Draft Status Report

BioRID TEG

Bernd Lorenz (BASt)

13th Meeting of GTR 7 (Phase II) Informal Group
Paris, 23rd April 2013

Meetings

- 22nd January 2010: last official Global BioRID User (WebEX) Meeting (GBUM) chaired by Mike Beebe (Denton)
- 3rd February 2010: joint with IWG GTR No. 7 - Tokyo
- 15th of March 2010: 1st WebEX meeting (hosted by Denton)
- ....
- ....
- 18th June 2012: joint with IWG GTR No. 7 – Munich
- 3rd July 2012: 13th WebEx – (hosted by Humanetics)
- 10th / 11th December 2012: joint with IWG GTR No. 7 – Geneva
- 12th/13th February 2013: joint with IWG GTR No. 7 – Brussels
- **26th of March 2013: GTR No. 7 Workshop – Bast, Bergisch Gladbach**
- **18th of April 2013: 14th WebEx - (hosted by Humanetics)**
- 23rd/24th April 2013: joint with IWG GTR No. 7 – Paris

GTR No. 7 Workshop on 26th of March 2013 @BASt, Bergisch Gladbach

Draft AGENDA

1. Welcome (Chair)
2. Approval of Agenda (All)
3. Information/Discussion/Practise
    - Intention/Goal of the workshop
        - Common try out of the draft measurement procedure
        - Comparison/influence of different SAE 3DH-manikins (GLORIA, DILEMMA, Standard)
        - seating of the BioRID w/o the use of OSCAR (back-set)
4. Preparation for the GTR No. 7 meeting in April in Paris
    - Review/Drafting of (new) text in related annexes
5. AOB
6. Summary of meeting/actions (Chair)
7. Next Meeting(s)
    - BioRID TEG WebEx: 18th of April 2013
    - GTR No. 7 Meeting: 23rd/24th of April, Paris

GTR No. 7 Workshop on 26th of March 2013 @BASt, Bergisch Gladbach

Participants

Teilnehmerliste GTR No. 7 Workshop

am 26.03.2013 in Raum 7.129 (FTVA-Neubau Raum 1)

(Stand: 25.03.2013)

	Name	Verband/Firma/Behörde	Land	Unterschrift
1	Bernd Lorenz	BASt	D	
2	James Abraham	Ford	GB	
3	Hans Ammerlaan	RDW	NL	
4	Myriam Constant	PSA Peugeot Citroen	F	
5	Markus Drosdzol	Opel	D	
6	Markus Hartlieb	Daimler	D	
7	Ines Levallios	Faurecia	F	
8	Dr. Sven Rathmann	VW	D	
9	Tobias Lingner	BASt	D	
10	Peter Davis	Society of Motor Manufact. and Traders Ltd.	GB	
11	Ulrich Wörner	Mercedes Benz	D	
12	Manfred Zube	Johnson Controls	D	
13	Thomas Bönniger	Johnson Controls	D	
14	Jan Basilautzkis	Faurecia	F	
15	Yoshiji Kadotani	Honda	J	
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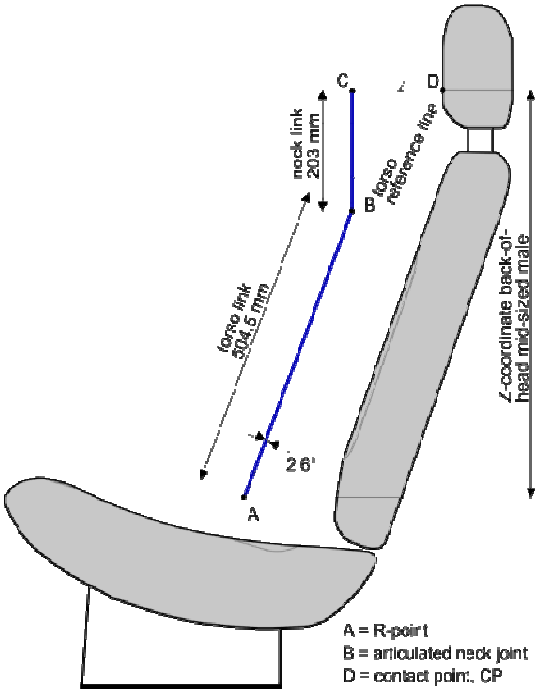

