



Designation: F 2167 – 01

Standard Consumer Safety Specification for Infant Bouncer Seats¹

This standard is issued under the fixed designation F 2167; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

This consumer safety specification is intended to mitigate potential safety hazards associated with a child's use of an infant bouncer seat and thereby minimize the risk of injury or death. The specific hazards addressed by this standard are product disassembly/collapse, stability, and falls from elevated surfaces.

1. Scope

1.1 This consumer safety specification covers establishment of requirements, test methods, and marking requirements to promote safe use of an infant bouncer seat by an occupant and a caregiver.

1.2 For purposes of this consumer safety specification, an infant bouncer seat is a freestanding product intended to support an occupant in a reclined position to facilitate bouncing by the occupant, with the aid of a caregiver or by other means. Intended occupants are infants who have not developed the ability to sit up unassisted (approximately 0 to 6 months of age).

1.3 This consumer safety specification is intended to minimize the risk of injury to an occupant resulting from normal use and reasonably foreseeable misuse or abuse of an infant bouncer seat.

1.4 No infant bouncer 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 This consumer safety specification is not intended to address incidents and injuries resulting from the interaction of other persons with the occupant in an infant bouncer seat or the incidents resulting from abuse or misuse by other children.

1.6 The test values in inch-pound units stated in this specification are to be regarded as the standard. The metric values in parentheses are given for information only.

1.7 The following precautionary caveat pertains only to the test method portion, Section 7, of this consumer safety 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 requirements prior to use.

2. Referenced Documents

2.1 ASTM Standards:

D 3359 Test Method for Measuring Adhesion by Tape Test²

F 963 Standard Consumer Safety Specification on Toy Safety³

2.2 Federal Regulations:

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint⁴

16 CFR 1500.18(a)(6) Banned Toys and Other Banned Articles Intended for Use by Children⁴

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 Age⁴

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 Age⁴

16 CFR 1500.50-.51 Test Methods for Simulating Use and Abuse of Toys and Other Articles Intended for Use by Children⁴

CFR 1500.86(a)(4) Exemptions from Classification as a Banned Article for Use by Children⁴

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 Parts⁴

2.3 Other References:

CAMI Infant Dummy, Mark II (see Fig. 1)⁵

CAMI Newborn Dummy (see Fig. 2)⁵

² Annual Book of ASTM Standards, Vol 06.01.

³ Annual Book of ASTM Standards, Vol 15.07.

⁴ Code of Federal Regulations, available from U.S. Government Printing Office, 732 North Capitol St., NW, Mail Stop: SDE, Washington DC 20401.

⁵ Department of Transportation, Federal Aviation Administration, Drawing No. SA-1001.

¹ This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.21 on Infant Carriers and Swings.

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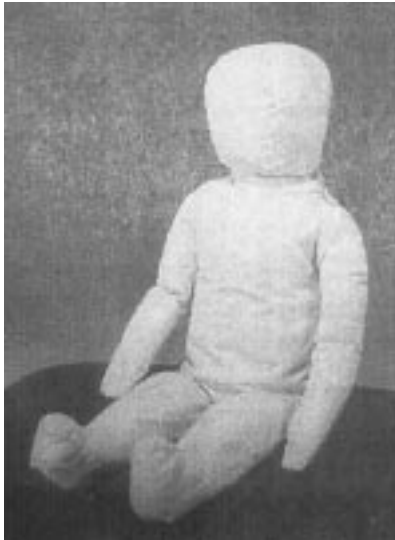


FIG. 1 CAMI Infant Dummy, Mark II (17.5 lb, 8.0 kg)



FIG. 2 CAMI Newborn Dummy (7.5 lb, 3.4 kg)

3. Terminology

3.1 Definitions:

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

3.1.2 *cord, n*—length of slender, flexible material including monofilaments, rope, woven and twisted cord, plastic and textile tapes, ribbon, and those fibrous materials commonly called string.

3.1.3 *dynamic load, n*—application of an impulsive force through free fall of a weight.

3.1.4 *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.

3.1.5 *manufacturer's recommended use position(s), 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. 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 *non-paper 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.

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

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

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

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

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor, which may be covered with 1/8-in. (3-mm) thick vinyl flooring cover, unless the 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 an ambient temperature of $73^{\circ} \pm 9^{\circ}\text{F}$ ($23^{\circ} \pm 5^{\circ}\text{C}$) for at least one hour prior to testing. Testing shall then be conducted within this temperature range.

4.5 All testing required by this specification shall be conducted on the same infant bouncer seat.

5. General Requirements

5.1 *Hazardous Sharp Points and Edges*—There shall be no hazardous points or edges as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before and after testing to this consumer safety specification.

5.2 *Small Parts*—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 *Lead*—There shall be no lead-containing paint as defined by 16 CFR 1303.

5.4 *Banned Articles*—There shall be no banned toys or other banned articles as defined by 16 CFR 1500.18(a)(6) and 16 CFR 1500.86(a)(4).

