DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE LIFE CYCLE MANAGEMENT CENTER
WRIGHT-PATTERSON AIR FORCE BASE OHIO

BULLETIN
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1 SEP 21

United States Air Force Airworthiness Bulletin (AWB)-360

Subject: Commercial Derivative Aircraft Airworthiness

Attachments: (1) References and Supporting Information
(2) Statement of Functionality Process

1. **Purpose:** To document the process for applying USAF (United States Air Force) airworthiness (AW) policy to commercial derivative aircraft (CDA).

2. **Office of Primary Responsibility:** USAF AW Office, AFLCMC/EZZ (USAF.Airworthiness.Office@us.af.mil).

3. **Applicability:** This bulletin applies to USAF programs that design, acquire, own, lease, operate, or modify CDA.

4. **Policy:** The following policies apply:

   4.1 USAF AW Policy. AFPD 62-6, *USAF Airworthiness*, and AFI 62-601, *USAF Airworthiness*, govern AW assessments for CDA acquired or modified by the USAF. USAF AW policy requires the USAF to obtain and maintain Federal Aviation Administration (FAA) type certification for CDA whose primary mission is to transport passengers. For all other CDA, USAF AW policy requires the USAF to obtain and maintain FAA type certification to the maximum extent practical. The USAF accepts FAA type certification when the planned USAF configuration, usage, and operating environment (CUE) is consistent with the FAA type certification.

   4.2 Federal Aviation Regulations. Title 14 of the Code of Federal Regulations (14 CFR) governs all civil aviation activities, to include FAA type certification. Civil certification applicants and approval holders have legal responsibility for compliance with 14 CFR. FAA Order 8110.101, *Type Certification Procedures for Military Commercial Derivative Aircraft*, establishes supplemental procedures for type certification of military CDA.

5. **Background:** The USAF acquires CDA, with and without modification, for military usage. Use of FAA regulatory processes for type certified CDA provides cost and resource benefits to the military. CDA programs follow the USAF AW process steps (ref. AWB-100, *Airworthiness Process Overview and Terminology*) as supplemented by this bulletin. Deviation from this bulletin may introduce AW gaps leading to potential safety issues.

5.1 Designing and modifying CDA requires an understanding of both the FAA and USAF type design approval processes and requirements. The junction between the FAA and USAF compliance assessments, the "AW seam" (ref. para. 6.1.2), requires special attention and consideration.

5.2 To comply with USAF policy, CDA programs must pursue FAA type certification to the maximum extent practical. Type certification includes type certificates (TCs), amended TCs, supplemental type certificates (STCs), and amended STCs. FAA type certification requires applicants (typically the contractor) to meet AW regulations and follow standard processes common to all commercial aircraft.

5.3 The FAA issues type certificates for CDA with the following levels of approval, as established in FAA Order 8110.101: Full, Limited, Safe Carriage, and Provisions Only.

5.4 The FAA Military Certification Office (MCO), established as part of the FAA/Armed Services Federal Reimbursable Agreement (FRA), is the single point of contact for all services provided by the FAA to the Department of Defense (DoD).

5.5 Consult USAF AW Circular (AC) 18-01, *Federal Aviation Administration Airworthiness Certification Process Overview*, for additional information on the FAA certification process.

5.6 Consult USAF AC-20-06, *Recommended Statement of Work Language*, for guidance on statement of work language for CDA.

6. Process: The Technical AW Authority (TAA) may delegate some portions of the AW process to delegated technical authorities (DTAs) (ref. AWB-225, *Airworthiness Delegated Technical Authorities*).

6.1 **AW Plan.** In addition to the content required in AWB-110, *Airworthiness Planning*, the Airworthiness Plan (AWP) also addresses the elements within this paragraph. An AWP is always required in accordance with (IAW) AWB-110, regardless of the level of FAA approval.[1]

6.1.1 **Configuration, Usage, and Environment.** AWB-110 requires the AWP include a detailed system description and intended use. For CDA, a thorough description of the planned CUE, to include aircraft functions, is critical, since it is an essential input to the AW seam.

