Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Master the complicated techniques of the fuel supply system on liquefied petroleum gas vehicles
Code	111763L4
Range	This unit of competency is applicable at the designated liquefied petroleum gas vehicle work bay in vehicle service workshops. Practitioners should be able to check and repair various types of vehicular liquefied petroleum gas supply systems according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on occupational safety and health, environmental protection and gas safety. They should also be able to conduct performance and leakage tests on the system upon completion of work.
Level	4
Credit	3 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Structure and operating principles of various types of vehicular liquefied petroleum gas (LPG) supply systems) • Comprehend the natures, characteristics, handling and safety precautions of local automotive LPG. • Master the structure, operation and control principles of LPG supply systems and the associated components, including storage tanks, sensors and actuators. • Explain the change of phases and pressure of LPG in the system under different system operating conditions. • Understand the effects of different LPG supply systems on power output and emission control. • Understand the application and working principle of safety gears for LPG system service, such as leakage detection and warning, etc. • Recognise the limitation of the scope of vehicular LPG system services with respect to the guidelines of gas safety. • Comprehend the procedure and safety awareness of checking and repairing various types of LPG supply systems and associated system components. • Understanding of the relevant legal requirements on occupational safety and health, road and vehicle safety, gas safety and environmental protection.

	2. Performance (Check and repair various types of vehicular liquefied petroleum gas (LPG) supply systems)
	• According to the instructions in the vehicle manufacturer's service manual, the Road Traffic Ordinances of Hong Kong and the relevant requirements on occupational safety and health, gas safety and environmental protection, safely check the proper operation of the LPG supply systems, repair and replace the associated faulty system components, including:
	  ◦ Apply the approved combustible gas detection device for gas leakage test;
	  ◦ Identify the general problems of various types of LPG supply systems by visual inspection and live tests;
	  ◦ Apply the appropriated special testing devices to identify the faulty functions of LPG supply systems and associated components leading to various sub-standard performance, such as power deficiency, rough idling, sluggish acceleration, excessive LPG consumption, poor emission quality, etc.;
	  ◦ Conduct the proper purging procedures before dismantling any of the LPG components and pipelines;
	  ◦ Rectify the faulty system components, including but not limited to dismantlement, replacement, reassembly, adjustment and testing of the LPG supply system components, such as the regulator, sensors, actuators, etc., to eliminate typical system failure and restore the performance.
	• Conduct performance and safety inspection after the work and provide written report focusing on:
	  ◦ Abnormalities
	  ◦ Measured data
	  ◦ Major decisions and their effectiveness

Assessment Criteria	The integrated outcome requirement of this unit of competency is that the practitioner being assessed shall prove that he/she is: • Capable of conducting the leakage detection and purging procedures correctly for liquefied petroleum gas (LPG) vehicles at the designated workplace in advance of any dismantling work. • Capable of identifying the faulty functions of the fuel supply system on LPG vehicles leading to various sub-standard performance, including but not limited to power development, fuel consumption and emission quality. • Capable of checking and repairing various types of vehicular LPG supply systems and associated components for LPG vehicles and applying special testing/detection devices to properly conduct functional tests on the system components, including regulators, sensors and actuators, and the effectiveness of system controls, according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on occupational safety and health and environmental protection. • Capable of conducting the system performance test and safety inspection, 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 liquefied petroleum gas supply systems and associated components, inspection and servicing skills, application of safety and testing equipment, and awareness of fuel handling. The work should be performed by a recognised competent person (Class 6) in LPG vehicle. The major legislations/rules involved in this unit of competency are as follows: • Dangerous Goods Ordinance • Occupational Safety and Health Ordinance • Gas safety Ordinance • Road Traffic Regulations