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1 SCOPE

1.1 This method describes test procedures for cribs and cradles to ensure that the product meets the requirements of the Cribs and Cradles Regulations (SOR/86-962, 11 September, 1986). Since the numerical values of performance measures are based upon regulatory requirements, the tolerances for these values have been chosen such that no test parameter is applied to the product that results in a more severe condition than that specified in the regulation. The product is evaluated by performing the following tests in sequence:


- 4.1 Inspection of container for damage and labelling
- 4.2 Permanency of the labels and pouch
- 4.3 Indelibility of the printing
- 4.4 Inspection of the product for damage and labelling
- 4.5 Warning statements
- 4.6 Reference to the Hazardous Products Act or the Cribs and Cradles Regulations
- 4.7 Assembly of the crib or cradle in accordance with the instructions supplied
- 4.8 Marking of product for testing purposes
- 4.9 Latching and locking
- 4.10 Swing
- 4.11 Description of mattress support
- 4.12 Mattress
- 4.13 Mattress support heights
- 4.14 Corner posts
- 4.15 Threaded bolt ends
- 4.16 Coil springs
- 4.17 90 N Push/Pull
- 4.18 Small Components

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- 4.19 Sharp edges and Sharp points
- 4.20 Open holes
- 4.21 Entanglement
- 4.22 Shearing or pinching
- 4.23 Slat spacing
- 4.24 120 N horizontal alternating force
- 4.25 120 N vertical alternating force
- 4.26 250 N individual upward force (backloading)
- 4.27 250 N simultaneous upward forces (backloading)
- 4.28 200 N force in any direction
- 4.29 Impact
- 4.30 8 N.m torque
- 4.31 500 N pull
- 4.32 Mesh opening size

2 APPLICABLE DOCUMENTS

- 2.1 The Hazardous Products Act (HPA).
- 2.2 HPA, Cribs and Cradles Regulations (SOR/86-962, 11 September, 1986) hereinafter referred to as the Regulations.
- 2.3 Book 5, Reference Manual, Laboratory Policies and Procedures, Product Safety Laboratory (PSL) hereinafter referred to as Book 5.
- 2.4 Test Method M00.1 (Small Components), Book 5.
- 2.5 Test Method M00.2 (Sharp Edges), Book 5.
- 2.6 Test Method M00.3 (Sharp Points), Book 5.
- 2.7 Test Method M08 (Playpens), Book 5.

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2.8 PSL Project Report 99-0530: New Linear Actuator Alternating Force Application Testing Apparatus used for Testing Standard Cribs.

2.9 PSL Project Report 2000-0555: Revised Method: TEST METHOD FOR CRIBS AND CRADLES.

3 SAMPLING

3.1 The following test procedures are conducted on one specimen.

4. TESTING PROCEDURE

4.1 INSPECTION OF CONTAINER FOR DAMAGE AND LABELLING

4.1.1 Scope

4.1.1.1 This method describes the procedure for determining whether the product container is clearly identified¹.

4.1.2 Apparatus

4.1.2.1 A graduated measuring magnifier or equivalent with a precision of 0.1 mm.

4.1.3 Procedure


4.1.3.1 Inspect the product container for damage. If damage exists, inspect contents for damage and discontinue testing if the product itself is damaged.

4.1.3.2 Inspect the product container for the following information, which must be in either official language:

- (i) the name and principal place of business in Canada of the importer or of the person by or for whom the product is made;
- (ii) the model name or model number of the product; and
- (iii) the year and month of manufacture of the product.

4.1.3.3 Measure the height of the characters used to present the information required in 4.1.3.2. When lower case print is used, the size of the type is determined by measuring the height of the lower case "l" or similar full height letter.

¹§ 4(2) and thus 4(1) (a) to (c) of the Regulations

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4.1.4 Results

4.1.4.1 Record details of the following:

- (i) Whether the product container was damaged, and if so whether the contents were damaged.
- (ii) Whether the information listed in 4.1.3.2 was present and any discrepancies.
- (iii) The heights of characters less than 2.5 mm.

4.2 PERMANENCY OF THE LABELS AND POUCH

4.2.1 Scope

4.2.1.1 This method describes the procedure for determining whether the product's and container's labels and the product's pouch are permanently attached².

4.2.2 Apparatus

4.2.2.1 A nylon scrub pad.

4.2.2.2 A force gauge capable of measuring 90 N, with a precision of 2 N.

4.2.2.3 A pair of wide-jawed vice grips (Figure 1).

4.2.2.4 A knife or scalpel.


4.2.2.5 A stopwatch with a precision of 0.1 seconds.

4.2.3 Procedure

4.2.3.1 Dry scrub 10 times (10 strokes) with a nylon scrub pad, the labels which are affixed to the product and container in a manner and direction most likely to cause the edges of the label to lift.

4.2.3.2 Using a fingernail, knife or scalpel, attempt to raise a portion of the label (a corner is preferred, if available) far enough so that the label clamp can be attached. In doing so, care should be taken not to damage the label material or surface on which it is affixed.

²§ 4(1) to 4(7) of the Regulations

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4.2.3.3 Attach the label clamp (such as a pair of wide-jawed vice grips) to the raised portion of the label at a point that has not been damaged (torn, frayed, etc.) by the raising action.

4.2.3.4 Attach the force gauge to the wide-jawed vice grips (Figure 1) and gradually apply a force up to but not exceeding 90 N (85 N \pm 5 N) in an attempt to initiate and sustain removal action of the label. The angle of force application (as close as possible to the horizontal is preferred) may be adjusted to facilitate removal of the label. If the attached portion of the label slips from the clamp, adjust the clamp, re-attach it and the force gauge and resume the test. If the label begins to tear, continue with the test until the torn portion detaches or until the entire label has been completely detached.

4.2.3.5 In the case of a pouch, attach a clamp to it and apply a force up to but not exceeding 90 N (85 N \pm 5 N). The angle of force application (as close as possible to the horizontal is preferred) may be adjusted to facilitate removal of the pouch. Hold the force for 10 seconds (\pm 1 sec), on any pouch, plastic, or other material bearing or containing printed or stamped information, warning statements or instructions.

4.2.4 Results

4.2.4.1 Record the following:

(i) The location of the label or pouch.


(ii) If a portion of the label or pouch could not be raised a sufficient amount to provide an adequate undamaged area to attach the label clamp.

(iii) Whether the label or pouch detached completely from the product.

(iv) The maximum force applied.

(v) Whether the label or pouch tore or was damaged during the attempt to remove it from the product.

(vi) Whether the surface on which the label or pouch was affixed was damaged during the attempt to remove it from the product.

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4.3 INDELIBILITY OF THE PRINTING

4.3.1 Scope

4.3.1.1 This method describes the procedure for determining whether the written information supplied on the product container and with the product is indelible³.

4.3.2 Apparatus

4.3.2.1 A non-abrasive, non-acidic all-purpose household cleaner, such as Windex or equivalent, used as recommended by its manufacturer.

4.3.2.2 An all-purpose cloth.

4.3.3 Procedure

4.3.3.1 Any information, warning statements or instructions which are either

- (i) printed on a label which is glued onto the product/container or
- (ii) printed on plastic or other material affixed to the product/container or
- (iii) stamped or printed on the product/container

are rubbed 10 times (10 strokes) with an all-purpose cloth which has been sprayed with a non-abrasive, non-acidic window cleaner.

4.3.4 Results

4.3.4.1 Record whether any portion of the lettering was smudged or erased.


4.4 INSPECTION OF THE PRODUCT FOR DAMAGE AND LABELLING

4.4.1 Scope

4.4.1.1 This method describes the procedure for determining whether the product is clearly identified⁴.

³ § 4(1) to 4(5) and 4(7) of the Regulations

⁴ § 4(2) and thus 4(1) (a) to (c) of the Regulations

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4.4.2 Apparatus

4.4.2.1 A graduated measuring magnifier or equivalent with a precision of 0.1 mm.

4.4.3 Procedure

4.4.3.1 Inspect the product for damage. If damage exists, discontinue testing.

4.4.3.2 Inspect the product for the following information, which must be clearly identified and displayed, in either official language:

(i) The name and principal place of business in Canada of the importer or of the person by or for whom the product is made;

(ii) The model name or model number of the product; and

(iii) The year and month of manufacture of the product.

4.4.3.3 Measure the height of the characters used to present the information required in 4.4.3.2. When lower case print is used, the size of the type is determined by measuring the height of the lower case "l" or similar full height letter.

4.4.4 Results

4.4.4.1 Record the following:

(i) Whether the product was damaged.

(ii) Whether the information listed in 4.4.3.2 was present and any discrepancies.

(iii) The heights of characters less than 2.5 mm.

4.5 WARNING STATEMENTS


4.5.1 Scope

4.5.1.1 This method describes the procedure for determining whether the required warning notices are on the product⁵.

4.5.2 Apparatus

4.5.2.1 A graduated measuring magnifier or equivalent with a precision of 0.1 mm.

⁵§ 4(3) to 4(7) of the Regulations

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4.5.3 Procedure

4.5.3.1 Inspect the product for the following information:

- (i) as per section 4 (3) of the Regulations for cribs;
- (ii) as per section 4 (4) of the Regulations for cradles;
- (iii) as per section 4 (5) of the Regulations for both cribs and cradles;
- (iv) as per section 4 (6) of the Regulations for both cribs and cradles, and
- (v) as per section 4 (7) of the Regulations for cribs.

