

ICS 43.020



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 12543-2009

Replacing GB/T 12543-1990

Acceleration performance test method for motor vehicles

汽车加速性能试验方法

(English Translation)

Issued on: March 23, 2009

Implemented on: January 1, 2010

Issued by: SAMR; SAC

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Foreword

The consistency between this Standard AND SAE J1491 MAR95 "Acceleration performance test method for motor vehicles" and JISD 1014 "Acceleration performance test method for motor vehicles" is non-equivalent.

This Standard replaces GB/T 12543-1990 "Acceleration performance test method for motor vehicles".

Compare with GB/T 12543-1990, the main changes of this Standard are as follows.

- ADD normative references. The reason is that vehicle classification, trial quality and load distribution shall adopt the provisions defined in above standards.
- Full-throttle starting acceleration test. the maximum end-speed is only recorded up to 100 km/h, and ADD 400m test; full-throttle over-taking acceleration test. initial speed is 60 km/h, the maximum end-speed is only recorded up to 100 km/h. The main idea of above practice is to make a unified measurement indicator as possible for different models and types vehicles.
- ADD operational description of the automatic transmission and manual transmission.
- ADD judgment criteria for validity of test data. Appendix A of this Standard is informative.

1 Scope

This Standard specifies the test methods for vehicle acceleration performance. This Standard applies to M and N-class vehicles.

2 Normative references

The provisions contained in following documents, through the reference of this Standard, constitute the provisions of this Standard. For dated references, subsequent amendments (excluding corrigenda) or revisions do not apply to this Standard, however, the parties who enter into agreement based on this Standard are encouraged to study if these latest versions are applicable. For undated references, the latest versions apply to this Standard.

GB/T 12428 Laden mass calculating method for buses

GB/T 12545.1 Measurement methods of fuel consumption for automobiles. Part 1.
Measurement methods of fuel consumption for passenger cars

3.1 Meteorological Conditions

The test shall be conducted when atmospheric temperature is at °C - 40°C. There shall be no fog, rain or hail. Wind speed shall not be more than 3 m/s.

3.2 Road conditions

Road surface of concrete road or asphalt (or similar) road shall be clean, dry and flat. The longitudinal slope shall not exceed 0.1%.

3.3 Fuels and lubricants (grease)

The grades and specifications of the fuel and lubricant (grease) used by the test car shall comply with the technical requirements. The same batch of fuel and lubricant (grease) shall be used for various performance tests within the trial.

3.5 Vehicle preheating

Prior to test, the vehicle shall be preheated for driving.

4.1 Performance test of full-throttle starting acceleration

The vehicle shall be full-throttle accelerated from 0 to 100 km/h (if 90% of the maximum speed of the vehicle is less than 100 km/h, it shall take the 90% of the maximum speed of the vehicle and round down to multiple integer of 5, this speed shall act as the end-speed).

4.2 Performance test of full-throttle overtaking acceleration

The vehicle shall be full-throttle accelerated from 60 km/h to 100 km/h (if 90% of the maximum speed of the vehicle is less than 100 km/h, it shall take the 90% of the maximum speed of the vehicle and round down to multiple integer of 5, this speed shall act as the end-speed). RECORD the travel time.

4.3.2.1 Performance test of full-throttle starting acceleration

Under the condition of engine idling (DEPRESS the brake if necessary), the transmission is placed at "D" gear, the vehicle starts to accelerate and move, It shall be under the condition of minimal wheel slip to let the vehicle to achieve maximum acceleration performance. When the vehicle is moving, the recording device shall be triggered.

4.3.3 Manual-automatic transmission

Acceleration performance test shall be performed under manual mode and automatic mode respectively.

4.4 Test Data

The test shall be conducted for back-direction and forth-direction. Each direction shall be conducted for at least 3 times. If there is problem occurred during any test, then the "back-forth (round trip)" test shall be repeated.

4.5 Operation of accessories

4.5.1

During the test, the headlamp shall be turned off. If the car is equipped with recessed lights, the light-stand shall be located at the location of the recessed light. It may turn on the lights in order to meet the car driving safety, this shall be recorded in the note of Appendix A.

5.1 Data calculation

CALCULATE the arithmetic mean, standard deviation and variation coefficient of all valid test data (standard deviation/arithmetic mean).

5.3 Data expression

RECORD the data according to the format of Appendix A, or to make speed-time graph and distance-time graph, or other expressions which are deemed reasonable.