

that keeping the dummy parallel to the steering wheel angle should take precedence. Mitsubishi requested clarification on what should take precedence during dummy positioning.

With respect to Mitsubishi's comment, positioning the thorax instrument cavity rear face 6 degrees forward of the steering wheel angle is the methodology prescribed to ensure that the dummy torso is parallel to the steering wheel.

D. Head-on-Instrument Panel Test Procedure

1. Test Dummy Height

S22.4.3.4 and S24.4.3.4 of FMVSS No. 208 were modified in the December 2001 final rule so that, as a dummy is pushed forward, the height of the dummy must be maintained. (66 FR 65394.) Autoliv and BMW commented that requiring the dummy's height to be maintained as it is pushed forward did not make sense until the dummy leaves the seat. Clearly, to the extent that a seat is not a horizontal flat surface, the dummy height will change until it loses contact with the seat cushion. The preamble to the December 2001 final rule was silent on the reason for this restriction. Therefore, S22.4.3.4 and S24.4.3.4 are amended to indicate that dummy height is to be maintained from the point the dummy loses contact with the seat cushion.

2. Torso Positioning

S22.4.3.4 and S24.4.3.4 were also modified in the December 2001 final rule by adding the restriction that, as the dummy is pushed forward the angle of the thigh with respect to the horizontal had to be maintained. (66 FR 65376, 65394.) This was in response to a petition for reconsideration from Honda, in which Honda stated that the leg position could affect the dummy measurements. Also in response to the Advanced Air Bag Rule, Volkswagen and DaimlerChrysler recommended that the dummy femurs be kept parallel to the floor pan.

The preamble to the December 2001 final rule contained statements that seemed to contradict each other. First, the agency stated that we were rejecting the recommendations of Volkswagen and DaimlerChrysler. (66 FR 65376, 65395.) Then we stated that head contact with the IP is critical, even if the legs must be rotated out of the horizontal plane.² The preamble then

stated that dummy torso rotation could result in a relatively severe leg angle, as measured against the pelvis, but "we believe it is more critical that the head contact the (IP) than that [the leg] angle remain constant." (66 FR 65376, 65395.) The first statement implies that which if the appropriate head position requires the femur to rotate out-of-position with respect to the horizontal plane, this is acceptable. The second statement implies that if the torso to femur angle must become severe in order to simultaneously provide the appropriate head position while maintaining leg position with respect to the horizontal plane, this is acceptable. The December 2001 final rule amended the regulatory text to reflect the second statement in that it required the femur angle with respect to the horizontal plane to be maintained.

In their petitions for reconsideration of the December 2001 final rule, Toyota and BMW commented that requiring the thigh position to be maintained under the positioning procedures of S22.4.3.5 and S24.4.3.5 was not possible because of the molded hip joint of the dummies. We have determined that in some vehicles, as indicated by the Toyota and BMW petitions, the required angle between the torso and the femurs is too small for the dummy to physically accommodate because of insufficient articulation. Therefore, we are amending the regulation so that the femurs may be released from their horizontal constraints to achieve the appropriate head position, if a specific condition is met. The orientation of the legs is to be maintained with respect to the horizontal until a force on the dummy torso of 222 N (50 lb) is reached. At that point the legs are allowed to rotate about their point of contact with the seat. If the legs have already lost seat contact or lose seat contact during the process of leg rotation, the entire dummy is constrained to rotate about its H-point. The 222 N (50 lb) force specification was selected because it is less than the 311 N (70 lb) force specified in S22.4.3.6 and S24.4.3.6 that can be used to keep the dummy in place.

E. Hand Positioning

Under S22.4.2.2.3, S22.4.3.2.3, S24.4.3.2(c), S26.2.4.5, and S26.3.4.5, test dummies are to be positioned with their hands "in contact with the thighs." Autoliv petitioned for the positioning text to require hands be placed "beside the thighs." Autoliv stated that they do not believe it is possible to place the hands in contact with the thighs without using tape or some other method.

In conducting compliance tests, the agency has not experienced the problem described by Autoliv and no other comments were made related to this issue. The problem could be an anomaly in the Autoliv dummy related to wrist joint interference with the dummy skin. As such, we are denying Autoliv's petition with respect to amending the language on dummy hand positioning.

VI. Planes, Points, and Definitions

A. Plane B

Based on issues raised by a petitioner, we are amending the dummy seating positioning procedures for the 5th percentile adult female dummy and Plane B for child safety tests to reference the SgRP. As finalized in the December 2001 final rule, S16.3.1.10 (general provision for the 5th percentile adult female dummy seating positioning procedures) and S20.1.10 (general provision of the test procedure for the requirements to provide protection for infants in rear facing and convertible child restraints and car beds) of FMVSS No. 208 used the seat cushion centerline as a reference (Plane B). The December 2001 final rule defined the longitudinal centerline as being at the center of the widest part of the seat cushion. In their petition, Mitsubishi stated that for asymmetric seat cushions the centerline will not pass through the seat back centerline, and that the difference can be significant. They further stated:

(T)he offset dummy position created by positioning the test dummy based on the centerline of an asymmetric seat cushion can cause the test dummy to shift as the vehicle is towed toward the barrier, which could adversely affect test repeatability. (Docket No. NHTSA 2001-11110-2.)

Mitsubishi recommended that for bucket seats the seat back centerline should be used as the reference, but the diagrams they submitted used the SgRP as the reference point. The Ford RFI also requested that S16.3.1.10, under the general provisions for the 5th percentile adult female test dummy seating positioning procedures, be amended to reference the SgRP for bucket seats.

The Advanced Air Bag Rule used "the center of the seat cushion" to position the 5th percentile female test dummy in the rigid barrier test and Plane B in the child protection tests. In the Mitsubishi petition for reconsideration of the Advanced Air Bag Rule, it asked for clarification on dummy position relative to the center of the seat cushion. Also in response to the Advanced Air Bag Rule, Toyota petitioned for Plane B to reference the seat's H-point. In the agency's December 2001 response to clarify the reference point, we defined

² Although the preamble made reference to the horizontal plane (66 FR 65376, 65395), the regulatory text did not require that the thighs be in this plane. Rather, it was required that the thighs maintain their position with respect to the horizontal plane (66 FR 65376, 65416 and 65418).