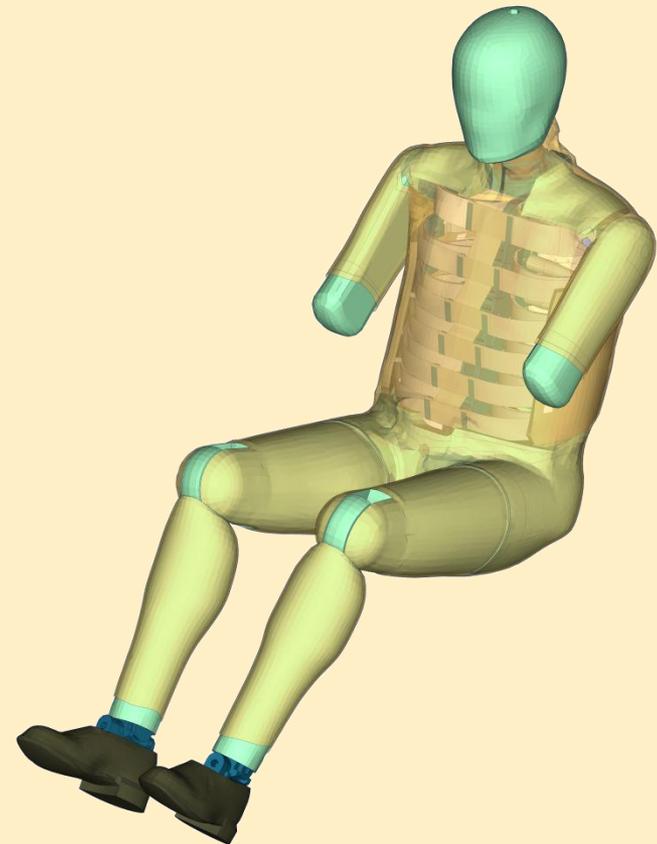




LS-DYNA PDB WorldSID 50th V3.0 release notes



A. Gromer
DYNAmore GmbH, Germany
Stuttgart, 28. February 2014

outline

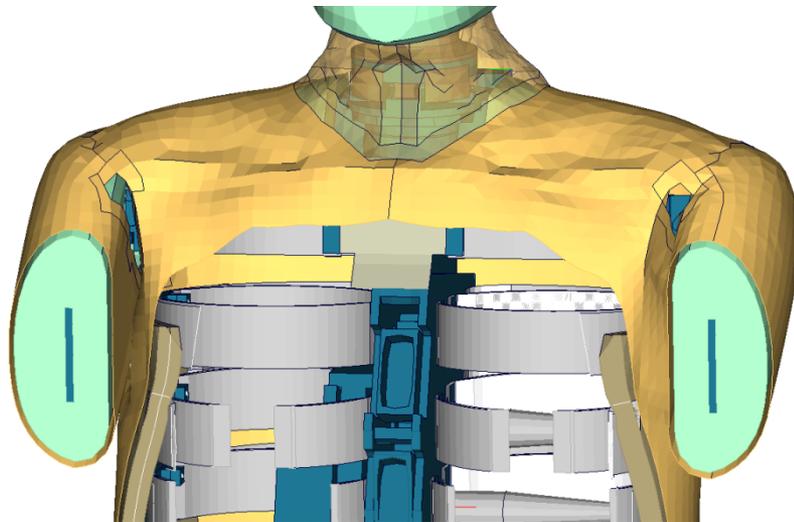
- Geometric modifications
- component tests
- Further modifications
- New positioning procedure

