

JIS

JAPANESE INDUSTRIAL STANDARD

General rules of brake test method of automobiles and motor cycles

JIS D 0210—1995

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by

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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1. Scope This Japanese Industrial Standard specifies definitions, vehicle division, test conditions, braking speed measuring method, temperature measuring method and calculation formula to be used in common to the brake test method of automobiles.

Remarks: The following standards are cited in this Standard:

JIS C 1602 Thermocouples

JIS D 0106 Road vehicles – Brake types, braking mechanics and brake operation – Vocabulary

JIS D 0107 Glossary of terms relating to braking equipments of automobiles

2. Definitions For the purposes of this Standard, the definitions given in JIS D 0106 and JIS D 0107, and the following definitions apply.

- (1) cooling running velocity A definite velocity to run for the purposes of brake cooling and of entrance running for the following braking.
- (2) brake temperature before braking The brake temperature read-out according to the specification before starting of braking.
- (3) definite braking deceleration The braking deceleration to be kept at approximately constant during braking according to lever control force and adjustment of pedal pressure, excepting transient state.
- (4) definite pedal pressure or definite control force The pedal pressure or control force kept approximately constant during braking, excepting the transient state.
- (5) braking interval In repetition of braking operation, the lapse of time or the lapse of distance from a starting time of braking operation until the next starting time of braking operation.
- (6) heat-fade test requiring time The lapse of time from the first starting time of braking operation till the final starting time of braking operation in the heat-fade test.
- (7) normal driving position The state at the maximum speed change stage at which the speed change gear can be maintained at a specified braking initial speed, excepting overdrive.
- (8) neutral position The state where the speed change gear is placed at a neutral position or the clutch is cut, prior to starting the braking operation.

- (9) spike braking A specially strong force braking operation, the pedal pressure-time characteristics of which satisfy the following specifications. However, it does not apply to two-wheeled vehicle.

- (a) The pedal pressure build-up time grade shall be aimed at 10 kN/s and be within the range of 5 kN/s to 20 kN/s. However, the range of within 0.03 s from the time point of pedal pressure build-up time and the range of pedal pressure of 0.3 kN or less are not the object of the specification.

The pedal pressure build-up time grade (a) can be calculated by the following formula (1):

$$a = \frac{F}{t} \dots\dots\dots (1)$$

where, a : pedal pressure build-up time grade (kN/s)

F : pedal pressure (kN)

t : lapse of time from start of pedal pressure build-up (s)

- (b) The pedal pressure shall be aimed at reaching 1 kN (0.7 kN) in the range of abovementioned grade, and shall be reached to the range of 0.8 kN[0.5 kN to 1.2 kN(0.9 kN)]. Thereafter, the pedal pressure shall be maintained until complete stopping. However, as far as the wheel lock state or the state of antilock device actuating is maintained, the pedal pressure may be lowered.

Furthermore, the maximum value of pedal pressure shall not exceed 1.2 kN (0.9 kN) over the whole range.

Remarks: The value without parentheses () applies to advancing time, and the value given in (), to retreating time.

- (c) In the air brake (including double brake), the brake pedal shall be trodden so that the whole stroke is reached within 0.2 s.

3. Vehicle division In the case where the test vehicles are divided according to the maximum velocity, those shall be divided by the following velocity:

Division 1 Those exceeding 140 km/h in maximum velocity.

Division 2 Those exceeding 110 km/h up to and including 140 km/h in maximum velocity.

Division 3 Those exceeding 90 km/h up to and including 110 km/h in maximum velocity.

Division 4 Those exceeding 60 km/h up to and including 90 km/h in maximum velocity.

Division 5 Those of 60 km/h or less in maximum velocity.