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GB/T 44500-2024

Code of practice for the safety performance inspection of new energy vehicles in service

新能源汽车运行安全性能检验规程

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part

1.Rules for the structure and drafting of standardizing documents". Please note that some contents of this document may involve patents. The issuing agency of this document does not assume the responsibility for identifying patents. This document shall be under the jurisdiction of the National Technical Committee for Road Traffic Management Standardization (SAC/TC 576). Drafting organizations of this document. Traffic Management Science Research Institute of the Ministry of Public Security, China Automotive Engineering Research Institute Co., Ltd., Chongqing Public Security Bureau Traffic Patrol Police Corps, Duolun Technology Co., Ltd., Shijiazhuang Huayan Traffic Technology Co., Ltd. The main drafters of this document. Zhang Jun, Yu Chunjun, Mu Wenhao, Zhang Nutao, Sun Wei, Lin Yizhou, Ran Yiyang, Wang Lefeng, Di Jianhui, Wu Yunqiang, Yong Chengming, Zhou Jingjing, Gao Jianming.

1 Scope

GB/T 44500-2024 is the Chinese inspection procedure for the safety performance of new energy vehicles in service: the periodic roadworthiness test as it applies to a battery electric or plug-in hybrid car. A conventional inspection looks at brakes, lights, emissions and steering; none of that examines the part of an electric vehicle most likely to hurt someone, which is the high voltage system and the battery. This standard adds it. It sets out the inspection items and the procedure for the electrical safety, the insulation resistance and the equipotential bonding, the condition and integrity of the high voltage cabling, connectors and the battery enclosure, the battery system state and the data read from the battery management system and from the on-board diagnostic and monitoring interfaces, the charging interface, the function of the warning and protection systems, and the traditional items as they apply to such a vehicle, together with the equipment required, the judgement criteria and the reporting. For an inspection station, a fleet operator or a regulator in China, this is the test procedure.

This document specifies the inspection procedures, inspection items, inspection requirements for the operation safety inspection of new energy vehicles. This document is applicable to the operation safety inspection of pure electric vehicles and plug-in hybrid (including extended-range) vehicles in use; other types of new energy vehicles in use can use it as a reference.

2 Normative references

The contents of the following documents constitute the essential terms of this document through normative references in the text. Among them, for referenced documents with dates, only the version corresponding to that date applies to this document; for referenced documents without dates, the latest version (including all amendments) applies to this document.

GB 3847 Limits and measurement methods for emissions from diesel vehicles under free acceleration and lugdown cycle

GB/T 18487.1 Electric vehicle conductive charging system - Part

3 Terms, definitions, abbreviations

3.1 Terms and definitions The terms and definitions defined in GB/T 19596, as well as the following terms and definitions, apply to this document.

3.1.1 New energy vehicles safety operation inspection Inspection of the technical performance of components/devices related to operation safety such as power batteries, drive motors, electronic control systems, electrical safety of new energy vehicles.

3.2 Abbreviations The following abbreviations apply to this document. DID. Data Identifier

4 Inspection procedure

4.1 The operation safety inspection of new energy vehicles should be carried out in combination with the data monitoring and analysis results transmitted in GB/T 32960.3 (hereinafter referred to as "online monitoring and analysis results").

4.2 The operation safety inspection process of new energy vehicles is shown in Figure 1.

5 Inspection items

Table 1 specifies the operation safety inspection items of new energy vehicles.

6 Inspection requirements

6.1 Basic requirements for inspected vehicles The inspected vehicles shall meet the following requirements.

6.2 Inspection environment The inspection environment conditions shall meet the following requirements.

6.3 Inspection equipment

6.3.1 Equipment configuration The inspection equipment used for the new energy vehicle operation safety inspection is shown in Table 2.

6.3.2 Equipment technical requirements

6.3.2.1 Charging safety test equipment Charging safety test equipment shall meet the following requirements.

6.3.2.2 Automobile chassis dynamometer 6.3.2.2.1 The drum and power absorption unit of the automobile chassis dynamometer shall comply with the requirements of GB 3847.

6.3.2.4 Electrical safety test equipment 6.3.2.4.1 Megaohmmeter The megohmmeter shall meet the following requirements. 6.3.2.4.2 Milliohmmeter The milliohmmeter shall meet the following requirements. 6.3.2.4.3 Electrical safety automatic test equipment The electrical safety automatic test equipment shall meet the following requirements.

6.4.1 Power battery safety

6.4.1.2 Discharge When inspecting the safety (discharge) of the power battery. 6.4.3.1.3 The automatic measurement method of the insulation resistance of the charging socket is as follows:

6.4.3.2 Potential equalization 6.4.3.2.1 Potential equalization measurement can be carried

out by manual measurement or automatic measurement. 6.4.3.2.3 The method of automatic potential equalization detection is as follows:

6.5 Test results

6.5.1 The test results of the new energy vehicle operation safety test items are judged with reference to the thresholds given in Appendix B. For thresholds specified in the manufacturer's technical documents, refer to the manufacturer's technical documents for judgment.

6.5.2 The inspection conclusions of the new energy vehicle operation safety inspection are divided into normal and recommended maintenance.