# Specification of Competency Standards
# for the Automotive
# Unit of Competency

**Functional Area - Vehicle Servicing**

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| **Title** | Remove and replace the vehicle high-voltage batteries onboard |
| **Code** | 111748L4 |
| **Range** | This unit of competency is applicable in vehicle service workshops. Practitioners should be able to work on functional or potentially functional battery systems and the related high-voltage components in fuel cell electric, battery electric, and hybrid electric vehicles; perform one-for-one replacement of the high-voltage batteries safely according to the instructions in the vehicle manufacturer's service manual, environmental protection, occupational safety and health legislation. They should also be able to reconnect all cables/harness and associated components of the cooling system for the high-voltage batteries and provide written report upon completion of work. |
| **Level** | 4 |
| **Credit** | 3 *(For Reference Only)* |
| **Competency** | **Performance Requirements**<br><br>1. Knowledge (Common faults of the vehicle high-voltage batteries and diagnosis procedures)<br>• Identify the common faults of the vehicle high-voltage batteries on:<br>  ○ Overheating<br>  ○ Deformation after crash<br>  ○ Fluid leakage<br>  ○ Smoking<br>  ○ Soaked<br>  ○ Electricity leakage<br>• Master the use of special service tools, personal protection and first-aid equipment for relevant tasks.<br>• Master the characteristics of cables/harness, interlocking devices of adaptors and the battery cooling system, their removal and replacement procedures, as well as the mounting method of the high-voltage battery pack with reference to the instructions in the manufacturer's service manual.<br>• Understand relevant legal requirements on occupational safety and health, road and vehicle safety, and environmental protection.<br><br>2. Performance (One-for-one replacement of the high-voltage battery pack onboard)<br>• Conduct the one-for-one high-voltage battery pack replacement procedures, including cables / harness and cooling system, with reference to the instructions in the manufacturer's service manual and the requirements concerning occupational health and safety and that of environmental protection, including the use of special tools / equipment to assist the process, after the system power-down is confirmed by the result of special service tools / authorised competent person.<br>• Conduct the coding procedures and functional tests after the high-voltage system is reinstated by authorised competent person.<br>• Conduct performance and safety inspection after the work and provide written report, focusing on:<br>  ○ Abnormalities<br>  ○ Measurement data<br>  ○ Major decisions and the effectiveness |

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| **Assessment Criteria** | The integrated outcome requirements of this unit of competency are that the practitioner being assessed shall prove that he/she is:<br>• Capable of conducting the one-for-one replacement procedures of vehicle high-voltage batteries properly, including cables / harness and cooling system, according to the instructions in the manufacturer's service manual and the relevant requirements on environment protection, occupational safety and health regulations, after the system power-down is confirmed by the result of special service tools / authorised competent person;<br>• Capable of conducting the coding procedures and cooling system inspection for the high-voltage battery correctly, after the high-voltage system is reinstated by authorised competent person; and<br>• Capable of conducting safety and functional tests, and providing working report upon completion of work. |
| **Remark** | The credit value of this unit of competency is set on the presumption that the practitioner concerned already possesses good knowledge of the high-voltage batteries of electric and hybrid vehicles.<br>The practitioner concerned should be a recognised competent person in electrified vehicle services, such as a registered vehicle mechanic who has completed an electric vehicle – high voltage training course, or equivalent.<br>(This UoC replaced 108725L3) |