Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Conduct fault diagnosis on the low-voltage electrical systems onboard
Code	111733L3
Range	This unit of competency is applicable in vehicle servicing workshops. Practitioners should be able to independently conduct diagnosis and analysis on the vehicle low-voltage electrical systems of vehicle 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 capable of conducting system tests and evaluations and providing written report upon completion of work.
Level	3
Credit	6 *(For Reference Only)*

Competency	**Performance Requirements**
	
	1. Knowledge (Structure and operating principles of various vehicle low-voltage electrical systems)
	• Master the principles of electricity and electronics.
	• Demonstrate the function and application of specified electronic/electric tools and equipment for circuit/component fault diagnosis.
	• Comprehend the requirements of local legislative provisions in relation to various vehicle low-voltage electrical systems, such as:
	  ◦ lighting, signalling and warning systems, including the instrument panel
	  ◦ infotainment and communication systems
	  ◦ security and monitoring systems
	• Master the electrical circuits, structure, control and operating principles of various vehicle low-voltage electrical systems, including their sensors and major components, such as:
	  ◦ interior and exterior lighting, signalling and warning systems, including the instrument panel
	  ◦ windscreen wiper, electrical operating seat, door, sunroof and window systems
	  ◦ security and monitoring systems
	  ◦ infotainment and communication systems
	  ◦ other related electronic/electrical systems
	• Master the fault diagnosis procedures for various low-voltage electrical systems according to the requirements mentioned in the vehicle manufacturer's service manual.

	2. Performance (Conduct fault diagnosis on various vehicle low-voltage electrical systems)
	• Safely conduct the diagnostic procedures with the application of appropriate specified tools and equipment according to the instructions in the vehicle manufacturer's service manual and the requirements of occupational safety and health as well as that of environmental protection, including:
	  ◦ Identification of the circuitry and component problems for the:
	  ▪ lighting, signalling and warning systems, including instrument panels
	  ▪ wiper, seat, door, sunroof and window systems
	  ▪ security and monitoring systems
	  ▪ infotainment and communication systems
	  ▪ other related electrical systems
	  ◦ Analysis of the failure problems of the systems/components and identification of the causes of faults
	  ◦ Rectification and adjustment of relevant system components and accessories
	• Evaluate the system performance and safety with the aid of specified equipment after servicing, and provide written report.
	• Assess the conformity of various low-voltage electrical systems to the relevant legislative provisions and the guidelines in the vehicle manufacturer's service manual, including:
	  ◦ lighting, signalling and warning systems
	  ◦ security and monitoring systems
	  ◦ infotainment and communication systems

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 complicated fault diagnosis on various vehicle low-voltage electrical systems according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations, including the:
	  ◦ lighting, signalling and warning systems
	  ◦ wiper, door, seat, sunroof and window systems
	  ◦ security and monitoring systems
	  ◦ infotainment and communication systems
	• Capable of implementing or arranging rectification work for relevant systems according to diagnostic results; and
	• Capable of evaluating the performance of relevant systems and providing written 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 comprehensive knowledge of vehicle electronic and electrical systems servicing. The major ordinance involved in this unit of competency are as follows: • Occupational Safety and Health Ordinance • Road Traffic (Construction and Maintenance of Vehicles) Regulations (This UoC replaced 108704L3, 108705L3 and 108706L3)