This document is not an ASTM standard and is intended only to provide the user of an ASTM standard an indication of what changes have been made to the previous version. Because it may not be technically possible to adequately depict all changes accurately, ASTM recommends that users consult prior editions as appropriate. In all cases only the current version of the standard as published by ASTM is to be considered the official document.

Designation: ~~F3317 – 18a~~ F3317 – 20

Standard Consumer Safety Specification for Infant Floor Seats[1]

This standard is issued under the fixed designation F3317; 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 incidents associated with Infant Floor Seats that were identified by the US CPSC including injuries as a result of falls and tip-overs from both elevated and floor level surfaces. This specification does not cover infant floor seats that were either blatantly misused or used in a careless manner with disregard to the warning statements and safety instructions provided with each product. This specification is written within the current state-of-the-art of infant floor seat technology. It is intended that this specification will be updated whenever substantive information becomes available that necessitates additional requirements or justifies the revision of the existing requirements.

1. Scope

1.1 This consumer safety specification covers the performance requirements and methods of test to ensure the satisfactory performance of infant floor seats.

1.2 This consumer safety specification is intended to minimize injuries to children resulting from normal usage and reasonably foreseeable misuse or abuse of infant floor seats. This consumer safety specification is not intended to address accidents and injuries resulting from the interaction of older children with children in infant floor seats.

1.3 For purposes of this consumer safety specification, an infant floor seat is a seat which is placed on the floor that is intended to contain a child who can hold his/her head up unassisted (approximately 4 months of age) until the child can either walk (approximately 12 months of age) or get in and out of the product by themselves. An infant floor seat may include a tray, toys, or a restraint system. This consumer safety specification does not include pillow-like infant positioners that are generally constructed from fabric and stuffing for the purposes of positioning or lounging and do not have an active or passive restraint.

1.4 No infant floor seat 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.

1.5 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.

1.6 The following precautionary caveat pertains only to the test method 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *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

[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 Highchairs, Hook-On Chairs and Expandable Gates.

Current edition approved ~~Nov. 1, 2018~~June 15, 2020. Published ~~January 2019~~June 2020. Originally approved in 2018. Last previous edition approved in 2018 as ~~F3317 – 18~~F3317 – 18a.~~ε1~~. DOI: ~~10.1520/F3317-18A.~~10.1520/F3317-20.

[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.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States

F404 Consumer Safety Specification for High Chairs
F963 Consumer Safety Specification for Toy Safety
F2167 Consumer Safety Specification for Infant Bouncer Seats
2.2 *Federal Regulations:*[3]
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
16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint
Consumer Product Safety Improvement Act
2.3 *ANSI Standards:*
ANSI Z535.4 American National Standard for Product Safety Signs and Labels[4]
ANSI Z535.6 American National Standard for Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials[4]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *conspicuous, adj*—visible, when the product is in the manufacturer's recommended use position, to a person positioned near the infant floor seat at any one position around the seat but not necessarily from all positions.

3.1.2 *double action release system, n*—a mechanism requiring either two consecutive actions, the first of which must be maintained while the second is carried out, or two separate and independent simultaneous actions to fully release.

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

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

3.1.5 *manufacturer's recommended use position, n*—any position that is presented as a normal, allowable, or acceptable configuration for the use of the product by the manufacturer in any descriptive or instructional literature.

3.1.5.1 *Discussion*—

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ASTM F3317-20
https://standards.iteh.ai/catalog/standards/sist/22bb73d9-bed7-46f5-a055-2ce8dc5185eb/astm-f3317-20

This specifically excludes positions that the manufacturer shows in a like manner in its literature to be unacceptable, unsafe, or not recommended.

3.1.6 *nonpaper label, n*—any label material, such as plastic or metal, which either will not tear without the aid of tools or tears leaving a sharply defined edge.

3.1.7 *occupant, n*—individual who is in a product that is set up in any of the manufacturer's recommended use positions.

3.1.8 *paper label, n*—any label material which tears without the aid of tools and leaves a fibrous edge.

