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5 August 2019

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Joint Coordinating Group of Experts
(Berne, 9 - 11 September 2019)

Agenda item 4: Review and report on the list of priority items agreed at the previous meeting

Danger of overriding of buffers in the railway sector – Special provisions TE 22 and TE 25

Transmitted by the International Union of Wagon Keepers (UIP)

Background to this informal document

1. The final report of the kick-off preparatory meeting of the OTIF Joint Coordination Group of Experts (JCGE), which took place in Berne from 6 to 8 February 2019, contains the following points:

RID 6.8.3.1.6

28. *It was recalled that the provision on fitting gas tank-wagons and battery-wagons with buffers with a minimum energy absorption capacity of 70 kJ from an earlier UIC leaflet was incorporated into RID after these requirements had not been taken into account in the TSI Wagons. However, this item was included in priority 1, as it could be regarded as a test case for further work. As this question was also related to the equipment of gas tank-wagons and battery-wagons with energy absorption elements, it was decided to deal with this item in conjunction with special provision TE 22, which had to be applied for toxic and flammable gases in addition to the provision of 6.8.3.1.6. The representative of UIP agreed to report on the current state of the art at the next JCGE session.*

RID 6.8.4, TE 22

31. *As explained in paragraph 28, this item should be dealt with together with 6.8.3.1.6 as priority 1. Special provision TU 38 of 4.3.5, which describes the measures to be taken after plastic deformation of energy absorption elements, should also be taken into account.*

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32. *Special provision TE 22 also contains information on the energy absorption of tank-wagons with automatic coupling devices. Paragraphs 40 to 42 of informal document INF.1, in which an increase of the energy absorption value from 130 kJ to 140 kJ is proposed, should be taken into account.*

RID 6.8.4, TE 25

33. *Special provision TE 25 contains provisions to protect against the overriding of buffers or to limit the damage caused by the overriding of buffers. As proposed by ERA, this item remained in priority 3. When dealing with this item, it would also be necessary to discuss how to proceed with tank-wagons that are not equipped with buffers.*

2. Pursuant to the aforementioned considerations, this informal document reports on the current state of the art with regard to RID special provisions TE 22 and TE 25 and proposes solutions to current issues relating to the danger of overriding of buffers and fitting tank-wagons with energy absorption elements.

History of devices to protect against the overriding of buffers in RID

3. Freight wagons, and hence tank-wagons, are generally equipped with buffers of category A with a buffer stroke of 105 mm according to EN 15551. These buffers have a minimum energy absorption capacity of 30 kJ per buffer (60 kJ per end of the wagon).
4. As early as the beginning of the 1980s, UIC leaflet 573 introduced buffers of category C with a minimum energy absorption capacity of at least 70 kJ (140 kJ per end of the wagon) for pressurised tank-wagons (Class 2).
5. As of 2005, to reduce the risks of overriding of buffers, energy absorption elements (TE 22) were introduced into RID and subsequently standardised as EN 15551-2009. This standard was also referred to subsequently in RID. These crash buffers are only required to be installed on new vehicles subject to TE 22 and have a minimum energy absorption capacity of at least 400 kJ per buffer (800 kJ per end of the wagon).
6. Existing wagons built before 1 January 2007 for less dangerous substances do not need to be retrofitted with such absorption elements, but existing wagons for toxic gases and other highly dangerous substances (calculation pressure > 10 bar) had to be retrofitted with crash buffers with a reduced minimum energy absorption capacity of at least 250 kJ per buffer (500 kJ per end).
7. It can be assumed that rail tank-wagons for gases built before 2007 and approved for the transport of flammable gases or products that require a calculation pressure up to 10 bar are nowadays still equipped with category C buffers or, as described above, standard buffers of category A. Due to the new transitional measures in RID 1.6.3.4, which have already been adopted, the majority of such older wagons for the transport of Class 2 products (gases) must no longer be used for this purpose after 31 December 2029.
8. In the context of harmonisation within SMGS, requirements for wagons with central coupling were introduced in 2015. Due to the fact that the Russian wagons concerned only have a minimum energy absorption capacity of 130 kJ, the rather political decision was made to reduce the minimum energy absorption capacity in TE 22 to only a minimum of 130 kJ for wagons with central coupling and to grant a transition period of up to 2020 for wagons with an even lower minimum energy absorption capacity.

Current topics

9. In the context of freedom of design offered by TSIs and UTPs and discussions on innovative developments in Europe (automatic central coupling), this topic was discussed at the meeting of the RID Committee of Experts' standing working group in November 2018. At that meeting, the lack of comparability (only 130 kJ per end of the wagon) was touched upon and identified as a topic for the coordination group.

10. A discussion on extra-large tank-containers was also started at that session of the standing working group. As in the RID discussion at that time, multimodal transport was deemed to be a lower risk (smaller volumes/protecting framework), it was decided to abstain from requirements for such transport in containers. Multimodal transport is also excluded in EN 15551, as such wagons do not fit into class F1 in accordance with EN 15663. There might have to be further discussion, as the new class of containers has grown to the same size as rail tank-wagons and will be used in single wagon transport (F1).
11. Also at the last meeting of the standing working group, Germany raised the question of requirements in RID and TSI and the inspection bodies' responsibilities for assessment in accordance with RID or the Notified Bodies' responsibilities for assessment in accordance with the TSI. This question is similar in the context of UTPs and the responsibility of non-EU assessing entities for assessment in accordance with UTPs.

Additional remarks

12. Based on previous UIC decisions in leaflet 573, a minimum distance of 300 mm between the headstock and the tank was taken over into RID 6.8.2.1.29 in order to provide some basic tank protection for dangerous good transport in rail tank-wagons. The protection of loads is not covered by the TSI or UTP for freight wagons, as a consequence there are no TSI/UTP requirements concerning the minimum distance between tank and headstock.
13. Irrespective of this basic protection and of fitting the wagon with energy absorption elements (TE 22), in 2007, additional requirements for protection against the overriding of buffers (e.g. headshields, sandwich covers or arresting devices) were incorporated into RID under TE 25. This protection against the overriding of buffers basically has the same protective objective as crash buffers, but was only introduced as an addition for toxic gases and a few other highly toxic substances for new-built wagons. There are currently no requirements to limit the consequences of a longitudinal impact in the TSI and UTP for freight wagons.

UIP suggestions

14. UIP suggests that the existing provisions, as referred to, should be rediscussed and the more than 10 years' experience in applying TE 22 and TE 25 should also be considered.
 15. New developments, e.g. extra-large tank-containers and central coupling, also need to be considered.
 16. This new discussion could lead to a process for deciding which general protection targets should remain in the RID Regulation on the Carriage of Dangerous Goods and which requirements should be transferred to TSI and UTP or referenced Standards, also bearing in mind the multimodal transport aspects.
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