

Truck and bus - Service brake structural integrity test procedure

1. Scope

This standard specifies the test procedures for evaluating the structural integrity of normally operated service brakes of trucks and buses.

Trucks include tractors, but not trailers.

2. Normative reference

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard.

If the indication of the year of coming into effect is given to these referred standards, only the edition of indicated year constitutes the provision of this Standard but the revision and amendment made thereafter are not applied.

JIS D 0210:1995 General rules of brake test method of automobiles and motor cycles

3. Definitions

Definitions of main terms used in this standard shall be as follows, in addition to those defined in 2. (Definitions) of **JIS D0210**.

3.1 Brake temperature before brake is applied

Brake temperature read at a point in time within 15s before the start of braking. If there is any specification about the brake temperature, it represents the highest value among the average values of the brake temperature taken of each wheel.

3.2 Spike stop

A particularly powerful braking operation performed for the purpose of testing structural integrity of the brake, and its pedal force-time characteristics meeting the following requirements (see **Attached Figure 1**).

- a)** The pedal force rising gradient shall be targeted at 10 kN/s and should range between 5 and 20 kN/s. The range of up to a pedal force of 0.3 kN within 0.03 s after the rise of the pedal force is not, however, covered. The pedal force rising gradient α may be given by equation (1).

$$\alpha = F/t \dots\dots\dots (1)$$

where, α : pedal force rising gradient (kN/s)

F : pedal force (kN)

t : elapsed time after the start of pedal force rise (s)

- b)** Having the target to reach 1 kN (0.7 kN) within the abovementioned gradient range, the pedal force must reach a point that falls within the range of 0.8 to 1.2 kN (0.5 to 0.9 kN). That pedal force is thereafter maintained up to a complete stop. The pedal force may, however, be decreased as long as a condition is maintained, in which a wheel lock exists or the ABS (anti-lock brake system) is being activated. The maximum pedal force value should not exceed 1.2 kN (0.9 kN) throughout the entire range.

Remark: The values not indicated in parentheses are applied during the forward motion, while those indicated in parentheses are applied during the backward motion.

- c)** With the air brake (including the combined brake), the brake pedal is to be depressed to make a full-stroke motion within 0.2 s.

3.3 Brake line pressure

Fluid pressure or air pressure measured at a point near the wheel cylinder or brake chamber