4.5.4 Results

4.5.4.1 Record whether the information listed in section 4.5.3.1 is present. Include a photograph of the text to show any discrepancies.

4.6 **REFERENCE TO THE HAZARDOUS PRODUCTS ACT OR THE CRIBS AND CRADLES REGULATIONS**

4.6.1 Ensure that no references, direct or indirect, to the Hazardous Products Act or these Regulations are made in any written material applied to or accompanying the product or in any advertisement of the product. Note any discrepancies.

4.7 **ASSEMBLY OF THE CRIB OR CRADLE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED**


4.7.1 Scope

4.7.1.1 This method describes the procedure for determining whether the product can be assembled in accordance with the instructions supplied⁶.

4.7.2 Apparatus

4.7.2.1 No special test apparatus is required, however, hand tools may be required to complete product assembly.

⁶ § 4(5) of the Regulations

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4.7.3 Procedure

4.7.3.1 Assemble the crib or cradle according to the manufacturer's instructions. Note any deficiencies or ambiguities in the instructions.

4.7.3.2 Examine the instructions to see if they meet the following requirements:

- (i) They shall clearly state, in both official languages, with sketches, line drawings or photographs illustrating the sequence of steps, the method of assembling the product.
- (ii) If the product is capable of being folded or unfolded, the instructions shall clearly indicate how to do so.
- (iii) If the mattress support height is adjustable, the instructions shall clearly indicate how to do it.
- (iv) A list of parts shall be included in the instructions.
- (v) The instructions shall contain a warning stating that parents or care givers should ensure a safe environment for the child by checking regularly, before placing the child in the product, that every component is properly and securely in place.

4.7.4 Results

4.7.4.1 Record any deficiencies in the requirements outlined in 4.7.3.2, as well as the location of the instructions.

4.8 MARKING OF PRODUCT FOR TESTING PURPOSES

4.8.1 Scope


4.8.1.1 This method describes the procedure for identifying the corners and sides of the product.

4.8.2 Apparatus

4.8.2.1 An indelible felt marker pen.

4.8.3 Procedure

4.8.3.1 Facing a drop side of the assembled product with the headboard (or where the head of an occupant would be) on your left hand side, mark the corners as follows:

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- (i) Corner 1 the far side right hand (foot end) corner.
- (ii) Mark the other corners 2, 3 and 4 going in a counter clockwise direction.

4.9 LATCHING AND LOCKING

4.9.1 Scope

4.9.1.1 This method describes the procedure for evaluating the latching and locking mechanisms on the product⁷.

4.9.2 Apparatus

4.9.2.1 A force gauge capable of measuring up to 35 N with a precision of 0.1 N.

4.9.2.2 A torque metre capable of measuring up to 0.8 N·m with a precision of 0.01 N·m.

4.9.3 Procedure


4.9.3.1 For products with movable sides check that the latching or locking mechanisms, holding the movable side closed, meet the following requirements:

- (i) They shall require two separate and simultaneous actions on the part of the user to release the mechanism. If this is unclear or difficult to determine, photograph and document a reasonably foreseeable action that clearly illustrates the concern.
- (ii) They shall engage automatically.

4.9.3.2 For products with move-away sides, check that every move-away side has at least two latching or locking mechanisms that meet 4.9.3.1 (i) and (ii), and that they have two latching or locking mechanisms that engage automatically where each latching or locking mechanism requires:

- (i) the force of 35 N to disengage the mechanism where disengagement occurs as a result of a pull or push force applied to the mechanism; or
- (ii) the torque of 0.8 N.m to disengage the mechanism where disengagement occurs as a result of a turning force applied to the mechanism.

⁷ § 6(1) and 6(2) of the Regulations

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4.9.4 Results

4.9.4.1 Record the following:

- (i) The results of 4.9.3.1 for movable sides.
- (ii) The results of 4.9.3.2 for move-away sides, including the actual force required to disengage the latching or locking mechanism.

4.10 SWING

4.10.1 Scope

4.10.1.1 This method describes the procedure for checking the swing of a cradle⁸.

4.10.2 Apparatus

4.10.2.1 A protractor capable of measuring a swing of up to 20° with a precision of 0.1°.

4.10.3 Procedure

4.10.3.1 If the cradle rocks or swings, measure the maximum angle of swing from the vertical.

4.10.4 Results

4.10.4.1 Record the maximum degree of swing or rock measured.

4.11 DESCRIPTION OF MATTRESS SUPPORT


4.11.1 Scope

4.11.1.1 This method outlines the procedure for describing the mattress support.

4.11.2 Procedure

4.11.2.1 Inspect the mattress support and the mattress support attachments.

⁸ § 7 of the Regulations

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4.11.3 Results

- 4.11.3.1 Provide a brief description of the design of the mattress support and the mattress support attachments (generally described in Figures 8-25). Include a photograph of the mattress support design.

4.12 MATTRESS

4.12.1 Scope

- 4.12.1.1 This method describes the procedure for checking the mattress size and the mattress stitching⁹.

4.12.2 Apparatus

- 4.12.2.1 A metric tape measure with a precision of 1 mm.
- 4.12.2.2 A knife with a sharp pointed blade.


4.12.3 Procedure

- 4.12.3.1 Measure the length, width and thickness of the mattress.
- 4.12.3.2 Measure the interior length and width of the crib or cradle.
- 4.12.3.3 Cut the mattress stitching in several places and examine it.

4.12.4 Results

- 4.12.4.1 Record the following:
- (i) The length, width and thickness of the mattress.
 - (ii) The interior dimensions, width and length, of the crib or cradle.
 - (iii) The difference between the width of the crib or cradle and the width of the mattress.
 - (iv) The difference between the length of the crib or cradle and the length of the mattress.

⁹ § 15 of the Regulations

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- (v) Whether the mattress stitching was stitched with lock stitching (Figure 7).

4.13 MATTRESS SUPPORT HEIGHTS

4.13.1 Scope

- 4.13.1.1 This method describes the procedure for measuring the height of the crib side rails in relation to the mattress support¹⁰.


4.13.2 Apparatus

- 4.13.2.1 A metric tape measure with a precision of 1 mm.
- 4.13.2.2 A solid rectangular block, 60 mm by 100 mm by 100 mm (± 0.5 mm).
- 4.13.2.3 A right triangular prism-shaped loading wedge (Figure 2).
- 4.13.2.4 A mass, which when added to the loading wedge, will apply a total force (weight) of up to but not exceeding 90 N.

4.13.3 Procedure


- 4.13.3.1 Place the mattress support in its lowest position.
- 4.13.3.2 Measure the distance between the upper surface of the mattress support and the upper surface of the lowest stationary side to determine if this distance is:
- (i) For a standard crib, not less than 660 mm.
 - (ii) For a portable crib, not less than 560 mm.
- 4.13.3.3 Measure the distance between the upper surface of the mattress support and the upper surface of every movable or move-away side to determine if there is at least one adjustment position for each movable or move-away side that is:
- (i) For a standard crib, not less than 660 mm.
 - (ii) For a portable crib, not less than 560 mm.

¹⁰ § 8, 9 and 10 of the Regulations

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- 4.13.3.4 Check to ensure that every stationary side or movable side, in every adjustment position, has its lowest surface below the upper surface of the mattress support. If not, attempt to pass the solid rectangular block, in any orientation, through the gap created between these surfaces in a manner similar to that outlined in 4.23 of this test method.
- 4.13.3.5 Check to ensure that every move-away side, when in a position that complies with 4.13.3.3, has its lowest surface below the upper surface of the mattress support. If not, attempt to pass the solid rectangular block, in any orientation, through the gap created between these surfaces in a manner similar to that outlined in 4.23 of this test method.
- 4.13.3.6 Check to ensure that the upper surface of a move-away side is adjustable to be:
- (i) below the upper surface of the mattress support when the move-away side is in a moved-away position, and
 - (ii) at least 150 mm below the adjustment position in 4.13.3.3 (i) and (ii).
- 4.13.3.7 If the product is a standard or portable crib with a movable or move-away side, determine if there is any advertisement on the product, container or instructional literature that depicts a child in the crib.
- 4.13.3.8 If so, determine if the depiction communicates the following requirements:
- 4.13.3.8.1 The distance between the upper surface of the lowest side in the highest adjustment position of the lowest side and the upper surface of the mattress support must be:
 - (i) For a standard crib, not less than 660 mm.
 - (ii) For a portable crib, not less than 560 mm.
 - 4.13.3.8.2
 - (i) The lower surface of any side is not in an adjustment position that is higher than the upper surface of the mattress support; and
 - (ii) The sides are in the adjustment position designed to provide sleeping accommodation for an unattended child.

If not, proceed directly to 4.13.3.9.

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4.13.3.9 Place the mattress support in its highest position.

