ISO SC12/WG1
TF4 Status

F. RENAUDIN

18th September 2013

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Care for Precious Life

MAXI-COSI

bébéconfort

Quinny

Safety 1st

Baby Art
CREATIVE BABY SOUVENIRS

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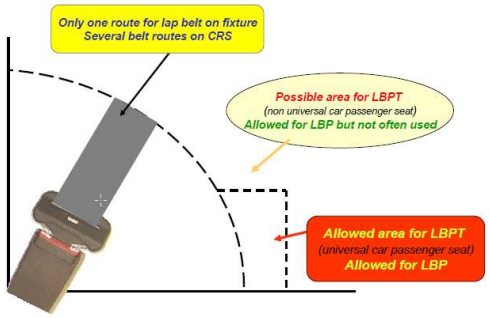
Presentation of TF4

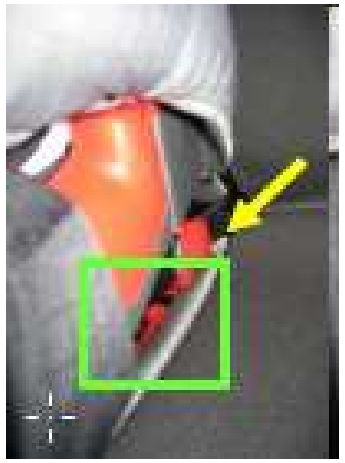
- A new work item has been proposed to ISO in 2009 to improve compatibility between CRS and vehicles
- To achieve it a Task Force TF4 chaired initially by Véronique Denier (Renault) was established. This Task force proposed to improve compatibility in 3 directions :

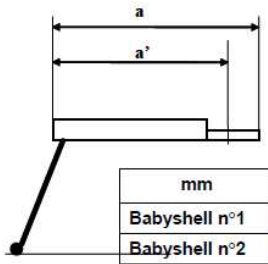
1. Belt compatibility (revision of belt length and load bearing point)

2. Isofix Compatibility
   - Support Leg
   - Top Tether

3. Isofix booster compatibility







mm	a	a'
Babyshell n°1	680	680
Babyshell n°2	690	580
Babyshell n°3	655	565

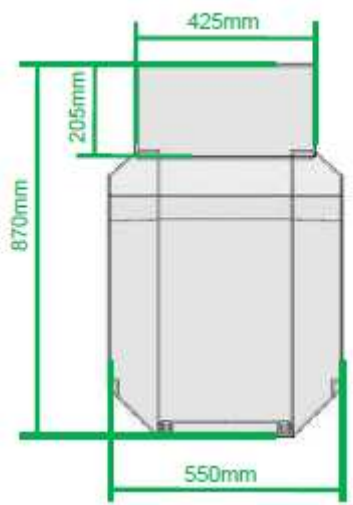
Presentation of TF4

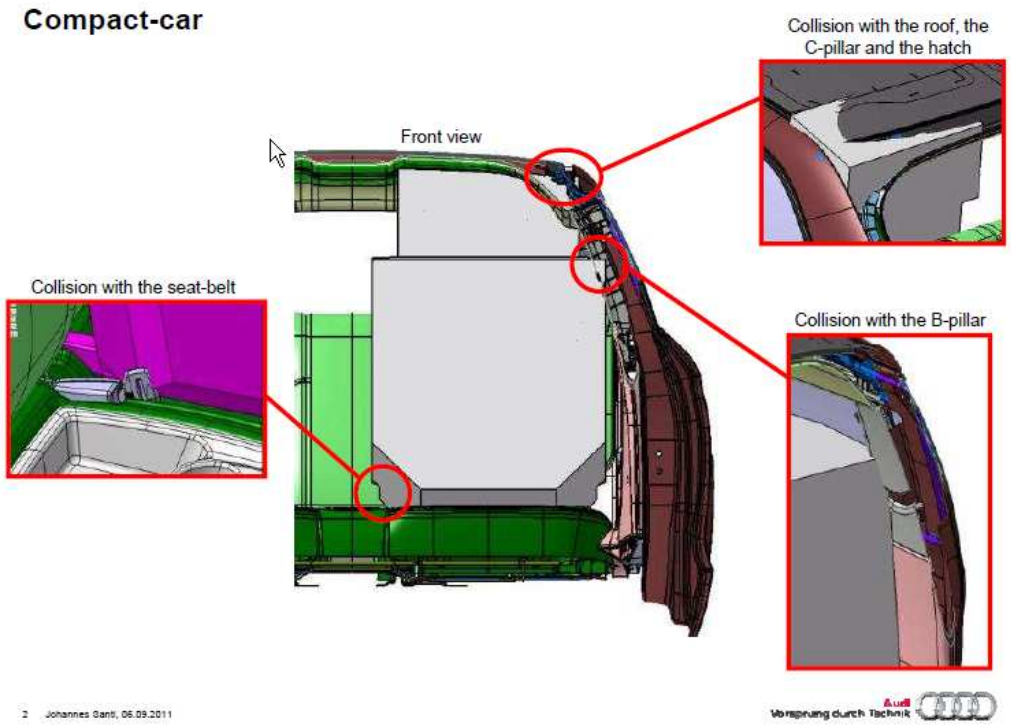
- Part 2 of the compatibility work (Support Leg) was used by GRSP Informal Group to build new i-Size requirements for the Support Leg.

- In May 2011 SC12/WG1 decided to focus TF4 on Isofix Booster Compatibility. A new Chairman was chosen for the TF4 : F. Renaudin (DOREL)
- Action Plan decided in May 2011
  - Gather dimensions of existing boosters
  - Build a fixture
  - Get Feedback from OEM
  - Amend fixture

Current Booster CRS in cars

- After gathering information from volunteer CRS manufacturers (Japan, Europe, US) an initial fixture was proposed to include a majority of existing CRSs.





