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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 47439-2026

Safety requirements for the maintenance of new energy vehicles

新能源汽车维修作业安全要求

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Foreword

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16 Safety requirements for new energy vehicle maintenance operations Released on April 30, 2026 Implemented on August 1, 2026 State Administration for Market Regulation The State Administration for Standardization issued a statement.

1.Scope This document specifies the personnel and site requirements, work preparation, risk assessment and handling, work procedures, and operational safety for new energy vehicle maintenance operations. All requirements. This document applies specifically to pure electric vehicles, plug-in hybrid electric vehicles, and fuel cell electric vehicles using gaseous hydrogen. Equipment maintenance work.

4.1 Personnel

4.1.1 High-voltage system maintenance technicians should be qualified through professional training before taking up their posts, and should obtain a special certificate for low-voltage electrical work within the electrical work category. Type of operation certificate.

4.1.2 Electrical maintenance work should be carried out by no fewer than two maintenance technicians working together, with one of them responsible for safety supervision.

4.1.3 Maintenance technicians should be familiar with the operating procedures for specialized equipment and tools used during operations, the requirements for the use of protective equipment, and other relevant procedures. Emergency response measures.

4.1.4 Maintenance technicians should be familiar with the safety information regarding the maintenance of special equipment for the vehicle models they are responsible for repairing, and should comply with electrical safety operating procedures during the work process. specification.

4.1.5 Maintenance technicians should be familiar with the escape routes of the maintenance work site.

4.2 Venue

4.2.1 Maintenance work shall be carried out in a dedicated maintenance workshop with clear directional signs.

4.2.2 The work site should be well ventilated, free of flammable, explosive or potentially dangerous materials, and the ground should be dry and free of standing water and should not be exposed to rain.

4.2.3 Safety warning signs should be set up at the work site, and the signs should be clear and complete.

4.2.4 Static electricity elimination facilities installed at the work site should be effective.

4.2.5 The work site shall be equipped with fire-fighting facilities and equipment, such as fire hydrants, fire extinguishers, and gas masks, and shall be provided with power storage batteries (hereinafter referred to as "batteries"). For disassembly and repair of batteries, a fire-fighting water tank or explosion-proof box with the appropriate size for the battery being repaired should also be provided.

4.2.6 The work site shall be equipped with electrical high voltage protection emergency equipment, such as insulating rods and fire hooks.

4.2.7 Battery assembly repair work sites should be equipped with battery transfer equipment.

4.2.8 There are gas accumulation points on the roof of the maintenance site for fuel cell electric vehicles using gaseous hydrogen (hereinafter referred to as "hydrogen fuel cell vehicles"). Explosion-proof ventilation devices and hydrogen concentration detection and alarm devices should be installed.

4.2.9 Work sites involving working at heights shall be equipped with safety facilities for working at heights, including but not limited to ladders, safety belts and their fixing devices.

5 Homework Preparation

5.1 Maintenance technicians shall wear insulating gloves, acid (alkali) resistant gloves, safety shoes (boots), eye and face protection, and safety equipment according to the maintenance work content. Safety protective equipment such as helmets and seat belts should be worn, and those repairing vehicle hydrogen supply systems or fuel cell systems should also wear electrostatic protective clothing.

5.2 Insulating gloves with a withstand voltage rating at least

1.5 times that of the operating voltage of the high-voltage system should be selected.

5.3 The appearance of the insulating tools should be inspected to ensure they are undamaged.

5.4 Safety protective equipment should be inspected for its expiration date and appearance before use. Equipment that has exceeded its expiration date should not be used. (Appearance inspection before use is required.) It should comply with the provisions of Table 1.

5.5 A work warning isolation zone should be set up according to the content of the maintenance work, and warning signs such as "No Entry" should be placed in a conspicuous position in the warning isolation zone. "Entering" "High-pressure danger".

5.6 Maintenance technicians should not wear metal jewelry and should perform static discharge before starting work.

5.7 Turn off the vehicle's main power switch. For vehicles using physical key start, properly store the removed key. For vehicles with remote start functionality... The vehicle's remote start function should be disabled. A warning sign, such as "Do Not Start" or "Starting," should be placed near the vehicle's dashboard. Operation".

5.8 Maintenance work on hydrogen fuel cell vehicles should be carried out only after the fuel cell system has been completely shut down, and the integral of hydrogen gas in the maintenance work area should be [not specified]. It should not exceed 0.4%.

5.9 Apply the parking brake to the vehicle being sent for repair. The vehicle should be securely parked in the repair bay or on the lifting platform. If parked in the repair bay, a parking device should also be placed on it. Parking wedges (such as triangular blocks).

6 Risk Assessment and Handling

6.1 Before performing maintenance work, the existing safety risks should be identified based on the damage condition and fault symptoms of the vehicle or assembly (system) being repaired. The risk identification results were recorded. The identified risks primarily included.

a) The battery box is dented or deformed;

b) Deformation or damage to the frame skin or outer cover of the battery system of new energy heavy-duty trucks;

c) The battery was submerged in water;

d) Burn marks on the battery casing;

e) Battery coolant leakage;

f) Damaged high-voltage wiring harness;

g) Insulation alarm or fault;

h) Battery temperature exceeds limit;

i) Overvoltage of a single battery cell;

j) The safety valve or shut-off valve of the on-board hydrogen supply system has failed;

k) Gas leakage from the on-board hydrogen supply system or fuel cell system.

6.2 Based on the risk identification results, the repair technical information disclosed by the automobile manufacturer (hereinafter referred to as "Automobile Repair Technical Information") should be followed. The time limits and methods stipulated in the regulations shall be used to promptly address the risks associated with vehicles or assemblies (systems) sent for repair.

6.3 Batteries awaiting repair or transfer should be moved to a designated battery storage area and properly supervised.

7 Work Process

7.1 Before performing maintenance work, a risk assessment of the vehicle or assembly (system) sent for repair should be conducted in accordance with Chapter 6, and any existing risks should be addressed before proceeding. Repairs were carried out.

7.2 When performing maintenance work, the following procedures should be followed first.

a) Disconnect the negative terminal of the low-voltage battery and secure the negative terminal harness. Protect the negative terminal of the low-voltage battery. (Automotive Repair Technical Information) The regulations stipulate that the battery management system should be turned off.

b) Disconnect the maintenance switch, insulate the base of the maintenance switch, seal the maintenance switch, and store it properly. For multiple high-voltage maintenance switches, make sure to mark their locations.

c) After disconnecting the maintenance switch, let it stand for 10 to 15 minutes.