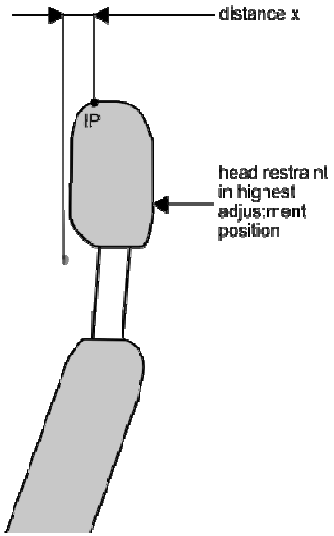

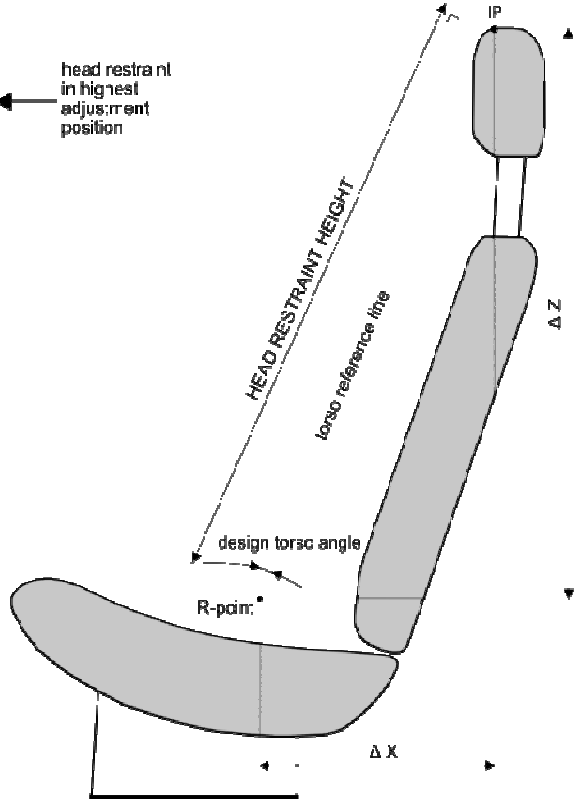

CP: contact point

IP: intersection point

Distance x: function of design torso angle

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Test procedure for effective head restraint height I

The Torso & Neck Link concept expressed in goniometric formulas

With head restraint set in mid-sized position,

the measuring of Contact Point CP:

Available are:

- the coordinates of the R-point,
- A design torso angle, and
- dimensions of a mid-sized Torso & Neck Link.

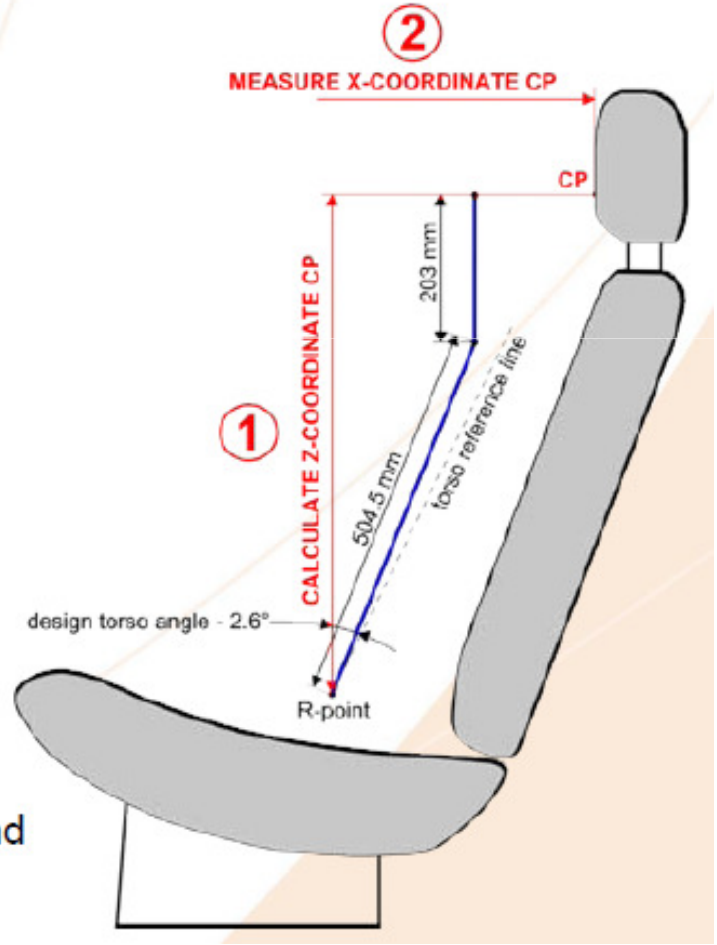
Needed actions:

1) calculate Z-coordinate CP =

504.5 * COS(design torso angle – 2.6º) + 203

(instead of calculation, a table will be provided),

2) mark this point on the head restraint surface and measure X-coordinate CP.



