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1 SCOPE

This method describes test procedures for carriages and strollers to ensure that the product meets the requirements of the Carriages and Strollers Regulations (SOR/85-379, 25 April, 1985). When the product is a convertible carriage stroller, it shall be tested first as a carriage and then as a stroller. Since the numerical values of performance measures are based upon regulatory requirements, the tolerances for these values must be one-sided. No test parameter may be 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 test sections in sequence:

- 4.1 Inspection of container for damage and labeling
- 4.2 Permanency of the labels
- 4.3 Indelibility of the printing
- 4.4 Inspection of product for damage and labeling
- 4.5 Warning Statements
- 4.6 Assembly of the product in accordance with the instructions supplied
- 4.7 Inclined plane stability
- 4.8 Horizontal plane stability
- 4.9 Braking device
- 4.10 Occupant restraint system
- 4.11 Latching system
- 4.12 Structural integrity
- 4.13 Shearing or pinching
- 4.14 Threaded bolt ends
- 4.15 90 N push/pull
- 4.16 Small components
- 4.17 Sharp edges and sharp points
- 4.18 Open holes
- 4.19 Wheels

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2 APPLICABLE DOCUMENTS

- 2.1 The Hazardous Products Act (HPA).
- 2.2 HPA, Carriages and Strollers Regulations (SOR/85-379, 25 April, 1985) hereinafter referred to as the Regulations.
- 2.3 Test Method M00.1 Test Procedures to Determine Mechanical Hazards-Small Components-
- 2.4 Test Method M00.2 Test Procedures to Determine Mechanical Hazards-Sharp Edges-
- 2.5 Test Method M00.3 Test Procedures to Determine Mechanical Hazards-Sharp Points-
- 2.6 PSL File for Project 99-0483: Method Revision - M15 Test Method For Carriages and Strollers

3 SAMPLING

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 identified and in an undamaged condition.¹


4.1.2 Apparatus

- 4.1.2.1 A graduated measuring magnifier 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.

¹§ 4(2) of the Regulations

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4.1.3.2 Inspect the product container for the following information, which must be in both official languages:

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

(ii) The model name or model number 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.

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

4.2.1 Scope

4.2.1.1 This method describes the procedure for determining whether the labels on the product and container are permanently attached.²

4.2.2 Apparatus

4.2.2.1 A nylon scrub pad.


4.2.2.2 A force gauge capable of measuring 90 ±2N.

4.2.2.3 A pair of wide-jawed vice grips.

4.2.2.4 A knife or scalpel.

4.2.3 Procedure

²§ 4(1) to 4(3) of the Regulations

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- 4.2.3.1 Dry scrub 10 times (10 strokes) with a nylon scrub pad, the labels which are affixed to the product 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.
- 4.2.3.3 Attach the label clamp to the raised portion of the label at a point that has not been damaged (torn, frayed, crumpled, etc.) by the raising action.
- 4.2.3.4 Attach the force gauge to the label clamp and gradually apply a force up to but not exceeding 90 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.

4.2.4 Results

- 4.2.4.1 Record the following:
 - (i) If a portion of the label could not be raised a sufficient amount to provide an adequate undamaged area to attach the label clamp.
 - (ii) Whether the label detached completely from the product.
 - (iii) The maximum force applied.
 - (iv) Whether the label tore or was damaged during the attempt to remove it from the product.
 - (v) Whether the surface on which the label was affixed was damaged during the attempt to remove it from the product.

