Army Regulation 70–62

Research, Development, and Acquisition

Airworthiness of Aircraft Systems

Headquarters
Department of the Army
Washington, DC
11 May 2016

UNCLASSIFIED

SUMMARY of CHANGE

AR 70–62
Airworthiness of Aircraft Systems

This major revision, dated 11 May 2016--

- Redefines Army airworthiness to be compliant with Department of Defense Policy (para 1-1).
- Designates Commanding General, U.S. Army Aviation and Missile Command as Army airworthiness authority (para 1-4).
- Addresses the need for airworthiness throughout the system life cycle: design, production, and sustainment (para 1-4).
- Clarifies airworthiness roles and responsibilities to include foreign military sales aircraft (para 1-4).
- Addresses current commercial derivative aircraft airworthiness process (para 2-1).
- Provides authority to recognize and approve other airworthiness authorities (para 2-2).
- Addresses specialized unmanned aircraft system airworthiness process requirements (app B).

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Effective 11 June 2016

Research, Development, and Acquisition

Airworthiness of Aircraft Systems

By Order of the Secretary of the Army:

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History. This publication is a major revision.

Summary. This regulation implements guidance in accordance with DODD 5030. 61 for establishing airworthiness of aircraft systems, subsystems, components or allied equipment undergoing development, modifications added to Army aircraft, and in-flight operation of carry-on equipment.

Applicability. This regulation applies to the Active Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve, unless otherwise stated.

Proponent and exception authority. The proponent of this regulation is the Deputy Chief of Staff, G–4. The proponent has the authority to approve exceptions or waivers to this regulation that are consistent with controlling law and regulation. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this regulation by providing justification that includes a full analysis of the expected benefits and must include formal review by the activity's senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to AR 25–30 for specific guidance.

Army internal control process. This regulation contains internal control provisions in accordance with AR 11–2 and identifies key internal controls that must be evaluated (see appendix C).

Supplementation. Supplementation of this regulation and establishment of command and local forms are prohibited without prior approval from the Deputy Chief of Staff, G–4 (DALO–MNA), 500 Army Pentagon, Washington, DC 20310–0500.

Suggested improvements. Suggested Improvements: Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Deputy Chief of Staff, G–4 (DALO–MNA), 500 Army Pentagon, Washington, DC 20310–0500.

Distribution. Distribution: Distribution of this publication is available in electronic media only and is intended for command levels C, D, and E for Active Army, the Army National Guard/Army National Guard of the United States, and U.S. Army Reserve.

Contents (Listed by paragraph and page number)

*This publication supersedes AR 70–62, dated 21 May 2007.

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Chapter 1
Introduction

1–1. Purpose

This regulation prescribes policies, responsibilities, processes, and procedures for life cycle airworthiness (design, production, and continued) of manned and unmanned aircraft systems and subsystems, including the installation of allied equipment and modifications to Army aircraft. This regulation implements DODD 5030.61. Army aircraft as used herein includes all aviation materiel and aircraft that is Army assigned, bailed, borrowed, loaned, leased, owned, or otherwise authorized for operation by Army personnel, or after modification under an Army contract.

1–2. References

See appendix A.

1–3. Explanation of abbreviations and terms

See the glossary.

1–4. Responsibilities

a. Deputy Chief of Staff, G–4. The Deputy Chief of Staff, G–4 will—

(1) Be the proponent for airworthiness of Army aircraft.

(2) Ensure the integrity and independence of the airworthiness mission by petitioning for an adequate level of resources to support organic airworthiness functions. These include, as a minimum, establishing airworthiness requirements, assessment of design compliance from verification results, and airworthiness approvals.

(3) Arbitrate conflict in the application of Army Airworthiness Qualification Policy and provide clear, concise guidance commensurate with Public Law and Department of Defense Policy.

b. Commanding General, U.S. Army Materiel Command. The CG, AMC will exercise staff supervision for airworthiness within the Army.

c. Commanding General, U.S. Army Aviation and Missile Command. The CG, USAAMCOM, is the Army's airworthiness authority. The CG, USAAMCOM will—

(1) Develop and approve airworthiness standards.

(2) Develop and implement a fully coordinated program for oversight of airworthiness qualification for aircraft systems, subsystems, components, and allied equipment. Ensure that systems safety engineering and management principles, criteria, and techniques are applied to achieve optimally low safety risk.

(3) Evaluate compliance to airworthiness standards.

(a) Review all planned Army aircraft development programs; off-the-shelf procurements; alterations to systems, subsystems, components, and allied equipment affecting airworthiness to establish requirements for airworthiness qualification.

(b) Identify and coordinate appropriate test requirements with those agencies that will witness or confirm that the airworthiness and airworthiness related system specification compliance data is valid and documented.

(4) Document airworthiness approval.

(5) Grant engineering approval for individual documents that are needed for airworthiness qualification of aircraft systems, subsystems, components, and allied equipment.

(6) Issue the airworthiness release (AWR) for Army tests or operations and Statement of Airworthiness Qualification (SAQ) for Army materiel release, together with the applicable flight envelope and specific operating and maintenance instructions. This includes approval of the following:

(a) All qualification data published in technical manuals for the system including all electronic rendition of this data in flight, planning and maintenance devices.

(b) Procedures, cautions, warnings, limitations, and performance data.

(7) Designate a single airworthiness office with engineering cognizance and delegated authority for Army airworthiness standards and evaluation for design, production, and continued airworthiness actions except those specifically authorized per paragraph 1–4*c*(8). This airworthiness office serves as a single point of contact between the Army and other agencies (such as the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration, the U.S. Air Force, and the U.S. Navy).

(8) Issue appropriate delegation of authority to activities with mission requirements for prototype or unique aircraft systems that have adequate procedures in place and engineering cognizance of the aircraft system commensurate with the requested authority.

(9) Upon request, provide an airworthiness assessment of continued airworthiness capability and recommended operating limits in accordance with paragraph 2–4 for aircraft not owned or operated by the Army.

(10) As required, provide assessments of, and recognize, foreign military or civilian airworthiness authorities in support of Army mission requirements.

d. Commanding General, U.S. Army Research, Development, and Engineering Command. The CG, USARDECOM will ensure aviation engineering expertise is available to implement technology insertion, implement and sustain engineering cognizance, and perform other engineering functions of the airworthiness authority's mission throughout the aircraft system life cycle.

e. Commanding General, U.S. Army Security Assistance Command. The CG, USASAC will ensure foreign military sales (FMS) cases for aviation materiel include appropriate airworthiness provisions.

f. Commanders of major subordinate commands and commanders of separate installations and activities reporting directly to Headquarters, AMC. These commanders will participate in and furnish personnel to support airworthiness evaluations on aircraft systems, subsystems, or aircraft components and allied equipment under their cognizance.

g. Heads of appropriate Army activities, program executive offices, program managers, project managers, product directors and product managers. The head of each appropriate Army activity and program executive office, program manager, project manager, product director or product manager (when they develop or modify aircraft, aircraft components and allied equipment, or carry-on equipment for in-flight operation) will—

(1) Program for development of the system design, design documentation, verification, and life cycle airworthiness activities to generate data in accordance with approved airworthiness requirements.

(2) Ensure that the airworthiness requirements of the Army have been met throughout the aircraft system life cycle.

(3) Ensure that hazards identified by the airworthiness process are eliminated, mitigated, transferred, or accepted under the Army system safety management process.

(4) Obtain an AWR prior to aircraft operation.

(5) Obtain Army airworthiness approval or Army AWR for all FMS aircraft prior to operation or transfer of the aircraft system.

(6) Ensure that product improvement programs for aircraft systems and their major components include appropriate efforts for airworthiness.

(7) Manage all system configurations and ensure that approved configurations of aircraft systems, including officially promulgated modification work orders (MWOs), have been determined to be airworthy before issuing the item to the user.

h. Commanders. All commanders of operational units will ensure that—

(1) An AWR is requested through their major Army higher headquarters and materiel developer and is obtained before modifying or using any aircraft incorporating a modification to the qualified or standard configuration assessed as impacting airworthiness (see para 2–7*a*).

