Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Conduct the performance check of Rechargeable Energy Storage System (REESS) on electrified vehicles
Code	111747L4
Range	This unit of competency is applicable in vehicle service workshops. Practitioners should be able to check the performance of REESS of electrified vehicles, including fuel cell electric, battery electric and hybrid electric vehicles, according to the special service equipment, instructions in the corresponding vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations masterly. They should also be able to conduct system tests and evaluation and provide written report upon completion of work.
Level	4
Credit	5 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Structure and operating principles of the REESS on electrified vehicles) • Good understanding of electric and electronic theories and also the principles of electric power transfer and electricity generation. • Master the types of high-voltage batteries adopted by vehicles, their working principles, characteristics, handling procedures, associated safety issues, potential occupational safety and health impacts and dangers, as well as environmental protection concerns. • Master the use of special service tools, personal protection and first-aid equipment for relevant tasks. • Good understanding of the system architectures of REESS of electrified vehicles, its circuitry, the charge and discharge controls, and system protection. • Good understanding of the use of special service equipment, including onboard diagnostics for the system inspection. • Master the inspection procedures for the REESS according to the requirements specified in the corresponding vehicle manufacturer's service manual.

	2. Performance (Conduct performance checking of the REESS on electrified vehicles)
	• According to the instructions in the corresponding vehicle manufacturer's service manual and the requirements of occupational safety and health as well as that of environmental protection, safely execute the system checkup using the correct special service equipment or onboard diagnostics, including
	  ◦ Normal condition of harness, high-voltage cables and connectors of REESS
	  ◦ Insulation of REESS
	  ◦ Normal operation of battery management system (BMS)
	  ◦ Health condition of the high-voltage battery, such as fault memory, charging status, state of charge (SOC), state of health (SOH), etc.
	  ◦ Normal operation of the onboard charging system, the effectiveness of the high-voltage battery energy discharge, and energy recharge, including external power and regeneration
	  ◦ Energy transference for all sub-systems, including the low-voltage battery
	• Properly handle and dispose of the vehicle battery pack according to the corresponding manufacturer's instructions, the requirements of environmental protection, occupational safety and health regulations.
	• Provide written report upon the completion of the REESS checkup, focusing on:
	  ◦ Abnormalities and battery degradation
	  ◦ Measurement data
	  ◦ Summary and recommendations

Assessment Criteria	The integrated outcome requirements of this unit of competency are that the practitioner being assessed shall prove that he/she is: • Capable of masterly conducting REESS performance checkup using special service equipment, including the high-voltage battery, BMS, onboard charger, cables and connectors, according to the instructions in the corresponding vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations; • Capable of handling the abandoned high-voltage battery pack correctly with compliance to the requirements of environmental protection, occupational safety and health regulations; and • Capable of providing written report with recommendations 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 vehicle electrical and electronic system servicing. The practitioner concerned should be a recognised competent person in electrified vehicles, such as a registered vehicle mechanic who has completed an electric vehicle – high voltage training course, or equivalent.