4.3 INDELIBILITY OF THE PRINTING

4.3.1 Scope

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4.3.1.1 This method describes the procedure for determining whether the written information supplied with the product or on the container is indelible.³

4.3.2 Apparatus

4.3.2.1 A non-abrasive, 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, statements or instructions which are:

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

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

4.3.4 Results

4.3.4.1 Record whether the lettering was smudged or was partially or totally erased.

4.4 INSPECTION OF 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 identified.⁴

4.4.2 Apparatus

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

³§ 4(1) to 4(3) of the Regulations

⁴§ 4(1) of the Regulations

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4.4.3 Procedure

4.4.3.1 Inspect the product for damage.

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

(i) The name and principal place of business of the person by or for whom the product is made, in both official languages

(ii) The model name or model number of the product, in both official languages

(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 details of 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 product.⁵

4.5.2 Apparatus

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

4.5.3 Procedure

⁵§ 4(3) of the Regulations

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4.5.3.1 Inspect the product for the following warning statements which must be clearly and prominently displayed in letters not less than 2.5 mm high:

- (i) That the infant or child never be left in the product unattended;
- (ii) Where an occupant restraint system is supplied with the product, that the occupant restraint system is to be used
- (iii) That the product may become unstable if a parcel bag, other than one recommended by the manufacturer, is used.

4.5.4 Results

4.5.4.1 Record whether the information listed in 4.5.3.1 was present and any discrepancies.

4.6 ASSEMBLY OF THE PRODUCT IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED

4.6.1 Scope

4.6.1.1 This method describes the procedure for determining whether the product can be assembled in accordance with the instructions supplied with it, and whether they are adequate.⁶

4.6.2 Apparatus

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


4.6.3 Procedure

4.6.3.1 Assemble the product according to the manufacturer's instructions. Note any deficiencies or ambiguities in the instructions.

4.6.3.2 Examine the written instructions to see if they clearly state, in both official languages, the following information, with line drawings or photographs illustrating the sequence of steps where needed:

- (i) The method of assembling the product.
- (ii) The recommended use position(s) of the product.
- (iii) How the product is to be maintained and cleaned.

⁶§ 4(4) of the Regulations

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- (iv) How the product is to be folded and unfolded.
- (v) How to operate and adjust the braking device.
- (vi) How to use the restraint system.
- (vii) The maximum weight and height of a child the product is designed to carry.
- (viii) Whether the product has provision for a bag or rack.
- (ix) Whether a bag or rack is provided with the product.
- (x) The maximum load the parcel bag or rack is designed to carry.
- (xi) A warning that the product will become unstable if the manufacturer's recommended load is exceeded.
- (xii) warning that the product will become unstable if a parcel bag or rack is used when there is no provision for one.
- (xiii) A warning that care must be taken when folding and unfolding the product, to prevent finger entrapment.

4.6.4 Results

- 4.6.4.1 Record any deficiencies in the requirements outlined in 4.6.3.2.

4.7 INCLINED PLANE STABILITY (Test in the Carriage position first and then in the Stroller position if the product is adjustable)


4.7.1 Scope

- 4.7.1.1 This method describes the procedure for testing the stability of a product on an inclined plane.⁷

4.7.2 Apparatus

- 4.7.2.1 A 19 mm (-0, +1mm) thick plywood test plane of such a size that when the product is placed on it, all wheels of the product can be at least 50 mm (± 5mm) from any edge.
- 4.7.2.2 A dummy, described in Schedule IX of the regulations, for each seat of the product.

⁷§ 5(1) of the Regulations

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4.7.2.3 A load meeting the manufacturer's maximum specifications for the parcel bag.

4.7.3 Procedure

4.7.3.1 Adjust the backrest of the product to its most upright position.

4.7.3.2 Adjust the test plane to a 12 degree (+0, -0.1°) slope with the horizontal.

4.7.3.3 Place the product on the test plane so that it is facing uphill with the brakes off and orient any two adjacent wheels in a line parallel to the horizontal. The wheels shall be at least 50 mm (± 5 mm) from any edge of the test plane. Stops may be placed on the plane against the wheels that will prevent the product from moving on the plane but will not prevent it from tipping. Observe if any wheel can be freely rotated such that they don't make contact with the plywood sheet. **Note:** If the wheels of the product are mounted in sets of two or more, at least one wheel of each set shall not be allowed to rotate freely.