4.13.3.10 Measure the distance between the upper surface of the mattress support and the following, to ensure that they are not less than 230 mm (for a standard crib) or not less than 130 mm (for a portable crib):


- (i) Upper surface of the lowest stationary side.
- (ii) Upper surface of every movable side in its lowest adjustment position.
- (iii) Upper surface of a move-away side when in the position stated in 4.13.3.3.
- (iv) Upper surface of a move-away side when in the position stated in 4.13.3.6 (ii).

4.13.3.11 For every move-away side that moves above the mattress support of the crib, check to ensure that the lowest surface of the move-away side, when raised one adjustment position above the mattress support, is at least 360 mm above the upper surface of the mattress support in its highest position.

4.13.4 Results

4.13.4.1 Record the following:

- (i) The actual distance measured in 4.13.3.2.
- (ii) The actual distance measured in 4.13.3.3.
- (iii) The observed results from 4.13.3.4.
- (iv) The observed results from 4.13.3.5.
- (v) The observed results from and the actual distances measured in 4.13.3.6.
- (vi) The presence or absence of any advertisement described in 4.13.3.7.
- (vii) The actual distance communicated in 4.13.3.8.1.
- (viii) The observed results from 4.13.3.8.2.

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- (ix) The actual distance measured in 4.13.3.10 (i).
- (x) The actual distance measured in 4.13.3.10 (ii).
- (xi) The actual distance measured in 4.13.3.10 (iii).
- (xii) The actual distance measured in 4.13.3.10 (iv).
- (xiii) The observed results from and actual distance measured in 4.13.3.11.

4.14 CORNER POSTS

4.14.1 Scope

- 4.14.1.1 This method describes the procedure for measuring the heights of the corner posts above the sides of a standard or portable crib¹¹.

4.14.2 Apparatus

- 4.14.2.1 A combination square.
- 4.14.2.2 A metric tape measure with a precision of 1 mm.


4.14.3 Procedure

- 4.14.3.1 Measure each corner of the product to determine that no part of each corner post protrudes more than 3 mm above the upper surface of the highest side of the crib when measured from the lowest point on the upper surface of that side, within 70 mm from the centre-line of the corner post (Figure 6).

4.14.4 Results

- 4.14.4.1 Record the actual distances measured in 4.14.3.1.

¹¹ § 12 of the Regulations

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4.15 **THREADED BOLT ENDS**

4.15.1 Scope

4.15.1.1 This method describes the procedure for determining that there are no exposed threaded bolt ends¹².

4.15.2 Procedure

4.15.2.1 Inspect the product's bolt ends that are accessible to the occupant¹³.

4.15.3 Results

4.15.3.1 Record every bolt end that is accessible to the occupant of the product which is not protected by an acorn nut or other suitable device and record the distance from that point to the nearest accessible entry point, if that bolt end is outside of the product.

4.16 **COIL SPRINGS**

4.16.1 Scope

4.16.1.1 This method describes the procedure for determining that there are no coil springs that could cause injury¹⁴.

4.16.2 Procedure


4.16.2.1 Inspect the product's coil springs that are accessible to the occupant and do not form part of the mattress support¹⁵.

¹² § 20(4) of the Regulations

¹³ See Figure 26 and accompanying explanation of what is considered to be accessible to an occupant.

¹⁴ § 22 of the Regulations

¹⁵ See Figure 26 and accompanying explanation of what is considered to be accessible to an occupant. Note: Coil springs that form part of the mattress support or posture board are not considered to be accessible to the occupant.

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4.16.3 Results

4.16.3.1 Record every coil spring that is accessible to the occupant of the product which is not covered or otherwise designed to prevent injury¹⁶.

4.17 90 N PUSH/PULL

4.17.1 Scope

4.17.1.1 This method describes the procedure for determining that,

- (i) every component of the product that could possibly fit in the Truncated Right Circular Cylinder (Small Parts Cylinder) (Figure 3) and
- (ii) every cap or similar item that protects the edges of metal tubing that is accessible to an occupant of the product;

shall be so fitted or affixed to the product that the component will not become detached when subjected to a force of 90 N applied in any direction¹⁷.

4.17.2 Apparatus


- 4.17.2.1 A two-pronged clamp.
- 4.17.2.2 A pair of combination pliers.
- 4.17.2.3 A pair of long-nosed pliers.
- 4.17.2.4 A Truncated Right Circular Cylinder (Figure 3).
- 4.17.2.5 A force gauge capable of measuring up to 90 N with a precision of 2 N.

4.17.3 Procedure

4.17.3.1 Attempt to remove all components described in 4.17.1.1 (i) and (ii) with a force of 90 N (85 N \pm 5 N) applied in any direction.

¹⁶The springs shall be enclosed, covered or designed so that there are no sharp points and or edges, open holes or any pinching hazard.

¹⁷§ 17 and Schedule IV of the Regulations. This requirement applies to those product components which are accessible to the occupant and those which are not.

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4.17.4 Results

- 4.17.4.1 Record whether any component became detached with a force of 90 N or less.
- 4.17.4.2 Record the actual force required to detach any component and the location of the component(s).

4.18 **SMALL COMPONENTS**

- 4.18.1 Conduct this test as described in Test Method M00.1 Test Procedures to Determine Mechanical Hazards-Small Components- on any components that were detached during test 4.17. Do not perform sections 5.2.1 and 5.2.2 of Test Method M00.1. These sections apply only to detached components of toys.

4.19 **SHARP EDGES AND SHARP POINTS**

- 4.19.1 Conduct these tests as described in Test Method M00.2 Test Procedures to Determine Mechanical Hazards-Sharp Edges-, and Test Method M00.3 Test Procedures to Determine Mechanical Hazards-Sharp Points-.

4.20. **OPEN HOLES**

4.20.1 Scope

- 4.20.1.1 This method describes the procedure for determining whether any open hole, slot or cavity of any shape or form, may pose a finger entrapment hazard¹⁸.


4.20.2 Apparatus

- 4.20.2.1 A 5.5 mm (±0.1 mm) probe.
- 4.20.2.2 A 10.0 mm (±0.1 mm) probe.

4.20.3 Procedure

- 4.20.3.1 Examine the product for open holes, of any shape or form, in a metal, plastic, wooden or similar hard material component, that are accessible to an occupant of the product.

¹⁸ § 21 of the Regulations. See Figure 26 and accompanying explanation of what is considered to be accessible to an occupant.

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4.20.3.2 If found, attempt to insert each end of the finger intrusion probe into the hole.

4.20.4 Results

4.20.4.1 Record the type and location of any hole which admitted the 5.5 mm diameter end of the finger intrusion probe but which did not also admit the 10 mm diameter end of the finger intrusion probe.

4.20.4.2 Record the depth and minor diameter of any circular hole, or the narrowest dimension of any non-circular opening which admitted the 5.5 mm diameter end of the finger intrusion probe but not the 10 mm diameter end of the probe.

4.21 ENTANGLEMENT

4.21.1 Scope

4.21.1.1 This method describes the procedure for determining whether any projection, attachment or mechanism above the upper surface of the mattress support, poses an entanglement hazard to an occupant of the product¹⁹.

4.21.2 Apparatus

4.21.2.1 An entanglement tester (Figure 4)

4.21.2.2 A force gauge capable of measuring up to 90 N with a precision of 2 N.


4.21.2.3 A stopwatch with a precision of 0.1 seconds.

4.21.3 Procedure

4.21.3.1 Attach the force gauge to the entanglement tester and attempt to loop and grip the tester around a protrusion that is above the upper surface of the mattress support in its lowest adjustment position. The entanglement tester shall be held at an angle of approximately 45° either above or below the horizontal and be pulled with a 90 N (85 N ± 5 N) force for 10 seconds (±1 sec).

4.21.3.2 Repeat the procedure for all other protrusions.

¹⁹ § 13 of the Regulations

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4.21.4 Results

- 4.21.4.1 Record whether the entanglement tester became entangled on any part or parts of the product and the duration of time it stayed entangled during the test.
- 4.21.4.2 Record the location and description of any part or parts of the product on which the entanglement tester stayed entangled during the test.

4.22 SHEARING OR PINCHING

4.22.1 Scope

- 4.22.1.1 This method describes the procedure for determining whether any components, pivots, hinges, locks or mechanisms accessible to the occupant pose a possibility of shearing or pinching²⁰.

4.22.2 Apparatus

- 4.22.2.1 A 3.0 mm (±0.1 mm) diameter probe.
- 4.22.2.2 A 15.0 mm (±0.1 mm) diameter probe.


4.22.3 Procedure

- 4.22.3.1 Visually inspect the product for occupant accessible spaces at or near the intersections of components that move relative to one another.
- 4.22.3.2 Attempt to insert the 3.0 mm diameter probe into these spaces in any and all positions of the moving components. If the 3.0 mm diameter probe can be inserted into the space, then attempt to insert the 15.0 mm diameter probe into this space.

4.22.4 Results

- 4.22.4.1 Record the locations of any space that allowed the 3.0 mm diameter probe to enter but would not also allow the 15.0 mm diameter probe to enter.
- 4.22.4.2 Record the depth of insertion within intersecting parts of these spaces.

