



Designation: F3118 – 17

Standard Consumer Safety Specification for Infant Inclined Sleep Products¹

This standard is issued under the fixed designation F3118; 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 inclined sleep products identified by the U.S. Consumer Product Safety Commission (CPSC).

In response to incident data compiled by the CPSC, this consumer safety specification attempts to minimize the following: (1) fall hazards, (2) positional asphyxiation, and (3) obstruction of nose and mouth by bedding. This consumer safety specification is intended to cover normal use and reasonably foreseeable misuse or abuse of inclined sleep products. This specification does not cover inclined sleep products that are blatantly misused or used in a careless manner that disregards the safety instructions and warnings provided with each inclined sleep product.

This consumer safety specification is written within the current state-of-the-art of infant sleep product technology and 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 establishes safety performance requirements, test methods, and labeling requirements to minimize the hazards to infants presented by infant inclined sleep products as identified in the introduction.

1.2 This consumer safety specification is intended to minimize the risk of injuries to infants resulting from normal use and reasonably foreseeable misuse or abuse of infant inclined sleep products.

1.3 This consumer safety performance specification covers a free standing product with an inclined sleep surface primarily intended and marketed to provide sleeping accommodations for an infant up to 5 months old or when the infant begins to roll over or pull up on sides, whichever comes first. It also covers a smaller product intended for newborns up to 3 months old or when newborn begins to wiggle out of position or turn over in the product or weighs more than 15 lb (6.8 kg), whichever comes first. It also covers infant and newborn inclined sleep product accessories, which are attached to, or supported by, another product with the same age or abilities, or both, as the free standing products. If the inclined sleep product can be converted into a product for which another ASTM standard consumer safety specification exists, the product shall

meet the applicable requirements of that standard. For example, an inclined sleep product that can have the recline angle adjusted below 10° shall also comply with the applicable requirements of Consumer Safety Specification F2194.

1.4 No infant inclined sleep product 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 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 limitations prior to use.*

2. Referenced Documents

- 2.1 *ASTM Standards:*²
D3359 Test Methods for Measuring Adhesion by Tape Test
F963 Consumer Safety Specification for Toy Safety
F2194 Consumer Safety Specification for Bassinets and Cradles

¹ This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.18 on Cribs, Toddler Beds, Play Yards, Bassinets, Cradles and Changing Tables.

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

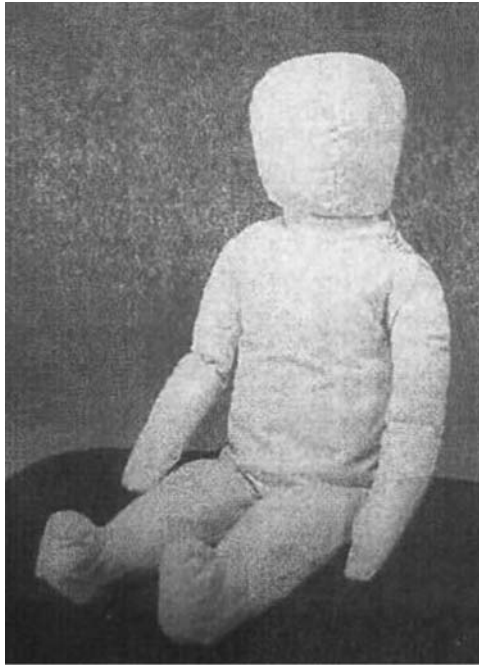


FIG. 1 CAMI Infant Dummy, Mark II (17.5 lb, 8.0 kg)

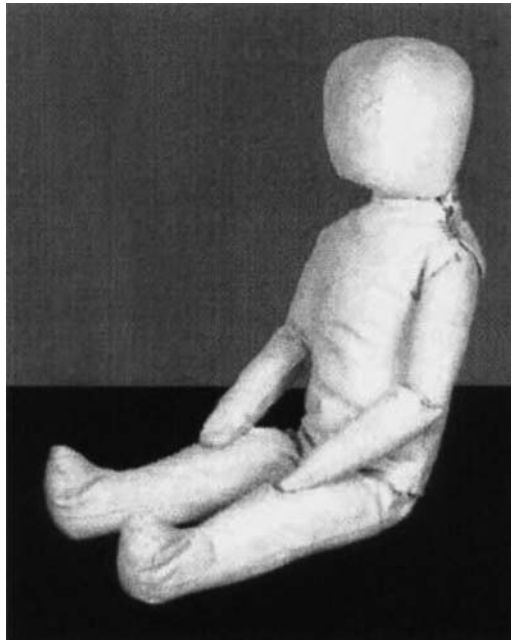


FIG. 2 CAMI Newborn Dummy (7.5 lb., 3.4 kg)

2.2 *Federal Standards:*³

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

16 CFR Part 1500 Hazardous Substances Act Regulations including sections:

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

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

1500.50 Test Method for Simulating Use and Abuse of Toys and Other Articles Intended for Use by Children 18 Months of Age or Less

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

16 CFR Part 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 Standards*:⁴

ANSI Z535.4 Product Safety Signs and Labels

ANSI Z535.6 Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials

2.4 *Other References*:

CAMI Infant Dummy Mark II (see Fig. 1)

CAMI Newborn Dummy (see Fig. 2)

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *accessory inclined sleep product, n*—a rigid framed inclined sleep product that is intended to provide sleeping accommodations for infants or newborns and attaches to or is supported by another product.

3.1.2 *compact inclined sleep product, n*—a free standing infant or newborn inclined sleep product having a distance of 6.0 in. (152 mm) or less between the underside of the lowest point on the seat bottom and the support surface (floor).

3.1.3 *conspicuous, adj*—visible, when the unit is in a manufacturer's recommended use position, to a person standing near the unit at any one position around the infant inclined sleep products but not necessarily visible from all positions.

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

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

3.1.6 *head containment area, n*—the upper part of the occupant area which provides a physical border to contain the infants head.

3.1.7 *infant inclined sleep product, n*—a freestanding product, intended to provide a sleeping accommodations for an infant up to approximately 5 months of age, that is generally supported by a stationary or rocker base with one or more inclined sleep surface positions for the seat back that are greater than 10° and do not exceed 30° from the horizontal.

3.1.7.1 *Discussion*—Products with all seat back inclined sleep surface positions less than or equal to 10° from the horizontal, while in the rest (non-rocking) position, are not covered by this specification.

3.1.8 *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.

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

3.1.9 *mesh, n*—woven fabric in which the warp or filling yarns are interlaced, knitted fabric in which the wales and

courses yarns are interlocked, or any other type of fabric that may be developed that provides openings therein.

3.1.10 *newborn inclined sleep product, n*—a free standing product, intended to provide sleeping accommodations for a newborn up to approximately 3 months of age, that is supported by a stationary or rocker base with one or more inclined sleep surface positions for the seat back that are greater than 10° and do not exceed 30° from the horizontal and whose seat back length, measured from the bight, is not greater than 17 in. (432 mm).

3.1.11 *non-paper 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.

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

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

3.1.14 *seat bight line, n*—the intersection of the seat back surface with the seat bottom surface (see Fig. 3).

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

3.1.16 *structural component, n*—any load bearing member or part of the product that supports the weight or portion of the weight of the occupant.

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor that may be covered with 1/8 in. (3 mm) thick vinyl floor 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 an ambient temperature of 73° ± 9°F (23 ± 5°C) for at least 1 h prior to testing. Testing then shall be conducted within this temperature range.

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

5. General Requirements

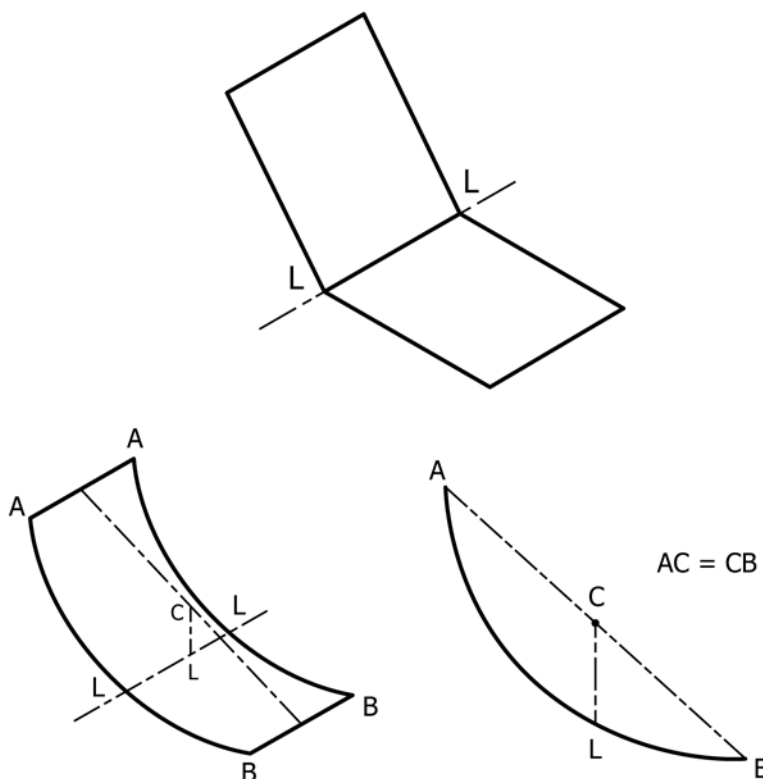
5.1 *Lead in Paints*—The paint and surface coating shall conform with 16 CFR 1303.

