Designation: F2549 – 14a

Standard Consumer Safety Specification for Frame Child Carriers[1]

This standard is issued under the fixed designation F2549; 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 is intended to address incidents reported by the U.S. Consumer Product Safety Commission (CPSC) relating to frame child carriers.

In response to the incident data compiled by the CPSC, this consumer safety specification attempts to minimize the hazards associated with these products from the following: *(1)* occupant retention, *(2)* structural integrity, and *(3)* deficiency of consumer education regarding product use. This consumer safety specification is intended to deal with reasonably foreseeable use and misuse of the products. This consumer safety specification does not apply to products that are blatantly misused, nor does it apply to products used by consumers in a careless manner, violating normal practice or disregarding the instructions or warnings provided with the product, or both.

1. Scope

1.1 This consumer safety specification covers performance requirements, test methods, and marking requirements to promote safe use of frame child carriers.

1.2 This consumer safety specification is intended to minimize the risk of injury to a child from the normal use and reasonably foreseeable misuse of these products.

1.3 For purposes of definition, a frame child carrier is a product, normally of sewn fabric construction on a tubular metal or other frame, which is designed to carry a child, in an upright position, on the back of the caregiver. A frame child carrier is intended for use with a child that is able to sit upright unassisted and weighs between 16 and 50 lb (7.3 and 18.1 kg). The frame child carrier is intended to be worn on the back of the caregiver's body, with the carrier, and thus the child, suspended from both shoulders of the caregiver. The seated position of the child is either facing towards or away from the caregiver.

1.4 No frame child carrier produced after the approval date of this consumer safety specification shall, either by label or other means, indicate compliance with the specification unless it complies with all of the requirements contained herein.

1.5 This consumer safety specification is not intended to address incidents and injuries resulting from the interaction of other persons or objects with the caregiver and child while the frame child carrier is in use.

1.6 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.

1.7 The following precautionary caveat pertains only to the test method portion, Section 7 of this consumer safety specification. *This standard may involve the use of hazardous materials, operations, and equipment. 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

2.2 *EN Standard:*[3]

EN 13209 Child Use and Care Articles (Child Carriers Safety Requirements and Test Methods)

[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, Bouncers and Baby Swings.

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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.

[3] Available from European Committee for Standardization (CEN), 36 rue de Stassart, B-1050, Brussels, Belgium, http://www.cenorm.be.

FIG. 1 CAMI Dummy, Mark II

2.3 *Federal Regulations:*[4]

16 CFR 1500 Hazardous Substance Act regulations including:

1500.3 (c) (6) (vi) Definition of "Flammable Solid"

1500.44 Method for Determining Extremely Flammable and Flammable Solids

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

1500.50-52 Test Methods for Simulating Use and Abuse of Toys and Other Articles for Use by Children

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

2.4 *Other Document:*

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

3. Terminology

3.1 *Definitions:*

3.1.1 *conspicuous*—visible when the product is in the manufacturer's use position to a caregiver who is placing the occupant in the frame child carrier or when the caregiver places the product on his or her body.

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

3.1.3 *fabric*—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 *handle*—a component intended to facilitate lifting of the frame child carrier.

3.1.5 *kickstand*—a hinged frame member designed to deploy and allow the child carrier to stand freely, in the upright position, for loading of child. The frame member can then be retracted when the carrier is in use.

3.1.6 *leg opening*—the opening in the frame child carrier through which the occupant's legs extend when the product is used in any of the manufacturer's recommended use positions.

3.1.7 *manufacturer's recommended use position(s)*— any position that is presented as a normal, allowable, or acceptable configuration for 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.

3.1.8 *occupant*—that individual who is restrained in a seated position inside the frame child carrier in one of the manufacturer's recommended use positions.

3.1.9 *occupant retention system*—a system provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions.

3.1.10 *non-paper label*—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.

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

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

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

4. Calibration and Standardization

4.1 The product shall be completely assembled in accordance with the manufacturer's instructions.

4.2 No testing shall be conducted within 48 h of manufacture.

4.3 The product to be tested shall be at an ambient temperature of 73 ± 9°F (23 ± 5°C) for at least 1 h before testing. All testing shall be conducted in this temperature range.

4.4 All testing required by this consumer safety specification shall be conducted on the same unit in the order presented in this specification.