(2) A copy of all applicable AWRs are located in the aircraft logbook or equivalent unmanned aircraft record during its operation and when it is transferred, until the document is superseded, or the aircraft system is restored to the unmodified qualified or standard configuration.

Chapter 2
Airworthiness Process

2–1. Airworthiness requirements for flight, other piloted and test operations

a. Army aviators, unmanned aircraft system operators, other aircrew and passengers, to include contractors performing under an Army contract, will operate or fly aboard aircraft in the performance of official duties only if there is an Army AWR or other Army recognized airworthiness approval.

(1) For all Army-owned aircraft, an AWR will be issued by the Army airworthiness authority or appointed delegate.

(2) For aircraft not owned by the Army, Army airworthiness approval is required prior to Army flight operations. All aircraft not owned by the Army, but modified and/or operated under contract to the Army, will require an Army AWR or other airworthiness approval issued by an Army recognized airworthiness authority.

(3) Army aviators and unmanned aircraft system operators may operate aircraft under the AWR provided as service guidance to contractor's flight and ground operations when specifically authorized by their unit (normal briefing structure) and verified (as required flight) by the government flight representative per AR 95–20.

(4) Army personnel or contractors performing under an Army contract may travel on board aircraft not owned by the Army which are approved by the Commercial Airlift Review Board (CARB) per DODI 4500.53 and in accordance with DOD 4515.13–R. An AWR is not required for CARB approved aircraft.

b. Requests for exceptions to paragraph 2–1*a* are as follows:

(1) Army aviators and unmanned aircraft system operators required to operate other than U.S. aircraft due to significant operational need that do not have an Army AWR or Army recognized airworthiness approval, must request a waiver from the the Deputy Chief of Staff, G–4 (DALO–OR–A/Aviation Division), 500 Army Pentagon, Washington DC 20310–0500. The requesting units higher headquarters Commanding General, or another U.S. Government Agency's functional equivalent not lower than the first General/Flag Officer in the Chain of Command, may extend such authorization to additional occurrences within the original exception bounds.

(2) Authority to grant waiver extensions will not be delegated below the rank of general and/or flag officer by DCS, G–4. Such authorization will be appropriately limited (for example, to an event, duration, cycles, date and/or time, location) and documented with rationale (for example, mission need, suitability, and availability) for waiving the requirement.

(3) Granting a waiver to the AWR or Army recognized airworthiness approval requirements of this regulation requires the first general and/or flag officer in the chain of command of the Soldiers and/or Civilians who will perform official duties in the suspect aircraft to assume the high operational risk for the high material risk that cannot be mitigated through a recognized airworthiness certification.

c. All modifications impacting airworthiness will subject the aircraft system, subsystem, component or allied equipment to requalification (see para 2–7*a*). The cognizant airworthiness authority will be consulted in the determination of which modifications would or would not measurably affect the airworthiness of an aircraft system, subsystem, component or allied equipment.

d. A new or revised AWR is required for all modifications impacting airworthiness of Army aircraft operating on an AWR (see para 2–7*a*). Issuance of an AWR is based on a technical data review and/or inspection of the installed modification.

e. A new or revised AWR or airworthiness approval is required for modifications impacting airworthiness of Army aircraft or aircraft modified and/or operated under contract to the Army, which are operating based on a previous airworthiness approval (see para 2–7*a*) (for example, a Federal Aviation Administration type certification of off-the-shelf aircraft). The AWR or airworthiness approval is required prior to first flight and the Army configuration, installation, and intended usage (flight profile and environments) are required to be within the scope of the approval. Issuance of the airworthiness approval is based on the technical data requirements established by the agency that exercises engineering cognizance over the aircraft system.

f. An AWR is required as supplemental service guidance for contractor's flight and ground operations of an Army aircraft (see definitions in AR 95–20).

g. Development or adoption of commercial off-the-shelf (COTS) carry-on equipment with a mission requirement for operation in-flight will include an airworthiness assessment (see para 2–7*b*). The airworthiness authority will be consulted to determine which operation of carry-on equipment would or would not measurably affect the airworthiness of an aircraft system, subsystem, component or allied equipment. Based on the assessment, a determination will be made of the extent of airworthiness qualification and appropriate documentation required for in-flight operation.

h. Adoption of COTS equipment for Army aviation use will include an airworthiness assessment (see para 2–7*c*). Based on the assessed airworthiness impact, the appropriate airworthiness qualification and an AWR will be required for installation and operation of the COTS equipment.

i. The SAQ is required input to the materiel release process for all aircraft systems and modifications undergoing materiel release to operational units.

j. When the Army acquires a commercial aircraft for modification as a Commercial Derivative Aircraft for use in military missions, airworthiness approval can be achieved in cooperation with the FAA, as described in FAA Order 8110.101. FAA services in support of Commercial Derivative Aircraft include, but are not limited to the following:

(1) Type certification, including amended type certification and supplemental type certification.

(2) Production certification and approval.

(3) Airworthiness certification.

(4) Statement of conformity.

(5) Continued airworthiness, including Instructions for Continued Airworthiness (ICA), and

(6) Technical assistance.

k. When the Army plans to adopt or adapt the airworthiness approval and/or certification of a system/subsystem, component or similar item (for example, technical standard order component, commercial engine or related airworthiness data) from another agency for use on Army aircraft, the below situations will require the Army airworthiness authority to receive approval from the agency issuing that airworthiness approval and/or certification. Once the other agency's airworthiness approval and/or certification is incorporated into a new Army AWR, all Army-owned aircraft and unmanned aircraft systems will use the new Army issued AWR. This new release can be implemented for Army use or Army qualification as desired by the Army airworthiness authority. Army qualification and AWR adaptation of the other agencies approval—

(1) Is required to support the flight test program.

(2) Is required to fill all gaps between the scope of the previously approved version and the Army configuration, installation, and intended usage (flight profile and environments).

(3) Will use existing technical data, from the contractor or other agency, if made available and determined to be compatible with Army usage. Supplemental new data may be required to fill in the gaps between the existing approved limits and Army intended usage.

(4) May have to repeat previous simulations, tests, and analyses with different Army environments, profiles and configuration differences to determine prescribed limits for Army usage.

2–2. Airworthiness authority

a. The CG, USAAMCOM, is the Army airworthiness authority.

b. For the purpose of substantiating airworthiness, the Army airworthiness authority may adopt data or documentation from other organizations, such as the FAA, the National Aeronautics and Space Administration, the U.S. Air Force, the U.S. Navy, or a foreign organization. The appropriate source for the data should be the one exercising engineering cognizance over the aircraft, any modification, or the original equipment manufacturer where applicable.

c. The Army airworthiness authority has airworthiness responsibility for FMS aircraft prior to transfer to the FMS customer.

d. The Army airworthiness authority may recognize other airworthiness authorities (for example, another nation's civil aviation authority and the Military Airworthiness Authority of another nation). Such recognition would be done based on a rigorous evaluation of the authority's airworthiness processes, and may be subject to limitations in time and scope. This recognition would, within its stated bounds, allow acceptance of airworthiness approvals granted by that authority in lieu of an Army AWR.

2–3. Requesting Army airworthiness approval

a. Requests for AWR and/or SAQ for Army aircraft will be sent to Aviation and Missile Research Development, Engineering Center (RDMR–AE), Redstone Arsenal, AL 35898–5000. Requests normally will come through the materiel developer (such as, the program executive office or the system's program, project, and/or product manager) or from the field through the applicable Army command (ACOM), Army service component command or direct reporting unit and materiel developer.

b. Exceptions to paragraph 2–3*a* are requests for airworthiness approval for modifications installed on aircraft issued by an airworthiness authority, either other than the Army or from a specifically authorized Army activity (see para 1–4*c*(8)). These requests will be forwarded to the appropriate engineering cognizant agency (such as, the Federal Aviation Administration, the National Aeronautics and Space Administration, the U.S. Air Force, or the U.S. Navy).

