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

BULLETIN
AWB–100A
3 Jun 2021

United States Air Force Airworthiness Bulletin-100A

Subject: Airworthiness Process Overview and Terminology

Attachment: (1) Revisions
(2) AW Bulletin Structure
(3) Glossary of Airworthiness Terms

1. **Purpose.** Provide an overview of the United States Air Force (USAF) airworthiness (AW) assessment process, a list of current Airworthiness Bulletins (AWB), and a glossary of common terms and definitions used in USAF AW policy, advisories, bulletins, circulars, and directives.

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

3. **Applicability.** This bulletin applies to all air systems subject to and all personnel executing the USAF Airworthiness process.

4. **Policy.** Air Force Policy Directive (AFPD) 62-6, *USAF Airworthiness,* assigns the Technical Airworthiness Authority (TAA) authority and responsibility to the Director, Engineering and Technical Management/Services, Air Force Life Cycle Management Center (AFLCMC/EN-EZ). Air Force Instruction (AFI) 62-601, *USAF Airworthiness*, assigns the TAA authority and responsibility for developing and issuing bulletins, advisories, circulars, and directives to provide process and procedures and specific notifications necessary to assess and maintain the airworthiness of air systems.

5. **Discussion.** This bulletin contains an overview of the USAF AW process, a listing of published AWBs (Attachment 2), and the terms used in the AW process (Attachment 3).

6. **AW Process.** The TAA conducts AW assessments to provide Air Force personnel (to include Service members and civilians) and Air Force contractors the appropriate level of safety of flight and risk management adapted to Department of Defense (DoD) - unique mission requirements. The Director of Engineering/Chief Engineer and the Program Executive Officer/Program Manager are responsible for managing much of the AW process culminating with obtaining and maintaining TAA-issued AW approvals for managed air systems.

7. **AW Process Steps & Templates.** Figure 1 illustrates the standard AW Process. The referenced AWBs provide additional detail for each step. The AW office provides template documents suitable for completing each step of the process located on SharePoint at the following location: https://cs2.eis.af.mil/sites/23230/Airworthiness/SitePages/Templates.aspx.

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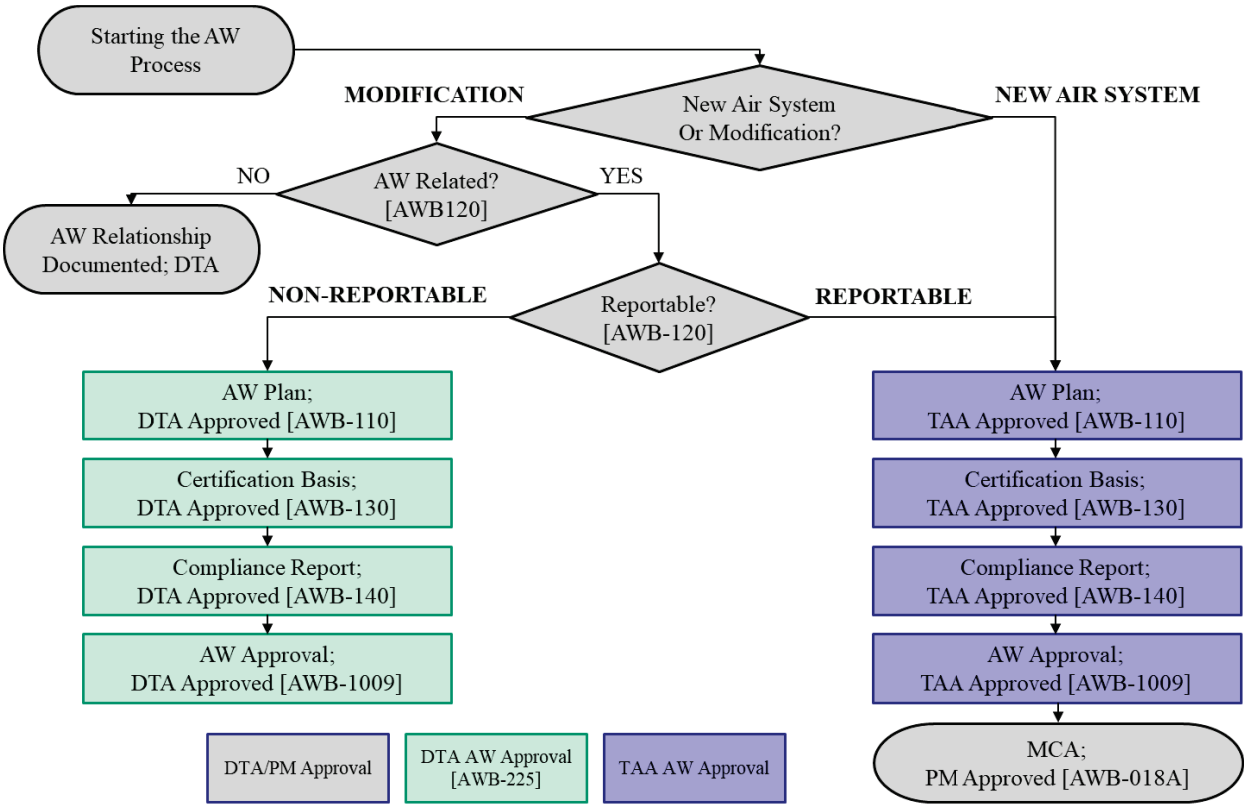

