



**EASA**  
European Aviation Safety Agency

# EASA Fire/Explosion Problematics and Rulemaking Activities Overview

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V2\_V3

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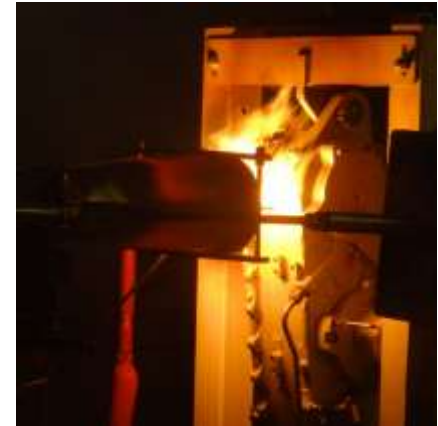


## ➤ SAE A22 Powerplant Fire Testing

➤ In March 2018, the FAA tasked SAE International to develop industry standards to update AC20-135 Change 1, *Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards, and Criteria*.

### ➤ EASA participation

- Rémi DELETAIN (CS-25) - Focal
- Regis ROSSOTTO (CS-23 / VTOL)
- Angus BRAHAMS (CS-E)
- Laurent PINSARD (Chief Expert Structure)
- Wim DOELAND (Senior Expert Structure)





## ➤ SAE A22 Powerplant Fire Testing

### ➤ AS6826 Powerplant Fire Test Standards

- 1<sup>st</sup> ballot (28 Aug 2023 – 24 Sep 2023): commented
- 2<sup>nd</sup> ballot launched on 20 Mar 2024, till 16 Apr 2024: EASA comments to come

## ➤ ARP8580 Fire Protection of Aircraft Engine Mounts, Flight Controls, and Other Flight Structures.

- Draft dated 26 Feb 2024, till 13 Mar 2024: EASA comment sent on 07 Mar 2023 and 13 Mar 2024.



## ➤ ARP8704 Minimizing the Hazards of Engine Combustor Case Burn Through

- 1<sup>st</sup> Ballot dated 01 Nov 2023, till 28 Nov 2023: EASA comment sent on 28 Nov 2023.

## ➤ SAE AS5127/2D - Test Method for Aerospace Firewall Sealant Flame Penetration

- Awareness of standard via balloting of document revision
- Need to ensure a consistent interfacing between that standard and AS6826
- Difference in pass/fail criteria, notion of aircraft hazards, ...



## ➤ SAE A22 Powerplant Fire Testing (Cont'd)

### ➤ Regulatory implementation of AS6826 standard ?

#### ➤ Create (\*) AMC 20-135 : Multi-product applicability

- ▶ Cross refer to AS6826 into the new AMC.

- ▶ As necessary, arbitration of contents in relation to :

- ▶ existing individual product guidance and/or limitations in use.

- ▶ existing fire testing standards and their use in relation to AS6826

(\*) Subject to EASA Rulemaking validation

AMC : Acceptable Means of Compliance



## ➤ SAE A22 Powerplant Fire Testing (Cont'd)

- Update individual CS requirements and AMC's relating to powerplant fire testing :
  - ▶ with new AMC introduction
  - ▶ If any, removing non-relevant or superseded standards/guidance
  
- Release guidance (CRI , CM or AMC update (above))
  - ▶ On items not covered in AS6826 original issue
  - ▶ On items scheduled for AS6826 revision 2
  - ▶ On subjects under SAE A-22 long-term discussion

CRI: Certification Review Item

CM : Certification Memorandum



## ➤ CATA – CWI EASA-001 -2D Nacelle (CS 25.867)



- Internal (FAA, EASA, TCCA, ANAC) consultations – completed.
- Disposal of comments within CATA EASA-001 team and CATA Paper update - completed.
- CATA Paper 1<sup>st</sup> release towards CATA : Jul 2023
- Return with comments Aug 2023
- CATA Paper 2nd release towards CATA : Apr 2024

