

Subpart A—General

Subpart B—50th Percentile Male

§ 572.1 Scope.

This part describes the anthropomorphic test devices that are to be used for compliance testing of motor vehicles and motor vehicle equipment with motor vehicle safety standards.

[60 FR 43058, Aug. 18, 1995]

§ 572.2 Purpose.

The design and performance criteria specified in this part are intended to describe measuring tools with sufficient precision to give repetitive and correlative results under similar test conditions and to reflect adequately the protective performance of a vehicle or item of motor vehicle equipment with respect to human occupants.

[38 FR 20451, Aug. 1, 1973, as amended at 42 FR 7151, Feb. 7, 1977]

§ 572.3 Application.

This part does not in itself impose duties or liabilities on any person. It is a description of tools that measure the performance of occupant protection systems required by the safety standards that incorporate it. It is designed to be referenced by, and become a part of, the test procedures specified in motor vehicle safety standards such as Standard No. 208, Occupant Crash Protection.

[38 FR 20451, Aug. 1, 1973, as amended at 42 FR 7152, Feb. 7, 1977]

§ 572.4 Terminology.

(a) The term *dummy*, when used in this subpart A, refers to any test device described by this part. The term *dummy*, when used in any other subpart of this part, refers to the particular dummy described in that part.

(b) Terms describing parts of the dummy, such as *head*, are the same as names for corresponding parts of the human body.

(c) The term *unimodal*, when used in subparts C and I, refers to an acceleration-time curve which has only one prominent peak.

[38 FR 20451, Aug. 1, 1973, as amended at 42 FR 7152, Feb. 7, 1977; 44 FR 76530, Dec. 27, 1979; 56 FR 57836, Nov. 14, 1991]

§ 572.5 General description.

(a) The dummy consists of the component assemblies specified in Figure 1, which are described in their entirety by means of approximately 250 drawings and specifications that are grouped by component assemblies under the following nine headings:

- SA 150 M070—Right arm assembly
- SA 150 M071—Left arm assembly
- SA 150 M050—Lumbar spine assembly
- SA 150 M060—Pelvis and abdomen assembly
- SA 150 M080—Right leg assembly
- SA 150 M081—Left leg assembly
- SA 150 M010—Head assembly
- SA 150 M020—Neck assembly
- SA 150 M030—Shoulder-thorax assembly.

(b) The drawings and specifications referred to in this regulation that are not set forth in full are hereby incorporated in this part by reference. These materials are thereby made part of this regulation. The Director of the Federal Register has approved the materials incorporated by reference. For materials subject to change, only the specific version approved by the Director of the Federal Register and specified in the regulation are incorporated. A notice of any change will be published in the FEDERAL REGISTER. As a convenience to the reader, the materials incorporated by reference are listed in the Finding Aid Table found at the end of this volume of the Code of Federal Regulations.

(c) The materials incorporated by reference are available for examination in Docket 73-08, Docket Section, National Highway Traffic Safety Administration, Room 5109, 400 Seventh Street SW., Washington, DC, 20590. Copies may be obtained from Rowley-Scher Reprographics, Inc., 1216 K Street NW., Washington, DC 20005 ((202) 628-6667). The drawings and specifications are also on file in the reference library of the Office of the Federal Register, National Archives and Records Administration, Washington, DC.

(d) Adjacent segments are joined in a manner such that throughout the range of motion and also under crash impact conditions there is no contact between metallic elements except for

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contacts that exist under static conditions.

(e) 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 vehicle tests specified in Standard No. 208 of this chapter (571.208).

(f) A specimen of the dummy is available for surface measurements and access can be arranged by contacting: Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590.

[50 FR 25423, June 19, 1985]

§ 572.6 Head.

(a) The head consists of the assembly shown as number SA 150 M010 in Figure 1 and conforms to each of the drawings subtended by number SA 150 M010.

(b) When the head is dropped from a height of 10 inches in accordance with paragraph (c) of this section, the peak resultant accelerations at the location of the accelerometers mounted in the head form in accordance with § 572.11(b) shall be not less than 210g, and not more than 260g. The acceleration/time curve for the test shall be unimodal and shall lie at or above the 100g level for an interval not less than 0.9 milliseconds and not more than 1.5 milliseconds. The lateral acceleration vector shall not exceed 10g.

(c) Test procedure:

(1) Suspend the head as shown in Figure 2, so that the lowest point on the forehead is 0.5 inches below the lowest point on the dummy's nose when the midsagittal plane is vertical.

(2) Drop the head from the specified height by means that ensures instant release onto a rigidly supported flat horizontal steel plate, 2 inches thick and 2 feet square, which has a clean, dry surface and any microfinish of not less than 8 microinches (rms) and not more than 80 microinches (rms).

(3) Allow a time period of at least 2 hours between successive tests on the same head.

[38 FR 20451, Aug. 1, 1973, as amended at 42 FR 7152, Feb. 7, 1977]

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§ 572.7 Neck.

(a) The neck consists of the assembly shown as number SA 150 M020 in Figure 1 and conforms to each of the drawings subtended by number SA 150 M020.

(b) When the neck is tested with the head in accordance with paragraph (c) of this section, the head shall rotate in reference to the pendulum's longitudinal centerline a total of $68^{\circ} \pm 5^{\circ}$ about its center of gravity, rotating to the extent specified in the following table at each indicated point in time, measured from impact, with a chordal displacement measured at its center of gravity that is within the limits specified. The chordal displacement at time T is defined as the straight line distance between (1) the position relative to the pendulum arm of the head center of gravity at time zero, and (2) the position relative to the pendulum arm of the head center of gravity at time T as illustrated by Figure 3. The peak resultant acceleration recorded at the location of the accelerometers mounted in the head form in accordance with § 572.11(b) shall not exceed 26g. 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.

Rotation (degrees)	Time (ms)± (2+.08T)	Chordal Displacement (inches±0.5)
0	0	0.0
30	30	2.6
60	46	4.8
Maximum	60	5.5
60	75	4.8
30	95	2.6
0	112	0.0

(c) Test procedure: (1) Mount the head and neck on a rigid pendulum as specified in Figure 4, so that the head's midsagittal plane is vertical and coincides with the plane of motion of the pendulum's longitudinal centerline. Mount the neck directly to the pendulum as shown in Figure 4.

(2) Release the pendulum and allow it to fall freely from a height such that the velocity at impact is 23.5 ± 2.0 feet per second (fps), measured at the center of the accelerometer specified in Figure 4.

(3) Decelerate the pendulum to a stop with an acceleration-time pulse described as follows: