NHTSA Side & Rear MDB - Solid Model

Arup – Cellbond

The specifications used for the development of the NHTSA Side & Rear Moving Deformable Barrier have been taken from the NHTSA documents 'Federal Motor Safety Standard, MVSS 214 – Side Impact Protection', 'Federal Motor Safety Standard, MVSS 301 – Fuel System Integrity - Rear Impact Test' and 'National Highway Traffic Safety Administration, PART 587 – Side Impact Moving Deformable Barrier'.

The NHSTA MDB barrier is used by NHTSA in their SINCAP side and rear impact tests and was also adopted by US-NCAP in 2012 for their side impact tests. When used in the FMVSS 301 rear impact the barrier is set 50mm lower.

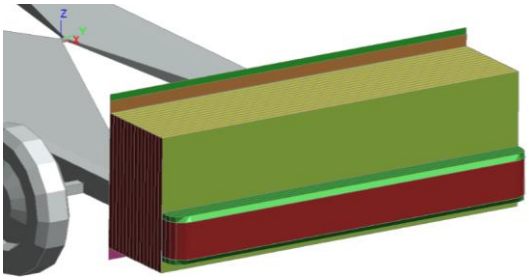
Specifications

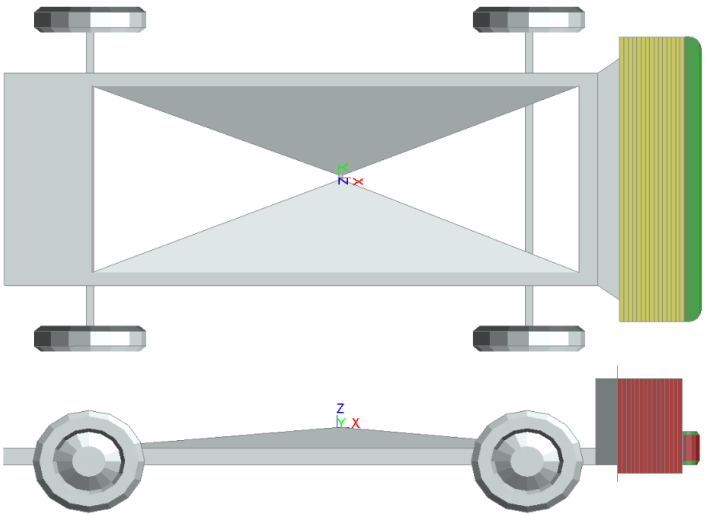
Element Type	Num. of Elements	Timestep	Validation Code	Regulation Tests	Regulation Speed
Solid	63928	1.2E-6	R7.1.2	- FMVSS 301 Fuel System Integrity - Rear Impact Test - FMVSS 214 Side Impact Protection - US-NCAP Side Impact Test	- FMVSS 301:80kph - FMVSS 214:53kph - US-NCAP:61.9kph

Validation

The LS-DYNA model calibration has been done using the test results provided by Cellbond for four different impact conditions. The tests involve the barrier on a trolley impacting a rigid pole, a rigid wall, a rigid rear armature and a half rigid wall. The force-deflection curves (generated from model`s analyses and tests) for the barrier have been compared.

This validation work has been carried out in both SMP and MPP versions of LS-DYNA R7.1.2 to ensure the performance and accuracy.





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