Figure 1: USAF Airworthiness Certification Process

7.1 **AW Plan (AWB-110).** The AW Plan (AWP) is an agreement between the Program Office (PO) and the USAF TAA that defines the approach to obtain and maintain an air system AW approval throughout its service life (or period of use). The AWP defines the air system under assessment and documents a credible and concise plan to execute the AW process. Attachment 2 of the AWP identifies AC-20-06 for contract language that can be used to facilitate AW process execution.

7.1.1 **AW Related (AWB-120).** The Delegated Technical Authority (DTA) determines if a modification is AW related, and if so, must continue with the AW process.

7.1.2 **Reportability (AWB-120).** To support TAA delegation of AW authorities, DTAs assess AW-related modifications for reportability. AWB-225, along with the delegation letter for each DTA, defines the delegated authorities.

7.2 **Certification Basis (AWB-130).** The certification basis (CB) is based on MIL-HDBK-516C and defines the AW criteria (and associated standards and methods of compliance) that apply to an air system design.

7.3 **Compliance Report (AWB-140)**. The compliance report (CR) references compliance artifacts, findings of compliance to the CB, and hazards and risks associated with non-compliant criteria.

7.4 **Airworthiness Approval (AWB-1009).** An AW approval affirms that the appropriate tenets of the AW process are met and that the air system design was assessed against the required AW standards and any residual risk to aircrew, ground crew, passengers, or to third parties has been accepted by the appropriate authority. POs are responsible to maintain system AW over the life (or period of use) of the program.

7.5 **Military Certificate of Airworthiness (AWB-018A).** The program manager issues a Military Certificate of Airworthiness to individual USAF air systems in a condition for safe flight that conform to the configuration identified in the AW approval.

7.6 **Special Circumstances:** Not all programs will fit into the standard AW process. POs must work with the USAF AW Office to discuss deviations from the standard process. Reference the 300 series AWBs for details on special circumstances.

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Attachment 1

REVISIONS

Rev	Date	Summary of Changes
-	1 September 2020	Original Release
A	3 June 2021	Replacement of AWB-002 and AWB-007 with AWB-110 and AWB-120 respectively, with reference to AC-20-06 for contract language Replacement of AWB-004A with AWB-130 Replacement of AWB-003A and 005 with AWB-140 Replacement of AWB-150 with AWB-150B Replacement of AWB-210 with AWB-210B Release of AWB-350 Replacement of AWB-100 with AWB-100A

Attachment 2

AIRWORTHINESS BULLETIN STRUCTURE

Structure: AWBs are organized in three process categories: Core (1XX), Enabling (2XX) and Specialty (3XX). Legacy AWB numbers (in bold font) will remain in place until revised, aligning them to these process categories.

