DFR. Locate a horizontal plane (Plane 34) that passes through the lowest point of the adjacent daylight opening forward of the door frame. Locate a horizontal plane (Plane 35) half-way between Plane 33 and Plane 34. Target DF3 is the point located in Plane 35 and on the interior surface of the door frame, which is closest to CG-F2 for the nearest seating position.

(d) *Target DF4*. Locate a horizontal plane (Plane 36) half-way between Plane 34 and Plane 35. Target DF4 is the point located in Plane 36 and on the interior surface of the door frame that is closest to CG-R for the nearest seating position.

S10.15 *Other door frame targets*.

(a) *Target OD1*.

(1) Except as provided in S10.15(a)(2), target OD1 is located in accordance with this paragraph. Locate the point (Point 23) on the vehicle interior, at the intersection of the horizontal plane through the highest point of the highest adjacent door opening or daylight opening (if there is no adjacent door opening) and the center line of the width of the other door frame, as viewed laterally with the doors in the closed position. Locate a transverse vertical plane (Plane 37) passing through Point 23. Locate the point (Point 24) at the intersection of the interior roof surface, Plane 37 and the plane, described in S8.15(h), defining the nearest edge of the upper roof. The other door frame reference point (Point ODR) is the point located at the middle of the line between Point 23 and Point 24 in Plane 37, measured along the vehicle interior surface. Target OD1 is located at Point ODR.

(2) If a seat belt anchorage is located on the door frame, Target OD1 is any point on the anchorage.

(b) *Target OD2*. Locate the horizontal plane (Plane 38) intersecting Point ODR. Locate a horizontal plane (Plane 39) passing through the lowest point of the daylight opening forward of the door frame. Locate a horizontal plane (Plane 40) half-way between Plane 38 and Plane 39. Target OD2 is the point located on the interior surface of the door frame at the intersection of Plane 40 and the center line of the width of the door frames, as viewed laterally, with the doors in the closed position.

S10.16 *Seat belt mounting structure targets*.

(a) *Target SB1*. Target SB1 is located at any point on the seat belt anchorage mounted on the seat belt mounting structure.

(b) *Target SB2*. Locate a horizontal plane (Plane 41), containing either CG-F2 or CG-R, as appropriate, for any outboard designated seating position whose seating reference point, SgRP, is forward of and closest to, the vertical center line of the width of the seat belt mounting structure as viewed laterally. Target SB2 is located on the seat belt mounting structure and in Plane 41 at the location closest to either CG-F2 or CG-R, as appropriate.

(c) *Target SB3*. Locate a horizontal plane (Plane 42), containing CG-R for any outboard designated seating position rearward of the forwardmost designated seating position or positions whose seating reference point, SgRP, is rearward of and closest to, the vertical center line of the width of the seat belt mounting structure, as viewed laterally. Locate a horizontal plane (Plane 43) 200 mm below Plane 42. Target SB3 is located on the seat belt mounting structure and in Plane 43 at the location closest to CG-R, as appropriate.

[62 FR 16725, Apr. 8, 1997]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §571.201, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§571.202 Standard No. 202; Head restraints; Applicable at the manufacturers option until September 1, 2009.

S1. *Purpose and scope*. This standard specifies requirements for head restraints to reduce the frequency and severity of neck injury in rear-end and other collisions.

S2. *Application*. This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses with a GVWR of 4,536 kg or less, manufactured before September 1, 2009. Until September 1, 2009, manufacturers may comply with the standard in this §571.202, with the European regulations referenced in S4.3 of this §571.202, or

with the standard in § 571.202a. For vehicles manufactured on or after September 1, 2009 and before September 1, 2010, manufacturers may comply with the standard in this § 571.202 or with the European regulations referenced in S4.3 of this § 571.202, instead of the standard in § 571.202a, only to the extent consistent with phase-in specified in § 571.202a.

S3. *Definitions.*

Head restraint means a device that limits rearward displacement of a seated occupant's head relative to the occupant's torso.

Height means, when used in reference to a head restraint, the distance from the H-point, measured parallel to the torso reference line defined by the three dimensional SAE Standard J826 JUL95 (incorporated by reference, see § 571.5) manikin, to a plane normal to the torso reference line.

Top of the head restraint means the point on the head restraint with the greatest height.

S4. *Requirements.*

S4.1 Each passenger car, and multipurpose passenger vehicle, truck and bus with a GVWR of 4,536 kg or less, must comply with, at the manufacturer's option, S4.2, S4.4 or S4.5 of this section.

S4.2 Except for school buses, a head restraint that conforms to either S4.2 (a) or (b) of this section must be provided at each outboard front designated seating position. For school buses, a head restraint that conforms to either S4.2 (a) or (b) of this section must be provided at the driver's seating position.

