

Converter Dolly in Multi Vehicle Combinations

Background

This document is compiled in order to have a working document that outlines the properties of a converter dolly in the context of Multi Vehicle Combinations (MVC). A converter dolly (or dolly for short) is not defined in the UNECE Consolidated Resolution on the Construction of Vehicles (R.E.3). In the context of MVC a dolly is to be considered as a separate vehicle. Hence I needs to be defined.

Definitions

“Converter Dolly” or “Dolly” means a towed vehicle having a drawbar, one or more axles and a fifth wheel arranged to enable a semi-trailer to be towed by a rigid truck [a towing vehicle equipped with a clevis type coupling]. A dolly may have either a rigid or a hinged drawbar.

“composite trailer” means a combination of a converter dolly and a semi-trailer;

Couplings

The drawbar of a dolly shall have a drawbar eye that is type approved according to UNECE Regulation no. 55. If the dolly has rigid drawbar the clevis type coupling of the towing vehicle shall have appropriate performance to withstand vertical dynamic forces, i.e. V-value.

The performance requirements for the drawbar eye shall be calculated using the standard ISO18868.

The dolly shall have a fifth wheel that is type approved according to UNECE Regulation no. 55. The performance requirements for the fifth wheel shall be calculated using the standard ISO18868.

Brakes

- A dolly shall have EBS.
- Value of deceleration: 50 % is demanded
- Compatibility band for dollies: The band for centre-axle trailers shall be applied.
- EBS brakes should be mandatory for all new vehicles in modular combinations.
- The dolly does not make any changes to the braking signal when it transmits the signal from the towing vehicle to the semi-trailer.
- Transmission of failure information (PIN 5): A CAN-router is able to transmit the information that tells the vehicle that has sent the failure information. (How is this information handled in the towing vehicle?)
- Parking brake of a dolly: TBD
- A dolly shall have ESC?
- Emergency valve ?

More to be defined.

Lighting and retro reflecting markings

A dolly shall fulfil the requirements from UNECE Regulation 48 that applies to a trailer. The requirements for side position lights and conspicuity marking may be exempted.

Under run protection

A dolly is exempted from the requirements of the UNECE Regulation no. 58

Spray suppression

A dolly shall fulfil the requirements of European Regulation 109/2011/EU

Turntable [Ball race]

The fifth wheel shall be installed on a ball race with limited articulation angle $\pm 20^\circ$ around the ball race axle.

The turntable shall have a device enabling it to be locked in a neutral position to facilitate the coupling process.

Steered axles

When a dolly has more than one axle the rearmost axle may be steered at low speed.

As the speed of the dolly exceeds 30 kmph the steered axle shall be locked to a rolling direction parallel with the longitudinal axle of the dolly.