44 Steering control system –The protection of the driver against the steering mechanism in the event of impact

Refer to: R12 03-R3/C3

44.1 Effective Date and Scope:

44.1.1 As for the behaviour of the steering mechanism of motor vehicles of category M1 and vehicles of category N1, with a maximum permissible mass less than 1,500 kg, the new vehicle types from 2008/1/1 and all vehicle types from 2010/1/1, shall comply with this regulation.

44.1.2 The applicants applying for low volume safety approval or vehicle-by-vehicle may be exempt from regulation of “the protection of the driver against the steering mechanism in the event of impact” except child-only vehicle.

44.2 Steering control system –The protection of the driver against the steering mechanism in the event of impact shall according to suitable types and range of principle are as below：

44.2.1 The same vehicle category symbol.

44.2.2 The same axle set type.

44.2.3 The same brand and vehicle type series.

44.2.4 The chassis vehicle have had same axle set type.

44.2.5 The same chassis brand.

44.2.6 Chassis manufacturers announced that the same chassis vehicle type series.

44.3 Test methods

44.3.1 Dummy test (refer to Fig 1):

44.3.1.1 Chest impacting test: The body block shall strike the steering control at a speed of 24.1 km/h (+1.2/- 0 km/h). Any method of propulsion may be used, provided that when the body block strikes the steering control it is free from all connection with the propelling device. The body block shall strike this control after an approximately straight trajectory parallel to the longitudinal axis of the vehicle. If the steering control is fitted with a steering wheel airbag, specifications above are deemed to be met if

the vehicle equipped with such a steering system complies with the thorax injury criterion of “The protection of the occupants in the event of a frontal collision” specified in this “Standards”.

44.3.1.2 Head impacting test: The steering control is struck by an impactor (head form) released against this control at a relative speed of 24.1 km/h.

44.3.2 Frontal- impact test against a barrier:

The unladen vehicle, in running order, without a manikin, is collision-tested against a barrier. The speed on impact shall be between 48.3 km/h and 53.1 km. This specification is deemed to be met if the vehicle equipped with such a steering system complies with the specifications of “The protection of the occupants in the event of a frontal collision” specified in this “Standards”.

44.4 Specifications

44.4.1 Before the impact test prescribed in paragraphs 44.3.1.1 and 44.3.1.2 above no part of the steering control surface, directed towards the driver, which can be contacted by a sphere of 165 mm in diameter shall present any roughness or sharp edges with a radius of curvature of less than 2.5 mm.

In the case of a steering control equipped with an airbag, this shall be deemed satisfactory if no part, which can be contacted by a sphere of 165 mm in diameter, contains any dangerous sharp edges, likely to increase the risk of serious injury to the occupants.

44.4.1.1 A "sharp edge" is an edge of a rigid material having a radius of curvature of less than 2.5 mm except in the case of projections of less than 3.2 mm, measured from the panel according to the procedure described in annex 6 of ECE R21. In this case, the minimum radius of curvature shall not apply provided the height of the projection is not more than half its width and its edges are blunted.

44.4.2 Dummy test

44.4.2.1 Chest impacting test: The force applied to the body block by the steering control shall not exceed 11,110 N.

44.4.2.2 Head impacting test: The deceleration of the impactor shall not exceed 80 g cumulative for more than 3 milliseconds. The deceleration shall always be lower than 120 g.

44.4.3 Frontal- impact test against a barrier

44.4.3.1 The top of the steering column and its shaft shall not move backwards, horizontally and parallel to the longitudinal axis of the vehicle, by more than 12.7 cm and also not more than 12.7 cm vertically upwards, both dimensions considered in relation to a point of the vehicle not affected by the impact.

44.4.4 The steering control shall be designed, constructed and fitted in such a way that, after the impacting test is performed:

44.4.4.1 The part of the steering control surface directed towards the driver shall not present any sharp or rough edges likely to increase the danger or severity of injuries to the driver. Small surface cracks and fissures shall be disregarded.

44.4.4.2 The steering control shall be so designed, constructed and fitted as not to embody components or accessories, including the horn control and assembly accessories, capable of catching in the driver's clothing or jewellery in normal driving movements.

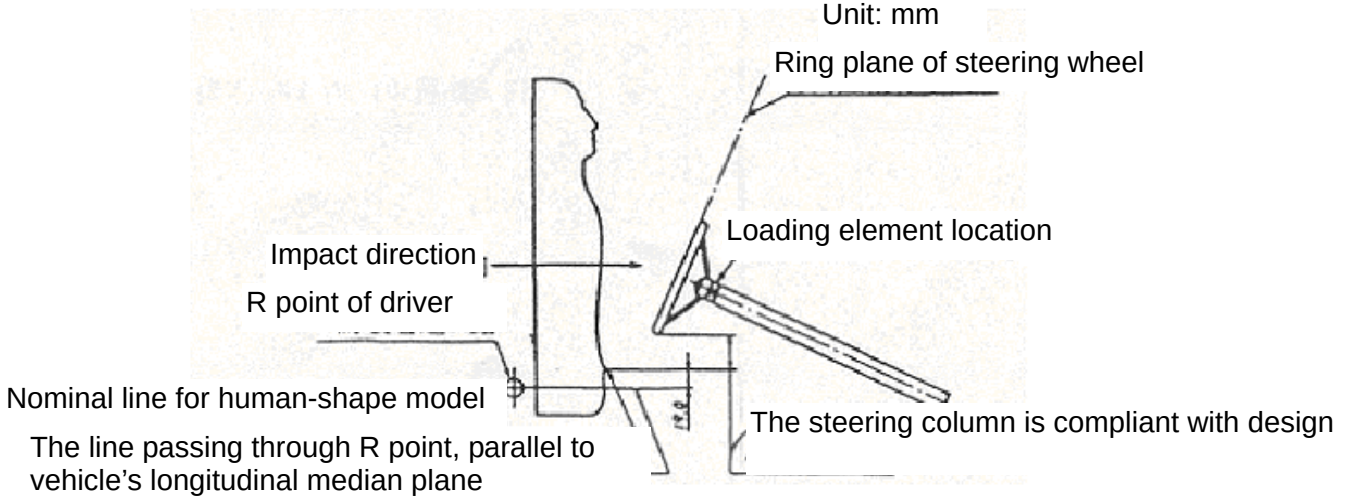


Fig 1. Dummy test-Location of which steering and dummy