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

3.1.9.1 *Discussion*—

Examples of protective components include caps, sleeves, and plugs.

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

3.1.11 *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.

3.1.12 *static load, n*—vertically downward load applied by weights or others means.

3.1.13 *test surface, n*—impregnated high-pressure laminate of unspecified color with a smooth matte finish.

[3] Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, http://www.access.gpo.gov.
[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

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 covering, unless test instructs differently.

4.2 The product 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 ambient temperature of ~~73~~73 °F ± ~~9°F (23~~9 °F (23 °C ± ~~5°C)~~5 °C) for at least 1 h prior to testing. Testing shall then be conducted within this temperature range.

4.5 All testing required by this consumer safety specification shall be conducted on the same unit.

5. General Requirements

5.1 There shall be no hazardous sharp points or edges as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before or after testing to this specification.

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

5.3 Product shall comply with 16 CFR 1303 – Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint.

5.4 Product must comply with the applicable requirements of the Consumer Product Safety Improvement Act.

5.5 Prior to testing, any exposed wood parts shall be smooth and free from splinters.

5.6 *Latching or Locking Mechanisms*—If a product is designed with a latching or locking device that prevents unintentional folding, the product shall meet either 5.6.1 or 5.6.2. The latching or locking device shall remain engaged and operative after all testing.

5.6.1 The latching or locking device shall be a double action release mechanism.

5.6.2 The latching or locking device shall not release and shall remain operative when tested in accordance with 7.2.

5.7 *Scissoring, Shearing, and Pinching*—The product, when in the manufacturer's recommended use position(s), shall be designed and constructed 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) diameter at any accessible point throughout the range of motion of such parts.

5.8 *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 in. and 0.375 in. (5.33 mm and 9.53 mm) 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 by another rigid surface shall be permissible (see Fig. 1). The product shall be evaluated in all manufacturer's recommended use positions.

5.9 *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. (5.33 mm) or greater during static load testing in accordance with 7.4 shall be covered or otherwise designed to prevent injury from entrapment.

5.10 *Protective Components*—If the child can grasp components between the thumb and forefinger, or teeth, or if there is at least 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 7.1. All protective components that are accessible to a child in the product or accessible to a child from any position around the product shall be evaluated.

5.11 *Labeling:*

5.11.1 Warning labels (whether paper or non-paper) shall be permanent when tested in accordance with 7.8.1 – 7.8.3.

5.11.2 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, etc. shall be permanent when tested in accordance with 7.8.4.

5.11.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.8.5.

5.12 *Toys*—Toy accessories attached to, removable from, or sold with an infant floor seat, as well as their means of attachment, shall comply with the applicable requirements of Standard Consumer Safety Specification for Toy Safety F963.

5.13 If the infant floor seat can be converted into another product for which a consumer safety specification exists, the product shall comply with the applicable requirements of that standard.

6. Performance Requirements

6.1 ~~*Stability – Forward, Sideward, and Rearward—*~~*Stability:* ~~The infant floor seat shall not tip over when tested in accordance with 7.3.~~

