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**Hybrid electric vehicles safety specification [Including
modifications 1, 2]
(English Translation)**

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Foreword

This Standard is drafted by reference to ECE R100 Uniform provisions concerning the approval of battery electric vehicles with regard to specific requirements for the construction and functional safety, ETA HTP001 Technical specifications for hybrid electric vehicles and GB/T 18384 Safety specifications for electric vehicles, and in combination with the features of domestic hybrid electric vehicles.

This Standard was proposed by the National Technical Committee for Standardization of Automobiles.

This Standard shall be under the jurisdiction of the National Technical Committee for Standardization of Automobiles.

Drafting organizations of this Standard. China Automotive Technology and Research Center, Tsinghua University and Dongfeng Electric Vehicle Co., Ltd.
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Hybrid electric vehicles safety specification

1 Scope

This Standard specifies the special safety specifications for Type M1 hybrid electric vehicles (for the definition of the hybrid electric vehicles, SEE GB/T 19596).

This Standard is applicable to the Type M hybrid electric vehicles whose on-board circuits' maximum operating voltage is less than 660V (AC) or 1,000V (DC) (according to the provisions of GB 156-1993). Other types of hybrid electric vehicles can use this Standard for reference.

2 Normative references

The provisions in the following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, parties who reach an agreement based on this Standard are encouraged to study if the latest editions of these documents are applicable. For undated references, the latest editions apply to this Standard.

GB 156-1993 Standard voltages (neq IEC 38.1993)

GB 4208 Degrees of protection provided by enclosure (IP code) (GB 4208-1993, eqv IEC 529.1989)

GB 14023 Vehicles, motorboats and spark-ignited engine-driven devices - Radio disturbance characteristics - Limits and methods of measurement (GB 14023-2000, idt IEC/CISPR 12.1997)

GB 18655 Limits and methods of measurement of radio disturbance characteristics for the protection of receivers used on board vehicles (GB 18655-2002, idt IEC/CISPR 25.1995)

GB/T 17578 Provisions of strength for the superstructure of bus (GB 17578-1998, eqv ECE R66)

3 Terms and definitions

The terms and definitions established in GB/T 19596 and the following ones are applicable to this Standard.

4 Requirements

Hybrid electric vehicles shall meet the safety specifications for automobiles of relevant national standards, and shall also meet the special requirements specified in this Standard.

4.1.1.1 The requirements for the insulation resistance and creepage distance of traction batteries shall conform to the requirements of GB/T 18384.1.

4.1.1.6 Types of the traction batteries

The indicated chemical types of the traction batteries shall be clearly visible for ease of recognition.

4.1.2.1 AVOID direct contact with the live parts in the power circuit system

No requirements for the non-high voltage power circuit system have been made in this Standard.

4.1.2.1.6.1 Each traction battery pack and protective cover of the easily accessible live part specified in Section 4.1.2.1.1 shall be clearly indicated with the symbol specified in Figure 1. The symbol shall be clear and solid.

4.1.2.1.6.2 The high-voltage wiring covers shall be orange in color and/or uniformly composed of orange casings.

4.1.2.2 AVOID indirect contact with the exposed conductive parts in the power circuit system

4.1.2.3 Insulation resistance

The high-voltage circuit system and electrical chassis of the hybrid electric vehicles shall be insulating. The requirements for the insulation resistance

values shall conform to the provisions of Section 6.2.2 in GB/T 18384.3-2001.

4.1.2.4 Potential equalization

The potential equalization shall conform to the provisions of Section 6.4 in GB/T 18384.3-2001.

4.1.4.1 CONDUCT relevant collision test according to the provisions of national compulsory standards, which shall meet relevant and following requirements.

4.1.4.2 Passenger protection

When conducting the collision test, MEET the following requirements and the ones of Section 4.1.1.5.

4.2.2.5 When the vehicles are in parking status and the key switches are in the "off" position, the vehicles cannot automatically start the engines to charge the traction batteries.

4.2.3 Manual switch

Each vehicle shall be equipped with a manual switch to switch off the on-board power supply (such as traction batteries). When the vehicles cannot ensure the high-voltage system insulation due to maintenance or faults, this switch shall be able to cut off the high-voltage power circuit system.

4.2.4 Electromagnetic compatibility

The vehicles shall meet the requirements of GB/T 18387, GB 14023, GB 18655 and GB/T 17619.

4.3 Fault protection

This clause specifies the protection against the danger caused by the faults of the specific systems and parts of the hybrid electric vehicles. The processing mode of other systems and parts shall be the same with that of the internal combustion vehicles.