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Validation of pedestrian impactor testing upon hybrid vehicle front end profile (Article)

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Abstract

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A large number of pedestrians are killed in traffic accidents each year and majority of these fatalities are caused by head injuries and leading to permanent damage. This paper presents the development of a hybrid vehicle front end profile and its validation against head and leg impactors. The vehicle model is represented by a simple vehicle hybrid front end profile consisting of multi body and finite element segments. Four piecewise vehicle parts validation is performed namely the windshield, cowl, hood and bumper. An adult headform obtained from TNO is used to impact the windshield, cowl and hood using the given conditions to study the head injury. Similarly, the hybrid vehicle profile is made to impact the TNO legform to assess the lower limb injuries. The injury criteria are represented in their various forms and the simulation results were compared with the experimental values. A good correlation was achieved. Copyright © 2014 Inderscience Enterprises Ltd.

Author keywords

Deformable hybrid model | Head angular acceleration | Head injury criteria | Headform impactor | HIC | Legform impactor

Indexed keywords

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