5. General Requirements

5.1 *Hazardous Sharp Points or Edges*—There shall be no sharp points or edges as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before and after testing.

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.

[4] 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.

5.3 *Lead in Paint*—The paint or surface coating on the product shall comply with 16 CFR 1303.

5.4 *Wood Parts*—Prior to testing, any wooden parts shall be smooth and free of splinters.

5.5 *Scissoring, Shearing, Pinching*—A product, when in a manufacturer's recommended use position, shall be designed and constructed so as to prevent injury to the occupant from an 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. (5.30 mm) and less than 0.375 in. (9.50 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. 2). The product shall be evaluated in all manufacturers' 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 7.3) shall be covered or otherwise designed to prevent injury.

5.8 *Locking and Latching*—Any frame child carrier that folds, for storage or transport, shall have a latching or locking device or other provision in the design that will prevent the unit from unintentionally folding when properly placed in the manufacturer's recommended use position. The unit shall remain in its manufacturer's recommended use position during and upon completion of the test in accordance with 7.10. If a unit is designed with a latching or locking device, that device shall remain engaged and operative after testing.

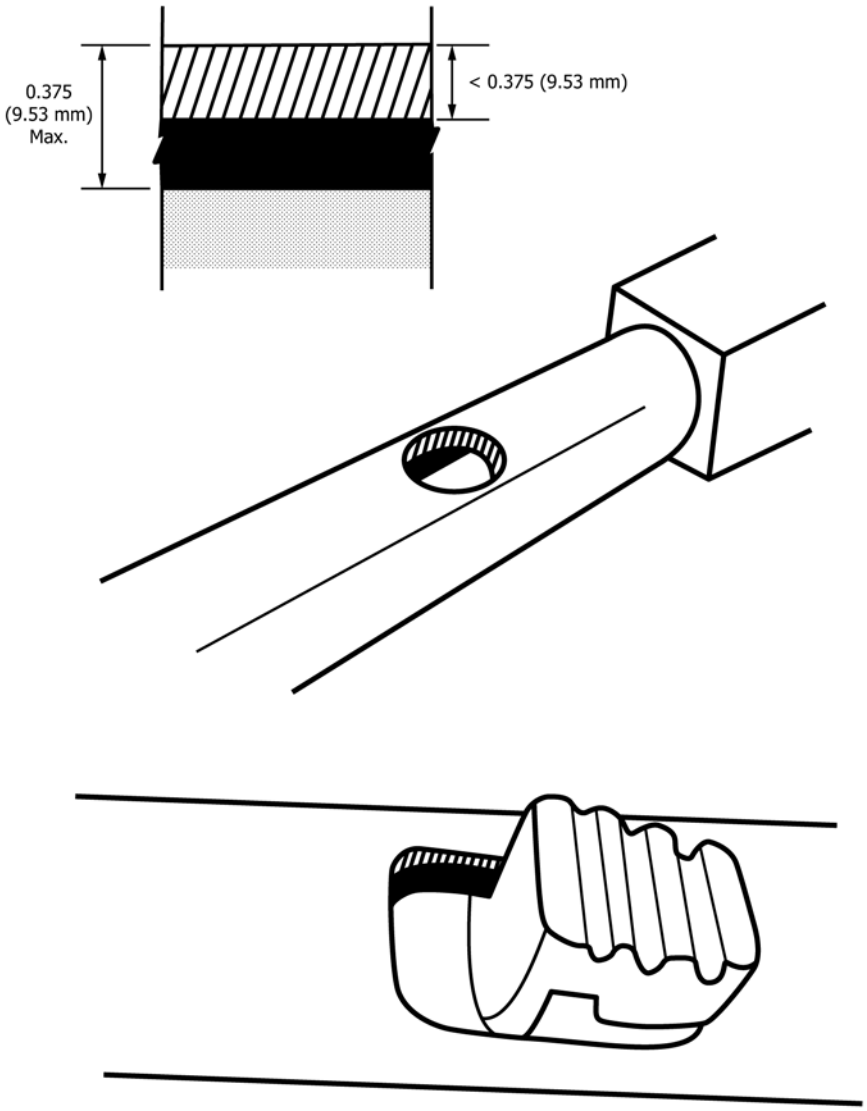


FIG. 2 Opening Example

NOTE 1—This requirement does not apply to the carrier kickstand.

