BIORID for GTR-HR

Limits proposal

F. MINNE, 06 december 2006

Background & aim

BioRID versus HIII used in sled tests with Saab&Volvo seats before and after anti-whiplash redesign

Saab and Volvo seats have been shown to reduce claims and injuries when redesigned with SAHR&Whips (GTR-HR #05-12)

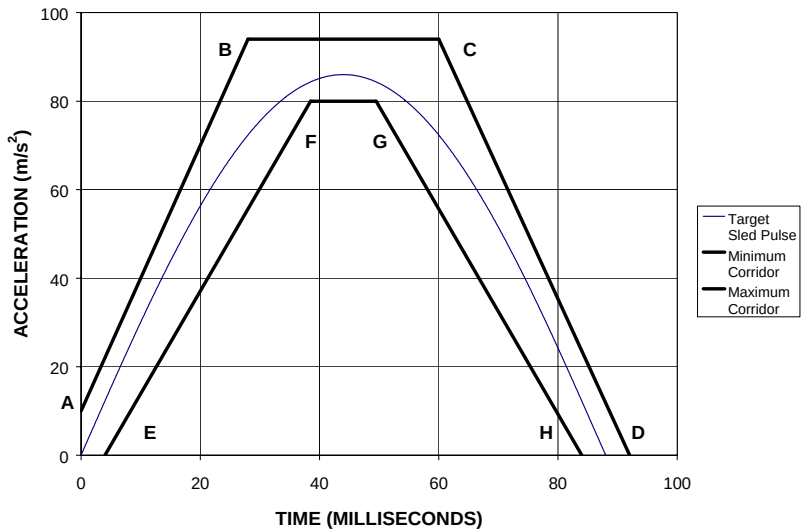
The BioRID is shown to interact with a car seat more biofidelic compared to the HIII (whiplash II project)

The aim of this presentation is to compare the results of sled tests using the BioRID and the HIII

Method

Seats: Saab 9-3 and Volvo V70 seat models before and after anti-whiplash redesign 1998/99.

Sled tests: According to IIWPG and FMVSS202a* (quite similar crash pulses)



*values taken from NHTSA publication and previous HIII sled tests

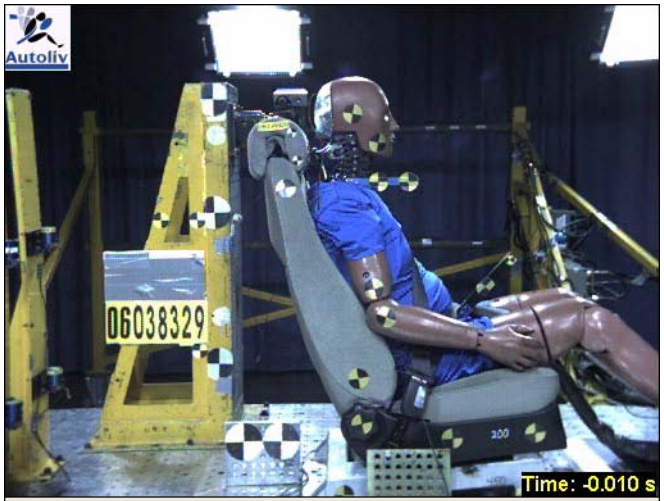
IIWPG rating results

IIWPG rating based on static and dynamic testing,
Dynamic Assessment based on T1/head contact,
Fx and Fz

Seat results :

Saab 900	Poor
Saab 9-3 (V1)	Moderate
V70 w/o whips	Poor
V70 with whips	Good

Tests done with Biorid



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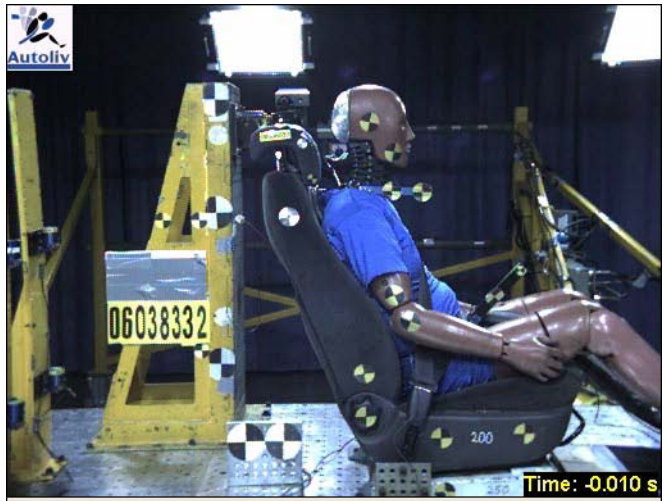