Core Processes	Enabling Processes	Specialty Processes
100A *AWB Structure and Definitions* **110** *Planning* **120** *Reportability* **130** *Certification Basis* **140** *Compliance Report* **150B** *Risk Assessment and Acceptance* **1009** *Flight Authorizations* **018A** *Military Certificate of Airworthiness*	**210B** *Publications* **215** *Change Notices for MIL-HDBK-516* **225** *DTA Delegation* **1007** *Audit Process* **1011** *SME Endorsement*	**320A** *Aerial Refueling* **325** *CNS/ATM* **330A** *Engine TC* **340** *AW Requirements for COCO Aircraft* **345** *AW Policy for SC Programs* **350** *Unmanned Aircraft System (UAS) AW* **1015** *New Materials, Processes, Product Forms*

Note: These AWBs are the currently published bulletins and will be updated as new AWBs are published and/or superseded.

AWB-018A, Military Certificate of Airworthiness: This bulletin establishes the requirements for issuance of a Military Certificate of Airworthiness (MCA).

AWB-110, Airworthiness Planning: This bulletin provides instructions for developing Airworthiness (AW) Plans for air systems requiring a United States Air Force (USAF) AW approval.

AWB-120, Modification Airworthiness, Relatedness and Reportability Determination: This bulletin provides a process for assessing whether modifications are airworthiness (AW) related and, if so, determining their reportability.

AWB-130, Certification Basis: This bulletin provides instructions and processes for establishing and approving the CB.

AWB-140, Compliance Report: This bulletin defines the process to develop and approve the Airworthiness (AW) Compliance Report for new air systems and air system modifications.

AWB-150B, AW Risk Assessment and Acceptance: This bulletin provides instruction for AW risk assessment and acceptance.

AWB-210B, AW Publications: This bulletin defines types, purpose, and publication process for airworthiness (AW) publications.

AWB-215, Change Notices for MIL-HDBK-516, AW Criteria: This bulletin defines the process to develop and approve MIL-HDBK-516 Change Notices.

AWB-225, AW Delegated Technical Authorities: This bulletin establishes standard delegated technical AW authorities, accreditation requirements and the terms and conditions for such delegations.

AWB-320A, Aerial Refueling: This bulletin provides instructions for obtaining the proper Airworthiness (AW) approvals for Aerial Refueling (AR) flight test, demonstration, and operations. The process described in this bulletin ensures the physical and functional interface compatibility between a tanker/receiver pair are evaluated so that AR events involving USAF air systems can be accomplished safely.

AWB-325, Communications, Navigation, Surveillance Air Traffic Management (CNS-ATM) Compliance Assessment Process: This bulletin provides interim instructions for the assessment and approval/certification of CNS/ATM functionality on USAF air systems.

AWB-330A, Propulsion System Type Certification: This bulletin establishes type certification of Type/Model/Series propulsion systems used in USAF air systems and defines the process for issuing propulsion design approvals (DAs) and assessing integrated air system AW.

AWB-340, USAF AW Requirements for COCO Air Systems: This bulletin defines USAF methodology for assessing airworthiness of, and providing the appropriate AW approval for, Contractor-Owned and Contractor-Operated Air Systems.

AWB-345, AW Policy for Security Cooperation Programs: This bulletin provides instructions for implementing USAF Airworthiness policy within Security Cooperation programs.

AWB-1007, AW Audit Process: This bulletin defines the purpose, scope, and execution steps of the airworthiness audit process, in accordance with AFI 62-601.

AWB-1009, AW Flight Authorizations – MTCs and MFRs: This bulletin provides direction and instructions for issuance or rescission of airworthiness flight authorizations.

AWB-1011, AW Expert Endorsement: This bulletin describes the general process to accredit and endorse Subject Matter Experts for assessment of specific MIL-HDBK-516 airworthiness paragraph(s) in support of USAF airworthiness efforts.

