DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

DAFI62-601_DAFGM2024-1
5 APRIL 2024

MEMORANDUM FOR SEE DISTRIBUTION C
MAJCOMs/FOAs/DRUs

FROM: SAF/AQ
1060 Air Force Pentagon
Washington, DC 20330-1060

SUBJECT: Department of the Air Force Guidance Memorandum to Department of the Air Force Instruction (DAFI) 62-601, "Airworthiness"

By Order of the Secretary of the Air Force, this Department of the Air Force Guidance Memorandum immediately implements a change to DAFI 62-601 as shown in the attachment. Compliance with this Memorandum is mandatory. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails, in accordance with DAFI 90-160, *Publications and Forms Management*.

This memorandum implements process streamlining to improve and accelerate Air Force high risk assessment, acceptance, and approval. In accordance with DAFI 62-601, paragraph 3.3., Technical Airworthiness Authority staff and delegated airworthiness authorities will advise on how programs can incorporate this streamlining into airworthiness plans and schedules.

There will now be a single Acquisition chain risk acceptance of inherent design risks before first flight and prior to the capstone risk acceptance in support of the Military Type Certificate. Test risks will be managed in accordance with existing test and evaluation safety risk management authorities and directive guidance publications. Attachment 1 lists the three paragraphs that this DAFGM changes to immediately implement process improvements for contractor-owned aircraft that are used by the Air Force but remaining in civil status under FAA oversight. The Air Force point of contact for the attachments is SAF/AQRE, Ms. Kaitlin Harris, kaitlin.harris.1@us.af.mil. This memorandum becomes void after one year has elapsed from the date of this memorandum or upon publication of a revision to DAFI 62-601, whichever is earlier.

Andrew P. Hunter
Assistant Secretary of the Air Force
(Acquisition, Technology & Logistics)

Attachment

1. Changes to DAFI 62-601
2. Explanatory White Paper

Paragraph 1.1. is amended as follows:

1.1. Purpose. Department of Defense (DoD) policy requires all air systems owned, leased, operated, used, designed, or modified by DoD to have an airworthiness assessment and approval. (T-0) Department of the Air Force (DAF) policy requires that all air systems owned, leased, operated, used, designed, or modified by the DAF must have completed an airworthiness assessment and must have a DAF-issued airworthiness approval prior to first DAF flight consistent with the requirements of this instruction. The specific need for and timing of an airworthiness approval for a particular flight activity is described in the airworthiness plan for that activity. The Technical Airworthiness Authority performs an airworthiness assessment for the configuration, usage, and operating environment which supports the issuance of an airworthiness approval. This instruction contains the processes to conduct assessments and to obtain and maintain airworthiness approvals of air systems throughout their lifecycle, enabling safe operations throughout the DAF.

Paragraph 3.10. is amended as follows:

3.10. Process Changes. The Technical Airworthiness Authority may approve specific changes of the process herein to suit a special need or purpose, consistent with DoDD 5030.61. This may occur, for instance, when a standard airworthiness assessment cannot reasonably be accomplished and a compelling military need to operate the air system exists.

Paragraphs 3.10.1 and 3.10.2 have been deleted.

Paragraph 4.3. is amended as follows:

4.3. Civil Air Systems. Civil air systems that operate under Civil Air Operations (CAO) as defined in Title 49 US Code must operate in accordance with applicable operating regulations under Title 14 Code of Federal Regulations. When a DAF organization procures products or services involving civil air systems that will remain in CAO, the TAA will utilize the existing FAA AW certificates for the civil aircraft as the basis for the DAF-issued AW approval. In support of the DAF-issued AW approval, the TAA will assess whether there are any gaps between the intended configuration, usage, and operating environment of the FAA certification and the intended configuration, usage, and operating environment of the aircraft under DAF-directed CAO flights. The following paragraphs apply only to civil air systems that will be operated under Public Air Operations (PAO); if a DAF organization is procuring products or services involving civil air systems that will remain in CAO, the following does not apply. DAF organizations acquiring products or services involving civil air systems via DAF contract, agreement, or other means (herein referred to as the contract requiring activity) shall obtain Technical Airworthiness Authority-issued airworthiness approval(s) in accordance with the Technical Airworthiness Authority-approved airworthiness plan. (T-0) When acquiring these products or services, the DAF should maximize the use of air systems with proven airworthiness pedigrees. In addition to the airworthiness approval process in Chapter 3 of this instruction, the following are required:

EXPLANATORY WHITE PAPER

In June 2023, SAF/AQ and AFMC established a Tiger Team that engaged with the staff of the Air Force Airworthiness Authority (AFMC/CC) as well as Air Force safety, engineering, and program management stakeholders to improve and accelerate the Air Force high risk assessment, acceptance, and approval processes as required by DoDD 5030.61. The intent for this process was to ensure continued development and test activities to allow programs to better characterize the risks being accepted while reducing those risks for the operational fleet. Since that time, the Tiger Team has created a new high risk acceptance construct, especially as it pertains to airworthiness. This effort will realign high risk assessment, acceptance, and approval processes to the appropriate Decision Authority (DA) and pertinent AFMC authority.

This new approach is designed to be tailorable, providing significant process streamlining and addressing process pain points and roadblocks by considering risk appropriately by program type and phase. It entails three new process constructs that programs and projects will utilize: the Adaptive Acquisition Framework (AAF) construct; the Contractor Owned (CO) construct; and the Experimentation construct.

For Major Defense Acquisition Programs with the SAE as the Milestone Decision Authority, the AAF construct entails a one-time SAE acceptance for inherent system design high risks prior to first flight followed by delegation to Air Force Test Center (AFTC) for execution of the test campaign. The program office and AFLCMC/EN-EZ airworthiness SMEs will continue to assess airworthiness in parallel throughout the test campaign. The Program Office will provide updates of those assessments to AFTC as appropriate. These ongoing assessment activities are meant to inform, rather than interrupt, the test campaign. The Program Office shall notify the SAE immediately upon determination of new HIGH risks. The SAE will review program progress on reducing existing high risks and any newly identified high risks to lower risk levels at a frequency determined based on the criticality of the program, but no less frequently than annually. For Acquisition Programs with alternate Decision Authorities (e.g. ACAT II, BCAT II), those high risk acceptances will remain with the appropriate DA and can follow a comparable construct throughout the risk acceptance spectrum. All test risks will be handled within the appropriate AFMC Chain of Command (e.g. AFTC).

Under the CO construct, assessment and acceptance methodologies will be based on whether operations will be Civil Air Operations (CAO) or Public Air Operations (PAO). The assess, accept, and approve functions will reside within the Operational Chain of Command (e.g. AFTC, AFRL). For CAO, programs will utilize existing FAA certifications. For PAO, additional assessments will be conducted for appropriate risk-based decisions to acknowledge contractor risk and accept DAF risk.

Under the Experimentation construct, programs will be categorized based on the robustness of available data and the purpose of the experimentation. This will drive the level of rigor and methodology of a risk-based approach. The assess, accept, and approve functions will reside within the Operational Chain of Command (e.g. AFRL, AFTC).

It is possible that a single program may use multiple constructs (e.g. T-7A PRJs will use the CO construct and EMD jets will use the AAF construct). Similarly, a program may begin on one construct and transition to another (e.g. a promising experiment may transition from Experimental construct to AAF).

