Designation: F404 – 17

Standard Consumer Safety Specification for High Chairs[1]

This standard is issued under the fixed designation F404; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

This consumer safety specification addresses high chair incidents that were identified by the U.S. Consumer Product Safety Commission (CPSC).

CPSC identified injuries to children associated with tray disengagement, falls resulting when children stood up on the seat of a high chair, entrapment between the tray and the seat, and tipover. By far the most common injury resulted from children falling when they were able to stand up on the seat of the high chair because they were not secured by the restraining system. In response to the incident data developed by the Commission, this consumer safety performance specification attempts to minimize the above listed problems.

This consumer safety performance specification does not cover high chairs that are either blatantly misused or are used in a careless manner that disregards the warnings and safety instructions that are provided with each high chair.

This consumer safety performance specification is written within the current state-of-the-art of high chair technology. It is intended that this specification will be updated whenever substantive information becomes available that necessitates additional requirements or justifies the revision of existing requirements.

1. Scope

1.1 This consumer safety specification covers the performance requirements and methods of test to ensure the satisfactory performance of the high chair and high chairs created by using a high chair conversion kit and component(s) from another product.

1.2 This consumer safety specification is intended to minimize injuries to children resulting from normal usage and reasonably foreseeable misuse or abuse of high chairs.

NOTE 1—This consumer safety specification is not intended to address accidents and injuries resulting from the interaction of older children with children in the high chair or the accidents resulting from abuse and misuse by persons over three years of age.

1.3 No high chair or high chair conversion kit produced after the approval date of this consumer safety specification shall, either by label or other means, indicate compliance with this specification unless it conforms to all requirements contained herein.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 The following precautionary caveat pertains only to the test methods portion, Section 7, of this specification: *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.*

NOTE 2—This consumer safety specification includes the following sections:

[1] This consumer safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.16 on High Chairs, Hook-On Chairs and Expandable Gates.

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1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D3359 Test Methods for Rating Adhesion by Tape Test

F406 Consumer Safety Specification for Non-Full-Size Baby Cribs/Play Yards

F833 Consumer Safety Performance Specification for Carriages and Strollers

F963 Consumer Safety Specification for Toy Safety

2.2 *Federal Regulations:* [3]

16 CFR Part 1227 Safety Standard for Carriages and Strollers

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint

16 CFR 1500 Hazardous Substances Act Regulations Including Sections:

16 CFR 1500.48 Technical Requirements for Determining a Sharp Point in Toys or Other Articles Intended for Use by Children Under Eight Years of Age

16 CFR 1500.49 Technical Requirements for Determining a Sharp Metal or Glass Edge in Toys or Other Articles Intended for Use by Children Under Eight Years of Age

16 CFR 1501 Method for Identifying Toys and Other Articles Intended for Use by Children Under Three Years of Age Which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts

2.3 *ANSI Standard:*[4]

ANSI Z535.4 Product Safety Signs and Labels

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *accessory, n*—component, included with a high chair or sold separately by the manufacturer of the high chair.

3.1.2 *conspicuous, adj*—visible, when the high chair is in all manufacturer's recommended use positions and an occupant is sitting in the high chair, to a person standing near the high chair at any one position around the high chair but not necessarily visible from all positions.

3.1.3 *double action release mechanism, n*—mechanism requiring either two consecutive actions, the first of which must be maintained while the second is carried out or two separate and independent locking mechanisms that must be activated simultaneously to fully release the tray.

3.1.4 *fabric, n*—any woven, knit, coated, laminated, extruded, or calendared flexible material which is intended to be sewn, welded, heat sealed, or glued together as an assembly.

3.1.5 *flexible passive crotch restraint, n*—a passive crotch restraint made of flexible material, such as fabric or webbing.

3.1.6 *front torso support, n*—a barrier extending horizontally across the seat of the high chair that is the primary support intended to restrict forward movement of the occupant's torso when the tray is removed and creates a completely or partially bounded opening in front of the occupant.

3.1.7 *high chair, n*—a free standing chair for a child up to 3 years of age which has a seating surface more than 15 in. above the floor and elevates the child normally for the purposes of feeding or eating.

3.1.7.1 *Discussion*—A high chair may be sold with or without a tray and may be height adjustable to higher or lower use positions. It may also include a recline position for infants not able to sit up unassisted.

3.1.8 *high chair conversion kit, n*—an accessory or component sold by the manufacturer of a product or high chair and used to convert or modify a product so that it can be used as a high chair.

3.1.9 *key structural elements, n*—sub-assemblies such as seat assemblies, leg assemblies, base assemblies, or individual components such as footrests, stabilizing bars, front torso supports, passive crotch restraints, or other components designed to support the weight of the occupant, or a combination thereof.

3.1.10 *latch release surface, n*—any surface on the tray latch release mechanism that results in the tray releasing from its adjustment position when a force is applied perpendicular to that surface.

[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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

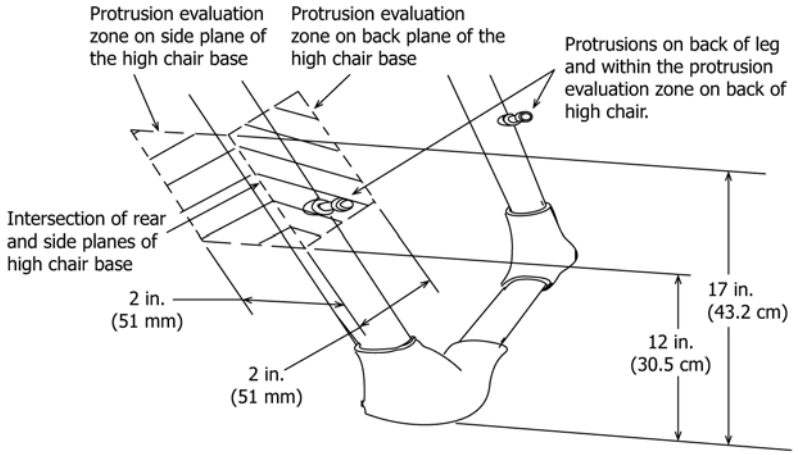


FIG. 1 Protrusion Evaluation Zones

3.1.11 *manufacturer's recommended use position, n*—any position that is presented by the manufacturer in any descriptive or instructional literature as a normal, allowable, or acceptable configuration for the use of the product. This specifically excludes positions which the manufacturer shows in a like manner in its literature to be unacceptable, unsafe, or not recommended.

3.1.12 *nonpaper label, n*—any label material (such as plastic or metal) that either will not tear without the aid of tools or tears leaving a sharply defined edge or labels made from fabric.

3.1.13 *occupant, n*—that individual who is in a product in one of the manufacturer's recommended use positions.

3.1.14 *paper label, n*—any label material (except fabric) that tears without the aid of tools and leaves a fibrous edge.

3.1.15 *passive crotch restraint, n*—a component that separates the openings for the legs of the occupant into two separate bounded openings and requires no action on the part of the caregiver to use except to position one leg into each opening created by the component.

3.1.16 *protective component, n*—any component used for protection from sharp edges, points, or entrapment of fingers or toes.

3.1.16.1 *Discussion*—Examples of protective components include caps, sleeves, and plugs.

3.1.17 *protrusion, n*—a rigid projection that is elevated above the immediately adjacent surface.

3.1.18 *protrusion evaluation zone, n*—areas on the exterior planes of the high chair base at the rear corners which are within 2 in. from the corners formed by the intersection of the rear and side planes of the base and are located between 12 and 17 in. above the floor. See Fig. 1.

3.1.18.1 *Discussion*—This does not include surfaces inside the exterior plane of the high chair base.

3.1.19 *seam, n*—means of joining fabric components such as sewing, welding, heat sealing or gluing.

3.1.20 *seating surface, n*—seat support surface for the occupant that exists between the side surfaces, seat back surface, and the INNER SURFACE of the passive crotch restraint.

3.1.20.1 *Discussion*—For seats with open sides, the seat side surfaces are defined by a vertical plane tangent to the inside surface of the high chair armrest.

3.1.21 *static load, n*—vertically downward force applied by a calibrated force gauge or by dead weights.

3.1.22 *tether, n*—a means of attaching a component using flexible plastic, webbing, or cord.

3.1.23 *threaded fastener, n*—a discrete piece of hardware that has internal or external screw threads which are used for the assembly of multiple parts and facilitate disassembly.

3.1.24 *top corner, n*—an edge on the top side of the upper section of a protrusion created by the intersection of two surfaces that intersect at an angle less than 180°. See Fig. 2.

3.1.25 *tray latch release mechanism, n*—mechanism for releasing the latch that secures a tray onto a high chair or into an adjustment position, or both.

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor that may be covered with ⅛-in. (3-mm) thick vinyl flooring cover, unless test instructs differently.

4.2 The high chair shall be completely assembled, unless otherwise noted, in accordance with the manufacturer's instructions.

4.3 No testing shall be conducted within 48 h of manufacturing.

4.4 The product to be tested shall be in a room with an ambient temperature of 73 ± 9°F (23 ± 5°C) for at least 1 h prior to testing. Testing shall then be conducted within this temperature range.

5. General Requirements

5.1 For products sold as a high chair, all components necessary for a high chair to comply with the requirements of this standard must be included when shipped from the manufacturer in the package with the product or one of the packages if multiple packages are used.

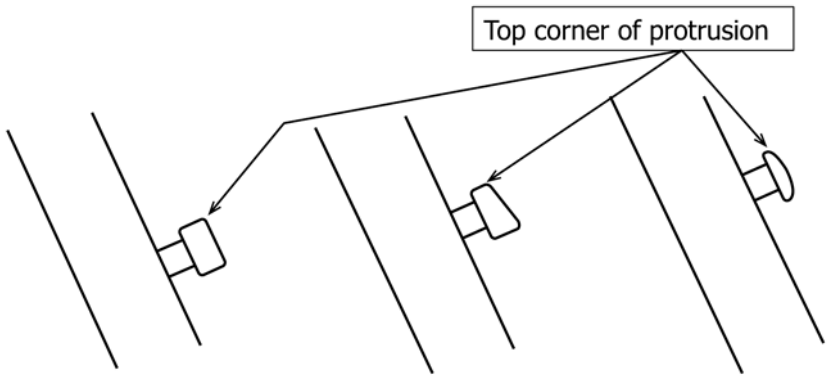


FIG. 2 Protrusion Examples

5.2 For high chair conversion kits sold separately or included with a product to convert a product into a high chair, all components necessary to comply with this standard must be included when shipped from the manufacturer in the package with the product or the conversion kit, or both, or one of the packages if multiple packages are used.

5.3 *Compliance When Used With Conversion Kits:*

5.3.1 When a conversion kit is used to convert a high chair to a different product which falls under the scope of another ASTM standard, it shall comply with the applicable requirements of that standard.

5.4 The high chair with any accessory(s) included or any accessories sold by the manufacturer of the high chair for use with the specific high chair model being tested shall, when installed in a manufacturer's recommended use position in accordance with the manufacturer's instructions, comply with the requirements of this standard.

NOTE 3—Any accessory included with the high chair which per the manufacturer's instructions is for use only when the high chair is converted into another product, are exempt from the requirement in 5.4.

5.5 *Threaded Fasteners:*

5.5.1 *Wood Screws and Sheet Metal Screws:*

5.5.1.1 Wood screws and sheet metal screws shall not be used by the manufacturer in the assembly of key structural elements of a high chair or other components that must be removed by the consumer in the disassembly of a high chair or conversion to a different use mode per the manufacturer's instructions.

NOTE 4—Wood screws are permitted to be used as the primary fasteners or only fasteners when used to secure components or assemblies that are not key structural elements.

5.5.1.2 No high chair shall require consumer assembly of key structural elements using wood screws or sheet metal fasteners directly into wood components.

5.5.1.3 Factory assembly using wood screws on key structural elements is allowed if the wood screws are a second method of attachment or the wood screws include a lock washer, glue or other means to impede loosening or detachment.

5.5.1.4 Metal inserts, with external wood screw threads for screwing into a wood component and providing internal machine threads to accommodate a machine screw, that are used to secure key structural elements shall be glued or include other means to impede loosening or detaching.

5.5.2 Metal threaded fasteners, such as sheet metal screws and machine screws, secured into metal components and used to attach key structural elements shall have lock washers, self-locking nuts, or other means to impede loosening as defined in 6.10.1.5 or detachment during the testing required by this specification.

5.6 There shall be no hazardous sharp edges or points as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before or after testing in accordance with this consumer safety specification.

5.7 There shall be no small parts, as defined by 16 CFR 1501, before testing or liberated as a result of testing to this specification.

5.8 Before the application of any test methods, any exposed wood parts shall be smooth and free of splinters.

5.9 *Latching or Locking Mechanisms*—Any unit that folds shall have a latching or locking device or other provision in a design that will prevent the unit from unintentionally folding when properly placed in the manufacturer's recommended use position. During and upon completion of the testing in accordance with 7.1, the unit shall remain in its manufacturer's recommended use position. If a unit is designed with a latching or locking device, that device shall remain engaged and operative after testing.