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

5.3 *Small Parts*—There shall be no small parts as defined by 16 CFR 1501 before testing or liberated as a result of this testing to this specification.

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

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



LL = Seat Bight Line
 CL = Vertical Projection of C on the Seat

NOTE 1—When the seat does not have a defined intersection of the seat bottom and seat back, then a theoretical bight line, “LL,” is determined as shown. The bight line will vary with products that have adjustable backrests.

FIG. 3 Seat Bight Location—Intersection of Seat Bottom and Seat Back

5.5 Scissoring, Shearing, Pinching—A product, when in the manufacturer’s recommended use position, 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 could exist when the edges of any rigid parts admit a probe greater than 0.210 in. (5.33 mm) and less than 0.375 in. (9.53 mm) diameter at any accessible point throughout the range of motion of such parts.

5.6 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. (5.33-mm) and 0.375-in. (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. 4). The product shall be evaluated in all manufacturer’s recommended use positions.

5.7 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 (see 7.2.2) shall be covered or otherwise designed to prevent injury from entrapment.

5.8 Protective Components—If an infant can grasp components between the thumb and forefinger, or 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 7.1.

5.9 Labeling:

5.9.1 Warning labels, (whether paper or non paper) shall be permanent when tested per 7.5.

5.9.2 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 7.6.

5.9.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.7.

5.10 Toys—Toy accessories attached to, removable from, or sold with product, as well as their means of attachment, must meet applicable requirements of Consumer Safety Specification F963.

5.10.1 Toy mobiles that attach solely to an infant inclined sleep product are not required to contain labeling as stated in Consumer Safety Specification F963, subsections 5.6.2 Safety Labeling Mobiles and 6.3 Instructional Literature Mobiles.

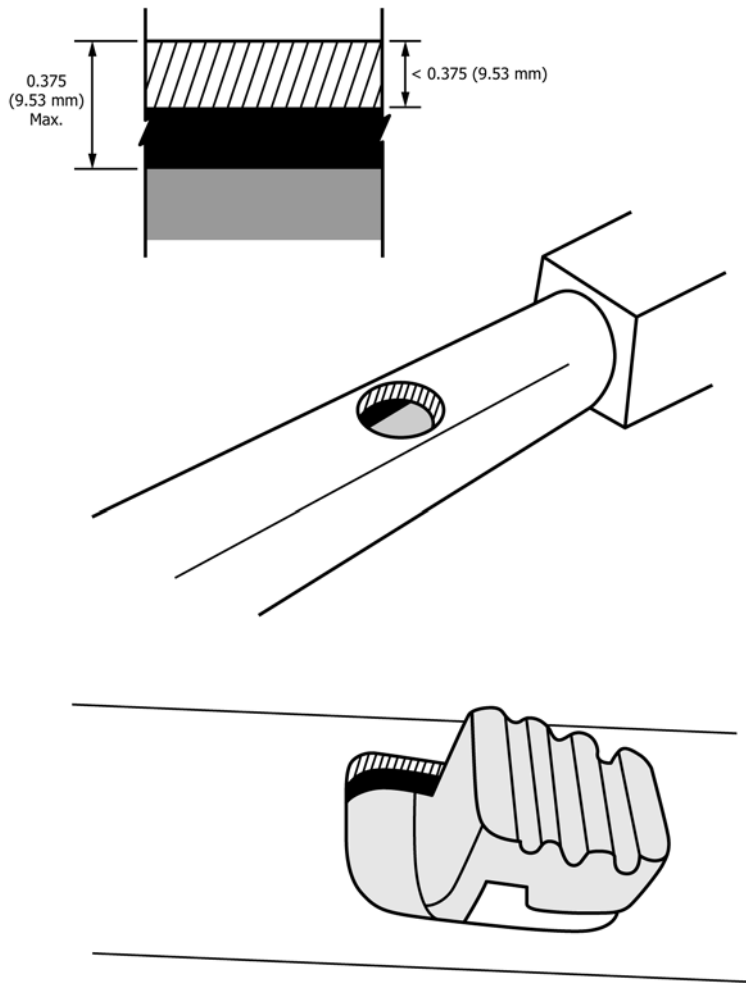


FIG. 4 Opening Examples

6. Performance Requirements

6.1 Stability:

6.1.1 *Stability Compact Inclined Sleep Product*—The compact inclined sleep product shall not tip over when tested according to 7.3.2. The infant and newborn inclined sleep products and accessories are exempt from this requirement.

6.1.2 *Stability Infant or Newborn Inclined Sleep Product*—The infant or newborn inclined sleep product shall not tip over when tested according to 7.3.3. Inclined sleep product accessories are exempt from this requirement when attached to, or supported by, another product per the manufacturer’s instructions. Compact inclined sleep products are also exempt from this requirement.

6.2 Unintentional Folding:

6.2.1 Products that fold shall meet either 6.2.1.1, 6.2.1.2, 6.2.1.3 or 6.2.1.4.

6.2.1.1 Products designed without latching or locking devices must remain in the manufacturer’s recommended use positions during and upon completion of the test, in accordance with 7.4.2.

6.2.1.2 Products designed with a single action release mechanism latching or locking devices must remain in the manufacturers recommended use position during and upon completion of the test, in accordance with 7.4.3.

6.2.1.3 Products with a double action release mechanism latching or locking device shall require two distinct and separate actions for release of the mechanism.

6.2.1.4 Products designed with two consecutive actions to fold the unit shall require the first action be maintained without the unit folding while the second independent action is carried out simultaneously to initiate folding of the unit. Unit shall not fold when tested in accordance with 7.4.4.

6.3 Restraints:

NOTE 1—A restraint system is not mandatory.

6.3.1 A restraint system may be provided to secure a child in any of the manufacturer’s recommended use positions in the infant inclined sleep product.

6.3.2 The anchor points and fastening device of a restraint system shall not break or separate when testing in accordance with 7.14.1.

6.3.3 A restraint system shall include both a waist and crotch restraint designed such that the crotch restraint's use is mandatory when a restraint system is in use. A restraint system shall not include shoulder straps.

6.3.4 The adjustment position of a restraint system and its closing means shall not slip more than 1 in. (25 mm), break, separate, or permit the removal of the test dummy when tested per 7.14.2.

6.3.5 The connecting means and adjustment means of 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.

6.3.6 Before shipment, the restraint system must be attached to the product in one of the manufacturer's recommended use positions and shall be attached in such a manner as to not become detached through normal use.

6.4 Side Height:

6.4.1 Infant inclined sleep product and infant inclined sleep product accessory shall provide a minimum side height of 3.0 in. (76 mm) when tested in accordance to 7.12.2.

6.4.2 Newborn inclined sleep product and newborn inclined sleep product accessory shall provide a minimum side height of 2.0 in. (51 mm) when tested in accordance to 7.12.3.

6.5 Head, Foot and Side Containment—When tested in accordance with 7.13 the product shall prevent the test sphere (see Fig. 5) from falling from the product.

6.6 Openings for Mesh/Fabric Sided Products—Openings in mesh shall be designed to prevent entrapment of fingers, toes, and snaring of buttons normally used on infant clothing. A mesh opening shall not fully accept the specified rod when tested in accordance with 7.8.

6.7 Side to Side Surface Containment—The pivot angle between the hinged weight gage–newborn (see Fig. 6) and

center line of the infant inclined sleep product shall not be greater than 30° when tested in accordance with 7.9.

6.8 Minimum Incline:

6.8.1 Infant Inclined Sleep Product and Infant Inclined Sleep Product Accessory—The angle of the seat back surface along the occupants head to toe axis relative to the horizontal shall be greater than 10° when tested in accordance to 7.10.2.

6.8.2 Newborn Inclined Sleep Product and Newborn Inclined Sleep Product Accessory—The angle of the seat back surface along the occupants head to toe axis relative to the horizontal shall be greater than 10° when tested in accordance to 7.10.3.

6.9 Maximum Incline:

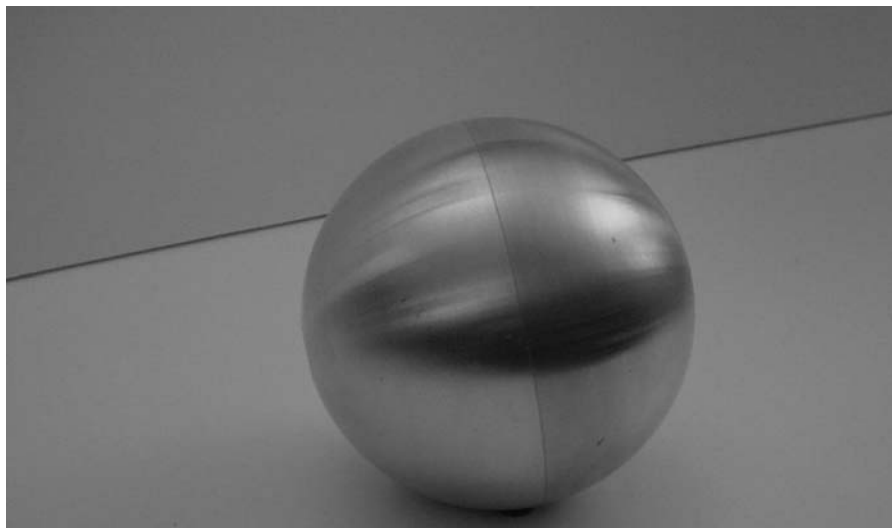
6.9.1 Infant Inclined Sleep Product and Infant Inclined Sleep Product Accessory—The angle of the seat back surface along the occupants head to toe axis relative to the horizontal shall not exceed 30° when tested in accordance with 7.11.2.

