(1) Pendulum acceleration, CFC 180,
(2) Pendulum D-plane rotation (if transducer is used), CFC 60,
(3) Torso flexion pulling force (if transducer is used), CFC 60,
(4) Head acceleration, CFC 1000,
(5) Neck forces, upper and lower, CFC 1000,
(6) Neck moments, upper and lower, CFC 600,
(7) Thorax CG acceleration, CFC 180,
(8) Sternum deflection, Class 600,
(9) Sternum and rib accelerations, Class 1000,
(10) Spine accelerations, CFC 180,
(11) Lumbar forces, CFC 1000,
(12) Lumbar moments, CFC 600,
(13) Shoulder forces, CFC 180,
(14) Pelvis accelerations, CFC 1000,
(15) Iliac forces, CFC 180,
(16) Femur and tibia forces, CFC 600,
(17) Femur and tibia moments, CFC 600.
(d) Coordinate signs for instrumentation polarity are to conform to SAE Information Report J1733 (incorporated by reference, see §572.170).

(e) The mountings for sensing devices have no resonant frequency less than 3 times the frequency range of the applicable channel class.

(f) Limb joints are set at one G, barely restraining the weight of the limb when it is extended horizontally. The force needed to move a limb segment is not to exceed 2G throughout the range of limb motion.

(g) Performance tests of the same component, segment, assembly, or fully assembled dummy are separated in time by not less than 30 minutes unless otherwise noted.

(h) Surfaces of dummy components may not be painted except as specified in this subpart or in drawings submitted by this subpart.

APPENDIX—FIGURES TO SUBPART T OF PART 572
FIGURE T1
HEAD DROP TEST SET-UP SPECIFICATIONS

QUICK RELEASE

HEAD SUSPENSION CABLES

HEAD COMPLETE (420-1000)
WITH HEAD ACCELEROMETER ASS'Y.

D - PLANE PERPENDICULAR TO SKULL CAP/SKULL INTERFACE

DROn HEIGHT

62 ± 1°

STEEL PLATE
50.8x610mm x 610mm
(2x24x24 in)
IMPACT SURFACE FINISH
203 to 2032 μm/mm
(8 to 80 RMS μm/in)

CENTERLINE OF 1.57mm
(0.062 in) DIA.
HOLES IN SKULL

"A" - "B"

DISTANCE "A" - DISTANCE "B" = 0.0±0.1 mm
(0±0.004 in)
FIGURE T2
NECK FLEXION TEST SET-UP SPECIFICATIONS

PENDULUM CENTERLINE
PENDULUM (REF. FIG. 22 CFR 49 §572.33)
ACCELEROMETER
BETA POTentiOMETER
POTentiOMETER EXTENSION BRACKET AND NECK MOUNTING BRACKET
LOWER NECK BRACKET (P/N 420-2070)
6-AXIS UPPER NECK LOAD CELL (SA572-T11)
THETA POTentiOMETER
OCCIPITAL CONDYLES

HEAD ASSY (P/N 420-1000)

PENDULUM STRIKER PLATE
DIRECTION OF PENDULUM FLIGHT
LEADING EDGE OF LOWER NECK BRACKET AND PENDULUM COINCIDE
NECK ASSY. (P/N 420-2000)

D-PLANE * PERPENDICULAR TO PENDULUM CENTERLINE ±1°

* D-PLANE IS DEFINED AS AN IMAGINARY PLANE PERPENDICULAR TO THE SKULL CAP/SKULL INTERFACE.
FIGURE T3
NECK EXTENSION TEST SET-UP SPECIFICATIONS

- **PENDULUM CENTERLINE**
- **PENDULUM** (REF. FIG. 22 CFR 49 §572.33)
- **ACCELEROMETER**
- **BETA POTENTIOMETER**
- **POTENTIOMETER EXTENSION BRACKET AND NECK MOUNTING BRACKET**
- **LOWER NECK BRACKET** (P/N 420-2070)
- **NECK ASSEMBLY** (P/N 420-2000)
- **6-AXIS UPPER NECK LOADCELL** (SA572-T11)
- ***D-PLANE** PERPENDICULAR TO PENDULUM CENTERLINE ± 1°
- **THETA POTENTIOMETER**
- **OCCIPITAL CONDYLES**
- **HEAD ASSY** (P/N 420-1000)