for more detailed information refer to the dummy model manual

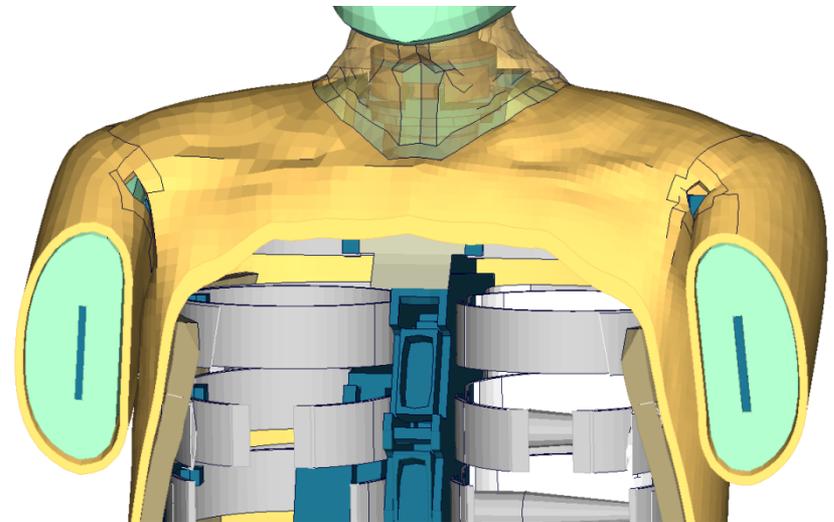
New jacket mesh

- Neoprene jacket meshed with hexa/penta elements
- Impact side refined

V2.0



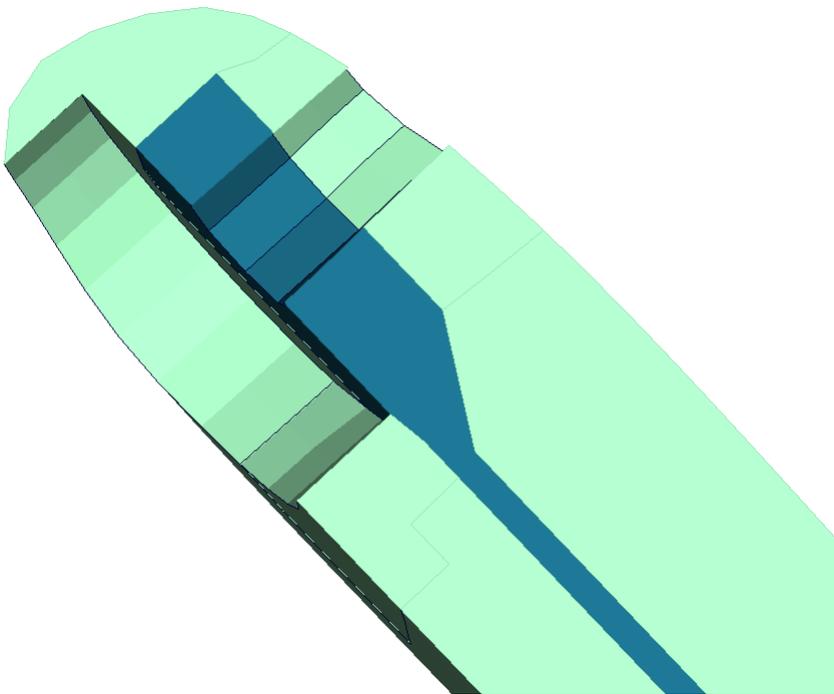
V3.0



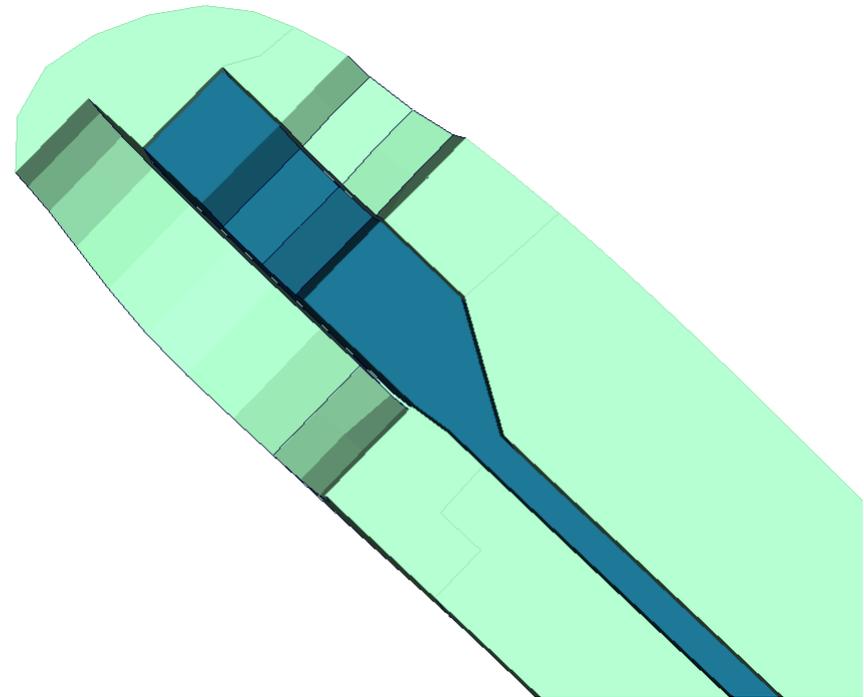
Modified arm mesh

- Hyperlast rubber foam mesh is now disconnected from arm bone
- Better correlation with initial slope of shoulder force

