

[^{F1}ANNEX V

Spring brakes

Textual Amendments

- F1** Substituted by [Commission Directive 98/12/EC of 27 January 1998](#) adapting to technical progress [Council Directive 71/320/EEC on the approximation of the laws of the Member States relating to the braking devices of certain categories of motor vehicles and their trailers](#) (Text with EEA relevance).

1. DEFINITIONS
 - 1.1. ‘Spring brakes’ are braking devices for which the energy required for braking is supplied by one or more springs acting as an energy accumulator.
 - 1.1.1. The energy necessary to compress the spring in order to release the brake shall be supplied and controlled by the ‘control’ actuated by the driver (see definition in point 1.4 of Annex I).
 - 1.2. ‘Spring compression chamber’ means the chamber where the pressure variation that induces the compression of the spring is actually produced.
 - 1.3. If the compression of the springs is obtained by means of a vacuum device, ‘pressure’ shall mean negative pressure everywhere in this Annex.
2. GENERAL REQUIREMENTS
 - 2.1. A spring brake shall not be used as a service brake. However, in the event of a failure in a part of the transmission of the service braking system, a spring brake may be used to achieve the residual performance prescribed in point 2.2.1.4 of Annex I, provided that the driver can graduate this action. In the case of motor vehicles, with the exception of towing vehicles for semi-trailers meeting the requirements specified in point 2.2.1.4.3 of Annex I, the spring brake shall not be the sole source of residual braking. Vacuum spring brakes shall not be used for trailers.
 - 2.2. A small variation in any of the pressure limits which may occur in the spring compression chamber feed circuit shall not cause a significant variation in the braking force.
 - 2.3. The feed circuit to the spring compression chamber shall either include an own energy reserve or shall be fed from at least two independent energy reserves. The trailer supply line may be branched from this feed line under the condition that a pressure drop in the trailer supply line shall not be able to apply the spring brake actuators. Auxiliary equipment may only draw its energy from the feed line for the spring brake actuators under the condition that its operation, even in the event of damage to the energy source, cannot cause the energy reserve for the spring brake actuators to fall below a level from which one release of the spring brake actuators is possible. In any case during re-charging of the braking system from zero pressure, the spring brakes shall not release until the pressure in the service braking system is sufficient to ensure at least the prescribed secondary braking performance of the laden vehicle, using the service braking system control. Similarly, once applied, the spring brakes shall not release unless there is sufficient pressure in the service braking system to at least provide the prescribed residual braking performance of the laden vehicle by application of the service braking control.

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This item does not apply to trailers.

- 2.4. In motor vehicles, the system shall be so designed that it is possible to apply and release the brakes at least three times if the initial pressure in the spring compression chamber is equal to the maximum design pressure. In the case of trailers, it shall be possible to release the brakes at least three times after the trailer has been uncoupled, the pressure in the supply line being 6,5 bar before the uncoupling. These conditions shall be satisfied when the brakes are adjusted as closely as possible. In addition, it shall be possible to apply and release the parking brake as specified in Annex I point 2.2.2.10, when the trailer is coupled to the towing vehicle.
- 2.5. In the case of motor vehicles, the pressure in the spring compression chamber beyond which the springs begin to actuate the brakes, the latter being adjusted as closely as possible, shall not be greater than 80 % of the minimum level of the normal available pressure. In the case of trailers, the pressure in the spring compression chamber beyond which the springs begin to actuate the brakes shall not be greater than that obtained after four full-stroke actuations of the service braking system in accordance with Annex IV, point 1.3. The initial pressure is fixed at 6,5 bar.
- 2.6. When the pressure in the line feeding energy to the spring compression chamber — excluding lines of an auxiliary release device using a fluid under pressure — falls to the level at which the brake parts begin to move, an optical or audible warning device shall be actuated. Provided this requirement is met, the warning device may be that specified in point 2.2.1.13 of Annex I. This provision does not apply to trailers.
- 2.7. On motor vehicles fitted with spring brakes and authorised to tow trailers with continuous or semi-continuous brakes, automatic application of the spring brakes shall cause the trailer brakes to be applied.

3. RELEASE SYSTEM

- 3.1. A spring braking system shall be so designed that, in the event of a failure in that system, it is still possible to release the brakes. This may be achieved by the use of an auxiliary release device (pneumatic, mechanical, etc.). Auxiliary release devices using an energy reserve for releasing, shall draw their energy from an energy reserve which is independent from the energy reserve normally used for the spring braking system.

The pneumatic or hydraulic fluid in such an auxiliary release device may act on the same piston surface in the spring compression chamber, which is used for the normal spring braking system, under the condition that the auxiliary release device uses a separate line. The junction of this line with the normal line connecting the control device with the spring brake actuators, shall be at each spring brake actuator immediately before the port to the spring compression chamber, if not integrated in the body of the actuator. This junction shall include a device which prevents an influence of one line on the other. The requirements of point 2.2.1.6 of Annex I also apply to this device.

- 3.1.1. For the purposes of the requirement of point 3.1, components of the braking system transmission shall not be regarded as subject to failure if under the terms of point 2.2.1.2.7 of Annex I they are not regarded as liable to breakage, provided that they are made of metal or of a material having similar characteristics and do not undergo significant distortion in normal braking.
- 3.2. If the operation of the auxiliary device referred to in point 3.1 requires the use of a tool or spanner, that tool or spanner shall be kept on the vehicle.]