6.1.1 Products which include an active restraint system shall not tip over when tested in accordance with 7.3.1.

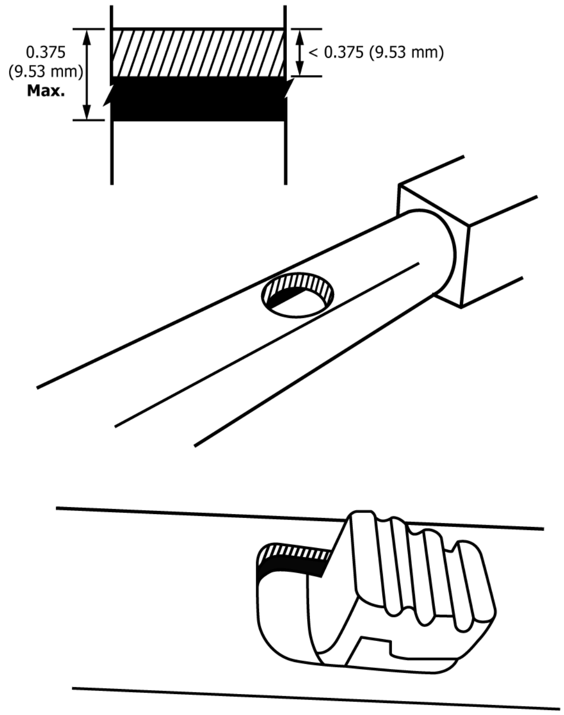


FIG. 1 Opening Example

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ASTM F3317-20
https://standards.iteh.ai/catalog/standards/sist/22bb73d9-be17-46d5-a055-2ee8cc5185cb/astm-f3317-20

6.1.2 Products which do not include an active restraint system shall not tip over when tested in accordance with 7.3.2.

6.2 *Structural Integrity*—At test conclusion there shall be no failure of seams, breakage of materials, or changes of adjustments that could cause the product to not fully support the child or create a hazardous condition as defined in Section 5.

6.2.1 *Static Load*—The infant floor seat shall support a static load in accordance with 7.4 and not create any failures as listed in 6.2.

6.2.2 *Dynamic Load*—The infant floor seat shall support a dynamic load in accordance with 7.5 and not create any failures as listed in 6.2.

6.3 ~~*Occupant Retention*—~~*Restraint*—The infant floor seat shall have a means of containing the occupant within the ~~product that~~ product. If the product includes an active occupant restraint system, the restraint system shall comply with ~~either~~the ~~6.3.1 or~~ following:~~6.3.2.~~

6.3.1 The restraint system shall include both waist and crotch restraint designed such that the use of the crotch restraint is mandatory when the restraint system is in use.

6.3.2 The anchorages for the restraint system shall not separate from their attachment points when tested in accordance with 7.6.

6.3.3 ~~The product shall include an active occupant restraint system that complies with the following.~~Before shipment, the restraint system shall be completely attached to the seat in a manufacturer's recommended use position and in such a manner as to not become detached through normal use.

~~6.3.1.1 The restraint system shall include both waist and crotch restraint designed such that the use of the crotch restraint is mandatory when the restraint system is in use.~~

~~6.3.1.2 The anchorages for the restraint system shall not separate from their attachment points when tested in accordance with 7.6.~~

~~6.3.1.3 Before shipment, the restraint system shall be completely attached to the seat in a manufacturer's recommended use position and in such a manner as to not become detached through normal use.~~

~~6.3.2 The Infant Hinged Weight Gage (Fig. 2) shall be retained in the seat when tested in accordance with 7.9.~~

6.4 *Bounded Openings*—Any completely bounded opening that exists in the front, sides, or back of the occupant seating area, or that is created when a tray, front torso support, or other accessory is attached to the product, shall not allow complete passage of the wedge block when tested in accordance with 7.7. During testing in accordance with 7.7, the tray, front torso support, or other accessory that creates all or any part of the bounded opening shall remain functional and shall not exhibit breakage.