AWB-1015, Airworthiness Process for Deploying New or Substitute Materials, Processes, and Product Forms: This bulletin describes the process for deploying new or substitute materials, processes, and product form(s) on currently certified weapon systems.

Attachment 3

GLOSSARY OF USAF AIRWORTHINESS TERMS

Aerial Refueling Certification Agency (ARCA) – The organization, manned by aerial refueling (AR) subject matter experts within AFLCMC/EFZA, tasked with executing technical AR certifications/clearance activities for USAF air systems.

Air System – An air vehicle plus the training and support systems for the air vehicle (e.g., communications, control, ground/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 (UAS) is an air system. An air vehicle, manned or unmanned, is a subset of its associated air system.

Air Vehicle – An air vehicle includes the installed equipment (hardware and software) for airframe, propulsion, on-board vehicle and applications software, communications/identification, navigation/guidance, central computer, fire control, data display and controls, survivability, reconnaissance, automatic flight control, central integrated checkout, antisubmarine warfare, armament, weapons delivery, auxiliary equipment, and all other installed equipment.

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

Airworthiness Advisory (AA) – Cross-platform information disseminated as needed to increase awareness of current or potential significant flight safety technical issues.

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.

Airworthiness Assessment – A technical evaluation of data against specific airworthiness criteria and determination of residual risk. An airworthiness assessment is a critical step in the airworthiness approval process but itself does not necessarily result in the issuance of an airworthiness approval.

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 (TAA) 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 (AFSEC) representative. Program stakeholders (e.g. program offices, contract requiring activities, contractors, manufacturers) participate as advisors to the board during its deliberations.

Airworthiness Bulletin (AWB) – Detailed procedures and requirements to implement USAF and Department of Defense directives and instructions for AW.

Airworthiness Circular (AC) – Guidance, information, and recommended practices for adhering to requirements and criteria governing AW.

Airworthiness Directive – Mandatory direction to DTAs to accomplish specific activities related to airworthiness.

Airworthiness Management Steering Group (AMSG) – Chaired by the TAA or delegate, this group manages implementation of the USAF Airworthiness process and prioritizes resources to support program airworthiness activities.

Airworthy – Conforming to a type design that has a valid AW approval that is in a condition of safe operation.

Certification Basis (CB) – 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, *Airworthiness Certification Criteria*, including approved change notices (CNs). NOTE: The certification basis was previously termed Tailored Airworthiness Certification Criteria (TACC) and Modification AW Certification Criteria (MACC) and Experimental Flight Release Basis (EFRB).

Civil Aircraft Operations (CAO) – All aircraft operations other than those conducted as Public Aircraft Operations in accordance with applicable law.

Commercial Derivative Aircraft (CDA) – An aircraft procured as a commercial off-the-shelf non-development item, and whose serial number is listed on the Federal Aviation Administration (FAA) Type Certificate Data Sheet.

Commercial Derivative Passenger Carrying Aircraft – Any CDA whose primary mission is the transport of passengers.

Compliance Report (CR) – A document comprised of a system description, an approved certification basis, references to compliance data, findings of compliance and non-compliances, hazards associated with non-compliances, and risk levels for those hazards.

Contractor-Owned Contractor-Operated (COCO) Aircraft – Air systems owned and operated by a private entity receiving compensation via USAF contract, agreement, or other means to provide products or services in support of research & development activity, science & technology activity, flight testing, training, operational missions, or other USAF interests.

Contractor-Owned Government-Operated (COGO) Aircraft – Same definition as COCO air systems except operated by a USAF crew. Hereafter, the term "COCO air systems" implies both COCO and COGO air systems. The airworthiness requirements are the same.

Critical Safety Item – A part, assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapon system for which such 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.

Delegated Technical Authority (DTA) – An individual delegated by the Technical Airworthiness Authority (TAA), in writing, with the authority to approve select airworthiness products on the TAA's behalf.

Endorsed AW Subject Matter Expert (SME) – A subject matter expert recognized by the USAF TAA to provide an assessment of compliance to specified airworthiness criteria paragraphs within MIL-HDBK-516.