The AAF construct is already being leveraged on T-7, MQ-9B, and an additional program and is executable and compliant within the current DAFI 62-601 and new DAFI 63-101/20-101. Unlike for the AAF and Experimentation constructs, DAFI 62-601 must be changed in order to immediately implement the Tiger Team's recommendations for contractor-owned aircraft that are used by the Air Force but remaining in civil status under FAA oversight. Those changes have been proposed in an AFGM to DAFI 62-601. Anticipated savings include 20% airworthiness office workload reduction; 25% AFTC workload reduction; and 50-75% AFRL workload reduction. Additionally, with partial implementation of the CO pathway within the bounds of existing DAFI 62-601 language, T-7A has already seen 77% improvement on their software block update timelines. Implementing this approach would allow T-7A and other programs to continue harvesting these returns on investment as well as additional savings in cost and schedule. As other AAF programs and experimental projects develop their airworthiness planning in accordance with DAFI 62-601, paragraph 3.3., TAA staff and delegated airworthiness authorities will advise on how programs can incorporate the Tiger Team's streamlining into airworthiness plans and schedules.

The most important change that AAF programs should be aware of is a significant reduction in the number of formal Acquisition chain risk acceptance events prior to the issuance of a Military Type Certificate. Instead of what have historically been multiple time-consuming Acquisition chain risk acceptance events on each program throughout D/OT&E, there will now be a single Acquisition chain risk acceptance of inherent design risks before first flight. The initial system design risks will be accepted at a level commensurate with the Acquisition pathway-dependent delegated Decision Authorities within the Acquisition execution chain. DAFI 91-202, *The USAF Mishap Prevention Program,* outlines the risk decision authorities for each Acquisition pathway. The purpose of this initial risk acceptance is to enable development and test activities to proceed without delay, to allow maturation of the design, and to reduce system risks prior to design finalization, production, and fielding of the aircraft to the warfighter. Therefore, throughout the test campaign, while program office airworthiness assessments and careful configuration management continues, test risks will be managed (and accepted by the test execution chain, if needed) in accordance with existing test and evaluation and system safety risk management authorities and directive/guidance publications.

SAF/AQR is undertaking a complete rewrite of DAFI 62-601 during 2024 to make these changes permanent and to fully reflect the new, streamlined airworthiness processes.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

DEPARTMENT OF THE AIR FORCE INSTRUCTION 62-601

10 JUNE 2022

Developmental Engineering

AIRWORTHINESS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: SAF/AQRE

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Pages: 25

This Department of the Air Force Instruction (DAFI) implements Department of the Air Force Policy Directive (DAFPD) 62-6, *USAF Airworthiness.* It applies to all air systems owned, leased, operated, used, designed, or modified by the United States Space Force, Regular Air Force, the Air Force Reserve, and the Air National Guard. It applies to the Civil Air Patrol (see **paragraph 4.10.2** for exception). Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of the Deputy Assistant Secretary (Science, Technology and Engineering), Engineering & Force Management Division (SAF/AQRE) using the Air Force Form 847, *Recommendation for Change of Publication*; route Air Force Forms 847 from the field through the appropriate functional chain of command. To ensure standardization, any organization supplementing this instruction must send the implementing publication to the Deputy Assistant Secretary (Science, Technology and Engineering) (SAF/AQR) for review and coordination before publishing. In accordance with the integrated life cycle management chain of authority specified in AFI 63-101_20-101, *Integrated Life Cycle Management*, mandates to the program managers and chief engineers in the acquisition execution chain are not considered Wing-level mandates. Therefore, tiering in accordance with DAFI 90-160, *Publications and Forms Management,* does not apply to those mandates. When a mandate in this publication does apply to a wing/unit-level organization, the waiver authority is identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. Tiered compliance statements may be waived by the authorities identified in DAFI 90-160 with the

coordination of the Air Force Technical Airworthiness Authority. Non-tiered compliance items may be waived by SAF/AQ, except items in **Chapter 3,** which may be waived by the Technical Airworthiness Authority. Additional guidance on airworthiness process change approval can be found in **paragraph 3.10** of this instruction. Acquisition program offices submit waiver requests via their acquisition execution chain, except for waiver requests to **Chapter 3** that program offices submit directly to the Technical Airworthiness Authority. Non-program offices submit waiver requests via their command chain to the waiver authority. Compliance with attachments is mandatory.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include updates to roles, responsibilities, and processes regarding airworthiness assessments and issuance of airworthiness approvals.

Chapter 1

AIRWORTHINESS ASSURANCE

1.1. Purpose. Department of Defense (DoD) policy requires all air systems owned, leased, operated, used, designed, or modified by DoD to have an airworthiness assessment and approval. **(T-0)** Department of the Air Force (DAF) policy requires a Technical Airworthiness Authority-issued airworthiness approval of any aircraft flight activity directed by the DAF regardless of whether there is an existing approval from another airworthiness authority. The specific need for and timing of an airworthiness approval for a particular flight activity is described in the airworthiness plan for that activity. The Technical Airworthiness Authority performs an airworthiness assessment for the configuration, usage, and operating environment which supports the issuance of an airworthiness approval. If the flight activity has an existing approval from another airworthiness authority recognized as a design authority by the Technical Airworthiness Authority (e.g., the Federal Aviation Administration or "FAA"), the Technical Airworthiness Authority assessment is primarily focused on identifying gaps between the existing approvals and the intended configuration, usage, and operating environment. This instruction contains the processes to conduct assessments and to obtain and maintain airworthiness approvals of air systems throughout their lifecycle, enabling safe operations throughout the DAF.

1.2. Applicability. Subject to the exceptions identified in **paragraph 4.10**, this instruction applies to all air systems that the DAF owns, leases, operates, uses, designs, or modifies. This includes, but is not limited to:

1.2.1. New air systems.

1.2.2. Modifications to air systems with previously issued DAF airworthiness approvals (any change to the form, fit, function, or interface of in-service hardware or software configuration item in accordance with AFI 63-101_20-101). This includes permanent and temporary changes such as service life extensions, carry-on equipment, portable electronic devices, test equipment, and roll-on/roll-off equipment.

1.2.3. Civil air systems, when products or services involving their operation are being procured by the DAF.

1.2.4. Air Force (AF) Security Cooperation and Security Assistance programs.

1.2.5. Foreign-owned air systems on which DAF service members, civilians, or contractors fly as aircrew or passengers.

1.3. Airworthiness Assurance. Airworthiness, as defined in Department of Defense Directive (DoDD) 5030.61, *DoD Airworthiness Policy*, is the property of an air system configuration to safely attain, sustain, and complete flight in accordance with approved usage limits. DAF airworthiness provides DAF personnel (to include Service members and civilians) and contractors the appropriate level of safety of flight and risk management adapted to DoD-unique mission requirements. DAF airworthiness activities encompass the entire lifecycle management of air systems, to include design, production, operation, and maintenance.

1.3.1. Design. To ensure airworthy designs, the DAF independently assesses air systems against airworthiness criteria appropriate for the air system type and intended usage. The DAF, when appropriate, issues airworthiness approvals governing air systems and their technical

data. The DAF governs this through the Technical Airworthiness Authority and the implementation of this instruction.

1.3.2. Production. The DAF ensures manufacturers evaluate and control their production processes in order to reliably produce each individual air system in accordance with its approved design. The DAF primarily governs this by requiring manufacturers to produce air systems in accordance with industry quality standards and oversight by the program manager.

1.3.3. Operations. The DAF, primarily with 10-series and 11-series publications, ensures air systems are operated in accordance with approved design and associated technical data. The contract or agreement for civil air systems incorporates operations oversight requirements.

1.3.4. Maintenance. The DAF, primarily with 20-series and 21-series publications and the AF Technical Order System, ensures air systems are maintained in accordance with the approved technical data and program-approved maintenance concept. The contract or agreement for civil air systems incorporates maintenance oversight requirements.

