§ 572.199 Pelvis iliac.
(a) The iliac is part of the lower torso assembly shown in drawing 180–4000. The iliac test is conducted by impacting the side of the lower torso of the assembled dummy (drawing 180–0000). The dummy is equipped with a laterally oriented pelvis accelerometer as specified in 49 CFR 572.200(d), and iliac wing load cell SA572–S66, mounted as shown in sheet 2 of 5 of drawing 180–0000. When subjected to the test procedure as specified in paragraph (b) of this section, the pelvis shall meet performance requirements of paragraph (c) of this section.

(b) Test procedure. (1) Soak the dummy assembly (180–0000) in a test environment as specified in 49 CFR 572.200(j).

(2) Seat the dummy, without the torso jacket (180–3450) and without cotton underwear pants, as shown in Figure V9–A in appendix A to this subpart, on a flat, rigid, horizontal surface covered with a 2-mm-thick PTFE (Teflon) sheet.

(3) The legs are outstretched in front of the dummy such that they are symmetrical about the mid-sagittal plane, the thighs touch the designated foot support surface and the feet are vertical and as close together as possible.

(4) Rotate 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 impactor is specified in 49 CFR 572.200(a).

(6) The impactor is guided, if needed, so that at contact with the pelvis, its longitudinal axis is within ±1 degree of a horizontal plane and perpendicular to the mid-sagittal plane of the dummy. The centerpoint of the impactor’s face is in line with 2 mm of the longitudinal centerline of the ¼-20×1⁄2 flat head cap screw through the center of the acetabulum load cell (SA572–S68), as shown in Figure V8–A in appendix A to this subpart.

(7) Time zero is defined as the time of contact between the impact probe and the pelvis plug.

(8) 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 38 g and not more than 47 g;

(2) Peak lateral acceleration of the pelvis after 6 ms after time zero is not less than 34 g and not more than 42 g;

(3) Peak acetabulum force is not less than 3.60 kN and not more than 4.30 kN.
§ 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 120.70 ± 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;