§ 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.

§ 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 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.

§ 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.
§ 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° ± 5° 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 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.

<table>
<thead>
<tr>
<th>Rotation (degrees)</th>
<th>Chordal Displacement (inches ± 0.5)</th>
<th>Time (ms ±(2×0.06T))</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td>2.6</td>
<td>30</td>
</tr>
<tr>
<td>60</td>
<td>4.8</td>
<td>46</td>
</tr>
<tr>
<td>Maximum</td>
<td>4.8</td>
<td>60</td>
</tr>
<tr>
<td>60</td>
<td>4.8</td>
<td>75</td>
</tr>
<tr>
<td>30</td>
<td>2.6</td>
<td>95</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>112</td>
</tr>
</tbody>
</table>

(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:

(i) Establish 5g and 20g levels on the a-t curve.

(ii) Establish t\(_1\) at the point where the rising a-t curve first crosses the 5g level, t\(_2\) at the point where the rising a-t curve first crosses the 20g level, t\(_3\) at the point where the decaying a-t curve first crosses the 5g level.

(iii) t\(_2\)–t\(_1\) shall be not more than 3 milliseconds.

(iv) t\(_3\)–t\(_2\) shall be not less than 25 milliseconds and not more than 30 milliseconds.

(v) t\(_4\)–t\(_3\) shall be not more than 10 milliseconds.

(vi) The average deceleration between t\(_2\) and t\(_3\) shall be not less than 20g and not more than 24g.

(4) Allow the neck to flex without impact of the head or neck with any object other than the pendulum arm.

§ 572.8 Thorax.

(a) The thorax consists of the assembly shown as number SA 150 M030 in Figure 1, and conforms to each of the