5.10 *Labeling:*

5.10.1 Warning labels, whether paper or non-paper, shall be permanent when tested per 7.9.1 – 7.9.3.

5.10.2 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, etc. shall be permanent when tested per 7.9.4.

5.10.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.9.5.

5.11 *Openings*—Holes or slots that extend entirely through a wall section of any rigid material less than 0.375 in. (9.53 mm) thick and admit a 0.210 in. (5.33 mm) diameter rod shall also admit a 0.375 in. (9.53 mm) diameter rod. Holes or slots that are between 0.210 and 0.375 in. (5.33 and 9.53 mm) in diameter and have a wall thickness less than 0.375 in. (9.53 mm), but are limited in depth to 0.375 in. (9.53 mm) maximum

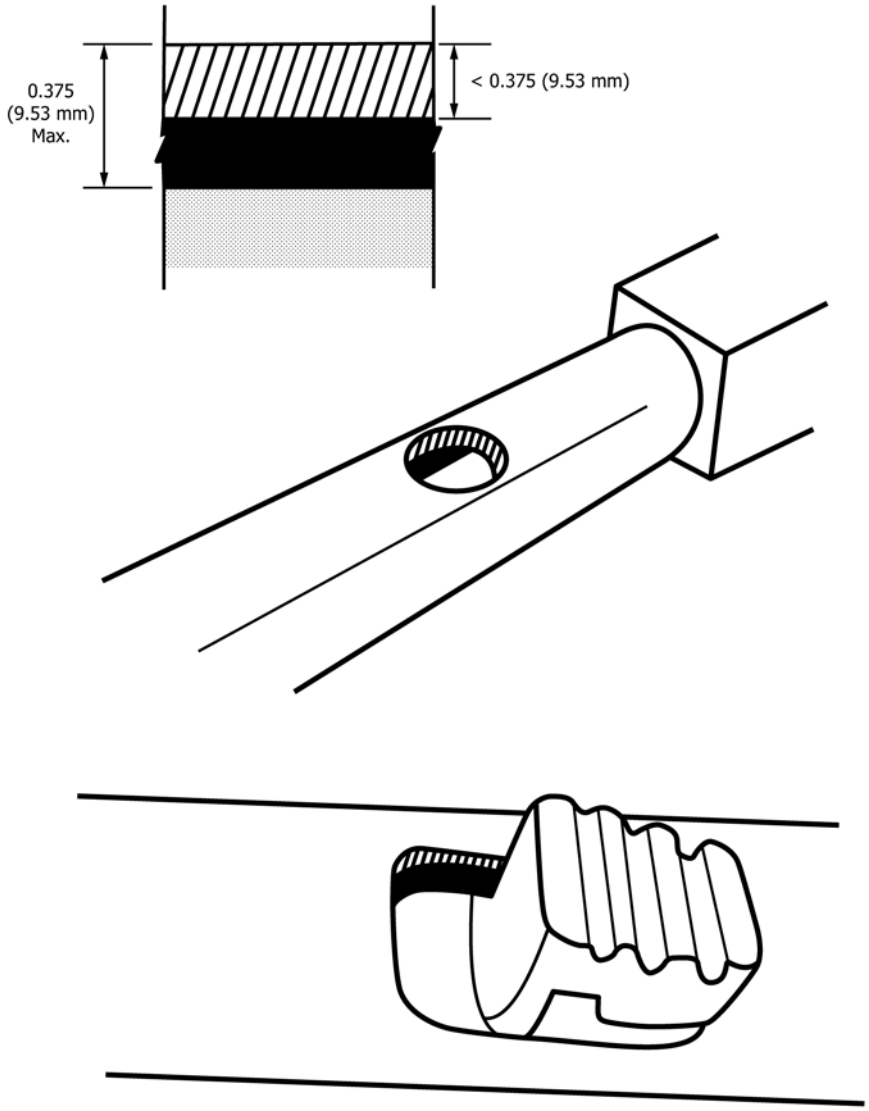


FIG. 3 Opening Example

by another rigid surface shall be permissible (see Fig. 3). The product shall be evaluated in all manufacturer's recommended use positions.

5.12 Toy components provided with or attached to the high chair shall comply with the requirements of Consumer Safety Specification F963.

5.13 All paints and surface coatings on the product shall comply with 16 CFR 1303.

5.14 Product must comply with the applicable requirements of the Consumer Product Safety Improvement Act (CPSIA).

6. Performance Requirements

NOTE 5—The loading in this section may be simplified by the use of a simple test frame that will permit the loads to be applied by dead weights operating over a ball bearing pulley through a rope. Vertical force tests are greatly aided with the use of an overhead pulley.

6.1 *Protective Components*—If the child can grasp protective components between the thumb and forefinger, or teeth, or if there is at least a 0.04 in. (1.0 mm) gap between the component and its adjacent parent component, such component shall not be removed when tested in accordance with 7.2. All protective components that are accessible to a child sitting in the high chair or accessible to a child from any position around the high chair shall be evaluated.

6.2 *Removable Tray or Front Torso Support Performance Integrity*—All removable trays and front torso supports shall remain functional with respect to the chair and exhibit no sharp points, sharp edges, or small parts when subjected to a drop test in accordance with 7.3. A tray or front torso support is considered removable if it can be removed from the high chair without the use of tools (for example, screw driver or wrench).

6.3 *Tray or Front Torso Support Performance – Pull Test*—The tray or front torso support shall not become disengaged or dislocated from its original adjustment position, when tested in accordance with 7.4 and 7.5. Components that do not function as a front torso support such as trays, tray inserts, or snack trays are exempt from this requirement.

6.4 *Static Load*—A chair shall support static loads without causing any hazardous conditions as identified within this consumer safety specification. Tests shall be conducted in accordance with 7.6.

6.5 *Stability:*

6.5.1 *Forward and Sideways Stability*—A high chair shall not tip over when setup as defined in 7.7.2.1 – 7.7.2.3, and then when forces are applied in accordance with 7.7.2.4 and 7.7.2.5.

6.5.2 *Rearward Stability*—When setup as defined in 7.7.2.1 – 7.7.2.3, and then tested in accordance with 7.7.2.6, the high chair shall have a Rearward Stability Index of 50 or more.

6.5.3 *Stability with Child Climbing into Chair*—A high chair shall not tip over when tested in accordance with 7.7.3.

6.6 *Exposed Coil Springs*—Any exposed coil spring which is accessible to the occupant, having or capable of generating a space between coils of 0.210 in. (5.3 mm) or greater during static load testing in accordance with 7.6 shall be covered or otherwise designed to prevent injury from entrapment.

6.7 *Scissoring, Shearing, and Pinching*—The high chair, when in the manufacturer's recommended use position(s), shall be designed and constructed so as to prevent injury to the occupant from any scissoring, shearing, or pinching when members or components rotate about a common axis or fastening point, slide, pivot, fold, or otherwise move relative to one another. Scissoring, shearing, or pinching that may cause injury exists when the edges of the rigid parts admit a probe greater than 0.210 in. (5.33 mm) and less than 0.375 in. (9.53 mm) in diameter at any accessible point throughout the range of motion of such parts.

NOTE 6—The requirement for scissoring, shearing, and pinching in 6.7 above does not apply to components of the high chair that either (*1*) can be adjusted, installed, or removed by the caregiver while the occupant is in the high chair or (*2*) do not move relative to one another when the high chair is in the manufacturer's recommended use position(s).

6.8 *Restraint System:*

6.8.1 A restraint system shall be provided to secure a child in the seated position in any of the manufacturer's recommended use positions.

6.8.1.1 The restraint system shall include both waist and crotch restraint designed such that the crotch restraint's use is mandatory when the restraint system is in use.

6.8.2 The restraint system and its closing means (for example, buckle) shall not break, separate, or permit removal of the CAMI test dummy from the high chair when tested in accordance with 7.8.

6.8.2.1 If during test in 7.8.5.1, the posterior of the test dummy is pulled past the front edge of the seat, the dummy shall be considered removed.

6.8.2.2 If during test in 7.8.5.3, the dummy with the force applied reaches a vertical position with the bottom of its feet touching or off the seat, the dummy shall be considered removed.

6.8.3 The waist restraint shall be capable of adjustment with a positive, self-locking mechanism that is capable, when locked, of withstanding the forces of tests in 7.8 without allowing restraint movement or slippage of more than 1 in. (25.4 mm).

6.8.4 A connecting means and adjustment means for the waist restraint shall be capable of usage independent of one another. The connecting means shall not be an adjustment means but may have one integrally attached to it.

6.8.5 The restraint system anchorages shall not separate from their attachment points when tested in accordance with 7.8.6.

6.8.6 Before shipment, the restraint system should be completely attached to the high chair in the location for use in at least one of the manufacturer's recommended use position(s) and in such a manner as to not become detached through normal use.

6.9 Completely bounded openings forward of the occupant shall comply with 6.9.1 and 6.9.2.

6.9.1 Completely Bounded Leg Openings forward of the occupant that include a Passive Crotch Restraint:

6.9.1.1 High chairs that have completely bounded leg openings forward of the occupant in any position shall also have a passive crotch restraint which complies with 6.9.1.2, 6.9.1.3, and 6.9.1.4 in all such positions.

6.9.1.2 There shall be no vertical gap between the passive crotch restraint and either the tray, front torso support, or seating surface that allows free passage of a 1.5-in. (38-mm) diameter by 3-in. (76-mm) long rod from one leg opening to the other.

6.9.1.3 Adjust the seat back to the most upright position and the passive crotch restraint to the position furthest from the seat back. The distance between the front surface of the noncompressed seat back and the passive crotch restraint shall be less than 8.5 in. (216 mm) when measured horizontally 2.0 in. (50 mm) above the lowest point on the noncompressed seating surface.

6.9.1.4 The leg openings on each side of the passive crotch restraint shall not allow complete passage of the wedge block when tested in accordance with 7.11.

NOTE 7—A passive crotch restraint does not meet the restraint system requirement of 6.8.1.1, which requires a crotch restraint as part of the restraint system.

6.9.1.5 A passive crotch restraint, except a flexible passive crotch restraint addressed in 6.9.1.5*(1)* or a passive crotch restraint per 6.9.1.5*(2)*, shall be permanently attached to the high chair or tray before shipment such that it cannot be removed without the use of a tool. Permanent attachment requires either attachment in a manufacturer's recommended use position or attachment to the high chair or tray, including attachment by a tether, in a manufacturer's recommended use position, that requires some repositioning or final assembly, or both, by the end user, and the assembly can be completed without removal of the tether. In the case of a tether, the total exposed length of flexible material when measured in accordance with 7.15 shall be less than 7.4 in. (188 mm).

(1) A flexible passive crotch restraint shall be permanently attached to the high chair in the manufacturer's recommended use position such that it cannot be removed without the use of a tool.

(2) A passive crotch restraint that comes with a high chair or sold separately as an accessory shall be exempt from the

assembly requirements in 6.9.1.5 if the tray and passive crotch restraint comply with both 6.9.1.5*(2)(a)* and 6.9.1.5*(2)(b)*.

(a) The passive crotch must be assembled to the chair in order to attach a tray to the high chair.

(b) The passive crotch restraint must be assembled to the high chair for the passive crotch restraint and tray to create completely bounded openings forward of the occupant.

6.9.2 Completely bounded openings forward of the occupant that do not include a passive crotch restraint:

6.9.2.1 Completely bounded openings between the tray and other structural elements that are located forward of the occupant shall not allow complete passage of the wedge block when tested in accordance with 7.11.

6.10 *Structural Integrity:*

6.10.1 During and upon completion of the testing in accordance with 7.10, the high chair shall comply with all of the following:

6.10.1.1 The high chair shall not exhibit an instantaneous change in the height of the occupant seating surface above the floor of more than 3 in. (75 mm) during one cycle of the weight drop. During and after a change in the height of the seating surface, the high chair must comply with the requirements for openings as defined in 6.6 and scissoring, shearing, and pinching as defined in 6.7.

6.10.1.2 There shall be no breakage of any structural component.

6.10.1.3 Latching or locking devices which prevent folding of the high chair shall remain engaged.

6.10.1.4 The angle of the occupant seating surface relative to the floor shall not change more than 10°.

6.10.1.5 After testing in accordance with the procedure in 7.10, threaded fasteners that are used for key structural elements shall not have separated by more than 0.04 in. (1.00 mm) upon completion of testing.

6.11 *Tray Latch Release Mechanisms:*

6.11.1 High chairs that have completely bounded leg openings in front of the occupant, on each side of a passive crotch restraint, when the tray is removed are exempt from the following tray latch release mechanism requirements.

6.11.2 Tray latch release mechanisms located on the front of the tray or forward of the occupant shall comply with 6.11.2.1 or 6.11.2.2 or 6.11.2.3. Tray latch release mechanisms which only allow for a change in adjustment position of the tray and do not allow the tray to be detached from any attachment point to the high chair and trays on high chairs with a front torso support are exempt from the requirements in this section.

6.11.2.1 Latch release surfaces on a tray latch release mechanism shall be inaccessible by the foot of the occupant as defined in Item 1 (below) or comply with Item 2.

(1) The bottom surface of the leg/foot probe assembly, Fig. 4, shall not contact any latch release surface on the tray latch release mechanism when tested per 7.12.1.

(2) If a latch release surface is contactable by the bottom of the foot on the leg/foot probe assembly, the angle between Plane “A” on the foot and Plane “B” at the lower end of the leg when tested per 7.12.2 shall be 30° or greater (see Fig. 5).

6.11.2.2 The direction to actuate the tray latch release mechanism must push toward the occupant.

6.11.2.3 The tray latch release mechanism is a double action release mechanism.

6.11.3 Tray latch release mechanisms located at the side of a tray shall comply with 6.11.3.1, 6.11.3.2, 6.11.3.3, or 6.11.3.4.

6.11.3.1 For single action tray latch release mechanisms, the tray shall not become detached from the high chair in any latching position when tested in accordance with 7.13. A change in the adjustment position of the tray is allowed provided that the tray cannot be detached from either side of the high chair.

6.11.3.2 Each tray latch release mechanism shall be a double action release mechanism. For purposes of this requirement, each tray latch release mechanism is to be considered independently.

6.11.3.3 Two or more tray latch release mechanisms are interdependent such that the tray cannot be fully released from either side of the high chair without actuating at least two tray latch release mechanisms. The interconnection must require either two consecutive actions, the first of which must be maintained while the second is carried out or two separate and independent actions that must be carried out simultaneously to fully release the tray. An attempt to actuate any one of the tray latch release mechanisms independently shall not allow either side of the tray to fully release from the high chair.

6.11.3.4 Tray latch release mechanism shall not be visible to the occupant and the direction of release mechanism must be no less than 85° from the direction of tray release or removal. Visibility is to be determined when the seat is in the upright position and tray is in any manufacturer’s use position. A tray latch release mechanism is considered not visible to the occupant if the latch is flush to or recessed back from the plane perpendicular to the outer edge of the tray in the area of the tray latch release mechanism.

6.12 *Side Containment*—Completely bounded openings in the surfaces that act as the sides of the seating area that are below the top surface of the tray and above the seat bottom surface shall not allow complete passage of the wedge block when tested in accordance with 7.14.

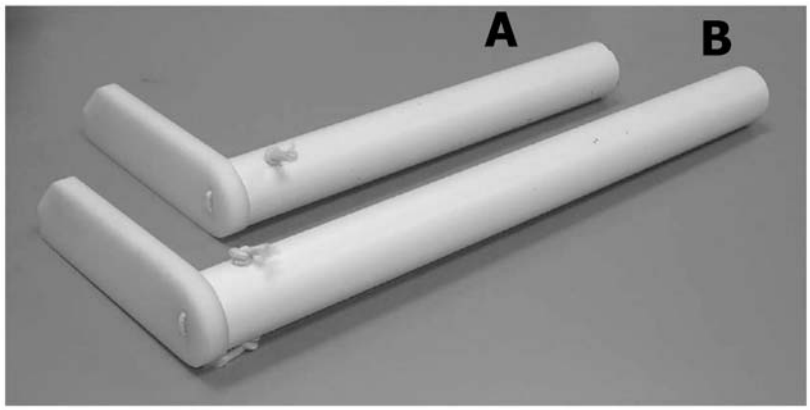
6.13 *Protrusions*—Each protrusion that is completely contained within the protrusion evaluation zone and on a surface that is angled out from the seating area between 20° and 30° from the vertical when in one of the manufacturer’s recommended use positions per 7.16 shall comply with either 6.13.1 or 6.13.2.

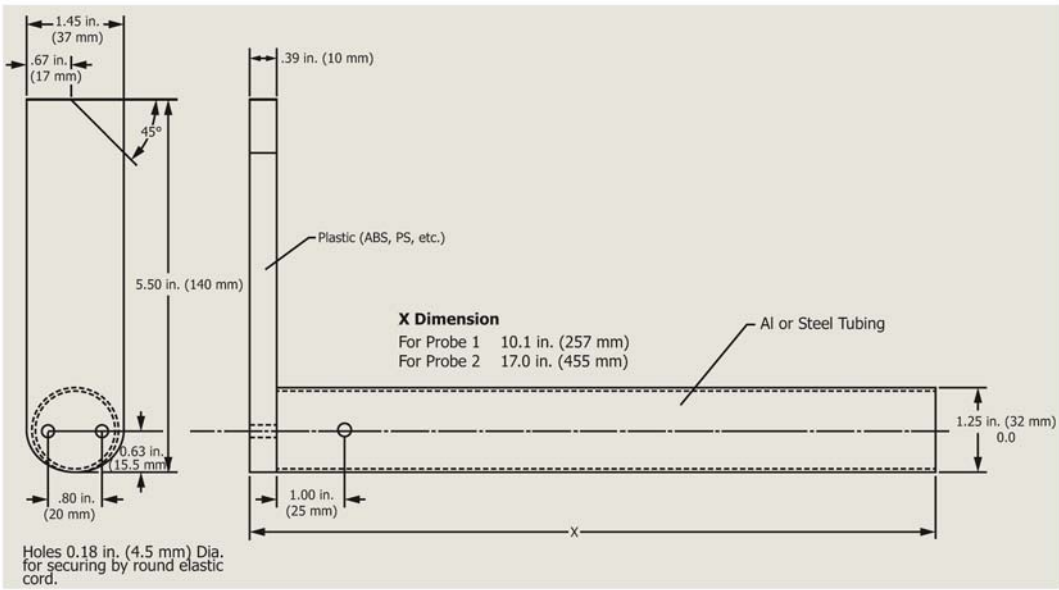
6.13.1 The protrusion shall not have an undercut below its top surface (for example, rivets, latch tabs, tray storage hooks).

6.13.2 A protrusion with an undercut below its top surface (for example, rivets, latch tabs, tray storage hooks) shall meet either 6.13.2.1 or 6.13.2.2.

6.13.2.1 The top corner of a protrusion shall not protrude farther than the thickness of the ring gauge (Fig. 6) when tested per 7.16, 7.16.1, and 7.16.3.

6.13.2.2 The top corner of a protrusion shall not be contactable by the protrusion accessibility gauge (Fig. 7) when tested per 7.16, 7.16.2, and 7.16.3.





NOTE 1—Leg/Foot Size Rationale:
Foot Breadth = 1.5 in. (37 mm) (6 to 8 month 95th percentile)
Foot Length = 5.5 in. (140 mm) (20 to 23 month 95th percentile)
Foot Height = 0.39 in. (10 mm)
Leg Length A (Rump to Sole) = 10.1 in. (257 mm) (6 to 8 month 5th percentile)
Leg Length B (Rump to Sole) = 17.9 in. (455 mm) (20 to 23 month 95th percentile)
Ankle Breadth = 1.22 in. (31 mm) (8 month 5th percentile – tube diameter)

NOTE 2—Foot dimensions are very close to the probe used in EN1930 (Template for Footholds) 1.4 by 4.7 by 0.39 in. (35 by 120 by 10 mm).

FIG. 4 Leg/Foot Probe

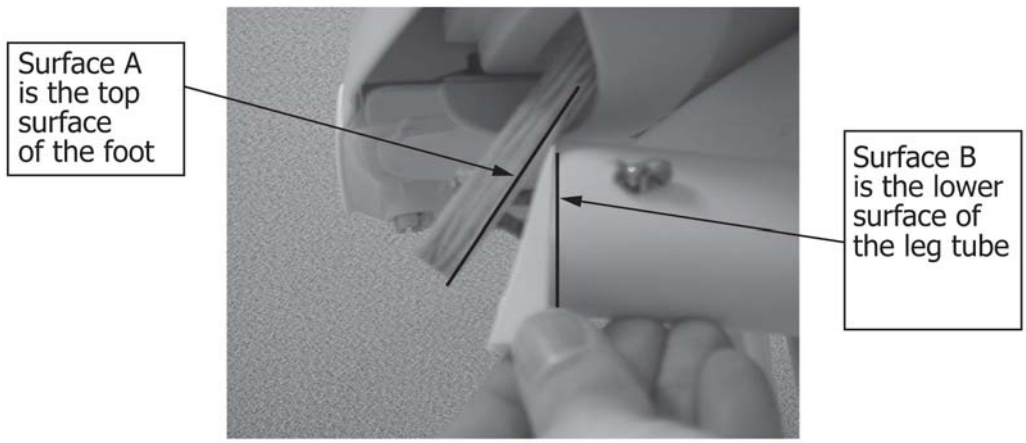


FIG. 5 30° Angle Block

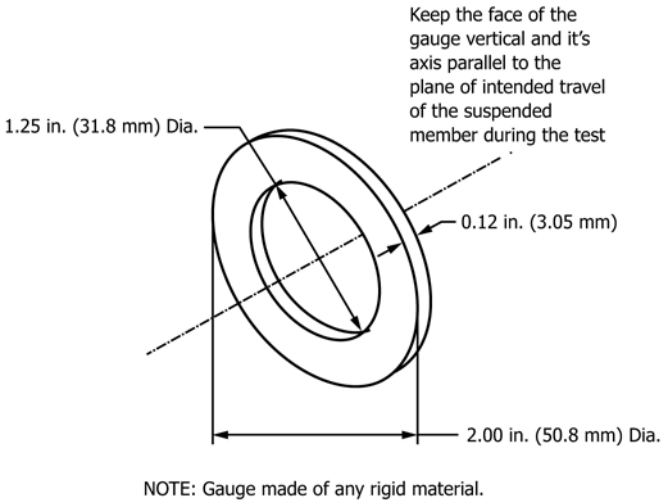


FIG. 6 Ring Gauge

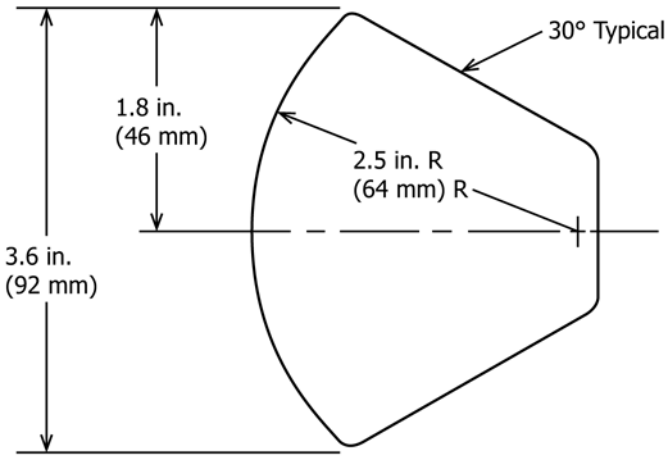


FIG. 7 Protrusion Accessibility Gauge

7. Test Methods

NOTE 8—All wood blocks are fabricated from 1 in. (25 mm) nominal thickness lumber having a finished thickness of ¾ in. (19 mm) unless otherwise specified.

7.1 *Locking Mechanisms:*

7.1.1 Erect the high chair in accordance with the manufacturer's instructions.

7.1.2 Secure the chair so that the normal folding motion is not impeded.

7.1.3 Apply a force of 45 lbf (200 N) to the high chair in the direction normally associated with folding the high chair. Apply the force on a 2 by 2-in. (50 by 50-mm) wood block at the location deemed the most likely to cause failure. Apply the force gradually over a 5 s period and maintain for an additional 10 s before releasing the force.

7.1.4 Perform this procedure five times within a 2 min period.

7.2 *Protective Components:*

7.2.1 Test all components in accordance with each of the following methods in the sequence listed.

7.2.2 Secure the high chair so that it cannot move during the performance of the following tests.

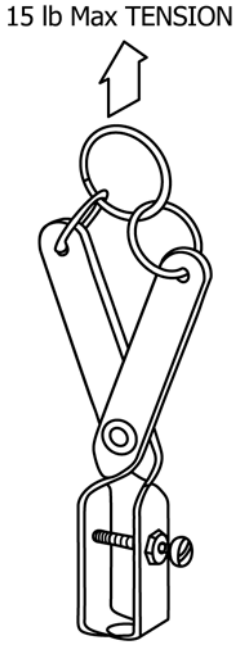


FIG. 8 Tension Test Adapter/Clamp

7.2.3 *Torque Test*—Apply a torque of 4 lbf·in. (0.5 N·m) gradually within a period of 5 s in a clockwise direction until a rotation of 180° from the original position has been attained or 4 lbf·in. (0.5 N·m) has been reached. Maintain the torque or maximum rotation for an additional 10 s. Then remove the torque and permit the test components to return to a relaxed condition. Then repeat this procedure in the counter clockwise direction.

7.2.4 *Tension Test:*

7.2.4.1 Attach a force gauge to the protective component by means of any suitable device. For components that cannot reasonably be expected to be grasped between thumb and forefinger, or teeth, on their outer diameter but have a gap of 0.04 in. (1.0 mm) or more between the rear surface of the component and the structural member of the high chair to which they are attached, a clamp such as shown in Fig. 8 may be a suitable device.