5.9 *Unintentional Folding*—If the frame child carrier is designed to allow it to stand freely in the upright position, the carrier shall remain in the manufacturer's recommended use position before and after completion of all tests in 7.11.

5.10 *Labeling*—Warning labels (whether paper or non-paper) shall be permanent when tested in accordance with 7.7, 7.8, and 7.9.

5.10.1 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, and so forth shall be permanent when tested in accordance with 7.8.

5.10.2 Non-paper labels shall not liberate small parts when tested in accordance with 7.9.

5.11 *Protective Components*—If a child 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 7.12.

5.12 There shall be no flammable solids as defined in 16 CFR 1500.3 (c) (6) (vi) before or after testing in accordance with this specification.

5.13 *Toys*—Toy accessories attached to, removable from, or sold with a child frame carrier, as well as their means of attachment, must meet applicable requirements of Consumer Safety Specification F963.

6. Performance Requirements

6.1 *Leg Openings*—Leg openings shall not permit the passage of the Leg Opening Test Sphere when tested in accordance with 7.1.

6.2 *Dynamic Strength*—The carrier shall not create a hazardous condition, such as frame or fasteners breaking or disengaging or seams separating, when tested in accordance with 7.2. Adjustable elements in the occupant retention system shall not slip more than 1 in. (25.4 mm) per strap as a result of the dynamic testing in accordance with 7.2.

6.3 *Static Load*—The carrier shall not create a hazardous condition, such as not supporting the test weight, frame or fasteners breaking or disengaging, or seams separating, when tested in accordance with 7.3. Adjustable elements in the occupant retention system shall not slip more than 1 in. (25.4 mm) when tested in accordance with 7.3.

6.4 *Stability*—If the frame child carrier is designed to allow it to stand freely in the upright position, the frame child carrier shall not tip over when tested in accordance with 7.4.

6.5 *Retention System:*

6.5.1 A retention system, including a shoulder restraint, shall be provided to secure the occupant in a seated position in any of the manufacturer's recommended use positions.

6.5.2 Before shipment, the manufacturer shall attach the retention system in such a manner that it will not detach in normal usage.

6.5.3 If the retention system includes a crotch restraint designed to work with a lap belt, it shall be designed such that its use is mandatory when the retention system is in use.

6.5.4 When tested in accordance with 7.5, the restraint system and its closing means (for example, a buckle) shall not break, disengage, or separate at any seam and all fasteners shall not release or suffer damage that impairs the operation and function of the restraint system. At the end of the tests, the CAMI dummy shall not be released fully or fall out of the carrier.

6.6 *Handle Integrity*—The carrier shall not create a hazardous condition such as handle or frame breaking or disengaging or seams separating when tested in accordance with 7.6.

7. Test Methods

7.1 *Leg Openings:*

7.1.1 Place the CAMI Infant Dummy into the frame carrier in accordance with the manufacturer's instructions, fasten all restraint harnesses and if applicable, tighten any other adjustment straps used for securing or containing, or both, the occupant in the carrier. Adjust the seat height in accordance with the manufacturer's instructions for use with a 6 month old child.

NOTE 2—If the manufacturer does not provide instructions for seat height, adjust the seat so that it results in CAMI's chin resting right above the edge of the frame carrier.

7.1.2 If the carrier contains a waist restraint, adjust it using the webbing tension pull device shown in Fig. 3, so that a force of 2 lbf (9 N) applied to the waist restraint will provide between ¼ and ½ in. (6 and 12.7 mm) space between the waist restraint and the CAMI Dummy.

7.1.3 Repeat 7.1.2 with the both shoulder restraints and any adjustment straps, if applicable.

NOTE 3—The webbing tension pull device is required to determine proper restraint system fit in the waist and shoulder straps. Thus, 7.1.2 and

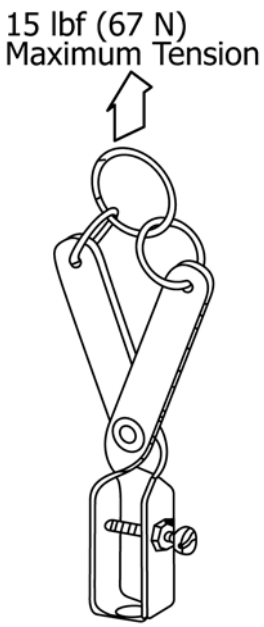


FIG. 3 Tension Test Adapter/Clamp

7.1.3 are required only for carriers that have active restraint systems or adjustment straps. Passive adjustment straps or restraint systems, designed such that they do not require any adjustment by a caregiver, are excluded from 7.1.2.

