

Service brake structural integrity test procedure – Passenger car

1. Scope

This standard specifies road test procedures to evaluate the structural integrity (strength) of normally operated service brakes on passenger cars. Procedures for motorcycles are not included.

Remarks: In this standard, units and numerical values given in { } are conventional units, shown for reference.

2. Purpose

This standard provides a unified road test procedure for evaluating the strength of service brakes under sudden braking conditions.

3. Definitions

Definitions taken from 3. of **JASO C446** (General rule of brake of automobiles and motorcycles) are applied for initial speed, cooling speed, braking intervals, constant deceleration, normal or neutral transmission control position, forward spike braking and initial brake temperature. The initial brake temperature shall be the temperature recorded 15 seconds before brake application. When the initial brake temperature is specified in this standard, it refers to the highest temperature of mean values for axles of all wheels prior to brake application.

4. Test conditions

4.1 Conditions of vehicles

Conditions of vehicles during the test shall be as specified in 5.1 of **JASO C446**. If several kinds of tires are specified by the vehicle manufacturer, the tires with the greatest moment of inertia shall be used.

The following measuring instruments shall be generally mounted on the test vehicle.

Thermometers

Decelerometer

Pedal effort-time recorder (capable of measuring 30 Hz or greater)

4.2 Conditions of each element of braking devices

Required conditions for each braking device element are specified in 5.3 of **JASO C446**. Special attention is required for the clamping torque.

A suspension system with proper specifications and functions shall be mounted on the test vehicle.

4.3 Weather conditions and surface conditions for test lanes

Weather conditions and surface conditions for test lanes are specified in 5.2 of **JASO C446**.

4.4 Temperature measurement

Temperatures of braking devices shall be measured as specified in (a) of 6. of **JASO C446**.

5. Test procedure

5.1 Test items and sequence

A series of tests shall be carried out as follows.

(1) Preburnish check

Initial speed: 50 km/h

Transmission control position: Ordinary driving position

Braking operation: Constant deceleration at 2.9m/s^2 {0.3G} until the vehicle come to a complete halt

Cooling speed: 50 km/h

Conditions of acceleration: normal

Braking intervals: 1600 m or 100 seconds

Number of applications: up to 10 (see **Remarks**)

Recording: pedal effort or fluid pressure and initial brake temperature

Remarks: If the test equipment, braking devices and the test vehicle function normally during the test, the following test may be initiated.

(2) Burnish

Initial speed: 65 km/h

Transmission control position: Ordinary driving position

Braking operation: Constant deceleration at 3.4m/s^2 {0.35G} until the vehicle come to a complete halt.

Cooling speed: 65 km/h

Conditions of acceleration: Normal

Normative references: **JASO C446** General rules of brake of automobiles and motorcycles.