



Standard Specification for Emergency Conditions, Occupant Safety and Accommodations¹

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1. Scope

1.1 This specification addresses emergency conditions, occupant safety and accommodations for occupants and cargo.

1.2 The applicant for a design approval must seek the individual guidance of their respective CAA body concerning the use of this standard as part of a certification plan. For information on which CAA regulatory bodies have accepted this standard (in whole or in part) as a means of compliance to their airworthiness regulations (Hereinafter referred to as “the Rules”), refer to ASTM F44 webpage (www.ASTM.org/COMITTEE/F44.htm) which includes CAA website links.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

F3060 Terminology for Aircraft

2.2 *U.S. Code of Federal Regulations:*³

14 CFR Part 23 Airworthiness Standards: Normal, Utility, Aerobatic and Commuter Category Airplanes (Amendment 62)

49 CFR Part 572 Anthropomorphic Test Devices (Subpart B)

¹ This specification is under the jurisdiction of ASTM Committee F44 on General Aviation Aircraft and is the direct responsibility of Subcommittee F44.30 on Structures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from the U.S. Government Printing Office at www.ecfr.gov.

2.3 *European Aviation Safety Agency Regulations:*⁴

CS-23 Certification Specifications for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes (Amendment 3)

CS-VLA Certifications Specifications for Very Light Aeroplanes (Amendment 1)

2.4 *Other Standard:*

PH1.25 Standard Specification for Safety Photographic Film

3. Terminology

3.1 See Terminology **F3060** for definitions of terms used in this standard.

3.2 *Abbreviations:*

3.2.1 g_p —peak deceleration for seat/restraint system test

3.2.2 *HIC*—head injury criteria

3.2.3 t_r —rise time to the peak deceleration, g_p

4. Emergency Landing Conditions

4.1 *General:*

4.1.1 The airplane, although it may be damaged in emergency landing conditions, must be designed as prescribed in this section to protect each occupant under those conditions.

4.1.2 The structure must be designed to give each occupant every reasonable chance of escaping serious injury when:

4.1.2.1 Proper use is made of the seats, safety belts, and shoulder harnesses provided for in the design.

4.1.2.2 The occupant experiences the static inertia loads corresponding to the following ultimate load factors:

(1) Upward, 3.0 g, or 4.5 g for airplanes approved for aerobatics;

(2) Forward, 9.0 g;

(3) Sideward, 1.5 g; and

(4) Downward, 6.0 g when certification to the emergency exit provisions of **5.6.4.1(2)** is requested.

4.1.2.3 The items of mass within the cabin, that could injure an occupant, experience the static inertia loads corresponding to the following ultimate load factors:

(1) For Level 1 aircraft with a V_{S0} not more than 83 km/h [45 kts]:

⁴ Available from the European Aviation Safety Agency at www.easa.europa.eu.