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FEDERAL AVIATION ADMINISTRATION

National Policy

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SUBJ: Type Certification Procedures For Military Commercial Derivative Aircraft

This order explains how to evaluate and approve aircraft, engine and propeller type design data and changes to approved type design data for military commercial derivative aircraft. We are supplementing the standard type certification procedures in FAA Orders 8110.4, *Type Certification*, 8120.2, *Airworthiness Certification of Aircraft and Related Products*, and 8130.2, *Airworthiness Certification of Aircraft and Related Products*, for the type certification and supplemental type certification of military commercial derivative aircraft (MCDA). For guidance on certification situations or conditions not covered in this order contact the Certification Procedures Branch, AIR-110.

A handwritten signature in black ink, appearing to read "David W. Hempe", is positioned above the typed name.

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Chapter 1. Military Commercial Derivative Aircraft (MCDA) Program Purpose and Foundation

1. Purpose of This Order.

a. This order explains how to provide type certification and related technical services for military commercial derivative aircraft (MCDA).

b. The procedures in this order are unique for MCDA certification projects, including changes to approved type designs, for aircraft, engines, and propellers. We are supplementing FAA Orders 8110.4, *Type Certification*, and 8130.2, *Airworthiness Certification of Aircraft and Related Products*, for standard type certification. Use this order plus Orders 8110.4 and 8130.2 for MCDA projects unless we specify otherwise.

c. MCDA are procured and operated by the U.S. Department of Defense (DoD), Department of Homeland Security, and United States Coast Guard. DoD is the armed services of the United States and includes the United States Army, Navy, Marine Corps, and Air Force.

2. Audience. We wrote this order for the Federal Aviation Administration's (FAA):

- Aircraft Certification Service,
- Flight Standards Service, and
- Persons and organizations designated by the Administrator.

3. Where Can I find This Order? You can find this order at MYFAA Employee website: https://employees.faa.gov/tools_resources/orders_notices and on the Regulatory and Guidance Library (RGL) website: www.faa.gov/rgl.

4. Basis of the Military Certification Program. In 2004, the FAA and representatives of the U.S. Armed Services created an interagency Memorandum of Agreement (MoA). In it, the FAA agreed to provide technical support, certification services and continued airworthiness services for MCDA through our dedicated Military Certification Office (MCO). The DoD agreed to reimburse us for our services. Contact the MCO for the latest revision and copy of the MoA.

a. The Armed Services' objective is to assure military modifications to MCDA comply with the civil airworthiness requirements and do not compromise the safety level of the baseline aircraft as approved by the FAA.

b. FAA services in support of MCDA include:

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

- (2) Production certification and approval,
- (3) Airworthiness certification,
- (4) Military statement of conformity,
- (5) Continued airworthiness, including instructions for airworthiness (ICA), and
- (6) Technical assistance.

c. Certification projects must have a U.S. Armed Services sponsor. This could include aircraft for other U.S. government agencies and foreign governments (such as foreign military sales or security assistance programs).

Chapter 2. The FAA Military Certification Office (MCO)

1. MCO Scope of Work. As the MCO, we are a part of the aircraft certification service and we provide technical support, certification, and continued airworthiness services for MCDA. We accept projects from type certification applicants when the project is sponsored by a branch of the U.S. Armed Services, or the United States Coast Guard.

2. MCO Roles and Responsibilities. As the MCO, we execute the provisions of the MoA. We are the sole point of contact for the armed services and have primary responsibility for all MCDA certification projects. We are the certificate management aircraft certification office (CMACO) for all MCDA projects, except as defined in chapter 3, paragraph 5c. in this order. We execute the provisions of the MoA in conjunction with FAA manufacturing inspection and flight standards organizations. Under the MoA the FAA performs the following services on projects sponsored by the armed services:

- Type certification (TC) (including amended, supplemental, or amended supplemental type certificates),

- Type Design Change
- Production certification,
- Airworthiness certification,
- Continued operational safety support,
- Technical assistance, and
- ICA's.

a. Certification services include issuing amended type certificates (ATC) and supplemental type certificates (STC). New TCs may be issued for Title 14 of the Code of Federal Regulations (14 CFR) part 23 or part 27 primary trainer aircraft. Applications for new type certificates for other parts must be coordinated and approved by AIR-100.

b. Continued airworthiness service support includes:

- Service difficulty reporting,
- Airworthiness Directives (AD),
- Alternative methods of compliance (AMOC) approvals,
- Approval of design data in support of repairs,
- Approval of design data in support of major alterations, and
- Parts manufacturer approval (PMA) for spare parts suppliers.

c. We provide technical assistance that does not determine compliance or results in issuing an FAA certificate or approval. We provide these services before receiving an

application for certification. Our technical assistance includes consultations involving specific armed services flight test or specification compliance activities, life-cycle continued operational safety, extended range operations with two-engine airplanes (ETOPS), flight simulator evaluation, and other services as needed. We may also assist the military in making their own airworthiness assessments for their MCDA.

d. The MCO manager and MCDA project manager (MCDA-PM) share responsibility for fulfilling the requirements of the MoA. They are responsible for establishing budgets, tracking and collecting labor costs and expenses, and initiating billing. They provide semi-annual briefings and an annual report to the armed services. They provide education on how the FAA certifies civil aircraft. They work with the armed services and type certification applicants to find airworthiness strategies for MCDA. They coordinate with and request assistance from other aircraft certification offices (ACO) and directorates. The MCO manager interfaces with the MCDA-PM in the Aircraft Engineering Division (AIR-100). The MCDA-PM is the FAA representative to the Joint Aeronautical Logistics Commanders (JALC) and is the Aviation Safety organization (AVS) focal point for all MCDA issues.

3. How MCO Services are Funded. Under the terms of the MoA, we receive baseline funding from the U.S. Armed Services and Coast Guard to operate the MCO. Each service is assessed a share of the cost as determined by a joint armed services working group. If a new MCDA project is beyond the scope of routine services, as specified in the MoA, a project specific support agreement (PSSA) will be required. A PSSA is funded separately by the sponsoring armed service program office. Projects identified by the MCO as being candidates for a PSSA are coordinated with the MCDA-PM. The FAA uses project and task cost accounting codes to track and bill for FAA resources used to support military programs.

Chapter 3. Military Type Certification Projects

1. Types of Projects. As the MCO, we accept the following types of certification project applications:

a. Type Certificates.

(1) Generally, MCDA projects don't involve issuing a new TC. Most MCDA projects are major changes to existing FAA approved commercial aircraft designs because the military wants to use, or modify, an aircraft to meet their needs. The MoA allows for issue of new TCs only for 14 CFR parts 23 and 27 primary trainer aircraft. This includes issuing a TC under both 14 CFR §§ 21.21 and 21.29. Applications for new type certificates under parts other than part 23 or part 27 must be coordinated with the MCDA PM and approved by AIR-100.

(2) For non-U.S. aircraft projects, a branch of the armed services may contract for a foreign type certificated aircraft. These aircraft may be eligible for a TC under 14 CFR § 21.29. The application for a 14 CFR § 21.29 TC will only be accepted by the FAA if the aircraft has received a type certificate or equivalent from the civil aviation authority (CAA) prior to the issuance date of the armed services request for proposal. For the purposes of the MoA, this would not be considered a new TC. Since international projects may involve a foreign aviation authority, licensing agreement, and partial manufacture in the U.S., the MCO coordinates with AIR-40 for guidance and project specific policy. The FAA conducts such projects under bilateral agreements using FAA Order 8110.52, *Type Validation Procedures*.

b. Amended Type Certificates. An FAA type certificate holder may apply to amend their TC to incorporate type design changes unique to military applications.

c. Supplemental Type Certificates. Under 14 CFR § 21.113, any person seeking to alter a product by incorporating major changes to type design, not great enough to require a new type certificate, can apply for a STC.

(1) Most MCDA projects are accomplished through the STC process. To obtain FAA approval for their modifications, a contractor must apply for an STC.

(2) A TC holder may certify a MCDA solely by STCs or in combination with an ATC. The applicant may make use of previously approved STCs if they are compatible with other proposed military modifications. See AC 21-40, *Application Guide for Obtaining a Supplemental Type Certificate*, and Order 8110.4 for conducting STC projects.

(3) In complex modifications there could be several interdependent STC approvals. It is necessary that modifications are accomplished and approved so the end product stays in compliance with regulations. With an STC the installer must state that the modification is compatible with previously approved modifications. If an STC is installed and dependent upon the installation of other STC(s) then these should be noted in the Limitations and Conditions section of the STC. This scenario could also be accomplished using an umbrella STC, which

lists the included STCs and the order of their accomplishment. See Order 8110.4 for further guidance.

Note: Post TC original equipment manufacturer (OEM) design changes and STC changes can be reviewed on MCDA. FAA Form 337, *Field Approvals*, changes cannot be issued for MCDA under military registration and therefore may not be applicable.

d. Amended Supplemental Type Certificates. The holder of an existing STC can apply to amend the STC to incorporate design changes. These amendments can establish an STC configuration unique to military applications, or incorporate revisions or upgrades to the original STC. Any unique military changes are noted on the supplemental data sheet or noted on amended STC.

e. Type Design Changes. The holder of a TC or STC may incorporate design changes to the approved design following 14 CFR part 21, Sub part D.

2. Starting a Project. We will not accept applications for certification of a MCDA without prior notification and authorization from the sponsoring armed service. This notification should be in writing and include the identity of the product, the current stage of the acquisition program, and the type of FAA services requested.

3. Application Procedure.

a. Where to apply. We instruct all applicants for MCDA type certification projects to apply directly to the MCO, regardless of the applicant's location. Applications are made on FAA Form 8110-12, *Application for Type Certificate, Production Certificate, or Supplemental Type Certificate*, and sent to the MCO Manager at the following address:

U.S. Department of Transportation
Federal Aviation Administration
Manager, Military Certification Office (ACE-100M)
8200 East 34th Street North
Building 1000, Suite 1005
Wichita, KS 67226

b. Application submittal letters. In addition to the information required by 14 CFR § 21.15 and Order 8110.4, the following items must be submitted with all application letters:

(1) A statement that the project supports an armed service sponsored acquisition program, or an armed service sponsored foreign government, other U.S. government agency, or a U.S. security assistance program,

(2) A brief description of the proposed project,

(3) Which branch of the U. S. Armed Services the work is for,

(4) The applicant's point of contact at the sponsoring military armed service office,
and

(5) Notification if the acquisition plan would exceed the time limits specified for completion of a type certification project in 14 CFR §§ 21.17 (c) and 21.101(e).

4. Our Job as the MCO in the Application Process.

a. Verify the military authorization to support the type certification project.

b. Assess the scope of the project and determine if the applicant's proposed certification strategies are viable and feasible.

c. Evaluate the applicant's proposed certification plan.

d. Determine if we can conduct the project using current certification procedures and practices.

e. Issue a FAA certification project number.

f. Confirm whether the project is within the scope of baseline services (as defined in the MoA), if not then, a new PSSA is needed. The MCDA-PM prepares and coordinates the PSSA for AVS-1 signature.

g. Work with the applicant and military airworthiness authority (MAA) to create an airworthiness strategy, if the proposed strategy is not viable.

5. The Certification Project Notification Form (CPN) and Addendum.

a. **CPN form.** We issue the CPN form for military type certification projects. A filled-out CPN form briefly describes the project. See FAA Order 8110.4 for the CPN form and instructions on how to fill it out.

b. **CPN addendum.** Military projects have unique requirements. We use an addendum to the CPN form to provide more information such as type design changes and accounting codes. See appendix C in this order for the CPN addendum form. The responsible MCO project manager completes the addendum and includes it when distributing the CPN form. Items required in the addendum are:

(1) The sponsoring branch of the military,

(2) The military model designation,

(3) Labor distribution report (LDR) cost accounting string and project and tasks codes, and

(4) Any additional information necessary for a military project.

c. How to determine the CMACO for the project. We are responsible for all certification activities conducted under the MoA. We may however, lack expertise on certain products (such as engines and rotorcraft) to execute projects on our own. We will either retain a project or delegate a project to an ACO. If we retain a project we may request assistance from an ACO. When delegating a project to an ACO, we will define portions of the project we will retain for our evaluation. For amended STC/TC's prior to issuance of the CPN form, the MCO and the CMACO must agree on who will be the PM for the project. We use the following guidelines:

(1) New STC. Most military type certification projects are applications for new STCs. The MCO will be the certificate management aircraft certification office (CMACO).

(2) Amended STC where the MCO is not the CMACO for the STC. An applicant can amend their existing STC. The MCO and CMACO for the STC must agree on how best to conduct the project using the following criteria:

- Amended STC - Military. For projects with an existing STC used solely on military aircraft, the CMACO for the STC should transfer the STC to the MCO. The MCO may still request assistance from that ACO.
- Amended STC – Civil. If the STC is used primarily for civil application but needs to be amended to include a military one, the CMACO for the STC should conduct the project.
- Amended STC – Shared Applications. If the STC has application on both civil and military aircraft, the MCO and ACO should determine which office can best service the applicant as the CMACO.