» This initial fixture was abandoned after investigations from OEM

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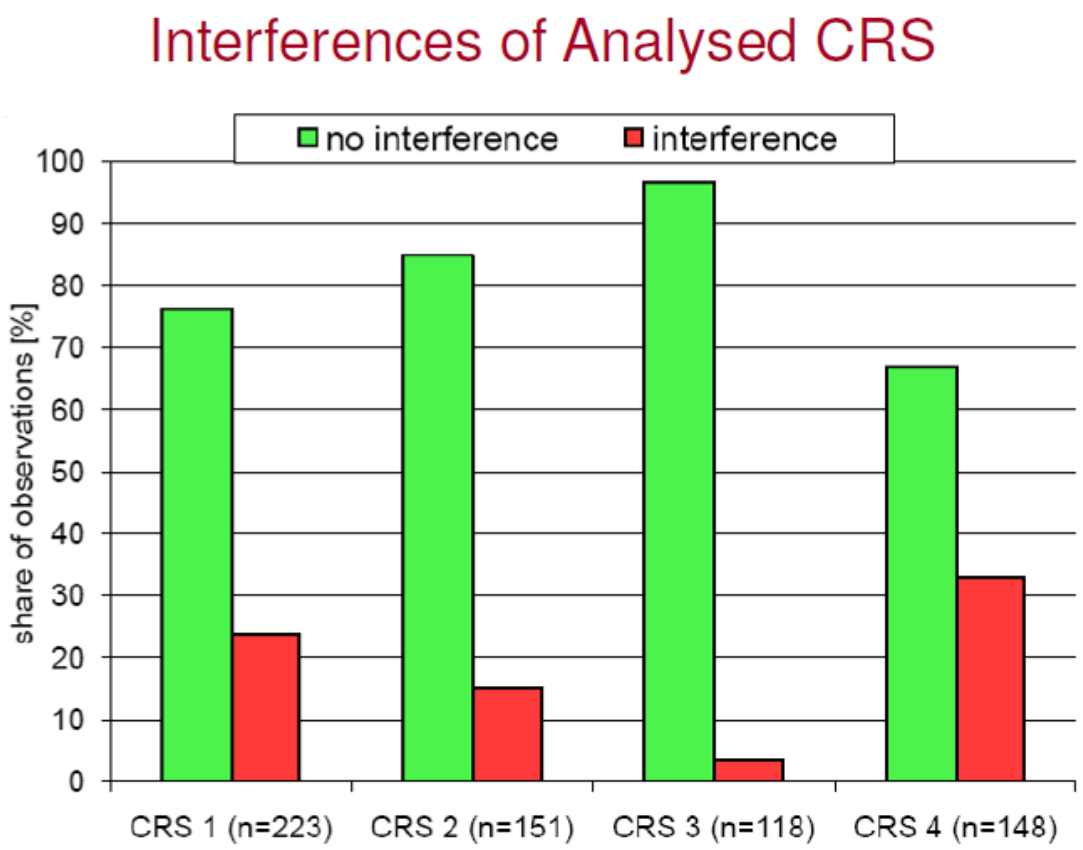
Current Booster CRS in cars

- A study lead by TÜB (ISO/N978) confirm this situation.
  - The current booster CRS do not fit in all cars



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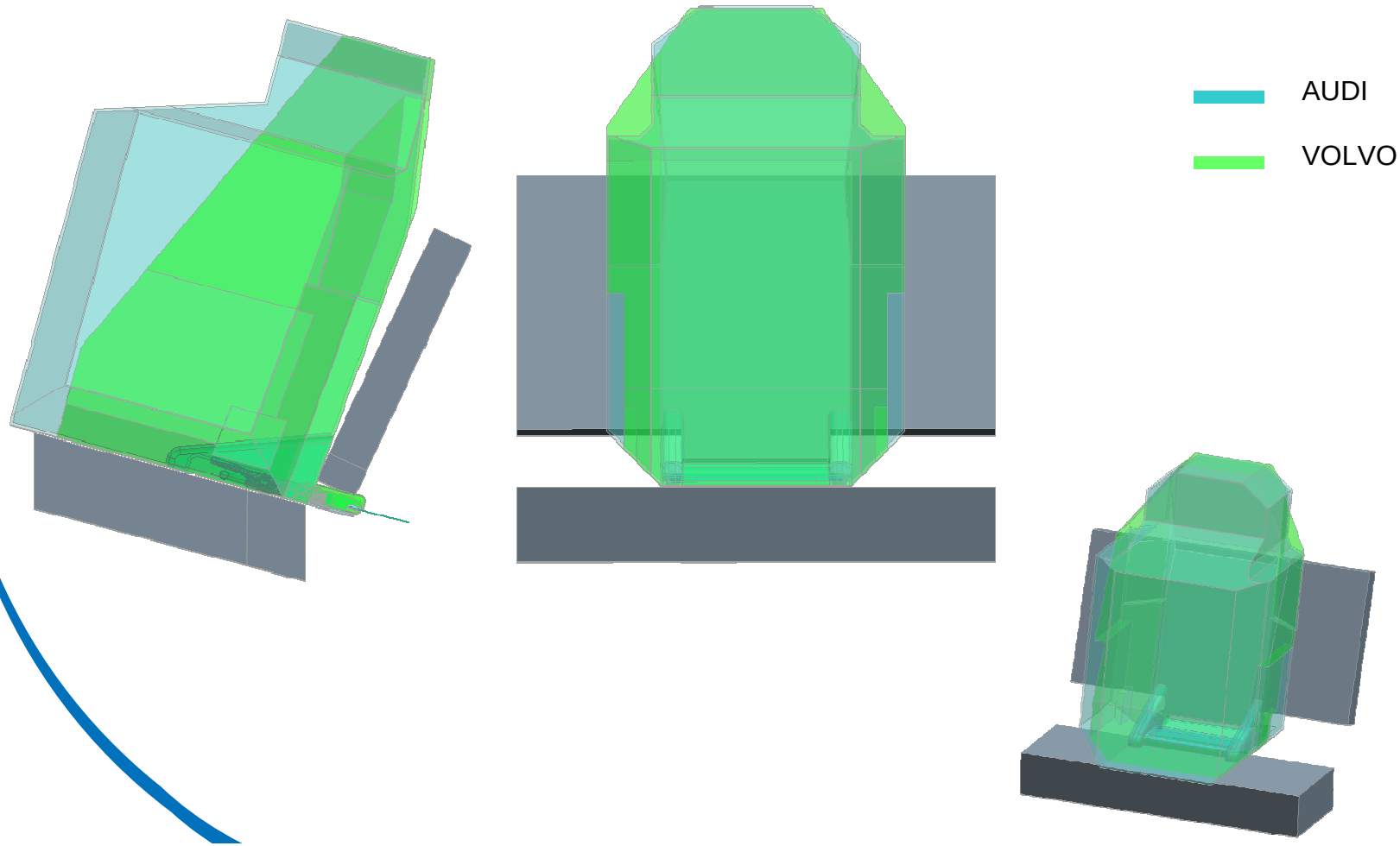
New Fixture Proposals

