

OTIF



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**Subject: Fitting RID tank wagons with a screw brake operable from the wagon gangway
– Final report**

Proposal transmitted by the International Union of Railways (UIC)

In line with the decisions taken by the RID Committee of Experts' standing working group (OTIF/RID/CE/2012-A, paragraph 15), UIC has continued work on examining the need for tank-wagons intended to carry dangerous goods to be fitted with handbrakes operable from the wagon gangway.

The final report of this study is attached as an appendix.

For reasons of cost, only a limited number of copies of this document have been made. Delegates are asked to bring their own copies of documents to meetings. OTIF only has a small number of copies available.



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

DANGEROUS GOODS POLICY COORDINATION GROUP

Paris, 3 September 2013

Carriage of dangerous goods

Fitting RID tank-wagons with a screw brake operable from the wagon gangway.

Final report

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This report responds to the issues raised at the meeting of the Standing Group of the RID Committee in November 2012 following UIC's presentation of an interim draft. It also takes account of developments in European legislation and some standards.

During work conducted by the "Tank and Vehicle Technology" Working Group (RID Committee), UIP raised the issue of whether screw brakes operated from the wagon gangway were to be maintained on future RID tank-wagons. UIP's question is to be seen against the backdrop of anticipated developments in the European legislation governing wagons (Wagons TSI). In this context, UIC has been asked to examine the issue with a view to the decisions potentially to be taken regarding UIC Leaflet 535-3.

The UIC Dangerous Goods Policy Coordination Group (GSMD) examined railway archives and conducted a survey amongst various technical committees and its own members to establish current usage of these brakes on dangerous goods wagons.

The main documents referred to are indicated in sections A (UIC Leaflet 535-3) and B (Other reference documents) hereafter. The results of the survey are given in section C, distinguishing between those usages of these brakes which result from regulatory stipulations and those resulting from voluntary decisions by companies. Section D offers a summarised state-of-play on this issue and the conclusions drawn by the study.

A – UIC LEAFLET 535-3

UIC Leaflet 535-3, *Equipping of wagons with devices for passing from one to the other and with screw brakes*, has been in force since 1976. It was adopted in 1975 at the UIC seminar (joint meeting of the "Movement" and "Rolling Stock & Traction" committees) held in Edinburgh in June 1975. This leaflet was created in view of the prospects for the application of auto-couplers on wagons and the need to modify wagon structures, strengthen wagon ends and thus also to redefine the various wagon fittings. However, some of the technical provisions laid down in this leaflet were already in use on existing wagons.

The "Automatic coupling" project was managed jointly by the UIC "Movement" and "Rolling Stock & Traction" committees, under the supervision of the UIC Management Committee. Work on the technical aspects was conducted with the support of the UIC Research and Testing Office (ORE). Various groups of experts took part in the work, including a joint sub-committee entitled "Standard wagons", and OSJD, which was another stakeholder. The latter intergovernmental body, headquartered in Warsaw, represented the railway administrations of Eastern Europe. At the time, railway administrations and manufacturers wished to standardise wagons across Europe.

Besides technical constraints affecting the design and construction of the various types of wagon, other aspects were also considered in producing the leaflet, particularly:

- operational safety (shunting of wagons and running of trains)
- staff safety
- cost (construction, maintenance, etc.),
- requirements of international transport (harmonisation, technical "interoperability")
- (etc.)

Moreover, UIC Leaflet 535-3 was drawn up to be consistent with Leaflet 535-1, *Standardisation of steps and handrails on wagons*, Leaflet 535-2, *Standardisation and positioning on wagons of steps, end platforms, gangways, handrails (...)*, Leaflet 543, *Brakes - Regulations governing the equipment of trailing stock*, and the UIC 573 series of leaflets on standard wagons accepted for international traffic.

I. Background – Explanations

The fitting of wagons with gangways/platforms and screw brakes was not a new issue. UIC Leaflet 543 was introduced in the late 1940s in order to make mandatory (depending on the type of wagon) for operational safety reasons, including the parking of wagons and trains, the following:

- screw brakes operable from the gangway/platform on wagons built or modified for the transport of loads to be handled with caution and on which no alternative existed,
- screw brakes operable from the ground on some other wagons.

The criteria for installation and technical features of the fittings were gradually defined by UIC depending on the type of wagon, though specific national features endured as a result of various “railway traditions” and national supply industries (manufacturers). Wagons intended for international transport nonetheless had to meet interoperability standards (though this term was not used at the time).

Difficulties fitting certain wagons and the requirements of automatic coupling prompted UIC to decide on a revision of the criteria laid down in UIC Leaflet 543 (screw brakes) and Leaflets 535-1/2 and 577 (gangways and steps) and to group them in a single Leaflet (535-3). To this end, UIC also drew on the “Privately-owned Wagons” Working Group, which was asked to define uniform rules for the application of these rules to P-wagons (private owners) registered by the railways. At the time, privately-owned wagons represented around 10% of the wagons in operation on the European rail network.

In 1974 the UIC “Movement” committee conducted a survey in order to identify the types of wagon requiring such fittings and to establish the percentage of wagons affected in line with three options:

- i) screw brake operable from the platform/gangway,
- ii) possibility of passing from one wagon to another,
- iii) screw brake operable from the ground.