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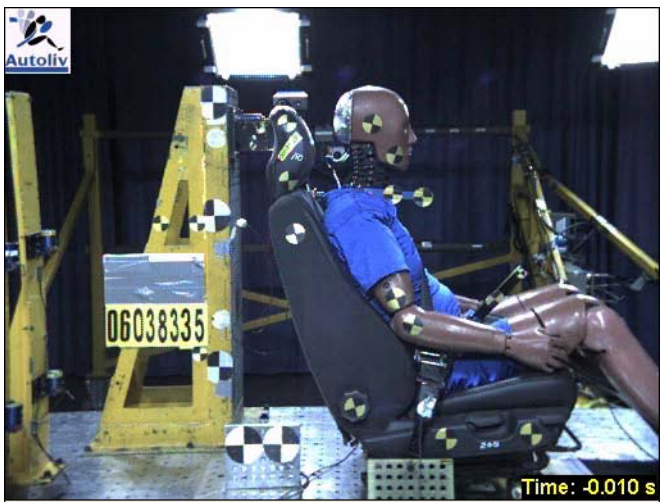

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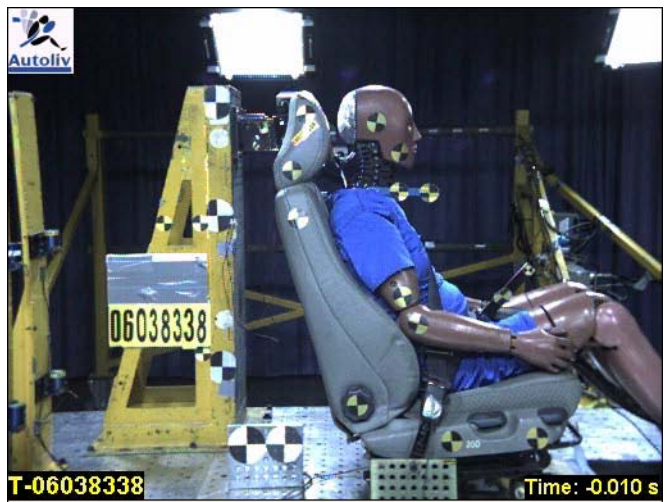