2–4. Airworthiness determination

Airworthiness determination is the process of assessing the capability of the aircraft system and/or subsystem to meet the approved airworthiness requirements throughout the system and/or subsystem life cycle.

a. The foundation for airworthiness requirements includes but is not limited to the following:

(1) Military and Federal aerospace and/or aeronautical and/or airworthiness specifications, standards, and handbooks (for guidance), including Aeronautical Design Standards.

(2) Commercial specifications and standards (such as, those published by nationally recognized associations, committees, and technical societies), having coordinated status established under DOD policies and procedures.

(3) Company specifications and standards when such documents are based on Government or commercial standards or are supported by technical evidence of their effectiveness (such as, analysis, test or operational results).

(4) Design handbooks recognized by the engineering discipline.

(5) Published design criteria based on past experience.

(6) Published test and evaluation procedures and criteria.

(7) System and subsystem specifications.

(8) System safety standards and guidelines.

(9) Software airworthiness standards and guidelines.

b. The airworthiness qualification process defined in paragraph 2–5 will be used to demonstrate compliance with airworthiness requirements defined in paragraph 2–4*a*.

c. The results of the airworthiness qualification process are used to establish limitations for the safe use and maintenance of the aircraft system, subsystem, component or allied equipment. These limitations include those covering crew requirements and—

(1) Flight limits, such as airspeed; maneuvers; electromagnetic environment; and environmental restrictions on altitude, temperature, and other weather conditions.

(2) Loading limits, including weight, center of gravity, fuel load, cargo, external store, and armament loadings.

(3) Structural life and wear limits that are critical to continued safe operation.

(4) Propulsion system limits such as propeller, rotor, and engine subsystem rotational speeds and start-up, shutdown, torque input, torque output, fuel grades, lubrication system temperature, and pressure limits.

(5) Subsystem limits such as electrical load limitations and operating restrictions during degraded mode flight, such as with automatic flight control system inoperative.

d. The basis for production airworthiness determination, whether manufacturing, modification, or upgrade, will be defined in the process approved in paragraph 3–10, and may include, but is not limited to configuration management system, manufacturing process control system, quality assurance system, or physical characteristics of manufacturing site and description thereof, to include subsequent changes thereto.

e. The basis for continued airworthiness determination is—

(1) Operation within prescribed limits and application of appropriate remedial action for any excursions outside limits (such as inspection, repair, replacement).

(2) Maintenance that is current and compliant with established maintenance procedures, including intervals and conditions for inspection, replacement, and overhaul that are required for sustaining the properties and performance of the aircraft.

(3) Aviation critical safety item controls, in accordance with AR 750–1, DA Pam 95–9, and other applicable regulations, in addition to normal parts acquisition controls, to ensure the airworthiness of those parts that have catastrophic consequences of failure.

(4) Procurement of spare parts and overhaul services from sources whose parts and/or processes have been validated to meet all technical and quality requirements to maintain airworthiness.

f. For Unmanned Aircraft Systems (UASs) the airworthiness authority will establish UAS unique standards supplemental to those listed in paragraph 2–4.

2–5. Airworthiness approval process

a. The criteria to be substantiated will be established in the system specification or system description.

b. Elements of the airworthiness process are depicted in the following figures to assist in understanding how these elements are related. Specifically—

(1) Elements of the design airworthiness process are depicted in figure 2–1.

(2) Elements of the production airworthiness process are depicted in figure 2–2.

(3) Elements of the continued airworthiness process are depicted in figure 2–3.

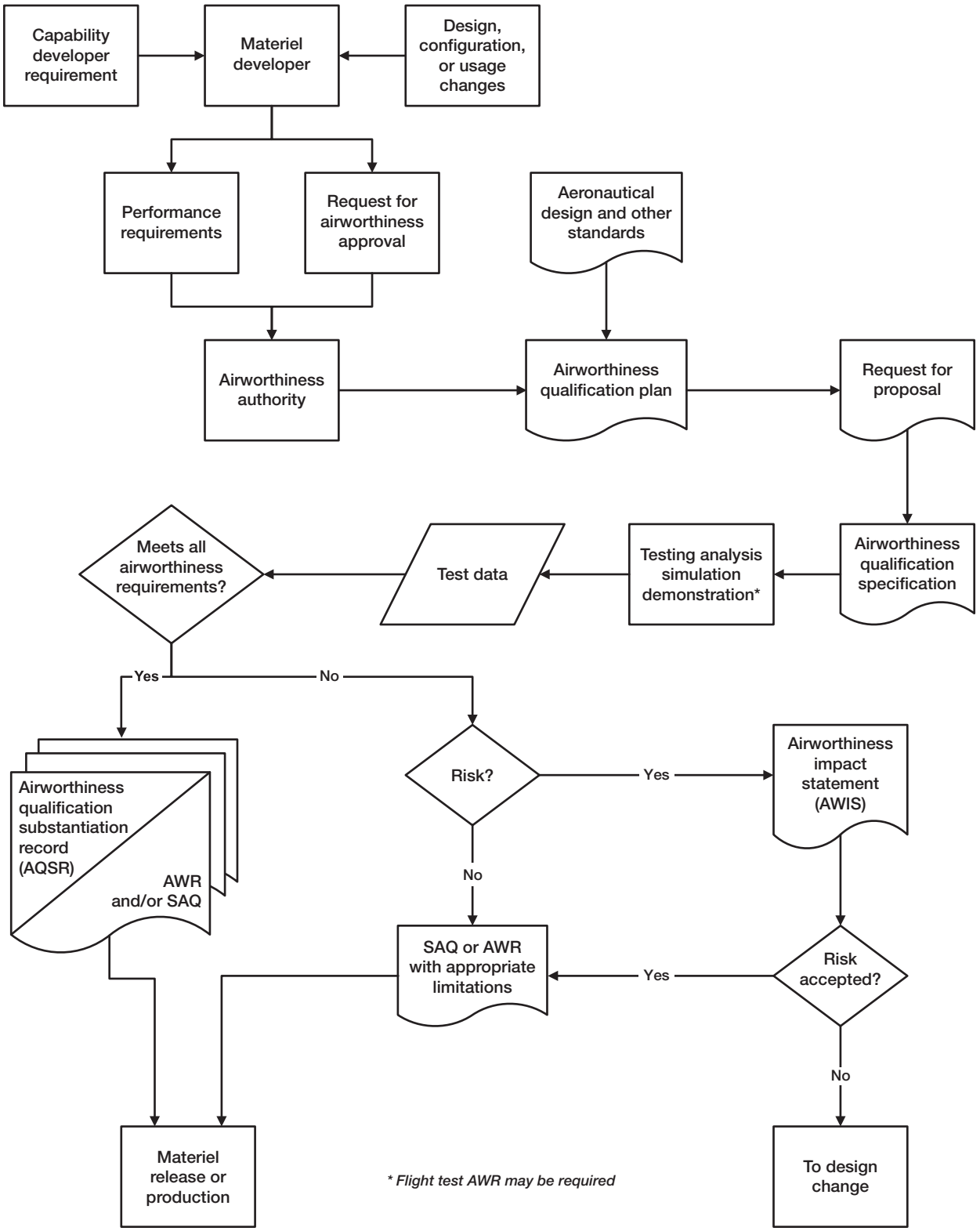

Figure 2–1. Design airworthiness process flowchart

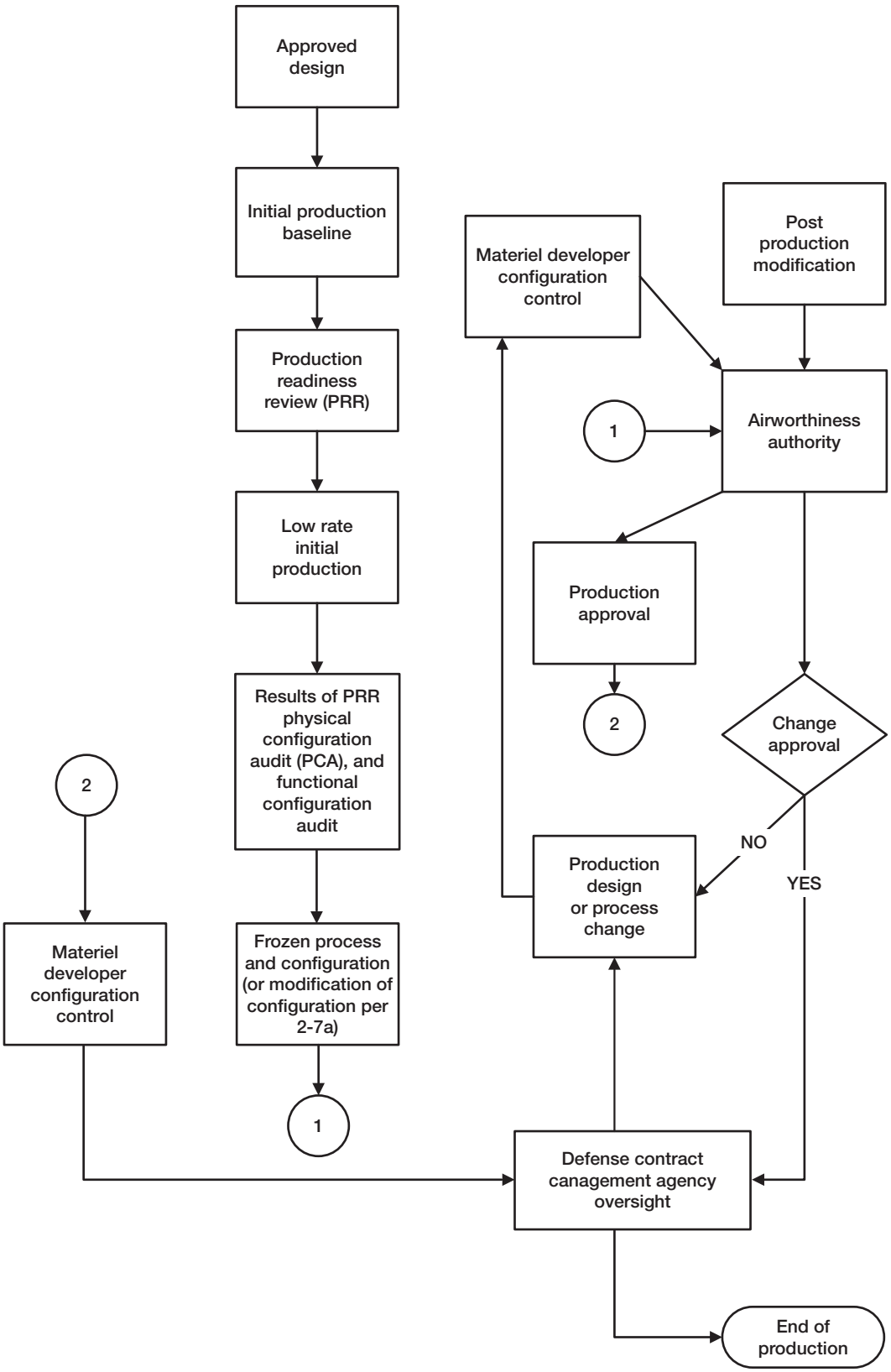

Figure 2–2. Production airworthiness process flowchart

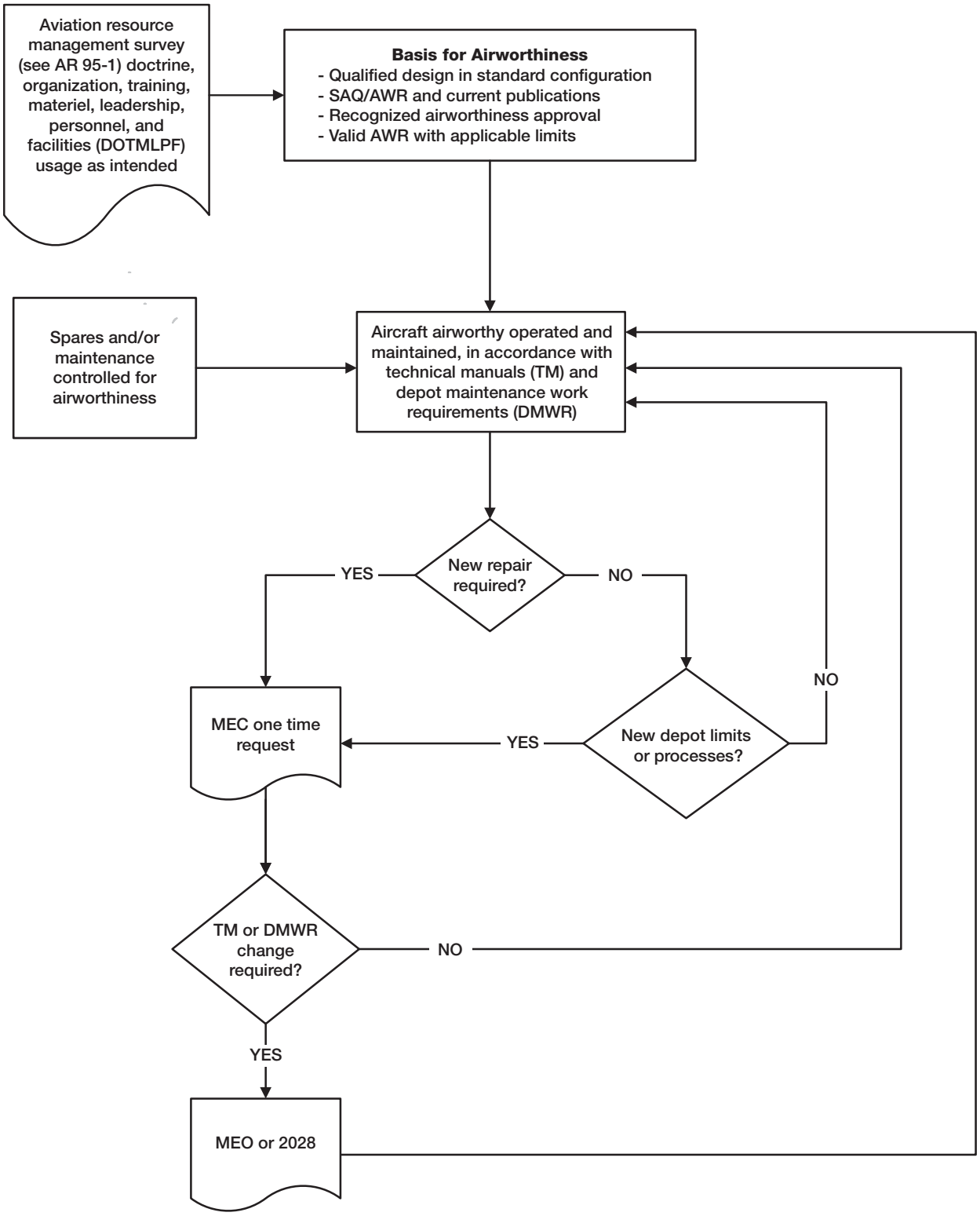

Figure 2–3. Continued airworthiness process flowchart

c. Airworthiness qualification procedures will make maximum use of recognized sound technical and management methods. Aeronautical design standards establish the criteria used in qualification of aircraft as set forth in this regulation. Methods generally used include, but are not limited to, the following:

(1) Engineering analysis, modeling, and simulations.

(2) Formal inspections, design reviews, and safety assessments.

(3) Contractor flight and ground development tests.

(4) Component qualification test of performance under specified conditions and duration.

(5) Formal contractor demonstrations.

(6) Government testing.

d. The requirements for airworthiness qualification are documented in the Airworthiness Qualification Plan (AQP) and/or in the system specification. The Airworthiness Qualification Specification (AQS) defines the materiel developer's plan to conduct specific analyses, reviews, tests, surveys, and demonstrations to fulfill the requirements and objectives specified in the AQP and/or in the system specification. An AQS for the total system will be published and made an integral part of the requirements document and any resulting contract. All qualification requirements for subsystems and components will also be included in this specification or a reference to their location in the system specification will also be included in the AQS.

e. Analyses, simulations, and testing will be conducted to demonstrate or verify compliance with applicable aeronautical design standards, demonstration addendum, and other technical characteristics cited in contracts. Airworthiness qualification testing will be integrated with contractor and other Government testing. Included, as applicable, will be—

(1) Subsystem, component or allied equipment testing.

(2) Total systems testing, including flight tests and demonstrations.

(3) Analytical design substantiating reports.

(4) Software verification.

f. Airworthiness qualification and safety requirements established by the U.S. Army Airworthiness Authority will be included in requests for proposals and invitations for bids. Appropriate data items will be obtained from the data item descriptions listed in Acquisition Streamlining and Standardization Information System. These data items will be made a part of the applicable contract.

g. Design and test guidance pertaining to airworthiness qualification and AWRs will be provided to contractors, as required, through procurement channels.

h. If the proposed air item is determined not to be airworthy, the airworthiness authority will immediately inform the appropriate agencies, citing specific reasons for disapproval and providing recommendations for further action to make qualification and/or airworthiness approval possible.

i. An Airworthiness Qualification Substantiation Record (AQSR) will be generated by the Army airworthiness authority during the airworthiness qualification program and will be completed and made available for submittal with the SAQ. This record will contain, but not be limited to, the following:

(1) The degree of compliance with the approved airworthiness and airworthiness related design and performance criteria of the system specification or system description.

(2) A summary of all technical data accumulated during the airworthiness qualification program conducted by the contractor and the qualifying agency.

(3) Documentation of all operating limitations, fatigue life of critical components, cautions, and warnings, together with technical justification.

j. Necessary procedures, placards, limitations, cautions, performance data, and so forth, obtained during the airworthiness qualification program will be published in technical manuals for applicable systems.

k. To preclude duplication of effort, an adequate file will be maintained of each airworthiness qualification completed. Copies of pertinent documents also will be furnished to the cognizant engineering project office and, if required, the program, project, or product manager.

l. The AWR for fielded Army aircraft will require reporting the modification per DA Pam 738–751, and updating the weight and balance records per AR 95–1 or AR 95–23. All other AWRs will require the same, or equivalent, reporting.

m. The prescribed limits in an AWR for modified aircraft have precedence over limits in the technical manual (TM) until the aircraft is restored to the standard or qualified configuration or the revised limits are published in the applicable manuals.

n. Artifacts will demonstrate software compliance with applicable airworthiness standards.

2–6. Risk management interfaces

a. Risk will not be accepted via SAQ or AWR.

b. The system safety management process is the responsibility of the materiel developer in accordance with AR 385–10. An airworthiness impact statement (AWIS) is a means to notify the materiel developer of a potential hazard or change in probability or severity of a previously identified hazard, and may be used as technical input to the DA Pam 385–16 risk management process. The hazards identified by AWIS will be addressed as part of the system safety management process. If the airworthiness status changes after airworthiness approval, and a hazard is identified, an AWIS will be generated.

c. Any risk(s) and resulting system safety risk assessment (SSRA) or other risk acceptance document per figure 2–1 and AR 385–10, will be included in the documentation supporting an SAQ or AWR, including information from previous AWIS documents.

2–7. Assessing airworthiness impact

a. Modifications or changes that may impact airworthiness will be assessed for airworthiness impact. Such modifications include, but are not limited to the following:

(1) Changes that affect structural integrity, propulsion and/or drive system operation, aircraft performance, aerodynamic characteristics, electromagnetic characteristics, electrical power distribution and characteristics, navigational system performance, flight control system power requirements and performance, weight and balance, or crashworthiness.

(2) Changes that energize emission of electromagnetic energy that can affect any aircraft, subsystem, component or allied equipment controls, indicators, displays, or the navigational and communication systems.

(3) Changes that emit light or sound energy that can raise air crew station noise levels, or distract and degrade air crew or sensor performance.

(4) Changes that can be energized to emit any form of radiation, gases, liquids, or debris that may be hazardous, such as explosive ordnance, explosive or flammable fluids, laser energy.

(5) Changes to the intended use or function of a subsystem or component from the original airworthiness qualification of a standard aircraft system, subsystem, or component.

(6) Changes to the system/subsystem hardware, firmware and/or software architecture.

(7) Changes that affect the operating limits and/or emergency procedures.

(8) Changes that affect the prescribed limits for continued airworthiness. These changes include additions, deletions, or reconfiguration of hardware and material substitutions, software revisions, firmware revisions, and any repair or replacement not authorized in the technical manual.

(9) Changes that are not secured to structure to withstand the aircraft's existing static, dynamic and crash loads, thereby increasing the danger to the operator and crew in the event of an accident.

(10) Changes to software which may affect an existing hazard source or mitigation or may create a new hazard source or mitigation. These changes include modification, deletion, or addition of new software requirements, functionality, or source code regardless of how extensive the change is (for example, percent of source lines of code change).

(11) Changes to maintenance practices or procedures.

(12) Changes to the operational usage spectrum.

(13) Changes to Government-approved production and/or manufacturing processes to include quality assurance actions.

b. Carry-on equipment with a mission requirement for operation in-flight will be assessed for airworthiness impact. Assessments will be performed for the following, but are not limited to the following:

(1) Carry-on equipment that causes any impact as described in paragraph 2–7*a*.

(2) Carry-on equipment that cannot be secured with existing cargo restraints while in use, thereby increasing the danger to the operator and crew in the event of an accident.

c. COTS equipment adopted for Army aviation use will be assessed for airworthiness impact. The assessment will include the following:

(1) Review of any existing airworthiness approval for potential adoption if applicable to the Army system.

(2) Determination of the airworthiness qualification impact of the COTS equipment and its installation on the authorized configuration.

d. Hazards identified through an airworthiness assessment shall be documented in an AWIS.

Chapter 3
Airworthiness Documents

3–1. Airworthiness Release

a. An AWR is a technical document that provides operating instructions, procedures, limitations, inspections, and maintenance instructions necessary for safe flight and operation of an aircraft system, subsystem, component or allied equipment. Note: See appendix B for definition of levels of UAS AWRs. This Army airworthiness approval is—

(1) Based on the results of modeling and simulation, design analysis, engineering ground test, and/or flight test.

(2) Required prior to operation of a new aircraft system, subsystem, component or allied equipment or a modification to the qualified or standard configuration (see para 2–7).

(3) Incrementally expanded to control prudent flight envelope exploration for new development.

(4) The service guidance when provided for contractor's flight and ground operations (see AR 95–20).

b. Applicability—

(1) An AWR is required for changes in configuration, usage, or environment from that which is already approved via Operator's Manual or previous AWR.

(2) An AWR will not be used for the purpose of notifying agencies or units of changes to the airworthiness status of standard equipment (including changes to prescribed limits) where a Safety or Maintenance message is applicable per AR 750–6.

(3) For Army contracts that require contractor's flight and ground operations, an AWR is mandatory service guidance, provided through procurement channels. This particular AWR will include instructions and limitations (service guidance) for operations that are authorized by the Government flight representative (see AR 95–20). Agencies using existing Army approved documents, identifying specific system configurations and scope of operation may continue to use those documents until the new release of an AWR is issued.

(4) An AWR or other Army recognized airworthiness approval will authorize Army test pilots to conduct preliminary airworthiness evaluations, airworthiness and flight characteristics tests, and other Government flight tests. Additionally, an AWR will authorize Army pilots to conduct operational testing that may be necessary to complete qualifications.

(5) An AWR will provide authorization to use and incorporate interim changes to any applicable operating procedures and prescribed limits, including new requirements from (MWO) until the applicable technical manuals are updated.