4.7.3.4 If the product is supplied with a parcel bag, place the manufacturer's recommended load in the bag, and place the bag on the product as recommended by the manufacturer. If no load is recommended, abort this test and proceed to the next test section. If no parcel bag is recommended, continue with the remainder of the procedure.

4.7.3.5 Place a dummy, described in Schedule IX, in the center of the seating unit and secure it using the occupant restraint system, if supplied. No other device should be used to secure the dummy to the product. Observe if any wheel can be freely rotated such that they don't make contact with the plywood sheet.

4.7.3.6 Turn the product clockwise by 90 degrees ($\pm 1^\circ$).


4.7.3.7 Repeat steps 4.7.3.1 through 4.7.3.5.

4.7.3.8 Repeat steps 4.7.3.6 and 4.7.3.7 two times.

4.7.3.9 In the case of multiple occupancy units, perform the test with a dummy in one seating unit only. Repeat the test with the dummy in the alternate seat(s). Repeat the test again with a dummy in each seating unit simultaneously.

4.7.3.10 If the product can be adjusted to a stroller position, repeat 4.7.3 with the product in its stroller position.

4.7.4 Results

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4.7.4.1 Record whether the product stayed in the manufacturer's recommended position and whether any wheel could be freely rotated after 4.7.3.3 and 4.7.3.5. **Note:** If the wheels of the product are mounted in sets of two or more, at least one wheel of each set shall not be allowed to rotate freely.

4.8 HORIZONTAL PLANE STABILITY (strollers only)

4.8.1 Scope

4.8.1.1 This method describes the procedure for testing the stability of a stroller on a horizontal plane.⁸

4.8.2 Apparatus

4.8.2.1 A horizontal test plane.

4.8.2.2 A 5 cm (± 0.1 mm) wooden cube for each of the product's footrests.

4.8.2.3 A force gauge capable of measuring 200 ± 2 N.

4.8.3 Procedure

4.8.3.1 With no added weight in any seating unit, place the stroller on the horizontal test plane and adjust each footrest to its lowest recommended use position. Observe if any wheel can be freely rotated such that they don't make contact with the horizontal test plane.


4.8.3.2 Place a 5 cm wooden cube on the centre of each footrest and apply a 200 N (+0,-20N) force vertically downwards through the center of the wooden cube. Observe if any wheel can be freely rotated such that they don't make contact with the horizontal test plane.

4.8.3.3 In the case of multiple occupancy units, perform the test with the force on each footrest, one at a time and then with the force on each footrest simultaneously.

4.8.4 Results

4.8.4.1 Record whether the product remained in the manufacturer's recommended use position and whether any wheel could be freely rotated after 4.8.3.1 and 4.8.3.2. **Note:** If the wheels of the product are mounted in sets of two or more, at least one wheel of each set shall not be allowed to rotate freely.

⁸§ 5(2) of the Regulations

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4.9 BRAKING DEVICE (Test in the Carriage position first and then in the Stroller position if the product is adjustable)

4.9.1 Scope

4.9.1.1 This method describes the procedure for evaluating the performance of the product's braking device.⁹

4.9.2 Apparatus

4.9.2.1 Inclined test plane with new 120 grit sand paper.

4.9.2.2 A dummy for each seating unit of the product.

4.9.2.3 A load for the parcel bag, as recommended by the manufacturer.

4.9.2.4 A load for the parcel rack, as recommended by the manufacturer.

4.9.2.5 Tape measure with a precision of ± 1 mm.

4.9.3 Procedure

4.9.3.1 With the grit covered side of the inclined test plane facing up, adjust the test plane to a 12 degree ($+0, -0.1^\circ$) slope with the horizontal.