7.1.4 Unfasten all restraints and straps, taking care as to not change the settings at which they were adjusted, and remove CAMI from the frame carrier. Re-fasten all the restraints so that the carrier has all of the same adjustment positions set in 7.1.1 – 7.1.3.

NOTE 4—For any straps or restraints that need to be loosened in order to remove CAMI, mark the webbing of the straps/restraints before loosening to help assure that the same adjustment position can be repeated.

7.1.5 Place the Leg Opening Test Sphere (Fig. 4) in the carrier leg opening and gradually tilt the carrier, over a period of 5 s, in a manner such that the leg opening of the carrier is horizontal.

7.1.6 Allow the sphere to rest in the opening for an additional 1 min.

7.1.7 Repeat 7.1.5 and 7.1.6 for the other leg opening.

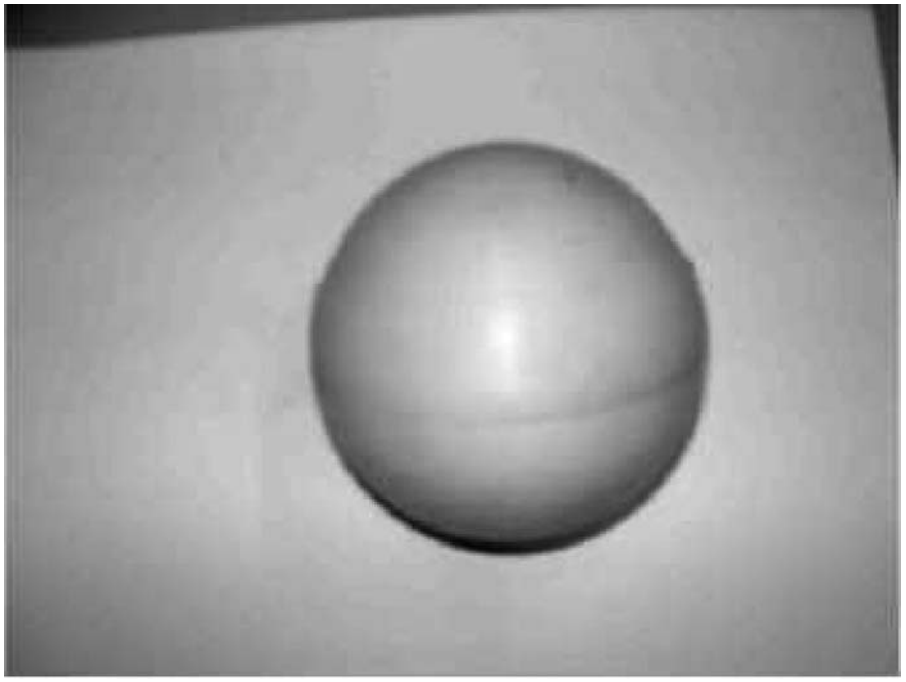
7.2 *Dynamic Strength Test:*

7.2.1 Fasten the frame child carrier to a test torso (see Fig. 5) in the same or similar manner as the instruction manual directs the carrier should be attached to the human torso during actual use.

7.2.2 Position a weight of 40 lb (18.1 kg) or the manufacturer's maximum recommended weight for the occupant, whichever is greater, using a 6 to 8 in. (150 to 200 mm) diameter shot bag, in the seat of the frame child carrier. Adjust all straps to firmly retain the shot bag in the same or similar manner as the instruction manual directs that the straps should be adjusted on the child occupant during actual use.

NOTE 1—This figure illustrates typical device that is acceptable.

FIG. 5 Test Torso



NOTE 1—Sphere shall be fabricated from a smooth, rigid material weighted to 7.0 lb (3.20 kg). Sphere is machined to 16.5 in. (419.1 mm) circumference.

FIG. 4 Leg Opening Test Sphere

7.2.3 Complete ten cycles of alternating vertical movement at amplitude of 4.7 in. (120.0 mm) and a frequency of 2 cycles/s ±20 % (2 Hz). Mark the position of the adjustment hardware.

