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Replacing JT 711-2008

**Limits and measurement methods of fuel
consumption for commercial vehicle for
passenger transportation**

营运客车燃料消耗量限值及测量方法

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces JT 711-2008 "Limits and measurement methods of fuel consumption for commercial vehicle for passenger transportation".

As compared with JT 711-2008, in addition to editorial changes, the main changes of this standard are as follows:

- ADJUST the structure of the entire text;
- MODIFY the textual description of the applicable fuel in the "Scope"; CLARIFY that the fuel is a single fuel (see clause 1; clause 1 of the 2008 version);
- MODIFY the guide language of the "Normative references"; ADD some standard reference entries; MODIFY the standard name of GB 1589 (see clause 2; clause 2 of the 2008 version);
- DELETE terms and definitions of no-load and full-load (clause 3.1 and 3.2 of the 2008 version);
- MODIFY the expression of the name of commercial diesel vehicle for passenger transportation in the "limit of fuel consumption"; ADJUST the limit of fuel consumption of commercial vehicle for passenger transportation; SPECIFY the date of implementation (see clause 4; clause 5 of the 2008 version);
- ADJUST the contents of "Verification of vehicle", moving the verification of size and mass parameters into a newly-added clause, making partial modification of the original standard (see clauses 5.1.1, 5.1.2; clause 4.1 of the 2008 version);
- MODIFY the contents that "the vehicle's tire pressure, fuel, lubricant (grease), brake fluid, brake air-pressure, engine coolant, etc. shall comply with the provisions of GB/T 12534 and vehicle manufacturers"; ADD such information as the brake air-pressure and engine coolant (see clause 5.2.3; clause 4.2.3 of the 2008 version);
- MODIFY the tire's selection principle (see clause 5.2.4; clause 4.2.4 of the 2008 version);
- ADD the requirements for the maximum allowable error/accuracy grade for "engine tachometer" and "weighing instrument" (see clause 5.2.5; clause 4.2.5 of the 2008 version);

- ADD the calculation method for fuel consumption in accelerated-driving conditions (see clause 5.5.2);
- ADD the calculation method for fuel consumption in idle conditions (see clause 5.5.3);
- MODIFY the calculation method for comprehensive fuel consumption (see clause 5.5.4; clause 4.5 of the 2008 version);
- ADD the evaluation indicators and calculation methods for “comprehensive fuel consumption per unit passenger turnover” (see clause 5.5.5);
- ADD and DELETE some verification items in Appendix A (Table A.1; Table A.1 of the 2008 version).

This standard was proposed by the Department of Transportation Services of the Ministry of Transport.

This standard shall be under the jurisdiction of the National Road Transport Standardization Technical Committee (SAC/TC 521).

Main drafting organizations of this standard: Highway Science Research Institute of the Ministry of Transport, Shandong Provincial Transportation Department Road Transportation Administration, China Heavy Duty Truck Group Co., Ltd., Xiamen Jinlong United Automobile Industry Co., Ltd., Nanjing Iveco Automobile Co., Ltd., Beiqi Foton Motor Co., Ltd., Jiangling Motors Co., Ltd., Anhui Jianghuai Automobile Co., Ltd., Anhui Hefei Automobile Passenger Transport Co., Ltd., National Automobile Quality Supervision and Inspection Center (Xiangyang), National Bus Quality Supervision and Inspection Center, Changchun Automobile Testing Center, Hainan Tropical Vehicle Test Co., Ltd., National Automobile Quality Supervision and Inspection Center (Beijing Tongzhou).

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Limits and measurement methods of fuel consumption for commercial vehicle for passenger transportation

1 Scope

This standard specifies the limits and measurement methods of fuel consumption for commercial vehicle for passenger transportation.