(3) Amended Type Certificate Projects. The TC holder may amend their TC to modify the baseline commercial aircraft for military use. The CMACO for the aircraft will conduct the project.

d. Applicable Cost Accounting Codes. We have established LDR project/tasks codes for baseline services. We will establish unique LDR codes for each project covered under a PSSA. We ask for new LDR project/tasks codes from the military commercial derivative aircraft program manager (MCDA-PM). LDR project/tasks codes must be established before issuing a project number and performing any work. We identify the LDR cost account number and project/tasks codes on the CPN addendum. All FAA aircraft certification personnel assigned and charging time to the project number will use the LDR cost accounting and project/tasks codes in the CPN addendum. FAA office managers must ensure they distribute the proper LDR

codes to assigned personnel, and that the time is properly charged. Accounting for support of military projects has to be accurate because we submit the collected costs for reimbursement.

e. CPN Distribution. When the MCO project manager completes the CPN and addendum, we issue the FAA project number. The MCO project manager typically distributes the CPN and addendum to (see Order 8110.4 for complete list.):

- (1) The accountable FAA directorate,
- (2) Aircraft evaluation group (AEG),
- (3) Manufacturing inspection district office (MIDO),
- (4) MCDA-PM, (AIR-110),
- (5) (For foreign projects) the International Program Staff (AIR-40),
- (6) CMACO, and
- (7) Any other affected FAA organizations.

6. Sensitive or Classified Military Projects. The MCO manager is the only person cleared for all levels of sensitive/classified information. Any contact for sensitive or classified military projects should be directed to the MCO manager. Strict policy and procedures exist with regard to the protection of data and its dispersal. As a minimum requirement, all individuals that work on an MCO project should be:

- Trained in the handling of classified information,
- Familiar with the Security Classification Guide (SCG) for the program, and
- Trained in International Trafficking in Arms Agreement (ITAR) responsibilities.

7. Project Administration.

a. FAA Responsibilities and General Principles of Interaction:

(1) Use the MoA and the PSSA if applicable, to govern the relationship between the FAA and the military.

(2) Use 14 CFR part 21 and Order 8110.4 to manage the relationship between the FAA and applicant. Although the DoD is a government entity, they are not party to the relationship established between the FAA and the applicant under 14 CFR part 21. Therefore, the FAA can't disclose applicant positions, detailed technical data, or proprietary information to the armed services. The FAA should coordinate with the applicant when the DoD asks to participate in meetings.

(3) Work with the applicant and the military airworthiness authority to establish airworthiness requirements for the MCDA.

(4) Help potential contractors and type certification applicants to understand FAA requirements and processes.

(5) Set up a labor and expense tracking system. Submit monthly invoices to the DoD. Prepare a semi-annual summary of projects and resources expended. Submit a next year budget estimate and a 3-year projection by June 30. Prepare an Annual Report for the JALC.

b. MCO program manager roles and responsibilities:

(1) Manage and coordinate projects in accordance with FAA Order 8110.4 and this order.

(2) Coordinate with MCDA-PM to determine whether a PSSA is needed.

(3) Help prepare PSSA statement of work (SOW), detailed workload and cost estimate.

(4) Help the ACO on problems unique to administering and executing MCDA projects for delegated projects.

(5) Communicate policy and guidance needs related to unique military issues, to the responsible aircraft certification directorates and FAA headquarters (MCDA –PM).

(6) Be the focal point for any technical assistance to the military airworthiness authority, and the military program office.

(7) Seek help from experts in the FAA to support the U.S. Armed Services/FAA MoA.

(8) Act as the point of contact for, and coordinate with, the assigned ACO program manager/project engineer for delegated projects.

(9) Coordinate through the applicable military airworthiness authority and prepare responses to DoD inquiries.

(10) Coordinate with the military airworthiness authority any aspects of the design that are not FAA approved.

(11) Coordinate issue papers (defined by Order 8110.4) among the applicant, the MCO, and the accountable directorate.

c. Military Airworthiness Authority Roles and Responsibilities.

- (1) Understand the rules and policy governing the relationship between the applicant and the FAA.
- (2) Understand the applicant's rights and responsibilities when pursuing FAA approval under civil regulations.
- (3) Work together with the MCO to define airworthiness requirements for MCDA.
- (4) Invite the FAA to participate as a consultant on FAA regulations and procedures in official military program meetings with the contractor/applicant as an airworthiness partner.
- (5) Ask the FAA to present their views on specific issues, or to provide general project status from their perspective.

d. Applicant Roles and Responsibilities:

- (1) Demonstrate the product meets minimum safety standards by showing compliance to the applicable regulatory requirements.
- (2) Comply with requirements in 14 CFR part 21.
- (3) Unless otherwise addressed in this order, conduct all type certification projects according to Order 8110.4.
- (4) Submit a project specific certification plan (PSCP) providing an approach for showing compliance.
- (5) Include proposed use of an authorized FAA delegated organization, company designees, and/or qualified outside designees in the project certification plan.
- (6) Cover unique aspects to the MCDA modifications in the project certification plan. Unique aspects may include interdependent STC approvals, modifications to be made by other contractor/applicants. Describe interface requirements for other STCs, or "Provisions Only" approvals.
- (7) Inform the MCO and military program office of modifications that are not part of the proposed type design (not FAA approved).
- (8) Identify any known or potential certification/qualification problems early in the process so there is time to resolve them.
- (9) Clearly identify the content and intent of the proposed STC approval in relationship to other modifications that may be made to the aircraft.

(10) Indicate if military participation in FAA technical coordination or official board meetings is permissible. The applicant has the right to conduct business and discussions with the FAA in private.

(11) Upon issuance of the certificate of approval, comply with the requirements for continued airworthiness for the type certificate. These requirements apply to all TC holders whether the certificate applies to civil, military, or both types of aircraft.

Note: The relationship between the armed service and the applicant is governed by the procurement contract. The FAA is not a party to this contract and not bound by any of its provisions.

8. Using FAA Designees and Delegated Organizations. The MCO should advise applicants wanting to use a delegated organization to notify the delegated organization's managing ACO. The MCO will work with the managing ACO and Organizational Management Team (OMT) of the delegated organization and MIDO to oversee any delegated activities.

Chapter 4. Special Procedures for Military Projects

1. Special Conditions, Exemptions, and Rulemaking. The DoD instructs the military to find commercial-off-the-shelf (COTS) solutions for mission fulfillment. For MCDA the DoD are required to obtain FAA approval to the maximum extent possible. The fundamental objective of the MOA is that the FAA will issue approvals that assure that MCDA meet civil airworthiness standards. However, if military modifications are not consistent with civil use or the regulations, FAA approval may not be possible. Rulemaking activities such as special conditions, exemptions and new airworthiness standards will not be considered except for the following circumstances:

a. If the proposed type design change:

(1) Has potential for civil applications,

(2) Is proposed for implementation on five or more aircraft, and it is likely that the aircraft may return to civil operation, or,

(3) Will be operated by the military under civil registry with a standard airworthiness certificate.

b. The MCO-PM coordinates any request for special conditions or exemptions on a military project with the MCDA-PM.

c. If there are design features or equipment that are not certifiable under existing regulations, we notify the applicant and the military airworthiness authority that the military is responsible for establishing airworthiness and certification criteria for these features and equipment.

2. Use of Delegations and Special Agreements. Under standard certification procedures an applicant may use individual designees. Based on the scope of the project and the qualifications of those designees, we will work with the applicant to determine the extent of delegation/direct FAA involvement in the project. In addition, we will consider using special agreements.

a. **Items Considered For Special Agreements.** The following are examples of special agreements:

(1) Document retention agreements where the applicant holds and maintains the complete MCDA project data file instead of submitting it to the FAA.

(2) Any specific special delegations for project management, approval of select test plans, and compliance findings by qualified designees normally reserved for FAA certification offices.

(3) Project administrative functions- usually conducted by FAA certification office (such as type inspection authorization (TIA) preparation, and type board meeting

documentation). A PSCP could document these functions and be consistent with existing practices.

b. An applicant seeking such special agreements must have a signed partnership for safety plan (PSP) and have written project management procedures. Our evaluation of the applicant's request will consider the applicant's proposal, history on previous MCDA projects, and the experience and qualifications of individual designees.

c. Items We Retain.

(1) Concurrence with a designated engineering representative (DER) "Recommend Only", "Provisions Only" or "Safe Carriage" certifications, or FAA approvals with operational limitations, for example, the equivalent level of safety (ELOS) or special conditions.

(2) Determination of the certification basis.

(3) Acceptance of certification and conformity plans,

(4) Approval and signature of type inspection authorization prior to flight test.

(5) Aircraft flight manuals and aircraft flight manual supplements.

(6) Final approval and issue of type certificates.

Note: See Order 8110.37, *Designated Engineering Representative (DER) Handbook*, for description of limitations on delegation.

d. Limits on Special Agreements. We establish special agreements on a project-by-project basis. We can audit processes established under special agreements at any time while conducting the project.

Chapter 5. Type Design

1. Type Design Conformity and Compliance

a. Conformity Process. The FAA conformity process is used to establish that an article presented for compliance testing conforms to its proposed type design. We coordinate conformity requests with the applicant's local MIDO, and we honor any special agreements the applicant may have in place with the local MIDO. Type design conformity requirements are essentially the same for military projects as for commercial projects, although some military hardware may present unique challenges.

b. Military Hardware Conformity Requirements. Military hardware and included software are often produced outside an FAA approved quality system. Without FAA oversight there will be no FAA conformity records to document configuration control. We will consider the impact on the flight crew, safe flight and operation, and adverse effects on required equipment when we determine conformity requirements for government furnished equipment or special mission equipment (GFE/SME) produced outside an FAA approved quality system.

c. Military Hardware Compliance Requirements. The applicant must show compliance with the airworthiness standards. When the military equipment can comply with all applicable airworthiness standards, and type design data exists to document configuration, the equipment can be included in the FAA installation approval.

d. Qualification of GFE/SME. This equipment may have been previously qualified by the military to military standards. Manufacturing or conformity records or qualification data may be limited compared to what we expect for civil projects. The FAA is often asked to accept this military qualification as meeting the regulations. Because of this, compliance to 14 CFR §§ 21.33(b) and 21.53(b) for GFE/SME may not always be possible. In these situations, we allow the applicant to use alternate levels of approval. See chapter 8, paragraph 1 in this order for methods of approving military supplied equipment.

2. Conformity Inspection Requirements.

a. We may not require a conformity inspection of the article to subcomponent level if we determine that installed equipment is:

- Non-essential for safe flight and landing of the aircraft, and
- All known hazards the equipment may produce are isolated from critical aircraft functions.

b. The FAA certification staff determines whether a conformity inspection is required. They, or their designee, can prepare the request for conformity using the processes in Order 8110.4. The following are guidelines for conformity inspection requirements of military unique or special mission equipment.

(1) Inspections can include part and assembly conformity, installation conformity, test set-up validation, and functional test witnessing.

(2) Include specific written instructions for inspections to ensure configuration control. These instructions may differ from inspections for a new type design created for civil applications.

(3) Conformity requirements can range from a physical inspection to specific requirements including software load and functional test requirements.

(4) Conformity requirements must include consideration of any FAA tests that use the component or system that is being evaluated for certification.

(5) Include special requirements and instructions on FAA Form 8120-10, *Request for Conformity*.

(6) Coordinate with MIDO to determine all conformity requirements.

3. Using GFE. Sometimes, equipment installed is GFE supplied by the military to the applicant from existing government stock, and may not be in current production. The applicant may not have access to the type design, or be able to oversee or control supplier procedures. While we must determine that the installed equipment complies with airworthiness regulations, conventional FAA conformity inspection procedures may not be possible. In such cases, the applicant and the military airworthiness authority should consult with us. However, we still expect the applicant to submit a statement of conformity in accordance with 14 CFR § 21.53. The applicant is responsible for evaluating any subsequent changes to the hardware's configuration and must resolve any associated software issues in order to keep any prior FAA installation approvals valid.

4. Applicant Research and Development (R&D) Flight Testing. The applicant needs to resolve all issues concerning registration, military ownership and preparation before initiating flight testing is conducted.

a. Registration and Airworthiness Certification Requirements for R&D flight testing:

(1) When the applicant doesn't deliver the MCDA to the military and the aircraft is the asset and property of a civil entity, we consider it a civil aircraft and under temporary civil registration.

(2) When the MCDA incorporates modifications that are not FAA approved (but are undergoing modifications subject to FAA or military approval), we instruct the applicant to get a special airworthiness certificate in the experimental category for the intended purpose of operation (see appendix B, in this order for the Table of Scenarios for Temporary Civil Certification of Military Aircraft for further information).

(3) While an aircraft is operating in experimental category:

(a) For any research and development purposes, we do not approve or oversee the aircraft configuration.

(b) The holder of the experimental airworthiness certificate for research and development is responsible for configuration control, airworthiness, and risk mitigation of the development aircraft.

b. What To Do Before FAA Testing.

