					
<b>GENERAL</b>					
23.1301 Function and installation. (3.651 (less 1st sent.), 3.652, 3.652-1)		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1303 Flight and navigation instruments. (3.655(a))		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1305 Powerplant instruments. (3.655(b))		DE, GT, FT			AC 23-8B, AC 23-17B
23.1307 Miscellaneous equipment. (3.655(d)(1), 3.655 (less (a), (b), and (d)))		DE			AC 23-8B, AC 23-17B
23.1309 Equipment, systems, and installations.		AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1309-1C, AC 23.1311-1A, AC 20-136, PS-ACE100-2001-004

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<b>INSTRUMENTS: INSTALLATION</b>					
23.1311 Electronic display instrument systems.		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1321 Arrangement and visibility. (3.661, 3.662)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1322 Warning, caution, and advisory lights.		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1323 Airspeed indicating system. (3.663)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1325 Static pressure system. (3.665)		DE, GT, FT			AC 23-8B, AC 23-17B
23.1326 Pitot heat indication systems.		DE, GT, FT			AC 23-8B, AC 23-17B, PS-ACE100-2002-007
23.1327 Magnetic direction indicator. (3.666)		GT, FT			AC 23-8B, AC 23-17B
23.1329 Automatic pilot system. (3.667)		DE, GT, FT			AC 23-8B, AC 23-17B
23.1331 Instruments using a power source. (3.668)		DE, AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1335 Flight director systems. (3.669)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A

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23.1337 Powerplant instruments installation. (3.671, 3.672, 3.672-1, 3.673, 3.674, 3.675)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
<b>ELECTRICAL SYSTEMS AND EQUIPMENT</b>					
23.1351 General. (3.681, 3.682, 3.685, 3.686, 3.687)		(DE and AN) or GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1353 Storage battery design and installation. (3.683)		AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1357 Circuit protective devices. (3.690, 3.691, 3.692)		DE, AN, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1359 Electrical system fire protection.		AN, GT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2004-10023
23.1361 Master switch arrangement. (3.688, 3.689)		DE, GT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1365 Electric cables and equipment. (3.693)		DE, AN, GT			AC 23-8B, AC 23-17B, AC 23.1311-1A
23.1367 Switches. (3.694, 3.695)		DE, GT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004

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<b>LIGHTS</b>					
23.1381 Instrument lights. (3.696, 3.696-1, 3.697)		DE, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, PS-ACE100-2001-004
23.1383 Taxi and landing lights. (3.698, 3.699)		DE, FT			AC 23-8B, AC 23-17B
23.1385 Position light system installation. (3.700)		DE, AN, GT			AC 23-17B, AC 20-74
23.1387 Position light system dihedral angles. (3.701)		DE, AN, GT			AC 23-17B, AC 20-7
23.1389 Position light distribution and intensities. (3.702, 3.702-1, 3.702-2)		DE, AN, GT			AC 23-17B
23.1391 Minimum intensities in the horizontal plane of position lights. (Figure 3-15)		DE, GT			AC 23-17B
23.1393 Minimum intensities in any vertical plane of position lights. (Figure 3-16)		DE, GT			AC 23-17B
23.1395 Maximum intensities in overlapping beams of position lights. (Figure 3-17)		DE, GT			AC 23-17B
23.1397 Color specifications. (3.703)		GT			AC 23-17B
23.1399 Riding light. (3.704)		GT			AC 23-17B
23.1401 Anticollision light system. (3.705, 3.705-1 (1st sent.), Figure 3-18)		DE, AN, GT, FT			AC 23-17B, AC 20-74

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<b>SAFETY EQUIPMENT</b>					
23.1411 General. (3.711 (1st through 27th words))		DE			AC 23-8B, AC 23-17B
23.1415 Ditching equipment. (3.716, 3.717, 3.718)		DE, GT			AC 23-8B, AC 23-17B
23.1416 Pneumatic de-icer boot system.		DE, GT			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, PExmpt			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.
<b>MISCELLANEOUS EQUIPMENT</b>					
23.1431 Electronic equipment. (3.721)		AN, GT, FT			AC 23-8B, AC 23-17B, AC 23.1311-1A, AC 20-136, PS-ACE100-2001-004
23.1435 Hydraulic systems. (3.726, 3.727, 3.728)		AN, GT			AC 23-8B, AC 23-17B
23.1437 Accessories for multiengine airplanes. (3.725)		DE			AC 23-17B

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23.1438 Pressurization and pneumatic systems.		AN or GT			AC 23-17B
23.1441 Oxygen equipment and supply.		DE			AC 23-8B, AC 23-17B
23.1443 Minimum mass flow of supplemental oxygen.		AN			AC 23-17B
23.1445 Oxygen distribution system.		DE			AC 23-17B
23.1447 Equipment standards for oxygen dispensing units.		DE, GT, FT			AC 23-8B, AC 23-17B
23.1449 Means for determining use of oxygen.		DE			AC 23-8B, AC 23-17B
23.1450 Chemical oxygen generators.		DE			AC 23-17B
23.1451 Fire protection for oxygen equipment.		DE			AC 23-17B
23.1453 Protection of oxygen equipment from rupture.		DE, GT			AC 23-17B
23.1457 Cockpit voice recorders.		DE, GT, FT			AC 23-8B, AC 23-17B
23.1459 Flight recorders.		DE, GT, FT			AC 23-8B, AC 23-17B
23.1461 Equipment containing high energy rotors.		AN, GT			AC 23-17B
<b>Subpart G -- Operating Limitations and Information</b>					
23.1501 General. (3.735, 3.737)		DE, FT			AC 23-8B, AC 23.1311-1A