7. Test Methods

7.1 *Removal of Protective Components:*

7.1.1 Any protective component shall be tested in accordance with each of the following methods in the sequence listed.

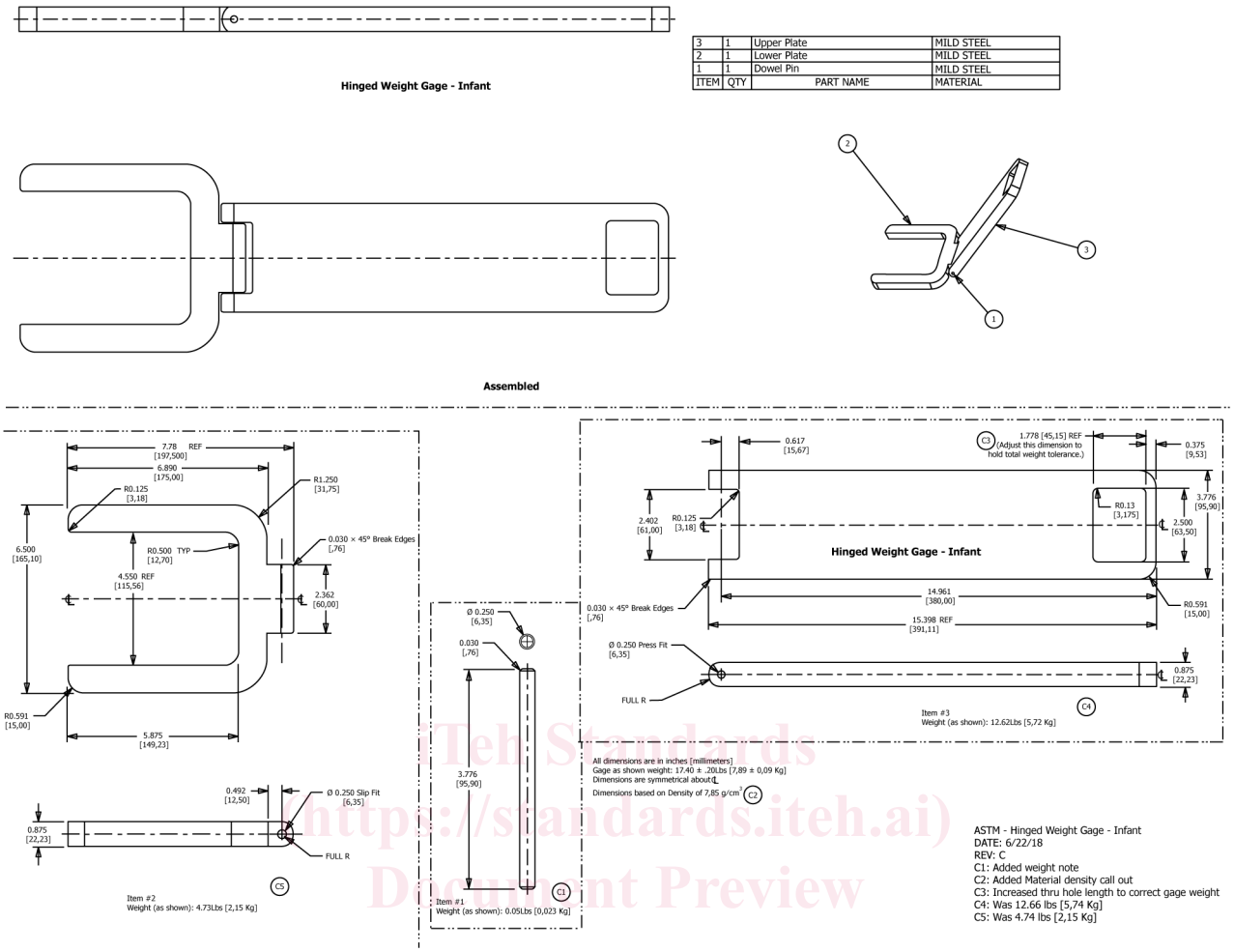


FIG. 23 Hinged Weight ~~Gage – Infant~~Gauge – Infant

iTeh Standards (https://standards.iteh.ai) Document Preview
ASTM F3317-20
https://standards.iteh.ai/catalog/standards/sist/22bb73d9-bed7-46f5-a055-2ce8dc5185eb/astm-f3317-20

7.1.2 Secure the product so that it cannot move during the performance of the following tests.

7.1.3 *Torque Test*—Gradually apply a torque of 4 lbf-in. ~~(0.5 N-m)~~ (0.5 N-m) over a period of 5 s to the component 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 exceeded. The torque or maximum rotation shall be maintained for an additional 10 s. The torque shall then be removed and the test components permitted to return to a relaxed condition. This procedure shall then be repeated in the counter-clockwise direction.

7.1.4 *Tension Test:*

7.1.4.1 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 product to which they are attached, a clamp such as shown in Fig. ~~32~~ may be a suitable device.

