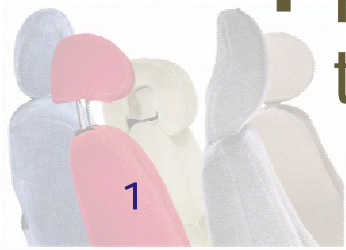


# *Head Restraint Height Measurement H-point vs. R-point*

*2<sup>nd</sup> Head Restraint Informal Working Group Meeting  
April 11-13, 2005*

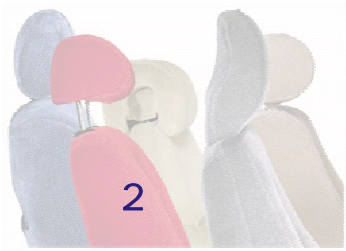
# *H-Point vs. R-point*

- **New FMVSS No. 202 defines height as the distance from the H-point measured parallel to the torso reference line defined by the SAE J826 manikin.**
  - Torso angle set to 25 degrees.
  - Previously the reference point was the SgRP (seating reference point defined in SAE J1100).
- **ECE 17 uses the R-point, which is equivalent to the SgRP.**
  - R-point must be within  $\pm 25$  mm of H-point with torso angle within 5 deg. of design angle.



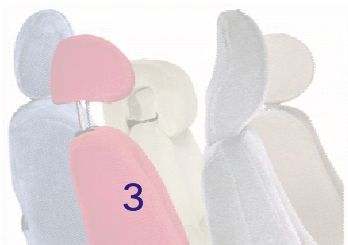
# *H-Point vs. R-point*

- **Using R-point (SgRP)**
  - SgRP defined with the seat in the rearmost “normal” design driving or riding position.
    - Defined at a time when the only seat adjustment was seat back angle.
  - SgRP location in space referenced from fiducial marks provide by manufacturer.
- **Using J826 manikin (H-point)**
  - Adjust seat for worse case height.
  - Measure seat as it exists.
    - Takes into consideration upholstery characteristics.
    - Takes into consideration manufacturing variability.



# *Height Measurement Variability*<sup>HR-2-6</sup>

- **Using J826 manikin**
  - Seat setup
  - Positioning of J826 manikin
- **Using R-point**
  - Seat setup
  - Locating point is space from fiduciary references
  - Making the measurement



# *Conclusions*

- **Using the J826 manikin and H-point is preferred over the R-point for the following reasons:**
  - Allows measurement of the seat in its worst-case configuration.
  - Allows measurement of the seat as it exists.