7.2.4.2 Be sure the attachment device does not compress or expand the component to hinder removal of the component.

7.2.4.3 Gradually apply a 15 lbf (67 N) force in the direction that would normally be associated with the removal of the component. Apply the force within 5 s and maintain for an additional 10 s.

7.3 *Tray or Front Torso Support – Drop Test*—From a height of 36 in. (900 mm) measured from the center point of the tray or front torso support, drop any removable tray and any removable front torso support on vinyl tile over concrete flooring once on each of four different surfaces, one surface of which shall include the attaching mechanism. Each removable tray and front torso support shall be tested separately and independently.

NOTE 9—For the purposes of this test only, the center point of the tray or front torso support coincides with the center of the smallest rectangle that circumscribes the component in the plane of the component.

7.4 *Tray or Front Torso Support Disengagement – Horizontal Pull Test:*

7.4.1 Perform this test on either the tray of a high chair without a front torso support or on the front torso support of a high chair. If the tray or front torso support is required to be tested in accordance with 6.2, perform this test on a tray or front torso support that has been tested in accordance with 7.3.

7.4.2 *Horizontal Pull Test (Front and Rear):*

7.4.2.1 Secure the chair in its normal standing position so that all legs have contact with the floor and so that it cannot move in the direction of the force being applied. For high chairs without a front torso support, attach the tray to the high chair and adjust into the manufacturer's recommended use position deemed most likely to fail. For high chairs with a front torso support, attach the front torso support to the high chair and adjust into the manufacturer's recommended use position deemed most likely to fail.

7.4.2.2 Attach a test device to the center front or back of the tray or front torso support in such a manner that the force will be exerted on a pad not exceeding 2 in. (51 mm) in any direction. For high chairs with a front torso support, remove the tray prior to performing this test. Other components such as tray inserts, or snack trays, should be removed prior to performing this test.

7.4.2.3 Gradually apply a horizontal force of 45 lbf (200 N) to the tray within a 5 s period and maintain for an additional 10 s.

7.4.2.4 Repeat this procedure four more times for a total of five applications in both front and rear directions for all adjustable tray positions.

7.4.3 *Horizontal Pull Test (Sides):*

7.4.3.1 Perform this test under the same conditions as in 7.4.2.1. Apply a horizontal force of 45 lbf (200 N) perpendicular to the center of a side of the tray or front torso support within 5 s and maintain for an additional 10 s. The tray or front torso support shall be placed in the manufacturer's recommended use position deemed most likely to cause failure.

7.4.3.2 Repeat this procedure four more times for a total of five applications on each side of the tray.

7.5 *Tray or Front Torso Support Disengagement – Vertical Pull Test*—Secure the chair in its normal standing position so that all legs have contact with the floor and so that it cannot move in the direction of force being applied. For high chairs without a front torso support, attach the tray to the high chair and adjust into the manufacturer's recommended use position deemed most likely to fail. For high chairs with a front torso support, attach the front torso support to the high chair and adjust into the manufacturer's recommended use position deemed most likely to fail. Other components that do not function as a front torso support, such as trays, tray inserts, or snack trays, should be removed prior to performing this test.

7.5.1 *Vertical Pull Test (Rear):*

7.5.1.1 Attach a test device to the rear center of the tray or front torso support in such a manner that the force will be exerted on a pad not exceeding 2 in. (51 mm) in any direction.

7.5.1.2 Gradually apply a vertically upward force of 45 lbf (200 N) at the rear of the tray within 5 s and maintain for an additional 10 s.

7.5.1.3 Repeat this procedure four more times for a total of five applications.

7.5.2 *Vertical Pull Test (Sides):*

7.5.2.1 For high chairs without a front torso support, attach the tray to the high chair. For high chairs with a front torso support, attach the front torso support to the high chair. Attach a test device to the side of the tray or front torso support at the center line of the locking mechanism, attachment point, or centered between the two attachment points that are spaced the farthest distance apart if more than one attachment point is used to secure the tray or front torso support on the side being tested in such a manner that the force will be exerted on a pad not exceeding 2 in. (51 mm) in any direction. Other components that do not function as a front torso support, such as trays, such as tray inserts, or snack trays, should be removed prior to performing this test.

7.5.2.2 Gradually apply a vertically upward force of 45 lbf (200 N) at the side of the tray within 5 s and maintain for an additional 10 s.

7.5.2.3 Repeat this procedure four more times for a total of five applications on each side of the tray.

7.6 *Static Load Testing:*

7.6.1 *Seat Static Load Test:*

7.6.1.1 Secure the chair in an upright position with all legs on the floor.

7.6.1.2 Place a 6 by 6-in. (150 by 150-mm) wood block on the center of the seat.

7.6.1.3 Gradually apply a static load of 100 lb (45 kg) on the wood block within a period of 5 s and maintain for an additional 60 s.

7.6.2 *Step/Footrest Static Load Test:*

7.6.2.1 Secure the chair in an upright position with all legs on the floor. If the step or footrest is adjustable, adjust it to the lowest position.

7.6.2.2 Place a 3 by 6-in. (75 by 150-mm) wood block on the center of the step or footrest.

7.6.2.3 Gradually apply a static load of 50 lb (22.7 kg) on the wood block within a period of 5 s and maintain for an additional 60 s.

7.6.3 *Tray Static Load Test:*

7.6.3.1 Secure the chair in an upright position with all legs on the floor. If the tray is adjustable, adjust it to the rear position, closest to the high chair seat back.

7.6.3.2 Place a 3 by 6-in. (75 by 150-mm) wood block at the center top surface of the tray.

7.6.3.3 Gradually apply a static load of 50 lb (22.7 kg) on the wood block within a period of 5 s and maintain for an additional 60 s.

7.7 *Stability Testing:*

7.7.1 *Test Equipment – Test Weight*—Steel weight 4 in. high by 2.5 in. wide by 7.2 in. long (102 by 64 by 183 mm). Drill holes into the top surface of the weight or cut the corners of the weight to adjust the mass of the weight to 20 lb (9.1 kg). Two weights required to conduct the test.

NOTE 10—Steel test weight size is defined to allow use of standard cold rolled steel ½ in. (13 mm) thick by 2.5 in. (64 mm) wide and cut to a length of 7.2 in. (183 mm). These cut plates are stacked 8 plates high to yield a total height of 4 in. (102 mm) and a total mass slightly over 20 lb

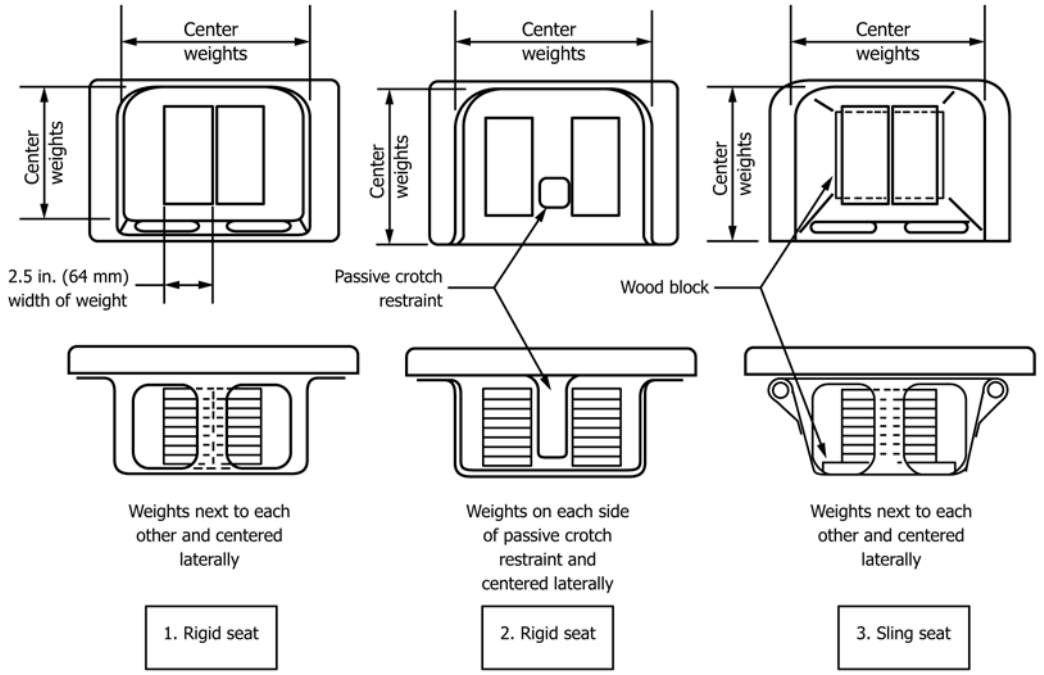


FIG. 9 Stability Test Weight Placement

(9.1 kg). The sizes specified allow some extra mass to allow for drilling holes for fine tuning the total mass to 20 lb.

7.7.2 *Stability with Child in Chair:*

7.7.2.1 Place the chair in a manufacturer's recommended use position with all legs on a level floor. For high chairs with a seat back that can be reclined, adjust the seat back into the most upright position. For high chairs with a seat back that is adjustable in the front to back direction on the high chair, adjust the seat back into the rearmost adjustment position. Attach the tray in the rear position, closest to the high chair seat back. For high chairs with height adjustable seats, in each test 7.7.2.4, 7.7.2.5, and 7.7.2.6, adjust the seat into the highest manufacturer's recommended use position or the position deemed most likely to fail. If a high chair has lockable wheels, those wheels shall be locked during stability testing.

7.7.2.2 Place the high chair on a rigid, horizontal test surface covered with 60 grit sandpaper or equivalent to prevent the chair from sliding on the test surface during the test. If a high chair slides on the test surface during the test or has wheels that do not lock, place a stop on the test surface to prevent sliding during the test. The stop shall be low profile, minimum height required to prevent sliding, and shall not inhibit the tipping of the high chair or affect the test results.

7.7.2.3 Center the test weights next to each other on the seat in both the front to back and lateral directions with the 2.5 in. dimension of the weight oriented horizontally as shown in Fig. 9-1. For high chairs where the test weights cannot be centered on the seating surface in the front to back direction as shown in Fig. 9-1, place the test weights as far rearward as possible so that they are in contact with the seat. For high chairs with a passive crotch restraint that prevents placing the two weights together at the center of the seat laterally, place one weight on each side of the passive crotch restraint such that they are equal distances from the center of the seat as shown in Fig. 9-2. Affix the test weights to the seat in such a manner that the weights will not move in relation to the seat. For non-rigid or conformable seat surfaces (for example, sling seats, foam seats), the weights shall be placed on a 6 by 6 by ¾ in. thick (150 by 150 by 19 mm thick) wood block to ensure uniform distribution of the weight as shown in Fig. 9-3.

NOTE 11—For contoured seats, a block of material which has negligible weight, such as EPS foam, may be used to stabilize the weights during the test.

7.7.2.4 *Forward Stability*—Apply a horizontal force of 18 lbf (80 N) at the center front edge of the tray at the uppermost surface of the tray or front torso support, if a tray is not provided. Apply the horizontal force perpendicular to the front plane of the high chair and in a direction that is outward from the center of the high chair. Gradually apply the force over a period of 5 s. For a high chair that does not include a tray or front torso support, conduct the forward stability test by applying the horizontal force on the outermost member at a height of 7¼ in. (184 mm) above the occupant seating surface.

7.7.2.5 *Sideways Stability*—Apply a horizontal force of 14 lbf (62 N) at the center of each arm of the high chair at the uppermost surface of the tray or arm, if a tray is not provided. Apply the horizontal force perpendicular to the side plane of the high chair and in a direction that is outward from the center of the high chair. Gradually apply the force over a period of 5 s. Conduct this test on both the left and right sides of the high chair. For a high chair that does not include a tray or arm, conduct the sideways stability test by applying the horizontal force on the outermost member at a height of 7¼ in. (184 mm) above the occupant seating surface.

