
US Dynamic Testing of Active Head Restraints (Preliminary Results)

8th Head Restraint GTR Informal
Working Group Meeting
December 2006

Test Summary

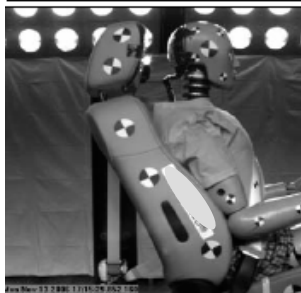
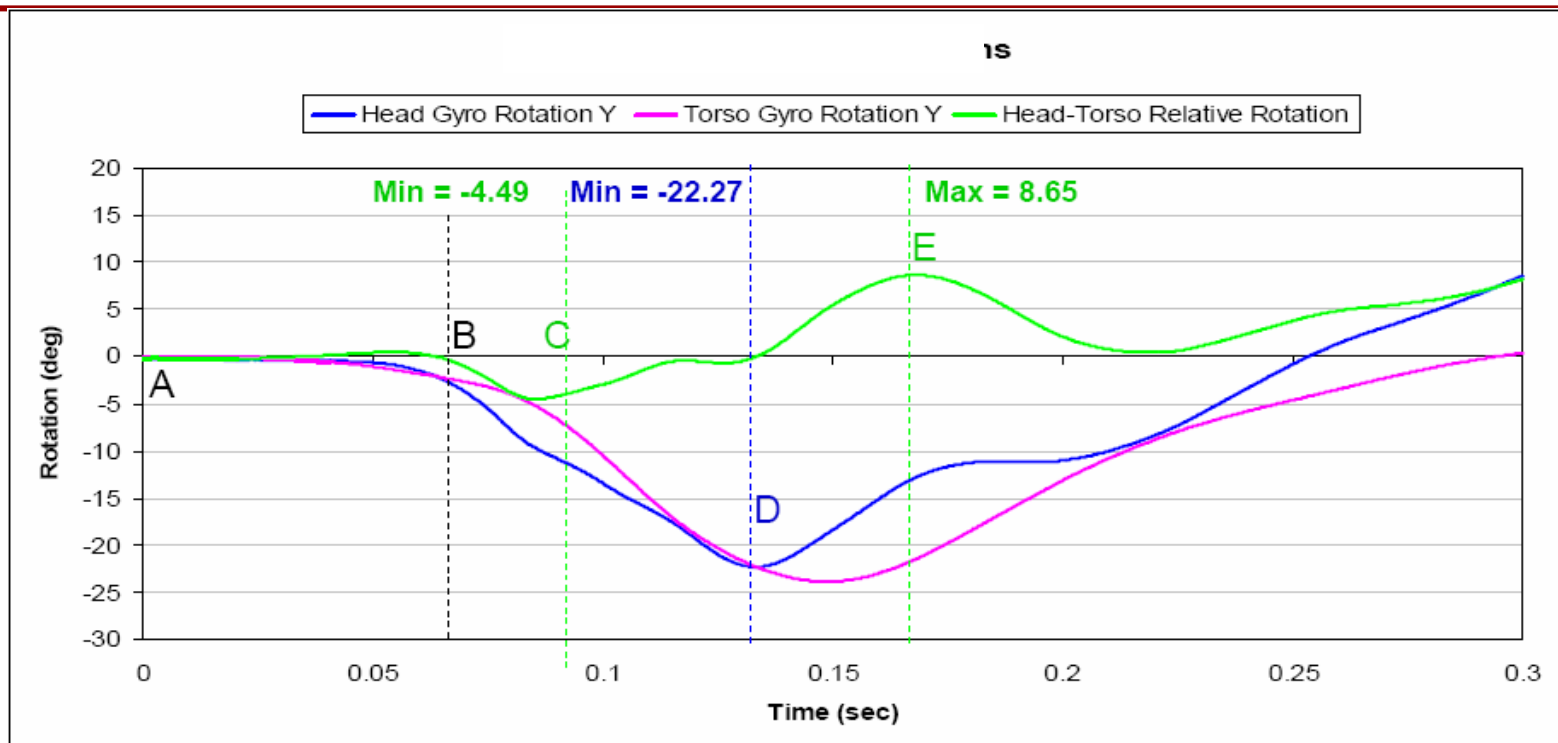
★ 4 Re-Active Systems tested