(1) Once research and development is complete, modified aircraft may be subject to military qualification flight tests, and acceptance flight tests. It is important that the applicant coordinates and integrates an overall flight test plan with the FAA. We recommend that the applicant organizes an integrated test team (ITT) representing the contractor/applicant, the military, and the FAA. The military may require that all modifications made to their aircraft (including new, development, or prototype aircraft) be approved and cleared for flight by the responsible military airworthiness authority. Before the FAA becomes involved, the applicant will have to obtain configuration approval from the military airworthiness authority and implement flight test risk mitigation procedures defined by the military.

(2) The applicant may have to obtain military qualification and approval of crew and personnel authorized to operate or be onboard the aircraft. Qualification and approval must be secured before company personnel, FAA flight test personnel, FAA designees are authorized to test the aircraft. These qualifications and training requirements need to be well established early in the project. FAA test pilots may need to occupy a pilot seat in order to perform tests (see *Aircraft Certification Service Flight Test Operations Manual* and Order 8110.41A).

c. Type Inspection Authorization.

(1) After research and development is complete, the design is ready for type certification testing. The responsible FAA project ACO or FAA delegated organization issues a TIA for this purpose.

(2) The applicant presents the aircraft for FAA conformity inspection. The MIDO issues a special airworthiness certificate in the experimental category to show compliance to the regulations, and then we conduct the FAA certification flight testing.

(3) We will assess and implement risk mitigation before conducting FAA certification flight tests.

(4) We complete FAA certification on new MCDA usually before the ownership of the aircraft is transferred to the military. But if this is not the case, the applicant must coordinate changes to the aircraft registration and airworthiness certificate to reflect the change in ownership. The applicant is still responsible for maintaining aircraft configuration under 14 CFR § 21.35.

(5) After the flight test, the responsible ACO, or FAA delegated organization issues a type inspection report (TIR) Parts I and II which document the conformity inspection, test data collected and associated compliance findings.

5. Temporary Registration of Military Aircraft - the Bailing Process. In-service MCDA being modified by the applicant and pursuing FAA type certification approval may require an official FAA flight test to show compliance to the applicable regulations. In order to fly the aircraft its ownership must first be established.

a. Bailed Aircraft. If the DoD provides a military aircraft to a contractor and “bails” the aircraft to the contractor, the aircraft may no longer be operating as a military (public use) aircraft. It’s important for us to establish whether the aircraft is being operated for commercial purposes and flown by civilian pilots under contractor direction. For example, an in-service MCDA may be placed in the custody of a repair station or a contractor’s facility for an upgrade modification with a new STC. The contractor is allowed to operate the aircraft for six months, using the military aircraft to develop and certify the modification. The contractor may assign a company temporary registration to the aircraft. If so, the documents bailing custody of the government aircraft to the contractor are used as proof that the contractor is the agent of the owner using the company temporary registration. Military aircraft under temporary company civil registration must meet the requirements of 14 CFR part 45 for external markings.

b. Non-bailed Aircraft. If a contractor obtains civil registration on behalf of the military, the military must supply documented proof of ownership. Instead of the customary bill of sale used for commercial purposes, the military may supply a DoD Form DD-250, *The Material Inspection and Receiving Report*.

6. Flight Test under Military (Public Use) Operation. In all cases requiring FAA flight test, all parties involved follow type certification procedures. This includes the review and approval of appropriate type design data and test plans, and the issuance of the TIA. This can also be accomplished under a letter of authorization (LOA) used in accordance with Order 8110.4. Before performing FAA certification flight tests on aircraft under military operation, the applicant obtains a military flight release and approval to test from the military airworthiness authority. In general, the military aircraft is in public use operation if *one* of the following conditions applies:

a. The military aircraft will be operated out of a military airfield and under the control of military aircrew (military pilot in command). FAA personnel or designees are allowed to conduct flight-testing on board the aircraft. (Aircraft means a military public use aircraft.)

b. The military brings the aircraft to a commercial facility for modification, but retains control over maintenance and flight authorization of the aircraft (military pilot-in-command). FAA personnel or designees are allowed to conduct the certification flight-testing onboard the aircraft as part of a joint test team out of the contractor’s facility. (The aircraft remains a public use aircraft.)

7. FAA Form 8130-31, Statement of Conformity- Military Aircraft.

a. Purpose of Form 8130-31. FAA Form 8130-31, *Statement of Conformity – Military Aircraft*, is prepared by the aircraft manufacturer or modifier using the findings of FAA inspections of the aircraft. FAA Form 8130-31 documents all deviations from the civil type certificated configuration. See a sample FAA Form 8130-31 in appendix D in this order.

Note: FAA Form 8130-31, *Statement of Conformity – Military Aircraft*, supersedes FAA Form 8130-2.

b. FAA Responsibilities. By mutual agreement between the FAA and the military services, the FAA follows normal inspection and surveillance procedures for new production under a TC or a production certificate (PC). They also follow normal conformity inspection procedures for certification of a prototype STC installation.

(1) FAA Form 8130-31 is used to identify deviations from FAA approved type design on a new MCDA when completed and delivered from the manufacturer off of the FAA PC. Inspection records from the manufacture of the aircraft under the PC are used to identify and document the deviation items listed on the form.

(2) The responsible MIDO or their authorized designees will sign the form on behalf of the FAA. The form is also used to document deviations from FAA approved type for installation of a prototype STC installation on a MCDA design at a repair station or other facility.

(3) The FAA conformity inspection(s) conducted on the prototype STC installation are used to identify and document deviations from FAA approved type design incorporated during modification of the aircraft. The responsible MIDO or their authorized designee will sign the form on behalf of the FAA.

(4) For incorporation of the FAA approved STC modification on military aircraft subsequent to the prototype installation, FAA Form 8130-31 is prepared based upon inspections conducted by the FAA repair station.

(5) The form is prepared by the repair station, and the responsible airworthiness inspector (AI) or the authorized designee will sign the form on behalf of the FAA.

(6) It is important to note that the FAA may not be able to establish conformity to FAA approved type design for the entire in-service MCDA, due to previous deviations or military approved modifications.

(7) FAA Form 8130-31 is prepared only for the work performed to incorporate an STC, manufacturer issued service bulletin, or other FAA approved type design applicable to the model on the FAA type certificate.

c. Military Airworthiness Authority Responsibilities. The manufacturer/applicant submits the completed Form 8130-31 to the responsible military airworthiness authority. The representative of the military airworthiness authority will sign the form, acknowledging the

identified deviations to FAA approved type design, and accept the responsibility to determine airworthiness and final acceptance of the aircraft configuration.

d. Distributing the FAA Form 8130-31. We will supply a copy of the completed Form 8130-31 to the aircraft manufacturer/applicant. The MIDO or FSDO must forward one copy, including those issued by FAA delegated organizations, to the MCO within 60 days of issuance. The responsible MIDO/FSDO may keep a copy for their records.

Note: If the aircraft is eventually sold as surplus and presented for civil certification, the applicant for the Certificate of Airworthiness is responsible for furnishing the Form 8130-31 related to the aircraft with their application. The form is necessary as part of the airworthiness determination. If the applicant can't obtain the original completed Form 8130-31, the aviation safety inspector (ASI) or authorized designee can request a copy through their MIDO supervising office.

8. Production Approvals.

a. Applicants for Production Approval. We instruct applicants to get a production approval for a design approval they obtained from a type certification project. The applicant applies for a production approval at the geographic MIDO. The applicant's MIDO is responsible for approving the applicant's required quality manual and to oversee the production system.

b. FAA Approved Parts. FAA design approval holders must meet the requirements of 14 CFR part 21, for the manufacture and sale of any parts, subassemblies, or components. Production authority for the manufacture of these parts can be an FAA production certificate (PC), parts manufacturer approval (PMA), or a technical standard order authorization (TSOA).

c. Use of FAA Approved Parts. The military requires that MCDA be maintained to civil standards. Parts produced for sale under FAA production approvals for MCDA are subject to the same requirements as for parts installed on a civil registered aircraft. The military relies on the civil regulatory system to oversee and control manufacturing and quality assurance of spare parts for MCDA.

d. Impact of Unapproved Parts for FAA Approved Type Design. It's possible for type certificated military aircraft to be returned to the civil sector. Replacement and modification parts installed on the aircraft must be declared airworthy under civil airworthiness requirements. If not, they must be removed and replaced with FAA approved parts to maintain an airworthy configuration. Failure to maintain MCDA with FAA approved parts causes loss of configuration control and invalidates the original airworthiness certification. For this reason many MCDA are repaired and maintained in FAA repair stations.

e. Parts under Military Oversight. These parts are unique to the military configuration and are not FAA approved. Equipment, parts, and materials installed on MCDA and approved by the military airworthiness authority, are subject to military requirements for parts manufacture,

identification, and quality assurance control. We don't oversee manufacturing, quality assurance, configuration control, or stocking of these parts. Parts under military airworthiness approval should be segregated and isolated from FAA-approved replacement and/or modification parts. These parts need to be removed from the aircraft to conform with FAA approved type design if the aircraft is to be issued a standard airworthiness certificate.

Chapter 6. Unique Military Functions

1. Military Equipment. Mission equipment can have unique military functions similar to commercial equipment, with no civil application. For example, a military identification friend or foe (IFF) radio operates like a transponder. The FAA may be unable to evaluate military equipment with classified functions. We must set up special handling and procedures to address security sensitive or classified type design information. Except for the installation of this military equipment, the military aircraft may still be operated in the same way as a civilian aircraft. The military may want the equipment to comply with applicable civil safety standards to the extent they apply.

2. Military Functional Evaluations. Sometimes it's difficult for the applicant to show that the installed equipment complies with all applicable regulations. It may be impossible to establish whether the equipment performs its intended function in the civil environment, and the applicant may need help from the military. We instruct the applicant to contact the MCO and the military airworthiness authority for help with these problems so they can find solutions. We and the military have agreed, project by project, to help each other establish airworthiness for the equipment. The military can perform necessary tests and provide a supporting statement to us that the equipment was evaluated for operational suitability, and performs its intended function. Through the MoA we can use the statement from the military airworthiness authority to make the necessary compliance findings to approve the installation. In this instance we require a statement from the military authority such as, "The United States Air Force has found that *a specific equipment xx* as installed on *a specific aircraft model xx* met the performance specification *xxx* and performs its intended function."

3. FAA Operational Restrictions/Limitations. The FAA may still be unable to approve actual operation of the equipment if it conflicts with civil regulations or is prohibited from use in the civil environment. We can approve the installation, but can also restrict or limit its operation, making the equipment unusable on a civil aircraft. Under military registration and operation, the aircraft is not subject to the civil limitations, but the objective is to establish compliance with civil airworthiness regulations.

Chapter 7. Certification of Military Systems and Equipment

1. Certification Issues. The challenges we face in type certification of MCDA involve the integration and installation of military mission systems and equipment. These problems become more complex when it is necessary to interface the mission equipment with aircraft systems. The accepted methods for compliance to civil airworthiness regulations may not have been used when the equipment was designed, for example, software requirements in accordance with RTCA Inc. document, RTCA/DO-178B, *Software Considerations in Airborne Systems and Equipment Certification*, dated December 1, 1992, or most current revision. This does not mean the equipment cannot comply with civil regulations, but we must examine each piece of equipment to determine if an acceptable means of compliance can be determined.

Note: 14 CFR part 25, Transport Category Airplane, regulatory requirements are provided here as a basic reference. Similar or parallel requirements exist for other parts such as 14 CFR parts 23, 27, 29, 33 and 36.

2. Determining Feasibility. FAA requirements and standards are for civil operations, not for military or special mission operations. Therefore, we have to evaluate each proposed modification involving the installation of GFE/SME to determine the feasibility of FAA civil certification. The DoD doesn't necessarily need nor should have an FAA approval for all equipment. When determining the feasibility of certification, we consider these factors:

- a. Proposed operation,
- b. Applicability of specific regulations,
- c. Acceptability of any proposed qualification, and
- d. Conformity data.

3. Military Equipment Ineligible for Certification. Some military equipment and hardware have no civil application, or may induce operational hazards that are not compatible with civil regulations. Check with us (the MCO) for further guidance pertaining to specific military equipment that may not be eligible for full civil certification. Generally, the FAA will not certify any of the following:

- a. Systems designed for combat (offensive armament, or carriage and delivery of weapons or ordnance),
- b. Gun systems,
- c. Missile systems,
- d. Bombing systems,
- e. Electronic jamming systems,

- f. Any installed system if it can pose a hazard to the aircraft, to other aircraft nearby, or to personnel or property while the aircraft is in flight or on the ground,
- g. Tow targets,
- h. Military organic aircraft (except as allowed by AIR-100), or
- i. Specific military systems or a component, if it requires a special condition or exemption, unique only to a military or special mission function.

Note: Identify hazards for certain radars and assure operational limitations are imposed to mitigate hazards for these cases.