V2.0



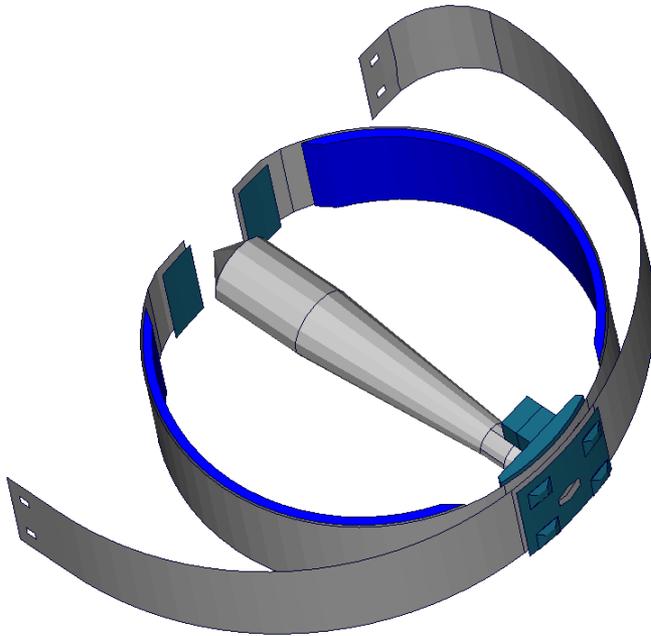
V3.0



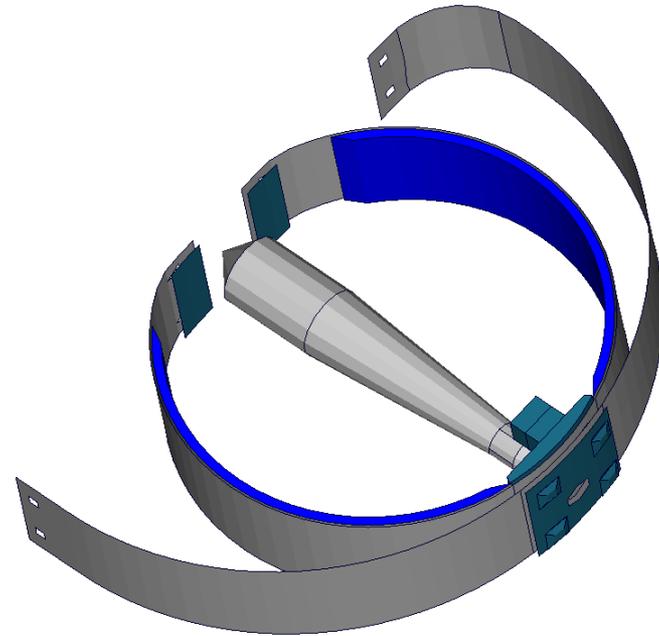
corrected rib damping material geometry

- Same length but panned to the outer bracket