- New fixtures were proposed by Audi, Volvo and TÜB



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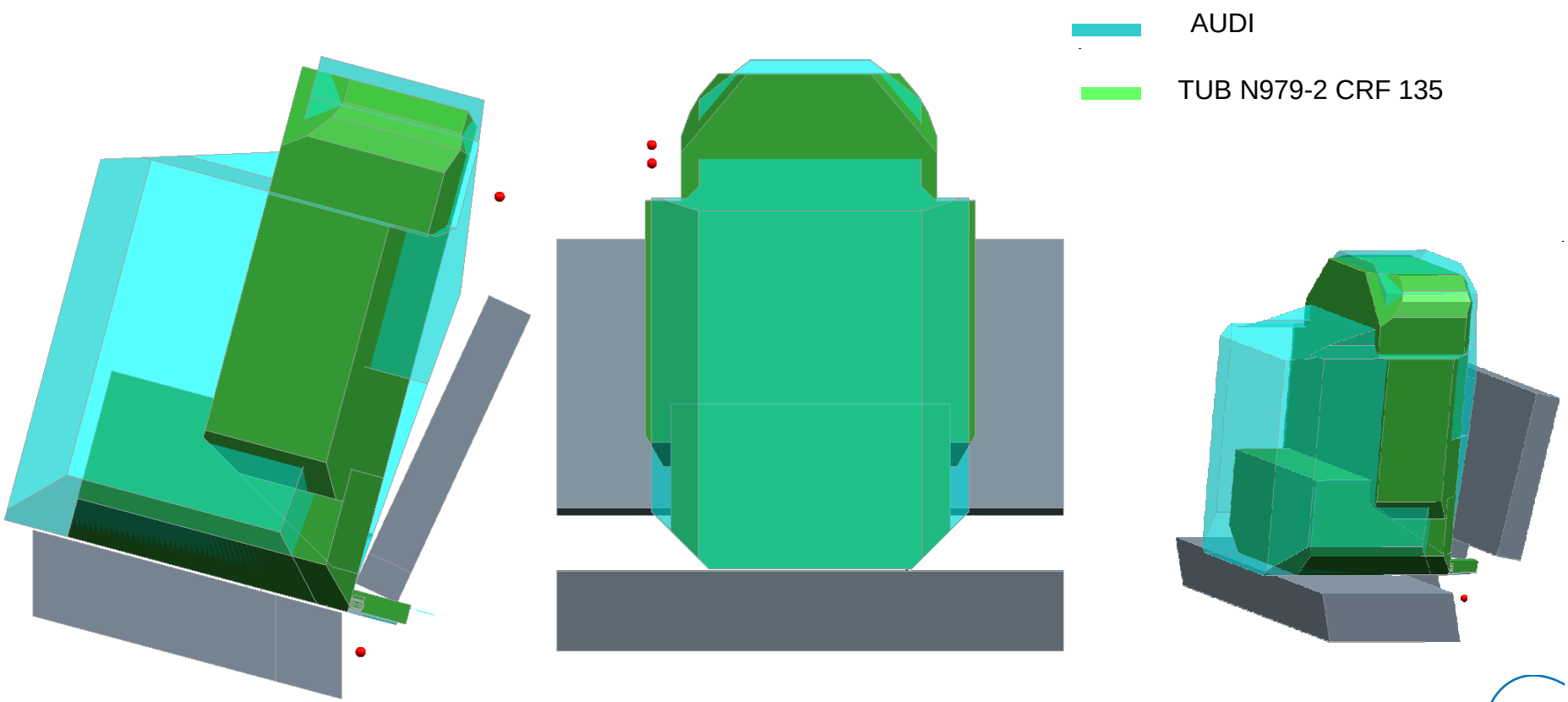

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May 2012 Resolutions

In May 2012 ISO/SC12/WG1 decided

- To select TÜB 135 cm fixture (representativeness of TÜB study)
- To modify TÜB 135 :
  - Buckle accessibility
  - Verification of 135 cm 95th percentile dimension

- To define a booster only cushion

- To evaluate a transition criteria for side impact responsibility between CRS and cars.
  - The position of 5th percentile female dummy head was considered

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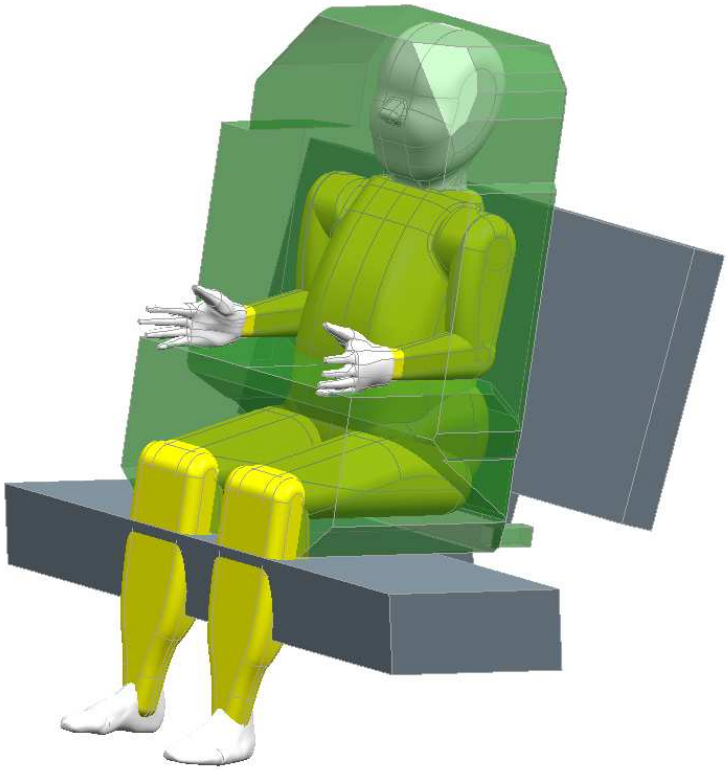
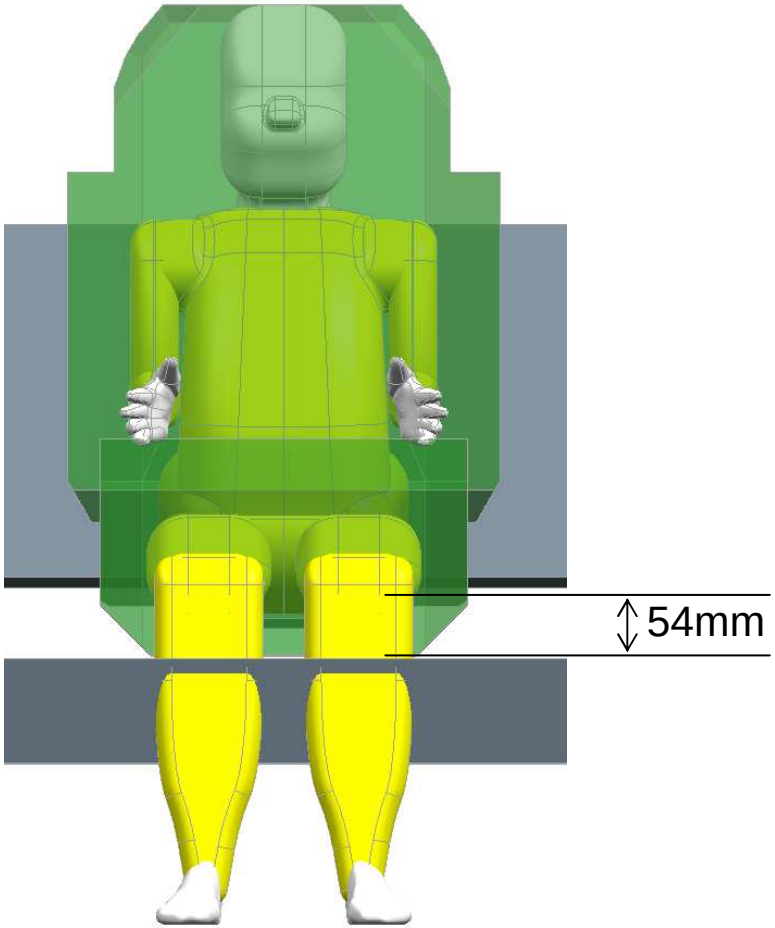
135 P95 into CRF





