Regulations of Crash Safety about HEV and EV

MLIT, Japan

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The number of HEV and EV in 97’-05’

In Japanese market, the number of HEV and EV is increasing continuously for several years.

(Number of Vehicles)

<table>
<thead>
<tr>
<th>Year (FY)</th>
<th>HEV</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>3,696</td>
<td>2,500</td>
</tr>
<tr>
<td>1998</td>
<td>22,450</td>
<td>2,400</td>
</tr>
<tr>
<td>1999</td>
<td>37,380</td>
<td>2,600</td>
</tr>
<tr>
<td>2000</td>
<td>50,400</td>
<td>3,800</td>
</tr>
<tr>
<td>2001</td>
<td>74,600</td>
<td>4,700</td>
</tr>
<tr>
<td>2002</td>
<td>91,200</td>
<td>5,600</td>
</tr>
<tr>
<td>2003</td>
<td>132,500</td>
<td>7,700</td>
</tr>
<tr>
<td>2004</td>
<td>196,800</td>
<td>8,500</td>
</tr>
<tr>
<td>2005</td>
<td>256,600</td>
<td>9,900</td>
</tr>
</tbody>
</table>
TPC, an advisory group of JMLIT consisting of vehicle safety experts, submitted a report on future vehicle safety measures to the Minister of JMLIT.

This report indicates that crash safety regulation of HEV and EV should be established.

As background of this suggestion,
- Crash safety regulation of HFCV has already been established in Japan
- The number of HEV and EV is increasing rapidly.

On the other hand, international harmonization of this regulation such as gtr or ECE regulation doesn’t keep up yet.

Therefore, we plan to establish this regulation as Japanese Safety Regulations.
Outline of Regulation about HEV and EV

- **Crash Safety Requirement**
  - referred ECE-R94,R95
    - Leakage of liquid electrolyte in the battery
    - Fastening of Batteries
    - Protection of occupants against electric shock at vehicle collision

- **Protection against electric shock at usually usage**
  - Based on ECE-R100 and Japanese FCV’s regulation, established regulation according to some advanced technology
    - Protection against direct contacts with live parts
      ex. Barrier, enclosure, etc.
    - Protection against indirect contacts
      ex. Electrical connection between exposed conductive parts (barrier, enclosure, etc.) and electrical chassis (vehicle flame, etc.) to prevent outbreak of high voltage
    - Insulation resistance
      ex. Keep not less than 100 $\Omega/V$ of the nominal voltage between live parts and electrical chassis.
Draft of Discussion Schedule

- April 06’  Kick off discussion about this issue
- March 07’  Established draft regulation about crash safety of HEV and EV
- April 07’   Collected public comments
- Autumn 07’  Enter into enforce this regulation
- December 07’  Proposed amendment of ECE-R100 at GRSP/GRPE