6.1.1.1 Program offices (POs) must communicate planned CUE to the FAA to ensure the FAA addresses it in their type certification.

6.1.1.2 Identify the approach for determining differences between the planned USAF CUE and the CUE of the existing or planned FAA type design (ref. MIL-HDBK-516, *Airworthiness Certification Criteria,* criterion 4.1.3).

[1] Includes FAA major and minor alterations, and minor changes to type design. The process in AC-19-05, *Alternate Airworthiness Product Format for Non-reportable Modifications*, may be appropriate document the AWP.

6.1.2 **AW Seam.** Some aspects of the design and/or operations may be ineligible for FAA type certification due to a violation or lack of FAA AW regulations.[2] The USAF assesses, to the applicable criteria in MIL-HDBK-516, the aspects (i.e., CUE) not planned to be included in the FAA's finding of compliance. The AWP defines the planned AW seam, to include the level of FAA approval planned for each function or system. Figure 1 illustrates a simplified AW seam.

Level of FAA Approval	Aspect Approved by FAA or USAF				CB
Full Approval	SWaP-C	Equipment Qualification	Installation Approval	No restrictions on Use	14 CFR [6]
Limited Approval	SWaP-C	Equipment Qualification	Installation Approval	Military Use Only with Statement of Functionality	14 CFR/516 [4]
Safe Carriage	SWaP-C	Equipment Qualification [5]	Installed; Not Connected	Operational Approval	14 CFR/516
		Equipment Qualification	Connected forOperation		
Provisions Only	SWaP-C	Equipment Qualification	Installation Approval	Operational Approval	14 CFR/516
None	SWaP-C	Equipment Qualification	Installation Approval	Operational Approval	516

Notes:
1. Red line represents the AW seam.
2. Blue shading represents aspects the FAA will approve. Green shading represents aspects the USAF will approve.
3. SWaP-C is Space, Weight, Power, and Cooling.
4. MIL-HDBK-516 certification basis limited to AW-related aspects of the Statement of Functionality.
5. For FAA Equipment Qualification, equipment is in a non-functional state. Additional testing may be required by the USAF.
6. Certification basis also includes MIL-HDBK-516, criterion 4.1.3.

Figure 1. Levels of FAA Approval and AW Seam.

6.1.2.1 The AW seam must address all applicable technical disciplines (ref. MIL-HDBK-516, Sections 4 through 20). Each discipline may have unique considerations (e.g., computer systems and software). Consider the functional integration between the aspects the FAA and USAF will approve. The USAF may need to assess aspects within the FAA type certification if the planned USAF CUE impacts those aspects. Complex AW seams may require approval via a USAF issue paper (ref. para. 6.1.5). Contact the USAF AW Office for guidance.

6.1.2.2 POs should ensure, via contract, USAF access to requisite FAA-approved data for the purposes of verifying the AW seam. POs should identify this data within the AWP. This data includes, but is not limited to, the project specific certification plan (PSCP)[3] and is critical to completion of the subsequent USAF AW process steps.

6.1.2.3 For FAA limited approvals, if a statement of functionality (SoF) is required[4], document the following (ref. Attachment 2):

[2] Reference FAA Order 8110.101A, Chapter 7, Paragraph 3.
[3] The term "PSCP" used herein refers to either the PSCP or equivalent document.
[4] The PSCP establishes if a SoF is required.

6.1.2.3.1 Scope (i.e., function addressed). Align the scope with the PSCP and fully define the aspects the FAA is requesting the USAF address.

6.1.2.3.2 Determination of whether the function is AW related or supports AW-related functions using the methodology in AWB-120, *Modification Airworthiness Relatedness and Reportability Determination*. The determination applies to the function addressed, not the entire modification.

6.1.2.3.3 If the function is AW related, the applicable MIL-HDBK-516 criteria.

6.1.2.3.4 If the function is not AW related, the chief engineer (CE) defines performance requirements via PO-established processes.