The “Standard Wagons” committee stressed that the new regulatory provisions governing the screw brake and those governing the devices for passing from one wagon to another (gangway) needed to be independent from one another. Options ii) and iii) could coexist or not – a wagon with a gangway did not have to have a screw brake.

Concerning the use of platform/gangway-operated screw brakes, the 1974 survey recorded the following observations:

- in marshalling yards equipped with a beam rail brake or similar track brakes and which generally used scotches/drag shoes to slow or stop wagons:

Most of the railways used platform-operated screw brakes in sidings more or less frequently. Only SNCB and SNCF answered that they did not use them. Of the railways using platform-operated screw brakes, only NS thought it possible to avoid using them.

- in marshalling yards not equipped with beam rail brake or similar track brakes and which generally used scotches/drag shoes to slow or stop wagons:

All of the railways used platform-operated screw brakes more or less frequently, though NS and SNCF thought it possible to avoid using them if shunting times were increased slightly.

- in stations other than marshalling yards during marshalling and train formation operations effected by fly shunting or other techniques:

Most of the railways used platform-operated screw brakes. Only NS, SNCF and SJ answered that it was possible to avoid using them without increasing shunting times.

- in principal sidings, during shunting operations performed by the owner of the sidings:

The railways used platform-operated screw brakes. DSB had no cases of their application. Only NS, SJ and SNCF thought it possible to avoid using them.

In view of these responses, the 100 % rule was applied to RID tank-wagons (except in Great Britain) and the following questions from the questionnaire (in particular those asking whether it was possible to do away with platform-operated screw brakes), excluded the wagon types indicated in UIC Leaflet 543, section 2, points a1 and a2, which were in force at the time. These are wagons corresponding to the current Leaflet 535-3, section 1, points a1 and a2, in particular RID tank-wagons (see point A-III, "RID tank-wagons", later in this document).

We can note for the record that the survey also addressed the devices used to pass through trains and rakes of parked wagons by staff, particularly shunting staff or inspectors, but also train crew in the event of an incident. This is a general requirement, but does not mean that all wagons have to be fitted with gangways. The railways said in their responses that there needed to be some way of traversing the wagon on average every 100 m. However, the distances given varied considerably: 50 m (SBB, DR, DSB, NS), from 50 to 100 m (DB, ÖBB, CH, CSD, CFL, DR, DSB), 150 m (MAV and NSB) and 200 m (SNCB). An average train length of 650 m was taken as the starting-point.

II. General issue

The records of UIC work and the results of the survey show that the choice to fit wagons with platforms/gangways and screw brakes needed to take account of the technical options open for each type of wagon and of various operating rules, including rules on staff safety. Archive documents also show the importance of distinguishing between the installation of platforms/gangways on a wagon and that of a screw brake, but it is evident that a handbrake operated from the wagon presupposes that the wagon is equipped with a platform/gangway.

In terms of the technical restrictions arising from wagon design, the issues to be resolved vary depending on whether the wagon type in question is a flat wagon, covered or uncovered wagon, car-carrying wagon, hopper wagon (drop load), or a tank-wagon, etc. For instance, for hopper wagons fitted with platforms from which the unloading trapdoors are controlled, it would appear “natural” to install any screw brake’s controls on the platform. By contrast other wagons, such as flat wagons, do not lend themselves easily to the installation of gangways and fittings for wagon-operated handbrakes. This is why, where such brakes exist, they are ground-operated from both sides of the wagon.

In terms of the restrictions arising from operating rules, the archives show that these varied from one country to another, and often determined whether or not wagons would be fitted with platforms/gangways and screw brakes, in particular for wagons intended for international traffic.

The speed limit for shunting operations varied between 25 km/h to 40 km/h depending on the country and on the railway site. Generally speaking, European practice is that wagons should buff at speeds below 6 km/h (not to be confused with the speed at which wagon strength tests are conducted). Complying with the 6 km/h speed limit for buffing protects against damage to fragile or sensitive loads. This goal can be achieved more or less easily, depending on:

- the features of fixed installations (line gradient, in particular that of the hump used for gravity-hump shunting, presence/absence of manual/automatic track brakes, etc.),
- the type of operations performed (fly shunting, accompanied shunting, hump-shunting of wagons or groups of wagons, etc.).

Depending on the situations encountered, risk prevention was managed under a national framework by the various railway administrations, though with decentralised implementation taking into account specific local features and the types of wagons handled. These rules have evolved over time, and have often been simplified as operating practices have developed, but they have also been retained on some production sites, particularly where the transport of dangerous goods or fragile or sensitive loads are involved.

III. RID tank-wagons

At the time, most tank-wagons were already privately-owned, with the exception of a relatively small number of wagons belonging to railway companies which they used for their own transport needs, essentially to carry fuel to service stations for diesel locomotives and multiple units.

