

THOR-M pdb position

THOR meeting, Washington, 20/01/2015

THOR-M

pdb position

- pdb is very interested to contribute actively to the evaluation of the new measurement device.
- Industry is very much in favor of installing an international working/evaluation group for the THOR M dummy.
- Possible tasks for this group:
 - R&R testing
 - Development / evaluation of certification procedure
 - Seating procedure
 - Exchange of experiences with the dummy
 - Comparison to H3 (pro & cons of dummy change)
- Need of a “project plan” to keep the time frame manageable (avoidance of unproductive groups).

THOR-M Dummy Positioning

First Results

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THOR-M Dummy Positioning

Aim of the Study

- Check of the seating position of the THOR in various vehicles
- Vehicles and dummies
 - 3 vehicles (compact, mid-size and SUV)
 - THOR-M (BAST), H350
 - Dummies placed on driver and passenger seat, 3D measurements of dummy postures
- Applied seating procedures
 - FMVSS208
 - SAE THOR Seating Procedure
Draft 5/6/2011 – SAE THOR seating procedure task group
- Dummy adjustments
 - Thoracic spine in slouched position
 - Finally, lower neck bracket in rearmost position

THOR-M Dummy Positioning

First Results – Seat Back Angle

- Seat back angle specified by the manufacturer (19°)
 - Level of the head not horizontal – lower neck bracket at the end of the range of motion (rearmost position)
 - Contact head to head-rest (even with head-rest in rearmost position)
- Seat back angle at 23°
 - Level of the head horizontal (lower neck bracket in rearmost position required)
 - No contact head to head-rest

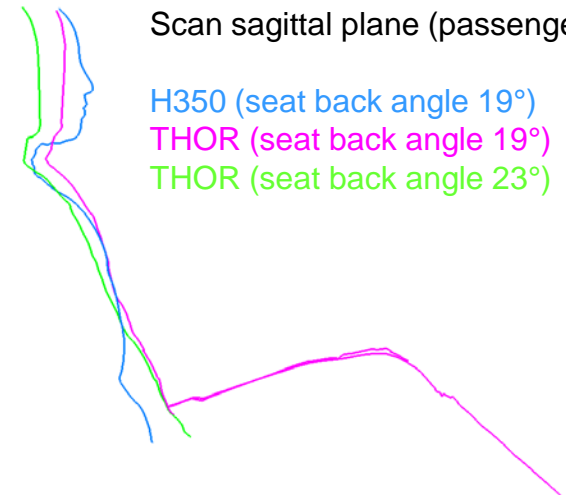
Seat back angle 19°



Seat back angle 23°



Scan sagittal plane (passenger)



THOR-M Dummy Positioning

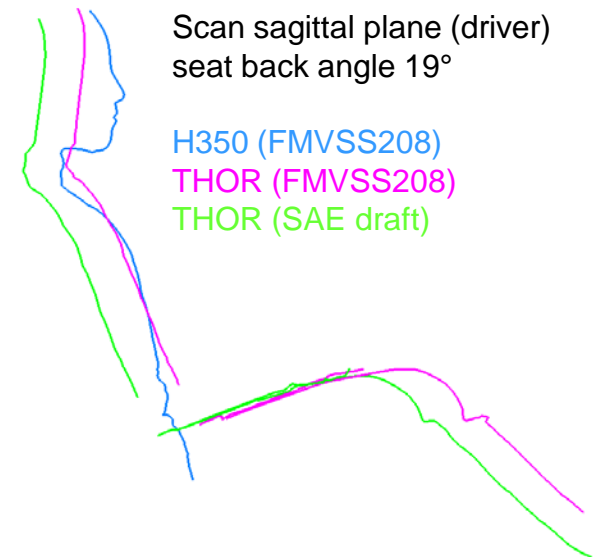
First Results – X Position Seat

- X position of the seat according to FMVSS208 (driver only)
 - Ankle joints not in “neutral” position
 - Accelerator in full-throttle position
 - Lower legs pre-stressed
- X position of the seat according to SAE draft 5/6/2011 (driver only)
 - Only forefoot in contact with the accelerator
 - New x position depends on the vehicle (seat moved backwards, up to 90 mm)

FMVSS208



According to SAE draft



THOR-M Dummy Positioning

Conclusion of the study

- Seat back angle
 - Acceptable dummy position only at seat back angles greater than 23°
 - Assumptions:
 - Level of the head horizontal
 - No contact head to head-rest
- x position of the seat
 - Adjustment according to FMVSS208 not applicable
 - Assumptions:
 - No pre-loaded lower legs
 - Accelerator not pressed

THOR-M

Dummy Positioning – Open Points

- Seat back angle
 - Restriction by dummy design (see results before)
 - x position of the seat/feet positioning
 - Adjustment according to FMVSS208 not applicable in some vehicles.
 - Adjustment of head angle
 - Adjustment of head angle with head adjustments only or also with lower neck bracket adjustment.
 - Priorities needed if both adjustment can be used.
 - Position of shoulder
 - Neutral position of shoulder should be specified.
 - ...
- Proposal to hold seating procedure workshops (similar to WorldSID 5%) to draft a universal procedure for the THOR M dummy.
- Two day meeting in March/April at
- half day THOR dummy technical workshop, 1,5 days seating workshop