- All ribs were modified

V2.0



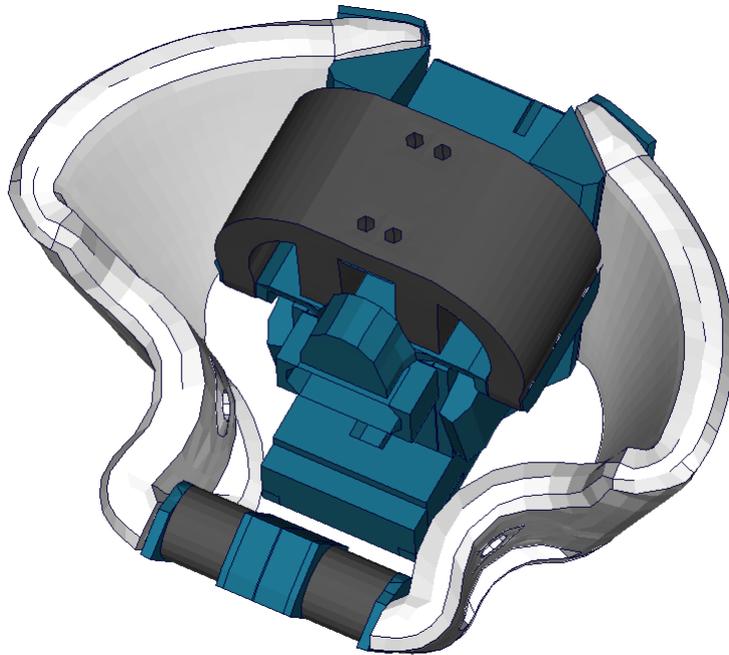
V3.0



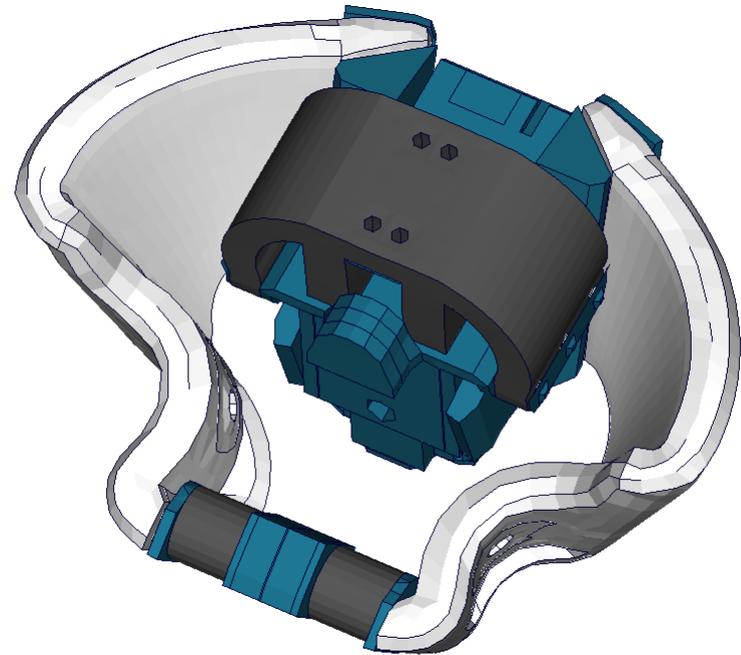
Inner pelvis assembly of WorldSID SBL-E1

