Submitted by the expert from OICA

Informal document **GRSP-54-18**
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agenda item 2.)

Global Technical Regulation No. 7 (Head restraints)
OICA position on head restraint height

Document ECE/TRANS/WP.29/2013/17 proposes to increase the height of front outboard head restraints from the current 800 mm to 830 mm.

OICA wishes to make some comments to this proposal which would result in an unnecessary double penalty for industry.

1. The measurement method

It should be reminded that the measurement method to assess the maximum height that the head restraint can reach is being drastically changed, by increasing the severity. OICA has provided several data to the GRSP Informal Group on GTR7 (e.g. GTR7-10-06), indicating that the new measurement method in fact would lead to results on average 30 mm lower than when using the current measurement method.

In other words, a head restraint just meeting the current 800 mm requirement with the current measurement method, would be measured at about 770 mm using the new method and would consequently fail the GTR7 requirements, even if the 800 mm limit were to be retained.

This also means that keeping the 800 mm, but with the new measurement method, would already result in a 30 mm penalty compared to the current GTR limit and measurement method. Any amendment to GTR 7 to introduce the new measurement method and in addition increasing the limit to 830 mm would be equivalent to increase the current limit of 800 mm to 860 mm with the current method.

2. The need for higher head restraints

OICA still considers there is no detailed justification for another 30mm increase as proposed in GRSP/2013/17.

In 2007, the UK Transport Research laboratory TRL published its Project Report PPR 311 - UK Cost Benefit Analysis: Enhanced Geometric Requirements for Vehicle Head Restraints.

In particular, a graph (see below) summarises the injury-mitigation potential (in other words the safety benefit) of backset/height combinations. OICA herewith stresses that the head restraint heights mentioned in this graph are based on the current measurement method. Taking into the fact that simply changing the measurement method would require head restraints to be higher, it is clear that this simple change of measurement method would give results in the dark green area (80-100% probability of mitigating long term neck injury).

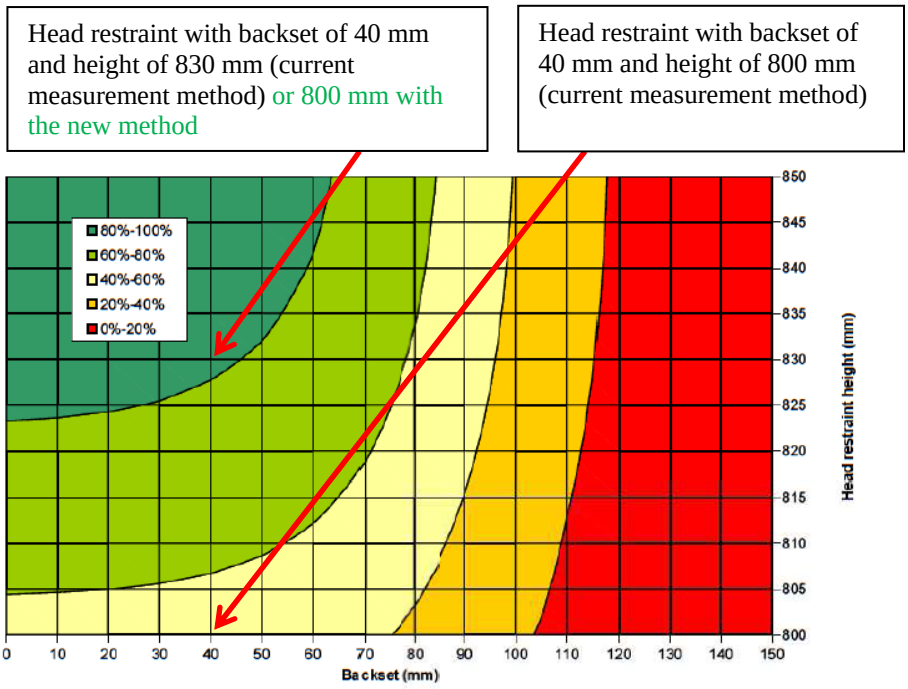

Figure S.2: Percentage probability of mitigating long-term neck injury based on head restraint height and backset for the UK male population

This means that if GTR7 is amended by incorporating the new measurement method and retaining the 800 mm limit, all head restraints meeting the requirements would be at least as good as the point indicated in the graph (dark green area).

Finally, the data contained in document HR-7-9 (Phase 1, September 2005/2006) indicated that:

- Females are more susceptible to neck injuries than males, at least in Japan
- The 95%ile Dutch women are sufficiently protected with a height of 800mm, measured according to the current method. This also means that a height of 800 mm with the new method will offer significantly better protection.
- Furthermore, the risk of neck injury for males is not increasing with the size.

3. Conclusion

Based on the above, OICA accepts the new measurement method with the current limit of 800 mm for the front seats, which implies a 30 mm increase compared to the current situation. OICA however cannot accept a double penalty, combining a more severe measurement method with a more severe limit.
