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

GB/T 19750-2005

**Hybrid electric vehicles - Engineering approval evaluation
program**

混合动力电动汽车 定型试验规程

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Foreword

Annex A, Annex B of this Standard are normative. This Standard was proposed by National Technical Committee on Road Vehicles of Standardization Administration of China. This Standard shall be under the jurisdiction of N National Technical Committee on Road Vehicles of Standardization Administration of China. Drafting organizations of this Standard. China Automotive Technology and Research Center, Tianjin Qingyuan Electric Vehicle Co., Ltd and Technical Center of FAW Group Corporation. Main drafters of this Standard. Liu Guibin, Feng Qi, Zhao Chunming, Wu Zhixin and Zhao Ziliang. Hybrid electric vehicles - Engineering approval evaluation program

1 Scope

China's national programme of tests a hybrid electric vehicle must pass for engineering approval of a new model. It specifies the implementing conditions, the test items, the test methods and the basis of evaluation, the test procedures and the contents of the test report, and it applies to hybrid electric vehicles. A normative annex lists the mandatory standards, and a second normative annex describes the durable operating condition test. A hybrid is harder to type approve than either a conventional or a battery vehicle, because it has two energy sources and a controller that decides between them, and almost every measurable property depends on what that controller does. Power performance depends on whether the battery is charged when the test begins. Energy consumption depends on the state of charge at the start and end of the cycle, and a hybrid that ends the test with a flatter battery than it started with has borrowed energy that must be accounted for. Emissions depend on when the engine is allowed to start. So the programme cannot simply list the tests that apply to any vehicle - it must fix the conditions under which the vehicle is presented, the state of charge regime, and the sequence. This standard assembles all of it: the general vehicle tests, the hybrid-specific safety requirements, the power performance

test, and the energy consumption tests for light and heavy duty hybrids, each referred to its governing standard. The durable operating condition annex is what distinguishes it from the corresponding battery-vehicle programme, since a hybrid powertrain has to demonstrate that it goes on working through the repeated engine starts and mode transitions that are its normal operation. Issued on 23 May 2005 and in force since 1 October 2005.

This Standard specifies the implement conditions, test items, test methods, basis of evaluation and contents of test reports of new products design and approval evaluation test of hybrid electric vehicles. This Standard is applicable to hybrid electric vehicles.

2 Normative References

The articles contained in the following documents have become part of this Standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB/T 12538 Motor vehicles - Height of gravity center - Measuring method

GB/T 12673 Motor vehicles - Basic dimensions - Measuring method

GB/T 12674 Motor vehicles - Weight parameter - Measuring method

GB/T 19751 Hybrid electric vehicles safety specification

GB/T 19752 Hybrid electric vehicle - Power performance - Test method

GB/T 19753 Test methods for energy consumption of light-duty hybrid electric vehicles

GB/T 19754 Test methods for energy consumption of heavy-duty hybrid electric vehicles

3 Implementing Conditions

3.1 The following documents shall be provided before the evaluation.

3.2 The vehicle for evaluation shall comply with requirements of the design drawing and technical documents.

3.3 Number of vehicle samples for the engineering approval evaluation. 2 vehicles.

3.4 After having the above conditions, the manufacturer can apply to the relevant department for the engineering approval evaluation, which shall be carried out by the engineering approval evaluation agency approved by the state.

3.5 During the test process, relevant personnel shall operate according to regulations in the instructions and maintain the vehicle well.

3.6 After the test, the test agency shall provide the test report according to contents specified in Chapter 5.

4 Test Items, Test Methods and Basis for Evaluation

The test item is composed of the Compulsory standard test, finished automobile performance test and finished automobile test site reliable driving test.

4.1 Compulsory standard test See Annex A for the items of compulsory standard test; among them, see Clause 4.1.1 ~

4.1.1 The external noise test of hybrid electric vehicle shall be carried out under the hybrid electric mode; the test methods shall be on the basis of Vehicle Acceleration Running External Noise Limit and Measuring Method; at the same time, make some changes as follows:

4.1.2 For the test of windscreen demisting system of hybrid electric vehicle, if the engine of hybrid electric vehicle participates in the demisting work, the test shall be in accordance with regulations in GB 11555-1994 Performance Requirements and Test methods of Vehicle Windscreen Demisting System. If the engine of hybrid electric vehicle will not participate in the demisting work, it can only switch on the main circuit to test it, which will not restrain the starting of engine.

4.2 Finished automobile performance test The test items will be evaluated according to the product technical specifications.

4.2.1 Measurement of basic parameters and main performances of finished automobile The measuring methods of basic parameters of finished vehicles are in accordance with regulations in GB/T 12673, GB/T 12674 and GB/T 12538.

4.3 Reliable running test The reliable running test of hybrid electric vehicle shall be carried out in place authorized by the State.

4.3.1 The reliable running test of newly designed hybrid electric vehicles is same as the reliable running test of relevant traditional vehicles.

5 Test Procedures

5.1 Receive and check the sample vehicles for inspection; register the sample vehicles.

5.2 Run the vehicle in according to the manufacturer's regulations.

5.3 Carry out the compulsory standard test, whole-automobile test and reliable running test.

5.4 Compile the test reports.

6 Test Reports

Test reports shall include the following contents.