1.4. Airworthiness Authority. The AF Airworthiness Authority oversees airworthiness by relying upon DAF design, production, operations, and maintenance airworthiness assurance activities. The Secretary of the AF has designated the Commander, Air Force Materiel Command, as the AF Airworthiness Authority.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Assistant Secretary of the Air Force for Acquisition, Technology & Logistics (SAF/AQ).

2.1.1. Is responsible for DAF-level airworthiness policy and instruction.

2.1.2. Provides air system logistics subject matter expert support to assessments of other airworthiness authorities' assurance systems (see **paragraph 4.10.6**).

2.2. Air Force Airworthiness Authority, Commander, Air Force Materiel Command.

2.2.1. Develops and oversees compliance with DAF-level airworthiness policy.

2.2.2. Resolves inconsistencies in DAF airworthiness-related policies.

2.2.3. Mediates and resolves airworthiness issues when they arise between stakeholders across DAF commands.

2.2.4. Coordinates on high airworthiness risks (defined using the matrix in **Attachment 2**) identified during the airworthiness process, prior to risk acceptance.

2.2.5. Advises major command commanders, field command commanders, combatant commanders, and SAF/AQ, as necessary, on air system grounding matters.

2.2.6. Provides command-level support and resource allocation to enable airworthiness policy implementation.

2.3. Air Force Technical Airworthiness Authority, Director of Engineering and Technical Management/Services, Air Force Life Cycle Management Center (AFLCMC/EN-EZ).

2.3.1. Is the independent AF technical authority on the design of airworthy air systems.

2.3.2. Advises the AF Airworthiness Authority on airworthiness matters.

2.3.3. Serves as the AF Airworthiness Authority's subject matter expert to develop AF-level airworthiness policy.

2.3.4. Implements, manages, and controls the design activity of airworthiness.

2.3.4.1. Updates, coordinates, publishes, and distributes Military Handbook (MIL-HDBK)-516, *Airworthiness Certification Criteria*. The AF is the preparing activity for this DoD handbook.

2.3.4.2. Ensures air system program offices incorporate airworthy design practices.

2.3.4.3. Develops and issues bulletins, advisories, circulars, and directives to provide processes and procedures and specific notifications necessary to assess and maintain the airworthiness of air systems.

2.3.4.4. Delegates to certain individuals specific authorities for executing the design activity of airworthiness on the Technical Airworthiness Authority's behalf.

2.3.4.5. Conducts audits to verify adherence to airworthiness policies, instructions, and procedures.

2.3.5. Organizes, trains and equips the engineering workforce to provide expertise and direction to design and independently assess air systems.

2.3.5.1. Develops engineers by providing training, tools, mentoring, resources, and job experiences necessary to develop their technical expertise.

2.3.5.2. Endorses and accredits suitably qualified and experienced individuals to serve as subject matter experts and delegated technical authorities to assist in the execution of the design activity of airworthiness. Defines requirements and conditions of accreditation.

2.3.6. Determines whether air system modifications are airworthiness-related.

2.3.7. Conducts independent airworthiness assessments.

2.3.8. Issues airworthiness approvals, when appropriate.

2.3.9. Conducts initial civil aircraft operations and public aircraft operations assessments for civil air systems, in collaboration with the contract requiring activity.

2.3.10. Determines if Technical Airworthiness Authority-issued airworthiness approvals are required for civil air systems.

2.3.11. Coordinates on risk assessments for serious and high airworthiness risks (defined using the matrix in **Attachment 2**) identified during the airworthiness process, prior to risk acceptance.

2.3.12. Leads, or participates in, assessments of other airworthiness authorities' assurance systems (see **paragraph 4.10.6**).

2.3.13. Serves as the DAF representative to the National Airworthiness Council.

2.3.14. Interfaces with other airworthiness authorities to support formulation of agreements, documents and handbooks, promote process standardization, improve efficiency, and enhance flight safety.

2.3.15. Maintains and utilizes the AF Airworthiness Office, AFLCMC/EZZ (**USAF.Airworthiness.Office@us.af.mil**). This office serves as the primary interface to the Technical Airworthiness Authority.

2.4. Deputy Chief of Staff for Operations (AF/A3). Deputy Chief of Staff for Operations (AF/A3) ensures any operational policy and implementing direction relating to airworthiness that AF/A3 issues is consistent with this instruction, to include flight in foreign-owned aircraft guidance (reference **paragraph 4.10.6**).

2.5. Deputy Chief of Space Operations for Operations, Cyber, and Nuclear (SF/COO). Deputy Chief of Space Operations for Operations, Cyber, and Nuclear (SF/COO) coordinates United States Space Force participation in DAF airworthiness assurance activities, primarily for air vehicles owned, leased, operated, used, or modified by the Field Commands.

2.6. Deputy Chief of Staff, Logistics, Installations Engineering and Force Protection (AF/A4). Deputy Chief of Staff, Logistics, Installations Engineering and Force Protection (AF/A4) designates an AF maintenance policy advisor to ensure implementing direction is consistent with this instruction.

2.7. Chief of Safety (AF/SE).

2.7.1. Works with the Air Force Airworthiness Authority to ensure that safety and airworthiness policies and implementing direction remain consistent.

2.7.2. Collects airworthiness-related flight safety information and makes it available to organizations consistent with safety privilege guidelines.

2.7.3. Provides an annual summary of air system class A mishap reports to the Technical Airworthiness Authority.

2.7.4. When requested by the Technical Airworthiness Authority, participates in airworthiness assessments.

2.8. Major Command Commanders, Field Command Commanders, and Director, Air National Guard.

2.8.1. Ensure major command, field command, and Air National Guard policy and implementing direction are consistent with the DAF airworthiness assurance system.

2.8.2. Operate or use only those air systems (including leased or contracted air systems) having a valid Technical Airworthiness Authority-issued airworthiness approval.

2.8.2.1. Prior to approving DAF military, civilians, or contractors to fly on foreign-owned military air systems as aircrew or passengers, confirm the existence of a valid DoD recognition of the applicable foreign Military Airworthiness Authority or complete an operational airworthiness appraisal in accordance with the process defined in the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) Memorandum, *Flight in Foreign-Owned Military Aircraft Implementation Guidance*, December 1, 2020, available from the AF Airworthiness Office. **(T-0)**

2.8.2.2. When acquiring products or services using civil air systems, incorporate airworthiness requirements into the contract or agreement to support airworthiness activities.

2.8.2.3. When acquiring products or services using civil air systems, identify individuals to accomplish the activities identified in **Chapter 3** (the elements applicable to the specific program) and **paragraph 4.3**, except for those tasks assigned to the Technical Airworthiness Authority or subject matter experts.

2.8.3. For non-systems acquisition, interface with the Technical Airworthiness Authority to understand the technical feasibility of conducting proposed contractor operations as civil aircraft operations or public aircraft operations. Evaluate alternatives affecting operating status considering potential program impacts such as requirements, oversight responsibilities, cost, and schedule. If public aircraft operations are proposed, seek legal review from the servicing legal office as appropriate to ensure operations meet and can maintain statutory eligibility requirements for public aircraft status. Confirm with the Technical Airworthiness Authority that the elected alternative is technically feasible.

2.8.4. Only operate or use air systems (including leased or contracted air systems) with qualified aircrew and maintenance personnel in accordance with approved technical data. For civil air systems, incorporate appropriate maintenance and operations oversight requirements into the contract or agreement.

2.8.5. Ensure air system operations are consistent with the Technical Airworthiness Authority-issued airworthiness approval(s) and, when applicable, FAA airworthiness certificate(s).

2.8.6. Ensure modifications of assigned air systems are authorized by the air system program manager.

2.8.7. Define the intended operating environment and mission usage for each Mission-Design-Series. Notify the air system program manager of proposed or planned changes.

