Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Optimise the performance of vehicle systems
Code	111769L5
Range	This unit of competency is applicable to the engineering staff in the vehicle service and inspection departments. Practitioners should be able to master the structure, control methods and operating principles of various vehicle systems and optimise the performance of vehicles according to the suggestions and respective instructions.
Level	5
Credit	6 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Vehicle systems performance and related technology) • Master the structure, functions, control methods, operating principles and standard parameters (e.g., manufacturer standard, approved international standard, and respective regulations) of various vehicle systems (including related components). • Master vehicle performance tuning and testing equipment application techniques. • Master the suggestions and respective instructions on vehicle systems performance optimisation.

	2. Performance (Optimise the performance of vehicle systems)
	• Research and make improvements to the weaker performance systems according to the established suggestions and respective instructions on vehicle performance optimisation, such as:
	  ◦ Poor performance of the chassis stability control system, e.g., insufficient braking power, wheels locked when braking, abnormal noises, drifting or excessive vehicle body rolling when cornering, skidding when accelerating, weak impact and vibration absorption
	  ◦ Inaccurate or low response function of the advanced driver-assistance system
	  ◦ The vehicle body cannot be able to maintain the non-overturning condition at a specified inclined angle, unbalanced axle loading and low steering stability
	  ◦ Incorrect lighting intensity and aim alignment, overspread of light scattering and aim direction failed to follow the change of steering angle
	  ◦ Insufficient engine power, rough running, hesitation to accelerate, warm stalling, cold start difficulty, abnormal noise and high fuel consumption
	  ◦ Weak performance of electrified vehicles, such as insufficient power, weak acceleration, abnormal noise, and substandard energy consumption, including electricity or hydrogen for a given driving cycle
	  ◦ Emission problems caused by substandard pollutant emission levels, including high concentrations at idle, high-speed and high-load running, weak power system performance and low after-treatment device efficiency
	  ◦ Excessive working noise caused by the muffling effect of the exhaust system, the vehicle body shape and sound-proofing effect, component structure or installation problems
	  ◦ Weak acceleration, excessive fuel consumption and shifting shock, etc., caused by incorrect shifting speed or working pressure of automatic transmission
	• Review the effectiveness of performance optimisation of the weaker performance vehicle systems, compile report and submit to seniors for improvement suggestions.

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 mastering the structure, control methods, operating principles and standard parameters of various vehicle systems; • Capable of researching and improving the vehicle systems of weaker performance according to the suggestions and respective instructions on performance optimisation; and • Capable of suggesting methods for improvement of work according to the effectiveness of vehicle system optimisation, and compiling a report.
Remark	The credit value of this competency unit assumes that the practitioner has possessed a proficient understanding of the vehicle structure, the working principle and the performance of each system of various vehicle types. (This UoC replaced 108744L5)