7.1.4.2 Be sure the attachment device does not compress or expand the component hindering any possible removal.

7.1.4.3 Gradually apply a force of 15 lbf (67 N) over a period of 5 s in the direction that would normally be associated with the removal of the protective component. Hold for an additional 10 s.

7.2 *Single Action Release Mechanism:*

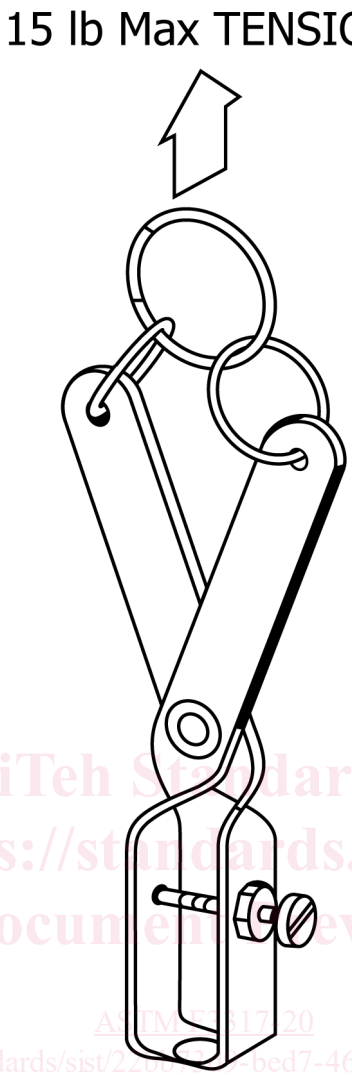
7.2.1 Set up the product in the manufacturer's recommended use position.

7.2.2 If the mechanism requires a pull or push action, gradually apply a force of 10 lbf (45 N) to the latching or locking mechanism in the direction tending to release it. Apply the force within 5 s and maintain for an additional 10 s.

7.2.3 If the mechanism requires a twist or turn action, gradually apply a torque of 4 lbf-in. (0.5 N-m) to the latching or locking mechanism in the direction tending to release it. Apply the torque within 5 s and maintain for an additional ~~10 s.~~10 s.

7.3 *Stability Test:*

7.3.1 Place the Infant Hinged Weight ~~Gage~~Gauge (Fig. ~~23~~) in the infant floor seat with the restraint ~~system, if included,~~ system fastened in accordance with the manufacturer's instructions. Adjust the waist restraint, using the webbing tension pull device



iTeh Standards
(https://standards.iteh.ai)
Document Preview
ASTM F3317-20
https://standards.iteh.ai/catalog/standards/sist/22bd...-6ed7-46f5-a055-2ce8dc5185eb/astm-f3317-20

FIG. 32 Tension Test Adapter/Clamp

shown in Fig. 4, 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 Infant Hinged Weight ~~Gage.~~Gauge.

7.3.1.1 Assemble any positioning accessories (that is, inserts, pads, headrest), front torso support, or tray, or combinations thereof, in the most onerous configuration in accordance with the manufacturer's instructions, noting that the most onerous configuration may be without any accessories, tray, or front torso support.

7.3.1.2 Position the infant floor seat in the most onerous, forward, sideward, or rearward position on the test surface inclined at 20°. The most onerous position could be a position in between the true sideward and rearward or forward positions. If necessary, 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 floor seat or affect the test results.

7.3.1.3 Maintain for 1 min.

~~7.3.2 Assemble any positioning accessories (that is, inserts, pads, headrest), front torso support, or tray, or combinations thereof, in the most onerous configuration in accordance with the manufacturer's instructions, noting that the most onerous configuration may be without any accessories, tray, or front torso support.~~

~~7.3.3 Position the infant floor seat in the most onerous, forward, sideward, or rearward position on the test surface inclined at 20°. The most onerous position could be a position in between the true sideward and rearward or forward positions. If necessary, prevent the product from sliding but do not prevent it from tipping.~~

7.3.2 ~~Maintain for 1 min.~~Place the Infant Hinged Weight Gauge (Fig. 3) in the infant floor seat with the hinge located at the lowest point of the seating area.