4. GFE/SME Performance and Qualification Standards.

a. **Comparison Analysis Matrix.** FAA performance and qualification standards include advisory material and related FAA accepted industry standards. When the equipment is qualified to a different standard, the applicant can show compliance by preparing a requirements comparison analysis matrix. The comparison analysis matrix may show that more qualification and testing may be required to meet civil regulations. The applicant should document the comparison analysis in a compliance report to confirm associated compliance findings. However, when there are no performance or qualification standards associated with the applicable regulations, or there are no applicable regulations, then the applicant can propose performance and/or qualification standards. See 14 CFR § 25.1301(b) for operating limitations. The requirements of 14 CFR § 25.1585(b) may also apply.

b. **Assessing Proposed Standards to Regulatory Requirements.** If the performance or qualification standards proposed are different than those defined by regulation or specified in related guidance, we will assess the proposed means of compliance.

c. **FAA Imposed Standards.** We may impose certain FAA or industry qualification standards or environmental conditions, even on the non-required equipment. For example, we can apply RTCA /DO-160E, *Environmental Conditions and Test Procedures for Airborne Equipment*, dated December 9, 2004, or most current revision, to nonrequired electrical equipment. See AC 25-10, *Guidance for Installation of Miscellaneous, Nonrequired Electrical Equipment* for more guidance. This is an indirect application of 14 CFR § 25.1309(a), and a direct application of 14 CFR §§ 25.1431(a) and 25.1353(a) for showing that the non-required equipment does not affect required or essential equipment. 14 CFR § 25.1431(a) says specifically that we must consider critical environmental conditions.

5. **Military vs. Civil Airworthiness Qualification Testing.** The military often uses off-the-shelf mission equipment to meet their needs. This equipment is often used on other military aircraft, and has been subject to previous airworthiness qualification for the military. Because the equipment was originally designed for military use, the equipment is qualified to military specifications instead of commercial standards (like RTCA/DO-160). Data may be available

from previous military airworthiness qualification testing that shows the equipment could meet civil standards. This data may also show that the equipment is incompatible with, or would fail to meet, civil qualification standards. Some civil requirements may not have been addressed at all. But if credible data is available, we must determine if we can use this data to make a finding of compliance. However, some military equipment may interface with critical communication, navigation, or avionics systems. In these applications, data from previous testing may be insufficient to determine compliance. More testing may be required.

6. Evaluating and Using Previously Accomplished Military Qualification Data. Before we accept previously accomplished qualification data, we must consider:

a. Data Compatibility with Requirements. The applicant must determine the operational environment of the equipment, and use suitable qualification requirements. General comparison to all RTCA/DO-160 requirements is not appropriate. Data must establish that *all* aspects of specific environmental qualification requirements are satisfied. The applicant should show how the previously accomplished data will satisfy the applicable civil standards. The applicant should also give reasons why previous test methods and data parameters show that the hardware would meet or exceed civil qualification requirements. Raw test data or the original test reports may not be enough for this purpose. We may require the applicant to write a new compliance report to show compliance. (See chapter 7, paragraph 4a in this order.)

b. Data Credibility. Previously accomplished qualification data used to support compliance to military specifications can come in many forms. The data may have been obtained by tests conducted solely by the equipment manufacturer, conducted by an independent test facility, or conducted under military oversight. The FAA may accept data when there are complete and accurate records of tests, analyses, or evaluations specific to the hardware. The applicant should record who conducted the testing, where it was done, and the date the testing occurred.

c. Test Article Configuration. The data must reflect tests conducted on the specific equipment for which airworthiness qualification is proposed. The applicant must prove the tests were performed on an article representative of the hardware to be approved, and the hardware type design was subject to design and configuration control. We should evaluate any differences in the article actually tested from the current hardware configuration. We should receive justification why the submitted data is appropriate for the intended application. Qualification by similarity to other previously approved military hardware is not sufficient to show compliance.

d. Concurrence for Use of Previously Accomplished Qualification Data. The project certification plan should identify any proposed acceptance of previously accomplished qualification data. This approach requires good engineering judgment plus knowledge and experience of both civil and military airworthiness qualification requirements. FAA personnel should consult with the MCO or other FAA technical resources available for help. FAA delegated organizations and designees should consult with their FAA advisors before making compliance findings using previously accomplished qualification data. Depending on the application, authorizing FAA offices and designee advisors may want to retain approval authority.

e. Evaluation Similar to TSOA Process. As the MCO, we can evaluate GFE/SME qualification data like articles approved under TSOA. We may accept the military specification as a minimum performance standard. We may accept the previously accomplished qualification data as evidence the hardware meets the specification. This will require the data to be analyzed for compatibility and additional testing may be necessary. Just like under a TSOA, a separate installation approval of the GFE/SME is required. Further analysis or testing may be required if the GFE/SME performance is affected by the installation, or where the GFE/SME can affect the aircraft's required or essential systems.

7. Intended Function Compliance For GFE/SME. We require that the equipment, systems, and installations be designed to ensure they perform their intended functions under any foreseeable operating conditions. Therefore, specific associated performance or qualification standards apply. Follow the rules found in 14 CFR §§ 25.1309(b) and 25.1431 and related advisory material for failure condition requirements. If the GFE/SME is qualified to a different performance or qualification standard such as a military standard, then the applicant compares and conducts more analysis and/or testing as necessary. Compliance can be accomplished as follows:

a. If the GFE/SME is required, essential for safe operation or affects the aircraft's performance, the FAA will conduct our evaluation and make compliance findings like we do for all other required equipment.

b. If the GFE/SME is not required, not essential for safe operation, or doesn't affect the aircraft's performance, but its function is essential to the military mission of the aircraft, the compliance finding can be supported by assessments from the receiving military airworthiness authority. We can request a statement from the military airworthiness authority saying their tests and evaluations support the 14 CFR § 25.1301(b) compliance. The applicant's certification plan should propose that the military will verify the equipment functions properly. The military program office will present their findings on behalf of the applicant to us (the MCO) for the type certification approval.

8. Substantiating Reliability. The applicable regulations and means of compliance can affect the design's reliability requirements. In general, regulations that establish or govern the reliability of design include 14 CFR §§ 25.671, 25.672, 25.901, 25.1309, and 25.1431(a). There are other specific rules such as 14 CFR §§ 25.1307, 25.1333, and 25.1355 that are related to reliability. The reliability specified by the military or contracted between the modifier and purchaser may be different than the reliability necessary to show compliance. The applicant must show reliability to at least the level required by the FAA airworthiness requirements.

9. GFE/SME Produced Outside an FAA Approved Quality System.

a. FAA-Approved Parts. Aircraft parts produced for sale for installation on type certificated products must be approved under:

- (1) A type certificate,

- (2) A production certificate,
- (3) A technical standard order (TSO), or
- (4) A PMA. See 14 CFR § 21.303.

b. Prototype Parts. If the parts are not produced as specified in 14 CFR § 21.303, the parts may be purchased parts, but must be specified in the type design. See 14 CFR §§ 21.125(b)(1) & (2) for details. Therefore, the applicant can buy prototype parts if they set up the necessary inspections and tests to show that parts meet the regulations and they keep these findings from part to part. Prototype parts become approved parts under the TC or STC design approval and the FAA approved production system. The parts can be GFE/SME if the applicant, or applicant's supplier, can establish that they meet the requirements necessary to control configuration and provide quality oversight.

c. GFE Supplied by the Military. The applicant may be able to receive the equipment from the government and do initial conformity inspections for installed units. However, the applicant may not be able to establish continued oversight of supplier quality control, or obtain PMA for spare or replacement units. If the part is a GFE/SME from U.S. Government inventory, the design must be accurately identified on the type design and the configuration must be maintained from the initial tested part to the parts being installed. The part must comply with 14 CFR §§ 21.125(b)(1) & (2).

d. Military Statement of Airworthiness. Since GFE spares and replacement parts may only be available through the military, we agree to accept a military statement of airworthiness for specific GFE components to support certification and production approvals. This statement is proof the military confirms that the article was manufactured and inspected to specification. The statement may include a stamp by the Defense Contract Management Agency (DCMA) with an official government seal, indicating that the equipment was produced to meet specifications under government oversight. The military office may give a copy to the contractor/applicant to support the applicant's statement of conformity required on FAA Form 8130-9, *Statement of Conformity*. When the applicant uses this method of acceptance for GFE, then inspection, maintenance, and logistical support for this equipment is outside FAA control. As such, parts sources must be documented in the ICA and in the implementation procedures for airworthiness. We must document that recognition in both the ICA and production approval for spare parts.

e. Provisions Only. If the aircraft is sold by the military and re-enters the civil sector, the type certificate holder may be unable to provide spares or comply with 14 CFR part 21 requirements. We'll often limit these to "Provisions Only" approvals, or require that the type design establishes that replacement parts are available only through the U.S. Government. When the equipment has no civil application, or is unavailable to the general public, the type certificate holder should provide instructions for its removal and return the aircraft to a FAA certified configuration.

10. FAA Evaluation of Equipment Not Included in the Type Design.

a. The FAA is responsible for certifying the aircraft as defined in the type design. All other modifications/equipment on the aircraft is the responsibility of the military airworthiness authority. The modifier and the receiving military airworthiness authority are responsible for evaluating and certifying that the GFE/SME is not included in the type design. The military airworthiness authority will ensure that the integrity of the original FAA approval is not compromised by non-approved GFE/SME and any subsequent military approved modifications.

b. The military may ask that we provide technical support to evaluate GFE/SME installations not included in the type design. (GFE/SME will be entered on FAA Form 8130-2 as a non-conformance to type design/military deviation.) They may ask for FAA technical assistance to determine whether subsequent military modification may invalidate or interfere with the function and operation of essential equipment in the FAA approved configuration. Our technical assistance may include evaluating airplane and/or flight crew performance under normal operation and/or failure cases. However, unless it can be established under an FAA approved process that the evaluated configuration on follow-on aircraft is the same as that tested, any evaluation applies only to the specific serial number of aircraft tested (like a one-only STC).

11. Mission Equipment Performance Criteria. FAA standards may be lower than that required by the military contract. The military airworthiness authority is responsible for overseeing and validating that the end product meets military performance and data requirements. These military requirements do not invalidate the requirements that must be met to obtain a type certificate. The following are examples of military requirements that exceed or differ from civil certification standards:

- a. Environmental qualification to military standards or to standards desired.
- b. Performance standards to military objectives desired.
- c. Demonstration of mission equipment performance throughout the design envelope.
- d. Effect aircraft system failures may have on the mission systems and equipment.
- e. Military mission reliability requirements.

f. Military desired formats for airplane flight manual, maintenance manuals, instructions for continued airworthiness, and other data.

12. Technical Assistance to the FAA Using Military Expertise. The military often uses new technologies that could have civil application for military aircraft. These new technologies may comply with existing FAA regulations, but military experience has shown we might need additional requirements. The military may have criteria adapted for acceptance of specific technologies not presently provided for in the regulations. The FAA through the MCO can consider and benefit by using DoD guidance and policy to support approval of these new technologies. These new technologies adapted to aircraft design are considered under special conditions. We instruct the applicant to consult us in these special circumstances.

Chapter 8. Methods of Approving Military Equipment

1. Alternate Levels of FAA Approval for Military Projects. A complete civil type certification approval is required under civil registration so individual aircraft are eligible for a standard airworthiness certificate. The objective is to ensure the final aircraft configuration is in full compliance with all applicable airworthiness requirements. MCDA projects, however, do not require a standard airworthiness certificate. Furthermore, some military mission equipment may not be fully certifiable, or data may be unavailable to substantiate compliance. In other cases, the equipment may be certifiable, but has no civil application, or operating it in the civil environment may be prohibited. However, safety aspects of integrating and installing the equipment with the baseline commercial aircraft must still be defined and evaluated by the military airworthiness authority and the FAA. Here, we may consider issuing different levels or partial approvals for modifications to MCDA. FAA certification personnel are instructed to contact the MCO before issuing any partial approval for MCDA. See appendix A in this order for the Levels of Approval Table.

2. Full Approval (Equipment, Installation and Operation). Full FAA approval of associated systems and equipment must meet the following requirements:

- a. The same requirements for a commercial modification to a civil aircraft. Include type design data, compliance substantiation, aircraft flight manuals, aircraft flight manual supplements, maintenance and continued airworthiness documentation,
- b. All applicable airworthiness regulations. Assure the operation is compatible and eligible for use on a civil aircraft of same type without special restrictions or limitations.

3. Limited FAA Approval (Equipment and Installation). Some military equipment may have no civil application or may only be authorized for public use for military operations.

a. Limited FAA approval of associated systems and equipment must meet the following requirements:

(1) The same requirements as for a commercial modification to a civil aircraft. Include type design data, compliance substantiation, airplane flight manual supplements, maintenance and continued airworthiness documentation.

(2) All applicable airworthiness regulations.