7.7.2.6 *Rearward Stability:*

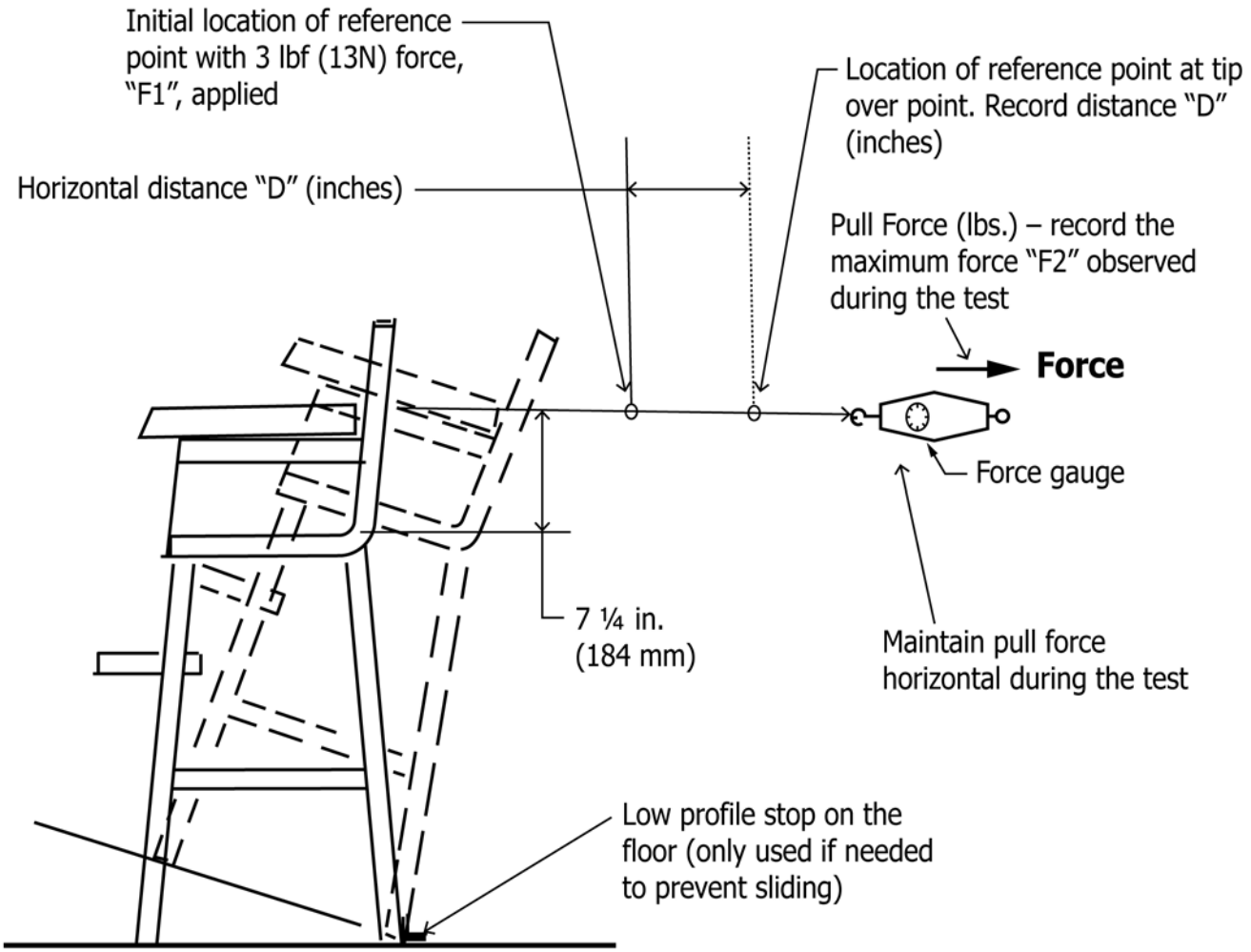


FIG. 10 Rearward Stability Test

(1) Attach a force gauge to the rear surface of the seat back or high chair frame such that the force is applied in line with the lateral centerline and 7¼ in. (184 mm) above the occupant seating surface as shown in Fig. 10. For high chairs with a seat back 7¼ in. (184 mm) high or less, attach the force gauge at the lateral centerline and top surface of the seat back.

NOTE 12—Any cord used to apply the force to the high chair in 7.7.2.6(*1*) shall be a low stretch cord such as a 7-strand military rope or parachute cord with a tensile strength of 550 lb.

(2) With the high chair in the at-rest position, gradually apply a preload force "F1" of 3 lbf (13 N) to the seat back surface of the high chair and while maintaining the force, establish the initial location of a reference point some distance away from the force gauge as shown in Fig. 10.

(3) Gradually increase the horizontal force over a period of at least 5 s and continue to pull the high chair rearward until the high chair reaches the point that it becomes unstable and begins to tip over. Record the maximum force "F2" in pounds (lb) applied during the test and also the horizontal distance "D" in inches (in.) from the initial location of the reference point selected in 7.7.2.6(*2*) to the location of the reference point where the high chair becomes unstable and begins to tip over. Force shall be maintained in a horizontal direction throughout the test.

(4) Calculate the Rearward Stability Index using the formula shown below:

$$\text{Rearward Stability Index} = 2*F2+D \quad (1)$$

NOTE 1—This CAMI Infant Dummy was constructed in accordance with the Department of Transportation Specification dated April 29, 1975.

FIG. 11 CAMI Infant Dummy—Mark II

where Force "F2" is measured in pounds (lb) and Distance "D" is measured in inches (in.).

7.7.3 *Stability with Child Climbing into Chair*—With the tray removed, extend the footrest to its furthermost forward adjustable position. Gradually apply a static load of 40 lbf (178 N) within 5 s at a position not to exceed 1 in. (25 mm) from the front edge of the footrest on a pad not exceeding 2 in. (51 mm) in any direction. If the chair has no footrest, gradually apply the static load of 40 lbf (178 N) to the forward most horizontal frame member.

7.8 *Restraint System Retention Test:*

7.8.1 Secure the high chair so it cannot move.

7.8.2 Place a restraint system test harness (see Fig. 12) on a CAMI Infant Dummy Mark II.[5] Position the horizontal belt just below the arms, and adjust the horizontal belt snugly around the torso.

7.8.3 Place a CAMI Infant Dummy with the restraint system test harness in place in the high chair seat.

7.8.4 Secure the CAMI Infant Dummy into the high chair in accordance with the manufacturer's instructions.

7.8.4.1 For active restraint systems (intended to exclude passive restraint systems designed such that they do not require adjustment by a caregiver) adjust the waist restraint, using the webbing tension pull device shown in Fig. 13, so that a force of 2 lbf (9 N) applied to the waist restraint will provide a ¼ in. (6 mm) space between the waist restraint and the CAMI Dummy.

7.8.5 Perform the following tests without readjusting the restraint system:

7.8.5.1 Apply a pull force of 45 lbf (200 N) horizontally on the approximate centerline of either leg of the dummy. Gradually apply the force within 5 s and maintain for an additional 10 s.

7.8.5.2 Repeat 7.8.5.1 four additional times, for a total of five force applications, with a maximum interval of 2 s between tests.

7.8.5.3 Apply a pull force that is 45 lbf (200 N) greater than the weight of the dummy vertically upwards in line with the approximate centerline of the dummy's torso. Gradually apply the force within 5 s and maintain for an additional 10 s.

7.8.5.4 Repeat 7.8.5.3 four additional times, for a total of five force applications, with a maximum interval of 2 s between tests.

7.8.6 *Restraining System Integrity Test Method:*

7.8.6.1 Secure the test model so that it cannot move vertically or horizontally.

7.8.6.2 Apply a force of 45 lb (200 N) to a single attachment point of the restraint system in the normal use direction(s) that stress would be applied to that attachment. Gradually apply the force within 5 s and maintain for an additional 10 s.

7.8.6.3 Repeat 7.8.6.2 for a total of five times with a maximum interval of 5 s between tests.

7.8.6.4 Repeat 7.8.6.2 and 7.8.6.3 for each attachment point of the restraint system and fastening device.

7.9 *Permanency of Labels and Warnings (see 5.10):*

7.9.1 A paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed, it tears into pieces upon removal, or such action damages the surface to which it is attached.

NOTE 13—Paper labels are exempt from the small parts requirements of 16 CFR 1501 because paper cannot be meaningfully tested.

7.9.2 A non-paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed or such action damages the surface to which it is attached.

7.9.3 A warning label attached by a seam shall be considered permanent if it does not detach when subjected to a 15 lbf (67 N) pull force applied in any direction most likely to cause failure using a ¾ in. (19 mm) diameter clamp surface. Apply the force evenly over 5 s and maintain for an additional 10 s.

7.9.4 *Adhesion Test for Warnings Applied Directly onto the Surface of the Product:*

7.9.4.1 Apply the tape test defined in Test Method B – Cross-Cut Tape Test of Test Methods D3359 eliminating parallel cuts.

7.9.4.2 Perform this test once in each different location where warnings are applied.

7.9.4.3 The warning statements will be considered permanent if the printing in the area tested is still legible and attached after being subjected to this test.

7.9.5 A non-paper label, during an attempt to remove it without the aid of tools or solvents, shall not be removed or shall not fit entirely within the small parts cylinder defined in 16 CFR 1501 if it can be removed.

[5] CAMI Infant Dummy Mark II (shown in Fig. 11) Department of Transportation, Federal Aviation Administration, April 29, 1974, and CAMI Infant Dummy, Drawing No. SA-1001, Memorandum Report AAC-119-74-14, Revision 11, by Richard F. Chandler, July 2, 1994.

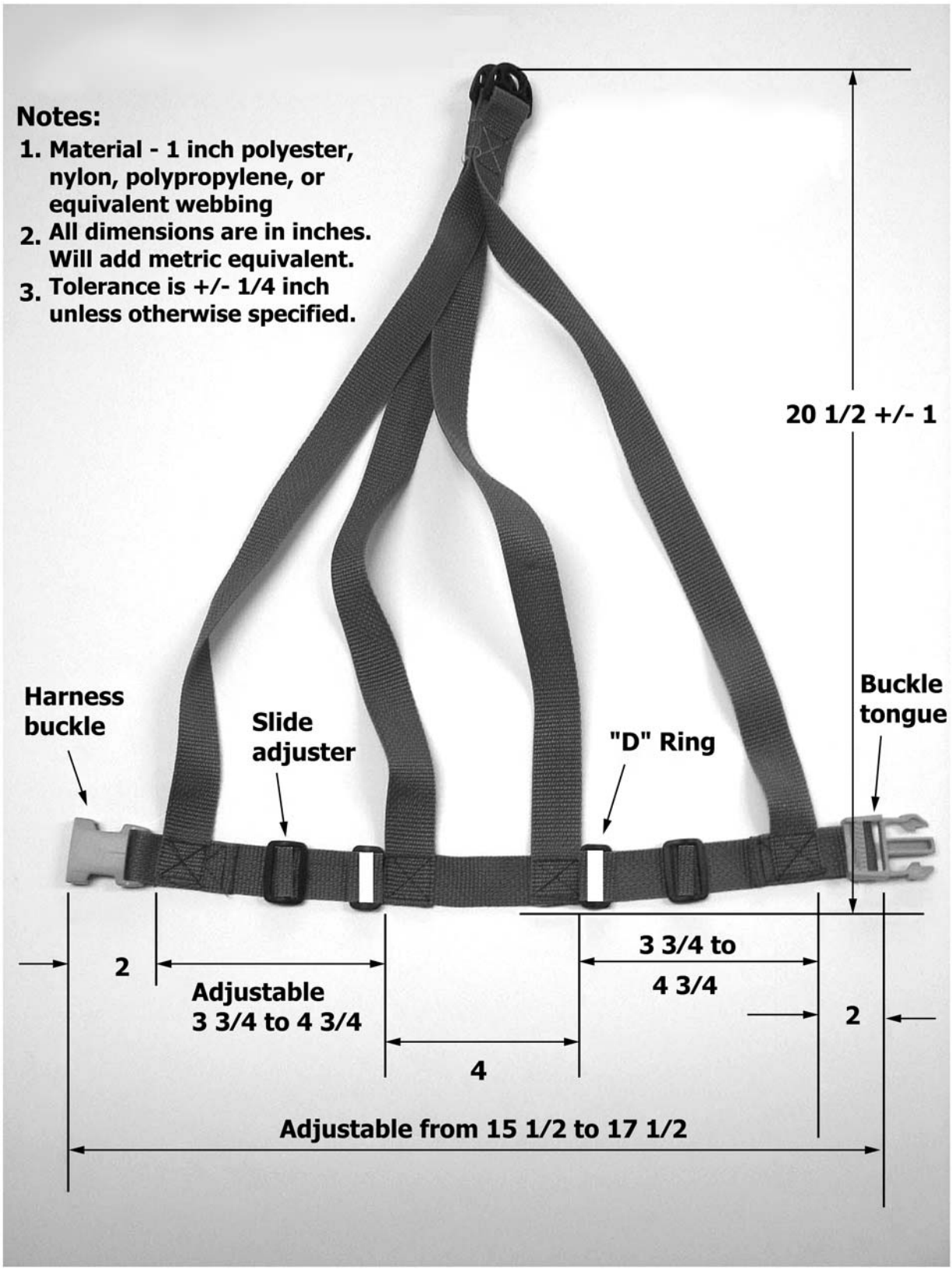
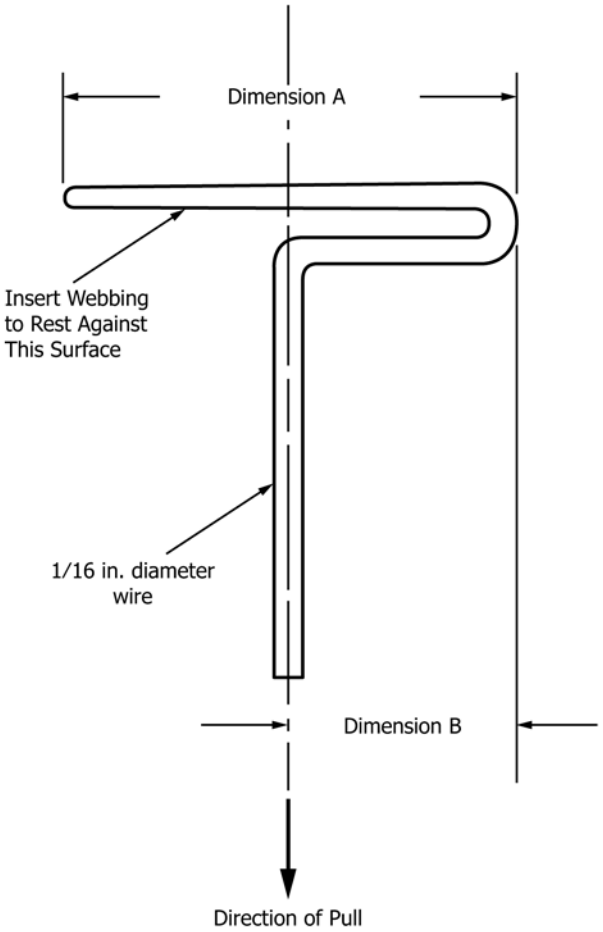