* **D-PLANE IS DEFINED AS AN IMAGINARY PLANE PERPENDICULAR TO THE SKULL CAP/SKULL INTERFACE.**
FIGURE T4
THORAX IMPACT TEST SET-UP SPECIFICATIONS

16° NECK ANGLE SETTING

NO. 3 RIB CENTERLINE HORIZONTAL ±0.5°
12° LUMBAR ANGLE (RELATIVE TO LINE PERPENDICULAR TO 18° PELVIC ANGLE OR D-PLANE)

12.7 ±1.0 mm (0.50 ±0.04 in)

PELVIC ANGLE MEASUREMENT REFERENCE SURFACE 18° ±1° FROM HORIZONTAL

COMPLETE DUMMY ASSEMBLY 420.0000

IMPACT PROBE SUPPORT CABLES
ACCELEROMETER MOUNTED WITH SENSITIVE AXIS IN LINE WITH CENTERLINE OF TEST PROBE LONGITUDINAL AXIS (REF. SA572-T4)
CENTERLINE OR ARMS HORIZONTAL ±0.5°
TEST PROBE CENTERLINE HORIZONTAL ±0.5°

IMPACT PROBE WEIGHT INCLUDING ALL INSTRUMENTATION AND 1/3 OF SUPPORT CABLE WEIGHT *
6.89 ±0.05 kg (15.2 ± 0.1 lb)
FLAT, SMOOTH, RIGID, CLEAN, DRY SEATING SURFACE HORIZONTAL ±0.5°

* 1/3 CABLE WEIGHT NOT TO EXCEED 5% OF THE TOTAL IMPACT PROBE WEIGHT

FIGURE T5
TORSO FLEXION TEST SETUP SPECIFICATIONS

VERTICAL TRANSVERSE PLANE

LOADING ADAPTER BRACKET
ATTACH TO SPINE BOX WITH FOUR #10-32 SCREWS
16° NECK ANGLE SETTING
12° LUMBAR ANGLE (RELATIVE TO LINE PERPENDICULAR TO 18° PELVIC ANGLE OR D-PLANE)
PELVIS-LUMBAR JOINING SURFACE 18° ±1°
ATTACH PELVIS BONE (420-4410) TO FIXTURE WITH FOUR 1/4-20 x 1/2 BOLTS

Pivot Pin Centerline

LOADING ADAPTER BRACKET (TYP.)
FINAL POSITION OF SINGLE RIB PLANE IS 5°
LOAD CELL
COMBINED WEIGHT OF LOAD CELL, LOADING ADAPTER BRACKET, PULL CABLE AND ATTACHMENT HARDWARE ≤ 0.77 kg (1.70 lb.)
§ 572.180 Incorporated materials.

(a) The following materials are hereby incorporated into this Subpart by reference:


(2) A drawings and inspection package entitled “Parts List and Drawings, Part 572 Subpart U, Eurosid 2 with Rib Extensions (ES-2re, Alpha Version), September 2009,” consisting of:

(i) Drawing No. 175-0000, ES-2re Dummy Assembly, incorporated by reference, see §§572.181, 575.182, 572.184;

(ii) Drawing No. 175–1000, Head Assembly, incorporated by reference in §§572.181 and 572.182;

(iii) Drawing No. 175–2000, Neck Assembly Test/Cert, incorporated by reference in §§572.181 and 572.183;

(iv) Drawing No. 175–3000, Shoulder Assembly, incorporated by reference in §§572.181 and 572.184;

(v) Drawing No. 175–3500, Arm Assembly, Left, incorporated by reference in §§572.181 and 572.183;

(vi) Drawing No. 175–3800, Arm Assembly, Right, incorporated by reference in §§572.181 and 572.185;

(vii) Drawing No. 175–4000, Thorax Assembly with Rib Extensions, incorporated by reference in §§572.181 and 572.185;

(viii) Drawing No. 175–5000, Abdominal Assembly, incorporated by reference in §§572.181 and 572.186;


(x) Drawing No. 175–6000, Pelvis Assembly, incorporated by reference in §§572.181 and 572.188;

(xi) Drawing No. 175–7000–1, Leg Assembly—left incorporated by reference in §572.181;

(xii) Drawing No. 175–7000–2, Leg Assembly—right incorporated by reference in §572.181;