²⁰ § 19 of the Regulations . (Based on the "Scissoring, Shearing, or Pinching" requirement of section 5.4 in ASTM 906-97 - Standard Consumer Safety Specification for Play Yards). Only those parts of the product that are accessible to the occupant AND located on the inside of the product are subject to this test. See Figure 26 and accompanying explanation of what is considered to be accessible to an occupant. Note: Coil springs which form a part of the mattress support are considered NOT to be accessible to the occupant.

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4.23 SLAT SPACING

4.23.1 Scope

4.23.1.1 This method describes the procedure for determining whether the openings between the components of a crib or cradle allow the passage of a child's torso²¹.

4.23.2 Apparatus

4.23.2.1 A solid rectangular block, 60 mm by 100 mm by 100 mm (± 0.5 mm).

4.23.2.2 A right triangular prism-shaped loading wedge (Figure 2).

4.23.2.3 A mass, which when added to the loading wedge, will apply a total force (weight) of up to, but not exceeding, 90 N.

4.23.3 Procedure

4.23.3.1 Place the mattress support in its lowest adjustment position.

4.23.3.2 With the side or end of the crib under test placed in a horizontal position, place the loading wedge in the space between the slat, (bar, rail, spindle, crib rod, corner post or other similar component) of the crib or cradle and any adjacent component of the product, midway along the greatest dimension of the space.

4.23.3.3 Hang the mass onto the wedge for a period of 10 seconds (11 sec. ± 1 sec.).


4.23.3.4 Attempt to pass, the solid rectangular test block through the space, without forcing it, anywhere on either side of the loading wedge.

4.23.3.5 Repeat for all other spacings between slats on that side and for all other spacings on sides which have slats.

4.23.4 Results

4.23.4.1 Record the location of and describe any space on the product that allowed the test block to pass through it entirely.

²¹ § 11 of the Regulations

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4.24 120 N HORIZONTAL ALTERNATING FORCE

4.24.1 Scope

4.24.1.1 This method describes the procedure for determining whether a standard crib is damaged during the application of a horizontal alternating force to its sides²².

4.24.2 Apparatus

4.24.2.1 Horizontal alternating force (shaking) equipment (Refer to Standard Operating Procedure for the Crib Shaking Device).

4.24.2.2 A selection of clamps.

4.24.3 Procedure

4.24.3.1 Ensure that the linear motor thrust rod of the horizontal shaking equipment is in the approximate middle of its stroke.

4.24.3.2 Position the middle of side 1-2 of the standard crib under the clamp attached to the end of the thrust rod of the horizontal shaking equipment.

4.24.3.3 Clamp the legs of the standard crib to the framework of the horizontal shaking equipment (the casters of the product being tested may be removed) and adjust the sides of the product to the fully raised position.


4.24.3.4 Fasten the clamp of the horizontally positioned thrust rod to the middle of the top rail of the side to be tested not more than 50 mm from the top of the side being tested.

4.24.3.5 Apply an alternating horizontal load of 120 N (110 N ±10 N) at a frequency of no less than 150 cycles per minute (155 cycles per minutes ±5 cycles per minute) for a total of 9,000 cycles²³.

4.24.3.6 Repeat for all other sides of the product.

²² § 16 and Schedule III § 3 of the Regulations

²³ A cycle shall consist of a 120 N push and a 120 N pull

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4.24.4 Results

4.24.4.1

Record the following:

- (i) Whether the casters needed to be removed or not.
- (ii) Whether the crib displayed any visible signs of damage.
- (iii) Whether any screw or other fastening on the product became loose.
- (iv) Whether any latching or locking mechanism disengaged or deformed and whether the mechanism is still functional²⁴.

4.25 120 N VERTICAL ALTERNATING FORCE

4.25.1 Scope

4.25.1.1

This method describes the procedure for determining whether a standard crib is damaged during the application of a vertical alternating force to its sides²⁵.

4.25.2 Apparatus

4.25.2.1

Vertical alternating force (shaking) equipment (Refer to Standard Operating Procedure for the Crib Shaking Device).

4.25.2.2

A selection of clamps.

4.25.3 Procedure

4.25.3.1


Ensure that the linear motor thrust rod of the cylinder of the vertical shaking equipment is in the approximate middle of its stroke.

4.25.3.2

Position the middle of side 1-2 of the standard crib under the clamp attached to the end of the thrust rod of the cylinder of the vertical shaking equipment.

²⁴ Refer to section 4.9.3 of this Test Method.

²⁵ § 16 and Schedule III § 4 of the Regulations

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4.25.3.3 Clamp the legs of the standard crib to the framework of the vertical shaking equipment (the casters of the product being tested may be removed) and adjust the sides of the product to the fully raised position.

4.25.3.4 Fasten the clamp of the vertically positioned thrust rod to the middle of the top rail of the side to be tested not more than 50 mm from the top of the side being tested.

4.25.3.5 Apply an alternating vertical load of 120 N (110 N \pm 10 N) at a frequency of no less than 150 cycles per minute (155 cycles per minutes \pm 5 cycles per minute) for a total of 9,000 cycles²⁶.

4.25.3.6 Repeat for all other sides of the product.

4.25.4 Results

4.25.4.1 Record the following:

- (i) Whether the casters needed to be removed or not.
- (ii) Whether the crib displayed any visible signs of damage.
- (iii) Whether any screw or other fastening on the product became loose.
- (iv) Whether any latching or locking mechanism disengaged or deformed and whether the mechanism is still functional²⁷.

4.26 250 N INDIVIDUAL UPWARD FORCE (backloading)


4.26.1 Scope

4.26.1.1 This method describes the procedure for determining whether the mattress support dislodges or the mattress support mechanisms deform or disengage when an individual upward force is applied at each corner of the mattress support²⁸.

²⁶ A cycle shall consist of a 120 N push and a 120 N pull

²⁷ Refer to section 4.9.3 of this Test Method.

²⁸ § 5 and Schedule I of the Regulations


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4.26.2 Apparatus

- 4.26.2.1 A loading device capable of applying and maintaining a 250 N force.
- 4.26.2.2 A metric tape measure with a precision of 1 mm.
- 4.26.2.3 A selection of clamps.
- 4.26.2.4 A level or protractor
- 4.26.2.5 A stopwatch with a precision of 0.1 seconds, or a built-in timing device activating force start and stop.

4.26.3 Procedure

- 4.26.3.1 Ensure that the product is assembled according to the manufacturer's recommended instructions.
- 4.26.3.2 Apply a downward force of 25 N (23 N \pm 2 N) as near as possible to the geometric centre of the mattress support as a means of settling its position prior to testing.
- 4.26.3.3 Secure the product on a horizontal test plane.
- 4.26.3.4 Place the loading device under the mattress support of the crib or cradle at corner 1 and within 150 mm of each of the two sides forming the interior corner of the product's frame.
- 4.26.3.5 Measure and record the location of each corner of the mattress support relative to a fixed component of the product. It is suggested that the top rail of a side be used so that the effective side height requirement can be monitored, should movement of the mattress support occur.
- 4.26.3.6 Apply an upward force of 250 N (225 N \pm 25 N) for one minute, at corner 1 of the mattress support. If the mattress support displaces upward to the stroke length limit of the loading device, stop the test, re-position the loading device in a manner that will allow further upward movement of the mattress support until the full 250 N (225 N \pm 25 N) is reached and re-start the test.
- 4.26.3.7 If displacement of the mattress support from its original intended position occurs, apply a force of 25 N (23 N \pm 2 N) as near as possible to the geometric centre of the mattress support in an attempt to return the mattress support to its original intended position.

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4.26.3.8 Measure and record the location of each corner of the mattress support relative to the same fixed component used in 4.26.3.5.

4.26.3.9 If displacement of the mattress support occurs, and it does not return to its original intended position upon application of a 25 N (23 ± 2 N) force,


- (i) attempt to adjust the mattress support so that it is once again level with the horizontal test plane.
- (ii) terminate individual back loading testing if the mattress support cannot be returned to a position horizontal to the test plane without subjecting the product to damage.

4.26.3.6 Repeat 4.26.3.2 to 4.26.3.9 at corners 2, 3 and 4.

4.26.4 Results

4.26.4.1 Record the following:

- (i) Whether the mattress support dislodged and returned to its original intended use position (either due to its own mass or when a force of 25 N or less was applied to the mattress support as near as possible to its geometric centre).
- (ii) The actual measured dislodgement if the mattress support did not return to its original intended position when a force of 25 N or less was applied to the mattress support as near as possible to its geometric centre.
- (iii) Whether any portion of the mattress support, deformed from its normal shape and the actual measured deformation, or, projected below the bottom edge of any side of the product and the actual measured projection below the bottom edge of the product.
- (iv) Whether any mattress support mechanism partially or fully disengaged, from the mattress support, or from the frame of the product and whether the mechanisms are still functional.

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4.27 **250 N SIMULTANEOUS UPWARD FORCES (backloading)**

4.27.1 Scope

4.27.1.1 This method describes the procedure for determining whether the mattress support dislodges or the mattress support mechanisms deform or disengage when simultaneous upward forces are applied at each corner of the mattress support²⁹.