NOTE 1—Material that has negligible weight, such as EPS (expanded polystyrene) foam, may be used to position and stabilize the hinged weight during the test.

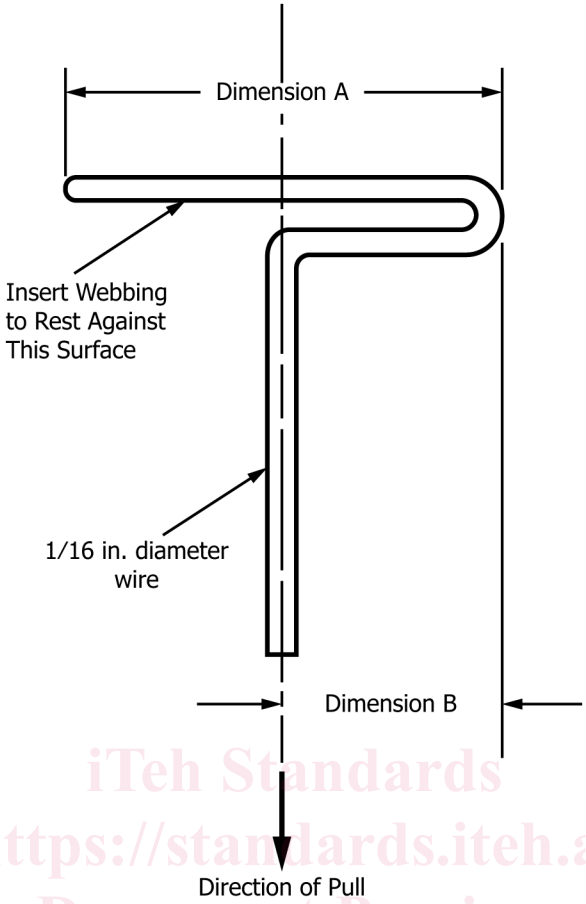


FIG. 4 Webbing Tension Pull Device

iTeh Standards
(https://standards.iteh.ai)
Document Preview

7.3.2.1 Assemble any positioning accessories (that is, inserts, pads, headrest), front torso support, or tray, or combinations thereof, in the most onerous configuration in accordance with the manufacturer's instructions, noting that the most onerous configuration may be without any accessories, tray, or front torso support. 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 floor seat or affect the test results.

7.3.2.2 Position the infant floor seat in the rearward position on the test surface inclined at 35° against the stop. Maintain for 1 min.

7.3.2.3 Position the infant floor seat in the most onerous forward and sideward position on the test surface inclined at 20°. Maintain for 1 min.

7.4 *Static Load Test:*

7.4.1 Place product on the test surface in a horizontal orientation per the manufacturer's instructions.

7.4.2 Place a load on the center of the seating surface using a 66 in. to 8 in. (150 mm to 200 mm) diameter bag filled with steel shot which has a total weight of 60 lb (27.3 kg) or three times the maximum weight of the child recommended by the manufacturer, whichever is greater. Additional weight(s), if needed to obtain the proper load, may be stacked on the weight bag, but ensure that the total weight is applied in a vertical orientation to the seating surface. Gradually apply the load over a period of 5 s and maintain for an additional 60 s.

NOTE 2—If the product has multiple use modes, determine the proper load using only the recommended weight for the floor seat use mode.

7.5 *Dynamic Load Test:*

7.5.1 Place product on the test surface in a horizontal orientation per the manufacturer's instructions, so it cannot move during the performance of the following tests.

7.5.2 If seat height is adjustable, set seat at the highest setting in accordance with manufacturer's instructions.

7.5.3 Using a 6 to 8-in. (150 to 200 mm) diameter bag filled with steel shot that has a total weight of 40 lb (18 kg), drop the bag onto the center of the seating surface from a height of 1 in. (25 mm). The drop is to be repeated for a total of 100 cycles. The cycle time is to be 4 s/cycle, ±1 s. The drop height is to be adjusted to maintain the 1 in. (25 mm) drop height as is practical.

7.6 *Restraint System:*