- New data recorder box
- Data recorder plug replacement removed

V2.0

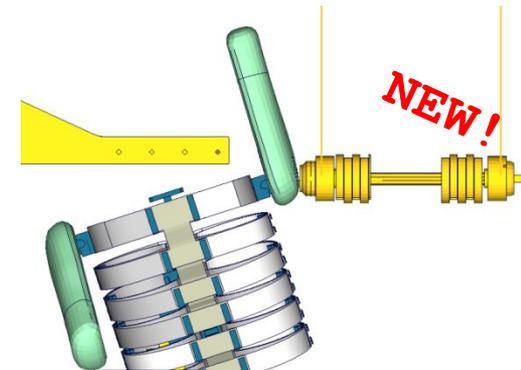
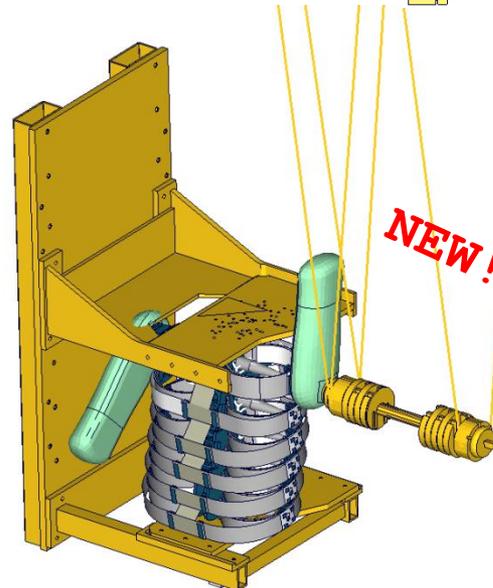
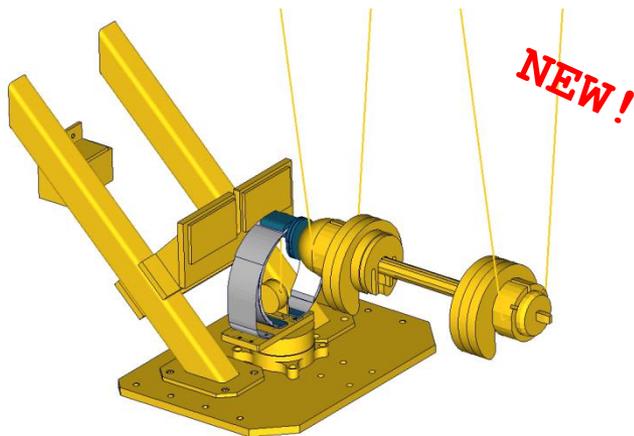
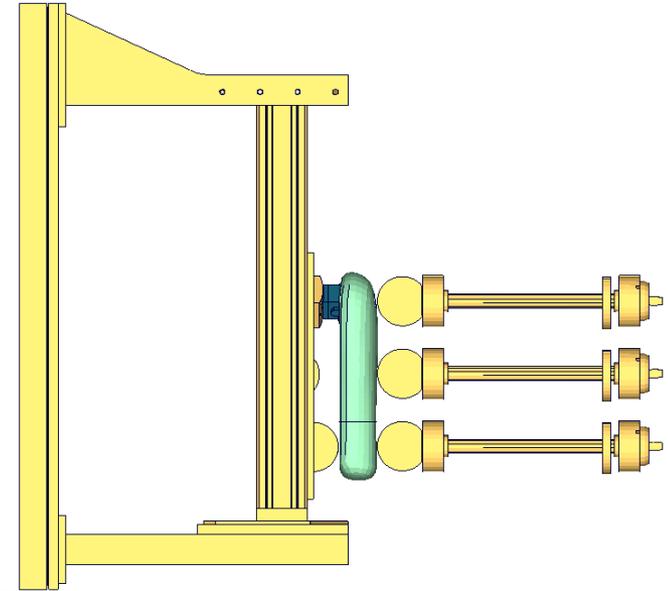
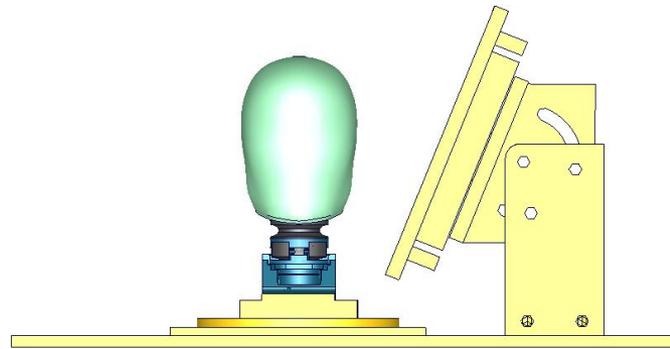


V3.0



Component tests

- New shoulder rib z-direction pendulum test (vertical)
- New shoulder rib test with arm
- Neck and arm validation improved on component level