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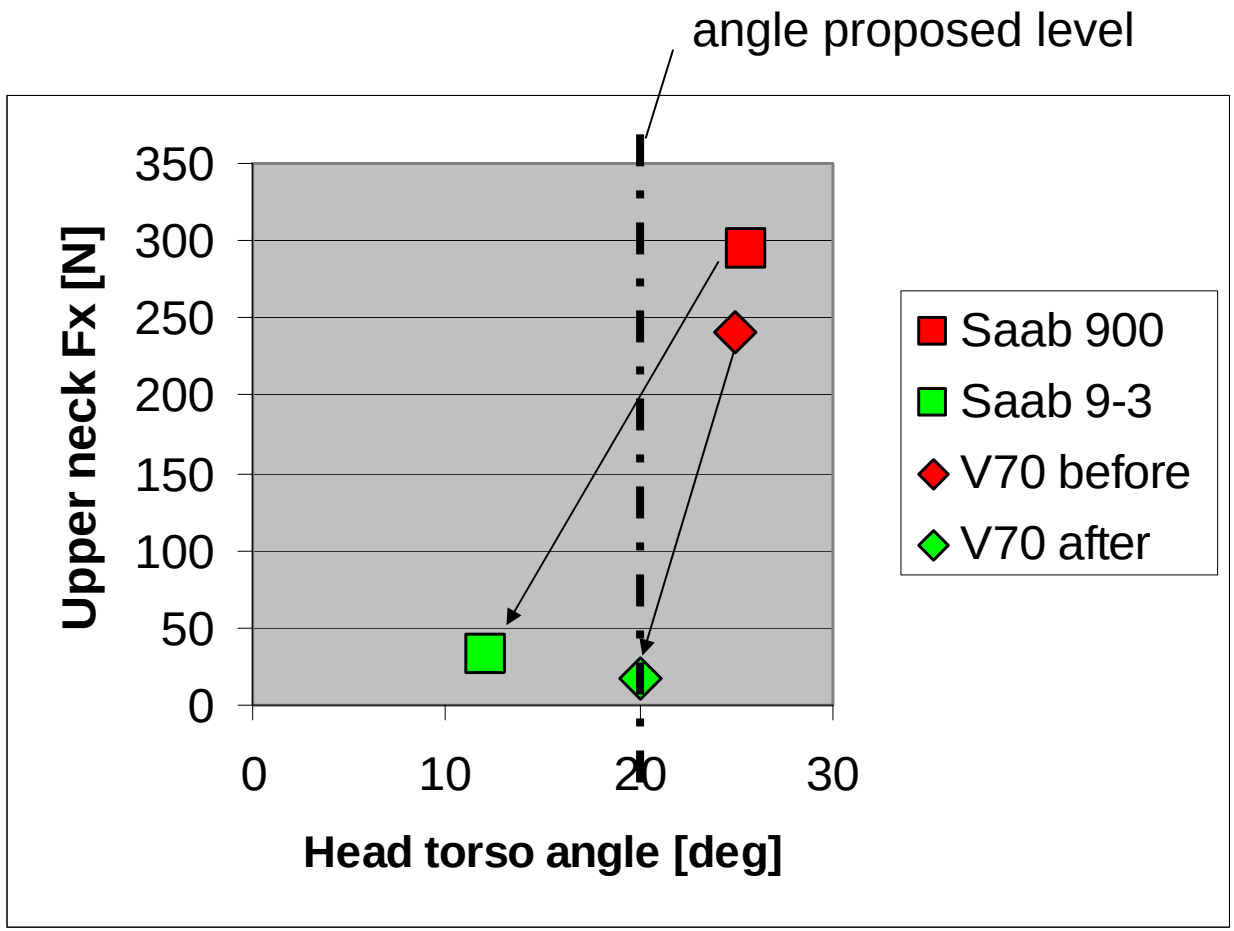
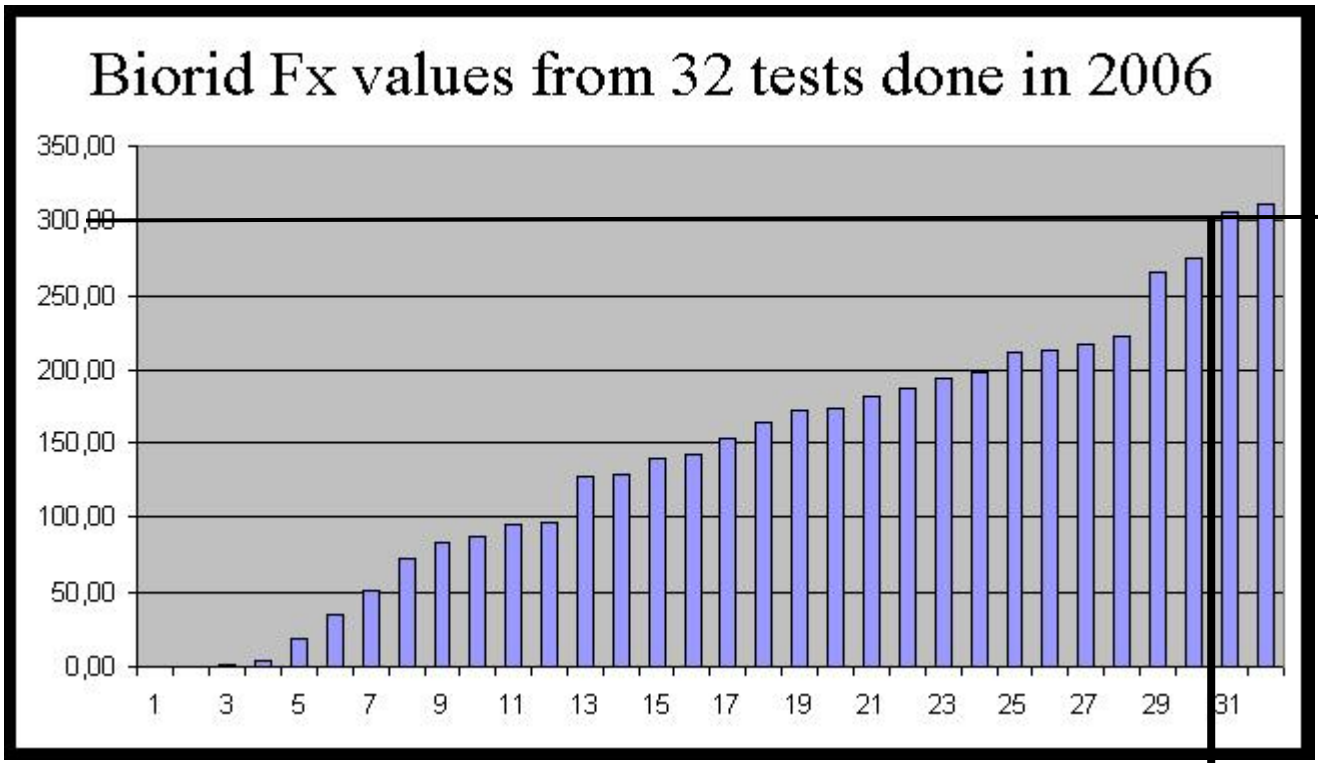
BioRID Fx values versus HIII head-torso angle



