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Working Party on the Transport of Dangerous Goods

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Proposals for amendments to annexes A and B of ADR: construction and approval of vehicles

Battery electric vehicles

Transmitted by International Organization of Motor Vehicle Manufacturers (OICA)

Introduction

1. OICA in principle supports the introduction of electric power train systems (BEV, Hybrids, Hydrogen) into the ADR agreement.
2. OICA presents hereafter recommendations to complete, improve and adjust the technical provisions for BEV presented in Annex I (Proposals for the introduction of Battery Electric Vehicles as category AT in paragraph 9.2 of ADR) and Annex II (Additional/modifying proposals to the amendments in Annex I for the introduction of Battery Electric Vehicles for the category FL) of working document ECE/TRANS/WP.15/2022/5, which proposed provisions to be implemented into the ADR Agreement.

Recommendations

3. In general, OICA recommends technology-neutral provisions since it opens the door to new, creative solutions and it avoids the regulations to freeze to a specific technology.
4. OICA suggests the following as guidelines for the future discussions to improve the technical provisions of Annex I, Proposals for the introduction of Battery Electric Vehicles as category AT in 9.2 of ADR of working document ECE/TRANS/WP.15/2022/5:
 - a) When referring to UN Regulation No. 100 it is important to demand the 03 series of amendments.
 - b) To avoid misunderstandings and secure the right technical requirements, it is recommended to align the terminology used in the ADR Agreement with the definitions from UN Regulation No. 100.

For example, item 3 of Annex I of working document ECE/TRANS/WP.15/2022/5 should refer to "Electric power train system" instead of "high voltage drive system".
 - c) Similar to the previous point b), the terminology of "brake system" should be aligned with that of UN Regulation No. 13 and be corrected to read "Vehicles equipped with an electric regenerative braking system" instead of "Battery Electric Vehicles".

d) OICA recommends deleting the text between square brackets in point 7 to remove the limitation of electric drive to tractors for semi-trailers since rigid trucks offer the same level of safety.

e) With regard to points 9, 10 and 11 of Annex I, OICA highlights that electric heaters are a proven technology already installed in the vehicles of today.

OICA has no knowledge of complaints, nor concerns, about the functioning of electric heating systems. The presence of electric heaters should not affect the introduction of BEVs in the ADR agreement.

OICA highlights that, with regard to the electrical functions, any high voltage heater should by default be under the scope of UN Regulation No. 100 when galvanically connected to the high voltage bus of the vehicle electric power train.

OICA proposes to maintain unchanged the paragraph on the Combustion heater.

f) Should WP.15 decide to introduce electric heaters in the ADR, then the text may clarify the type of electric heater - low vs. high voltage – if this applies.

Then, on the principle, as previously mentioned:

- the wording of both texts - ADR vs. UN Regulation No. 122 - should be aligned,
- the reference to UN Regulation No. 122 should be “static”, i.e. should mention the version of the regulation,
- the text should refer to UN Regulation No. 122 instead of the "drivers cab" (point 11 of Annex I) (please see scope in chapter 1 and definition in chapter 2 of the regulation).

OICA questions whether the restriction of point 11 Annex I "Programming devices shall be prohibited." is relevant, since high voltage electric heaters galvanically connected to the high voltage bus of the vehicle electric power train are under the scope of the UN Regulation No 100.

The chapter number of point 11 shall be corrected to read 9.2.4.8.5 instead of 9.2.4.8.1.

5. OICA suggests the following as guidelines for the future discussions to improve the technical provisions of Annex II, “Additional/modifying proposals to the amendments in Annex I for the introduction of Battery Electric Vehicles for the category FL” in document ECE/TRANS/WP.15/2022/5:

a) The recommendations provided for Annex I are still valid for Annex II of document ECE/TRANS/WP.15/2022/5.

b) OICA gives the opportunity to WP.15 to inspect BEV vehicles.

WP.15 can have a closer look on how batteries can be protected from mechanical impact.

WP.15 should secure having all information to review the technical demand "to place the battery in protective housings constructed as to offer protection against mechanical impact" in point 3. The demand "to place the battery in protective housings constructed as to offer protection against mechanical impact" is generic and lacks pass/fail criteria.

OICA recommends reviewing this demand.

c) On the proposal "Measures to be taken to protect the load in case of a battery fire.", OICA highlights the multiple possible interpretations.

OICA recommends referring to the UN Regulation No 100 as mitigation to secure one unique interpretation.

d) On point 3 of the proposed Annex II regarding electrified trailers, OICA highlights the debate currently taking place at WP.29/GRSG on the introduction of trailers equipped with electric propulsion system supporting the exploration of new technologies and green mobility. Please see the following working documents:

- ECE/TRANS/WP.29/GRSG/2022/17 - (CLCCR) Proposal for Amendments to Consolidated Resolution on the Construction of Vehicles (R.E.3) and
- ECE/TRANS/WP.29/GRSG/2022/18 - (CLCCR) Proposal for Amendments to the Special Resolution concerning the common definitions of vehicle categories, masses and dimensions

e) Still in point 3 of Annex II, OICA recommends reviewing the usage of and demand to the battery master switch.

The high voltage circuits' and components' de-energization could be implemented differently than as proposed.

Alternative technical solutions should be permitted to assure the technical neutrality and the technology evolution.

Alternatives should be investigated in the IWG-EV and its sub-group.

6. To complete the discussions on the introduction of electrified vehicles in the ADR as per Annex I and Annex II of the document ECE/TRANS/WP.15/2022/5:

a) Are there no other chapters than Chapter 9.2 to be updated?

For example, provisions of chapters 1.1.3.2, 9.7.8...

b) Conclusions of the risk analyses ongoing in the IWG-EV and its sub-groups may highlight technical safety related issues and so steer the review of the technical provisions proposed in the Annex I and Annex II of ECE/TRANS/WP.15/2022/5.

Hereafter, we highlight, as examples, some points in discussion:

- Should the high voltage charging inlet fulfil the requirements of the ISO 62196? Should be added to the ADR agreement or if it is out of scope of the ADR?
- Shall the pantograph configurations be included in the ADR?
- Should technical provisions be added to protect electric power train components and systems from, for example, container's leakage of corrosive load?
- Should the upgrade of diesel internal combustion engine (ICE) vehicles to BEV be considered in the ADR agreement? If yes, are the Annex IV's guideline for the determination of the first date of registration of road vehicles (or date of entry into service if registration is mandatory) for the carriage of dangerous goods in relation to the application of the requirements of Chapter 9.2 of the WP.15 110th session report ECE/TRANS/WP.15/255 applicable?

7. It is important to secure the highest safety level and so the proper technical provisions. Risk analyses are still ongoing in the IWG-EV and its sub-groups. So OICA recommends, if WP.15 votes the introduction of AT and/or FL in the agreement, introducing different, separate, appropriate and reasonable transitional provisions for AT BEV and FL BEV.