4.9.3.2 Place a dummy in the center of each seating unit.


4.9.3.3 Place the manufacturer's recommended maximum load in the manufacturer's recommended parcel bag, if supplied. If not supplied, place it in the manufacturer's recommended parcel rack, if supplied. If not supplied, do not attempt to place or attach any load, other than the dummy, in or on the product to make up for the absence of a parcel bag or rack. If the manufacturer's recommended parcel bag and rack are supplied, place the manufacturer's recommended maximum load in both. If no maximum load is recommended, abort this test and proceed to the next test section.

4.9.3.4 Place the product on the test plane so that it is facing uphill, with all wheels at least 50 mm (± 5 mm) from any edge of the test plane.

4.9.3.5 Apply the product's braking device and mark the wheels in any manner to allow observation of any rotation.

4.9.3.6 Orient the product so that it is facing downhill, and repeat the test.

⁹§ 6 of the Regulations

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4.9.4 Results

4.9.4.1 Record the following:

- (i) Whether the product had a braking device.
- (ii) Whether the braking device stayed engaged.
- (iii) The amount of rotation of the braked wheels in degrees about the horizontal axis of rotation.
- (iv) Whether the product moved on the test plane and the distance it moved.
- (v) Whether the braking device acted on the tires and, if so, the adjustment method of the braking device.
- (vi) Whether brake disengagement could be caused by the motion or actions of a child restrained in the product in the stroller position only.

4.10 OCCUPANT RESTRAINT SYSTEM (strollers only)

4.10.1 Scope


- 4.10.1.1 This method describes the procedure for evaluating a stroller's occupant restraint system that consists of a lap belt and an additional restraint to prevent the occupant from sliding downward.¹⁰

4.10.2 Apparatus

- 4.10.2.1 A roller block fixture (See Figure 1)
- 4.10.2.2 A marker pen.
- 4.10.2.3 A stopwatch with a precision of ± 0.1 sec.
- 4.10.2.4 A 300 mm ruler with a precision of ± 0.5 mm.
- 4.10.2.5 A force gauge capable of measuring 450 ± 5 N.
- 4.10.2.6 A selection of C-clamps etc. to secure the product to a horizontal test plane.

4.10.3 Procedure


¹⁰§ 7 of the Regulations

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- 4.10.3.1 Determine whether there is a lap belt and an additional restraint to prevent the occupant from sliding downward.
- 4.10.3.2 Secure the stroller so that it cannot move.
- 4.10.3.3 Secure the roller block fixture with the stroller's lap belt as shown in Figure 1.
- 4.10.3.4 Mark the lap belt to allow observation of any loosening of the belt.
- 4.10.3.5 Apply within 1 (± 1) second a 200 N (+0, -15N) force in a direction normal to the lap belt, in such a way as to allow the rollers to rotate freely. Maintain the force for 10 seconds (± 1 sec).
- 4.10.3.6 Repeat 4.10.3.5 nine more times at one second intervals.
- 4.10.3.7 Repeat 4.10.3.5 using a force of 450 N (+0, -20N) applied within 2 seconds.
- 4.10.3.8 Remove the roller block.
- 4.10.3.9 Apply a 225 N (+0, -15N) force within 2 (+0.5,-0) seconds to the restraint system in a direction that places strain on one anchorage attachment point. Maintain the force for 10 (+0,-0.5) seconds.
- 4.10.3.10 Repeat 4.10.3.9 for each of the remaining anchorage attachment points.

4.10.4 Results

- 4.10.4.1 Record the following:
 - (i) Whether there was a lap belt and a device to prevent the occupant from sliding downward.
 - (ii) Any loosening or breakage of the lap belt fastener after performing 4.10.3.5.
 - (iii) Any loosening or breakage of the lap belt fastener after performing each of the nine tests in 4.10.3.6.
 - (iv) Any breakage or detachment of the anchorages after performing 4.10.3.7.
 - (v) Any breakage or detachment of the anchorage after performing 4.10.3.9.

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(vi) Any breakage or detachment of the anchorage after performing each of the tests in 4.10.3.10.