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

5.6 *Latching or Locking Mechanisms*—If the infant bouncer seat is designed with a latching or locking device that prevents unintentional folding, the infant bouncer seat shall remain in its manufacturer's recommended use position during and upon completion of the test, in accordance with 7.8. The latching or locking device shall remain engaged and operative after testing.

5.7 *Scissoring, Shearing, and Pinching*—A product, when in any 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 shall not be permissible when the edges of any rigid parts admit a probe greater than 0.210 in. (5.33 mm) and less than 0.375 in. (9.52 mm) in diameter at any accessible point throughout the range of motion of such parts.

5.8 *Openings*—Any shaped holes, slots, or cracks that exist in the product that is in its manufacturer’s recommended use position(s) and that are accessible to the toes or fingers of the occupant, through or recessed, or both, into the surface of any rigid material that admit a 0.210-in. (5.33-mm) diameter rod also shall admit a 0.375-in. (9.52-mm) diameter rod. Openings that have a minor dimension between 0.210 in. and 0.375 in. shall be permissible, providing the depth is no greater than the minor dimension of the opening.

5.9 *Exposed Coil Springs*—Any exposed coil spring that 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 7.1.2 shall be covered or otherwise designed to prevent injury from entrapment.

5.10 *Protective Components*—If a child can grasp components between the thumb and forefinger or between teeth, (such as caps, sleeves, or plugs used for protection from sharp edges, points, or entrapment of fingers or toes), or if there is at least a 0.040-in. (1.00-mm) gap between the component and its adjacent parent component, such component shall not be removed when tested in accordance with 7.7.

5.11 *Permanency of Labels and Warnings:*

5.11.1 Warning labels (whether paper or non-paper) shall be permanent when tested in accordance with 7.6.1-7.6.3.

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 per in accordance with 7.6.4.

5.11.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.6.5.

5.12 *Toys*—Toy accessories attached to, removable from, or sold with an infant bouncer seat, as well as their means of attachment, must meet applicable requirements of ASTM F 963.

6. Performance Requirements

6.1 *Structural Integrity*—All tests that cover static and dynamic loading are to be performed on the same product, sequentially and without refurbishing or repositioning of adjustments, if any. At test conclusion, there shall be no failure of seams, breakage of materials, or changes of adjustments that could cause the product not to fully support the child or create a hazardous condition as defined in Section 5.

6.1.1 *Dynamic Load*—The infant bouncer seat shall not create a hazardous condition as defined in Section 5 when tested in accordance with 7.1.1.

6.1.2 *Static Load*—The infant bouncer seat shall not create a hazardous condition as defined in Section 5 when tested in accordance with 7.1.2.

6.2 *Restraint System:*

6.2.1 A restraint system shall be provided to secure a child in any of the manufacturer’s recommended use positions.

6.2.2 The restraint system shall include both a waist and crotch restraint, where the crotch restraint’s use is mandatory when the waist restraint is in use.

6.2.3 The anchorages for the restraint system shall not separate from their attachment points when tested in accordance with 7.2.

6.3 *Stability:*

6.3.1 *Forward Stability*—The infant bouncer seat shall not tip over when tested in accordance with 7.3.1. If the stability test fixture touches the test surface and prevents the product from tipping over, retest the product near the edge of an elevated test surface to allow the product to tip.

6.3.2 *Sideward and Rearward Stability*—The infant bouncer seat shall not tip over when tested in accordance with 7.3.2.

6.4 *Slip Resistance:*

6.4.1 *Dynamic Slip Resistance*—The infant bouncer seat shall not slip more than ½ in. (13 mm) when tested in accordance with 7.4.2.

NOTE 1—As this is a dynamic impact test, the ½ in. allows for a small amount of settling prior to the feet gripping.

6.4.2 *Static Slip Resistance*—The infant bouncer seat shall not slip more than ⅓ in. (3 mm) when tested in accordance with 7.4.3.

6.5 *Disassembly/Collapse*—The infant bouncer seat shall not disassemble or collapse when tested in accordance with 7.5.

6.6 *Drop Test*—The infant bouncer seat shall not create a hazardous condition as defined in Section 5 when tested in accordance with 7.9.

7. Test Methods

NOTE 2—Except for the structural integrity tests in 7.1, which shall be performed first, the tests can be performed in any sequence.

7.1 *Structural Integrity:*

7.1.1 *Dynamic Load:*

7.1.1.1 Position the infant bouncer seat in the manufacturer’s recommended use position(s).

7.1.1.2 Position a standard 6-in. (150-mm) weld cap (see Fig. 3) with the convex surface down. Affix a weight to the top of the weld cap to achieve a total weight of 33 lb (15.0 kg).

7.1.1.3 Drop the 33-lb (15.0-kg) test weight onto the seat from a distance of 1 in. (25 mm) one hundred times.

NOTE 3—This test is in accordance with the walker standard. The weight is higher than that of a 6-month-old in the 95th percentile to justify limiting the test to only 100 cycles, as well as eliminating the need for an additional seam strength test.

