Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Conduct fault diagnosis on the propulsion control systems of electrified vehicles
Code	111744L4
Range	This unit of competency is applicable in vehicle service workshops. Practitioners should be masterly able to conduct fault diagnosis on the propulsion systems of electrified vehicles and conduct or arrange rectification according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations. They should also be able to conduct system tests and provide written report upon completion of work.
Level	4
Credit	6 *(For Reference Only)*

Competency	**Performance Requirements**
	
	1. Knowledge (Structure and operating principles of the propulsion systems on various types of electrified vehicles)
	• Good understanding of the structure and operating principles of the propulsion control of various types of electrified vehicles, such as the electric motors, fuel cell systems and types of hybrid electric systems.
	• Good understanding of the hazards and safety rules of the electric drive system of electrified vehicles.
	• Master the operation of various types of diagnostic and testing instruments and equipment, such as on-board diagnostic systems.
	• Master the fault diagnosis procedure for the abnormal performance of propulsion control and power modulation on electrified vehicles, including fuel cell electric, battery electric and hybrid electric vehicles, with reference to instructions in the vehicle manufacturer's service manual.
	• Understanding of the relevant legal requirements on road and vehicle safety, and environmental protection.
	2. Performance (Conduct fault diagnosis on electrified vehicles)
	• Conduct diagnostic procedures for the abnormal performance of propulsion control and power modulation, such as the substandard responses in driving or/and regeneration power, high electric power consumption rate, noisy and vibrating operation, etc., on electrified vehicles according to the instructions in the vehicle manufacturer's service manual and safety rules as well as the requirements of occupational safety and health and environmental protection, including the use of special equipment and instruments, such as using hand-held testers, chassis dynamometers, and road tests to assist the diagnosis of system components.
	• Conduct or arrange rectification of defects identified from diagnosis.
	• Examine the propulsion control and power modulation systems of electrified vehicles accurately and confirm the effectiveness of rectification using instruments and equipment.
	• Conduct performance and safety inspection after the work and provide written report focusing on:
	  ◦ Abnormalities
	  ◦ Measurement data
	  ◦ Major decisions and the effectiveness

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 accurately conducting fault diagnosis on the abnormal performance of propulsion control and power modulation systems of electrified vehicles according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations; • Capable of conducting or arranging rectification of defects according to diagnostic results; and • Capable of testing various types of electrified vehicles accurately and providing written report.
Remark	The credit value of this unit of competency is set on the presumption that the practitioner concerned already possesses good knowledge of repairing mechanical and electrical systems of various types of electrified vehicles. 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, and be a competent person in hydrogen fuel cell electric vehicle recognised by the authority concerned when working on fuel cell electric vehicles. (This UoC replaced 108699L3)