6.9.2 Newborn Inclined Sleep Product and Newborn Inclined Sleep Product Accessory—The angle of the seat back surface along the occupants head to toe axis relative to the horizontal shall not exceed 30° when tested in accordance with 7.11.3.

6.10 Usable Seat Back Length for Newborn Inclined Sleep Product Accessory and Newborn Inclined Sleep Products—The usable seat back length shall not exceed 17 in. (432 mm) when measured in accordance to 7.15.

6.11 Structural Integrity—All tests that cover static and dynamic loading are to be performed sequentially on the same product and in the sequence listed in the standard.

6.11.1 Dynamic Load—The inclined sleep product shall support a dynamic load and 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 after testing in accordance with 7.2.1.

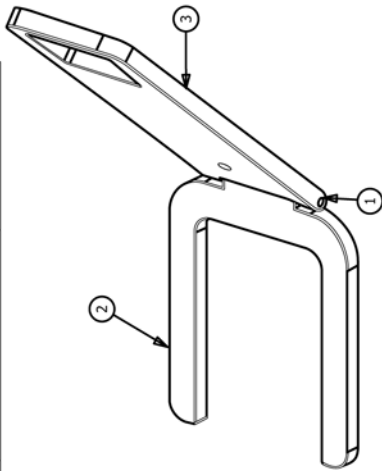
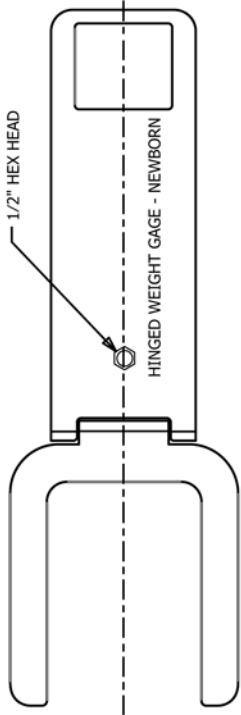


NOTE 1—Sphere shall be fabricated from a smooth, rigid material weighted to 5 lb (2.3 kg).

NOTE 2—Sphere is machined to a 14.75 in. (374.6 mm) circumference.

FIG. 5 Smooth Rigid Sphere

ITEM	QTY	PART NAME	MATERIAL
3	1	Upper Plate	MILD STEEL
2	1	Lower Plate	MILD STEEL
1	2	Dowel Pin	MILD STEEL



Assembled

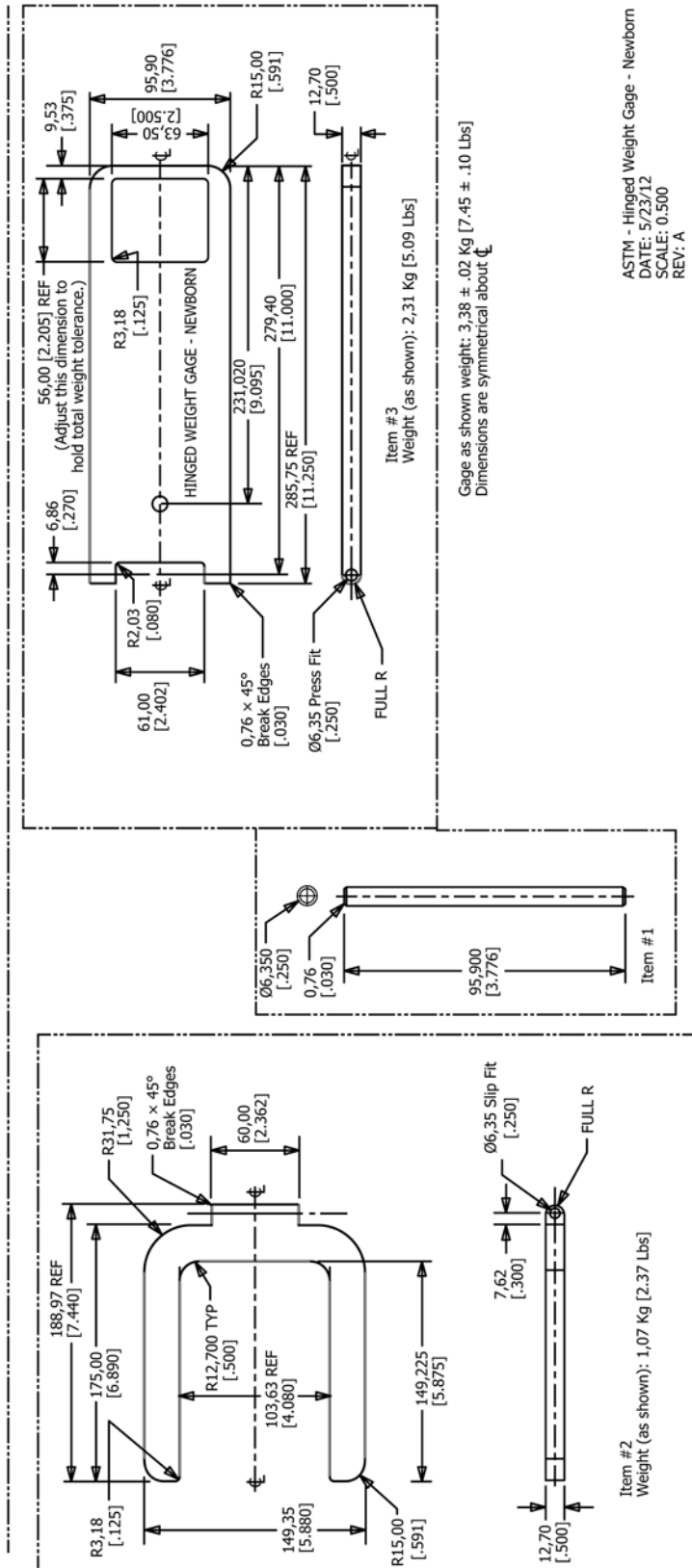


FIG. 6 Hinged Weight Gage-Newborn

6.11.2 *Static Load*—The inclined sleep product shall support a static load and 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 after testing in accordance with 7.2.2.

7. Test Methods

7.1 *Removal of Protective Components Test:*

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

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

7.1.3 *Torque Test*—A torque shall be applied to any graspable component within a period of 5 s in a clockwise direction until either the component rotates 180° from the original position or the torque attains 2 in.-lb (0.2 Nm). 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 gage to the component cap, sleeve, or plug by means of any suitable device. For protective components that cannot be reasonably expected to be grasped between thumb and forefinger, or teeth on their outer diameter but have a gap of 0.040 in. (1.0 mm) or more behind the rear surface of the component and the structural member of the product to which they are attached, a clamp such as the one shown in Fig. 7 may be a suitable device.

7.1.4.2 Be sure that 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 (44.6 N) in the direction that would normally be associated with the removal of the protective component over a 5 s period and hold for an additional 10 s.

7.2 *Structural Integrity:*

7.2.1 *Dynamic Load:*

7.2.1.1 *Test Equipment*—Steel shot bag, 6 to 8 in. (15 to 20 cm) diameter bag filled with steel shot; total weight 18 lb (8.2 kg).

Maximum Tension

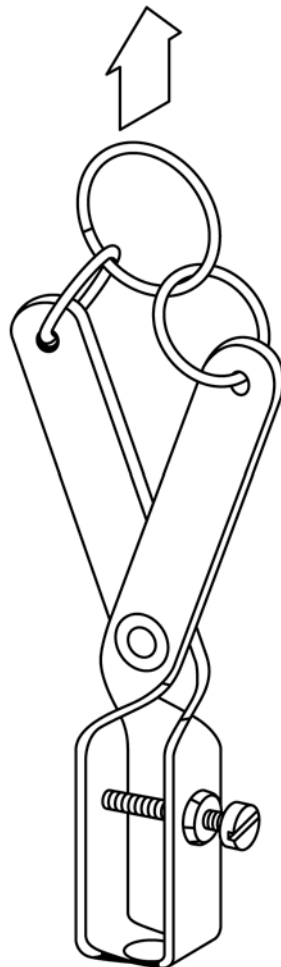


FIG. 7 Tension Test Adapter/Clamp

7.2.1.2 Set-up the product in accordance with the manufacturer’s instructions.

7.2.1.3 Place the shot bag in the seat of the product and center on at the seat bight line. Raise the shot bag a distance of 1 in. above the seat of product. Drop the weight onto the seat 50 times with a cycle time of 4 ± 1 s/cycle. The drop height is to be adjusted to maintain the 1 in. drop height as is practical.

7.2.2 *Static Load Test:*

7.2.2.1 *Test Equipment*—Wood block, 6 by 6 by $\frac{3}{4}$ in. (150 by 150 by 19 mm).

