

(4) Orient the arm downward to the lowest detent such that the longitudinal centerline of the arm is parallel to the inferior-superior orientation of the spine box.

(5) The midsagittal plane of the dummy is vertical, and superior surface of the lower half neck assembly load cell replacement (180-3815) in the lateral direction is within ±1 degree relative to the horizontal as shown in Figure V9-A.

(6) While maintaining the dummy's position as specified in paragraphs (b)(3), (4) and (5) of this section, the top of the shoulder rib mount (180-3352) orientation in the fore-and-aft direction is within ±1.0 degree relative to horizontal as shown in Figure V9-B in Appendix A to this subpart.

(7) The pelvis impactor is specified in 49 CFR 572.200(c).

(8) The dummy is positioned with respect to the impactor such that the longitudinal centerline of the impact probe is in line with the longitudinal centerline of the iliac load cell access hole, and the 88.9 mm dimension of the probe's impact surface is aligned horizontally.

(9) The impactor is guided, if needed, so that at contact with the pelvis, the longitudinal axis of the impactor is within ±1 degree of a horizontal plane and perpendicular to the midsagittal plane of the dummy.

(10) The dummy's pelvis is impacted at the iliac location at 4.3±0.1 m/s.

(11) Allow a period of at least 120 minutes between successive tests of the same pelvis assembly.

(c) *Performance criteria.* While the impactor is in contact with the pelvis:

(1) Peak acceleration of the impactor is not less than 36 g and not more than 45 g;

(2) Peak acceleration of the pelvis is not less than 28 g and not more than 39 g;

(3) Peak iliac force is not less than 4.10 kN and not more than 5.10 kN.

[71 FR 75370, Dec. 14, 2006, as amended at 74 FR 29896, June 23, 2009]

§ 572.200 Instrumentation and test conditions.

(a) The test probe for shoulder, lateral thorax, and pelvis-acetabulum impact tests is the same as that specified

in 49 CFR 572.137(a) except that its impact face diameter is 120.70 ±0.25 mm and it has a minimum mass moment of inertia of 3646 kg-cm².

(b) The test probe for the lateral abdomen impact test is the same as that specified in 572.137(a) except that its impact face diameter is 76.20 ±0.25 mm and it has a minimum mass moment of inertia of 3646 kg-cm².

(c) The test probe for the pelvis-iliac impact tests is the same as that specified in 49 CFR 572.137(a) except that it has a rectangular flat impact surface 50.8 × 88.9 mm for a depth of at least 76 mm and a minimum mass moment of inertia of 5000 kg-cm².

(d) Accelerometers for the head, the thoracic spine, and the pelvis conform to specifications of SA572-S4.

(e) Rotary potentiometers for the neck-headform assembly conform to SA572-S51.

(f) Instrumentation and sensors conform to the Recommended Practice SAE J-211 (March 1995), Instrumentation for Impact Test, unless noted otherwise.

(g) All instrumented response signal measurements shall be treated to the following specifications:

(1) Head acceleration—digitally filtered CFC 1000;

(2) Neck-headform assembly translation-rotation—digitally filtered CFC 60;

(3) Neck pendulum, T1 and T12 thoracic spine and pelvis accelerations—digitally filtered CFC 180;

(4) Neck forces (for the purpose of occipital condyle calculation) and moments—digitally filtered at CFC 600;

(5) Pelvis, shoulder, thorax and abdomen impactor accelerations—digitally filtered CFC 180;

(6) Acetabulum and iliac wings forces—digitally filtered at CFC 600;

(7) Shoulder, thorax, and abdomen deflection—digitally filtered CFC 600.

(h) Mountings for the head, thoracic spine and pelvis accelerometers shall have no resonant frequency within a range of 3 times the frequency range of the applicable channel class;

(1) Leg joints of the test dummy are set at the force between 1 to 2 g, which just support the limb's weight when the limbs are extended horizontally forward. The force required to move a

§ 572.200

49 CFR Ch. V (10–1–13 Edition)

limb segment does not exceed 2 g throughout the range of the limb motion.

(j) Performance tests are conducted, unless specified otherwise, at any temperature from 20.6 to 22.2 degrees C. (69 to 72 degrees F.) and at any relative humidity from 10% to 70% after exposure of the dummy to those conditions for a period of 4 hours.

(k) Coordinate signs for instrumentation polarity shall conform to the Sign Convention For Vehicle Crash Testing, Surface Vehicle Information Report, SAE J1733, 1994–12 (refer to §572.191(a)(5)).

[71 FR 75370, Dec. 14, 2006, as amended at 74 FR 29896, June 23, 2009]