2.9. Program Managers (as defined in AFI 63-101_20-101 and AFI 63-138, *Acquisition of Services*), science and technology program managers (as referenced in AFI 61-101, *Management of Science and Technology*), and Test Managers (as defined in DoDI 5000.89_DAFI 99-103, *Capabilities-Based Test and Evaluation*).

2.9.1. Ensure airworthiness and substantiating data requirements are incorporated into program contractual documents.

2.9.2. Ensure air systems are designed or modified in compliance with airworthiness criteria appropriate for the air system type and intended use.

2.9.3. Obtain and maintain FAA type certification for commercial derivative aircraft acquired or modified by the DAF if the primary mission for the air system is the transport of passengers. For all other commercial derivative aircraft acquired or modified by the DAF, obtain and maintain FAA type certification to the maximum extent practical.

2.9.4. Obtain Technical Airworthiness Authority coordination on serious and high risk assessments, and AF Airworthiness Authority coordination on high risk assessments, identified during the airworthiness process, prior to seeking risk acceptance. **(T-1)** Obtain documented acceptance of all risks by the appropriate authority, in accordance with **paragraph 3.8**, prior to exposing people, equipment, or the environment to known hazards. **(T-1)** Provide proof of risk acceptance to the Technical Airworthiness Authority. **(T-1)**

2.9.5. Notify the Technical Airworthiness Authority and the lead and using commands when reasonably confident that a hazard has become a serious or high risk. Notify the AF Airworthiness Office within 24 hours of a class A mishap.

2.9.6. Obtain Technical Airworthiness Authority-issued airworthiness approvals prior to flight.

2.9.7. Ensure manufacturers evaluate and control production processes to reliably produce each individual air system in accordance with its approved design.

2.9.8. Issue Military Certificates of Airworthiness for individual DAF air systems conforming to the configuration identified in the airworthiness approval and in a condition for safe operation.

2.9.8.1. Establish and execute monitoring and surveillance processes for fielded systems to identify when fielded air systems do not conform to a Technical Airworthiness Authority-approved configuration or are no longer in a condition for safe operation.

2.9.8.2. Immediately implement risk mitigation activities or revoke the Military Certificate of Airworthiness of any air system found not to be in a condition for safe operation. Notify the Technical Airworthiness Authority of any revocation of a Military Certificate of Airworthiness.

2.9.9. Interface with the Technical Airworthiness Authority to understand the technical feasibility of conducting planned operations using civil air systems as civil aircraft operations or public aircraft operations. Evaluate alternatives affecting operating status considering potential program impacts such as requirements, oversight responsibilities, cost, and schedule. Confirm with the Technical Airworthiness Authority and, when appropriate, obtain a legal review from the servicing legal office, that the elected alternative is technically feasible.

2.9.10. Incorporate hazards identified during the airworthiness process into system safety programs.

2.9.11. Maintain and manage air system data and configurations in support of life cycle airworthiness.

2.9.12. Ensure that air systems maintain airworthiness upon removal of temporary modifications and are returned to an approved configuration.

2.10. Chief Engineers (as defined in AFI 63-101_20-101).

2.10.1. Develop and obtain Technical Airworthiness Authority approval of airworthiness plans, certification basis documents, and compliance reports.

2.10.2. When leveraging approvals from other airworthiness authorities (see **paragraph 4.1.1.1**), manage the integration of subject approvals with the intended DAF unique configuration, usage, and operating environment to ensure a comprehensive airworthiness assessment.

2.10.3. Provide flight test airworthiness hazards, associated risks, and proof of risk acceptance to the lead developmental test organization. Coordinate with the chief developmental tester or test manager to identify and document conditions and operating limitations appropriate for the test environment.

Chapter 3

AIRWORTHINESS APPROVAL PROCESS

3.1. Overview. It is DAF policy for program managers to design or modify air systems to comply with appropriate airworthiness criteria, and for the Technical Airworthiness Authority to conduct independent airworthiness assessments which, when successfully completed, result in a Technical Airworthiness Authority-issued airworthiness approval as identified in the airworthiness plan, prior to flight. **(T-1)** This chapter describes the process to obtain a Technical Airworthiness Authority-issued airworthiness approval for all air systems and for modifications that are airworthiness-related.

3.1.1. The Technical Airworthiness Authority may approve changes to this process on a case-by-case basis to address unique program needs (see **paragraph 3.10**).

3.1.2. DAF organizations that are not program offices (in accordance with AFI 63-101_20-101) shall assign an individual(s) to accomplish the tasks identified below, except for those tasks assigned to the Technical Airworthiness Authority or subject matter experts. **(T-1) Note**: Contact the AF Airworthiness Office for assistance.

3.2. Modification Airworthiness. Modifications typically require execution of the airworthiness process. For this reason, all configuration, usage, operating envelope, and service life changes require an assessment of whether the modification is airworthiness-related. The chief engineer shall document this assessment and obtain Technical Airworthiness Authority approval. This approval should be obtained prior to contract award or contract modification. If a modification is not airworthiness-related, no further airworthiness assessment activity is required.

3.3. Airworthiness Planning.

3.3.1. The chief engineer shall develop an airworthiness plan for the air system or modification, to include:

3.3.1.1. The overall approach to establish and maintain an airworthy air system throughout its service life.

3.3.1.2. The approach to obtain the substantiating data for the airworthiness assessment.

3.3.1.3. A detailed system description and its intended usage.

3.3.1.4. An explanation of how previous AF and non-AF airworthiness approvals and certifications will be leveraged.

3.3.1.5. Identification of required airworthiness assessments and Technical Airworthiness Authority-issued airworthiness approvals. Typically, programs require incremental airworthiness approvals for conducting flight test, followed by an airworthiness approval for releasing full operational capability. Separate assessments may be required when revising, extending, or incrementally updating airworthiness approvals.

3.3.1.6. A description of the program schedule with respect to airworthiness activities, other airworthiness-related certifications, and interactions with the Technical Airworthiness Authority and other airworthiness authorities (see **paragraph 4.1.1.1**).

3.3.2. To support program airworthiness planning, the program manager should request airworthiness plans from bidders in the request for proposals.

3.3.3. The chief engineer shall obtain Technical Airworthiness Authority approval of the program's airworthiness plan prior to contract award.

3.3.4. The program manager shall ensure airworthiness and substantiating data requirements are incorporated into program contractual documents. For Security Cooperation and Security Assistance programs, the program manager shall coordinate Letters of Offer and Acceptance airworthiness requirements with the Technical Airworthiness Authority.

3.4. Certification Basis Development.

3.4.1. The chief engineer shall develop a certification basis, which includes:

3.4.1.1. A current detailed system description and its intended usage.

3.4.1.2. Identification of portions of air system configuration and operations covered by non-AF airworthiness approvals or certifications.

3.4.1.3. Identification of portions of air system configuration and operations covered by AF airworthiness approvals.

3.4.1.4. The applicable criteria, standards, and methods of compliance from MIL-HDBK-516.

3.4.2. The Technical Airworthiness Authority, through the use of subject matter experts, reviews the certification basis. The chief engineer shall obtain Technical Airworthiness Authority approval of the certification basis. This approval should be obtained prior to System Requirements Review. The certification basis is revised as necessary over the course of system development; chief engineers must obtain approval of revisions in accordance with this instruction.

3.5. Design Activity. The program manager and chief engineer rely on the expertise of competent engineers to perform design activities and establish compliance to the certification basis to the maximum extent practical. The program manager and chief engineer shall obtain data to provide a substantiation of the design's compliance to the certification basis, including technical data which enables the continued safe operation and maintenance of the air system.