(a) When tested in accordance with S5.1 of this section, limit rearward angular displacement of the head reference line to 45 degrees from the torso reference line; or

(b) When adjusted to its fully extended design position, conform to each of the following:

(1) When measured parallel to the torso line, the top of the head restraint must not be less than 700 mm above the seating reference point;

(2) When measured either 64 mm below the top of the head restraint or 635 mm above the seating reference point, the lateral width of the head restraint must be not less than:

(i) 254 mm for use with bench-type seats; and

(ii) 170 mm for use with individual seats;

(3) When tested in accordance with S5.2 of this section, any portion of the head form in contact with the head restraint must not be displaced to more than 102 mm perpendicularly rearward of the displaced extended torso reference line during the application of the load specified in S5.2 (c) of this section; and

(4) When tested in accordance with S5.2 of this section, the head restraint must withstand an increasing load until one of the following occurs:

(i) Failure of the seat or seat back; or,

(ii) Application of a load of 890N.

S4.3 [Reserved]

S4.4. Except for school buses, a head restraint that conforms to S4.4 (a) and (b) of this section must be provided at each outboard front designated seating position. For school buses, a head restraint that conforms to S4.4 (a) and (b) of this section must be provided at the driver's seating position.

(a) The head restraint must comply with Paragraphs 5.1.1, 5.1.3, 5.3.1, 5.5 through 5.13, 6.1.1, 6.1.3, and 6.4 through 6.8 of the English language version of the UNECE Regulation 17 (incorporated by reference, see § 571.5).

(b) The head restraint must meet the width requirements specified in S4.2(b)(2) of this section.

S4.5 Except for school buses, head restraints that conform to the requirements of § 571.202a must be provided at each front outboard designated seating position. If a rear head restraint (as defined in § 571.202a) is provided at a rear outboard designated seating position, it must conform to the requirements of § 571.202a applicable to rear head restraints. For school buses, a head restraint that conforms to the requirements of § 571.202a must be installed at the driver's seating position.

S4.6 Where manufacturer options are specified in this section or § 571.202a, the manufacturer must select an option by the time it certifies the vehicle and may not thereafter select a different option for that vehicle. The manufacturer may select different

compliance options for different designated seating positions to which the requirements of this section are applicable. Each manufacturer must, upon request from the National Highway Traffic Safety Administration, provide information regarding which of the compliance options it has selected for a particular vehicle or make/model.

S5. *Demonstration procedures.*

S5.1 Compliance with S4.2(a) of this section is demonstrated in accordance with the following with the head restraint in its fully extended design position:

(a) On the exterior profile of the head and torso of a dummy having the weight and seated height of a 95th percentile adult male with an approved representation of a human, articulated neck structure, or an approved equivalent test device, establish reference lines by the following method:

(1) Position the dummy's back on a horizontal flat surface with the lumbar joints in a straight line.

(2) Rotate the head of the dummy rearward until the back of the head contacts the flat horizontal surface specified in S5.1(a)(1) of this section.

(3) Position the SAE Standard J826 JUL95 (incorporated by reference, see §571.5) two-dimensional manikin's back against the flat surface specified in S5.1(a)(1) of this section, alongside the dummy with the H-point of the manikin aligned with the H-point of the dummy.

(4) Establish the torso line of the manikin as defined in SAE Aerospace-Automotive Drawing Standards (1963) (incorporated by reference, see §571.5), sec. 2.3.6, P.E1.01.

(5) Establish the dummy torso reference line by superimposing the torso line of the manikin on the torso of the dummy.

(6) Establish the head reference line by extending the dummy torso reference line onto the head.

(b) At each designated seating position having a head restraint, place the dummy, snugly restrained by Type 2 seat belt, in the manufacturer's recommended design seating position.

(c) During forward acceleration applied to the structure supporting the seat as described in this paragraph, measure the maximum rearward angular displacement between the dummy torso reference line and head reference line. When graphically depicted, the magnitude of the acceleration curve shall not be less than that of a half-sine wave having the amplitude of 78 m/s^2 and a duration of 80 milliseconds and not more than that of a half-sine wave curve having an amplitude of 94 m/s^2 and a duration of 96 milliseconds.

S5.2 Compliance with S4.2(b) of this section is demonstrated in accordance with the following with the head restraint in its fully extended design position:

(a) Place a test device, having the back plan dimensions and torso line (centerline of the head room probe in full back position), of the three dimensional SAE Standard J826 JUL95 (incorporated by reference, see §571.5) manikin, at the manufacturer's recommended design seated position.

(b) Establish the displaced torso reference line by applying a rearward moment of 373 Nm about the seating reference point to the seat back through the test device back pan specified in S5.2(a) of this section.

(c) After removing the back pan, using a 165 mm diameter spherical head form or cylindrical head form having a 165 mm diameter in plan view and a 152 mm height in profile view, apply, perpendicular to the displaced torso reference line, a rearward initial load 64 mm below the top of the head restraint that will produce a 373 Nm moment about the seating reference point.

(d) Gradually increase this initial load to 890 N or until the seat or seat back fails, whichever occurs first.

[36 FR 22902, Dec. 2, 1971, as amended at 54 FR 39187, Sept. 25, 1989; 61 FR 27025, May 30, 1996; 63 FR 28935, May 27, 1998; 69 FR 74883, Dec. 14, 2005; 72 FR 25514, May 4, 2007; 77 FR 761, Jan. 6, 2012]

§571.202a Standard No. 202a; Head restraints; Mandatory applicability begins on September 1, 2009.

S1. *Purpose and scope.* This standard specifies requirements for head restraints to reduce the frequency and severity of neck injury in rear-end and other collisions.

S2 *Application.* This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses