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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****127th session**

Geneva, 15–19 April 2024

Item 4 (a) of the provisional agenda

**Awareness of the Proximity of Vulnerable Road Users:  
UN Regulation No. 46 (Devices for indirect vision)****Application of UN Regulation No. 46 for Vehicles of  
International Carriage of Dangerous Goods by Road****Submitted by the expert from Germany \***

The Working Party on the Transport of Dangerous Goods (WP.15) during its 114th session noted, on the basis of INF.18 from Germany, that problems could arise during the approval of vehicles intended for the carriage of explosive substances and articles (Class 1) for vehicles intended for the carriage of liquids having a flash-point of not more than 60°C. (EX/III and FL vehicles) fitted with a camera monitoring system which complied with the requirements of UN Regulation No. 46.

Paragraph 9.2.2.8.3. of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) stipulates that the electrical circuits must be broken within 10 seconds after operation of the battery master switch. This might conflict with paragraph 16.1.1. of UN Regulation No. 46 which requires that, after each engine switch-off (intended use), the camera-monitor system remains operational for a period of at least 120 seconds.

WP.15 invited Germany to draw the attention of the World Forum for Harmonization of Vehicle Regulations (WP.29) to that point and invited delegations to inform their counterparts in charge of vehicle construction provisions of those problems, on the basis of the information provided in informal document INF.18.

Subsequently, Germany asked GRSG to start a discussion on this issue. As Germany is leader of the GRSG task force UN-R 46, currently working on amendments to UN Regulation No. 46, Germany has already forwarded this request to the Task Force, to speed up the process.

INF.18 of the 114th session of the WP.15 is attached to this document in the annex.

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\* In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



## Annex

### Camera-Monitor Systems on EX/III and FL Vehicles (Vehicles With Battery Master Switches)

Transmitted by the Government of Germany

#### I. Introduction

1. In practice, problems frequently arise in the context of the testing and approval of EX/III and FL vehicles if these are equipped with a camera-monitor system.

For camera-monitor systems, the requirements of UN Regulation No. 46 must be complied with. Among other things, 16.1.1 of this Regulation requires that, after each engine switch-off (intended use), the camera-monitor system remain operational for a period of at least 120seconds.

Moreover, paragraph 16.1.2 on "Operating readiness (System availability) " in UN Regulation No. 46 states the following:

“Non-operation of the system shall be recognizable to the driver (e.g. CMS failure by, i.e. warning indication, display information, absence of status indicator). The information for the driver shall be explained in the operator's manual.”

2. 9.2.2.8.3 of ADR stipulates that the electrical circuits must be broken within 10 seconds after operation of the battery master switch. As a result, the following questions arise:

2.1 Is it acceptable in the context of the vehicle's approval in accordance with Part 9 of ADR that the camera-monitor system switches off only after 120 seconds and that this electrical circuit is only broken/switched off then?

2.2 Is it acceptable in the context of the application of UN Regulation No. 46 that the camera-monitor system is switched off after operation of the battery master switch and, as described in 16.1.2 of UN Regulation No. 46, the driver is made aware of the fact that the camera-monitor system is non-operational?

#### Assessment of question 2.1

3. Germany is of the opinion that such a camera-monitor design precludes approval in accordance with Part 9 of ADR. Maintaining an electrical circuit operational for 120 seconds is currently not in compliance with ADR, irrespective of whether the vehicle's electronic system would permit this. The time-limit of 10 seconds after operation of the switch is an argument against it being acceptable.

4. An approval would only be possible if the electrical circuit for the camera-monitor system were an individual circuit that meets the requirements for permanently energized circuits set out in 9.2.2.9. However, this would require considerable effort, and camera-monitor system components of the required design types are probably not yet available on the market.

5. Here, approval should not be handled differently in practice. For this reason, the Working Party is asked for a uniform interpretation on how camera-monitor systems should be dealt with in the context of approving vehicles in accordance with Part 9 of ADR.

#### Assessment of question 2.2

6. In accordance with 16.1.2 of UN Regulation No. 46, whenever the camera-monitor system is not operational, the driver must somehow be made aware of that. This means that the vehicle manufacturer has to develop a concept to ensure that information about the non-

operation of the system reliably reaches the driver. This concept is then examined by the technical services (Technischer Dienst) and the approval authority within the context of issuing an approval in accordance with the UN Regulation.

7. It would be conceivable to design the battery master switch in such a way that, within 10 seconds after the operation of the switch, a signal is given that makes the driver aware of the deactivation of the camera-monitor system. Such a design would then also make it possible to meet the requirements set out in 16.1.2 of UN Regulation No. 46. The question as to whether such a battery master switch design would actually be accepted in the context of the application of UN Regulation No. 46 would, however, have to be submitted to Working Party 29 for clarification.

8. If such an approach finds support, the question arises as to whether the signal information given when the battery master switch is operated should be harmonized so that changing drivers can always expect the same signal when the camera-monitor systems are switched off. This signal would then also be switched off when all electrical circuits are broken.

9. The Working Party is asked to discuss whether this approach to the design of the battery master switch is supported and whether the question regarding conformity with UN Regulation No. 46 should be submitted to Working Party 29.

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