This standard applies to commercial vehicle for passenger transportation that uses diesel or gasoline as a single fuel and has a maximum total mass of more than 3500 kg.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB 1589 Limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles

GB/T 3730.1 Motor vehicles and trailers - Types - Terms and definitions

GB/T 3730.2 Road vehicle - Masses - Vocabulary and codes

GB/T 3730.3 Motor vehicles and towed vehicles - Dimensions of vehicles - Terms and definitions

GB/T 12534 Motor vehicles - General rules of road test method

GB/T 12545.2 Commercial vehicle - Fuel consumption test method

JT/T 325 Type dividing and class rating for commercial motor-vehicles of passenger transport

3 Terms and definitions

The terms and definitions as defined in GB/T 3730.1, GB/T 3730.2, GB/T

5.2.2 The meteorological conditions and preparation of test vehicle during the test shall comply with the provisions of GB/T 12534.

5.2.3 Vehicle's tire pressure, fuel, lubricant (grease), brake fluid, brake air-pressure, engine coolant, etc. shall comply with the provisions of GB/T 12534 and vehicle manufacturers.

5.2.4 Test vehicle's tires are selected in order according to the following principles:

- a) When the vehicle may be equipped with bias tires and radial tires, it shall select the bias tires;
- b) When the vehicle may be equipped with tires of different outer diameters, it shall select the tires of small outer diameters;
- c) When the vehicle may be equipped with tires of different cross-sectional widths under the same outer diameter of the tire, it shall select the tires with a large cross-sectional width.

5.2.5 The main test instruments and the requirements for the maximum allowable error/accuracy grades are as follows:

- a) Measuring instrument of vehicle's speed: the maximum allowable error is $\pm 0.5\%$;
- b) Fuel flow meter: the maximum allowable error is $\pm 0.5\%$;
- c) Timer: the minimum division value is 0.1 s;
- d) Engine tachometer: the maximum allowable error is $\pm 1\%$;
- e) Weighing instrument: the accuracy grade is grade-3 and above.

5.2.6 During the test, it shall close the vehicle's windows, cab's vent and air-conditioners. It only allows for the equipment necessary to drive the vehicle to run.

5.3 Test methods

5.3.1 Constant-speed driving conditions

5.3.1.1 The vehicle is fully-loaded. The vehicle of manual transmission shall be in the highest gear or the second-highest gear. When the highest gear cannot meet the requirements for test speed, use the second-highest gear. The vehicle of the automatic transmission shall be in the gear-D. At each test speed, let the vehicle drive stably for at least 100 m to pass a 500 m test road at constant-speed, to measure the time and fuel consumption of the vehicle when passing

measurement results.

5.3.2.3 The difference between the starting speed & final speed and the specified speed during the test shall be within the range of -2 km/h ~ 0 km/h and 0 km/h ~ 2 km/h, respectively.

5.3.2.4 For the acceleration test, it shall make two measurements (round-trip) along the test road.

5.3.2.5 The test results shall be subjected to repeatability verification in accordance with the provisions of GB/T 12545.2.

5.3.3 Idle condition

5.3.3.1 The measurement of the fuel consumption at idle conditions shall be carried out immediately after the end of the test at constant-speed condition and the accelerated condition.

5.3.3.2 When measuring, the vehicle shall be stationary, the clutch is in the engaged position, the manual transmission is in the neutral position, the vehicle of automatic transmission shall be in the “parking” or “P” position. The accelerator pedal is in the fully-released position, the engine’s speed shall be kept at the idle speed as specified by the vehicle manufacturer, with a speed variation of ± 50 r/min.

5.3.3.3 The measurement of fuel consumption at idle speed shall be started 300 s after idling, made for 3 times, 300 s per measurement. Record the fuel consumption at idle speed and the engine speed, take the average of the 3 measurement results.

5.4 Correction of fuel consumption

5.4.1 Correction of fuel consumption in constant-speed conditions

Take the arithmetic mean value of the measurement results of fuel consumption which are made at the same test speed according to the test method of 5.3.1 as the measured value of the constant-speed fuel consumption of the vehicle at this speed, make correction of standard status according to the method as specified in GB/T 12545.2.

5.4.2 Correction of fuel consumption in accelerated conditions

Take the arithmetic mean value of the measurement results of fuel consumption under accelerated conditions which are made according to the test method of 5.3.2 as the measured value of the accelerated-speed fuel consumption, make correction of standard status according to the method as specified in GB/T 12545.2.

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