(3) Special operational limitations and restrictions are required.

b. FAA may need help from the military to evaluate and determine compliance with this type of equipment because of the restriction on civil operation.

c. Installation approvals must have limitations and restrictions defined on the type design change, such as the STC description.

d. If operating the equipment during maintenance, it must be authorized by the military, and any limitations and restrictions must be included in both the airplane flight manual supplement and ICA.

e. If the limitations and restrictions can be followed, these installations may be legally permissible to install on an aircraft of civil registry.

f. The aircraft is a public use aircraft that needs to carry and operate the equipment for which operational limitations are imposed.

4. Safe Carriage (Equipment Approval). Installing military systems and/or equipment for “safe carriage” is a partial approval, signifying that the military hardware and equipment comply with applicable regulations in a non-functional state. The requirements are:

a. The FAA examines the physical aspects of the installation including aerodynamic effects, structural provisions, cabin safety, weight and balance, and noise requirements. (See 14 CFR part 36, *Noise Requirements*.)

b. The installation, as defined on the type design, complies with regulations and poses no hazard to the aircraft.

c. Type design data must include physical and dimensional definition of the installed hardware.

d. Other data necessary to establish compliance with this equipment as installed in the aircraft.

e. Approval includes any modifications made to aircraft structure or systems to accommodate installation of the equipment. Approval does not authorize or allow the installed equipment to operate.

f. Equipment must be disconnected from power sources, antenna couplers, and other interfaces with the aircraft and these interfaces on aircraft type design are safely capped and stowed.

g. Cockpit controls are not included as part of the type design, if the equipment is controlled or will interface with the cockpit. The type design may incorporate blanking plates or other means to show that the equipment is not approved for function, and cannot be enabled or operated from the cockpit.

h. The equipment is not covered in the airplane flight manual supplement and instructions for continued airworthiness.

i. Maintenance covers only that required for aircraft provisions (structure, mounts, wiring, etc.) removal, and physical attachment for securing equipment to the aircraft.

j. "Safe Carriage" approvals cannot be extended to weapons, pyrotechnics, or any other hazardous materials that would otherwise be prohibited from carriage on a commercial aircraft.

k. The receiving military airworthiness authority is responsible for design approval, equipment qualification, system integration, compatibility, system architecture, functionality, and interface with aircraft systems, operation, and airworthiness approval for the installed equipment.

5. Provisions-Only. The equipment is not included as part of type design. The FAA may work with the applicant and the military to define "Provisions Only" approvals to support subsequent installation of military equipment. Provisions-Only approvals are not on-board installation approvals for the military equipment. They allow modifications or define limits for future military installations. Provisions-Only approvals assess and approve aircraft structure, design characteristics, or system capabilities to handle defined and predetermined structural loads, interface or attachment provisions, and electrical power requirements. The requirements for Provision-Only approvals, to the extent defined in type design, are:

- a. Accurately define the criteria for which the provisions are designed.
- b. Meet applicable airworthiness requirements.
- c. Address approvals in the airplane flight manual and instructions for continued airworthiness.
- d. Include the specific criteria for which the provisions are approved on the description of the type design change, or reference a document that establishes all interface points and design limits.

Chapter 9. Software Aspects of Airborne Systems and Equipment Certification

1. Problems with Software in Military Equipment. When an applicant develops new software for systems and equipment certification they can use RTCA DO-178 as an acceptable means for approval. This guidance is recognized by the FAA under AC 20-115B, *Radio Technical Commission for Aeronautic, Inc. Document RTCA/DO-178B*. The applicant can use this guidance to gain approval of mission equipment software, and interface software between mission equipment and other aircraft systems and equipment. However, military mission equipment can contain embedded software not developed according to applicable FAA guidance and policy. It must be determined whether this military mission equipment can be approved as part of an FAA certified installation.

a. Equipment and/or Installation Approval. We may approve military mission equipment software for installation and operation. Such approval can be performed if any of the following conditions apply:

(1) The mission equipment is isolated and has no effect on other aircraft systems and equipment.

(2) The mission equipment is integrated and the software design assurance level corresponds to the system level safety assessment criticality.

(3) Alternative methods or additional substantiation is provided to obtain an equivalent level of design assurance for the mission equipment software if RTCA/DO-178 objectives are not completely met.

b. Ineligible for Equipment and/or Installation Approval. Sometimes we cannot approve mission equipment for installation and operation because compliance with the applicable software guidance cannot be found. This mission equipment's installation and operation must be evaluated and approved by the military airworthiness authority.

2. Software Considerations. The following describe two factors that characterize a system's interface with the aircraft and its consequence for FAA software approval.

a. Isolated and has No Effect on other Systems. Mission equipment is a completely self-contained system with no data dependence or interface with any other aircraft systems and equipment. The embedded mission equipment software executes in isolation, for example, without dependencies on other aircraft systems and without other systems being dependent on its functionality or outputs. The mission equipment software criticality can be assessed as "no effect" which correlates to Software Level E. Additionally, the mission equipment must comply with other applicable regulations to be approved for installation and operation.

b. Integrated Mission Equipment. If the mission equipment software interfaces with other on-board FAA certified equipment, the relationships of the interfaces with aircraft systems

must be defined. Consider the following examples when evaluating the protocols and interfaces between the mission equipment and the aircraft systems and equipment:

(1) Mission equipment is a passive receiver of data. The aircraft systems and equipment only provides data to the mission equipment without any acknowledgement or data transfer back from the mission equipment. No information is transmitted to the aircraft systems that could interfere with function or operation of the aircraft. The mission equipment software criticality can be assessed as “no effect” which correlates to Software Level E. Additionally, the mission equipment must comply with other applicable regulations, to be approved for installation and operation.

(2) Mission equipment is an active transmitter of data to aircraft systems.

(a) The aircraft systems and equipment that receives data from the mission equipment, implements partitioning protection through a combination of software and hardware. The interfacing path with mission equipment data is clearly separated from other interface paths within the aircraft systems and equipment. If the architecture shows the mission equipment software as having “no effect” on the aircraft systems then the software level can be assign as Level E. Additionally, the mission equipment must comply with other applicable regulations, to be approved for installation and operation.

(b) The aircraft systems and equipment that receives data cannot be partitioned and/or the interface path is not clearly separated from the mission equipment. The aircraft safety assessment will provide a safety criticality of the mission equipment software. If the mission equipment software can satisfy the design assurance objectives associated with its assessed safety criticality and the mission equipment complies with other applicable regulations, it can be approved for installation and operation.

(c) Integrated Modular Architecture. The mission equipment is part of an integrated modular architecture (IMA) system, and the mission equipment interfaces with aircraft systems and equipment. The aircraft safety assessment will provide a safety criticality of the mission equipment software. If the mission equipment software can satisfy the design assurance objectives associated with its assessed safety criticality and the mission equipment complies with other applicable regulations, it can be approved for installation and operation as part of the IMA system.

c. Alternate methods of software approval. If the RTCA/DO-178 objectives for the assessed safety criticality level of the mission equipment software are not completely satisfied, alternative methods or additional substantiation must be provided to show the required design assurance for the mission equipment software.

Chapter 10. Military Airworthiness Process

1. Points of Contact. The MCO coordinates with and serves military airworthiness technical organizations and program offices. These organizations have airworthiness responsibility for all military platforms operated by their branch of the armed services. They use the FAA determination of compliance to support their own determination of airworthiness. The technical organizations with airworthiness responsibility for military aircraft are:

U.S. Air Force Aeronautical Systems Center
Engineering Directorate (MOU)
2590 Loop Road, West
Wright Patterson Air Force Base, OH 45433

U.S. Army Research, Development, and Engineering Command (RDECOM)
Aviation Engineering Directorate
Redstone Arsenal, AL 35898

U.S. Navy Naval Air Systems Command (NAVAIR)
46990 Hinkle Circle
Patuxent River, MD 20670

U.S. Coast Guard
HU-25/G-V/MCSA - System Manager
Aeronautical Engineering (CG-41)
2100 2nd St. S.W.
Washington, DC. 20593

2. Differences in Civil and Military Airworthiness.

a. Scope of Authority. The FAA and military airworthiness authorities are responsible for certification and approval of aircraft under their jurisdictions. The FAA provides regulatory oversight and the military is the operator of aircraft. One important distinction is that the military is also the purchaser of the aircraft.

b. FAA Limits of Authority. Because the FAA is a civil regulatory agency, there are limits to the services the FAA gives the military. The armed services use FAA certification services to help them establish airworthiness for their MCDA, but FAA regulatory oversight is limited to type certificate and production approval holders. The FAA doesn't have jurisdiction over the maintenance of aircraft and has limited jurisdiction over the operation of aircraft under military registration.

c. Military Airworthiness Risk Management. Unlike the FAA, where the airworthiness standards are established federal regulations, the military airworthiness authority will tailor airworthiness requirements to each model of military aircraft, depending on the aircraft's mission. These airworthiness requirements become contractual specifications. Because the military mission may include combat and operation in hostile environments, the

military can accept higher risks. Acceptance of higher risks is not suitable for civil use, and civil regulations don't allow it.

3. Military Use of FAA Findings of Compliance. When the military purchases a MCDA, they rely on our finding of compliance to the civil airworthiness standards to establish an airworthiness baseline. They may impose additional criteria over and above the civil airworthiness standards (such as for survivability and crashworthiness). The military's use of the FAA finding of compliance is similar to the way the FAA and CAA operate under the bilateral agreements.

4. Shared Certification.

a. FAA and Military Combined Approvals. The complete approval/certification of a MCDA can be considered as a "hybrid" of FAA certification and military approvals since we approve some type design changes and the military approves some modifications. These "junctions" or "seams" between FAA and military approvals are evaluated and integrated by the military airworthiness authority into the aircraft certification as a whole. The military's management and integration of the civil and military processes for safety and airworthiness of the aircraft is crucial in determining the airworthiness of the MCDA. The military coordinates with the armed service and the type certification applicant to ensure that all aspects of the airworthiness of the MCDA platform flow between civil and military processes. Those aspects of the modification that do not meet civil certification requirements must have criteria defined under the guidelines of MIL-HDBK-516, *Airworthiness Certification Criteria*, dated September 26, 2005, or most current revision. The contractor is responsible to qualify, or demonstrate compliance to the military airworthiness authority.

b. Configuration Control. When the MCDA leaves FAA oversight, configuration control becomes the responsibility of the military airworthiness authority and military operator. The separate armed services use different processes to maintain configuration control of MCDA, but all require documenting configuration changes in the maintenance records. These MCDA aircraft are often returned to FAA repair stations or other civil facilities for contract maintenance. The military must ensure that processes are established and maintained for maintenance records and configuration control and maintenance personnel know to use these processes. In addition to being critical for safety while it's in military service, maintenance records are critical in establishing civil airworthiness if the aircraft is sold and returned to civil operation. Some commercial aircraft are leased by the military, which make every attempt to keep the aircraft configuration as close as possible to certified type design. The military may also require that all records kept and maintenance performed on their aircraft be accomplished in accordance with commercial practices.

5. Managing Civil/Military Airworthiness Seams. Both military and civil airworthiness processes depend on evaluating the airworthiness integrity of the aircraft as a whole. The FAA's type certification process requires the applicant to prepare associated hazard assessments and safety analyses at aircraft level. They're to use defined processes to ensure the integrity of the type certificated configuration. Military modifications to the aircraft may not use the same processes, and the differing processes may not be compatible. The hybrid tailored airworthiness certification criteria (TACC) and modification airworthiness certification criteria (MACC)

includes the management of the 'seams' between FAA certificated baseline aircraft and modifications installed to meet military mission needs. The farther the hybrid aircraft varies from the FAA certified baseline, the more its airworthiness depends on military qualification processes. Aircraft level functional hazard assessments and system safety assessments may need to be re-developed by the contractor/applicant to encompass the military approved modifications. Since this falls outside our type certificated configuration, we can't require the contractor/applicant to submit these documents to us as compliance substantiation. The responsibility for integration and oversight of the configuration falls on the military airworthiness authority and their contractor. The military may need technical assistance from us or our designees (as advisors) to evaluate military approved modifications and to develop integrated aircraft level assessments for hybrid aircraft.

Chapter 11. Continued Airworthiness

1. Feedback.

a. **FAA and Military Reciprocal Feedback.** Continued airworthiness problems with commercial aircraft can affect the MCDA too. The military may use the MCDA for different or more demanding mission profiles than the civil version (or vice versa). Feedback from the military on continued airworthiness problems for these aircraft can be valuable for early identification of issues that may affect the civil fleet. It's in our best interest and for the military and manufacturer as well, to use what we learn from all sources to keep the entire fleet airworthy. Our support for continued airworthiness of the MCDA fleet is one of the keystones of the MoA.

b. Design Approval Holder Responsibilities.

(1) The original aircraft manufacturer or modifier must support the continued airworthiness for any product that they hold a design approval. 14 CFR § 21.3 requires the design approval holder to report certain failures, malfunctions, and defects on type-certificated products. This requirement includes the MCDA. These 14 CFR § 21.3 reports are to be made to the CMACO. If the CMACO receives a 14 CFR § 21.3 report for an incident on a certificated product that occurred during military operation or occurred on a civil aircraft and has the potential to affect the MCDA of the same type, they must notify the MCO.

