

**New Regulation on Electric Shock Protection for  
Occupants of Electric Motor Vehicles, etc.  
(in Japan)**

The new regulation requires electric motor vehicles and electric-hybrid motor vehicles (hereafter called “electric motor vehicles, etc.”) to comply with the following standards in order to protect their occupants from electric shock under normal use as well as after a crash.

In addition, to receive a new motor vehicle inspection, it is required to submit a certificate stating that the motor vehicle meets these standards.

The standards apply to motor vehicles that are manufactured on or after July 1, 2012.

**(1) Scope**

Electric motor vehicles, etc. excluding two-wheeled motor vehicles, two-wheeled motor vehicles with sidecars, three-wheeled motor vehicles, light motor vehicles with caterpillars or sleds, large-sized special motor vehicles, small-sized special motor vehicles, trailers, and fuel-cell motor vehicles.

**(2) Outline of the standards**

1) Protection of occupants from high voltage under normal use

- \* The following requirements have been specified with regard to electric shock protection for occupants of electric motor vehicles, etc. under normal use
  - Requirement for electric shock protection from high voltage in the powertrain
  - Requirement for protection from the device connected to the external power source
  - Requirement for protection from overcurrent of the driving battery
  - Requirement for ventilation in the case of installing a driving battery that generates hydrogen gas
  - Requirement for indication of the “ready-to-run” status

2) Protection of occupants from high voltage after a crash

- \* The following requirements have been specified with regard to electric shock protection for occupants of electric motor vehicles, etc. after a crash.
  - Requirement for electric shock protection from high voltage in the powertrain
  - Requirement for electrolyte spillage from the driving battery
  - Requirement for retention of the driving battery
- \* The following requirements have been specified for heavy-duty trucks, buses, etc. to which the above requirements do not apply.
  - Requirement for installation locations of the driving battery and electric circuit
  - Requirement for strength of the part where the driving battery is installed

## Concepts in the protection of occupants from electric shock

- Protection from direct contact: **The high voltage part** is prevented from being touched directly by the occupants.
- Provision of electric insulation: **The high voltage part** and the other conductive parts are insulated from each other.
- Protection from indirect contact: Measures are provided to prevent electric shock even in the event of an electric leakage from **the high voltage part** to the other conductive parts.