Not enough cushion thickness for 135 P95

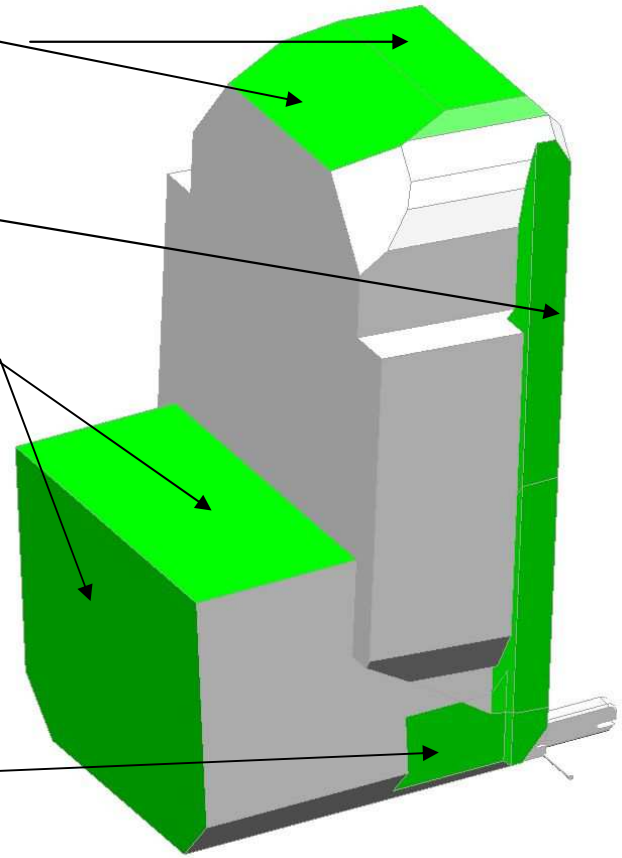
TÜB CRF modifications : N1007

- CRF modification proposed : green areas

Top areas : +2 cm + a cut for 800 mm

Rear shape of ISO CRF
95°-110° angle for the back side

Increase of Cushion height and length



Introduction of lateral recess

Feedbacks from N1007

- Need to enlarge backrest angle from 90 to 110°

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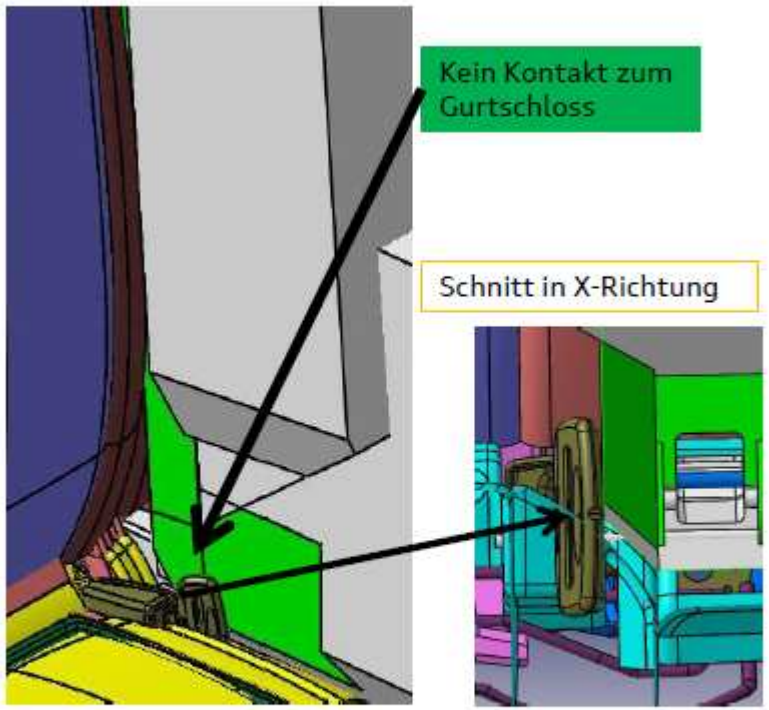
Feedbacks from N1007

- Buckle accessibility N1015

▸ **CRF 135:**

▸ **Vorschlag Dorel:**



Audi
Vorsprung durch Technik

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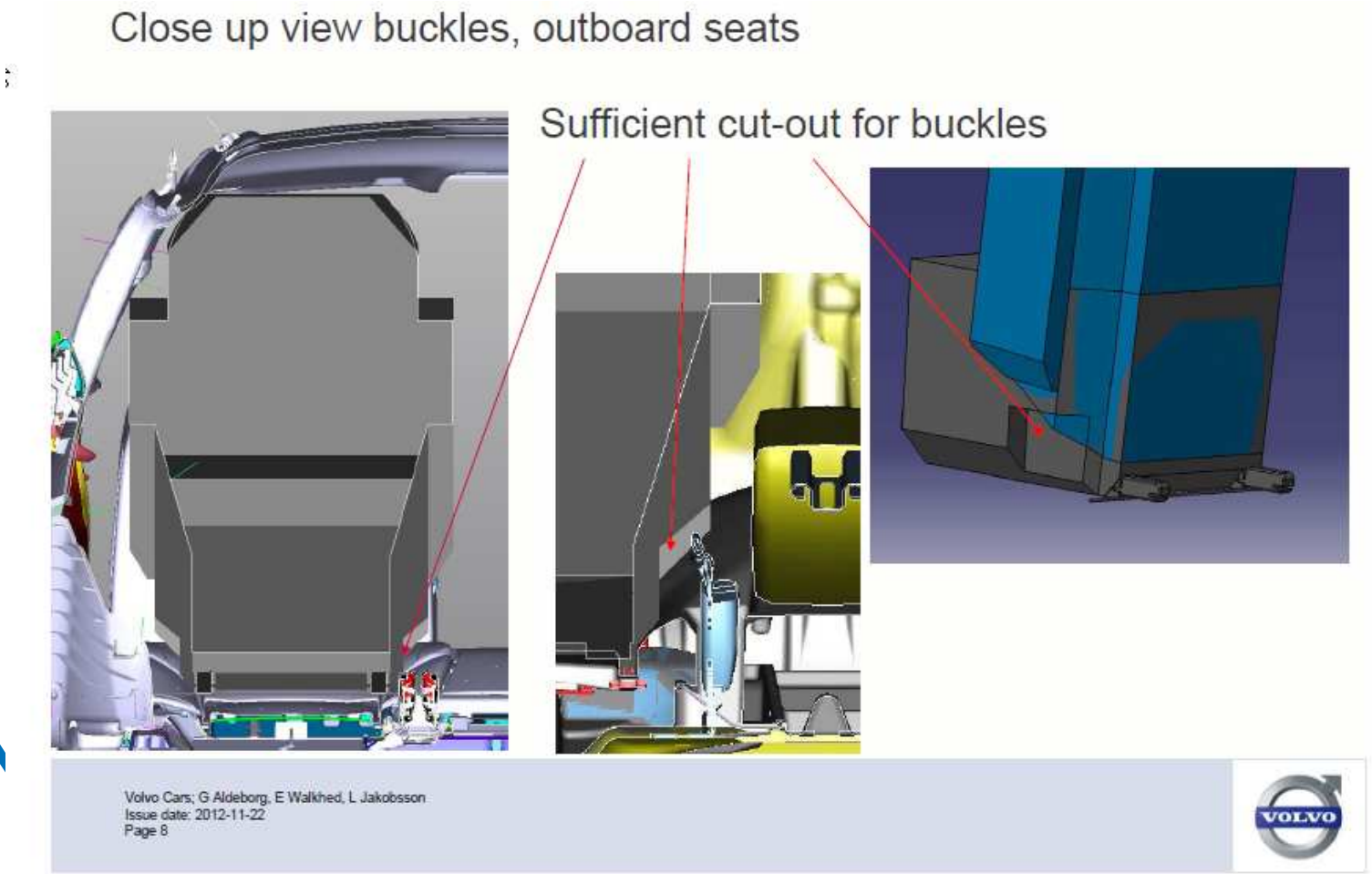
Feedbacks from N1007

