



Structures Bulletin

ASC/EN

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Subject: ASIP Requirements for Commercial Derivative Aircraft

References:

1. AFPD 62-6, *USAF AIRWORTHINESS*, 11 June 2010.
2. AFI 62-601, *USAF AIRWORTHINESS*, 11 June 2010.
3. AFPD 63-1 / 20-1, *ACQUISITION AND SUSTAINMENT LIFE CYCLE MANAGEMENT*, 3 April 2009.
4. AFI 63-101, *ACQUISITION AND SUSTAINMENT LIFE CYCLE MANAGEMENT*, 17 April 2009.
5. AFI 63-1001, *AIRCRAFT STRUCTURAL INTEGRITY PROGRAM*, 18 April 2002.
6. MIL-STD-1530C, *AIRCRAFT STRUCTURAL INTEGRITY PROGRAM*, 1 November 2005.

Purpose:

This Structures Bulletin describes the Aircraft Structural Integrity Program (ASIP) requirements for commercial derivative aircraft (CDA) covered under Air Force Policy Directive (AFPD) 62-6 (Ref. 1). Several recent policy changes have necessitated a need to revise the original Structures Bulletin which was released on 9 July 2004.

Background:

Airworthiness requirements for commercial derivative aircraft were previously covered by AFPD 62-4 and 62-5, both of which were superseded by AFPD 62-6 on 11 June 2010. AFPD 62-6 is implemented via Air Force Instruction (AFI) 62-601 (Ref. 2). The USAF ASIP is directed by AFPD 63-1 / 20-1 and is implemented via AFI 63-101 and AFI 63-1001 (References 3, 4, and 5). AFPD 63-1 / 20-1 superseded the "stand alone" ASIP policy directive AFPD 63-10 on 3 April 2009 as part of an effort to consolidate Air Force policy. AFI 63-101 directs that "an aircraft-specific ASIP is required for each Mission Design Series (MDS) of aircraft (manned or unmanned) the AF acquires, uses

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or leases”, to include CDA. AFD 63-1 / 20-1 defines CDA as “civil aircraft procured or acquired by the military (reference FAA Order 8110.101)”. In general, a CDA is an aircraft which has been developed for the commercial market (not the military) under Federal Aviation Regulations (FAR) Part 23 (for normal, utility, acrobatic and commuter category airplanes) or Part 25 (for transport category airplanes). CDA will have a Federal Aviation Administration (FAA) Type Certification (TC) or an equivalent certification from a civil aviation authority that has an established Bilateral Aviation Safety Agreement with the FAA.

AFI 63-1001 describes the roles and responsibilities of each USAF organization entrusted with ensuring structural integrity under ASIP, and requires that ASIP be executed per MIL-STD-1530 (Ref. 6). This standard defines the requirements necessary to achieve structural integrity through a series of disciplined time-phased tasks. The five tasks of ASIP are:

Task I – Design Information

Task II – Design Analyses and Development Testing

Task III – Full Scale Testing

Task IV - Certification and Force Management Development

Task V – Force Management Execution

Tasks I through IV typically occur during the development phase of an aircraft life cycle, while Task V is performed during the sustainment phase.

Tailoring of ASIP to Commercial Derivative Aircraft:

For a CDA acquired, used or leased by the USAF, most of the ASIP Tasks defined in MIL-STD-1530 associated with aircraft development are accomplished by the Original Equipment Manufacturer (OEM) to satisfy FAA certification requirements of FAR Part 23 or 25. However, the USAF ASIP contains additional requirements associated with aircraft service life and sustainment to include: establishing a design service life requirement, verifying that it has been achieved, and re-evaluating service life potential based on actual usage. An ASIP Master Plan should summarize the ASIP Tasks satisfied as part of the FAA effort as well as provide sufficient information to describe how the additional ASIP requirements were satisfied.

One key aspect of re-evaluating service life potential is to perform usage data collection and evaluation. The two methods for accomplishing this are the Loads/Environment Spectra Survey (L/ESS) and the Individual Aircraft Tracking (IAT) program as described in ASIP Tasks IV and V. The goal of L/ESS is to obtain time history records of aircraft parameters necessary to define the stress spectra for the critical areas of the airframe. The objective of an IAT program is to evaluate the actual usage severity and to adjust the maintenance intervals as necessary. A careful evaluation of the CDA planned usage and service life requirement should be conducted to determine if an L/ESS and/or IAT program is required. The conclusion of this evaluation should be documented in the ASIP Master Plan within Task IV. If an L/ESS and/or IAT program is required, its development and execution should be described within Tasks IV and V.

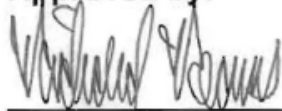
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Frequently, CDA are acquired with Supplemental Type Certificates (STCs) which certify design changes from the baseline TC. If the USAF requires modifications or design changes to meet mission requirements, these changes may be certified using a FAA STC or a Modification Airworthiness Certification Criteria (MACC) depending on the procurement strategy. In either case, the modification should be documented in the ASIP Master Plan, and additional information provided for the MACC approach.

Summary:

The USAF ASIP is required for each Mission Design Series (MDS) of aircraft (manned or unmanned) the AF acquires, uses or leases and the program should be documented in an ASIP Master Plan. For CDA aircraft, the USAF ASIP contains requirements (in addition to the FAA) associated with aircraft service life and sustainment to include: establishing a design service life requirement, verifying that it has been achieved, and re-evaluating the service life potential based on actual usage. A careful evaluation of the CDA planned usage and service life requirement should be conducted to determine if an L/ESS and/or IAT program is required.

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