★ Test Set-up

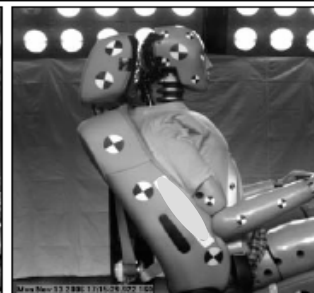
- Seats positioned according to FMVSS 202a
- Seats tested on sled
- Peak head-torso rotation measured within first 200 ms after sled impact.
- Test dummy: Hybrid III

Seat 1

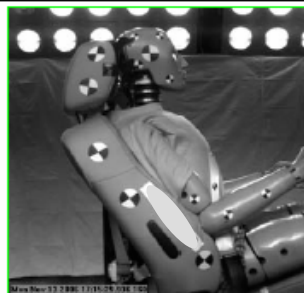
Rotations (preliminary results)



A



B (head contact)



C



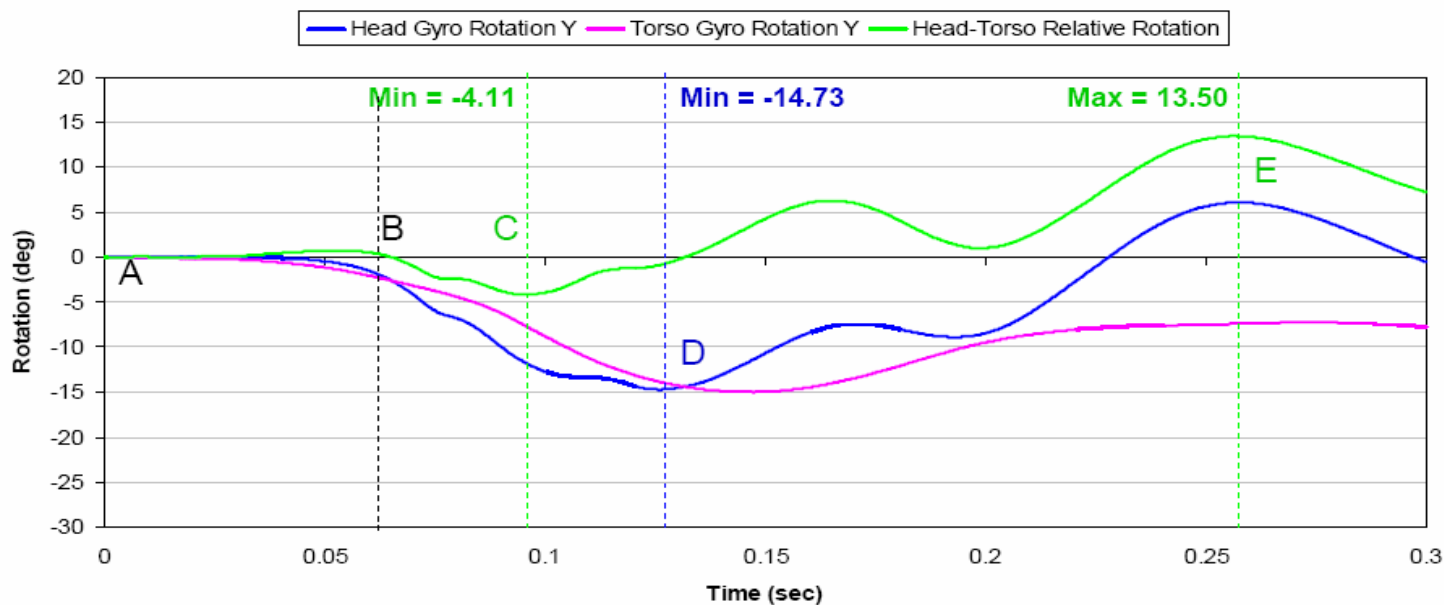
D



E

Seat 2

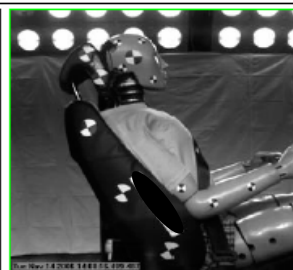
Rotations (Preliminary Results)