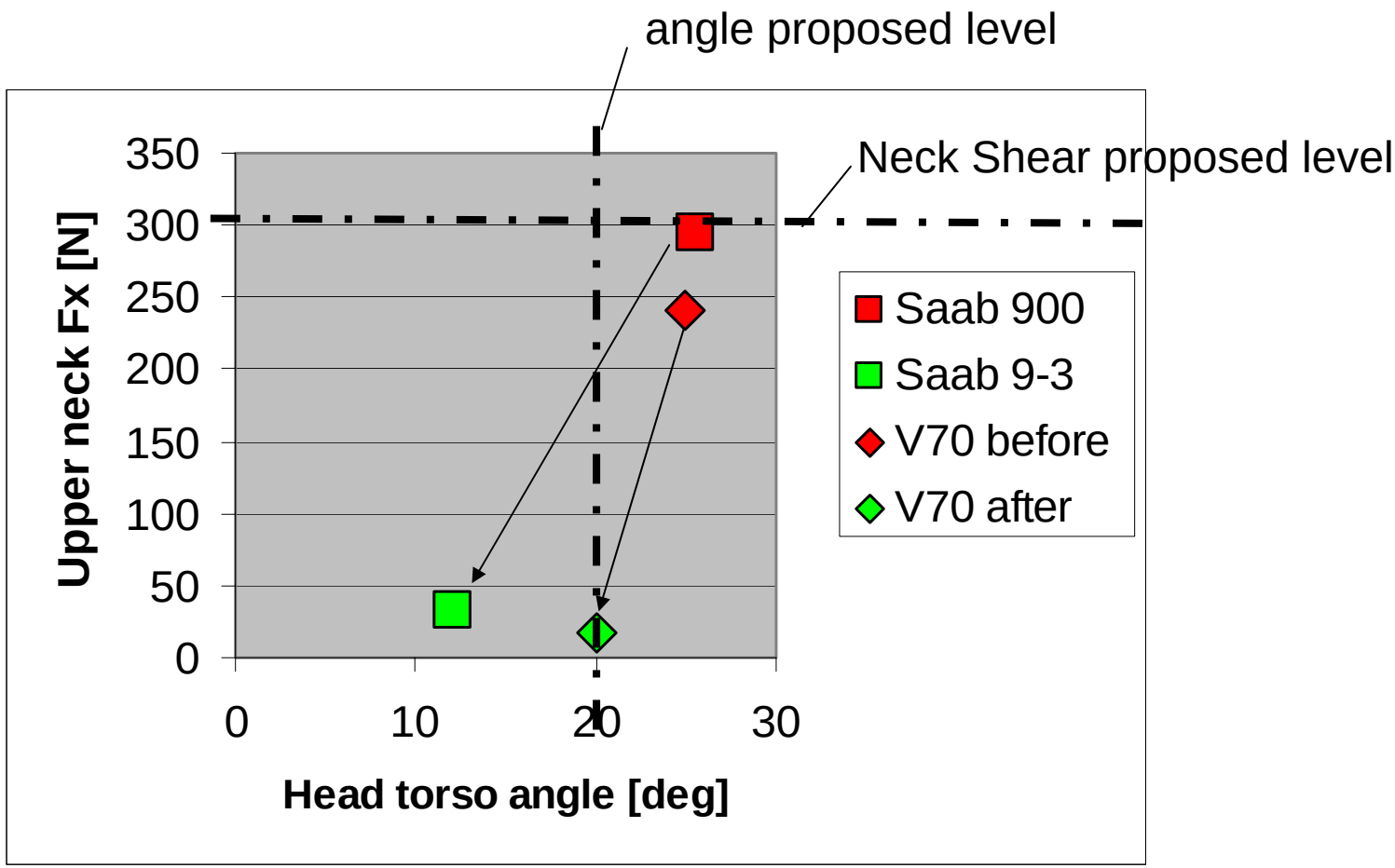
BioRID Fx values versus HIII head-torso angle

Latest test program done with 32 seats of the European market



94% of that latest test program seats covered

BioRID Fx values versus HIII head-torso angle



Proposal

As an alternative to the HIII and head-torso angle of [20°], we propose the BioRID and upper neck shear force (Fx) of [300N]

HIC Value still measured for both HIII and BIORID (limit at 500)