7.2.2.2 Center the wood block on the seat bight line.

7.2.2.3 By any necessary means, place a static load of 50 lb (22.7 kg) or 3 times the manufacturer’s maximum recommended weight, whichever is greater, on the center of the wood block. Gradually apply the load within 5 s and maintain for 60 s.

7.3 *Stability Tests:*

7.3.1 *Test Equipment:*

7.3.1.1 *Digital Protractor.*

7.3.1.2 *CAMI Newborn Dummy* (7.5 lb, 3.4 kg) (see 2.4 and Fig. 2).

7.3.1.3 *CAMI Infant Dummy Mark II* (17.5 lb., 8.0 kg) (see 2.4 and Fig. 1).

7.3.1.4 *Inclined Surface*—A smooth inclined surface with a 1 by 1 in. (25 by 25 mm) stop or equivalent device mounted parallel to the lower edge of the surface and parallel to the floor so as to prevent the product from sliding, but not prevent it from tipping.

7.3.2 *Stability – Compact Infant Inclined Sleep Product:*

7.3.2.1 Assemble product in accordance with manufacturer’s instructions recommended use positions.

7.3.2.2 Adjust the inclined surface to 20° from horizontal.

7.3.2.3 Place the CAMI Dummy Mark II on the product sleeping surface according to the manufacturer’s instructions.

7.3.2.4 Position the product in the most unfavorable side-ward or rearward or forward position on the test surface. The

most unfavorable position could be a position in between the true sideward, rearward or forward positions. If necessary, prevent the product from sliding, but do not prevent it from tipping (see Fig. 8).

7.3.3 *Stability – Infant or Newborn Inclined Sleep Product:*

7.3.3.1 Assemble product in accordance with manufacturer’s instructions.

7.3.3.2 Establish a horizontal test plane with a piece of 1 in. high by 1 in. wide aluminum angle stop whose length is at least 6 in. (152 mm) longer than the length of the unit being tested, as shown in (a), (b) and (c) of Fig. 9. For units with a rocking base as shown in (b) of Fig. 9, the height or position of the angle stop must be such that no part of the unit’s arched base will move on top of the angle stop when tilted.

7.3.3.3 Position product on horizontal test plane (see 7.3.3.2) and place against angle stop.

7.3.3.4 Place the CAMI Newborn Dummy on the sleeping pad in the center of the product face up with the arms and legs straightened.

7.3.3.5 Apply a 23 lb (10.4 kg) static vertical load to the most onerous position along the upper surface of the side closer to the angle stop. Apply the static load over a 5 s period and maintain the static load during the application of the force specified in 7.3.3.6.

7.3.3.6 Gradually apply a horizontal force of 5 lbf (22 N) within 5 s at the same location where the vertical load is applied. The direction of the horizontal load is such that the unit is forced against the stop.

7.3.3.7 Maintain the application of static vertical load and horizontal force for 10 s.

7.3.3.8 Repeat on all sides of product.

7.3.3.9 Test in all manufacturers’ recommended use positions.

7.4 *Unintentional Folding Test:*

7.4.1 *Test Equipment:*

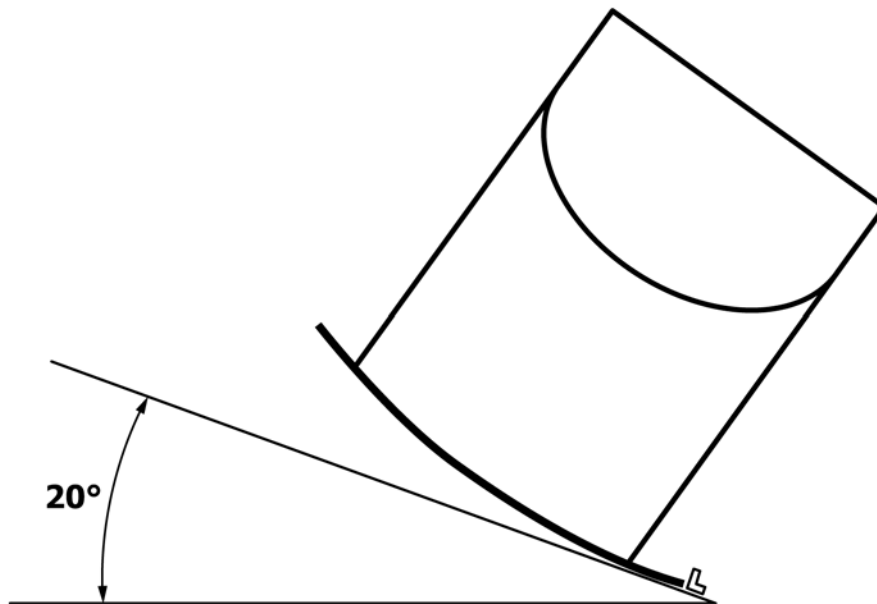


FIG. 8 Stability Test

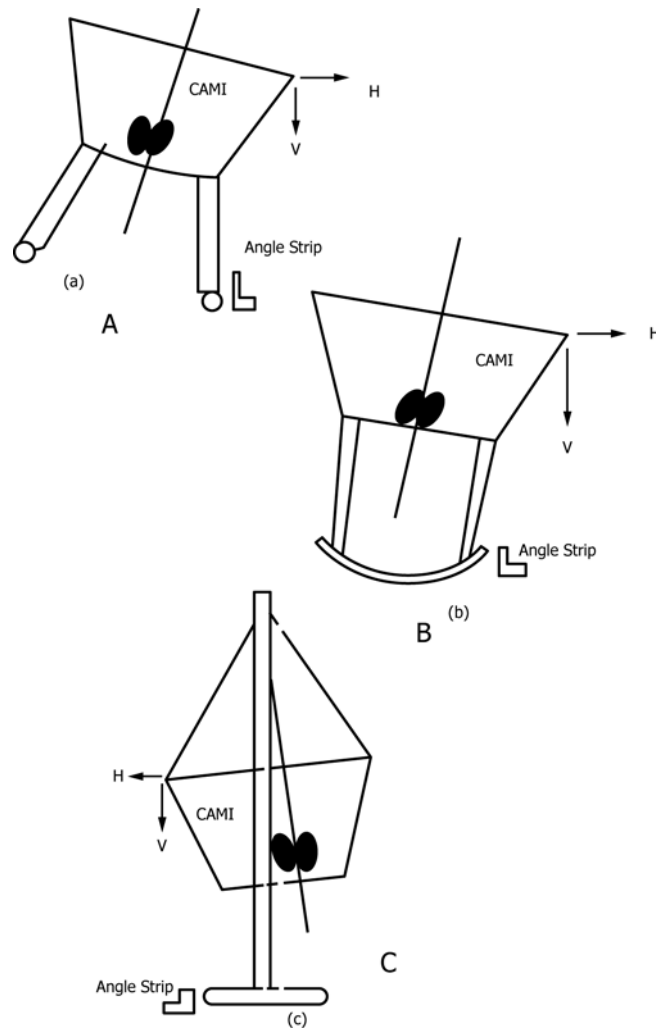


FIG. 9 Angle Stop

7.4.1.1 CAMI Newborn Dummy (7.5 lb, 3.4 kg) (see 2.4 and Fig. 2).

7.4.1.2 CAMI Infant Dummy Mark II (17.5 lb., 8.0 kg) (see 2.4 and Fig. 1).

7.4.1.3 Hinged Weight Gage–Newborn (see Fig. 6).

7.4.2 Product Designed without Latching or Locking Devices:

7.4.2.1 Place the product in the manufacturer’s recommended use position.

7.4.2.2 Place a CAMI Infant Dummy Mark II in the center of the product face up with the arms and legs straightened.

7.4.2.3 Place a stop on the floor in a manner that would prevent the product from sliding and tipping but will not prevent it from folding.

7.4.2.4 Position the product against the stop in the orientation most likely to cause it to fold. Apply a 20 lbf (89 N) at the location normally associated with the folding action and in the direction normally associated with folding the product in accordance with the manufacturer’s instructions. Gradually apply the force within 5 s while maintaining the direction of force relative to the floor and maintain for an additional 10 s.

7.4.2.5 Remove CAMI Infant Dummy Mark II and replace with CAMI Newborn Dummy. Repeat 7.4.2.1 – 7.4.2.4.

7.4.3 Products Designed with a Single Action Release Mechanism Latching or Locking Devices—With the product in the manufacturer’s recommended use position, gradually apply a force of 10 lbf (45 N) over 5 s to release the mechanism in the direction most likely to fail and maintain for 10 s.

7.4.4 Products Designed with Two Consecutive Actions:

7.4.4.1 Set up the unit in the manufacturer’s recommended use position.

7.4.4.2 Place the hinged weight gage–newborn into the unit and position the gage with the hinge over the seat bight and the upper plate of the gage on the seat back surface.

7.4.4.3 Perform the first action to evaluate if the unit folds due to the weight in the unit.

7.5 Permanency of Labels and Warnings:

7.5.1 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.

7.5.2 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.

7.5.3 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 the direction most likely to cause a failure using a 3/4 in. (19 mm) diameter clamp surface. Apply the force evenly over 5 s and maintain for an additional 10 s.

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

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

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

7.6.3 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.

7.7 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.