- Buckle accessibility N1023



Feedbacks from N1007

- Buckle accessibility Renault analysis no ISO N number
  - Interference with a non rigid buckle

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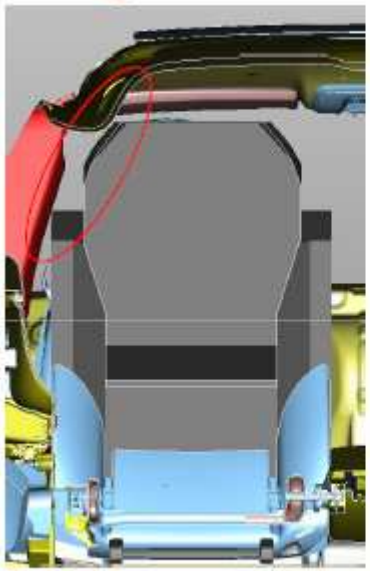
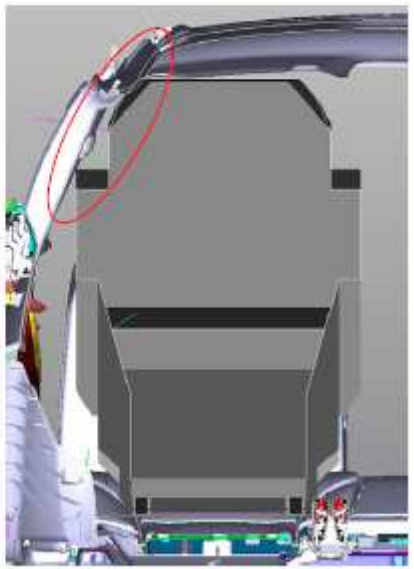
Feedbacks from N1007

- Remarks N1023

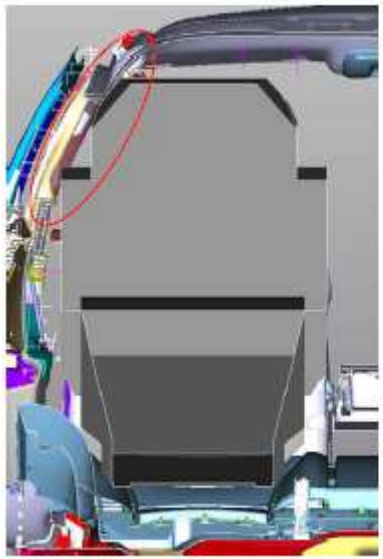
Note: Clearance and smooth surface on CRF needed for IC deployment