6.1.2.3.5 Authority for issuing the SoF (i.e., TAA, DTA, or CE). If AW related, the TAA or DTA issues the SoF.

6.1.2.4 For FAA safe carriage approvals, the USAF must assess equipment (to include government furnished equipment [GFE]) operation against applicable MIL-HDBK-516 criteria documented in the approved certification basis (CB) (ref. para. 6.4).

6.1.2.5 For FAA provisions only approvals, the USAF must assess equipment (to include GFE) installation and operation against applicable MIL-HDBK-516 criteria documented in the approved CB.

6.1.2.5.1 Provisional structural loads (e.g., loads due to countermeasure firing, gunfire, aerial refueling) provided to the FAA are assessed to MIL-HDBK-516, subsection 5.1. For non-reportable modifications, a DTA with appropriate delegations may approve the provisional structural loads. The DTA should use qualified and experienced personnel (ref. AWB-140, *Compliance Report*). In all other instances, the TAA approves the provisional structural loads.

6.1.2.5.2 Provisions only approvals do not appear as part of FAA conformity on the FAA Form 8130-31, *Statement of Conformity*.

6.1.2.6 For FAA safe carriage and provisions only approvals, fully define the aspects the FAA will and/or will not approve, as they may vary. An FAA-approved interface control document should establish the allowable interfaces and associated limits.

6.1.2.7 For aspects eligible for FAA type certification, but are proposed to be USAF approved, the TAA or DTA may require justification to determine that FAA type certification is not practical.

6.1.2.8 For the pre-contract award AWP, POs should determine the appropriate level of AW seam definition given the modification scope and USAF CDA policy (ref. para. 4.1). It may be preferable to the USAF to assume the FAA will approve all aspects, except those known to be ineligible for FAA type certification.

6.1.3 **FAA Project Specific Certification Plan.** Reference the applicable PSCP(s). Ensure the USAF AWP aligns with the PSCP(s) (e.g., FAA type certifications and associated approvals assumed in the USAF AWP are consistent with PSCP).

6.1.4 **Modification Compatibility.** Identify the approach for assessing compatibility of planned modifications with existing modifications.

6.1.4.1 Existing modifications overlapping planned modifications may need to be re-evaluated and included in the new type design.

6.1.4.2 The USAF must ensure an acceptable compatibility assessment is completed. Refer to FAA Advisory Circular 20-188, *Compatibility of Changes to Type Design Installed on Aircraft*, for additional guidance.

6.1.5 **USAF Issue Papers.** POs may use issue papers to request TAA approval of complex AW seams, alternate compliance approaches, or other unique considerations for aspects to be USAF approved. Contact the USAF AW Office for guidance.

6.1.6 **Flight Test Approach.** Identify the approach for assessing and issuing a USAF AW approval for the flight test configuration. The approach should consider the following:

6.1.6.1 **FAA Applicant Flight Tests.** During the course of CDA programs, the contractor may request to perform flight tests prior to issuance of a Type Inspection Authorization (TIA). These are known as applicant or contractor flight tests. Unless required by the FAA, these flight tests should be avoided. If these flight tests are required, consider the following:

6.1.6.1.1 **Status of FAA Data Approvals.** Prior to TIA issuance, the contractor may have received FAA data approvals for aspects of the design not requiring flight test.[5] Assess the status of all FAA approvals required for TIA. Unapproved aspects may result in risks.

6.1.6.1.2 **Contractor Flight Test Release.** Contractors often have their own flight test release process. POs should be engaged in this process to obtain insight into the safety of the design and risk to the USAF.

6.1.6.2 **FAA Certification Flight Tests.** If the FAA requires certification flight tests to support compliance findings, the FAA issues a TIA to authorize these tests. The USAF utilizes the TIA as the basis to issue an AW approval for FAA certification flight tests. Additional USAF AW assessment and risk acceptance is not required.

