

Continued Airworthiness (CAW) of Engine Type Design

Omiros Kastanis

EASA Project Certification Manager Propulsion



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Part 21, Paragraph **21A.3** provides the legal basis with respect to CAW of Engine Type Design.



Reporting – Investigation – Corrective Action:

- Failures, malfunctions, defects or other occurrences which (may potentially) adversely affect the airworthiness of the engine and thus cause a possible unsafe condition need to be reported to the Agency by the approval holder in accordance with 21A.3 (b).
- In addition, the above need to be investigated by the approval holder in accordance with 21A.3 (c).
- Depending on the outcome of the investigation, the approval holder proposes corrective action (replacement, modification inspection etc.) to the Agency in accordance with 21A.3 (c).



Airworthiness Directives (21A.3B):

- Implementation of corrective actions are mandated by Airworthiness Directives (AD).
- An AD is aimed to restore an acceptable level of safety.
- It is the obligation of the approval holder to provide the means necessary for the implementation of the AD to all affected parties.



Unsafe Condition (AMC 21A.3B(b)):

- An unsafe condition is defined at A/C level.
- An unsafe condition may be caused at engine level, for example
 - if Hazardous engine effects as defined in CS-E 510 (uncontained high energy debris, uncontrolled fire etc.) occur at a rate greater than Extremely Remote or
 - if the Engine Loss of Thrust Control (LOTC) rate exceeds an acceptable rate for the installation.



Corrective Action, Sufficiency of (AMC GM 21A.3B(d)(4)):

- The reference above provides guidelines to establish corrective actions.

Rationale: *During the limited rectification period it is allowed to a certain, limited degree that an A/C features a risk higher than if the risk would be uniformly distributed during the A/Cs life. At the same time the risk over the entire lifetime of the product remains within the originally anticipated limits.*



- In addition to the CAW activities described by 21A.3, regular reviews of service information are carried out for every engine type.
- There are interfaces between the CAW activities and the EASA safety analysis process as well as with the activities of accident investigation bodies.



CAW of non-EU Products:

- If a bilateral agreement with the State of design (SoD) is in place, normally reliance is placed on the findings and the activities of the Primary Certifying Authority (PCA).
- Absence of a bilateral agreement with the SoD warrants increased involvement .





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Omiros Kastanis

Tel: +49-221-89990-4103

email: Omiros.Kastanis@easa.europa.eu



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