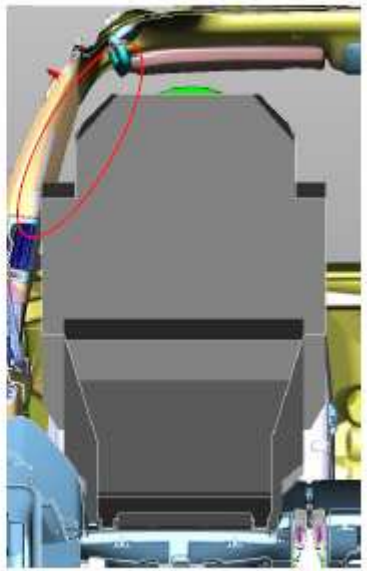
Volvo C30



Volvo V40



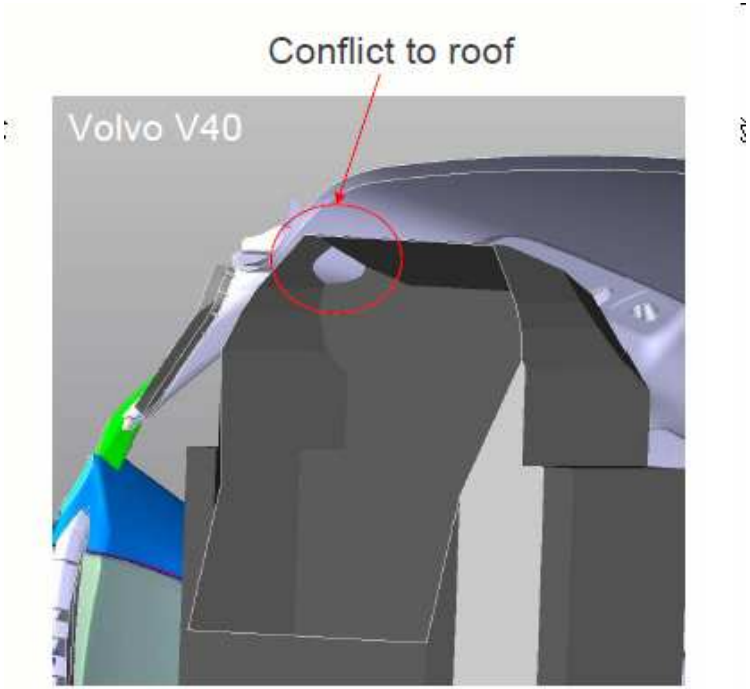
Volvo S60

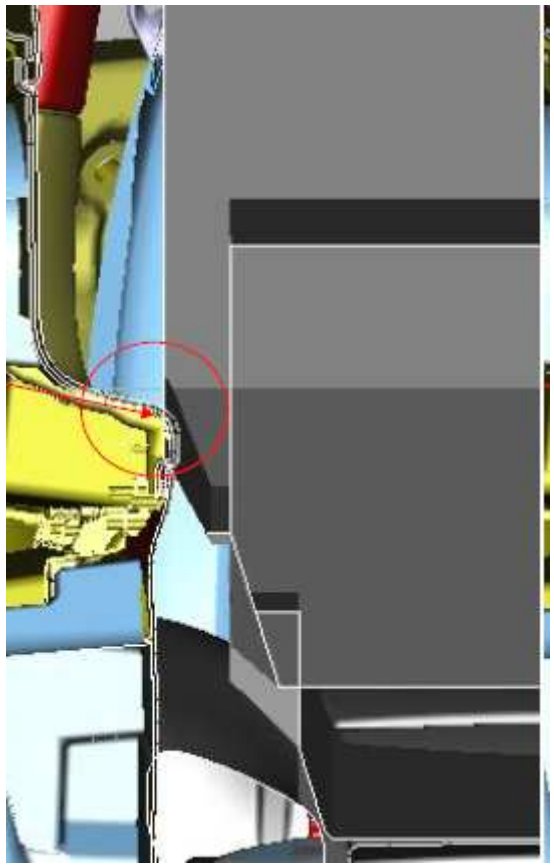


Volvo XC60

Feedbacks from N1007

- Other interferences N1023





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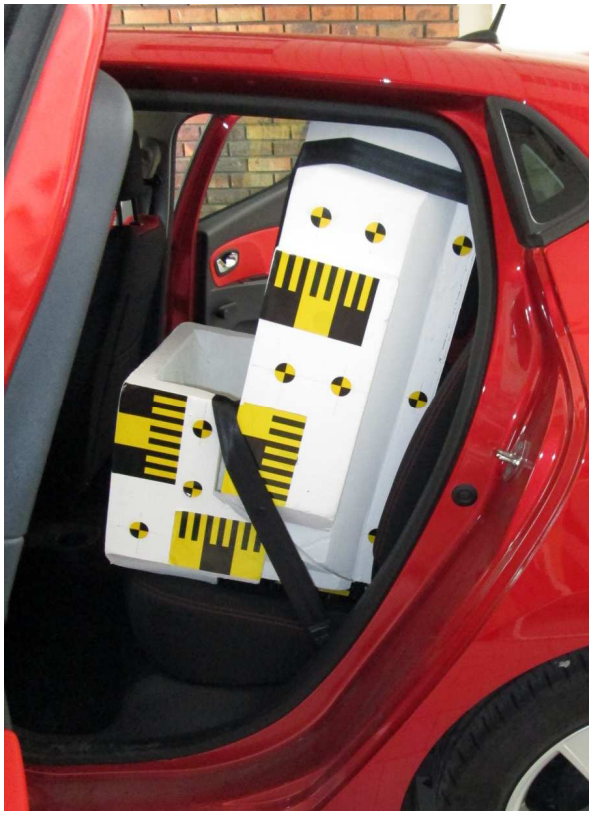
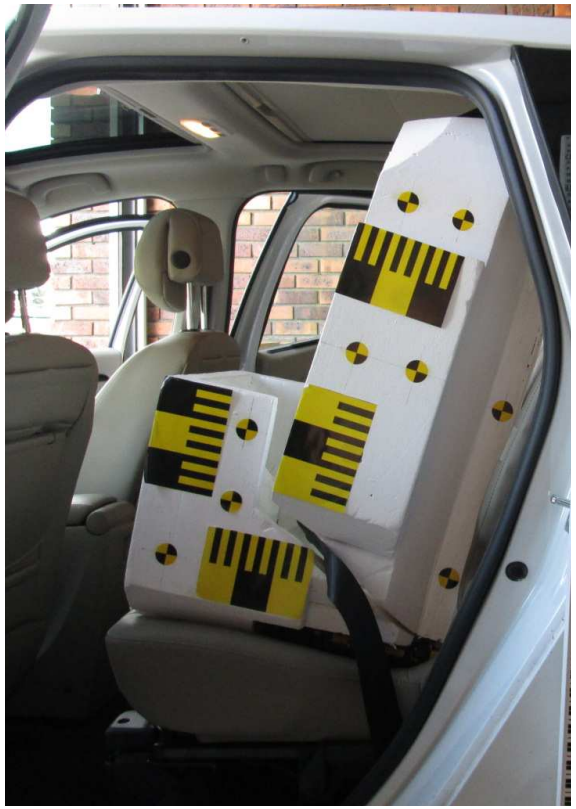
Feedbacks from N1007

- Renault Lardy Workshop August 2013





Feedbacks from N1007

- Renault Lardy Workshop August 2013

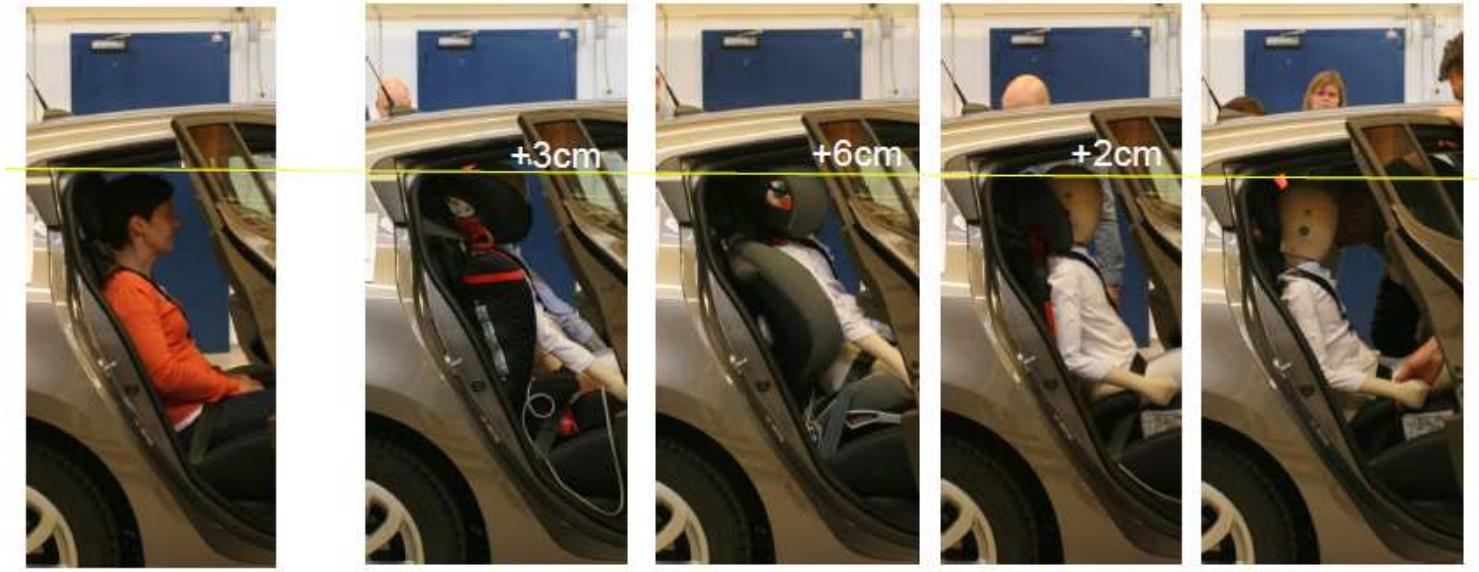
Feedbacks from N1007

- Renault Lardy Workshop August 2013
  - Possibility to install the fixture in all vehicles
  - Need to give clearance in certain areas.
  - A new version of the CRF will be proposed soon to TF4

Transition height

- Document N 1301 Swedish Workshop

Renault Megane, P10



	Britax KidFix	BeSafe izi Up X3 Fix	Volvo booster cushion with backrest	Volvo booster cushion
Relative forward:	+1cm	+3cm	+2cm	-3cm

