FAA AC 20-135 Revision Update

By: FAA AIR-625 Engine and Propulsion Section, Technical Policy & Standards Division

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AC 20-135 Revision Update

- **FAA tasked SAE in 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*

  - To address wide variations in fire test methodologies, fire test pass/fail criteria, and to introduce FAA Sonic (Next Gen) burner

  - SAE A-22 committee was launched including certification authority participation; initial objective is to develop the AS6826 *Powerplant Fire Test Standards* document

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- **AS6826 2nd ballot version, 15-March-2024**

- **AC 20-135 Revision A – target release for public comments ~ 12 months after AS6826 publication**

  - Section 1.1 Purpose - Refers to SAE AS6826 *Powerplant Fire Test Standards* as acceptable Means of Compliance (MoC)

  - Section 2 Principal Changes – summary of major changes

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- **Section 2.0 Principal Changes –**
  - Updates Paragraph 1 Purpose
  - Updates Paragraphs 2 Related CFR Sections & Paragraph 3 Background, as appropriate
  - Deletes the following Paragraphs and updates by AS6826:

    4. Definitions – updated with harmonized definitions

    5. Fire Protection Principles and Objectives – updated with clarifications and examples based on best practices

    6. Fire Test Equipment Standards and Test Criteria – updated with harmonized test procedures and test boundary conditions

    7. Fire Protection Installation and Design Features – updated with prescriptive test pass/fail criteria for various installations and design features

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Principal changes, cont'd:

Current AC 20-135 Paragraphs	Updated by following AS6826 Sections
4. Definitions	3.1 Standard Flame
5. Fire Protection Principles and Objectives	2.1 Fire test requirements; 2.2 Fire Test Principles and Objectives; and 2.4 Test Articles and Burner Location Requirements
6. Fire Test Equipment Standards and Test Criteria	3.2 Acceptable Test Burners: 3.3 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

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Principal changes, cont'd:

- Maintains Paragraph 8 Engine Case Burn-Through (future update after publication of SAE ARP8704)
- Acknowledges other AC 20-135 related guidance materials in work
  - Draft AC 25.863-X "Flammable Fluid Fire Protection"
  - Draft CATA 25.867 "2D Nacelle, Fire Resistance"
  - Draft AC 25.901-X "Safety Assessment of Powerplant Installations", Fire Protection System section 6.8.5
  - Draft AC 25.1193-X "Cowling and nacelle skins"

CATA – Certification Authorities for Transport Airplanes

AC 20-135 related guidance materials

Under review for future tasking:

- Draft CATA 25.1103(b)(2) Inlet Fireproofness, APU – clarifies the inlet boundary, components, and fire requirements for external and internal fire conditions

- Draft AC 25.XXXX Powerplant Residual Flames during AC 20-135 Fire Testing – provides acceptable MoC

Other SAE A-22 & FAA guidance materials

- **Work-in-progress (WIP) ,SAE A-22 documents:** Engine Case Burn-through (ARP8704), Engine Mounts (ARP8580), Electrical Wiring Interconnection System (EWIS) (ARPXXXX), Powerplant Fire Safety Assessment (ARP6828), Flight loads under Fire Condition (AIR8635)

- **Published, FAA Certification Position Paper (CPP)** *Powerplant Residual Flames during AC 20-135 Testing* in the Transport Airplane Issues List (TAIL), February 2024.

    - CCP provides an acceptable MoC. Deviations from the MoC in the CPP could require documentation in an issue paper.

- **Questions?**