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FAA Propulsion AC 20-135 Revision A – Status Update

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**Federal Aviation
Administration**

AC 20-135 Revision Background & Purpose

- Background: FAA tasked SAE in March 2018 to develop industry standards to supplement AC 20-135 Change 1 *Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards, and Criteria*
- Purpose & Objective:
 - To address wide variations in fire test methodologies, fire test pass/fail criteria, and to introduce FAA Sonic (Next Gen) burner
 - SAE A-22 industry committee launched May 2018 including certification authorities. Initial objective - develop and publish the AS6826 *Powerplant Fire Test Standards* document

Propulsion AC 20-135 Revisions

- AC 20-135 Revision A: target release for public comments ~ 12 months after AS6826 publication
 - Most of AC 20-135 content will be deleted and updated by AS6826 (see next slide for summary)
 - AC 20-135 Rev A draft revisions - under review by FAA
- AC 20-135 covers 65 total fire protection regulations:
 - Part 23 (14, pre-amdt. 64; and 3, post-amdt. 64)
 - Part 25 (20)
 - Part 27 (11) and Part 29 (15)
 - Part 33 (2)

Propulsion AC 20-135 Revisions

Deletes current AC 20-135 Paragraphs	Refers to following AS6826 Sections
4. Definitions	1.3 Definitions and Terms, including harmonized Standard Flame
5. Fire Protection Principles and Objectives	2.1 Determination of Fire Protection Requirements; 2.2 Fire Test Principles and Objectives; 2.4 Test Articles and Burner Location Requirements
6. Fire Test Equipment Standards and Test Criteria	3.1 Acceptable Test Burners; 3.2 Fire Test Procedure; 4. Fire Test Temperature Calibration; 5. Fire Test Heat Transfer Rate Calibration
7. Fire Protection Installation and Design Features	6. Fire Test Boundary Conditions; 7. Fire Test Pass-Fail Criteria

Propulsion AC 20-135 Revisions

- Maintains Paragraph 8 Engine Case Burn-Through (future update after publication of SAE ARP8704)
- Acknowledges other AC 20-135 related guidance materials in work / published:
 - Draft AC 25.863-X “Flammable Fluid Fire Protection”
 - Draft CATA 25.867 “2D Nacelle, Fire Resistance”
 - **AC 25.901-1 “Safety Assessment of Powerplant Installations”, 30-August-2024.**
 - Draft AC 25.1193-X “Cowling and nacelle skins”

CATA – Certification Authorities for Transport Airplanes

Other FAA and SAE A-22 guidance materials

- Published, FAA Certification Position Paper (CPP) *Powerplant Residual Flames during AC 20-135 Testing*, FAA Transport Airplane Issues List (TAIL), CPP-25.1191-1, TAIL T-2008, Q1 2024.
- To be published, FAA Certification Position Paper (CPP) *Engine Electrical Wiring Fire Protection*, FAA Engine & Propeller Issues List (EPIL), CPP 33.91-1, Q4 2024.
- Work-in-progress (WIP) SAE A-22 documents:
 - Engine Case Burn-through (ARP8704)
 - Fire Protection - Engine Mounts (ARP8580)
 - Fire Protection - Powerplant Electrical Wiring Interconnection System (EWIS) (ARP8998)
 - Powerplant Fire Safety Assessment (ARP6828)
 - Rotorcraft Maximum Flight and Landing Loads (AIR8635)

Future AC 20-135 related guidance materials

- CATA 25.1103(b)(2) Fireproof APU Inlet – clarifies the inlet boundary, components, and fire requirements for external and internal fire conditions – **under review by CATA team.**
- Draft AC 25.1191 Powerplant Residual Flames during AC 20-135 Fire Testing – provides acceptable MoC – **under review by FAA before public release.**