4.27.2 Apparatus

4.27.2.1 Four loading devices capable of applying and maintaining a 250 N force.

4.27.2.2 A metric tape measure with a precision of 1 mm.

4.27.2.3 A selection of clamps.

4.27.2.4 A level or protractor.

4.27.2.5 A stopwatch with a precision of 0.1 seconds, or a built-in timing device activating force start and stop.

4.27.3 Procedure

4.27.3.1 Ensure that the product is assembled according to the manufacturer's recommended instructions.


4.27.3.2 Apply a downward force of 25 N (23 N \pm 2 N) as near as possible to the geometric centre of the mattress support as a means of settling its position prior to testing.

4.27.3.3 Secure the product on a horizontal test plane.

4.27.3.4 Place a loading device under each mattress support corner and within 150 mm of each of the two sides forming the interior corners of the product's frame.

4.27.3.5 Measure and record the location of each corner of the mattress support relative to a fixed component of the product. It is suggested that the top rail of a side be used so that the effective side height requirement can be monitored, should movement of the mattress support occur.

²⁹ § 5 and Schedule I of the Regulations

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4.27.3.6 Apply simultaneous upward forces of 250 N (225 N ± 25 N) for one minute, at each corner of the mattress support. If the mattress support displaces upward to the stroke length limit of any loading device, stop the test, reposition the loading device(s) in a manner that will allow further upward movement of the mattress support until the full 250 N (225 N ± 25 N) is reached and re-start the test.


4.27.3.7 If displacement of the mattress support from its original intended position occurs, apply a force of 25 N (23 N ± 2 N) as near as possible to the geometric centre of the mattress support in an attempt to return the mattress support to its original intended position.

4.27.3.8 Measure and record the location of each corner of the mattress support relative to the same fixed component used in 4.27.3.5.

4.27.4 Results

4.27.4.1 Record the following:

- (i) Whether the mattress support dislodged and returned to its original intended use position (either due to its own mass or when a force of 25 N or less was applied to the mattress support as near as possible to its geometric centre).
- (ii) The actual measured dislodgement if the mattress support did not return to its original intended position when a force of 25 N or less was applied to the mattress support as near as possible to its geometric centre.
- (iii) Whether any portion of the mattress support deformed from its normal shape and the actual measured deformation, or projected below the bottom edge of any side of the product and the actual measured projection below the bottom edge of the product.
- (iv) Whether any mattress support mechanism partially or fully disengaged, from the mattress support, or from the frame of the product and whether the mechanisms are still functional.

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4.28 200 N FORCE IN ANY DIRECTION

4.28.1 Scope

4.28.1.1 This method describes the procedure for determining whether the product's mattress support mechanisms are damaged, disengaged or dislodged when subjected to a 200 N force applied in any direction³⁰.

4.28.2 Apparatus

4.28.2.1 A two-pronged clamp.

4.28.2.2 A pair of combination pliers.

4.28.2.3 A pair of long-nosed pliers.

4.28.2.4 A force gauge capable of measuring up to 200 N with a precision of 2 N.

4.28.3 Procedure

4.28.3.1 Secure the product on a horizontal test plane.

4.28.3.2 Apply a 200 N (190 N ±10 N) force directly onto one of the mattress support mechanisms in a manner that could disengage it. Repeat the application of this force in any direction and at any point on the mattress support mechanism in a manner that could cause a deformation of the mechanism or any component thereof. Ensure to apply the full 200 N force irrespective of any dislodgement or deformation that may occur prior to attaining the maximum 200 N value as long as the degree of dislodgement or deformation does not impede the test.


4.28.3.3 Repeat 4.28.3.2 on the remaining mattress support mechanisms

4.28.4 Results

4.28.4.1 Record the following:

- (i) Whether the mattress support dislodged from its normal intended position and the actual measured dislodgement.

³⁰ § 5 and Schedule I § 1(h) of the Regulations

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- (ii) Whether the mattress support mechanism either partially or fully disengaged from the mattress support or from the frame of the crib.
- (iii) Whether the mattress support mechanism deformed and the actual measured deformation and whether the mechanisms are still functional.

4.29 **IMPACT**

4.29.1 Scope

4.29.1.1 This method describes the procedure for determining whether a standard crib or a cradle is strong enough to withstand repeated impacting³¹.

4.29.2 Apparatus

4.29.2.1 A free-fall impact machine.

4.29.2.2 A 20.000 kg (19.975 kg ±0.025 kg) impact mass for standard cribs (Figure 5).

4.29.2.3 A 13.700 kg (13.675 kg ±0.025 kg) impact mass with a square contact area of 929 cm² (±2 cm²) for cradles.

4.29.2.4 A 150 mm (±1 mm) long wooden block.

4.29.2.5 A test mattress.


4.29.3 Procedure

4.29.3.1 Adjust the mattress support to its lowest position.

4.29.3.2 Put the test mattress in place³².

³¹ § 16 and Schedule III § 1 of the Regulations for standard cribs and § 2 for cradles

³² Do NOT use the mattress supplied with the crib or cradle. For products with built-in mattresses, use the test mattress also. The same test mattress may be used for testing more than one crib, provided the mattress density stays the same.

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4.29.3.3 Secure the product to the horizontal test plane with the casters still on (if supplied)³³.

4.29.3.4 Position the geometric centre of the test mattress below the impact mass.

4.29.3.5 Adjust the distance between the top surface of the mattress and bottom surface of the impact mass to 150 mm when the impact mass is in its highest position³⁴.

4.29.3.6 For a standard crib, allow the 20.000 kg impact mass to fall freely 150 times at the rate of one impact per second ($\pm 10\%$ of the rate).

4.29.3.7 Repeat 4.29.3.6 at each corner of the mattress support, with the centre of the impact mass 150 mm from the two sides forming the corners.

4.29.3.8 Repeat 4.29.3.6 at the mid-point along the edge of the mattress support on all adjustable sides of the product, with the impact mass 150 mm from those sides.

4.29.3.9 For a cradle, allow the 13.700 kg impact mass to fall freely 500 times at the rate of one impact per second ($\pm 10\%$ of the rate) only at the geometric centre of the product.

4.29.4 Results

4.29.4.1 Record any visible signs of damage to the crib or cradle, any disengagement or deformation of any latching or locking mechanism or any loosening of any screw or fastening and whether the mechanisms are still functional.


4.30. 8 N.m TORQUE

4.30.1 Scope

4.30.1.1 This method describes the procedure for determining whether any slat of a standard or portable crib turns, disengages, permanently deforms or is damaged when subjected to an 8 N.m torque³⁵.

³³ Once the test has begun, no attempt shall be made at retightening fasteners which may have loosened because of vibration. The test must proceed without any corrective intervention until its completion, unless extensive damage, dislodging or deformation occurs during the course of the test, in which case the test shall be terminated. The only exception will be resetting the test mattress, should it become displaced from its intended position.

³⁴ Lock the impactor mechanism at this height and DO NOT adjust the height during impacting. No attempt shall be made to adjust or reposition the mattress support mechanism during impacting.

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4.30.2 Apparatus

4.30.2.1 A torque metre capable of measuring a torque of up to 8 N·m with a precision of 0.1 N·m.

4.30.2.2 A stopwatch with a precision of 0.1 seconds.

4.30.3 Procedure

4.30.3.1 At a point midway along the length of each slat, apply a 8.0 N·m (7.5 N·m \pm 0.5 N·m) torque for 10 seconds (11 sec. \pm 1 sec.). If the slat's resistance to the applied torque weakens and the gauge's torque reading decreases, increase the torque such that 8.0 N·m (7.5 N·m \pm 0.5 N·m) can be maintained. If movement of the torque gauge during increase is impeded, terminate the torque application and restart testing at the next slat.

4.30.4 Results

4.30.4.1 Record the following:

- (i) Whether any slat turned³⁵ or rotated at the end attachment points, and the measured applied torque.
- (ii) Whether any slat disengaged, deformed, permanently deflected, or showed any other visible signs of damage and give details of the observed damage.
- (iii) Whether the mechanisms are still functional.

4.31 500 N PULL


4.31.1 Scope

4.31.1.1 This method describes the procedure for determining whether the top and bottom rails of all crib sides that have slats, are damaged when pulled with a 500 N force³⁷.

4.31.2 Apparatus

³⁵ Turned means permanent rotational deflection of the slat, including where it attaches to the top and bottom rail

³⁷ § 18 and Schedule V of the Regulations

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- 4.31.2.1 A pull device capable of applying and maintaining a 500 N force.
- 4.31.2.2 A selection of clamps.
- 4.31.2.3 A stopwatch with a precision of 0.1 seconds, or a built-in timing device activating force start and stop.

4.31.3 Procedure

- 4.31.3.1 Position the cylinder of the 500 N pull device directly above the middle of the top rail of the side which is to be tested.
- 4.31.3.2 Evenly secure the position of the bottom rail of the side to be tested to ensure symmetric loading.
- 4.31.3.3 Secure the clamp of the 500 N pull device to the middle of the top rail.
- 4.31.3.4 Apply and maintain for 30 seconds (31 sec. ± 1 sec.), an upward force of 500 N (480 N ± 20 N) on the top rail of the product.
- 4.31.3.5 Repeat the procedure on all sides of the product which have slats.

