1. Effectivity

General information.

2. Purpose

CAO 100.5 utilises the terms “Certification Maintenance Requirement” and “Airworthiness Limitations”. These terms may not be familiar to those not involved with mainly large modern aircraft. This AWB provides a detailed explanation of those terms.

3. Terminology

Certification Maintenance Requirements (CMRs)

A CMR is a required scheduled maintenance task established during the design certification of the airplane systems as an operating limitation of the type certificate (TC) or supplemental type certificate (STC). The CMRs are a subset of the instructions for continued airworthiness identified during the certification process. A CMR usually results from a formal, numerical analysis conducted to show compliance with the requirements applicable to catastrophic and hazardous failure conditions. A CMR is intended to detect safety significant latent failures that would, in combination with one or more other specific failures or events, result in hazardous or catastrophic failure condition.

Most major aircraft manufacturers define two types of CMR tasks:

- One star CMR (CMR*); These tasks and intervals are mandatory and can’t be changed or deleted without the approval of the State of Design NAA.
- Two star CMR (CMR**); Changes to task intervals must be supported by an approved procedure and monitoring program. Tasks may not be changed or deleted without the agreement of the State of Registry Authority.

NOTE: It is important to carefully read the introduction to the TC Holder's data that is being used for the production of a Maintenance Schedule. Some manufacturers will use a different terminology, for example some TC Holders have the opposite definition for one/two star tasks to other TC Holders.

CMRs should be clearly identified as such in the System of Maintenance. Any subsequent applications for approval to vary these tasks must be supported by the TC Holder. Care should be taken in understanding the Manufacturer's certification philosophy as some do allow short-term variations of these tasks.

A CMR is intended to detect safety-significant latent failures that would, in combination with one or more other specific failures or events, result in a hazardous or catastrophic failure condition.

It is important to note that CMR's are derived from a fundamentally different analysis process than the maintenance tasks and intervals that result from Maintenance Steering Group (MSG-3) analysis associated with Maintenance Review Board (MRB) activities. MSG-3 analysis activity produces maintenance tasks that are performed for safety, operational, or economic reasons, involving both preventative maintenance tasks, which are performed before failure occurs (and are intended to prevent failures), as well as failure-finding tasks. CMR's, on the other hand, are failure-finding tasks only, and exist solely to limit the exposure to otherwise hidden failures. Although CMR tasks are failure-finding tasks, use of potential failure-finding tasks, such as functional checks and inspections, may also be appropriate.

Airworthiness Limitations (AWL)

AWLs are items that the Certification process has defined as critical from a fatigue or damage tolerance assessment. The inspection frequency of such items is Mandatory and they should be treated in the same way as a CMR* task.

Note: Many older aircraft include AWLs in the same Chapter of the Maintenance Manual where they included recommended overhaul period.

The applicable airworthiness regulations require the applicant set forth the following in the AWLs:

(1) Approved mandatory replacement times for type certification,

(2) Approved mandatory structural inspection times for type certification,

(3) Structural inspection procedures for those approved mandatory times, and

(4) Critical design configuration control limitations (CDCCL).

Critical Design Configuration Control Limitations (CDCCL)

Critical Design Configuration Control Limitations identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of the Critical Design Configuration Control Limitation (CDCCL) is to provide instructions to ensure these critical features are present throughout the life of the aircraft and

are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Design features that are CDCCLs are defined and controlled by Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

4. References

CASA CAAP 42M-1(0)

FAA AC 25-19C

EASA AMC 25-19

5. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

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