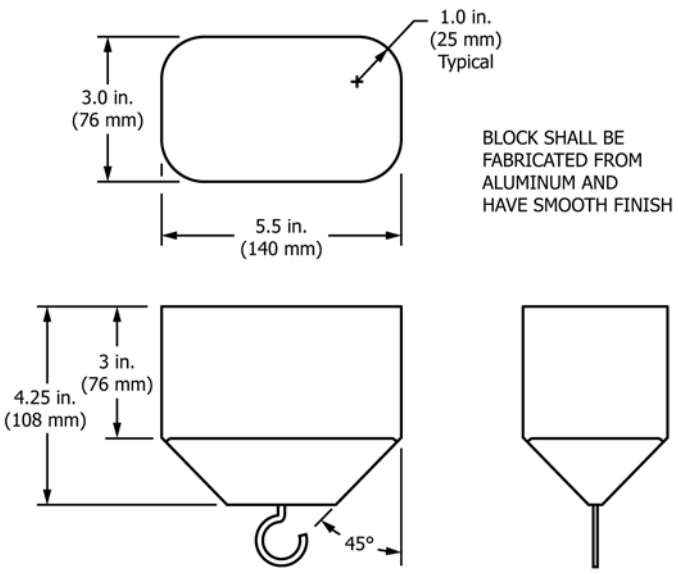
FIG. 12 Six-Month-Old CAMI Dummy Restraint System Test Harness

7.10 *Dynamic High Chair Test:*



NOTE 1—Dimension A—Width of webbing plus ¼ in.
NOTE 2—Dimension B—One half of Dimension A.

FIG. 13 Webbing Tension Pull Device



NOTE 1—Not to scale.

FIG. 14 Wedge Block

7.10.1 Set up high chair in accordance with manufacturer's instructions.

7.10.2 Position a 6 by 6-in. (150 by 150-mm) wood block in the center of the seat.

7.10.3 Perform a drop test using a 50-lb. (23-kg) bag drop weight of 6 to 8-in. (150 to 200-mm) diameter using steel shot as the mass in the bag. The bag will be dropped onto the wood block in the seat from a height of 3 in. (75 mm) above the wood block. The drop is to be repeated 500 cycles. The cycle time is to be 4 s/cycle, ±1 s. The drop height is to be adjusted to maintain the 3-in. (75-mm) drop height as is practical.

7.11 *Completely Bounded Openings:*

7.11.1 Secure the chair in its normal standing position so that it cannot move in the direction of the force being applied. Attach the tray in the position that creates the largest completely bounded openings.

7.11.2 Into each opening, insert the tapered end of the wedge block, shown in Fig. 14, in the most adverse orientation. Apply a 25 lbf (111 N) force perpendicular to the base of the wedge block. The force shall be applied gradually within 5 s and maintained for an additional 10 s.

7.11.3 Repeat this procedure with the tray removed if a completely bounded opening exists after the tray is removed.

7.12 *Tray Latch Release Mechanism – Accessibility:*

7.12.1 Evaluate each tray latch release mechanism with leg/foot probes A and B, in Fig. 4, the tray adjusted into the position most likely to fail, and without the seat pad if use without the seat pad is a manufacturer's recommended use position.

7.12.2 At a height of 2 in. above the non-compressed seat pad or bottom surface, position the non-foot end of the probe in any location within seating surface and attempt to make contact with the tray latch release mechanism with the foot end of the probe. If the bottom surface of the foot can contact a latch release surface on the tray latch release mechanism, verify that the angle between Plane "A" and Plane "B" is 30° or greater using 30° Angle Block (Fig. 5).

7.13 With the tray attached in the manufacturer's recommended use position, gradually apply a 15 lbf (67 N) force over 5 s to the release mechanism in the direction most likely to fail and maintain for 10 s.

7.13.1 Test each release mechanism in each tray adjustment position.

7.14 *Side Containment Openings:*

7.14.1 For high chairs with multiple use modes recommended by the manufacturer in the instructional literature or marketing materials, all use modes as a high chair shall be evaluated according to this section.

7.14.2 Set up high chair in accordance with the manufacturer's instructions. If the high chair has adjustment(s) that alter the size or shape of a side opening, adjust the high chair to the adjustment position in which the side opening is most likely to fail.

7.14.3 Secure the high chair so it cannot move in the direction of the force being applied.

7.14.4 Test each side opening by inserting the tapered end of the wedge block, shown in Fig. 14, in the most adverse orientation. Apply a 25 lbf (111 N) force perpendicular to the

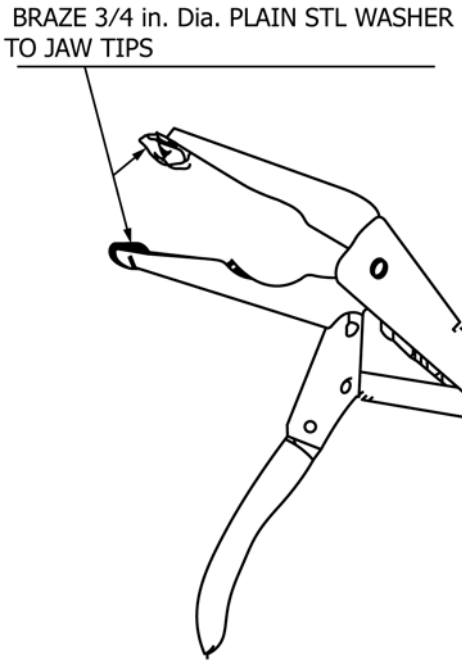


FIG. 15 Three-quarter-inch (¾-in. (19-mm)) Diameter Clamp

base of the wedge block. The force shall be applied gradually within 5 s and maintained for an additional 10 s.

7.14.5 For high chairs with a tray, repeat this procedure with the tray removed if a completely bounded opening exists after the tray is removed and removal of the tray changes the size or shape of the side opening.

7.15 *Tether Length Test Method*—Using a ¾-in. (19-mm) diameter clamping surface (Fig. 15) or appropriate clamping device, clamp onto the free end of the tethered crotch strap and gradually apply a 5-lbf (22-N) force. While maintaining the force, measure the length of the exposed tether between the edges or surfaces, or both, of the passive crotch restraint and the rigid component on the opposite end of the tether.

7.16 *Protrusion Evaluation*—Set up the high chair in one of the manufacturer's recommended use positions.

7.16.1 *Protrusion Size Test:*

7.16.1.1 With the protrusion centered in the ring gauge slide the ring gauge over the protrusion and check the height of the top corner.

7.16.1.2 In the case where a nearby part of the high chair prevents the ring gauge from fitting down over a protrusion during 7.16.1.1, measure the maximum width across the centerline at the top corner of the part. If the width is less than 1.25 in. (31.8 mm) the protrusion shall not exceed 0.12 in. (3 mm) above the adjacent surface or shall comply with 6.13.2.2.

7.16.2 *Protrusion Accessibility Test*—Place the protrusion accessibility gauge so that its edge contacts the top of the protrusion and the surface immediately above the protrusion as shown in Fig. 16. Determine if the top corner of each protrusion with an undercut can be contacted by the protrusion accessibility gauge.

7.16.3 Repeat the applicable protrusion evaluation in 7.16 in all manufacturer's recommended use positions.

8. Marking and Labeling

8.1 Each product and its retail package shall be marked or labeled clearly and legibly to indicate the following:

8.1.1 The name, place of business (city, state, and mailing address, including zip code), and telephone number of the manufacturer, distributor, or seller.

8.1.2 A code mark or other means that identifies the date (month and year as a minimum) of manufacture.

8.2 The marking and labeling on the product shall be permanent when tested per 7.9.

8.3 Any upholstery labeling required by law shall not be used to meet the requirements of this section.

8.4 *Warning Design for Product:*

8.4.1 The warnings shall be easy to read and understand and be in the English language at a minimum.

8.4.2 Any marking or labeling provided in addition to those required by this section shall not contradict or confuse the meaning of the required information, or be otherwise misleading to the consumer.

8.4.3 Each high chair shall be labeled with warning statements. The warning statements shall be permanent.

8.4.4 The warnings shall conform to ANSI Z535.4–2011, American National Standard for Product Safety Signs and Labels, sections 6.1–6.4, 7.2–7.6.3, and 8.1, with the following changes.

8.4.4.1 In sections 6.2.2, 7.3, 7.5, and 8.1.2, replace "should" with "shall."

8.4.4.2 In section 7.6.3, replace "should (when feasible)" with "shall."

8.4.4.3 Strike the word "safety" when used immediately before a color (for example, replace "safety white" with "white").

8.4.5 The Safety Alert Symbol ⚠ and the signal word "WARNING" shall be at least 0.2 in. (5 mm) high. The remainder of the text shall be in characters whose uppercase shall be at least 0.1 in. (2.5 mm) high.

NOTE 14—For improved warning readability, typefaces with large height-to-width ratios, which are commonly identified as "condensed," "compressed," "narrow," or similar should be avoided.

8.4.6 *Message Panel Text Layout:*

8.4.6.1 The text shall be left aligned, ragged right for all but one-line text messages, which can be left aligned or centered.

NOTE 15—Left aligned means that the text is aligned along the left margin, and, in the case of multiple columns of text, along the left side of each individual column. Please see Fig. X1.1 in Appendix X1 for examples of left aligned text.

8.4.6.2 The text in each column should be arranged in list or outline format, with precautionary (hazard avoidance) statements preceded by bullet points. Multiple precautionary statements shall be separated by bullet points if paragraph formatting is used.

8.4.7 An example in the format described in this section is shown in Fig. 17.

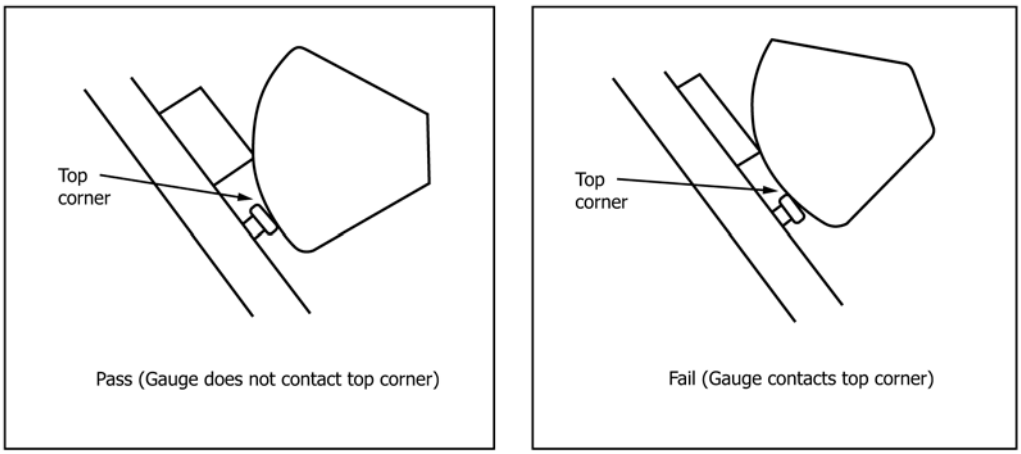


FIG. 16 Protrusion Accessibility Gauge: Pass/Fail

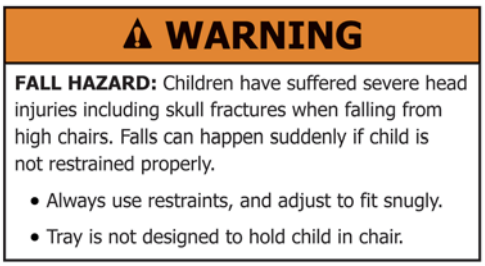


FIG. 17 Example – Warning Statement Text Layout

8.4.8 The warning statement in this section shall be in a location that is visible by the caregiver while placing the occupant into the high chair in each of the manufacturer's recommended use positions but not necessarily visible when the occupant is in the high chair.

8.4.8.1 High chairs that do not have a seating component that is also used as a seating component of a stroller shall include the following warning statement exactly as stated below:

"**FALL HAZARD:** Children have suffered severe head injuries including skull fractures when falling from high chairs. Falls can happen suddenly if child is not restrained properly.
• Always use restraints, and adjust to fit snugly."

