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UK Comments re rear aerodynamic devices document from DG Move working group

General comments

The document confuses 'in-use' conditions with the technical requirements that are relevant for the type approval of these devices. It is essential that these requirements are separated into the appropriate legislation. The 'in-use' requirements (such as "the driver deploys the rear devices only where..." and "when the vehicle is parked...devices must be folded") must be set out in the 'operational conditions' legislation that is being developed by DG Move and the technical requirements (such as the maximum dimensions etc for these devices) should be set out in the type approval legislation.

The amending directive (2015/719) allows the fitment of aerodynamic devices to the rear of all vehicles that are set out at point 1.1 of Annex 1 to Directive 96/53/EC, including buses and articulated buses. The type approval legislation (Commission Regulation (EU) No 1230/2012) currently allows the fitment of aerodynamic devices up to 500mm in length to vehicles of categories M2, M3, N2, N3, O3 and O4 and it would therefore seem appropriate to allow these longer devices only to be fitted to those categories of vehicle.

"External projections"

The UK agrees that the relevant requirements of UNECE Regulation 61 should form the basis of the external projection requirements for rear aerodynamic devices. However, given that R61 only applies to parts of the vehicle that are forward of the cab rear panel, it would seem the relevant sections of R61 will need to be reproduced in any new legislation for these devices:

- The surfaces of the rear devices shall not exhibit, directed outwards, any part likely to catch on pedestrians, cyclists or motor cyclists.
- The parts of the rear devices shall not exhibit, directed outwards, any pointed or sharp parts or any projections of such shape, dimensions, direction or hardness as to be likely to increase the risk or seriousness of bodily injury to a person hit by the external surface or brushing against it in the event of a collision.
- Sheet metal edges are permitted provided that the edge is folded back towards the body so that it cannot be touched by a sphere of 100 mm diameter or is provided with a protective covering having a radius of curvature of not less than 2,5 mm.
- The provisions in bullet points 2 and 3 above shall not apply to parts that cannot be contacted by a sphere 100 mm in diameter, located higher than 2.00 m above the ground, or projecting parts having a hardness of not more than 60 Shore A.

The above requirements must apply to rear aerodynamic devices when they are in both closed and deployed conditions; given that when in use on roads they will be in one of these two conditions.

We also see no reason why these devices should not have handles or pushbuttons on the external surface but if they are fitted in such a position and are contactable, our view is that they must meet the requirements for handles or pushbuttons that are set out in section 6.6 of R61.

"Resistance of materials"

We agree that aerodynamic devices should be constructed from suitable materials but in our view it would be inappropriate to place an obligation on the manufacturer to 'guarantee' these devices for their entire life. Any new regulation must however, require such devices to be constructed from suitable materials that are both durable and able to withstand the forces likely to be imposed on them when the vehicles to which they are attached are being use on roads or being transported as part of a combined transport/intermodal operation.

"Fixation and behaviour on trailers and trucks"

The aerodynamic devices must be capable of being securely locked in both closed and deployed positions.

The document states that the presence of rear aerodynamic devices shall not be taken into account for the position of the rear underrun protection device according to UNECE R58. However, to ensure the protection afforded by the rear underrun device is not compromised (as required by article 8b of Directive 2015/719) it would seem that aerodynamic devices should either collapse when impacted by other vehicles *or* should be taken into account in the deployed position when giving consideration to the position of the rear underrun device.

For the approval of such devices that are designed to collapse on impact, the legislation must define suitable performance requirements and test protocols.

"Foldability / retractability"

In our view, there is no reason why these devices should not be deployed/retracted manually by the driver or by a switch in the cab. If deployed/retracted from the cab, we see no reason why such an operation should be prohibited whilst the vehicle is in motion or as an automatic action when the vehicle reaches a specific road speed. It would be sensible to have deployment only where the driver requests it, with retraction being automatic below a certain speed, or at driver command. Failure in the automatic mechanism should ideally be signalled to the driver, but this may be difficult to ensure given the device may be mounted on a semi-trailer which is separate to the tractor unit.

"Maximum width and height allowed for deployed rear devices"

Given that Directive 96/53/EC allows use of vehicles that exceed the maximum height set out at point 1.3 of Annex 1 for national transport operations, it is essential that these devices are permitted to extend to the upper edge of the vehicle. In view of this, any type approval legislation must allow these devices to extend no further than upper edge of the vehicle to which they are fitted.

In determining the lower edge of the device, we agree that this should be no lower than upper edge of the load platform. However, it would seem that the amending directive (2015/719) allows these devices to be fitted to a bus and therefore, if aerodynamic devices are to be fitted to these vehicles an alternative means of determining the height of lower edge of the device will need to be defined.

"Technical requirements imposed by the infrastructures"

We agree that the manoeuvrability requirements set out in Annex 1 point 1.5 of directive 96/53/EC should be met when the aerodynamic device is either folded or deployed, given that this is a requirement of Directive 2015/719.

Regulation 1230/2012 however, also includes a requirement for certain vehicles to comply with maximum rear swing out limits (in addition to being able to meet the manoeuvrability requirements of Annex 1 point 1.5 of directive 96/53/EC). In our view, there is no reason why

aerodynamic devices in both deployed and retracted condition should not be taken into consideration during such assessments.

For the fitment of such devices to semi-trailers, research for the DfT that was carried out before the GB trial of semi-trailers up to 15.65m long showed that it would be possible for trailers of such a length to meet the manoeuvrability requirements of the turning circle test without changes to the trailer axle positions. However, the tail swing would be greatly increased and this could potentially create a significant hazard for other road users during low speed manoeuvres.

We therefore suggest that when deployed, these devices should not increase the overall length of the vehicle by more than [2m]. Given the requirement for these devices to be folded, our understanding is that it is highly unlikely that any manufacturer would wish to produce devices of this length but we believe it is important to define an absolute limit. However, it must be made clear that the maximum permitted length for these devices is not in addition to any equipment that is not taken into account when determining the maximum overall vehicle length.

“Requirements on marking, signalling and lighting”

As a general requirement, our view is that the fitment of rear aerodynamic devices must not be detrimental to the conspicuity of large vehicles or confuse other road users.

In addition to this, at present R48 considers ‘parked’ and ‘in-use’ conditions (para 2.24). Given that there is currently only one use condition, our view is that there would need to be an explicit requirement in the regulation for vehicles equipped with aerodynamic devices to be assessed for marking, signalling and lighting requirements with devices in both deployed (one use) and retracted (an additional use) conditions.

Furthermore, given that R48 specifies the number of mandatory and optional lamps, consideration will need to be given to occasions when an obligatory lamp(s) might be obscured, perhaps by a retracted aero device, and allow additional lamp(s) to be fitted to ensure that mandatory lamps meet the required angles of visibility at all times.

“Other safety requirements in the case of an impact”

We agree that in the event of an impact the rear aerodynamic devices should not splinter or break into fragments that could increase the risk of injury. In addition to this, in our view any mechanical equipment that is used to deploy the aerodynamic device (manually or automatically), must not create a hazard in the event of an impact. For example, any hydraulic/air ram or similar component that deploys the aerodynamic device must not remain projecting from the vehicle during an impact and so increase the risk of injury to the occupants of any impacting vehicle.

“Certification of rear aerodynamic devices”

Our preference would be for these devices to be granted approval as a separate technical unit. It would seem to be difficult to approve such devices as a component for universal fitment as this would only be possible if it could be guaranteed that it would not interfere with lighting requirements for example.