

## § 572.81

this part by reference. These materials are thereby made part of this regulation. The Director of the Federal Register approved the materials incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the materials may be obtained from Rowley-Scher Reprographics, Inc., 1216 K Street, NW., Washington, DC 20002, telephone (202) 628-6667. Copies are available for inspection in the general reference section of Docket 89-11, Docket Section, National Highway Traffic Safety Administration, room 5109, 400 Seventh Street, SW., Washington, DC, or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

### § 572.81 General description.

(a) The dummy consists of: (1) The assembly specified in drawing LP 1049/A, March 1979, which is described in its entirety by means of approximately 54 separate drawings and specifications, 1049/1 through 1049/54; and (2) a parts list LP 1049/0 (5 sheets); and (3) a report entitled, "The TNO P3/4 Child Dummy Users Manual," January 1979, published by Instituut voor Wegtransportmiddelen TNO.

(b) Adjacent dummy segments are joined in a manner such that throughout the range of motion and also under simulated crash-impact conditions there is no contact between metallic elements except for contacts that exist under static conditions.

(c) The structural properties of the dummy are such that the dummy conforms to this part in every respect both before and after being used in dynamic tests such as that specified in Standard No. 213 of this chapter (§ 571.213).

### § 572.82 Head.

The head consists of the assembly shown in drawing LP 1049/A and conforms to each of the applicable drawings listed under LP 1049/0 through 54.

### § 572.83 Head-neck.

The head-neck assembly shown in drawing 1049/A consists of parts specified as items 1 through 16 and in item 56.

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### § 572.84 Thorax.

The thorax consists of the part of the torso shown in assembly drawing LP 1049/A and conforms to each of the applicable drawings listed under LP 1049/0 through 54.

### § 572.85 Lumbar spine flexure.

(a) When subjected to continuously applied force in accordance with paragraph (b) of this section, the lumbar spine assembly shall flex by an amount that permits the thoracic spine to rotate from its initial position in accordance with Figure No. 18 of § 572.21 (49 CFR part 572) by 40 degrees at a force level of not less than 18 pounds and not more than 22 pounds, and straighten upon removal of the force to within 5 degrees of its initial position.

(b) *Test procedure.* (1) The lumbar spine flexure test is conducted on a dummy assembly as shown in drawing LP 1049/A, but with the arms (which consist of parts identified as items 17 through 30) and all head-neck parts (identified as items 1 through 13 and 59 through 63), removed.

(2) With the torso assembled in an upright position, adjust the lumbar cable by tightening the adjustment nut for the lumbar vertebrae until the spring is compressed to  $\frac{2}{3}$  of its unloaded length.

(3) Position the dummy in an upright seated position on a seat as indicated in Figure No. 18 of § 572.21 (lower legs do not need to be removed, but must be clamped firmly to the seating surface), ensuring that all dummy component surfaces are clean, dry and untreated unless otherwise specified.

(4) Firmly affix the dummy to the seating surface through the pelvis at the hip joints by suitable clamps that also prevent any relative motion with respect to the upper legs during the test in § 572.65(c)(3) of this part. Install a pull attachment at the neck to torso juncture as shown in Figure 18 of § 572.21.

(5) Flex the thorax forward 50 degrees and then rearward as necessary to return it to its initial position.

(6) Apply a forward pull force in the midsagittal plane at the top of the neck adapter so that at 40 degrees of the lumbar spine flexion the applied force is perpendicular to the thoracic

spine box. Apply the force at any torso deflection rate between 0.5 and 1.5 degrees per second up to 40 degrees of flexion but no further; maintain 40 degrees of flexion for 10 seconds, and record the highest applied force during that time. Release all force as rapidly as possible and measure the return angle three minutes after release.

**§ 572.86 Test conditions and dummy adjustment.**

(a) With the complete torso on its back lying on a horizontal surface and the neck assembly mounted and shoulders on the edge of the surface, adjust the neck such that the head bolt is lowered  $0.40 \pm 0.05$  inches ( $10 \pm 1$  mm) after a vertically applied load of 11.25 pounds (50 N) applied to the head bolt is released.

(b) With the complete torso on its back with the adjusted neck assembly as specified in § 572.66(a), and lying on a horizontal surface with the shoulders on the edge of the surface, mount the head and tighten the head bolt and nut firmly, with the head in horizontal position. Adjust the head joint at the force between 1-2g, which just supports the head's weight.

(c) Using the procedures described below, limb joints are set at the force between 1-2g, which just supports the limbs' weight when the limbs are extended horizontally forward:

(1) With the complete torso lying with its front down on a horizontal surface, with the hip joint just over the edge of the surface, mount the upper leg and tighten hip joint nut firmly. Adjust the hip joint by releasing the hip joint nut until the upper leg just starts moving.

(2) With the complete torso and upper leg lying with its front up on a horizontal surface, with the knee joint just over the edge of the surface, mount the lower leg and tighten knee joint nut firmly. Adjust the knee joint by releasing the knee joint nut until the lower leg just starts moving.

(3) With the torso in an upright position, mount the upper arm and tighten firmly the adjustment bolts for the shoulder joint with the upper arm placed in a horizontal position. Adjust the shoulder joint by releasing the

shoulder joint nut until the upper arm just starts moving.

(4) With the complete torso in an upright position and upper arm in a vertical position, mount the forearm in a horizontal position and tighten the elbow hinge bolt and nut firmly. Adjust the elbow joint nut until the forearm just starts moving.

(d) With the torso assembled in an upright position, the adjustment nut for the lumbar vertebrae is tightened until the spring is compressed to  $\frac{2}{3}$  of its unloaded length.

(e) Performance tests are conducted at any temperature from 66 to 78 degrees F and at any relative humidity from 10 percent to 70 percent after exposure of the dummy to these conditions for a period of not less than four hours.

(f) Performance tests of the same component, segment, assembly or fully assembled dummy are separated in time by a period of not less than 20 minutes unless otherwise specified.

(g) Surfaces of the dummy components are not painted except as specified in the part or in drawings incorporated by this part.

**Subpart K—Newborn Infant**

SOURCE: 58 FR 3232, Jan. 8, 1993, unless otherwise noted.

**§ 572.90 Incorporation by reference.**

(a) The drawings and specifications referred to in § 572.91(a) are hereby incorporated in subpart K by reference. These materials are thereby made part of this regulation. The Director of the Federal Register approved that materials incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the materials may be inspected at NHTSA's Docket Section, 400 Seventh Street, SW., room 5109, Washington, DC, or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(b) The incorporated material is available as follows:

(1) Drawing numbers 126-0000 through 126-0015 (sheets 1 through 3), 126-0017 through 126-0027, and a parts list entitled "Parts List for CAMI Newborn Dummy," are available from Reprographic Technologies, 1111 14th