8.4.8.2 High chairs that have a seating component that is also used as a seating component of a stroller shall use the warning statements as specified in 8.2.2.1 and 8.2.2.2 of the version of the standard that is incorporated by reference in 16 CFR Part 1227 Safety Standard for Carriages and Strollers, in place of the warning statements in 8.4.8.1.

8.4.8.3 For high chairs that are designed to be used with a tray, include the additional warning in this section:

• Tray is not designed to hold child in chair.

8.4.9 High chairs shall address the warning in this section and this warning shall be conspicuous:

8.4.9.1 • Stay near and watch child during use.

NOTE 16—Address means that verbiage other than what is shown can be used as long as the meaning is the same or information that is product-specific is presented.

9. Instructional Literature

9.1 Instructions must be provided with the high chair and shall be easy to read and understand. Assembly, maintenance cleaning, operating, folding instructions, and warnings, where applicable, must be included.

9.2 The instructions shall contain the applicable warnings for the high chair design as specified in 8.4.8.1 or 8.4.8.2. The instructions shall also include the warnings specified in 8.4.8.3 and 8.4.9.1. Additional warnings similar to the statements included in this section shall also be included. These required warnings shall meet the format requirements in 8.4.5 and 8.4.6.

9.2.1 A statement similar to the following, with each manufacturer substituting specific wording to describe their own restraining system:

⚠**WARNING:** The child should be secured in the high chair at all times by the restraining system. The tray is not designed to hold the child in the chair. It is recommended that the high chair be used only by children capable of sitting upright unassisted.

9.2.2 If the high chair has a reclining feature, a statement similar to the following shall be substituted for the warning in 9.2.1, with each manufacturer substituting specific wording to describe their own restraining system:

⚠**WARNING:** The child should be secured in the high chair at all times by the restraining system, either in the reclining or upright position. The tray is not designed to hold the child in

the chair. It is recommended that the high chair be used in the upright position only by children capable of sitting upright unassisted.

10. Keywords

10.1 booster chair; feeding chair; high chair; youth chair

APPENDIX

X1. RATIONALE

X1.1 Delete 1.3 and replace with the definition of 'high chair' being added to the terminology section.

X1.2 *Subsection 3.1.2*—Clarify that a label must be visible when an occupant is sitting in the high chair.

X1.3 *Subsection 3.1.2*—Revise the term to eliminate reference to a "label," to be consistent with Ad Hoc Wording changes and to be consistent with changes made to other standards. Edited to include "all" manufacturer's recommended use positions based on comment from August 2016 ballot.

X1.4 *Subsection 3.1.3*—Include definition for one type of latch design and the actuations that constitute double action.

X1.5 *Subsection 3.1.6*—New definition to define "front torso support."

X1.6 *Subsection 3.1.7*—Add new definition for 'high chair' that addresses the type of product and range of products that are covered by the standard. Key characteristics are that the products elevate the child and are intended for feeding or eating.

X1.7 *Subsection 3.1.10*—To define surfaces to be evaluated for potential tray release based on the ability of the occupant to apply force with a foot that should result in release of the tray latch and allow for angled surfaces that cannot be activated by the foot of an occupant.

X1.8 *Subsection 3.1.16*—Adopt standardized wording per Ad Hoc Working Task Group final changes dated May 3, 2016. The term "protective component" is used throughout the standard and consistently has this meaning. Moving this from 6.1 to the terminology section will increase clarity, especially with regard to the tests in 7.2 Protective Components. Existing definition in 6.1 modified and moved to this section. Proposed change received from Health Canada with some minor modifications.

X1.9 *Subsection 3.1.16 Discussion*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.10 *Subsection 3.1.17*—Add definition for protrusion used in the standard.

X1.11 *Subsection 3.1.18*—Revisions made to clarify definition.

X1.12 *Subsection 3.1.20*—To define the space to be considered as the seating surface.

X1.13 *Subsection 3.1.25*—Define term for use in the standard.

X1.14 *Subsection 5.4*—Expand the scope of the standard to include accessories made available by the manufacturer of the high chair and sold separately. Require that the high chair with any or all accessories installed in any of the manufacturer's recommended use positions comply with the standard.

X1.15 *Subsection 5.5*—Added section to address "Threaded Fasteners" as threaded fasteners have been involved in recalls associated with falls in high chairs. Other types of fasteners such as rivets and push in fasteners are not included.

X1.16 *Subsection 5.12*—Incorporate ASTM safety requirements into the requirements for high chair safety for toy accessories included with a high chair.

X1.17 *Subsection 5.14*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.18 *Subsection 6.1*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016. Proposed change received from Health Canada. Current wording in this section includes a definition and is in the Performance Requirements section. Revised to move the definition of "protective component" into the Terminology section 3.1.16.

X1.19 *Subsection 6.2*—Revise the requirement to broaden the standard to allow for newer high chair designs that have a component other than a tray (front torso support) such as a feeding tray or arm bar that provides the primary frontal support for the torso of the occupant and high chairs that provide a secondary feeding or snack tray that snaps into the main high chair tray. Move information limiting application of the requirement to trays that can be removed without the use of tools to this from 7.3.

X1.20 *Subsection 6.3*—Revise the requirement to broaden the standard to allow for newer high chair designs that have a component, other than a tray, such as a feeding tray or arm bar that provides the primary frontal support for the torso of the occupant and high chairs that provide a secondary feeding or snack tray that snaps into the main high chair tray.

X1.21 *Subsection 6.5.2*—The stability index has been developed based on a review of the requirements, the information available, and testing of various models of high chairs both those reported to be involved in rearward tip over incidents and those not reported in rearward stability incidents.

X1.22 *Subsection 6.5.3*—During the revision process for the changes in F404 – 16, to revise the stability testing section

and revise the rearward stability requirements, reference to testing for stability with a child climbing into the high chair in F404 – 15, Section 7.7.3 was inadvertently left out of the revisions to the standard. The proposed revision in this ballot is to add the performance requirement for the test in 7.7.3 back into the stability performance requirements on Section 6. This requirement is being added back in as a separate section from 6.5.1 for clarity and to avoid confusion as 6.5.1 now includes some specific setup sections that do not apply to the testing conducted in 7.7.3. No change has been made to the test requirement, pass/fail criteria, or test method.

X1.23 *Subsection 6.7*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016 and revised 7/21/16. Also revised based on additional review and comments from subcommittee members after the June 15th subcommittee meeting.

X1.24 *Subsection Note 6*—Add a note, similar to the note in JPMA Stroller Procedural Guide, to clarify that this evaluation is limited to when the high chair is in a manufacturer's recommended use position. Incorporate changes to clarify note as proposed by Paul Ware. At this time, the subcommittee is not aware of injuries which have resulted when a caregiver has made an adjustment to high chairs.

X1.25 *Subsection 6.8.5*—Added test requirement to evaluate the restraint system anchor points using a method similar the strollers and infant swings. Used the 45 lb force from the stroller standard as the high chair accommodated similar age occupants.

X1.26 *Subsection 6.8.6*—Clarify that the attachment points for securing both the waist and crotch restraint system to the high chair must be attached to the high chair before shipment so that no assembly is required on the part of the consumer for initial use of the high chair. Requiring assembly of restraint system attachment points, by the manufacturer before shipment of the product, provides the end user with a visible example of the correct assembly method for the attachment points as reference for reassembly after removal of the restraint system for activities such as cleaning or replacement.

X1.27 *Subsection 6.9*—Revise subsection to address all bounded openings forward of the occupant not just passive crotch restraint openings.

X1.28 *Subsection 6.9.1.2*—Revise to include the option for the front torso support.

X1.29 *Subsection 6.9.1.5*—Define options for attachment of the passive crotch restraint to the high chair before shipment to the end user. The passive crotch restraint must be permanently attached to the high chair or tray so that it is not misplaced, lost, or set aside by the end user. Include attachment requirements for passive crotch restraints made of rigid materials as well as passive crotch restraints made of flexible materials. Tether length allowed comes from Consumer Safety Specification F406.

X1.30 *Subsection 6.9.2*—Change "in front" to "forward"; correct "or" to "and"; delete "horizontal" as other structural elements that should be addressed may be at an angle and not horizontal.

X1.31 *Subsection 6.11*—Include various requirements for tray latches that are not design restrictive and allow for various latch designs that can be used to secure a tray to a high chair. Also exclude high chairs that have a passive crotch restraint independent of the tray and provide passive restraint when the tray is removed.

X1.32 *Subsection 6.11.1*—Incident reports indicate that falls occur when the passive restraint is an integral part of the tray. When the occupant removes the tray there is no longer a passive restraint to help prevent the child from falling out of the high chair. High chairs that have a completely bounded opening in front of the occupant with the tray removed do not expose the occupant to a potential fall from sliding out of the high chair. Thus these designs are exempt from the tray latching requirements.

X1.33 *Subsection 6.11.2*:

X1.33.1 Provide for tray latch designs that are on the bottom surface of the tray, in front of the occupant, and that are either inaccessible or cannot be actuated by the occupant of the high chair.

X1.33.2 Add an exemption for tray latch release mechanisms that do not allow removal of the tray from either side. A tray may have an adjustment mechanism on one or both sides and it is intended that the tray shall not release from any attachment point. There was a high chair that was in the market several years ago that had a sliding adjustment on one side of the tray and an adjustment mechanism on the opposite side of the tray, so it is appropriate to include "shall not release from any attachment point" of the tray. Revised wording to be consistent with wording in 6.11.1.

X1.34 *Subsection 6.11.2.1 (No. 2)*—The movement of 30° is based on "The Analysis of Ankle Kinematics and Foot Contact Patterns Following the Onset of Walking in Normal Children." Data in report states 23 to 25°. Also, data in "The Handbook of Measurements and Capabilities of the Older Adult" states a mean of 20 for 55 to 60-year-old males and 20.7 for the same-aged females. Using this data and adding in approximately 10° for the movement of the toe.

X1.35 *Subsection 6.11.3*—Provide for tray latch designs that are either activated by application of a single force or multiple actions.

X1.36 *Subsection 6.12*—Apply current limit for bounded openings in front of the occupant (6.9.1.4) to openings in the side surfaces of the seating area. Add this requirement to address a potential entrapment hazard when the restraint system is not in use and the child is left unattended.

X1.37 *Subsection 6.13*—Define a locations and size that will address the types of components that have been involved in fall incidents.

X1.37.1 *Subsection 6.13.1*—Allow for protrusions that have no undercut below the top surface as protrusions without

undercuts were not involved in reported incidents. Limit the requirement for protrusions to protrusions with undercuts.

X1.37.2 *Subsection 6.13.2*—Focus on protrusions with undercuts as that is the type of design that was subject to the recalls for fall injures.

X1.37.2.1 *Subsection 6.13.2.2*—Provide for a design where the top edge of a protrusion is not contactable by the head of a child falling onto the high chair. The 2.5 inch radius is based on the anthropomorphic measurement data for the head width and length of a 12 month-old 50th percentile child.

X1.38 *Subsection 7.2.4.1*—Adopt standardized wording from Ad Hoc Wording Task Group revised September 8, 2015. Proposed change received from Health Canada. Removed specific examples that are not needed with definition for "protective component" added in the terminology section 3.1 above.

X1.39 *Subsection 7.3*—Revise to include front torso supports that are removable without tools. Move information about excluding trays that require tools to remove to 6.2.

X1.40 *Note 9*—Revise to include front torso support. Revise reference to 7.3 to 6.2 as this is a more appropriate way to reference the intended requirement.

X1.41 *Subsection 7.4*—Revise section title to add "front torso support" and clarify test purpose.

X1.42 *Subsection 7.4.1*—Modify to require the test is applied to the component that is providing the primary support for the front of the occupant's torso and exclude other components from this requirement.

X1.43 *Subsection 7.4.2.1*—Limit testing of the tray to those that provide the primary support for the front of the child's torso.

X1.44 *Subsection 7.4.2.2*—Revise wording to apply horizontal pull test to only the component that provides the primary support surface to restrain the front of the occupant's torso and exempt other components that are placed in front of the occupant and are not designed to restrain forward movement of the child's torso from this test. Front torso supports should be tested without any tray or tray insert in place that could provide support.

X1.45 *Subsection 7.4.2.4*—Proposed change received from Health Canada. Make consistent with 7.8.5.2.

X1.46 *Subsection 7.4.3.1*—Revise wording to apply horizontal pull test to either the trays that functions as a front torso support and to front torso supports.

X1.47 *Subsection 7.4.3.2*—Proposed change received from Health Canada. Make consistent with 7.8.5.2.

X1.48 *Subsection 7.5*—Revise wording to apply vertical pull test to either the tray or front torso support that provides the primary support to restrain the front of the occupant's torso.

X1.49 *Subsection 7.5.1.1*—Revise wording to apply vertical pull test to either the tray or front torso support that provides the primary support surface to restrain the front of the occupant's torso.

X1.50 *Subsection 7.5.1.3*—Proposed change received from Health Canada. Make consistent with 7.8.5.2.