4.31.4 Results


- 4.31.4.1 Record whether there was any disengagement of the rails from the slats, the measured actual disengagement and location of disengagement or any other damage to the product, as well as the method used to secure the bottom rail (4.31.3.2).

4.32 MESH OPENING SIZE

- 4.32.1 Conduct this test as described in Section 4.21, Determination of Mesh Opening Sizes, of Test Method M08: Test Method for Playpens.

5 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES


- 5.1 Ensure that all measuring instruments are functional and are calibrated.
- 5.2 The Quality Control section of the test method is under development and will be added in a revised issue when completed.

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6 TEST REPORT

6.1 The test report shall contain the following information:

- 6.1.1 A description of the product to include brand, style, country of origin, size and UPC.
- 6.1.2 The number of sample elements tested.
- 6.1.3 The results of the test (conducted in the sequence presented in section 4 of this test method) with specific details for any non-compliances or potential problems observed.
- 6.1.4 The analyst's name and signature, as well as the signature of the approving officer.

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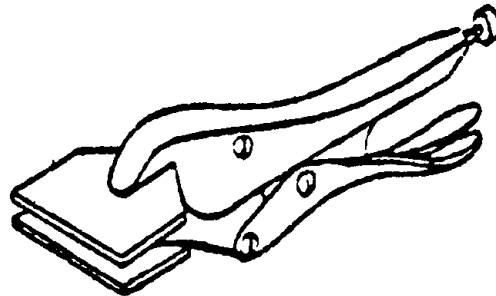


Figure 1: Wide-jawed vice grips.

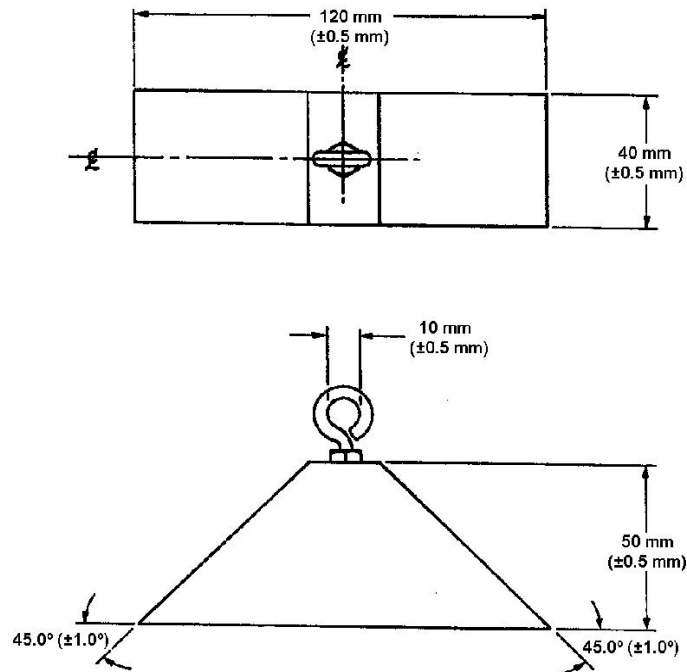



Figure 2: Typical wedge for slat testing.

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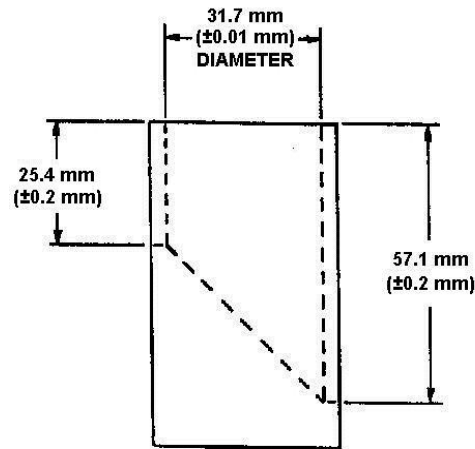


Figure 3: Truncated Right Cylinder.

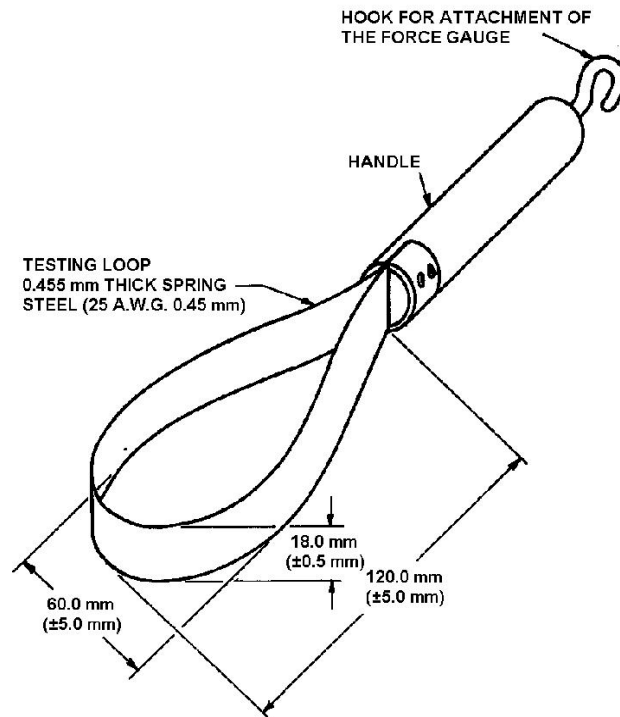



Figure 4: Entanglement Tester

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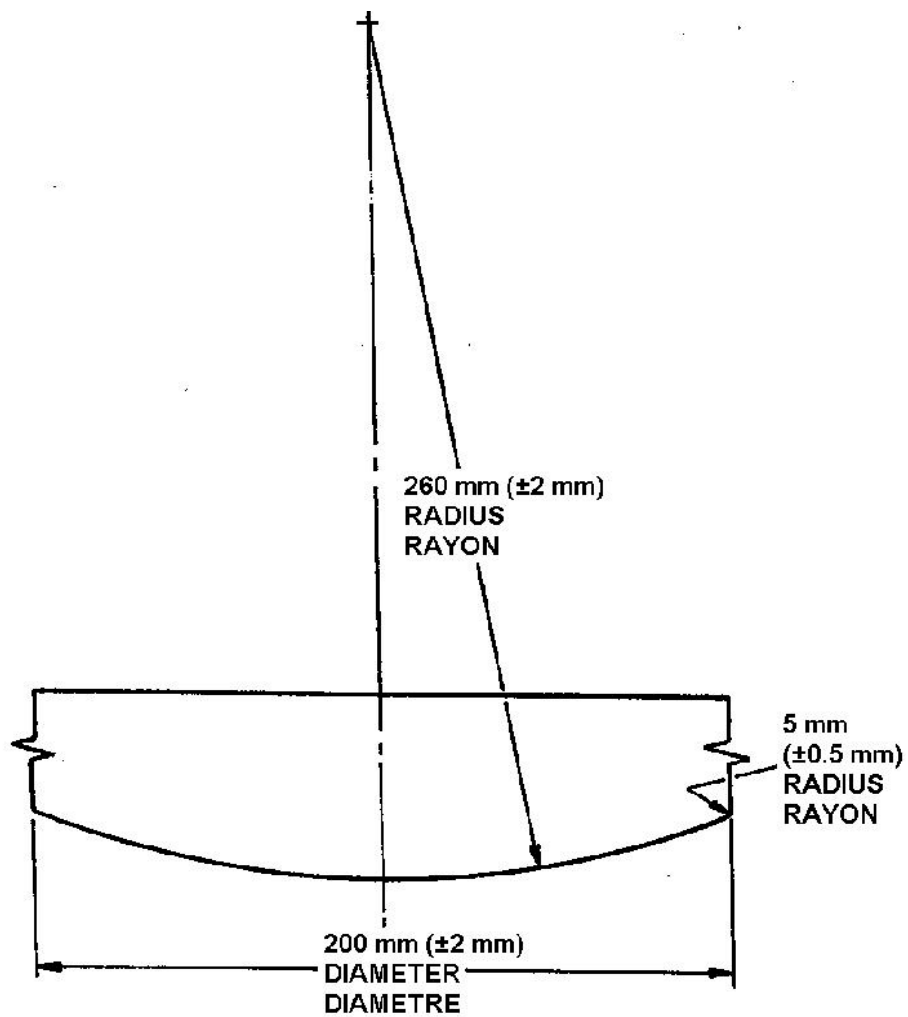



Figure 5: Dimensional specifications of 20 kg Mass Impact Tester.