A



B



C



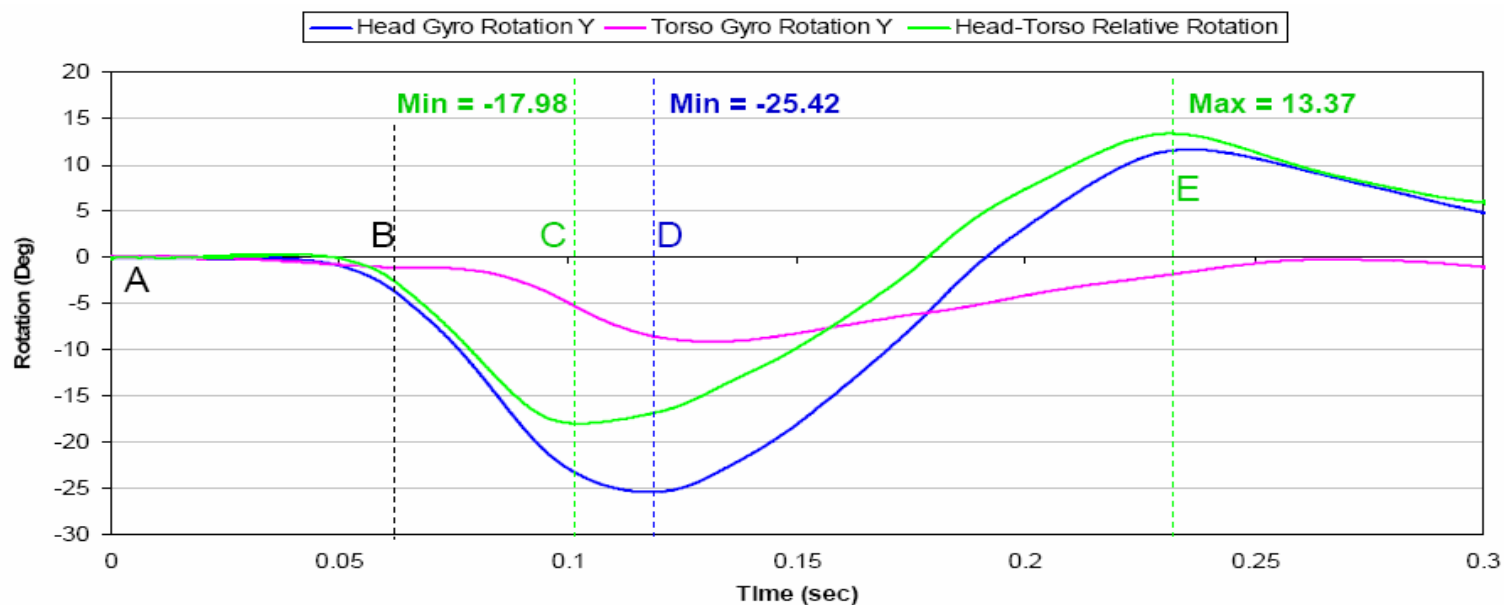
D



E

Seat 3

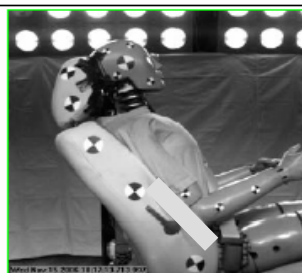
Rotations (Preliminary Results)