7.8 Mesh Opening Test:

7.8.1 Equipment—A steel rod of 0.250 in. (6.35 mm) full radius tip.

7.8.2 Procedure—With the product in the fully erect position, gradually apply a force of 5 lbf (22 N) perpendicular to the plane of the mesh opening using the rod specified above.

7.9 Side to Side Surface Containment Test:

7.9.1 Equipment:

7.9.1.1 Hinged Weight Gage—Newborn (see Fig. 6).

7.9.1.2 Mechanical Protractor.

7.9.1.3 Torque Wrench.

7.9.2 Adjust the seat back into the highest adjustment position per the manufacturer’s instructions.

7.9.3 Place the hinged weight gage—newborn in the product and position the gage with the hinge centered over the seat bight.

7.9.4 Apply a 60 in.-lb (6.8 Nm) of torque to the hex head bolt on the upper plate attempting to pivot the gage about the hinge area, until the side of the gage contacts the side containment surface (see Fig. 10).

7.9.5 Repeat application of the torque in 7.9.4 five times without adjusting the position of the hinged weight gage—newborn between each application of the torque.

7.9.6 After completion of 7.9.5, determine the pivot angle by measuring from the center line of the product to the edge of the upper plate with a protractor (see Fig. 10).

7.10 Minimum Incline:

7.10.1 Equipment:

7.10.1.1 Digital Protractor.

7.10.1.2 Hinged Weight Gage—Infant (see Fig. 11).

7.10.1.3 Hinged Weight Gage—Newborn (see Fig. 6).

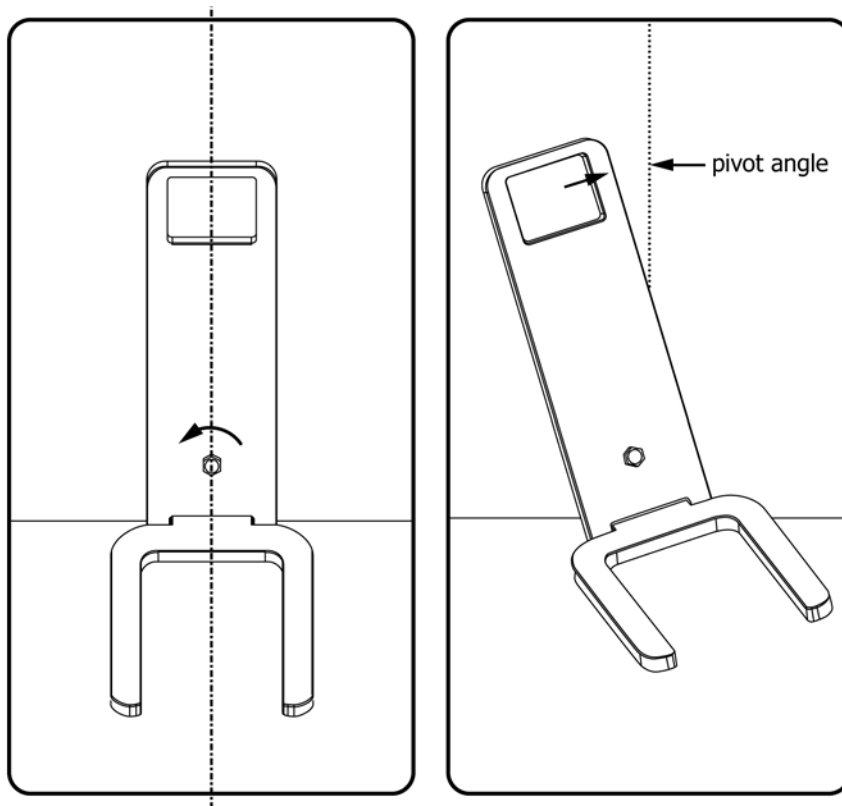
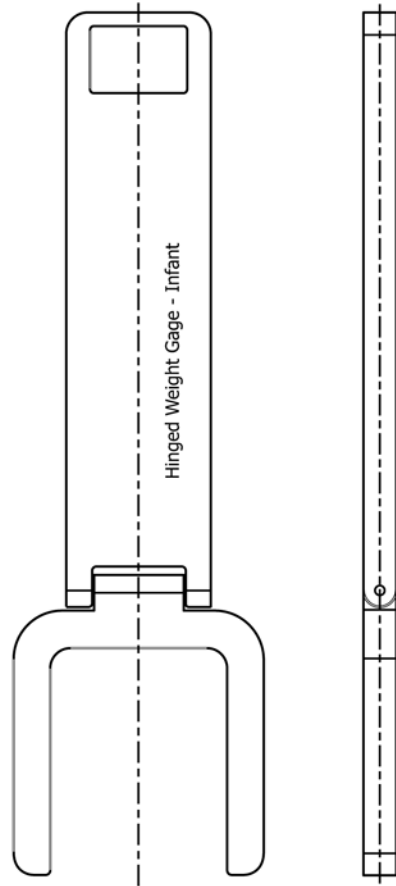
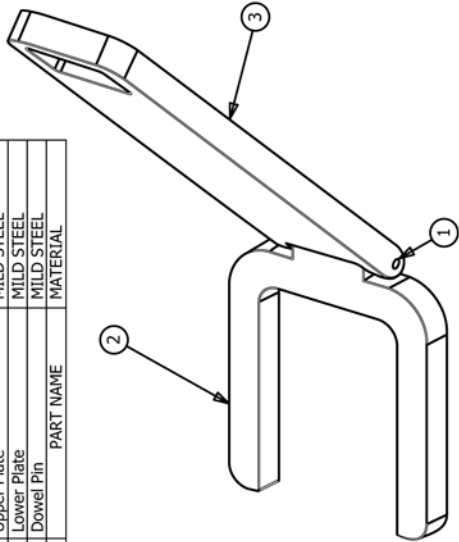


FIG. 10 Pivot Angle

ITEM	QTY	PART NAME	MATERIAL
3	1	Upper Plate	MILD STEEL
2	1	Lower Plate	MILD STEEL
1	1	Dowel Pin	MILD STEEL
1	1		



Assembled

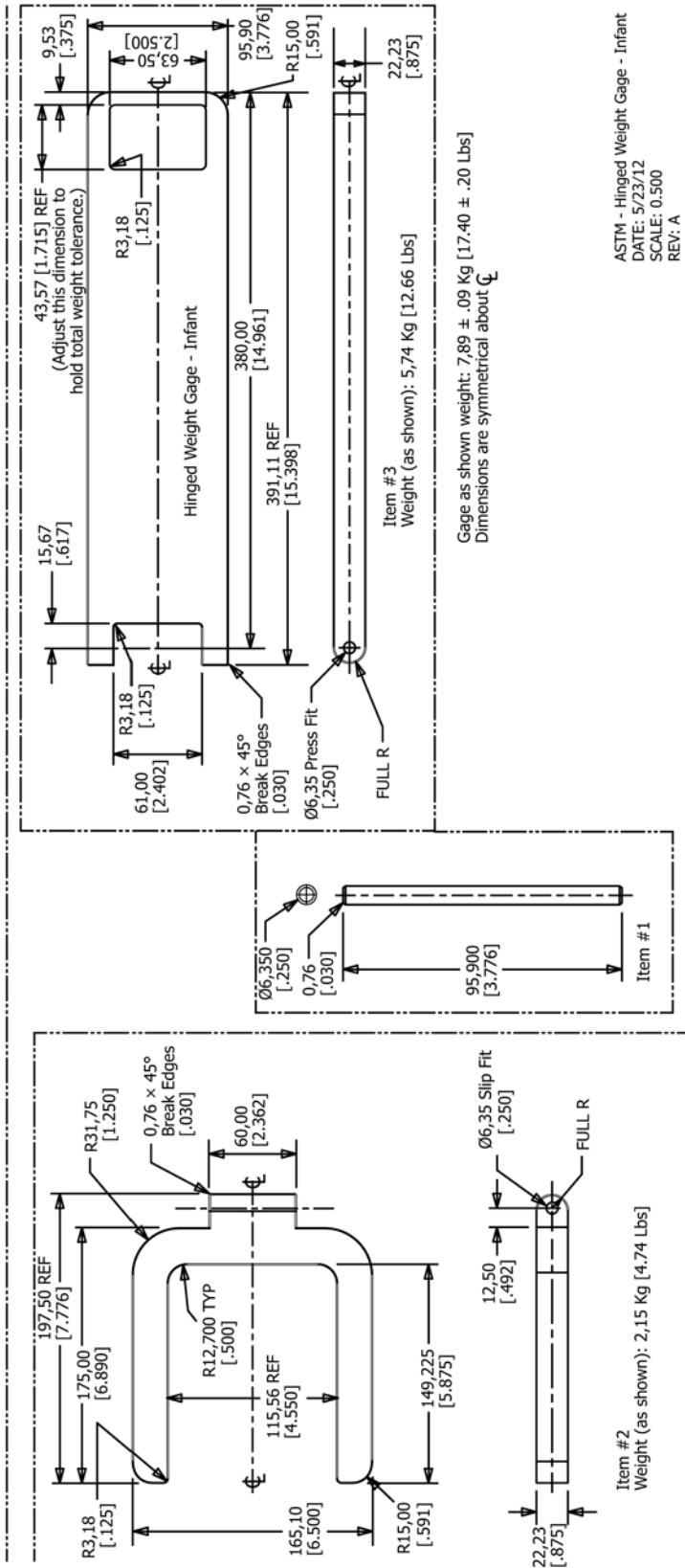


FIG. 11 Hinged Weight Gage-Infant

7.10.2 *Infant Inclined Sleep Product and Infant Inclined Sleep Product Accessories:*

7.10.2.1 If applicable, place the product in the manufacturer's recommended lowest incline angle position.

7.10.2.2 Place hinged weight gage–infant centered in product and position the gage with the hinge centered over the seat bight line and the upper plate of the gage on the seat back surface. Place digital protractor on the upper plate and measure seat back angle relative to the horizontal.