The tank-wagons in question here, i.e. wagons compliant with the terms of UIC Leaflets 543 and 535-3, are wagons:

- built specifically for the transport of loads to be handled with caution as follows: compressed or liquefied gases; materials which give off inflammable gases when in contact with water causing combustion; acids; corrosive or combustible liquids; loads igniting spontaneously, catching fire or exploding easily,
- whose special fittings for accommodating the load must be treated with caution, i.e. jar or cask wagons; tanks of aluminium; tanks lined with ebonite or enamel.

Remarks: some of the terms used in the UIC leaflet are nowadays rarely used. During the 1960s, the RID regulation, which was then an annex to the CIM (contract of international carriage of goods by rail), and the RIV (“Regolamento Internazionale Veicoli” or international regulation for the use of wagons), still used the French generic term “wagon-réservoir” (German: “Behälterwagen”).

This term covered tank-wagons (French: “wagon-citernes” / German: “Kesselwagen”), cask wagons (“wagons-foudres”/“Fasswagen”), wagons with removable tanks (“wagons à citernes amovibles”/“Wagen mit abnehmbaren Tanks”), jar wagons (“wagons-jarres”/“Topfwagen”), and battery-wagons (“wagons-batterie”/“Batteriewagen”). For linguistic reasons, in particular the translation into German, OTIF and UIC later agreed to use, in French, the word “réservoir” only in the generic term “wagon réservoir”, and to use the word “tank” (French: “citerne”) for the derived forms.

The obligation to handle loads with caution naturally involves complying with the maximum buffing speed of 6 km/h. To reduce the risk of overly-violent buffing, during the operation of wagons, scotches/drag shoes may be used to slow or stop wagons. Equally, some shunting techniques (such as gravity-hump shunting or fly shunting) may be prohibited. Any such decisions must be taken with logical regard for production constraints and for the safety level provided by the installations and other equipment used. If wagons are automatically braked with track brakes, for example, it is easier to control the speed of wagons for shunting and buffing purposes. However, it is also possible to use the handbrakes which have been a feature of wagon platforms for many decades now. The 1974 survey indicates a “broad consensus” (i.e. no opposition) amongst the railways in favour of fitting 100 % of RID tank-wagons with a screw brake operated from the platform/gangway (except in Great Britain). This consensus was shared with the supply industry and with wagon owners.

This 100 % rule, laid down in UIC Leaflet 535-3, facilitated international transport and, paradoxically, enabled the application of specific national or local operating rules without creating operating constraints where such rules did not exist. Indeed, had the 100 % rule not been approved, a consist containing wagons not fitted with handbrakes would have to have been notified in advance to any production sites at which certain shunting operations were prohibited on RID tank-wagons not fitted with platform-operated screw brakes. The resultant restrictions are easily imaginable, including for the wagons’ home country which was not subject to such rules. IT and train consist data transmission systems would have required modification. For international traffic this would have affected all railway administrations, including those which did not apply shunting restrictions to tank-wagons not fitted with platform-operated handbrakes. Domestic traffic would also have been affected by this issue in countries which did apply restrictions for wagons not fitted with platform-operated screw brakes.

B. OTHER REFERENCE DOCUMENTS

This list is not comprehensive. It includes those texts delimiting the subject of this report. Other than the draft of the new Wagons TSI, it takes no account of other drafts currently being worked on, specifically at European level.

I. UIC documentation

UIC has a particular wealth of documentation and few of its documents restrict their scope to platform-operated screw brakes only. This is not surprising since any single system interacts with others, and an overall logic must be preserved taking account of various aspects (loading gauge, technical compatibility, staff safety, etc.). The issue

of gangways, for example, is interdependent with that of steps, but also depends on the need to pass through the wagons in a stopped train. Multiple aspects are considered in the definition of the wagon.

This survey of existing documentation does not go into detail. The UIC archives exist mostly in French and German. English was not at that time an official working language at UIC.

a. UIC leaflets

These leaflets deal directly with the issue of platform-operated screw brakes. Other interdependent leaflets could have been mentioned, but they are of little significance to this paper. The date in brackets is the date of the most recent version of the leaflet.

i. UIC 535-1 (1986)

Standardisation of steps and handrails on wagons (wagons not fitted with auto-couplers). This leaflet follows on from the former UIC Leaflet 535 which was developed in the early 1950s.

ii. UIC 535-2 (2005)

Standardisation and positioning on wagons of steps, end platforms, gangways, handrails, tow hooks, automatic coupler (AC), automatic draw-on coupling and brake valve controls at UIC member RUs and OSJD member RUs. This leaflet was first created in 1973. The current version dates from 2005.

iii. UIC 535-3 (1995)

Equipping of wagons with devices for passing from one to the other and with screw brakes. This leaflet was first created in 1975. It was revised in 1995 with regard to the percentage of screw brakes required for flat wagons used in combined transport.

iv. UIC 543 (2007)

Brakes - Regulations governing the equipment of trailing stock. This leaflet originated in 1948 and is now in its 13th edition. In 2007, it was amended to take account of the RID rules on spark arrestor plates on wagons carrying class 1 dangerous goods.

v. UIC 573 (2007)

Mentioned for the record, this leaflet on the *Technical conditions for the construction of tank-wagons* is referenced in the RID under points 4.3.3.3.2, 6.8.2.2.1 and 6.8.4. It refers to UIC Leaflet 535-3, point 1.1.3, stating that tank-wagons are to be fitted with screw brakes in line with the requirements of said leaflet. The leaflet deals with tanks and service equipment, as well as with the fitting of wagons with anti-crash components.