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23.1505 Airspeed limitations. (3.738, 3.739, 3.740)		DE, FT			AC 23-8B
23.1507 Operating maneuvering speed. (3.741)		DE, FT			AC 23-8B
23.1511 Flap extended speed. (3.742)		DE, FT			AC 23-8B
23.1513 Minimum control speed. (3.743)		DE, FT			AC 23-8B
23.1519 Weight and center of gravity. (3.748)		DE, FT			AC 23-8B
23.1521 Powerplant limitations. (3.744)		DE, FT			AC 23-8B
23.1522 Auxiliary power unit limitations.		DE, FT			
23.1523 Minimum flight crew. (3.749)		DE, FT			AC 23-8B, AC 23.1523, PS-ACE100-2001-004
23.1524 Maximum passenger seating configuration.		DE, FT			AC 23-8B
23.1525 Kinds of operation. (3.750)		DE, FT			AC 23-8B
23.1527 Maximum operating altitude.		DE, FT			AC 23-8B
23.1529 Instructions for Continued Airworthiness.		DE, AN, GT, FT			AC 23.1311-1A

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<b>MARKINGS AND PLACARDS</b>					
23.1541 General. (3.755)		DE, FT			AC 23-8B, AC 23.1311-1A, AC 20-88A
23.1543 Instrument markings: General. (3.756)		DE, FT			AC 23-8B, AC 23.1311-1A, AC 20-88A
23.1545 Airspeed indicator. (3.757)		DE, FT			AC 23-8B, AC 23.1311-1A
23.1547 Magnetic direction indicator. (3.758)		DE, FT			AC 23-8B
23.1549 Powerplant and auxiliary power unit instruments. (3.759)		DE, FT			AC 23-8B, AC 23.1311-1A, AC 20-88A
23.1551 Oil quantity indicator. (3.760)		DE, FT			AC 23-8B, AC 23.1311-1A
23.1553 Fuel quantity indicator. (3.761 (less 49th through 85th words))		DE, FT			AC 23-8B, AC 23.1311-1A
23.1555 Control markings. (3.762, 3.762-1, 3.763, 3.764, 3.765)		DE, FT			AC 23-8B, AC 23.1311-1A, PS-ACE100-2001-004
23.1557 Miscellaneous markings and placards. (3.766, 3.767, 3.768, 3.769)		DE, FT			AC 23-8B
23.1559 Operating limitations placard. (3.770, 3.772)		DE, FT			AC 23-8B, AC 23.1311-1A
23.1561 Safety equipment.		DE, FT			AC 23-8B
23.1563 Airspeed placards. (3.771)		DE, FT			AC 23-8B
23.1567 Flight maneuver placard.		DE, FT			AC 23-8B

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<b>AIRPLANE FLIGHT MANUAL AND APPROVED MANUAL MATERIAL</b>					
23.1581 General. (3.777)		DE, FT			AC 23-8B, AC 23.1311-1A
23.1583 Operating limitations. (3.124(a) (last sentence), 3.124(c)(4), 3.761 (49th through 85th words), 3.778)		DE, FT			AC 23-8B, AC 23.1311-1A
23.1585 Operating procedures. (3.779)		DE, FT			AC 23-8B
23.1587 Performance information. (3.84(c), 3.86(b), 3.120(e) (less 1st through 26th words), 3.123(b) (less (1) and (2)), 3.437(a) (last sent.), 3.440 (next to last sent.), 3.780, 3.780(b) (1st sent.))		DE, FT			AC 23-8B
23.1589 Loading information. (3.73-3 (less (a) and (b)), 3.76)		DE, FT			AC 23-8B
Appendix A to Part 23 -- Simplified Design Load Criteria					

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Appendix B to Part 23 [Reserved] (note following 3.211, Figures 3-3(a), 3-3(b), 3-4, 3-5(a), 3-5(b), 3-6, 3-7, 3- 8, 3-9, 3-10)					
Appendix C to Part 23 -- Basic Landing Conditions (Figures 3-12(a), 3-12(b))					
Appendix D to Part 23 -- Wheel Spin- Up and Spring-Back Loads (3.245-1(b) (equation and following))					
Appendix E to Part 23 [Reserved]					
Appendix F to Part 23 -- Test Procedure					
Appendix G to Part 23 -- Instructions for Continued Airworthiness					
Appendix H to Part 23 -- Installation of An Automatic Power Reserve (APR) System					
Appendix I to Part 23 -- Seaplane Loads					
<b>EQUIVALENT LEVELS OF SAFETY (ELOS):</b>					
ELOS for 23.xxx					
ELOS for 23.xxx					

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<b>EXEMPTIONS:</b>					
Exemption to 23.xxx					
Exemption to 23.xxx					
<b>SPECIAL CONDITIONS:</b>					
Special Condition 1					
Special Condition 2					
<b>Title 14 CFR part 34:</b>					
<b>Piston Engine</b>		N/A			
<b>Turbine Engine (Reference 34.11)</b>				FAA only	
<b>Title 14 CFR part 36: [No Acoustical Change]</b>		AN, FT		FAA only	AC 36-4C
<b>Title 14 CFR part 36: [Acoustical Change]</b>		AN, FT		FAA only	AC 36-4C

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