7.1.2 *Static Load:*

7.1.2.1 Position the infant bouncer seat in the manufacturer’s recommended use position(s).

7.1.2.2 Place a 6-by-6-in. (150-by-150-mm) wood block that is ¾ in. (19 mm) thick on the center of the seat.

7.1.2.3 Gradually apply a static load of 60 lb (27.3 kg) or three times the maximum manufacturer’s recommended weight, whichever is greater, on the wood block within a period of 5 s and maintain for an additional 60 s.

NOTE 4—The 60-lb static load is approximately 3 times the weight of a 95th percentile 6-month-old.

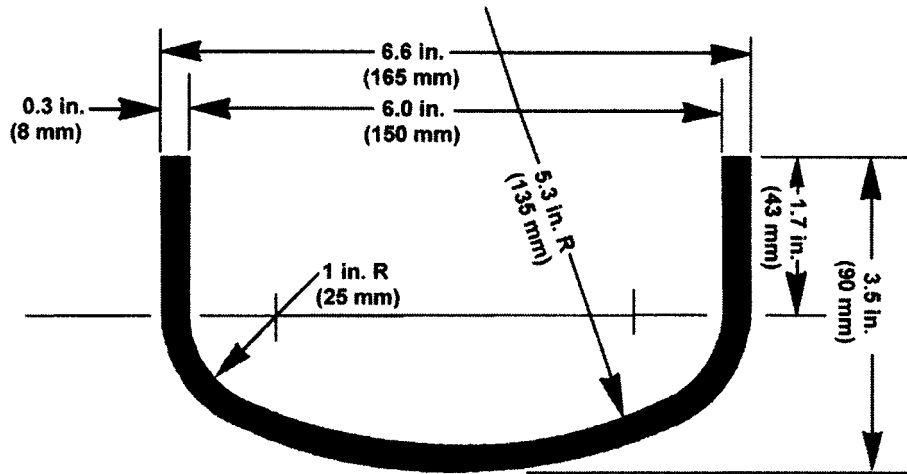


FIG. 3 Weld Cap

7.2 Restraint System:

7.2.1 Secure the infant bouncer seat so that it can not move vertically or horizontally.

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

NOTE 5—This is in accordance with the high chair standard.

7.2.3 Repeat 7.2.2 for each attachment point of the restraint system and fastening device.

7.3 Stability:

Forward Stability

7.3.1 Stability Test Fixture:

7.3.1.1 The stability test fixture is to be constructed of 3/4-in. (19-mm) plywood or the equivalent of such product.

7.3.1.2 The fixture should be constructed according to Fig. 4.

7.3.2 Test Procedure:

7.3.2.1 Establish the restraint system adjustment by placing the CAMI Infant Dummy, Mark II (see Fig. 1) in the infant bouncer seat, fastening the restraint system in accordance with the manufacturer’s instructions, and removing the dummy.

7.3.2.2 Insert the stability test fixture into the bouncer and pull forward to remove any slack in the crotch restraint.

7.3.2.3 Use a force gage to apply a static load of 21 lbf (93 N) vertically downward on the stability test fixture in the location designated on the drawing (5-in. (130-mm) in front of the crotch post.) within a period of 5 s and maintain for an additional 60 s (see Fig. 5)

NOTE 6—The 21-lb load is equivalent to the weight of a 95th percentile 6-month-old.

NOTE 7—It is believed that forward tipovers occur when the child is leaning forward. The test calls for the weight to be placed 5 inches in front of the crotch post. When the CAMI Infant Dummy, Mark II, is bent forward to where the head touches the toes, the center of mass is approximately 3 inches in front of the crotch. Two additional inches were added as a factor of safety.

7.3.2.4 The test surface shall be an impregnated high-pressure laminate of unspecified color with a smooth matte finish.

Sideward and Rearward Stability

7.3.3 Place a CAMI Infant Dummy, Mark II (see Fig. 1) in the infant bouncer seat with the restraint system fastened in accordance with the manufacturer’s instructions.

7.3.4 Position the infant bouncer seat in the most unfavorable sideward or rearward position on a test surface inclined at 12°. The most unfavorable position could be a position in between the true sideward and rearward positions. If necessary, prevent the product from sliding but do not prevent it from tipping.

NOTE 8—12° is in accordance with the stroller standard.

7.3.5 The test surface shall be an impregnated high-pressure laminate of unspecified color with a smooth matte finish.

7.3.6 Maintain for 1 min.

7.4 Slip Resistance:

Test Preparation

7.4.1 Test Surface:

7.4.1.1 The test surface shall be an impregnated high-pressure laminate of unspecified color with a smooth matte finish.

7.4.1.2 The laminate should be mounted on a flat surface, with a thickness no less than 3/4 in. (19 mm), in accordance with the laminate manufacturer’s instructions.

7.4.1.3 Clean the test surface with a damp cloth. Any products that will interfere with the performance of the laminate are unacceptable, for example, solvents or cleaners that leave residue or alter the surface finish.

7.4.1.4 Precautions should be taken to prevent the contamination of the testing surface. Graduation or pencil marks are unacceptable unless located in a position that never interferes with the performance of the test product (that is, along the edge of the surface).

7.4.2 Test Procedure:

7.4.2.1 Incline the prepared laminate surface to 10°.