Most of the provisions of UIC Leaflet 573 are now part of the European standards EN 15877-1:2012, EN 12663-2:2010, and EN 15551:2009

b. Other UIC documents

These are often technical documents issued by specialist committees, but also documents whose scope of application is much broader.

- i. Minutes of the “Rolling Stock and Traction” Committee, Edinburgh, 10-13 June 1975. Adoption of UIC Leaflet 535-3.
- ii. Minutes of the joint meetings of the “Movement” and “Rolling Stock and Traction” Committees, 1965 - 1975.
- iii. Records of the work of the “Standard Wagons Joint Sub-Committee,” 1970 - 1975.
- iv. Minutes of the meeting of the “Regulations and signalling” Sub-Committee, Paris, 1974. Survey to determine the percentage of wagons to be fitted with a screw brake and/or platform/gangway.

II. COTIF 1999 – GCU

The COTIF and its technical appendices do not deal with this subject.

The RID makes indirect reference to UIC Leaflet 535-3 via UIC Leaflet 573, which it cites in points 4.3.3.3.2, 6.8.2.2.1 and 6.8.4. However, this reference concerns the construction of tanks and service equipment.

In the General Contract for the Use of wagons (GCU), handbrakes and gangways are covered by the technical transfer inspection performed on wagons. The GCU is a multilateral contract based on the COTIF international convention, more particularly its appendix CUV which states the mutual rights and obligations of wagon keepers and railway undertakings (RUs) when using wagons as a means of transport in Europe and beyond.

Appendix 9 to the GCU describes the conditions for this inspection. It offers a catalogue of the anomalies (Annex 1) likely to be observed. The anomalies concerning the handbrake are listed under point 3.5.1 and those regarding gangways and other fittings of the same type under 6.1.7. Label R1 (Annex 11), which is intended to identify wagons on which the handbrake is inoperable, applies to all such scenarios, whether the handbrake is platform-operated or not.

The GCU speaks of handbrakes but not of parking brakes.

III. European legislation

EU law is constantly changing. The documents of direct relevance to the subject of this paper deal with the technical specifications for interoperability relating to *wagons* and *operations*. It would seem that the *European register of authorised rail vehicle types* also concerns this subject, since it records the features of wagons.

- a. Commission Regulation (EU) 321/2013 of 13 March 2013 concerning the technical specification for interoperability relating to the subsystem “rolling stock - freight wagons” of the rail system in the European Union and repealing Decision 2006/861/EC.

This text deals with “parking brakes” and not “screw brakes”. In Appendix C to this Regulation, “Additional optional conditions”, point 10 governs the location of parking brake handles and stipulates that if the unit is equipped with a parking brake the location of its operating handle or wheel shall be:

- on both sides of the unit if it is operated from the ground, or
- on a platform that can be accessed from both sides of the unit

Operation from the ground shall be done by wheel.

In terms of the efficiency and performance of the parking brake, the Regulation refers to the standards EN 14531-6:2009 (point 6) and EN 15877-1:2012.

Regulation 2013/321/EU no longer uses the criteria of UIC Leaflet 535-3 as regards the types and percentages of wagons to be fitted. It provides for the use of parking brakes under point 4.2.4.3.2.2 and offers the option of operating them from the wagon or from the ground, without specifying either solution as mandatory. It no longer deals with the specific case of RID tank-wagons, referring to the regulations governing the carriage of dangerous goods.

“4.2.4.3.2.2 Parking brake

A parking brake is a brake used to prevent parked rolling stock moving under the specified conditions taking into account the place, wind, gradient and rolling stock loading state, until intentionally released.

If the unit is equipped with a parking brake, the following requirements shall be met:

- *the immobilisation shall remain until intentionally released,*
- *where it is not possible to identify the state of the parking brake directly, an indicator showing the state shall be provided on both sides on the outside of the vehicle,*
- *the minimum parking brake performance, considering no wind, shall be determined by calculations as defined in the standard clause 6 of EN 14531-6:2009,*
- *the minimum performance of the parking brake shall be marked on the unit. The marking shall comply with clause 4.5.25 of prEN 15877-1:20xx. The parking brake of a unit shall be designed considering a wheel/rail (steel/steel) adhesion factor not higher than 0.12.”*

- b. European register of authorised rail vehicle types (2011/665/EU of 4/10/2011 – Commission Implementing Decision).

The register provides various parameters for RID tank-wagons in section 4, “Technical features of vehicles”:

- Under 4.1.9, a parameter is provided specifying the dangerous goods for which the wagon is suitable (tank code).
- Under 4.7.3.1, a “Yes/No” parameter is provided stating whether a parking brake is mandatory for all wagons of this type.

- Under 4.7.3.2, a parameter is provided specifying the type of parking brake (if the vehicle has one). This parameter is in principle to be completed from a pre-defined list which does not yet exist. It is thus not possible to check whether the platform/gangway-operated screw brake (type of handbrake) is provided for.
- Under 4.7.3.3, a parameter is provided specifying the maximum gradient on which the vehicle can be held by the parking brake alone (if it has one).