3.6. Compliance Report Development. The chief engineer shall develop a compliance report, which includes:

3.6.1. The certification basis.

3.6.2. Evidence of leveraged non-AF airworthiness approvals or certifications.

3.6.3. Mapping of substantiating data to each criterion in the certification basis. This includes the technical data which enables the continued safe operation and maintenance.

3.6.4. Assertion from competent engineers that the data shows compliance or non-compliance to each applicable criterion.

3.6.5. Identification of hazards associated with non-compliant criteria and risk levels for those hazards.

3.6.5.1. A non-compliant criterion is an indication of a potential safety of flight hazard. Program managers must eliminate such hazards or obtain acceptance of their event risk by the appropriate authority, prior to airworthiness approval.

3.6.5.2. The chief engineer shall assess airworthiness risks using the methodology defined in MIL-STD-882, *DoD Standard Practice – System Safety*, and the AF airworthiness risk assessment matrix in **Attachment 2**. **(T-1)**

3.6.6. Proposed operating limitations and other mitigating factors, and recommended target risk levels if mitigations are adopted.

3.7. Compliance Assessment. The chief engineer shall request a Technical Airworthiness Authority assessment of the proposed compliance report.

3.7.1. The Technical Airworthiness Authority, through the use of subject matter experts, assesses and documents findings of compliance or non-compliance.

3.7.2. Subject matter experts identify airworthiness hazards associated with non-compliance, recommend initial risk levels for those hazards, propose possible operating limitations and other mitigating factors, and recommend target risk levels if mitigations are adopted.

3.7.3. The chief engineer shall incorporate any changes resulting from the compliance assessment in the compliance report in order to obtain Technical Airworthiness Authority approval of the compliance report. The Technical Airworthiness Authority approves the compliance report considering the recommendation of the Airworthiness Board.

3.8. Risk Coordination and Decisions. The program manager coordinates with the user representative to determine if proposed mitigating actions to address airworthiness hazards will result in unacceptable impacts to the planned operations and missions. Upon determination of acceptable mitigating actions, the program manager is responsible for documenting the risk assessment and obtaining documented acceptance of event risks by the appropriate risk acceptance authority. The program manager shall obtain Technical Airworthiness Authority coordination on serious and high risk assessments, and AF Airworthiness Authority coordination on high risk assessments, prior to seeking risk acceptance.

3.9. Airworthiness Approval.

3.9.1. The program manager shall provide final operating limitations to the operator by including them in the operational and maintenance technical data or by other standard means.

3.9.2. The program manager shall provide proof of risk acceptance to the Technical Airworthiness Authority.

3.9.3. The Technical Airworthiness Authority issues the airworthiness approval based on the airworthiness assessment, operational and maintenance technical data, and risk acceptance. The airworthiness approval may identify operating limitations which mitigate risk.

3.9.3.1. A Military Type Certificate may be issued for an air system design found to be substantially in compliance with a certification basis. Existence of serious or high level risks is evidence the air system is not substantially in compliance. Issuing or retaining a Military Type Certificate in this circumstance is at the discretion of the Technical Airworthiness Authority. The Military Type Certificate identifies the air system service life limit.

3.9.3.2. A Military Flight Release may be issued for an air system design found to possess more risk than is expected for mature air systems. Military Flight Releases are intended to be issued for air systems engaged in temporary activities (e.g., flight test) and have a finite duration appropriate for the intended activity and validity of risk acceptance. The Military Flight Release identifies the air system service life limit when appropriate.

3.9.4. The chief engineer shall consult with the Technical Airworthiness Authority to determine the airworthiness plan for revising, updating, or extending airworthiness approvals.

3.10. Process Changes. The Technical Airworthiness Authority may approve specific changes of the process herein on a "by exception" basis to suit a special need or purpose. This may occur, for instance, when a standard airworthiness assessment cannot reasonably be accomplished and a compelling military need to operate the air system exists. Chief engineers shall document requests to change the airworthiness process for their air system, including justification, in the airworthiness plan. Process changes that involve accelerated timelines, limited data, or limited subject matter expertise result in a less than comprehensive assessment, and may also result in:

3.10.1. A higher level of risk requiring acceptance by the appropriate authority.

3.10.2. An airworthiness approval which imposes special operating limits and other mitigating factors and procedures, permitting air system operations for a finite duration under specific circumstances in fulfillment of specific missions at specified locations.

Chapter 4

OTHER ACTIVITIES RELATED TO AIRWORTHINESS ASSURANCE

4.1. Leveraging Approvals Issued by Other Airworthiness Authorities.

4.1.1. An AF airworthiness approval may leverage approvals issued by other airworthiness authorities. Regardless of leveraging, a Technical Airworthiness Authority-issued airworthiness approval is required.

4.1.1.1. Air systems approved by the FAA or other DoD airworthiness authorities may be accepted as airworthy when the planned DAF usage is consistent with the existing approved configuration, usage, and operating environment. Use of non-FAA and non-DoD airworthiness approvals require prior Technical Airworthiness Authority approval.

4.1.1.2. It is imperative that the chief engineer manage the integration of leveraged approvals with the intended DAF unique configuration, usage, and operating environment to ensure a comprehensive airworthiness assessment. For example, some military mission equipment may not be fully certifiable under civil regulations; it is incumbent upon the chief engineer to understand the scope of a civil approval and ensure the AF airworthiness approval evaluates the installation, compatibility, and operation of such equipment completely.

4.1.1.3. When leveraging other approvals, the certification basis contains the applicable criteria, standards, and methods of compliance from MIL-HDBK-516 only for the DAF unique configuration, usage and operating environment.

4.1.2. FAA airworthiness certificates (standard or special) are not, by themselves, sufficient to support issuance of an AF airworthiness approval.

4.2. FAA Certification. Civil air systems acquired or modified by the military are commonly referred to as "commercial derivative aircraft." The DAF has historically preferred the benefits of FAA type certification for passenger-carrying and commercial derivative aircraft. Program managers shall obtain and maintain FAA type certification for commercial derivative aircraft acquired or modified by the DAF if the primary mission for the air system is the transport of passengers. **(T-1)** For all other commercial derivative aircraft acquired or modified by the DAF, program managers shall obtain and maintain FAA type certification to the maximum extent practical. **(T-1)** For more information on the services and type certification processes the FAA provides in support of DAF commercial derivative aircraft, refer to FAA Order 8110.101, *Type Certification Procedures for Military Commercial Derivative Aircraft.*

4.3. Civil Air Systems. DAF organizations acquiring products or services involving civil air systems via DAF contract, agreement, or other means (herein referred to as the contract requiring activity) shall obtain Technical Airworthiness Authority-issued airworthiness approval(s) in accordance with the Technical Airworthiness Authority-approved airworthiness plan. **(T-0)** When acquiring these products or services, the DAF should maximize the use of air systems with proven airworthiness pedigrees. In addition to the airworthiness approval process in **Chapter 3** of this instruction, the following are required:

4.3.1. Responsibility. Contract requiring activities that are not program offices (in accordance with AFI 63-101_20-101) will identify an individual(s) to accomplish the tasks identified

throughout **Chapter 3** (the elements applicable to the specific program) and **paragraph 4.3**, except for those tasks assigned to the Technical Airworthiness Authority or subject matter experts. **(T-1) Note:** Contact the AF Airworthiness Office for assistance.

4.3.2. Funding. When the AF Airworthiness Office is involved in the execution of the airworthiness assessment, the AF Airworthiness Office may request the necessary funding to meet program schedules. Contact the AF Airworthiness Office to obtain a cost estimate for required support.