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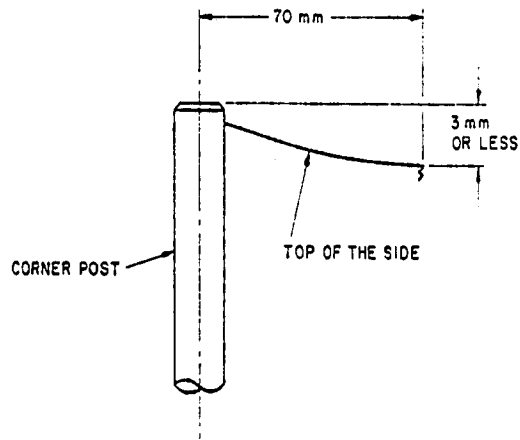
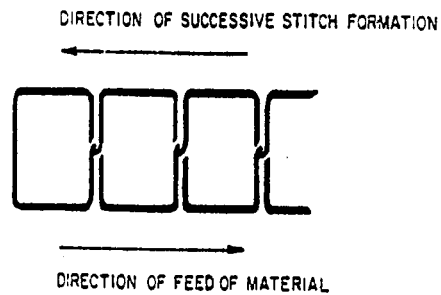



Figure 6: Protrusion of the corner post above the crib side panel within the 70 mm radius limit.



TWO-THREADED LOCKSTITCH FORMED FROM A SINGLE
THREAD SOURCE. U.S. FEDERAL STITCH TYPE 701.

REFERENCE: FUNDAMENTALS OF MACHINE SEWING,
THE SINGER COMPANY, 1971.

Figure 7: Lockstitching

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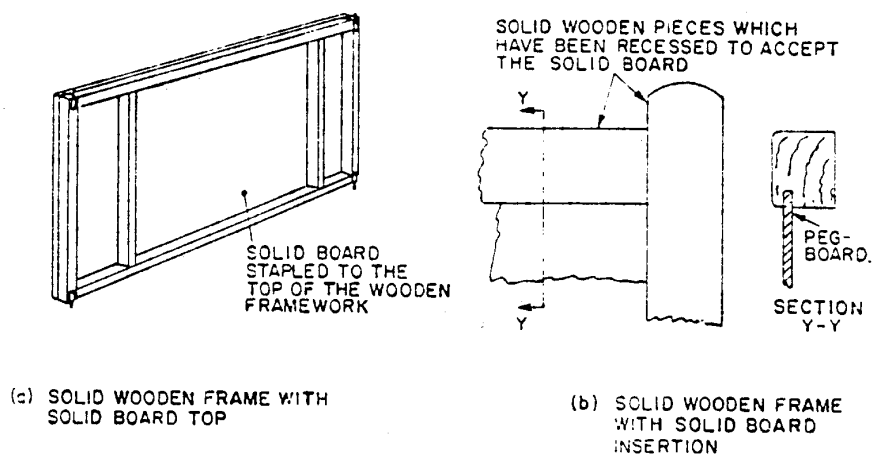


Figure 8

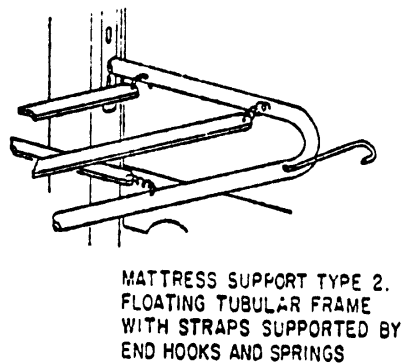
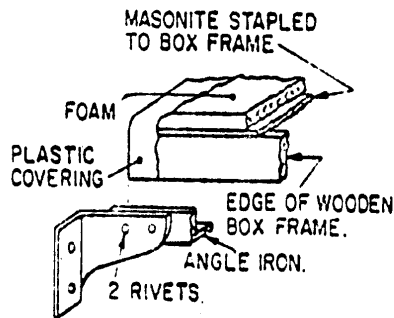
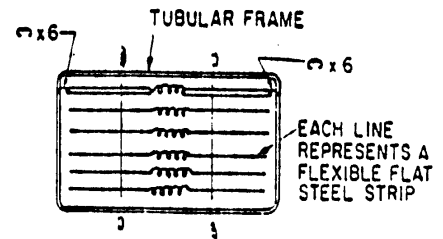