For the record, we may also mention parameter 4.8.3 (“Yes/No” format) of the register, which relates to shunting restrictions.

c. “Operation and traffic management” TSI 2012/757/EU

The Operations TSI focuses on trains. It specifies nothing with regard to the use of parking brakes or handbrakes. It does not mention the use of these brakes to brake moving wagons or groups of wagons during shunting. We may note, however, that this Commission Decision does not prohibit such a use, though it contains almost no provisions on shunting.

d. TAF TSI – (2006/62/EC and Amendment 2012/328/EU - Technical specification for interoperability relating to telematics applications for freight).

The ways in which this TSI is likely to relate to the subject of this report concern wagon fittings and possible shunting “restrictions”.

IV. European/international standards

As well as the two European standards (EN 14531-6:2009 and EN 15877-1:2012) mentioned in the Wagons TSI (2012/321/EU), we should list EN 14478:2005 (on the generic vocabulary used in railway braking) and the CEN/TC 296 standards on the design of wagon tanks, in particular EN 12561 “Railway applications – tank-wagons”, comprising eight parts.

- i. EN 14478:2005. *Railway applications. Braking. Generic vocabulary*. See in particular points 4.2.4.2 (braking to immobilise and park a vehicle), 4.9.10 (parking brake), and 4.9.10.1.1 (handbrake). UIC Leaflet 543 is cited in the bibliography of this standard. The vocabulary used in these standards is that used in the Wagons TSI. There is no mention of “screw brakes”.
- ii. EN 14531-1:2005. *Railway applications - Methods for calculation of stopping distances, slowing distances and immobilisation braking - Part 1: General algorithms*. UIC Leaflet 543 is cited in the bibliography of this standard.
- iii. EN 14531-2. “Single vehicles”. This standard is under preparation.
- iv. EN 14531-6:2009. *Railway applications - Methods for calculation of stopping and slowing distances and immobilisation braking - Part 6: Step by step calculations for train sets or single vehicles*. UIC Leaflet 543 is cited in the bibliography of this standard. The parking brake used to immobilise vehicles may be of various types (discs, blocks, etc.). The concept of handbrake used is as a way of controlling the parking brake.

- v. EN 12663-2:2010. *Railway applications - Structural requirements of railway vehicle bodies - Part 2: Freight wagons*. Platforms, gangways and handbrake controls are not considered as structural elements of freight wagons but as fittings. Point 6.3 of this standard recapitulates the final sentence in Appendix F of UIC Leaflet 573.
- vi. EN 15551-A1:2011. - *Railway applications – Railway rolling stock- Buffers*. Large parts of UIC Leaflet 573, Appendix F (crash buffers) are repeated in this standard in section 7 and Appendices L and M. The amendment (Appendix ZA) is intended to align the standard with the Wagons TSI (2006/861/EC). However, this TSI was repealed by Regulation 2013/321/EU, which no longer contains the intended provisions.
- vii. EN 15877-1:2012. *Railway applications – Part 1: Freight wagons*.

The CEN/TC 296 standards (both those in force and those at draft stage) deal with tanks and their service equipment. They do not handle handbrakes/screw brakes.

Concerning the design of platforms and gangways and their presence on RID tank-wagons, which are not the main subject of this paper, it is nonetheless necessary to indicate that there also exists the EN 12561 standard, specifically part 7 “Railway applications - Tank-wagons - Part 1: “Identification plates for tank-wagons for the carriage of dangerous goods”. Article 6.3 of this standard specifies that the position of the identification plate must be easily accessible for inspections and punching. It is conceivable that this provision was included with regard to gangways; the same may apply to other tank components.

Conclusion: the issue of “platform-operated screw brakes” (or handbrakes) is not dealt with by the standards currently in force.

C. 2012 SURVEY

The survey concerns RID tank-wagons only.

The UIC survey is less broad and less detailed than that conducted in 1974. Five questions were asked:

I. Questionnaire and results

In operating **tank-wagons intended for the carriage of dangerous goods**, it is necessary

- Q1: to impose specific requirements for the configuration of the screw brake (i.e.) different from those applicable to all other wagons)? If YES, why?
- Q2: to operate the screw brake from the traversing gangway, unlike on all other wagons? If YES, why?
- Q3: to require that all tank-wagons (100%) have this screw brake configuration, unlike all other wagons? If YES, why?
- Q4: to require a traversing gangway, unlike on all other wagons? If YES, why?
- Q5: to require for some shunting operations that a member of railway staff be aboard the wagon to operate the screw brake? If YES, why?

Remarks:

The wording of these questions may imply that the provisions of UIC Leaflet 535-3 are ineffective. This is not UIC's a priori opinion. The goal was rather to encourage responders to the survey to describe the current, rather ill-understood situation at their railways, and to explain their reasons why the provisions of UIC Leaflet 535-3 should be maintained or amended.

The results of the survey can be found in the table hereafter.

Key:

A cross (x) in column 1 confirms that the recipient of the questionnaire responded to the survey.

