Head Restraint GTR - Backset Limit

41st Session of GRSP
May 2007
Status of GTR

Major Issue is the Backset Limit

★ Backset Measurement Method
  – Discussion was originally on whether to use R-point or H-point for measurement.
  – Draft GTR allows for either measurement method
★ OICA & Japan conducted testing to validate the revised R-point test procedure proposed at Dec 2006 informal working group meeting.
  – Data will compare backset measurement determined using the H-point method and the R-point method.
★ US will calculate equivalent backset limits for the measurement methods.
Expected Results

★ Based on prior research, the US expects the R-point equivalent backset limit to be 10-15 mm less than the H-point backset.

- Current OICA method is similar to their method proposed in Sept 2006
  • 10 seats measured and the average R-point backset was 15 mm less than the H-point backset.
- In Sept 2006, Japan MLIT proposed a similar measurement method, which is very close to the current OICA measurement method.
  • 3 seats measured and the average R-point backset was approximately 15 mm less than the H-point backset.
Whiplash Injuries Benefits

★ World-wide Whiplash Injuries in Rear Impact Crashes
  – USA: 272,464 (HR-1-8)
  – Japan: 309,939 (HR-7-9)
  – Korea: 260,000 (HR-7-6)
  – EC15: ~340,000 (estimated)

★ Number of whiplash injuries is similar among ’98 Agreement Contracting Parties, therefore benefits gained should be similar.
Benefit Studies

★ US study found that benefits to front seat occupants resulted by reducing the backset.

★ US provided a benefit study that correlates the backset limit to whiplash injuries.
  – Benefits are based on improving the current situation in the US fleet.
  – The current US fleet average is 70 mm at the manufacturers seat back design angle.
  – A backset limit of 70 mm using the H-point will yield zero benefits in the US.
Backset Limit & Benefits

R-point Backset (mm)*

Whiplash Injuries Prevented due to Backset only

H-point Backset (mm)*

Current US requirement & Draft GTR limit

*Offset between R-point and H-point assumed to be 15 mm.
Cost of Increasing Backset Limit

*Seat back angle set at manufacturers design angle
Backset Discussion

★ Increasing the backset limit from 55 to 65 mm produces
  – a 75% drop in benefits and
  – A 80% increase in cost per equivalent life saved.
★ The US is the only country with a regulation on backset, which will go into effect in September 2009.
★ The issue is whether the GTR will have a backset limit that produces benefits by reducing whiplash injuries?
US Position

★ GTR allows either R-point measurement method or H-point measurement method.
★ H-point backset limit is 55 mm
★ Equivalent R-point backset limit is 40-45 mm
  – depending on equivalence study to be conducted by the US and based on OICA data
Thank You