4.3.3. Planning. The contract requiring activity must engage with the AF Airworthiness Office early and continuously through all phases of the acquisition. **(T-1)** The Technical Airworthiness Authority will provide technical subject matter expertise. **(T-1)**

4.3.3.1. The contract requiring activities should contact the Technical Airworthiness Authority early during market research or solicitation activities to incorporate airworthiness planning into the prospective solicitation (e.g., request for proposals) and contract or agreement.

4.3.3.2. In addition to the content contained in **paragraph 3.3**, the contract requiring activity shall include in the airworthiness plan:

4.3.3.2.1. A description of how the contract requiring activity intends to use the air system, as required by the contract, including intended modifications, configuration changes, and differences in operational environment that deviate from the existing certificates. **(T-1)**

4.3.3.2.2. The overall approach to ensuring operations and maintenance oversight for the duration of the contract. **(T-1)**

4.3.4. Initial Identification of Air System Status Considerations. When planning for a contract, the DAF must identify and evaluate considerations that will impact the feasibility of operating in civil aircraft status.

4.3.4.1. During market research or in the pre-solicitation phase, the contract requiring activity requests from the Technical Airworthiness Authority an initial identification of technical considerations that may impact air system operating status. The contract requiring activity provides necessary information to enable the Technical Airworthiness Authority to identify these considerations. **(T-1)**

4.3.4.2. The Technical Airworthiness Authority provides an initial evaluation of the technical feasibility of conducting proposed operations using civil air systems in civil aircraft status. This evaluation is accomplished in collaboration with the contract requiring activity, and documents any technical conflicts which may limit or preclude civil aircraft operations under a civil airworthiness approval.

4.3.4.3. Taking into account this initial identification of considerations, the contract requiring activity should evaluate alternatives affecting civil aircraft status or public aircraft status considering potential program impacts such as requirements, oversight responsibilities, cost, and schedule. These alternatives may include exploring deviations or exceptions from the FAA. After evaluation, the contract requiring activity selects a desired alternative.

4.3.4.4. Public aircraft status is only available in narrowly defined circumstances. If the contract requiring activity selects an alternative which would involve operations in public aircraft status, the contract requiring activity seeks legal review that the operation meets the statutory eligibility requirements (see Title 49 United States Code § 40102(a)(41) and 40125). **(T-1) Note**: If public aircraft status is not legally available and operations cannot be conducted as planned in compliant civil aircraft status, the contract requiring activity must re-evaluate alternatives.

4.3.4.5. Following the legal review, the contract requiring activity notifies the Technical Airworthiness Authority of the outcome of the decisions in paragraphs **4.3.4.3** and **4.3.4.4**.

4.3.5. Initial Airworthiness Quick-Look. The Technical Airworthiness Authority, when requested by the contract requiring activity, provides an initial airworthiness quick-look to provide insight into potential risks associated with specific baseline air system designs that may be proposed to fulfill contract requirements.

4.3.5.1. During market research or in the solicitation phase, the contract requiring activity works with the Technical Airworthiness Authority to determine the data required to support an initial airworthiness quick-look. These data may include, but are not limited to, type certification pedigree, current airworthiness certificate(s), known modification history, and mishap history.

4.3.5.2. During source selection, the contract requiring activity should work with the Technical Airworthiness Authority to understand the potential airworthiness risks associated with the potential air systems. The contract requiring activity, including its safety office, should evaluate the viability of selecting existing air system designs with potential elevated risk level for contract performance. **Note:** The fidelity of this non-binding initial airworthiness quick-look is contingent upon the information available. The assessment (reference **paragraph 4.3.7.1**) may identify additional risk(s).

4.3.6. Contracting. The contract requiring activity, working with the contracting officer, incorporates airworthiness requirements and accommodations for public aircraft status, when necessary, into the contract or agreement to support airworthiness activities. **(T-1)**

4.3.7. Airworthiness Assessment.

4.3.7.1. Technical Airworthiness. The Technical Airworthiness Authority conducts a technical airworthiness assessment with support from the contract requiring activity. The scope of the technical airworthiness assessment is first against the baseline air system and second against the configuration, usage, and environment required by the contract. The assessment of baseline air systems used by the AF may necessitate a tailored airworthiness assessment process in accordance with **paragraph 3.10** as approved by the Technical Airworthiness Authority. **Note:** It may be prudent to conduct this baseline assessment prior to contract award to support informed decision-making regarding the potential serious or high risks associated with offered air systems (reference **paragraph 4.3.5.2**). Modifications and missions required by the DAF contract (agreement or other means) that are conducted beyond the approved technical data shall be assessed in accordance with **Chapter 3**. **(T-1)**

4.3.7.2. Maintenance and Operations. The contract requiring activity shall ensure an initial maintenance and operations airworthiness assessment is conducted to verify the air system

is in a condition for safe operation and procedures are established for operations. **(T-1)** This assessment may be satisfied by the completion of a pre-award or post-award flight and ground operations/flight safety survey described in AFI 10-220, *Contractor's Flight and Ground Operations*, or a suitably equivalent assessment as determined by the Technical Airworthiness Authority. The contract requiring activity works with the AF Airworthiness Office to produce an adequate assessment approach. The contract requiring activity shall provide the results of the assessment to the Technical Airworthiness Authority. **(T-1) Note:** Contact the AF Airworthiness Office for assistance.

4.3.8. Air System Status Confirmation. The Technical Airworthiness Authority, in collaboration with the contract requiring activity, considers information gathered during the initial identification of air system status considerations (reference **paragraph 4.3.4**), specific air systems conducting operations required under the awarded contract, and the airworthiness assessments (reference **paragraph 4.3.7**) to confirm whether the air system status remains valid or should be re-evaluated.

4.3.9. Risk Decisions. Risks associated with hazards identified during the airworthiness assessments are dispositioned in accordance with **paragraph 3.8** to support issuance of an airworthiness approval. For high risk assessments, the Technical Airworthiness Authority in collaboration with the contract requiring activity will obtain AF Airworthiness Authority coordination prior to seeking risk acceptance.

4.3.10. Airworthiness Approval. The Technical Airworthiness Authority issues the airworthiness approval in accordance with **paragraph 3.9**.

4.3.11. Public Aircraft Operations Notification. Flights in public aircraft status shall not occur prior to issuance of an airworthiness approval issued by the Technical Airworthiness Authority and a public aircraft operations declaration letter issued by the contracting officer. Consult FAA guidance (currently FAA Advisory Circular 00-1.1B, *Public Aircraft Operation-Manned and Unmanned)* for information about public aircraft operations declaration. Normally, the Technical Airworthiness Authority-issued airworthiness approval accompanies the public aircraft operations declaration letter when issued by the contracting officer. **Note:** The contractor is responsible for providing the declaration to its FAA Flight Standards Office. For contracted operations conducted in public aircraft status within the National Airspace System, the contractor carries the declaration letter and the airworthiness approval onboard the aircraft (or ground control stations for unmanned aircraft systems).

4.3.12. Public aircraft status is only valid for operations conducted within the National Airspace System. Aircraft status in foreign or international airspace is outside the scope of this AFI.

4.3.13. Maintenance and Operations Oversight. For public aircraft operations, the contract requiring activity has the responsibility to oversee and enforce contractor compliance with contracted requirements including maintenance and oversight. For civil aircraft operations, the FAA has the responsibility to oversee and enforce contractor compliance with all FAA regulations.