A lower-case letter (a, b, c, etc.) in brackets in the "Comments" column refers to point C-II and the details of the rules currently applied given in that point.

A number (1, 2, 3, etc.) in brackets in the "Comments" column refers to point C-II and the details of the railways' own initiatives given in that point.

Companies contacted	Response received?	Positive responses to questions					
		Q1	Q2	Q3	Q4	Q5	Comments

BLS Cargo (CH)							(a)
Bdz (BG)							
Captrain Italia							
CargoNet (NO)							
CDcargo CZ)	X				?		
CFF/SBB (CH)	X	X	X	X	X	X	(a) (1)
CFLcargo (LU)	X						
Crossrail Italia (IT)							
DBSR (DE)	X						(a)
DBSR (NL)	X						
DBSR (PL)	X	X	X	X	X	X	(2)
DBSR (DK)							
DBSR (GB)	X						(b) (c)
Ferrottramviara (IT)							
Fret-SNCF (FR)	X				?		
Fret-SNCF (BE)	X				?		
Great Britain Rail (*)	X						(b) (c)
Greencargo (SE)	X				?		
HZ Cargo d.o.o. (HR)							
MEG (DE)							(a)
NordCargo (IT)	X	X	X	X	X	X	(c) (3)
ÖBB-RCA (A)	X				?		
PKP Cargo (PL)	X						
RailCargo-Hungaria (HU)	X				?		
Rail traction Co (IT)							
Railtraction (IT)							
RBH Logistics (DE)							(a)
Renfe Operadora (SP)	X				?		

ROeEE AG (A)							
Slo-zeleznice (SI)							
SNCB-Logistics (BE)	X				X		(6)
Trenitalia (IT)	X	X	X	X	X	X	(c) (4)
VC Italia (IT)							
ZSSK Cargo (SK)	X	X			?	X	(c) (5)

(*) joint response from ESG and the GB rail dangerous goods group.

II. Rules currently in force

The rules are of various types, and may comprise:

- National rules laid down by public authorities, particularly national safety authorities. This includes the rules laid down by infrastructure managers, which affect all RUs operating on the network concerned,
- Other specific cases or provisions,
- Rules enacted voluntarily by RUs.

a. National rules on the use of platform-operated handbrakes (screw brakes).

As concerns immobilisation for parking purposes, the survey shows that the national competent authorities (particularly national safety authorities) generally authorise the use of handbrakes and sometimes specifically screw brakes which are operable from the ground or from the platform. This implementation is voluntary, and reference documents often refer to UIC Leaflet 543. They also specify alternatives, for example the use of anti-slip scotches. The measures to be taken are determined on a case-by-case basis in local instructions which take account of the particularities of production sites or sidings.

As concerns the use of these brakes during some shunting operations, there are specific national rules in a number of countries:

- i) On the network it operates in Germany, DB Netz AG requires the use of:
 - a platform-operated handbrake for gravity-hump shunting and fly shunting of RID gas wagons (identified by an orange stripe),
 - two scotches/drag shoes to stop/slow the wagon or a handbrake for gravity-hump shunting and fly shunting of wagons with labels 6.1 (toxic) or 8 (corrosive),
 - two scotches/drag shoes to stop/slow the wagon or a handbrake (if present), to protect the two aforementioned types of tank-wagon against any violent buffing impacts from other vehicles.
- ii) in Switzerland, Ministerial Regulation R.300.4 on “shunting movements” imposes the use of scotches/drag shoes or a platform-operated handbrake in some cases. For dangerous goods, the regulation stipulates the use of the following for loaded or empty gas tank-wagons (lengthways orange stripe on tank):
 - a platform-operated handbrake for gravity-hump shunting operations, known as “laisser-couler” (“let run”) shunting,
 - a platform-operated handbrake for fly shunting,

- two scotches/drag shoes to stop/slow the wagon or a handbrake (if present), to protect the two aforementioned types of tank-wagon against any violent buffing impacts from other vehicles.

Note:

- 1) National rules governing the use of platform-operated handbrakes/screw brakes for certain shunting operations are implemented via local instructions adapted to local production conditions. This means that these national rules are not applied in a systematic and uniform way. Depending on circumstance, the modernisation of equipment and installations enables railways to avoid using these brakes (and the need for a worker to operate them). On some railway sites, the prohibition of fly shunting also reduces the use of such brakes.
- 2) For countries not quoted in a), the survey did not identify any mandatory use of platform-operated handbrakes in shunting. This situation can be explained by the fact that fly shunting is not practised or is prohibited, the existence of installations and equipment for gravity-hump shunting (gradient of the hump, automated rail brakes, etc). These all help control buffing speeds.

b. Other cases – Specific provisions

As indicated above, in Great Britain (GB) screw brakes operable from the wagon gangway are not used. The requirement for wagons is to have handbrakes on both sides that are operated from the ground. There are no special or additional requirements for wagons. Wagons are not fitted with a gangway.

c. Railway-initiated arrangements

The survey did not identify any cases where a railway company introduced internal rules governing the use of platform-operated handbrakes for shunting in the absence of rules prescribed by the public authorities or infrastructure manager.

