

Council Directive of 26 July 1971 on the approximation of the laws of the Member States relating to the braking devices of certain categories of motor vehicles and of their trailers (71/320/EEC) (repealed)

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## [<sup>F1</sup>ANNEX IV

### Energy reservoirs and sources of energy

#### 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).

#### B. Vacuum braking systems

##### 1. CAPACITY OF RESERVOIRS

###### 1.1. *General*

- 1.1.1. Vehicles on which the operation of the braking system requires the use of a vacuum shall be equipped with reservoirs of a capacity meeting the requirements of points 1.2 and 1.3 below.
- 1.1.2. However, the reservoirs shall not be required to be of a prescribed capacity if the braking system is such that in the absence of any energy reserve it is possible to achieve a braking performance at least equal to that prescribed for the secondary braking system.
- 1.1.3. In verifying compliance with the requirements of points 1.2 and 1.3 below, the brakes shall be adjusted as closely as possible.

###### 1.2. *Motor vehicles*

- 1.2.1. The reservoirs of motor vehicles shall be such that it is still possible to achieve the performance prescribed for the secondary braking system
- 1.2.1.1. after eight full-stroke actuations of the service braking system control where the energy source is a vacuum pump; and
- 1.2.1.2. after four full-stroke actuations of the service braking system control where the energy source is the engine.
- 1.2.2. Testing shall be performed in conformity with the following requirements:
- 1.2.2.1. The initial energy level in the reservoir(s) shall be that specified by the manufacturer. It shall be such as to enable the prescribed service-braking performance to be achieved and shall correspond to a vacuum not exceeding 90 % of the maximum vacuum furnished by the energy source<sup>(1)</sup>;
- 1.2.2.2. The reservoir(s) shall not be fed; in addition, any reservoir(s) for auxiliary equipment shall be isolated.
- 1.2.2.3. In the case of motor vehicles authorised to tow a trailer, the supply line shall be blocked off and a reservoir of 0,5 litre capacity shall be connected to the control line. After the test referred to in point 1.2.1, the vacuum level provided at the control line shall not have fallen below a level equivalent to one-half of the figure obtained at the first brake application.

###### 1.3. *Trailers (category O<sub>1</sub> and O<sub>2</sub> only)*

1.3.1. The reservoir(s) with which trailers are equipped shall be such that the vacuum level provided at the user points shall not have fallen below a level equivalent to one-half of the value obtained at the first brake application after a test comprising four full-stroke actuations of the trailer's service braking system.

1.3.2. Testing shall be performed in conformity with the following requirements:

1.3.2.1. The initial energy level in the reservoir(s) shall be that specified by the manufacturer. It shall be such as to enable the prescribed service braking performance to be achieved<sup>1</sup>.

1.3.2.2. The reservoir(s) shall not be fed; in addition, any reservoir(s) for auxiliary equipment shall be isolated.

## 2. CAPACITY OF ENERGY SOURCES

### 2.1. *General*

2.1.1. Starting from the ambient atmospheric pressure, the energy source shall be capable of achieving in the reservoir(s) in three minutes, the initial level specified in point 1.2.2.1. In the case of a motor vehicle to which the coupling of a trailer is authorised, the time taken to achieve that level in the conditions specified in point 2.2 shall not exceed six minutes.

### 2.2. *Conditions of measurement*

2.2.1. *The speed of the vacuum source shall be:*

2.2.1.1. Where the vacuum source is the vehicle engine, the engine speed obtained with the vehicle stationary, the neutral gear engaged and the engine idling;

2.2.1.2. where the vacuum source is a pump, the speed obtained with the engine running at 65 % of the speed corresponding to its maximum power output; and

2.2.1.3. where the vacuum source is a pump and the engine is equipped with a governor, the speed obtained with the engine running at 65 % of the maximum speed allowed by the governor.

2.2.2. Where it is intended to couple to the motor vehicle a trailer whose service braking system is vacuum-operated, the trailer shall be represented by an energy storage device having a capacity  $V$  in litres determined by the formula:

$$V = 15 \times R$$

where  $R$  is the maximum permissible mass, in metric tonnes, on the axles of the trailer.]

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(1) [<sup>F1</sup>The initial energy level shall be stated in the information document.]

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