

Proposal for a new test procedure for backset measurement

Purpose

This is a draft proposal for the Global Technical Regulation (GTR) "head restraints" to specify a test procedure for backset measurement, using the R point and design torso angle.

Proposal

This proposal is based on the draft Global Technical Regulation HR-5-2

3.2. Backset means the minimum horizontal distance between the rear of a representation of the head of a seated 50th percentile male occupant and the head restraint as measured by the **backset measurement apparatus described in annex 3.**

(...)

Replace Head restraint measurement device (HRMD) definition by :

3.5. Backrest measurement sliding scale means a scale having the dimensions of the sliding scale at the back of the ICBC head form representing the head position of a seated 50th percentile male .¹.

* include drawing of the sliding scale in the Annex. Define this scale with greater precision beyond the company name.

(...)

Annex 3

Minimum Backset Measurement Test Procedure

1. Backset measuring apparatus. The backset measurement apparatus consists of :

- a lower arm with two pivotal points (one at each end) whose dimension is 505,5 mm

between the two pivotal points. The lower pivotal point is to be placed at the R point

location. The upper pivotal point is to receive the apparatus upper arm

- a upper arm with a pivotal point at the lower end and a sliding scale at the upper end.

The distance between the pivotal point and the axis of the sliding scale is [205 mm]

¹ The head form is designed by and available from the ICBC, 151 West Esplanade, North Vancouver, BC V7M 3H9, Canada (www.icbc.com).

- a sliding scale positioned so that there is a length of 73 mm between a vertical line passing through the outer point of the scale and a vertical line passing through the pivotal point of the upper arm

1. **Procedure for backset measurement.** Demonstrate compliance with 5.1.7. using the backset measurement apparatus. Position the lower arm so that its lower pivotal point is at the R point location. Adjust the lower arm so that its angle is at the manufacturer's design torso angle minus 3°. Adjust the upper arm so that it is vertical. Adjust the front head restraint so that its top is at any height between and inclusive of 750 mm and 800 mm. **In the case of head restraint with adjustable backset, adjust the head restraint at the most rearward position.** If the lowest position of adjustment is above 800 mm, adjust the head restraint to that position. Extend the sliding scale until it contacts the head restraint.

An alternative test procedure consists in measuring the backset with a multiple axis articulated measuring arm. The backset is measured on a longitudinal line at a height of $505,5 \text{ mm} * \cos (\text{design torso angle} - 3^\circ) + [205 \text{ mm}]$ and its value is given by the distance between the point of contact of the measuring arm with the head restraint and the point on the vertical line located at $505,5 \text{ mm} * \sin (\text{design torso angle} - 3^\circ) + 73 \text{ mm}$ from the R point.