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.

FAA Amended Type Certificate (ATC) – an approval for a change to a type certificate, made by the TC holder. Only the holder of the TC may apply for an amended TC.

FAA Special Airworthiness Certificates – Special AW Certificates are used for a wide variety of purposes as described in FAA Order 8130.2J, Chapter 4. They cover aircraft, engines, or propellers that have not been certified by the FAA against all the applicable 14 CFR requirements. The classifications of Special AW Certificates include primary, limited, provisional, special flight permit, restricted, light sport, and experimental (a.k.a. X-Ticket).

FAA Standard Airworthiness Certificate – A standard airworthiness certificate (FAA form 8100-2 displayed in the aircraft) is the FAA's official authorization allowing for the operation of type certificated aircraft. A standard airworthiness certificate remains valid as long as the aircraft meets its approved type design, is in a condition for safe operation and maintenance, preventative maintenance, and alterations are performed in accordance with 14 CFR parts 21, 43, and 91.

FAA Supplemental Type Certificate (STC) – A STC is a type certificate (TC) for a change to an aircraft, engine, propeller, or appliance. An STC approves major changes in type design (as defined by 14 CFR 21.93(a)) made by persons other than the TC holder, or by the TC holder itself.

FAA Type Certificate (TC) – The Administrator of the FAA issues a type certificate for an aircraft, aircraft engine, or propeller, or for an appliance when the Administrator finds that the aircraft, aircraft engine, propeller, or appliance is properly designed and manufactured, performs properly, and meets the regulations and minimum standards prescribed in the appropriate 14 Code of Federal Regulations (CFR) requirements. Top level textual summary (weights, engines, fuel, etc.) are given in the Type Certification Data Sheet (TCDS) maintained by the FAA and available at www.faa.gov.

Hazard – A real or potential condition that could lead to an unplanned event or series of events (i.e., mishap) resulting in death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

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

Military Certificate of Airworthiness (MCA) – 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 affirms the aircraft is in a condition for safe operation.

Military Flight Release (MFR) – An airworthiness approval for an air system design that does not meet the full standards and/or intent of a Military Type Certificate.

Military Type Certificate (MTC) – An airworthiness approval based on evidence that the air system design is substantially in compliance with its approved certification basis (typically only Low/Medium residual risks remain due to non-compliance).

Mishap – An event or series of events resulting in unintentional death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Mission – The profiles flown within the operating environment, including duration and severity factor, particularly as they relate to air system cyclic, stress, or fatigue limits and service life.

Mitigation – Action required to eliminate the hazard or when a hazard cannot be eliminated, reduce the associated risk by lessening the severity of the resulting mishap or lowering the likelihood that a mishap will occur.

Modification – Changes to hardware, software, technical data, or mission usage by removing or adding a capability or function, enhancing technical performance or suitability, to include form, fit, function, and interfaces (F3I) replacement of an approved configuration.

Non-reportable Modification – Any permanent or temporary configuration change or alteration to an item, change in capability, or change in mission usage that does not have a potentially significant impact on airworthiness.

Operating Envelope – The limitations for a specific configuration defined by the airworthiness authority.

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.

Partner Nation – A foreign government or international organization that the President determines to be eligible to make purchases as regulated by the Arms Export Control Act of 1976, as amended.

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

Probability – An expression of the likelihood of occurrence of a mishap.

Propulsion Design Approval – A document which affirms that the appropriate tenets of the airworthiness process are met and that the propulsion system was assessed against the required airworthiness standards and any residual risk has been accepted by the appropriate authority.

Propulsion Modification – An engineering change made to an existing propulsion system design for the purposes of improving performance, safety, affordability, or a change of operating environment or mission usage. Modifications will not result in a change to TMS designation.

Public Aircraft Operations (PAO) – PAO 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.

Relatedness – A decision that a modification is related to Airworthiness

Reportability Determination – A decision that classifies an air system modification as reportable or non-reportable.