6.1.6.3 **USAF-Specific Flight Tests.** The USAF utilizes flight tests to verify both USAF AW and performance requirements. Consider the following:

[5] Data approvals may be FAA Forms 8110-3, *Statement of Compliance with Airworthiness Standards*, signed by a Designated Engineering Representative or FAA Forms 8100-9, *Statement of Compliance with Airworthiness* Standards, signed by an Organization Designation Authorization unit member.

6.1.6.3.1 **FAA Type Certification Status.** FAA type certification establishes compliance for the FAA-approved aspects. If the FAA type certification is not complete, determine the aspects of the design not addressed by the TIA and subsequently approved data. Unapproved aspects may result in risks. Conducting USAF-specific flight tests prior to TIA should be avoided.

6.1.6.3.2 **USAF-Approved Aspects.** Aspects to be USAF approved require an assessment against the approved CB.

6.1.6.3.3 **Relationship Between FAA and USAF Aspects.** If conducting USAF-specific flight tests before the FAA issues the type certificate, consider the relationship between the aspects the USAF will approve and the unapproved FAA aspects. USAF-approved aspects related to unapproved FAA aspects may result in risks.

6.1.6.4 **Flight Test AW Approval.** A USAF AW approval is required for all flights conducted under USAF contract.

6.1.7 **Reportability Determination (modifications only).** AWB-120 requires a hazard assessment to determine the unmitigated risk of the modification and, in turn, the reportability. The hazard assessment may account for existing FAA design approvals, but not planned FAA design approvals.

6.1.8 USAF Statements of AW. The applicant may need a USAF statement of AW for GFE produced outside an FAA-approved quality system. The USAF statement of AW certifies that the GFE was manufactured and inspected to its specification; it is not an equipment design approval (e.g., military standard order). Document the GFE that require a statement of AW, and the required supporting information and approval authority.

6.1.9 **Reviewing and Updating.** AWB-110 establishes instructions for reviewing and updating AWPs for significant changes. In addition to these instructions, review the AWP with CB and compliance report (CR) process steps to maintain its relevancy. POs should review the AWP during systems requirements review, preliminary design review, critical design review, and equivalent events. For CDA, significant changes include changes to the AW seam and flight test approach.

6.2 **FAA Sponsorship Letter.** The MCO requires a sponsorship letter prior to initiating a certification project.[6]

6.2.1 POs should inform their contractors that applications for new type designs must be made to the MCO IAW the FRA.

[6] POs are encouraged to contact the MCO for technical assistance prior to issuing the sponsorship letter. The MCO can provide technical assistance prior to contract award, to include providing technical advisors for source selection.

6.2.2 The sponsorship letter must include the information required by FAA Order 8110.101, Chapter 3. The AFLCMC/EZZ Template 360-1, *Federal Aviation Administration Military Certification Office Sponsorship Letter*, is an acceptable format.

6.2.3 The FAA sponsorship letter may not be submitted until a draft USAF AWP has been developed by the PO that includes an initial description of the AW seam.

6.2.4 Obtain approval of the FAA sponsorship letter IAW AWB-225. For organizations without a DTA, contact the USAF AW Office to obtain approval.

6.2.5 Provide a copy of the sponsorship letter to the USAF AW Office.

6.3 **FAA Acting Agent Letter.** USAF-owned aircraft with civil registration require an FAA acting agent letter when a contractor applies for FAA type certification or an FAA AW certificate on behalf of the USAF. The FAA AW certificate may be required to conduct FAA certification flight tests or for operations. The AFLCMC/EZZ Template 360-2, *Federal Aviation Administration Acting Agent Letter*, is an acceptable format.

6.4 **Certification Basis.** The CB for the CDA consists of a CB for aspects the FAA will approve and a CB for the aspects the USAF will approve based on the AW seam established in the AWP.

6.4.1 Reference the AWP. If an AWP update is required (ref. para. 6.1.9), the AWP content may be included in the CB document.[7]

6.4.2 Reference the PSCP. The PSCP establishes the CB for aspects the FAA will approve, is derived from the applicable 14 CFR parts, and may include special conditions, equivalent level of safety findings, and exemptions.