4.11 LATCHING SYSTEM (Test in the Carriage position first and then in the Stroller position if the product is adjustable)

4.11.1 Scope

4.11.1.1 This method describes the procedure for evaluating the latching system on a product which folds.¹¹

4.11.2 Apparatus

4.11.2.1 A 2 kg (+0,-5gm) bag of sand for each seat of the product.

4.11.2.2 A selection of C-clamps etc. to secure the product to a horizontal test plane in a manner that does not impede the normal folding action.

4.11.2.3 A force gauge capable of measuring 200 ±2N.

4.11.2.4 A dummy for each seat of the product.

4.11.3 Procedure

4.11.3.1 Erect the product in the manufacturer's recommended use position.

4.11.3.2 Determine whether a folding product has the following:

4.11.3.2.1 A latch system that requires a positive action on the part of the user to permit folding.

4.11.3.2.2 A latching device or other design feature that prevents the product from accidentally folding when placed in the manufacturer's recommended use position.


4.11.3.2.3 At least one latching device that engages automatically.

4.11.3.2.4 A safety device that engages automatically and requires positive action on the part of the user to release it.


4.11.3.3 Test a product which folds, as follows:

4.11.3.3.1 Erect the product in the manufacturer's use position.

¹¹§ 8 of the Regulations

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- 4.11.3.3.2 Place a 2 kg bag of sand in the centre of each seating unit of the product.
- 4.11.3.3.3 Secure the product to a horizontal surface in a manner that does not impede the normal folding action.
- 4.11.3.3.4 Apply a 200 N (+0, -5N) force at the location associated with the folding action in the direction normally associated with the manufacturer's recommended method of folding. Do not apply the force directly to a latching device.
- 4.11.3.3.5 Repeat the step 4.11.3.3.4 four times within two minutes.
- 4.11.3.3.6 Remove the 2 kg bag of sand from the middle of each of the product's seating units.
- 4.11.3.3.7 Fold the product 100 times.
- 4.11.3.3.8 Repeat steps 4.11.3.3.1 through 4.11.3.3.4.
- 4.11.3.4 Test the **SAFETY DEVICE** of a product which folds, as follows:
 - 4.11.3.4.1 Erect the product in the manufacturer's recommended use position, with the safety device engaged and the latching device released.
 - 4.11.3.4.2 Apply a 200 N (+0, -5N) force at the location associated with the folding action and in the direction of folding.
 - 4.11.3.4.3 Measure the amount of folding movement, if any.
 - 4.11.3.4.4 Place a dummy in the center of each seating unit, and repeat 4.11.3.4.1 through 4.11.3.4.3.
- 4.11.4 Results
 - 4.11.4.1 Record the following:
 - (i) Whether the product has the characteristics outlined in 4.11.3.2.
 - (ii) Whether the product stayed latched in the manufacturer's recommended use position after performing each test in 4.11.3.3.
 - (iii) The total folding movement of the product after performing each of the tests in 4.11.3.4. It shall be no more than one third of the total folding movement between the fully open and the fully closed position.

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4.12 **STRUCTURAL INTEGRITY (Test in the Carriage position first and then in the Stroller position if the product is adjustable)**

4.12.1 Scope

4.12.1.1 This method describes the procedure for evaluating the product's strength and structural integrity.¹²

4.12.2 Apparatus

4.12.2.1 A horizontal test plane.

4.12.2.2 A 20 kg (+0, -50gm) mass for each footrest of the product.

4.12.2.3 A 40 kg (+0, -50gm) mass for each seat of the product if it is a carriage.

4.12.2.4 A 60 kg (+0, -50gm) mass for each seat of the product if it is a stroller.

4.12.2.5 A 150 mm by 70 mm by 25 mm (+0, -0.5mm) wooden block for each footrest of the product.

4.12.2.6 A stopwatch with a precision of ± 0.1 sec.

4.12.3 Procedure

4.12.3.1 Erect the product in the manufacturer's recommended use position with all the wheels resting on the horizontal surface and each footrest in the lowest recommended use position.

