

Advanced axles in trailers

New technologies to reduce CO2 emissions for vehicle combinations

24th Oct 2022

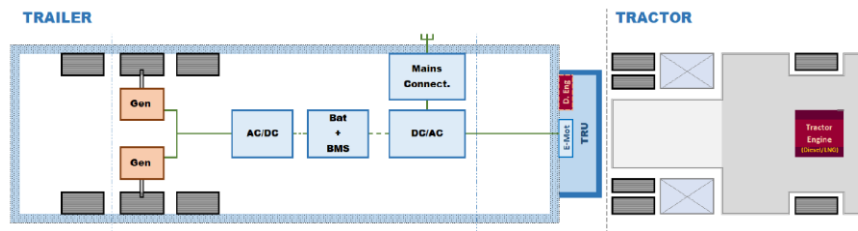


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Applications for potential CO2 savings based on driven axles

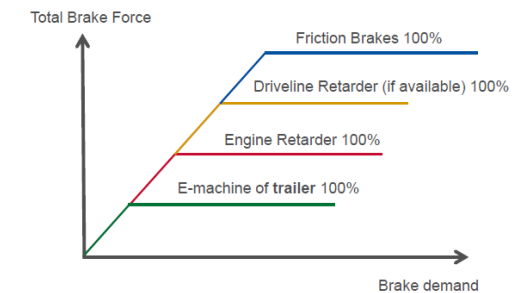
Different use cases for advanced axles in trailers:

- Support start/stop manoeuvres of tractor by driven axle(s) in trailers
- Acceleration and Recuperation during driving
- “Hybrid” propulsion concept for the vehicle combination
- Separate energy support for auxiliary units by an electric axle (e.g. electric cooling units, heating devices ...)

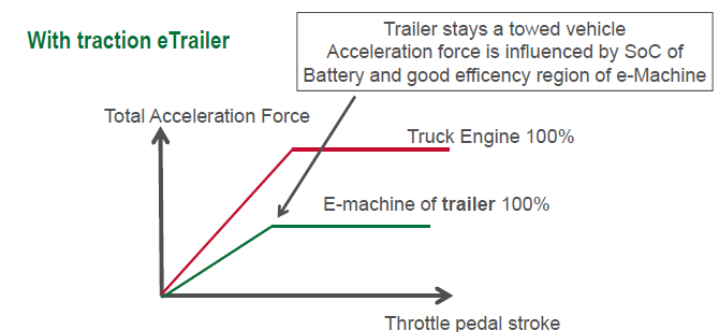


- Independent energy support for the trailer during standstill/parking
- “Vehicle to grid” applications

Recuperation



Acceleration



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What is done? – GRSG (1)



Start the discussion in UNECE GRSG regarding the definitions in **SR1** and **RE3**

Documents (April 2022)

[*ECE/TRANS/WP.29/GRSG/2022/17*](#) - (CLCCR) *Proposal for Amendments to Consolidated Resolution on the Construction of Vehicles (R.E.3)*

[*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*

Few comments by member states:

- Principle is supported especially the aim of CO2-reduction
- Proposal has to be amended by several other regulations → **Focus on the whole package**
- Re-wording of the text is needed, proposal leads to mis-understanding
- Proposal for SR.1 relates to 98-agreement → sponsor needed

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What is done? – GRSG (2)



CLEPA discussion in August 2022 with a proposal for a new wording for the document:

[ECE/TRANS/WP.29/GRSG/2022/17](#) - (CLCCR) *Proposal for Amendments to Consolidated Resolution on the Construction of Vehicles (R.E.3)*

"1.5. "Trailer" means any non-self propelled vehicle, which is designed and constructed to be towed by a power driven vehicle and includes semi-trailers. **However, the trailer may be propelled to support the motion without applying propelling forces when not being coupled to a towing vehicle.**"

"2.4.5.1. "Semi-trailer": A ~~towed~~ **towable** vehicle, in which the axle(s) is (are) positioned behind the centre of gravity of the vehicle (when uniformly loaded), and which is equipped with a connecting device permitting horizontal and vertical forces to be transmitted to ~~the~~ **a** towing vehicle. One or more of the axles may be driven **to support** ~~by~~ the towing vehicle, and **a contribution to the propelling forces of the vehicle combination is permitted at all speeds. To ensure the stability of the vehicle combination, the propelling forces of the semi-trailer shall not exceed those of the towing vehicle at speeds above [15 km/h].**

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What is done? – GRSP (1)



Start the discussion in UNECE GRSP regarding an amendment of **UN R100**

Document:

[GRSP-71-06](#) - (CLCCR) Proposal for Supplement 3 to the 03 Series of Amendments
UN Regulation No. 100 (Electric power-train vehicles)

Few comments by OICA and JAMA:

- Principle is supported but information of driver is not guaranteed (see para 5.2.3.) → missing interface between tractor and trailer
- Para 5.3.3.: use of wheel chokes is a requirement outside the type approval process → re-wording needed
- Para 6.5.: Absence of fire resistance test leads to discussions
- Proposed pulse for sled test (table 4) of cat O3/O4 is questionable

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What is done? – GRVA (1)



Start the discussion in UNECE GRVA regarding an amendment of **UN R13** in Sept. 2022

Document:

[GRVA-14-13](#) - (CLCCR) Proposal for a Supplement to the 11 series of amendments to UN Regulation No. 13

Comments by OICA and CLEPA:

- Further discussion needed → new requirements for towing vehicles?
- Interface between tractor/Trailer is to be defined (i.e. ISO 11992 latest version)
- Values in para 2.2.2.4 for regenerative braking systems which are out of scope are questionable → OICA wishes to reduce the values

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Next steps



UNECE GRSG – Oct. 2022

- CLCCR provided a new informal document regarding RE3 taking into account the proposal from CLEPA (re-wording)
- CLCCR asked for further steps for document regarding SR1 as long as no sponsor is defined

UNECE GRSP – Dec 2022

- Discussion with OICA needed, maybe a rewording in para 5.3.3. is to be proposed by CLCCR
- Be prepared for deeper discussions regarding the pulse and the warning strategy

UNECE GRVA - 2023

- Discussion with OICA needed
- Interface via ISO 11992 to be defined by CLCCR



CLCCR
International Association of the
Body and Trailer Building Industry

Founded in 1961, CLCCR is the International Association of the Body and trailer building industry. CLCCR advocates the various interests of trailer manufacturers, body builders and non-captive OEM Bus & Coach builders.

- It functions as an international forum, through which its members discuss issues of common interest and develop mutual positions,
- It offers a liaison between its members and the different international and European organizations,
- It represents approved CLCCR positions to different international and European organizations,
- It provides information services to its members and interested parties.