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Hazardous Airbag Deployment Modifier

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Hazardous Airbag Deployment Modifier

1. Introduction

Following concern about injuries to face and eyes caused by deploying airbags, Euro NCAP announced that a “Hazardous Airbag Deployment” modifier would be added to those addressing “Unstable Head Contact” and “Airbag Bottoming Out.”

Following this announcement, some manufacturers expressed concern that, on the basis of the definition given, many current and future airbags could attract the modifier, even though there was no evidence of them posing a hazard. This was illustrated by a number of films, where the inflated airbag surface could be seen to move vertically. In an attempt to improve airbag safety, there is a tendency for passenger airbags to be deployed upwards, out of the facia, so that they then rotate downwards towards the occupant’s chest. Currently, there is no evidence that this poses a hazard to the occupant. Although Euro NCAP wishes to avoid the recurrence of such hazards, it has no desire to inhibit the development of improved airbags.

Following discussions with car and airbag manufacturers, the following is a revised definition of when the modifier will be applied. This definition is subject to revision, if further information becomes available.

2. Proposed Hazardous Airbag Deployment Modifier Definition

2.1 Head Zone

The Head Zone is defined in order to cover occupants of various sizes, in a variety of seating positions. It describes an area rearward of a plane, perpendicular to the car’s “x” axis, positioned 150 mm forward of the face of the 50th percentile Hybrid III dummy, in the normal Euro NCAP frontal impact seating position.

2.2. Unfolding Characteristics

If within the Head Zone (as described in 2.1) the airbag unfolds in a manner in which a flap develops, which sweeps across the face of an occupant vertically or horizontally the -1 point modifier will be applied to the head score. An example of undesirable behaviour is illustrated below.



Example of an airbag flap unfolding within the Head Zone.

2.3. Airbag Deployment Velocity

If the airbag material deploys rearward, within the “head zone” at more than 90 m/s, the -1 point modifier will be applied to the head score.

3. Velocity Measurement

It is expected that it should be possible to obtain an approximate measurement of deployment velocity from the high speed films taken in the frontal crash test. In marginal cases, or where the view is obscured, it may be necessary for the manufacturer to provide information from a static deployment of the airbag.

Similarly, where the airbag contacts the head of the 50th percentile Hybrid III dummy, in the frontal impact test, such that a disturbance can be observed on the dummy instrumentation traces, it may be necessary for the manufacturer to provide information from a static deployment of the airbag.