7.2.4 Complete an additional 90 cycles and measure the slippage, if any. If during testing, the adjustment straps allow significant slippage, causing the frame child carrier to be tested in an unrealistic position, the adjustment straps may be secured to prevent further movement.

7.2.5 Complete an additional 49 900 cycles. Verify the general condition of the frame child carrier in accordance with 6.2.

7.2.6 If the frame child carrier is designed to allow it to stand freely in the upright position, the following test will be performed.

7.2.6.1 Secure the frame child carrier in the manufacturer's use position to a horizontal test plane.

7.2.6.2 Position a weight of 40 lb (18.1 kg) or the manufacturer's maximum recommended weight for the occupant, whichever is greater, using a 6 to 8 in. (150 to 200 mm) diameter shot bag, in the seat of the frame child carrier.

7.2.6.3 Lift the weight a vertical distance of 3 in. (75 mm) from the seat surface and drop onto the seat. Perform the drop test a total of 500 times with a cycle time of 4 ± 1 s/cycle. If required, adjust the drop height to maintain the 3 in. (75 mm).

7.3 *Static Load Test:*

7.3.1 Fasten the frame child carrier to a test torso (see Fig. 5) in the same or similar manner as the instruction manual directs the carrier should be attached to the human torso during actual use.

7.3.2 Using a 6 in. (150 mm) Standard Weld Cap (see Fig. 6), center a weight equal to three times the maximum manufacturer's recommended weight in the seat area of the frame child carrier. Include the weight of the weld cap. Gradually apply the weight within a 5 s period and maintain for an additional 1 min.

7.3.3 If the frame child carrier is designed to allow it to stand freely in the upright position, repeat the Static Load Test of 7.3.2 with the frame child carrier placed on a concrete floor that may be covered with ⅛ in. (3 mm) thick vinyl floor covering.

7.4 *Stability Test:*

7.4.1 Place the frame child carrier in the manufacturer's use position with all frame members on a 12° inclined plane. If the carrier is designed with adjustable seat heights, test in the highest use position.

7.4.2 Place a stop on the plane against the frame in a manner that will prevent the frame child carrier from moving on the plane, but will not prevent tipping.

7.4.3 Configure a weighted vest (Fig. 7) to attain a weight of at least 23 lb (10.4 kg).

7.4.4 Place a CAMI Infant Dummy, Mark II and the weighted vest in the frame child carrier with the retention system adjusted in accordance with the manufacturer's instructions. The combined weight of the CAMI Dummy and weighted vest shall be at least 40 lb (18.1 kg).

7.4.5 Position the frame child carrier on the plane in all orientations that present maximum tendency for the unstable condition to exist.

7.5 *Retention System:*

7.5.1 Secure the frame child carrier to a horizontal test plane so that it cannot move vertically or horizontally.

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

7.5.3 Place a CAMI Infant Dummy, Mark II in the frame child carrier with the retention system adjusted in accordance with the manufacturer's instructions.

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

7.5.5 Repeat this procedure five times with a maximum interval of 5 s between tests.

7.5.6 Release the frame child carrier from its attachment to the test plane.

7.5.7 Reposition the CAMI Infant Dummy, Mark II in the frame child carrier without adjusting the retention system.

7.5.8 By any convenient means, lift the frame child carrier and rotate it backwards 360° around an axis approximating the intersection of the seat back and bottom. The rotation must hesitate for a minimum of 1 s every 90°.