X1.51 *Subsection 7.5.2.1*—Revise wording to apply vertical pull test to either the tray or front torso support that provides the primary support to restrain the front of the occupant's torso. Add requirements if two or more attachment points are used to secure the tray or front torso support.

X1.52 *Subsection 7.5.2.3*—Proposed change received from Health Canada. Make consistent with 7.8.5.2.

X1.53 *Subsection 7.7*:

X1.53.1 The dimensions or type of the test weights to be used are not currently defined in the standard; defining the test weights will ensure repeatability and consistency in performing the test.

X1.53.2 Change from a single 40 lb weight to two 20 lb weights to maintain the current "centered" position of the weight in the seat. To accommodate a passive crotch restraint that may prevent placing the test weight in the center of the seat both front to back and laterally, the weight was split into two weights of 20 lb each so a weight can be placed on each side of the passive crotch restraint.

X1.53.3 Size of 4 in. high by 2.5 in. wide by 7.2 in. long as defined to allow use of standard cold rolled steel ½ in. thick by 2.5 in. wide and cut to a length of 7.2 in. These cut plates are stacked 8 plates high to yield a total height of 4 in. and a total mass slightly over 20 lb. The sizes specified allows some extra mass to allow for drilling holes or chamfering the corners to fine tune the total mass.

X1.53.4 *Subsection 7.7.2.1:*

X1.53.4.1 Revise to clarify that the high chair is in a "manufacturer's recommended use position" and to clarify that "an upright position" refers to the adjustment of the seat back.

X1.53.4.2 Revise to address high chairs that are height adjustable and test in the worst case adjustment position.

X1.53.4.3 Added note to lock wheels per suggestion from CPSC.

X1.53.4.4 Modify requirement to include a seat back that is adjustable from the front to back of the high chair. An adjustable seat back may not allow centering the test weight on the seating surface as required in the test method. Clarify that if the seat back of the high chair is adjustable in the front to back direction, that the seat back should be adjusted into the rearmost adjustment position when conducting the stability test. This is appropriate as this allows centering the test weight on the seating surface as required by the standard, most high chairs do not have a forward adjustment position, the testing is done with a 40 lb weight simulating the largest child using the high chair which would also be using the seat back adjusted into the rearward most adjustment position, and all testing

conducted in the development of the stability index was conducted with the test weight centered on the seating surface.

X1.53.5 *Subsection 7.7.2.2*—Suggested change from CPSC to test on sand paper and if a stop is used, it is a low profile such that it does not affect the tip over results. In their testing, CPSC noted variation caused by the 1 in. tall angle used as the stop. Adopted the test surface specified in the ASTM Carriage and Stroller standard for the braking test and the low profile suggestion from CPSC.

X1.53.6 Added the directions of testing in 7.7.2.4 through 7.7.2.6 to provide clarity.

X1.53.7 *Subsection 7.7.2.3*—Based on testing experience, it has been noted that the seating surface length on some high chairs may not be of sufficient length to allow centering the test weight on the seating surface in the front to back direction. Requirement is being revised to address such high chair designs and specify that if the test weight cannot be centered on the seating surface then the test weights are to be placed on the seating surface as far rearward as possible so that they are contacting the seat back.

X1.53.8 *Subsection 7.7.2.4:*

X1.53.8.1 Add an alternative for testing a high chair without a tray or arm similar which was previously in a separate section which was deleted (was 7.7.2.7 in F404 – 15).

X1.53.9 *Subsection 7.7.2.5:*

X1.53.9.1 Add an alternative for testing a high chair without a tray or arm similar which was previously in a separate section which was deleted (was section 7.7.2.7 in F404 – 15).

X1.53.9.2 Add a dimension estimated to be the height of the uppermost surface of the tray above the seating surface. Add to provide consistency and repeatability in the test.

X1.53.10 *Subsection 7.7.2.6(1):*

X1.53.10.1 Revise test method to adopt a test method similar to the stability test in the ASTM walker standard F977 based on feedback received at the subcommittee meeting on May 6, 2015. This approach allows for one common test method for all high chair designs such as high chairs with or without a tray and high chairs with or without armrests. Add an alternative for testing a high chair without a tray or arm similar which was previously in a separate section which was deleted (was section 7.7.2.7 in F404 – 15).

X1.53.10.2 Change from a location defined as the "uppermost surface of the tray" to 7¼ in. (184 mm) so the same location is used for all high chairs and to define the location for testing high chairs without a tray.

X1.53.10.3 Add requirements for high chairs with a low seat back, less than 7¼ in. high, where the force application is to be at the upper surface of the seat back as that is the highest point a force can be applied to the back of the high chair by the occupant.

X1.53.10.4 Added "or high chair frame such that the force is applied in line with" to accommodate high chairs with sewn sling seats, allowing the cord to be attached to the frame at the sides of the seat.

X1.53.11 *Note 11*—Add note similar to the walker standard to identify need to use a low stretch cord and provide generic information for reference on one type of cord that could be used.

X1.53.12 *Subsection 7.7.2.6(2):*

X1.53.12.1 Define a location for the initial reference point that is not on the force gauge as the movement of the force gauge shaft could introduce an error into the measurement.

X1.53.12.2 Adopt the pretension force of 3 lbf from the ASTM Walker Standard F977.

X1.53.13 *Subsection 7.7.2.6(3):*

X1.53.13.1 Measure the maximum force required to tip the high chair rearward and distance that the high chair moves rearward before it becomes unstable and tips over. Use these measurement to calculate the stability index.

X1.53.13.2 Added minimum time over which to apply the force as CPSC found applying the load quickly could introduce variability into the measurement readings.

X1.53.14 *Subsection 7.7.2.6(4):*

X1.53.14.1 Define the method for calculating the rearward stability index.

X1.53.14.2 This stability index was developed based on information and testing of the model high chair involved in incidents and testing of a number of other high chairs not reported in any tip over incidents.

X1.53.14.3 The formula for calculating the stability index uses two times the force and only one times the distance as the task group found that the force was an important factor and wanted to weight the calculation heavier on the force. This also provided a benefit in that it provided a wider gap between the high chair involved in tip over incidents and other high chairs not reported in tip over incidents.

X1.54 *Subsection 7.8.6*—Add test method for conducting structural integrity test on harness system anchorages. Taken from Consumer Safety Performance Specification F833.

X1.55 *Subsection 7.14*—New section for test methods for side openings.

X1.56 *Subsection 7.14.1*—Recognize that there are high chair designs with an upright seating position and a reclined infant position. Some designs provide for a high chair use and a lower height child's chair use mode. Specify that the side opening requirement applies to all high chair use modes and exclude lower height use mode such as a child's chair.

X1.57 *Subsection 7.14.2*—Define set-up and adjustment for testing. Recognize that some adjustments may affect the opening size or shape and the compliance with this section. Require adjustment into the position most likely to fail.

X1.58 *Subsection 7.14.3*—Secure the high chair to withstand application of the force during the test.

X1.59 *Subsection 7.14.4*—Adopt test method from the leg opening in front of the occupant, 7.11.2, but modify wording for the force application from "perpendicular to the plane of the opening" to state "perpendicular to the base of the wedge

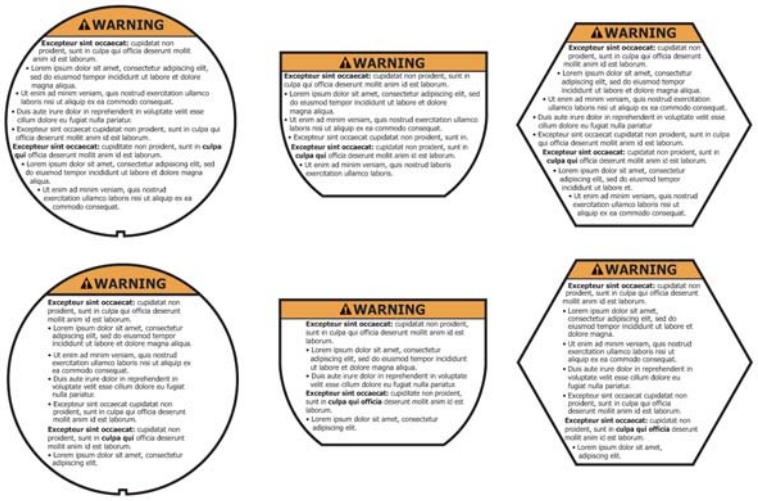


FIG. X1.1 Examples of Left Aligned Text

block" based on test experience and make like Consumer Safety Performance Specification F833.

X1.60 *Subsection 7.14.5*—Address the potential for use of the high chair without the tray and address designs where the tray may affect the size or shape of the opening.

X1.61 *Subsection 7.16*—New section to allow addition of test with Protrusion Accessibility Gauge.

X1.62 *Subsection 8*—Add new heading per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.63 *Subsection 8.1*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.64 *Subsection 8.1.1*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.65 *Subsection 8.1.2*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.66 *Subsection 8.2*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016. Added reference to 7.9 for performance requirements.

X1.67 *Subsection 8.3*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.68 *Subsection 8.4*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.69 *Subsection 8.4.1*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016. Consistent with CPSC NPR.

X1.70 *Subsection 8.4.2*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.71 *Subsection 8.4.3 (was 8.4)*—Add requirement for certain warnings to be visible when placing the child in the high chair by the caregiver performing the action as opposed to a bystander. Added alternative for a seat that is used as part of a high chair and a stroller to allow compliance with both standards.

X1.72 *Subsection 8.4.3*—Adopt wording per Ad Hoc Wording Task Group final changes dated May 3, 2016 with change to delete "conspicuous and" as the term conspicuous has been moved to 8.4.9.

X1.73 *Subsection 8.4.4*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.74 *Subsection 8.4.4.1*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.75 *Subsection 8.4.4.2*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.76 *Subsection 8.4.4.3*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.77 *Subsection 8.4.5*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016 without the words "except where otherwise specified" as there are no other text height requirements in this standard.

X1.78 *Subsection Note 14*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.79 *Subsection 8.4.6*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.80 *Subsection Note 15*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.81 *Subsection 8.4.6.2*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.82 *Subsection 8.4.7*—Adopt standardized wording per Ad Hoc Wording Task Group final changes dated May 3, 2016.

X1.83 *Subsection 8.4.8.1*—Adopt modified version of change from CPSC NPR published November 9, 2015. Delete

the signal word "Warning" in this section as the signal word is required in 8.2.4.

X1.84 *Subsection 8.4.8.2*—Adopt proposed wording from CPSC NPR published November 9, 2015.

X1.85 *Subsection 8.4.8.3*—Provide for high chairs that do not include a tray. Require for both high chair seating components not used as a seating component of a stroller and for seating components that are used as a seating component of a stroller. Revised based on CPSC negative from August 2016 ballot and direction from subcommittee during meeting on 10/27/16.

X1.86 *Subsection 8.4.9*—Revise wording to be consistent with Ad Hoc wording.

X1.87 *Subsection 8.4.9.1*—Delete the statement and add the new statement based on CPSC negative from August 2016 ballot and direction from subcommittee during meeting on 10/27/16.

X1.88 *Subsection Note 16*—Revised based on the Ad Hoc Wording document, Revision A, dated October 17, 2016.

X1.89 *Subsection 9.2*—Include this editorial change to eliminate repeating of warning statements in multiple sections thus avoiding potential for errors or variations between statements specified.

X1.90 *Subsection 9.2*—Adopt proposed wording from CPSC NPR published November 9, 2015 with revisions for clarification and to adjust the Ad Hoc Changes. Clarify that the warning statements in the instruction manual must be designed per 8.4.4 and 8.4.5 and the layout must be per 8.4.6 based on Ad Hoc changes to the labeling section. Propose to delete "and if color is used, those colors must meet the color requirements specified in section 8.4" to allow using a shade of the colors used to print the instruction manual which would meet the "highly contrasting" color requirement for the header background color such as a gray which is a percentage or shade of black. Revised based on CPSC negative from August 2016 ballot and direction from subcommittee during meeting on 10/27/16.

X1.91 *Rationale for Dimensions and Force Applied*—Per the 1975 SAE Anthropometry of U.S. Infants and Children, the 5th percentile 5 to 6 month old's buttocks depth is 3.0 in. (actually reported as 2.99 in.). Per the 1977 University of Michigan Anthropometry of Infants, Children, and Youths, the 5th percentile 6 to 8 month old's hip breadth is 5.5 in.

X1.92 *Other non-critical dimensions taken from the Toddler Wedge Block (Fig. 14)*—Per the 1975 SAE Anthropometry of U.S. Infants and Children, the 95th percentile 4 to 6 month old weighs 18.7 lb. The 95th percentile 31 to 36 month old weighs 36.6 lb. It didn't seem appropriate to use the smallest, 18.7 lbf (because children older than 4 to 6 months are involved in accidents), or the largest, 36.6 lbf (because openings are sized for only a 6 month old, and 36.6 lb represents a 36 month old). I chose 25 lb, which represents a 95th percentile 10 to 12 month old's weight (23.6 lb) rounded up.