4.12.3.2 Using a test mass of 40 kg for carriages and 60 kg for strollers, place the test mass in each of the product's seats. Maintain the test mass(es) in position for two minutes (+0, -1sec).


4.12.3.3 Remove the 40 kg or 60 kg test mass(es).

4.12.3.4 Place a 150 mm by 70 mm by 25 mm wooden block on the centre of each footrest.

4.12.3.5 Place a 20 kg mass on each wooden block used, simultaneously if more than one footrest is present, for two minutes (+0, -1sec).

4.12.4 Results

¹²§ 9 of the Regulations

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4.12.4.1 Record the following:

(i) Any damage to the product after performing 4.12.3.2.

(ii) Any damage to the product after performing 4.12.3.5.

4.13 SHEARING OR PINCHING

4.13.1 Scope

4.13.1.1 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 pinching¹³.

4.13.2 Apparatus

4.13.2.1 A 3.0 mm (± 0.1 mm) diameter probe.

4.13.2.2 A 15.0 mm (± 0.1 mm) diameter probe.

4.13.2.3 The largest anthropometrically sized infant dummy whose mass does not exceed the product's seating capacity.

4.13.2.4 A metric ruler to measure hole depth with a precision of at least 1mm.

4.13.3 Procedure

4.13.3.1 Visually inspect the product for occupant accessible spaces at or near the intersections of components that move relative to one another.¹⁴


4.13.3.2 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.

4.13.4 Results

4.13.4.1 Record the following:

²⁰ § 13 of the Regulations. (Based on the "Components Test" for scissoring, shearing and pinching hazards of section 6.6 in ASTM F 406-97 - Standard Consumer Safety Specification for Play Yards)

¹⁴ Use the dummy to determine which spaces would be accessible to the occupant.

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(i) 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.

(ii) The depth of insertion within intersecting parts of these spaces.

4.14 THREADED BOLT ENDS

4.14.1 Scope

4.14.1.1 This method describes the procedure for determining that there are no exposed threaded bolt ends.¹⁵

4.14.2 Apparatus

4.14.2.1 The largest anthropometrically sized infant dummy whose mass does not exceed the product's seating capacity.

4.14.3 Procedure

4.14.3.1 Inspect the product's bolt ends that are accessible to the occupant¹⁶.

4.14.4 Results

4.14.4.1 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.

4.15 90 N PUSH/PULL

4.15.1 Scope

4.15.1.1 This method describes the procedure for determining that,

(i) every component of the product that could possibly fit in the truncated right cylinder described in Method M00.1 and


(ii) every cap or similar item that protects the cut 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.

¹⁴§ 14(4) of the Regulations

¹⁵ Use the dummy to determine which bolts ends would be accessible to the occupant.

¹⁶§ 12 and 14(2) of the Regulations

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4.15.2 Apparatus

- 4.15.2.1 A two-pronged clamp.
- 4.15.2.2 A pair of combination pliers.
- 4.15.2.3 A pair of long-nosed pliers.
- 4.15.2.4 A truncated right cylinder described in Method M00.1.
- 4.15.2.5 A force gauge capable of measuring 90 ±2N.

4.15.3 Procedure

- 4.15.3.1 Attempt to remove all components described in 4.15.1.1 (i) and (ii) with a 90 N (+0, -2N) force applied in any direction.

4.15.4 Results

- 4.15.4.1 Record the following:
 - (i) Whether any component became detached with a force of 90 N or less.
 - (ii) The actual force required to detach any component.

4.16 SMALL COMPONENTS

- 4.16.1 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 4.15.