Reportable Modification – Any permanent or temporary configuration change or alteration to an item, change in capability, change to the service life limit, or change in mission usage that has a potentially significant impact on airworthiness.

Residual Risk – The remaining mishap risk that exists after all mitigation techniques have been implemented or exhausted, in accordance with the system safety design order of precedence.

Risk – A combination of the severity of the mishap and the probability that the mishap will occur.

Safety Critical – A term applied to a condition, event, operation, process, or item whose mishap severity consequence is either Catastrophic or Critical.

Safety Critical Function (SCF) – A function whose failure to operate or incorrect operation will directly result in a mishap of either Catastrophic or Critical severity.

Safety Critical Function Thread (SCFT) – The combination of elements/components within a system and the required interfacing and interaction of those elements/components whose overall contribution is necessary for the operation of a given Safety Critical Function.

Safety Critical Function Thread Analysis (SCFTA) – An analysis of the thread of equipment supporting an SCF and the associated Verification and Validation (V&V) activities applied to the thread. An SCFTA is intended to ensure that all equipment supporting the SCF is identified, the interfacing and integration of that equipment is understood, and that the end-to-end coverage of V&V is sufficient to provide the safety assurance desired.

Service Life Limit – The maximum permissible period of aircraft operational service expressed in units of calendar time and hours and/or cycles.

Severity – The magnitude of potential consequences of a mishap to include death, injury, occupational illness, damage to or loss of equipment or property, damage to the environment, or monetary loss.

Software – A combination of associated computer instructions and computer data definitions required to enable the computer hardware to perform computational or control functions.

Store – A store is any device intended for internal or external carriage, mounted on air vehicle suspension and release equipment, which may or may not be intended to be for in-flight separation from the air vehicle. Stores include missiles, rockets, bombs, nuclear weapons, mines, fuel and spray tanks (permanently attached and/or detachable), torpedoes, sonobuoys, dispensers, pods (refueling, thrust augmentation, gun, electronic countermeasures, etc.), targets, decoys, chaff and flares, and suspension equipment.

System – The organization of hardware, software, material, facilities, personnel, data, and services needed to perform a designated function within a stated environment with specified results.

Technical Advisor (TA) – A senior engineer overseeing the technical activities of an engineering branch and having the technical means to assess compliance to a Section of MIL-HDBK-516.

Technical Airworthiness Authority (TAA) – The official who has the mandate to develop and enforce pertinent rules, regulations, and policy governing technical airworthiness. The EN-EZ Director is the Technical Airworthiness Authority for the USAF.

Technical Director (TD) – A senior engineer overseeing the technical activities of an engineering division and member of the Airworthiness Board.

Temporary Equipment – Any item or equipment (including carry-on equipment) which is not permanently installed in an air system and which can be operated (i.e., is not inert) during air system operation.

Technical Expert (TE) – A senior engineer overseeing the technical activities of an engineering discipline.

Type Design – The engineering definition of a particular product, which consists of:

a. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the air system shown to comply with the airworthiness criteria applicable to the air system;

b. Information on dimensions, materials, materiel properties, and processes necessary to define the structural strength of the product;

c. Any airworthiness limitations required for safe operation and maintenance; and

d. Any other data necessary to allow, by comparison, the determination of the airworthiness, noise characteristics, fuel venting, and exhaust emissions (where applicable) of later products of the same type.

Unmanned Aircraft System (UAS) – A system comprised of individual elements consisting of the unmanned air vehicle (UAV), the control station, and any other support elements necessary to enable operation including, but not limited to data links, communications systems/links, and UAV-unique launch and recovery equipment. There may be multiple unmanned aircraft, control stations, and support elements within a UAS. The control station may be located on the ground (stationary or mobile), on a ship, submarine, aircraft, etc.

Unmanned Air Vehicle (UAV) – A remotely piloted/operated, semi-autonomous, or autonomous air vehicle and its on-board operating system. This does not include air vehicles designed for one-time use as a weapon (e.g., cruise missile).