No.7 TOR difference between phase 1, dynamic backset, and Phase2 proposal

JASIC/Japan

May. 2009
Phase 1: for alternative requirement for Static backset

**Static**

- H-point with Backset ≤ 55mm
- Contracting Parties may allow manufacturers to choose

**Dynamic Option**

- R-point with Backset < 45mm
- Contracting Parties choice
  - HY-III
    - Head rotation ≤ 12 deg
    - HIC ≤ 500
  - OR*
    - Some criteria with BioRID II
      - Until BioRID II requirements are included in this gtr or adopted in the national regulation of a Contracting Party, head restraints shall comply with any or all static requirements.

*: Manufacture’s choice
Head restraint gtr phase2 Proposal

Phase2: for common single dynamic requirement

- **gtr Phase1**
  - Static
    - H-point with Backset ≤ 55mm
    - R-point with Backset ≤ 45mm

- **gtr Phase2**
  - Dynamic test requirement
    - BioRID II injury evaluation parameters.

- **OR**
  - Dynamic Option
    - HY-III Head rotation ≤ 12 deg

- BioRID II Dynamic backset

*: Manufacture’s choice
Condition of Dynamic Test for gtr phase1 & phase2

- Phase 1: Represent mainly initial Head/Neck/Toro’s motion
- Phase 2: Represent all minor neck injury phenomenon

Phase I: Before Head/Head restraint contact
Phase II: After Head/Head restraint contact
Phase III: Rebound

Minor neck injury Phenomenon

![Diagram showing the phases of dynamic test with backset extension flexion movements and contact points.](image)
Condition of Dynamic Test for gtr phase 1 & phase2

- Phase1 : Geometric indicator using BioRID II dummy body.
- Phase2 : Injury evaluation parameters using Bio RID II dummy loads and accelerations measurement.
**Target accident for gtr phase 1 & phase 2**

- Head restraint GTR Phase 1: Reduce all minor neck injury
- Head restraint GTR Phase 2: Reduce minor neck injuries of WAD grade 2 or less, especially long-term injuries.

**gtr Phase 1**

All rear impact injuries Disabilities by delta Velocity in Japan (calculated: 89 cases)

**gtr Phase 2**

Yearly Change in the Number of permanent Disabilities by Accident Type in Japan (Total Disabilities in 1992-2002)

- Human
- Full-frontal
- Rear-end
- Head-on
- During right/L
- Other multi-vehicle
- Single vehicle
- Other
Head restraint GTR Phase 1: 16km/h delta V
Head restraint GTR Phase 2: [delta-ν of 20 km/hr and mean acceleration of 5 to 6 g]

EEVC Recommendation
- To target long-term injuries, delta-ν of 20 km.hr-1 and mean acceleration of 5 to 6 g recommended
- 20 km.hr-1 is approximately the mean delta-ν indicated in the literature for long-term injuries, with a typical range of 16 to 25 km.hr-1
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**ECE R17 (WP29)**
- March
- Nov.
- Jun.
- Jun.
- Jun.
- Jun.
- Jan.
- Jan.
- Lead time 24 month
- Lead time 24 month

**ECE R17 (GRSP)**
- May
- May
- May
- May
- Dec.

**Phase 1**
- ECE R17 Informal (Approve)
- ECE R17 Adopted
- Issue
- Adoption
- Lead time
- Adoption

**Phase 2**
- Grt No.7
- WP29
- June
- June
- Nov
- GRSP
- May
- Proposal
- Agreement TOR
- #1
- May

**R17-08 All M1**
- March
- Issue
- Phase 1
- Adopted
- June
- Proposal
- Agreement TOR
- July

**R17-09 new M1**
- June
- Adoption
- Jan.

**R17-10 new M1**
- Jan.
- Issue
- Lead time

**Lead time 24 month**
Thank You for your attention