Source: GTR7-08-03e.pdf (Hans Ammerlaan, RDW)

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Test procedure for effective head restraint height I

The Torso & Neck Link concept expressed in goniometric formulas

With head restraint set in its highest position,

the measuring of Intersection Point IP:

Available are:

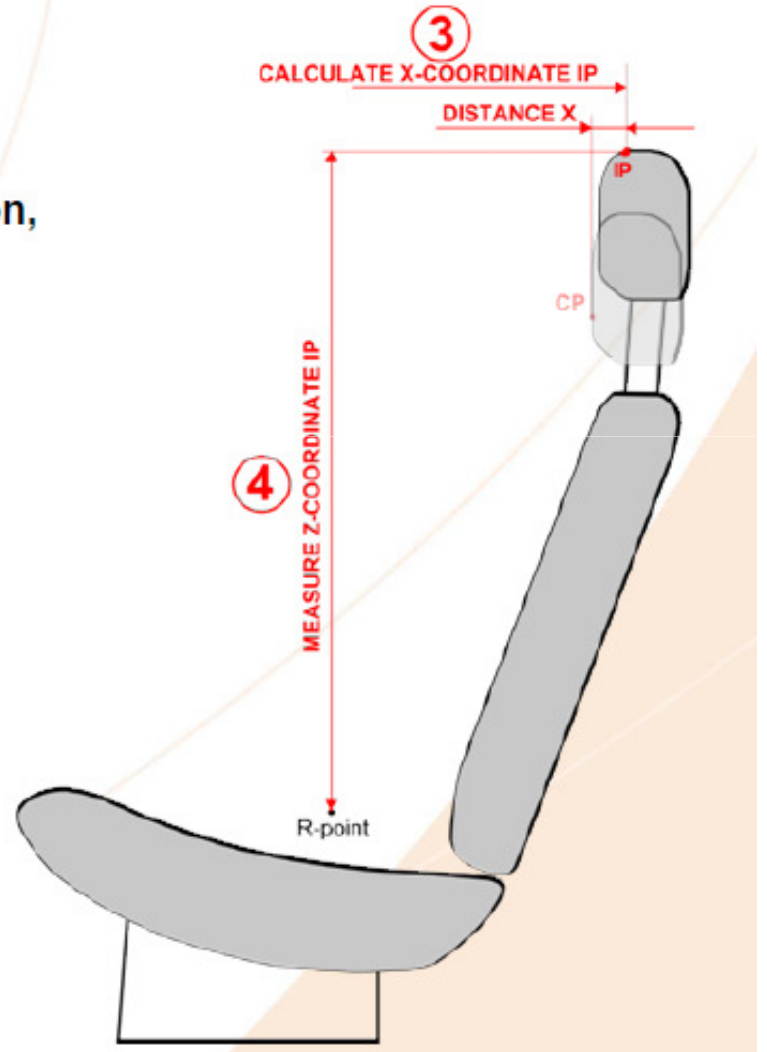
- The table providing also “distance X”

Needed actions:

3) calculate X-coordinate IP =

Measured X-coordinate CP + “distance x”,

4) mark this point on the HR and measure Z-coordinate IP.