(6) Adopting an airworthiness approval by another agency for a new AWR for Army-owned aircraft and for derivative changes under Army engineering cognizance and airworthiness authority is authorized.

3–2. Airworthiness Qualification Substantiation Record

The AQSR is a document, spreadsheet, database or equivalent record generated during the airworthiness qualification program by the Army airworthiness authority. The record will be completed and made available for substantiation of the SAQ for Army materiel release. This record will contain, but not be limited to, the following:

a. The degree of compliance with the approved airworthiness and airworthiness related requirements.

b. A summary of all technical data used to substantiate airworthiness.

c. Documentation of all operating limitations, fatigue life of critical components, cautions, and warnings, together with technical justification.

3–3. Statement of Airworthiness Qualification

a. The SAQ is a document establishing the airworthiness qualification and airworthiness related system specification compliance status achieved. Aircraft performance is constrained by airworthiness limits in determining compliance. The SAQ is based on results of engineering tests conducted on the aircraft and its subsystems, components or allied equipment. Issuance of this statement is an input to Army materiel release per AR 700–142. The SAQ will be issued to document the current airworthiness qualification status of the aircraft system when a full, urgent, conditional or training materiel release is requested.

b. When the aircraft system, including all subsystems, components, allied equipment or modifications, has reached a state of qualification to the airworthiness requirements, a final SAQ documents completion of the qualification process based upon the completed AQSR.

c. This statement may be revised to add officially promulgated MWOs or configuration changes to the standard configuration.

3–4. Airworthiness approval

a. An airworthiness approval is any technical document that provides operating instructions, procedures, and limitations necessary for safe flight of an aircraft system, subsystem, component or allied equipment. This document is issued by the airworthiness authority exercising engineering cognizance over the aircraft system for which the airworthiness approval is granted. These authorities may include the FAA, the National Aeronautics and Space

Administration, the U.S. Air Force, the U.S. Navy, or a foreign airworthiness authority whose airworthiness approval has been accepted or recognized by the U.S. Army airworthiness authority. This approval is —

(1) Based on the results of modeling and simulation, design analysis, engineering ground test, and/or flight test.

(2) Required prior to operation of a new aircraft system, subsystem, component or allied equipment, or a modification to the qualified or standard configuration (see para 2–7).

b. Applicability—

(1) Another agency has engineering cognizance of the aircraft system and the aircraft is not Army-owned, and Army or contractor personnel intend to serve as crewmembers or be transported in the aircraft.

(2) Modifications to meet Army requirements are within the original airworthiness authority's purview and authorization (for example, the FAA does not provide airworthiness approval to fire weapons).

(3) The aircraft system will be maintained to meet the cognizant airworthiness authority's requirements for continued airworthiness.

3–5. Airworthiness impact statement

The AWIS is used to communicate airworthiness impact, the associated consequences, and probability of outcomes to decision makers as the result of an airworthiness issue, event or hazard. The AWIS is prepared to document any issue that significantly degrades airworthiness, any identified hazard that has a risk, unresolved conflicts between airworthiness and performance requirements, or any event that indicates such issue or hazard probably exists. The document includes an issue description, impact, customer comments, background, consequences, probability, analysis uncertainty, alternatives, alternative comparison, and recommendation. The AWIS may be used as input to any one or more processes such as: issue resolution, executive summary, safety or maintenance message (if applicable), (SSRA) or serve as the basis for a change to operational or specification requirements. The hazard(s) identified in the AWIS must be addressed by the system safety management process and associated risk must be accepted by the appropriate authority prior to issuance of the AWR or other airworthiness approval.

3–6. Airworthiness Qualification Plan

The AQP is a document which provides a comprehensive list of requirements for airworthiness qualification of a U.S. Army Aircraft System. Depending on the specific capability and design of the system, these requirements may be tailored as necessary for airworthiness qualification. The requirements of the AQP may be incorporated into a system specification with the concurrence of the airworthiness authority.

3–7. Airworthiness qualification specification

The AQS is prepared by the contractor or design authority and defines their obligation to conduct specific analyses, reviews, tests, surveys, and demonstrations to fulfill the requirements and objectives specified in the AQP. The requirements of the AQS may be incorporated into a system specification with the concurrence of the airworthiness authority.

3–8. Maintenance engineering call

The MEC, or other authorization as approved by the airworthiness authority, will be used to address deviations from prescribed maintenance procedures and/or inspection criteria, processes, and/or procedures in the appropriate maintenance technical manual (hard copy and electronic media, all versions) for the end item. The MEC will be retained in aircraft historical records and the aircraft logbook as long as the deviation is in effect. MECs will—

a. Direct maintenance personnel to record the deviation on DA Form 2408–15 (Historical Record for Aircraft).

b. Require an assessment by the appropriate airworthiness authority for any item, practice or criteria that impacts, or potentially impacts, aircraft airworthiness (see para 2–7).

c. Provide deviations for specific units and/or agencies, mission design series, and aircraft tail numbers or UAS-related system or subsystem configuration Item identification and nomenclature, if applicable.

d. Require a periodic review by utilizing units and the appropriate airworthiness authority to ensure that changes to existing maintenance procedures are not required.

e. Specify a valid time frame (start date and/or end date) and may be extended or shortened via an addendum issued by an authorized agency.

3–9. Maintenance engineering order

The MEO is a change to authorized maintenance practice(s) to ensure continuous airworthiness and serves as a publication change document. It is used to update, correct, or change the current prescribed technical and/or maintenance procedures, inspection criteria, and processes in the appropriate technical manual (hard copy and electronic media, all versions) for the end item.

3–10. Military production airworthiness approval

For aircraft and air systems undergoing production and/or modification, each program office will implement a means by which the production processes are evaluated and controlled such that each product meets the airworthiness requirements for the specific configuration. A production airworthiness approval will be issued by the appropriate airworthiness authority of the process and any changes thereto.

Appendix A
References

Section I
Required Publications

AR 95–1
Flight Regulations (Cited in fig 2–3.)

AR 95–20
Contractor's Flight and Ground Operations (Cited in para 2–1*a*(3).)

AR 95–23
Unmanned Aircraft System Flight Regulations (Cited in para 2–5*l*.)

AR 385–10
The Army Safety Program (Cited in para 2–6*b*.)

AR 700–142
Type Classification, Materiel Release, Fielding, and Transfer (Cited in para 3–3*a*.)

AR 750–1
Army Materiel Maintenance Policy (Cited in para 2–4*e*(3).)

AR 750–6
Army Equipment Safety and Maintenance Notification System (Cited in para 3–1*b*(2).)

DA Pam 95–9/{SECNAVINST 4140.2; AFI 20–106; DLAI 3200.4; DCMA INST CSI (AV)}
Management of Aviation Critical Safety Items (Cited in para 2–4*e*(3).)

DA Pam 385–16
System Safety Management Guide (Cited in para 2–6*b*.)

DA Pam 738–751
Functional Users Manual for the Army Maintenance Management System-Aviation (Cited in para 2–5*l*.)

DODD 5030.61
Department of Defense (DOD) Airworthiness Policy (Cited in para 1–1.)

Section II
Related Publications
A related publication is a source of additional information. The user does not have to read it to understand this publication.

AR 11–2
Manager's Internal Control Program

AR 12–1
Security Assistance, Training, and Export Policy

AR 25–30
The Army Publishing Program

AR 25–400–2
The Army Records Information Management System

AR 70–1
Army Acquisition Policy

AR 70–25
Use of Volunteers as Subjects of Research

AR 700–138
Army Logistics Readiness and Sustainability

DOD 4515.13–R
Air Transportation Eligibility (Available at http://www.dtic.mil/whs/directives/.)

DODI 4500.53
DOD Commercial Air Transportation Quality and Safety Review Program (Available at http://www.dtic.mil/whs/directives/.)

FAA Order 8110.42
Parts Manufacturer Approval Procedures (Available at https://www.faa.gov/.)