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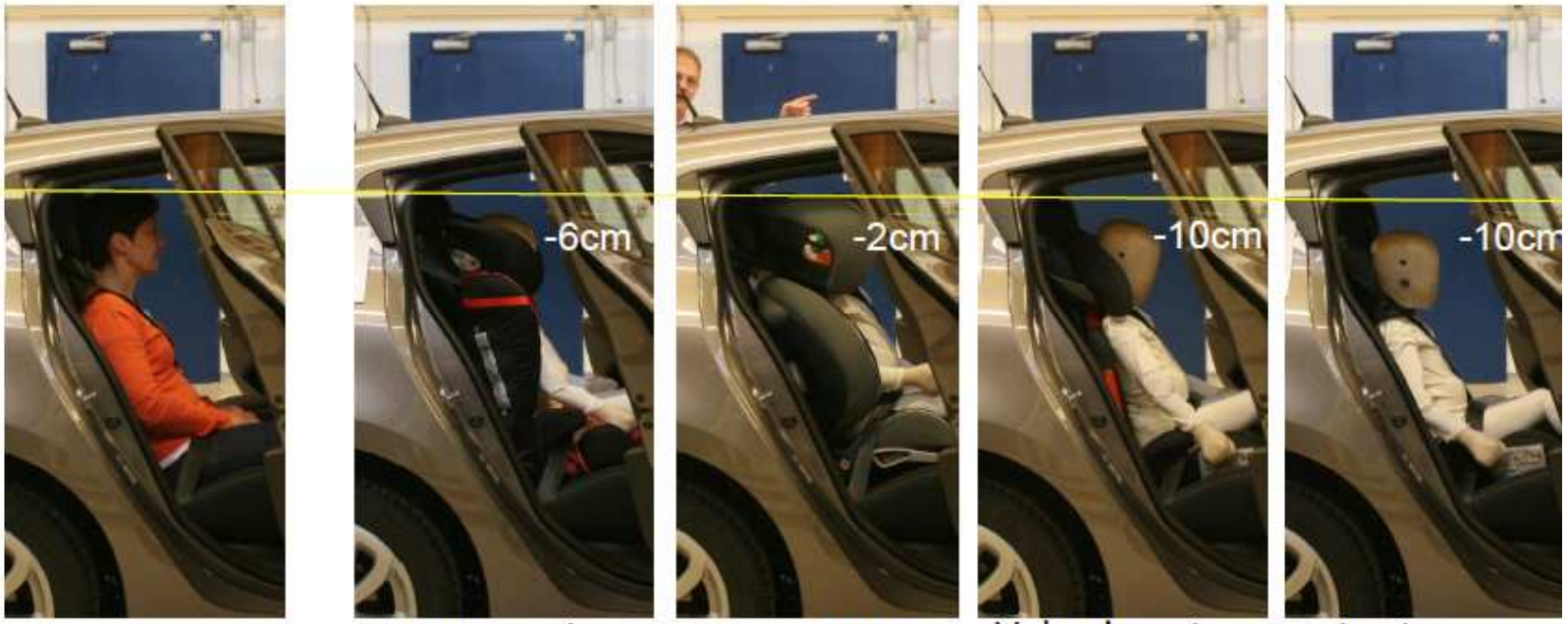
Transition height

- Document N 1301 Swedish Workshop

Renault Megane, P6



	Britax KidFix	BeSafe izi Up X3 Fix	Volvo booster cushion with backrest	Volvo booster cushion
Relative forward:	+2cm	+7cm	-4cm	-2cm

Transition height

- Document N 1301 Swedish Workshop

Summary

- Height:
  - The P10's head is in level or above the adult's head.
  - The P6's head is in line with the adult's head, except when using the Volvo booster.

The P6 head depends on CRS geometry

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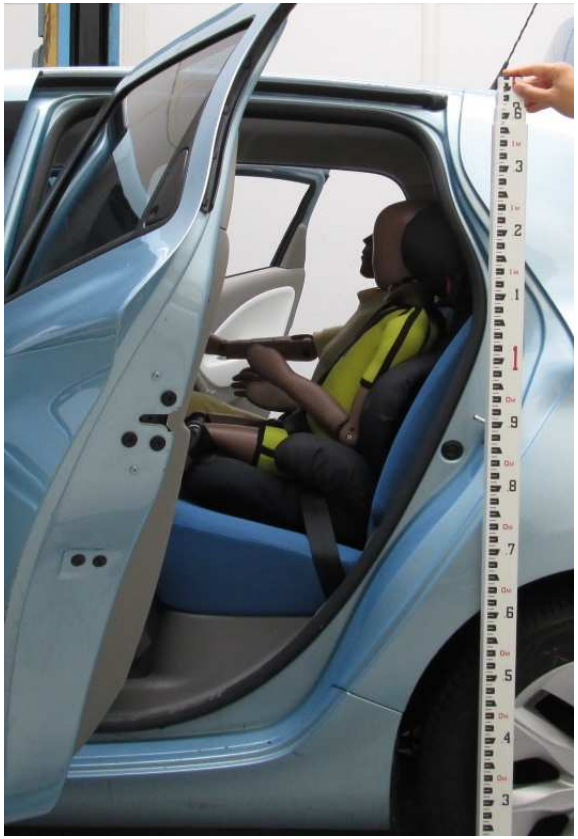
Transition height

- Renault Lardy Workshop August 2013


Transition height

- Renault Lardy Workshop August 2013

Initial rough measurements

	Head height (from 5th percentile female head position as reference)		
	Clio	Scénic	Zoe
Q6 + Booster 1	-4 cm	-5 cm	-7 cm
Q6 + Booster 2	-4 cm	-5 cm	-6 cm

- The Q6 dummy's head is close to 5th percentile female

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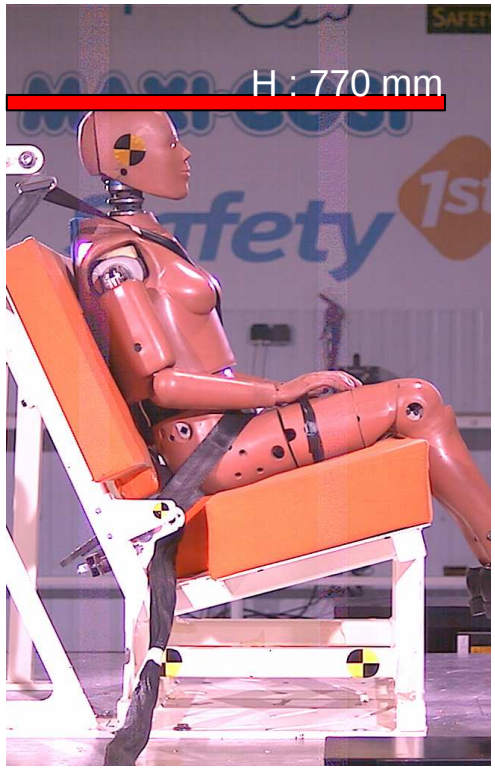
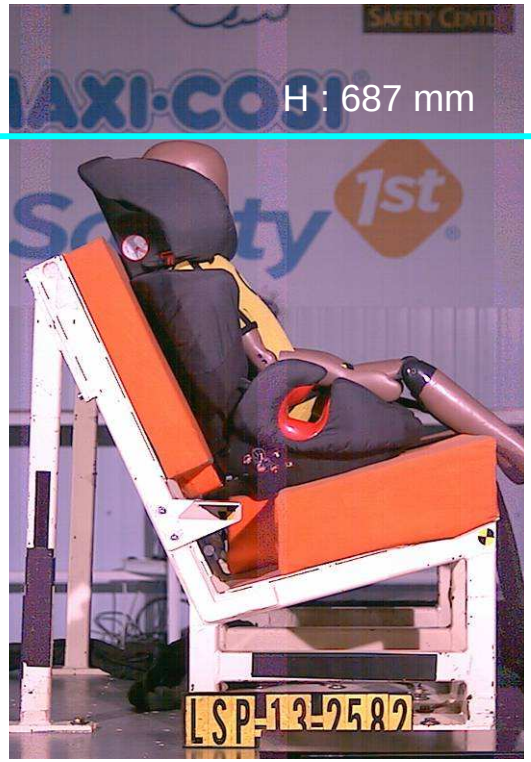
Transition height