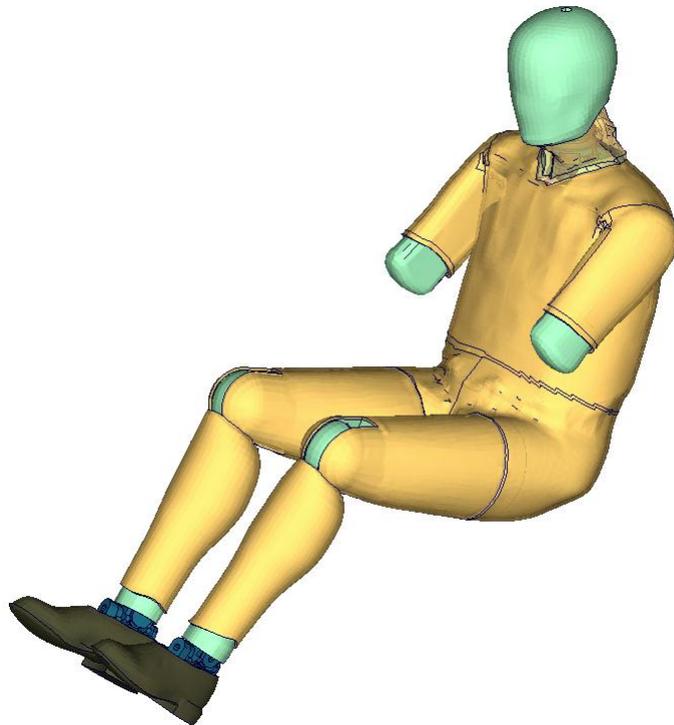
Further modifications to address users requests

- The nitinol material of the rib bands now uses an *MAT_SHAPE_MEMORY. This should increase the overall stability and robustness of the dummy model
- 2D IR-TRACCs are modeled by beams. It is now possible to extract the rib deflection and the corresponding rib rotation. The evaluation of the 1D IR-TRACCs still exists.
- Some load cell orientations were corrected to match the SAE standard: upper and lower neck, shoulder, lumbar spine, pubic, sacro iliac and femur load cells
- Improvement of the pelvis flesh model to avoid high hourglass energies
- Improvement of the hole dummy definitions to reduce time step dependency of the model
- Parameter tpref to switch on/off the foam reference geometry of the thorax pad

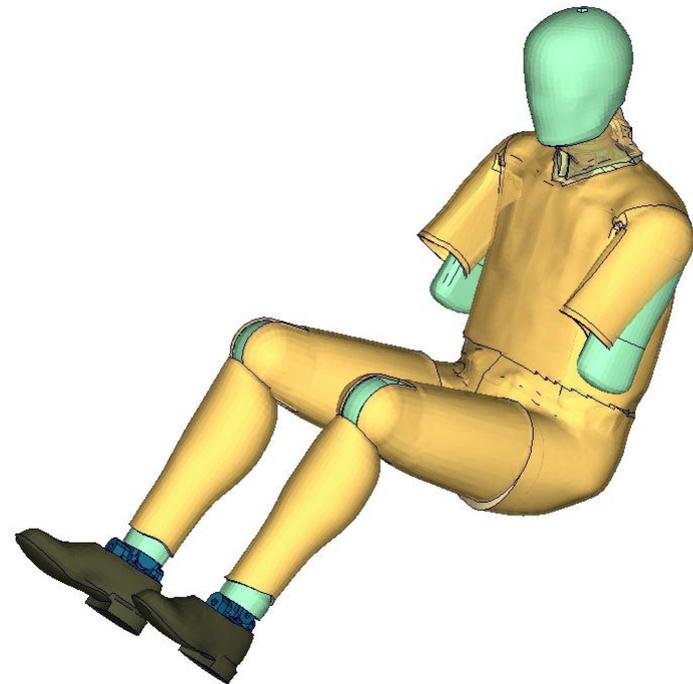
New positioning procedure

- Main goal: simplify the positioning of the WorldSID 50th
1. Generate your target procedure in your preprocessor. Do not worry about penetrations, Save it as a normal key file.

origin



target



New positioning procedure

2. Run the script which is enclosed in your delivery package.

```
psg_wsid50_v3.0 -d dummyinput_origin.key -t target_pos_dummy.key
```

The script generate an positioning simulation file `dummyinput_origin_positioning.key`

3. Run the input in `dummyinput_origin_positioning.key` LS-DYNA (recommended version R6.1.2)

4. Setup the positioned dummy model with the nodal coordinates of the last state of the positioning run.

final

