

## **Guideline for One-to-One Replacement of Traction Batteries for Electric Vehicles**

### Purpose

Electric vehicles (EVs) become popular in Hong Kong. Replacement of traction batteries may be required for aged EVs. This Guideline states the responsibilities and notes for attention to EV owners and maintenance workshops for replacement of EV's traction batteries. This guideline is applicable for replacement of the battery pack only. Any replacement or modification of individual battery cell inside the battery pack are not recommended.

### Notices to EV owners

Dealers or maintenance workshops authorized by associated EV manufacturers should be chosen for replacement of EV's traction batteries.

### Notices to authorized dealers and maintenance workshops

1. All equipment/tools should be certified/recommended by the associated EV manufacturers to ensure that they are safe and suitably used for specific brands and models of EVs.
2. The workshop should be registered as an Electric Vehicle (High Voltage) (EVH) workshop under the Voluntary Registration Scheme for Vehicle Maintenance Workshop (VRSVMW) maintained by Electrical and Mechanical Services Department (EMSD).
3. All supervisors and technicians should be well-trained and qualified by the associated EV manufacturers for traction battery replacement works for specific brands and models of EVs. They should be registered vehicle mechanics code (M)(EVH) or (E)(EVH) under EMSD's voluntary registration scheme as per the latest Practice Guidelines for Electric Vehicle Maintenance published by the EMSD.
4. All fire safety systems, facilities and equipment shall meet the relevant requirements stipulated by the Fire Services Department.
5. In case of increasing weights of the new batteries, TD's approval shall be sought before commencement of the battery replacement works.
6. The overall dimensions and mounting points (i.e. locations and methods) shall not be changed.
7. Replacement of EV's traction batteries:-
  - i. Technicians shall strictly follow traction battery replacement procedure, guidelines and instructions given by the associated EV manufacturers;

- ii. Workplaces should be fenced off with clear warning notices to prevent unauthorized person approach and equipped with proper protections. It should be dry and free from foreign objects;
- iii. All battery replacement works should be carried out by technicians wearing suitable protective clothes, insulated gloves, insulated shoes and other protective gears as per the latest Practice Guidelines for Electric Vehicle Maintenance published by EMSD and recommendation by the associated EV manufacturers;
- iv. Technicians should take all safety precautions as per the latest Practice Guidelines for Electric Vehicle Maintenance published by EMSD and recommendation by the associated EV manufacturers. Supervisors shall double check and ensure all safety measures in order. First aid provision shall be provided and kept in proper condition;
- v. Traction batteries should be fully discharged (or to the levels as per associated EV manufacturers' instructions) by equipment approved/recommended by the associated EV manufacturers before removal of the batteries;
- vi. High voltage power supplies shall be properly disconnected (such as removal of Main Fuse, etc.) and technicians shall confirm that high voltage circuits are isolated and de-energised by checking with proper measuring instruments approved/recommended by the associated EV manufacturers;
- vii. Disassemble of traction battery and its associated component(s) is strictly prohibited;
- viii. Gross weights of new traction batteries heavier than the one being replaced and change of load distribution of EVs are prohibited unless the associated EV manufacturers' permissions are granted. Prior approval from Transport Department is required for installation of heavier EV's traction batteries;
- ix. Alteration of input/output power of EV's traction batteries is prohibited;
- x. Sufficient ventilation/cooling for the new batteries shall be provided as per requirements from the associated EV manufacturers;
- xi. Degree of protection for the traction batteries against collision and environmental contaminations shall not be deteriorated after replacement of batteries; and
- xii. After replacement of traction batteries, technicians shall check and ensure the EVs and traction batteries working properly in both mechanical and electrical aspects.

**Transport Department**

**February 2025**

## Record of EV Traction Battery One-to-One Replacement Work

Please tick where appropriate.

<b>Before Work</b>		<b>Yes</b>	<b>No</b>
1	Equipment/tools certified/recommended by associated EV manufacturer to be used		
2	Protective clothes, insulated gloves, insulated shoes and other recommended protective gears are properly worn		
3	All safety precautions recommended by the associated EV manufacturer are followed.		
4	Workplace is fenced off with clear warning notices		
5	Workplace is dry and free from foreign objects		
<b>Before removal of batteries,</b>		<b>Yes</b>	<b>No</b>
6	Traction batteries are fully discharged		
7	High voltage power supplies are disconnected		
8	High voltage circuits are isolated and de-energized		
<b>Gross weights of new traction batteries are</b>		<b>Yes</b>	<b>No</b>
9	(a) Heavier than the one being replaced (if yes, go to b)		
	(b) Prior permission/approval from associated EV manufacturer and TD are obtained		
<b>During replacement,</b>		<b>Yes</b>	<b>No</b>
10	No alteration is done to input/output power of EV's traction batteries		
11	No change is made to overall dimensions and mounting points		
<b>After replacement...</b>		<b>Yes</b>	<b>No</b>
12	Sufficient ventilation/cooling is provided for new batteries		
13	Degree of protection for batteries against collision and environmental contaminations are maintained		
14	EV and traction batteries work properly in both mechanical and electrical aspects		

**Replaced by**

**Supervised by**

**Signature:**

**Signature:**

**Name :** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_