FAA Order 8110.101
Type Certification Procedures for Military Commercial Derivative Aircraft (Available at https://www.faa.gov/.)

FAA Order 8120.2
Production Approval and Certificate Management Procedures (Available at https://www.faa.gov/.)

MIL–PRF 63029
Manuals, Technical: Requirements for Operator's Manuals and Checklists for Manned and Unmanned Aircraft Systems (Available at http://quicksearch.dla.mil/.)

MIL–STD–963
Data Item Descriptions (Available at http://quicksearch.dla.mil/.)

22 USC Chapter 39
Arms Export Control Act (Available at https://www.law.cornell.edu/uscode/text/22/chapter-39.)

Section III
Prescribed Forms
This section contains no entries.

Section IV
Referenced Forms
Unless otherwise indicated, DA Forms are available on the Army Publishing Directorate Web site (http://www.apd.army.mil)

DA Form 11–2
Internal Control Evaluation Certification

DA Form 2028
Recommended Changes to Publications and Blank Forms

DA Form 2408–15
Historical Record for Aircraft

Appendix B
Unmanned Aircraft System Airworthiness Qualification Levels
Airworthiness releases for UAS will be issued based on the AQLs achieved by the UAS. AQLs are determined by intended use but the level may be adjusted based on multiple factors including airspace access, mission, weight, and air vehicle operating characteristics. The AQLs may be modified by the airworthiness authority as necessary to comply with Army and civil regulatory requirements for operation of UAS. The following is description of the AQLs and their intended application.

Airworthiness Qualification Level 1. A qualification that provides the equivalent level of safety of manned aircraft and is for UAS that intend to operate in all classes of the U.S. National Airspace System. These systems will have a documented design that indicates materiel-caused aircraft loss and/or catastrophic failure rate no worse than 10–5, or 1 catastrophic event per 100,000 flight hours. AQL 1 is based on airworthiness criteria, engineering standards, and data requirements equivalent to those of manned aircraft while taking into account UAS-unique design considerations.

Airworthiness Qualification Level 2. A limited qualification which does not provide the equivalent level of safety of manned aircraft and is for UAS that operate over areas of low population density, Restricted Airspace and Warning Areas, and/or in combat environments. These systems shall have a documented design that indicates materiel-caused aircraft loss and/or catastrophic failure rate no worse than 10–4, or 1 catastrophic event per 10,000 flight hours. AQL 2 may not require the same engineering and data requirements as AQL 1, but is a tailored set of airworthiness criteria, engineering standards, and data requirements to ensure that the integrity of design and the inherent airworthiness of the system are suitable for flight in the above restricted environments. Because AQL 2 does not provide the equivalent level of safety of manned aircraft, these systems will have restrictions that limit areas of operations. AQL 2 is required as a minimum for any UAS that is weaponized or is part of a Kill Chain. A UAS is considered part of the Kill Chain if it directly designates a target with a laser designator or directly passes target coordinates to a weapon system that does not verify target position with its own sensors or another qualified sensor and/or process. These systems will have a system level safety assessment that identifies the hazards for the intended operations.

Airworthiness Qualification Level 3. May not be based on traditional airworthiness substantiation from test data, and is for UAS that only intend to regularly operate in Restricted Airspace, for experimental and/or expendable aircraft, and small UAS (under 55 lb) intended to operate in combat environments. These systems should have a design goal of a materiel-caused aircraft loss/catastrophic failure rate no worse than 10–3, or 1 catastrophic event per 1000 flight hours. These UAS may not be designed to accepted engineering standards and/or do not possess adequate engineering data to determine their compliance with accepted standards. These systems will have a system level safety assessment that identifies the hazards for the intended operations. AQL 3 systems are not evaluated to the appropriate Airworthiness criteria to support weaponization or for inclusion in a Kill Chain process and will have restrictions that limit areas of operations. AQL 3 UAS should be considered expendable.

Appendix C
Internal Control Evaluation

C–1. Function
The function of this evaluation is to ensure policies and responsibilities are followed for life cycle airworthiness of manned and unmanned aircraft systems.

C–2. Purpose
The purpose of this evaluation is to assist designated individuals in evaluating the key internal controls listed below. It is intended as a guide and does not cover all controls.

C–3. Instructions
Answers must be based on the actual testing of key internal controls (for example, document analysis, direct observation, and simulation). Answers that indicate deficiencies must be explained and corrective action indicated in supporting documentation. These internal controls must be evaluated at least once every 5 years. Certification that this evaluation has been conducted must be accomplished on DA Form 11–2 (Internal Control Evaluation Certification).

C–4. Test questions
a. Is the airworthiness authority operating within the policy guidance prescribed by DODD 5030.61?

b. Is the airworthiness authority capable of responding to a request for materiel release by providing an airworthiness statement or SAQ?

c. Is the airworthiness authority acquiring and maintaining engineering cognizance over aircraft systems to support design, production, and continued airworthiness approvals of aircraft systems?

d. Does the airworthiness authority establish airworthiness criteria, standards, and method of compliance?

C–5. Supersession
Not applicable.

C–6. Comments

Help make this a better tool for evaluating internal controls. Submit comments to the Deputy Chief of Staff, G–4 (DALO–FPD), 500 Army Pentagon, Washington, DC, 20310–0500.

Glossary

Section I
Abbreviations

ACOM
Army command

AMC
U.S. Army Materiel Command

AQL
airworthiness qualification level

AQP
Airworthiness Qualification Plan

AQS
Airworthiness Qualification Specification

AQSR
Airworthiness Qualification Substantiation Record

AWIS
airworthiness impact statement

AWR
Airworthiness Release

CARB
Commercial Airlift Review Board

CDA
Commercial Derivative Aircraft

CG
Commanding General

COTS
commercial off-the-shelf

DCS, G–4
Deputy Chief of Staff, G–4

DMWR
depot maintenance work requirement

FAA
Federal Aviation Administration

FMS
foreign military sales

MEC
maintenance engineering call

MEO
maintenance engineering order

MWO
modification work order

PRR
production readiness review

SAQ
Statement of Airworthiness Qualification

SSRA
System Safety Risk Assessment

TM
technical manual

UAS
Unmanned Aircraft System

USAAMCOM
U.S. Army Aviation and Missile Command

USARDECOM
U.S. Army Research, Development, and Engineering Command

USASAC
U.S. Army Security Assistance Command

Section II
Terms

Aeronautical design standards
A comprehensive collection of design standards and criteria embracing the engineering disciplines of aircraft systems and subsystems design and performance. It will include, as applicable, military and Federal civil agency specifications, standards, and handbooks; industrial specifications and standards (for example, those promulgated by nationally recognized associates, committees, and technical societies), having coordinated status established under DOD policies and procedures; and company specifications and standards when such documents are acceptable for selection; design handbooks recognized by the engineering discipline; and design criteria founded upon past experience to provide an effective mechanism for documenting up-to-date technology so essential in the evaluation for airworthiness qualification.

Aircraft component
A part or combination of parts mounted together during manufacture, which will be replaced, repaired, or tested as one unit (for example, transmissions, starters, and servo assemblies).

Aircraft operation
Any operation of an air vehicle that requires a rated crew member or special authorization to perform the operation in accordance with the aircraft operator's or maintenance manual (for example, flight, engine runs, and taxi).

Aircraft subsystem
Equipment that is installed as an integral part of an aircraft system that, if inoperable or removed, will prevent the aircraft from flying or make it unsafe (for example, helicopter tail rotor assembly).

Aircraft system
A self-powered, controlled flight vehicle excluding ground effect machines and missiles.

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

Airworthiness approval
An airworthiness approval is any technical document that provides operating instructions, procedures, and limitations necessary for safe flight of an aircraft system, subsystem, component or allied equipment. As used herein it refers to approval from an airworthiness authority other than the Army.

Airworthiness assessment
A systems level engineering analysis to verify that the configuration and limitations of the aircraft and air systems are airworthy with respect to the airworthiness criteria defined by the airworthiness authority.

