

Flammability Requirements Improvement

June 24, 2010



Federal Aviation
Administration



Current Flammability Requirements

- apply to all materials, except
- Small parts... that would not contribute *significantly to the propagation of a fire...*
- Certain locations in the airplane, unless a specified type of part

Current State

- **Appendix F has grown and evolved over 40-plus years**
- **Each successive revision has focused more specifically on a particular safety issue**
- **Many materials/parts are subject to multiple requirements**
 - Because of different usage
 - Because more than one requirement applies

Current State cont.

- **Appendix F has 7 parts**
- **Only part I establishes requirements based on type of material (as opposed to usage)**
- **All requirements permit ‘other approved equivalent method’**
- **Current approach, whether by usage or material, is to list applicable parts explicitly**

Main Factors in Establishing Flammability Requirement

- **Nature of threat: principally**
 - Post Crash, or
 - In flight
- **Potential contribution of the item: principally**
 - Propagation, and/or
 - Intensity, and/or
 - Penetration
- **Relative ability to mitigate: principally**
 - Accessible, or
 - Inaccessible

Several motivators for new rulemaking

- **Enhanced safety**
- **Standardization**
- **Simplification**



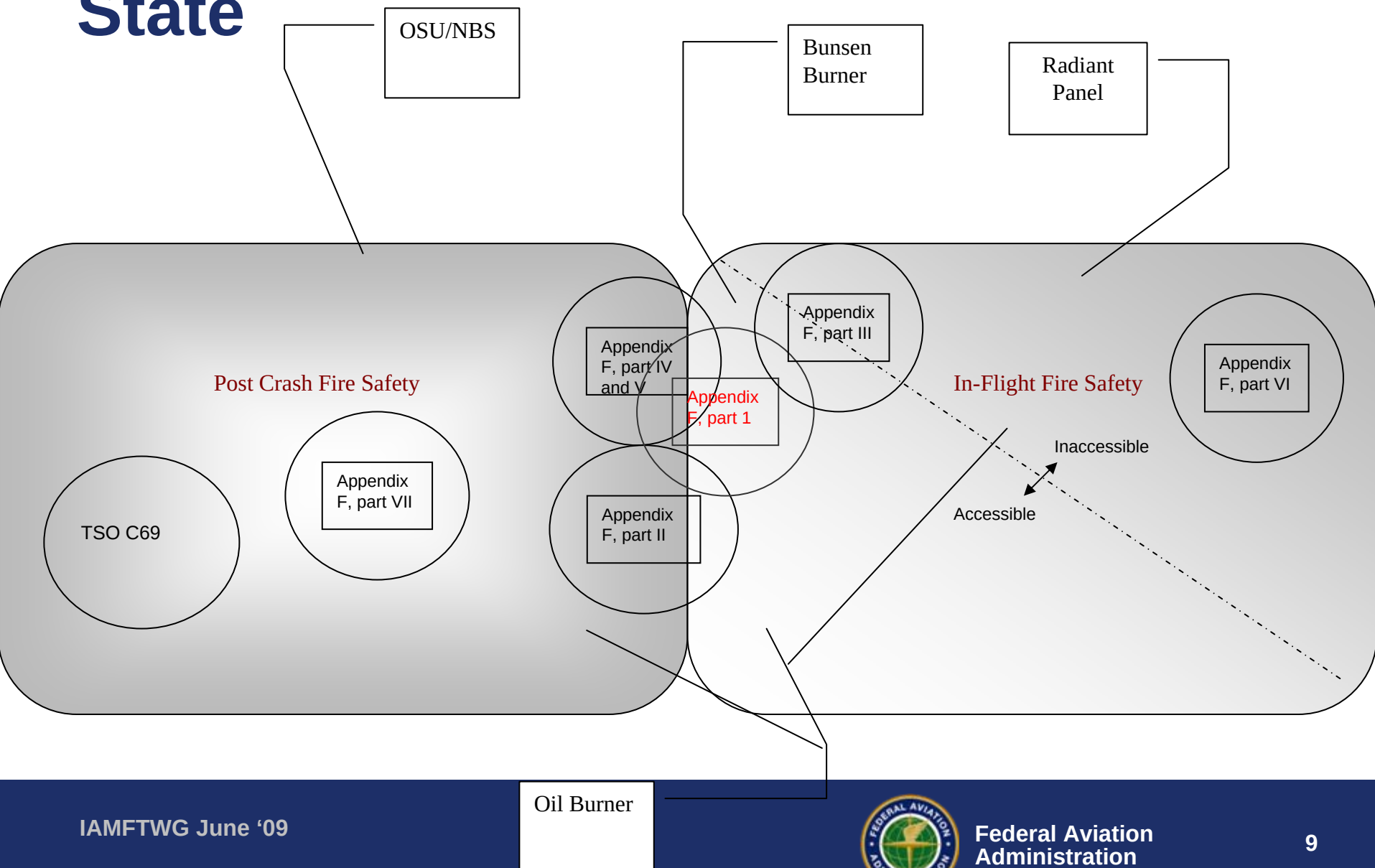
Existing Test methods and their applicability

- **Bunsen burner: post-crash, in-flight, accessible and inaccessible materials—six possible tests/criteria**
- **Oil Burner (seats, cargo liners, insulation): used both for post-crash and in-flight, accessible and inaccessible materials—three test methods**

Existing Test methods and their applicability

- **OSU/NBS Chambers: Post-crash, in-flight accessible materials—two test methods**
- **Radiant Panel: in-flight, inaccessible materials (currently just insulation)—single test method**
- **Radiant furnace test for escape slides (only captured in TSO C69)—single test method**

Visual Representation of Current State



Current state has

- **Lots of overlap**
- **Lots of test methods**
- **Challenges to determine applicable requirements**

Simplified Structure Might be

- **Appendix F, Part I :**
 - In-flight fire protection requirements
- **Appendix F, Part II:**
 - Post crash fire protection requirements

Future Appendix F, part I

- IA Radiant Panel Requirements for Inaccessible areas
- IB Oil burner—cargo liner Requirements for cargo compartments
- IC Fire containment tests for all disposal receptacles
- ID Bunsen burner General Requirements
Resistance to ignition;

Future Appendix F, part II

- **IIA OSU/NBS—Large surface area parts**
- **IIB Oil burner—Cushions**
- **IIC Oil burner—Insulation in the lower half**
- **IID Radiant furnace—Escape slides**

Current Appendix F, Part I would become...

- Things not covered elsewhere that could contribute to the propagation of a fire
- Possibly only 1 test method (for airplanes with >19 pax)
- Simplified method to qualify common things, such as adhesive used to bond two parts together (a 'fabricated part' is covered by one of the other tests)

Status

- **FAA is seriously considering rulemaking**
- **Very likely would be addressed through some sort of industry group—ARC or ARAC**
- **Tasking could appear quite soon**
- **FAA would provide a proposal for feedback, rather than request a proposal starting from scratch**