6.4.3 Derive the CB for aspects the USAF will approve from MIL-HDBK-516 IAW AWB-130, *Certification Basis*. This CB must address all aspects the FAA will not approve, but must not include aspects the FAA will approve. For this reason, a thoroughly established AW seam is critical.

6.4.4 If a SoF is required for an AW-related function, as determined in the AWP, establish the criteria (previously identified in the AWP), standards, and methods of compliance applicable to the SoF. The standards and methods of compliance may require tailoring for the function addressed. The CB should identify ("tag") the criteria, standards, and method of compliance applicable to the SoF.

6.4.5 AWB-130 establishes instructions for CB updates. In addition to these instructions, if the AW seam changes, review the CB to determine if a revised CB is required.

[7] Combining the AWP and CB/CR into a single document does not alter the approval authorities established in AWB-225. E.g., if the Director of Engineering (DOE)-level DTA is delegated authority to approve the AWP (not further delegable) and the CE-level DTA is delegated authority to approve the CB and CR, a combined AWP and CB/CR would require approval by both the CE- and DOE-level DTA.

6.5 **Compliance Report.** The CR for the CDA consists of the FAA design approvals and the compliance assessment for the aspects the USAF will approve based on the AW seam established in the AWP.

6.5.1 Reference the AWP. If an AWP update is required (ref. para. 6.1.9), the AWP content may be included in the CR document.[7]

6.5.2 For flight test, document the assessment as established in the AWP.

6.5.3 Reference the FAA type certifications that establish compliance for FAA-approved aspects and verify they are consistent with the AW seam. Address inconsistencies in the AWP and CB before completing the CR, which may require additional activities to show compliance to MIL-HDBK-516.

6.5.4 Document the compatibility assessment between FAA-approved modifications to be installed and previously installed modifications, as established in the AWP.

6.5.5 For aspects the USAF will approve, follow the USAF AW process to complete the compliance assessment IAW AWB-140, *Compliance Report*.

6.5.6 If a SoF is required for an AW-related function, as determined in the AWP, document the assessment (to include hazards and risk levels if non-compliant) against the CB-established criteria, standards, and methods of compliance.

6.5.6.1 If a SoF is required before the compliance assessment, document the assessment against the CB-established criteria, standards, and methods of compliance in an alternate report acceptable to SoF approval authority. The AFLCMC/EZZ Template 100-1, *Engineering Coordination Sheet* is an acceptable format.

6.5.6.2 The CE determines if the non-AW related requirements have been satisfactorily met to issue the SoF.

6.5.6.3 If the function does not satisfactorily meet the established requirements, inform the FAA and obtain acceptance of the deficiencies by the appropriate authority prior to obtaining approval of the SoF. For AW-related deficiencies, follow paragraph 6.6. For non-AW related deficiencies, follow PO-established processes.

6.5.6.4 Obtain approval of the SoF by the authority established in the AWP. AFLCMC/EZZ Template 360-3, *Statement of Functionality* is an acceptable format. Contact the AW Office to obtain TAA approval.

6.6 **AW Risk Assessment and Acceptance.** Follow the process in AWB-150, *Airworthiness Risk Assessment and Acceptance*.

6.7 **AW Approval.** Follow the process in AWB-160, *Airworthiness Approvals*.

6.8 **Certificates of AW.** Program managers ensure each aircraft conforms to the design assessed for AW (ref. para. 6.7) and is in a condition for safe operation.

6.8.1 For CDA not FAA registered, the program manager issues a military certificate of airworthiness (MCA) IAW AWB-018, *Military Certificate of Airworthiness*.

6.8.2 For CDA registered with the FAA, the certificate of AW for the flight operations depends on whether the aircraft is operating in public or civil status.

6.8.2.1 If operating in public status, the contracting officer signs a public aircraft declaration letter and the operator submits that letter to the responsible FAA Flight Standards Office. The program manager issues an MCA IAW AWB-018.

6.8.2.2 If operating in civil status, the FAA issues an AW certificate. The USAF issues a Civil Aircraft Operation verification letter. Contact the USAF AW Office for guidance.