Airworthiness authority
A Government agency having engineering cognizance over a particular aircraft system, subsystem, or component and responsibility for determining the capability of that aircraft system, subsystem or component to function satisfactorily when used within prescribed limits. Also includes any foreign authority whose airworthiness approval has been accepted by the Army airworthiness authority.

Airworthiness determination
The process of assessing the capability of the aircraft system and/or subsystem to meet the approved airworthiness standards, design specifications. Applicable military and commercial standards and design specifications will be used as a basis for airworthiness evaluation during design, production, and operation of the system and/or subsystem.

Airworthiness Impact
Airworthiness impact is the effect of a noncompliance with approved standards and limits for an aircraft system, subsystem or component.

Airworthiness impact statement
A document issued by the airworthiness authority and used to communicate airworthiness impact, the associated consequences, and probability of outcomes to decision makers as the result of an airworthiness issue, event or hazard.

Airworthiness qualification
Airworthiness qualification is a progressive assessment process performed at the component, subsystem, and system levels to ensure that a system meets all applicable airworthiness requirements.

Airworthiness Qualification Plan
Requirements for airworthiness qualification developed by the airworthiness authority when requested by the procuring activity.

Airworthiness Qualification Specification
The AQS defines the contractor's obligation to conduct specific analyses, reviews, tests, surveys, and demonstrations to fulfill the requirements and objectives specified in the AQP.

Airworthiness Qualification Substantiation Record
A technical summary describing the scope of the qualification and its results, including prescribed limits, and a compilation of each requirement indexed to its status of demonstrated compliance and references to the verifying technical substantiation (including analyses, inspections, drawings, modeling, simulations, test plans and test results, and any other relevant technical data).

Airworthiness release
A technical document that provides operating instructions and limitations necessary for safe flight of an aircraft system, subsystem, or component.

Allied equipment
Equipment that is an integral part of an aircraft system but is not required for flight (for example, a ground power unit, weapon that is attached to an aircraft, and aircraft survivability equipment).

Army aviator
Army personnel possessing an aeronautical designation awarded or recognized by the Army authorizing them to pilot Army aircraft when ordered to do so by competent authority and with current flight status. For purposes of this regulation, this includes contractors performing under a contract signed by an Army warranted contracting officer.

Army headquarters
Term used to identify higher headquarters which includes: ACOMs, Army service component command, direct reporting units, the National Guard Bureau, field operating agencies and staff supporting agencies.

Carry-on equipment
Any portable device that can be hand carried on-board by crew or passenger for the purpose of its operation in-flight.

Commercial Airlift Review Board
The CARB is responsible for safety oversight of air transportation services that are capable of meeting the requirements of parts 121, 129, and 135 of the Federal Aviation Regulation or foreign Civil Aviation Authority equivalent, to include routine medical evacuation services, charter airlift, and group travel.

Commercial Derivative Aircraft
Any aircraft procured as a commercial, FAA or equivalent type certified, off-the-shelf non-developmental item which may have been subsequently modified for military use.

Continued airworthiness
Compliance with the processes (for example, aircraft maintenance, operator and maintainer training and certification, sourcing of spare parts, and configuration management) to ensure that, at any time in its life cycle, an aircraft complies with the technical conditions established at the issuance of the AWR or SAQ and is in a condition for safe operation.

Critical safety item
A part, an assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapon system if the part, assembly, or equipment contains a characteristic any failure, malfunction, or absence of which could cause a catastrophic or critical failure resulting in the loss of or serious damage to the aircraft or weapon system, an unacceptable risk of personal injury or loss of life, or an uncommanded engine shutdown that jeopardizes safety.

Engineering cognizance
The technical awareness and knowledge of the design function and performance sufficient to determine prescribed limits required for safe operation and continued airworthiness.

Firmware
Computer programs and data loaded in a class of memory (for example, read-only memory, erasable programmable read only memory, or flash memory) that cannot be dynamically modified by the computer during processing.

Flight, other piloted, and test operations
All operation of the aircraft that includes intentional take-off and flight, certain ground operations where a pilot is required at the controls, and any experimental or engineering test necessary to determine limits. For rotary wing aircraft this includes ground operation of the aircraft's main engine or engines.

Foreign military sales
That portion of U.S. security assistance authorized by the Arms Export Control Act and conducted on the basis of formal contracts or agreements between the Government and an authorized recipient government or international organization (see Title 22, United States Code, Chapter 39 (22 USC Chapter 39). The FMS include Government-to-Government sales of defense articles or defense services, from DOD stocks, or through new procurement under DOD-managed contracts, regardless of the source of financing.

Hazard
An actual or potential condition that can cause injury, illness, or death to personnel; damage to, or loss of, a system, equipment, or property.

Life cycle
As used herein, the period inclusive of development, design approval, production and operational use through retirement of aircraft systems, subsystems, or aircraft components and allied equipment.

Maintenance engineering call
Airworthiness document used to address deviations from prescribed maintenance procedures and/or inspection criteria, processes and/or procedures in the appropriate maintenance technical manual.

Maintenance engineering order
An airworthiness document used to supplement or change a maintenance publication to ensure continuous airworthiness. It is used to update, correct, or change the current prescribed technical and/or maintenance procedures, inspection criteria, and processes in the appropriate maintenance manual (depot maintenance work requirement (or TM).

Military production airworthiness approval
Approval granted by the airworthiness authority based upon evaluation of the production or modification processes and

procedures for aircraft systems, subsystems, or aircraft components indicating that the appropriate standards, specifications and design requirements for airworthiness will be achieved.

Modification
Any alteration, after production, to an item of materiel made by either Government or contractor personnel. Activities commonly known as retrofit, conversion, remanufacture, design, change, engineering change, and the like are included in the definition.

Modification work order
The official publication that authorizes and contains instructions for any alteration, conversion, or modernization of an Army end item or component of an end item, which in any way changes or improves the original purpose or operational capacity in relation to effectiveness, efficiency, reliability, or safety of that item.

Prescribed limits
The full authorized range or envelope of operating, environmental, and sustaining criteria or characteristics for the safe and reliable use of the aircraft system, subsystem, allied equipment, or component as determined by analyses, tests, and operating experiences.

Public aircraft operation
Aircraft operation is "Public" when the aircraft is owned by a government entity, or is used by the government entity and operated outside of the jurisdiction of its FAA airworthiness certificate (for example, configuration, operational use, flight rules, or maintenance).

Specification compliance
The process used to determine that an item meets its established requirements. The purpose of specification compliance is to show through inspection, analysis, demonstration, and/or testing that an item satisfies all contractual performance specification requirements. Even though specification compliance is primarily a process used to demonstrate that the contractor has met the requirements of the contract, much of the data may be used to substantiate the airworthiness of the system.

Statement of Airworthiness Qualification
A document establishing qualification status and airworthiness release that is issued in conjunction with the Airworthiness Qualification Substantiation Record normally completing an airworthiness qualification program.

Technical manual
A manual providing detailed treatment of specific subjects considered necessary for the full accomplishment of required training. A technical manual also contains descriptions of materiel and instructions for the operation, handling, and maintenance and repair thereof, information and instructions on technical procedures, exclusive of those of an administrative nature.

Unmanned Aircraft System Airworthiness Qualification Level 1
AQL 1 is to be a full qualification that provides the equivalent level of safety of manned aircraft and is for UAS that intend to regularly operate in all classes of the U.S. National Airspace System.

Unmanned Aircraft System Airworthiness Qualification Level 2
AQL 2 is to be a limited qualification and does not provide the equivalent level of safety of manned aircraft and is for UAS that intend to regularly operate over areas of low population density, Restricted Airspace and Warning Areas, and/or in combat environments.

Unmanned Aircraft System Airworthiness Qualification Level 3
AQL 3 to be a limited review of the system and is not based on traditional airworthiness substantiation from test data and is for UAS that intend to regularly operate in Restricted Airspace and small UAS (under 55 lb) that intend to operate in combat environments.

Section III
Special Abbreviations and Terms
This section contains no entries.