4.17 SHARP EDGES AND SHARP POINTS

- 4.17.1 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-.¹⁸

4.18 OPEN HOLES

- 4.18.1 Scope

¹⁷§ 14(1) and 14(3) of the Regulations

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4.18.2 This method describes the procedure for determining whether any open hole, slot or cavity, of any shape or form, may pose a finger entrapment hazard.¹⁹

4.18.3 Apparatus

4.18.3.1 A 5mm (± 0.1 mm) and a 10mm (± 0.1 mm) finger intrusion probe.

4.18.3.2 The largest anthropometrically sized infant dummy whose mass does not exceed the product's seating capacity.

4.18.4 Procedure

4.18.4.1 Examine the product for open holes, of any shape or form, in a metal, plastic, wooden or similar hard material component, that is accessible to an occupant of the product.²⁰

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

4.18.5 Results

4.18.5.1 Record the following:

(i) The type and location of any hole which admitted the 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.

(ii) Record the depth and minor dimension of any hole which admitted the 5 mm diameter end of the finger intrusion probe but not the 10 mm diameter end of the hole probe.

4.19 WHEELS (Test in the Stroller Position and the Carriage Position if the Product is adjustable)


4.19.1 Scope

4.19.1.1 This method describes the procedure for evaluating the attachment of wheels to the product.²¹

¹⁶§ 15 of the Regulations

²⁰ Use the dummy to determine which holes would be accessible to the occupant.

¹³§ 10 of the Regulations

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4.19.2 Apparatus

- 4.19.2.1 A wheel test fixture (See Figure 2 for a typical example). Modify the fixture as necessary to fit the product being tested.
- 4.19.2.2 A device capable of gradually applying a 450 ±5N force and maintaining it for two minutes.
- 4.19.2.3 A stopwatch with a precision of ±0.1sec.

4.19.3 Procedure

- 4.19.3.1 Mount a wheel and axle in the test fixture.
- 4.19.3.2 Apply a force of 450 N (+0, -5N) to the axle, as shown in Figure 2, at a rate of loading not exceeding 450 N/min.
- 4.19.3.3 Maintain the force for a period of two minutes (+0, -1sec).
- 4.19.3.4 Reduce the load to zero at a rate not exceeding 450 N/min.
- 4.19.3.5 Repeat 4.19.3.1 through 4.19.3.4 for each of the other wheels of the product.

4.19.4 Results


- 4.19.4.1 Examine the wheel and record whether the wheel has become detached or suffered loss of function.

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.

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.

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6.1.3 The results of the tests (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.

6.1.5 The signature of the approving officer.

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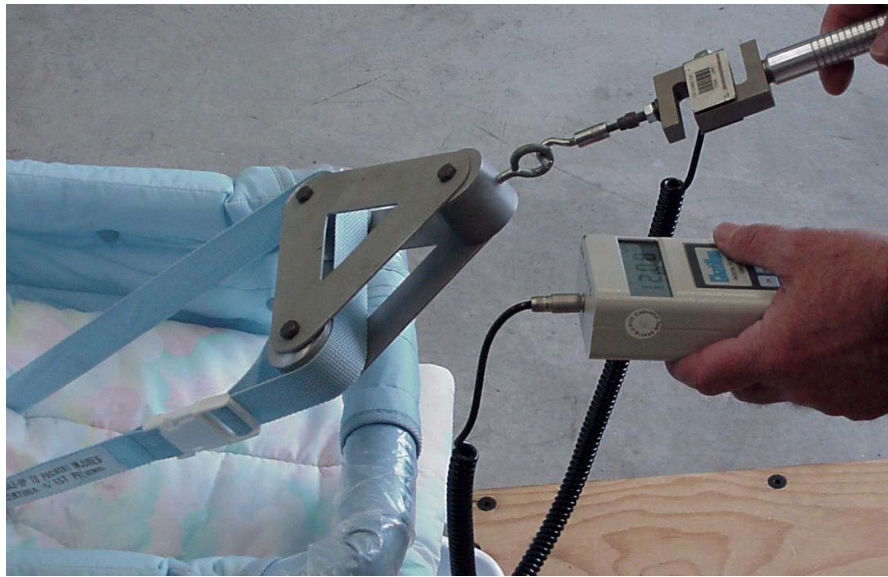