6.9 **Continued AW.** Since USAF AW approvals leverage FAA type certifications, POs should ensure conformity to the FAA type design and FAA-approved type design changes throughout the lifecycle. This includes compliance with FAA-approved instructions for continued AW and AW directives (ADs).[8] For additional guidance on FAA continued AW requirements, refer to FAA Order 8110.101A, Chapter 11 and contact the MCO.

6.9.1 Significant deviations from the FAA type certification that result in the FAA removing the aircraft serial numbers from the FAA type certificate data sheet will result in the USAF no longer considering the aircraft to be a CDA. In this case, the USAF must re-assess the aircraft to MIL-HDBK-516.

6.9.2 Follow the USAF AW process for modifications (ref. AWB-120) when implementing FAA-approved ADs and FAA-approved service bulletins (SBs). POs must assesses the compatibility of ADs and SBs with the CDA configuration. AC-19-05 contains an acceptable means to document the AWP, CB, and CR.

6.10 **Templates.** The templates referenced herein are available at the USAF AW SharePoint site (ref. AWB-100 for a link the site).

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[8] Per FAA Order 8110.101A, Chapter 11, Paragraph 3(a), the USAF must comply with the AD if pooling military and civilian parts.

Attachment 1

REFERENCES AND SUPPORTING INFORMATION

References

AC 18-01A, *Federal Aviation Administration Airworthiness Certification Process Overview*, 1 September 2021
AC-19-05, *Alternate Airworthiness Product Format for Non-reportable Modifications*, 2 December 2019
AC 20-06, *Recommended Statement of Work Language*, 16 June 2021
AFPD 62-6, *USAF Airworthiness*, 16 January 2019
AFI 62-601, *USAF Airworthiness*, 11 June 2010
AWB-018A, *Military Certificate of Airworthiness*, 29 June 2011
AWB-100A, *Airworthiness Process Overview and Terminology*, 3 June 2021
AWB-110, *Airworthiness Planning*, 16 February 2021
AWB-120A, *Modification Airworthiness Relatedness and Reportability Determination*, 2 June 2021
AWB-130, *Certification Basis*, 2 June 2021
AWB-140, *Compliance Report,* 2 June 2021
AWB-150B, *Airworthiness Risk Assessment and Acceptance*, 20 September 2020
AWB-160, *Airworthiness Approvals*, DRAFT
AWB-225, *Airworthiness Delegated Technical Authorities*, 20 August 2018
FAA Order 8110.101A, *Type Certification Procedures for Military Commercial Derivative Aircraft*, 25 February 2015
FAA Advisory Circular 20-188, *Compatibility of Changes to Type Design Installed on Aircraft*, 9 December 2016
MIL-HDBK-516C, *Airworthiness Certification Criteria*, 12 December 2014