7.10.3 *Newborn Inclined Sleep Product and Newborn Inclined Sleep Product Accessories:*

7.10.3.1 If applicable, place the product in the manufacturer's recommended lowest incline angle position.

7.10.3.2 Place hinged weight gage–newborn centered in product and position the gage with the hinge centered over the seat bight line and the upper plate of the gage on the seat back surface. Place digital protractor on the upper plate and measure seat back angle relative to the horizontal.

7.11 *Maximum Incline:*

7.11.1 *Equipment:*

7.11.1.1 *Digital Protractor.*

7.11.1.2 *Hinged Weight Gage–Infant* (see Fig. 11).

7.11.1.3 *Hinged Weight Gage–Newborn* (see Fig. 6).

7.11.2 *Infant Inclined Sleep Product and Infant Inclined Sleep Product Accessory:*

7.11.2.1 If applicable, place the product in the manufacturer's recommended highest incline angle position.

7.11.2.2 Place the hinged weight gage–infant in the product and position the gage with the hinge centered over the seat bight line and the upper plate of the gage on the seat back surface. Place a digital protractor on the upper torso/head area lengthwise.

7.11.3 *Newborn Inclined Sleep Product and Newborn Inclined Sleep Product Accessory:*

7.11.3.1 If applicable, place the product in the manufacturer's recommended highest incline angle position.

7.11.3.2 Place the hinged weight gage–newborn in the product and position the gage with the hinge centered over the seat bight line and the upper plate of the gage on the seat back surface. Place a digital protractor on the upper torso/head area lengthwise.

7.12 *Side Height:*

7.12.1 *Test Equipment:*

7.12.1.1 *Straight Edge*, with a length greater than the width of the product.

7.12.1.2 *Hinged Weight Gage–Infant* (see Fig. 11).

7.12.1.3 *Hinged Weight Gage–Newborn* (see Fig. 6).

7.12.2 *Infant Inclined Sleep Product and Infant Inclined Sleep Product Accessory:*

7.12.2.1 Place hinged weight gage–infant in product with hinge over the seat bight line and the upper plate of the gage on the seat back surface. Make a reference line (x) 11.4 in. (290 mm) from the center of the hinge on the upper plate of the hinged weight gage–infant. Place straight edge across both sides of the product directly above the upper plate of the gage anywhere between the center of the hinge and the reference line. Measure vertical distance (d) between underside of straight edge and the upper surface of the hinged weight gage–infant (see Fig. 12).

7.12.3 *Newborn Inclined Sleep Product and Newborn Inclined Sleep Product Accessory:*

7.12.3.1 Place hinged weight gage–newborn in product with hinge over the seat bight line and the upper plate of the gage on the seat back surface. Make a reference line 9.9 in. (252 mm) from the center of the hinge on the upper plate of the hinged weight gage–newborn. Place straight edge across both sides of the product directly above the upper plate of the gage anywhere between the center of the hinge and the reference line. Measure vertical distance (d) between underside of straight edge and the upper surface of the hinged weight gage–infant (see Fig. 12).

7.13 *End and Side Containment:*

7.13.1 *Test Equipment:*

7.13.1.1 *Smooth, Rigid Sphere* (see Fig. 5).

7.13.1.2 *Inclined Surface*—A smooth inclined surface with a 1 by 1 in. (25 by 25 mm) in stop or equivalent device mounted parallel to the lower edge of the surface and parallel to the floor so as to prevent the product from sliding.

7.13.2 Adjust the inclined surface to 35° from horizontal.

7.13.3 Place product on inclined surface with head end facing down the inclined slope. While holding the product to prevent product from tipping forward, place the test sphere at the center of the seat bight line and let sphere roll freely.

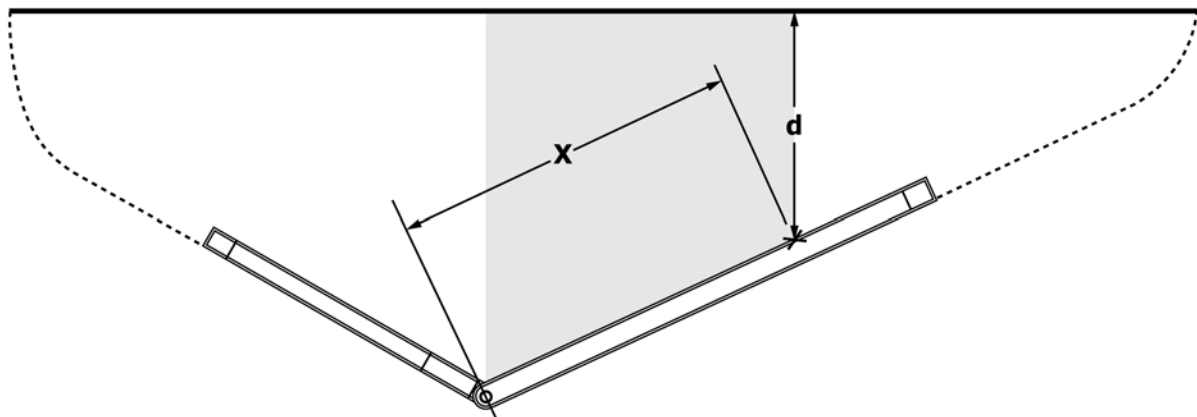


FIG. 12 Side Height

7.13.4 Repeat test with foot end facing down the inclined slope.

7.13.5 Repeat test with either side facing down the inclined slope.

7.14 *Restraint System Test:*

7.14.1 Restraint system integrity test method: Secure the product so that it does not move. Apply a force of 35 lbf (156 N) to a single attachment point of the restraint system in the normal use direction(s) in which stress would be applied to that attachment. Gradually apply the force within 5 s and maintain for an additional 10 s. Repeat for a total of five times with a maximum interval of 2 s between tests. Repeat for each attachment point of the restraint system and each fastening device.

7.14.2 Place the CAMI Infant Dummy Mark II in the product with the restraint system engaged according to the manufacturer’s instructions. Tighten the restraint system in such a manner that you can comfortably slide your little finger between the strap and the test dummy. Perform the following test without readjusting the restraint system. Gradually apply a pull force of 35 lbf (156 N) horizontally to either leg of the test dummy. Gradually apply the force within 5 s and maintain for an additional 10 s. Repeat the procedure a total of 5 times with a maximum of 2 s between tests.

7.15 *Usable Seat Back Length:*

7.15.1 *Test Equipment:*

7.15.1.1 *Hinged Weight Gage–Newborn* (see Fig. 6).

7.15.2 Place product in the manufacturer’s recommended use position.

7.15.3 Place hinged weight gage–newborn in product with hinge centered over the seat bight line and the upper plate of the gage on the seat back surface. Measure from the intersection of the gauge plates to top edge of head containment area. The top edge of the head containment area will be the point where an infant’s head could contact the border while seated or placed in the product. The intent is to measure the usable length of the seat back (see Fig. 13).

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.

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 The warnings shall be conspicuous and 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 “Δ” 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 upper case shall be at least 0.1 in. (2.5 mm) high, except where otherwise specified.

NOTE 2—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.

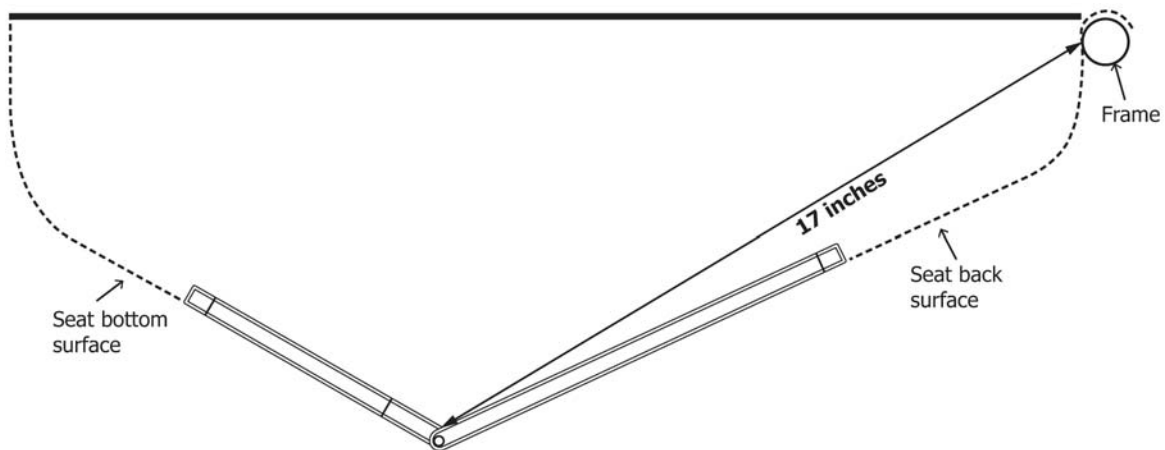


FIG. 13 Usable Seat Back Length

NOTE 3—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. 14 for examples of left alignment 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.

