

**§ 572.70**

**49 CFR Ch. V (10–1–02 Edition)**

**Subparts G–H [Reserved]**

**Subpart I—6-Year-Old Child**

SOURCE: 56 FR 57836, Nov. 14, 1991, unless otherwise noted.

**§ 572.70 Incorporation by reference.**

(a) The drawings and specifications referred to in §§ 572.71(a) and 572.71(b) are hereby incorporated in subpart I 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 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 number SA 106 C001 sheets 1 through 18, and the drawings listed in the parts lists described on sheets 8 through 17, are available from Reprographic Technologies, 9000 Virginia Manor Rd., Beltsville, MD 20705,

Telephone (301) 210-5600, Fax (301) 210-5607.

(2) A User’s Manual entitled, “Six-Year-Old Size Child Test Dummy SA106C,” October 28, 1991, is available from Reprographic Technologies at the address in paragraph (b)(1) of this section.

(3) SAE Recommended Practice J211, Instrumentation for Impact Test, June 1988, is available from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096-0001.

[56 FR 57836, Nov. 14, 1991, as amended at 62 FR 44226, Aug. 20, 1997]

**§ 572.71 General description.**

(a) The representative 6-year-old dummy consists of a drawings and specifications package that contains the following materials:

(1) Technical drawings, specifications, and the parts list package shown in SA 106C 001, sheets 1 through 18, re-released July 11, 1997;

(2) A user’s manual entitled, “Six-Year-Old Size Child Test Dummy SA106C,” October 28, 1991.

(b) The dummy is made up of the component assemblies set out in Table A:

TABLE A

Assembly drawing No.	Drawing title	Listed on drawing No.	Revision
SA 106C 010 .....	Head Assembly .....	SA 106C 001, sheet 8 .....	A
SA 106C 020 .....	Neck Assembly .....	SA 106C 001, sheet 9 .....	A
SA 106C 030 .....	Thorax Assembly .....	SA 106C 001, sheet 10 .....	C
SA 106C 030 .....	Thorax Assembly .....	SA 106C 001, sheet 11 .....	D
SA 106C 041 .....	Arm Assembly (right) .....	SA 106C 001, sheet 14 .....	A
SA 106C 042 .....	Arm Assembly (left) .....	SA 106C 001, sheet 15 .....	A
SA 106C 050 .....	Lumbar Spine Assembly .....	SA 106C 001, sheet 12 .....	A
SA 106C 060 .....	Pelvis Assembly .....	SA 106C 001, sheet 13 .....	A
SA 106C 071 .....	Leg Assembly (right) .....	SA 106C 001, sheet 16 .....	A
SA 106C 072 .....	Leg Assembly (left) .....	SA 106C 001, sheet 17 .....	A

(c) Adjacent segments are joined in a manner such that except for contacts existing under static conditions, there is no contact between metallic elements throughout the range of motion or under simulated crash-impact conditions.

(d) The structural properties of the dummy are such that the dummy conforms to this part in every respect both before and after its use in any test

similar to those specified in Standard 213, Child Restraint Systems.

[56 FR 57836, Nov. 14, 1991, as amended at 62 FR 44226, Aug. 20, 1997]

**§ 572.72 Head assembly and test procedure.**

(a) *Head assembly.* The head consists of the assembly designated as SA 106 010 on drawing No. SA 106C 001, sheet 2, and conforms to each drawing listed on SA 106C 001, sheet 8.

(b) *Head assembly impact response requirements.* When the head is impacted by a test probe conforming to §572.77(a)(1) at 7 feet per second (fps) according to the test procedure in paragraph (c) of this section, then the resultant head acceleration measured at the location of the accelerometer installed in the headform according to §572.77(b) is not less than 130g and not more than 160g.

(1) The recorded acceleration-time curve for this test is unimodal at or above the 50g level, and lies at or above that level for an interval not less than 1.0 and not more than 2.0 milliseconds.

(2) The lateral acceleration vector does not exceed 5g.

(c) *Head test procedure.* The test procedure for the head is as follows:

(1) Seat and orient the dummy on a seating surface having a back support as specified in §572.78(c), and adjust the joints of the limbs at any setting (between 1g and 2g) which just supports the limbs' weight when the limbs are extended horizontally and forward.

(2) Adjust the test probe so that its longitudinal center line is—

(i) At the forehead at the point of orthogonal intersection of the head midsagittal plane and the transverse plane which is perpendicular to the Z axis of the head as shown in Figure 40;

(ii) Located 2.7±0.1 inches below the top of the head measured along the Z axis, and;

(iii) Coincides within 2 degrees with the line made by the intersection of the horizontal and midsagittal planes passing through this point.

(3) Impact the head with the test probe so that at the moment of contact the probe's longitudinal center line falls within 2 degrees of a horizontal line in the dummy's midsagittal plane.

(4) Guide the test probe during impact so that there is no significant lateral, vertical, or rotational movement.

(5) Allow at least 60 minutes between successive head tests.

**§ 572.73 Neck assembly and test procedure.**

(a) *Neck assembly.* The neck consists of the assembly designated as SA 106C 020 on drawing SA 106C 001, sheet 2, and conforms to each drawing listed on SA 106C 001, sheet 9.

(b) *Neck assembly impact response requirements.* When the head-neck assembly (SA 106C 010 and SA 106C 020) is tested according to the test procedure in §572.73(c), the head:

(1) Shall rotate, while translating in the direction of the pendulum preimpact flight, in reference to the pendulum's longitudinal center line a total of 78 degrees±6 degrees about the head's center of gravity; and

(2) Shall rotate to the extent specified in Table B at each indicated point in time, measured from time of impact, with the chordal displacement measured at the head's center of gravity.

(i) Chordal displacement at time "T" is defined as the straight line distance between the position relative to the pendulum arm of the head's center of gravity at time "zero;" and the position relative to the pendulum arm of the head's center of gravity at time T as illustrated by Figure 3 in §572.11.

(ii) The peak resultant acceleration recorded at the location of the accelerometers mounted in the headform according to §572.77(b) shall not exceed 30g.

TABLE B

Rotation (degrees)	Time (ms)±(2+ .08T)	Chordal displacement (inches)±0.8
0 .....	0	0
30 .....	26	2.7
60 .....	44	4.3
Maximum .....	68	5.8
60 .....	101	4.4
30 .....	121	2.4
0 .....	140	0

(3) The pendulum shall not reverse direction until the head's center of gravity returns to the original "zero" time position relative to the pendulum arm.

(c) *Neck test procedure.* The test procedure for the neck is as follows:

(1) Mount the head and neck assembly on a rigid pendulum as specified in §572.21, Figure 15, so that the head's midsagittal plane is vertical and coincides with the plane of motion of the pendulum's longitudinal center line. Attach the neck directly to the pendulum as shown in §572.21, Figure 15.

(2) Release the pendulum and allow it to fall freely from a height such that the velocity at impact is 17.00±1.0 fps,