Abbreviations and Acronyms

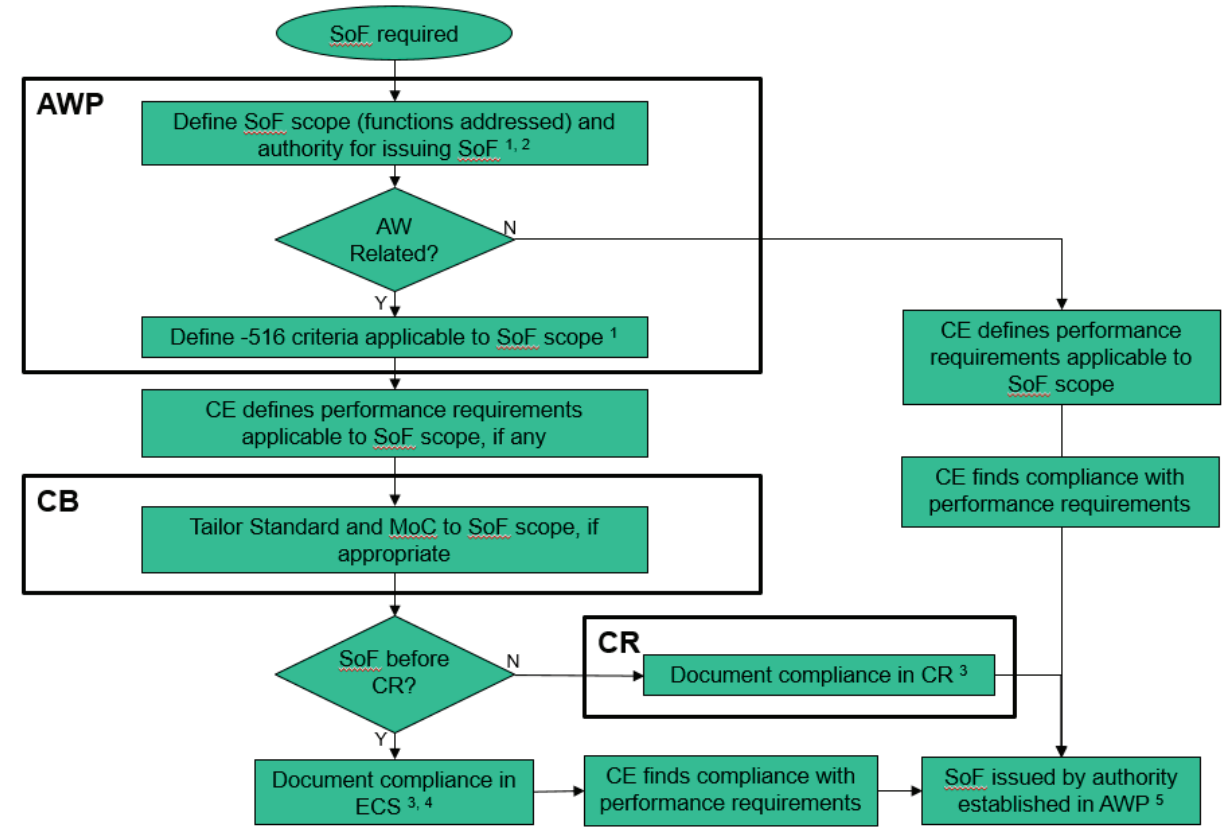
14 CFR – Title 14 of the Code of Federal Regulations
AC – Airworthiness Circular
AD – Airworthiness Directive
AFI – Air Force Instruction
AFPD – Air Force Policy Directive
AW – Airworthiness
AWB – Airworthiness Bulletin
AWP – Airworthiness Plan
CB – Certification Basis
CDA – Commercial Derivative Aircraft
CE – Chief Engineer
CFR – Code of Federal Regulations
CR – Compliance Report
CUE – Configuration, Usage, and Environment

DoD – Department of Defense
DOE – Director of Engineering
DTA – Delegated Technical Authority
ECS – Engineering Coordination Sheet
FAA – Federal Aviation Administration
FRA – Federal Reimbursable Agreement
GFE - Government Furnished Equipment
IAW – In Accordance With
MCA – Military Certificate of Airworthiness
MCO – Military Certification Office
PO – Program Office
PSCP – Project Specific Certification Plan
SB – Service Bulletin
SoF – Statement of Functionality
STC – Supplemental Type Certification
TAA – Technical Airworthiness Authority
TC – Type Certification
TIA – Type Inspection Authorization
USAF – United States Air Force

Attachment 2

STATEMENT OF FUNCTIONALITY PROCESS

AWB-360, Section 6, documents the USAF process for issuing SoFs. Figure 2 contains a flow chart of the process.



Notes:
1. Requires coordination with FAA PSCP to ensure all aspects are fully address.
2. If non-reportable, refer to DTA delegations for authority to issue SoFs.
3. If reportable, conducted by TAA's Technical Experts, Technical Advisors, and Technical Directors.
4. Initial compliance findings will be reviewed during CR review; may require a SoF update.
5. If requirements are not met, inform the FAA and obtain acceptance of the deficiencies prior to approval.

Figure 2. SoF Process Flow Chart