Several companies consider, however, that these brakes are useful as regards staff safety and to stop or immobilise tank-wagons in the event of an incident. None indicates, however, that there are national or internal company rules to this effect.

In Great Britain, rules prohibit staff from using gangways or gangway-operated handbrakes for safety reasons, such as may exist on international tank-wagons (or wagons). But the context is different since other wagons in domestic traffic do not have such brakes.

III. Analysis of individual responses to each question.

This analysis refers back to the numbers in brackets given in the table previously.

Question 1 (Q1):

1. SBB say that the shunting of RID tank-wagons of class 2 is governed by ministerial regulations in Switzerland. They consider these rules necessary.
2. DBSR-PL considers that these brakes are justified for staff safety reasons during certain operations (see Q2, Q3 hereafter).

3. Nordcargo S.r.l considers that these brakes are justified for staff safety reasons during certain operations (see Q2, Q3 hereafter).
4. Trenitalia considers that these brakes are justified for staff safety reasons during certain operations (see Q2, Q3 hereafter).
5. ZSSK Cargo considers that the use of these brakes is important for the safety of operations and the parking of RID tank-wagons. This opinion also applies to other wagon types.
6. SNCB Logistics (did not provide a positive response).

Question 2 (Q2):

1. SBB reiterate that the shunting of RID tank-wagons of class 2 is governed by ministerial regulations in Switzerland. They consider these rules necessary.
2. DBSR-PL considers that platform-operated screw brakes are useful for staff safety reasons in the event of uncontrolled product leaks, when the tank-wagon needs to be immobilised. This operation is easier with platform-operated screw brakes than ground-operated. Moreover, platform-operated screw brakes are further from the tank's service equipment than the ground-operated equivalent.
3. Nordcargo considers that platform-operated screw brakes are useful for staff safety reasons. The brake can be operated in the event of an emergency. Unlike ground-operated screw brakes, platform-operated screw brakes are located far from the service equipment (valves, etc.) and the risk of operating errors on this equipment is lower. It is possible to see from the configuration of platform-operated screw brakes whether they are actuated or not.
4. Trenitalia considers that the screw brake must be operable from the platform because it is possible to use it when the wagon is in motion.
5. ZSSK Cargo (did not provide a positive response).
6. SNCB Logistics (did not provide a positive response).

Question 3 (Q3):

1. SBB reiterate that the shunting of RID tank-wagons of class 2 is governed by ministerial regulations in Switzerland. They consider these rules necessary.
2. DBSR-PL considers that platform-operated screw brakes are useful to immobilise and secure individual tank-wagons during intermediate temporary stays (see also Q2).
3. Nordcargo considers, as for Q2, that all RID tank-wagons must be equipped with handbrakes/screw brakes operable from the platform/gangway.
4. Trenitalia considers that all RID tank-wagons must be equipped with handbrakes/screw brakes operable from the platform.
5. ZSSK Cargo (did not provide a positive response).

6. SNCB Logistics (did not provide a positive response).

Question 4 (Q4):

1. SBB consider that a platform/gangway is necessary for the shunting of goods wagons.
2. DBSR-PL considers that the presence of a gangway is justified to facilitate the reading of the markings on the wagon. It also allows staff to move away from a danger area if need be, for example in the event of a product leak.
3. Nordcargo considers that the presence of a gangway increases safety. It allows staff to move away from a danger area if need be, for example in the event of a product leak.
4. Trenitalia considers that gangways allow workers to cross safely from one side of the wagon to the other. This ability is significant in the event of a problem because it allows staff to work easily on both sides of wagons.
5. ZSSK Cargo (did not provide a positive response).
6. SNCB Logistics considers that the gangway allows the operator to adopt a safer position, particularly when controlling a push movement (including where the pushing locomotive is remotely-controlled).

Question 5 (Q5):

1. SBB reiterate that the shunting of RID tank-wagons of class 2 is governed by ministerial regulations in Switzerland. They consider these rules necessary.
2. DBSR-PL: No comment.
3. Nordcargo considers that platform-operated handbrakes/screw brakes allow operators to act quickly to immobilise a wagon.
4. Trenitalia considers that in certain cases, during shunting, the presence of an operator on the gangway can be useful to actuate the platform-operated handbrake/screw brake in order to stop a wagon immediately.
5. ZSSK Cargo considers that the use of these brakes is important for the safety of shunting operations and the parking of RID tank-wagons. The presence of a member of staff on tank-wagons is thus required (to be confirmed).
6. SNCB Logistics (did not provide a positive response)

D. SUMMARY AND CONCLUSIONS

The preceding developments are summarised hereafter with the aim of answering the questions initially raised by the “Tank and Vehicle Technology” Working Group (RID Committee) and the Standing Group of the RID Committee following the presentation of the interim report in November 2012.

