

Brake - Regulations governing the equipment of trailing stock

Frein - Prescriptions relatives à l'équipement du matériel remorqué
Bremse - Vorschriften über die Ausrüstung der Wagen



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Summary

This leaflet sets out the basic provisions and the minimum conditions with which the braking equipment of coaches¹ and wagons must comply in order to be accepted for running in international service. Additional regulations as well as provisions and other details specific to the different types of braking equipment and related components are defined in other UIC leaflets in series 54.

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1. Vehicles in the context shall be taken to include all passenger coaches, vans, mail vans and car-carrying wagons with the standard numerical codes defined in UIC Leaflet 438-1.

1 - Compressed-air brakes

1.1 - Coaches and wagons

1.1.1 - In order to reduce the risks of slide and at the same time minimise impacts and reactions, any vehicle whose braked weight may exceed 1,25 times the weight on rails in the passenger braking position must, unless otherwise specified in point **1.2.3 - page 3** hereinafter, be mounted with a reversing system for bringing the vehicle braked weight down to a lower value than that stipulated previously, while observing the conditions described in points **1.2.2 - page 2** and **1.3.6 - page 4**.

1.1.2 - All vehicles fitted with a compressed-air brake since 1.1.1953 must be fitted with a brake-rod adjuster to ensure automatic offsetting of play in the brake shoes and/or linings.

1.1.3 - It must be possible on vehicles fitted with compressed-air brakes for the brake rigging to be isolated from the pipe by activating one single handle in such a way that the brake becomes inoperative after emptying and that the vehicle can then be used as a through brake-pipe vehicle.

1.1.4 - For functional reasons, the vehicle length to be served by a distributor may not exceed 31 metres.

1.1.5 - The presence of one isolation handle per distributor will be accepted for vehicles fitted with several distributors.

1.1.6 - For vehicles built from 1 January 1991, the brake isolation handle must be accessible from both sides of the vehicle even when it is laden.

1.1.7 - The handles for operating the braking-system changeover devices must be readily identifiable and easy to operate from both sides of the vehicle.

1.1.8 - Disc-braked vehicles must be fitted with brake linings of the type(s) accepted in international traffic for the maximum permitted vehicle speed, in accordance with *UIC Leaflet 541-3* (see **Bibliography - page 16**).

1.1.9 - Vehicles fitted with brake-shoe inserts in composite material must be mounted with K brake-shoe inserts of the type(s) accepted in international traffic in accordance with *UIC Leaflet 541-1* (see **Bibliography - page 16**).

1.1.10 - Vehicles built or converted after 1.1.2004 shall be fitted with a compressed-air brake as listed in Appendix **E - page 15**.

1.2 - Coaches

1.2.1 - Coaches and all units of multiple coaching stock must be fitted with at least one passenger train brake accepted in international traffic, and incorporate a main brake pipe and a main air-supply pipe as well as the corresponding stop cocks and connections.

It is recommended to paint the main brake stop cocks in red, and the main air-supply pipe in a light colour (white or yellow).

1.2.2 - The braked weight of coaches braked under "P" conditions must be at least equal to 1,05 times the vehicle tare.

1.2.3 - Point **1.1.1** - **page 2** is not mandatory for coaches fitted with:

- a high-performance brake with two-stage shoe loading, giving a braked weight not exceeding 1,7 times the tare on rails,
- combination shoe and disc brakes, giving a braked weight not exceeding 1,7 times the tare on rails,
- wheel slip prevention equipment.

1.2.4 - Coaches must be fitted with an emergency handle.

1.2.4.1 - Emergency-signal handles for operating the continuous brake must be fitted in passenger coaches, in such a way that passengers can see and easily access them without having first to open a door. Emergency handles must be identified the marking stipulated in *UIC Leaflet 545* (see **Bibliography** - **page 16**).

Emergency-signal handles accessible to passengers must be lead sealed.

1.2.4.2 - There is no need for the handles to be located on the platform at vehicle ends or in lavatories and washrooms.

1.2.4.3 - The service compartments in baggage vans and mail vans must be fitted with an emergency brake valve or an emergency-signal handle. If there is an emergency brake valve in the side corridor of a vehicle or baggage van, there is no need for an emergency handle as well. If the valve is located in the side corridor of a coach, baggage van or mail van, a sign similar to the one stipulated above for the emergency handle must be placed next to the valve.

The central-brake emergency and operating valves must be installed so as to make them inaccessible to passengers.

1.2.4.4 - The emergency brake installation must be such that, once the brake has been applied, passengers cannot activate the re-set mechanism. If this mechanism is housed in a box, the latter must be marked as stipulated in *UIC Leaflet 545*.

1.2.5 - All coaches must be fitted with a release valve (preferably non automatic) which can be activated from both sides of the vehicle.

1.2.6 - Depending on the maximum scheduled speed for the coaches, the additional brake equipment mentioned in **Appendix D** - **page 14** shall be authorised and installed alongside the basic equipment.

1.3 - Wagons

1.3.1 - Wagons must be fitted at least with a main brake pipe, stop cocks and related connections. Through brake-pipe wagons will no longer be accepted in international traffic from 1.1.1995.

1.3.2 - With effect from 1.1.1998, all wagons must be fitted with a P/G braking system accepted in international traffic.

1.3.3 - Wagons to be built must be fitted with a P/G braking system accepted for international traffic (type from the 1954 admittance date) and equipped with a passenger/freight changeover mechanism.

1.3.4 - Wagons bearing the S or SS label, must be fitted with a compressed-air brake incorporating both a P position for passenger brake mode and a G position for freight brake mode.

1.3.5 - Wagons bearing the SS label must be equipped with a self-adjusting load proportional braking system as per *UIC Leaflet 541-04, point 2.1* (see Bibliography - page 16) and providing in general for $\lambda = 100\%$ up to the SS limit load.

The restriction of $\lambda = 90\%$ for 20 t axle loads applies only to wagons equipped with brake blocks.

Special equipment must be installed for brakes with a higher braking power.

New wagons equipped with composite brake blocks and bearing the SS label must be equipped with a modified relay valve combination (also known as kink valve).

1.3.6 - For wagons where the load is unevenly distributed in general, it is recommended that a self-adjusting load-proportional brake be fitted at each end of the wagon.

1.3.7 - Self-adjusting braking equipment for S wagons fitted on wagons bearing the S label must comply with point 2.2 of *UIC Leaflet 541-04*.

1.3.8 - Labelling of wagons equipped with a self-adjusting load-proportional braking system and the braked weight symbol are stipulated in *UIC Leaflet 545*. The *UIC Leaflet 541-04* specifies the characteristics of self-adjusting load-proportional braking systems.

1.3.9 - For all authorised load conditions, the wagon braking mechanism must ensure compliance with the following minimum braked-weight percentages (ratio of braked weight in each braking position to total weight on rails).

NB : In the case of existing wagons equipped only with brakes for freight trains and where not all axles are braked, only the wagon's braked axle-load shall be used for calculating the tare and load valves.