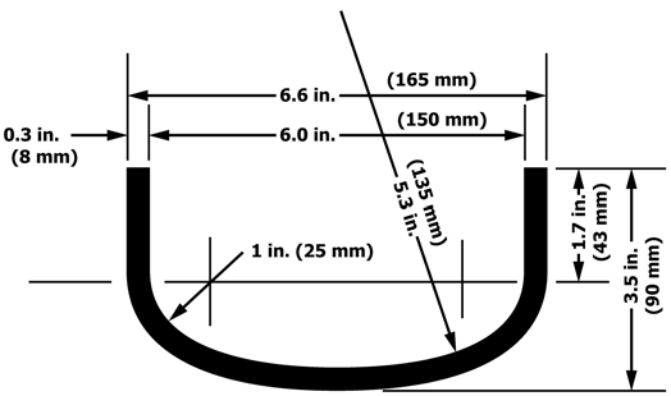


FIG. 6 Standard 6 in. (150 mm) Weld Cap

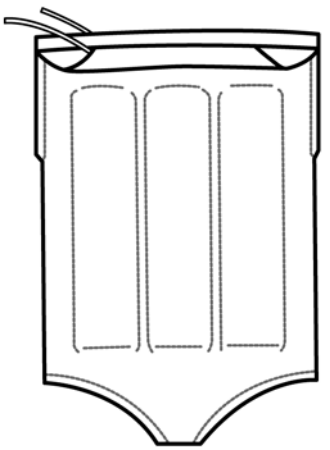


FIG. 7 Weight Vest

7.5.9 Rotate the frame child carrier 360° around an axis approximating the side edge of the seat bottom. The rotation must hesitate for a minimum of 1 s every 90°.

7.6 *Handle Integrity:*

7.6.1 Secure the frame child carrier to a horizontal test plane so that it cannot move vertically or horizontally.

7.6.2 Apply a pull force to the handle equal to three times the maximum manufacturer's recommended weight in the normal use direction(s) that stress would be applied. Gradually apply the force within 5 s and maintain for an additional 30 s.

7.6.3 Repeat this procedure a total of five times on each handle of the frame child carrier.

7.7 *Permanency of Labels and Warnings:*

7.7.1 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.

7.7.2 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.

7.7.3 A warning label attached by a seam shall be considered permanent if it does not detach when subjected to a 15 lbf (67 N) pull force applied in any direction most likely to cause failure using a ¾ in. (19 mm) diameter clamp surface (see Fig. 8). Gradually apply the force over 5 s and maintain for an additional 10 s.

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

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

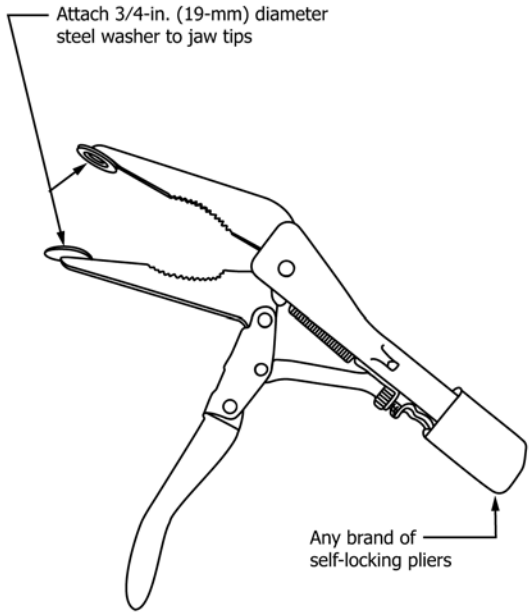


FIG. 8 Label Permanency Test Clamp

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

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

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

7.10 *Locking Device Test*—With the product in the manufacturer's recommended use position, gradually apply a force of 10 lbf (45 N) to the locking device in the direction tending to unlock it. The locking device shall not unlock until the force of 10 lbf (45 N) is exceeded.

7.11 *Unintentional Folding Test*—With the product in the manufacturer's recommended freely standing upright use position, place a weight equal to 16 lb (7.3 kg) (or, if greater, the minimum child weight recommended by the manufacturer) using a 6 to 8-in. diameter shot bag in the seat of the frame child carrier. Gradually apply a force of 10 lbf (45 N) at the end of a leg/frame member in the direction normally associated with folding, while holding the opposite leg(s)/frame member(s) stationary. Gradually apply the force over 5 s and maintain for an additional 10 s. Repeat this test on each leg/frame member.

7.12 *Removal of Protective Components Test:*

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

7.12.2 Secure the frame child carrier to a horizontal test plane so that it cannot move vertically or horizontally.

7.12.3 *Torque Test*—A torque shall be applied to any graspable component (see 5.11) 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 lbf-in. (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. Repeat this procedure in the counter-clockwise direction.

7.12.4 *Tension Test:*

7.12.4.1 Attach a force gage to the component, cap, sleeve, or plug by means of a 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 frame child carrier to which they are attached, a clamp such as that shown in Fig. 3 may be used.