Figure 1 - Typical Installations of Seat Belt Roller Block Fixture

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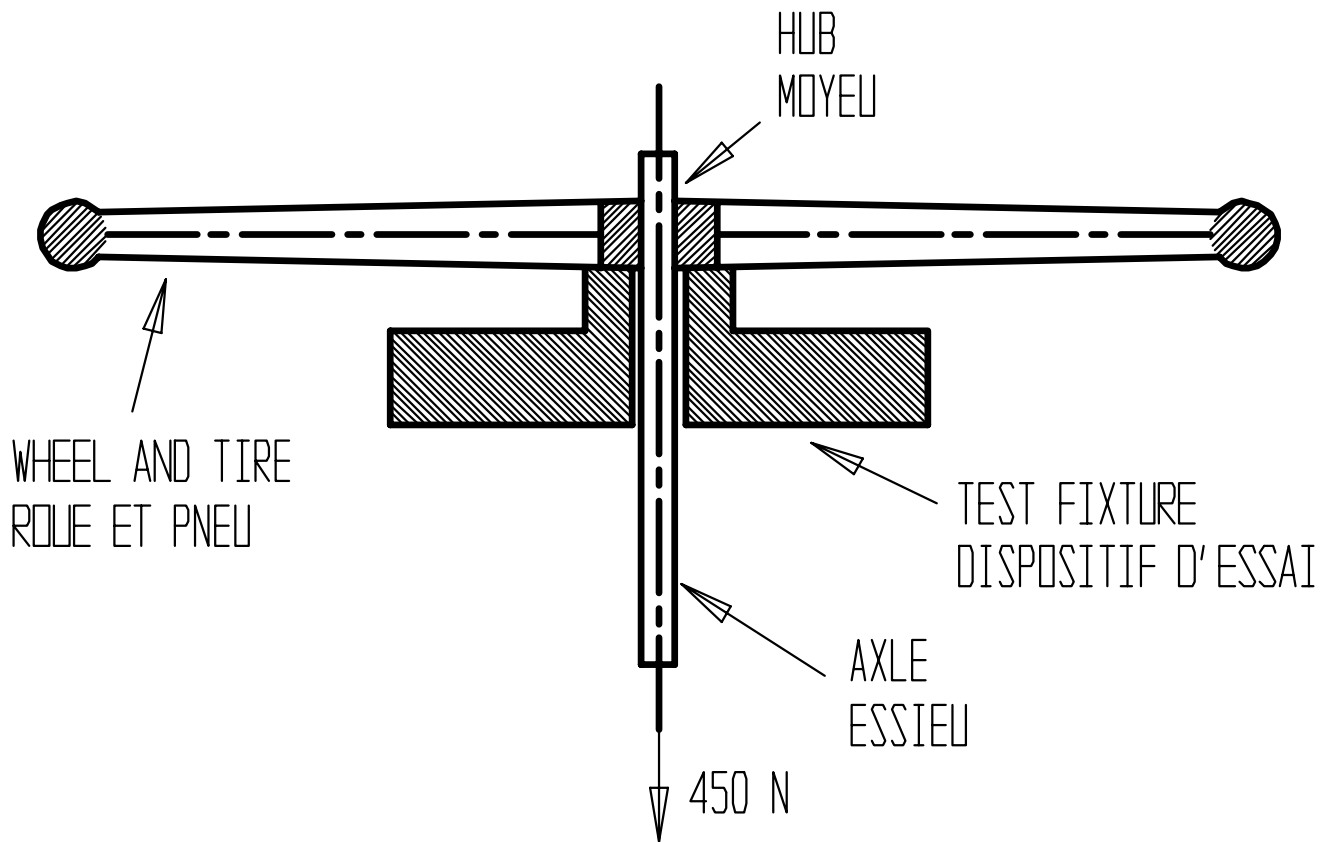


Figure 2 - Example of the Wheel Test Fixture