I. Summary

In principle (except in Great Britain), 100% of the current fleet of RID tank-wagons is equipped with platform-operated screw brakes in accordance with UIC Leaflet 535-3 alongside legislation previously in force (in particular the TSI 2006/861/EC).

a. The fitting of RID tank-wagons with gangway-operated screw brakes is no longer mandatory under the current Wagons TSI. When such a brake exists, it may be used as brake to immobilise the wagon for parking purposes or on open line. Its possible use to control buffing speeds during certain operations is not provided for at European level. It is not, however, prohibited.

i. The Wagons TSI deals with parking brakes and handbrakes. It no longer handles the rules for fitting wagons (wagon types, percentages) with platform-operated handbrakes. However, it makes provision for the possibility that the handbrake is actuated from the wagon platform. The CEN standards relating to braking and tank-wagons are quiet on this subject. It should be noted that standard EN14531-2 “Single vehicles” is still in preparation. Where one exists, the handbrake/screw brake can be used to immobilise wagons for parking purposes or to immobilise trains on open line.

The parking of wagons and immobilisation on open line are governed by national rules which authorise the use of the handbrake/screw brake, without specifying however from where it must be controlled. Specific instructions are in place where the local particularities or the characteristics of the lines require it. These documents also define the other resources which can be used, such as drag shoes, anti-slip scotches, and specialised or automatic train control. These various means are not mutually exclusive.

ii. The “Operation and Traffic management” TSI (2012/757/EU) does not deal with the possibility of using platform-operated handbrakes to control the speed of the wagon (or group of wagons) during specific operations. However, it does not prohibit it explicitly either.

iii. The European register of authorised rail vehicle types (2011/665/EU) makes provision in 4.7.3.1 for a pre-defined list of types of parking brake. This list does not yet exist.

iv. The COTIF and its appendices do not deal with handbrakes, screw brakes or parking brakes. The RID Regulation indirectly refers to UIC Leaflet 535-3 via UIC Leaflet 573 (Article 1.1.3) which it quotes in 4.3.3.3.2, 6.8.2.2 .1 and 6.8.4. However, these articles of the RID relate to the construction of tanks and service equipment.

b. The 2012 survey shows at this stage that:

- i. The rule that 100% of RID tank-wagons be fitted with gangway-operated screw brakes is no longer justified by railway companies' needs. These needs have markedly decreased since the UIC survey of 1974. Only two countries have national rules concerning their use for the shunting of wagons.
- ii. National rules still stipulate the use of platform-operated handbrakes for shunting (gravity-hump and fly shunting) on some RID tank-wagons on several networks, specifically Germany and Switzerland, but for certain types of tank-wagons only:
 - RID tank-wagons of class 2 (orange horizontal stripe) - in Germany and Switzerland,
 - RID tank-wagons with labels 6.1 (toxic) and 8 (corrosive), though two scotches/drag shoes may be used as an alternative – in Germany.

National regulations are transposed into local instructions taking account of local particularities. The obligation to use platform-operated screw brakes thus does not apply on sites where the operations concerned do not take place or on sites where the equipment and installations do not require it.

The practical application of these national measures still requires further study in order to gauge their importance and to identify any potential for further development.

- iii. Railway companies do not apply platform-operated handbrakes in shunting, unless it is mandatory under national rules.
 - iv. The argument of staff safety is sometimes advanced. Several railway companies consider that the use of platform-operated screw brakes constitutes an advantage in this regard when an RID tank-wagon needs to be immobilised following a leak from service equipment.
 - v. Where a company to which the survey was sent has not provided an opinion, this report considers that said company does not use platform-operated handbrakes/screw brakes in operations, and that it has no issue with the evolution of the rules in this regard.
- c. Concerning question Q4 and the fitting of RID tank-wagons with traversing gangways, the absence of a positive response must be considered with caution.

It does indeed seem that RUs' answers were given in relation to the use of the screw brake. However, the gangway has also the function of allowing operators to cross from one side of the wagon to another more easily when it is parked in a station or the train is stopped on open line. However, there is no consensus on the subject in the opinions received from the railway companies.

To justify fitting wagons with traversing gangways, one can also quote the standard EN 12561-1 (see also B-IV) and the access requirements for tank-wagon identification plates. The same may also apply for some of the tank's service equipment. An additional survey would be needed in order to clarify this possible need.

For some railway companies, the presence or absence of gangways on wagons is a response to staff safety requirements. These requirements, however, are expressed differently from one company to another. The survey did not collect information on any national procedures in use in this area. The use of platforms or gangways by staff is sometimes prohibited. This report therefore sees no consensus surrounding staff safety arguments

The information pertaining to the need for platforms or gangways must thus be regarded as indicative and provisional since the purpose of this study is restricted to gangway-operated screw brakes. A platform or gangway, if one exists, may serve other needs.

II. Conclusions

- i. The study shows that fitting RID wagons with gangway-operated screw brakes is no longer a regulatory obligation. The RUs and RID wagon keepers asked for their opinion expressed no desire for the provisions of UIC Leaflets 573 and 535-3 to be maintained.
 - ii. The provisions of UIC Leaflet UIC 573 are mostly considered in EN 15877-1:2012, EN 12663-2:2010, and EN 15551:2009. The reference to the leaflet in the RID may therefore be deleted and replaced by references to these standards, on condition that there is a detailed verification of any missing provisions deemed necessary, with these included in the RID if need be.
 - iii. UIC and UIP will submit a proposal to this end to the next meeting of the RID Standing Working Group.
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