(2) The MCO should receive 14 CFR § 21.3 reports directly from design approval holders where the MCO is the CMACO. We agree to provide continued airworthiness services that include:

- (a) Monitoring of service difficulty reports.
- (b) Alternate means of compliance (AMOC) approvals.
- (c) Approval of design data in support of repairs.
- (d) Approval of design data in support of major alterations.

(3) Military operators are encouraged to submit service difficulty information on MCDA related to maintenance and operations. The FAA can utilize information submitted by the military to make decisions impacting the safety for both civil and military models.

2. Service Difficulty Reports.

a. We collect service difficulty reports using the existing FAA system for continued airworthiness of the baseline commercial fleet. Some data is currently being entered for MCDA that are maintained using commercial maintenance facilities under 14 CFR part 145. The military also currently uses some of our databases to support their commercial derivative fleet.

We and the DoD will continue to work together to improve the existing systems and consider whether military-unique processes should be developed.

b. The design approval holder is required to submit specific information for MCDA in accordance with 14 CFR part 21. There is an opportunity for more information to be obtained similar to that required under 14 CFR part 121 for civil aircraft operators. The military operator is encouraged to submit service difficulty information on MCDA related to maintenance and operations that parallels the requirements in 14 CFR part 121. In many cases the military's aircraft comprise a significant portion of the aircraft type being operated. The FAA can utilize information submitted by the military to make decisions impacting the safety for both civil and military models.

3. Airworthiness Directives.

a. **Who is Affected by Airworthiness Directives (ADs).** Airworthiness directives (ADs) we issue against the type certificated baseline aircraft can identify aircraft serial numbers that are U.S. registered aircraft, foreign registered civil aircraft, and MCDA under military registration. Mandatory compliance with the AD is limited to aircraft operating under U.S. civil registration. We will take appropriate action when an unsafe condition is identified on a type-certificated product, regardless what actions their foreign civil authorities or military airworthiness authorities take. A type-certificated aircraft seeking to return to U.S civil registry must comply with all applicable FAA airworthiness directives.

b. **Military Compliance.** When an AD affects a MCDA, the military can comply with, or terminate action for the AD on the aircraft. Military policy generally requires incorporating ADs on MCDA. However, depending on the potential safety impact, mission priorities, and other considerations, the military has discretionary authority for implementation. If an MoA includes a provision for pooling of military and civilian parts then they must comply with all ADs.

c. **Notification of Unsafe Conditions.** For MCDA which the military is the sole operator, the military notifies the MCO of any potential unsafe condition. We must consider appropriate action for type-certificated products unique to military operation, because military aircraft and personnel could be at risk and the MCDA could also later return to the civil sector with an uncorrected unsafe condition. Under the MoA, we send safety information and technical recommendations for continued airworthiness to the military for MCDA.

d. **Alternate Method of Compliance (AMOC).** Because the MCDA may be operated or maintained in a different environment than in the civil fleet, the military may want to meet the provisions of an AD differently than the way specified for the civil sector. The responsible military airworthiness authority can ask us for an alternate method of compliance (AMOC) for the AD. Just as an AD's AMOC is not mandatory for the military, they may want to obtain our technical concurrence or non-concurrence to address the safety issue. Because our original AD did not apply to aircraft under military registration, we don't "grant approval" to the military's requested AMOC. We'll process military requests for AMOC in this way:

(1) We ask the responsible military airworthiness authority to submit the AMOC request to us (MCO). On the request, the military must identify:

- The type certificated MCDA platform,
- The applicable airworthiness directive, and,
- The alternate compliance method the military proposes to address the potential safety issue.

(2) The proposed compliance method should establish how it produces the same level of safety attained by implementing the airworthiness directive, or an equivalent level of compliance. The military airworthiness authority should supply additional information on the use rate, maintenance practices, or operational considerations that may apply to the affected aircraft, or present independent technical analyses of how the AD affects the MCDA in military use.

(3) The MCO reviews the military request to determine if we can evaluate it as an AMOC for the applicable AD. Under 14 CFR part 39, consideration and authority for granting of an AMOC is delegated to the manager of the CMACO issuing the AD. If we determine the military request has merit, we forward the request to the responsible CMACO for technical evaluation and response.

(4) The CMACO evaluates the request and proposal from the military, and issues a response letter signed by the CMACO manager. The letter provides the FAA technical position and our concurrence (or non-concurrence) with the proposed AMOC. CMACO addresses the letter to the requesting military authority, and sends a copy to the MCO. The CMACO keeps a copy in the subject airworthiness directive AMOC file. If these repairs or alterations are not accomplished in accordance with 14 CFR Part 43, the aircraft may not be allowed in the civil sector.

(5) If we agree with the military's proposed AMOC, we instruct the military to keep a copy of the FAA letter in the aircraft maintenance records. If they sell the aircraft, the letter will prove that the FAA reviewed and agreed with an alternate. We must determine if any action is required to deem the aircraft airworthy for civil registration.

4. Repairs and Major Alterations.

a. The military can request our approval of design data to support repairs or major alterations on FAA approved type design. FAA designees may approve such data. Design data approvals for these repairs or alterations are kept in the maintenance records. This enables the military airworthiness authority to document the airworthiness technical review. It also greatly reduces our burden to determine airworthiness of the aircraft, should it ever return to the civil sector.

b. The FAA or our designees may make compliance findings for design data supporting major alterations or major repairs by considering the FAA type certificated product and the civil certification basis. It's important to remember that military modifications to the aircraft could compromise the basic approvals or use of this data. The military airworthiness authority should use the FAA or designee findings as supplemental information in determining their approval of repairs and alterations on specific MCDA. The military should perform repairs and alterations in accordance with 14 CFR Part 43 if the aircraft is to return to civil operation.

c. ACOs should allow liberal use of designee approvals and associated FAA forms to repair and alter MCDA in military service. This is consistent with using designee approvals for foreign registered aircraft when the United States is the state of design. The FAA field approval process cannot be used for major repairs or major alterations

5. Service Bulletins and Manufacturer's Instructions.

a. **Instructions for Continued Airworthiness.** MCDA are often supported with the same publications used for maintaining the civil aircraft. Publications required for operating and maintaining the aircraft in the civil sector include maintenance manuals, illustrated parts catalogs, manufacturer's technical data, and instructions for continued airworthiness.

b. **Format.** Publications developed for commercial operations are formatted in civil standards. Conversion and re-publication of the entire body of publications to military specifications is costly, particularly when the military modifications don't significantly impact maintenance concepts for the baseline aircraft. Depending on the planned logistical support for the fielded military platform, the military might replace or supplement some commercial publications with maintenance and operations documents in technical order (TO) format. Nevertheless, the applicant must submit *all* required maintenance instructions in *civil* format to obtain FAA approval. FAA designees can use FAA Form 8110-3 to approve technical data that supports major repairs or alterations.

c. **Requirements.** We require TC holders to produce suitable maintenance documents and instructions for continued airworthiness to support the product according to civil maintenance practices. Standardized commercial formats are necessary, so maintenance can be accomplished in FAA civil repair stations using FAA certificated personnel. Formatting requirements and FAA approval for some of these documents are mandatory for the applicant to obtain the type certificate for the product. If there are changes or modifications to a type design, applicants or TC holders must update these documents to reflect the changes. Other information issued by the TC holder to maintain product airworthiness, like manufacturer's service bulletins, must also be issued in a format consistent with commercial practices used for the original type certificated aircraft. If equivalent documents unique to military application are required, the manufacturer and military customer may agree to a way of creating them.

d. **Continued Airworthiness.** The applicant must prepare ICA in accordance with 14 CFR §§ 23.1529, 25.1529, 27.1529 and 29.1529. Operation of the airplane as a military aircraft can affect the ICA of the civil type design. The ICA must cover any approved part of the

type design. The military may contract with the airplane manufacturer or modifier to include the ICA for non-approved equipment. However, they are not part of the FAA accepted ICA.

6. Type Certificate Management and Support.

a. TCs obtained to provide airworthiness for MCDA require maintenance and support, as do TCs used in civil applications. Our ability to regulate, oversee and maintain continued airworthiness in the civil sector depends on the type certificate maintenance and support by the TC holder. TC holders must discharge the responsibilities in 14 CFR part 21. If the support is not provided, type certificated products in the civil sector won't stay eligible for standard airworthiness certificates. The TC holder may be subject to certificate action and may have to surrender their certificate.

b. If an applicant obtains a type certificate exclusively for a commercial derivative product, and they change the type design configuration without our approval, the original product cannot be considered airworthy. If no civil aircraft are operating in this configuration, we have no authority to prevent unapproved changes from being implemented on the military aircraft. This issue is of great concern to us because:

- Continued operational and airworthiness support becomes impossible because we must know whether the incorporated type design changes comply with the applicable airworthiness standards, or if they invalidate original compliance findings.
- The type-certificated product is no longer eligible for civil use if the aircraft is returned to the civil sector. Conformity to approved type design may be impossible to establish.

c. We can support MCDA only if the certificated portions of the type design are maintained and updated when changes are incorporated. Failure of the TC holder to perform this function or failure of the military to keep the military approved changes under separate configuration control may cause us to revoke the type certificate, because continued operational safety cannot be supported.

7. Accident Investigation.

a. The DoD is responsible for, and conducts its own, investigations of incidents or accidents involving military aircraft. Title 49 United States Code allows us to participate in military accident investigations when an FAA function is involved or if the DoD asks for our help. The military commander in charge of the investigation is responsible for informing us of an accident and including us in the accident investigation. We may also become involved at the request of a senior member of an aircraft safety investigation board or the director of a military safety center. When we're asked to support a military incident or accident investigation, the prime FAA party is the assigned flight standards organization. See FAA Order 8020.11, *Aircraft Accident and Incident Notification, Investigation, and Reporting*, Chapter 7, for FAA participation procedures in military accident or incident investigations.

b. We may also separately investigate a military aircraft mishap to carry out our responsibilities. The military service involved will help FAA personnel by making material evidence and military witnesses available. Consult the MCO for further guidance for support of military accident investigations.

Chapter 12. MCDA Background

1. Military Commercial Derivative Aircraft (MCDA).

a. History. Since 1976, the DoD has come under various congressional mandates to, whenever possible, procure non-developmental items and equipment which are referred to as "commercial-off-the-shelf" (COTS) products. To carry out these mandates, the armed services have developed procurement procedures related to aircraft and their modification for military use. Procuring armed services have made FAA Type Certification a contractual requirement. armed services instructions/directives, seeking to gain maximum cost savings, require the services to "maintain the type-design." This keeps the FAA involved, not just in initial approval, but in the life-cycle of the aircraft.

b. MCDA and the Military. The U.S Armed Services operates a large fleet of MCDA, and regularly procure new commercial aircraft. The baseline MCDA were designed and certified to meet minimum civil airworthiness standards. The armed services desire, to the maximum extent possible, to certify their modifications to MCDA to civil standards to best support the efficient design, maintenance, and operation of MCDA.

c. The inter-agency Memorandum of Agreement (MoA) created an airworthiness partnership between the FAA and the military. The agreement supports MCDA using civil airworthiness standards where it's practical and consistent with military policy. The agreement allows the military to use FAA services on a reimbursable basis and establishes the sharing of technical expertise between the aviation authorities to help develop airworthiness solutions for MCDA.

2. Military Missions. Many MCDA used by the military have missions comparable to the missions of the baseline aircraft in the civil sector: passenger carrying, very important person (VIP) transport, and cargo hauling. The interagency MoA was created to help maintain the same level of safety established for the baseline aircraft when it's modified into a military configuration. The military establishes those requirements for individual aircraft depending on their mission. However, there are highly modified MCDA for which the military has determined that using civil airworthiness standards is impractical.

3. MCDA Certification.

a. Establishing Airworthiness Requirements. DoD policy requires all MCDA to meet civil certification airworthiness criteria for mission-oriented modifications to the maximum extent possible. DoD policy requires full civil certification for those military aircraft operated the same way as the baseline MCDA counterpart. Other MCDA may have missions not equivalent to civil operations. They may have equipment installed that doesn't comply with applicable civil certification regulations or lacks applicable civil certification standards. In these cases, establishing airworthiness requirements may require using civil certification standards where practical, and establishing military airworthiness requirements for other modifications. The armed services may approve the airworthiness for these aircraft by accepting civil criteria and FAA approval for some modifications. They'll perform subsequent military airworthiness qualification for those items that can't be shown to meet civil airworthiness standards.

b. FAA Authority. FAA authority is limited by the responsibilities outlined in our Congressional charter and the regulatory requirements established in 14 CFR, particularly with respect to the certification and operation of military aircraft. Civil regulations do establish requirements that civil type certificate holders must meet, regardless whether the civil type certificate is used for civil or military purposes. On MCDA, FAA authority is limited to certification, management, and administration of the applicable civil type and production approvals. Once these tasks are complete, and the aircraft is delivered to the DoD, authority for oversight of further modifications and airworthiness responsibility are assumed by the military.