7.12.4.2 Make sure the attachment device does not compress or expand the component hindering any possible removal.

7.12.4.3 Apply a pull force of 15 lbf (67 N), in the direction normally associated with removal to the component, cap, sleeve, or plug. Gradually apply the force within 5 s and maintain for an additional 10 s.

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

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

8.2 The markings on the product shall be permanent.

8.3 Any upholstery label required by law shall not be used to meet the requirements in 8.1.

8.4 Each product shall have warning statements. The warning statements shall be in contrasting color(s), permanent, and in sans serif style font. The warning label shall be in a conspicuous location, visible to the caregiver each time the occupant is placed in the carrier or when the caregiver places the product on his or her body.

8.4.1 The safety alert symbol "⚠" and the words "WARNING—FALL OR STRANGULATION HAZARD" shall precede the warning statements. The safety alert symbol "⚠" and the word "**WARNING**" shall not be less than 0.2 in. (5 mm) high and the remainder of the text shall be characters whose upper case shall be at least 0.1 in. (2.5 mm) high.

8.4.2 Warnings statements shall address the following:

8.4.2.1 Avoid serious injury from falling or sliding out. Always use child retention system.

8.4.2.2 Do not use carrier with a child weighing less than 16 lb (or the minimum child weight recommended by the manufacturer, if more) or more than 40 lb (or the maximum child weight recommended by the manufacturer, if less).

8.4.2.3 Do not use carrier if child cannot sit upright unassisted.

8.4.2.4 Do not place carrier on counter tops, tables, or other elevated surfaces.

9. Instructional Literature

9.1 Instructions shall be provided with the product and shall be easy to read and understand. Instructions for assembly, use, maintenance, and cleaning of the product, and warnings, where applicable, shall be included.

9.1.1 Instructions shall address the following:

9.1.1.1 Read all instructions before assembling and using the frame child carrier.

9.1.1.2 Keep instructions for future use.

9.1.1.3 Check to assure all buckles, snaps, straps, and adjustments are secure before each use.

9.2 Warning statements within the instructional literature shall address the items in 8.4.1 and 8.4.2.

9.3 Instructional literature shall include name and either place of business (city, state, and mailing address, including zip code) or telephone number of the manufacturer, importer, distributor, or seller.

10. Keywords

10.1 frame child carrier

APPENDIX

(Nonmandatory Information)

X1. RATIONALE

X1.1 *Section 6.2* This test procedure was patterned after Section 6.7 of European EN 13209–1: 2004 as follows:

X1.1.1 *Section 6.7.1, Principle*—The strength of the framed carrier is tested by reproducing the stresses that would be subjected to the carrier in a walk of approximately 30 km (18.6 mi) under severe conditions.

X1.1.2 *Section 6.7.2, Requirement*—After 50 000 cycles of the dynamic strength test, as specified, the carrier shall show no damage that will impair its function.

X1.1.3 *Section 6.7.3, Test Torso*—A rigid test torso is fitted to a rigid plate. The plate shall be submitted to an alternating vertical movement with amplitude of 120 mm (4.7 in.) and a frequency of 2 Hz.

X1.2 *Section 7.1, Leg Openings*—The test method was designed to provide a reliable, repeatable method to ensure that the leg opening was smaller than that, which was set in the standard. The establishment of the leg opening size is based on the following factors:

X1.2.1 The 50th percentile hip circumference of the smallest child likely to use the frame child carrier (3 to 5 months of age) was found to be 15.9 in. (40.4 cm). Adding a clothing/diaper allowance for testing purposes, the test sphere circumference was set at 16.5 in. (41.9 cm). This permitted the admission of the thigh of the largest child that would likely use the product.

X1.2.2 The test ball is constructed to provide sufficient weight (7 lb; 3.2 kg) to ensure that the carrier fabric is stretched in a repeatable manner. The texture of the test ball replicates the texture of skin or fabric.

NOTE X1.1—This section reflects similar wording that has been previously approved in the safety standards for other juvenile products.

X1.3 *Subsections 7.2.6.2 and 7.2.6.3*—As currently written, it was agreed that the starting reference point for the 3 in. (75 mm) drop is determined by the weight of the wood block, and not by the weight of the wood block and the shot bag. This is inconsistent with the dynamic strength test in 7.2.2, where the starting reference point is determined by the weight of the shot

bag. Therefore, it was determined that the wood block should be eliminated from 7.2.6.