4.4. Risk Management.

4.4.1. Program managers shall incorporate hazards identified during the airworthiness process into the systems engineering system safety hazard tracking process in accordance with AFI 63-101_20-101, and AFI 91-202, *The US Air Force Mishap Prevention Program*. **(T-1)**

4.4.2. For fielded air systems, when the program manager and chief engineer are reasonably confident that an airworthiness hazard has become a serious or high risk, the program manager shall notify the lead and using commands, the risk acceptance authority, and the Technical Airworthiness Authority. Discovery of an elevated risk may require an airworthiness approval to be revised or updated (reference **paragraph 3.9.4**) or rescinded (reference **paragraph 4.12**).

4.4.3. The program manager shall notify the AF Airworthiness Office within 24 hours of a class A mishap.

4.5. Flight Test.

4.5.1. During developmental test and evaluation, non-compliances with MIL-HDBK-516 criteria are expected. The chief engineer shall provide airworthiness hazards and risks to the lead developmental test organization, and coordinate with the chief developmental tester or test manager to identify and document conditions and operating limitations appropriate for the test environment that provide sufficient risk mitigation.

4.5.2. During developmental test and evaluation and operational test and evaluation, when the program manager, chief engineer, and chief developmental tester or test manager are reasonably confident that an airworthiness hazard has become a serious or high risk, the program manager shall notify the Technical Airworthiness Authority.

4.5.3. For science and technology activities, the project manager or cognizant engineer shall provide airworthiness hazards and risks to the lead developmental test organization and coordinate with the test manager to identify and document conditions and operating limitations appropriate for the test environment that provide sufficient risk mitigation.

4.5.4. During science and technology tests, when project managers or cognizant engineers are reasonably confident that an airworthiness hazard has become a serious or high risk, the project manager shall notify the Technical Airworthiness Authority.

4.5.5. Discovery of an elevated risk may require an airworthiness approval to be revised or updated (reference **paragraph 3.9.4**) or rescinded (reference **paragraph 4.12**).

4.6. Temporary Modifications. The program manager shall ensure that air systems maintain airworthiness upon removal of temporary modifications and are returned to an approved configuration.

4.7. One Time Flight. In cases when an air system sustains damage which compromises its airworthiness, the Technical Airworthiness Authority may issue a “one time” flight Military Flight Release for operation of the air system under defined and controlled limitations. The Technical Airworthiness Authority shall conduct an airworthiness risk assessment, and the program manager shall obtain risk acceptance, prior to issuance of the Military Flight Release. **(T-1)**

4.8. Grounding. In addition to the air system grounding process and authorities delineated in AFI 63-101_20-101, the Technical Airworthiness Authority shall notify the Airworthiness

Authority following program manager notification of potential high risks leading to a grounding concern. **(T-1)**

4.9. Production Airworthiness.

4.9.1. The program manager shall require manufacturers to maintain a quality system that ensures that each air system produced conforms to its approved design and is in a condition for safe operation. The program manager shall review the manufacturer's quality system to ensure it meets contract requirements.

4.9.2. The program manager shall issue a Military Certificate of Airworthiness to individual DAF air systems conforming to the configuration identified in the airworthiness approval and in a condition for safe operation. The program manager shall identify the service life limit, as defined on the airworthiness approval, on the Military Certificate of Airworthiness. The program manager retains the original Military Certificate of Airworthiness in the program office files.

4.9.3. A copy of the Military Certificate of Airworthiness should be included in the aerospace vehicle's Air Force Technical Order Form 781-series forms binder.

4.9.4. The Military Certificate of Airworthiness remains in effect for the approved service life as long as the air system conforms to the Technical Airworthiness Authority-approved configuration and is in a condition for safe operation (i.e., properly maintained in accordance with approved maintenance documentation, and the system is operated in accordance with the approved flight manual and within the approved mission usage).

4.10. Special Situations for Operational Airworthiness. The following are unique circumstances where a Technical Airworthiness Authority-issued airworthiness approval is not required:

4.10.1. DoD Commercial Transportation. Civil air systems transporting personnel or cargo for the United States Transportation Command (USTRANSCOM) must have flight safety evaluated by USTRANSCOM in accordance with DoDI 4500.53, *DoD Commercial Air Transportation Quality and Safety Review Program.* **(T-0)**

4.10.2. Civil Air Patrol (CAP) Air Systems. Air systems operating in accordance with CAP governing regulations including, but not limited to, Civil Air Patrol Regulation (CAPR) 70-1, *Civil Air Patrol Flight Management* and CAPR 66-1, *Civil Air Patrol Aircraft Maintenance Management*.

4.10.3. AF Aero Club Air Systems. Air systems operating in accordance with AFI 34-101, *Air Force Morale, Welfare, and Recreation (MWR) Programs and Use Eligibility*.

4.10.4. Flight in non-DAF DoD Air Systems. Non-DAF DoD air systems possessing a valid airworthiness approval issued in accordance with DoDD 5030.61.

4.10.5. Flight in Other United States Government Air Systems. Other United States government agency air systems operated by or transporting DAF personnel must have flight safety evaluated by that agency in accordance with Federal Aviation Regulation and Title 41, Code of Federal Regulations, Part **102**-**33**, *Management of Government Aircraft.* **(T-0)**

4.10.6. Flight in Foreign-Owned Aircraft. Prior to approving DAF military, civilians, or contractors to fly on foreign-owned aircraft not already approved in accordance with **4.10.1** as

aircrew or passengers, commanders will contact the AF Airworthiness Office to confirm the existence of a valid DoD recognition of the applicable foreign Military Airworthiness Authority or complete an operational airworthiness appraisal in accordance with the process defined in the USD(A&S) Memorandum, *Flight in Foreign-Owned Military Aircraft Implementation Guidance*, December 1, 2020, available from the AF Airworthiness Office. **(T-0)**

4.10.6.1. Upon request, the AF Airworthiness Office will determine if a valid DoD recognition exists for the duration of intended operations. If the command elects to pursue a recognition assessment, the command is responsible for resourcing the recognition assessment performed by the AF Airworthiness Office. If the command elects to complete an operational airworthiness appraisal, the AF Airworthiness Office provides the checklist for execution by the command.

4.10.6.2. Foreign-owned military air systems undergoing modification within a Security Cooperation or Security Assistance program are not included in this special situation, and follow **Chapter 3** of this instruction. Contact the AF Airworthiness Office to determine the path forward for assessing air system airworthiness prior to induction into the modification process.

4.11. Delegation. The Technical Airworthiness Authority may delegate specific authorities for executing airworthiness activities to delegated technical authorities. The Technical Airworthiness Authority defines requirements and conditions of delegation.

4.12. Airworthiness Approval Rescission. The Technical Airworthiness Authority may rescind an airworthiness approval upon discovery of elevated air system risk or other conditions that may invalidate a previously issued airworthiness approval.

4.13. Changes. The Technical Airworthiness Authority may approve specific changes of the activities herein to suit special need or purpose or if circumstances warrant.