Appendix A. Levels of Approval Table

| Level and Standards applied | Airworthiness Authority | Approval | | | Installation | Civil Use Limitations | Example |
|---|---|----------|---|---|---|--|--|
| | | E | I | O | | | |
| FULL APPROVAL All applicable CFRs and DoD performance standards | FAA | x | x | x | Equipment & Installation | None | Military Radios & Navigation |
| LIMITED FAA APPROVAL All applicable CFRs and DoD performance standards | FAA (may need assistance from military to determine compliance) | x | x | * | Equipment & Installation Approved | * Restrictions/limitations on civil use of equipment | Self Protection Equipment; Flare & Chaff |
| SAFE CARRIAGE APPROVAL CFR applicable to the type design (non-operational equipment) | FAA and DoD | x | * | - | * Equipment installed but not connected to aircraft systems | Equipment is non-operational | jamming equipment |
| PROVISIONS ONLY CFR applicable to the type design (structural, & electrical provisions) | FAA and DoD | - | - | - | Equipment not FAA-approved; NA | Equipment not installed | projectiles & other weapons |

E = Equipment Approval

I = Installation Approval

O = Operational Approval

* = Highlights note in corresponding row

**Appendix B. Table of Scenarios for Issuance of Temporary Civil
Certificates on Military Aircraft**

| | Modification Scenario | Airworthiness Certificate Used | Operation Type |
|---|--|--|---|
| 1 | New production aircraft not delivered by production approval holder (PAH). Civil pilots and FAA/DER flight test aircraft using TIA to show compliance. | Form 8130-7 Special flight permit for production flight testing. Operating limitations added to Form 8130-7 | Civil operation - aircraft must not exceed production flight operating envelope. If it does, issue Form 8130-7 Experimental - Purpose Show Compliance |
| 2 | New production aircraft delivered to military (DD250). Aircraft immediately bailed back to PAH for maintenance and modification. Civil pilots and FAA/DER flight test aircraft using TIA to show compliance. | Form 8130-7 Experimental - Purpose Show Compliance. Operating limitations added to Form 8130-7 | Civil operation |
| 3 | Aircraft delivered to military and entered into military operation. Aircraft bailed back to repair station / manufacturer for maintenance and modification. Civilian FAA/DER flight test pilots test in accordance with a TIA. | Form 8130-7 Experimental - Purpose Show Compliance. Operating limitations added to Form 8130-7 | Civil operation |
| 4 | Aircraft delivered to military and entered into military operation. Aircraft bailed back to repair station / manufacturer for maintenance and modification. Civilian FAA/DER flight test pilots test aircraft in accordance with a TIA. A military pilot is usually required to occupy a pilot seat. | Form 8130-7 Experimental - Purpose Show Compliance. Operating limitations added to Form 8130-7 | Civil operation |
| 5 | Aircraft delivered to military and entered into military operation. Aircraft maintained and operated by military at military base or location. Civilian FAA/DER flight test pilots test aircraft in accordance with a TIA. A military pilot is usually required to occupy a pilot seat. | No FAA airworthiness required since military performs all maintenance and flight operations using military policy. Operating limitations added to TIA. | Public operation |

Appendix C. Military CPN Form Addendum

This is an addendum to the Standardized Certification Project Notification (CPN) form identified in Appendix 1 of FAA Order 8110.4. Distribute this addendum with the Standardized CPN form to add information about FAA type certification projects on U.S. military commercial derivative aircraft.

(To be completed by FAA Military Certification Office)

FAA MCO Project Number: _____

Applicant: _____

Aircraft Manufacturer and Model: _____

Military Model Designation: _____

Sponsoring Armed Service: _____

Project Description: _____

MCO Program Manager: _____

(Requires coordination with CMACO before establishing project)

Affects Existing FAA TC/STC #: _____ N/A: _____

Certificate Management Aircraft Certification Office (CMACO): _____ N/A: _____

- _____ Project retained by MCO
 _____ and, Transfer CMACO responsibilities to MCO (STCs only)
 _____ Project to be coordinated between MCO and CMACO
 _____ Project assigned to CMACO

Cost Accounting Information

FAA Aircraft Certification Service personnel will use the following LDR code and task codes for labor reporting when charging time in support of this project.

LDR Project code: _____

LDR task code(s): _____

(To be completed by CMACO and returned to MCO. Required for MCO military projects affecting CMACO type certificate action or design approvals)

Date:

From: Manager, Aircraft Certification Office (CMACO), XXX-xxx

To: Manager, Military Certification Office (MCO), ACE-100M

_____ We will transfer the subject STC to the MCO for execution and certificate action-----:

_____ We will remain the CMACO for the subject certificate, but authorize the MCO to approve design changes associated with the defined military project:

_____ We accept assignment and will conduct the military type certification project ---- and have assigned Project Engineer _____ to coordinate the project through the FAA MCO.

Appendix D. Statement of Conformity – Military Aircraft Form

| | | | | |
|---|--------------|--|-----------------------------------|----------------------------|
| DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF CONFORMITY – MILITARY AIRCRAFT | | | | |
| A. DESCRIPTION OF AIRCRAFT | | | | |
| Manufacturer | Model | Manufacturer's Serial No. | Military Model Designation | Military Serial No. |
| | | | | |
| Contract No. | | Identification Markings Displayed on Subject Aircraft | | |
| | | | | |

| | |
|---|--|
| B. CONTRACTOR INFORMATION | |
| Contractor Name and Facility Address: | |
| <div style="border-bottom: 1px solid black; height: 1.2em; margin-bottom: 2px;"></div> <div style="border-bottom: 1px solid black; height: 1.2em; margin-bottom: 2px;"></div> <div style="border-bottom: 1px solid black; height: 1.2em; margin-bottom: 2px;"></div> <div style="border-bottom: 1px solid black; height: 1.2em;"></div> | |
| FAA Delegated Organization? <input type="checkbox"/> Yes <input type="checkbox"/> N/A FAA Delegated Organization Type: _____ FAA Identification No. _____ | |
| <input type="checkbox"/> New Aircraft Manufactured Under Production Certificate (Complete Section E) <input type="checkbox"/> Modification of In-Service Aircraft Using FAA Approved Type Design (Complete Section F) | |

| | | | |
|---|--|--|---|
| C. GROUND INSPECTION AND FLIGHT TEST | | | |
| Contractor's Ground Inspection and Flight Test | | FAA Ground Inspection and Flight Test | |
| Date Completed | Approved By | Date Completed | Approved By |
| | | | |
| | (Signature of Authorized Company Representative) | | (Signature of Authorized Company Representative) |
| | (Title) | | (FAA Office, Delegated Organization, or Designee No.) |

| | |
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| D. MILITARY ACCEPTANCE OF DEVIATIONS TO FAA APPROVED TYPE DESIGN | |
| The cognizant receiving military authority acknowledges the identified deviations to the FAA approved type design for the subject commercial derivative aircraft and is responsible to determine airworthiness and final acceptance for the removal, or installation of, modifications, installations, or parts listed hereon. | |
| | |
| (Responsible Military Airworthiness Authority or Authorized Designee) | (Date) |

STATEMENT OF CONFORMITY – MILITARY AIRCRAFT**E. STATEMENT OF CONFORMITY – INITIAL DELIVERY OF NEW AIRCRAFT**

This certifies that the aircraft described above has been manufactured in conformity with the data forming the basis for Type Certificate No. _____, and any revision or modification thereof approved by the FEDERAL AVIATION ADMINISTRATION (FAA) dated as of _____.

The subject aircraft has also been modified by installation of the following FAA Approved Supplemental Type Certificate(s) with the consent and permission of the Supplemental Type Certificate (STC) holder(s):

| STC Number | Description of Modification | STC Holder |
|------------|-----------------------------|------------|
| | | |
| | | |

☐ There are no identified deviations to FAA approved type design.

☐ **MILITARY DEVIATIONS.** FAA conformity inspection(s) of the aircraft configuration have identified deviations in configuration from the FAA approved type design which are not FAA certified or approved, but may be required or specified by military contract. The deviations may include installations, assemblies, or components which have been either (REMOVED) or (ADDED) to the FAA approved type design configuration. (Deviations are listed in Part G of this statement of conformity)

F. STATEMENT OF CONFORMITY – MODIFICATION OF IN-SERVICE MILITARY AIRCRAFT

The subject aircraft has been modified by installation of the following FAA Approved Supplemental Type Certificate(s) with the consent and permission of the Supplemental Type Certificate (STC) holder(s). FAA inspection(s) of the subject installation(s) have determined that the STCs have been installed in conformance with the approved data, and any revision or modification thereof approved by the FEDERAL AVIATION ADMINISTRATION (FAA) dated as of _____.

| STC Number | Description of Modification | STC Holder |
|------------|-----------------------------|------------|
| | | |
| | | |

☐ There are no identified deviations to FAA approved type design defined by the subject STC(s).

☐ **MILITARY DEVIATIONS.** FAA conformity inspection(s) of the aircraft configuration have identified deviations in configuration from the FAA approved type design which are not FAA certified or approved, but may be required or specified by military contract. The deviations may include installations, assemblies, or components which have been either (REMOVED) or (ADDED) to the FAA approved type design configuration. These deviations are listed in Part G of this statement of conformity.

STATEMENT OF CONFORMITY – MILITARY AIRCRAFT**G. DEVIATIONS TO FAA APPROVED TYPE DESIGN**

The following installations, assemblies, or components are part of the FAA approved type design configuration and have been found by FAA inspection to be (REMOVED), or never installed, on the subject aircraft. Installation of these items will be required to restore the aircraft to an FAA approved configuration:

| Type Design (Installation Drawing, Assembly, or Component Part Number) | Installation, Assembly, or Component Description | Quantity |
|---|--|----------|
| | | |
| | | |
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The following installations, assemblies, or components are not included as part of the FAA approved type design configuration and have been found by FAA inspection(s) to be installed on the subject aircraft. Removal of these items will be required to restore the aircraft to an FAA approved configuration:

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Appendix E. How to Complete FAA Form 8130-31, Statement of Conformity – Military Aircraft

1. **Part A: Description of Aircraft.** The aircraft manufacturer or modifier provides information on the military aircraft.
2. **Part B: Contractor Information.** Provide the name and address of the military contractor. This may be an aircraft manufacturer responsible for delivering the new aircraft, or a modifier responsible for installing FAA approved modification(s) to in-service military aircraft. State whether the contractor holds an FAA delegated organization used to conduct FAA type certification design approvals.
3. **Part C: Ground Inspection and Flight Test.** (Complete after Parts E, F, and G) The authorized contractor representative signs Part C signifying the company ground inspections and flight tests of the aircraft have been completed and the information supplied on the form by the contractor is true and correct. Present the form to the FAA manufacturing inspection ASI, FAA designee, or FAA delegated organization airworthiness representative. FAA approval signifies the information on the statement of conformity is supported by the applicable FAA ground inspections and flight tests. The FAA or FAA designee retains custody of the Form 8130-31 after signatures for Part C are completed, and submits the form to the military airworthiness authority. Copies of the form may be retained for the record of the authorizing MIDO or FSDO; the original should be forwarded to the FAA MCO within 60 days of issuance.
4. **Part D: Military Acceptance of Deviations to FAA Approved Type Design.** The designated military airworthiness authority or their designee signs Part D. (Contact the FAA MCO if the military representative authorized to sign the form has not been identified.) The military airworthiness authority's signature indicates they have waived civil compliance for the type design deviations, are responsible for making appropriate airworthiness determinations, and accept the aircraft in the defined configuration for military purposes. The military representative retains the original Form 8130-31 and after approval gives copies of the completed form to the FAA representative.

Note: You can use continuation pages for Parts E, F, and G as necessary.

5. **Part E: Statement of Conformity- Initial Delivery of New Aircraft.** Completed by the aircraft manufacturer for new MCDA presented to the military for initial acceptance. Identifies the FAA approved type design for the aircraft has been manufactured by reference to the type certificate number, and any other FAA approved modifications incorporated by supplemental type certificates. By marking the appropriate box, the manufacturer confirms there are no deviations to FAA approved type design, or that deviations are identified and listed in Part G.
6. **Part F: Statement of Conformity- Modification of In-Service Military Aircraft.** Completed by an aircraft modifier contracted to incorporate FAA approved type design changes to an in-service MCDA that is eventually presented to the military for acceptance. Identifies the

FAA approved type design that the subject aircraft has been modified to and references the incorporated supplemental type certificate(s). By marking the appropriate box, the modifier confirms there are no deviations to FAA approved type design associated with the work performed, or that deviations are identified and listed in Part G.