Figure 9



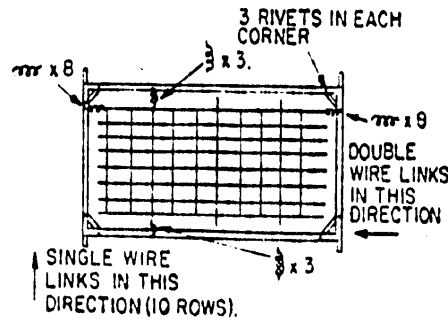
MATTRESS SUPPORT TYPE 3.
WOODEN BOX FRAME WITH
FOAM TOP SUPPORTED BY
MASONITE

Figure 10



MATTRESS SUPPORT TYPE 4.
FLOATING TUBULAR FRAME WITH
CENTRALLY SPRUNG STRAPS SUPPORTED
BY END HOOKS AND SPRINGS

Figure 11



MATTRESS SUPPORT TYPE 5.
ANGLE IRON FRAME WITH WIRE LINKS AND
END SPRINGS

Figure 12

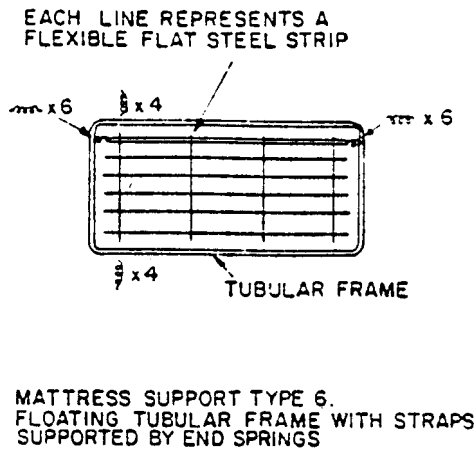


Figure 13

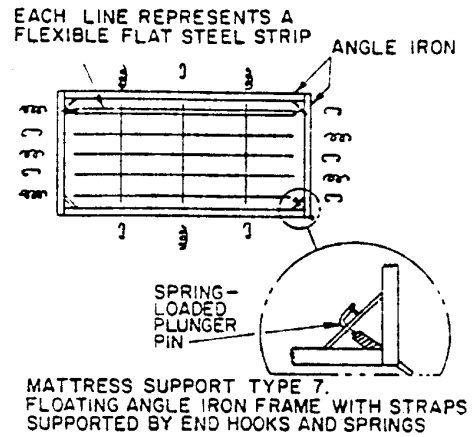


Figure 14

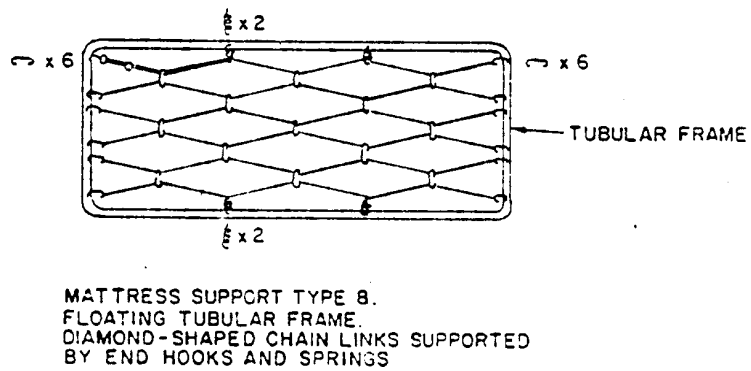


Figure 15

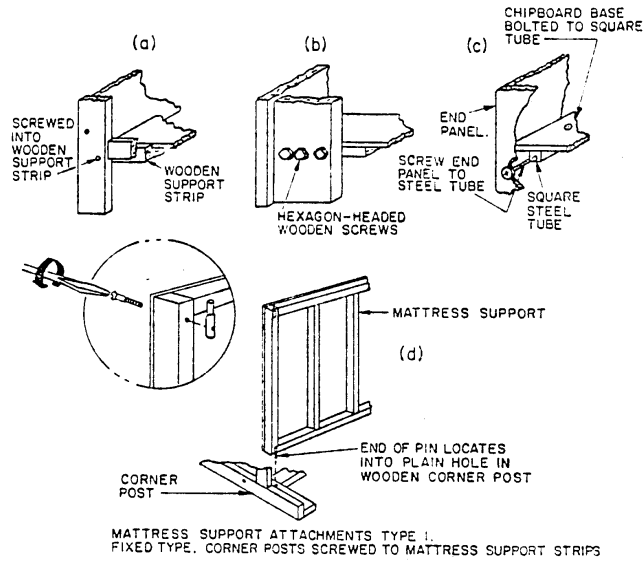


Figure 16

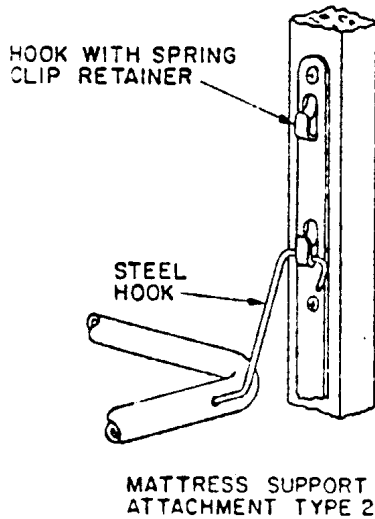


Figure 17

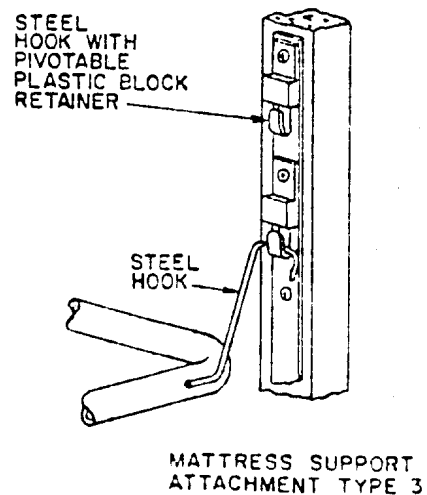
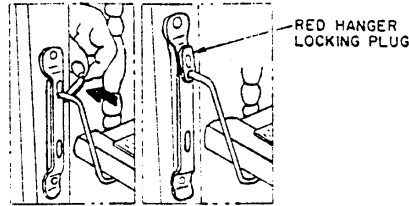
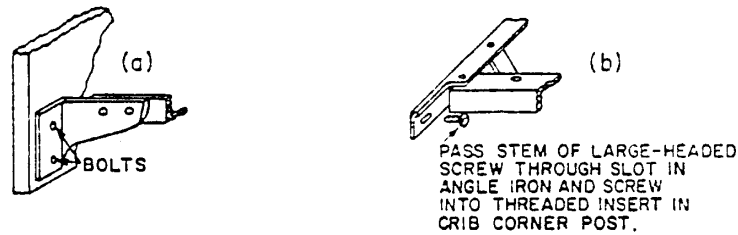


Figure 18



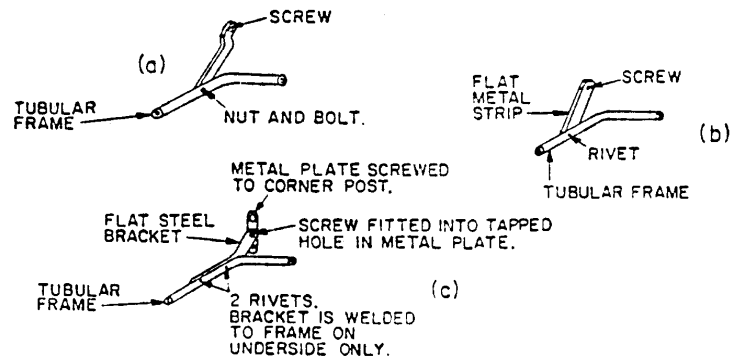
MATTRESS SUPPORT ATTACHMENT TYPE 4.
STEEL HOOK RETAINED WITH PLASTIC LOCKING PLUG

Figure 19



MATTRESS SUPPORT ATTACHMENTS TYPE 5.
STEEL ANGLE BRACKETS BOLTED TO CRIB END PANELS

Figure 20



MATTRESS SUPPORT ATTACHMENTS TYPE 6.
SCREW SUPPORTED HANGERS

Figure 21

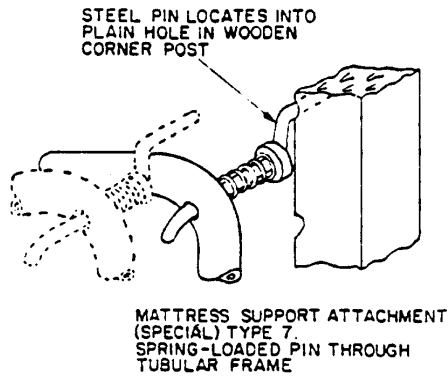


Figure 22

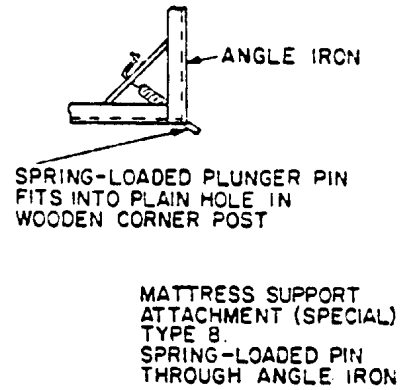


Figure 23

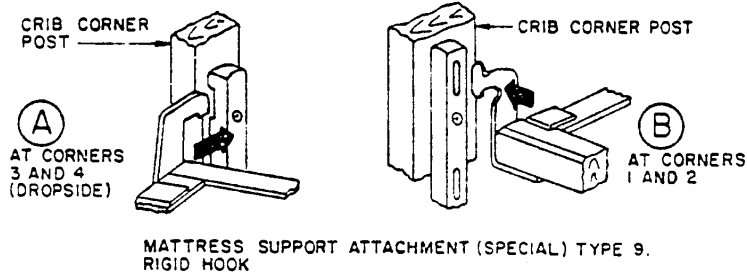
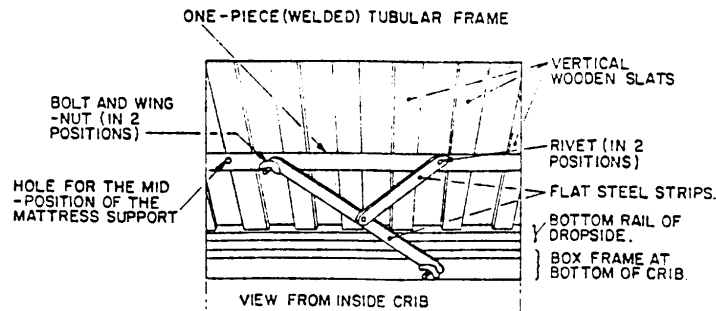



Figure 24



MATTRESS SUPPORT ATTACHMENT TYPE 10. FLOATING LINK.

NOTE: THE MATTRESS SUPPORT IS SHOWN IN ITS HIGHEST POSITION. IN ITS LOWEST POSITION THE TUBULAR FRAME RESTS ON THE BOX FRAME AT THE BOTTOM OF THE CRIB.

Figure 25

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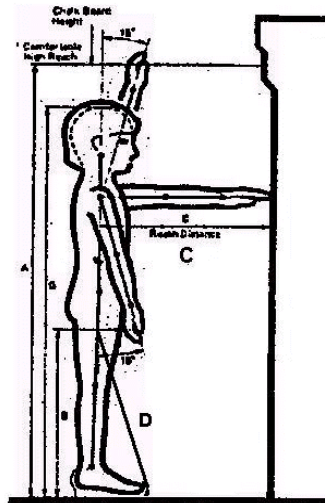



Figure 26

The term “**accessible to the occupant**” means any part or component supplied with, or part of, the product that is within reach of an infant or child sitting, standing or lying in the product (depending on whether the product is a stroller, carriage, crib, playpen, etc.) in any of the manufacturer’s recommended use positions.

To determine what is “**accessible to the occupant**”, Health Canada’s Product Safety Laboratory (PSL) uses a CAMI infant dummy. CAMI infant dummies are designed and constructed to reflect the appearance and mass distribution of human infants and are used to represent an occupant from which the distance to potential product hazards can be measured. The PSL has four of these CAMI infant dummies. The two smaller sizes were constructed to resemble a 6 month old infant and are 65 cm and 67 cm high and weigh 7.75 kg and 7.95 kg respectively. The two larger sizes were constructed to resemble an 18 month old infant and are 79 cm and 80 cm high and weigh 11.2 kg each.

The analyst takes the Product Safety Laboratory’s largest anthropometrically-sized CAMI infant dummy whose mass does not exceed the product’s stated maximum capacity and places it in the product’s seating area in the case of a stroller, or in the centre of the occupant area in the case of a carriage, or is positioned appropriately (see below) in the case of a crib or playpen.

To measure what is accessible by the occupant’s arms, hands and fingers, the analyst uses a piece of rope cut to a length that is equal to the CAMI infant dummy’s shoulder-to-fingertip distance (distance “C” in **Figure 26** above, measured to be 375 mm for the laboratory’s two largest CAMI dummies and 305 mm for the two smaller ones).

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To measure what is accessible by the occupant's legs, feet and toes, the analyst uses a piece of rope cut to a length that is equal to the CAMI infant dummy's hip-to-toe distance (distance "D" in **Figure 26** above, measured to be 333 mm for the laboratory's two largest CAMI dummies and 262 mm for the two smaller ones). Rope is used for measurement as opposed to the actual limb member of the CAMI infant dummy in order to simulate a reach afforded by a condition of maximum human flexibility. The CAMI infant dummy is more rigid and less flexible than a human infant or child.

In all cases, the CAMI infant dummy's position or orientation inside the product greatly affects what will be within reach of the occupant. In the case of a stroller or carriage, this is quite well defined as the CAMI infant dummy's position is restricted to a specific seating or lying area and in the case of inclined plane stability testing, the CAMI infant dummy is actually required to be secured in place using the occupant restraint system prior to actual testing. In the case of a crib or playpen, position can vary greatly as the occupant could be lying, sitting, standing, hunched over, etc.

To determine where and how to facilitate measurement, the analyst places the CAMI infant dummy in a position that allows for the shortest distance between points of measurement. One end of the rope is held in place at a pre-determined, marked location at either the CAMI's shoulder or hip joint and the other end of the rope is extended towards the area being examined. If the area being examined is within reach, it is considered to be accessible to the occupant.