§ 572.170

Subpart T—Hybrid III 10-Year-Old Child Test Dummy (HIII–10C)

SOURCE: 77 FR 11667, Feb. 27, 2012, unless otherwise noted.

§ 572.170 Incorporation by reference.

(a) Certain material is incorporated by reference (IBR) into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, NHTSA must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the Department of Transportation, Docket Operations, Room W12–140, telephone 202–366–9826, and is available from the sources listed below. The material is available in electronic format through Regulations.gov, call 1–877–378–5457 or go to www.regulations.gov. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to http://www.archives.gov/federal-register/cfr/ibr-locations.html.


1 (1) A parts/drawing list entitled, “Parts/Drawing List, Part 572 Subpart T, Hybrid III 10-Year-Old Child Test Dummy (HIII–10C), August 2011,” IBR approved for §572.171, including:


(ii) Drawing No. 420–0000, Head Assembly, IBR approved for §§572.171, 572.172, 572.173, and 572.177.

(iii) Drawing No. 420–0000, Neck Assembly, IBR approved for §§572.171, 572.173, and 572.177.

(iv) Drawing No. 420–3000, Upper Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(v) Drawing No. 420–4000, Lower Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(vi) Drawing No. 420–5000–1, Complete Leg Assembly—left, IBR approved for §§572.171, 572.176, and 572.177.

(vii) Drawing No. 420–5000–2, Complete Leg Assembly—right, IBR approved for §§572.171, 572.176, and 572.177.

(viii) Drawing No. 420–7000–1, Complete Arm Assembly—left, IBR approved for §572.171, and,

(ix) Drawing No. 420–7000–2, Complete Arm Assembly—right, IBR approved for §572.171.

(2) A drawings and inspection package entitled, “Parts List and Drawings, Part 572 Subpart T, Hybrid III 10-Year-Old Child Test Dummy (HIII–10C), August 2011,” IBR approved for §§572.171 and 572.177, including:


(iii) Drawing No. 420–2000, Upper Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(iv) Drawing No. 420–3000, Lower Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(v) Drawing No. 420–4000, Lower Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(vi) Drawing No. 420–5000–1, Complete Leg Assembly—left, IBR approved for §§572.171, 572.176, and 572.177.

(vii) Drawing No. 420–5000–2, Complete Leg Assembly—right, IBR approved for §§572.171, 572.176, and 572.177.

(viii) Drawing No. 420–7000–1, Complete Arm Assembly—left, IBR approved for §572.171, and,

(ix) Drawing No. 420–7000–2, Complete Arm Assembly—right, IBR approved for §572.171.


(c) SAE International, 400 Commonwealth Drive, Warrendale, PA 15096, call 1–877–606–7323.

(1) SAE Recommended Practice J211/1, Rev. Mar 95, “Instrumentation for Impact Tests—Part 1—Electronic Instrumentation,” IBR approved for §572.177.


§ 572.171 General description.

(a) The Hybrid III 10-year-old Child Test Dummy (HIII–10C) is defined by drawings and specifications containing the following materials:

(1) The parts enlisted in “Parts/Drawing List, Part 572 Subpart T, Hybrid III 10-Year-Old Child Test Dummy (HIII–10C), August 2011,” IBR approved for §572.171, including:


(ii) Drawing No. 420–1000, Head Assembly, IBR approved for §§572.171, 572.172, 572.173, and 572.177.


(iv) Drawing No. 420–3000, Upper Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(v) Drawing No. 420–4000, Lower Torso Assembly, IBR approved for §§572.171, 572.174, 572.175, and 572.177.

(vi) Drawing No. 420–5000–1, Complete Leg Assembly—left, IBR approved for §§572.171, 572.176, and 572.177.

(vii) Drawing No. 420–5000–2, Complete Leg Assembly—right, IBR approved for §§572.171, 572.176, and 572.177.

(viii) Drawing No. 420–7000–1, Complete Arm Assembly—left, IBR approved for §572.171, and,

(ix) Drawing No. 420–7000–2, Complete Arm Assembly—right, IBR approved for §572.171.

(2) The engineering drawings and specifications contained in “Parts List and Drawings, Part 572 Subpart T, Hybrid III 10-Year-Old Child Test Dummy (HIII–10C), August 2011,” which include the engineering drawings and specifications described in Drawing 420–0000, the titles of the assemblies of which are listed in Table A, and,

(b) The structural properties of the dummy are such that the dummy conforms to this Subpart in every respect before use in any test.

§ 572.172 Head assembly and test procedure.

(a) The head assembly for this test consists of the complete head (drawing 420–1000), a six-axis neck transducer (drawing SA572–S11, included in drawing 420–0000), or its structural replacement (drawing 420–383X), and 3 accelerometers (drawing SA572–S4, included in drawing 420–0000) (all incorporated by reference, see §572.170).

(b) When the head assembly is dropped from a height of 376.0 ± 1.0 mm (14.8 ± 0.04 in) in accordance with paragraph (c) of this section, the peak resultant acceleration at the location of the accelerometers at the head CG may not be less than 250 G or more than 300 G. The resultant acceleration vs. time history curve shall be unimodal; oscillations occurring after the main pulse must be less than 10 percent of the peak resultant acceleration. The lateral acceleration shall not exceed 15 G (zero to peak).

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

1. Soak the head assembly in a controlled environment at any temperature between 18.9 and 25.6 °C (66 and 78 °F) and a relative humidity from 10 to 70 percent for at least four hours prior to a test.

2. Prior to the test, clean the impact surface of the skin and the impact plate surface with isopropyl alcohol, trichloroethane, or an equivalent. The skin of the head must be clean and dry for testing.

3. Suspend and orient the head assembly as shown in Figure T1. The lowest point on the forehead must be 376.0 ± 1.0 mm (14.8 ± 0.04 in) from the impact surface. The 1.57 mm (0.062 in) diameter holes located on either side of the dummy’s head shall be used to ensure that the head is level with respect to the impact surface.

4. Drop the head assembly from the specified height by means that ensure a smooth, instant release onto a rigidly supported flat horizontal steel plate which is 50.8 mm (2 in) thick and 610 mm (24 in) square. The impact surface shall be clean, dry and have a micro finish of not less than 203.2 × 10⁻⁶ mm (8 micro inches) (RMS) and not more than 2032.0 × 10⁻⁶ mm (80 micro inches) (RMS).

5. Allow at least 2 hours between successive tests on the same head.

§ 572.173 Neck assembly and test procedure.

(a) The neck assembly for the purposes of this test consists of the assembly of components shown in drawing 420–2000 (incorporated by reference, see §572.170).

(b) When the head-neck assembly consisting of the head (drawing 420–1000), neck (drawing 420–2000), six-channel neck transducer (SA572–S11, included in drawing 420–0000), lower neck bracket assembly (drawing 420–2070), and either three uniaxial accelerometers (drawing SA572–S4, included in drawing 420–0000) or their mass equivalent installed in the head assembly as specified in drawing 420–1000 (all incorporated by reference, see §572.170), is tested according to the test procedure in paragraph (c) of this section, it shall have the following characteristics:

1. Flexion. (i) Plane D, referenced in Figure T2, shall rotate in the direction of preimpact flight with respect to the...