8.5 Each product shall be marked or labeled with warnings as follows.

8.5.1 The warning statements shall address the following, at a minimum.

NOTE 4—“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.

8.5.1.1 *Infant Inclined Sleep Product*, shall address the following:

- (1) **FALL HAZARD**—To prevent falls, stop using the product when infant:
 - (a) Begins to roll over, or
 - (b) Can pull up on sides (approximately 5 months).
- (2) **ALWAYS** use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).
- (3) **SUFFOCATION HAZARD**—Infants have suffocated:
 - (a) On added pillows, blankets and extra padding.
 - (1) **ONLY** use the pad provided by the manufacturer.

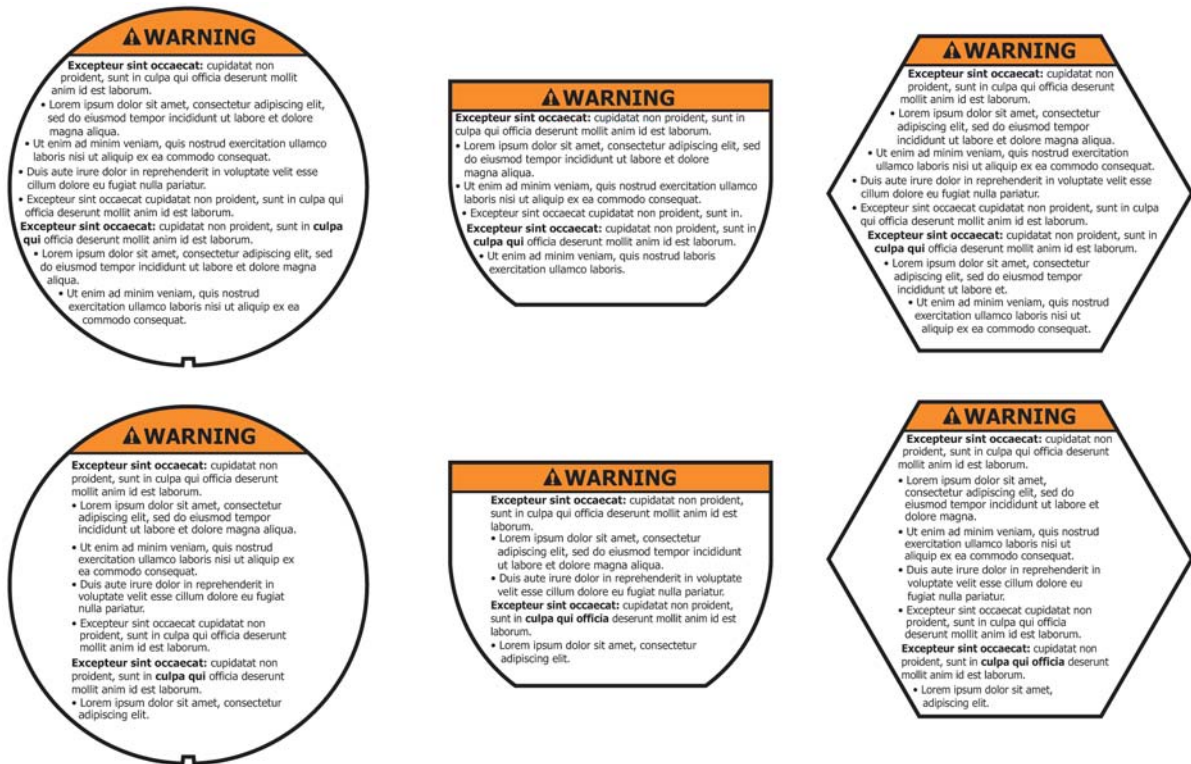
- (2) **NEVER** place extra padding under or beside infant.
- (4) **ALWAYS** place child on back to sleep.

8.5.1.2 *Infant Inclined Sleep Product Accessory*, shall address the following:

- (1) **FALL HAZARD**—To prevent falls, stop using the product when infant:
 - (a) Begins to roll over, or
 - (b) Can pull up on sides (approximately 5 months).
- (2) **ALWAYS** use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).
- (3) **SUFFOCATION HAZARD**—Infants have suffocated:
 - (a) On added pillows, blankets and extra padding.
 - (1) **ONLY** use the pad provided by the manufacturer.
 - (2) **NEVER** place extra padding under or beside infant.
 - (b) When trapped between product and adjacent surfaces.
 - (1) **ONLY** use in (manufacturer to insert type of product) when it is securely attached.
 - (2) **NEVER** use (manufacturer to insert type of accessory product) in different product.
 - (4) **ALWAYS** place child on back to sleep.

8.5.1.3 *Product that is both an Infant Inclined Sleep Product and a Compact Inclined Sleep Product*, shall address the following:

- (1) **FALL HAZARD**—To prevent falls, stop using the product when infant:
 - (a) Begins to roll over, or
 - (b) Can pull up on sides (approximately 5 months).



NOTE 1—The text shown for these warnings is filler text, known as lorem ipsum, commonly used to demonstrate graphic elements.

FIG. 14 Examples of Left Aligned Text

(2) ALWAYS use on floor. Never use on any elevated surface.

(3) ALWAYS use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(4) SUFFOCATION HAZARD—Infants have suffocated:

(a) On added pillows, blankets and extra padding.

(1) ONLY use the pad provided by the manufacturer.

(2) NEVER place extra padding under or beside infant.

(b) When trapped between product and adjacent surface.

(1) NEVER use inside cribs, play yards or other products.

(c) When product was placed on a soft surface and tipped over.

(1) NEVER use on a soft surface (for example, bed, sofa, cushion).

(5) ALWAYS place child on back to sleep.

8.5.1.4 *Product that is an Infant Inclined Sleep Product and an Infant Inclined Sleep Product Accessory and a Compact Inclined Sleep Product*, shall address the following:

(1) FALL HAZARD—To prevent falls, stop using the product when infant:

(a) Begins to roll over, or

(b) Can pull up on sides (approximately 5 months).

(2) ALWAYS use on floor. Never use on any elevated surface.

(3) ALWAYS use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(4) SUFFOCATION HAZARD—Infants have suffocated:

(a) On added pillows, blankets and extra padding.

(1) ONLY use the pad provided by the manufacturer.

(2) NEVER place extra padding under or beside an infant.

(b) When trapped between product and adjacent surfaces.

(1) ONLY use in (manufacturer to insert type of product) when it is securely attached.

(2) NEVER use (manufacturer to insert type of accessory product) in different product.

(3) NEVER use in contained areas (for example, crib, play yard) or next to vertical surfaces (for example, walls and dressers).

(c) When product was placed on a soft surface and tipped over.

(1) NEVER use on a soft surface (for example, bed, sofa, cushion).

(5) ALWAYS place child on back to sleep.

8.5.1.5 *Newborn Inclined Sleep Product*, shall address the following:

(1) FALL HAZARD—To prevent falls, stop using the product when infant:

(a) Begins to wiggle out of position or turn over in the product, or

(b) Head touches the upper edge of the product, or

(c) Weighs more than 15 lb (6.8 kg) (approximately 3 months of age).

(2) ALWAYS use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(3) SUFFOCATION HAZARD—Infants have suffocated:

(a) On added pillows, blankets and extra padding.

(1) ONLY use the pad provided by the manufacturer.

(2) NEVER place extra padding under or beside infant.

(4) ALWAYS place child on back to sleep.

8.5.1.6 *Newborn Inclined Sleep Product Accessory*, shall address the following:

(1) FALL HAZARD—To prevent falls, stop using the product when infant:

(a) Begins to wiggle out of position or turn over in the product, or

(b) Head touches the upper edge of the product, or

(c) Weighs more than 15 lb (6.8 kg) (approximately 3 months of age).

(2) ALWAYS use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(3) SUFFOCATION HAZARD—Infants have suffocated:

(a) On added pillows, blankets and extra padding.

(1) ONLY use the pad provided by the manufacturer.

(2) NEVER place extra padding under or beside infant.

(b) When trapped between product and adjacent surfaces.

(1) ONLY use in (manufacturer to insert type of product) when it is securely attached.

(2) NEVER use (manufacturer to insert type of accessory product) in different product.

(4) ALWAYS place child on back to sleep.

8.5.1.7 *Product that is both a Newborn Inclined Sleep Product and a Compact Inclined Sleep Product*, shall address the following:

(1) FALL HAZARD—To prevent falls, stop using the product when infant:

(a) Begins to wiggle out of position or turn over in the product, or

(b) Head touches the upper edge of the product, or

(c) Weighs more than 15 lb (6.8 kg) (approximately 3 months of age).

(2) ALWAYS use on floor. Never use on any elevated surface.

(3) ALWAYS use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(4) SUFFOCATION HAZARD—Infants have suffocated:

(a) On added pillows, blankets and extra padding.

(1) ONLY use the pad provided by the manufacturer.

(2) NEVER place extra padding under or beside infant.

(b) When trapped between product and adjacent surface.