- Comparison using i-Size bench
  - Head upper position/Cr point



HIII 5th

P10



Q6

Transition height

- Proposal

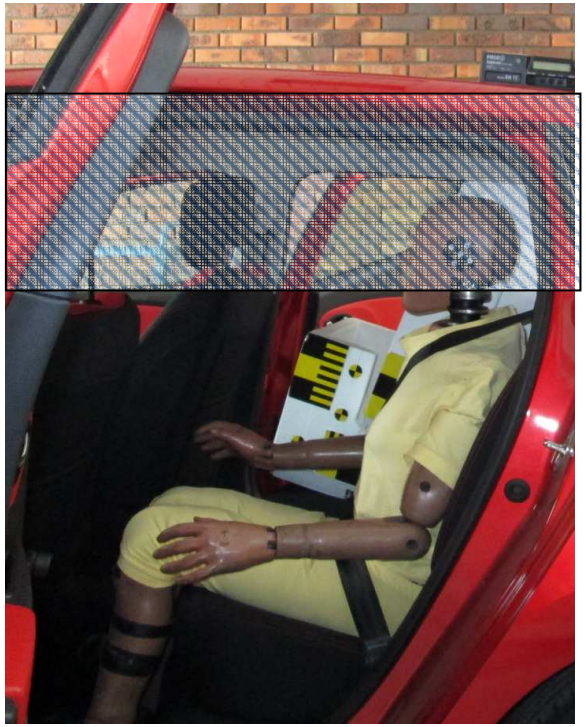
Assumptions : Cars protect the 5th percentile female

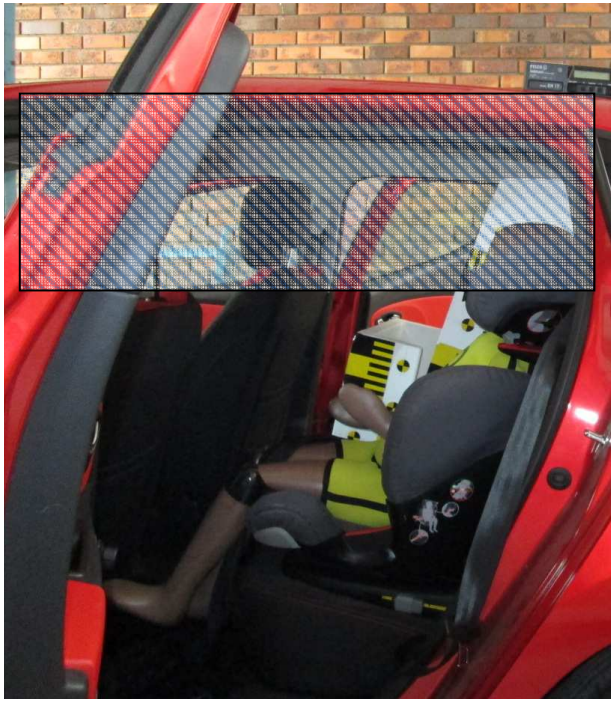
A CRS must protect a child head up to a position of [750 mm] in height compared to Cr point.

Consequences : Possibility to Reduce the CRF in height

Transition height

- Renault Lardy Workshop August 2013





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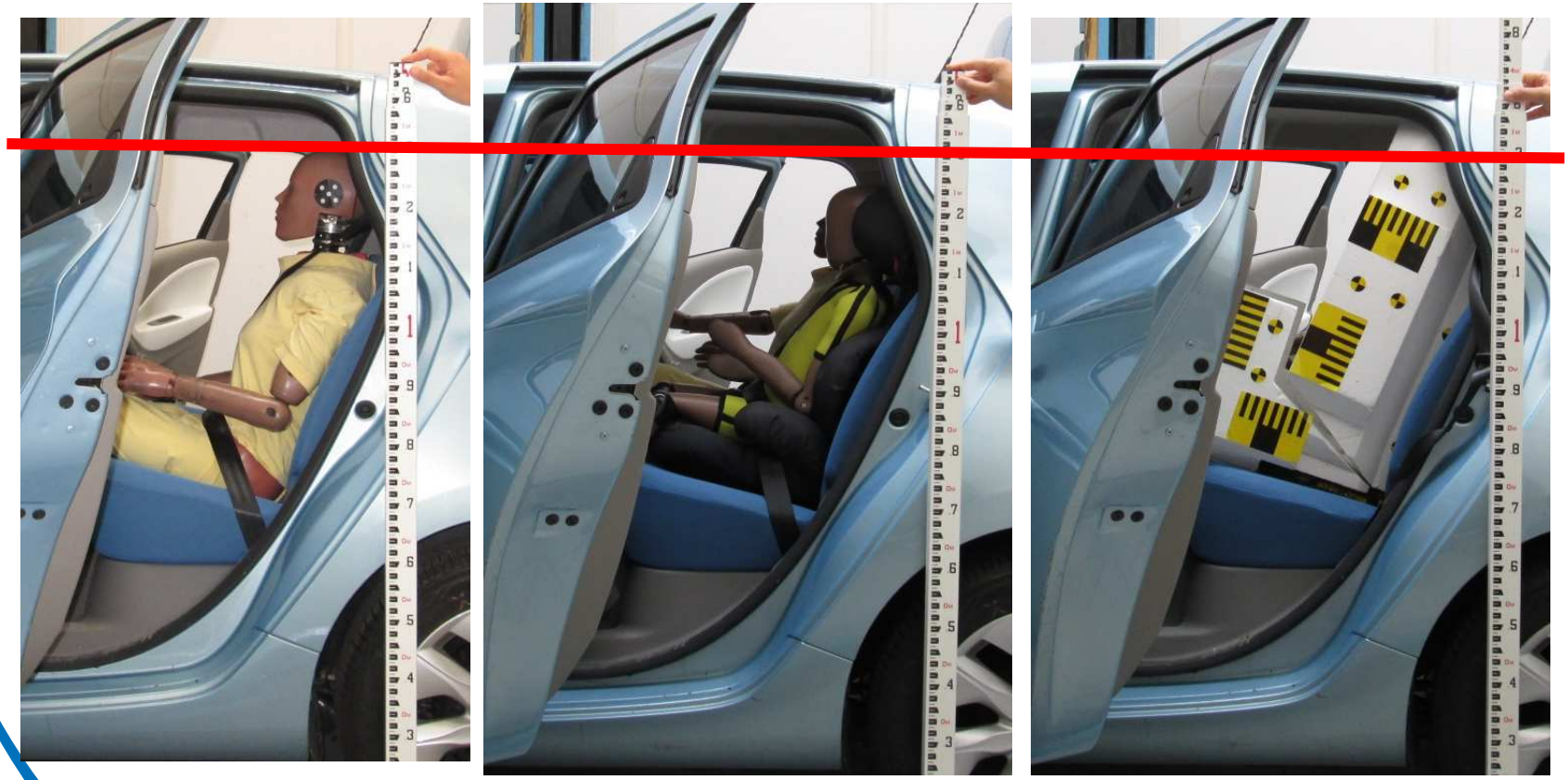
Transition height

- Potential reduction of CRF



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Conclusion

- After several iteration a CRF based on TÜB study has been proposed.

- A version taking into account Workshop and CAD reconstructions will be proposed soon
- It is needed to protect a 135 cm child

- Workshop in cars and on bench show that
  - P10 head is often above 5th percentile female head
  - Q6 head is slightly below 5th percentile female head depending on the CRS geometry

- A transition height using the i-Size bench can be proposed.

  - This transition height when selected will have consequences on CRF height