

27 November 2008

To: Tummy Shield

Re: Status of Testing of the Tummy Shield

The aim of this letter is to give a summary of the current status of the testing of the Tummy Shield.

The following tests have been completed by this company to examine various aspects of the performance of the Tummy Shield.

Test Series 1 – Static Strength of Prototype

The Tummy Shield hook was statically tested for strength to the requirements of Australian Design Rule ADR 5/04 – Anchorages for Seatbelts¹. The test load chosen for the hook was 22 kN to be equivalent to the anchorage strength requirement for the combined torso lap belt anchorage in forward facing seats – see Clause 5.7.4.

The Hook was able to support the 22 kN load with minimal deflection.

Test Series 2 – Material Properties of a Prototype Tummy Shield

The hardness of one sample prototype stainless steel hook was tested to confirm the correct grade of stainless steel was being used.

The hardness measurements indicated that hook was manufactured from the correct alloy with heat treatment as specified.

Test Series 3 – Dynamic Strength Test of a Prototype Tummy Shield

The Tummy Shield was tested in a dynamic sled test with a 50thtile Male Hybrid III dummy on a rigid test seat to the requirements of the Australian Design Rule ADR 4/03 – Seatbelts. The test were made at Crashlab² with a sled test pulse of a velocity change of 48 km/h and a peak acceleration of 31 g.

The Tummy Shield passed these tests with no breakages. Therefore a vehicle fitted with the Tummy Shield will continue to meet the requirements of the ADR 4/03.

Test Series 4 – Dynamic Test to Investigate the Biomechanical Responses of the Tummy Shield

The Tummy Shield was tested in a dynamic sled test with a calibrated 5th %tile Female Hybrid III in a typical production car seat and a standard lap sash with dual locking retractor seat belt system. The restraint system retained the belt geometry from the donor vehicle. The aim of these tests was to assess the effect of the Tummy Shield on the responses of the female dummy.

The tests were made at Crashlab with a 48 km/h 28 g sled pulse.

Please feel free to contact me should you have any questions.

Signed

NAME SUPPRESSED
FOR PRIVACY

BE MSc PhD CPEng | DIRECTOR

¹ Details of the Australian Design Rule requirements are available on <http://www.infrastructure.gov.au/roads/motor/design/index.aspx>

² Details regarding Crashlab, its capabilities and accreditation are available on the web at: www.rta.nsw.gov.au/roadsafety/crashlab/.