(1) NEVER use in contained areas (for example, crib, play yard) or next to vertical surfaces (for example, walls and dressers).

(c) When product was placed on a soft surface and tipped over.

(1) NEVER use on a soft surface (for example, bed, sofa, cushion).

(5) ALWAYS place child on back to sleep.

8.5.1.8 *Product that is a Newborn Inclined Sleep Product and a Newborn Inclined Sleep Product Accessory and a Compact Inclined Sleep Product*, shall address the following:

(1) **FALL HAZARD**—To prevent falls, stop using the product when infant:

- (a) Begins to wiggle out of position or turn over in the product, or
- (b) Head touches the upper edge of the product, or
- (c) Weighs more than 15 lb (6.8 kg) (approximately 3 months of age).

(2) **ALWAYS** use on floor. Never use on any elevated surface.

(3) **ALWAYS** use restraint system (manufacturer is to include this warning if a restraint system is provided with the product).

(4) **SUFFOCATION HAZARD**—Infants have suffocated:

- (a) On added pillows, blankets and extra padding.
 - (1) **ONLY** use the pad provided by the manufacturer.
 - (2) **NEVER** place extra padding under or beside infant.
- (b) When trapped between product and adjacent surfaces.
 - (1) **ONLY** use in (manufacturer to insert type of accessory product) when it is securely attached.
 - (2) **NEVER** use (manufacturer to insert type of product) in different product.
 - (3) **NEVER** use in contained areas (for example, crib, play yard) or next to vertical surfaces (for example, walls and dressers).

(c) When product was placed on a soft surface and tipped over.

(1) **NEVER** use on a soft surface (for example, bed, sofa, cushion).

(5) **ALWAYS** place child on back to sleep.

8.5.2 An example warning in the format described in this section is shown in Fig. 15.

9. Instructional Literature

9.1 Instructions must be provided with the product and shall be easy to read and understand. Assembly, maintenance, cleaning, operating, and adjustment instructions, where applicable, must be included.

9.1.1 The instructions shall include all applicable warnings specified in 8.5.1.1 to 8.5.1.8(5).

9.1.2 Additional warning in the instructions shall address the following: Strings can cause strangulation! Do not place items with a string around a child’s neck, such as hood strings or pacifier cords. Do not suspend strings over product or attach strings to toys.

9.1.3 Warning statements in instructional literature shall meet the format requirements specified in 8.4.4, 8.4.5, and 8.4.6 with the following two exceptions: (a) the Signal Word panel need not meet the color requirements and (b) clause 6.4 of ANSI Z535.4 need not be applied. An example warning that meets the requirements is shown in Fig. 16. The warning statements’ wording content, as well as the use of underlining,



FIG. 15 Sample Warning for an Infant Inclined Sleep Product that is also an Accessory Infant Inclined Sleep Product and a Compact Inclined Sleep Product

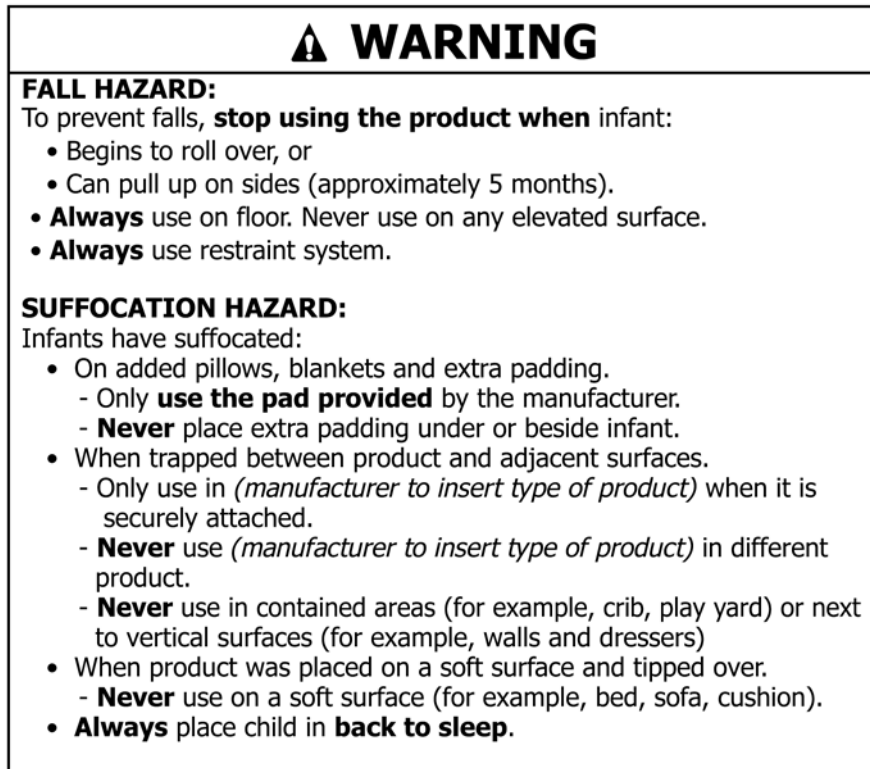


FIG. 16 Sample Warning for an Infant Inclined Sleep Product that is also an Accessory Infant Inclined Sleep Product and a Compact Inclined Sleep Product; Actual Warnings Must Be Modified for the Applicable Product Category as Specified in the Standard

capital lettering, italics, or bold typeface, or a combination thereof, are at the discretion of the manufacturer.

NOTE 5—For additional guidance on the design of warnings for instructional literature, please refer to ANSI Z535.6, American National Standard: Product Safety Information in Product Manuals, Instructions,

and Other Collateral Materials.

10. Keywords

10.1 infant inclined sleep product

APPENDIX

(Nonmandatory Information)

X1. RATIONALE

X1.1 *Subsections 6.4.2 and 6.10*—Rationale for 0 to 3 month old newborn inclined sleep product and newborn inclined sleep product accessory:

X1.1.1 The risk of an infant, who is 0 to 3 months old, falling from the infant inclined sleep product, is reduced due to the limited developmental activity of the infant. One of the most important developments during the early months of age will be an infant’s increasing neck strength. At 2 months, an infant may struggle to raise their head when placed on their stomach. By 4 months, an infant is able to hold their head and

support themselves on their elbows.⁵ The ability of the infant to roll out of the seat is very restricted due to 0 to 3 month old infants limited mobility. Only minimal side containment would be needed to keep a 0 to 3 month old infant from falling out of the product.

X1.1.2 There needs to be a seat size requirement to reduce the possibility of the product being misused by a caregiver who might place an infant, who is older than 3 months in the seat. Restricting the length of the usable seat back (distance from the seat bight to the head containment (top of the seat back) will

⁵ Dr Steven P Shelov, M.D., M.S. and Dr. Robert E. Hannemann, M.D., *Caring For Your Baby and Young Child Birth to Age 5*, The American Academy of Pediatrics, Bantam Books, 1998, p. 173.

limit a caregiver from placing an older infant in the product. For infants who cannot sit up unassisted, the crown to rump length measurement can approximate sitting height. Using data from a final report to the CPSC, the 95th percentile for an infant 0 to 3 months old the crown to rump length is 17 in. (432 mm).⁶ This measurement is slightly larger than the 50th percentile for infants 4–6 months old. This would allow approximately 95 % of 0 to 3 months old to be in the product, but only approximately 50 % of infants in the 4 to 6 month old range.

X1.1.3 As an infant grows, his crown to rump length would increase. Once his head can touch the head containment (top of the sitting area) of the product, the caregiver shall discontinue use of the product.

X1.2 *Subsection 7.9*—The dimensions of this test are based on anthropometric data for newborn infants. The dimensions are intended to provide a seat back shape that will prevent the newborn from rotating into a sideways position.

X1.3 *Subsection 6.4.1 and 7.12.2*—The 11.4 in. (290 mm) reference line location to measure side height is at the sitting

shoulder height for a 50 % 6 month infant. The 3.0 in. (76 mm) plus the thickness of the hinged weight gage—infant at the maximum angle of 30° is 4.0 in. (102 mm). The minimum depth was based on anecdotal analysis of existing product in the field.

X1.4 *Subsection 6.4.2 and 7.12.3*—The 9.9 in. (252 mm) reference line location to measure side height is at the sitting shoulder height for a 0 to 3 month newborn. The 2.0 in. (51 mm) plus the thickness of the hinged weight gage—newborn at the maximum angle of 30° is 2.6 in. (66 mm). The minimum depth was based on anecdotal analysis of existing product in the field.

X1.5 *Subsection 7.3.3.5 and 7.3.3.6*—The dual application of the horizontal and vertical forces will simulate an angled load tipping the unit over. The 23 lb (10.4 kg) load is the mean strength of a male 2-year-old pulling.

X1.6 *Subsection 6.7*—The pivot angle was based on product comparison and anecdotal analysis of field reports. The 30° limit is intended to prevent infants from rolling sideways and slumping forward.

X1.7 *Subsection 3.1.7*—The term “generally” is added so that hammocks that are intended to be hung from the ceiling are covered by this standard.

⁶ Lawrence W. Schneider, Richard J. Lehman, Melissa A. Pflug, and Clyde L. Owings, University of Michigan, *Size and Shape of the Head and Neck from Birth to Four Years*, Report to CPSC, 1986, p. 69.

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