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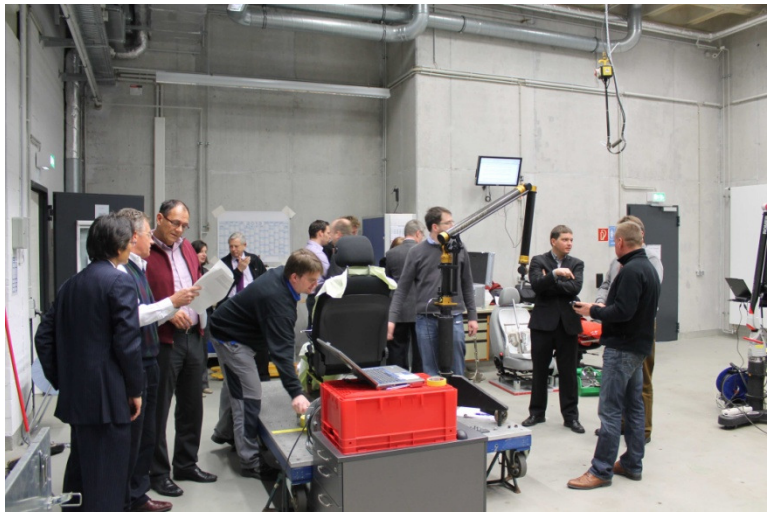
Impressions I



Fotos: B. Lorenz

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Impressions II

Fotos: B. Lorenz

Conclusion

- Concept worked and was agreed
- New text for GTR proposed
- Concept works for backset, too

-> HRMD no longer needed for static assessment

-> further investigations needed whether concept can be used for BioRID positioning, also!

-> Please provide feed back!

Status of work - Testing (I)

EC/TRL–test series (2012)

6 BioRID (no. 006, 007, 028, 068, 077, 100)

Swapping of parts between dummies (e.g. spine, pelvis)

Acceleration sled, lab seat, draft GTR 7-pulse (JNCAP style)

Status of work - Testing (2)

Repeatability and Reproducibility (EC/TRL, OSRP, VRTC, Humanetics, PDB et al.)

Several issues identified which seems to influence R & R

Issues:

- jacket (e.g. stiffness) -> jacket cert test added
- neck pins -> better control of tolerances
- pelvis stiffness and geometry -> pelvis cert test added, geometry check/control may be needed
- Bumpers -> better control of material properties needed
- Certification corridors need to be tightened, more data needed

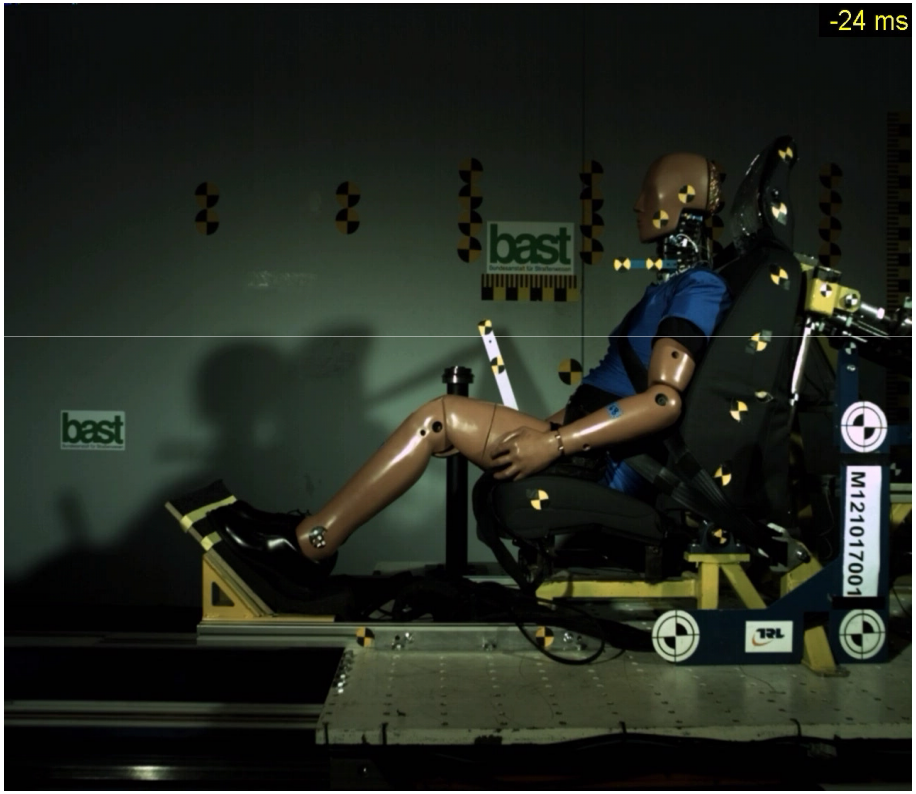
Status of work - Testing (3)

