Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Carry out routine maintenance for the hydrogen fuel cell system on electrified vehicle
Code	111708L3
Range	This unit of competency is applicable in the hydrogen-fuelled vehicle service workshops. Practitioners should be able to carry out routine maintenance safely according to the instructions in the respective vehicle manufacturer's service manual and the relevant requirements on gas safety, environmental protection, occupational safety and health regulations. They should also be able to conduct functional and safety tests on the system according to the manufacturer's specification, and provide work report upon completion of work.
Level	3
Credit	3 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Principle and layout arrangement of vehicular hydrogen fuel cell system, and the routine maintenance procedures) • Master the safety precautions and emergency procedures on the hydrogen fuel cell system and know the quality standard of hydrogen required for vehicular fuel cell systems. • Understand the basic principle and operation of the hydrogen fuel cell system adopted on vehicle. • Master the general layout of the fuel cell system on board, the function and operating principles of respective system components comprising, but not limited to, gas leakage detectors, gas tanks including all safety and control components attached, fuel cell units, hydrogen feeding pressure control, humidifiers, recirculating pumps, air pumps, coolers, back pressure valves and purge valves. • In accordance with the respective vehicle manufacturer's service manual, master the procedures to carry out routine system maintenance, including system management and gas leakage detection, such as functional tests, gas leakage tests, coolant leakage tests, system entirety, etc. • Understand the tools and equipment to carry out the fuel cell system routine maintenance. • Understand the relevant legal requirements on gas safety, road and vehicle safety, and environmental protection.

	2. Performance (Carry out routine maintenance for the hydrogen fuel cell system) • In accordance with the respective vehicle manufacturer's service manual, the Hong Kong Road Traffic Ordinance, requirements of gas safety, occupational safety and health, and environmental protection, carry out the routine maintenance of the fuel cell system, such as the normal operation, intactness and gas tightness of: ◦ Onboard gas leakage detection system ◦ Hydrogen fuel inlet coupling and pipeline ◦ Hydrogen tank and associated safety and control components ◦ Fuel cell unit and associated feeding pressure control ◦ Humidifier ◦ Recirculating pump assembly ◦ Air pump assembly ◦ Back pressure valve and purge valve ◦ Cooler ◦ System controls, and etc. • Conduct functional and safety inspection after the work and provide work report focusing on the abnormalities and decisions made.
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 carrying out routine maintenance for the fuel cell system onboard safely according to the instructions in the respective vehicle manufacturer's service manual and the relevant requirements on gas safety, environmental protection, occupational safety and health regulations; and • Capable of conducting system functional and safety inspections, and providing work report upon completion of work.
Remark	The credit value of this unit of competency is set on the presumption that the practitioner concerned has already possessed good knowledge of the fuel cell system onboard. The practitioner concerned should be a recognised competent person in electrified vehicles, such as a registered vehicle mechanic who has completed an electric vehicle – low voltage training course, or equivalent, and be a competent person in hydrogen fuel cell electric vehicles recognised by the authority concerned; the process should be under the high-voltage system power-down condition and confirmed by the checking result of special service tools/authorised competent person. When a live high-voltage system is involved in the work, the practitioner shall possess recognised competency/qualification, such as an electric vehicle – high voltage training course, or equivalent. The major ordinance involved in this unit of competency is as follows: • Road Traffic (Construction and Maintenance of Vehicles) Ordinance • Gas Safety Ordinance • Occupational Safety and Health Ordinance