

back into full compliance with the applicable operational part.

*Equipment and Design*

3. *General.* Unless otherwise noted, compliance is required with the applicable certification basis for the airplane. Some provisions of this SFAR impose alternative requirements to certain airworthiness standards that do not apply to airplanes certificated to earlier standards. Those airplanes with an earlier certification basis are not required to comply with those alternative requirements.

4. *Occupant Protection.*

(a) *Firm Handhold.* In lieu of the requirements of §25.785(j), there must be means provided to enable persons to steady themselves in moderately rough air while occupying aisles that are along the cabin sidewall, or where practicable, bordered by seats (seat backs providing a 25-pound minimum break-away force are an acceptable means of compliance).

(b) *Injury criteria for multiple occupancy side-facing seats.* The following requirements are only applicable to airplanes that are subject to §25.562.

(1) *Existing Criteria.* All injury protection criteria of §25.562(c)(1) through (c)(6) apply to the occupants of side-facing seating. The Head Injury Criterion (HIC) assessments are only required for head contact with the seat and/or adjacent structures.

(2) *Body-to-Body Contact.* Contact between the head, pelvis, torso or shoulder area of one Anthropomorphic Test Dummy (ATD) with the head, pelvis, torso or shoulder area of the ATD in the adjacent seat is not allowed during the tests conducted in accordance with §25.562(b)(1) and (b)(2). Contact during rebound is allowed.

(3) *Thoracic Trauma.* If the torso of an ATD at the forward-most seat place impacts the seat and/or adjacent structure during testing, compliance with the Thoracic Trauma Index (TTI) injury criterion must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. TTI data must be acquired with a Side Impact Dummy (SID), as defined by 49 CFR part 572, subpart F, or an equivalent ATD or a more appropriate ATD and must be processed as defined in Federal Motor Vehicle Safety Standards (FMVSS) part 571.214, section S6.13.5 (49 CFR 571.214). The TTI must be less than 85, as defined in 49 CFR part 572, subpart F. Torso contact during rebound is acceptable and need not be measured.

(4) *Pelvis.* If the pelvis of an ATD at any seat place impacts seat and/or adjacent structure during testing, pelvic lateral acceleration injury criteria must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. Pelvic lateral acceleration may

not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS part 571.214, section S6.13.5 (49 CFR 571.214).

(5) *Body-to-Wall/Furnishing Contact.* If the seat is installed aft of a structure—such as an interior wall or furnishing that may contact the pelvis, upper arm, chest, or head of an occupant seated next to the structure—the structure or a conservative representation of the structure and its stiffness must be included in the tests. It is recommended, but not required, that the contact surface of the actual structure be covered with at least two inches of energy absorbing protective padding (foam or equivalent) such as Ensolite.

(6) *Shoulder Strap Loads.* Where upper torso straps (shoulder straps) are used for sofa occupants, the tension loads in individual straps may not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap tension loads may not exceed 2,000 pounds.

(7) *Occupant Retention.* All side-facing seats require end closures or other means to prevent the ATD's pelvis from translating beyond the end of the seat at any time during testing.

(8) *Test Parameters.*

(i) All seat positions need to be occupied by ATDs for the longitudinal tests.

(ii) A minimum of one longitudinal test, conducted in accordance with the conditions specified in §25.562(b)(2), is required to assess the injury criteria as follows. Note that if a seat is installed aft of structure (such as an interior wall or furnishing) that does not have a homogeneous surface, an additional test or tests may be required to demonstrate that the injury criteria are met for the area which an occupant could contact. For example, different yaw angles could result in different injury considerations and may require separate tests to evaluate.

(A) For configurations without structure (such as a wall or bulkhead) installed directly forward of the forward seat place, Hybrid II ATDs or equivalent must be in all seat places.

(B) For configurations with structure (such as a wall or bulkhead) installed directly forward of the forward seat place, a side impact dummy or equivalent ATD or more appropriate ATD must be in the forward seat place and a Hybrid II ATD or equivalent must be in all other seat places.

(C) The test may be conducted with or without deformed floor.

(D) The test must be conducted with either no yaw or 10 degrees yaw for evaluating occupant injury. Deviating from the no yaw condition may not result in the critical area of contact not being evaluated. The upper torso restraint straps, where installed, must remain on the occupant's shoulder during the impact condition of §25.562(b)(2).