

Vehicle Loading Condition for Direct Vision Assessment

OICA Proposal

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DRAFT

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Why Adapt Vehicle Test Conditions

Current Text:

6.2. Vehicle conditions

6.2.1. The subject vehicle shall be the worst-case vehicle of its type in respect of Direct Vision

6.2.2. The subject vehicle shall be assessed with the accelerator heel point positioned at a height from the ground that represents the mid-point between the height that the manufacturer calculates it would be at for an unladen chassis cab (without body) and that which the manufacturer calculates it would be at when the vehicle is loaded to its technically permissible design maximum.

Issues:

1. The “simplified assessment method” is using the front vision method from UN R-125. UN R-125 is based on vehicle in “running order” condition according to R.E. 3 para. 2.2.5.4.. With the currently proposed adjustment condition, using the “simplified method” would require two different vehicle conditions for side and front vision assessment.
2. The “mid” position between lightest “kerb” and “fully loaded” in order to represent the full ride-height range may be ambiguous:
 - a. Especially the “fully loaded” condition requires a detailed definition regarding the load distribution, because this has a significant influence on the front axle height.
Example: “fully loaded” is possible with max. axle load on rear axle(s), or on front axle. The latter would lead to low front structure height, the former might lead to high front structure height, but need not necessarily do so.
 - b. Within one vehicle type definition the extremes for highest and lowest ride height will be represented by different vehicle specifications having different tyre sizes and wheel-bases etc.. and establishing the “mid model” may be, at least physically, impossible, because this “mid” model is not an actual build combination.
Example: the highest front structure height might be achieved with a long wheelbase van version at kerb weight, the lowest with a double chassis cab short wheelbase at max. rear axle and GVM load condition.
 - c. Depending on the required load condition, the mass distribution due to the upper body design and other chassis settings, not only the heel point height but also the vehicle attitude/pitch will vary, which may have a supporting or opposing effect on the vision characteristics.
Example: In above example the first version may have a vehicle attitude 0.3deg rear down, the second 1.1deg rear down. But with respect to the attitude other versions, maybe a bus version, would anyway represent the extremes.

Proposed Text

Proposal:

- To avoid this complexity, using an already known and established vehicle condition may be desirable. This already known condition should be the “mass in running order” per R.E.3., which is very close to a light-weight condition and typically worse case with respect to the accelerator heel-point or h-point compared to the “mid”-position.
- Further, UN R-125 considers the effect of active suspension, which should be considered as well in this regulation.

New Text:

- 6.2.2. The subject vehicle shall be assessed with the accelerator heel point positioned at a height from the ground that ~~represents~~ is no lower than the mid-point between the height that the manufacturer calculates it would be at for an unladen chassis cab (without body) and that which the manufacturer calculates it would be at when the vehicle is loaded to its technically permissible design maximum.
- 6.2.2.1 At the choice of the manufacturer the vehicle shall be assessed with the mass in running order⁽¹⁾.
- 6.2.2.2 Vehicles fitted with suspension enabling their ground clearance to be adjusted shall be tested under the normal conditions of use specified by the vehicle manufacturer.

Add Footnote:

- (1) *As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, para. 2.2.5.4.*