7. Part G: Deviations to FAA Approved Type Design.

a. In the top section, list non-conformances identified from inspection records. Include installations, assemblies or components that are part of the FAA approved type design configuration, but were removed (or never installed) on the aircraft. These deviations to type design may have been specified or necessary to make the aircraft compatible for military use.

b. In the bottom section, list non-conformances identified from inspection records. Include installations, assemblies or components that are **not** part of the FAA approved type design configuration, but were added or installed on the aircraft. These deviations to type design may also have been specified or necessary to make the aircraft compatible for military use.

c. In Part G, include enough detail to document the exact configuration of the new aircraft referenced in Part E, or document the configuration changes made to the in-service aircraft identified in part F. (We recognize that aircraft-level FAA conformity inspection may be impractical or impossible for in-service military aircraft.) Refer to deviations using the engineering type design (installation drawings, assembly drawings, or detail part numbers), and any other information necessary. The form can reference military modification drawings or installed components as deviations that are not included in the FAA approved type design. The manufacturer or modifier may also attach diagrams, reference material, or notes and comments to define the aircraft configuration, which may be helpful if the aircraft is later subject to FAA airworthiness determination.

Appendix F. Military Handbook 516- Background

- 1. Purpose of MIL-HDBK-516.** MIL-HDBK-516, *Airworthiness Certification Criteria*, can be used in determining airworthiness for all military manned and unmanned, fixed and rotary wing air vehicle systems. The military uses the MIL-HDBK-516 as a guide to ensure all aspects of airworthiness for the aircraft and installed systems have suitable criteria established for evaluation. It is a tool used to outline general airworthiness evaluation criteria for principal and system level aircraft components from a military perspective.
- 2. Who Uses the MIL-HDBK-516.** The military airworthiness handbook is approved for use by all departments and agencies of the Department of Defense. MIL-HBK-516 is the fundamental document used by the military system program manager, chief engineer, and contractors to define their military aircraft airworthiness certification basis.
- 3. Military Certification Basis.** MIL-HDBK-516 criteria are tailored and applied to establish the airworthiness criteria and a military certification basis for a new military platform. The defined military certification basis is used and tailored as required at any point throughout the life of an aircraft when an airworthiness determination is necessary, especially when there is a change to the baseline.
- 4. Using Civil Standards in the Military Certification Basis.** The contractor can use the referenced technical guidance documents in MIL-HDBK-516 to establish military specifications for a new military organic aircraft (aircraft developed specifically for military use with no civil counterpart). For existing commercial aircraft procured by the military, FAA civil airworthiness standards apply to a type certificated MCDA unless military modifications make compliance with the civil requirement impractical. If that's the case, then the contractor can use existing military criteria for the modifications, or establish new criteria by writing specific requirements applicable to the individual aircraft type. The contractor follows this process to establish the military certification basis for the new aircraft. The resulting airworthiness requirements may then be established as contractual specifications. For MCDA with missions comparable to the similar civil aircraft, FAA certification requirements may satisfy most, if not all, of the MIL-HDBK-516 airworthiness criteria. The certification basis for the MCDA may use the baseline civil certification basis to a large extent.
- 5. Tailored Airworthiness Certification Criteria (TACC).** When a new aircraft platform is procured by the military, MIL-HDBK-516 can be used as a starting point for airworthiness requirements. Not all of the airworthiness criteria in MIL-HDBK-516 apply to every type of military aircraft or subsequent modification. Platform-unique, previously undefined criteria may need to be added to fully address safety aspects of unique configurations. Therefore, the total set of MIL-HDBK-516 criteria is tailored to identify a complete subset of applicable airworthiness criteria, creating the system's certification basis. This military certification basis is then fully documented and maintained under strict configuration control. This military certification basis is known as the tailored airworthiness certification criteria (TACC). The TACC of a MCDA is often the closest thing to a detail specification that is available for a civil/military hybrid. The rules the military uses developing a TACC are as follows:

a. Identify each criterion as either applicable or non-applicable, considering system or product complexity, type, data, and intended use. Document the rationale for identifying any criteria as non-applicable.

b. Do not delete or modify applicable criteria in any manner. However, if a portion of otherwise applicable criteria does not apply, identify the applicable and non-applicable portions, and document the rationale.

c. Add more applicable criteria with specific measurable parameters, where appropriate (they add value to the definition of airworthiness requirements).

6. Modification Airworthiness Certification Criteria (MACC). The military can require modification airworthiness certification criteria (MACC) for all modifications to in-service aircraft that affect the airworthiness of the aircraft. The military program office will develop additional criteria, as appropriate, for any capabilities or systems not fully addressed or contained in the MIL-HDBK-516 TACC. The criteria may be reduced in scope to only those criteria for which the modification needs to be evaluated. Guidance for preparation and final acceptance of the TACC or MACC is coordinated between the contractor/applicant/modifier and the responsible military PM organization.

Appendix G. Definitions and Acronyms

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| Airworthiness Seam | The junction between FAA and military findings of airworthiness and the determination of an integration of these approvals in a military/civil aircraft configuration. |
| ACO | Aircraft certification office. |
| AD | Airworthiness directives. |
| AEG | Aircraft Evaluation Group. |
| AI | Airworthiness inspector. |
| AMOC | Alternative methods of compliance. |
| Armed Services | The military services of the United States including the United States Army, Navy, Marine Corps, and Air Force. |
| ASC/EN | Engineering department of the Air Force Air Systems Center. Provides technical and airworthiness support for all USAF aircraft. |
| ASI | Aviation safety inspector. |
| ATC | Amended type certificate. |
| AVS | The FAA's office of Aircraft Safety. Includes AIR, AFS, AAI, AQS, AAM, AOV, and ARM. |
| Bailing | Transferring legal responsibility and ownership of the aircraft from the military to the civil applicant or from the civil owner to the military. Bailing is typically used to conduct a FAA flight test and TIA. |
| CAA | Civil aviation authority. |
| CFR | Code of Federal Regulations. |

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| CMACO | The Certificate Management Aircraft Certification Office. Manages the original type certificate project. The CMACO also manages continued airworthiness for all products they approve for as long as the product is in service. |
| Contractor Logistic Support | Logistics and maintenance support from the original equipment manufacturer or contractor for the military aircraft. |
| Combat | Offensive armament, or carriage and delivery of weapons or ordinance. |
| COTS | Commercial-off-the-shelf products or equipment. |
| CPN | Certification projection notification. |
| DCMA | Defense Contractor Management Agency. |
| DD250 | Government acceptance form for items procured by the military (such as aircraft). The instrument of transfer for an aircraft from the manufacturer to the military. |
| Deliverable Data Items | Drawings, analysis, and data specified in a contract for delivery to a customer. |
| DER | Designated engineering representatives. |
| DoD | Department of Defense. Includes the Departments of the Army, Navy, Marine Corps, and Air Force. |
| ELOS | Equivalent level of safety. |
| ETOPS | Extended operations with two engine airplanes. |
| FAA | Federal Aviation Administration. |
| FSDO | Flight standards district office. |
| GFE | Government furnished equipment. |
| Government Aircraft Asset | Aircraft owned by the military. |
| Government Inventory/ Stock | The fleet and DoD parts inventory. |

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| Hybrid | Aircraft configuration where some type design changes have been shown to meet civil standards and are approved by the FAA, and some modifications have been approved by the military. |
| ICA | Instructions for continued for airworthiness. |
| IFF | Identification Friend or Foe. Military avionics equipment that provides electronic identification of aircraft. |
| IMA | Integrated modular architecture. |
| IPA | Implementation procedures for airworthiness. |
| ITAR | International Trafficking in Arms Agreement. |
| ITT | Integrated test team. |
| JALC | Joint Aeronautical Logistics Commanders. |
| Joint Test Team | FAA, applicant, and military flight-test groups who establish a test program to satisfy both civil certification requirements and military qualification and performance requirements. |
| LDR | The FAA labor distribution reporting system. Used to document labor charges for project work. |
| LOA | Letter of authorization. |
| MAA | Military airworthiness authority. |
| MACC | Modification airworthiness certification criteria. Process used to determine the “military certification basis” for a modification to a specific military aircraft, as provided in Mil-HDBK-516. |
| MCDA | Military commercial derivative aircraft. Civil aircraft procured or acquired by the military. |
| MCDA-PM | Military commercial derivative aircraft project manager. |
| MCO | Military Certification Office. The FAA office dedicated to providing technical services and certification support for MCDA. MCO is located in Wichita, Kansas. |

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| MIDO | Manufacturing inspection district office. |
| MIL-HDBK-516 | Military airworthiness handbook. Reference used by all military for manned and unmanned, fixed and rotary wing air vehicle systems. |
| Military Mission | Military use and operation of an aircraft. |
| MoA | Memorandum of Agreement. The 2004 agreement between the FAA and U.S. Representatives. FAA provides technical support, certification and continued operational safety services for MCDA through its dedicated Military Certification Office (MCO). U.S. reimburses the FAA yearly. |
| MOU | Memorandum of Understanding. |
| NAVAIR | Naval Air Systems Command of the U.S. Navy. Provides technical and airworthiness support for U.S. Navy aircraft. |
| Necessary Requirements | Standards and regulations needed to certify a MCDA. |
| OEM | Original equipment manufacturer or aircraft manufacturer. |
| OMT | Organizational Management Team. |
| Organic Aircraft | Aircraft developed and qualified to military specification without a civil type certificate. |
| PAH | Production approval holder. |
| PC | Production certificate. |
| Platform | Baseline aircraft or rotorcraft type. May be modified for military use into a special mission configuration. |
| PM | Project manager. |
| PMA | Parts manufacturer approval. |
| PSCP | Project specific certification plan. |

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| PSSA | Program specific service agreement. Defined in the armed services/FAA Defines FAA technical and certification support services required to support a specific military program. Establishes agreement for reimbursement support costs. |
| PSP | Partnership for safety plan. Agreement between an applicant and FAA outlining roles and responsibilities and general expectations for type certification projects. |
| R&D | Research and development. |
| RDECOM | The U.S. Army Research, Development, and Engineering Command. Includes the Army Aviation Engineering Directorate that provides technical and airworthiness support for U.S. Army aircraft and rotorcraft. |
| RGL | Regulatory and Guidance Library. |
| RTCA | Organization that develops industry standards for electronic equipment and avionics. |
| RTCA/DO | An RTCA document. |
| Safe Carriage | FAA approved military hardware or equipment to be carried onboard the aircraft, included as part of type design, but not certified for operation. Complies with applicable civil regulations where installed, and has been determined not to affect airworthiness of the aircraft. Does not include military ordinance, pyrotechnics, or other military hardware that may pose hazards to aircraft or occupants. |
| SCG | Security classification guide. |
| SME | Special mission equipment. |
| SOW | Statement of work. Document conveying requirements to a contractor. |
| STC | Supplemental type certificate. |
| TACC | Tailored airworthiness certification criteria. Process to determine a military "type certification basis" for a specific military aircraft type as defined by Mil Handbook 516. |
| TIA | Type inspection authorization. Used in FAA flight test to outline requirements for showing compliance. |

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Appendix G

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| TIR | Type inspection report. FAA report written to support a TIA. |
| TO | Technical orders. Support documentation and maintenance instructions used by the military to support aircraft. |
| TSO | Technical standard order. Design approval for Part 21, Subpart O. |
| TSOA | Technical standard order authorization. |
| U.S. | United States. |
| VIP | Very important person. |

Appendix H. Administrative Information

- 1. Distribution.** Distribute this order to Washington headquarters branch levels of the Aircraft Certification Service, Flight Standards Service, and Office of Environment and Energy; to branch level of the regional aircraft certification directorates and regional flight standards divisions; to all aircraft certification field offices, the Military Certification Office (MCO), to the International Policy Office, all aircraft evaluation groups (AEG), and to all designated engineering representatives (DER).
- 2. Authority to Change This Order.** The issuance, revision, or cancellation of the material in this order is the responsibility of the AIR Certifications Procedures Branch (AIR-110). This branch will accomplish all changes, as required, to carry out the FAA's responsibility to provide for managing revoked, suspended, surrendered, and abandoned type certificates and supplemental type certificates.
- 3. Suggestions for Improvement.** If you find deficiencies, need clarification or want to suggest improvements to this order, send FAA Form 1320-19, Directive Feedback Information, (written or electronically) to the Aircraft Certification Service, Planning and Financial Resources Management Branch, AIR-530, Attention: Directives Management Officer. You can also send a copy to the Aircraft Engineering Division, AIR-100, Attention: Comments to Order xxxx. If you urgently need an interpretation, contact Certification and Procedures Branch AIR-110 at 202-267-9588. Always use Form 1320-19, in appendix E, to follow up each verbal conversation.
- 4. Records Management.** Refer to Orders 0000.1, FAA Standard Subject Classification System; 1350.14, Records Management; and 1350.15, Records, Organization, Transfer, and Destruction Standards; or your office Records Management Officer or Directives Management Officer for guidance regarding retention or disposition of records.

Appendix I. FAA Form 1320-19 Directives Feedback Information
Directive Feedback InformationU.S. Department
of Transportation**Federal Aviation
Administration****Directive Feedback Information**

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order _____

To: Directive Management Officer, AIR-530*(Please check all appropriate line items)*☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.☐ Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)☐ In a future change to this directive, please include coverage on the following subject:
(briefly describe what you want added)☐ Other comments:☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____

FAA Form 1320-19 (8-89)(Representation)