ANDREW P. HUNTER
Assistant Secretary of the Air Force
(Acquisition, Technology & Logistics)

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 62-6, *USAF Airworthiness,* 16 January 2019

AFI 33-322, *Records Management and Information Governance Program,* 28 July 2021

AFI 10-220, *Contractor's Flight and Ground Operations,* 21 August 2013

DAFI 34-101, *Air Force Morale, Welfare, and Recreation (MWR) Programs and Use Eligibility*, 7 March 2022

AFI 61-101, *Management of Science and Technology,* 14 March 2013

AFI 63-101_20-101, *Integrated Life Cycle Management,* 30 June 2020

AFI 63-138, *Acquisition of Services,* 30 September 2019

DAFI 90-160, *Publications and Forms Management,* 14 April 2022

AFI 91-202, *The US Air Force Mishap Prevention Program,* 12 March 2020

DoDI 5000.89_AFI 99-103, *Capabilities-Based Test and Evaluation,* 9 December 2021, Corrective Actions, 15 March 2022

CAPR 70-1, *Civil Air Patrol Flight Management*, 31 March 2020

CAPR 66-1, *Civil Air Patrol Aircraft Maintenance Management*, 14 September 2015

DoDD 5030.61, *DoD Airworthiness Policy,* 24 May 2013

DoDI 4500.53, *DoD Commercial Air Transportation Quality and Safety Review Program,* 7 May 2021

FAA Advisory Circular 00-1.1B, *Public Aircraft Operations-Manned and Unmanned*, 21 September 2018

FAA Order 8110.101, *Type Certification Procedures for Military Commercial Derivative Aircraft*, 25 February 2015

MIL-HDBK-516, *Airworthiness Certification Criteria,* 12 December 2014

MIL-STD-882, *DoD Standard Practice - System Safety,* 11 May 2012

Under Secretary of Defense for Acquisition and Sustainment Memorandum, *Flight in Foreign-Owned Military Aircraft Implementation Guidance*, 1 December 2020

49 United States Code (U.S.C.) § 40102, *Definitions*, current edition

49 U.S.C. § 40125, *Qualifications for Public Aircraft Status*, current edition

41 C.F.R. Part 102-33, *Management of Government Aircraft*, current edition

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AF Technical Order Form 781, *Aircrew Resource Management System (ARMS) Aircrew/Mission Flight Data Document*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFLCMC—Air Force Life Cycle Management Center

AFPD—Air Force Policy Directive

CAP—Civil Air Patrol

CAPR—Civil Air Patrol Regulation

DAF—Department of the Air Force

DoD—Department of Defense

DoDD—Department of Defense Directive

DoDI—Department of Defense Instruction

FAA—Federal Aviation Administration

MIL-HDBK—Military Handbook

MIL-STD—Military Standard

SAF—Secretariat Offices within the Headquarters Air Force

USAF—United States Air Force

USC—United States Code

USD(A&S)—Under Secretary of Defense for Acquisition and Sustainment

USTRANSCOM—United States Transportation Command

Terms

Air System—An air vehicle plus the training and support systems for the air vehicle (e.g., communications, control, ground or surface control station, launch and recovery, and support elements), and any weapons to be employed on the air vehicle. For example, an Unmanned Aircraft System is an air system. An air vehicle, manned or unmanned, is a subset of its associated air system. (See Military-HDBK-516). This definition does not include space systems or space vehicles.

Airworthiness—The property of an air system configuration to safely attain, sustain, and complete flight in accordance with approved usage limits.

Airworthiness Approval—Documents issued by an empowered airworthiness authority and may take a number of different forms (e.g., airworthiness release, military-type certificate, flight clearance) depending on specific airworthiness authority policy. An airworthiness approval affirms that the appropriate tenets of the airworthiness process are met and that the aircraft or air system was assessed against the required airworthiness standards and any residual risk to aircrew,

ground crew, passengers, or to third parties has been accepted by the appropriate authority. Examples of Air Force airworthiness approvals are Military Type Certificates, Military Flight Releases, and civil aircraft operations verification letters.

Airworthiness Authority—An individual who has the legal mandate to develop and enforce pertinent rules, regulations, and policy governing airworthiness.

Airworthiness Board—The body that advises the Technical Airworthiness Authority on airworthiness matters pertaining to all air systems requiring or seeking USAF airworthiness assessments and approvals. Membership of the Airworthiness Board consists of senior engineering functional organization representatives and an Air Force Safety Center representative. Program stakeholders (e.g., program offices, contract requiring activities, contractors, manufacturers) participate as advisors to the board during its deliberations.

Certification Basis—A document comprised of a system description, the set of approved airworthiness certification criteria, standards, and methods of compliance that apply to a specific air system design. It is typically derived from MIL-HDBK-516.

Civil Aircraft Operations—All aircraft operations other than those conducted as public aircraft operations in accordance with applicable law.

Compliance Report—A document comprised of a system description, the approved certification basis, references to compliance data, findings of compliance and non-compliance, hazards associated with non-compliance, and risk levels for those hazards.

Event Risk—The risk associated with a hazard as it applies to a specified hardware/software configuration during an event. Typical events include Developmental Testing/Operational Testing (DT/OT), demonstrations, fielding, post-fielding tests.

Initial Risk—The first assessment of the potential risk of an identified hazard. Initial risk establishes a fixed baseline for the hazard.

Military Certificates of Airworthiness—The document issued by a program manager to each individual aircraft that provides evidence of conformance to the configuration identified in the airworthiness approval and its condition relative to safe operation.

Military Flight Release—An airworthiness approval for an air system design that does not meet the full standards or intent of a Military Type Certificate.

Military Type Certificate—An airworthiness approval based on evidence that the air system design is substantially in compliance with its approved certification basis (typically only low or medium risks remain due to non-compliance).

Operating Environment—The surroundings or conditions in which an aircraft operates including, but not limited to temperatures, loads, ambient environmental conditions, moisture and fluid exposures, electromagnetic spectrum, radiation, maintenance, and ground handling.

Passenger—An individual (to include service members, DoD civilians, and contractors) onboard the aircraft who is not on the flight authorization.

Public Aircraft Operations—Public Aircraft Operations is the operation of an aircraft that meets the legal definition of "public aircraft" established in 49 U.S.C. § 40102(a)(41) and the legal qualifications for public aircraft status outlined in 49 U.S.C. § 40125.

Public Aircraft Operations Declaration—Formal written notice of public aircraft operations for designated flights, provided by an authorized government official to the contractor.

Target Risk—The projected risk level the program manager plans to achieve by implementing mitigation measures consistent with the system safety design order of precedence.

Technical Airworthiness Authority (TAA)—The independent AF official authorized to implement, manage and control the design airworthiness element of DAF airworthiness. Authorities include but are not limited to defining airworthiness standards, approving the certification basis, assessing compliance and risks, and issuing airworthiness approvals.

Attachment 2

AIR FORCE AIRWORTHINESS SEVERITY CATEGORIES AND RISK ASSESSMENT MATRIX

A2.1. Air Force Airworthiness Severity Categories and Risk Assessment Matrix.

Table A2.1. Severity Categories (MIL-STD-882E, Table I).

SEVERITY CATEGORIES		
Description	**Severity Category**	**Mishap Result Criteria**
Catastrophic	**1**	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.
Critical	**2**	Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.
Marginal	**3**	Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.
Negligible	**4**	Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

Table A2.2. Air Force Airworthiness Risk Assessment Matrix.

USAF Airworthiness Risk Assessment Matrix			Severity Category			
Probability Level	**Probability per FH or Sortie**	**Freq per 100K FH or 100K Sorties**	**Catastrophic (1)**	**Critical (2)**	**Marginal (3)**	**Negligible (4)**
Frequent (A)	$10^{-3} \leq$ Prob	100 ≤ Freq	1	3	7	13
Probable (B)	$10^{-4} \leq$ Prob < 10^{-3}	10 ≤ Freq < 100	2	5	9	16
Occasional (C)	$10^{-5} \leq$ Prob < 10^{-4}	1 ≤ Freq < 10	4	6	11	18
Remote (D)	$10^{-6} \leq$ Prob < 10^{-5}	0.1 ≤ Freq < 1	8	10	14	19
Improbable (E)	0 < Prob < 10^{-6}	0 < Freq < 0.1	12	15	17	20
Eliminated (F)	Prob = 0	Freq = 0	Eliminated			

High	Risk Assessment Code = 1 - 5	**Medium**	Risk Assessment Code = 10 - 17
Serious	Risk Assessment Code = 6 - 9	**Low**	Risk Assessment Code = 18 - 20