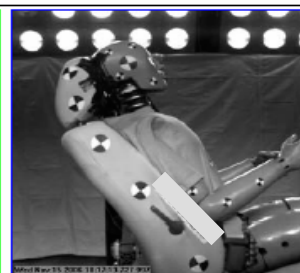
A



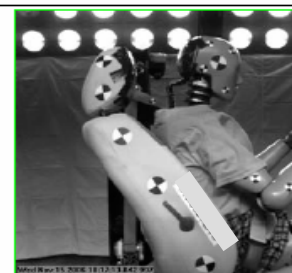
B



C



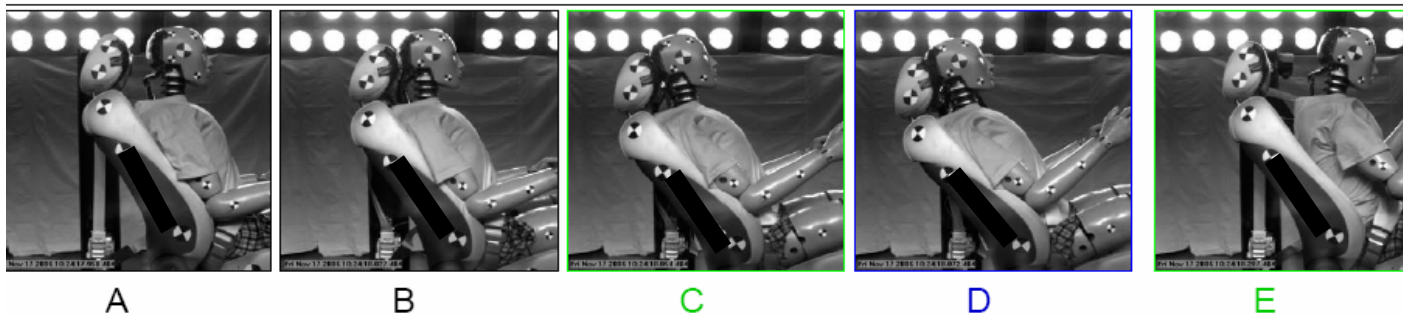
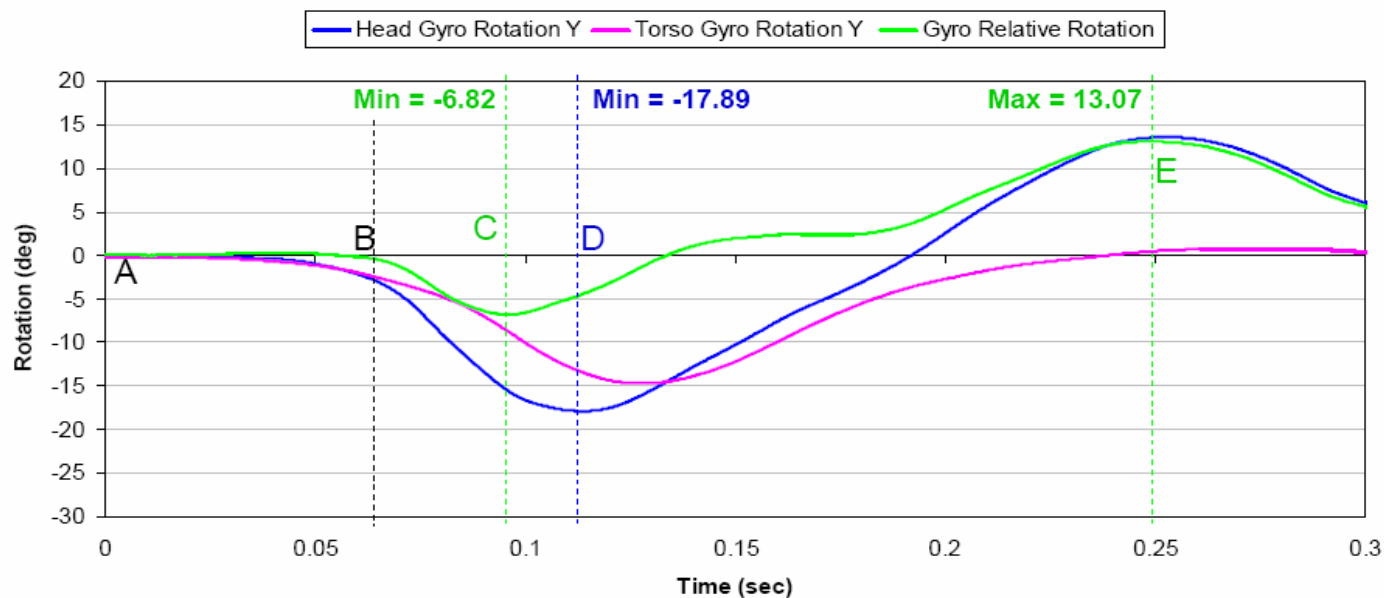
D



E

Seat 4

Rotations (Preliminary Results)



Preliminary Results

| Vehicle | Backset (mm) | Initial Head Contact Time (msec) | Head-Torso Rotation at Initial Contact (deg) | Head-Torso Peak Rotation (deg) | IIHS Rating (Dynamic Test) | FMVSS 202a Rule |
|---------|--------------|----------------------------------|--|--------------------------------|----------------------------|-----------------|
| Seat 1 | 57 | 74 | 1.7 | 4.1 | Good | Pass |
| Seat 2 | 78 | 69 | 0.5 | 4.1 | Good | Pass |
| Seat 3 | 48 | 56 | 0.9 | 17.9 | Acceptable | Fail |
| Seat 4 | 59 | 69 | 1.4 | 7.7 | Good | Pass |

Conclusions

- ★ US Dynamic test provides relief to active systems when backset does not meet the static requirements.
- ★ Seats can be designed to meet the US Dynamic Test Requirements with the Hybrid III and do well when tested with the BioRID II.