CATA : Certification Authorities for Transport Airplanes

CWI: CATA Worklist Item



## ➤ CATA – CWI EASA-001 -2D Nacelle (CS 25.867)



- Once adopted by CATA will be published on EASA website
- Regulatory adoption Plan (subject to consolidation):
  - CRI SC + IM/MoC (short term) . Generic consultation envisaged
  - CS 25J1181 evolution + AMC creation via CS-25 regular update (mid term)

CATA : Certification Authorities for Transport Airplanes

CWI: CATA Worklist Item





# Fire Regulatory Topics

- CATA – CWI FAA-xxx - Definition of APU air inlet system boundary and fireproof compliance showings – 25.1103(b)(2)
  - To come once confirmed



## ➤ GENERIC GUIDANCE (CRI)

### ➤ Flammable Fluid (25.863) and drainage/ventilation (25.1187)

➤ Note: FAA consulted in 2Q2023 the draft AC 25.863

### ➤ Residual Flame

### ➤ Halon Replacement (HFC125)

### ➤ Halon Replacement (CF3I)



## ➤ VTOL

### ➤ Special Condition and Means of Compliance

#### ➤ MOC VTOL.2440 Propulsion Batteries Thermal Runaway

- MOC-3 SC-VTOL, Issue 1, 29 Jun 2022 :
- Status : Released for consultation on 29 Jun 2022
- TD : Deadline for comments 12 Aug 2022
- More than 250 comments received
- Disposal of comments completed
- CRD and final MoC released in June 2023

VTOL : Vertical Take-Off and Landing (VTOL) aircraft :

- heavier-than-air aircraft in the small category, with lift/thrust units used to generate powered lift and control. The distinction from conventional aeroplanes is based on the VTOL capability of the aircraft while the distinction from conventional rotorcraft is based on the use of distributed propulsion, specifically when more than two lift/thrust units are used to provide lift during vertical take-off or landing.
- with a passenger seating configuration of 9 or less and a maximum certified take-off mass of 3 175 kg (7 000 lbs) or less



- **Electrical & Hybrid propulsion (EHPS)**
  - **Research – TAC - IPC (CS-E, CS-25) and Project application (CS-23, CS-25)**
    - Multitude of concepts (Liquid, Gaseous, fuel cell, engine supply)
    - Maturity variations
    - Complex split of responsibilities (A/C vs Engine)
- **Special Condition SC E-19 - Electric / Hybrid Propulsion System**
  - Released at issue 1 on 13 Apr 2021
  - Fire Protection for electrical engine : EUROCAE WG 112 –has reactivated the activity. SAE E-40 has also decided to work on the topic

TAC: Technical Advice Contract

IPC : Innovation Partnership Contract



## ➤ H2

- Activities running in various areas at EASA (IPC, TC application, Research, Industry WG, EASA-FAA COB, ...)
- EASA H2 Core Team (EASA Certification Directorate Objectives) in place (Jan 2024)
  - H2 Road map
  - Certification framework : white paper as basis for SC
  - Harmonization
  - Knowledge and Capacity management

COB: Certification Oversight Board  
IPC : Innovation Partnership Contract  
SC: Special Condition



## ➤ H2 Fire & Explosion risk

- Initiative launched in Nov 2022 with regulator only and regulator/industry exchange : little success.
- Repeated in Jun 2023 and Nov 2023 with gradually more enthusiasm and contributions.
  - Agreed to use Systems and Material forums for the WG in a format of :
    - Regulator Only gathering
    - Regulator/Industry gathering



## ➤ H2 Fire & Explosion risk

### ➤ 2024:

- Meeting: 15 Apr (Regulator only) – 17 Apr (Regulator/Industry)
- ToR : drafted for Hydrogen Fire & Explosion Research Steering Group (HF&ERSG) activity
  - Subset of Fire and Cabin Safety Research Group, F&CSRG
  - Contributor to Hydrogen Technologies Working Group (HTWG) COB



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