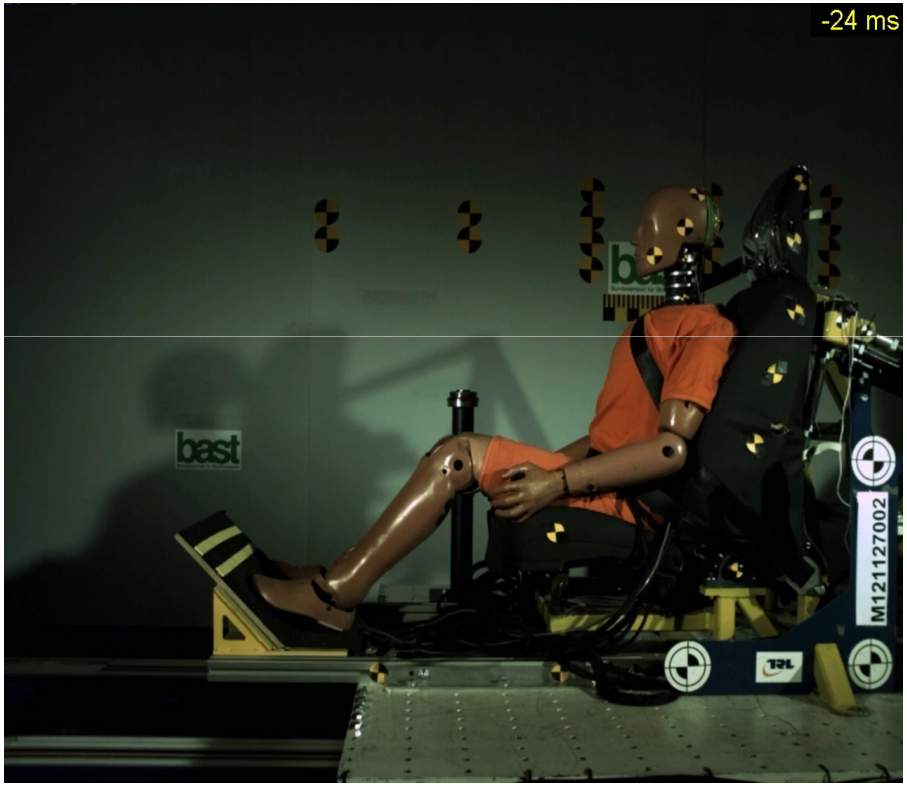
- EC/TRL (2012) test series delivered important results/findings
- In general repeatability of BioRID good (kinematics ok)
- Reproducibility of some channels poor
- Some of the findings needed to be verified by additional testing (e.g. swapping of dummy parts, bumpers).

-> Additional test series with 4 refurbished BioRIDs was performed at BASt. Dummies were refurbished at Humanetics in USA.

Status of work - Testing (4)

BASt– BioRIDII / Hybrid III baseline test series (2012/2013)





Acceleration sled, TRL/EC lab seat, draft GTR 7 Annex 9 pulse (JNCAP style)

Status / Outlook I

- Test performed so far in BASt test series:
  - 24 tests in TRL lab seat with refurbished dummies no. 54 (GM), 68 (BASt), 77 (Humanetics), 100 (BASt) – 6 tests per dummy (report of Humanetics at December meeting in Geneva)
  - Video analysis still pending/ongoing
  - 24 tests with 4 different Hybrid III dummies (6 tests each)
  - Certification tests with and without head restraint, pelvis and jacket tests – data provided for further analysis
  - 18 tests (No. 68, 77, 100) in PDB Recaro seats
- Data analysis (Humanetics and Chrylser) of BioRID tests in TRL lab seat look quite promising (TEGID-14-03e, TEGID-14-04-xe)
- Data analysis (Humanetics) of Hybrid III tests in TRL lab showed worse R&R than BioRID in some channels (TEGID-14-05-1e and TEGID-14-05-2e)

Status / Outlook II

- BioRID certification tests and TRL lab seat tests with replaced neck bumper of different controlled stiffness are planned to start within the next two weeks
- Humanetics is working on an improved certification procedure (enhanced test rig, bumper stiffness test)
- PDB has performed a drawing review (“deep dive”)

Thank you for your attention!

Bernd Lorenz
Bundesanstalt für Straßenwesen (BASt)
Brüderstraße 53
D-51427 Bergisch Gladbach
lorenz@bast.de